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Cisco Product Quick Reference Guide

For companies of all sizes

An overview of Cisco products, services and solutions for every part of your business



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Introduction



Cisco Product Quick Reference Guide

For companies of all sizes

Welcome to the **September 2009** edition of the Cisco Product Quick Reference Guide. This guide presents an overview of Cisco products, services, and solutions for every part of your business.

This portable and easy-to-use reference tool, summarizes information about many of Cisco's products and services sold through our channel partners. Inside the guide, you will find a wealth of current information, including brief overviews, important features, technical specifications, part numbers, and ordering information.

This guide is designed to help our partners, resellers, distributors, and sales account teams quickly learn about and sell Cisco products, services and solutions that are right for their customers. It's also ideal for end users, networking professionals, Cisco Networking Academy members, and those studying for Cisco certification who need a broad, high-level overview.

What's New in This Edition

This edition of the Cisco Product Quick Reference Guide covers updates to existing products and services, as well as many new offerings, including:

- Cisco 5500 Series Wireless LAN Controller
- Cisco Unified IP Phones 6900 Series
- Cisco TelePresence System 1300
- Cisco TelePresence Recording Server
- Cisco Video Surveillance 2000 Series IP Domes
- Cisco ASR9000 Series Aggregation Services Routers
- Cisco Unified Attendant Consoles Portfolio
- Cisco Network Building Mediator

For More Information

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The Power of the Integrated Network

Cisco network systems solutions help enable anytime, anywhere, secure communications throughout your company and across the Internet. This is achieved by bringing together core networking functions, including routing, switching, security, WAN optimization, and Internet services.

The Cisco network systems end-to-end approach allows technical staff to manage the network centrally. Scalable solutions help businesses incrementally add or upgrade equipment as their needs change.

With proper management, the network reliably connects all local and remote employees and provides them with access to the same business applications and services.

Cisco network systems solutions create an inherently intelligent, integrated network that adapts to current and future business needs by:

- Providing secure, unconstrained connectivity between employees, customers, and information
- Delivering quality, real-time applications, such as voice and video, on a converged network platform
- Helping to ensure access to information and resources from anywhere
- Automating a manageable and self-defending network
- Reducing operating expenses
- Enabling green business, IT, and networking practices

These system and solutions enable customers to do the following:

- Reduce risk in deploying and operating technology solutions
- Accelerate technology solution deployment
- Improve business agility with a scalable, reliable, predictable foundation on which to build business value and lower the total cost of ownership
- Integrate technology solutions in the campus, branch, and data center with higher and consistent quality assurance of product and solution
- Improve ease and success of deploying business-critical applications when enabled by Cisco network architectures
- Customize a design to meet specific business requirements

The systems and solutions designs are organized around the following:

- Network architectures—Branch office or WAN, campus and data center
- Technologies—Unified communications, mobility, security, and video
- Industries—Financial services, healthcare, retail, and manufacturing

To access the available design guidance, refer to the following:

- **Enterprise systems and solutions**—Design zone is a consolidated resource for design guides, application deployment guides, white papers, videos, and other technical reference materials.
For more information, visit <http://www.cisco.com/go/designzone>.
- **Small and medium-sized business systems and solutions**—The SMB smart designs are validated commercial solutions designed primarily for partner success. They incorporate comprehensive solution implementation best practices in an easy-to-follow format to streamline the installation process, reduce deployment risk, and increase partner profitability.
For more information, visit <http://www.cisco.com/go/partner/smartdesigns>.

Cisco Capital Financing

As a wholly owned subsidiary of Cisco, Cisco Capital is in a unique position to provide end-users with competitive and flexible financing options for Cisco solutions.

We're able to take advantage of the strong resources of our parent company to provide customers with an alternative source of affordable funds while allowing them to get the technology they need now, while preserving capital and maximizing resources.

As a trusted business partner, Cisco Capital can help end-users obtain and maintain the right Cisco solution with the most effective acquisition strategy for their business.

For more information on financing with Cisco Capital, visit www.cisco.com/go/ciscocapital.

Cisco Certified Refurbished Equipment

Cisco Capital Remarketing maintains a large inventory of refurbished Cisco products for sale. Key facts to know:

- Over 2800 current and end-of-sale (EOS) part numbers and unique SKUs across all technology areas: switching, routing, security, wireless, telephony, advanced technologies, memory, and accessories
- Remanufactured, tested, and reconditioned to Cisco factory specifications
- Same warranty and service support options as for equivalent new products
- 25 to 70 percent off original list price; reseller discounts available for Cisco partners
- Same part numbers but ends with the suffix "-RF"
- Licensed copy of Cisco IOS Software installed
- Inventory varies daily; sold on a first-come, first-served basis
- Check product availability at <http://www.cisco.com/go/refurbished>
- Available through Cisco authorized channels worldwide; no special certifications or authorizations required to resell
- May not be available in certain countries
- No returns; all sales are final

Ideal applications for Cisco Certified Refurbished Equipment include:

- Onsite spares and Cisco SMARTnet® service augmentation
- Technology transition gap-fillers
- Legacy network expansions and end-of-life maintenance
- Test labs and training
- Network swing kits
- Disaster recovery and contingency networks
- Short-term, temporary networks
- Tight budget scenarios
- Rapid delivery and backorder scenarios
- For more information about Cisco Certified Refurbished Equipment, including product availability, current promotions, and ordering instructions, please visit us at: <http://www.cisco.com/go/refurbished>.

Product Warranty Information

All Cisco hardware and software products are covered for a minimum of 90 days. Some products have longer coverage periods. All Cisco warranties apply to the Customer or Original Owner (the individual who purchased the product for their own use), also referred to as the End User.

Warranty ¹	Entitlement Descriptions
Cisco Standard 90-Day Limited Hardware Warranty, Software Warranty and License Agreement (78-523-vvrr)	<ul style="list-style-type: none"> • Warranty Duration: Ninety (90) days • Hardware Replacement: Cisco or its service center will use commercially reasonable efforts to ship a replacement part within ten (10) working days after receipt of the RMA request. Actual delivery times may vary depending on Customer location. • Software Warranty: Ninety (90) days • Warranty provides that the media on which the Software is furnished will be free of defects in materials and workmanship under normal use and that the Software substantially conforms to its published specifications. • Software is provided "AS IS" and in no event does Cisco warrant that the Software is error free or that Customer will be able to operate the Software without problems or interruptions. • Both hardware and software warranties commence from the date of shipment to customer (and in case of resale by a Cisco reseller, commencing not more than ninety (90) days after original shipment by Cisco) • Warranty allows guest access only to Cisco.com
Cisco 90-day Limited Hardware Warranty (78-5236-vvrr)	<ul style="list-style-type: none"> • Warranty Duration: Ninety (90) days • Hardware Replacement: Cisco or its service center will use commercially reasonable efforts to ship a replacement part within ten (10) working days after receipt of the RMA request. Actual delivery times may vary depending on Customer location. • Hardware warranty commences from the date of shipment to customer (and in case of resale by a Cisco reseller, commencing not more than ninety (90) days after original shipment by Cisco) • Warranty allows guest access only to Cisco.com
Cisco End User Software License Agreement and Limited Software Warranty (78-3621-vvrr)	<ul style="list-style-type: none"> • Warranty Duration: Ninety (90) days • Warranty provides that the media on which the Software is furnished will be free of defects in materials and workmanship under normal use and that the Software substantially conforms to its published specifications. • Software is provided "AS IS" and in no event does Cisco warrant that the Software is error free or that Customer will be able to operate the Software without problems or interruptions. • Software warranty commences from the date of shipment to customer (and in case of resale by a Cisco reseller, commences not more than ninety (90) days after original shipment by Cisco). • The End User License Agreement grants to Customer a nonexclusive and nontransferable license to use for Customer's internal business purposes the Software and the Documentation for which the Customer has paid the required license fees. • Warranty allows guest access only to Cisco.com
Cisco One-Year Limited Hardware Warranty (78-10747-vvrr)	<ul style="list-style-type: none"> • Warranty Duration: One (1) year • Hardware Replacement: Cisco or its service center will use commercially reasonable efforts to ship a replacement part within ten (10) working days after receipt of the RMA request. Actual delivery times may vary depending on Customer location. • Hardware warranty commences from the date of shipment to customer (and in case of resale by a Cisco reseller, commencing not more than ninety (90) days after original shipment by Cisco) • Warranty allows guest access only to Cisco.com
Cisco Two-Year Limited Hardware Warranty (78-16341-vvrr)	<ul style="list-style-type: none"> • Warranty Duration: Two (1) years • Hardware Replacement: Cisco or its service center will use commercially reasonable efforts to ship a replacement part within ten (10) working days after receipt of the RMA request. Actual delivery times may vary depending on Customer location • Hardware warranty commences from the date of shipment to customer (and in case of resale by a Cisco reseller, commencing not more than ninety (90) days after original shipment by Cisco) • Warranty allows guest access only to Cisco.com

Cisco 5-Year Limited Hardware Warranty (78-18856-vvrr)	<ul style="list-style-type: none"> • Available for Cisco Small Business Pro Switch • Warranty Duration: Five (5) years • Hardware Replacement: Cisco or its service center will use commercially reasonable efforts to ship a replacement part within ten (10) working days after receipt of the RMA request. Actual delivery times may vary depending on Customer location. • Hardware warranty commences from the date of shipment to customer (and in case of resale by a Cisco reseller, not more than ninety (90) days after original shipment by Cisco). • Warranty allows guest access only to Cisco.com
Cisco 5-Year Limited Hardware and 1-Year Limited Software Warranty (78-13712-vvrr)	<ul style="list-style-type: none"> • Hardware Warranty Duration: Five (5) years • Hardware Replacement: Cisco or its service center will use commercially reasonable efforts to ship a replacement part for delivery within fifteen (15) working days after receipt of the defective product at Cisco's site. Actual delivery times of replacement products may vary depending on Customer location. • Software Warranty Duration: One (1) year • Warranty provides that the media on which the Software is furnished will be free of defects in materials and workmanship under normal use and that the Software substantially conforms to its published specifications. • Software is provided "AS IS" and in no event does Cisco warrant that the Software is error free or that Customer will be able to operate the Software without problems or interruptions. • Both hardware and software warranties commence from the date of shipment to customer (and in case of resale by a Cisco reseller, commencing not more than ninety (90) days after original shipment by Cisco). • Warranty allows guest access only to Cisco.com
5-Year Limited Hardware and 5-Year Limited Software Warranty (78-19176-vvrr)	<ul style="list-style-type: none"> • Warranty is available on optical hardware and software products. • Hardware Warranty Duration: Five (5) years • Hardware Replacement: Cisco or its service center will use commercially reasonable efforts to ship a replacement part for delivery within fifteen (15) working days after receipt of the defective product at Cisco's site. Actual delivery times of replacement products may vary depending on Customer location. • Software Warranty Duration: Five (5) years • Warranty provides that the media on which the Software is furnished will be free of defects in materials and workmanship under normal use and that the Software substantially conforms to its published specifications. • Software is provided "AS IS" and in no event does Cisco warrant that the Software is error free or that Customer will be able to operate the Software without problems or interruptions. • Both hardware and software warranties commence from the date of shipment to customer (and in case of resale by a Cisco reseller, commencing not more than ninety (90) days after original shipment by Cisco). • Warranty allows guest access only to Cisco.com
Cisco Limited Lifetime Hardware Warranty (78-6310-vvrr)	<ul style="list-style-type: none"> • Warranty applies to Catalyst Express 500, Catalyst 2960, 3560, 3560-E, 3750, 3750-E, 4500, and 4500-E Series Switches • Warranty Duration: As long as the original End User continues to own or use the Product, provided that: fan and power supply warranty is limited to five (5) years. • In the event of discontinuance of product manufacture, Cisco warranty support is limited to five (5) years from the announcement of discontinuance. • Hardware Replacement: Cisco or its service center will use commercially reasonable efforts to ship a replacement part within ten (10) working days after receipt of the RMA request. Actual delivery times may vary depending on Customer location. • Hardware warranty commences from the date of shipment to customer (and in case of resale by a Cisco reseller, not more than ninety (90) days after original shipment by Cisco). • Warranty allows guest access only to Cisco.com
Cisco Small Business Product 3-Year Limited Hardware Warranty (78-18852-vvrr)	<ul style="list-style-type: none"> • Warranty Duration: Three (3) years • Hardware Replacement: Cisco or its service center will use commercially reasonable efforts to ship a replacement part for delivery upon receipt of the defective product at Cisco's site. Part will be shipped via ground shipping with shipping charges prepaid. • Hardware warranty commences from the date of shipment to customer (and in case of resale by a Cisco reseller, not more than ninety (90) days after original shipment by Cisco). • Warranty allows guest access only to Cisco.com

Cisco Small Business Product 5-Year Limited Hardware Warranty (78-18853-vvrr)	<ul style="list-style-type: none"> • Warranty Duration: Five (5) years • Hardware Replacement: Cisco or its service center will use commercially reasonable efforts to ship a replacement part for delivery upon receipt of the defective product at Cisco's site. Part will be shipped via ground shipping with shipping charges prepaid. • Hardware warranty commences from the date of shipment to customer (and in case of resale by a Cisco reseller, not more than ninety (90) days after original shipment by Cisco). • Warranty allows guest access only to Cisco.com
Cisco Small Business Product Limited Lifetime Hardware Warranty (78-18854-vvrr)	<ul style="list-style-type: none"> • Warranty Duration: As long as the original End User continues to own or use the product, provided that: fan and power supply warranty is limited to one (1) year. • Hardware Replacement: Cisco or its service center will use commercially reasonable efforts to ship a replacement part for delivery upon receipt of the defective product at Cisco's site. Part will be shipped via ground shipping with shipping charges prepaid. • In the event of discontinuance of product manufacture, Cisco warranty support is limited to five (5) years from the announcement of discontinuance. • Hardware warranty commences from the date of shipment to customer (and in case of resale by a Cisco reseller, not more than ninety (90) days after original shipment by Cisco). • Warranty allows guest access only to Cisco.com
Cisco Unified Computing 3-Year Limited Hardware Warranty (78-19008-vvrr)	<ul style="list-style-type: none"> • Warranty is applicable to Cisco Unified Computing products only. • Hardware Warranty Duration: Three (3) years • Hardware Replacement: Cisco or its service center will use commercially reasonable efforts to ship a replacement part within the next Cisco business day after receipt of the Return Materials Authorization request. Actual delivery times of replacement products may vary depending on Customer location. • Software, including Freeware Operating Systems and Applications, is provided "AS IS" and in no event does Cisco warrant that the Software is error free or that Customer will be able to operate the Software without problems or interruptions. • Both hardware and software warranties commence from the date of shipment to customer (and in case of resale by a Cisco reseller, commencing not more than ninety (90) days after original shipment by Cisco). • Warranty allows guest access only to Cisco.com

1. "vv" and "rr" suffixes of the warranty document numbers represent the revision and version numbers respectively.

For More Information

For more information about Cisco Hardware and Software Product Warranties, visit:
<http://www.cisco.com/go/warranty>.

Partner and Customer Support

Pre- and Post-Sales Contact Information	
Presales— Partner/Reseller Helpline	800 553-6387 408 526-7208 CiscoPartner.custhelp.com
Post-sales—Technical Assistance Center (TAC)	800 553-2447 (United States) 408 526-7209 (United States) +32 2 704 5555 (Europe) 1 800 805 227 (Australia) +61 2 8446 7411 (Asia/Pacific) www.cisco.com/en/US/support/tsd_cisco_worldwide_contacts.html
Technical Support Email Addresses	
English/Spanish	tac@cisco.com
Hanzi (Chinese)	chinese-tac@cisco.com
Kanji (Japanese)	japan-tac@cisco.com
Hangul (Korean)	korea-tac@cisco.com
Service Support Center (SSC)	cs-support@cisco.com: www.cisco.com/public/ssc/ <ul style="list-style-type: none"> • Pre- and post-sales quoting assistance • Contract registration and access • Tool issues and navigation • SCC/SMS3 troubleshooting help • Contract Management Assistance • SCC registration/virtual registration

Distributor SMARTnet Teams	
Westcon-Comstor Group	smartnetgroup@comstor.com 800 955 9590 ext. 5143
D&H	licensedesk@dandh.com 800 340-1001
ScanSource	ciscoservice@scansource.com 800 944-2439
Ingram Micro	myciscoteam@ingrammicro.com 800 456-8000 ext. 76471
Tech Data	teamcisco@techdata.com 800 237-8931 ext. *77776

Helpful Cisco Websites

Partner Resources	
Register with Cisco.com	Register to gain partner-level access to Cisco tools and information. tools.cisco.com/RPF/register/register.do
Partner Central	Explore the tools and resources that are available to Cisco partners. www.cisco.com/web/partners/index.html
Customized Partner Intelligence Newsletter	Subscribe to our partner newsletter featuring information that is most relevant to each individual partner company's particular business and technology needs. www.cisco.com/web/partners/news/index.html
Partner Self-Service	Manage company data including profile information and access privileges. tools.cisco.com/WWChannels/GETLOG/login.do
Partner Locator	Locate a qualified channel partner identified on the basis of specific criteria. www.cisco.com/go/partnerlocator
Distributor Locator	Locate a Cisco distributor in any country. tools.cisco.com/WWChannels/LOCATR/jsp/distributor_locator.jsp
Channel Account Manager (CAM) Locator	Search for a Channels Account Manager assigned to a specific partner. tools.cisco.com/WWChannels/CAMLOC/jsp/cam_locator.jsp
Partner Help Online—Direct FAQ access	Find answers to some commonly asked questions or open a case. ciscopartner.custhelp.com
Ordering Website	To place orders for Cisco products and services: http://www.cisco.com/en/US/ordering/index.html
Cisco SMB Smart Designs	Cisco Smart Designs are pre-tested networking solutions that enable partners to deliver the benefits of Cisco products and technologies to SMB customers. www.cisco.com/go/partner/smartdesigns
Cisco Certified Refurbished Equipment	To learn about Cisco Certified Refurbished Equipment, check product availability, and get ordering instructions: http://www.cisco.com/go/refurbished
Services and Support Resources	
Cisco Services	Find detailed information about the services you need to protect and grow your technology investment www.cisco.com/go/services
Cisco Support Online	Easily access online documentation, technical tools, and resources from Cisco Support Online. www.cisco.com/go/support
Cisco Service Finder	Match the right support service to the right product with the Cisco Service Finder. www.cisco-servicefinder.com/
End-of-Sale and End-of-Life Products	Stay up-to-date on products that are no longer being sold and might not be supported. www.cisco.com/en/US/products/prod_end_of_life.html
Return a Product	Information on return policies and RMA process. www.cisco.com/web/ordering/cs_info/or3/g32/Return_a_Product/WWRL_HOME.html
RMAService Order Tools	Access tools and resources to streamline your service and parts logistics inquiries. tools.cisco.com/serviceordertools/svosubmit/tools.do

Cisco Support Wiki	Share information and collaborate in real time with users around the globe. Find the most up-to-date information on Cisco products and services. supportwiki.cisco.com
Cisco Technical Services Newsletter	Sign up for your free subscription to our monthly newsletter with current updates on technical documentation, field notices and security alerts, as well as technical articles written by Cisco engineers and technical tips from your peers. www.cisco.com/go/tsnews
Cisco Networking Professionals Connection	Join your fellow networking professionals to discuss and share information on Cisco products and solutions. www.cisco.com/go/netpro
Trainings and Other Resources	
Training Resources	Cisco offers training resources, career certifications and events to help you improve your skills and keep up with new technologies. www.cisco.com/web/learning/index.html
Cisco Networking Academy	Global e-learning program offers students an opportunity to pursue IT curricula through online instructor-led training and hands-on lab exercises. www.cisco.com/web/learning/netacad/index.html
Cisco Career Certifications	The widely respected Cisco Career Certifications and Training programs bring valuable, measurable rewards to network professionals, their managers, and the organizations that employ them. www.cisco.com/go/learnnetspace
Cisco Design Zone	Consolidated resource for design guides, application deployment guides, white papers, videos, and other technical reference materials. www.cisco.com/go/designzone
Cisco Marketplace	The one stop shop for Cisco merchandise, including Cisco collateral and product documentation, logo merchandise, Cisco Press books, and software. www.cisco.com/go/marketplace
Cisco Press Bookstore	The only authorized publisher of Cisco, giving you access to industry experts and educators. Provides networking, business, and certification titles for your unique learning needs. www.cisco.com/go/marketplace

Chapter 1: Routing

Routing At-a-Glance

Product	Features	Page
INTEGRATED SERVICES ROUTERS		
Cisco 3800 Series Integrated Services Routers	<p>Very high performance and densities with the ability to run concurrent data, security, voice, and advanced services at wire speeds up to T3/E3.</p> <ul style="list-style-type: none"> High availability and resiliency with online insertion and removal (OIR); redundant system and inline power options. High-speed HWICs free network-module slots for other services. Wireless LAN controller modules are a component of the Cisco Unified Wireless Network. 	1–6
Cisco 2800 Series Integrated Services Routers	<p>Optimized for the secure, wire-speed delivery of concurrent data, voice, and video services for small business and enterprise branch routing.</p> <ul style="list-style-type: none"> Superior performance with multiple services enabled for 1–6 T1/E1 links. Advanced security features include stateful firewall, intrusion prevention system (IPS), VPN, and Cisco Network Admission Control (NAC). Built-in encryption uses Digital Encryption Standard (DES), Triple DES (3DES), and Advanced Encryption Standard (AES). WLAN controller modules are a component of the Cisco Unified Wireless Network. 	1–9
Cisco 1800 Series Integrated Services Routers	<p>Wide variety of LAN and WAN options in both modular and fixed architectures. Network interfaces on the Cisco 1841 are field-upgradable for flexibility and to accommodate future technologies.</p> <ul style="list-style-type: none"> Fixed-configuration models offer 10/100 Ethernet, asymmetric DSL (ADSL) over ISDN, ADSL over basic telephone service, or G.SHDSL WAN interfaces with integrated ISDN Basic Rate Interface (BRI) (Cisco 1801, 1802, 1803, and 1812 models) or analog modem (Cisco 1811) backup interfaces. 8-port integrated switch with VLAN support on the fixed-configuration models Optional IEEE 802.11a/b/g support on the fixed-configuration models Unified Communications and integrated wireless LAN 802.11b/g are available with Cisco 1861 model. 	1–13
Cisco 800 Series Router	<p>Integrated services routers allow small offices to operate secure concurrent services at broadband or Metro Ethernet speeds, including firewall, VPNs, threat defense, Advanced QoS, and Unified Communications support.</p> <ul style="list-style-type: none"> Integrated 4-port switch with VLAN support Wireless LAN support - Optional IEEE 802.11 b/g support on Cisco 850 and 870 Series. Optional IEEE 802.11b/g/n support on Cisco 860 and 880 Series. Optional IEEE 802.11a/b/g/n support on Cisco 890 Series. Wireless WAN with 3G support—Optional 3G support for HSPA, EVDO Rev A, UMTS, EDGE, GPRS, and EVDO Rev0/1xRTT standards (Cisco 880 Series) Survivable Remote Site Telephony (SRST) voice continuity for enterprise small branch-office and teleworker sites (Cisco 880 Series) Metro Ethernet access with concurrent services for enterprise small branch offices (Cisco 890 Series) Enhanced security features including stateful inspection firewall and hardware-assisted encryption Advanced features with threat defense capabilities, IPS, and QoS for voice over IP (VoIP), (Cisco 870, 880 and 890 Series) Demilitarized zone (DMZ), dial backup, and out-of-band management (Cisco 870, 880 and 890 Series) Cisco Configuration Professional GUI tool for simple and advanced configuration 	1–20
SERVICE AGGREGATION/CORE ROUTERS		
Cisco 7600 Series Routers	<p>Consolidate WAN, MAN, and LAN in a single platform.</p> <ul style="list-style-type: none"> High-volume aggregation of service-enabled Ethernet Ideal for service provider edge, MAN, and quad-play (data, voice, video, and mobile) deployments and high-end enterprise solutions Support many Cisco Catalyst 6500 Series line cards and Cisco 7500/7200 port adapters Support broad range of advanced services modules, such as IPsec shared port adapter (SPA), distributed denial of service (DDoS), firewall services modules (FWSMs), application control engines (ACEs) (server load balancing), Services Application Module for IP (SAMI), and Wireless Controller Modules. 	1–25

Cisco 7300 Series Routers	<ul style="list-style-type: none"> • Cisco 7304—Network edge router delivers high-performance IP services at optical speeds for service providers and enterprise networks. • Cisco 7301—Broadband and WAN edge router provides intelligent services, port-adaptor modularity, high performance, investment protection, and scalability in a 1RU form factor. 	1–28
Cisco 7200 Series Routers	<p>Optimized OC-3/Gigabit Ethernet WAN-edge router provides intelligent services, high modularity, high performance, investment protection, and scalability in a small form factor.</p> <ul style="list-style-type: none"> • Choice of system processors (network processing engines [NPEs]) for up to 2-Mpps performance (Cisco 7201 comes with built-in NPE) • Built-in Gigabit Ethernet connectivity—Copper or fiber (three ports on Cisco uBR7200 Series NPE-G2 Network Processing Engine or four ports on the Cisco 7201) 	1–30
Cisco ASR 9000 Series Aggregation Services Routers *NEW*	The Cisco ASR 9000 Series delivers a true carrier-class solution by using the modular, microkernel-based Cisco IOS XR Software operating system, comprehensive system redundancy, and a full complement of network resiliency schemes.	1–32
Cisco ASR 1000 Series Aggregation Services Routers	<p>Offer service providers and enterprises industry-leading performance, service capabilities, reliability, and efficiencies in a compact form factor. Using an innovative Cisco QuantumFlow processor, current and future services can be instantly turned on to operate at line rate without compromising network performance or availability.</p> <ul style="list-style-type: none"> • For enterprises—Provides secure WAN aggregation services, integrated threat-defense services at the private WAN or Internet edge, or can be used for managed CPE services. • For service providers—Provides flexible, cost-effective delivery of sophisticated any-play consumer and business services. 	1–34
Cisco XR 12000 and 12000 Series Routers	<p>Service provider-class multiservice-edge routers help customers transition toward a converged IP network infrastructure.</p> <ul style="list-style-type: none"> • Support edge-optimized line cards, maximizing the value of line-rate edge applications with 10-G uplinks while sustaining line-rate performance. • Up to nine chassis options are available, with new power supply and blower enhancements supporting a portfolio of shared port adapters (SPAs) and SPA interface processors (SIPs). • Offer service-related enhancements (Layer 3 VPN [L3VPN], L2VPN, and QoS) that help ensure traffic differentiation while meeting the strictest customer service-level agreements. 	1–35
Cisco CRS-1 Carrier Routing System	<p>Industry's only carrier routing system offering continuous system operation, unprecedented service flexibility, and system longevity.</p> <ul style="list-style-type: none"> • Powered by Cisco IOS XR Software, designed for always-on operation while scaling system capacity up to 92 Tbps. • Marks a new era in carrier IP communications by powering the foundation for Cisco IP Next-Generation Networks (IP NGNs) today while protecting investments for decades to come. 	1–38
SERVICES		
Cisco Routing Services	<p>The enterprise network becomes a strategic asset through effective architecture, deployment, and operations. Cisco Routing Services use leading practices and time-tested methodologies to help you to:</p> <ul style="list-style-type: none"> • Deliver new capabilities while keeping the network secure, reliable, and available • Successfully integrate new technologies and applications onto the routing platform • Reduce risk, delays, and the total cost of network deployments • Optimize your core routing network to meet future needs • Prepare your teams to succeed with new technologies • Achieve operational excellence 	1–39
Product Ordering Website To place an order or for more part numbers, visit: http://www.cisco.com/en/US/ordering/index.shtml . This chapter only provides a small subset of all part numbers available. See the URL listed in the "For More Information" section of each product to get a complete list of part numbers.		

Cisco Routers Port Matrix

Integrated Services Routers					Service Aggregation/Core Routers					
	3800 Series	2800 Series	1800 Series	800 Series	7600 Series	7304 Series	7200/7301 Series	ASR 1000Series	12000 Series	CRS-1 System
Fixed Ports Only				X						
Fixed & Modular Ports	X	X	X		X	X	X	X	X	X
Modular Ports Only										
LAN Ports										
10-Mbps Ethernet					X		X	X		
10-Mbps Ethernet (fiber)					X		X	X		
100-Mbps Ethernet	X	X	X		X		X	X	X	
100-Mbps Ethernet (fiber)	X				X	X	X	X	X	
10/100-Mbps Ethernet	X	X	X	X	X	X	X	X	X	
10/100 Mbps Switch Port	X	X	X	X	X					
Cable DOCSIS 2.0	X	X	X	X						
Token Ring	X					X ¹	X			
ATM	X	X			X	X	X	X		
Gigabit Ethernet	X	X ²		X	X	X	X	X	X	X
10 Gigabit Ethernet					X			X	X	X
WDM 10 Gigabit Ethernet								X	X	X
Wireless LAN										
Integrated Standalone Access Point	X	X	X	X						
Wireless LAN Controller Module	X	X								
3G Wireless WAN	X	X	X ³	X						
WAN Ports										
Sync Serial	X	X	X		X	X	X	X		
Sync Serial w/ CSU	X	X	X			X				
ISDN BRI (S/T)	X	X	X	X			X			
ISDN BRI (U)	X	X	X				X			
ISDN PRI/Ch T1	X	X					X			
ISDN PRI w/ CSU	X	X					X			
Async	X	X	X							
Analog/POTS	X	X		X						
Integrated Modems	X	X	X	X						
Integrated Modem WICs	X	X	X							
HSSI	X				X	X	X			
DS3	X	X			X	X	X	X	X	X

	Integrated Services Routers				Service Aggregation/Core Routers					
	3800 Series	2800 Series	1800 Series	800 Series	7600 Series	7304 Series	7200/7301 Series	ASR 1000Series	12000 Series	CRS-1 System
ATM OC-3					X	X	X	X	X	X
ATM OC-12					X	X			X	X
ATM	X	X			X	X	X	X		X
ATM-T1/E1	X	X			X	X	X			
POS OC-x/STM-x					X	X	X	X	X	X
DPT/RPR OC-12/STM-4					X				X	X
DPT/RPR OC-48/STM-16					X				X	X
DPT/RPR OC-192/STM-64					X				X	X
Circuit Emulation					X					
ADSL, ADSL 2+, G.SHDSL		X	X	X						
ADSL over ISDN	X	X	X	X						
G.SHDSL	X	X	X	X						
IDSL	X	X	X							
DPT									X	X
Voice Over IP (VoIP)										
Analog Voice Interfaces	X	X	X ⁴	X						
Digital Voice Interfaces	X	X	X ⁵		X		X			
ISDN BRI Digital Voice Interfaces	X	X	X ⁵	X						
Integrated Switching										
Integrated 4-port Switch				X						
Integrated 8-port Switch			X ⁵	X						
Integrated 4-port Switch HWIC	X	X	X ⁴							
Integrated 9-port Switch HWIC	X	X								
Integrated 16-port Switching	X	X ⁶								
Integrated 24-port Switching	X	X ⁷								
Integrated 36-port Switching	X	X ⁸								
Integrated 48-port Switching	X	X								
Power over Ethernet (PoE)	X	X	X	X						
Application Acceleration (WAAS)										
Wide Area Application Acceleration Modules	X	X								
Security VPN										
IPS	X	X	X	X	X		X			
IPS Advanced Integration Module	X	X	X ⁴							
IPS Network Module	X	X								

Network Admission Control Network Module	X	X			X					
Encryption Advanced Integration Modules	X	X	X	X	X					
Encryption Service Adapter					X		X	X		
Application Extension Platform (AXP)										
Advanced Integration Module	X	X	X ⁴							
Network Module	X	X								

1. Cisco 7301 Router only
2. Supported on the Cisco 2691 only
3. Cisco 1841 only
4. Cisco 1861 only
5. Except Cisco 1841
6. Cisco 2811, 2821, and 2851 only
7. Cisco 2821 and 2851 only
8. Supported on Cisco 2851 only

Memory Information for Routers					
Router	Memory Type	Slots	Default Memory	Max Memory	Default Configuration (Notes)
815	Flash DRAM	1 1	32 MB	64 MB 128 MB	
850 Series	Flash DRAM		20 MB 64 MB	20 MB 64 MB	20 MB On board 64 MB On board
860 Series	Flash DRAM		128 MB 256 MB	128 MB 256 MB	
870 Series	Flash DRAM	1 1	24 MB or 28 MB ¹ 128 MB	52 MB 256 MB	20MB On board + 4MB or 8MB* Mini Flash 128 MB On board + 128MB DIMM module * Advanced IP Services image includes 28MB flash
880 Series	Flash DRAM	 1	128 MB or 256 MB (on SRST models) 256 MB or 512 MB (on SRST models)	128 MB or 256 MB (on SRST models) 768 MB	256 MB on motherboard, plus one slot
890 Series	Flash DRAM	1	256 MB 512 MB	256 MB 768 MB	256 MB on motherboard, plus one slot
1800 Series	Flash (1841) DRAM (1841) Flash (1861) DRAM (1861) Flash (181x, 180x) DRAM (181x, 180x)	1 1	32 MB 128 MB 128 MB 256 MB 64 MB 256 MB	128 MB 384 MB 128 MB 256 MB 128 MB 384 MB	External compact flash 128 MB on motherboard, plus one slot External compact flash 128 MB on motherboard, plus one slot
2800 Series	DRAM (2801) DRAM (2811) DRAM (2821) DRAM (2851) Compact Flash (2801) Compact Flash (2811) Compact Flash (2821) Compact Flash (2851)		128 MB 256 MB 256 MB 256 MB 64 MB 64 MB 64 MB 64 MB	384 MB 768 MB 1 GB 1 GB 128 MB 256 MB 256 MB 256 MB	Slot 0 = 128 MB, Slot 1 = Empty Slot 0 = 256MB, Slot 1 = Empty Slot 0 = 256MB, Slot 1 = Empty Slot 0 = 256MB, Slot 1 = Empty Single 64 MB Compact Flash default Single 64 MB Compact Flash default Single 64 MB Compact Flash default Single 64 MB Compact Flash default
3800 Series	Flash (External Compact Flash) DDR SDRAM (ECC)	1 2	64 MB 256 MB	256 MB 1 GB	Single 64 MB Compact Flash default Slot 0 = 256MB, Slot 1 = Empty

ASR 1000 Series	ASR1002 DRAM		4 GB	4 GB	
	ASR1002-F DRAM		4 GB	4 GB	
	RP1 DRAM		2 GB	4 GB	
	ESP5 DRAM		1 GB	1 GB	
	ESP10 DRAM		2 GB	2 GB	
	ESP20 DRAM		4 GB	4 GB	
	ASR1002 eUSB		8 GB	8 GB	
7200 Series	Flash for 7201	1	256 MB	256 MB	
	Flash (PCMCIA) (for IO controller card; IO controller card required for NPE-400)	2	64 MB	128 MB	
	Flash for NPE-G1 (Compact Flash)	1	64 MB	256 MB	
	Flash for NPE-G2 (Compact Flash)	1	64 MB	256 MB	
	DRAM (NPE-400)	1	256 MB	256 MB	
	DRAM (NPE-G1)	2	512 MB	1 GB	
	DRAM (NPE-G2)	2	1 GB	2 GB	
	DRAM for 7201	2	256 MB	512 MB	
7301 Series	Flash (CFM)	1	64 MB	512 MB	
	DRAM	1	512 MB	1 GB	
7304 NPE-G100	Flash (CFM)	1	256 MB	256 MB	
	DRAM	1	512 MB	512 MB	
	Flash (CFM)	1	256 MB	256 MB	
7304 NSE-150	DRAM	1	1 GB	1 GB	
			2 GB	2 GB	
7600 Series	Flash (PCMCIA)	1	16 MB	1 GB	
	DRAM (MSFC2 or MSFC3)	1	128 MB	512 MB	
	DRAM (DFC)	1	128 MB	1 GB	
	DRAM (Sup720-3B)	1	512 MB	1 GB	
	DRAM (Sup720-3BXL)	1	1 GB	1 GB	
	DRAM (RSP720-3C)	1	1 GB	4 GB	
	DRAM (RSP720-3CXL)	1	1 GB	4 GB	
	DRAM (RSP720-3C-10G)	1	1 GB	4 GB	
	DRAM (RSP720-3CXL-10G)	1	1 GB	4 GB	
XR 12000/12000 Series	Flash (PCMCIA)	2	48 MB	4 MB	Route Memory
	SDRAM (PRP-2)	1	2 GB	4 GB	
	DRAM (Line Cards)	1/2	128-256 MB	256 MB-2 GB	
CRS-1 Carrier Routing System	Flash (PCMCIA)	1	1 GB	4 GB	Route Memory Line Card Route Memory Line Card Packet Memory
	DRAM (RP)	2	4 GB	4 GB	
	DRAM (MSC)	2	2 GB	2 GB	
	DRAM (MSC)	2	2 GB	2 GB	

1. Advanced IP Services image includes 28MB flash

Cisco 3800 Series Integrated Services Routers

The Cisco 3800 Series Integrated Services Routers constitute the flagship platform in a portfolio of next-generation routers that integrate advanced technologies, adaptive services, wireless support, and secure enterprise communications.

These new routers offer the performance and reliable packet delivery necessary to efficiently deliver mission-critical network capabilities, including real-time applications such as voice over IP (VoIP), business video, and collaborative communications. Architectural enhancements include embedded security processing, significant platform performance and memory improvements, and new high-density interface types.



Ideal for Companies That Need These Features

Cisco 3825 Integrated Services Router

- Low density (up to 88 ports), integrated 10/100 switching
- Up to 360W Cisco Inline Power, or PoE
- Integrated onboard security acceleration for IPsec for improved IPsec performance and an integral part of Cisco Self-Defending Network
- Medium- to large-sized branch offices and businesses that can support concurrent data, security, voice, and advanced services at wire speed up to one-half T3/E3 rates.

Cisco 3845 Integrated Services Router

- Same features as above plus higher availability and resiliency (such as redundant system and inline power, online-insertion-and-removable (OIR) components, and field-replaceable components such as the CPU motherboard and fan assembly).
- Medium- to large-sized branch offices and businesses, providing very high performance and densities for concurrent data, security, voice, and advanced services with the ability to run at wire speed up to T3/E3 rates.

Key Features

- Cisco IOS Firewall provides stateful, application-based filtering (context-based access control); per-user authentication and authorization; real-time alerts; a transparent firewall; and an IPv6 firewall.
- The Cisco 3845 Integrated Services Routers offer VPN services, including Data Encryption Standard (DES), Triple DES (3DES), and Advanced Encryption Standard (AES) 128, 192, and 256 cryptology support. They support embedded hardware-based VPN acceleration on the motherboard, and (optional) higher-performance AIM-based security acceleration with Layer 3 compression. The routers support up to 1800 tunnels with the VPN module, Cisco Easy VPN (remote and server), Dynamic Multipoint VPN (DMVPN), Group Encrypted VPN (GET VPN), and Secure Socket Layer VPN (SSL VPN).
- The 3800 Series routers support Multiprotocol Label Switching (MPLS) VPNs. Specific provider-edge capabilities include Virtual Route Forwarding (VRF) firewall and VRF IP Security (IPsec).
- Onboard universal-serial-bus (USB) 1.1 port(s) offer future support for secure token and flash memory.
- More than 700 intrusion-prevention-system (IPS) signatures are supported in Cisco IOS Software, with the ability to load and enable selected IPS signatures. More than 2000 IPS signatures are available with the optional high-performance intrusion-prevention-system (IPS) network module. IPS AIM is also supported.
- Onboard URL filtering with an optional content-engine network module is provided. Local URL filtering occurs in Cisco IOS Software based on the external server.
- Cisco Router and Security Device Manager (SDM) comes standard on all Cisco 3800 Series Integrated Services Routers.
- Integrated IEEE 802.11 a/b/g standalone access-point high-speed WAN interface cards (HWICs) provide wireless support.
- Wireless LAN (WLAN) controller modules are a component of the Cisco Unified Wireless Network.
- The routers support IP phones through an optional integrated power supply with inline power. Standard 802.3af support derives from 360W of inline power.
- The routers offer analog voice support for up to 88 foreign-exchange-station (FXS) and 56 foreign-exchange-office (FXO) ports and digital voice support for up to 720 calls. The motherboard has 4 packet-voice-DSP-module (PVDM) slots. Finally, the routers support local conferencing and transcoding.
- Cisco Communications Manager Express software on these routers supports up to 240 phones; Cisco Survivable Remote Site Telephony (SRST) supports up to 720 phones.
- The routers have up to 120 mailboxes using a Cisco Unity Express network module.
- Voice interfaces support FXS, FXO, Direct Inward Dial (DID), Ear & Mouth (E&M), Centralized Automated Message Accounting (CAMA), Basic Rate Interface (BRI), T1, E1, J1, Primary Rate Interface (PRI), Q.SIG, and channel associated signaling (CAS).

Specifications

Feature	Cisco 3825	Cisco 3845
Network Module Slots	2	4
Advanced Integration Module (AIM) Slots	2	Same As Cisco 3825
High speed WAN Interface Card (HWIC) Slots	4	Same As Cisco 3825
10/100/1000 GE Ports	2	Same As Cisco 3825
Small Form Pluggable (SFP) ports	1	Same As Cisco 3825
Onboard PVDM slots	4	Same As Cisco 3825
WAN Network Modules	Yes	Same As Cisco 3825
ATM AIM Modules	Yes	Same As Cisco 3825
Voice/Fax Network Modules	Yes	Same As Cisco 3825
WAN Interface Card (WIC) Modules	Yes	Same As Cisco 3825
Multiflex Voice/WAN Interface Cards	Yes	Same As Cisco 3825
Voice Interface Card (VIC) Modules	Yes	Same As Cisco 3825
Modem Modules	Yes	Same As Cisco 3825

EtherSwitch Modules	Yes, HWIC and Network Modules	Same As Cisco 3825
Performance with Services	Up to 14 T1/E1s	Up to T3
VPN/Security Advanced Integration Modules (AIM)	Yes, AIM-VPN/EP11-PLUS	Yes, AIM-VPN/EP11-PLUS
Content Engine Network Modules	Yes	Same As Cisco 3825
Flash Memory (External)	64 MB (default) -256 MB (optional)	Same As Cisco 3825
DRAM Memory	256 MB (default) - 1024 MB (max)	Same As Cisco 3825
Power Supply	AC, AC +POE, DC, external redundant AC	AC, DC, internal redundant AC + POE
Dimensions (H x W x D)	3.5 x 17.1 x 14.7 in.	5.25 x 17.25 x 16 in.

Selected Part Numbers and Ordering Information

Cisco 3800 Series Integrated Services Routers	
CISCO3825	Cisco 3825 Integrated Services Router with 2 Gigabit Ethernet, 1 SFP, 2 NME, 4 HWIC, 2 AIM, Cisco IOS IP Base software, and AC power
CISCO3825-AC-IP	Cisco 3825 Integrated Services Router with 2 Gigabit Ethernet, 1 SFP, 2 NME, 4 HWIC, 2 AIM, Cisco IOS IP Base software, AC Power, and PoE
CISCO3825-DC	Cisco 3825 Integrated Services Router with 2 Gigabit Ethernet, 1 SFP, 2 NME, 4 HWIC, 2 AIM, Cisco IOS IP Base software, and DC power
CISCO3845	Cisco 3845 Integrated Services Router with 2 Gigabit Ethernet, 1 SFP, 4 NME, 4 HWIC, 2 AIM, Cisco IOS IP Base software, and AC power
CISCO3845-AC-IP	Cisco 3845 Integrated Services Router with 2 Gigabit Ethernet, 1 SFP, 4 NME, 4 HWIC, 2 AIM, Cisco IOS IP Base software, AC Power, and PoE
CISCO3845-DC	Cisco 3845 Integrated Services Router with 2 Gigabit Ethernet, 1 SFP, 2 NME, 4 HWIC, 2 AIM, Cisco IOS IP Base software, and DC power
Cisco 3800 Series Secure Voice Bundles	
CISCO3845-H-VSEC/K9	Cisco 3845 High Performance VSEC:AIM-VPN3/SSL, PVDM2, CCME/SRST,AIS, 512F/1024D
CISCO3825-H-VSEC/K9	Cisco 3825 High Performance VSEC:AIM-VPN3/SSL, PVDM2, CCME/SRST,AIS, 512F/1024D
C3845-VSEC/K9	Cisco 3845 Voice Security Bundle, PVDM2-64,Adv IP Services, 128MB Flash/512MB DRAM
C3825-VSEC/K9	Cisco 3825 Voice Security Bundle, PVDM2-64,Adv IP Services, 128MB Flash/512MB DRAM
C3845-VSEC-CCME/K9	Cisco 3845 VSEC Bundle, PVDM2-64, FL-CCME-240, Adv IP Services, 128MB Flash/512MB DRAM
C3825-VSEC-CCME/K9	Cisco 3825 VSEC Bundle, PVDM2-64, FL-CCME-168, Adv IP Services, 128MB Flash/512MB DRAM
C3845-VSEC-SRST/K9	Cisco 3845 VSEC Bundle, PVDM2-64, FL-SRST-240, Adv IP Services,128MB Flash/512MB DRAM
C3825-VSEC-SRST/K9	Cisco 3825 VSEC Bundle, PVDM2-64, FL-SRST-168, Adv IP Services, 128MB Flash/512MB DRAM
C3845-VSEC-CUBE/K9	Cisco 3845 VSEC Bundle w/ PVDM2-64, FL-CUBE-400, AVS,128F/512D
C3825-VSEC-CUBE/K9	Cisco 3825 VSEC Bundle w/ PVDM2-64, FL-CUBE-300, AVS,128F/512D
Cisco 3800 Series Security Bundles	
CISCO3845-SEC/K9	Cisco 3845 Security Bundle with IOS Advanced Security, 64MB Flash/256 MB DRAM
CISCO3845-HSEC/K9	Cisco 3845 Security Bundle with IOS Advanced IP Services, AIM-VPN/HP11 Plus, 128MB Flash/ 512 MB DRAM
CISCO3825-SEC/K9	Cisco 3825 Security Bundle with IOS Advanced Security, 64MB Flash/256MB DRAM
CISCO3825-HSEC/K9	Cisco 3825 Security Bundle with IOS Advanced IP Services, AIM-VPN/EP11 Plus, 128MB Flash/ 512 MB DRAM
Cisco 3800 Series Voice Bundles	
CISCO3845-V/K9	Cisco 3845 Voice Bundle with IOS SP Services, PVDM2-64, 64 MB Flash/256 MB DRAM

CISCO3845-SRST/K9	Cisco 3845 Voice Bundle with IOS SP Services, PVDM2-64, FL-SRST (240 users), 64 MB Flash/256 MB DRAM
CISCO3845-CCME/K9	Cisco 3845 Voice Bundle with IOS SP Services, PVDM2-64, FL-CCME (240 users), 64 MB Flash/256 MB DRAM
CISCO3825-V/K9	Cisco 3825 Voice Bundle with IOS SP Services, PVDM2-64, 64 MB Flash/256 MB DRAM
CISCO3825-SRST/K9	Cisco 3825 Voice Bundle with IOS SP Services, PVDM2-64, FL-SRST (168 users), 64 MB Flash/256 MB DRAM
CISCO3825-CCME/K9	Cisco 3825 Voice Bundle with IOS SP Services, PVDM2-64, FL-CCME (168 users), 64 MB Flash/256 MB DRAM
Cisco 3800 Series WAAS Optimization Bundles	
CISCO3825-WAE/K9	Cisco 3825, NME-WAE-502/K9,WAAS Trans.IPBase.128F/512D
CISCO3845-WAE/K9	Cisco 3845, NME-WAE-502/K9,WAAS Trans.IPBase.128F/512D

For More Information

For more information about the Cisco 3800 Series Integrated Services Routers, visit: <http://www.cisco.com/go/3800>.

Cisco 2800 Series Integrated Services Routers

The Cisco 2800 Series Integrated Services Routers offer performance improvements, increased security and voice performance, wireless support new embedded service options, and increased slot performance and density. These routers maintain support for most existing interface cards and modules available for the Cisco 1700 and 2600 Series Routers. Comprising four platforms (the Cisco 2801, Cisco 2811, Cisco 2821, and Cisco 2851 Integrated Services Routers), the Cisco 2800 Series features the ability to deliver multiple, high-quality, simultaneous services at wire speed at up to multiple T1, E1, and xDSL connections.



Ideal for Companies That Need These Features

Cisco 2800 Series Integrated Services Routers

- Performance and densities for concurrent data, security, voice, and advanced services up to multiple T1, E1, and xDSL connections
- VPN connections (or plan to migrate to them over time)
- Integrated security services that enable network device protection, threat defense, secure connectivity, and endpoint protection and control
- Secure integrated call processing, voicemail, flexible telephony interfaces, redundancy for centralized call processing, or robust digital-signal-processor (DSP) support, including local conferencing and transcoding
- Wireless support through integrated IEEE 802.11 a/b/g standalone access-point high-speed WAN interface cards (HWICs)
- Wireless LAN controller modules (components of the Cisco Unified Wireless Network)
- Integrated Layer 2 switching capability in densities from 4 to 48 ports and the ability to use Cisco StackWise connectivity

Key Features

- Cisco 2800 Integrated Services Routers offer a modular architecture; a wide variety of LAN and WAN options are available. Network interfaces can be upgraded in the field to accommodate future technologies. Several types of slots are available to add connectivity and services in the future on an "integrate-as-you-grow" basis.
- The routers provide embedded hardware cryptography accelerators, which when combined with an optional Cisco IOS Software upgrade facilitate WAN link security and VPN services.
- Integrated dual Fast Ethernet or Gigabit Ethernet ports provide two 10/100 Ethernet ports on the Cisco 2801 and 2811 models and two 10/100/1000 Ethernet ports on the Cisco 2821 and 2851 models.
- The routers offer high-speed WAN interface card (HWIC) slots with enhanced functions, including wireless LAN (WLAN) access points, dual advanced-integration-module (AIM) slots, and packet-voice-DSP-module (PVDM) slots on the motherboard.
- IP telephony solutions facilitate an all-in-one voice-over-IP (VoIP) solution with Cisco Unified Communications Manager Express, telephony interfaces, and Cisco Unity Express for voicemail and Automated-Attendant functions.
- Onboard hardware-based encryption for Digital Encryption Standard (DES), Triple DES (3DES), and Advanced Encryption Standard (AES) and onboard slots for PVDMs all include high-speed Ethernet interfaces.
- The routers support an optional dedicated security AIM.
- Easy VPN eases administration and management of point-to-point VPNs by pushing new security policies from a single headend to remote sites.

- Digital-signal-processor (DSP) modules deliver support for analog and digital voice, conferencing, transcoding, and secure Real-Time Transport Protocol (RTP) applications.
- Cisco Network Admission Control (NAC), a Cisco Self-Defending Network initiative, seeks to dramatically improve the ability of networks to identify, prevent, and adapt to threats by allowing network access only to compliant and trusted endpoint devices.
- The routers offer an optional integrated power supply for distribution of Power over Ethernet (PoE).
- The routers provide real-time clock support.

Specifications

Feature	Cisco 2801	Cisco 2811	Cisco 2821	Cisco 2851
Fixed USB 1.1 ports	1	2	Same As Cisco 2811	Same As Cisco 2811
Onboard LAN ports	2 - 10/100	Same As Cisco 2811	2 - 10/100/1000	Same As Cisco 2821
Onboard AIM (internal) slot	2	Same As Cisco 2801	Same As Cisco 2801	Same As Cisco 2801
Interface card slots	4 slots; 2 slots support HWIC, WIC, VIC, or VWIC type modules 1 slot supports WIC, VIC, or VWIC type modules 1 slot supports VIC or VWIC type modules	4 slots, each slot can support HWIC, WIC, VIC, or VWIC type modules		
Network-module slot	No	1 slot, supports NM and NME type modules	1 slot, supports NM, NME and NME-X type modules	1 slot, supports NM, NME, NME-X, and NME-XD type modules
Extension Voice Module Slot	0	Same As Cisco 2801	1	Same As Cisco 2821
PVDM (DSP) slots on motherboard	2	Same As Cisco 2801	3	Same As Cisco 2821
Integrated hardware-based encryption	Yes	Same As Cisco 2801	Same As Cisco 2801	Same As Cisco 2801
Optional PoE	Yes, requires AC-IP system power supply	Same As Cisco 2801	Same As Cisco 2801	Same As Cisco 2801
Console port (up to 115.2 kbps)	1	Same As Cisco 2801	Same As Cisco 2801	Same As Cisco 2801
Auxiliary port (up to 115.2 kbps)	1	Same As Cisco 2801	Same As Cisco 2801	Same As Cisco 2801
Minimum Cisco IOS Software release	12.3(8)T4	Same As Cisco 2801	Same As Cisco 2801	Same As Cisco 2801
Rack mounting	Yes, 19-inch	Yes, 19- and 23-in. options	Same As Cisco 2811	Same As Cisco 2811
Wall mounting	No	Yes	Same As Cisco 2801	Same As Cisco 2801
AC input voltage	100 to 240 VAC	Same As Cisco 2801	Same As Cisco 2801	Same As Cisco 2801
AC input frequency	47-63 Hz	Same As Cisco 2801	Same As Cisco 2801	Same As Cisco 2801
AC input current	2A (110V); 1A (230V)	Same As Cisco 2801	3A (110V); 2A (230V)	Same As Cisco 2821
AC input surge current	50A maximum, one cycle (-48V power included)	Same As Cisco 2801	Same As Cisco 2801	Same As Cisco 2801
AC-IP max in-line power distribution	120W	160W	240W	360W
AC-IP input current	4A (110V); 2A (230V)	Same As Cisco 2801	8A (110V); 4A (230V)	Same As Cisco 2821
AC-IP input surge current	50A maximum, one cycle (-48V power included)	Same As Cisco 2801	Same As Cisco 2801	Same As Cisco 2801
DC input voltage	No DC Power Option available	24 to 60 VDC, autorunning positive or negative	Same As Cisco 2811	Same As Cisco 2811

DC input current	No DC Power Option available	8A (24V) 3A (60V) Startup current 5A<10 ms	12A (24V) 5A (60V) Startup current 50A<10 ms	Same As Cisco 2821
Power dissipation— AC without PoE support	150W (511 BTU/hr.)	170W (580 BTU/hr.)	280W (955 BTU/hr.)	Same As Cisco 2821
Power dissipation— AC with PoE-IP phones	180W (612 BTU/hr.)	160W (546 BTU/hr.)	240W (819 BTU/hr.)	Same As Cisco 2821
Power dissipation— DC	Not applicable	180W (614 BTU/hr.)	300W (1024 BTU/hr.)	Same As Cisco 2821
Redundant Power Support (RPS)	No	External only, connector for RPS provided by default	Same As Cisco 2811	Same As Cisco 2811
Recommended RPS unit	No RPS option	Cisco RPS-675 Redundant Power System	Same As Cisco 2811	Same As Cisco 2811
Operating temp	32 to 104°F; (0 to 40°C)	Same As Cisco 2801	Same As Cisco 2801	Same As Cisco 2801
Operating humidity	10 to 85% non condensing	5 to 95%, non condensing	Same As Cisco 2811	Same As Cisco 2811
Non operating temp	N/A	-4 to 149°F (-20 to 65°C)	Same As Cisco 2811	Same As Cisco 2811
Dimensions (H x W x D)	1.72 x 17.5 x 16.5 in. (43.7 x 44.5 x 41.9 mm.)	1.75 x 17.25 x 16.4 in. (44.5 x 43.8.2 x 41.6 mm.)	3.5 x 17.25 x 16.4 in. (88.9 x 43.8.2 x 41.6 mm.)	Same As Cisco 2821
Rack height	1 rack unit (1RU)	1 rack unit (1RU)	2RU	Same As Cisco 2821
Weight (configured)	13.7 lb. (6.2 kg)	14 lb. (6.4 kg)	25 lb. (11.4 kg)	Same As Cisco 2821
Noise level (min/max)	39 dBA for normal operating temperature (<90°F/32.2°C) 53.5 dBA (@ maximum fan speed)	47 dBA for normal operating temperature (<90°F/32.2°C) 57 dBA (@ maximum fan speed)	44 dBA for normal operating temperature (<90°F/32.2°C) 53 dBA (@ maximum fan speed)	
Safety	UL 60950; CAN/CSA C22.2 No. 60950; IEC 60950; EN 60950-1; AS/NZS 60950			
Immunity	EN300386; EN55024/CISPR24; EN50082-1; EN61000-6-2			
EMC	FCC Part 15; ICES-003 Class A; EN55022 Class A; CISPR22 Class A; AS/NZS 3548 Class A; VCCI Class A EN 300386; EN61000-3-3; EN61000-3-2			
TELCOM	Telecom compliance standards depend upon country and interface type. Interfaces comply with FCC Part 68, CS-03, JATE Technical Conditions, European Directive 99/5/EC and relevant TBRs. See the datasheet for the specific interface card.			

Selected Part Numbers and Ordering Information

Cisco 2800 Series Router	
CISCO2801	Integrated services router with AC power, 2FE, 4 Interface Card Slots, 2 PVDM slots, 2 AIMs, and Cisco IOS IP Base Software
CISCO2801-AC-IP	Integrated services router with AC power including Inline power distribution capability, 2FE, 4 Interface Card Slots, 2 PVDM slots, 2 AIMs, and Cisco IOS IP Base Software
CISCO2811	Integrated services router with AC power, 2FE, 1 NME, 4 HWICs, 2 PVDM slots, 2 AIMs, and Cisco IOS IP Base Software
CISCO2811-AC-IP	Integrated services router with AC power including Inline power distribution capability, 2FE, 1 NME, 4 HWICs, 2 PVDM slots, 2 AIMs, and Cisco IOS IP Base Software
CISCO2811-DC	Integrated services router with DC power, 2FE, 1 NME, 4 HWICs, 2 PVDM slots, 2 AIMs, and Cisco IOS IP Base Software
CISCO2821	Integrated services router with AC power, 2GE, 1 NME-X, 1 EVM, 4 HWICs, 2 PVDM slots, 2 AIMs, and Cisco IOS IP Base Software

CISCO2821-AC-IP	Integrated services router with AC power including inline power distribution capability, 2GE, 1 NME-X, 1 EVM, 4 HWICs, 3 PVDM slots, 2 AImS, and Cisco IOS IP Base Software
CISCO2821-DC	Integrated services router with DC power, 2GE, 1 NME-X, 1 EVM, 4 HWICs, 3 PVDM slots, 2 AImS, and Cisco IOS IP Base Software
CISCO2851	Dual Gigabit Ethernet integrated services router with AC power, 2GE, 1 NME-XD, 1 EVM, 4 HWICs, 3 PVDM slots, 2 AImS, and Cisco IOS IP Base Software
CISCO2851-AC-IP	Integrated services router with AC power including inline power distribution capability, 2GE, 1 NME-XD, 1 EVM, 4 HWICs, 3 PVDM slots, 2 AImS, and Cisco IOS IP Base Software
CISCO2851-DC	Integrated services router with DC power, 2GE, 1 NME-XD, 1 EVM, 4 HWICs, 3 PVDM slots, 2 AImS, and Cisco IOS IP Base Software
Cisco 2800 Series Security Bundles	
CISCO2801-SEC/K9	Cisco 2801 Security Bundle,Adv Security,64F/256D
CISCO2801-HSEC/K9	Cisco 2801 Bundle w/AIM-VPN/SSL-2,Adv. IP Serv,10 SSL lic,64F/256D
CISCO2811-SEC/K9	Cisco 2811 Security Bundle,Adv Security,64F/256D
CISCO2811-HSEC/K9	Cisco 2811 Bundle w/AIM-VPN/SSL-2,Adv. IP Serv,10 SSL lic,64F/256D
CISCO2821-SEC/K9	Cisco 2821 Security Bundle,Adv Security,64F/256D
CISCO2821-HSEC/K9	Cisco 2821 Bundle w/AIM-VPN/SSL-2,Adv. IP Serv,10 SSL lic,64F/256D
CISCO2851-SEC/K9	Cisco 2851 Security Bundle,Adv Security,64F/256D
CISCO2851-HSEC/K9	Cisco 2851 Bundle w/AIM-VPN/SSL-2,Adv. IP Serv,10 SSL lic,64F/256D
Cisco 2800 Series Voice Bundles	
CISCO2801-V/K9	Cisco 2801 Voice Bundle,PVDM2-8,SP Serv,64F/256D
CISCO2801-CCME/K9	Cisco 2801 Voice Bundle w/ PVDM2-8,FL-CCME-24, SP Serv,64F/256D
CISCO2801-SRST/K9	Cisco 2801 Voice Bundle w/ PVDM2-8,FL-SRST-24,SP Serv,64F/256D
CISCO2811-V/K9	Cisco 2811 Voice Bundle,PVDM2-16,SP Serv,64F/256D
CISCO2811-CCME/K9	Cisco 2811 Voice Bundle w/ PVDM2-16,FL-CCME-36,SP Serv,64F/256D
CISCO2811-SRST/K9	Cisco 2811 Voice Bundle w/ PVDM2-16,FL-SRST-36,SP Serv,64F/256D
CISCO2821-V/K9	Cisco 2821 Voice Bundle,PVDM2-32,SP Serv,64F/256D
CISCO2821-CCME/K9	Cisco 2821 Voice Bundle w/ PVDM2-32,FL-CCME-48,SP Serv,64F/256D
CISCO2821-SRST/K9	Cisco 2821 Voice Bundle w/ PVDM2-32,FL-SRST-48,SP Serv,64F/256D
CISCO2851-V/K9	Cisco 2851 Voice Bundle,PVDM2-48,SP Serv,64F/256D
CISCO2851-CCME/K9	Cisco 2851 Voice Bundle w/ PVDM2-48,FL-CCME-96,SP Serv,64F/256D
CISCO2851-SRST/K9	Cisco 2851 Voice Bundle w/ PVDM2-48,FL-SRST-96,SP Serv,64F/256D
Cisco 2800 Series Unified Communications Bundles	
C2801-10UC/K9	Cisco 2801 w/ PVDM2-32,AIM-CUE,10 CME/CUE/Ph lic,SP Serv,128F/256D
C2801-10UC-VSEC/K9	Cisco 2801 w/ PVDM2-32,AIM-CUE,10 CME/CUE/Ph lic,Adv IP,128F/256D
C2811-15UC/K9	Cisco 2811 w/ PVDM2-32,AIM-CUE,15 CME/CUE/Ph lic,SP Serv,128F/256D
C2811-15UC-VSEC/K9	Cisco 2811 w/ PVDM2-32,AIM-CUE,15 CME/CUE/Ph lic,Adv IP,128F/256D
C2821-25UC/K9	Cisco 2821 w/ PVDM2-32,AIM-CUE,25 CME/CUE/Ph lic,SP Serv,128F/256D
C2821-25UC-VSEC/K9	Cisco 2821 w/ PVDM2-32,AIM-CUE,25 CME/CUE/Ph lic,Adv IP,128F/256D
C2851-35UC/K9	Cisco 2851 w/ PVDM2-48,NME-CUE,35 CME/CUE/Ph lic,SP Serv,128F/256D
C2851-35UC-VSEC/K9	Cisco 2851 w/ PVDM2-48,NME-CUE,35 CME/CUE/Ph lic,Adv IP,128F/256D
Cisco 2800 Series Secure Voice Bundles	
C2801-VSEC-CCME/K9	Cisco 2801 VSEC Bundle w/PVDM2-8,FL-CCME-24,Adv IP Serv,64F/256D
C2801-VSEC-SRST/K9	Cisco 2801 VSEC Bundle w/PVDM2-8,FL-SRST-24,Adv IP Serv,64F/256D
C2811-VSEC-CCME/K9	Cisco 2811 VSEC Bundle w/PVDM2-16,FL-CCME-36,Adv IP Serv,64F/256D

C2811-VSEC-SRST/K9	Cisco 2811 VSEC Bundle w/PVDM2-16,FL-SRST-36,Adv IP Serv,64F/256D
C2821-VSEC-CCME/K9	Cisco 2821 VSEC Bundle w/PVDM2-32,FL-CCME-48,Adv IP Serv,64F/256D
C2821-VSEC-SRST/K9	Cisco 2821 VSEC Bundle w/PVDM2-32,FL-SRST-48,Adv IP Serv,64F/256D
C2851-VSEC-CCME/K9	Cisco 2851 VSEC Bundle w/PVDM2-48,FL-CCME-96,Adv IP Serv,64F/256D
C2851-VSEC-SRST/K9	Cisco 2851 VSEC Bundle w/PVDM2-48,FL-SRST-96,Adv IP Serv,64F/256D
C2801-VSEC/K9	Cisco 2801 Voice Security Bundle,PVDM2-8,Adv IP Serv,64F/256D
C2811-VSEC/K9	Cisco 2811 Voice Security Bundle,PVDM2-16,Adv IP Serv,64F/256D
C2821-VSEC/K9	Cisco 2821 Voice Security Bundle,PVDM2-32,Adv IP Serv,64F/256D
C2851-VSEC/K9	Cisco 2851 Voice Security Bundle,PVDM2-48,Adv IP Serv,64F/256D
C2801-H-VSEC/K9	Cisco 2801 HighPerf.VSEC; AIM-VPN2/SSL,PVDM2,CCME/SRST,AIS,128F/384D
C2811-H-VSEC/K9	Cisco 2811 High Perf.VSEC; AIM-VPN2/SSL,PVDM2,CCME/SRST,AIS,256F/512D
C2821-H-VSEC/K9	Cisco 2821 High Perf.VSEC; AIM-VPN2/SSL,PVDM2,CCME/SRST,AIS,256F/512D
C2851-H-VSEC/K9	Cisco 2851 High Perf.VSEC; AIM-VPN2/SSL,PVDM2,CCME/SRST,AIS,256F/512D
Cisco 2800 WAN Optimization Bundles	
C2811-WAE-302/K9	Cisco 2811, NME-WAE-302-K9,WAAS Trans,ASK9 ASK9,64F/256D
CISCO2811-WAE/K9	Cisco 2811, NME-WAE-502-K9,WAAS Trans,ASK9 ASK9,64F/256D
CISCO2821-WAE/K9	Cisco 2821, NME-WAE-502/K9,WAAS Trans,ASK9 ASK9,128F/256D
CISCO2851-WAE/K9	Cisco 2851, NME-WAE-502-K9,WAAS Trans,ASK9,128F/256D
Cisco 2800 Series Broadband Bundles	
CISCO2801-ADSL2/K9	Cisco 2801 bundle, HWIC-1ADSL, SP Svcs, 64F/192DR
CISCO2811-ADSL2/K9	Cisco 2811 bundle, HWIC-1ADSL, SP Svcs, 64FL/256DR
CISCO2801-ADSL/K9	Cisco 2801 DSL Bundle,WIC-1ADSL(ADSLoPOTS),SP Serv,64F/192D
CISCO2811-ADSL/K9	Cisco 2811 with WIC-1ADSL (ADSLoPoTs), SP Ser IOS, 64F/256D
C2801-SHDLS-V3/K9	Cisco 2801 bundle, WIC-1SHDSL-V3,SP Svcs, 64F/192D
C2811-SHDLS-V3/K9	Cisco 2811 DSL bundle, WIC-1SHDSL-V3 (4-wire), SP Svcs, 64F/256D
C2801-2SHDSL/K9	Cisco 2801 2-pair G.SHDSL bundle, HWIC-2SHDSL,SP Svcs, 64F/192D
C2801-4SHDSL/K9	Cisco 2801 4-pair G.SHDSL bundle, HWIC-4SHDSL, SP Svcs, 64F/192D
C2811-2SHDSL/K9	Cisco 2811 2-pair G.SHDSL bundle, HWIC-2SHDSL, SP Svcs, 64FL/256DR
C2811-4SHDSL/K9	Cisco 2811 4-pair G.SHDSL bundle, HWIC-4SHDSL, SP Svcs, 64F/256D
C2801-ADSL2-M/K9	Cisco 2801 bundle, HWIC-1ADSL-M, SP Svcs, 64MB CF/192MB DR
C2811-ADSL2-M/K9	Cisco 2811 bundle, HWIC-1ADSL-M, SP Svcs, 64MB CF/256MB DR
C2821-4SHDSL/K9	Cisco 2821 4pair G.SHDSL bundle, HWIC-4SHDSL, SP Svcs, 64F/256D

For More Information

For more information about the Cisco 2800 Series Integrated Services Routers, visit: <http://www.cisco.com/go/2800>.

Cisco 1800 Series Integrated Services Routers

Cisco 1800 Series offers three classes of routers to meet the diverse needs of small enterprise branch offices and small and medium-sized businesses (SMBs).

The Cisco 1861 Integrated Services Router is a unified communications solution that provides voice, data, voicemail, Automated-Attendant, video, and security capabilities while integrating with existing desktop applications such as calendar, e-mail, and customer relationship management (CRM) programs.



Both the Cisco 1800 Fixed and Modular Routers are designed for secure data connectivity through Frame Relay, leased-line, or broadband access, and wireless LANs. The routers feature secure, fast, and high-quality delivery of multiple, concurrent services. Cisco 1841 offers flexible WAN connectivity options where Cisco 1801, 1802, 1803, 1811, and 1812 offer secure data connectivity in a small, fixed form factor.

Ideal for Companies That Need These Features

- Cisco 1801, 1802, and 1803 Integrated Services Routers

 - Secure data access through broadband DSL
 - Primary WAN access through asymmetric DSL (ADSL) over basic telephone service (Cisco 1801), ADSL over ISDN (Cisco 1802), or G.SHDSL (Cisco 1803)
 - ADSL 2/2+ capability on Cisco 1801 and 1802 routers
 - Backup WAN interface using ISDN BRI
 - Integrated 8-port managed 10/100 Ethernet switch
 - Integrated IEEE 802.11 a/b/g wireless LAN ("W" models)
- Cisco 1811 and 1812 Integrated Services Routers

 - Secure data access at broadband rates
 - Ability to use 10/100 Ethernet as a WAN access connecting to external DSL or cable modem
 - Ability to use backup WAN interface with V.92 analog modem (Cisco 1811) or ISDN BRI (Cisco 1812)
 - Integrated 8-port managed 10/100 Ethernet switch
 - Integrated IEEE 802.11 a/b/g wireless LAN ("W" models)
- Cisco 1841 Integrated Services Router

 - Secure data access solution for customer environments up to T1, E1, or xDSL WAN rates with services turned on
 - Modularity for flexibility in WAN configurations
 - Support for a broad array of WAN services
 - Comprehensive security features
- Cisco 1861 Integrated Services Routers

 - Integrated Cisco Unified Communications Manager Express or Cisco Unified Survivable Remote Site Telephony for call processing
 - Cisco Unity Express for voice messaging and automated attendant
 - Integrated LAN switching with PoE expandable through Cisco Catalyst switches
 - Support for a range of HWICs
 - Built-in hardware encryption enabled through optional security image
 - Comprehensive security features

Key Features

- Cisco 1800 Series Integrated Services Routers are available with an IEEE 802.11 a/b/g standalone wireless access point for "W" models of Cisco 1801 through Cisco 1812 models, and for a high-speed WAN interface card access point (HWIC-AP) for the Cisco 1841.
- The modular Cisco 1841 provides flexibility with an internal advanced-integration-module (AIM) slot designated for higher-speed VPNs and future applications. Several slot types are available to add future connectivity and services on an "integrate-as-you-grow" basis.
- The fixed-configuration Cisco 1801 through 1812 models have an integrated 8-port 10/100 Ethernet switch with Power over Ethernet (PoE). An optional 4-port switch HWIC is available for the Cisco 1841.
- These routers support the latest Cisco IOS Software-based QoS bandwidth management features.
- The routers offer advanced device management using Cisco Router and Security Device Manager (SDM).
- A high-performance processor supports concurrent deployment of high-performance, secure data services with headroom for future applications.
- Integrated hardware-based encryption acceleration offers a cryptography accelerator as standard integrated hardware that can be enabled with optional Cisco IOS Software for Triple Digital Encryption Standard (3DES) and Advanced Encryption Standard (AES) encryption support.
- A security performance-enhanced feature set offers an intrusion prevention system (IPS), Cisco Network Admission Control (NAC), and firewall functions.
- These routers allow LAN segmentation using VLANs.
- An integrated standard power supply offers easier router platform installation and management.

Specifications

Feature	Cisco 1861 Series	Cisco 1841 Series	Cisco 1800 Series Fixed-Configuration Routers
Form factor	Desktop, 1.5 rack unit (RU)	Desktop, 1-rack-unit (1RU) height (4.75 cm high with rubber feet)	Desktop, 1-rack-unit (1-RU) high (4.75-cm high with rubber feet)
Target Applications	Small Office Unified Communications, Data and Security	Secure data with frame relay or leased line access (T1/E1)	Secure data with broadband access and backup WAN
Chassis	Metal	Metal	Metal
Wall-mountable	Yes	Yes	Yes

Rack-mountable	Yes (optional rackmount kit is required)	Yes (optional 19-in rackmount kit is required)	Yes (optional 19-in. rack-mount kit required)
Dimensions (W x D)	<ul style="list-style-type: none"> 2.625 x 10.5 x 11.05 in. (6.67 x 26.67 x 28.07 cm) 	13.5 x 10.8 in. (34.3 x 27.4 cm); Height without rubber feet: 1.73 in. (4.39 cm); Height with rubber feet: 1.87 in. (4.75 cm)	12.74 x 9.7 in. (32.36 x 24.64 cm); Height without rubber feet: 1.75 in. (4.45 cm); Height with rubber feet: 1.89 in. (4.80 cm)
Weight	8 lb (3.63 kg)	Maximum: 6.2 lb. (2.8 kg); with interface cards and modules; Minimum: 6.0 lb. (2.7 kg) (no interface cards and modules)	Maximum: 6.1 lb. (2.8 kg)
DRAM	<ul style="list-style-type: none"> Cisco IOS Software: 256 MB Voice messaging: 512 MB 	Synchronous dual in-line memory module (DIMM) DRAM	Synchronous dual in-line memory module (DIMM) SDRAM (1 DIMM slot)
DRAM capacity	Default: 256 MB Maximum: 256 MB	Default: 128 MB; Maximum: 384 MB	Default: 128 MB; Maximum: 384 MB
Flash memory	<ul style="list-style-type: none"> Cisco IOS Software: 128 MB Voice messaging: 1 GB; Compact Flash 	External removable compact Flash	External removable Compact Flash
Flash memory capacity	Default: 128 MB Maximum: 128 MB	Default: 32 MB; Maximum: 128 MB	Default: 32 MB; Maximum: 128 MB
Modular slots - total	One (HWIC)	Two	None
Modular slots (WAN)	One (HWIC)	Two	None
Modular slots (HWICs)	One (HWIC)	Two	None
Modular slots (voice)	Supports voice but as integrated feature, no modules	None: The Cisco 1841 does not support voice	None: The Cisco 1800 Series does not support voice
VoIP support	Onboard support analog and digital voice, conferencing, transcoding, and secure Real-Time Transport Protocol (RTP) applications. This feature is not upgradable. Onboard voice ports integrated into the system by default include interfaces for PSTN; PBX; and key system connections, including FXS, FXO, and BRI.	Voice-over-IP (VoIP) pass-through only	Same as 1841
ADSL Port	<ul style="list-style-type: none"> Cisco 1861/1841: ADSL over POTS, ADSL over ISDN via WAN Interface Card Cisco 1800 Series Fixed-Configuration Routers: One ADSL over POTS port on Cisco 1801. One ADSL over ISDN on Cisco 1802. The Cisco 1801 supports ADSL over POTS standards G.992.1 G.DMT and ANSI T1.413 DMT Issue 2. The Cisco 1802 supports ADSL over ISDN standards ETSI 101-388, U-R2, and G.992.1 G.DMT. The Cisco 1801 is interoperable with the following DSLAMs: Cisco 6130 and Cisco 6260 IP DSL switches; Alcatel (ASAM 1000 and 7300); Lucent Stinger (24- and 72-port line cards); ECI HiFocus (16- and 32-port line cards); The Cisco 1802 is interoperable with the following DSLAMs: Cisco 6260; Alcatel (ASAM 1000 and 7300); Siemens (XpressLink 2.0 and XpressLink 2.1); Lucent Stinger (48-port line cards); ECI HiFocus (16- and 32-port line cards) 		
G.SHDSL Port	G.SHDSL 2- and 4-wire support via WAN Interface Card	G.SHDSL 2- and 4-wire support via WAN Interface Card	One G.SHDSL port on Cisco 1803 supports either 2-wire mode or 4-wire mode. The Cisco 1803 supports the same standards as the Cisco G.SHDSL WIC and is based on ITU Recommendation G.991.2 (accepted worldwide).

G.SHDSL DSLAM Interoperability	<ul style="list-style-type: none"> Cisco 1841 Series: The WIC-1SHDSL-V3 in 2-wire mode is interoperable with the following DSLAMs Cisco 6000 Series IP DSL switches; Alcatel ASAM 7300 (12- and 24-port line cards); ECI HiFocus SAM 2401 (16-port Metalink-based line cards); Lucent Stinger FS (32- and 48-port line cards); CopperEdge 200 DSLAM (24-port line cards); The WIC-1SHDSL-V3 in 4-wire mode is interoperable with the following DSLAMs: Alcatel ASAM 7300 (12- and 24-port line cards); CopperEdge 200 DSLAM (24-port line cards) Cisco 1800 Series Fixed-Configuration Routers: The Cisco 1803 in 2-wire mode is interoperable with the following DSLAMs: Cisco 6000 Series IP DSL switches; Alcatel ASAM 7300 (12- and 24-port line cards); ECI HiFocus SAM 2401 (16-port Metalink-based line cards); Lucent Stinger FS (32- and 48-port line cards); CopperEdge 200 DSLAM (24-port line cards); The Cisco 1803 in 4-wire mode is interoperable with the following DSLAMs: Alcatel ASAM 7300 (12- and 24-port line cards); CopperEdge 200 DSLAM (24-port line cards) 		
Onboard Ethernet ports	<ul style="list-style-type: none"> 1 10/100 Fast Ethernet 8 10-/100-Mbps LAN 1 10/100 Ethernet expansion port 	Two 10/100	10/100BASE-T ports for WAN connection supporting DSL and cable modems and Ethernet access services. (One port is available on Cisco 1801, 1802, and 1803. Two ports are available on Cisco 1811 and
Integrated Ethernet Switch Ports	<ul style="list-style-type: none"> 1 10/100 Fast Ethernet 8 10-/100-Mbps LAN 1 10/100 Ethernet expansion port 	Optional via 4-port Ethernet switch HWIC, up to 15 VLANs	Eight 10/100BASE-T fully managed switch ports with 802.1Q VLAN and 802.3af PoE support. Up to 8 VLANs
Onboard USB ports	None	One (11)	Two (USB 2.0) on Cisco 1811 and 1812 only. The Cisco 1801, 1802, and 1803 do not offer USB support.
ISDN S/T BRI Port	Two ports on the BRI SKUs	Optional via WAN Interface Card	One ISDN S/T BRI port on Cisco 1801, 1802, 1803, and 1812
V.92 Analog Modem Port	None	Optional via WAN Interface Card (1 or 2 ports)	One analog modem port on Cisco 1811
Console port	One: up to 115.2 kbps	One: up to 115.2 kbps	One—up to 115.2 kbps
Auxiliary port	Virtual AUX port	One: up to 115.2 kbps	One—up to 115.2 kbps
Onboard AIM slots	None	One (internal)	None
Packet-voice-DSP-module (PVDM) slots on motherboard	No slots: Onboard support analog and digital voice, conferencing, transcoding, and secure Real-Time Transport Protocol (RTP) applications. This feature is not upgradable.	None: The Cisco 1841 does not support voice	None: The Cisco 1800 Series does not support voice
Integrated H/W-based encryption on motherboard	Yes	Yes	Yes
IPSec Tunnels	100 with on-board encryption	100 with on-board encryption, 800 with VPN AIM	50
IPSec VPN Performance	40 Mbps 3DES @ 1400 byte packets	40 Mbps 3DES @ 1400 byte packets	40 Mbps 3DES @ 1400 byte packets
Encryption support in software and hardware by default	IPsec DES, 3DES, and AES 128, 192, and 256 cryptography by using an optional security image	DES, 3DES, AES 128, AES 192, AES 256	DES, 3DES, AES 128, AES 192, AES 256
Cisco IOS Firewall Performance	100 Mbps @ 1400 byte packets	100 Mbps @ 1400 byte packets	100 Mbps @ 1400 byte packets
Wireless LAN Hardware	Optional 802.11b/g models	Optional IEEE 802.11 a/b/g or IEEE 802.11 b/g via HWIC	IEEE 802.11 a/b/g on wireless models

Wireless LAN features	IEEE 802.11a/b/g; Automatic rate selection for 802.11b/g; RP-TNC connectors for field-replaceable external antennas (antenna options for extended coverage); Antenna diversity; Indoor range: 1 Mbps at 320 ft. (9754m); Wireless Ethernet Compatibility Alliance (WECA) interoperability; Default antenna gain—2.2 dBi	IEEE 802.11a/b/g; Automatic rate selection for 802.11a/11b/11g; Field-replaceable antennae; External antenna; Antenna diversity; Wi-Fi Certified for WPA-Personal and WPA-Enterprise; Default antenna gain—2.2 dBi	IEEE 802.11a/b/g; Automatic rate selection for 802.11a/11b/11g; Field-replaceable antennae; External antenna; Antenna diversity; Wi-Fi Certified for WPA-Personal and WPA-Enterprise; Default antenna gain—2.2 dBi
Data Rates Supported	The integrated 802.11b/g access point in the Cisco 1861 supports up to 54-Mbps connections.	802.11a: 6, 9, 12, 18, 24, 36, 48, and 54 Mbps; 802.11g: 1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, and 54 Mbps	802.11a: 6, 9, 12, 18, 24, 36, 48, and 54 Mbps; 802.11g: 1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, and 54 Mbps
Range	None		Range—Indoor 1 Mbps at 320 ft.
Wireless LAN Software Features	<ul style="list-style-type: none"> Cisco 1861 Series—802.1X; 802.11e; WPA and AES (WPA2); EAP authentication; Cisco LEAP; PEAP; and Extensible Authentication Protocol-Flexible Authentication via Secure Tunneling (EAP-FAST); Static and dynamic WEP; Temporal Key Integrity Protocol Simple Security Network (TKIP/SSN) encryption; MAC authentication and filter; User database for survivable local authentication using LEAP and EAP-FAST; Configurable limit to the number of wireless clients; Configurable RADIUS accounting for wireless clients; Preshared keys (PSKs); Workgroup Bridge Association Cisco 1841 Series—N/A Cisco 1800 Series Fixed-Configuration Routers—Maximize throughput or maximize range option; Software-configurable transmit power; Support for Wi-Fi Multimedia (WMM); Quality of Service (QoS) for WLANs 		
SSIDs	8	8	8
Wireless LAN		Supported by CiscoWorks 2000, CiscoView and Router, and Security Device Management (SDM)	Supported by CiscoWorks 2000, CiscoView and Router, and Security Device Management (SDM)
Management Features	GUI-based network management	GUI-based network management for wireless interface is provided	GUI-based network management for wireless interface is provided
User Support	Up to 15 UC users	Up to 50 users (recommended)	Up to 50 users (recommended)
Wireless LAN Security Features	<ul style="list-style-type: none"> Cisco 1861 Series: Enhanced security is provided with support for Wi-Fi Protected Access (WPA and WPA2), including authentication with 802.1x and Cisco LEAP; Protected Extensible Authentication Protocol (PEAP), dynamic Wired Equivalent Privacy (WEP), or static WEP. Cisco 1841 Series: IEEE 802.1X per-user, per-session mutual authentication with a variety of extensible authentication protocol (EAP) types including Cisco LEAP, Protected Extensible Authentication Protocol (PEAP), and EAP-Transport Layer Security (EAP-TLS); Preshared Key (PSK) Authentication; MAC authentication/filter encryption; WPA Temporal Key Integrity Protocol (TKIP) with support for per-packet key hashing, message integrity check; Static and dynamic wired equivalent privacy (WEP) keys of 40 bits and 128 bits; Additional security features: IEEE 802.1X local authentication; Configurable limit for the number of wireless clients; Configurable RADIUS accounting for wireless clients Cisco 1800 Series Fixed-Configuration Routers: IEEE 802.1X per-user, per-session mutual authentication with a variety of extensible authentication protocol (EAP) types including Cisco LEAP, Protected Extensible Authentication Protocol (PEAP), and EAP-Transport Layer Security (EAP-TLS); Preshared Key (PSK) Authentication; MAC authentication/filter encryption; WPA Temporal Key Integrity Protocol (TKIP) with support for per-packet key hashing, message integrity check; Static and dynamic wired equivalent privacy (WEP) keys of 40 bits and 128 bits; Additional security features: IEEE 802.1X local authentication; Configurable limit for the number of wireless clients; Configurable RADIUS accounting for wireless clients 		
Cisco IOS Software default image	Cisco IOS Software 12.4(1)XW or Higher Releases For licensing and wireless support 12.4(22)T	IP BASE -12.4(1)	12.3(8)YI
Cisco IOS Software default Image	SP Services K9	IP Base (security and broadband bundles have image upgrades)	Advanced IP services (without voice services) except Cisco 1801 which comes with Cisco IOS IP Broadband

Routing Protocols	BGP, EIGRP, OSPF, RIPv1, RIPv2	BGP, EIGRP, OSPF, RIPv1, RIPv2	BGP, EIGRP, OSPF, RIPv1, RIPv2
Routed Protocols	IPv4, IPv6 unicast only (Internetwork Packet Exchange [IPX], IBM SNA, AppleTalk supported with optional Advanced Enterprise Services Feature Set)	IPv4, IPv6 unicast only (Internetwork Packet Exchange [IPX], IBM SNA, AppleTalk supported with optional Advanced Enterprise Services Feature Set)	IPv4, IPv6 unicast only (Internetwork Packet Exchange [IPX], IBM SNA, AppleTalk supported with optional Advanced Enterprise Services Feature Set)
QoS Protocols	Weighted Fair Queuing (WFQ), Class-Based WFQ (CBWFQ), Weighted Random Early Detection (WRED), Committed Access Rate (CAR), Resource Reservation Protocol (RSVP), Network-Based Application Recognition	Weighted Fair Queuing (WFQ), Class-Based WFQ (CBWFQ), Weighted Random Early Detection (WRED), Committed Access Rate (CAR), Resource Reservation Protocol (RSVP), Network-Based Application Recognition	Weighted Fair Queuing (WFQ), Class-Based WFQ (CBWFQ), Weighted Random Early Detection (WRED), Committed Access Rate (CAR), Resource Reservation Protocol (RSVP), Network-Based Application Recognition
Internal system power supply	Yes	Yes	Yes
Power over Ethernet (PoE) power supply	Internal	None	None
Redundant power supply	No	No	No
DC power support	No	No	No
AC input voltage	100 to 240 VAC	100 to 240 VAC	100 to 240 VAC
Frequency	50 to 60 Hz	50 to 60 Hz	50 to 60 Hz
AC input current	4 to 2A (100 to 240V)	1.5A maximum	1.5A maximum
Output power	80W	50W (maximum)	50W (maximum)
PoE Support	Supported	Not supported	Supported on 10/100 Ethernet switch ports with optional PoE kit
PoE Standards		None	IEEE 802.3af, Cisco Prestandard PoE
External PoE Power Supply	Supported Internally	None	80W external power supply
System Power Dissipation		153 BTU/hr.	153 BTU/hr.
Operating temp	32 to 104°F (0 to 40°C)	32 to 104°F (0 to 40°C)	32° to 104°F (0° to 40°C)
Operating humidity	10 to 85% noncondensing operating; 5 to 95 noncondensing, nonoperating	10 to 85% non condensing operating; 5 to 95% non condensing, non operating	10 to 85 percent non condensing operating; 5 to 95 percent non condensing, non operating
Non operating Temp	4 to 149°F (-20 to 65°C)	-4 to 149°F (-25 to 65°C)	-4° to 149°F (-25 to 65°C)
Operating altitude	<ul style="list-style-type: none"> • 104°F (40°C) at sea level • 878°F (31°C) at 6,000 ft (1800m) • 77°F (25°C) at 10,000 ft (3000m) • Note: De-rate 34.7°F (1.5°C) per 1,000 ft 	10,000 feet (3000 meters) @ 77°F (25°C)	10,000 ft. (3000m) at 77°F (25°C)
Noise level	Normal operating temperature: <78°F (25.6°C): 34 dBA • >78°F (25.6°C) through <104°F (40°C): 37 dBA • >104°F (40°C): 42 dBA	Normal operating temperature: <78° F/25.6°C: 34 dBA; >78°F/25.6°C through: 104°F/40°C	<80°F (27°C): 34 dBA; >80°F (27°C) through <104°F (40°C): 36 dBA; >104°F (40°C): 42 dBA
Safety	<ul style="list-style-type: none"> • IEC 60950-1 • AS/NZS 60950:1 • CAN/CSA-C22.2 No. 60950-1 • EN 60950-1 • UL 60950-1 	UL60950-1; CAN/CSA 60950-1; AS 3260; EN60950-1	UL 60950; CAN/CSA C22.2 No. 60950; IEC 60950-1; EN 60950-1; AS/NZS 60950

EMI		EN 55022, 1998, class A; CISPR22, 1997, class A; CFR47, Part 15, Subpart B, 1995, class A; EN61000-3-2 Harmonic Current Emission (only for equipment >75W but <16A); EN61000-3-3 Voltage Fluctuation and Flicker (only for equipment >16A)	CFR 47 Part 15, Class A; ICES-003 Class A; EN55022 Class A; CISPR22 Class A; AS/NZS 3548, lass A; VCCI Class A; EN 300386; EN61000-3-2; EN61000-3-3
Immunity	<ul style="list-style-type: none"> • Cisco 1861 Series: EN 55024; EN 300-386; EN 61000-6-2; EN 50082-1; EN 55024 (CISPR 24) • Cisco 1841 Series: CISPR24, 1997 ITE-Immunity characteristics, Limits and methods of measurement; EN 55024;1998 ITE-Immunity characteristics, Limits and methods of measurement; EN50082-1, 1997 Electromagnetic compatibility Generic immunity standard, Part 1 EN 300 386, 1997 Telecommunications network equipment EMC requirements; The requirements are covered by the following standards: IEC 61000-4-2;1995 Immunity to Electrostatic Discharges; IEC 61000-4-3;1995 Immunity to Radio Frequency Electromagnetic Fields; IEC 61000-4-4;1995 Immunity to Electrical Fast Transients; IEC 61000-4-5;1995 Immunity to Power Line Transients (Surges); IEC 61000-4-6;1996 Immunity to Radio Frequency Induced Conducted Disturbances; IEC 61000-4-1;1995 Immunity to Voltage Dips, Voltage Variations, and Short Voltage Interruptions • Cisco 1800 Series Fixed-Configuration Routers: EN300386; EN55024(CISPR24); EN61000-4-2; EN61000-4-3; EN41000-4-4; EN41000-4-5; EN41000-4-6; EN41000-4-8; EN41000-4-11; EN50082-1; EN61000-6-2; ITU-T K.21 		
Network homologation	<ul style="list-style-type: none"> • Cisco 1841 Series: USA: TIA-968-A, T1,TRQ6-2001; Canada: CS-03; European Union: RTTE Directive 5/99; Argentina: CTR 21; Australia: AS/ACIF S002, S003, S016, S031, 3043; Brazil: 225-540-788, CTR3, 225-100-717 Edition 3, NET 001/92 1990; China: ITU-G.992.1, ITU-G.992.1, ITU-G.991.2, CTR3, ITU I.431 1993; Hong Kong: HKTA 2033, HKTA 2033, HKTA 2014, HKTA 2017 Issue 3 2003, HKTA 2011 Issue 1, HKTA 2011 Issue 2, HKTA 2013 Issue 1; India: I.DCA_18_02_Jun_99-199, S/ISN-01/02 Issue 1999 S/ISN-02 1 1998, IR/PRI-01/02 Issue 1 1998, S/INT-2W/02 MAY 2001, S/INT-2W/02 MAY 2001; Israel: U.S. approval accepted; Japan: Technical condition (DoC acceptance in process); Korea: U.S. approval accepted; Mexico: U.S. approval accepted; New Zealand: PTC 270/272, CTR 3, ACA 016 Revision 4 1997, PTC 200; Singapore: IDA TS ADSL1 Issue 1, IDA TS ADSL 2, IDA TS HDLSL, IDA TS ISDN 1 Issue 1 1999, IDA TS ISDN 3 Issue 1 1999, IDA TS PSTN 1 Issue 4, IDA TS PSTN 1 Issue 4, IDA TS PSTN 1 Issue 4; South Africa: U.S. approval accepted; Taiwan: U.S. approval accepted • Cisco 1800 Series Fixed-Configuration Routers: Telecom compliance standards depend upon country and interface type. Interfaces comply with FCC Part 68, CS-03, JATE Technical Conditions, European Directive 99/5/EC, and relevant Technical Basis for Regulation (TBRs). For specific information, refer to the data sheet for the specific interface card. Homologation requirements vary by country and interface type. For specific country information, refer to the online approvals database, Cisco 1801, 1802, 1803, and 1812 ISDN BRI S/T; TIA-968-A; IC CS-03 Part VI; JATE Technical Requirements; TBR3; S031 		

Selected Part Numbers and Ordering Information

Cisco 1861	
C1861-SRST-F/K9	Cisco 1861, 8-User SRST license, 4 PSTN trunks (FXO), 4 Analog ports (FXS), 8 PoE ports, 1 HWIC slot for WAN
C1861-SRST-B/K9	Cisco 1861, 8-User /SRST license, 2 BRI trunks (BRI), 4 Analog ports (FXS), 8 PoE ports, 1 HWIC slot for WAN
C1861-SRST-C-F/K9	Cisco 1861, 8-User SRST & CUE license, 4 PSTN trunks (FXO), 4 Analog ports (FXS), 8 PoE ports, 1 HWIC slot for WAN
C1861-SRST-C-B/K9	Cisco 1861, 8-User SRST & CUE license, 2 BRI trunks (BRI), 4 Analog ports (FXS), 8 PoE ports, 1 HWIC slot for WAN
C1861-UC-4FXO-K9	Cisco 1861, 8-user CME, CUE, Phone Licenses, 4 PSTN trunks (FXO), 4 Analog ports (FXS), 8 PoE ports, 1 HWIC slot for WAN
C1861-UC-2BRI-K9	Cisco 1861, 8-user CME, CUE, Phone Licenses, 2 BRI trunks (BRI), 4 Analog ports (FXS), 8 PoE ports, 1 HWIC slot for WAN
C1861-2B-VSEC/K9	Cisco 1861, 8-user CME, CUE, Ph Lic, 4FXS, 2BRI, 8xPOE, HWIC slot, Adv IP
C1861-4F-VSEC/K9	Cisco 1861, 8-user CME, CUE, Ph Lic, 4FXS, 4FXO, 8xPOE, HWIC slot, Adv IP
C1861W-SRST-F/K9	Cisco 1861, WLAN, 8xPOE, 4FXS, 4FXO, SRST, 8-user License, SP Svcs
C1861W-SRST-B/K9	Cisco 1861, WLAN, 8xPOE, 4FXS, 2BRI, SRST 8-user License, SP Svcs
C1861W-SRST-C-F/K9	Cisco 1861, WLAN, 8xPOE, 4FXS, 4FXO, SRST 8-user License, CUE, SP

C1861W-SRST-C-B/K9	Cisco 1861, WLAN, 8xPOE, 4FXS, 2BRI, SRST 8-user License, CUE, SP
C1861W-UC-4FXO-K9	Cisco 1861, WLAN, 8xPOE, 4FXS, 4FXO, CME 8-user License, CUE, Ph.
C1861W-UC-2BRI-K9	Cisco 1861, WLAN, 8xPOE, 4FXS, 2BRI, CME 8-user License, CUE, Ph.
Cisco 1800 Series (Modular) Integrated Services Routers	
CISCO1841	Cisco 1841 Modular Router w/2xFE, 2 WAN slots, 32 FL/128 DR
CISCO1841-T1	Cisco 1841 bundle w/WIC-1DSU-T1-V2, IP Base, 32FL/128DR
Cisco 1800 Series (Fixed) Integrated Services Routers	
CISCO1801	ADSL/POTS router w/IOS IP Broadband
CISCO1801/K9	ADSL/POTS Router with Firewall/IPS and IPSEC 3DES
CISCO1801-M	ADSL over POTS Annex M Router w/IOS IP Broadband
CISCO1801-M/K9	ADSL over POTS Annex M Router
CISCO1802	ADSL/POTS router w/IOS IP Broadband
CISCO1802/K9	ADSL/ISDN Router with Firewall/IPS and IPSEC 3DES
CISCO1803/K9	G.SHDSL Router with Firewall/IPS and IPSEC
CISCO1811/K9	Dual Ethernet Security Router with V.92 Modem Backup
CISCO1812/K9	Dual Ethernet Security Router with ISDN S/T Backup
Cisco 1800 Series (Fixed Wireless) Integrated Services Router	
CISCO1801W-AG-P/K9, B/K9, C/K9, N/K9	ADSL/POTS Router with 802.11a+g (FCC-B, China-C, Australia/NZ-N) Compliant and Security
CISCO1803W-AG-P/K9, B/K9	G.SHDSL Router with 802.11a+g (FCC-B) Compliant and Security
CISCO1811W-AG-P/K9, B/K9, C/K9, N/K9	Security Router with 802.11a+g (FCC-B, China-C, Australia/NZ-N) Compliant and Analog B/U
CISCO1812W-AG-C/K9	Security Router with 802.11a+g (China-C) Compliant and ISDN S/T
Cisco 1800 Series (modular) Security bundles	
CISCO1841-SEC/K9	Cisco 1841 Security Bundle, Adv. Security, 64FL/256DR
CISCO1841-HSEC/K9	Cisco 1841 Security bundle w/AIM-VPN, Adv. IP Svcs, 64FL/256DR
CISCO1841-T1SEC/K9	Cisco 1841 Security Bundle w/ WIC-1DSU-T1-V2, Adv. Sec., 64FL, 256DR
Cisco 1800 Series (modular) Broadband bundles	
CISCO1841-ADSL	Cisco 1841 ADSLoPOTS Bdle, IP Broadband, 32FL/128DR
CISCO1841-ADSL-DG	Cisco 1841 ADSLoPOTS w/dying gasp Bundle, IP Broadband, 32FL/128DR
CISCO1841-ADSL-I	Cisco 1841 ADSLoISDN Bundle, IP Broadband, 32FL/128DR
CISCO1841-SHDSL-V3	Cisco 1841 G.shdsl 4-wire Bundle, includes WIC-1SHDSL-V3, IP Broadband, 32 MB flash/128 MB DRAM
CISCO1841-ADSL2	Cisco 1841 bundle, HWIC-1ADSL, IP BB, 32F/128D
CISCO1841-ADSL2-B	Cisco 1841 bundle, HWIC-ADSL-B/ST, IP BB, 32F/128D

For More Information

For more information about the Cisco 1800 Series Integrated Services Routers, visit: <http://www.cisco.com/go/1800>.

Cisco 800 Series Routers

Cisco 880 Series Integrated Services Routers are fixed-configuration routers that provide collaborative business solutions for secure voice and data communication to small businesses and enterprise teleworkers. They offer concurrent broadband services over third-generation (3G), Metro Ethernet, and multiple DSL technologies to provide business continuity. Wireless 802.11n and 3G offer LAN and WAN mobility. The routers provide the performance required for concurrent services, including firewall, intrusion prevention, content filtering, and encryption for VPNs; optional 802.11g/n for mobility; and quality-of-service (QoS) features for optimizing voice



and video applications. In addition, the web-based Cisco Configuration Professional configuration tool simplifies setup and deployment. Centralized management capabilities give network managers visibility and control of the network configurations at the remote site.

Cisco 880 Series Integrated Services Routers offer:

- High performance for broadband access in small offices and small branch-office and teleworker sites
- Collaborative services with secure analog, digital voice, and data communication
- Business continuity and WAN diversity with redundant WAN links: Fast Ethernet, G.SHDSL, VDSL2, 3G, and ISDN
- Survivable Remote Site Telephony (SRST) voice continuity for enterprise small branch-office and teleworker sites
- Enhanced security, including:
 - Firewall with advance application and control for email, instant messaging (IM), and HTTP traffic
 - Site-to-site remote-access and dynamic VPN services—IP Security (IPsec) VPNs (Triple Data Encryption Standard [3DES] or Advanced Encryption Standard [AES]), Dynamic Multipoint VPN (DMVPN), Group Encrypted Transport VPN with onboard acceleration, and Secure Sockets Layer (SSL) VPN
 - Intrusion prevention system (IPS)—An inline, deep-packet inspection feature that effectively mitigates a wide range of network attacks
 - Content filtering—A subscription-based integrated security solution that offers category-based reputation rating; keyword blocking; and protection against adware, malware, spyware, and URL blocking
- Four-port 10/100 Fast Ethernet managed switch with VLAN support; two ports support Power over Ethernet (PoE) for powering IP phones or external access points
- Secure 802.11g/n access point option based on draft 802.11n standard with support for autonomous or Cisco Unified WLAN architectures
- CON/AUX port for console or external modem
- One USB 1.1 port for security eToken credentials, booting from USB, loading configuration
- Easy setup, deployment, and remote-management capabilities through web-based tools and Cisco IOS® Software

Cisco 890 Series Integrated Services Routers are fixed-configuration routers that provide collaborative business solutions for secure voice and data communications to enterprise small branch offices (Figure 2). They are designed to deliver secure broadband, Metro Ethernet, wireless LAN (WLAN) connectivity, and business continuity. The routers also come with powerful management tools, such as the web-based Cisco Configuration Professional configuration management tool, which simplifies setup and deployment. Centralized management capabilities give network managers visibility and control of the network configurations at the remote site.

Cisco 890 Series Integrated Services Routers offer:

- High performance for secure broadband and Metro Ethernet access with concurrent services for enterprise small branch offices
- Business continuity and WAN diversity with redundant WAN links: Fast Ethernet, V92, and ISDN Basic Rate Interface (BRI)
- Integrated secure 802.11a/g/n access point (optional) based on the draft 802.11n standard; dual-band radios for mobility and support for autonomous or Cisco Unified WLAN architectures
- Enhanced security including:
 - Firewall with advance application and control for email, instant messaging (IM), and HTTP traffic
 - Site-to-site remote-access and dynamic VPN services: IP Security (IPsec) VPNs (Triple Data Encryption Standard [3DES] or Advanced Encryption Standard [AES]), Dynamic Multipoint VPN [DMVPN], Group Encrypted Transport VPN [GET VPN] with onboard acceleration, and Secure Sockets Layer [SSL] VPN
 - Intrusion prevention system (IPS): An inline, deep-packet-inspection feature that mitigates a wide range of network attacks
 - Content filtering: A subscription-based integrated security solution that offers category-based reputation rating, keyword blocking, and protection against adware, malware, spyware, and URL blocking
- An 8-port 10/100 Fast Ethernet managed switch with VLAN support and 4-port support for Power over Ethernet (PoE) (optional) to power IP phones or external access points
- Metro Ethernet features include:
 - One 1000 BASE-T Gigabit Ethernet WAN port
 - One 10/100 BASE-T Fast Ethernet WAN port
 - Intelligent hierarchical quality of service (HQoS): Supports hierarchical queuing and shaping
 - Connectivity Fault Management (CFM), based on 802.1ag
 - 802.3ah standard based Link operational administration and maintenance (OAM)
 - Ethernet Local Management Interface (E-LMI) for the Customer Edge
 - CFM Interworking and backwards compatibility
 - Performance Management based on IP service-level agreement (SLA) for Ethernet
- Dedicated console and auxiliary ports for configuration and management
- Two USB 2.0 ports for security eToken credentials, booting, and loading configuration from USB
- Easy setup, deployment, and centralized and remote-management capabilities through web-based tools and Cisco IOS Software

Ideal for Companies That Need These Features

Cisco 800 Series Routers

- Ethernet ports with VLAN support, Metro Ethernet support
- WAN connectivity, including 3G and ISDN Basic Rate Interface (BRI), ADSL, and G.SHDSL
- Advanced security including Firewall, Intrusion Prevention, Content Filtering, Encryption for VPN
- Wireless LAN (802.11 a/g/n) access points
- Quality of service (QoS) features for optimizing voice and video applications

Key Features

- Fixed-configuration support for several types of WAN connections
- Optional standalone IEEE 802.11 b/g wireless LAN access point for Cisco 850 and 870 Series
- Standard security with access control lists (ACLs), Port Address Translation (PAT) and Network Address Translation (NAT), Password Authentication Protocol (PAP) and Challenge Handshake Authentication Protocol (CHAP), Microsoft CHAP (MS-CHAP), Lock and Key, and generic routing encapsulation (GRE) tunneling
- Enhanced security with Stateful Inspection Firewall, IP Security (IPSec) encryption (Triple Digital Encryption Standard [3DES]) and Advanced Encryption Standard (AES) encryption on Cisco 850 and 870 Series; the Cisco 870 Series also includes security features such as intrusion prevention systems (IPS), 802.1x, Dynamic Multipoint VPN (DMVPN), Easy VPN, IP Security (IPsec) VPNs, Group Encrypted Transport VPN [GET VPN] with onboard acceleration, and Secure Sockets Layer [SSLVPN] and URL filtering.
- Out-of-band management and dial backup with an external modem through the auxiliary or console port on the Cisco 870 Series Routers
- Dial backup through the integrated ISDN port on the Cisco 876
- X.25 over D-channel support on the Cisco 876
- DMZ interface on all Cisco 870 Routers; optional external power injector for Power over Ethernet (PoE) on Cisco 870 Routers
- Integrated 4-port 10/100 Ethernet switch on Cisco 850 and 870 Series
- Bandwidth-optimization features such as compression, bandwidth on demand, dial-on-demand routing (DDR), Always-On Dynamic ISDN (AODI), and X.25 over D channel (Cisco 876)
- Metro Ethernet support including Connectivity Fault Management (CFM), link operational administration and maintenance (OAM), and Ethernet Local Management Interface (E-LMI) for the Customer Edge; one 1000 BASE-T Gigabit Ethernet WAN port integrated secure 802.11a/g/n access point (optional) based on the draft 802.11n standard; dual-band radios for mobility and support for autonomous or Cisco Unified WLAN architectures

Specifications

Feature	Cisco 861	Cisco 881	Cisco 887V	Cisco 888	Cisco 891	Cisco 892
Fixed LAN Port Connections	4-port 10/100 Ethernet switch	4-port 10/100 Ethernet switch	4-port 10/100 Ethernet switch	4-port 10/100 Ethernet switch	8-port 10/100 Ethernet switch	8-port 10/100 Ethernet switch
PoE	No	Optional 2-port	Optional 2-port	Optional 2-port	Optional 4-port	Optional 4-port
Fixed WAN Port Connections	1-port 10/100 Ethernet	1-port 10/100 Ethernet	1-port VDSL2	1-port G.SHDSL	1-port 10/100 Ethernet, 1-port GE	1-port 10/100 Ethernet, 1-port GE
Wireless LAN	IEEE 802.11 b/g/n ("W" model)	IEEE 802.11 b/g/n ("W" model)	No	IEEE 802.11 b/g/n ("W" model)	IEEE 802.11 a/b/g/n ("W" model)	IEEE 802.11 a/b/g/n ("W" model)
3G	No	Yes ("G" model)	No	Yes ("G" model)	No	No
ISDN BRI	No	No	Yes	Yes	No	Yes
V.92 modem	No	No	No	No	Yes	No
4-port FXS	No	Yes ("SRST" model)	No	Yes ("SRST" model)	No	No
FXO	No	Yes ("SRST" model)	No	No	No	No
Voice BRI	No	No	No	Yes ("SRST" model)	No	No
Maximum VPN Tunnels	5	5	10	10	10	10
Content Filtering	No	Yes	Yes	Yes	Yes	Yes
Stateful Firewall	Yes	Yes	Yes	Yes	Yes	Yes
Inline IPS	No	Yes	Yes	Yes	Yes	Yes

Selected Part Numbers and Ordering Information

CISCO815-VPN-K9	Cisco 815 ISR, NA DOSCIS Compliant, with Security
CISCO861W-GN-A-K9, E-K9, P-K9	Cisco 861 Ethernet Security Router 802.11n (Americas-A, Europe-E, Japan-P)
CISCO881-SEC-K9	Cisco 881 Ethernet Sec Router w/ Adv IP Services
CISCO881W-GN-A-K9, E-K9, P-K9	Cisco 881 Ethernet Security Router 802.11n (Americas-A, Europe-E, Japan-P)
CISCO881GW-GN-A-K9, E-K9	Cisco 881 Ethernet Security Router with 3G, 802.11n (Americas-A, Europe-E)
CISCO881G-A-K9	Cisco 881G FE Sec Router with Adv IP Serv, 3G N. America GSM/HSPA
CISCO881G-G-K9	Cisco 881G FE Sec Router with Adv IP Serv, 3G N. Global GSM/HSPA
CISCO881G-S-K9	Cisco 881G FE Sec Router bundle with Adv IP Serv, 3G Sprint
CISCO881G-V-K9	Cisco 881G FE Sec Router bundle with Adv IP Serv, 3G Verizon
CISCO887V-SEC-K9	Cisco 887 VDSL2 over POTS Sec Router w/ ISDN B/U, Adv IP Services
CISCO888GW-G-AN-K9, EN-K9	Cisco 888 G.SHDSL Wireless Router with 3G, 802.11n (Americas-A, Europe-E)
C881SRSTW-GN-A-K9, E-K9	Cisco 881 SRST Ethernet Security Router with FXS, FXO: 802.11n (Americas-A, Europe-E)
C888SRSTW-GN-A-K9, E-K9	Cisco 881 SRST Ethernet Security Router with FXS, BRt: 802.11n (Americas-A, Europe-E)
CISCO891W-AGN-A-K9, N-K9	Cisco 891W Gigabit Ethernet Security Router w/ 802.11n (Americas-A, Australia-N)
CISCO892W-AGN-E-K9	Cisco 892W Gigabit Ethernet Security Router w/ 802.11n ETSI Comp

For More Information

For more information about the Cisco 800 Series, visit: <http://www.cisco.com/go/800>.

Cisco 7000 Series Port Adapter Compatibility Matrix						
ATM Port Adapters	Cisco 7201	Cisco 7204VXR	Cisco 7206VXR	Cisco 7301	Cisco 7304 Carrier Card	Cisco 7600
PA-A3-8T1IMA 8-port ATM inverse Mux T1 port adapter	X	X	X	X	X	X
PA-A3-8E1IMA: 8-port ATM inverse Mux E1 (120 ohm) port adapter	X	X	X	X	X	X
PA-A6-OC3MM/SMI/SML: 1-port ATM OC-3 multimode, intermediate and long range port adapter	X	X	X	X	X ¹	X
PA-A6-T3 or E3: 1-port ATM DS3 (E3) port adapter	X	X	X	X	X ¹	X
Ethernet Port Adapters						
PA-2FE-TX/FX: 2-port Fast Ethernet 100Base-TX/FX port adapter	X	X	X	X	X	X
PA-4E: 4-port Ethernet 10BASE-T port adapter		X	X	X	X	
PA-8E: 8-port Ethernet 10BASE-T port adapter	X	X	X	X	X	
PA-GE: Gigabit Ethernet port adapter	X	X	X		X	
Serial Port Adapters						
PA-4T+: 4-port serial port adapter, enhanced	X	X	X	X	X	X ²

	Cisco 7201	Cisco 7204VXR	Cisco 7206VXR	Cisco 7301	Cisco 7304 Carrier Card	Cisco 7600
PA-4E1G/75: 4-port E1 G.703 serial port adapter (120 ohm/ balanced)	X	X	X	X	X	
PA-4E1G/120: 4-port E1 G.703 serial port adapter (120 ohm/ balanced)	X	X	X	X	X	X
PA-4T+: 4-port serial port adapter, enhanced	X	X	X	X	X	X ³
PA-8T-XXX: 8-port serial, 232, V.35, X.21 port adapter		X	X	X	X	X ²
High-speed Serial Port Adapters						
PA-H: 1-port HSSI port adapter	X	X	X	X	X	X ²
PA-2H: 2-port HSSI port adapter	X	X	X	X	X	X ²
PA-E3: 1-port E3 serial port adapter with E3 DSU	X	X	X	X	X	X ²
PA-2E3: 2-port E3 serial port adapter with E3 DSUs	X	X	X	X	X	X ²
PA-T3+: 1-port T3 serial port adapter, enhanced	X	X	X	X	X	X ²
PA-2T3+: 2-port T3 serial port adapter, enhanced		X	X	X	X	X ²
PA-T3/E3-EC: 1-Port Clear-Channel T3 or E3 Enhanced Capability	X	X	X	X	X	X ²
PA-2T3/E3-EC: 2-Port Clear-Channel T3 or E3 Enhanced Capability	X	X	X	X	X	X ²
Multichannel Serial Port Adapters						
PA-8B-S/T: 8-port BRI port adapter, S/T interface		X	X	X		
PA-MC-2T(1): 2-port multichannel T1 port adapter with integrated CSU/DSUs	X	X	X	X	X	
PA-MC-4T(1): 4-port multichannel T1 port adapter with integrated CSU/DSUs	X	X	X	X	X	X
PA-MC-8TE1+: 8-port multichannel T1/E1 8PRI port adapter	X	X	X	X	X	X
PA-MC-2E1/120: 2-port multichannel E1 port adapter with G.703 120 ohm interface	X	X	X	X	X	X
PA-MC-E3: 1-port multichannel E3 port adapter	X	X	X	X	X	X
PA-MC-T3-E3: 1-port multichannel T3 port adapter enhanced capability	X	X	X	X	X	X
PA-MC-2T3-E3: 2-port multichannel T3 port adapter enhanced capability	X	X	X	X	X	X
PA-MC-STM-1MM: 1-port multichannel STM-1 multimode port adapter	X	X	X	X	X	X

	Cisco 7201	Cisco 7204VXR	Cisco 7206VXR	Cisco 7301	Cisco 7304 Carrier Card	Cisco 7600
PA-MC-STM-1SMI: 1-port multichannel STM-1 single mode port adapter	X	X	X	X	X	X
PA-MCX-2TE(1): 2-port MIX-enabled multichannel T1/E1 with CSU/DSU	X	X	X			
PA-MCX-4TE(1): 4-port MIX-enabled multichannel T1/E1 with CSU/DSU	X	X	X			
PA-MCX-8TE(1): 8-port MIX-enabled multichannel T1/E1 with CSU/DSU	X	X	X			
SONET Port Adapters						
PA-POS-2OC3: 2-port OC-3/STM1 POS port adapter	X	X	X	X	X	X
PA-POS-1OC3: 1 Port Packet/SONET OC3/STM1 port adapter	X	X	X	X	X	X
Other Port Adapters and Service Adapters						
PA-4C-E: 1-port-enhanced ESCON channel port adapter		X	X			
C7200-VSA: VPN Services Adapter for the Cisco 7200		X	X			
SA-VAM2+: VPN acceleration module 2+	X ⁴	X	X			
PA-VXC-2TE1+: 2-port T1/E1 high-capacity enhanced-voice PA		X	X	X		
PA-VXB-2TE1+: 2-port T1/E1 moderate-capacity enhanced-voice PA		X	X	X		
PA-VXA-1TE1-24+: 1-port T1/E1 digital voice port adapter with 24 channels		X	X			
PA-VXA-1TE1-30+: 1-port T1/E1 digital voice port adapter with 30 channels		X	X			
PA-4R-DTR: 4-port dedicated Token Ring, 4/16 Mbps, HDX/FDX		X	X			

1. Support in 12.2(31)SB
2. Native
3. Native
4. (12.4 (6th release)T)

Cisco 7600 Series Routers

The Cisco 7600 Series Routers combine optical WAN and metropolitan-area network (MAN) networking and high-volume Ethernet aggregation with a focus on the delivery of high-touch services for the IP and Multiprotocol Label Switching (MPLS) edge. These routers combine Layer 2 and Layer 3 networking capabilities with a high-bandwidth, high-performance architecture, including hardware-based forwarding of Multiprotocol Label Switching (MPLS), IPv4, and IPv6. Cisco 7600 Series form factors include the Cisco 7603-S, 7604, 7606-S, 7609-S, and 7613 models. Each router can deliver DS-0 to OC-192 WAN and n x 10-Mbps Ethernet to n x 10-Gigabit Ethernet connectivity into service provider edge, MAN, and enterprise networks for a variety of



quad-play (data, voice, video, and mobile) and aggregation solutions. All Cisco 7600 Series Routers comply with Network Equipment Building Standards (NEBS) and have a 30-Mpps forwarding rate. The following bandwidth and forwarding rate numbers assume the Sup720 Engine.

Ideal for Companies That Need These Features

- Cisco 7603

- Three-slot (horizontal) chassis
 - 320-Gbps backplane bandwidth
- Cisco 7604

- Four-slot (horizontal) chassis
 - 320-Gbps backplane bandwidth
- Cisco 7606

- Six-slot (horizontal) chassis
 - 480-Gbps backplane bandwidth
- Cisco 7609

- Nine-slot (vertical) chassis
 - 720-Gbps backplane bandwidth
- Cisco 7609-S

- Nine-slot (vertical) chassis
 - 720-Gbps backplane bandwidth
- Cisco 7613

- Thirteen-slot (horizontal) chassis
 - 720-Gbps backplane bandwidth

Key Features

- Cisco 7600 Series Routers provide up to 30-Mpps central or up to 400-Mpps distributed forwarding with hardware-accelerated IPv4, IPv6, and Multiprotocol Label Switching (MPLS).
- The modular routers are scalable from 32- to 720-Gbps switch fabric.
- These routers represent one of the widest, most complete ranges of WAN interfaces in the industry, with DS-0 to OC-192 connectivity.
- Using the Cisco 7600 Series/Catalyst 6500 Series Enhanced FlexWAN Module, Cisco 7000 Series port adapters are shared with the Cisco 7200, 7300, 7400, and 7500 models, simplifying sparing and protecting customer investment in interfaces.
- Cisco 7600 Series Routers support many Cisco Catalyst 6500 LAN interfaces, offering n x 10-Mbps Ethernet to 10 Gbps.

Specifications

Feature	Cisco 7603	Cisco 7604	Cisco 7606	Cisco 7609	Cisco 7613
Fixed Ports	SFP & 10/100/1000 (Sup720)	Same as Cisco 7603	Same as Cisco 7603	Same as Cisco 7603	Same as Cisco 7603
Expansion Slots	3 (horizontal)	4 (horizontal)	6 (horizontal)	9 (vertical)	13 (horizontal)
WAN Interface Range	DS0 to OC-192	Same as Cisco 7603	Same as Cisco 7603	Same as Cisco 7603	Same as Cisco 7603
Processor	Supervisor720-3B Supervisor720-3BXL Supervisor 32 RSP720-3C RSP720-3CXL RSP720-10G-3C RSP720-10G-3CXL	Same as Cisco 7603	Same as Cisco 7603	Same as Cisco 7603	Same as Cisco 7603
Forwarding Rate	Up to 30 Mpps	Same as Cisco 7603	Same as Cisco 7603	Same as Cisco 7603	Same as Cisco 7603
Backplane Capacity	240 Gbps	320 Gbps	480 Gbps	720 Gbps	720 Gbps
Flash PCMCIA Memory	up to 512MB	Same as Cisco 7603	Same as Cisco 7603	Same as Cisco 7603	Same as Cisco 7603
System DRAM Memory	512MB on Sup720-3B 1G on Sup720-3BXL 1G on RSP720-3C 2G on RSP720-3CXL	Same as Cisco 7603	Same as Cisco 7603	Same as Cisco 7603	Same as Cisco 7603
Internal Power Supply	AC or DC	Same as Cisco 7603	Same as Cisco 7603	Same as Cisco 7603	Same as Cisco 7603
RPS Support	Yes	Same as Cisco 7603	Same as Cisco 7603	Same as Cisco 7603	Same as Cisco 7603

Chassis Height	4 RU	5 RU	7 RU	20 RU	18 RU
Rack Mountable	Yes, up to 11 per rack	Yes, up to 10 per rack	Yes, up to 6 per rack	Yes, up to 2 per rack	Yes, up to 2 per rack
Dimensions (H x W x D)	7 x 17.37 x 20.3 in.	7 x 17.37 x 21.75 in.	12.25 x 17.37 x 21.75 in.	36.75 x 17.2 x 20.7 in.	33.3 x 17.2 x 18.1 in.

Selected Part Numbers and Ordering Information

Cisco 7609 Systems	
7609-RSP720C-P	Cisco 7609 Chassis,9-slot,RSP720-3C,PS
7609-RSP720CXL-P	Cisco 7609 Chassis,9-slot,RSP720-3CXL,PS
7609S-RSP720C-P	Cisco 7609S Chassis,9-slot,RSP720-3C,PS
7609S-RSP720CXL-P	Cisco 7609S Chassis,9-slot,RSP720-3CXL,PS
7609S-S32-10G-B-P	Cisco 7609S Chassis,9-slot,SUP32-2X10GE-3B,PS
7609S-S32-8G-B-P	Cisco 7609S Chassis,9-slot,SUP32-8GE-3B,PS
7609S-SUP720B-P	Cisco 7609S Chassis,9-slot,SUP720-3B,PS
7609S-SUP720BXL-P	Cisco 7609S Chassis,9-slot,SUP720-3BXL,PS
CISCO7609	Cisco 7609 Chassis
CISCO7609-S	Cisco 7609-S Chassis
CISCO7609/EHA1	Bundle: Cisco Enhanced Home Agent R1 for 7609 (300k Sessions)
7609-S323B-8G-P	Cisco 7609 Chassis, 9-slot, SUP32-8GE-3B, PS
7609-S323B-10G-P	Cisco 7609 Chassis, 9-slot, SUP32-2X10GE-3BB, PS
7609-SUP720XL-PS	Cisco 7609 9-slot, SUP720-3BXL and PS
7609-SUP7203B-PS	Cisco 7609 Chassis, 9-slot, SUP7203B, Power Supply
7609-2SUP7203B-2PS	Cisco 7609 Chassis, 9-slot, 2 SUP7203B, 2 Power Supply
7609-VPN+K9	Cisco 7609 IPSec VPN System Bundle
Cisco 7606 Systems	
7606-RSP720C-P	Cisco 7606 Chassis,6-slot,RSP720-3C,PS
7606-RSP720CXL-P	Cisco 7606 Chassis,6-slot,RSP720-3CXL,PS
CISCO7606	Cisco 7606 Chassis
CISCO7606-S	Cisco 7606-S Chassis
7606-S323B-8G-P	Cisco 7606 Chassis, 6-slot, SUP32-8GE-3B, PS
7606-S323B-10G-P	Cisco 7606 Chassis, 6-slot, SUP32-2X10GE-3B, PS
7606-SUP720XL-PS	Cisco 7606 6-slot, SUP720-3BXL and PS
7606-SUP7203B-PS	Cisco 7606 Chassis, 6-slot, SUP7203B, Power Supply
7606-2SUP7203B-2PS	Cisco 7606 Chassis, 6-slot, 2 SUP7203B, 2 Power Supply
CISCO7606-CHASS	Cisco 7606 Chassis
7606-VPN+K9	Cisco 7606 IPSec VPN System Bundle
7606S-RSP720C-P	Cisco 7606S Chassis,6-slot,RSP720-3C,PS
7606S-RSP720CXL-P	Cisco 7606S Chassis,6-slot,RSP720-3CXL,PS
7606S-S32-8G-B-P	Cisco 7606S Chassis,6-slot,SUP32-8GE-3B,PS
7606S-S32-10G-B-P	Cisco 7606S Chassis,6-slot,SUP32-2X10GE-3B,PS
7606S-SUP720B-P	Cisco 7606S Chassis,6-slot,SUP720-3B,PS

7606S-SUP720BXL-P	Cisco 7606S Chassis,6-slot,SUP720-3BXL,PS
Cisco 7604 Systems	
CISCO7604	Cisco 7604 Chassis
7604-RSP720C-P	Cisco 7604 Chassis,4-slot,RSP720-3C,PS
7604-RSP720CXL-P	Cisco 7604 Chassis,4-slot,RSP720-3CXL,PS
7604-S323B-8G-P	Cisco 7604 Chassis, 4-slot, SUP32-8GE-3B, PS
7604-S323B-10G-P	Cisco 7604 Chassis, 4-slot, SUP32-2X10GE-3B, PS
7604-SUP7203B-PS	Cisco 7604 Chassis, 4-slot, SUP720-3B, PS
7604-2SUP7203B-2PS	Cisco 7604 Chassis, 4-slot, 2 SUP720-3B, 2 PS
7604-SUP720XL-PS	Cisco 7604 chassis, 4-slot, SUP720-3BXL, PS
7604-2SUP720XL-2PS	Cisco 7604 Chassis, 4-slot, 2SUP720-3BXL, 2 PS
7604-VPN+-K9	Cisco 7604 IPSec VPN System Bundle
Cisco 7603 Systems	
7603S-RSP720C-P	Cisco 7603S Chassis,3-slot,RSP720-3C,PS
7603S-RSP720CXL-P	Cisco 7603S Chassis,3-slot,RSP720-3CXL,PS
7603S-S32-10G-B-P	Cisco 7603S Chassis,3-slot,SUP32-2X10GE-3B,PS
7603S-S32-8G-B-P	Cisco 7603S Chassis,3-slot,SUP32-8GE-3B,PS
7603S-SUP720B-P	Cisco 7603S Chassis,3-slot,SUP720-3B,PS
7603S-SUP720BXL-P	Cisco 7603S Chassis,3-slot,SUP720-3BXL,PS
CISCO7603-S	Cisco 7603-S Chassis
Cisco 7613 Systems	
7613-RSP720C-P	Cisco 7613 Chassis,13-slot,RSP720-3C,PS
7613-RSP720CXL-P	Cisco 7613 Chassis,13-slot,RSP720-3CXL,PS
CISCO7613	Cisco 7613 Chassis
CISCO7613/EHA1	Bundle: Cisco Enhanced Home Agent R1 for 7613 (600k Sessions)
7613-S323B-8G-P	Cisco 7613 Chassis, 13-slot, SUP32-8GE-3B, PS
7613-S323B-10G-P	Cisco 7613 Chassis, 13-slot, SUP32-2X10GE-3B, PS
7613-SUP720XL-PS	Cisco 7613 13-slot, SUP720-3BXL and PS
7613-SUP7203B-PS	Cisco 7613 Chassis, 13-slot, SUP7203B, Power Supply
7613-2SUP7203B-2PS	Cisco 7613 Chassis, 13-slot, 2 SUP7203B, 2 Power Supply
7613-VPN+-K9	Cisco 7613 IPSec VPN System Bundle

For More Information

For more information about the Cisco 7600 Series Routers, visit: <http://www.cisco.com/go/7600>.

Cisco 7300 Series Routers

The Cisco 7300 Series Routers are optimized for flexible, high-performance IP/ Multiprotocol Label Switching (MPLS) services at the network, WAN, and broadband edge, where service providers and enterprises link together. The Cisco 7304 is ideally applied as a high-end customer premises equipment (CPE) or as an Internet gateway router. Architected for network high availability and multiprotocol support, it supports the broad set of existing Cisco 7000 Series port adapters with the Cisco 7304 Port Adapter Carrier Card while also supporting the new shared port adapters (SPAs) with the Cisco 7304 Multiservice Carrier Card (MSC). The Cisco 7301 is targeted at principal application areas within a service provider network in a compact, single-rack form factor coupled with a broad set of interfaces and Cisco IOS Software features. It packs high performance of up to 1 Mpps in a space- and power-efficient form factor that includes a single Cisco 7000 Series port adapter slot and 3 onboard Gigabit Ethernet (copper or optical) or Fast Ethernet ports.



Ideal for Companies That Need These Features

- Cisco 7301

 - Compact, power-efficient 1RU form factor
 - Three times the performance increase over the Cisco 7401
 - Single Cisco 7000 Series port adapter slot
- Cisco 7304

 - Highly modular price- and performance-optimized platform, rich in IP services
 - High-performance connectivity—DS-1 through OC48/STM16 with 3.5-Mpps performance
 - Built-in Gigabit Ethernet connectivity
 - Support for SPAs: Multiprotocol routing—IP, IPX, AppleTalk, and DLSw
 - Compact size, high availability and optimal cooling

Key Features

- Cisco 7301—This router offers up to 1 Mpps processing performance; Pluggable Gigabit Ethernet optics (Small Form-Factor Pluggables [SFPs]); 3 fixed 10-/100-/1000-Mbps ports (RJ-45 or SFP optics) directly on the processor; Full Cisco IOS Software feature support; Up to 1 GB of available DRAM; up to 256 MB of removable Compact Flash memory; Front-to-back airflow and single-sided management
- Cisco 7304—This router is a mid-range, price/performance optimized Internet router. It delivers high-performance services in IP and MPLS networks, optimized for the network edge where the service provider meets the enterprise, such as service provider PE and IP edge router as well as CPE or enterprise Internet gateway and enterprise WAN aggregation; Comes with a choice of two route processors: Cisco 7304 NSE-150 Network Services Engine and Cisco 7300 NPE-G100 Network Processing Engine; the Cisco 7304 NSE-150 offers Cisco Parallel Express Forwarding-based performance; Provides hardware-accelerated services such as Cisco Parallel Express Forwarding, NetFlow v8, and Turbo Access Control List (ACL); Offers up to 3.5-Mpps performance for Cisco Parallel Express Forwarding-accelerated services with the Cisco 7304 NSE-150 Network Processing Engine; Provides four onboard Gigabit Ethernet interfaces per Cisco 7304 NSE-150 and three Gigabit Ethernet interfaces per Cisco 7300 NPE-G100; offers up to 1-Mpps performance; Provides system redundancy—Optional dual processors and dual AC or DC power supplies increase network availability; Cisco 7304 NSE-150 engine offers unmatched price-to-performance ratio—Cisco Parallel Express Forwarding technology delivers hardware-accelerated network services with up to 3.5-Mpps forwarding rate; improved performance and scalability with 800-MHz microprocessor and 2-Gb main memory; and high platform port density with up to 4 onboard Gigabit Ethernet ports.

Specifications

Feature	Cisco 7301	Cisco 7304
Fixed Ports	Three Gigabit Ethernet ports	NPE-G100: 3 Gigabit Ethernet Ports NSE-150: 4 Gigabit Ethernet Ports
Expansion Slots	1	4
WAN Interface Range	DS-1 to OC-3	DS-1 to OC-48
Forwarding Rate	Up to 1 Mpps	NSE-150: Up to 3.5Mpps; NPE-G100: Up to 1 Mpps
Backplane Capacity	1.2 Gbps	16 Gbps
Flash PCMCIA Memory	64 MB (expandable to 256 MB)	NPE-G100: 256 MB; NSE-150: 256MB
System DRAM Memory	512 MB (expandable to 1 GB)	NPE-G100: 1 GB; NSE-150: 2 GB
Min Cisco IOS Release	12.2(11)YZ	NPE-G100: 12.2(20)S; NSE-150: 12.2(31)SB2
Internal Power Supply	AC or DC	AC or DC
RPS Support	Yes, for AC or DC	Yes, for AC or DC
Chassis Height	1 RU	4 RU
Rack Mountable	Yes, up to 40 per rack	Yes, up to 11 per rack
Dimensions (H x W x D)	1.73 x 17.3 x 13.87 in. (4.39 x 43.94 x 35.23 cm.)	7 x 17.2 x 20.5 in. (17.78 x 43.69 x 52.07 cm.)

Selected Part Numbers and Ordering Information

Cisco 7304 System	
CISCO7304=	Cisco 7300, 4-slot chassis
CISCO7304-G100	4-slot chassis, NPE-G100, 1 Power Supply
CISCO7304-G100-CH	Channel bundle:chassis,G100,PWR-AC,MEM-1GB,CFM-256,IOS,FAN
CISCO7304-NSE-150	4-slot chassis, NSE-150, 1 Power Supply, 2GB Memory

CISCO7304CH-NSE150	Channel bundle: chassis, NSE-150, PWR-AC, IOS IP PLUS, FAN
Cisco 7301 System	
CISCO7301=	Cisco 7301 chassis, 256MB memory, A/C power, 64MB Flash
CISCO7301-BB	Cisco 7301, 512MB Mem, 16K license, 64MB Flash, A/C power, IP/IOS
CISCO7301-BB-8K	7301, 256M SDRAM, 8K Sub Broadband Feature License
CISCO7301BB-1G	7301, 1 G Mem, 64MB Fl, AC Pwr, IP IOS, up to 16k sub BBA lic
CISCO7301BB-8K-1G	7301, 1 G Mem, 64MB Fl, AC Pwr, IP IOS, up to 8k sub BBA lic
CISCO7301/ITP/BUN	ITP Signaling Gateway Bundle
CISCO7301/2+VPN9	7301, VAM2+, AC pwr, 512 sys mem, SDM

For More Information

For more information about the Cisco 7300 Series, visit: <http://www.cisco.com/go/7300>.

Cisco 7200 Series Routers

The Cisco 7200 Series Routers (Cisco 7201, Cisco 7204VXR, and Cisco 7206VXR) deliver an exceptional price-to-performance ratio, versatility, and feature richness in a compact form factor. The Cisco 7200 is an optimized integrated services aggregation OC-3/Gigabit Ethernet edge router that is ideal as a WAN aggregator for the service provider (small point of presence [POP]) or enterprise edge, as an enterprise WAN gateway, as high-end managed customer premises equipment (CPE), for IBM data center connectivity, or as a small core router. With the hardware-supported IP Security (IPSec) encryption module as well as robust firewall and Virtual Route Forwarding (VRF)-aware IPSec with Network Address Translation (NAT) support, the Cisco 7200 Series is ideal for integrated security services. The Cisco 7200 also supports gatekeeper and IP-to-IP gateway functions. Modularity combined with a low initial price point helps guarantee both investment protection and maximum return on investment, allowing customers to upgrade or redeploy their Cisco 7200 Series Router as their network needs change.



Ideal for Companies That Need These Features

Cisco 7201

- 1-slot chassis
- Built-in NPE-G2 Network Processing Engine with up to 2 Mpps
- WAN services aggregation (for example, Multiprotocol Label Switching [MPLS] provider edge traffic segmentation)
- Integrated edge services (for example, integrated security)
- Multiservice Interchange (MIX)-enabled bus for data, voice, and video applications

Cisco 7204VXR Router

- 4-slot chassis
- Modular processor—400 kpps, 1 Mpps, or 2 Mpps (Cisco NPE-400, Cisco NPE-G1, and Cisco NPE-G2 Network Processing Engines)
- 1.8-Gbps backplane
- WAN services aggregation (for example, MPLS provider edge traffic segmentation)
- Integrated edge services (for example, integrated security)
- MIX-enabled bus for data, voice, and video applications

Cisco 7206VXR Router

- All the features of the Cisco 7204VXR Router plus a 6-slot chassis

Key Features

- Compact form factor—The router offers up to six port adapters in a fully modular 3RU form factor: seven port adapters with a port adapter jacket card; choice of a 1-slot, and a 1RU chassis with built-in Cisco NPE-G2.
- Modularity—The router has choices of 1-, 4-, and 6-slot chassis, a selection of processors providing up to 2 Mpps, an extensive range of LAN and WAN interfaces with up to 48 ports per chassis, and single or dual power supplies. Chassis are expandable to an additional slot by using an I/O slot as a port or service adapter slot by using the port adapter jacket card.
- Exceptional value—The router offers superior price-to-performance ratio supporting high-speed media and high-density configurations with up to 2 million packets per second processing at a competitive price point.
- Feature richness—The router supports Cisco IOS Software and enhancements for high-performance network services. It offers industry-leading network services, including MPLS; route reflectors; broadband aggregation; the Cisco IOS Intelligent Services Gateway; QoS; service management; IBM data center; storage-area-network application; security; voice, video, and data support; and gatekeeper and IP-to-IP gateway (session border controller) support.
- Connectivity and flexibility—The router provides high port density and an extensive range of LAN and WAN media.

- Common port adapters—Port adapters are shared with the Cisco 7300 and 7600 Series (with the Cisco FlexWAN Module), simplifying sparing and protecting customer investment in interfaces.
- IP-to-IP gateway—Highest capacity of call support in Cisco router portfolio

Specifications

Feature	Cisco 7201	Cisco 7204VXR	Cisco 7206VXR
Fixed Ports	4 GE	0	0
Expansion Slots	1	4 (5 with port adapter jacket card ¹ utilizing the I/O slot)	6 (7 with port adapter jacket card utilizing the I/O slot)
WAN Port Adapters	DS0 to OC-3	DS0 to OC-3	Same as 7204VXR
Forwarding Rate	Up to 2 Mpps	Up to 2 Mpps	Up to 2 Mpps
Backplane Capacity	N/A	1.8 Gbps (with NPE-G2)	Same as 7204VXR
Flash (Compact) Memory	256 MB (default and max.)	For NPE-G2: 256 MB (default and max.) For NPE-G1: 64 MB (expandable to 256 MB)	Same as 7204VXR
Flash (PCMCIA) Memory (I/O Controller Card required for NPE-400)	N/A	64 MB (expandable to 128 MB)	Same as 7204VXR
System DRAM Memory	1 GB (default); 2 GB (max.)	NPE-G2: 1 GB (default); 2 GB (max.) NPE-G1: 512 MB (default); 1 GB (max.) NPE-400: 256 MB (default); 512 MB (max.)	Same as 7204VXR
Minimum Cisco IOS Release	<ul style="list-style-type: none"> • Cisco 7201: 12.4(4)XD7; 12.2(31)SB4; 12.4(15)T • Cisco 7204VXR: NPE-G2: 12.4(4)XD; 12.4(15)T; 12.2(31)SB4 (and later); NPE-G1: 12.2(4)BW, 12.2(15)B, 12.2(14)S, 12.2(14)SU, 12.2(15)T, 12.1(14)E, 12.3(1), 12.3(2)T, 12.0(28)S, 12.3(1a)B (and later); NPE-400: 12.0(14)S, 12.1(3)E, 12.1(5)T, 12.2(1)T, 12.2(1) (and later) • Cisco 7206VXR: Same as 7204VXR 		
Internal Power Supply	Dual AC or Dual DC – By default	AC or DC, dual option	Same as 7204VXR
Redundant Power Supply	Yes, Dual AC or DC by default	Yes, for AC or DC	Same as 7204VXR
Chassis Height	1 RU	4 RU	6 RU
Rack Mountable	Yes	Yes, up to 16 per rack	Same as 7204VXR
Dimensions (H x W x D)	1.75 x 19 x 16.9 in.	5.25 x 16.8 x 17 in.	10.5 x 16.8 x 17 in.

1. Jacket Card part number: C7200-JC-PA

Selected Part Numbers and Ordering Information

Cisco 7200 Series Chassis	
CISCO7201	Cisco 7201 router, with built-in dual power supplies, NPE-G2, and IP Software
Cisco 7200 NPE Bundles	
7206VXR/NPE-G2	Cisco 7206VXR with NPE-G2 includes 3GigE/FE/E Ports and IP SW
7206VXR/NPE-G1	Cisco 7206VXR with NPE-G1 includes 3GigE/FE/E Ports and IP SW
Cisco 7200 MPLS/IPv6 Bundles	
7206-IPV6/ADSVC/K9	Cisco 7206VXR IPv6/Adv. Ent. Services with NPE-G2
Cisco 7200 Security Bundles	
7206VXRG2/VSAPVNK9	Cisco 7206VXR chassis, NPE-G2, C7200-VSA Security Module, 256 MB Flash, 1GB DRAM, IOS ADVANCED SECURITY, SDM
7206VXRG2/2+VPNK9	Cisco 7206VXR NPE-G2 Bundle with Advanced Security IOS, 3 FE/GE, 64 MB Flash/1 GB DRAM, VAM2+
7206VXRG1/2+VPNK9	Cisco 7206VXR, NPE-G1, SA-VAM2+, AC pwr, 512 sys mem, SDM
Cisco 7200 Broadband Bundles	

CISCO7206-BB	Cisco 7206 Broadband Bundle NPE-G1 includes 3GigE/FE/E Ports
Cisco 7200 CPE Bundle	
7204VXR/CPE	Cisco 7204VXR w/ NPE-225, 2 FE I/O, choice of specified WAN PA
Cisco 7200 Channel Bundles	
CISCO7204VXR-CH	Cisco 7204VXR, 4-slot chassis, 1 AC Supply w/ IP Software
CISCO7206VXR-CH	Cisco 7206VXR, 6-slot chassis, 1 AC Supply w/ IP Software
Cisco 7200 MPLS/IPv6 Bundles	
7206-IPV6/ADSVC/K9	Cisco 7206VXR IPv6/Adv. Ent. Services with NPE-G2

For More Information

For more information about the Cisco 7200 Series, visit: <http://www.cisco.com/go/7200>.

Cisco ASR 9000 Series Aggregation Services Routers

The Cisco ASR 9000 Series represents an exciting new paradigm in the world of Carrier Ethernet transport with exceptional scalability, carrier-class reliability, environmentally conscious design, incredible flexibility, and an enticing new price-to-performance benchmark.

The Cisco ASR 9000 Series is being introduced in two form factors: the Cisco ASR 9010 Router and the Cisco ASR 9006 Router. Cisco ASR 9000 Series Routers are designed to provide true carrier-class reliability using the Cisco IOS XR operating system, comprehensive system redundancy, and a full complement of network resiliency schemes.

The Cisco ASR 9000 Series also offers service and application-level intelligence focused on optimized video delivery and mobile aggregation. Finally, the Cisco ASR 9000 Series is designed to simplify and enhance the operational and deployment aspects of service-delivery networks.



Key Features

- Cisco IOS XR modular operating system—The Cisco ASR 9000 Series leverages the Cisco IOS XR operating system made famous by the highly successful Cisco CRS-1 Carrier Routing System platform in core deployments. The Cisco IOS XR operating system is purpose-built for distributed systems such as the Cisco ASR 9000 Series, and uses a microkernel architecture to achieve true modularity. This modularity provides the path to nonstop operations during software image upgrades or module changes, without affecting normal platform operations.
- Fully distributed system—The Cisco ASR 9000 Series operates in a fully distributed fashion; that is, all packet-forwarding decisions and actions take place on the individual line cards. These high-density Ethernet line cards are equipped with a specialized network processor that provides a flexible programming infrastructure with high-density hierarchical quality-of-service (H-QoS) services, security, and integrated synchronous Ethernet. The distributed nature of the Cisco ASR 9000 Series improves resiliency by adding a new dimension in scale for features such as bidirectional forwarding detection (BFD) and Ethernet operations, administration, and maintenance (E-OAM).
- Operationally efficient and redundant hardware—The Cisco ASR 9000 Series provides an infrastructure where all common components, route switch processors (RSPs), switching fabric, fans, and power supplies, are completely redundant. In addition, the platform is designed such that power is used on an as-needed basis depending on system requirements. Power has been modularized for a true pay-as-you-grow approach, reducing capital expenditures (CapEx) and again providing an operationally efficient deployment. The Cisco ASR 9000 also provides a space-optimized small-platform option that uses the Series' common components and retains a central office deployment-ready capability using a patent-pending side-to-back airflow design.
- Environmentally conscious design—In today's world of increasing awareness of the human impact on the environment and the resultant fiscal implications, Cisco ASR 9000 Series Routers bring a fresh new "conscious" approach to product development. From optimal thermal design to the architecture of the power infrastructure, from the placement of line card components to the pitch of each slot, every design aspect had one goal in mind: reduced environmental impact through lowered power consumption and decreased cooling requirements. Even the product packaging process was evaluated to minimize the use of packaging material and thereby reduce waste at customer locations. The Cisco ASR 9000 Series is an example of the continued Cisco commitment to efficient and future-friendly product design.

Specifications

Model	Cisco ASR 9010	Cisco ASR 9006
Dimensions	Height—36.75 in. (933.5 mm) Width—175 in. (444.5 mm) Depth: <ul style="list-style-type: none"> With doors—31.45 in. (798.8 mm) Without doors—28.65 in (727.2 mm) Weight: <ul style="list-style-type: none"> 191 lbs (86.8 kg) (Unloaded) 375 lb (170.5 kg) (maximum) 	Height—175 in. (444.5 mm) Width—175 in. (444.5 mm) Depth: <ul style="list-style-type: none"> With doors—31.45 in. (798.8 mm) Without doors—28.65 in (727.2 mm) Weight: <ul style="list-style-type: none"> 110 lbs (50 kg) (Unloaded) 230 lbs (106.8 kg) (Fully Loaded)
Slot Orientation	Vertical	Horizontal
Cisco ASR 9000 Series RSP	Dual redundant RSPs in 2 slots	Same as Cisco ASR 9010
Cisco ASR 9000 Series LCs	Eight line card slots	Four line card slots
“Commons” Components	Two RSPs Two fan trays Two PEMs (either DC or AC) One fan filter	Two RSPs Two fan trays One PEM (either DC or AC) One fan filter
Reliability and Availability	Fabric redundancy Fan redundancy Feed redundancy Power-supply redundancy RSP redundancy Software redundancy	Same as Cisco ASR 9010
Rack Mounting	Yes <ul style="list-style-type: none"> 19-inch 21 and 23 inch adapters available 	Same as Cisco ASR 9010 Note: Minimum 1775-in. opening between posts is needed for proper operation.
Airflow	Front-to-back	Side-to-back
Chassis Switching	Up to 6.4 Tbps	Up to 3.2 Tbps
Capacity		
Fabric	One per RSP <ul style="list-style-type: none"> Active /Active non-blocking operation mode in dual RSP redundant configuration. Fully redundant in dual RSP redundant configuration Built-in service-intelligence and traffic-prioritization capability 	Same as Cisco ASR 9010
Thermal	Two fan trays <ul style="list-style-type: none"> Twelve high-efficiency fans per tray Variable-speed fans for optimal thermal performance No single point of failure 	Two fan trays <ul style="list-style-type: none"> Six high-efficiency fans per tray Variable-speed fans for optimal thermal performance No single point of failure
Power		
Modularity	<ul style="list-style-type: none"> Up to 6 power modules (AC or DC) for future scalability Multiple power module types <ul style="list-style-type: none"> 3-kW AC power module 2.1 and 1.5-kW DC power modules Note: Mixing of AC and DC modules is not supported. DC modules can be mixed and matched.	<ul style="list-style-type: none"> Up to 3 power modules (AC or DC) for future scalability Multiple power module types <ul style="list-style-type: none"> Same as Cisco ASR 9010 Note: Mixing of AC and DC modules is not supported. DC modules can be mixed and matched.
Redundancy	<ul style="list-style-type: none"> Module redundancy: 1:N-1:1 Feed redundancy PEM redundancy 	<ul style="list-style-type: none"> Module redundancy: 1:N-1:1 Feed redundancy

Selected Part Numbers and Ordering Information

Cisco ASR 9000 Series Chassis	
ASR-9010-AC/ASR-9010-DC	Cisco ASR 9010 chassis
ASR-9006-AC/ASR-9010-DC	Cisco ASR 9006 chassis

For More Information

For more information about the Cisco ASR 9000 Series, visit: <http://www.cisco.com/en/US/products/ps9853/index.html>.

Cisco ASR 1000 Series Aggregation Services Routers

The Cisco ASR 1000 Series Aggregation Services Routers include four versions: the Cisco ASR 1002-Fixed Router, the Cisco ASR 1002 Router, the Cisco ASR 1004 Router, and the Cisco ASR 1006 Router. All four models use the new, innovative, and powerful Cisco QuantumFlow Processor and are optimized for both service provider and enterprise deployments.



The Cisco ASR 1000 Series delivers multiple services embedded in the Cisco QuantumFlow Processor at wire speeds of up to 20 Gbps. The services supported on the Cisco Packet QuantumFlow Processor include security services (for example, encryption and firewall), quality of service (QoS), Network-Based Application Recognition (NBAR), Cisco IOS Flexible Packet Matching (FPM), broadband aggregation, and session border controller, among others.

With the separation of the control and data planes in the Cisco ASR 1000 Series Router architecture, software redundancy (on the Cisco ASR 1002-F, 1002, and 1004 models) and hardware redundancy (on the Cisco ASR 1006 Router) are provided. Additionally, the modular Cisco IOS XE Software that is introduced with the Cisco ASR 1000 Series facilitates In Service Software Upgrade (ISSU), I/O connectivity is provided through shared port adapters (SPAs), which are housed in the SPA Interface Processor (SIP) card.

From a price-to-performance perspective, the Cisco ASR 1000 Series Router solution fits well between the Cisco 7200 and Cisco 7300 Series and the Cisco 7600 and Cisco Catalyst 6000 Series Switches, thus dramatically enhancing the Cisco midrange routing portfolio.

All the following Cisco ASR 1000 Series Aggregation Services Routers offer L3VPN, route reflector, WAN services aggregation, managed customer premises equipment (CPE), and Layer 2 Tunneling Protocol access concentrator (LAC) or Layer 2 Tunneling Protocol network server (LNS).

Ideal for Companies That Need These Features

Cisco ASR 1002-Fixed

- Support for one SPA
- Support for one integrated 10-Gigabit SIP (ASR1000-SIP10)
- Support for one integrated route processor (ASR1000-RP1)
- Support for one integrated embedded services processor engine (ASR1000-ESP2.5)
- Built-in four 1-Gigabit Ethernet ports
- Support of Software Redundancy

Cisco ASR 1002

- Support for three SPAs
- Support for one integrated 10-Gigabit Ethernet SIP (ASR1000-SIP10)
- Support for one integrated route processor (Cisco ASR 1000 Series RP1)
- Support for one embedded services processor (Cisco ASR 1000-ESP5 or ASR1000-ESP10)
- Built-in four 1-Gigabit Ethernet ports
- Support of Software Redundancy

Cisco ASR 1004

- Support for eight SPAs
- Support for two SIP cards (ASR1000-SIP10), each with 4 SPA slots
- Support for one route processor (ASR 1000-RP1 or ASR1000-RP2)
- Support for one embedded services processor (ASR 1000-ESP10 or ASR1000-ESP20)
- Support of Software Redundancy

Cisco ASR 1006

- Support for twelve SPAs
- Support for three SIP cards (ASR1000-SIP10), each with 4 SPA slots
- Support for up to two route processors (ASR 1000-RP1 or ASR1000-RP2)
- Support for up to two embedded services processors (ASR1000-ESP10 or ASR1000-ESP20)
- In-box hardware redundancy (dual ESP and dual route processor)

Key Features

- Compact form factor—The Cisco ASR 1000 Series offers 2.5-Gigabit throughput in a compact 2-rack unit chassis with fixed components, up to 10-Gigabit Ethernet throughput in compact modular 2-rack unit (2RU) form factor, and up to 20 Gigabit throughput in a modular 4-rack unit (4RU) and modular 6-rack unit (6RU) form factors.
- Modularity—Cisco offers a choice of four chassis that support 1, 3, 8, or 12 SPAs, a selection of embedded services processors (forwarding processors) providing up to 20-Gigabit throughput, and a growing range of LAN and WAN interfaces, SIPs, SPAs, route processors, and embedded services processors are all modular and fully upgradable as future generations are released (with the exception of SIP carrier card and route processor on the Cisco ASR 1002 and the SIP carrier card, route processor, and embedded services processor on the Cisco ASR 1002-Fixed chassis, which are integrated).
- Integrated services—Services can be enabled either at the time of ordering or after the router is already deployed. Encryption, Cisco IOS Software redundancy, firewall, Session Border Controller Functionality, and Flexible Packet Inspection (FPI, including Network Based Application Recognition (NBAR) and Flexible

Packet Matching (FPM)) can all be enabled by purchasing feature licenses with no need for hardware upgrades.

- High availability—Cisco offers in-box engine redundancy on the Cisco ASR 1006 and Cisco IOS Software redundancy on the Cisco ASR 1002-F, 1002 and 1004 models.
- Common SPAs—SPAs are shared with the Cisco Catalyst 6500 and Catalyst 7600 Series, simplifying sparing and protecting customer investment in interfaces.
- WebEx Node SPA – double-height SPA supported currently only on the ASR1002, ASR1004, and ASR1006 chassis maximizes bandwidth efficiency and user experience for WebEx users in the Enterprise.

Specifications

Feature	Cisco ASR1002-F	Cisco ASR1002	Cisco ASR1004	Cisco ASR1006
Fixed Ports	4 GE	4 GE	0	0
SIP Card Slots	Integrated	Integrated	2	3
Shared Port Adapter Slots	1	3	8	12
Forwarding Rate	Up to 3 Mpps	Up to 14 Mpps	Up to 20 Mpps	Up to 20 Mpps
System DRAM Memory	4 GB (default); 4 GB (max.)	4 GB (default); 4 GB (max.)	2 GB (default); 4 GB (max.)	2 GB (default); 4 GB (max.)
Minimum Cisco IOS Release	IOS XE 2.4.0	IOS XE 2.1.0	IOS XE 2.1.0	IOS XE 2.1.0
Redundant Power Supply	Yes, Dual AC or DC by default	Yes, Dual AC or DC by default	Yes, Dual AC or DC by default	Yes, Dual AC or DC by default
Chassis Height	2 RU	2 RU	4 RU	6 RU
Rack Mountable	Yes	Yes	Yes	Yes
Dimensions (H x W x D)	3.5 x 17.2 x 22 in.	3.5 x 17.2 x 22 in.	7.0 x 17.2 x 22 in.	10.5 x 17.2 x 22 in.
Airflow	Front-to-back	Front-to-back	Front-to-back	Front-to-back

Selected Part Numbers and Ordering Information

ASR1002-F	Cisco ASR1002 System, fixed ESP, Crypto, 4 built-in GE, Dual P/S, 4GB DRAM
ASR1002	Cisco ASR1002 chassis, 4 built-in GE, Dual P/S, 4GB DRAM
ASR1004	Cisco ASR1004 chassis, Dual P/S
ASR1006	Cisco ASR1006 chassis, Dual P/S

For More Information

For more information about the Cisco ASR 1000 Series, visit: <http://www.cisco.com/go/asr1000>.

Cisco XR 12000 and 12000 Series Routers

The Cisco XR 12000 and 12000 Series Routers compose a portfolio of intelligent routing solutions that scale from 2.5 to n x 10Gbps capacity per slot, facilitating carrier-class IP/Multiprotocol Label Switching (MPLS) networks and accelerating the evolution to IP next-generation networks.

Key Features

- The Cisco XR 12000 and 12000 Series Routers deliver up to 1.28-Tbps switching capacity with wire-speed feature performance, scalability, and graceful hardware and software upgrade paths.
- These routers offer full forward compatibility for all line cards and the portfolio of shared port adapters (SPAs) and SPA interface processors (SIPs).
- The routers scale to the edge, supporting backbone- or edge-optimized line cards in the same chassis.
- The routers maximize the value of line-rate edge applications with 10-G uplinks.
- IP quality of service (QoS) and congestion-control implementation facilitates real-time services such as voice over IP (VoIP) and video. The distributed architecture and class-of-service features of the routers, such as priority-based congestion control (Weighted Random Early Detection [WRED]) and dedicated Low Latency Queuing (Modified Deficit Round Robin [MDRR]), along with virtual output queuing (Virtual Output Queuing [VOQ]), eliminate head-of-line blocking (HOL) and maintain packet sequence integrity under all conditions.



- Non-service-affecting online insertion and removal (OIR) of components (including switch fabric cards) and front accessibility reduce downtime and simplify maintenance.
- Cisco Nonstop Forwarding (NSF) and Cisco Stateful Switchover (SSO) eliminate single points of failure, help maintain system performance, and prevent service interruption; packet forwarding remains uninterrupted before, during, and after a route-processor switchover.
- Performance Route Processor-3 (PRP-3)—PRP-3 is the premium route processor for the Cisco XR 12000 Series Router. This latest generation of Performance Route Processors (PRPs) vastly expands the processing power for control plane and management plane applications, providing up to 300% improvement over PRP-2 performance for such applications. The premium PRP-3 route processor greatly extends the lifetime of the Cisco XR 12000 Series platform.

Specifications

Feature	Cisco XR 12000/ 12000 16-slot Chassis	Cisco XR 12000/ 12000 Series 10- Slot Chassis	Cisco XR 12000/ 12000 Series 6-Slot Chassis	Cisco XR 12000/ 12000 Series 4-Slot Chassis
Slot Capacity	16 slots	10 slots	6 slots	4 slots
Aggregate Switching Capacity	12016: 80 Gbps; 12416: 320 Gbps; 12816: 1280 Gbps	12010: 50 Gbps; 12410: 200 Gbps; 12810: 800 Gbps	12006: 30 Gbps; 12406: 120 Gbps	12404: 80 Gbps
Full-Duplex Throughput Per	12016: 2.5 Gbps/slot 12416: 10 Gbps/slot 12816: 40 Gbps/slot	12010: 2.5 Gbps/slot 12410: 10 Gbps/slot 12810: 40 Gbps/slot	12006: 2.5 Gbps/slot 12406: 10 Gbps/slot	12404: 10 Gbps/slot
Dimensions (H x W x D)	71.5 x 172.5 x 22.0 in (181.6 x 184.2 ¹ x 55.9 cm); 72.5 x 18.75 x 24.0 in. ² ; (43.8 x 47.6 x 61.0 cm) ³	37.5 x 19 x 22.0 in. (95.25 x 48.26 x 55.9 cm); 24.0 in. (61.0 cm)	18.5 in. (47.0 cm) chassis width: 17.3 in. (43.9 cm); 18.9 in. (48.0 cm); chassis depth 28.0 in. (71.1 cm)	8.75 in. (22.23 cm) chassis width 17.38 in. (44.15 cm) 18.9 in. (48.01 cm) chassis depth 27.5 in. (69.85 cm)
Weight	140 lb. (64 kg) ⁴ ; 390 lb. (177 kg) ⁵	125 lb. (57 kg) ⁴ ; 275 lb. (125 kg) ⁵	18.5 in. (47.0 cm); chassis width: 17.3 in (43.9 cm) 18.9 in. (48.0 cm) chassis depth: 28.0 in. (71.1 cm)	8.75 in. (22.23 cm); chassis width: 17.38 in (44.15 cm) 18.9 in. (48.01 cm) chassis depth: 27.5 in. (69.85 cm)
Chassis Per Rack	One	Two	Four	Eight
Software Components (Per Base System)	Cisco IOS XR or Cisco IOS Software Operating System; Cisco Express Forwarding for distributed packet forwarding			
Compatibility	12800—Line cards that support 2.5-, 5-, 10-, or 20-Gbps capability; 12400—Line cards that support 2.5-, 5- or 10-Gbps capability; 12000—Line cards that support 2.5-Gbps capability			
Protocols	IPv4/v6, MPLS, BGPv4/v6, IS-IS, OSPFv2.0, RIPv2, IGMP, DVMRP, and PIM DX/SX			
Connectivity	Packet over SONET/SDH (POS), Ethernet, ATM, copper (DS-3/E3), Channelized (CT3, ChOC-3/CHSTM1, ChOC-12/CHSTM4, ChOC-48/CHSTM16); see Cisco IOS XR Software release notes for specific connectivity support on the Cisco XR 12000 Series			

1. With AC input power shelf or DC input power shelf, front covers installed
2. Including chassis rack-mount flanges
3. Including cable-management system and front cover
4. Chassis only, including power shelf for 16-slot chassis
5. Chassis fully configured, using all card slots, AC or DC power shelf for 16-slot chassis, & AC or DC input power supplies

Selected Part Numbers and Ordering Information

Cisco XR 12000 16-Slot Systems	
XR-12416/320-AC	Cisco XR 12000 16-slot chassis w/ 3 AC power supplies, 320-Gbps fabric (2 CSC & 3 SFC cards), 2
XR-12416/320-AC4	Cisco XR 12000 16-slot chassis w/ 4 AC power supplies, 320-Gbps fabric (2 CSC & 3 SFC cards), 2
XR-12416/320-DC	Cisco XR 12000 16-slot chassis w/ 4 DC power supplies, 320-Gbps fabric (2 CSC & 3 SFC cards), 2
Cisco 12000 16-Slot Systems	
GSR16/80-AC-8R	Cisco 12000 16-slot chassis w/ 3 AC power supplies, 80-Gbps fabric (2 CSC & 3 SFC cards), 2 blowers, 2

GSR16/320-AC	Cisco 12000 16-slot chassis w/ 3 AC power supplies, 320-Gbps fabric (2 CSC & 3 SFC cards), 2 blowers, 2
12816/1280-AC3	Cisco 12000 16-slot chassis w/ 3 AC power supplies, 1280-Gbps fabric (2 CSC & 3 SFC cards), 2 blowers, 2 alarms, and 1 PRP-1
GSR16/80-AC4-8R	Cisco 12000 16-slot chassis w/ 4 AC power supplies, 80-Gbps fabric (2 CSC & 3 SFC cards), 2 blowers, 2
GSR16/320-AC4	Cisco 12000 16-slot chassis w/ 4 AC power supplies, 320-Gbps fabric (2 CSC & 3 SFC cards), 2 blowers, 2
12816/1280-AC4	Cisco 12000 16-slot chassis w/ 4 AC power supplies, 1280-Gbps fabric (2 CSC & 3 SFC cards), 2 blowers, 2 alarms, & 1 PRP-1
GSR16/80-DC-8R	Cisco 12000 16-slot chassis w/ 4 DC power supplies, 80-Gbps fabric (2 CSC & 3 SFC cards), 2 blowers, 2
GSR16/320-DC	Cisco 12000 16-slot chassis w/ 4 DC power supplies, 320-Gbps fabric (2 CSC & 3 SFC cards), 2 blowers, 2
12816/1280-DC	Cisco 12000 16-slot chassis w/ 4 DC power supplies, 1280-Gbps fabric (2 CSC & 3 SFC cards), 2 blowers, 2 alarms, & 1 PRP-1
Cisco XR 12000 10-Slot Systems	
XR-12410/200-AC	Cisco XR 12000 10-slot chassis w/ 2 AC power supplies, 200-Gbps fabric (2 CSC & 5 SFC cards), 1
XR-12410/200-DC	Cisco XR 12000 10-slot chassis w/ 2 DC power supplies, 200-Gbps fabric (2 CSC & 5 SFC cards), 1
Cisco 12000 10-Slot Systems	
12010-AC	Cisco 12000 10-slot chassis w/ 2 AC power supplies, 50-Gbps fabric (2 CSC & 5 SFC cards), 1 blower, 2
12010-DC	Cisco 12000 10-slot chassis w/ 2 DC power supplies, 50-Gbps fabric (2 CSC & 5 SFC cards), 1 blower, 2
GSR10/200-AC	Cisco 12000 10-slot chassis w/ 2 AC power supplies, 200-Gbps fabric (2 CSC & 5 SFC cards), 1 blower, 2
GSR10/200-DC	Cisco 12000 10-slot chassis w/ 2 DC power supplies, 200-Gbps fabric (2 CSC & 5 SFC cards), 1 blower, 2
12810/800-AC	Cisco 12000 10-slot chassis w/ 2 AC power supplies, 800-Gbps fabric (2 CSC & 5 SFC cards), 1 blower, 2
12810/800-DC	Cisco 12000 10-slot chassis w/ 2 DC power supplies, 800-Gbps fabric (2 CSC & 5 SFC cards), 1 blower, 2
Cisco XR 12000 6-Slot Systems	
XR-12406/120-AC	Cisco XR 12000 6-slot chassis w/ 1 AC power supply, 120-Gbps fabric (1 CSC & 3 SFC cards), 1 blower, 2
XR-12406/120-DC	Cisco XR 12000 6-slot chassis w/ 1 DC power supply, 120-Gbps fabric (1 CSC & 3 SFC cards), 1 blower, 2
Cisco 12000 6-Slot Systems	
12006-AC	Cisco 12000 6-slot chassis w/ 2 AC power supplies, 30-Gbps fabric (2 CSC & 3 SFC cards), 1 blower, 2
12006-DC	Cisco 12000 6-slot chassis w/ 2 DC power supplies, 30-Gbps fabric (2 CSC & 3 SFC cards), 1 blower, 2
GSR6/120-AC	Cisco 12000 6-slot chassis w/ 1 AC power supply, 120-Gbps fabric (1 CSC & 3 SFC cards), 1 blower, 2
GSR6/120-DC	Cisco 12000 6-slot chassis w/ 1 DC power supply, 120-Gbps fabric (1 CSC & 3 SFC cards), 1 blower, 2
Cisco XR 12000 4-Slot Systems	
XR-12404/80-AC	Cisco XR 12000 4-slot chassis w/ 2 AC power supply, 80-Gbps fabric (consolidated switch fabric, clock scheduler, & alarm card), 1 blower, & 1 PRP-2
XR-12404/80-DC	Cisco XR 12000 4-slot chassis w/ 2 DC power supply, 80-Gbps fabric (consolidated switch fabric, clock scheduler, & alarm card), 1 blower, & 1 PRP-2

Cisco 12000 4-Slot Systems

GSR4/80-AC	Cisco 12000 4-slot chassis w/ 2 AC power supply, 80-Gbps fabric (consolidated switch fabric, clock scheduler, & alarm card), 1 blower, & 1 PRP-1
GSR4/80-DC	Cisco 12000 4-slot chassis w/ 2 DC power supply, 80-Gbps fabric (consolidated switch fabric, clock scheduler, & alarm card), 1 blower, & 1 PRP-1

For More Information

For more information about the Cisco XR 12000/12000 Series Routers, visit: <http://www.cisco.com/go/12000>.

Cisco CRS-1 Carrier Routing System

The Cisco CRS-1 Carrier Routing System is the industry's first carrier routing system offering continuous system operation, unprecedented service flexibility, and system longevity. Powered by Cisco IOS XR Software, this innovative self-healing and self-defending operating system is designed for always-on operation while scaling system capacity up to 92 Tbps. The innovative system architecture combines the Cisco Silicon Packet Processor, the first programmable 40-Gbps application-specific integrated circuit (ASIC), with the Cisco Service Separation Architecture for exceptional service flexibility and speed to service.



The Cisco CRS-1 includes two major elements, line-card shelves and fabric shelves, combinations of which allow the system to scale from four 40-Gbps slots to as many as 1152 40-Gbps slots in 72 line-card shelves interconnected using eight fabric shelves, all operating as a single system.

- Cisco CRS-1 16-Slot Single-Shelf System—A single, 16-slot line-card shelf with total switching capacity of 1.2 Tbps; built from a 16-slot line-card chassis featuring a midplane design
- Cisco CRS-1 8-Slot Single-Shelf System—A single, 8-slot line-card shelf with total switching capacity of 640 Gbps; built from an 8-slot line-card chassis featuring a midplane design
- Cisco CRS-1 4-Slot Single-Shelf System—A single, 4-slot line-card shelf with total switching capacity of 320 Gbps; built from a 4-slot line-card chassis featuring a midplane design
- Cisco CRS-1 Multishelf System—Two to 72 line-card shelves and 1 to 8 fabric shelves with a total switching capacity of up to 92 Tbps; shelves are connected only to the fabric-card shelves where stage 2 of the three-stage switching is performed

Key Features

- Delivery of differentiated voice, video, and data with mobility and business services with better quality of service (QoS) and performance
- Multicast in the fabric for efficient broadcast video applications
- Dedicated 8-KB ingress and egress queues on the line cards for superior performance
- Isolation of different classes of services to deliver high-quality voice, video, and premium traffic
- Granular process-level In Service Software Upgrades (ISSUs)
- Non-service affecting online insertion and removal (OIR) of all components to reduce downtime and simplify maintenance
- Cisco Nonstop Forwarding (NSF) and Stateful Switchover (SSO) to eliminate single points of failure, help maintain system performance, and prevent service interruption; packet forwarding remains uninterrupted before, during, and after a route-processor switchover
- In-service scaling from a single chassis (1.2 Tbps) to 72 chassis with in-service multichassis scaling (92 Tbps) and line-rate performance
- Shared port adapters (SPAs) and SPA interface processors (SIPs) to preserve hardware investment across Cisco platforms, including the Cisco 12000, 7600, and 7300 Series Routers
- Consolidation of multiple networks and elements into a single platform while maintaining physical separation by using secure domain routers (SDRs)
- Interchangeable interfaces between Cisco CRS-1 and a range of other Cisco platforms

Specifications

Feature	16 slot Single-Shelf System	8 slot Single-Shelf System	4 slot Single-Shelf System	Fabric Card Chassis
Design Slots	Midplane design	Midplane design	Midplane design	Midplane design
	Line Card: 16 x 40 Gbps slots Switch Fabric Card: 8 dedicated slots Route Processor: 2 dedicated slots Fan Controller: 2 dedicated slots	Line card: Eight 40-Gbps slots Switch-fabric card: 4 dedicated slots Route processor: 2 dedicated slots Fan tray: 2 fan trays	Line card: Four 40-Gbps slots Switch fabric card: 4 dedicated slots Route processor: 2 dedicated slots Fans: 4 fans, 1 fan tray	Switch Fabric Card: 24 slots Shelf Controller: 2 dedicated slots
Full-Duplex Throughput	1280 Gbps	640 Gbps	320 Gbps	

Power	Maximum DC power needed when chassis is fully configured with line cards with traffic running: 10.92kW Chassis power supply maximum DC output: 13.2kW	Maximum DC power needed when chassis is fully configured with line cards with traffic running: 5992W Chassis power supply maximum DC output: 7.7kW	AC input = 4270VA @ 16000 BTU/HR DC input = 4326W @16200 BTU/HR	Maximum DC = 9.1kW @ 31,050 BTU/hr Maximum AC = 10.4kW @ 32,668 BTU/hr
Dimensions (H x W x D)	84 x 23.6 x 36 in (213.36 x 59.94 x 91.44 cm); With cable management and front cover—84 x 23.6 x 39.71 in (213.36 x 59.94 x 100.84 cm)	38.5 x 17.5 x 36.6 in (97.79 x 44.45 x 92.964 cm) with base cosmetics; With cable management and front cover—38.5 x 17.5 x 40.5 in (97.79 x 44.45 x 102.87 cm)	30 x 17.643 x 30.28 in (76.2 x 44.813 x 76.91 cm) without doors and cosmetics	Without cable management and front cover—84 x 23.6 x 35 in (213.36 x 59.94 x 88.9 cm); With cable management and front cover—84 x 23.6 x 41 in (213.36 x 59.94 x 104.2 cm)
Weight	939 lbs (425 kg) as shipped, chassis only with build in rack and fan trays installed 1008 lbs (457 kg) chassis only as shipped, including power shelves, without power modules, and with build in rack 1595 lbs (723 kg) chassis fully configured, using all card slots, power shelves, cosmetics, and with build in rack	330.8 lb (148.86 kg) chassis with fan, PDU and blanks (as shipped) 650lb (292.5 kg) chassis as shipped, including power shelves, and all line cards and route processors	260 lb (11793 kg) chassis with fan, power modules and blanks (as shipped) 380 lb (172.37 kg) chassis as shipped, including power shelf, fabric cards, and all line cards and route processors	644 lbs (292 kg) as shipped, chassis only with fan trays installed 712.8 lbs (323 kg) chassis only as shipped, including power shelves, without power modules 1559 lbs (707 kg) chassis fully configured
IP Features	Control-plane packet handling, IPv4, IPv6, (X)ACLs, QoS/class of service (CoS) using Modular QoS CLI (MQC), IP packet classification and marking, Queuing (both ingress and egress), Policing (both ingress and egress), Diagnostic and network management support			
Software Components	Cisco IOS XR			
IP over DWDM (IPoDWDM) Features	<ul style="list-style-type: none"> • GFEC: standard G.975 Reed-Salomon algorithm • EFEC: standard G.975.1 two orthogonally concatenated BCH super FEC code • Full C-band tunable laser with 50-GHz spacing • Router-to-router SONET/SDH-like operations, administration, maintenance, and provisioning (OAM&P) 			
Routing Features	Multiprotocol BGP Version 4 (MP-BGPv4), Open Shortest Path First Version 2 (OSPFv2), OSPFv3, IS-IS, Static routes, RPL, Multicast, MPLS, High availability, Security, Manageability			

Selected Part Numbers and Ordering Information

CRS-16/S	Cisco CRS-1 Series 16 Slots Carrier Routing System/Single
CRS-8/S	Cisco CRS-1 Series 8 Slots Carrier Routing System/Single
CRS-4/S	Cisco CRS-1 Series 4 Slots Carrier Routing System

For More Information

For more information about the Cisco CRS-1 Carrier Routing System, visit: <http://www.cisco.com/go/crs>.

Cisco Routing Services

Enabling the Agile Business

Agility and innovative new business models are vital in today's business environment, where your customers increasingly expect a personalized experience above and beyond your product or service, and your competition can come from anyone, anywhere around the globe.

Success in this fast-paced marketplace requires effective collaboration and efficient use of resources. Business and information technology are inseparable, and the network is what brings them together; it alone touches all people, locations, resources, and applications.

Achieving Business Success Through an Architectural Approach

In collaboration with your team and our partner ecosystem, we take an architectural approach to helping you create a more intelligent, responsive, integrated network. Through a robust portfolio of services, we can help you align IT to the needs of the business, unify network-based services, and create a flexible architecture optimized for your organization. We can help you assess readiness to support proposed solutions, integrate new capabilities, and keep network devices and applications secure, available, and reliable.

- For more information about Cisco Routing Services, visit <http://www.cisco.com/go/services/routing-switching>.
- To find the right technical service for any Cisco product, use the Service Finder tool at <http://www.cisco-servicefinder.com>. Enter a product description or part number or search by product series family for a list of suggested services and support coverage options.
- For more information about all services, refer to Chapter 10, "Cisco Services".

Chapter 2: LAN Switching

LAN Switching At-a-Glance

Product	Features	Page
MODULAR SWITCHES		
Cisco Catalyst 6500 Series Switches	<ul style="list-style-type: none"> Highest port density for 10 Gigabit Ethernet, 1 Gigabit Ethernet, Fast Ethernet, and Power over Ethernet (PoE) ports Scalable up to 720 Gbps of switching capacity with packet throughput scalable to 450 Mpps for IPv4 (>200 Mpps for IPv6) in standalone mode; scales up to 1.44 Tbps and 840 Mpps when using Cisco Catalyst 6500 Virtual Switching System technology Multigigabit service modules for integrated security, network management, and Layer 4–7 switching Integrated wireless LAN controller supporting up to 300 access points per module for a total of 1500 access points 	2–3
Cisco Catalyst 4500 Series Switches	<ul style="list-style-type: none"> Integrated intelligent Layer 2–4 services for secure unified communications, high resiliency, and simplified operations in enterprise LAN access, small Layer 3 distribution, small- and medium-sized businesses (SMBs), and branch offices Advanced network control with predictable performance, granular quality of service (QoS), advanced security, and Web-based network management Up to 388 ports of Fast Ethernet or Gigabit Ethernet (both data and integrated Power of Ethernet [PoE]) and up to thirty-four 10-Gigabit Ethernet ports High-performance Layer 2–4 switching at speeds up to 320 Gbps and 250 Mpps 	2–7
FIXED CONFIGURATION SWITCHES		
Cisco Catalyst 4900 Series Switches	<p>Provides an ideal solution for data center top or rack deployments and for space-constrained branch core deployments that require high performance wire speed services in a 1RU form factor. The Cisco Catalyst 4948 Series Switches are data center top-of-rack optimized switches with emphasis on buffering for high throughput and full mesh traffic profiles. They offer:</p> <ul style="list-style-type: none"> Layer 2–4 switching and intelligent services with dynamic IP routing Up to 28 SFP ports and two 10GE ports for branch core aggregation Dual, hot-swappable internal AC or DC power supplies Hot-swappable fan trays 	2–11
Cisco Catalyst 4900M Series Switch	<p>Small 2RU form factor switch offers an ideal solution for space-constrained deployments in the data center and branches that require high performance wire speed services, high availability, and the modular flexibility of deploying Gigabit Ethernet and 10 Gigabit Ethernet. It offers:</p> <ul style="list-style-type: none"> Optimized switch with two half-module slots; emphasis on buffering for high throughput and full mesh traffic profiles; very low packet size independent latency Layer 2–4 switching and intelligent services with dynamic IP routing and IPv6 Dual, hot-swappable internal AC or DC power supplies Hot-swappable fan trays 	2–13
Cisco Catalyst 3750-E Series Switches	<ul style="list-style-type: none"> These stackable, fixed-configuration switches with Cisco StackWise Plus technology and a 64-Gbps interconnect provide a unified, resilient system of up to nine switches. The switches offer Layer 2–4 switching and intelligent services with dynamic IP routing and IPv6. The switches offer up to forty-eight 10/100/1000 ports plus two 10-Gigabit Ethernet ports per stackable switch. The switches offer field-replaceable and upgradable power supplies and fan. These switches are fully backward-compatible with the Cisco Catalyst 3750 Series Switches. 	2–14
Cisco Catalyst 3750 Series Switches	<ul style="list-style-type: none"> These stackable, fixed-configuration switches with Cisco StackWise technology and a 32-Gbps interconnect provide a unified, resilient system of up to nine switches. The switches offer Layer 2–4 switching and intelligent services with dynamic IP routing and IPv6. They offer Fast Ethernet and Gigabit Ethernet connectivity. The integrated wireless LAN (WLAN) controller supports 25 or 50 access points per card and up to 4 cards for a total of 200 access points. 	2–16
Cisco Catalyst 3560-E Series Switches	<ul style="list-style-type: none"> Cisco Catalyst 3560-E Series Switches offer Layer 2–4 switching and intelligent services with dynamic IP routing and IPv6. They offer up to forty-eight 10/100/1000 ports plus two 10-Gigabit Ethernet ports per switch. These switches offer field-replaceable and -upgradable power supplies and fan. 	2–20

Cisco Catalyst 3560 Series Switches	<ul style="list-style-type: none"> These switches offer Layer 2–4 switching and intelligent services with dynamic IP routing and IPv6. They offer Fast Ethernet and Gigabit Ethernet connectivity. They offer up to forty-eight 10/100/1000 ports plus 4 Small Form-Factor Pluggable (SFP) ports. 	2–22
Cisco Catalyst 2975 Series Switches	<p>This 48-port Gigabit Ethernet Power over Ethernet stackable switch enables intelligent LAN services for small enterprise LAN access or branch-office environments</p> <ul style="list-style-type: none"> Enhanced Layer 2 + LAN Base Cisco IOS Software delivers integrated security, quality of service (QoS), and availability to enable converged applications 	2–25
Cisco Catalyst 2960 Series Switches	<ul style="list-style-type: none"> These LAN Base switches offer intelligent Layer 2+ services for enhanced security, quality of service (QoS), and availability for the network edge. LAN Lite switches offer entry-level Layer 2 features with scalable management and Power over Ethernet (PoE). 8-, 24- and 48-port configurations with Fast Ethernet, Power over Ethernet (PoE), and Gigabit Ethernet connectivity are available. 	2–25

SERVICES

Cisco Switching Services	<p>The enterprise network becomes a strategic asset through effective architecture, deployment, and operations. Cisco Routing Services use leading practices and time-tested methodologies to help you to:</p> <ul style="list-style-type: none"> Deliver new capabilities while keeping the network secure, reliable, and available Successfully integrate new technologies and applications onto the switching platform Reduce risk, delays, and the total cost of network deployments Optimize your core switching network to meet future needs Prepare your teams to succeed with new technologies Achieve operational excellence 	2–29
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Product Ordering Website

To place an order or for more part numbers, visit: <http://www.cisco.com/en/US/ordering/index.shtml>.

This chapter only provides a small subset of all part numbers available. See the URL listed in the “For More Information” section of each product to get a complete list of part numbers.

Cisco LAN Products Port Matrix

Modular Switches			Fixed Switches							
	Cisco Catalyst 6500	Cisco Catalyst 4500	Catalyst 4900	Catalyst 4900M	Cisco Catalyst 3750-E	Cisco Catalyst 3750	Cisco Catalyst 3560-E	Cisco Catalyst 3560	Cisco Catalyst 2975	Cisco Catalyst 2960
Fixed Ports Only			X		X	X	X	X	X	X
Fixed and Modular Ports				X						
Modular Ports Only	X	X								
100BASE-FX Switched	X	X	X	X	X	X	X	X	X	X
10/100 Autosensing Switched	X	X			X	X	X	X	X	X
10/100/1000BaseT	X	X	X	X	X	X	X	X	X	X
Gigabit Ethernet	X	X	X	X	X	X	X	X	X	X
10 Gigabit Ethernet	X	X	X	X	X		X			
Integrated PoE	X	X			X	X	X	X	X	X

Cisco Catalyst 6500 Series Switches

Cisco is extending the Cisco Catalyst 6500 innovations with the introduction of several new features and enhancements for the campus backbone, delivering very high levels of availability, integrated security, virtualization, enhanced manageability, IP communications, wireless, and applications support to enterprise customers, medium-sized businesses, and service providers. The feature richness, flexibility, density, and scalability of this product line set the standard for converged data, voice, and video networks, and facilitate outstanding operational efficiency and investment protection.



- Catalyst 6500 virtualization—Extending virtual switch system to support MPLS and IPv6 for virtualized services with integrated service modules
- Collaboration—Quality of service optimization to enhance video quality and end user experience
- Operations—Increased collaboration traffic visibility with Network Management Module (NAM) enhancements
- IPv6 innovations—IPv6/IPv4 dual stack support. MPLS over IPv6 support
- Scalability—Increased scalability service module WiSM and firewall modules

Ideal for Companies That Need These Features

- | | |
|--|---|
| Cisco Catalyst 6509-E Switch | • Use in the wiring closet, distribution, core, data center, and WAN edge |
| Cisco Catalyst 6506-E Switch | • Medium-form factor chassis for the wiring closet, distribution, core, data center, and WAN edge |
| Cisco Catalyst 6504-E Switch | <ul style="list-style-type: none">• Small form factor, high performance, chassis sharing interface modules and supervisor engines with larger chassis for common sparing• Suitable for small and medium-sized enterprise core or distribution, or the metro or enterprise WAN edge |
| Cisco Catalyst 6503-E Switch | • Low-density wiring-closet chassis sharing interface modules and supervisor engines with larger chassis for common sparing |
| Cisco Catalyst 6513 Switch | <ul style="list-style-type: none">• High-capacity chassis for Ethernet connectivity• Spare slots for services modules providing network security and management |
| Cisco Catalyst 6509-V-E Switch | <ul style="list-style-type: none">• Front-access power supplies• Integrated cable management for high-density cabling environments• Front-to-back airflow optimized for high-density data center deployments |
| Cisco Catalyst 6500 Virtual Switching Supervisor Engine 720-10G | <ul style="list-style-type: none">• High-bandwidth deployments: core, distribution, aggregation, and data center access• Compatibility with all Cisco Catalyst 6500 chassis (except the Cisco Catalyst 6503 Switch) |
| Cisco Catalyst 6500 Series Supervisor Engine 720 | <ul style="list-style-type: none">• High-bandwidth deployments: core, distribution, aggregation, and data center access• Compatibility with all Cisco Catalyst 6500 chassis |
| Cisco Catalyst 6500 Series Supervisor Engine 32 PISA | <ul style="list-style-type: none">• Wiring closet access and the WAN edge• Compatibility with all Cisco Catalyst 6500 chassis |
| Cisco Catalyst 6500 Series Supervisor Engine 32 | <ul style="list-style-type: none">• Wiring closet access• Compatibility with all Cisco Catalyst 6500 chassis |

Key Features

- Cisco IOS Software modularity—The Cisco Catalyst 6500 Series reduces planned and unplanned downtime while boosting operational efficiency. Faults within modular subsystems are isolated from all other processes, and can be restarted without losing state (stateful process restarts).
- Cisco IOS Embedded Event Manager (EEM)—The Cisco IOS EEM automates proactive administrative tasks and network reactions to unexpected events to further enhance operational efficiency.
- Maximum PoE scalability—The Cisco Catalyst 6500 Series supports up to 409 Class 3 devices; it leads the industry in PoE port density and accelerates deployment of PoE-enabled devices such as IP telephones and wireless access points. Cisco Intelligent Power Management allocates the optimal amount of power per device.
- Cisco Catalyst 6500 Virtual Switching Supervisor Engine 720-10G—The Virtual Switching System (VSS) technology, built upon this supervisor engine, facilitates easy-to-use, reliable, and scalable switching for enterprise core, distribution, data center, and server access. VSS delivers a system performance of up to 1.44 Tbps by unifying two physical switches into a single, logical entity offering optimized network convergence, load balancing, and manageability. The supervisor engine can be used in standalone mode to deliver up to 48

Mpps of centralized and 450 Mpps of distributed switching performance, building the foundation for the Cisco Catalyst 6500 Virtual Switching System 1440.

- Cisco Catalyst 6500 Series Supervisor Engine 720—This supervisor engine is optimized for high-bandwidth needs of the enterprise core, distribution, and data centers; it delivers up to 720-Gbps switch-fabric bandwidth and more than 400 Mpps of switching performance. Throughput is increased with support for line cards with Cisco Express Forwarding and distributed Cisco Express Forwarding IPv6 and Multiprotocol Label Switching (MPLS) are supported in hardware. The switch supports the following Layer 3 routing protocols: Routing Information Protocol (RIP), Enhanced Interior Gateway Routing Protocol (EIGRP), Open Shortest Path First (OSPF), Intermediate System-to-Intermediate System (IS-IS), and Border Gateway Protocol (BGP).
- Cisco Catalyst 6500 Supervisor Engine 32 PISA—This supervisor engine is optimized for oversubscribed wiring closet deployments and the WAN edge, where application intelligence is critical. The Programmable Intelligent Services Accelerator (PISA) technology used on this supervisor engine provides hardware-accelerated Deep Packet Inspection using Network Based Application Recognition (NBAR) and Cisco IOS Flexible Packet Matching (FPM). This intelligence provides greater visibility into critical applications and prevents the spread of worms and viruses. Multiple uplink configurations are available (refer to information about the Cisco Catalyst 6500 Supervisor Engine 32).
- Cisco Catalyst 6500 Supervisor Engine 32—This supervisor engine is optimized for oversubscribed wiring closet deployments; it incorporates a 32-Gbps shared bus architecture with support for up to 15 Mpps of switching performance. Centralizing Layer 2 and Layer 3 forwarding, the supervisor engine is available in two models: 8-port Gigabit Ethernet uplinks or 2-port 10-Gigabit Ethernet uplinks.
- Various integrated service modules allow multigigabit throughput of services such as firewall, intrusion detection, anomaly detection, content switching (load balancing), network analysis, wireless integration (up to 1500 access points), voice gateway, and so on.

Specifications

Feature	WS-C6503-E	WS-C6504-E	WS-C6506-E	WS-C6509-E	WS-C6509-VE	WS-C6513
Modular Slots	3	4	6	9	9	13
Gigabit Ethernet SFP density	98	146	242	386	384	410
10 Gigabit Ethernet XENPAK/X2 port density	34	50	82	130	130	84
10/100/1000 density	97	145	241	385	385	577
10/100 density	192	288	480	768	768	1152
100BASE-FX density	98	146	242	386	386	578
Max. watt power consumption (redundant mode)						
AC Internal¹	1,400	2,700	6,000	8,700	8,700	8,700
DC Internal	950	2,700	4,000	4,000	4,000	4,000
Max. number of 10/100/1000 Class 3 devices (15.4W) Max. power supplies						
AC Internal	48	110	240	384	384	265
WAN Interfaces	DS0 to OC-192					
Available Bandwidth	Scalable to 240 Gbps	Scalable to 320 Gbps	Scalable to 480 Gbps	Scalable to 720 Gbps	Scalable to 720 Gbps	Scalable to 720 Gbps
Throughput	Scalable to 131Mpps	Scalable to 179Mpps	Scalable to 275Mpps	Scalable to 419Mpps	Scalable to 419Mpps	Scalable to 457Mpps
Redundant Supervisor	Yes					
Hot-Swappable Power Supplies	Yes					
VLAN Maximum	4096					
EtherChannel Capable	Yes; up to 8 links of Fast Ethernet, Gigabit Ethernet or 10GE.					
Management Capabilities	CiscoWorks 2000, RMON, Encapsulated Remote Switched Port Analyzer (ERSPAN), SNMP, Telnet, BOOTP, and Trivial File Transfer Protocol (TFTP)					
Rack Unit (RU)	4	5	12	15	21	20
Dimensions (H x W x D)	7 x 175 x 21.7 in. (178 x 441 x 55.2 cm.)	8.7 x 175 x 21.6 in. (22.2 x 44.5 x 55.2 cm.)	19.2 x 175 x 18.2 in. (48.8 x 44.5 x 46.0 cm.)	24.5 x 175 x 18.2 in. (62.2 x 44.5 x 46.0 cm.)	36.75 x 172 x 20.7 in. (93.3 x 43.1 x 53.3 cm.)	33.3 x 173 x 18.1 in. (84.6 x 43.7 x 46.0 cm.)

Unit weight (chassis only)	33 lbs. (15.0 kgs.)	40 lbs. (18.1 kgs.)	50 lbs. (22.7 kgs.)	60 lbs. (27.3 kgs.)	121 lbs. (54.9 kgs.)	98 lbs. (45.0 kgs.)
Supervisor Engines	Virtual Switching Supervisor Engine 720-10G (VS-S720-10G-3C=) (VS-S720-10G-3CXL=)			Supervisor Engine 720 (WS-SUP720-3BXL) (WS-SUP720-3B)		
Chassis supported	All (except 6503 non-E)			All		
Bandwidth per slot	40 Gbps			40 Gbps		
Total bandwidth	720 Gbps			720 Gbps		
Packets per second	48 Mpps centralized; 457 Mpps distributed; 840 Mpps VSS configuration			30 Mpps centralized; 425 Mpps distributed		
MAC addresses supported	96K Max./80K effective			64K Max./32K effective		
Routes supported	256,000 (3C); 1,000,000 (3CXL)			256,000 (3B); 1,000,000 (3BXL)		
Onboard memory (DRAM)	1 GB			Up to 1GB		
Supervisor Engines	Supervisor Engine 32-PISA (WS-S32-GE-PISA=) (WS-S32-10GE-PISA=)			Supervisor Engine 32 (WS-SUP32-10GE-3B) (WS-SUP32-GE-3B)		
Chassis supported	All			All		
Hardware Accelerated Network Based Application Recognition (NBAR)	✓ (approx 2 Gbps)			N/A		
Hardware Accelerated Flexible Packet Matching (FPM)	✓ (approx 2 Gbps)			N/A		
Total bandwidth	32 Gbps			32 Gbps		
Packets per second	15 Mpps			15 Mpps		
MAC addresses supported	64K Max./32K effective			64K Max./32K effective		
Routes supported	256,000			256,000		
Onboard Memory (DRAM)	Up to 1GB			Up to 1 GB		
Supervisor 720 Scalability (Unicast)						
Supervisor	WS-SUP720-3B	WS-SUP720-3BXL	VS-S720-10G-3C	VS-S720-10G-3CXL		
IPv4 Routing	In hardware	Up to 400 Mpps in hardware	Up to 400 Mpps in hardware	Up to 450 Mpps in hardware		
IPv6 Routing	Up to 450 Mpps	In hardware	Up to 200 Mpps in hardware	Up to 200 Mpps in hardware		
IPv4 Routes	Up to 225 Mpps in hardware	Up to 225Mpps	256,000 1,000,000 256,000 1,000,000	128,000 500,000 128,000 500,000		
IPv6 Routes	In hardware	Up to 400 Mpps in hardware	Up to 400 Mpps in hardware	Up to 450 Mpps in hardware		

1. Redundant mode

Selected Part Numbers and Ordering Information

Catalyst 6500 Chassis	
WS-C6503-E	Cisco Catalyst 6500 Enhanced 3-slot chassis,4RU,no PS, no Fan Tray
WS-C6504-E	Cisco Catalyst 6500 Enhanced 4-slot chassis,5RU,no PS, no Fan Tray
WS-C6506-E	Cisco Catalyst 6500 Enhanced 6-slot chassis,12RU,no PS, no Fan Tray
WS-C6509-E	Cisco Catalyst 6500 Enhanced 9-slot chassis,15RU,no PS, no Fan Tray

WS-C6509-V-E	Cisco Catalyst 6500 Enhanced 9-slot Chassis (Vertical), No PS, Fan
WS-C6513	Cisco Catalyst 6500 13-slot chassis,20RU,no PS, no Fan Tray
Virtual Switching Supervisor Engine 720-10G Bundles	
VS-C6504E-S720-10G	Cisco Catalyst Chassis+Fan Tray+Sup720-10G; IP Base ONLY; NO VSS
VS-C6506E-S720-10G	Cisco Catalyst Chassis+Fan Tray+Sup720-10G; IP Base ONLY; NO VSS
VS-C6509E-S720-10G	Cisco Catalyst Chassis+Fan Tray+Sup720-10G; IP Base ONLY; NO VSS
VS-C6509VE-S720-10G	Cisco Catalyst Chassis+Fan Tray+Sup720-10G; IP Base ONLY; NO VSS
VS-C6513-S720-10G	Cisco Catalyst Chassis+Fan Tray+Sup720-10G; IP Base ONLY; NO VSS
Supervisor Engine 32-PISA Bundles	
WS-C6503E-S32P10GE	Cisco Catalyst 6503E chassis, WS-S32-10GE-PISA, Fan Tray (req,P/S)
WS-C6504E-S32P10GE	Cisco Catalyst 6504E chassis, WS-S32-10GE-PISA, Fan Tray (req,P/S)
WS-C6506E-S32P10GE	Cisco Catalyst 6506E chassis, WS-S32-10GE-PISA, Fan Tray (req,P/S)
WS-C6509E-S32P10GE	Cisco Catalyst 6509E chassis, WS-S32-10GE-PISA, Fan Tray (req,P/S)
WS-C6513-S32P10GE	Cisco Catalyst 6513 chassis, WS-S32-10GE-PISA, Fan Tray (req,P/S)
WS-C6503E-S32P-GE	Cisco Catalyst 6503E chassis, WS-S32-GE-PISA, Fan Tray (req,P/S)
WS-C6504E-S32P-GE	Cisco Catalyst 6504E chassis, WS-S32-GE-PISA, Fan Tray (req,P/S)
WS-C6506E-S32P-GE	Cisco Catalyst 6506E chassis, WS-S32-GE-PISA, Fan Tray (req,P/S)
WS-C6509E-S32P-GE	Cisco Catalyst 6509E chassis, WS-S32-GE-PISA, Fan Tray (req,P/S)
WS-C6513-S32P-GE	Cisco Catalyst 6513 chassis, WS-S32-GE-PISA, Fan Tray (req,P/S)
Supervisor Engine 32 Bundles	
WS-C6503E-S32-10GE	Cisco Catalyst 6503E chassis, WS-SUP32-10GE-3B, Fan Tray (req,P/S)
WS-C6504E-S32-10GE	Cisco Catalyst 6504-E Chassis + Fan Tray + Sup32-10GE
WS-C6506E-S32-10GE	Cisco Catalyst 6506E chassis, WS-SUP32-10GE-3B, Fan Tray (req,P/S)
WS-C6509E-S32-10GE	Cisco Catalyst 6509E chassis, WS-SUP32-10GE-3B, Fan Tray (req,P/S)
WS-C6513-S32-10GE	Cisco Catalyst 6513 chassis, WS-SUP32-10GE-3B, Fan Tray (req, P/S)
WS-C6503E-S32-GE	Cisco Catalyst 6503E, WS-SUP32-GE-3B, Fan Tray (req, P/S)
WS-C6504E-S32-GE	Cisco 6504-E Chassis + Fan Tray + Sup32-GE
WS-C6506E-S32-GE	Cisco Catalyst 6506E, WS-SUP32-GE-3B, Fan Tray (req, P/S)
WS-C6509E-S32-GE	Cisco Catalyst 6509E, WS-SUP32-GE-3B, Fan Tray (req, P/S)
WS-C6513-S32-GE	Cisco Catalyst 6513, WS-SUP32-GE-3B, Fan Tray (req, P/S)
Advanced Technology Bundles	
WS-C6504-E-VPN+K9	Cisco Catalyst 6504E IPsec VPN SPA Security System
WS-C6506-E-VPN+K9	Cisco Catalyst 6506E IPsec VPN SPA Security System
WS-C6509-E-VPN+K9	Cisco Catalyst 6509E IPsec VPN SPA Security System
WS-C6513-VPN+K9	Cisco Catalyst 6513 IPsec VPN SPA Security System
WS-C6503-E-FWM-K9	Cisco Catalyst 6503E Firewall Security System
WS-C6506-E-FWM-K9	Cisco Catalyst 6506E Firewall Security System
WS-C6509-E-FWM-K9	Cisco Catalyst 6509E Firewall Security System
WS-C6513-FWM-K9	Cisco Catalyst 6513 Firewall Security System
WS-C6504E-ACE20-K9	Cisco ACE20 6504E Bundle with 4 Gbps Throughput License
WS-C6509E-ACE20-K9	Cisco ACE20 6509E Bundle with 8 Gbps Throughput License
WS-C6504-E-WISM	Cisco Catalyst 6504-E WiSM bundle (SUP720-3B,WISM, Fan Tray, (2) P/S)
WS-C6509-E-WISM	Cisco Catalyst 6509-E WiSM bundle (SUP720-3B,WISM, Fan Tray, no P/S)

For More Information

For more information about the Cisco Catalyst 6500 Family, visit: <http://www.cisco.com/go/catalyst6500>.

Cisco Catalyst 4500 Series Switches

The Cisco Catalyst 4500 Series is a medium-density modular switch delivering robust intelligent services for unified communications deployments. The simple centralized architecture, media flexibility, and scalability of the Cisco Catalyst 4500 Series deliver maximum investment protection with backward and forward compatibility across several generations dating back to 1999, maximizing return on investment while minimizing recurring operational expenses.



The Cisco Catalyst 4500 E-Series is a high-performance next-generation extension of the Cisco Catalyst 4500 Series Switches. It builds on Cisco Catalyst 4500 Series architecture offering higher services, features, flexibility, and performance while continuing to maximize investment protection across the Cisco Catalyst 4500 Series Switches.

The Cisco Catalyst 4500 Series extends intelligence and operational simplicity to the network edge (wiring closet) for unified communications with intelligent network services, sophisticated quality of service (QoS), predictable performance, advanced security, up to 30 watts of PoE, and comprehensive management features. The Cisco Catalyst 4500 Series delivers high levels of integrated resiliency in both hardware and software, minimizing costly downtime for both planned and unplanned network outages and helping maximize workforce productivity.

The Cisco Catalyst 4500 Series Supervisor Engine 6-E is the latest supervisor engine offering an intelligent, highest-performance Catalyst 4500 supervisor engine optimized for customers deploying unified communications networks.

Ideal for Companies That Need These Features

Supervisors

Cisco Catalyst 4500 Series Supervisor Engine 6L-E

- High performance basic Layer 3 supervisor optimized for enterprise user access
- Centralized 280-Gbps switching capacity (225 millions of packets per second throughput)
- Advanced QoS support with up to eight queues per port, dynamic queue sizing, and hierarchical policing to provide flexibility and control
- Flexibility to operate at 6 or 24 Gbps per line-card slot
- Dual 10 Gigabit Ethernet uplinks (X2 optics)
- Support for line-rate forwarding for IPv6 packets
- Dynamic hardware forwarding table allocations for ease of IPv4-to-IPv6 migration

Cisco Catalyst 4500 Series Supervisor Engine 6-E

- Designed for high-density enterprise wiring closets, medium-sized core, distribution, and branch-office collapsed core
- High-performance Layer 2, 3, and 4 switching (320-Gbps capacity, 250 mpps)
- Enables 24 Gbps per slot when deployed in the Cisco Catalyst 4500 E-Series chassis
- High-performance IPv6 in hardware
- Optimized for simultaneous IPv4 and IPv6 deployments or migration
- Supports classic and E-Series chassis
- Simultaneously supports classic and E-Series line cards in same chassis
- Supports twin gigabit converter module
- Supports dynamic QoS, security, and IPv6 resource optimization

Cisco Catalyst 4500 Supervisor Engine V-10GE

- Designed for high-density enterprise wiring closets and branch-office collapsed core;
- Supports high-performance Layer 2, 3, and 4 switching
- Compatibility with future versions with two 10-Gigabit Ethernet and four Gigabit Ethernet uplinks
- Supports integrated NetFlow
- Supports all Cisco Catalyst 4500 chassis

Chassis

Cisco Catalyst 4510R-E Switch

- High performance, port density, high availability (ISSU) through redundant supervisor engines (when these features are crucial to customer success)
- Support for both classic and E-Series line cards
- Port density up to three hundred eighty-eight 10/100 (RJ-45 with or without PoE), 10/100 (RJ-21 with or without PoE), 100BASE-FX, 100BASE-LX-10, 100BASE-BX-D, 1000BASE-X, 10/100/1000BASE-T (with or without PoE), or up to 34 10-Gigabit Ethernet ports
- Up to 320-Gbps nonblocking switching fabric, 250-Mpps forwarding rate using the Supervisor Engine 6-E, or up to 24-Gbps per-slot bandwidth except the last 3 slots, which provide 6 Gbps per slot

Cisco Catalyst 4507R-E Switch	<ul style="list-style-type: none"> Network resiliency and high availability (ISSU) through redundant supervisor engines (when these features are crucial to customer success) Support for both classic and E-Series line cards Port density up to two hundred forty-four 10/100 (RJ-45 with or without PoE), 10/100 (RJ-21 with or without PoE), 100BASE-FX, 100BASE-LX-10, 100BASE-BX-D, 1000BASE-X, 10/100/1000BASE-T (with or without PoE), or up to 34 10-Gigabit Ethernet ports Up to 280-Gbps, 210-Mpps, or 24-Gbps per-slot bandwidth when used with the Supervisor Engine 6-E, and Supervisor Engine 6L-E
Cisco Catalyst 4506-E Switch	<ul style="list-style-type: none"> Port density up to two hundred forty-four 10/100 (RJ-45 with or without PoE), 10/100 (RJ-21 with or without PoE), 100BASE-FX, 100BASE-LX-10, 100BASE-BX-D, 1000BASE-X, 10/100/1000BASE-T (with or without PoE), or thirty-two 10-Gigabit Ethernet ports Support for both classic and E-Series line cards Support for up to 280-Gbps, 210-Mpps, or 24-Gbps per-slot bandwidth when used with the Supervisor Engine 6-E, and Supervisor Engine 6L-E
Cisco Catalyst 4503-E Switch	<ul style="list-style-type: none"> Port density up to one hundred eight 10/100 (RJ-45 with or without PoE), 10/100 (RJ-21 with or without PoE), 100BASE-FX, 100BASE-LX-10, 100BASE-BX-D, 1000BASE-X, 10/100/1000BASE-T (with or without PoE), or 14 10-Gigabit Ethernet ports Support for both classic and E-Series line cards Up to 136-Gbps, 102-Mpps, or 24-Gbps per-slot bandwidth when used with the Supervisor Engine 6-E, and Supervisor Engine 6L-E

Note: Compatible sparring between Cisco Catalyst 4510R-E, Catalyst 4507R-E, Catalyst 4506-E, and Catalyst 4503-E chassis provides investment protection with common supervisor engines, power supplies, and switching line cards.

Key Features

- Investment protection—Evolutionary centralized modular architecture provides maximum backward compatibility across several generations of Cisco Catalyst 4500 Series Switches. Upgrading all system ports to higher-level functions and features are easy with a simple supervisor-engine upgrade.
- Flexible options—Modular 3- and 6-slot single supervisor chassis and 7- and 10-slot redundant supervisor chassis support numerous connectivity and service configurations with 24-GB per-slot capacity.
- Nonstop communications—Redundant supervisor engines offer In Service Software Upgrade (ISSU) and Nonstop Forwarding/Stateful Switchover (NSF/SSO) with 50-ms failover; redundant power supplies offer power circuit redundancy; and hot-swappable fan trays are designed with redundant fans.
- Comprehensive security—These switches support integrated Cisco Network Admission Control (NAC) and 802.1x, hardware-based Control Plane Policing (CoPP); integrated man-in-the-middle and denial-of-service (DoS) attack mitigation; NetFlow; access control lists (ACLs), and Secure Shell (SSH) Protocol.
- Comprehensive management—These switches support CiscoWorks, Cisco Network Assistant, Remote Switched Port Analyzer (RSPAN), Cisco IOS Embedded Event Manager (EEM), IPSLA, Time Domain Reflectometer (TDR), and NetFlow.
- High port density—These switches offer up to 384 Fast Ethernet or Gigabit Ethernet ports or thirty-four 10-Gigabit Ethernet ports.
- IP communications—Cisco prestandard, up to 15.4w IEEE 802.3af support, 20w for 802.11n support and up to 30 watts per port for future applications
- Cisco EnergyWise on the Catalyst 4500 and Catalyst 4500 E-Series—Allows IT operations and facilities to measure and fine-tune power usage to realize significant cost savings. EnergyWise focuses on reducing power utilization on all devices connected to a Cisco network ranging from PoE devices such as IP phones and wireless access points to integration with IP-enabled building and lighting controllers. For more information, see the following URL: <http://www.cisco.com/en/US/products/ps10195/index.html>.
- Cisco Catalyst 4500 E-Series and Cisco Catalyst 4500 switches extend the warranty from the previously offered 90-day warranty to a limited lifetime warranty (LLW). For more information, see the following URL: http://www.cisco.com/en/US/prod/collateral/switches/ps5718/ps4324/product_bulletin_c25-533284.html.

Specifications

Classic 4500 Chassis	WS-C4503	WS-C4506	WS-C4507R	WS-C4510R
Slots	3	6	7	10
Redundant Supervisor Option	No	No	Yes	Yes
Gigabit Ethernet GBIC/SFP density	104	240	240	384
10 GE X2 port density	2	2	2	2
10/100/1000 density	108	240	240	388
10/100 density	108	240	240	384
100BASE-FX, LX-10, BX-D density	96	240	240	384

Rack Unit (RU)	7	10	11	14
Backplane Capacity	64 Gbps	100 Gbps	100 Gbps	136 Gbps
Stackable	No	No	No	No
1+1 Power Supply Protection	Yes	Yes	Yes	Yes
Power Over Ethernet (PoE) Support	Up to 15.4W on every port	Up to 15.4W on every port	Up to 15.4W on every port	Up to 15.4W on every port
Hot-Swappable Power Supplies	Yes	Yes	Yes	Yes
Max. watt power consumption				
AC Internal	4,200	4,200	4,200	4,200
AC External with power shelf	1,400 + power shelf = 7500	1,400 + power shelf = 7500	1,400 + power shelf = 7500	1,400 + power shelf = 7500
DC Internal	1,400 + UPS = 7500	1,400 + UPS = 7500	1,400 + UPS = 7500	1,400 + UPS = 7500
Max. number of Class 3 devices (15.4W) Max. power supplies				
AC Internal	108	240	240	270
AC External with power shelf	108	240	240	364
DC Internal	108	240	240	384
Unit weight (chassis only)	31.25 lbs. (14.18 kgs.)	40.5 lbs. (18.37 kgs)	44.25 lbs. (20.07 kgs)	51.50 lbs. (23.36 kgs)
Dimensions (H x W x D)	12.25 x 17.31 x 12.50 in (31.12 x 43.97 x 31.70 cm)	17.38 x 17.31 x 12.50 in (44.13 x 43.97 x 31.70 cm)	19.19 x 17.31 x 12.50 in (48.74 x 43.97 x 31.70 cm)	24.35 x 17.31 x 12.50 in (61.84 x 43.97 x 31.70 cm)
4500 E-Series Chassis	WS-C4503-E	WS-C4506-E	WS-C4507R-E	WS-C4510R-E
Slots	3	6	7	10
Redundant Supervisor Option	No	No	Yes	Yes
Gigabit Ethernet GBIC/SFP density	104	244	248 with Dual Sup 6-Es and 4xTwinGigs	392 with Dual Sup 6-Es and 4xTwinGigs
10 GE X2 port density	14	32	34	34
10/100/1000 density	108	240	240	384
10/100 density	96	240	240	384
100BASE-FX, LX-10, BX-D density	96	240	240	384
Rack Unit (RU)	7	10	11	14
Backplane Capacity using Supervisor 6-E	136 Gbps	280 Gbps	280 Gbps	320 Gbps
Stackable	No	No	No	No
Enhanced Power Over Ethernet (ePoE) Support	Up to 20W of PoE – 37 ports can be enabled @ 20W ¹	Up to 20W of PoE – 37 ports can be enabled @ 20W ¹	Up to 20W of PoE – 37 ports can be enabled @ 20W ¹	Up to 20W of PoE – 37 ports can be enabled @ 20W ¹
Power Over Ethernet Plus (PoEP) Support (after software upgrade on premium linecard)	Up to 30W of PoE – 25 ports can be enabled @ 30W ¹	Up to 30W of PoE – 25 ports can be enabled @ 30W ¹	Up to 30W of PoE – 25 ports can be enabled @ 30W ¹	Up to 30W of PoE – 25 ports can be enabled @ 30W ¹
1+1 Power Supply Protection	Yes	Yes	Yes	Yes
Hot-Swappable Power Supplies	Yes	Yes	Yes	Yes
Max. watt power consumption				
AC Internal	4,200	4,200	4,200	4,200

AC External with power shelf	1,400 + power shelf = 7500	1,400 + power shelf = 7500	1,400 + power shelf = 7500	1,400 + power shelf = 7500
DC Internal	1,400 + UPS = 7500	1,400 + UPS = 7500	1,400 + UPS = 7500	1,400 + UPS = 7500
Max. number of Class 3 devices (15.4W) Max. power supplies				
AC Internal	108	240	240	270
AC External with power shelf	108	240	240	364
DC Internal	108	240	240	384
Unit weight (with Fan Tray)	32.25 lbs. (14.63 kgs.)	40.50 lbs. (18.37 kgs)	44.50 lbs. (20.19 kgs)	54.50 lbs. (24.73 kgs)
Dimensions (H x W x D)	12.25 x 17.31 x 12.50 in (31.12 x 43.97 x 31.70 cm)	17.38 x 17.31 x 12.50 in (44.13 x 43.97 x 31.70 cm)	19.19 x 17.31 x 12.50 in (48.74 x 43.97 x 31.70 cm)	24.35 x 17.31 x 12.50 in. (61.84 x 43.97 x 31.70 cm)
Supervisor Engines	Supervisor 6-E (WS-X45-Sup6-E)	Supervisor 6L-E (WS-X45-Sup6L-E)	Supervisor V-10GE (WS-X4516-10GE)	
Chassis supported	All	All	All	
Enhanced Layer 3 option	yes	yes	yes	
Total bandwidth (Gbps)	320	280	136	
Packets per second (Mpps)	250 (IPv4) 125 (IPv6)	225 (IPv4) 110 (IPv6)	102	
CPU MHz	1300	800	400	
NetFlow	no	included	included	
Onboard memory (DRAM)	512 MB upgradable to 1 GB	512 MB upgradable to 1 GB	512 MB	
On-Board Flash	128 MB	64 MB 128 MB	64 MB	
Compact Flash Support	Yes	Yes	Yes	
Switching Capacity & Throughput	320 Gbps, 250 Mpps	280 Gbps, 225 Mpps	136 Gbps, 102 Mpps	
Multilayer Switching	Enhanced L2/3/4 Services & Routing	Enhanced L2/3/4 Services & Routing	Enhanced L2/3/4 Services & Routing	
(E)IGRP, OSPF, IS-IS, BGP	EIGRP, OSPF, BGP, RIPv1/2	Yes	Yes	
Supervisor Redundancy	4507R, 4510R, 4507R-E, and 4510R-E only	4507R, 4510R, 4507R-E, and 4510R-E only	4507R and 4510R Only	
QoS	8Q/Port, MQC, Dynamic Tx Queue sizing, policing, shaping, congestion avoidance with DBL marking	8Q/Port, MQC, Dynamic Tx Queue sizing, policing, shaping, congestion avoidance with DBL marking	4Q/Port, policing, shaping, congestion avoidance	
NetFlow Support	No	No	Yes (Built-in functionality; no Daughter Card Required)	
ISL	No	Yes	Yes	
ACLS	Yes	Yes	Yes	
IP FIB entries	256K	57K	128K	
MAC Addresses	55K Unicast, 16K Multicast	55K Unicast, 16K Multicast	32K Unicast, 16K Multicast	

1. With a maximum 750W per slot

Selected Part Numbers and Ordering Information

Catalyst 4500 E-Series—Chassis, Supervisors	
WS-C4503-E	Cisco Catalyst 4500 E-Series 3-Slot Chassis, fan, no ps
WS-C4506-E	Cisco Catalyst 4500 E-Series 6-Slot Chassis, fan, no ps
WS-C4507R-E	Cisco Catalyst 4500 E-Series 7-Slot Chassis, fan, no ps, Red Sup Capable
WS-C4510R-E	Cisco Catalyst 4500 E-Series 10-Slot Chassis, fan, no ps, Red Sup Capable
WS-C4503-E-S2+48	Cisco Catalyst 4503-E Data Bundle, 1 x 1000AC, 1 x S2+, 1 x WS-X4148-RJ
WS-C4503-E-S2+48V	Cisco Catalyst 4503-E PoE Bundle, 1 x 1300AC, 1 x S2+, 1 x WS-X4248-RJ45V
WS-C4507R-E-S2+96	Cisco Catalyst 4507R-E Data Bundle, 1x 1000AC, 1 x S2+, 2 x WS-X4148-RJ
WS-C4507R-E-S2+96V	Cisco Catalyst 4507R-E PoE Bundle, 1 x 2800AC, 1 x S2+, 2xWS-X4248-RJ45V
WS-X45-SUP6-E (=)	Cisco Catalyst 4500 E-Series Sup6-E, 2x10GE(X2) w/ Twin Gig
WS-X45-SUP6L-E (=)	Cisco Catalyst 4500 E-Series Sup6-E Lite, 2x10GE(X2) w/ Twin Gig
WS-X4516-10GE (=)	Cisco Catalyst 4500 Supervisor V-10GE, 2x10GE(X2), 4x1GE (SFP)
WS-C4506E-S6L-96V+	Cisco Catalyst 4506-E Chassis, Two 24G PoEP Ready Line Cards, Sup6L-E
WS-C4503E-S6L-48V+	Cisco Catalyst 4503-E Chassis, One 24G PoEP Ready Line Card, Sup6L-E
WS-C4506E-S6L-2800	Cisco Catalyst 4506-E Chassis, Two 24G PoEP Line Cards, Sup6L-E, 2800W PS
WS-C4506E-S6L-4200	Cisco Catalyst 4506-E Chassis, Two 24G PoEP Line Cards, Sup6L-E, 4200W PS
Catalyst 4500—Chassis	
WS-C4510R	Cisco Catalyst 4500 Chassis (10-Slot), fan, no p/s, Red Sup Capable
WS-C4507R	Cisco Catalyst 4500 Chassis (7-Slot), fan, no p/s, Red Sup Capable
WS-C4506	Cisco Catalyst 4500 Chassis (6-Slot), fan, no p/s
WS-C4503	Cisco Catalyst 4500 Chassis (3-Slot), fan, no p/s
WS-C4506-S2+96	Cisco Catalyst 4506 Bundle, 1x 1000AC, 1x S2+, 2x WS-X4148-RJ
WS-C4506-S4-AP25	Cisco Catalyst 4506 Bundle, 1x 1000AC, 1x S4, 1x WS-X4306-GB, 1x4402-25
WS-C4506-S4-AP50	Cisco Catalyst 4506 Bundle, 1x 1000AC, 1x S4, 1x WS-X4306-GB, 1x4402-50
Catalyst 4500 and 4500-E Series Line Cards	
WS-X4648-RJ45V+E	Cisco Catalyst 4500 E-Series 48-Port PoE+ Ready 10/100/1000(RJ45)
WS-X4548-RJ45V+	Cisco Catalyst 4500 PoE+ Ready 10/100/1000, 48-Port (RJ45)
WS-X4548-GB-RJ45	Cisco Catalyst 4500 Enhanced 48-Port 10/100/1000 Base-T (RJ-45)
WS-X4248-RJ45V	Cisco Catalyst 4500 PoE 802.3af 10/100, 48-Ports (RJ45)
WS-X4148-RJ	Cisco Catalyst 4500 10/100 Auto Module, 48-Ports (RJ-45)

For More Information

For more information about the Cisco Catalyst 4500 Series, visit: <http://www.cisco.com/go/catalyst4500>.

Cisco Catalyst 4900 Series Switches

The Cisco Catalyst 4900 Series Switches are Layer 2–4 fixed-configuration switches that offer high-performance for data centers and branch core. The Cisco Catalyst 4900 Series offers high performance, low latency in a compact 1-rack unit (1RU) form factor.



Ideal for Companies That Need These Features

Cisco Catalyst 4948

- 48 ports of Gigabit Ethernet switching in 1RU with dual power supplies
- Nonblocking Layer 2, 3, and 4 10/100/1000 Gigabit Ethernet performance

- Cisco Catalyst 4948-10GE

- 48 ports of Gigabit Ethernet switching in 1RU with dual power supplies
 - Nonblocking Layer 2, 3, and 4 10/100/1000 Gigabit Ethernet performance with 10-Gigabit Ethernet uplinks
- Cisco Catalyst 4928-10GE

- 28 ports SFP Gigabit Ethernet switching in 1RU with dual power supplies
 - Nonblocking Layer 2, 3, and 4 Gigabit Ethernet performance with 10-Gigabit Ethernet uplinks

Key Features

- Low-latency and wire-speed switching.
- The switches offer up to forty-eight 10/100/1000 ports with four Small Form-Factor Pluggable (SFP) ports or forty-eight 10/100/1000 ports with two 10-Gigabit Ethernet or 28 SFP GE ports with two 10-Gigabit Ethernet
- The switches have redundant internal AC or DC power supplies with a hot-swappable fan tray.
- SFP or X2 flexibility on fiber port interfaces covers a wide range of cabling distances.

Specifications

Feature	WS-C4948	WS-C4948-10GE	WS-C4928-10GE
Forwarding bandwidth (Gbps)	96	136	96
Maximum stack members	0	0	0
Total stack bandwidth (Gbps)	0	0	0
Packets per second (Mpps)	72	102	72
MAC addresses supported	32,768	55,000	55,000
Routes supported	32,000	32,000	32,000
Onboard memory (DRAM)	256 MB	256 MB	256MB
10 GE density	0	2	2
Gigabit Ethernet GBIC/SFP density	4	0	28
10 GE XENPAK/X2 port density	0	2	2
10/100/1000 density	48	48	0
10/100 density	0	0	0
Max. watt power consumption	300	300	300
AC/DC support	AC/DC	AC/DC	AC/DC
Dimensions (H x W x D)	1.75 x 173 x 16.1 in. (4.45 x 43.91 x 40.99 cm.)	1.75 x 173 x 16.1 in. (4.45 x 43.91 x 40.99 cm.)	1.75 x 173 x 16.1 in. (4.45 x 43.91 x 40.99 cm.)
Unit weight	16.5 (748 kgs.)	16.5 (748 kgs.)	16.5 (748 kgs.)

Selected Part Numbers and Ordering Information

Cisco Catalyst 4900 Switch Series	
WS-C4948-S	Cisco Catalyst 4948, IPB s/w, 48-Port 10/100/1000+4 SFP, 1 AC p/s
WS-C4928-10GE	Cisco Catalyst 4928 10 Gigabit Ethernet Switch
WS-C4948-E	Cisco Catalyst 4948, ES s/w, 48-Port 10/100/1000+4 SFP, 1 AC p/s
WS-C4948	Cisco Catalyst 4948, optnl sw, 48-Port 10/100/1000+4 SFP, no p/s
WS-C4948-10GE	Cisco Catalyst 4948, optnl sw, 48*10/100/1000+2*10GE(X2), no p/s
WS-C4948-10GE-S	Cisco Catalyst 4948, IPB s/w, 48*10/100/1000+2*10GE(X2), 1 AC p/s
WS-C4948-10GE-E	Cisco Catalyst 4948, ES Image, 48*10/100/1000+2*10GE(X2), 1 AC p/s

For More Information

For more information about the Cisco Catalyst 4900 Series, visit: <http://www.cisco.com/go/catalyst4900>.

Cisco Catalyst 4900M Series Switch

The Cisco Catalyst 4900M Series Switch is a Layer 2–4 fixed-configuration switch that offers high-performance for top of rack server switching and for branch core deployments. The Cisco Catalyst 4900M Series offers high performance, low packet size independent latency, and media flexibility in a compact 2RU form factor.



Ideal for Companies That Need These Features

Cisco Catalyst 4900M Series Switch

- Flexibility of GbE and 10GbE ports in the same switch
- Full media flexibility for GbE and 10GbE fiber connectivity (copper, short reach multimode fiber, up to long reach/ DWDM on singlemode fiber)
- Sub 3us packet size independent low latency
- Up to 24 ports of 10 Gigabit Ethernet and up to 40 ports of Gigabit Ethernet in 2RU with dual power supplies
- Non-blocking Layer 2, 3, and 4 10/100/1000 Gigabit Ethernet, 1000BASE-X, and 10-Gigabit Ethernet performance

Key Features

- The Cisco Catalyst 4900M Series Switch provides packet size independent low-latency and wire-speed switching.
- Up to forty 10/100/1000 ports and up to twenty-four 10-Gigabit Ethernet ports (X2).
- Redundant internal AC or DC power supplies with a hot-swappable fan tray.
- SFP or X2 flexibility on fiber port interfaces covers a wide range of cabling distances.

Specifications

Feature	WS-C4900M
Forwarding bandwidth (Gbps)	320
Maximum stack members	0
Packets per second (Mpps)	250
MAC addresses supported	55,000
Routes supported	256,000
Onboard memory (DRAM)	512MB
10 GbE density	24
Gigabit Ethernet GBIC/SFP density	32
10 GbE XENPAK/X2 port density	24
10/100/1000 density	40
10/100 density	0
Max. watt power consumption	1000
AC/DC support	AC/DC
Dimensions (H x W x D)	3.5 x 17.2 x 17.9in (89 x 437 x 455 cm)
Unit weight	25 to 39 (11.3 to 176kgs)

Selected Part Numbers and Ordering Information

Catalyst 4900M Switch Series	
WS-C4900M	<div>Catalyst 4900M 8-port base system<ul style="list-style-type: none">· WS-X4904-10GE 4 port wire speed 10GE card· WS-X4908-10GE 8 port 2:1 10 GE card· WS-X4920-GB-RJ45 20 port 10/100/1000 RJ45· PWR-C49M-1000AC 4900M AC power supply, 1000 watts· PWR-C49M-1000AC/2 Redundant AC PS for 4900M· PWR-C49M-1000DC 4900M DC power supply 1000 watts· PWR-C49M-1000DC/2 Redundant DC PS for 4900M</div>

For More Information

For more information about the Cisco Catalyst 4900M Series, visit: <http://www.cisco.com/go/catalyst4900>.

Cisco Catalyst 3750-E Series Switches

The Cisco Catalyst 3750-E Series with Cisco StackWise Plus technology is an enterprise-class line of stackable wiring-closet switches. Combining 10/100/1000 and Power over Ethernet (PoE) configurations with upgradable 1- to 10-Gigabit Ethernet uplinks, Cisco Catalyst 3750-E Switches help enhance worker productivity by enabling applications such as IP telephony, wireless, and video.



Ideal for Companies That Need These Features

Cisco Catalyst 3750-E Series Switches

- Enhanced business productivity, resiliency, security, and scalability
- Quick deployment and easy management of their networks
- 1- to 10-Gigabit Ethernet upgradable uplinks
- Deployment of IP telephony, wireless, or Gigabit to the Desktop (GTDD)

Cisco Catalyst 3750E-24TD Switches

- Low-density access with switch stacking capability, Layer 2+ or Layer 3 features, and one or more 10-Gigabit Ethernet fiber uplinks

Cisco Catalyst 3750E-24PD Switches

- Low-density access with switch stacking capability, Layer 2+ or Layer 3 features, PoE, and one or more 10-Gigabit Ethernet fiber uplinks

Cisco Catalyst 3750E-24TD-SD Switches

- Low-density access with switch stacking capability, Layer 2+ or Layer 3 features, and one or more 10-Gigabit Ethernet fiber uplinks, DC power

Cisco Catalyst 3750E-48TD Switches

- Medium-density access with switch stacking capability, Layer 2+ or Layer 3 features, and one or more 10-Gigabit Ethernet fiber uplinks

Cisco Catalyst 3750E-48TD-SD Switches

- Medium-density access with switch stacking capability, Layer 2+ or Layer 3 features, and one or more 10-Gigabit Ethernet fiber uplinks, DC power

Cisco Catalyst 3750E-48PD Switches

- Medium-density access with switch stacking capability, Layer 2+ or Layer 3 features, PoE, and one or more 10-Gigabit Ethernet fiber uplinks

Cisco Catalyst 3750E-48PD full-power switches

- Medium-density access with switch stacking capability, full 15.4W of PoE on every port, Layer 2+ or Layer 3 features, PoE, and one or more 10-Gigabit Ethernet fiber uplinks

Key Features

- Cisco StackWise Plus technology—One IP address and one command-line interface (CLI) simplify management. A 64-Gbps resilient architecture speeds convergence, and 1:N stack master redundancy and Layer 3 uplink resiliency as well as cross-stack Cisco EtherChannel technology and quality of service (QoS) increase availability. Autoconfiguration and Cisco IOS Software version check and update accelerate deployment, and hot add and delete of switches keep the stack running.
- The Cisco TwinGig Converter Module facilitates migrating uplinks from 1-Gigabit Ethernet (Small Form-Factor Pluggable [SFP]) to 10-Gigabit Ethernet (X2) field-replaceable and -upgradable power supplies and fan tray.
- Availability—The Cisco Catalyst 3750-E Series Switches offer fault tolerance, load balancing, and rapid recovery; increased available bandwidth with Per VLAN Spanning Tree Plus (PVST+) by allowing traffic on redundant link; and sub-100-millisecond convergence with Flexlink technology.
- Power over Ethernet (PoE)—The switches offer 1150W PoE, which simplifies IP telephony, wireless, and video-surveillance deployments. It provides intelligent power-management features and PoE combined with Fast Ethernet or Gigabit Ethernet. Each port may support up to 20W of power.
- Layer 3—Advanced routing protocols such as Open Shortest Path First (OSPF), Enhanced Interior Gateway Routing Protocol (EIGRP), and Policy Based Routing (PBR) increase network scale. The switches provide equal cost routing as well as multicast routing such as Protocol Independent Multicast (PIM), Virtual Route Forwarding Lite (VRFLite) to secure traffic, and IPv6.

- Quality of service (QoS)—Traffic shaping smooths a sudden traffic flow outburst without dropping packets; shaped Round Robin guarantees bandwidth to mission-critical applications; and Scavenger Queuing protects against worms overloading resources.
- Management—Cisco Smartports quicken and simplify configuration of advanced Cisco Catalyst intelligent capabilities; express setup facilitates quick and easy setup through a Web interface; and resource templates help tailor switch resources for the application.
- Security—Dynamic Host Configuration Protocol (DHCP) Snooping allows only trusted ports to relay DHCP messages, eliminating rogue DHCP servers. Cisco Network Admission Control (NAC) prevents the propagation of costly worms and viruses; Dynamic ARP Inspection and IP Source Guard prevent against man-in-the-middle attacks; 802.1x and Identity-Based Network Services allow only authorized persons on the network; and port security prevents MAC address flooding attacks.
- Field-replaceable and -upgradable power supplies and fan.
- Cisco TwinGig Converter Module for migrating uplinks from 1 Gigabit Ethernet (Small Form-Factor Pluggable [SFP]) to 10 Gigabit Ethernet (X2).
- Cisco EnergyWise helps reduce company-wide power consumption and carbon footprint.
- Cisco limited lifetime warranty.

Specifications

Feature	WS-C3750E-24TD	WS-C3750E-24TD-SD	WS-C3750E-48TD	WS-C3750E-48TD-SD	WS-C3750E-24PD	WS-C3750E-48PD	WS-C3750E-48PD Full Power
Forwarding bandwidth (Gbps)	128	128	128	128	128	128	128
Maximum stack members	9	9	9	9	9	9	9
Total stack bandwidth (Gbps)	64	64	64	64	64	64	64
Packets per second (Mpps)	6.5	6.5	13.1	13.1	6.5	13.1	6.5
MAC addresses supported	12,000	12,000	12,000	12,000	12,000	12,000	12,000
Routes supported	11,000	11,000	11,000	11,000	11,000	11,000	11,000
10 GE density	2	2	2	2	2	2	2
10 GE XFP	2	2	2	2	2	2	2
10/100/1000 density	24	24	48	48	24	48	48
10/100 density	24	24	48	48	24	48	48
100BASE-FX density	0	0	0	0	0	0	24
Measured 100% Throughput power consumption (with Max. 15.4 W PoE loads)	99	99	149	149	375	375	744
PoE: Max. 802.3af Class 3 devices (15.4W)	-	-	-	-	24	48	48
PoE: Max. 802.3af Class 2 devices (7.3W)	-	-	-	-	24	48	48
AC/DC support	AC and DC	DC power	AC and DC	DC power	AC and DC	AC and DC	AC and DC
Dimensions (H x W x D)	1.75 x 175 x 18.1 in.; (4.45 x 44.5 x 46.0 cm.)	1.75 x 175 x 18.1 in.; (4.45 x 44.5 x 46.0 cm.)	1.75 x 175 x 18.1 in.; (4.45 x 44.5 x 46.0 cm.)	1.75 x 175 x 18.1 in.; (4.45 x 44.5 x 46.0 cm.)	1.75 x 175 x 18.1 in.; (4.45 x 44.5 x 46.0 cm.)	1.75 x 175 x 18.1 in.; (4.45 x 44.5 x 46.0 cm.)	1.75 x 175 x 18.1 in.; (4.45 x 44.5 x 46.0 cm.)
Unit weight	179 lbs. (81 kgs.)	179 lbs. (81 kgs.)	18.3 lbs. (8.3 kgs.)	18.3 lbs. (8.3 kgs.)	18.8 lbs. (8.6 kgs.)	19.2 lbs. (8.75 kgs.)	20.9 lbs. (9.5 kgs.)

Selected Part Numbers and Ordering Information

Catalyst 3750-E Series 10/100/1000 Workgroup Switches ¹	
WS-C3750E-24TD-S	Cisco Catalyst 3750E 24 10/100/1000+2*10GE(X2), 265W, IPB s/w
WS-C3750E-24TD-S D	Cisco Catalyst 3750E 24 10/100/1000+2*10GE(X2), 265W DC, IPB s/w

WS-C3750E-24TD-E	Cisco Catalyst 3750E 24 10/100/1000+2*10GE(X2), 265W, IPS s/w
WS-C3750E-48TD-S	Cisco Catalyst 3750E 48 10/100/1000+2*10GE(X2), 265W, IPB s/w
WS-C3750E-48TD-SD	Cisco Catalyst 3750E 48 10/100/1000+2*10GE(X2), 265W DC, IPB s/w
WS-C3750E-48TD-E	Cisco Catalyst 3750E 48 10/100/1000+2*10GE(X2), 265W, IPS s/w
WS-C3750E-24PD-S	Cisco Catalyst 3750E 24 10/100/1000 PoE+2*10GE(X2), 750W, IPB s/w
WS-C3750E-24PD-E	Cisco Catalyst 3750E 24 10/100/1000 PoE+2*10GE(X2), 750W, IPS s/w
WS-C3750E-48PD-S	Cisco Catalyst 3750E 48 10/100/1000 PoE+2*10GE(X2), 750W, IPB s/w
WS-C3750E-48PD-E	Cisco Catalyst 3750E 48 10/100/1000 PoE+2*10GE(X2), 750W, IPS s/w
WS-C3750E-48PD-SF	Cisco Catalyst 3750E 48 10/100/1000 PoE+2*10GE(X2), 1150W, IPB s/w
WS-C3750E-48PD-EF	Cisco Catalyst 3750E 48 10/100/1000 PoE+2*10GE(X2), 1150W, IPS s/w

Catalyst 3750-E Series Product Activation Keys

3750E-IPS-LIC-B=	IP Services for 3750-E 24 ports, upgrade from IP Base
3750E48-IPS-LIC-B=	IP Services for 3750-E 48 ports, upgrade from IP Base

1. S=IP Base; E=IP Services

For More Information

For more information about the Cisco Catalyst 3750-E Series Switch, visit: <http://www.cisco.com/go/catalyst3750E>.

Cisco Catalyst 3750 Series Switches

The Cisco Catalyst 3750 Series Switch is an innovative product for midsize organizations and enterprise branch offices. Featuring Cisco StackWise technology, the switch improves LAN operating efficiency by combining ease of use and the highest resiliency available for stackable switches.



Ideal for Companies That Need These Features

Cisco Catalyst 3750 Series Switches

- Enhanced business productivity, resiliency, security, and scalability
- Quick deployment and easy network management
- Deployment of IP telephony, wireless, or Gigabit to the Desktop (GTDD)

Cisco Catalyst 3750V2-24TS Switches

- Low-density access with switch stacking capability, Layer 2+ or Layer 3 features, and one or more fiber uplinks

Cisco Catalyst 3750V2-24PS Switches

- Low-density access with switch stacking capability, Layer 2+ or Layer 3 features, PoE, and one or more fiber uplinks

Cisco Catalyst 3750V2-48TS Switches

- Medium-density access with switch stacking capability, Layer 2+ or Layer 3 features, and one or more fiber uplinks

Cisco Catalyst 3750V2-48PS Switches

- Medium-density access with switch stacking capability, Layer 2+ or Layer 3 features, PoE, and one or more fiber uplinks

Cisco Catalyst 3750G-24T Switches

- Low-density Layer 2+ or Layer 3 GTDD or Ethernet aggregation with stacking capability without any uplinks

Cisco Catalyst 3750G-24TS-1U Switches

- Low-density Layer 2+ or Layer 3 GTDD or Ethernet aggregation with switch stacking capability and fiber uplinks in a 1RU form factor

Cisco Catalyst 3750G-24PS Switches

- Low-density Layer 2+ or Layer 3 GTDD or Ethernet aggregation with switch stacking capability, PoE, and fiber uplinks

Cisco Catalyst 3750G-48TS Switches

- Medium-density Layer 2+ or Layer 3 GTDD or Ethernet aggregation with switch stacking capability and fiber uplinks

Cisco Catalyst 3750G-48PS Switches

- Medium-density Layer 2+ or Layer 3 GTDD or Ethernet aggregation with switch stacking capability, PoE, and fiber uplinks

Cisco Catalyst 3750G-12S/SD Switches

- Aggregation of wiring-closet switches with optical connectivity and stacking

Cisco Catalyst 3750-24FS Switches

- Low-density access using 100BASE-FX fiber connections with switch stacking capability, basic Layer 3 features, and one or more fiber uplinks

Cisco Catalyst WS-C3750G-24WS-S25 Switches

- Integrated wireless LAN (WLAN) controller functions into Cisco Catalyst 3750G Series Switches (This switch supports 25 access points.)

Cisco Catalyst WS-C3750G-24WS-S50 Switches

- Integrated WLAN controller functions into Cisco Catalyst 3750G Series Switches (This switch supports 50 access points.)

Key Features

- Cisco StackWise technology—One IP address and one command-line interface (CLI) simplify management. A 32-Gbps resilient architecture speeds convergence, and 1:N stack master redundancy and Layer 3 uplink resilience as well as cross-stack Cisco EtherChannel technology and quality of service (QoS) increase availability. Autoconfiguration and Cisco IOS Software version check and update accelerate deployment, and hot add and delete of switches keep the stack running.
- Availability—These switches offer fault tolerance, load balancing, and rapid recovery; increased available bandwidth with Per VLAN Spanning Tree Plus (PVST+) by allowing traffic on redundant links; and sub-100-millisecond convergence with Flexlink technology.
- Power over Ethernet (PoE)—The switches provide 370W PoE, which simplifies IP telephony, wireless, and video-surveillance deployments; intelligent power-management features; and PoE combined with Fast Ethernet or Gigabit Ethernet.
- Layer 3—The switches support advanced routing protocols such as Open Shortest Path First (OSPF), Enhanced Interior Gateway Routing Protocol (EIGRP), and Policy Based Routing (PBR) to increase network scale; equal cost routing as well as multicast routing such as Protocol Independent Multicast (PIM); Virtual Route Forwarding Lite (VRF Lite) to secure traffic; and IPv6.
- QoS—Traffic shaping smooths a sudden traffic flow outburst without dropping packets; shaped Round Robin guarantees bandwidth to mission-critical applications; and Scavenger Queuing protects against worms overloading resources.
- Management—Cisco Smartports quicken and simplify configuration of advanced Cisco Catalyst intelligent capabilities. Express setup facilitates quick and easy setup through a Web interface, and resource templates help tailor switch resources for the application.
- Security—Dynamic Host Configuration Protocol (DHCP) Snooping allows only trusted ports to relay DHCP messages, eliminating rogue DHCP servers. Cisco Network Admission Control (NAC) prevents the propagation of costly worms and viruses; Dynamic ARP Inspection and IP Source Guard prevent against man-in-the-middle attacks; 802.1x and Identity-Based Network Services allow only authorized persons on the network; and port security prevents MAC address flooding attacks.
- Wireless—The Switch models with integrated wireless LAN (WLAN) controller delivers centralized security policies, intrusion protection, RF management, QoS and Layer 3 fast secure roaming for WLANs. This WLAN controller is part of the Cisco Unified Wireless Network.
- Cisco EnergyWise helps reduce company-wide power consumption and carbon footprint.
- Cisco limited lifetime warranty.

Specifications

Feature	WS-C3750V2-24TS	WS-C3750V2-48TS	WS-C3750V2-24PS	WS-C3750V2-48PS	WS-C3750-24FS
Forwarding bandwidth (Gbps)	32	32	32	32	32
Maximum stack members	9	9	9	9	9
Total stack bandwidth (Gbps)	32	32	32	32	32
Packets per second (Mpps)	6.5	131	6.5	131	6.5
MAC addresses supported	12,000	12,000	12,000	12,000	12,000
Routes supported	11,000	11,000	11,000	11,000	11,000
10 GE density	0	0	0	0	0
Gigabit Ethernet GBIC/SFP density	2	4	2	4	2
10 GE XENPAK/X2 port density	0	0	0	0	0
10/100/1000 density	0	0	0	0	0
10/100 density	24	48	24	48	0

100BASE-FX density	0	0	0	0	24
Measured 100% Throughput power consumption (with max. 15.4 W PoE loads)	39	57	444	458	61
PoE: Max. 802.3af Class 3 devices (15.4W)	-	-	24	24	-
PoE: Max. 802.3af Class 2 devices (7.3W)	-	-	24	48	-
AC/DC support	AC only	AC only	AC only	AC only	AC only
Dimensions (H x W x D)	1.73 x 1746 x 11.62 in. (4.4 x 44.3 x 29.5 cm.)	1.73 x 1746 x 11.62 in. (4.4 x 44.3 x 29.5 cm.)	1.73 x 1746 x 11.62 in. (4.4 x 44.3 x 29.5 cm.)	1.73 x 1746 x 11.62 in. (4.4 x 44.3 x 29.5 cm.)	1.73 x 175 x 11.8 in. (4.4 x 44.5 x 30.1 cm.)
Unit weight	8.2 lbs. (3.7 kgs.)	9.2 lbs. (4.2 kgs.)	10 lbs. (4.6 kgs.)	11 lbs. (5.0 kgs.)	915 lbs. (415 kgs.)
Feature	WS-C3750G-24T	WS-C3750G-24TS-1U	WS-C3750G-48TS	WS-C3750G-24PS	WS-C3750G-48PS
Forwarding bandwidth (Gbps)	32	32	32	32	32
Maximum stack members	9	9	9	9	9
Total stack bandwidth (Gbps)	32	32	32	32	32
Packets per second (Mpps)	35.7	38.7	38.7	38.7	38.7
MAC addresses supported	12,000	12,000	12,000	12,000	12,000
Routes supported	11,000	11,000	11,000	11,000	11,000
10 GE density	0	0	0	0	0
Gigabit Ethernet GBIC/SFP density	0	4	4	4	4
10 GE XENPAK/X2 port density	0	0	0	0	0
10/100/1000 density	24	24	48	24	48
10/100 density	0	0	0	0	0
100BASE-FX density	0	0	0	0	0
Measured 100% Throughput power consumption (with max. 15.4 W PoE loads)	98	94	152	492	541
PoE: Max. 802.3af Class 3 devices (15.4W)	-	-	-	24	24
PoE: Max. 802.3af Class 2 devices (7.3W)	-	-	-	24	48
AC/DC support	AC only	AC only	AC only	AC only	AC only
Dimensions (H x W x D)	1.73 x 175 x 12.8 in. (4.4 x 44.5 x 32.6 cm.)	1.73 x 175 x 14.9 in. (4.4 x 44.5 x 37.8 cm.)	1.73 x 175 x 16.1 in. (4.4 x 44.5 x 40.9 cm.)	1.73 x 175 x 14.9 in. (4.4 x 44.5 x 37.8 cm.)	1.73 x 175 x 16.1 in. (4.4 x 44.5 x 40.9 cm.)
Unit weight	10 lbs. (4.6 kgs.)	12 lbs. (5.5 kgs.)	14 lbs. (6.4 kgs.)	13.5 lbs. (6.1 kgs.)	15.5 lbs. (7.0 kgs.)
Feature	WS-C3750G-12S	WS-C3750G-12S-SD	WS-C3750G-24WS-S25	WS-C3750G-24WS-S50	
Forwarding bandwidth (Gbps)	32	32	32	32	
Maximum stack members	9	9	9	9	
Total stack bandwidth (Gbps)	32	32	32	32	

Packets per second (Mpps)	178	178	38.7	38.7
MAC addresses supported	12,000	12,000	12,000	12,000
Routes supported	20,000	20,000	11,000	11,000
Onboard memory (DRAM)	128 MB	128 MB	128 MB	128 MB
10 GE density	0	0	0	0
Gigabit Ethernet GBIC/SFP density	12	12	2	2
10 GE XENPAK/X2 port density	0	0	0	0
10/100/1000 density	0	0	24	24
10/100 density	0	0	0	0
Measured 100% Throughput power consumption (with max. 15.4 W PoE loads)	100	72	255	255
AC/DC support	AC only	DC only	AC only	AC only
Dimensions (H x W x D)	1.73 x 175 x 12.8 in. (4.4 x 44.5 x 32.6 cm.)	1.73 x 175 x 12.8 in. (4.4 x 44.5 x 32.6 cm.)	2.59 x 175 x 11.6 in. (6.6 x 44.5 x 29.5 cm)	2.59 x 175 x 11.6 in. (6.6 x 44.5 x 29.5 cm)
Unit weight	10 lbs. (4.6 kgs.)	9 lbs. (4.08 kgs.)	21 lbs. (9.5 kgs.)	21 lbs. (9.5 kgs.)

Selected Part Numbers and Ordering Information

Cisco Catalyst 3750 Series Gigabit Ethernet Switches	
WS-C3750G-24T-S	Cisco Catalyst 3750G-24 10/100/1000T Standard Multilayer Image
WS-C3750G-24T-E	Cisco Catalyst 3750G-24 10/100/1000T Enhanced Multilayer Image
WS-C3750G-24TS-S1U	Cisco Catalyst 3750G-24 10/100/1000 + 4 SFP Std Multilayer:1RU
WS-C3750G-24TS-E1U	Cisco Catalyst 3750G-24 10/100/1000 + 4 SFP Enh Multilayer:1RU
WS-C3750G-24PS-S	Cisco Catalyst 3750G-24 10/100/1000T PoE + 4 SFP Standard Image
WS-C3750G-24PS-E	Cisco Catalyst 3750G-24 10/100/1000T PoE + 4 SFP Enhanced Image
SWLC3750-25-K9	IP base w/o crypto with web-based dev mgr
WS-C3750G-48TS-S	Cisco Catalyst 3750G-48 10/100/1000T + 4 SFP Standard Multilayer
WS-C3750G-48TS-E	Cisco Catalyst 3750G-48 10/100/1000T + 4 SFP Enhanced Multilayer
WS-C3750G-48PS-S	Cisco Catalyst 3750G-48 10/100/1000T PoE + 4 SFP Standard Image
WS-C3750G-48PS-E	Cisco Catalyst 3750G-48 10/100/1000T PoE + 4 SFP Enhanced Image
WS-C3750G-12S-S	Cisco Catalyst 3750G-12 SFP Standard Multilayer Image
Wireless LAN	
WS-C3750G-24WS-S25	Cisco Catalyst 3750G Integrated Wireless LAN Controller
WS-C3750G-24WS-S50	Cisco Catalyst 3750G Integrated Wireless LAN Controller
Ethernet Switches	
WS-C3750G-48TS-S	Cisco Catalyst 3750G-48 10/100/1000T + 4 SFP Standard Multilayer
WS-C3750G-48TS-E	Cisco Catalyst 3750G-48 10/100/1000T + 4 SFP Enhanced Multilayer
WS-C3750G-48PS-S	Cisco Catalyst 3750G-48 10/100/1000T PoE + 4 SFP Standard Image
WS-C3750G-48PS-E	Cisco Catalyst 3750G-48 10/100/1000T PoE + 4 SFP Enhanced Image
WS-C3750G-12S-S	Cisco Catalyst 3750G-12 SFP Standard Multilayer Image
Cisco Catalyst 3750 Series 10/100 Workgroup Switches	

WS-C3750-24FS-S	Cisco Catalyst 3750v2-24 100BaseFX + 2 SFP Standard Multilayer Image
WS-C3750V2-24PS-S	Cisco Catalyst 3750v2-24 10/100 PoE + 2 SFP Standard Image
WS-C3750V2-24PS-E	Cisco Catalyst 3750v2-24 10/100 PoE + 2 SFP Enhanced Image
WS-C3750V2-24TS-S	Cisco Catalyst 3750v2-24 10/100 + 2 SFP Standard Multilayer Image
WS-C3750V2-24TS-E	Cisco Catalyst 3750v2-24 10/100 + 2 SFP Enhanced Multilayer Image
WS-C3750V2-48PS-S	Cisco Catalyst 3750v2-48 10/100 PoE + 4 SFP Standard Image
WS-C3750V2-48PS-E	Cisco Catalyst 3750v2-48 10/100 PoE + 4 SFP Enhanced Image
WS-C3750V2-48TS-S	Cisco Catalyst 3750v2-48 10/100 + 4 SFP Standard Multilayer Image
WS-C3750V2-48TS-E	Cisco Catalyst 3750v2-48 10/100 + 4 SFP Enhanced Multilayer Image

For More Information

For more information about the Cisco Catalyst 3750 Series Switches, visit: <http://www.cisco.com/go/catalyst3750>.

Cisco Catalyst 3560-E Series Switches

The Cisco Catalyst 3560-E Series is an enterprise-class line of standalone wiring closet switches that ease the deployment of secure converged applications. Combining 10/100/1000 and Power over Ethernet (PoE) configurations with uplinks that easily upgrade from 1 to 10 Gigabit Ethernet, these switches enhance worker productivity by enabling applications such as IP telephony, wireless, and video.



Ideal for Companies That Need These Features

Cisco Catalyst 3560-E Series Switches

- Enhanced business productivity, resiliency, security, and scalability
- Quick deployment and easy network management
- Deployment of IP telephony, wireless, or Gigabit to the Desktop (GTTD)
- 1- to 10-Gigabit Ethernet upgradable uplinks

Cisco Catalyst 3560E-24TD Switches

- Low-density access, Layer 2+ or Layer 3 features, and one or more 10-Gigabit Ethernet fiber uplinks

Cisco Catalyst 3560E-24TD-SD Switches

- Low-density access, Layer 2+ or Layer 3 features, and one or more 10-Gigabit Ethernet fiber uplinks, DC power

Cisco Catalyst 3560E-48TD Switches

- Medium-density access, Layer 2+ or Layer 3 features, and one or more 10-Gigabit Ethernet fiber uplinks

Cisco Catalyst 3560E-48TD-SD Switches

- Medium-density access, Layer 2+ or Layer 3 features, and one or more 10-Gigabit Ethernet fiber uplinks, DC power

Cisco Catalyst 3560E-24PD Switches

- Low-density access, PoE, Layer 2+ or Layer 3 features, and one or more 10-Gigabit Ethernet fiber uplinks

Cisco Catalyst 3560E-48PD Switches

- Medium-density access, PoE, Layer 2+ or Layer 3 features, and one or more 10-Gigabit Ethernet fiber uplinks

Cisco Catalyst 3560E-48PD Full Power

- Medium-density 10/100/1000 access, full 15.4W of PoE on every port, Layer 2+ or Layer 3 features, PoE, and 1 or more 10-Gigabit Ethernet fiber uplinks

Cisco Catalyst 3560E-48TD Switches

- Medium-density access, Layer 2+ or Layer 3 features, and one or more 10-Gigabit Ethernet fiber uplinks

Cisco Catalyst 3560E-12SD Switches

- Low-density Gigabit Ethernet fiber aggregation, Layer 2+ or Layer 3 features, and one or more 10-Gigabit Ethernet fiber uplinks

Cisco Catalyst 3560E-12D Switches

- Low-density 10-Gigabit Ethernet fiber aggregation and Layer 2+ or Layer 3 features

Key Features

- Availability—The Cisco Catalyst 3560-E Series Switches offer fault tolerance, load balancing, and rapid recovery; increased available bandwidth with Per VLAN Spanning Tree Plus (PVST+) by allowing traffic on redundant link; and sub-100-millisecond convergence with Flexlink technology.
- Power over Ethernet (PoE)—The switches offer 1150W PoE, which simplifies IP telephony, wireless, and video-surveillance deployments. It provides intelligent power-management features and PoE combined with Fast Ethernet or Gigabit Ethernet.

- Layer 3—Advanced routing protocols such as Open Shortest Path First (OSPF), Enhanced Interior Gateway Routing Protocol (EIGRP), and Policy Based Routing (PBR) increase network scale. The switches provide equal cost routing as well as multicast routing such as Protocol Independent Multicast (PIM), Virtual Route Forwarding Lite (VRF Lite) to secure traffic, and IPv6.
- Quality of service (QoS)—Traffic shaping smooths a sudden traffic flow outburst without dropping packets; shaped Round Robin guarantees bandwidth to mission-critical applications; and Scavenger Queuing protects against worms overloading resources.
- Management—Cisco Smartports quicken and simplify configuration of advanced Cisco Catalyst intelligent capabilities; express setup facilitates quick and easy setup through a Web interface; and resource templates help tailor switch resources for the application.
- Security—Dynamic Host Configuration Protocol (DHCP) Snooping allows only trusted ports to relay DHCP messages, eliminating rogue DHCP servers. Cisco Network Admission Control (NAC) prevents the propagation of costly worms and viruses; Dynamic ARP Inspection and IP Source Guard prevent against man-in-the-middle attacks; 802.1x and Identity-Based Network Services allow only authorized persons on the network; and port security prevents MAC address flooding attacks.
- Field-replaceable and -upgradable power supplies and fan.
- Cisco TwinGig Converter Module for migrating uplinks from 1 Gigabit Ethernet (Small Form-Factor Pluggable [SFP]) to 10 Gigabit Ethernet (X2).
- Cisco EnergyWise helps reduce company-wide power consumption and carbon footprint.
- Cisco limited lifetime warranty.

Specifications

Feature	WS-C3560E-24TD	WS-C3560E-24TD-SD	WS-C3560E-48TD	WS-C3560E-48TD-SD	WS-C3560E-24PD	WS-C3560E-48PD	WS-C3560-48PD Full Power
Forwarding bandwidth (Gbps)	128	128	128	128	128	128	128
Packets per second (Mpps)	65.5	65.5	101.2	101.2	65.5	101.2	101.2
MAC addresses supported	12,000	12,000	12,000	12,000	12,000	12,000	12,000
Routes supported	11,000	11,000	11,000	11,000	11,000	11,000	11,000
Onboard memory (DRAM/Flash)	128/32 MB	128/32 MB	128/32 MB	128/32 MB	128/16 MB	128/16 MB	128/16 MB
10/100/1000 density	24	24	48	48	24	48	48
10/100 density	24	24	48	48	24	48	48
PoE: Max. 802.3af Class 3 devices (15.4W)	-	-	-	-	24	48	48
PoE: Max. 802.3af Class 2 devices (7.3W)	-	-	-	-	24	48	48
AC/DC support	AC and DC	DC power	AC and DC	DC power	AC and DC	AC and DC	AC and DC
Dimensions (H x W x D)	1.73 x 1.75 x 18.1 in. (4.45 x 44.5 x 46.0 cm.)	1.73 x 1.75 x 18.1 in. (4.45 x 44.5 x 46.0 cm.)	1.73 x 1.75 x 18.1 in. (4.5 x 44.5 x 46.0 cm.)	1.73 x 1.75 x 18.1 in. (4.5 x 44.5 x 46.0 cm.)	1.73 x 1.75 x 18.1 in. (4.45 x 44.5 x 46.0 cm.)	1.73 x 1.75 x 18.1 in. (4.45 x 44.5 x 46.0 cm.)	1.73 x 1.75 x 21.7 in. (4.45 x 44.5 x 55.2 cm.)
Unit weight	179 lbs. (81 kgs.)	179 lbs. (81 kgs.)	18.8lbs. (8.6kgs.)	18.8lbs. (8.6kgs.)	18.3 lbs. (8.3kgs.)	19.2 lbs. 8.75kgs.)	20.9 lbs. (9.5 kgs.)

Selected Part Numbers and Ordering Information

Cisco Catalyst 3560-E Series 10/100/1000 Workgroup Switches ¹	
WS-C3560E-24TD-S	Cisco Catalyst 3560E 24 10/100/1000+2*10GE(X2),265W,IPB s/w
WS-C3560E-24TD-SD	Cisco Catalyst 3560E 24 10/100/1000+2*10GE(X2),DC,265W,IPB s/w
WS-C3560E-24TD-E	Cisco Catalyst 3560E 24 10/100/1000+2*10GE(X2),265W,IPS s/w
WS-C3560E-48TD-S	Cisco Catalyst 3560E 48 10/100/1000+2*10GE(X2),265W,IPB s/w
WS-C3560E-48TD-SD	Cisco Catalyst 3560E 48 10/100/1000+2*10GE(X2),265W DC,IPB s/w
WS-C3560E-48TD-E	Cisco Catalyst 3560E 48 10/100/1000+2*10GE(X2),265W,IPS s/w

WS-C3560E-24PD-S	Cisco Catalyst 3560E 24 10/100/1000 PoE+2*10GE(X2),750W/IPB s/w
WS-C3560E-24PD-E	Cisco Catalyst 3560E 24 10/100/1000 PoE+2*10GE(X2),750W/IPS s/w
WS-C3560E-48PD-S	Cisco Catalyst 3560E 48 10/100/1000 PoE+2*10GE(X2),750W/IPB s/w
WS-C3560E-48PD-E	Cisco Catalyst 3560E 48 10/100/1000 PoE+2*10GE(X2),750W/IPS s/w
WS-C3560E-48PD-SF	Cisco Catalyst 3560E 48 10/100/1000 PoE+2*10GE(X2),1150W/IPB s/w
WS-C3560E-48PD-EF	Cisco Catalyst 3560E 48 10/100/1000 PoE+2*10GE(X2),1150W/IPS s/w
WS-C3560E-12SD-S	Cisco Catalyst 3560E 12 SFP + 2*10GE(X2), IPB s/w
WS-C3560E-12SD-E	Cisco Catalyst 3560E 12 SFP + 2*10GE(X2), IPS s/w
WS-C3560E-12D-S	Cisco Catalyst 3560E 12*10GE(X2), IPB s/w
WS-C3560E-12D-E	Cisco Catalyst 3560E 12*10GE(X2), IPS s/w
Cisco Catalyst 3560-E Series Product Activation Keys	
3560E-IPSLCB-QTY	IP Services for 3560 E, upgrade from the IP Base Feature Set

1. S=IP Base; E=IP Services

For More Information

For more information about the Cisco Catalyst 3560-E Series Switches, visit: <http://www.cisco.com/go/catalyst3560E>.

Cisco Catalyst 3560 Series Switches

The Cisco Catalyst 3560 Series Switches are fixed-configuration switches combining Gigabit Ethernet connectivity and Power over Ethernet (PoE) for small enterprise LAN access and branch office deployments.



Ideal for Companies That Need These Features

Cisco Catalyst 3560 Series Switches

- Enhanced business productivity, resiliency, security, and scalability
- Quick deployment and easy network management
- Deployments of IP telephony, wireless, or Gigabit to the Desktop (GTTD)

Cisco Catalyst 3560-8PC Compact Switch

- Small density PoE with compact form-factor and no fan for deployments in conference rooms and classrooms

Cisco Catalyst 3560-12PC Compact Switch

- Small density PoE with compact form-factor and no fan for deployments in conference rooms and classrooms

Cisco Catalyst 3560V2-24TS Switches

- Low-density access, Layer 2+ or Layer 3 features, and one or more fiber uplinks

Cisco Catalyst 3560V2-48TS Switches

- Medium-density access, Layer 2+ or Layer 3 features, and one or more fiber uplinks

Cisco Catalyst 3560V2-24PS Switches

- Low-density access, PoE, Layer 2+ or Layer 3 features, and one or more fiber uplinks

Cisco Catalyst 3560V2-48PS Switches

- Medium-density access, PoE, Layer 2+ or Layer 3 features, and one or more fiber uplinks

Cisco Catalyst 3560V2-24TS-SD Switch

- Low-density access, Layer 2+ or Layer 3 features, and one or more fiber uplinks, DC power supply

Cisco Catalyst 3560G-24TS Switch

- Low-density 10/100/1000 access, Layer 2+ or Layer 3 features, and one or more fiber uplinks

Cisco Catalyst 3560G-24PS Switches

- Low-density 10/100/1000 access, PoE, Layer 2+ or Layer 3 features, and one or more fiber uplinks

Cisco Catalyst 3560G-48TS Switches

- Medium-density 10/100/1000 access, Layer 2+ or Layer 3 features, and one or more fiber uplinks

Cisco Catalyst 3560G-48PS Switches

- Medium-density 10/100/1000 access, PoE, Layer 2+ or Layer 3 features, and one or more fiber uplinks

Key Features

- Availability—The Cisco Catalyst 3560 Series Switches offer fault tolerance, load balancing, and rapid recovery; increased available bandwidth with Per VLAN Spanning Tree Plus (PVST+) by allowing traffic on redundant links; and sub-100-millisecond convergence with Flexlink technology.
- Power over Ethernet (PoE)—The switches provide 370W PoE, which simplifies IP telephony, wireless, and video-surveillance deployments; intelligent power-management features; and PoE combined with Fast Ethernet or Gigabit Ethernet.
- Layer 3—The switches support advanced routing protocols such as Open Shortest Path First (OSPF), Enhanced Interior Gateway Routing Protocol (EIGRP), and Policy Based Routing (PBR) to increase network scale; equal cost routing as well as multicast routing such as Protocol Independent Multicast (PIM); Virtual Route Forwarding Lite (VRF Lite) to secure traffic; and IPv6.
- QoS—Traffic shaping smooths a sudden traffic flow outburst without dropping packets; shaped Round Robin guarantees bandwidth to mission-critical applications; and Scavenger Queuing protects against worms overloading resources.
- Management—Cisco Smartports quicken and simplify configuration of advanced Cisco Catalyst intelligent capabilities. Express setup facilitates quick and easy setup through a Web interface, and resource templates help tailor switch resources for the application.
- Security—Dynamic Host Configuration Protocol (DHCP) Snooping allows only trusted ports to relay DHCP messages, eliminating rogue DHCP servers. Cisco Network Admission Control (NAC) prevents the propagation of costly worms and viruses; Dynamic ARP Inspection and IP Source Guard prevent against man-in-the-middle attacks; 802.1x and Identity-Based Network Services allow only authorized persons on the network; and port security prevents MAC address flooding attacks.
- Cisco EnergyWise helps reduce company-wide power consumption and carbon footprint.
- Cisco limited lifetime warranty.

Specifications

Feature	WS-C3560V2-24TS	WS-C3560V2-48TS	WS-C3560V2-24PS	WS-C3560V2-48PS	WS-C3560V2-24TS-SD	WS-C3560G-24TS
Forwarding bandwidth (Gbps)	32	32	32	32	32	32
Packets per second (Mpps)	6.5	13.1	6.5	13.1	6.5	38.7
MAC addresses supported	12,000	12,000	12,000	12,000	12,000	12,000
Routes supported	11,000	11,000	11,000	11,000	11,000	11,000
Onboard memory (DRAM/Flash)	128/32 MB	128/32 MB	128/16 MB	128/16 MB	128/32 MB	128/32 MB
Gigabit Ethernet GBIC/SFP density	2	4	2	4	2	4
10/100/1000 density	0	0	0	0	0	24
10/100 density	24	48	24	48	24	0
Measured 100% Throughput power consumption (with Max. 15.4 W PoE loads)	24	41	435	452	24	74
PoE: Max. 802.3af Class 3 devices (15.4W)	-	-	24	24	-	-
PoE: Max. 802.3af Class 2 devices (7.3W)	-	-	24	48	-	-
AC/DC support	AC only	AC only	AC only	AC only	DC power supply	AC only
Dimensions (H x W x D)	1.73 x 17.46 x 11.62 in.; (4.4 x 44.3 x 29.5 cm.)	1.73 x 17.46 x 11.62 in.; (4.4 x 44.3 x 29.5 cm.)	1.73 x 17.46 x 11.62 in.; (4.4 x 44.3 x 29.5 cm.)	1.73 x 17.46 x 11.62 in.; (4.4 x 44.3 x 29.5 cm.)	1.73 x 17.46 x 11.62 in.; (4.4 x 44.3 x 29.5 cm.)	1.73 x 17.5 x 14.9 in.; (4.4 x 44.5 x 37.8 cm.)
Unit weight	8.2 lbs. (3.7 kgs.)	9 lbs. (4 kgs.)	10 lbs. (4.6 kgs.)	11 lbs. (5 kgs.)	8 lbs. (3.7 kgs.)	12 lbs. (5.4 kgs.)

Feature	WS-C3560G-48TS	WS-C3560G-24PS	WS-C3560G-48PS	WS-C3560-12PC-S	WS-C3560-8PC-S
Forwarding bandwidth (Gbps)	32	32	32	32	32
Packets per second (Mpps)	38.7	38.7	38.7	3.2	2.7
MAC addresses supported	12,000	12,000	12,000	12,000	12,000
Routes supported	11,000	11,000	11,000	11,000	11,000
Onboard memory (DRAM/Flash)	128/32 MB	128/32 MB	128/32 MB	128/32 MB	128/32 MB
Gigabit Ethernet GBIC/SFP density	4	4	4	1	1
10/100/1000 density	48	24	48	1	1
10/100 density	0	0	0	12	8
Measured 100% Throughput power consumption (with Max. 15.4 W PoE loads)	124	496	534	145	145
PoE: Max. 802.3af Class 3 devices (15.4W)	-	24	24	8	8
PoE: Max. 802.3af Class 2 devices (7.3W)	-	24	48	12	8
AC/DC support	AC only	AC only	AC only	AC only	AC only
Dimensions (H x W x D)	1.73 x 17.5 x 16.1 in.; (4.4 x 44.5 x 40.9 cm.)	1.73 x 17.5 x 14.9 in.; (4.4 x 44.5 x 37.8 cm.)	1.73 x 17.5 x 16.1 in.; (4.4 x 44.5 x 40.9 cm.)	1.73 x 10.6 x 9.1 in. (4.4 x 27 x 23 cm)	1.73 x 10.6 x 9.1 in. (4.4 x 27 x 23 cm)
Unit weight	13.5 lbs. (6.1 kgs.)	14 lbs. (6.4 kgs.)	15.5 lbs. (7.0 kgs.)	5 lb (2.3 kg)	5 lb (2.3 kg)

Selected Part Numbers and Ordering Information

Cisco Catalyst 3560 Series 10/100/1000 Workgroup Switches ¹	
WS-C3560G-48PS-S	Cisco Catalyst 3560G-48 10/100/1000T PoE + 4 SFP Standard Image
WS-C3560G-48PS-E	Cisco Catalyst 3560G-48 10/100/1000T PoE + 4 SFP Enhanced Image
WS-C3560G-24PS-S	Cisco Catalyst 3560G-24 10/100/1000T PoE + 4 SFP Standard Image
WS-C3560G-24PS-E	Cisco Catalyst 3560G-24 10/100/1000T PoE + 4 SFP Enhanced Image
WS-C3560G-48TS-S	Cisco Catalyst 3560G-48 10/100/1000T + 4 SFP Standard Image
WS-C3560G-48TS-E	Cisco Catalyst 3560G-48 10/100/1000T + 4 SFP Enhanced Image
WS-C3560G-24TS-S	Cisco Catalyst 3560G-24 10/100/1000T + 4 SFP Standard Image
WS-C3560G-24TS-E	Cisco Catalyst 3560G-24 10/100/1000T + 4 SFP Enhanced Image
Cisco Catalyst 3560V2 Series 10/100 Workgroup Switches	
WS-C3560V2-48PS-S	Cisco Catalyst 3560G v2-48 10/100 PoE + 4 SFP Standard Image
WS-C3560V2-48PS-E	Cisco Catalyst 3560G v2-48 10/100 PoE + 4 SFP Enhanced Image
WS-C3560V2-24PS-S	Cisco Catalyst 3560G v2-24 10/100 PoE + 2 SFP Standard Image
WS-C3560V2-24PS-E	Cisco Catalyst 3560G v2-24 10/100 PoE + 2 SFP Enhanced Image
WS-C3560V2-48TS-S	Cisco Catalyst 3560G v2-48 10/100 + 4 SFP Standard Image
WS-C3560V2-48TS-E	Cisco Catalyst 3560G v2-48 10/100 + 4 SFP Enhanced Image
WS-C3560V2-24TS-S	Cisco Catalyst 3560G v2-24 10/100 + 2 SFP Standard Image
WS-C3560V2-24TS-E	Cisco Catalyst 3560G v2-24 10/100 + 2 SFP Enhanced Image
WS-C3560V2-24TS-SD	Cisco Catalyst 3560G v2-24 10/100 + 2 SFP Standard Image with DC power supply

WS-C3560-8PC-S	Cisco Catalyst 3560G-8 10/100 PoE + 1 1000BT or 1 SFP Standard Image
WS-C3560-12PC-S	Cisco Catalyst 3560G-12 10/100 PoE + 1 1000BT or 1 SFP Standard Image

1. S=IP Base; E=IP Services

For More Information

For more information about the Cisco Catalyst 3560 Series, visit: <http://www.cisco.com/go/catalyst3560>.

Cisco Catalyst 2975 Series Switches

The Cisco Catalyst 2975 is a 48-port Layer 2+ 10/100/1000BASE-T Power over Ethernet (PoE) stackable switch. It offers connectivity with intelligent LAN services for small enterprise LAN access or branch-office environments. The switch features the enhanced Layer 2+ LAN Base Cisco IOS Software to deliver enhanced integrated security, quality of service (QoS), and availability to enable new converged applications. The Cisco Catalyst 2975 Switch is ideal for situations where space is a constraint.

Ideal for Companies That Need These Features

- Cisco Catalyst 2975**
 - Intelligent services at entry-level functions
 - QoS, enhanced security, and availability
 - Easy deployment and network management

Key Features

- **Stacking**—One IP address and one command-line interface (CLI) simplify management. A 32-Gbps resilient architecture speeds convergence, and 1:N stack master redundancy as well as cross-stack Cisco EtherChannel technology and quality of service (QoS) increase availability. Autoconfiguration and Cisco IOS Software version check and update accelerate deployment, and hot add and delete of switches keep the stack running.
- **Power over Ethernet (PoE)**—The Cisco Catalyst 2975 Switch offers 370W PoE, which simplifies IP telephony, wireless, and video surveillance deployments. It also provides intelligent power-management features.
- **Security**—Network security is enabled through a wide range of authentication methods, data-encryption technologies, and Cisco Network Admission Control (NAC) based on users, ports, and MAC addresses.
- **Availability**—The 802.1S/W standard facilitates standards-based fault tolerance, load balancing, and rapid recovery. Flexlink provides sub-100-msec convergence, and Per-VLAN Spanning Tree Plus (PVST+) increases available bandwidth by allowing traffic on redundant links.
- **Quality of service (QoS)**—Network control and bandwidth optimization are achieved through advanced QoS, granular rate limiting, access control lists (ACLs), and multicast services.
- **Management**—Cisco Network Assistant is a GUI-based management tool for configuration management and troubleshooting. Cisco Smartports automatically detects connected Cisco devices and recommends preset configurations for the switch port connected to the device.
- Cisco EnergyWise helps reduce company-wide power consumption and carbon footprint.
- Cisco limited lifetime warranty.

Specifications

Feature	WS-C2975-48PS-L
Forwarding bandwidth (Gbps)	32
Packets per second (Mpps)	3.8
MAC addresses supported	8,000
Onboard memory (DRAM)	128 MB
Gigabit Ethernet GBIC/SFP density	4
10/100/1000 density	48
100BASE-FX density	0
PoE: Max. 802.3af Class 3 devices	24
PoE: Max. 802.3af Class 2 devices	48

Measured 100% Throughput power consumption (with Max. PoE loads)	560W
AC/DC support	AC only
Dimensions (H x W x D)	1.73 x 17.5 x 16.1 in. (4.4 x 44.5 x 40.9 cm)
Unit weight	15.5 lbs. (70 kgs.)

Selected Part Numbers and Ordering Information

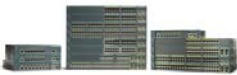
WS-C2975GS-48PS-L	48 Ethernet 10/100/1000 PoE ports and 4 SFP uplinks Two high speed stacking ports with 50cm stacking cable 1 RU fixed-configuration with rack mount included LAN Base Image installed
WS-C2975GS-96PS-LM	Two units of the WS-C2975GS-48PS-L for 96 access ports

For More Information

For more information about Cisco Catalyst 2975 Series Switches, visit: <http://www.cisco.com/go/catalyst2975>.

Cisco Catalyst 2960 Series Switches

The Cisco Catalyst 2960 Series Switches are fixed-configuration switches offering Fast Ethernet, Power over Ethernet (PoE), and Gigabit Ethernet connectivity with intelligent LAN services for midmarket and branch-office networks. The Cisco Catalyst 2960 LAN Base Switches offer enhanced security, quality of service (QoS), and availability, and the Cisco Catalyst 2960 LAN Lite Switches offer entry-level features with scalable management and easy troubleshooting. Three compact models offer a small footprint and silent operation yet deliver the enterprise feature set; they are ideal for applications outside the wiring closet such as office workspaces, classrooms, and micro branch offices where space is a premium.



Ideal for Companies That Need These Features

- Cisco Catalyst 2960 Series Switches
- Intelligent services at entry-level functions
 - QoS, enhanced security, and availability
 - Easy deployment and network management
 - Small footprint

Key Features

- Power over Ethernet (PoE)—Cisco Catalyst 2960 Series Switches offer 370W PoE, which simplifies IP telephony, wireless, and video surveillance deployments. It also provides intelligent power-management features.
- Security—Network security is enabled through a wide range of authentication methods, data-encryption technologies, and Cisco Network Admission Control (NAC) based on users, ports, and MAC addresses.
- Availability—The 802.1S/W standard facilitates standards-based fault tolerance, load balancing, and rapid recovery. Flexlink provides sub-100-msec convergence, and Per-VLAN Spanning Tree Plus (PVST+) increases available bandwidth by allowing traffic on redundant links.
- Quality of service (QoS)—Network control and bandwidth optimization are achieved through advanced QoS, granular rate limiting, access control lists (ACLs), and multicast services.
- Management—Cisco Network Assistant is a GUI-based management tool for configuration management and troubleshooting. Cisco Smartports automatically detects connected Cisco devices and recommends preset configurations for the switch port connected to the device.
- Cisco EnergyWise helps reduce company-wide power consumption and carbon footprint.
- Cisco limited lifetime warranty.

Specifications

Feature	WS-2960-8TC-S	WS-C2960-8TC-L	WS-C2960-24TC-L	WS-C2960-24TT-L	WS-C2960-48TC-L
Forwarding bandwidth (Gbps)	16	16	16	16	16
Packets per second (Mpps)	2.7	2.7	6.6	6.6	10.1
MAC addresses supported	8,000	8,000	8,000	8,000	8,000

Onboard memory (DRAM)	64 MB	64 MB	64 MB	64 MB	64 MB
Gigabit Ethernet GBIC/SFP density	1	1	2	0	2
10/100/1000 density	1	1	2	2	2
10/100 density	8	8	24	24	48
100BASE-FX density	0	0	0	0	0
PoE: Max. 802.3af Class 3 devices (15.4W)	-	-	-	-	-
PoE: Max. 802.3af Class 2 devices (7.3W)	-	-	-	-	-
Measured 100% Throughput power consumption (with Max. PoE loads)	12	12	27	28	39
AC/DC support	AC only	AC only	AC only	AC only	AC only
Dimensions (H x W x D)	1.73 x 10.6 x 6.4 in. (4.4 x 27 x 16.3 cm)	1.73 x 10.6 x 6.4 in. (4.4 x 27 x 16.3 cm)	1.73 x 17.5 x 9.3 in. (4.4 x 44.5 x 23.6 cm.)	1.73 x 17.5 x 9.3 in. (4.4 x 44.5 x 23.6 cm.)	1.73 x 17.5 x 9.3 in. (4.4 x 44.5 x 23.6 cm.)
Unit weight	3 lbs. (1.4 kgs.)	3 lbs. (1.4 kgs.)	8 lbs. (3.6 kgs.)	8 lbs. (3.6 kgs.)	8 lbs. (3.6 kgs.)
Feature	WS-C2960G-8TC-L	WS-C2960-48TT-L	WS-C2960G-24TC-L	WS-C2960G-48TC-L	WS-C2960-24-S
Forwarding bandwidth (Gbps)	32	16	32	32	16
Packets per second (Mpps)	11.9	10.1	35.7	39	3.6
MAC addresses supported	8,000	8,000	8,000	8,000	8,000
Onboard memory (DRAM)	64 MB	64 MB	64 MB	64 MB	64 MB
Gigabit Ethernet GBIC/SFP density	1	0	4	4	0
10/100/1000 density	7	2	24	48	0
10/100 density	0	48	0	0	24
100BASE-FX density	0	0	0	0	0
PoE: Max. 802.3af Class 3 devices (15.4W)	-	-	-	-	-
PoE: Max. 802.3af Class 2 devices (7.3W)	-	-	-	-	-
Measured 100% Throughput power consumption (with Max. PoE loads)	22	42	72	123	22
AC/DC support	AC only	AC only	AC only	AC only	AC only
Dimensions (H x W x D)	1.73 x 10.6 x 8.1 in. (4.4 x 27 x 20.5 cm)	1.73 x 17.5 x 9.3 in. (4.4 x 44.5 x 23.6 cm.)	1.73 x 17.5 x 12.9 in. (4.4 x 44.5 x 32.8 cm.)	1.73 x 17.5 x 12.9 in. (4.4 x 44.5 x 32.8 cm.)	1.73 x 17.5 x 9.3 in. (4.4 x 44.5 x 23.6 cm)
Unit weight	3 lbs. (1.4 kgs.)	8 lbs. (3.6 kgs.)	10 lbs. (4.5 kgs.)	12 lbs. (5.4 kgs.)	8 lbs. (3.6 kgs.)
Feature	WS-C2960-24TC-S	WS-C2960-48TC-S	WS-C2960-48TT-S	WS-C2960-48PST-L	WS-C2960-48PST-S
Forwarding bandwidth (Gbps)	16	16	16	16	16
Packets per second (Mpps)	6.5	10.1	10.1	6.5	13.3
MAC addresses supported	8,000	8,000	8,000	8,000	8,000

Onboard memory (DRAM)	64 MB	64 MB	64 MB	64 MB	64 MB
Gigabit Ethernet GBIC/SFP density	2	2	0	2	2
10/100/1000 density	2	22	2	2	2
10/100 density	24	48	48	48	48
100BASE-FX density	0	0	0	0	0
PoE: Max. 802.3af Class 3 devices (15.4W)	-	-	-	24	24
PoE: Max. 802.3af Class 2 devices (7.3W)	-	-	-	48	48
Measured 100% Throughput power consumption (with Max. PoE loads)	27	39	42	460	460
AC/DC support	AC only	AC only	AC only	AC only	AC only
Dimensions (H x W x D)	1.73 x 175 x 9.3 in. (4.4 x 44.5 x 23.6 cm.)	1.73 x 175 x 9.3 in. (4.4 x 44.5 x 23.6 cm.)	1.73 x 175 x 9.3 in. (4.4 x 44.5 x 23.6 cm.)	1.73 x 175 x 12.9 in. (4.4 x 44.5 x 32.8 cm.)	1.73 x 175 x 13 in. (4.4 x 44.5 x 33.2 cm.)
Unit weight	8 lbs. (3.6 kgs.)	8 lbs. (3.6 kgs.)	8 lbs (3.6 kgs.)	12 lbs. (5.4 kgs.)	12 lbs. (5.4 kgs.)
Feature	WS-C2960PD-8TT-L	WS-C2960-24LT-L	WS-C2960-24PC-L	WS-2960-24LC-S	WS-C2960-24PC-S
Forwarding bandwidth (Gbps)	16	16	16	16	16
Packets per second (Mpps)	2.7	6.5	6.5	6.5	6.5
MAC addresses supported	8,000	8,000	8,000	8,000	8,000
Onboard memory (DRAM)	64 MB	64 MB	64 MB	64 MB	64 MB
Gigabit Ethernet GBIC/SFP density	0	0	2	2	2
10/100/1000 density	1	2	2	2	2
10/100 density	8	24	24	24	24
100BASE-FX density	0	0	0	0	0
PoE: Max. 802.3af Class 3 devices (15.4W)	0	8	24	8	24
PoE: Max. 802.3af Class 2 devices (7.3W)	0	8	24	8	24
Measured 100% Throughput power consumption (with Max. PoE loads)	11	162	433	162	433
AC/DC support	No internal power supply; DC input	AC only	AC only	AC only	AC only
Dimensions (H x W x D)	1.73 x 10.6 x 8.1 in. (4.4 x 27 x 20.5 cm)	1.73 x 175 x 9.3 in. (4.4 x 44.5 x 23.6 cm.)	1.73 x 175 x 12.9 in. (4.4 x 44.5 x 32.8 cm.)	1.73 x 175 x 13 in (4.4 x 44.5 x 33.2 cm)	1.73 x 175 x 13 in. (4.4 x 44.5 x 33.2 cm)
Unit weight	3 lbs. (1.4 kgs.)	8 lbs. (3.6 kgs.)	10 lbs. (4.5 kgs.)	10 lbs. (4.5 kgs.)	12 lbs. (5.4 kgs.)

Selected Part Numbers and Ordering Information

Cisco Catalyst 2960 Series LAN Base Switches	
WS-C2960PD-8TT-L	Cisco Catalyst 2960-8 10/100 + 1 1000BT (PoE input) LAN Base Image
WS-C2960-8TC-L	Cisco Catalyst 2960-8 10/100 + 1 T/SFP LAN Base Image

WS-C2960-24PC-L	Cisco Catalyst 2960-24 10/100 PoE + 2T/SFP LAN Base Image
WS-C2960-48PST-L	Cisco Catalyst 2960-48 10/100 PoE + 2 1000BT + 2 SFP LAN Base Image
WS-C2960-24TC-L	Cisco Catalyst 2960-24 10/100 + 2T/SFP LAN Base Image
WS-C2960-24LT-L	Cisco Catalyst 2960-24 10/100 (8 PoE) + 2 1000BT LAN Base Image
WS-C2960-24TT-L	Cisco Catalyst 2960-24 10/100 + 2 1000BT LAN Base Image
WS-C2960-48TC-L	Cisco Catalyst 2960-48 10/100 + 2 T/SFP LAN Base Image
WS-C2960-48TT-L	Cisco Catalyst 2960-48 10/100 + 2 1000BT LAN Base Image
WS-C2960G-8TC-L	Cisco Catalyst 2960G-8 10/100/1000, 1 T/SFP LAN Base Image
WS-C2960G-24TC-L	Cisco Catalyst 2960G-24 10/100/1000, 4 T/SFP LAN Base Image
WS-C2960G-48TC-L	Cisco Catalyst 2960G-48 10/100/1000, 4 T/SFP LAN Base Image

Cisco Catalyst 2960 Series LAN Lite Switches

WS-C2960-8TC-S	Cisco Catalyst 2960-8 10/100 +1 T/SFP LAN Lite Image
WS-C2960-24-S	Cisco Catalyst 2960-24 10/100 LAN Lite Image
WS-C2960-24TC-S	Cisco Catalyst 2960-24 10/100 + 2T/SFP LAN Lite Image
WS-C2960-48TT-S	Cisco Catalyst 2960-48 10/100 +2 1000BT LAN Lite Image
WS-C2960-48TC-S	Cisco Catalyst 2960-48 10/100 + 2T/SFP LAN Lite Image
WS-C2960-24LC-S	Cisco Catalyst 2960-24 10/100 (8 PoE) + 2T/SFP LAN Lite Image
WS-C2960-24PC-S	Cisco Catalyst 2960-24 10/100 PoE + 2T/SFP LAN Lite Image
WS-C2960-48PST-S	Cisco Catalyst 2960-48 10/100 PoE + 2 1000BT + 2 SFP LAN Lite Image

For More Information

For more information about Cisco Catalyst 2960 Series Switches, visit: <http://www.cisco.com/go/catalyst2960>.

Cisco Switching Services

Enabling the Agile Business

Agility and innovative new business models are vital in today's business environment, where your customers increasingly expect a personalized experience above and beyond your product or service, and your competition can come from anyone, anywhere around the globe.

Success in this fast-paced marketplace requires effective collaboration and efficient use of resources. Business and information technology are inseparable, and the network is what brings them together; it alone touches all people, locations, resources, and applications.

Achieving Business Success Through an Architectural Approach

In collaboration with your team and our partner ecosystem, we take an architectural approach to helping you create a more intelligent, responsive, integrated network. Through a robust portfolio of services, we can help you align IT to the needs of the business, unify network-based services, and create a flexible architecture optimized for your organization. We can help you assess readiness to support proposed solutions, integrate new capabilities, and keep network devices and applications secure, available, and reliable.

- For more information about Cisco Switching Services, visit <http://www.cisco.com/go/services/routing-switching>.
- To find the right technical service for any Cisco product, use the Service Finder tool at <http://www.cisco-servicesfinder.com>. Enter a product description or part number or search by product series family for a list of suggested services and support coverage options.
- For more information about all services, refer to Chapter 10, "Cisco Services".

Chapter 3: Wireless LAN

Wireless LAN At-a-Glance		
Product	Features	Page
ENTERPRISE WIRELESS		
Access Points and Client Devices		
Cisco Aironet 1140 Series Access Points	<ul style="list-style-type: none"> • 802.11n AP designed for simple deployment and energy efficiency. • Sleek design blends into enterprise environments. • Easy to deploy and offers efficient power with standard 802.3af PoE. • Cisco M-Drive provides reliable and predictable WLAN coverage with ClientLink technology which improves the user experience for both existing 802.11a/g clients and 802.11n clients. • Optional WirelessPLUS software allows the access point to be configured to support the OfficeExtend solution for wireless teleworking. • Optional software allows the access point to be configured to support Enterprise Wireless Mesh. • Available in a lightweight version only; standalone will be available in 2009. 	3–3
Cisco Aironet 1250 Series Access Points	<ul style="list-style-type: none"> • 802.11n rugged indoor AP designed for challenging RF environments that require connectorized antennas, a rugged metal enclosure, and a broad operating temperature range. • Combined data rates of up to 600 Mbps provide mobile access to high-bandwidth data, voice, and video applications. • Cisco M-Drive provides reliable and predictable WLAN coverage with ClientLink technology which improves the user experience for both existing 802.11a/g clients and 802.11n clients. • Available in standalone or lightweight. 	3–7
Cisco Aironet 1240 AG Series Access Points	<ul style="list-style-type: none"> • Rugged 802.11a/b/g AP designed for indoor industrial deployments and installations that require antenna versatility. • Ideal for factories, warehouses, and retailers. • Operating temperature range and UL 2043 certification for plenum rating requirements set by local fire codes support installation in environmental air spaces. • Optional software allows the access point to be configured to support enterprise wireless mesh. • Available in standalone or lightweight. 	3–10
Cisco Aironet 1130 AG Series Access Points	<ul style="list-style-type: none"> • Dual-band 802.11a/b/g indoor AP. • Cost-compelling solution for easy deployment in offices and similar facilities. • Optional WirelessPLUS software allows the access point to be configured to support the OfficeExtend solution. • Optional software allows the access point to be configured to support enterprise wireless mesh. • Available in standalone or lightweight. 	3–11
Cisco Aironet 1520 Series Access Points	<ul style="list-style-type: none"> • Flexible, secure mesh platform for demanding environments • Enables cost-effective and scalable deployment of secure outdoor wireless LANs. • Multiple-radio support (802.11 b/g, licensed for 4.9-GHz public safety applications. • Improved 802.11 b/g radio sensitivity and range performance with maximal ration combining (MPC) • NEMA Type 4X certified enclosure, FIPS 140-2 certifiable 	3–13
Cisco Aironet 1400 Series Wireless Bridge	<ul style="list-style-type: none"> • Support both point-to-point and point-to-multipoint configurations. • Range and throughput support data rates up to 54 Mbps. • Enhanced security mechanisms based on 802.11 standards. • Ruggedized enclosure optimized for harsh outdoor environments with an extended operating temperature range. 	3–16
Cisco Aironet 1300 Series Access Points	<ul style="list-style-type: none"> • Configurable for AP, bridge, or workgroup bridge roles. • Support for both point-to-point or point-to-multipoint configurations. • Industry-leading range and throughput, supporting 802.11 b/g 2.4 GHz with data rates up to 54 Mbps. • Ruggedized enclosure optimized for harsh outdoor environments with extended operating temperature range. • Integrated or optional external antennas for flexibility in deployment. 	3–18

Cisco Aironet Wireless LAN Client Adapters	<ul style="list-style-type: none"> • Cisco Aironet 802.11a/b/g CardBus Wireless LAN Client Adapter, with the Cisco Wireless Security Suite and support for Wi-Fi Protected Access (WPA), offer secure network communications. • Flexible, easy configuration and management. • High-performance 54-Mbps connectivity in the 2.4- and 5-GHz bands. • Exceptional range and throughput. • World mode for international roaming. 	3–20
Cisco Secure Services Client	<ul style="list-style-type: none"> • Software application allows businesses of all sizes to deploy single 802.1x authentication framework across endpoint devices to enable access to both wired and wireless networks. • Supports Federal Information Processing Standards (FIPS). • Simple end-user experience (two-click connect, integrated and automated VPN, and automated access to the network). • Central provisioning of users' access profiles. 	3–21
Cisco Aironet Antennas and Accessories	<ul style="list-style-type: none"> • Many options for antennas and accessories. • FCC-approved directional and omnidirectional antennas are available. • Low-loss cable, mounting hardware, and other accessories are available. 	3–23
Wireless LAN Controllers		
Cisco 5500 Series Wireless LAN Controller *NEW*	<ul style="list-style-type: none"> • Ideal for enterprise wireless LAN (WLAN) deployments that require enhanced scalability, system-level security, RF management, and teleworking features. • The Control and Provisioning of Wireless Access Points (CAPWAP) protocol centrally controls Cisco Aironet lightweight access points for WLAN performance optimization and automated network resiliency. • Available with eight Gigabit Ethernet Small Form-Factor Pluggables (SFPs) and flexible licensing to support up to 250 access points. 	3–30
Cisco 4400 Series Wireless LAN Controller	<ul style="list-style-type: none"> • Ideal for enterprise WLAN deployments that require system-level security, scalability, and RF management. • The LWAPP or CAPWAP protocols centrally control Cisco Aironet lightweight APs for WLAN performance optimization and automated network resiliency. • Available with two Gigabit Ethernet ports to support 12, 25, and 50 APs or with four Gigabit Ethernet ports to support 100 APs. 	3–31
Cisco 2100 Series Wireless LAN Controller	<ul style="list-style-type: none"> • Ideal for enterprise branch, and small business WLAN deployments that require system-level security, scalability, and RF management. • The LWAPP or CAPWAP protocols centrally control Cisco Aironet lightweight APs for WLAN performance optimization and automated network resiliency. • Supports 6, 12, or 25 lightweight APs, making it a cost-effective solution for enterprise branch offices and small businesses. 	3–32
Cisco Wireless Services Module and Integrated Controllers for Cisco Catalyst Switches For product information, refer to Chapter 2, "LAN Switching."		See 2–1
Cisco Modules for Integrated Services Routers For product information, refer to Chapter 1, "Routing."		See 1–1
Network Management		
Cisco Wireless Control System	<ul style="list-style-type: none"> • Comprehensive enterprise-class wireless LAN lifecycle management of the Cisco Unified Wireless Network. • Wide range of easy-to-use tools, guides, and templates for simplified planning, deployment, monitoring, troubleshooting, and reporting on indoor and outdoor wireless networks including the next-generation 802.11n WLAN infrastructure and client devices. • Centralized platform for managing complete network of Cisco Wireless LAN Controllers, Cisco Aironet APs, Cisco Mobility Services Engine (MSE), mobility services, and Cisco CleanAir (formerly Cisco Spectrum Expert). • Includes monitoring of standalone (autonomous) APs and supports their migration to operate as lightweight APs. • Supports a wide range of mobility services including context-aware mobility, adaptive wireless intrusion prevention system (wIPS), and secure guest access. 	3–33
Cisco Wireless Control System Navigator	<ul style="list-style-type: none"> • Aggregated platform for enhanced scalability, manageability, and visibility of large-scale implementations of the Cisco Unified Wireless Network. • Centralizes operational control and management of up to 20 geographically dispersed Cisco WCS management platforms. 	3–36
Cisco Spectrum Expert Wi-Fi	<ul style="list-style-type: none"> • Spectrum analyzer tool offers visibility into the RF layer of wireless networks so that organizations can determine the causes of interference problems and optimize network performance. • Active Devices offers comprehensive lists of all access points, temporary networks, and interferer devices (for example, microwave ovens, cordless phones, wireless security cameras, Bluetooth devices, and RF jammers). • Channel Summary, Devices View, and Device Finder details visibility of RF activity, effect on the wireless network, and the location of devices causing wireless interference. 	3–37

CiscoWorks Wireless LAN Solution Engine (WLSE) and CiscoWorks Wireless LAN Solution Engine Express	<ul style="list-style-type: none"> Hardware-based WLAN management solution provides template-based configurations with user-defined groups to effectively manage large number of standalone (autonomous) APs and wireless bridges. Monitors IEEE 802.1X authentication server availability. Enhances security management through misconfiguration detection on standalone access points and wireless bridges 	3-38
Mobility Services		
Cisco 3300 Series Mobility Services Engine	<ul style="list-style-type: none"> Transforms existing WLANs into comprehensive mobility networks through uniform way of mobility services delivery. Integrates with the Cisco Unified Wireless Network and Cisco Unified Communications Solutions to build on existing business mobility investments. Extensible platform supports suite of software with ability to scale services through clustering. The software suite includes context-aware services and adaptive wireless intrusion prevention systems (IPS) with a unified, open API for developing business-relevant applications. 	3-39
Cisco Context-Aware Software	<ul style="list-style-type: none"> Advanced and scalable context-aware mobility services simultaneously track thousands of Wi-Fi clients or Wi-Fi tags for indoor, indoor high ceiling, and outdoor (parking lot/yards) environment. Transparent integration with existing networks and applications for faster adoption. Cisco offers an open API with the context-aware mobility software, making it easier for technology partners to integrate their applications and for customers to choose the right application over the right network for particular users. 	3-41
Cisco Adaptive Wireless Intrusion Prevention System (IPS)	<ul style="list-style-type: none"> Employs network analysis and signature-based techniques, combined with tight integration to Cisco Unified Wireless Network, to deliver protection against rogue APs and clients, network reconnaissance, eavesdropping, authentication and encryption cracking, man-in-the-middle attacks, wireless DoS attacks, and zero-day unknown attacks. Proactive threat prevention through automated wireless vulnerability and performance monitoring that proactively and persistently scans the wireless network to mitigate problems before they arise. 	3-43
Cisco Physical Security For product information on Cisco Video Surveillance products, refer to Chapter 5, "Security."		See 5-1
SERVICES		
Cisco Wireless LAN Services	Cisco Wireless LAN services help you to more effectively build a secure, scalable wireless network by assisting with platform migrations and the integration of mobile devices, applications, security, and disparate, wired and wireless, networks into a unified platform to help you meet and exceed your mobility demands.	3-44

Product Ordering Website

To place an order or for more part numbers, visit: <http://www.cisco.com/en/US/ordering/index.shtml>.

This chapter only provides a small subset of all part numbers available. See the URL listed in the "For More Information" section of each product to get a complete list of part numbers.

Cisco Aironet 1140 Series Access Points

The Cisco Aironet 1140 Series Access Point is a business-ready, 802.11n access point designed for simple deployment and energy efficiency. The high-performance platform, which offers at least six times the throughput of existing 802.11a/g networks, prepares the business for the next wave of mobile devices and applications. Building on the Cisco Aironet heritage of RF excellence, this access point combines the industry's most widely deployed 802.11n technology with a sleek industrial design that blends transparently into any enterprise environment.

Designed for sustainability, the Cisco Aironet 1140 Series delivers high performance from standard 802.3af PoE while decreasing waste with multiunit eco-packs and Energy Star-certified power supplies. As part of the Cisco Unified Wireless Network, these access points provide the industry's lowest total cost of ownership and investment protection by integrating transparently with the existing network.



Ideal for Companies That Need These Features

- | | |
|---|--|
| Cisco Aironet 1140 Series Access Point | <ul style="list-style-type: none"> Simple deployment and energy efficiency 802.11n performance with standard 802.3af PoE Reliable and predictable WLAN coverage |
|---|--|

Key Features

The Cisco Aironet 1140 Series offers many new features, including:

- Six times the throughput of existing 802.11a/g networks
- A sleek industrial design that blends into any enterprise environment
- Cisco M-Drive technology for optimized client performance
- Environmentally friendly multiunit eco packs and Energy Star-certified power supplies
- Optional WirelessPLUS software allows the access point to be configured to support the OfficeExtend solution for wireless teleworking.
- Optional software allows the access point to be configured to support enterprise wireless mesh.

Specifications

Feature	Cisco Aironet 1140 Series Access Point	
Software	Cisco Unified Wireless Network Software Release 5.2 or later.	
Draft 802.11n Version 2.0 (and Related) Capabilities	2x3 multiple-input multiple-output (MIMO) with two spatial streams; Maximal ratio combining (MRC); PHY data rates up to 300 Mbps; Packet aggregation: A-MPDU (Tx/Rx), A-MSDU (Tx/Rx); Cyclic shift diversity (CSD) support	
Frequency Band and 20-MHz Operating Channels	<div> <ul style="list-style-type: none"> • A (Americas (FCC)): 2.412 to 2.462 GHz; 11 channels; 5.180 to 5.320 GHz; 8 channels; 5.500 to 5.700 GHz; 8 channels (excludes 5.600 to 5.640 GHz); 5.745 to 5.825 GHz; 5 channels • C (China): 2.412 to 2.472 GHz; 13 channels; 5.745 to 5.825 GHz; 5 channels • E (ETSI): 2.412 to 2.472 GHz; 13 channels; 5.180 to 5.320 GHz; 8 channels; 5.500 to 5.700 GHz; 11 channels • I (Israel): 2.412 to 2.472 GHz; 13 channels; 5.180 to 5.320 GHz; 8 channels • K (Korea): 2.412 to 2.472 GHz; 13 channels; 5.180 to 5.320 GHz; 8 channels; 5.500 to 5.620 GHz; 7 channels; 5.745 to 5.805 GHz; 4 channels </div> <div> <ul style="list-style-type: none"> • N (Non-FCC): 2.412 to 2.462 GHz; 11 channels; 5.180 to 5.320 GHz; 8 channels; 5.745 to 5.825 GHz; 5 channels • P (Japan2): 2.412 to 2.472 GHz; 13 channels; 5.180 to 5.320 GHz; 8 channels • S (Singapore): 2.412 to 2.472 GHz; 13 channels; 5.180 to 5.320 GHz; 8 channels; 5.745 to 5.825 GHz; 5 channels • T (Taiwan): 2.412 to 2.462 GHz; 11 channels; 5.280 to 5.320 GHz; 3 channels; 5.500 to 5.700 GHz; 11 channels; 5.745 to 5.825 GHz; 5 channels </div>	
Maximum Number of Non-Overlapping Channels	2.4 GHz 802.11b/g: 20 MHz: 3 802.11n: 20 MHz: 3 40 MHz: 1	5 GHz 802.11a: 20 MHz: 21 802.11n: 20 MHz: 21 40 MHz: 9
Note: This varies by regulatory domain. Refer to the product documentation for specific details for each regulatory domain.		
Maximum Transmit Power	2.4GHz <ul style="list-style-type: none"> • 802.11b:20 dBm with 1 antenna • 802.11g: 17 dBm with 1 antenna • 802.11n (HT20): 20 dBm with 2 antennas • 802.11n (HT40): 20 dBm with 2 antennas 	5GHz <ul style="list-style-type: none"> • 802.11a: 17 dBm with 1 antenna • 802.11n non-HT duplicate (802.11a duplicate) mode: 17 dBm with 1 antenna • 802.11n (HT20): 20 dBm with 2 antennas • 802.11n (HT40): 20 dBm with 2 antennas
Note: The maximum power setting will vary by channel and according to individual country regulations. Refer to the product documentation for specific details.		
Available Transmit Power Settings	2.4GHz: 20 dBm (100 mW); 17 dBm (50 mW); 14 dBm (25 mW); 11 dBm (12.5 mW); 8 dBm (6.25 mW); 5 dBm (3.13 mW); 2 dBm (1.56 mW); –1 dBm (0.78 mW)	5GHz: 20 dBm (100 mW); 17 dBm (50 mW); 14 dBm (25 mW); 11 dBm (12.5 mW); 8 dBm (6.25 mW); 5 dBm (3.13 mW); 2 dBm (1.56 mW); –1 dBm (0.78 mW)
Note: The maximum power setting will vary by channel and according to individual country regulations. Refer to the product documentation for specific details.		
Integrated Antenna	2.4 GHz, Gain 4.0 dBi, horizontal beamwidth 360°; 5 GHz, Gain 3 dBi, horizontal beamwidth 360°	
Interfaces	10/100/1000BASE-T autosensing (RJ-45); Management console port (RJ45)	
Indicators	Status LED indicates boot loader status, association status, operating status, boot loader warnings, boot loader errors.	
Dimensions (W x L x H)	Access point (without mounting bracket): 8.7 x 8.7 x 1.84 in. (22.1 x 22.1 x 4.7 cm)	

Data Rates Supported	802.11a: 6, 9, 12, 18, 24, 36, 48, and 54 Mbps				
	802.11g: 1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, and 54 Mbps				
	802.11n data rates (2.4 GHz and 5 GHz):				
	MCS Index ¹	GI ² = 800ns		GI = 400ns	
		20-MHz Rate (Mbps)	40-MHz Rate (Mbps)	20-MHz Rate (Mbps)	40-MHz Rate (Mbps)
	0	6.5	13.5	7.2	15
	1	13	27	14.4	30
	2	19.5	40.5	21.7	45
	3	26	54	28.9	60
	4	39	81	43.3	90
	5	52	108	57.8	120
	6	58.5	121.5	65	135
	7	65	135	72.2	150
	8	13	27	14.4	30
	9	26	54	28.9	60
	10	39	81	43.3	90
	11	52	108	57.8	120
	12	78	162	86.7	180
13	104	216	115.6	240	
14	117	243	130	270	
15	130	270	144.4	300	
Note: This varies by regulatory domain. Refer to the product documentation for specific details for each regulatory domain.					
Weight	2.3 lbs (1.04 kg)				
Environmental	Nonoperating (storage) temperature: -22 to 185°F (-30 to 85°C); Operating temperature: 32 to 104°F (0 to 40°C); Operating humidity: 10 to 90% percent (non-condensing)				
System Memory	128 MB DRAM; 32 MB flash				
Input Power Requirements	AP1140: 36 to 57 VDC; Power Supply and Power Injector: 100 to 240 VAC; 50 to 60 Hz				
Powering Options	802.3af Ethernet Switch; Cisco AP1140 Power Injectors (AIR-PWRINJ4=); Cisco AP1140 Local Power Supply (AIR-PWR-A=)				
Power Draw	AP1140: 12.95 W Note: When deployed using PoE, the power drawn from the power sourcing equipment will be higher by some amount dependent on the length of the interconnecting cable. This additional power may be as high as 2.45W, bringing the total system power draw (access point + cabling) to 15.4W.				
Warranty	90 days				
Compliance	Standards • Safety: UL 60950-1; CAN/CSA-C22.2 No. 60950-1; UL 2043; IEC 60950-1; EN 60950-1 • Radio approvals: FCC Part 15.247, 15.407; RSS-210 (Canada); EN 300.328, EN 301.893 (Europe); ARIB-STD 33 (Japan); ARIB-STD 66 (Japan); ARIB-STD T71 (Japan); AS/NZS 4268.2003 (Australia and New Zealand); EMI and susceptibility (Class B); FCC Part 15.107 and 15.109; ICES-003 (Canada); VCCI (Japan); EN 301.489-1 and -17 (Europe); EN 60601-1-2 EMC requirements for the Medical Directive 93/42/EEC • IEEE Standard: IEEE 802.11a/b/g, IEEE 802.11n draft 2.0, IEEE 802.11h, IEEE 802.11d • Security: 802.11i, Wi-Fi Protected Access 2 (WPA2), WPA; 802.1X; Advanced Encryption Standards (AES), Temporal Key Integrity Protocol (TKIP) • EAP Type(s): Extensible Authentication Protocol-Transport Layer Security (EAP-TLS); EAP-Tunneled TLS (TTLS) or Microsoft Challenge Handshake Authentication Protocol Version 2 (MSCHAPv2); Protected EAP (PEAP) v0 or EAP-MSCHAPv2; PEAPv1 or EAP-Generic Token Card (GTC); EAP-Subscriber Identity Module (SIM) • Multimedia: Wi-Fi Multimedia (WMM™) Other: FCC Bulletin OET-65C; RSS-102				

Receive Sensitivity	802.11b: -91 dBm @ 1 Mb/s, 2 Mb/s, 5.5 Mb/s; -88 dBm @ 11 Mb/s	802.11g: -86 dBm @ 6 Mb/s, 9 Mb/s, 12 Mb/s, 18 Mb/s; -85 dBm @ 24 Mb/s; -83 dBm @ 36 Mb/s; -78 dBm @ 48 Mb/s; -77 dBm @ 54 Mb/s	802.11a: -90 dBm @ 6 Mb/s, 9 Mb/s, 12 Mb/s, 18 Mb/s; -88 dBm @ 24 Mb/s; -85 dBm @ 36 Mb/s; -80 dBm @ 48 Mb/s; -79 dBm @ 54 Mb/s	
	2.4-GHz 802.11n (HT20) -88 dBm @ MCS0 -87 dBm @ MCS1 -86 dBm @ MCS2 -83 dBm @ MCS3 -80 dBm @ MCS4 -76 dBm @ MCS5 -74 dBm @ MCS6 -73 dBm @ MCS7 -87 dBm @ MCS8 -85 dBm @ MCS9 -83 dBm @ MCS10 -80 dBm @ MCS11 -77 dBm @ MCS12 -73 dBm @ MCS13 -71 dBm @ MCS14 -70 dBm @ MCS15	2.4-GHz 802.11n (HT40) -85 dBm @ MCS0 -85 dBm @ MCS1 -83 dBm @ MCS2 -80 dBm @ MCS3 -77 dBm @ MCS4 -72 dBm @ MCS5 -71 dBm @ MCS6 -70 dBm @ MCS7 -85 dBm @ MCS8 -82 dBm @ MCS9 -80 dBm @ MCS10 -76 dBm @ MCS11 -73 dBm @ MCS12 -69 dBm @ MCS13 -67 dBm @ MCS14 -66 dBm @ MCS15	5-GHz 802.11n (HT20) -91 dBm @ MCS0 -91 dBm @ MCS1 -90 dBm @ MCS2 -87 dBm @ MCS3 -84 dBm @ MCS4 -79 dBm @ MCS5 -77 dBm @ MCS6 -76 dBm @ MCS7 -90 dBm @ MCS8 -89 dBm @ MCS9 -86 dBm @ MCS10 -83 dBm @ MCS11 -80 dBm @ MCS12 -75 dBm @ MCS13 -74 dBm @ MCS14 -72 dBm @ MCS15	5-GHz 802.11n (HT40) -78 dBm @ MCS0 -78 dBm @ MCS1 -78 dBm @ MCS2 -78 dBm @ MCS3 -78 dBm @ MCS4 -75 dBm @ MCS5 -73 dBm @ MCS6 -72 dBm @ MCS7 -76 dBm @ MCS8 -76 dBm @ MCS9 -76 dBm @ MCS10 -76 dBm @ MCS11 -76 dBm @ MCS12 -71 dBm @ MCS13 -69 dBm @ MCS14 -68 dBm @ MCS15

1. MCS Index: The Modulation and Coding Scheme (MCS) index determines the number of spatial streams, the modulation, the coding rate, and data rate values.
2. GI: A Guard Interval (GI) between symbols helps receivers overcome the effects of multipath delays.

Selected Part Number and Ordering Information

Cisco Aironet 1140 Series Access Point	
AIR-LAP1142N-A-K9	Cisco Aironet 1140 Series Access Points, 802.11a/g/n Fixed Unified AP; Int Ant; FCC Cfg (Dual Band)
AIR-LAP1141N-A-K9	Cisco Aironet 1140 Series Access Points, 802.11g/n Fixed Unified AP; Int Ant; FCC Cfg (Single Band)
Cisco Aironet 1140 Series Eco-Pack SKUs and Regulatory Domains	
AIR-LAP1142-AK9-PR	Cisco Aironet 1140 Series Access Points, 802.11a/g/n LWAPP AP Integrated Antennas FCC Cnfg, 10 APs
AIR-LAP1142-EK9-PR	Cisco Aironet 1140 Series Access Points, 802.11a/g/n LWAPP AP Integrated Antennas ETSI Cnfg, 10 APs
AIR-LAP1142-PK9-PR	Cisco Aironet 1140 Series Access Points, 802.11a/g/n LWAPP AP Integrated Antennas JPN2 Cnfg, 10 APs
AIR-LAP1142-SK9-PR	Cisco Aironet 1140 Series Access Points, 802.11a/g/n LWAPP AP Integrated Antennas SG Cnfg, 10 APs
AIR-LAP1142-NK9-PR	Cisco Aironet 1140 Series Access Points, 802.11a/g/n LWAPP AP Integrated Antennas AU Cnfg, 10 APs
AIR-LAP1142-IK9-PR	Cisco Aironet 1140 Series Access Points, 802.11a/g/n LWAPP AP Integrated Antennas EU2 Cnfg, 10 APs
AIR-LAP1142-TK9-PR	Cisco Aironet 1140 Series Access Points, 802.11a/g/n LWAPP AP Integrated Antennas Taiwan Cnfg, 10 APs
AIR-LAP1142-CK9-PR	Cisco Aironet 1140 Series Access Points, 802.11a/g/n LWAPP AP Integrated Antennas China Cnfg, 10 APs
AIR-LAP1142-KK9-PR	Cisco Aironet 1140 Series Access Points, 802.11a/g/n LWAPP AP Integrated Antennas Korea Cnfg, 10 APs

For More Information

For more information about Cisco Aironet 1140 Series Access Points, visit: <http://www.cisco.com/go/802.11n>.

Cisco Aironet 1250 Series Access Points

The rugged indoor Cisco Aironet 1250 Series Access Point is designed for challenging RF environments that require the antenna versatility associated with connectorized antennas, a rugged metal enclosure, and a broad operating temperature range. It offers combined data rates of up to 600 Mbps to provide users with mobile access to high-bandwidth data, voice, and video applications. The 802.11n standard provides reliable and predictable WLAN coverage to improve the end-user experience for both existing 802.11a/b/g clients and new 802.11n clients.

As part of the Cisco Unified Wireless Network, the Cisco Aironet 1250 Series provides the industry's lowest total cost of ownership and investment protection by integrating transparently with the existing network. With a Gigabit Ethernet (10/100/1000) interface, it offers the flexibility of inline as well as local power options.



Ideal for Companies That Need These Features

Cisco Aironet 1250 Series Access Point

- High-capacity and high-security WLAN that provides network reliability for mission-critical applications
- Rugged enterprise-class access point designed for indoor industrial deployments and installations that require antenna versatility
- Cisco M-Drive technology for optimized client performance

Key Features

- Cisco Aironet 1250 Series Access Points are the first business-class access points to be Wi-Fi 802.11n draft 2.0 certified.
- They provide reliable and predictable WLAN coverage to improve the end user's experience with both existing 802.11a/b/g clients and new 802.11n clients. With these wireless access points, you can augment throughput for high-bandwidth wireless applications, protect your investment in wireless networking, and increase network reliability for mission-critical applications.
- This platform delivers data rates of 300 Mbps per radio; multiple-input, multiple-output technology for enhanced reliability; 2.4- and 5-GHz radio modules, and tested interoperability with leading 802.11 devices.

Specifications

Feature	Cisco Aironet 1250 Series Access Point	
Software	<ul style="list-style-type: none">• Cisco IOS Software Release 12.4(10b)JA or later (Autonomous Mode).• Cisco IOS Software Release 12.4(10b)JX or later (Unified Mode).• Cisco Unified Wireless Network Software Release 4.2 or later.	
Draft 802.11n Version 2.0 (and Related) Capabilities	<ul style="list-style-type: none">• 2x3 MIMO with two spatial streams• Maximal Ratio Combining (MRC)• Legacy beam forming (hardware supports this capability; not yet enabled in software)• 20- and 40-MHz channels• PHY data rates up to 300 Mbps• Packet aggregation: A-MPDU (Tx/Rx), A-MSDU (Tx/Rx)• 802.11 DFS (Bin 5)• Cyclic Shift Diversity (CSD) support	
Frequency Band and 20-MHz Operating Channels	<ul style="list-style-type: none">• A (Americas (FCC))—2.412 to 2.462 GHz; 11 channels; 5.180 to 5.320 GHz; 8 channels; 5.500 to 5.700 GHz; 8 channels (excludes 5.600 to 5.640 GHz); 5.745 to 5.825 GHz; 5 channels• C (China)—2.412 to 2.472 GHz; 13 channels; 5.745 to 5.825 GHz; 5 channels• E (ETSI)—2.412 to 2.472 GHz; 13 channels; 5.180 to 5.320 GHz; 8 channels; 5.500 to 5.700 GHz; 11 channels• I (Israel)—2.412 to 2.472 GHz; 13 channels; 5.180 to 5.320 GHz; 8 channels• K (Korea)—2.412 to 2.472 GHz; 13 channels; 5.180 to 5.320 GHz; 8 channels; 5.500 to 5.620 GHz; 7 channels; 5.745 to 5.805 GHz; 4 channels	<ul style="list-style-type: none">• N (Non-FCC)—2.412 to 2.462 GHz; 11 channels; 5.180 to 5.320 GHz; 8 channels; 5.745 to 5.825 GHz; 5 channels• P (Japan2)—2.412 to 2.472 GHz; 13 channels; 5.180 to 5.320 GHz; 8 channels• S (Singapore)—2.412 to 2.472 GHz; 13 channels; 5.180 to 5.320 GHz; 8 channels; 5.745 to 5.825 GHz; 5 channels• T (Taiwan)—2.412 to 2.462 GHz; 11 channels; 5.280 to 5.320 GHz; 3 channels; 5.500 to 5.700 GHz; 11 channels; 5.745 to 5.825 GHz; 5 channels
Maximum Number of Non-Overlapping Channels	2.4 GHz—802.11b/g: 20 MHz: 3; 802.11n: 20 MHz: 3, 40 MHz: 1	5 GHz—802.11a: 20 MHz: 21; 802.11n: 20 MHz: 21, 40 MHz: 9

NOTE: This varies by regulatory domain. Refer to the product documentation for specific details for each regulatory domain.

Maximum Transmit Power	<ul style="list-style-type: none"> 2.4GHz: 802.11b; 23 dBm with 1 antenna; 802.11g; 20 dBm with 1 antenna; 802.11n (HT20); 17 dBm with 1 antenna; 20 dBm with 2 antennas; 802.11n (HT40); 17 dBm with 1 antenna; 20 dBm with 2 antennas 5GHz: 802.11a; 17 dBm with 1 antenna; 802.11n non-HT duplicate (802.11a duplicate) mode; 17 dBm with 1 antenna; 802.11n (HT20); 17 dBm with 1 antenna; 20 dBm with 2 antennas; 802.11n (HT40); 17 dBm with 1 antenna; 20 dBm with 2 antennas
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NOTE: The maximum power setting will vary by channel and according to individual country regulations. Refer to the product documentation for specific details.

Data Rates Supported	802.11a: 6, 9, 12, 18, 24, 36, 48, and 54 Mbps			
	802.11g: 1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, and 54 Mbps			
	802.11n data rates (2.4 GHz and 5 GHz):			
MCS Index ¹	GI ² = 800ns		GI = 400ns	
	20-MHz Rate (Mbps)	40-MHz Rate (Mbps)	20-MHz Rate (Mbps)	40-MHz Rate (Mbps)
0	6.5	13.5	7.2	15
1	13	27	14.4	30
2	19.5	40.5	21.7	45
3	26	54	28.9	60
4	39	81	43.3	90
5	52	108	57.8	120
6	58.5	121.5	65	135
7	65	135	72.2	157.5
8	13	27	14.4	30
9	26	54	28.9	60
10	39	81	43.3	90
11	52	108	57.8	120
12	78	162	86.7	180
13	104	216	115.6	240
14	117	243	130	270
15	130	270	144.4	300

NOTE: This varies by regulatory domain. Refer to the product documentation for specific details for each regulatory domain.


Available Transmit Power Settings	<ul style="list-style-type: none"> 2.4 GHz: 23 dBm (200 mW); 20 dBm (100 mW); 17 dBm (50 mW); 14 dBm (25 mW); 11 dBm (12.5 mW); 8 dBm (6.25 mW); 5 dBm (313 mW); 2 dBm (1.56 mW); -1 dBm (0.78 mW) 5 GHz: 20 dBm (100 mW); 17 dBm (50 mW); 14 dBm (25 mW); 11 dBm (12.5 mW); 8 dBm (6.25 mW); 5 dBm (313 mW); 2 dBm (1.56 mW); -1 dBm (0.78 mW)
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NOTE: The maximum power setting will vary by channel and according to individual country regulations. Refer to the product documentation for specific details.

Antenna Connectors	2.4-GHz: 3 RP-TNC connectors; 5-GHz: 3 RP-TNC connectors
Interfaces	10/100/1000 autosensing (RJ-45); Management console port (RJ45)
Indicators	Status LED indicates operating state, association status, error/warning condition, boot sequence, and maintenance status; Ethernet LED indicates activity over the Ethernet, status; Radio LED indicates activity over the radio, status.
Modularity	Number of radio module slots: 2; Available radio modules
Dimensions (W x L x H)	<ul style="list-style-type: none"> AP (without mounting bracket): 8.12 x 9.52 x 2.35 in. (20.62 x 24.18 x 5.97 cm) AP (with mounting bracket): 8.12 x 9.52 x 2.75 in. (20.62 x 24.18 x 6.99 cm)
Weight	AP with 2 radios installed: 5.1 lbs (2.31 kg); AP chassis: 2.1 lbs (0.95 kg); 2.4 GHz radio: 1.5 lbs (0.68 kg); 5 GHz radio: 1.5 lbs (0.68 kg)
Environmental	Non-operating (storage) temperature: -40 to 185°F (-40 to 85°C; Operating temperature: -4 to +131°F (-20 to +55°C; Operating humidity: 10 to 90 percent (non-condensing)
System Memory	64 MB DRAM; 32 MB flash
Input Power Requirements	AP1250: 36 to 57 VDC; Power Supply and Power Injector: 100 to 240 VAC; 50 to 60 Hz
Powering Options	Cisco Catalyst switch port capable of sourcing 18.5W or greater; Cisco AP1250 Power Injector (AIR-PWRINJ4); Cisco AP1250 Local Power Supply (AIR-PWR-SPLY1); 802.3af switch (AP1250 with single radio only)
Warranty	90 days

Receive Sensitivity	<ul style="list-style-type: none"> 802.11a: -86 dBm @ 6 Mb/s; -85 dBm @ 9 Mb/s; -82 dBm @ 12 Mb/s; -81 dBm @ 18 Mb/s; -80 dBm @ 24 Mb/s; -79 dBm @ 36 Mb/s; -74 dBm @ 48 Mb/s; -73 dBm @ 54 Mb/s 802.11b: -90 dBm @ 1 Mb/s; -89 dBm @ 2 Mb/s; -87 dBm @ 5.5 Mb/s; -85 dBm @ 11 Mb/s 802.11g: -87 dBm @ 6 Mb/s; -86 dBm @ 9 Mb/s; -83 dBm @ 12 Mb/s; -82 dBm @ 18 Mb/s; -81 dBm @ 24 Mb/s; -80 dBm @ 36 Mb/s; -75 dBm @ 48 Mb/s; -74 dBm @ 54 Mb/s 5-GHz: 802.11n (HT20): -85 dBm @ MC0; -84 dBm @ MC1; -83 dBm @ MC2; -82 dBm @ MC3; -79 dBm @ MC4; -74 dBm @ MC5; -73 dBm @ MC6; -72 dBm @ MC7; -85 dBm @ MC8; -84 dBm @ MC9; -83 dBm @ MC10; -82 dBm @ MC11; -79 dBm @ MC12; -74 dBm @ MC13; -73 dBm @ MC14; -72 dBm @ MC15 5-GHz: 802.11n (HT40): -85 dBm @ MC0; -84 dBm @ MC1; -83 dBm @ MC2; -79 dBm @ MC3; -76 dBm @ MC4; -71 dBm @ MC5; -70 dBm @ MC6; -69 dBm @ MC7; -85 dBm @ MC8; -84 dBm @ MC9; -83 dBm @ MC10; -79 dBm @ MC11; -76 dBm @ MC12; -71 dBm @ MC13; -70 dBm @ MC14; -69 dBm @ MC15 2.4-GHz: 802.11n (HT20): -86 dBm @ MC0; -85 dBm @ MC1; -84 dBm @ MC2; -83 dBm @ MC3; -80 dBm @ MC4; -75 dBm @ MC5; -74 dBm @ MC6; -73 dBm @ MC7; -86 dBm @ MC8; -85 dBm @ MC9; -84 dBm @ MC10; -83 dBm @ MC11; -80 dBm @ MC12; -75 dBm @ MC13; -74 dBm @ MC14; -73 dBm @ MC15 2.4-GHz: 802.11n (HT40): -86 dBm @ MC0; -85 dBm @ MC1; -84 dBm @ MC2; -80 dBm @ MC3; -77 dBm @ MC4; -72 dBm @ MC5; -71 dBm @ MC6; -70 dBm @ MC7; -86 dBm @ MC8; -85 dBm @ MC9; -84 dBm @ MC10; -80 dBm @ MC11; -77 dBm @ MC12; -72 dBm @ MC13; -71 dBm @ MC14; -70 dBm @ MC15
Power Draw	<ul style="list-style-type: none"> AP1250 with two RM1252 radio modules installed: 16.9 W AP1250 with one RM1252 radio module installed: 12.95 W

NOTE: For an AP1250 with two radios, 16.9 W is the maximum power required at the access point (powered device). When deployed using PoE, the power drawn from the power sourcing equipment will be higher by some amount dependent on the length of the interconnecting cable. This additional power may be as high as 1.6W, bringing the total system power draw (access point + cabling) to 18.5 W. A similar consideration applies for an AP1250 with one radio.

Compliance	<p>Standards</p> <ul style="list-style-type: none"> Safety: UL 60950-1; CAN/CSA-C22.2 No. 60950-1; UL 2043; IEC 60950-1; EN 60950-1 Radio approvals: FCC Part 15.247, 15.407; RSS-210 (Canada); EN 300.328, EN 301.893 (Europe); ARIB-STD 33 (Japan); ARIB-STD 66 (Japan); ARIB-STD T71 (Japan); AS/NZS 4268.2003 (Australia and New Zealand); EMI and susceptibility (Class B); FCC Part 15.107 and 15.109; ICES-003 (Canada); VCCI (Japan); EN 301.489-1 and -17 (Europe); EN 60601-1-2 EMC requirements for the Medical Directive 93/42/EEC Security: 802.11i, WPA2, WPA; 802.1X; AES, TKIP Other: FCC Bulletin OET-65C; RSS-102 	
Wireless Network Standards and Wi-Fi Certification	<ul style="list-style-type: none"> IEEE Standard: IEEE 802.11a; IEEE 802.11b; IEEE 802.11g; IEEE 802.11n draft 2.0; IEEE 802.11h; IEEE 802.11d Security: WPA™: Enterprise, Personal; WPA2™: Enterprise, Personal EAP Type(s): EAP-Transport Layer Security (TLS); EAP-Tunneled TLS (TTLS)/Microsoft Challenge Handshake Authentication Protocol Version 2 (MSCHAPv2); Protected EAP (PEAP)v0/EAP-MSCHAPv2; PEAPv1/EAP-Generic Token Card (GTC); EAP-SIM Multimedia: WMM™ 	

1. MCS Index: The Modulation and Coding Scheme (MCS) index determines the number of spatial streams, the modulation, the coding rate, and data rate values.
2. GI: A Guard Interval (GI) between symbols helps receivers overcome the effects of multipath delays.

Selected Part Numbers and Ordering Information

Cisco Aironet 1250 Series Access Point	
AIR-AP1252AG-A-K9	802.11a/g/n-draft 2.0 2.4/5-GHz Modular Autonomous AP; 6 RP-TNC; FCC configuration
AIR-AP1252G-A-K9	802.11g/n-draft 2.0 2.4-GHz Modular Autonomous AP; 3 RP-TNC; FCC configuration
AIR-LAP1252AG-A-K9	802.11a/g/n-draft 2.0 2.4/5-GHz Modular Unified AP; 6 RP-TNC FCC configuration
AIR-LAP1252G-A-K9	802.11g/n-draft 2.0 2.4-GHz Modular Unified AP; 3 RP-TNC; FCC configuration
Cisco Aironet 1250 Series Eco-Pack	
AIR-LAP1252-A-K9-5	802.11a/g/n 2.4/5 GHz Mod Unified AP; FCC, 5 APs
AIR-LAP1252-E-K9-5	802.11a/g/n 2.4/5 GHz Mod Unified AP; ETSI, 5 APs
AIR-LAP1252-N-K9-5	802.11a/g/n 2.4/5 GHz Mod Unified AP; Non-FCC, 5 APs
AIR-AP1252-N-K9-5	802.11a/g/n 2.4/5 GHz Mod Auto AP; Non-FCC, 5 APs

For More Information

For more information about Cisco Aironet 1250 Series Access Points, visit: <http://www.cisco.com/go/802.11n>.

Cisco Aironet 1240AG Series Access Points

Cisco Aironet 1240 AG Series IEEE 802.11a/b/g Access Points deliver the versatility, high capacity, security, and enterprise-class features demanded by wireless LAN (WLAN) customers. They are designed specifically for challenging RF environments such as factories, warehouses, and large retail establishments that require the antenna versatility associated with connectorized antennas, a rugged metal enclosure, and a broad operating temperature range. The Cisco Aironet 1240 AG Series provides local as well as inline power, including support for IEEE 802.3af Power over Ethernet (PoE). These access points are ideal for factories, warehouses and retailers.



Ideal for Companies That Need These Features

Cisco Aironet 1240AG Series Access Point

- Rugged enterprise-class access point designed for indoor industrial deployments and installations that require antenna versatility
- Optional software allows the access point to be configured to support enterprise wireless mesh

Key Features

- The Cisco Aironet 1240 AG Series Access Points have integrated 802.11a/b/g radios.
- They are available in an 802.11g-only version for countries that do not allow 5 GHz.
- Connectors offer a variety of both 2.4- and 5-GHz antennas.
- These access points are orderable as autonomous or lightweight access points.
- They can be configured to function as an access point or bridge, enabling a broad array of applications.
- Four power options offer deployment flexibility and cost savings: 802.3af, Cisco Power over Ethernet (PoE), Cisco Power Injector, or a local power supply.

Specifications

Feature	Cisco Aironet 1240AG Series Access Point
Software	<ul style="list-style-type: none">• Cisco IOS Software Release 12.4(10b)JA or later (Autonomous Mode)• Cisco IOS Software Release 12.4(10b)JX or later (Unified Mode)• Cisco Unified Wireless Network Software Release 4.2 or later
Data Rates Supported	802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps; 802.11g: 1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, and 54 Mbps
Network Standards	IEEE 802.11a/b/g
Uplink	Autosensing 802.3 10/100BASE-T Ethernet
Frequency Band and Operating Channels	Americas (FCC): 2.412 to 2.462 GHz-11 channels, 5.15 to 5.35, 5.725 to 5.825 GHz-12 channels; China: 2.412 to 2.472 GHz-13 channels, 5.725 to 5.825 GHz-4 channels; ETSI: 2.412 to 2.472 GHz-13 channels, 5.15 to 5.725 GHz-19 channels; Japan (TELEC): 2.412 to 2.472 GHz-13 channels Orthogonal Frequency Division Multiplexing (OFDM), 2.412 to 2.484 GHz-14 channels Complementary Code Keying (CCK), 5.15 to 5.25 GHz-4 channels; North America: 2.412 to 2.462 GHz-11 channels, 5.15 to 5.35, 5.725 to 5.825 GHz-12 channels; Singapore: 2.412 to 2.472 GHz-13 channels, 5.15 to 5.25 GHz and 5.725 to 5.825 GHz-8 channels; Taiwan: 2.412 to 2.462 GHz-11 channels, 5.25 to 5.35 GHz and 5.725 to 5.825 GHz-8 channels
Non-Overlapping Channels	<ul style="list-style-type: none">• 802.11a: 12 channels (FCC); other regulatory domains support different numbers of 802.11a channels)• FCC currently supports 12 non-overlapping channels, with potentially up to 23 channels via a future firmware release depending on FCC rules; 802.11b/g: 3 channels
Receive Sensitivity	<ul style="list-style-type: none">• 802.11a: 6 Mbps: -87 dBm; 9 Mbps: -87 dBm; 12 Mbps: -85 dBm; 18 Mbps: -84 dBm; 24 Mbps: -81 dBm; 36 Mbps: -78 dBm; 48 Mbps: -73 dBm; 54 Mbps: -72 dBm• 802.11g: 6 Mbps: -90 dBm; 9 Mbps: -84 dBm; 12 Mbps: -82 dBm; 18 Mbps: -80 dBm; 24 Mbps: -77 dBm; 36 Mbps: -73 dBm; 48 Mbps: -72 dBm; 54 Mbps: -72 dBm
Antenna	2.4 GHz: Dual RP-TNC connectors; 5 GHz: Dual RP-TNC connectors
LEDs	Status LED indicates operating state, association status, error/warning condition, boot sequence, and maintenance status; Ethernet LED indicates activity over the Ethernet, status; Radio LED indicates activity over the radio, status
Dimensions (H x W x D)	6.6 x 8.5 x 1.1 in. (16.76 x 21.59 x 2.79 cm)
Weight	2.0 lbs
Environmental	<ul style="list-style-type: none">• Non operating (storage) temperature: 40 to 185°F (-40 to 85°C);• Operating temperature: -4 to +131°F (-20 to +55°C)• Operating/noncondensing humidity: 10 to 90 percent

Range¹	<ul style="list-style-type: none"> Indoor-802.11a: 85 ft (26 m) @ 54 Mbps; 150 ft (46 m) @ 48 Mbps; 210 ft (64 m) @ 36 Mbps; 230 ft (70 m) @ 24 Mbps; 260 ft (79 m) @ 18 Mbps; 280 ft (85 m) @ 12 Mbps; 310 ft (94 m) @ 9 Mbps; 330 ft (100 m) @ 6 Mbps; 802.11g: 105 ft (32 m) @ 54 Mbps; 180 ft (55 m) @ 48 Mbps; 260 ft (79 m) @ 36 Mbps; 285 ft (87 m) @ 24 Mbps; 330 ft (100 m) @ 18 Mbps; 355 ft (108 m) @ 12 Mbps; 365 ft (111 m) @ 11 Mbps; 380 ft (116 m) @ 9 Mbps; 410 ft (125 m) @ 6 Mbps; 425 ft (130 m) @ 5.5 Mbps; 445 ft (136 m) @ 2 Mbps; 460 ft (140 m) @ 1 Mbps; Outdoor-802.11a: 100 ft (30 m) @ 54 Mbps; 300 ft (91 m) @ 48 Mbps; 425 ft (130 m) @ 36 Mbps; 530 ft (162 m) @ 24 Mbps; 550 ft (168 m) @ 18 Mbps; 600 ft (183 m) @ 12 Mbps; 625 ft (190 m) @ 9 Mbps; 650 ft (198 m) @ 6 Mbps; 802.11g: 120 ft (37 m) @ 54 Mbps; 350 ft (107 m) @ 48 Mbps; 550 ft (168 m) @ 36 Mbps; 650 ft (198 m) @ 24 Mbps; 750 ft (229 m) @ 18 Mbps; 800 ft (244 m) @ 12 Mbps; 820 ft (250 m) @ 11 Mbps; 875 ft (267 m) @ 9 Mbps; 900 ft (274 m) @ 6 Mbps; 910 ft (277 m) @ 5.5 Mbps; 940 ft (287 m) @ 2 Mbps; 950 ft (290 m) @ 1 Mbps;
System Memory	32 MB RAM; 16 MB flash
Input Power Requirements	100 to 240 VAC; 50 to 60Hz (power supply); 36 to 57 VDC (device)
Power Draw	Local power; 802.3 AF switches; Cisco legacy PoE switches; Cisco Aironet power Injectors (PWRINJ3 and PWRINJ-FIB); Third-party PoE devices (must meet input power and power draw requirements)
Power Draw	12.95W ² maximum
Warranty	One year

1. Ranges and actual throughput vary based upon numerous environmental factors so individual performance may differ
2. The maximum power required at the powered device. If the access point is being used in a PoE configuration, the power drawn from the power sourcing equipment will be higher by some amount dependent on the length of the inter-connecting cable. This additional power may be as high as 2.45W, bringing the total system power draw (access point + cabling) to 15.4W.

Selected Part Numbers and Ordering Information

Cisco Aironet 1240AG Series Access Point	
AIR-AP1242AG-A-K9	Cisco Aironet 1240AG 802.11a/g Non-modular Cisco IOS access point; RP-TNC; FCC configuration
AIR-LAP1242AG-A-K9	Cisco Aironet 1240AG 802.11ag Non-modular LWAPP access point; RP-TNC; FCC configuration
Cisco Aironet 1240G Series Access Point	
AIR-AP1242G-A-K9	Cisco Aironet 1240AG 802.11g non-modular Cisco IOS access point; RP-TNC; FCC configuration
Cisco Aironet 1240AG Series Eco-Pack SKUs and Regulatory Domains	
AIR-LAP1242-AK9-10	Cisco Aironet 1240AG 802.11ag LWAPP AP Dual 2.4/5GHz RP-TNC FCC Cnfg,10 APs
AIR-LAP1242-EK9-10	Cisco Aironet 1240AG 802.11a/g LWAPP AP Dual 2.4/5GHz RP-TNC ETSI Cnfg,10 APs
AIR-AP1242-A-K9-10	Cisco Aironet 1240AG 802.11a/g Non-modular IOS AP; RP-TNC; FCC Cnfg,10 APs
AIR-AP1242-E-K9-10	Cisco Aironet 1240AG 802.11a/g Non-modular IOS AP; RP-TNC; ETSI Cnfg,10 APs

For More Information

For more information about Cisco Aironet 1240AG Series Access Points, visit: <http://www.cisco.com/go/wireless>.

Cisco Aironet 1130AG Series Access Points

The Cisco Aironet 1130AG Access Points package high capacity, high security, and enterprise-class features to deliver wireless LAN (WLAN) access for a low total cost of ownership. Designed for WLAN coverage in offices and similar RF environments, these unobtrusive access points feature integrated antennas and dual IEEE 802.11a/g radios for robust and predictable coverage, delivering a combined capacity of 108 Mbps. These competitively priced access points are ready to install and easy to manage, reducing the cost of deployment and ongoing maintenance. Cisco Aironet 1130 AG Access Points are available in a lightweight version, an autonomous version that can be field-upgraded to lightweight operation, and a single-band 802.11g version for use in regulatory domains that do not allow 802.11a 5-GHz operation.



Ideal for Companies That Need These Features

Cisco Aironet 1130AG Series Access Point	<ul style="list-style-type: none">• High-capacity and high-security WLAN in the enterprise office• Low-profile access point that blends into the environment and is easy to deploy• Optional WirelessPLUS software allows the access point to be configured to support the OfficeExtend solution for wireless teleworking.• Optional software allows the access point to be configured to support enterprise wireless mesh
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Key Features

- 802.11a/g radios with simultaneous dual-band support provide 108-Mbps capacity.
- These access points are available in an 802.11g-only version for countries that do not allow 5 GHz.
- Optional WirelessPLUS software allows the access point to be configured to support the OfficeExtend solution for wireless teleworking.
- Optional software allows the access point to be configured to support enterprise wireless mesh.

Specifications

Feature	Cisco Aironet 1130AG Series Access Point
Data rates supported	802.11a: 6, 9, 12, 18, 24, 36, 48, and 54 Mbps; 802.11g: 1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, and 54 Mbps
Software	<ul style="list-style-type: none">• Cisco IOS Software Release 12.4(10b)JA or later (Autonomous Mode)• Cisco IOS Software Release 12.4(10b)JX or later (Unified Mode)• Cisco Unified Wireless Network Software Release 4.2 or later
Network standard	IEEE 802.11a, 802.11b and 802.11g
Uplink	Autosensing 802.3 10/100BaseT Ethernet
Non-overlapping channels	802.11a—Up to 19; 802.11b/g—3
SNMP compliance	MIB I and MIB II
Antennas	2.4 GHz: Gain 3.0 dBi, Horizontal Beamwidth 360°; 5 GHz: Gain 4.5 dBi, Horizontal Beamwidth 360°
Frequency band and Operating Channels	<ul style="list-style-type: none">• Americas (FCC): 2.412 to 2.462 GHz; 11 channels, 5.15 to 5.35, 5.725 to 5.825 GHz; 12 channels• China: 2.412 to 2.472 GHz; 13 channels, 5.725 to 5.825 GHz; 4 channels• ETSI: 2.412 to 2.472 GHz; 13 channels, 5.15 to 5.725 GHz; 19 channels• Israel: 2.432 to 2.472 GHz; 9 channels, 5.15 to 5.35 GHz; 8 channels• Japan (TELEC): 2.412 to 2.472 GHz; 13 channels Orthogonal Frequency Division Multiplexing (OFDM), 2.412 to 2.484 GHz; 14 channels Complementary Code Keying (CCK), 5.15 to 5.25 GHz; 4 channels• Japan-P (TELEC 2 (Japan2) Config): 2.412 to 2.472 GHz; 13 channels Orthogonal Frequency Division Multiplexing (OFDM), 5.15 to 5.35 GHz; 8 channels• Korea: 2.412 to 2.472 GHz; 13 channels, 5.15 to 5.35, 5.46 to 5.72, 5.725 to 5.825, 19 channels• North America: 2.412 to 2.462 GHz; 11 channels, 5.15 to 5.35, 5.725 to 5.825 GHz; 12 channels• Singapore: 2.412 to 2.472 GHz; 13 channels, 5.15 to 5.35 GHz, 8 channels and 5.725 to 5.825 GHz; 12 channels• Taiwan: 2.412 to 2.462 GHz; 11 channels, 5.25-5.35 GHz, 5.725 to 5.825, 7 channels
Receive sensitivity	802.11a— 6 Mbps: -87 dBm, 9 Mbps: -86 dBm, 12 Mbps: -85 dBm, 18 Mbps: -84 dBm, 24 Mbps: -80 dBm, 36 Mbps: -78 dBm, 48 Mbps: -73 dBm, 54 Mbps: -71 dBm; 802.11g—1 Mbps: -93 dBm, 2 Mbps: -91 dBm, 5.5 Mbps: -88 dBm, 6 Mbps: -86 dBm, 9 Mbps: -85 dBm, 11 Mbps: -85 dBm, 12 Mbps: -84 dBm, 18 Mbps: -83 dBm, 24 Mbps: -79 dBm, 36 Mbps: -77 dBm, 48 Mbps: -72 dBm, 54 Mbps: -70 dBm
Available transmit power settings	<ul style="list-style-type: none">• 802.11a: OFDM: 50 mW (17 dBm), 32 mW (15 dBm), 25 mW (14 dBm), 10 mW (11 dBm), 5 mW (8 dBm), 3 mW (5 dBm), 2 mW (2 dBm), 1 mW (-1 dBm); 802.11g: CCK—100 mW (20 dBm), 50 mW (17 dBm), 25 mW (14 dBm), 12 mW (11 dBm), 6 mW (8 dBm), 3 mW (5 dBm), 2 mW (2 dBm), 1 mW (-1 dBm); OFDM—50 mW (17 dBm), 25 mW (14 dBm), 10 mW (11 dBm), 5 mW (8 dBm), 3 mW (5 dBm), 1 mW (2 dBm), 1 mW (-1 dBm)• Maximum power setting will vary by channel and according to individual country regulations.
Status LEDs	<ul style="list-style-type: none">• External: Status LED indicates operating state, association status, error/warning condition, boot sequence and maintenance status• Internal: Ethernet LED indicates activity over the Ethernet, status; Radio LED indicates activity over the radios, status
Dimensions (H x W x D)	75 x 75 x 1.3 in. (191 x 191 x 3.3 cm)
Weight	1.5 lbs. (0.67 kg)

Range	<ul style="list-style-type: none"> Indoor (Distance across open office environment): 802.11a: 80 ft (24 m) @ 54 Mbps, 150 ft (45 m) @ 48 Mbps, 200 ft (60 m) @ 36 Mbps, 225 ft (69 m) @ 24 Mbps, 250 ft (76 m) @ 18 Mbps, 275 ft (84 m) @ 12 Mbps, 300 ft (91 m) @ 9 Mbps, 325 ft (100 m) @ 6 Mbps; 802.11g: 1000 ft (30 m) @ 54 Mbps, 175 ft (53 m) @ 48 Mbps, 250 ft (76 m) @ 36 Mbps, 275 ft (84 m) @ 24 Mbps, 325 ft (100 m) @ 18 Mbps, 350 ft (107 m) @ 12 Mbps, 360 ft (110 m) @ 11 Mbps, 375 ft (114 m) @ 9 Mbps, 400 ft (122 m) @ 6 Mbps Outdoor: 802.11a: 100 ft (30 m) @ 54 Mbps, 300 ft (91 m) @ 48 Mbps, 425 ft (130 m) @ 36 Mbps, 500 ft (152 m) @ 24 Mbps, 550 ft (168 m) @ 18 Mbps, 600 ft (183 m) @ 12 Mbps, 625 ft (190 m) @ 9 Mbps, 650 ft (198 m) @ 6 Mbps; 802.11g: 120 ft (37 m) @ 54 Mbps, 350 ft (107 m) @ 48 Mbps, 550 ft (168 m) @ 36 Mbps, 650 ft (198 m) @ 24 Mbps, 750 ft (229 m) @ 18 Mbps, 800 ft (244 m) @ 12 Mbps, 820 ft (250 m) @ 11 Mbps, 875 ft (267 m) @ 9 Mbps, 900 ft (274 m) @ 6 Mbps, 910 ft (277 m) @ 5.5 Mbps, 940 ft (287 m) @ 2 Mbps, 950 ft (290 m) @ 1 Mbps Ranges and actual throughput vary based upon numerous environmental factors so individual performance may differ.
Compliance	Customers are responsible for verifying approval for use in their country; see http://www.cisco.com/go/aironet/compliance .
Security architecture client authentication and encryption (Cisco Wireless Security Suite supporting WPA and WPA2)	<ul style="list-style-type: none"> Security Standards: WPA, WPA2 (802.11i), Cisco TKIP, Cisco message integrity check (MIC), IEEE 802.11 WEP keys of 40 bits and 128 bits 802.1X EAP types: EAP-FAST, PEAP-GTC, PEAP-MSCHAP, EAP-TLS, EAP-TTLS, EAP-SIM, Cisco LEAP Encryption: AES-CCMP encryption (WPA2), TKIP (WPA), Cisco TKIP, WPA TKIP, IEEE 802.11 WEP keys of 40 bits and 128 bits
Environmental	32-104° F (0-40° C); 10-90% humidity (non-condensing)
System Memory	32 MB RAM; 16 MB FLASH
Input Power Req	100-240 VAC 50-60Hz (power supply); 36-57 VDC (device)
Power Draw	12.2 watts, max
Warranty	One year

Selected Part Numbers and Ordering Information

Cisco Aironet 1130AG Series Access Point	
AIR-AP1131AG-A-K9	802.11a/g Non-modular IOS AP; Integrated Antennas; Israel Cnfg
AIR-LAP1131AG-A-K9	802.11a/g Non-modular LWAPP AP; Integrated Antennas; FCC Cnfg
Cisco Aironet 1130G Series Access Point	
AIR-AP1131G-A-K9	802.11g Non-modular IOS AP; Integrated Antennas; Israel Cnfg
AIR-LAP1131G-A-K9	802.11g Non-modular LWAPP AP; Integrated Antennas; FCC Cnfg
Cisco Aironet 1130AG Series Access Point 10 Unit Eco Pack	
AIR-AP1130-A-K9-10	802.11g Non-modular IOS AP; Integrated Antennas: 10 APs FCC Cnfg
AIR-LAP1130-A-K9-10	802.11g Non-modular LWAPP AP; Integrated Antennas:10 APs FCC Cnfg

For More Information

For more information about the Cisco Aironet 1130AG Series Access Points, visit: <http://www.cisco.com/go/wireless>.

Cisco Aironet 1520 Series Lightweight Outdoor Wireless Mesh Access Point

The Cisco Aironet 1520 Series Lightweight Outdoor Access Points are a flexible, secure, and scalable mesh platform that is designed for deployments across large metropolitan-sized areas. As part of the Cisco Unified Network architecture, the wireless mesh can be seamlessly deployed as an extension of wired and wireless networks, with central management through controllers and the Cisco Wireless Control System. The unified architecture centralizes critical functions of the wireless LAN to provide scalable management, advanced security, seamless mobility, and proven reliability. With maximum ratio combining (MRC) technology, the access points provide greater access range for consumer-grade client devices throughout the wireless mesh network. Rugged enclosures allow deployment in extreme weather and hazardous environments, and can be painted to adapt to local aesthetics.

The Cisco Aironet 1520 Series includes the Cisco Aironet 1522 and Cisco Aironet 1524SB and 1524PS Lightweight Outdoor Mesh Access Points:



Cisco Aironet 1522 Lightweight Access Point

The Cisco Aironet 1522 Lightweight Outdoor Mesh Access Point is a dual-radio system with dual-band radios that are compliant with IEEE 802.11a (5-GHz) and 802.11b/g standards (2.4-GHz). Where service providers have already invested in a broadband cable network, the Cisco mesh can seamlessly extend network connectivity with the Cisco Aironet 1522 access point, by connecting to its integrated cable modem interface. Designed for the most demanding environments, the Cisco Aironet 1522 has been classified for hazardous locations (Class 1, Zone 2/ Div 2) such as petroleum refineries and utility gas plants.

Cisco Aironet 1524SB Lightweight Access Point

The Cisco Aironet 1524SB Lightweight Outdoor Access Point is a multiple-radio system with dual-backhaul IEEE 802.11a (5-GHz) radios, where each radio is dedicated to transmitting data either upstream or downstream, provide greater throughput for bandwidth-intensive applications such as video surveillance. The third radio is dedicated to client access. With uncompromised throughput and latency, the Cisco 1524SB enables a reliable and high-performance mesh network.

Cisco Aironet 1524PS Lightweight Access Point

The Cisco Aironet 1524PS Lightweight Outdoor Mesh Access Point has been specifically designed for public safety applications, providing a flexible and secure outdoor wireless LAN that scales to meet demands for public safety and mobility services. The Cisco Aironet 1524PS Access Point is a multiple-radio mesh access point, preconfigured with three radios that comply with IEEE 802.11a, 802.11b/g, and 4.9-GHz public safety standards. By dedicating multiple separate radios to access, it creates a robust and secure mesh infrastructure capable of supporting public and private applications simultaneously.

Specifications

Feature	Cisco Aironet 1520 Series Lightweight Outdoor Wireless Access Point		
Wireless standards	• 802.11a • 802.11b/g • Public safety 4.9 GHz (5, 10, 20 MHz channels)		
Data rates and modulation	• 802.11a: 54, 48, 36, 24, 18, 12, 9, 6 Mbps, Orthogonal Frequency Division Multiplexing (OFDM) • 802.11b: 11, 5.5, 2, 1 Mbps, Direct Sequence Spread Spectrum (DSSS) • 802.11g: 54, 48, 36, 24, 18, 12, 9, 6 Mbps, OFDM 4.9 GHz: • 5 MHz: 13.5, 12, 9, 6, 4, 5, 3, 2.25, 1.5 Mbps • 10 MHz: 27, 24, 18, 12, 9, 6, 4.5, 3 Mbps • 20 MHz: 54, 48, 36, 24, 18, 12, 9, 6 Mbps		
Maximum Transmit Power (Varies by channel and data rate)	2.4 GHz	5 GHz	4.9 GHz
	Cisco 1522AG		
	-A 28 dBm -C 14 dBm -E 14 dBm -K 14 dBm -N 28 dBm -P 16 dBm -S 14 dBm -T 28 dBm	-A 28 dBm -C 22 dBm -E 22 dBm -K 19 dBm -N 28 dBm -P 20 dBm -S 22 dBm -T 28 dBm	-A 20 dBm
	Cisco 1524SB		
	-A 28 dBm -C 14 dBm -N 28 dBm	-A 28 dBm -C 22 dBm -E 28 dBm	
	Cisco 1524PS		
Network Interface	-A 28 dBm	-A 28 dBm	-A 26 dBm
	-A 28 dBm	-A 28 dBm	-A 26 dBm
Network Interface	• 10/100/1000BASE-T Ethernet, autosensing (RJ-45) • Fiber SFP • Cable modem interface (only available on 1522PC models)		
Dimensions (W x L x H)	12.0 in. x 78 in. x 6.4 in. (30.48 cm x 19.81 cm x 16.26 cm) (including antenna mount)		
Weight	1522AG—17 lbs (79 kg) 1522PC—17 lbs (79 kg) 1522HZ—18 lbs (8.0 kg) 1524SB—18 lbs (8.4 kg) 1524PS—18 lbs (8.4 kg) Battery backup: 2 lbs (0.7kg) Mounting bracket: 6 lbs (2.8 Kg)		
Powering Options	• 90-480 VAC, 47-63 Hz • Power over Ethernet: 48 VDC, +/-10 percent • 12 VDC		

Frequency Band and Operating Channels	Cisco 1522		Cisco 1524SB	Cisco 1524PS
	<ul style="list-style-type: none"> A (Americas (FCC)): <ul style="list-style-type: none"> - 2.401 to 2.473 GHz; 11 channels - 4.940 to 4.990 GHz; - 5MHz-10 channels - 10MHz-5 channels - 20MHz-2 channels - 5.250 to 5.850 GHz; 16 channels (excludes channel 120, 124, 128) C (China): <ul style="list-style-type: none"> - 2.401 to 2.483 GHz; 13 channels - 5.725 to 5.850 GHz; 5 channels E (ETSI): <ul style="list-style-type: none"> - 2.401 to 2.483 GHz; 13 channels - 5.470 to 5.725 GHz; 8 channels K (Korea): <ul style="list-style-type: none"> - 2.401 to 2.483 GHz; 13 channels - 5.250 to 5.560 GHz; 10 channels N (Non-FCC): <ul style="list-style-type: none"> - 2.401 to 2.473 GHz; 11 channels - 5.725 to 5.850 GHz; 5 channels P (Japan2): <ul style="list-style-type: none"> - 2.401 to 2.495 GHz; 14 channels - 4.910 to 5.090 GHz; 6 channels S (Singapore): <ul style="list-style-type: none"> - 2.401 to 2.483 GHz; 13 channels - 5.725 to 5.850 GHz; 5 channels T (Taiwan): <ul style="list-style-type: none"> - 2.401 to 2.473 GHz; 11 channels - 5.470 to 5.850 GHz; 16 channels 		<ul style="list-style-type: none"> A (Americas (FCC)): <ul style="list-style-type: none"> - 2.401 to 2.473 GHz; 11 channels - 5.725 to 5.850 GHz; 5 channels C (China): <ul style="list-style-type: none"> - 2.401 to 2.473 GHz; 13 channels - 5.725 to 5.850 GHz; 5 channels N (Non-FCC): <ul style="list-style-type: none"> - 2.401 to 2.473 GHz; 11 channels - 5.725 to 5.850 GHz; 5 channels 	<ul style="list-style-type: none"> A (Americas (FCC)): <ul style="list-style-type: none"> - 2.401 to 2.473 GHz; 11 channels - 4.940 to 4.990 GHz; - 5MHz-10 channels - 10MHz-5 channels - 20MHz-2 channels - 5.725 to 5.850 GHz; 5 channels
Receive Sensitivity (typical)	802.11a 5.0 GHz <ul style="list-style-type: none"> • 6 Mbps: -91 dBm • 9 Mbps: -90 dBm • 12 Mbps: -89 dBm • 18 Mbps: -86 dBm • 24 Mbps: -84 dBm • 36 Mbps: -80 dBm • 48 Mbps: -76 dBm • 54 Mbps: -73 dBm 	802.11b <ul style="list-style-type: none"> • 1 Mbps: -96 dBm • 2 Mbps: -96 dBm • 5.5 Mbps: -95 dBm • 11 Mbps: -92 dBm 	802.11g with MRC <ul style="list-style-type: none"> • 1 Mbps: -96 dBm • 2 Mbps: -96 dBm • 5.5 Mbps: -95 dBm • 6 Mbps: -91 dBm • 9 Mbps: -91 dBm • 11 Mbps: -92 dBm • 12 Mbps: -91 dBm • 18 Mbps: -90 dBm • 24 Mbps: -89 dBm • 36 Mbps: -86 dBm • 48 Mbps: -80 dBm • 54 Mbps: -80 dBm 	4.9 GHz, 5MHz <ul style="list-style-type: none"> • 1.5 Mbps: -93 dBm • 2.25 Mbps: -93 dBm • 3 Mbps: -93 dBm • 4.5 Mbps: -92 dBm • 6 Mbps: -88 dBm • 9 Mbps: -85 dBm • 12 Mbps: -80 dBm • 13.5 Mbps: -79 dBm 4.9 GHz, 10 MHz <ul style="list-style-type: none"> • 3 Mbps: -92 dBm • 4.5 Mbps: -92 dBm • 6 Mbps: -91 dBm • 9 Mbps: -89 dBm • 12 Mbps: -86 dBm • 18 Mbps: -82 dBm • 24 Mbps: -78 dBm • 27 Mbps: -77 dBm 4.9 GHz, 20 MHz <ul style="list-style-type: none"> • 6 Mbps: -89 dBm • 9 Mbps: -89 dBm • 12 Mbps: -88 dBm • 18 Mbps: -86 dBm • 24 Mbps: -83 dBm • 36 Mbps: -80 dBm • 48 Mbps: -75 dBm • 54 Mbps: -74 dBm
Warranty	90 days			

Compliance	<ul style="list-style-type: none"> Safety <ul style="list-style-type: none"> UL 60950; CAN/CSA-C22.2 No. 60950; IEC 60950; EN 60950 Immunity <ul style="list-style-type: none"> <= 5 mJ for 6kV/3kA @ 8/20 ms waveform; ANSI/IEEE C62.41; EN61000-4-5 Level 4 AC Surge Immunity; EN61000-4-4 Level 4 Electrical Fast Transient Burst Immunity; EN61000-4-3 Level 4 EMC Field Immunity; EN61000-4-2 Level 4 ESD Immunity; EN60950 Overvoltage Category IV Radio approvals <ul style="list-style-type: none"> FCC Part 15.247, 90.210; FCC Bulletin OET-65C; RSS-210; RSS-102; AS/NZS 4268.2003 EMI and susceptibility <ul style="list-style-type: none"> FCC part 15.107, 15.109; ICES-003 Security <ul style="list-style-type: none"> Wireless bridging/mesh; X.509 digital certificates; MAC address authentication; Advanced Encryption Standards (AES); Temporal Key Integrity Protocol (TLIP); Wireless access; 802.11i, Wi-Fi Protected Access (WPA2); WPA; 802.1X authentication, including Extensible Authentication Protocol and Protected EAP (EAP-PEAP); EAP-Transport Layer Security (EAP-TLS); EAP-Tunneled TLS (EAP-TTLS); and Cisco LEAP; Advanced Encryption Standards (AES); Temporal Key Integrity Protocol (TLIP); VPN pass-through; IP Security (IPsec), Layer 2 Tunneling Protocol (L2TP); MAC address filtering Other <ul style="list-style-type: none"> ATEX (AIR-LAP1522HZ-X-K9 only)
Environmental	<ul style="list-style-type: none"> Operating temperature: -40 to 55°C (-40 to 131°F) plus Solar Loading Storage temperature: -50 to 85°C (-58 to 185°F) Wind resistance: <ul style="list-style-type: none"> Up to 100 MPH sustained winds Up to 165 MPH wind gusts
Environmental ratings	<ul style="list-style-type: none"> IP67 NEMA Type 4X

Selected Part Numbers and Ordering Information

Cisco Aironet 1522 Lightweight Access Point	
AIR-LAP1522AG-A-K9-FCC	Cisco Aironet 1522 Lightweight Access Point, FCC config
AIR-LAP1522PC-A-K9-FCC	Cisco Aironet 1522 Lightweight Access Point, FCC config, Power over cable
AIR-LAP1522PC-N-K9-Non-FCC	Cisco Aironet 1522 Lightweight Access Point, Non-FCC config, Power over cable
AIR-LAP1522HZ-A-K9-FCC	Cisco Aironet 1522 Lightweight Access Point, FCC config, Class 1, Div 2)
AIR-LAP1522HZ-N-K9-Non-FCC	Cisco Aironet 1522 Lightweight Access Point, Non-FCC config, (Class 1, Div 2)
Cisco Aironet 1524SB Lightweight Access Point	
AIR-LAP1524SB-A-K9-FCC	Cisco Aironet 1524SB Lightweight Access Point, FCC config.
AIR-LAP1524SB-N-K9-Non-FCC	Cisco Aironet 1524SB Lightweight Access Point, Non-FCC config.
Cisco Aironet 1524PS Lightweight Access Point	
AIR-LAP1524PS-A-K9-Public Safety	Cisco Aironet 1524PS Lightweight Access Point, Public Safety (4.9 GHz, 5.8 GHz, 2.4 GHz), FCC configuration

For More Information

For more information about Cisco wireless mesh, visit: <http://www.cisco.com/go/1520>.

Cisco Aironet 1400 Series Wireless Bridge

The Cisco Aironet 1400 Series Wireless Bridge is a 5GHz 802.11a bridge, which has been ruggedized for harsh outdoor environments. It features high power radios for long range point-to-point and point-to-multipoint connectivity. The Aironet 1400 is an autonomous bridge, and provides a cost-effective way to connect multiple LANs over a long distance.

Key Features

- Cisco Aironet 1400 Series Wireless Bridges support both point-to-point and point-to-multipoint configurations.
- High power radios for long range connectivity.
- Autonomous bridge that provides cost-effective way to connect multiple LANs.



- The ruggedized enclosure, with an extended operating temperature range, is optimized for harsh outdoor environments.
- Integrated or optional external antennas offer flexibility in deployment.
- The bridges are designed specifically for ease of installation and operation.

Specifications

Feature	AIR-BR1410A-A-K9	AIR-BR1410A-A-K9-N	Power Injector LR
Frequency band	5.725 to 5.825 GHz (FCC UNII 3)		
Wireless modulation	Coded Orthogonal Frequency Division Multiplexing (COFDM)		
Media access protocol	Carrier Sense Multiple Access with Collision Avoidance (CSMA/CA)		
Modulation	BPSK @ 6 and 9 Mbps, QPSK @ 12 and 18 Mbps, 16-QAM @ 24 and 36 Mbps, 64-QAM @ 48 and 54 Mbps		
Non-overlapping channels	4		
Receive sensitivity (10% PER with 3200byte packets)	6 Mbps: -83 dBm, 9 Mbps: -83 dBm, 12 Mbps: -81 dBm, 18 Mbps: -80 dBm, 24 Mbps: -77 dBm, 36 Mbps: -74 dBm, 48 Mbps: -70 dBm, 54 Mbps: -68 dBm		
Maximum Operational Receive Level	-19 dBm		
Maximum Survivable Receive Level	0 dBm		
Available transmit power settings	250 mW (24 dBm), 200 mW (23 dBm), 155 mW (22 dBm), 125 mW (21 dBm), 60 mW (18 dBm), 30 mW (15 dBm), 15 mW (12 dBm) Maximum power setting will vary according to individual country regulations		
Point-to-point range¹	75 miles (13 km) @ 54 Mbps, 16 miles (26 km) @ 9 Mbps	12 miles (19 km) @ 54 Mbps, 23 miles (37 km) @ 9 Mbps, (Antennas are 28 dBi dish)	
Point-to-multipoint range (sector antenna at root)²	2 miles (3 km) @ 54 Mbps, 8 miles (13 km) @ 9 Mbps	4 miles (7 km) @ 54 Mbps, 11 miles (18 km) @ 9 Mbps, (Non-root antenna is 28 dBi dish)	
Antenna	Captured Linear Polarization; 22.5dBi gain; 10 E-plane by 12 H-plane beamwidth	One N-Type connector for professional installations (antennas sold separately)	
Security	Cisco Wireless Security Suite—Authentication: 802.1x support including LEAP to yield mutual authentication and dynamic per-user, per-session encryption keys; Encryption: Support for static and dynamic IEEE 802.11 WEP keys of 40 bits and 128 bits Pre-standard TKIP WEP enhancements: key hashing (per packet keying) and Message Integrity Check (MIC)		
SNMP compliance	v1 and v2		
Status LEDs	Four LEDs: Install, Radio, Status, Ethernet		Four LEDs: Power ON, Injector status, LAN Ethernet status, Bridge Ethernet status
RSSI port	BNC connector DC Voltage port (0VDC to 2.7 VDC)		NA
Uplink	100 Mbps over dual coaxial cables		10/100BaseT Ethernet
Configuration support	Telnet, HTTP, FTP, TFTP, SNMP	Telnet, HTTP, FTP, TFTP, SNMP	NA
Compliance	Customers are responsible for verifying approval for use in their country. Please see http://www.cisco.com/go/aironet/compliance to verify approval and to identify the regulatory domain that corresponds to a particular country. All regulatory domains may not have been approved. As they are approved, the part numbers will be available on the Global Price List, individual country regulations)		
Dimensions (H x W x D)	11.4 x 11.4 x 4.2 in. (29 x 29 x 11 cm)	11.6 x 11.6 x 3.6 in. (29 x 29 x 9 cm)	6.7 x 6.3 x 1.3 in (17 x 16 x 3 cm)

Weight	11 lbs. (5 kg)	10 lbs. (5 kg)	14lbs. (0.6kg)
Operational temperature	-30 to +55°C (-22 to +131°F)	-30 to +55°C (-22 to +131°F)	0 to +50C (32 to 122F)
Storage temperature	-40 to +85°C (-40 to +185°F)	-40 to +85°C (-40 to +185°F)	-40 to +70C (-40 to +158F)
Operational altitude	4206 m (13,800 ft.)	4206 m (13,800 ft.)	4206 m (13,800 ft.)
Storage altitude	4877 m (16,000 ft.)	4877 m (16,000 ft.)	4877 m (16,000 ft.)
Humidity	0 to 100% (condensing)	0 to 100% (condensing)	0 to 90% (non-condensing)
Vibration	0.001 G2/Hz from 5 - 100 Hz	0.001 G2/Hz from 5 - 100 Hz	0.001 G2/Hz from 5 - 100 Hz
Storage vibration	0.01 G2/Hz from 5 - 100 Hz	0.01 G2/Hz from 5 - 100 Hz	0.01 G2/Hz from 5 - 100 Hz
Enclosure	Aluminum with environmentally sealed plastic radome	NEMA-4, aluminum	Metal case
AC power	Not Required as uses DC voltage from Power Injector		100 to 240 VAC, +/- 10% (power supply)
DC power	48 VDC +/-2V	48 VDC +/-2V	48 VDC +/-2V
Warranty	One year	One year	One year

Selected Part Numbers and Ordering Information

AIR-BR1410A-A-K9	Aironet 1410 Wireless Bridge with 22.5 dBi Antenna, FCC Config
AIR-BR1410A-A-K9-N	Aironet 1410 Wireless Bridge w/ N-Type Connector, FCC Config

For More Information

For more information about the Cisco Aironet 1400 Series Wireless Bridges, visit: <http://www.cisco.com/go/wireless>.

Cisco Aironet 1300 Series Access Points

The Cisco Aironet 1300 Series Outdoor Access Point or Bridge is a ruggedized 802.11g access point and bridge that provides high-speed and cost-effective wireless connectivity between multiple fixed or mobile networks and clients. The Aironet 1300 Series can be deployed as an autonomous access point or bridge, providing intelligent network services as a standalone device. Alternatively, the Cisco Aironet 1300 Series can be deployed as part of the Cisco Unified Wireless Network, managed centrally by a Cisco wireless LAN controller. The Aironet 1300 supports both, point-to-point or point-to-multipoint configurations.



Key Features

- Network connections within a campus area; outdoor infrastructure for mobile networks and users; public access for outdoor areas
- Supports temporary networks for portable or military operations
- Supports the 802.11g standard providing 54-Mbps data rates with secure technology while maintaining full backward compatibility with legacy 802.11b devices
- Easy maintenance and installation by integrating it with your wired network via SWAN solution
- The Cisco Unified Wireless Network simplifies wireless LAN deployment and management by providing clear visibility and dynamic control of the RF environment
- Operates as a wireless bridge, access point, or a workgroup bridge
- Provides ongoing savings of leased-line expenses, a method to connect networks despite physical barriers such as lakes or highways, and rapid deployment of network connections
- Wi-Fi Certified in Access Point mode

Specifications

Feature	Cisco Aironet 1300 Series Access Point
Compatibility	<ul style="list-style-type: none"> • Access Point—Compatible with any Wi-Fi Certified client device for basic capability; Compatible with Cisco Aironet clients and Cisco Compatible clients for extended capability • Workgroup Bridge—Supports operation with Cisco Aironet access points and Cisco bridges
Air interface standard¹	IEEE 802.11b or IEEE 802.11g
Frequency band	2.412 to 2.462 GHz (FCC); 2.412 to 2.472 GHz (ETSI); 2.412 to 2.472 GHz (TELEC)

Wireless modulation	<ul style="list-style-type: none"> 802.11b—Direct Sequence Spread Spectrum (DSSS); Differential Binary Phase Shift Keying (DBPSK) at 1 Mbps; Differential Quadrature Phase Shift Keying (DQPSK) at 2 Mbps; Complementary Code Keying (CCK) at 5.5 and 11 Mbps 802.11g—Orthogonal Frequency Divisional Multiplexing (OFDM): BPSK at 6 and 9 Mbps; QPSK at 12 and 18 Mbps; 16-quadrature amplitude modulation (QAM) at 24 and 36 Mbps; 64-QAM at 48 and 54 Mbps
Media access protocol	Carrier Sense Multiple Access/Collision Avoidance (CSMA/CA)
Operating channels	802.11b/g—ETSI: 13; Americas: 11; TELEC (Japan): 13
Lightweight Access Point Protocol	A network protocol for lightweight access points that also provides for centralized management.
Non-overlapping channels	3
Security	<ul style="list-style-type: none"> Bridge—Authentication: 802.1X support including LEAP to yield mutual authentication and dynamic per-user, per-session encryption keys; Encryption: Cisco TKIP, key hashing (per-packet keying) and message, Integrity Check (MIC), AES-ready Access Point: Authentication: 802.1X support including LEAP, PEAP, EAP Message Digest 5 (EAP MD5), EAP TLS, and EAP FAST to yield mutual authentication and dynamic per-user, per-session encryption keys; Encryption: Cisco TKIP and WPA TKIP; key hashing (per-packet keying) and MIC; AES-ready Workgroup-Bridge—Authentication: 802.1X support including LEAP to yield mutual authentication and dynamic per-user, per-session encryption keys; Encryption: Cisco TKIP, key hashing (per-packet keying) and MIC, AES-ready
SNMP compliance	Versions 1 and 2

1. Bridge mode has enhancements to the standard to allow longer-range bridging communication

Feature	AIR-BR1310G-x-K9	AIR-BR1310G-x-K9-R
Available transmit power settings¹	802.11b: 100 mW (20 dBm), 50 mW (17 dBm), 30 mW (15 dBm), 20 mW (13 dBm), 10 mW (10 dBm), 5 mW (7 dBm), 1 mW (0 dBm); 802.11g: 30 mW (15 dBm); 20 mW (13 dBm); 10 mW (10 dBm); 5 mW (7 dBm); 1 mW (0 dBm)	
Maximum operational receive level	-20 dBm	-20 dBm
Maximum survivable receive level	10 dBm	10 dBm
Receive sensitivity (10 percent with 3200-byte packets)	1 Mbps: -94 dBm, 2 Mbps: -91 dBm, 5.5 Mbps: -89 dBm, 11 Mbps: -85 dBm; 6 Mbps: -90 dBm, 9 Mbps: -89 dBm; 12 Mbps: -86 dBm, 18 Mbps: -84 dBm; 24 Mbps: -81 dBm, 36 Mbps: -77 dBm; 48 Mbps: -73 dBm, 54 Mbps: -72 dBm	
Access-point role (Outdoor range)	<ul style="list-style-type: none"> Americas: 865 feet (260 meters) at 54 Mbps, 3465 feet (1055 meters) at 11 Mbps; ETSI: 150 feet (45 meters) at 54 Mbps, 775 feet (235 meters) at 11 Mbps; TELEC: 485 feet (145 meters) at 54 Mbps, 1095 feet (330 meters) at 11 Mbps Note: Access Point with 13 dBi integrated antenna and Cisco clients 	<ul style="list-style-type: none"> Americas: 350 feet (105 meters) at 54 Mbps, 1410 feet (430 meters) at 11 Mbps; ETSI: 195 feet (60 meters) at 54 Mbps, 630 feet (190 meters) at 11 Mbps; TELEC: 195 feet (60 meters) at 54 Mbps, 445 feet (135 meters) at 11 Mbps Note: Access Point with 5.2dBi patch antenna and Cisco clients
Bridge role (Point-to-point range)²	<ul style="list-style-type: none"> Americas: 1.3 miles (2 km) at 54 Mbps, 9 miles (15 km) at 11 Mbps; EMEA: 0.25 miles (0.36 km) at 54 Mbps, 2.3 miles (3.5 km) at 11 Mbps; TELEC: 0.7 miles (1.1 km) at 54 Mbps, 3.2 miles (5 km) at 11 Mbps Note: 13 dBi integrated antenna at root and non-root bridge 	<ul style="list-style-type: none"> Americas: 4.5 miles (7 km) at 54 Mbps, 14 miles (23 km) at 11 Mbps; EMEA: 2.5 miles (4 km) at 11 Mbps; TELEC: 4.5 miles (7 km) at 54 Mbps, 12 miles (20 km) at 11 Mbps Note: 21-dBi dish antenna at root and non-root bridge
Bridge role (Point-to-multipoint range)	<ul style="list-style-type: none"> Americas: 1.1 miles (1.8 km) at 54 Mbps, 8 miles (13 km) at 11 Mbps; EMEA: 0.25 miles (0.4 km) at 54 Mbps, 1.1 miles (1.8 km) at 11 Mbps; TELEC: 0.8 miles (1.3 km) at 54 Mbps, 3.6 miles (5.8 km) at 11 Mbps Note: 14-dBi sector antenna at root and 13dBi integrated antenna at non-root 	<ul style="list-style-type: none"> Americas: 2.0 miles (3.3 km) at 54 Mbps, 10 miles (16 km) at 11 Mbps; EMEA: 2.5 miles (4 km) at 11 Mbps; TELEC: 2.0 miles (3.3 km) at 54 Mbps; 9.0 miles (14 km) at 11 Mbps Note: 14-dBi sector at root and 21-dBi dish at non-root
Feature	AIR-BR1310G-x-K9 and AIR-BR1310G-x-K9-R	AIR-PWRINJ-BLR2 and AIR-PWRINJ-BLR2T
Dimensions (H x W x D)	8 x 8.1 x 3.12 in. (20.3 x 20.57 x 7.87 cm)	4.62 x 4.76 x 1.07 in. (11.73 x 12.09 x 2.71 cm)

Weight	2.5 lb (1.25 kg)	2 lb (1 kg)
Operational temperature	-22½ to 131½°F (-30½ to 55½°C)	Same as AIR-BR1310G-x-K9 and AIR-BR1310G-x-K9-R
Storage temperature	-40½ to 185½°F (-40½ to 85½°C)	Same as AIR-BR1310G-x-K9 and AIR-BR1310G-x-K9-R
Operational altitude	13,800 ft (4206 m)	Same as AIR-BR1310G-x-K9 and AIR-BR1310G-x-K9-R
Storage altitude	16,000 ft (4877 m)	Same as AIR-BR1310G-x-K9 and AIR-BR1310G-x-K9-R
Humidity	0 to 100% at 100½°F (38½°C) (condensing)	0 to 90% at 100½°F (38½°C) (non-condensing)
Warranty	One Year	

1. Maximum power setting will vary according to individual country regulations.
2. The distances referenced here are approximations and should be used for estimation purposes only.

Selected Part Numbers and Ordering Information

AIR-BR1310G-X-K9	Cisco Aironet 1300 2.4 GHz (802.11g) Outdoor Access Point /Bridge with integrated patch antenna
AIR-BR1310G-X-K9-R	Cisco Aironet 1300 2.4 GHz (802.11g) Outdoor Access Point /Bridge with RP-TNC type connector
AIR-LAP1310G-X-K9	Cisco Aironet 1300 2.4 GHz (802.11g) Outdoor Lightweight Access Point /Bridge with integrated patch antenna
AIR-LAP1310G-X-K9	Cisco Aironet 1300 2.4 GHz (802.11g) Outdoor Lightweight Access Point /Bridge with RP-TNC type connector

For More Information

For more information about the Cisco Aironet 1300 Series Access Points, visit: <http://www.cisco.com/go/wireless>.

Cisco Aironet Wireless LAN Client Adapters

The Cisco Aironet Wireless LAN Client Adapters provide high-performance 54-Mbps connectivity in the 2.4- and 5-GHz bands that combines the freedom of wireless connectivity with the performance, security, and manageability that businesses require.



Ideal for Companies That Need These Features

Cisco Aironet Wireless LAN Client Adapters

- Ability to operate in a mixed-mode environment
- Mobility within the enterprise to increase productivity, as an addition or alternative to wired networks, or the need for flexibility for frequent LAN wiring changes
- Support for Cisco Compatible Extensions with a Cisco product

Key Features

- The Cisco Aironet 802.11a/b/g CardBus Wireless LAN Client Adapters secure network communications using the Cisco Secure Wireless Solution.
- The tools include the Cisco Aironet Desktop Utility, Cisco Aironet System Tray Utility (STU), and Cisco Aironet Client Administration Utility (CAU).
- World mode is used for international roaming.
- The adapter tools offer exceptional range and throughput.
- The adapter tools support single 802.11b coverage, single 802.11g coverage, single 802.11a coverage, dual-mode 802.11a/g coverage, or tri-mode 802.11a/b/g coverage.
- The adapter tools are Wi-Fi Certified, and they support for the Wi-Fi Protected Access (WPA) protocol.
- PCI adapter that offers optimal placement for maximum performance using a dual-band 2.4- or 5-GHz 1-dBi effective gain antenna has a 2-meter cable.
- The PCI adapter provides a low-profile form factor and 2-meter cable length to provide flexibility for installation in low-profile devices, such as slim desktops and point-of-sale (POS) devices.
- The tools support Cisco Compatible Extensions Version 5 and earlier.

Specifications

Feature	Cisco Aironet 802.11a/b/g Wireless CardBus Adapter	Cisco Aironet 802.11a/b/g Wireless PCI Adapter
Form Factor	CardBus Type II	Standard and Low Profile Type II PCI
Interface	32-bit CardBus with standard 68-pin connector; PC-Card Rev. 7.0 compliant	Standard PCI Interface; PCI Rev. 2.3 compliant
Data Rates Supported	1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, 54 Mbps	
Network Standard	IEEE 802.11a/b/g	
Operating Voltage	3.3 V (±0.3 V)	
Media Access Protocol	Carrier-Sense Multiple Access w/ Collision Avoidance (CSMA/CA)	
Wireless Medium	802.11g: Direct Sequence Spread Spectrum (DSSS) and Orthogonal Frequency Divisional Multiplexing (OFDM); 802.11a: OFDM	
Modulation	<ul style="list-style-type: none"> 802.11b: DSSS--Differential Binary Phase Shift Keying (DBPSK) @ 1 Mbps; Differential Quadrature Phase Shift Keying (DQPSK) @ 2 Mbps; Complementary Code Keying (CCK) @ 5.5 and 11 Mbps 802.11g and 802.11a: OFDM--BPSK @ 6 and 9 Mbps; QPSK @ 12 and 18 Mbps; 16-Quadrature Amplitude Modulation (QAM) @ 24 and 36 Mbps; 64-QAM @ 48 and 54 Mbps 	
Frequency Bands	2.40 to 2.4897 GHz; 5.15 to 5.35 GHz (FCC UNII 1 and UNII 2); 5.725 to 5.85 GHz (FCC UNII 3); 5.15 to 5.35 GHz (ETSI); 5.470 to 5.725 (ETSI); 5.15 to 5.25 GHz (Japan)	
Range (With 2.2 dBi dipole antenna for 802.11g and 802.11b and 6 dBi gain patch for 802.11a)	<ul style="list-style-type: none"> 802.11a—Indoor: 45 ft (13 m) @ 54 Mbps, 110 ft (33 m) @ 18 Mbps, 165 ft (50 m) @ 6 Mbps; Outdoor: 100 ft (30 m) @ 54 Mbps, 600 ft (183 m) @ 18 Mbps, 1000 ft (304 m) @ 6 Mbps 802.11b/g—Indoor: 90 ft (27 m) @ 54 Mbps, 180 ft (54m) @ 18 Mbps, 160 ft (48 m) @ 11 Mbps, 300 ft (91 m) @ 6 Mbps, @ 410 ft (124 m); Outdoor: 250 ft (76 m) @ 54 Mbps, 600 ft (183 m) @ 18 Mbps, 1000 ft (304 m) @ 11 Mbps, 1300 ft (396 m) @ 6 Mbps, 2000 ft (610 m) @ 1 Mbps 	
Antenna	Integrated diversity dual-band 2.4/5 GHz antenna	
Security Architecture Client Authentication (Cisco Wireless Security Suite)	<ul style="list-style-type: none"> Authentication: WPA and 802.1X support for Cisco LEAP, PEAP-GTC, PEAP-MSCHAPv2, and EAP-TLS; MAC address and by standard 802.11 authentication mechanisms Encryption: Support for static and dynamic IEEE 802.11 WEP keys of 40 bits and 128 bits; Cisco TKIP and WPA TKIP encryption enhancements: key hashing (per-packet keying), message integrity check (MIC) and broadcast key rotation 	
Drivers	Windows XP and Windows 2000	
Dimensions (H x W x D)	0.19 x 2.05 x 4.46 in. (4.80 x 52.08 x 113.35 mm.)	3.12205 x 4.72 in. (79.3 x 119.9 mm.)
Weight	1.6 oz (44.0g)	Standard (frame) PCI w/Antenna: 3.64 oz. (103.2 g), Standard (frame) PCI w/o Antenna: 1.92 oz. (54.7 g), Low Profile PCI w/Antenna: 3.43 oz. (97.5 g), Low Profile PCI w/o Antenna: 1.72 oz. (49.0 g)
Warranty	One Year	One Year

Selected Part Numbers and Ordering Information

AIR-CB21AG-A-K9	Cisco Aironet 802.11a/b/g Cardbus Adapter; FCC Cnfg
AIR-CB21AG-A-K9-40	Cisco Aironet 802.11a/b/g Cardbus Adapter; FCC Cnfg; 40PK
AIR-PI21AG-A-K9	Cisco Aironet 802.11a/b/g Low Profile PCI Adapter; FCC Cnfg
AIR-PI21AG-A-K9-10	Cisco Aironet 802.11a/b/g Low Profile PCI Adapter; FCC Cnfg; 10PK

For More Information

For more information about the Cisco Aironet Wireless LAN Client Adapters, visit: <http://www.cisco.com/go/wireless>.

Cisco Secure Services Client

The Cisco Secure Services Client is a software application that allows businesses of all sizes to deploy a single authentication framework across endpoint devices to enable access to both wired and wireless networks. The solution delivers simplified management, robust security, and lower total cost of ownership. Through a simplified and scalable deployment mechanism, IT administrators can deploy and manage the Cisco Secure Services Client across the enterprise. The software client manages the user and device identity and the network access

protocols required for secure access. The Cisco Secure Services Client uses the IEEE 802.1X authentication standard to provide a robust first line of defense against unauthorized network intrusions.

Ideal for Companies That Need These Features

- Cisco Secure Services Client
- Centralized and secured management of Wi-Fi devices
 - Control of users' access policies
 - Identity-based access
 - FIPS support
 - Simple end-user experience (two-click connect, automated VPN, and automated access to network)

Key Features

- Automatic VPN feature—Cisco IP Security (IPsec) VPN and Secure Computing Soft Token are integrated in the Cisco Secure Services Client.
- FIPS 140-2 Level 1-compliant solution—FIPS drivers (ordered separately) are available.
- Cisco enterprise deployment mechanism—A unified .xml file allows for client provisioning; the single provisioning schema is independent of hardware. The administrator can now easily create an .msi file containing the .xml and .exe files for installation, and then deploy the files using standard deployment tools such as Microsoft Active Directory, Microsoft Short Message Service (SMS), and Altiris.
- Filtering of unwanted Service Set Identifiers (SSIDs)—This feature decreases the number of available networks for users and enforces corporate security policies for end users.
- Enforcing wired over wireless—This feature allows you to disable the wireless interface when a wired connection is present, and it eliminates unwanted wireless bridging to a wired network.
- Policy Enforcement Manager—The Policy Enforcement Manager enforces an 802.1X identity-based network security framework and configures and enforces access policies to protect corporate resources and assets.
- Network Profile Manager—Using the administrator console, administrators can define preconfigurations, lock down client features, and deploy end-user profiles for enterprise, travel, and home connections. The Network Profile Manager provides network entitlement rights for employees, guests, and suppliers with different levels of security.
- Credential Manager—The Credential Manager facilitates Windows single sign-on (SSO) capabilities, including device and user authentication, user-based authentication sessions, and credential challenges.
- Secure network access—This feature allows for authenticated access to 802.1X wired and wireless LANs. Cisco Secure Services Client is compatible with Wi-Fi-certified devices; it supports all Wi-Fi encryption modes: Wired Equivalent Privacy (WEP), Wi-Fi Protected Access-personal mode (WPA-personal mode), WPA2-personal mode, WPA-enterprise mode, WPA2-enterprise mode, Dynamic WEP (802.1X), Advanced Encryption Standard (AES), and Temporal Key Integrity Protocol (TKIP). It also supports a wide selection of Extensible Authentication Protocol (EAP) types; protects user privacy with EAP "anonymous" access; and integrates with Cisco Trust Agent, providing strong Layer 2 802.1X-based Network Admission Control (NAC) support. In addition, it is compatible with the Cisco Secure Access Control Server (ACS).
- Access management and automated configuration control—This enterprise deployment mechanism, available through a unified .xml file, delivers user-access policies to any port accessed by users. It centrally deploys Microsoft Active Directory machine or user group profiles, and facilitates automatic configuration of VLANs, in addition to offering comprehensive SSO support for the Windows login environment.
- Flexible selection of user credentials—User passwords and Windows passwords are interactive. User credentials are checked with RSA SecurID tokens; one-time password (OTP) tokens; Smartcards (Axalto, Gemplus, SafeNet iKey, and Alladin); and X.509 certificates.

Specifications

Feature	Cisco Secure Services Client
Operating systems	Windows XP, Windows 2000, Windows Vista
EAP protocols (XP/2000)	EAP-Message Digest 5 (MD5), EAP-Transport Layer Security (TLS), EAP-Tunneled TLS (TTLS), Cisco LEAP, EAP-Flexible Authentication via Secure Tunneling (FAST), Protected Extensible Authentication Protocol (PEAP)
EAP protocols (Vista)	Cisco LEAP, EAP-Flexible Authentication via Secure Tunneling (FAST), Protected Extensible Authentication Protocol (PEAP)
EAP-TTLS (XP/2000)	Password Authentication Protocol (PAP), Challenge Handshake Authentication Protocol (CHAP), Microsoft CHAP (MSCHAP), MSCHAPv2, EAP-MD5
EAP-PEAP (XP/2000)	EAP-MSCHAPv2, EAP-TLS, and EAP-Generic Token Card (GTC)
EAP-PEAP (Vista)	EAP-MSCHAPv2 and EAP-Generic Token Card (GTC)
Encryption support	WEP, WPA, WPA2, WPA-Pre-Shared Key (WPA-PSK), WPA2-PSK, Dynamic WEP (802.1X), AES, TKIP
Media support	Wired Ethernet 802.3 and Wi-Fi 802.11a, 802.11b, 802.11g, 802.11n

Switch interoperability	Any 802.1X-compatible Wi-Fi access point and wired Ethernet switch
Authentication, authorization, and accounting (AAA) interoperability	Supports standard RADIUS servers such as Cisco Secure Access Control Server (ACS) and Microsoft Internet Authentication Service (IAS)
Windows SSO	Active Directory machine and user authentication
Enterprise deployment	Export network profiles and lock user interface
Integrated VPN	Automatic VPN requires the following software to be preinstalled: <ul style="list-style-type: none"> • Cisco IPSec VPN version 4.8 or higher on Windows XP • Cisco IPSec VPN version 5.0.03.0560 or higher on Windows Vista
Integrated Software Token Applications (XP/2000)	Automatic software token generation requires the following software to be preinstalled: <ul style="list-style-type: none"> • Secure Computing SoftToken II (Version 2.1 or later)
FIPS solution	Meets Federal Information Processing Standard 140-2 Level 1. Requires the purchase of separate drivers for a complete FIPS 140-2 Level 1 client solution. Driver part numbers are AIR-SSCFIPS-DRV (see ordering guide for more detail). Supports Intel, Broadcom, and Atheros Wi-Fi chipsets. FIPS mode includes support for EAP-TLS, EAP-FAST, and PEAP association methods.

Selected Part Numbers and Ordering Information

Windows 2000 Windows XP	
AIR-SC5.0-XP2K	SW Client 5.0 for Win XP/2K for wired/wireless devices
AIR-SC5.0-XP2K-L1, L2, L3, L4, L5, L6, L7, L8	Specified seat count up to 250, 251–1000, 1001–2500, 2501–5000, 5001–10,000, 10,001–25,000, 25,001–50,000, 50,001–100,000
Windows Vista	
AIR-SSC-VISTA	Software Client 5.1 for Windows Vista for wired/wireless devices
AIR-SSC-VISTA-L1, L2, L3, L4, L5, L6, L7, L8	Specified seat count up to 250, 251–1000, 1001–2500, 2501–5000, 5001–10,000, 10,001–25,000, 25,001–50,000, 50,001–100,000

For More Information

For more information about the Cisco Secure Services Client, visit: <http://www.cisco.com/en/US/products/ps7034/index.html>.

Cisco Aironet Antennas and Accessories

Every wireless LAN (WLAN) deployment is different. When engineering an in-building solution, varying facility sizes, construction materials, and interior divisions raise transmission and multipath considerations. Cisco offers a complete range of 2.4- and 5-GHz antennas for access-point and bridge equipment that facilitate a customized wireless solution for almost any installation.



Key Features

- Client adapter antennas extend the transmission range for more specialized applications; a variety of optional, higher-gain antennas are provided that are compatible with selected client adapters.
- Access-point antennas are compatible with all Cisco RP-TNC-equipped access points; they are available with different gain and range capabilities, beam widths, and form factors.
- Bridge antennas are available in directional configurations for point-to-point transmission and in an omnidirectional configuration for point-to-multipoint implementations.
- Low-loss cable extends the length between any Cisco Aironet bridge and the antenna. With a loss of 6.7 dB per 100 feet (30m), low-loss cable provides installation flexibility without a significant sacrifice in range.
- Cisco offers a complete range of antennas for 5-GHz bridging applications.

Specifications

Cisco Aironet 2.4 GHz Access Point Antennas with RP-TNC Connectors				
Feature	AIR-ANT2450S-R	AIR-ANT2410Y-R	AIR-ANT2012	AIR-ANT3213
Description	5-dBi sector	10-dBi Yagi mast or wall mount	Diversity patch wall mount	5.2-dBi Pillar mount diversity omni

Application	Wall mount indoor/outdoor antenna with RP-TNC connector. Capable of covering large areas.	Indoor/Outdoor directional antenna for use with Access Points or Bridges	Indoor/Outdoor, unobtrusive medium range antenna	Indoor, unobtrusive medium-range antenna
Approximate Indoor Range¹	6 Mbps: 379 ft (116 m) 54 Mbps: 114 ft (35 m)	6 Mbps: 548 ft (167 m) 54 Mbps: 165 ft (50 m)	6 Mbps: 418 ft (127 m) 54 Mbps: 126 ft (38 m)	6 Mbps: 379 ft (121 m) 54 Mbps: 114 ft (35 m)
Cable Length	3 ft. (0.91m)	3 ft. (0.91 m)	3 ft. (0.91m)	3 ft. (0.91m)
Dimensions (H x W x D)	6 x 3 x 2 in. (1524 x 762 x 5.08 cm)	7.25 x 3 in. (18.4 x 7.62 cm)	4.78 x 6.66 x 0.82 in. (12.14 x 16.92 x 2.08 cm)	14 x 5 in. x 1 in. (35.5 x 12.7 x 2.5 cm)
Weight	7 oz. (.02 kg)	8 oz.	9.6 oz. (272g)	1 lb. (460g)
Feature	AIR-ANT1728	AIR-ANT4941	AIR-ANT2422DG-R	AIR-ANT2422DW-R
Description	5.2-dBi omnidirectional ceiling mount	2.2-dBi black dipole antenna	2.2-dBi gray non-articulating dipole antenna	2.2-dBi white dipole antenna
Application	Indoor medium-range antenna, typically hung from crossbars of drop ceilings	Indoor omnidirectional coverage	Indoor omnidirectional coverage	Indoor omnidirectional coverage
Approximate Indoor Range	6 Mbps: 379 ft (116 m) 54 Mbps: 114 ft (35 m)	6 Mbps: 300 ft (91 m) 54 Mbps: 90 ft (27 m)	6 Mbps: 300 ft (91 m) 54 Mbps: 90 ft (27 m)	6 Mbps: 300 ft (91 m) 54 Mbps: 90 ft (27 m)
Cable Length	3 ft. (0.91m)	N/A	N/A	N/A
Dimensions (H x W x D)	11.25 x 1 in. (28.5 x 2.5 cm)	5.5 in. (14 cm)	5.5 in. (14 cm)	5.5 in. (14 cm)
Weight	4.6 oz. (131g)	1.1 oz. (31 g)	1.1 oz. (31 g)	1.1 oz. (31 g)
Feature	AIR-ANT1729	AIR-ANT2485P-R	AIR-ANT2460P-R	AIR-ANT2465P-R
Description	6-dBi Patch wall mount	8.5-dBi patch wall mount	6-dBi patch wall mount	6.5-dBi diversity patch wall mount
Application	Indoor/outdoor, unobtrusive, midrange antenna (may also be used as a medium-range bridge antenna)	Indoor, unobtrusive, long-range antenna (may also be used as a midrange bridge antenna)	Indoor, unobtrusive, long-range antenna (may also be used as a midrange bridge antenna)	Indoor/outdoor, unobtrusive midrange antenna
Approximate Indoor Range	6 Mbps: 403 ft (123 m) 54 Mbps: 121 ft (37 m)	507 ft (155 m) 153 ft (47 m)	403 ft (123 m) 121 ft (37 m)	418 ft (127 m) 126 ft (38 m)
Cable Length	3 ft. (0.91m)	3 ft (0.91 m)	3 ft (0.91 m)	3 ft (0.91 m)
Dimensions (H x W x D)	4 x 5 in. (9.7 x 13 cm.)	5.3 x 5.3 x .90 in. (13.5 x 13.5 x 2.28 cm.)	4.1 x 3.9 x .75 in. (10.4 x 9.9 x 1.9 cm.)	5 x 6.7 x 0.90 in. (12.7 x 17 x 2.28 cm.)
Weight	4.9 oz. (139 g.)	8.2 oz. (231.3 g.)	6 oz. (171.5 g.)	11.6 oz. (330.2 g.)

Cisco Aironet 5 GHz Access Point Antennas with RP-TNC Connectors

Feature	AIR-ANT5145V-R	AIR-ANT5160V-R	AIR-ANT5170P-R	AIR-ANT5195P-R
Description	4.5-dBi diversity omnidirectional ceiling mount	6-dBi omnidirectional antenna	70-dBi Diversity patch wall mount	9.5-dBi Patch wall or articulating mast mount
Application	Indoor midrange antenna	Indoor/outdoor midrange antenna	Indoor/outdoor directional wall mount antenna	Indoor/outdoor patch antenna provides different mounting options
Approximate Range^[3]	6 Mbps: 732 ft (223 m) 54 Mbps: 82 ft (25 m)	6 Mbps: 822 ft (251 mm.) 54 Mbps: 92 ft (28 m)	6 Mbps: 880 ft (270 m) 54 Mbps: 140 ft (43 m)	6 Mbps: 1030 ft (313 m) 54 Mbps: 170 ft (52 m)
Beam Width	360° H 50° E	360° H 17° E	70° H, 50° V	50° H, 43° V
Cable Length	3 ft. (0.91 m.)	3 ft. (0.91 m)	3 ft. (0.91 m)	3 ft. (0.91 m)

Dimensions (L x D)	6.75 x 4.1 in. (171 x 10.41 cm)	12 x 1 in. (30.5 x 2.5 cm)	5.7 in. (14.5 cm.) x 4.3 in. (10.9 cm.) x 0.7 in. (1.8 cm.)	5.1 in. (12.9 cm.) x 5.1 in. (12.9 cm.) x 1.0 in. (2.5 cm.)
Weight	11.5 oz.	5.3 oz.	8 oz (0.2 kg.)	9 oz. (0.25 kg.)

Cisco Aironet 5 GHz Access Point Antennas with RP-TNC Connectors

Feature	AIR-ANT5135D-R	AIR-ANT5135DG-R	AIR-ANT5135DW-R
Description	3.5-dBi black dipole antenna Indoor omnidirectional coverage	3.5-dBi gray non-articulating antenna Indoor omnidirectional coverage	3.5-dBi white dipole antenna Indoor omnidirectional coverage
Application	675 ft (206 m)	675 ft (206 m)	675 ft (206 m)
Approximate Range[3]	75 ft (21 m) 360°H, 40°E	75 ft (21 m) 360°H, 40°E	75 ft (21 m) 360°H, 40°E
Beam Width	N/A	N/A	N/A
Cable Length	5.3 x 0.6 in. (13.5 x 1.5 cm)	5.3 x 0.6 in. (13.5 x 1.5 cm)	5.3 x 0.6 in. (13.5 x 1.5 cm)
Dimensions (L x D)	1 oz (28.3 g)	1 oz (28.3 g)	1 oz (28.3 g)

1. All range estimations are based on an integrated client adapter antenna associating with an access point under ideal indoor conditions. The distances referenced here are approximations and should be used for estimation only.

Cisco offers antennas that can be used with the Cisco Aironet 1250 Series Access Points, which feature 802.11n technology. The antennas and access points use an RP-TNC type connector. Two antennas are available for the 2.4- and 5-GHz band.

2.4- and 5-GHz Access Point Antennas with RP-TNC Connectors for Cisco Aironet 1250 Series Access Points

Feature	AIR-ANT2430V-R	AIR-ANT2450S-R	AIR-ANT5140V-R
Description	Ceiling mount omnidirectional	Wall mount sector	Ceiling mount omnidirectional
Application	Indoor carpeted area type, unobtrusive omnidirectional antennas for Cisco Aironet 1250 Series MIMO Radios	Indoor, outdoor, midrange, sector antenna (may be used as a midrange bridge antenna)	Indoor carpeted area type unobtrusive omnidirectional antenna for Cisco Aironet 1250 Series MIMO Radios
Gain	3.0 dBi	5 dBi	4.0 dBi
Frequency	2.4 GHz	2.4 GHz	5 GHz
Approximate Indoor Range at 6 Mbps¹	507 ft (155 m)	379 ft. (116 m)	403 ft (123 m)
Approximate Indoor Range at 54 Mbps¹	153 ft (47 m)	114 ft. (35 m)	121 ft (37 m)
Beam Width	360°H, 60°V	135°H, 54°V	360°H, 45°V
Cable Length	3 ft (0.91 m) 3 cables with RP-TNC	3 ft. (0.91 m)**	3 ft (0.91 m) 3 cables with RP-TNC
Dimensions	121 x 4.2 x 1.6 in. (30.73 x 10.67 x 4.06 cm)	6 x 3 x 2 in. (15.2 x 7.6 x 5 cm)	6.9 x 3 x 9 in (17.53 x 7.62 x 2.29 cm)
Weight	27 oz (0.76 kg)	7 oz (0.2 kg)	14.1 oz (0.40 kg)
Operating Temperature	0° to +55°C	-30° to +70°C	-0° to +55°C

1. All range estimations are based on an external antenna associating with an integrated Intel Centrino client under ideal conditions. The distances referenced here are approximations and should be used for estimation purposes only.

Cisco offers antennas for the Cisco Aironet 1500 Series Outdoor Mesh Access Points in various gains and antenna types.

2.4- and 5-GHz Antennas with N-Type Connectors for the Cisco Aironet 1500 Series Lightweight Outdoor Mesh APs¹

Feature	AIR-ANT2450V-N	AIR-ANT2455V-N	AIR-ANT2480V-N	
Description	5 dBi, direct mount omnidirectional antenna for 2.4 GHz	5.5 dBi, direct mount omnidirectional antenna for 2.4 GHz	8 dBi direct mount omnidirectional antenna for 2.4 GHz	
Application	Omnidirectional antenna for outdoor mesh access points. Suitable for all access point deployments, specifically for cable strand mount applications.	Omnidirectional antenna suitable for use on Cisco Aironet 1500 Series Lightweight Outdoor Mesh Access Points in all deployments. Not suitable for use on Cisco Aironet 1500 Series Lightweight Outdoor Mesh Access Points in cable strand mount situations.	Extended range omnidirectional antenna for outdoor mesh access points. Suitable for pole or roof mounting deployments.	
Gain	5 dBi	5.5 dBi	8 dBi	
Frequency	2.4 GHz	2.4 GHz	2.4 GHz	
Beam width	30° V	25° V	10° V	
Cable Length	None	None	None	
Dimensions	11 in. x 1 in. (2794 x 2.54 cm)	12.5 in. x 1 in. (31.75 x 2.54 cm)	19.5 in. x 7/8 in. diameter (49.5 cm x 2.22 cm)	
Weight	0.40 lbs. (018 kg)	0.31 lbs. (014 kg)	0.45 lbs. (0.20 kg)	
Operating Temperature	-30° to +70 C	-30° to 70°C	-30° to +70° C	
Feature	AIR-ANT5175V-N	AIR-ANT5180V-N	AIR-ANT5114P-N	AIR-ANT5117S-N
Description	75 dBi omnidirectional antenna for 5 GHz	8 dBi direct mount omnidirectional antenna for 5 GHz	14 dBi wall/mast mount articulating patch antenna for 5 GHz	17 dBi, 90 degree mast mount sector antenna for 5 GHz
Gain	5 GHz bands = 75 dBi 4.9 GHz bands = 6 dBi	8 dBi	14 dBi	17 dBi
Frequency	4.9-5.8 GHz	4.9-5.85 GHz	4.9-5.85 GHz	4.9-5.85 GHz
Application	Omnidirectional antenna suitable for use on Cisco Aironet 1500 Series Lightweight Outdoor Mesh Access Points in all deployments.	Omnidirectional antenna for Cisco Aironet 1520 series mesh access points. Suitable for all deployments, including cable strand mount applications.	Recommended for medium range point to point deployments	Recommended for point-to-multipoint deployments of medium to long range.
Beam width	16°V	16° V	25° H, 29° E	90° H, 8° E
Cable Length	1 ft (0.30 m)	None	1 ft. (0.30 m)	None
Dimensions	11.65 in. x 1 in. (29.41 x 2.54 cm)	11 in. x 1 in. (2794 x 2.54 cm)	4 1/8 in. x 4 1/8 in. (10.48 cm x 10.48 cm)	24 1/2 in. x 2 1/2 in. (62.23 cm x 6.35 cm)
Weight	0.38 lbs. (017 kg)	0.4 lbs. (018 kg)	0.70 lbs. (0.32 kg)	1.95 lbs. (0.88 kg)
Operating Temperature	-30° to 70°C	-30° to +70 C	-30° to +70° C	-30° to +70° C
Cisco Aironet Accessories				
Feature	AIR-ACC2537-060	AIR-ACC245LA-R	AIR-ACC2662	
Description	60 in. (152 cm) bulkhead extender	Yagi articulating mount	Yagi articulating mount	

Application	Flexible antenna cable that extends access point cabling typically within an enclosure	Helps prevent damage due to lightning-induced surges or static electricity; Helps prevent damage due to lightning-induced surges or static electricity	Adds swiveling capability to mast-mounted Yagi antennas
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Cisco Aironet 5.8 GHz Bridge Antennas with N-Type Connectors

Feature	AIR-ANT58G9VOA-N	AIR-ANT58G10SSA-N	AIR-ANT58G28SDA-N
Description	9.0-dBi omnidirectional Mast mount	9.5-dBi sector antenna Mast mount	28.0-dBi dish antenna Mast mount
Application	Outdoor short-range point-to-multipoint applications	Outdoor medium-range point-to-point and point-to-multipoint applications	Outdoor long-range directional connections
Polarization	Vertical	Vertical or horizontal Field configurable	Vertical or horizontal Field configurable
Elevation adjustment	None	None	+/- 12.5 degrees
Approximate range at 9 Mbps	8 miles (13 km) (with 22.5 dBi captive antenna on the remote site)	Same as AIR-ANT58G9VOA-N	23 miles (37 km) (with 28 dBi antennas on each end)
Approximate range at 54 Mbps	2 miles (3 km) (with 22.5 dBi captive antenna on the remote site)	Same as AIR-ANT58G9VOA-N	12 miles (19 km) (with 28 dBi antennas on each end)
Beam width	360 H, 6 V	60 H, 60 V	4.75 H, 4.75 V
Supplied jumper cable length	4.9 ft. (1.5 m)	4.9 ft. (1.5 m)	4.9 ft. (1.5 m)
Dimensions (H x W x D)	20.25 x .64 in. (51.4 x 1.62 cm) (L x W)	2.5 x 2.5 x 1.75 in. (6.4 x 6.4 x 4.5 cm)	Diameter: 29 in. (74 cm) Depth: 14.5 in. (36.8 cm)
Weight	2.0 lb. (0.9 kg)	1.25 lb. (0.6 kg)	9.5 lb. (4.3 kg)

Cisco Aironet Bridge Accessory

Feature	AIR-ACCRWM1400	AIR-ACCBRGB=	AIR-ACCMFM1400=
Description	Roof/Wall mount kit	Grounding block	Multifunction mount
Application	Allows mounting to flat surfaces Includes full elevation and azimuth adjustment	Helps prevent damage due to lightning-induced surges or static electricity	Allows mounting to poles with a diameter between 1.5 in. and 2.5 in. Includes both elevation and polarization adjustment

Cisco Aironet Power Injector Cables

Feature	AIR-CAB020DRG6-F=	AIR-CAB050DRG6-F=	AIR-CAB100DRG6-F
Cable length	20 ft. (6m)	50 ft. (15m)	100 ft. (30m)

1. Cisco Aironet 1500 Series Access Points are available in single-band (2.4 GHz) and dual-band (2.4 GHz and 5 GHz) versions. Check your access point for proper antenna selection before placing an order.

Cisco Aironet 2.4 GHz Bridge Antennas

Feature	AIR-ANT2506	AIR-ANT24120	AIR-ANT2414S-R	AIR-ANT1949	AIR-ANT3338
Description	5.2 dBi Omnidirectional Mast mount	12 dBi High-gain omnidirectional Mast mount	14 dBi Vertically polarized sector	13.5 Yagi mast mount	21 dBi Solid dish
Application	Outdoor short- range point-to- multipoint applications	Outdoor medium-range point-to- multipoint applications	Outdoor long range point-to- multipoint applications	Outdoor medium-range directional connections	Outdoor long- range directional connections
Approximate Indoor Range[4]	2 Mbps: 3.3 miles (5.31 km) 11 Mbps: 1.66 miles (2.66 km) 54 Mbps: .21 miles (.34 km)	2 Mbps: 15.81 miles (25.43 km) 11 Mbps: 7.92 miles (12.75 km) 54 Mbps: 1.0 miles (1.6 km)	2 Mbps: 16.71 miles (26.89 km) 11 Mbps: 8.89 miles (14.30 km) 54 Mbps: 1.26 miles (2.02 km)	2 Mbps: 18.33 miles (29.49 km) 11 Mbps: 11.19 miles (18.01 km) 54 Mbps: 1.41 miles (2.27 km)	2 Mbps: 26.49 miles (42.62 km) 11 Mbps: 20.1 miles (32.33 km) 54 Mbps: 4.46 miles (7.17 km)
Cable Length	3 ft. (0.91m)	1 ft. (0.30m)	5 ft (1.5 m)	3 ft. (0.91m)	2 ft. (0.61m)
Dimensions (L x D)	13 x 1 in. (33 x 2.5 cm)	50 x 1.5 in. (127 x 3 cm)	36 x 6 x 1.25 in. (91 x 15 x 10 cm)	18 x 3 in. (46 x 76 cm)	24 in. d (61 cm)
Weight	5oz. (14 g)	1.5 lb. (0.68 kg)	6.5 lb. (3 kg)	12 oz. (34 kg)	11 lb. (5 kg)

Cisco offers a dual band antenna, or a radome, which has both 2.4 GHz and 5 GHz elements in one low profile package. The antenna has 4 cables, two for 2.4 GHz and 2 for 5 GHz, color coded to prevent any accidental connections. Easy to install and lightweight, this antenna is ideal for indoor wall or ceiling mount applications.

Cisco Dual Band Antenna for 2.4 GHz and 5 GHz Access Points

Feature	AIR-ANT2451V-R=
Description	Dual band: 2 dBi in 2.4 GHz and 3dBi in 5 GHz omnidirectional ceiling mount
Application	Indoor midrange antenna
Gain	2 dBi in 2.4 GHz; 3 dBi in 5 GHz
Frequency*	2.4 and 5 GHz
Approximate Indoor Range at 6 Mbps**	2.4 GHz: 295 ft (90 m); 5 GHz: 675 ft (206 m)
Approximate Indoor Range at 54 Mbps**	2.4 GHz: 88 ft (27 m); 5 GHz: 75 ft (21 m)
Beam Width	2.4GHz: 360°H, 80°E; 5 GHz: 360°H, 50°E
Cable Length	18 in (45.7 cm)
Dimensions	8.5 in. x 6 in. x.93 in (21.5 cm x 15.2 cm x 2.4cm)
Weight	1 lb (4.5 kg)
Operating Temperature	0° to +55°C

Selected Part Numbers and Ordering Information

Cisco Aironet Accessories	
AIR-ACC2662	Yagi Antenna Articulating Mount
AIR-ACC2537-060	60 in. (152 cm) bulkhead extender
AIR-ACC2545LA-R	2.4 GHz and 5 GHz lightning arrestor
AIR-CAB020LL-R	20 ft. (6m) low-loss antenna cable
AIR-CAB050LL-R	50 ft. (15m) low loss antenna cable
AIR-CAB100ULL-R	100 ft. (30m) low loss antenna cable
AIR-CAB150ULL-R	150 ft. (46m) low loss antenna cable
Cisco Aironet Antennas	

AIR-ANT1728	5.2 dBi Omni Ceiling Mount Antenna
AIR-ANT1729	6 dBi Patch Wall Mount Antenna
AIR-ANT1949	13.5 dBi Yagi Mast Mount Antenna
AIR-ANT2012	6.5 dBi Diversity Patch Wall Mount Antenna
AIR-ANT2506	5.2 dBi Omnidirectional Mast Mount Antenna
AIR-ANT3213	5.2 dBi Pillar-Mount Diversity Omni Antenna
AIR-ANT2410Y-R	10 dBi Yagi mast or wall mount
AIR-ANT3338	21 dBi Solid Dish Antenna
AIR-ANT2430V-R	Ceiling mount omnidirectional
AIR-ANT24120	12 dBi Omnidirectional Mast Mount Antenna
AIR-ANT4941	2.2 dBi Dipole Antenna (Standard Rubber Duck)
AIRANT5140V-R	Ceiling mount omnidirectional
AIR-ANT2450S-R	5dBi wall mount indoor/outdoor antenna with RP-TNC connector for use with any 2.4 GHz radio
AIR-ANT2414S-R	14dBi Sector Mast Mount Antenna
AIR-ANT5145V-R	4.5 dBi omni
AIR-ANT5160V-R	6 dBi omni
AIR-ANT5170P-R	70 dBi Diversity patch wall mount
AIR-ANT5195P-R	9.5 dBi Patch wall or articulating mast mount
AIR-ANT2422DG-R	2.2 dBi Gray non-articulating dipole
AIR-ANT2422DW-R	2.2 dBi White dipole
AIR-ANT2450V-N	5 dBi, direct mount omnidirectional antenna for 2.4 GHz
AIR-ANT2480V-N	8 dBi direct mount omnidirectional antenna for 2.4 GHz
AIR-ANT2485P-R	8.5 dBi Patch wall mount
AIR-ANT2460P-R	6 dBi Patch wall mount
AIR-ANT2465P-R	6.5 dBi Diversity patch wall mount
AIR-ANT5114P-N	14 dBi wall/mast mount articulating patch antenna for 5 GHz
AIR-ANT5117S-N	17 dBi, 90 degree mast mount sector antenna for 5 GHz
AIR-ANT5180V-N	8 dBi direct mount omnidirectional antenna for 5 GHz
AIR-ANT5135DG-R	3.5 dBi Gray non-articulating dipole
AIR-ANT5135DW-R	3.5 dBi White dipole
AIR-ANT5175V-N	75 dBi Omnidirectional
AIR-ANT2455V-N	5.5 dBi Omnidirectional
AIR-ANT58G9V0A-N	9.0 dBi Omnidirectional mast mount
AIR-ANT58G10SSA-N	9.5 dBi Sector antenna, mast mount
AIR-ANT58G28SDA-N	28.0 dBi Dish antenna, mast mount

For More Information

For more information about Cisco antennas and accessories, visit: <http://www.cisco.com/go/antenna>.

Cisco 5500 Series Wireless LAN Controller

The Cisco 5500 Series Wireless Controller is a highly scalable and flexible platform that enables systemwide services for mission-critical wireless in medium to large-sized enterprises and campus environments. Designed for 802.11n performance and maximum scalability, this controller offers enhanced uptime with the ability to simultaneously manage 250 access points; superior performance for reliable streaming video and toll quality voice; and improved fault recovery for a consistent mobility experience in the most demanding environments.



Ideal for Companies That Need These Features

- Cisco 5500 Series Wireless Controller
- Enhanced enterprise scalability with a larger mobility domain that supports more access points
 - Flexible licensing that allows access point capacity to be added as the business grows
 - Teleworking features for improved business continuity
 - System level security including DTLS encryption between access points and the controller
 - Integrated radio resource management (RRM)—An intelligent RF control plane for self-configuration, self-healing, and self-optimization
 - Enterprise reliability—Automated recovery from lightweight access point and WLAN controller failures to maximize the availability of the wireless network

Key Features

- The Cisco 5500 Series Wireless Controllers are optimized for next-generation wireless networking.
- They offer nine times the performance of 802.11a/g networks.
- The controllers support up to 250 access points and 7000 clients.
- The controllers support a larger mobility domain for improved network scale.
- Flexible software licensing allows you to add additional access points as your business needs grow.
- An optional WirelessPLUS (WPLUS) software license supports the Cisco OfficeExtend solution for secure, mobile teleworking and Enterprise Wireless Mesh to dynamically establish wireless connections in hard to wire areas.
- Optional Control and Provisioning of Wireless Access Points (CAPWAP) encryption helps ensure full-line-rate encryption between access points and controllers across remote WAN and LAN links.

Specifications

Feature	Cisco 5500 Series Wireless LAN Controller
Wireless	IEEE 802.11a, 802.11b, 802.11g, 802.11d, WMM/802.11e, 802.11h, 802.11n
Data RFCs	RFC 768 UDP; RFC 791 IP; RFC 2460 IPv6 (pass through Bridging mode only); RFC 792 ICMP; RFC 793 TCP; RFC 826 ARP; RFC 1122 Requirements for Internet Hosts; RFC 1519 CIDR; RFC 1542 BOOTP; RFC 2131 DHCP; CAPWAP RFC
Security Standards	WPA: IEEE 802.11i (WPA2, RSN); RFC 1321 MD5 Message-Digest Algorithm; RFC 1851 The ESP Triple DES Transform; RFC 2104 HMAC: Keyed Hashing for Message Authentication; RFC 2246 TLS Protocol Version 1.0; RFC 2401 Security Architecture for the Internet Protocol; RFC 2403 HMAC-MD5-96 within ESP and AH; RFC 2404 HMAC-SHA-1-96 within ESP and AH; RFC 2405 ESP DES-CBC Cipher Algorithm with Explicit IV; RFC 2406 IPsec; RFC 2407 Interpretation for ISAKMP; RFC 2408 ISAKMP; RFC 2409 IKE; RFC 2451 ESP CBC-Mode Cipher Algorithms; RFC 3280 Internet X.509 PKI Certificate and CRL Profile; RFC 3602 The AES-CBC Cipher Algorithm and Its Use with IPsec; RFC 3686 Using AES Counter Mode with IPsec ESP; RFC 4347 Datagram Transport Layer Security; RFC 4346 TLS Protocol Version 1.1
Encryption	WEP and TKIP-MIC: RC4 40, 104 and 128 bits (both static and shared keys); SSL and TLS: RC4 128-bit and RSA 1024- and 2048-bit; AES: CCM, CCMP; IPsec: DES-CBC, 3DES, AES-CBC
AAA	IEEE 802.1X; RFC 2548 Microsoft Vendor-Specific RADIUS Attributes; RFC 2716 PPP EAP-TLS; RFC 2865 RADIUS Authentication; RFC 2866 RADIUS Accounting; RFC 2867 RADIUS Tunnel Accounting; RFC 2869 RADIUS Extensions; RFC 3576 Dynamic Authorization Extensions to RADIUS; RFC 3579 RADIUS Support for EAP; RFC 3580 IEEE 802.1X RADIUS Guidelines; RFC 3748 Extensible Authentication Protocol; Web-based authentication; TACACS support for management users
Management	SNMP v1, v2c, v3; RFC 854 Telnet; RFC 1155 Management Information for TCP/IP-Based Internets; RFC 1156 MIB; RFC 1157 SNMP; RFC 1213 SNMP MIB II; RFC 1350 TFTP; RFC 1643 Ethernet MIB; RFC 2030 SNMP; RFC 2616 HTTP; RFC 2665 Ethernet-Like Interface types MIB; RFC 2674 Definitions of Managed Objects for Bridges with Traffic Classes, Multicast Filtering and Virtual Extensions; RFC 2819 RMON MIB; RFC 2863 Interfaces Group MIB; RFC 3164 Syslog; RFC 3414 User-Based Security Model (USM) for SNMPv3; RFC 3418 MIB for SNMP; RFC 3636 Definitions of Managed Objects for IEEE 802.3 MAUs; Cisco private MIBs

Management Interfaces	Web-based: HTTP/HTTPS; Command-line interface: Telnet, Secure Shell (SSH) Protocol, serial port; Cisco Wireless Control System (WCS)
Interfaces and Indicators	Uplink: 8 (5508) 1000Base-T, 1000Base-SX and 1000Base-LH transceiver slots; Small Form-Factor Pluggable (SFP) options (only Cisco SFPs supported); GLC-T, GLC-SX-MM, GLC-LH-SM; LED indicators: link; Service Port: 10/100/1000 Mbps Ethernet (RJ45); Service Port: 10/100/1000 Mbps Ethernet (RJ45) For High Availability for future use; LED indicators: link; Utility Port: 10/100/1000 Mbps Ethernet (RJ45); LED indicators: link; Expansion Slots: 1 (5508); Console Port: RS232 (DB-9 male/RJ-45 connector included), mini-USB; Other Indicators: Sys, ACT, Power Supply 1, Power Supply 2
Regulatory Compliance	CE Mark; Safety: UL 60950-1:2003, EN 60950:2000; EMI and susceptibility (Class A); U.S.: FCC Part 15.107 and 15.109; Canada: ICES-003; Japan: VCCI; Europe: EN 55022, EN 55024

Selected Part Numbers and Ordering Information

AIR-CT5508-12-K9	Cisco 5500 Series WLAN Controller with 12 Cisco Aironet access point licenses
AIR-CT5508-25-K9	Cisco 5500 Series WLAN Controller with 25 Cisco Aironet access point licenses
AIR-CT5508-50-K9	Cisco 5500 Series WLAN Controller with 50 Cisco Aironet access point licenses
AIR-CT5508-100-K9	Cisco 5500 Series WLAN Controller with 100 Cisco Aironet access point licenses
AIR-CT5508-250-K9	Cisco 5500 Series WLAN Controller with 200 fifty Cisco Aironet access point licenses

For More Information

For more information about the Cisco 5500 Series WLAN controller, visit: <http://www.cisco.com/go/wireless>.

Cisco 4400 Series Wireless LAN Controller

The Cisco 4400 Series Wireless LAN Controller provides system-wide WLAN functions for medium to large-sized facilities. By automating WLAN configuration and management functions, network managers have the control, security, redundancy, and reliability needed to cost-effectively scale and manage their wireless networks as easily as they scale and manage their traditional wired networks.



The Cisco 4400 Series Wireless LAN Controller works in conjunction with Cisco Aironet lightweight access points, the Cisco Wireless Control System (WCS), the Cisco Mobility Services Engine, and the Cisco Wireless Location Appliance to support business-critical wireless data, voice, and video applications. It provides real-time communication between lightweight access points and other WLAN controllers to deliver centralized security policies, wireless intrusion prevention system (IPS) capabilities, award-winning RF management, QoS, and mobility.

Ideal for Companies That Need These Features

Cisco 4400 Series Wireless LAN Controller

- Enterprise scalability—Provides business-critical wireless services for locations of all sizes
- Integrated radio resource management (RRM)—An intelligent RF control plane for self-configuration, self-healing, and self-optimization
- Enterprise reliability—Automated recovery from lightweight access point and WLAN controller failures to maximize the availability of the wireless network

Key Features

- Component of Cisco Unified Wireless Network
- Multilayered security
- Enterprise scalability
- Rogue AP detection, location, and containment
- Zero-configuration deployment

Specifications

Feature	Cisco 4400 Series Wireless LAN Controller
Wireless	IEEE 802.11a, 802.11b, 802.11g, 802.11d, 802.11h, 802.11n
Data RFCs	RFC 768 UDP; RFC 791 IP; RFC 792 ICMP; RFC 793 TCP; RFC 826 ARP; RFC 1122 Requirements for Internet Hosts; RFC 1519 CIDR; RFC 1542 BOOTP; RFC 2131 DHCP
Security Standards	Wi-Fi Protected Access (WPA); IEEE 802.11i (WPA2, RSN); RFC 1321 MD5 Message-Digest Algorithm; RFC 2104 HMAC; Keyed Hashing for Message Authentication; RFC 2246 TLS Protocol Version 1.0; RFC 3280 X.509 PKI Certificate and CRL Profile

Encryption	WEP and TKIP-MIC: RC4 40, 104 and 128 bits (both static and shared keys); Secure Sockets Layer (SSL) and TLS: RC4 128-bit and RSA 1024- and 2048-bit; AES: CCM, CCMP
AAA	IEEE 802.1X; RFC 2548 Microsoft Vendor-Specific RADIUS Attributes; RFC 2716 PPP EAP-TLS; RFC 2865 RADIUS Authentication; RFC 2866 RADIUS Accounting; RFC 2867 RADIUS Tunnel Accounting; RFC 2869 RADIUS Extensions; RFC 3576 Dynamic Authorization Extensions to RADIUS; RFC 3579 RADIUS Support for EAP; RFC 3580 IEEE 802.1X RADIUS Guidelines; RFC 3748 Extensible Authentication Protocol; Web-based authentication
Management	SNMP v1, v2c, v3; RFC 854 Telnet; RFC 1155 Management Information for TCP/IP-Based Internets; RFC 1156 MIB; RFC 1157 SNMP; RFC 1213 SNMP MIB II; RFC 1350 TFTP; RFC 1643 Ethernet MIB; RFC 2030 SNMP; RFC 2616 HTTP; RFC 2665 Ethernet-Like Interface types MIB; RFC 2674 Definitions of Managed Objects for Bridges with Traffic Classes, Multicast Filtering, and Virtual LAN Extensions; RFC 2819 RMON MIB; RFC 2863 Interfaces Group MIB; RFC 3164 Syslog; RFC 3414 User-Based Security Model (USM) for SNMPv3; RFC 3418 MIB for SNMP; RFC 3636 Definitions of Managed Objects for IEEE 802.3 MAUs; Cisco private MIBs
Management Interfaces	Web-based: HTTP/HTTPS; Command-line interface: Telnet, SSH, serial port; Cisco Wireless Control System (WCS)
Interfaces and Indicators	Uplink: 2 (4402) or 4 (4404) 1000Base-X mini-GBIC transceiver slots (SFP); –LED indicators: link, activity; Service Port: 10/100 Mbps Ethernet (RJ45); LED indicators: link, activity; Utility Port: 10/100/1000 Mbps Ethernet (RJ45); LED indicators: link, activity; Expansion Slots: 1 (4402) or 2 (4404); Console Port: RS232 (DB-9 male, DTE interface); Other Indicators: Status, Alarm, Power Supply 1, Power Supply 2
Regulatory Compliance	CE Mark; Safety: UL 60950-1:2003, EN 60950:2000; EMI and susceptibility (Class A): U.S.: FCC Part 15.107 and 15.109; Canada: ICES-003; Japan: VCCI; Europe: EN 55022, EN 55024

Selected Part Numbers and Ordering Information

AIR-WLC4402-12-K9	Cisco 4400 Series WLAN Controller for up to twelve Cisco Aironet access points
AIR-WLC4402-25-K9	Cisco 4400 Series WLAN Controller for up to twenty-five Cisco Aironet access points
AIR-WLC4402-50-K9	Cisco 4400 Series WLAN Controller for up to fifty Cisco Aironet access points
AIR-WLC4404-100-K9	Cisco 4400 Series WLAN Controller for up to one-hundred Cisco Aironet access points

For More Information

For more information about the Cisco 4400 Series WLANs, visit: <http://www.cisco.com/go/wireless>.

Cisco 2100 Series Wireless LAN Controller

Cisco Wireless LAN (WLAN) controllers are responsible for systemwide WLAN functions such as security policies, intrusion prevention, RF management, and quality of service (QoS). They work in conjunction with Cisco lightweight access points and the Cisco Wireless Control System (WCS) to support business-critical wireless applications. From voice and data services to location tracking, Cisco WLAN controllers provide the control, scalability, and reliability that network managers need to build secure, enterprise-scale wireless networks, from branch offices to main campuses.

The Cisco 2100 Series Wireless LAN Controllers support up to six, twelve or twenty-five access points, making it a cost-effective solution for enterprise branches and small and medium businesses. These controllers come with eight Ethernet ports, two of which can provide power directly to Cisco lightweight access points.



Ideal for Companies That Need These Features

- Cisco 2100 Series Wireless LAN Controller**
 - An enterprise scalable architecture that provides business-critical wireless services for small businesses and branch offices
 - An intelligent RF control plane for self-configuration, self-healing, and self-optimization
 - A system that can be deployed without modifying existing routing and switching infrastructures or touching access points

Key Features

- Component of Cisco Unified Wireless Network
- Business-class RF security and WLAN security policy monitoring
- Simplified network deployment, operations, and management to help reduce overall operational expenses
- Integration with the Cisco PCI security-compliant reference design

Specifications

Feature	Cisco 2106 Series Wireless LAN Controller
Wireless	IEEE 802.11a, 802.11b, 802.11g, 802.11d, 802.11h, 802.11n
Wired/Switching	IEEE 802.3 10BASE-T, IEEE 802.3u 100BASE-TX specification, and IEEE 802.1Q VLAN tagging
Data RFCs	RFC 768 UDP, RFC 791 IP, RFC 792 ICMP, RFC 793 TCP, RFC 826 ARP, RFC 1122 Requirements for Internet Hosts, RFC 1519 CIDR, RFC 1542 BOOTP, RFC 2131 DHCP
Security Standards	Wi-Fi Protected Access (WPA), IEEE 802.11i (WPA2, RSN), RFC 1321 MD5 Message-Digest Algorithm, RFC 2104 HMAC: Keyed Hashing for Message Authentication, RFC 2246 TLS Protocol Version 1.0, RFC 3280 X.509 PKI Certificate and CRL Profile
Encryption	*WEP and TKIP-MIC: RC4 40, 104 and 128 bits (both static and shared keys), Secure Sockets Layer (SSL) and TLS: RC4 128-bit and RSA 1024- and 2048-bit, AES: CCM, CCMP
AAA	IEEE 802.1X, RFC 2548 Microsoft Vendor-Specific RADIUS Attributes, RFC 2716 PPP EAP-TLS, RFC 2865 RADIUS Authentication, RFC 2866 RADIUS Accounting, RFC 2867 RADIUS Tunnel Accounting, RFC 2869 RADIUS Extensions, RFC 3576 Dynamic Authorization Extensions to RADIUS, RFC 3579 RADIUS Support for EAP, RFC 3580 IEEE 802.1X RADIUS Guidelines, RFC 3748 Extensible Authentication Protocol, Web-based authentication
Management	SNMP v1, v2c, v3, RFC 854 Telnet, RFC 1155 Management Information for TCP/IP-Based Internets, RFC 1156 MIB, RFC 1157 SNMP, RFC 1213 SNMP MIB II, RFC 1350 TFTP, RFC 1643 Ethernet MIB, RFC 2030 SNMP, RFC 2616 HTTP, RFC 2665 Ethernet-Like Interface types MIB, RFC 2674 Definitions of Managed Objects for Bridges with Traffic Classes, Multicast Filtering, and Virtual LAN Extensions, RFC 2819 RMON MIB, RFC 2863 Interfaces Group MIB, RFC 3164 Syslog, RFC 3414 User-Based Security Model (USM) for SNMPv3, RFC 3418 MIB for SNMP, RFC 3636 Definitions of Managed Objects for IEEE 802.3 MAUs, Cisco private MIBs
Management Interfaces	Designed for use with Cisco Wireless Control System, Web-based: HTTP/HTTPS individual device manager, Command-line interface: Telnet, SSH, serial port
Interfaces and Indicators	Console port: RS-232 (DB-9 male/RJ-45 connector included); Network: Eight 10/100 Mbps Ethernet (RJ-45) including two 802.3af PoE ports rated for use with Cisco Aironet lightweight access points; LED indicators: Link Activity (each 10/100 port), Power, Status, Alarm, Access Point Joined
Regulatory Compliance	CE Mark, Safety: UL 60950-1:2003, EN 60950:2000, EMI and susceptibility (Class B): U.S.: FCC Part 15.107 and 15.109, Canada: ICES-003; Japan: VCCI, Europe: EN 55022, EN 55024
Temperature	<ul style="list-style-type: none">• Temperature: Operating: 32 to 104°F (0 to 40°C), Storage: -13 to 158°F (-25 to 70°C)• Humidity: Operating humidity: 10 to 95 percent, noncondensing• Storage humidity: Up to 95 percent, Heat Dissipation: 92 BTU/hour
Dimensions (W x D x H)	1.75 x 7.89 x 6.87 in. (4.45 x 20.04 x 17.45 cm)
Weight	4.0 lb (1.81 kg) with power supply
Power	Input power: 100 to 240 VAC; 50/60 Hz

Selected Part Numbers and Ordering Information

AIR-WLC2106-K9	Cisco 2106 Series Wireless LAN Controller for up to six Cisco Aironet access points
AIR-WLC2112-K9	Cisco 2112 Series Wireless LAN Controller for up to twelve Cisco Aironet access points
AIR-WLC2125-K9	Cisco 2125 Series Wireless LAN Controller for up to twenty-five Cisco Aironet access points

For More Information

For more information about the Cisco 2100 Series WLANs, visit: <http://www.cisco.com/go/wireless>.

Cisco Wireless Control System

The Cisco Wireless Control System (WCS) is the industry's most comprehensive management platform for lifecycle management of 802.11n and 802.11a/b/g, enterprise-class wireless networks. This robust platform delivers a cost-effective management solution that enables IT administrators to successfully plan, deploy, monitor, troubleshoot, and report on indoor and outdoor wireless networks.

As the management platform for the Cisco Unified Wireless Network, Cisco WCS supports the delivery of high-performance applications and mission-critical solutions that simplify business operations and improve productivity. This comprehensive platform scales to meet the needs of small, midsize, and large-scale wireless LANs across local, remote, national, and international locations. This award-winning solution gives IT managers

immediate access to the tools they need, when they need them, to more efficiently implement and maintain secure wireless LANs—all from a centralized location requiring minimal IT staffing.

Operational costs are significantly reduced through the Cisco WCS intuitive GUI, simplified ease-of-use, and built-in tools that deliver improved IT efficiency, lowered IT training costs, and minimized IT staffing requirements, even as the network grows. Unlike overlay management tools, Cisco WCS lowers operational costs by incorporating the full breadth of management requirements from radio frequency to controllers to services into a single unified platform.

Ideal for Companies That Need These Features

Cisco Wireless Control System

- Centralized platform for comprehensive, wireless LAN lifecycle management of Cisco Wireless LAN controllers, Cisco Aironet access points, and mobility services delivered by the Cisco Mobility Services Engine (MSE)
- Easy-to-use tools, templates, and guides to more effectively plan, deploy, monitor, troubleshoot, and report on indoor and outdoor wireless networks
- Built-in security monitoring with intrusion detection systems (IDSs) and adaptive wireless intrusion prevention systems (WIPS)
- Secure, cost-effective wired and wireless guest access
- Cisco Energy-Wise power savings

Key Features

- WLAN lifecycle management—Comprehensive wireless LAN lifecycle management includes a full range of planning, deployment, monitoring, troubleshooting, and reporting capabilities.
- Simplified ease-of-use—Intuitive GUI and easy-to-use tools, guides, and templates deliver improved IT efficiency, and lowered IT training costs.
- Modularized interface—User-defined customization is supported to display only the most relevant information.
- Scalability—Manage hundreds of Cisco wireless LAN controllers and thousands of Cisco Aironet access points from a centralized location.
- Planning—Built-in planning and design tools simplify defining access point placement and coverage helping to reduce (and in many cases, eliminate) improper RF designs and coverage problems.
- Deployment—A broad array of integrated templates and tools deliver quick and cost-effective deployments and effective configuration management.
- Centralized security and network protection—Streamlined administration and monitoring of the WLAN's security status for all security-related events and network conditions is provided from a single, comprehensive view. Automated alarms enable rapid responses to mitigate risks.
- Robust WIPS—Quick detection, location, and containment of unauthorized (rogue) devices is supported by a robust WIPS.
- Monitoring—Centralized monitoring of the entire WLAN helps maintain robust WLAN performance and an optimal wireless experience.
- Hierarchical maps—Quick access to different geographies, campuses, buildings, floors, and regions supports better network visibility and control.
- Google Earth integration—Enhanced visibility and management of outdoor wireless mesh deployments is delivered through integration with Google Earth.
- Troubleshooting—Integrated workflows and tools help IT administrators quickly assess service disruptions, receive notices about performance degradation, research resolutions, and take action to remedy nonoptimal situations.
- Client troubleshooting tool—A client troubleshooting tool supports a step-by-step method to analyze problems for all client devices. Specialized diagnostic tools support enhanced analysis of connection problems and mis-configurations occurring with Cisco Compatible Extensions clients Version 5 or later.
- RF interference detection and mitigation—Integration with Cisco CleanAir (formerly Cisco Spectrum Expert) supports investigating Wi-Fi and RF interference sources.
- Reporting—Extensive on-demand and automated reports can be run to address inventory, performance, controllers, access points, clients, security, RF environment, and alarms. Reports are customizable.
- PCI compliance report—Event analysis and audit trails provide assistance in creating a PCI Assessment Report.
- Standalone access point migration tool—Easy migration of standalone (autonomous) access points to operate as lightweight access points with wireless LAN controllers reduces operational costs.
- Monitoring of standalone access points—Built-in monitoring of selected Cisco Aironet standalone access points is supported as well as monitoring of selected Cisco integrated services routers access points.
- Role-based access control—Virtual domains give IT organizations and managed service providers the ability to easily manage multiple WLANs directly from a single Cisco WCS platform.
- Context-Aware Mobility Solution—Detailed contextual information about items such as location, temperature, the availability of an asset, and applications used can be integrated into the network in conjunction with Cisco MSE and Cisco Context-Aware software.
- Secure guest access—Organizations can provide wired and wireless access to guests such as customers, vendors, and partners, while keeping their wireless network secure.

- Voice over wireless LAN—A variety of advanced tools are included to plan, deploy, monitor, and optimize the WLAN for voice over wireless LAN (VoWLAN).
- Cisco Energy-Wise—Power savings are delivered through adaptive WLAN power management features.
- Simplified software upgrades—One-click software upgrade simplifies the process for upgrading to the latest software release.
- Easy conversion of CiscoWorks Wireless LAN Solution Engine (WLSE)—Converting an existing CiscoWorks WLSE (models 1130-19 and 1133) to operate as a Cisco WCS is supported to reduce capital expenditures and improve operational efficiency.

Specifications

Feature	Cisco Wireless Control System (WCS)
Operating Systems (Customer Supplied Server)	<ul style="list-style-type: none"> • Windows 2003 SP1 or greater • Redhat Linux AS/ES v5.0 (Releases 4.2.x or 5.0 or later); Redhat Linux AS/ES v4.0 (Release 4.2 and later) • VMware ESX Server 3.01 or later. (Minimum hardware requirements for a dedicated and guaranteed VMware server: Intel® Xeon Quad CPU; 315 GHz, 8 GB RAM, 200 GB HDD)
Minimum Server Requirements	<ul style="list-style-type: none"> • Cisco WCS High-End Server: 3000 lightweight access points, 1250 standalone access points, 750 wireless LAN controllers, Two Intel Xeon Quad Core CPUs; 316 GHz, 8 GB RAM, 200 GB HDD (free space) • Cisco WCS Standard Server: 2000 lightweight access points, 1000 standalone access points, 450 wireless LAN controllers, Intel® Dual Core CPU; 3.2 GHz, 4 GB RAM, 80 GB HDD (free space) • Cisco WCS Low-End Server: 500 lightweight access points, 200 standalone access points, 125 wireless LAN controllers, Intel® CPU; 3.06 GHz, 2 GB RAM, 50 GB HDD (free space) • CiscoWorks WLSE Models 1130-19 or 1133 running Cisco WCS: 1500 lightweight access points, 161 wireless LAN controllers, Intel Pentium 4 CPU; 3 GHz, 3 GB RAM, 38 GB HDD (free space)
Minimum Client Requirements	Internet Explorer 6.0/SP1 or later
Management and Security	SNMP v1, v2c, v3 and TACACS+ JPEG, PDF, and AutoCAD import file types supported
Managed Devices	<ul style="list-style-type: none"> • Cisco 2000, 2100, 4100, 4400, and 5500 Series Wireless LAN Controllers; Cisco Catalyst 6500 Series Wireless Services Module (WiSM), Cisco Catalyst 3750G Integrated Wireless LAN Controller, Cisco Wireless LAN Controller Module (WLCM and WLCM-E) for Integrated Services Routers; Cisco Aironet lightweight access points, Cisco Aironet lightweight outdoor mesh access points, Cisco CleanAir (Cisco Spectrum Expert Wi-Fi), Cisco Wireless Location Appliance, Cisco 3300 Series Mobility Services Engine (MSE), Context-Aware Software, and Cisco wireless Intrusion Prevention System (WIPS) • Monitoring and migration of selected Cisco Aironet standalone (autonomous) access points. Monitoring of the standalone access points of Cisco 800, 1800, 2800, and 3800 Series Integrated Services Routers
Database	Integrated Solid Flow Engine SQL

Selected Part Numbers and Ordering Information

WCS-STANDARD-K9	Cisco WCS Base and Plus licenses for new and expanded Cisco WCS deployments. Supports deployment of Cisco WCS on a single server. Cisco WCS Plus license supports mobility services enablement, high availability, and location services for one Wi-Fi device or tag on demand. Cisco WCS Plus license backward-compatible with existing Cisco WCS location and enterprise licenses.
WCS-APBASE-50, 100, 500	Cisco WCS Base License, Windows/Linux (supports 50, 100, and 500 APs)
WCS-PLUS-50, 100, 500	Cisco WCS with Plus license for mobility services enablement and high availability. Windows/Linux (supports 50, 100, and 500 APs)
WCS-WLSE-UPG-K9	Converting Existing CiscoWorks WLSE to Cisco WCS (Only supported on Linux platform for CiscoWorks WLSE Models 1130-19 and 1133)
WCS-WLSE-APB-50, 100, 500, 1000	Cisco WCS Base License for WLSE conversion, Linux (supports 50, 100, 500, and 1000 APs)
WCS-WLSE-PLUS-50, 100, 500	Cisco WCS Plus license with mobility services enablement and high availability for WLSE conversion, Linux (supports 50, 100, 500, and 1000 APs)
WCS-PLUS-UPG-K9	Upgrading Cisco WCS Base to Cisco WCS Plus. Supports deployment of Cisco WCS on a single server. Supports upgrading a Cisco WCS base license to support mobility services enablement, high availability, and location services for one Wi-Fi device or tag on demand.

WCS-PLUS-UPG-50, 100, 500	Cisco WCS Plus Upgrade license with mobility services enablement and high availability. Windows/Linux (supports 50, 100, and 500 APs)
WCS-ENT-PLUS-K9	Enterprise licenses for large-scale deployments. Supports deployment of Cisco WCS on a single or multiple servers. Supports mobility services enablement, high availability and the ability to track the location of a single Wi-Fi device or tag on demand. Enterprises Plus licenses of 10,000 and 50,000 include a Cisco WCS Navigator license (WCS-NAV-20). Enterprise Plus licenses are operational with Cisco Unified Wireless Network Software Release 4.1 and later.
WCS-ENT-PLUS-1000, 2500, 10000, 50000	Cisco WCS Enterprise Plus license with mobility services enablement and high availability. Windows/Linux on multiple Cisco WCS servers (supports 1000, 2500, 10000, and 50000 APs)
AIR-WCS-DEMO-K9	Cisco WCS Demonstration License (This license is only available from http://www.cisco.com/go/license . After requesting the license, go to Cisco Wireless Software Center (login required) to download Cisco WCS software. Free Cisco WCS full featured, location-enabled, 30 day demonstration license supporting ten lightweight access points

For More Information

For more information about the Cisco Wireless Control System, visit: <http://www.cisco.com/en/US/products/ps6305/index.html>.

Cisco Wireless Control System Navigator

The Cisco Wireless Control System (WCS) Navigator delivers an aggregated platform for enhanced scalability, manageability, and visibility of large-scale implementations of the Cisco Unified Wireless Network. This solution gives network administrators cost-effective, easy access to information from multiple, geographically dispersed Cisco WCS management platforms.

The navigator supports partitioning of the unified wireless network at the management plane. It runs on a server platform with an embedded database.

Ideal for Companies That Need These Features

Cisco Wireless Control System Navigator

- Ability to manage up to 20 geographically dispersed Cisco WCS management platforms with up to 30,000 Cisco Aironet lightweight access points from a single management console
- Ability to partition the unified wireless network at the management plane
- Ability to conduct centralized and quick searches across the entire network, multiple Cisco WCS management platforms, and all devices
- Ability to partition Cisco WCS platforms to restrict selected users to a single Cisco WCS platform or group of Cisco WCS platforms to support access control based on a variety of criteria, including geography, departments, and managed services customers

Key Features

- Intuitive GUI—Easy configuration and monitoring of multiple Cisco WCS management platforms with minimal training is supported.
- Monitoring—Real-time network monitoring is fully supported.
- Network summary screen—Outstanding alarms, fault summaries, client counts, and status counts of all connected Cisco WCS management platforms and devices are displayed on a network summary screen.
- Secure single sign-on—With a secure single sign-on feature, individual users do not need to be created on each Cisco WCS management platform.
- Automated browser redirect—Users are automatically redirected to the corresponding Cisco WCS management platform detail page on searches or displays.
- Searches—Centralized and quick searches across the entire network, multiple Cisco WCS management platforms, and all devices are easy to perform.
- Tracking—Client locations and Wi-Fi and rogue devices are easily tracked across the entire network.
- Ease-of-use—The solution offers simplified setup and configuration.
- Centralized management—Indoor and outdoor WLANs can be monitored from a single management console.
- Reports—Detailed inventory reports can be automatically generated, scheduled and exported by e-mail message or CSV file.

Specifications

Feature	Cisco Wireless Control System Navigator
Minimum server requirements	Windows 2003 SP1 or greater, or Redhat Linux AS/ES v4.0 High-End Server: Intel® Xeon Quad CPU; 315 GHz, 8-GB RAM, and 200-GB HDD
Minimum client requirements	Internet Explorer 6.0 with SP1 or later

Software release requirements	Cisco WCS management platforms must be running Cisco Unified Wireless Network Software Release 4.1 or later to interface with Cisco WCS Navigator
Management	SNMP v1, v2c, and v3
Managed devices	Up to 20 Cisco WCS management platforms with manageability of up to 30,000 Cisco Aironet lightweight access points
Database	Integrated Solid FlowEngine Structured Query Language (SQL)

Selected Part Numbers and Ordering Information

WCS-NAV-20	Cisco WCS Navigator License to support 20 Cisco WCS management platforms
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For More Information

For more information about Cisco Wireless Control System Navigator, visit:
<http://www.cisco.com/en/US/products/ps/305/index.html>.

Cisco Spectrum Expert Wi-Fi

The Cisco Spectrum Expert Wi-Fi integrates with the Cisco Unified Wireless Network to deliver real-time spectrum intelligence for Wi-Fi networks. This industry-leading solution detects, classifies, and locates sources of RF interference in the unlicensed 2.4- and 5-GHz bands. The Cisco Wireless Control System (WCS) works in conjunction with Cisco Spectrum Expert Wi-Fi to provide visibility into non-Wi-Fi interference sources that may cause wireless performance degradation. You can determine the source of the interference with Cisco Spectrum Expert Wi-Fi, allowing your business to remove, move, shield, adjust, or replace the interference source. Your organization can troubleshoot its wireless networks to determine the root causes of interference problems and optimize network performance.

Ideal for Companies That Need These Features

Cisco Spectrum Expert Wi-Fi

- Ensure access points are providing reliable coverage with spectrum performance audits
- Secure a network by locating non-Wi-Fi rogue devices
- See hacked or rogue Wi-Fi devices that other intrusion detection systems/intrusion protection systems (IDSs/IPSs) do not detect
- Locate unauthorized devices such as Bluetooth radios and video cameras
- Determine whether neighbors are interfering with the Wi-Fi network

Key Features

The Cisco Spectrum analysis tool monitors the airwaves in your wireless network and allows you to:

- Quickly and accurately determine Wi-Fi spectrum health and sources of interference
- Manage channel capacity and quality at the physical layer
- Quickly eliminate interference sources

Specifications

Feature	Cisco Spectrum Expert Wi-Fi Specifications
Dimensions	Unit sizes: Cardbus Type II and Express Card 54 mm; Unit weight: 165 oz and 1.35 oz; Shipping weight: 1 lb; Operating temperature: 32F to 131F; Storage temperature: -4F to 149F
Analyzer Specification	Displayed average noise level: -124 dBm; Reference level: -150 (min) to +10 (max) dBm; 512 MB capture limit; Frequency stability: +/-20 ppm; Max safe input level: 0 dBm; Amplitude accuracy: +/- 2.5 dBm; Public safety: 4.9 GHz; Frequency span at 2.4 GHz: 0.03 (min) to 100 (max) MHz; Frequency span at 5 GHz: 0.03 (min) to 975 (max) MHz; Center frequency resolution: 10 kHz; Resolution bandwidth: 0.01 (min) to 5 (max) MHz; Sweep time RTFFT mode: 6.4 us; Sweep time PvT mode: 10 ms (max); Trigger delay (ms): -10 (min) to +10 (max); Power consumption: -3.3V @ 425 mA or 1.4 watts
Classifier Specification	802.11a/bg via onboard or external Wi-Fi chipset; Bluetooth SCO, ACL; DECT cordless phones; TDD cordless phones; Analog cordless phones; Analog video (NTSC, PAL, SECAM); Microwave ovens; Generic classifiers; Radar
Application	
Minimum system requirements	Microsoft Vista or Windows XP SP2; Processor: 1 GHz or equivalent; 150 MB hard drive available storage space; 800 x 600 display
Interoperability	Cisco WCS 4.2 Later

Cisco Spectrum Expert Antenna	
Frequency Range	2.4-2.5 GHz, 4.9-5.9 GHz
Gain	5 dBi
Polarization	Linear

Selected Part Numbers and Ordering Information

Cisco Spectrum Expert Wi-Fi Product and Service	
AIR-CSCO-SE-WIFI-C	Cisco Spectrum Expert Wi-Fi (CardBus)—Includes CardBus adapter, omni antenna with clip, and quick start guide with software download instructions. A single Cisco Spectrum Expert Software seat can only be used with one Cisco Spectrum Expert Sensor Wi-Fi.
CON-SNT-SEWIFICB	Cisco Spectrum Expert Wi-Fi (CardBus)—SMARTnet next business day service ¹
Cisco Spectrum Expert Wi-Fi Antenna Spare	
AIR-ANT-SE-WIFI-D=	2.4-2.5 and 4.9-5.9 GHz Directional Antenna, Spare—Spare Directional antenna for Cisco Spectrum Expert Wi-Fi
AIR-ANT-SE-WIFI-O=	2.4-2.5 and 4.9-5.9 GHz Omni Antenna, Spare—Spare Omni antenna for Cisco Spectrum Expert Wi-Fi

1. Includes advanced replacements next business day, 24-hour Cisco Technical Assistance Center (TAC) access, and software downloads.

A Cisco WCS Spectrum Intelligence license is required to operate Cisco Spectrum Expert Wi-Fi with Cisco WCS. The following table provides the part numbers for the Cisco WCS Spectrum Intelligence license for Cisco Spectrum Expert Wi-Fi.

WCS-ADV-K9	Family SKU for WCS Advance License Products—Top-level SKU for Cisco WCS advance feature licenses
WCS-ADV-SI-SE-10	Cisco WCS Spectrum Intelligence License for 10 Sensors—License option compatible with Cisco WCS 4.2 or later configured with Base and/or Location license.
WCS-ADV-SI-SE-10=	Cisco WCS Spectrum Intelligence License for 10 Sensors, Spare—Spare license compatible with Cisco WCS 4.2 or later configured with Base and/or Location license.

License Pack Guidelines

Customers can purchase the Cisco Spectrum Intelligence license for Cisco Spectrum Expert Wi-Fi in two ways. Customers who wish to purchase all WCS advanced feature licenses, including the Cisco Spectrum Intelligence license, for use on a single WCS host should purchase the Cisco WCS advanced feature pack (WCS-ADV-K9) and then specify the option for the Cisco Spectrum Intelligence license (WCS-ADV-SI-SE-10). Customers who wish to purchase licenses that can be used across multiple WCS hosts should purchase Cisco Spectrum Intelligence license spares (WCS-ADV-SI-SE-10).

- WCS-ADV-K9—The Cisco WCS advanced feature license pack includes license keys for advanced features, including Cisco Spectrum Intelligence. The license pack may only be used on a single WCS host.
- WCS-ADV-SI-SE-10—This part number represents the option for the Cisco Spectrum Intelligence advanced feature as part of the Cisco WCS advanced feature license pack (WCS-ADV-K9). Customers must specify this part number when ordering Cisco Spectrum Intelligence as part of the combined WCS advanced feature license pack.
- WCS-ADV-SI-SE-10=—Users who wish to purchase multiple licenses to be deployed across numerous WCS hosts should purchase the Cisco Spectrum Intelligence license as a spare unit (WCS-ADV-SI-SE-10=). If a customer orders more than one spare, the system will generate a license pack for each spare ordered. In other words, the number of license packs equals the number of spares ordered.

Cisco customers can contact their local Cisco representatives for questions related to Cisco WCS licensing. Cisco employees or partners can contact wcs-customer-license@cisco.com.

For More Information

For more information about Cisco Spectrum Expert Wi-Fi, visit: <http://www.cisco.com/en/US/products/ps9393/index.html>.

CiscoWorks Wireless LAN Solution Engine (WLSE) and CiscoWorks Wireless LAN Solution Engine Express

CiscoWorks Wireless LAN Solution Engine (WLSE) is a centralized network management solution for managing standalone access points in the Cisco wireless LAN infrastructure. CiscoWorks WLSE Express is an integrated security and management solution for managing Cisco Aironet standalone access points located in one or multiple locations.

Ideal for Companies That Need These Features

CiscoWorks Wireless LAN Solution Engine (WLSE) and CiscoWorks Wireless LAN Solution Engine Express

- Template-based configuration and management of Cisco Aironet standalone access points and wireless bridges
- Simplified deployment and reduced operational complexity for standalone access points and wireless bridges
- Remote branch-office deployments with limited WAN bandwidth, and an integrated and embedded user authentication and authorization server (CiscoWorks WLSE Express)

Key Features

- CiscoWorks WLSE is a management component for Cisco Aironet standalone (autonomous) access points and wireless bridges.
- Simplified deployment—Device (access point or bridge)-specific settings such as host name, radio power, and channel can be imported into CiscoWorks WLSE and WLSE Express through a comma-separated value (CSV) file, with unique Ethernet MAC address mapping that supports automatic application of device-specific settings without touching each access point.
- Enhancements to the Site Survey wizard—Specific RF settings such as channel and power can be applied to devices based on a schedule.
- Friendly to rogue reclassification—You can periodically monitor for changes in the status of rogue access points that are marked “friendly” to alert the administrator in case location or received signal strength indicator (RSSI) values change.
- Authentication—CiscoWorks WLSE supports popular Extensible Authentication Protocol (EAP) types, including Cisco LEAP, Protected EAP (PEAP), EAP-Flexible Authentication via Secure Tunneling (EAP-FAST), and EAP-Transport Layer Security (EAP-TLS).
- CiscoWorks WLSE Express—The standard version supports up to 500 users and 50 Cisco Aironet access points.
- CiscoWorks WLSE Express—The license-upgraded version supports up to 1000 users and 100 Cisco Aironet access points.
- CiscoWorks WLSE manages up to 2500 Cisco Aironet access points operating autonomously for network management and up to 1800 access points when RF management is turned on.

Selected Part Numbers and Ordering Information

CWWLSE-1133-19-K9	CiscoWorks WLSE 2.15; includes the Cisco 1133 hardware platform and wireless LAN management software version 2.15
CWWLSE-2.15-SWUP-K9	Software only upgrade kit for customers with CiscoWorks 1133 running CiscoWorks WLSE 2.x to 2.15
CWWLSE-1030-K9	CiscoWorks WLSE Express 2.15 includes the CiscoWorks 1030 hardware platform and CiscoWorks WLSE Express Release 2.15
CWWLSE-2.15EXLCUK9	CiscoWorks WLSE Express 2.15 license upgrade option from 50 Cisco Aironet access points with a maximum of 500 users upgraded to 100 Cisco Aironet access points with a maximum of 1000 users.

For More Information

For more information about the CiscoWorks WLSE, visit: <http://www.cisco.com/go/wlse>.

Cisco 3300 Series Mobility Services Engine

The Cisco 3300 Series Mobility Services Engine is an open platform that provides a new approach for the delivery of mobility services to enable mobile business applications. A combination of hardware and software, the mobility services engine is an appliance-based solution that supports a suite of software services to provide centralized and scalable service delivery. It transforms the wireless LAN (WLAN) into a mobility network by abstracting the application layer from the network layer, effectively allowing for the delivery of mobile applications across different types of networks, including Wi-Fi, Ethernet, cellular, WiMAX, and RFID.

To deliver true business mobility, IT must take a practical approach focused on unifying networks, managing the wave of mobile devices, and enabling mobile application development. The Cisco 3300 Series Mobility Services Engine is at the heart of this mobility architecture evolution. It provides an open application programming interface (API) that allows a broader ecosystem of partners to access network intelligence to develop industry-relevant mobility solutions. An extension of the Cisco Unified Wireless Network, the mobility services engine integrates with Cisco Unified Communications and Cisco compatible devices to deliver a comprehensive approach to business mobility, an approach that extends applications to the right device at the right time, no matter which network is being used.



Ideal for Companies That Need These Features

- Cisco 3300 Series Mobility Services Engine

 - Rapid delivery of new services and applications
 - Unification of multiple access networks to help ensure more transparent application delivery
 - Central management, and scalable and flexible services delivery
 - Investment protection of their existing Cisco Unified Wireless Network

Key Features

- Extensible platform for rapid delivery of services and applications—Allows the abstraction of services and applications from the control and data planes so that each may evolve independently; a common framework for hosting multiple mobility services; An open application programming interface (API) supports third-party and partner application development.
- Ecosystem of application partners—Delivers new mobility services as well as applications targeted at various industries, including healthcare, retail, education, and manufacturing.
- Scalability—Multiple services can be deployed on a single Cisco 3300 Series Mobility Services Engine or a single service can span multiple mobility services engines.
- Manageability—The Cisco 3300 Series Mobility Services Engine serves as a single point of integration for the various value-added services; All mobility services are managed centrally through integration with the Cisco Wireless Control System.
- Flexibility—The Cisco 3300 Series Mobility Services Engine is an extensible platform capable of supporting a variety of services configurations to meet business requirements. The architecture facilitates the inclusion of newer technology standards as and when they become available.
- Return on investment—The Cisco 3300 Series Mobility Services Engine integrates with the Cisco Unified Wireless Network to provide network intelligence, including contextual information to optimize business applications. This architecture builds upon the existing investment in Cisco wireless and mobility solutions and provides a platform that is both flexible and scalable to meet evolving business mobility requirements.

Specifications

Feature	Cisco 3310 Mobility Services Engine	Cisco 3350 Mobility Services Engine
Supported Services	<ul style="list-style-type: none">• Context-aware software to track up to 2000 Wi-Fi Clients or Wi-Fi Tags• Adaptive Wireless Intrusion Prevention System software to support up to 2000 monitor mode access points	<ul style="list-style-type: none">• Context-aware software to track up to 18,000 Wi-Fi Clients or Wi-Fi Tags
Processor	(1) Dual-Core Intel Processor 1.8 GHz	(2) Quad-Core Intel Xeon Processors 2.33 GHz
Memory	4-GB PC2-5300 (4 x 1 GB)	8-GB PC2-5300 (4 x 2 GB)
Hard Disk	(2) Fixed 247-GB Serial ATA-150 / SATA-300 MBps	(2) Hot-swappable 137-GB SAS-300 MBps drives
Removable Media	DVD/CD-RW combo drive	DVD/CD-RW combo drive
Connectivity	Network: Two embedded Multifunction Gigabit Network Adapters	Network: Two embedded Multifunction Gigabit Network Adapters with TCP/IP Offload Engine
Management	SNMP v1, v2c, and v3	SNMP v1, v2c, and v3
Programming Interfaces	SOAP/XML APIs	SOAP/XML APIs
Ports	<ul style="list-style-type: none">• Serial: One 9-pin connector• RJ-45: Two RJ-45 connectors for connection to two Gigabit Network Adapters• 3 USB 2.0 ports: (1) front, and (2) rear accessible ports• 2 PS2 ports: One mouse and one keyboard• 1 VGA port	<ul style="list-style-type: none">• Serial: One 9-pin connector• RJ-45: Two RJ-45 connectors for connection to two Gigabit Network Adapters• 4 USB 2.0 ports: (1) front, (1) internal, and (2) rear accessible ports• 2 PS2 ports: One mouse and one keyboard• 1 VGA port
Management Interface	Cisco WCS Mobility Services v5.2 or greater running Internet Explorer 6.0/Service Pack 1 or later	Cisco WCS Mobility Services v5.2 or greater running Internet Explorer 6.0/Service Pack 1 or later
Network Devices	Cisco 2100, 4400, 5500 (requires WCS Mobility Services v. 6.0) Series Wireless LAN Controllers; Cisco Catalyst 6500 Series Wireless Services Module, Cisco Catalyst 3750G Integrated Wireless LAN Controller, Cisco Wireless LAN Controller Module (WLCM and WLCM-E) for Integrated Services Routers; Cisco Aironet® lightweight access points	Cisco 2100 and 4400 Series Wireless LAN Controllers; Cisco Catalyst 6500 Series Wireless Services Module, Cisco Catalyst 3750G Integrated Wireless LAN Controller, Cisco Wireless LAN Controller Module (WLCM and WLCM-E) for Integrated Services Routers; Cisco Aironet lightweight access points

Form Factor	Height: 1.70 in. (43.2 cm) Width: 16.78 in. (42.62 cm) Depth: 20 in. Weight: 15 lbs maximum	Height: 1.70 in. (43.2 cm) Width: 16.78 in. (42.62 cm) Depth: 27.25 in. (69.22 cm) Weight: 39.5 lbs (17.92 kg) maximum
Physical Dimensions	Height: 1.70 in. (43.2 cm) Width: 16.78 in. (42.62 cm) Depth: 20 in. Weight: 15 lbs maximum	Height: 1.70 in. (43.2 cm) Width: 16.78 in. (42.62 cm) Depth: 27.25 in. (69.22 cm) Weight: 39.5 lbs (17.92 kg) maximum
Power	AC power supply wattage: 540W AC power supply voltage: 100–120V at 50–60 Hz; 200–240V at 50–60 Hz	AC power supply wattage: 852W AC power supply voltage: 100–120V at 50–60 Hz; 200–240V at 50–60 Hz Redundant Power Supplies
Cooling Fans	Total of three fans	Total of nine fans, N+1 fan redundancy
Environmental	Operating temperature: 50 to 95°F (10–35°C) at sea level Nonoperating: –40 to 158°F (–40 to 70°C) Maximum rate of change is 20°C/hr (36°F/hr)	Operating temperature: 50 to 95°F (10–35°C) at sea level Nonoperating: –40 to 158°F (–40 to 70°C) Maximum rate of change is 20°C/hr (36°F/hr)
Approvals and Compliance	Safety UL 60950 CAN/CSA -C22.2 No. 60950 EN60950 IEC 60950; EMC FCC Part 15 (CFR 47) Class A ICES-003 Class A EN 55022 Class A CISPR22 Class A AS/NZS 3548 Class A VCCI Class A EN 55024 EN 50082-1	Safety UL 60950 CAN/CSA -C22.2 No. 60950 EN60950 IEC 60950; EMC FCC Part 15 (CFR 47) Class A ICES-003 Class A EN 55022 Class A CISPR22 Class A AS/NZS 3548 Class A VCCI Class A EN 55024 EN 50082-1
Software Compatibility	<ul style="list-style-type: none"> Available with Cisco Mobility Services Engine (MSE) Software Release 5.1.xxx or later Requires WLC software version 4.2.130 or later and Wireless Control System (WCS) Version 5.2 or later Supported services may have different software requirements 	<ul style="list-style-type: none"> Available with Cisco Mobility Services Engine (MSE) Software Release 5.2.xxx or later Requires WLC software Version 4.2.130 or later and WCS Version 5.1 or later Supported services may have different software requirements

Selected Part Numbers and Ordering Information

AIR-MSE-3310-K9	Cisco 3310 Mobility Services Engine
AIR-MSE-3350-K9	Cisco 3350 Mobility Services Engine

For More Information

For more information about the Cisco 3300 Series Mobility Services Engine, visit <http://www.cisco.com/go/mse>.

Cisco Context-Aware Software

The Cisco Context-Aware Mobility Solution provides the ability to capture and integrate into business processes detailed contextual information about parameters such as location, temperature, and the availability of an asset. The integration of contextual information with business-process applications is fast becoming the next level of true enterprise mobility. With the Cisco Context-Aware Mobility Solution, mobile users can go beyond anytime, anywhere connectivity to automatically having the right device, the right application, and the right environment while on the go. They can now answer business-critical questions about both mobile assets and the users of those assets, to improve their organization's profitability.

Ideal for Companies That Need These Features

Cisco Context-Aware Software

- Advanced and scalable context-aware mobility service that simultaneously tracks thousands of Wi-Fi clients and Wi-Fi tags
- Context-aware information integrated into business processes (Cisco Context-Aware Software supports integration with customizable business applications through tight and transparent integration with the open API).
- Context-aware services are available in indoor, high-ceiling indoor, and outdoor environments.
- Integrated context-aware services using existing Cisco Unified wireless-enabled infrastructure, to minimize capital expenditures and help ensure better wireless LAN (WLAN) visibility

Key Features

- Scalability—Cisco Context-Aware Software can track up to 18,000 assets simultaneously, including Wi-Fi clients and assets with Wi-Fi tags.
- Multiple context-aware engines—The modular design of the software allows for the use of the context-aware engine for clients and the context-aware engine for tags simultaneously or separately for the estimation of location.
- Multiple location technologies—Clients and tags can be tracked in indoor, indoor high-ceiling, and outdoor environments. Tracking is done using the Received Strength Signal Indicator (RSSI)-based RF fingerprinting technology for indoor environments and Time Difference of Arrival (TDOA) technology for outdoor and high-ceiling environments. The Cisco Context-Aware Mobility Service Module also supports the use of chokepoints for applications requiring high fidelity and deterministic context-aware information.
- Open platform for business applications—To facilitate the deployment of context-aware based applications in the enterprise, the context-aware mobility software allows for the integration of business applications through a rich and open Simple Object Access Protocol (SOAP)- or Extensible Markup Language (XML)-based application programming interface (API).
- Alerts and notifications—Alerts and notifications can be customized by the user based on business policy requirements.
- Deployment planning optimization—The process of planning and deployment of data, voice, and context-aware services is made simpler by the identification of coverage holes for the particular deployment scenario.
- Enhanced security—Detection of rogue access points and devices is made simpler by providing the location of these devices.
- Information-exchange configuration—Information-exchange configuration allows for control of which layer of information gets forwarded from the Cisco Unified Network controller to the Cisco Context-Aware Mobility Service Module. This control helps reduce the amount of contextual information gathered and transmitted across the network.
- Historical data—Historical data on the elements being tracked is collected and stored. This information can be used for drawing up trends and troubleshooting, among other uses.
- Scalable license management—The license management of the Cisco Context-Aware Software allows for flexibility in the type and quantity of licenses purchased to match the various scenarios. The licenses are additive (up to 2000 assets tracked on MSE 3310 and up to 18,000 assets tracked on MSE 3350) and thus provide for growth of the system.

Specifications

Feature	Cisco Context-Aware Software
Hardware requirements	Cisco Mobility Services Engine 3310 or Cisco Mobility Services Engine 3350
Number of Assets Tracked	Track up to 2000 Wi-Fi clients or Wi-Fi tags on MSE 3310 and up to 18,000 Wi-Fi clients or Wi-Fi tags on MSE 3350
Network Management	Cisco WCS v5.1 or greater running Internet Explorer 6.0/Service Pack 1 or later
Programming Interfaces	SOAP/XML APIs
Database	Integrated Solid Flow Engine Structured Query Language (SQL)

Selected Part Numbers and Ordering Information

AIR-CAS-1KC-K9	Cisco Context-Aware Engine for Clients License for 1K Clients
AIR-CAS-3KC-K9	Cisco Context-Aware Engine for Clients License for 3K Clients
AIR-CAS-6KC-K9	Cisco Context-Aware Engine for Clients License for 6K Clients
AIR-CAS-12KC-K9	Cisco Context-Aware Engine for Clients License for 12K Clients
AIR-CAS-1KT-K9	Cisco Context-Aware Engine for Tags License for 1K Tags
AIR-CAS-3KT-K9	Cisco Context-Aware Engine for Tags License for 3K Tags
AIR-CAS-6KT-K9	Cisco Context-Aware Engine for Tags License for 6K Tags
AIR-CAS-12KT-K9	Cisco Context-Aware Engine for Tags License for 12K Tags
AIR-MSE-3310-K9	Cisco 3310 Mobility Services Engine
AIR-MSE-3350-K9	Cisco 3350 Mobility Services Engine

For More Information

For more information about Cisco Context-Aware Software, visit: <http://www.cisco.com/go/wireless>.

Cisco Adaptive Wireless Intrusion Prevention System (IPS)

The Cisco Adaptive Wireless IPS solution protects against attacks and proactively prevents threats. It scales to meet the robust demands of even the largest networks, and delivers visibility and control across the network without the need for additional scanning equipment.

Ideal for Companies That Need These Features

Cisco Adaptive Wireless Intrusion Prevention System (IPS)

- A system to mitigate unauthorized wireless access and attacks against the wireless network and rogue access points
- A system to assist with regulatory compliance, particularly Payment Card Industry (PCI) compliance
- Integration with Cisco wired security infrastructure
- Investment protection of existing Cisco Unified Wireless Network

Key Features

- Detects, analyzes, and mitigates RF-based attacks using signature- and network-based methods for protection against known and unknown wireless threats
- Integrates into the Cisco Unified Wireless Network infrastructure using the same access points and wireless LAN controllers for simplified administration and lower capital expenditures and total cost of ownership
- Offers advanced reporting for increased regulatory compliance and forensic analysis
- Provides increased visibility and ease of administration through wired and wireless network security integration
- Uses the Cisco 3300 Series Mobility Services Engine for performance and centralized processing of wireless network threat analysis

Specifications

Feature	Cisco Adaptive Wireless IPS Software
Hardware requirements	Cisco Mobility Services Engine 3310
Number of Supported Monitor Mode APs	Support for up to 2000 monitor mode APs on MSE 3310 and support for up to 3000 monitor mode APs on MSE 3350
Management Interface	Cisco Wireless Control System version 5.2 or later

Selected Part Numbers and Ordering Information

AIR-WIPS-AP-25, 100, 500, 2000	License for Access Points (supports 25,100, 500, and 2000 APs)
AIR-MSE-3310-K9	Cisco 3310 Mobility Services Engine
AIR-MSE-3350-K9	Cisco 3350 Mobility Services Engine

Ordering Multiple Services on the Mobility Services Engine

The following are possible combinations when ordering multiple services (Context-Aware software licences and Adaptive Wireless Intrusion Prevention licences for Monitor Mode Access Points).

Context-Aware	18,000	17,000	16,000	15,000	14,000	13,000	12,000	11,000	10,000	9,000
WIPs	0	165	330	500	665	830	1,000	1,165	1,330	1,500

Context-Aware	8,000	7,000	6,000	5,000	4,000	3,000	2,000	1,000	0
WIPs	1,665	1,830	2,000	2,165	2,330	2,500	2,665	2,830	3,000

For More Information

For more information about the Cisco Adaptive Wireless Intrusion Prevention System, visit <http://www.cisco.com/go/wips>.

Cisco Wireless LAN Services

Cisco and partners accelerate business transformation, operational maturity, and agility through consultative planning, solution development, and full deployment, creating network architectures that can optimize IT services and enhance your business.

Whether integrating a wireless LAN (WLAN) with your wired infrastructure or migrating from an autonomous solution to a Cisco Unified Wireless Network, planning and design services can help you take a more holistic approach to business mobility. This end-to-end approach makes it easier to manage the increasing quantity and diversity of mobile devices, deliver device-to-network-to-application integration and security, create an open platform for the development of mobility applications, and integrate secure unified communications to enable mobile workspaces.

Cisco has a portfolio of technical services that help maintain the health and performance of every Cisco product. These services range from traditional maintenance to proactive and predictive services that use smart services capabilities. Cisco Smart Services provide detailed diagnostics and real-time alerts on core network devices to help resolve problems quickly and improve network availability. The Cisco Technical Services portfolio is built on foundational capabilities and expanded performance capabilities to meet the changing technology needs of our customers.

Wireless LAN Optimization Service can help you achieve operational excellence through ongoing performance improvement and expanded services, thereby increasing your ability to compete in an ever-changing world.

- To find the right technical service for any Cisco product, use the Service Finder tool at <http://www.cisco-servicefinder.com>. Enter a product description or part number or search by product family for a list of suggested services and support coverage options.
- For more information about Cisco Wireless LAN planning, design, and optimization services, visit <http://www.cisco.com/go/wirelesslanservices>.
- For more information about all services, refer to Chapter 10, "Cisco Services".

Chapter 4: Collaboration

The Cisco collaboration portfolio consists of Cisco Unified Communications, Cisco TelePresence, and Cisco WebEx solutions and services, all of which use the network as the platform to help enable people to connect, communicate, and collaborate from any application, device, and workspace.

This chapter includes the following three sub-chapters: Unified Communications, Video, and WebEx.

Unified Communications At-a-Glance		
Product	Features	Page
COMMUNICATIONS INFRASTRUCTURE		
Cisco AS5350XM Universal Gateway	High performance, 1RU universal gateway offering best in class voice, fax, remote access and session border control services <ul style="list-style-type: none"> • Cisco SMARTnet services available 	4–6
Cisco AS5400XM Universal Gateway	High performance, 2RU universal gateway offering best in class voice, fax, remote access and session border control services <ul style="list-style-type: none"> • Cisco SMARTnet services available 	4–8
Cisco AS5850 Universal Gateway	High density universal gateway for service providers and large enterprises <ul style="list-style-type: none"> • Cisco SMARTnet services available 	4–10
Cisco Unified Border Element	<ul style="list-style-type: none"> • An application that terminates and reoriginates both signaling (H.323 and Session Initiation Protocol [SIP]) and media streams (Real-Time Transport Protocol [RTP] and RTP Control Protocol [RTCP]) while performing border interconnection services between IP networks. • Cisco SMARTnet services available 	4–12
Cisco Voice Gateways	Dedicated Cisco VG202, VG204, VG224, and VG248 Analog Voice Gateways provide connectivity between IP networks and traditional telephones. <ul style="list-style-type: none"> • Cisco SMARTnet services are available. 	4–13
Cisco MCS 7800 Series Media Convergence Servers	High availability server platform for Cisco IP telephony systems <ul style="list-style-type: none"> • Cisco SMARTnet services available 	4–14
IP TELEPHONY		
Cisco ATA Analog Telephone Adapters	Turns any analog telephone into an IP telephone. Each of the two voice ports supports independent telephone numbers, providing two separate lines <ul style="list-style-type: none"> • Cisco SMARTnet services available 	4–16
Cisco Smart Business Communications System	The Cisco Smart Business Communications System is a complete voice and unified communication system for small businesses with up to 50 users with expansion capabilities to 64 users. <ul style="list-style-type: none"> • Cisco SMARTnet services available 	4–17
Cisco Unified Communications Manager	The server-based call-processing and call-control component of the Cisco Unified Communications Solution, offering a suite of integrated voice applications and utilities. <ul style="list-style-type: none"> • Available as an appliance, it is accessible through a GUI and a command-line interface. • Essential Operate Services (ESW) are required based on server platform. 	4–18
Cisco Unified Communications Manager Assistant	A component of the Cisco Unified Communications Manager, this PC and phone application provides productivity tools that enhance communications between manager and administrative assistant. <ul style="list-style-type: none"> • No separate services required 	4–21
Cisco Unified Communications Manager Business Edition	Cisco Unified Communications Manager Business Edition is designed for medium-sized businesses with up to 500 employees and up to 20 sites (19 remote sites). <ul style="list-style-type: none"> • The solution offers Cisco Unity Connection-based integrated voice-messaging capabilities. • Essential Operate Services (ECD) that covers the MCS server hardware replacement and software support are required. 	4–21
Cisco Unified Communications Manager Express	Cisco IOS Software-based call control supported on standard Cisco Integrated Services Routers <ul style="list-style-type: none"> • Included in the Cisco SMARTnet services when originally purchased router or Cisco Unified Communications 500 Series for Small Business. 	4–22

Cisco Unified Survivable Remote Site Telephony (SRST)	Cisco Unified Survivable Remote Site Telephony (SRST) Software is a Cisco IOS Software-based feature set that provides key backup telephony functions for the remote branch office if connectivity to the centrally-located Cisco Unified Communications Manager fails (that is, a WAN link is interrupted). During a WAN outage, the Cisco Unified SRST-enabled router provides robust telephony services (including off-net calls to 911).	4–23
Cisco Unified IP Phones 3900 Series	An affordable, entry-level single-line SIP-based endpoint designed for environments with low communication needs such as lobbies, hallways, cafeterias, classrooms and can be used within retail and manufacturing environments.	4–24
Cisco Unified IP Phones 6900 Series *NEW*	An affordable, easy-to-use portfolio of endpoints that deliver business-grade voice communication services to branch, midmarket and enterprise customers.	4–25
Cisco Unified IP Phones 7900 Series	A stylish and diverse endpoint portfolio, supporting advanced business communications to meet a wide range of customer needs from the lobby to the conference room to the executive office and everywhere in between: choice of wired, wireless LAN and specialty endpoint solutions. • Cisco SMARTnet services available	4–26
Cisco Unified Attendant Consoles Portfolio *NEW*	The Cisco Unified Attendant Console Portfolio comprises three full-featured software-based attendant console solutions designed specifically for use with Cisco Unified Communications Manager and include: • The Cisco Unified Department Attendant Console is designed for departmental use • The Cisco Unified Business Attendant Console is designed for the Cisco Unified Communications Manager Business Edition • The Cisco Unified Enterprise Attendant Console is designed for the larger enterprise customer • Essential Operate Services (ESW) are required for software.	4–28
UNIFIED COMMUNICATIONS APPLICATIONS		
Cisco Emergency Responder	Works with Cisco Unified Communications Manager to automatically provide E9-1-1 features in North America; intra-enterprise features are also compatible with any internal or external emergency number • Essential Operate Services (ESW) for the software license and per seat	4–29
Cisco IP Communicator	A software-based application that delivers enhanced telephony support through the PC, allowing remote users to take their office extension with them • Essential Operate Services (ESW) required for User License	4–30
Cisco Unified Application Environment	Offers a rich portfolio of applications and development tools that extend the Cisco Unified Communications platform • Broad support for development tools, including Eclipse and Microsoft Visual Studio; allows unified communication and network services to be quickly and easily integrated into business applications or to develop entirely new applications	4–31
Cisco Unified MeetingPlace Conferencing	Cisco Unified MeetingPlace conferencing provides integrated voice, video, and Web collaboration for large organizations. It facilitates media-rich collaboration for Cisco Unified Communications solutions and allows on-premises voice conferencing for WebEx. • Essential Operate Services (ESW) are required for most features.	4–32
Cisco Unified MeetingPlace Express	Cisco Unified MeetingPlace Express is an integrated voice, video, and web collaboration solution for midsize organizations. • It facilitates media-rich collaboration for Cisco Unified Communications solutions. • This on-premises solution offers cost savings and security. • It is easy to deploy and manage. • Essential Operate Services (ESW) are required for most features.	4–33
Cisco Unified Personal Communicator	It transparently integrates your most frequently used communications applications and services into a single, unified client. • From an easy-to-use interface on a PC or Mac, it provides quick and easy access to powerful communications tools—softphone, presence, instant messaging, visual voicemail, click to call, employee directory, communication history, video, and web conferencing—to help you communicate effectively and work more productively. • Essential Operate Services (ESW) are required for User License.	4–34

Cisco Unified Presence	<ul style="list-style-type: none"> This standards-based platform collects information from multiple sources about user availability and communications capabilities to provide rich presence status and facilitate presence-enabled communications with Cisco Unified Communications and other critical business applications. It enables sharing of presence and IM with Cisco Unified Personal Communicator. It supports the ability to view phone presence from Cisco Unified Personal Communicator, IBM Lotus Sametime, or Microsoft Office Communicator. It facilitates the ability to expose presence in corporate web directories, point-of-sale applications, or customer-relationship-management systems through standards-based application programming interfaces (APIs). It provides the ability for subject matter experts anywhere in your enterprise to handle incoming customer calls with Cisco Unified Expert Advisor and Cisco Unified Personal Communicator. Essential Operate Services (ESW) are required for most features. 	4–35
Cisco UC Integration for Microsoft Office Communicator	Instantly access enhanced Cisco Unified Communications directly from Microsoft Office Communicator 2007 on your PC. With this easy-to-deploy desktop integration, extend proven Cisco unified communications services to your workspace and benefit from the investment protection and reduced complexity delivered by a single call control solution.	4–35
Cisco Unity Connection	<ul style="list-style-type: none"> An enterprise-class voice and integrated messaging solution that adds speech recognition and call routing rules on a Linux appliance Essential Operate Services (ESW) are required for Voice Mail Boxes 	4–36
Cisco Unity Express	<p>Integrated voice mail, automated attendant, IVR, and time card services locally delivered for small businesses or branch offices. Takes advantage of the data infrastructure; supported on a broad range of Cisco access routers and new Cisco Integrated Services Routers.</p> <ul style="list-style-type: none"> Cisco SMARTnet services available. 	4–37
Speech Connect for Cisco Unity	Speech Connect for Cisco Unity offers unmatched performance in speech recognition because of advanced disambiguation, the Names Tuning service, and a dynamic names dictionary	4–37
Cisco Unity Unified Messaging	<p>A unified messaging system that delivers voice, e-mail, and fax messages into single inbox for access through phone, e-mail, and many other clients and devices.</p> <ul style="list-style-type: none"> Essential Operate Services (ESW) are required for Voice Mail Boxes (VM or UM). 	4–38
Cisco Unified Messaging Gateway	<p>An open and secure method of intelligently routing messages and exchanging subscriber and directory information within a unified messaging network; it acts as the central hub in a network of voice and unified messaging solutions</p> <ul style="list-style-type: none"> Cisco Unified Messaging Gateway includes Software Application Support and Software Applications Support with Upgrades (SAS/SASU) 	4–38
Cisco Voice and Security Bundles	Voice and security bundles are designed for enterprise branch offices, small and medium-sized businesses (SMBs), and managed network service providers seeking consolidated, easy-to-order, versatile, and cost-effective solutions.	4–39
MOBILITY		
Cisco Unified Mobile Communicator	<p>Cisco Unified Mobile Communicator enables collaboration by securely extending Cisco Unified Communications to your mobile smartphone.</p> <ul style="list-style-type: none"> Cisco Unified Mobile Communicator provides real-time access to company directory, presence, visual voice mail, integrated call history, and conference notifications and other vital information; so you always have the information you need at your fingertips when you are on the go. Essential Operate Services (ESW) are required for most features. 	4–40
Cisco Unified Mobility	A mobility application, native to Cisco Unified Communications Manager, which extends call control capabilities to mobile devices, provides redirection of incoming calls to up to four different designated devices simultaneously (single number reach/ single business voicemail) and enables the transition of calls between Cisco Unified IP Phones and mobile devices.	4–41
Cisco WebEx Meeting Center on the iPhone	A free downloadable application for the iPhone that allows users to actively collaborate in Cisco WebEx Meeting Center meetings. iPhone users can view what's being shared, see the meeting participant list, see the active speaker and chat with other meeting participants.	4–41
Cisco WebEx Meeting Center on Smartphone Browsers	Using the browser on a smartphones, users can attend Cisco WebEx Meeting Center meetings, view presentations applications and desktops with live annotations.	4–41

Cisco Mobile Supervisor	A free application available from Apple Inc's App Store. Cisco Mobile Supervisor is an extension to the Cisco Supervisor Desktop (CSD) on a mobile device. As an extension to your Cisco Unified Contact Center Express (Unified CCX) product, contact center supervisors can receive real-time performance metrics on their iPhone3G and iPod touch devices	4-41
Nokia Call Connect for Cisco	Enables Nokia business-class dual-mode handsets to operate on cellular Global System for Mobile Communications (GSM) and Cisco Unified Wireless Networks (VoWLAN/802.11 b/g) with access to the advanced features provided by Cisco Unified Communications Manager and Cisco Unified Communications Manager Express.	4-42
CUSTOMER CONTACT		
Cisco Unified Contact Center Enterprise	Cisco Unified Contact Center Enterprise delivers multisite, intelligent contact routing, network-to-desktop computer telephony integration (CTI), and multichannel contact management to contact center agents over an all-IP infrastructure or mixed IP and time-division multiplexing (TDM) infrastructure. It offers: <ul style="list-style-type: none"> · Essential Operate Services (ESW) required for most features 	4-42
Cisco Unified Contact Center Express	This software-based automatic call distributor (ACD), IVR, and CTI application is designed for small-to-medium-sized companies, enterprise branches, or corporate departments with Cisco IP Telephony networks. The solution supports up to 300 agents and is available in three versions: Standard, Enhanced, and Premium, to better match product functions with your customer contact interaction management requirements. The solution offers: <ul style="list-style-type: none"> · Essential Operate Services (ESW) required for only the Agents 	4-43
Cisco Unified Contact Center Hosted	Cisco Unified Contact Center Hosted is suitable for both enterprise customers and service providers. <ul style="list-style-type: none"> · The service provider hosts the contact-center infrastructure software, which is shared by multiple business customers, in its central office or data center. · Essential Operate Services (ESW) required for most features. 	4-44
Cisco Unified Customer Voice Portal	Cisco Unified Customer Voice Portal delivers intelligent, personalized self-service over the phone. It allows customers to efficiently and enjoyably retrieve the information they need from the contact center. The solution: <ul style="list-style-type: none"> · Offers a prompt collect, queuing, and call-control service using standard IP technologies · Provides sophisticated voice and video self-service options with the ability to quickly and easily escalate to assisted service as required · Essential Operate Services (ESW) are strongly recommended 	4-44
Cisco Unified Expert Advisor	Cisco Unified Expert Advisor expands the scope of the contact center by allowing enterprise knowledge workers to handle incoming customer calls without the need for the rigid tools and business rules typically found in formal contact centers. The solution allows subject matter experts across the enterprise to assist with customer care, with or without a formal contact center. <ul style="list-style-type: none"> · Essential Operate Services (ESW) are strongly recommended 	4-45
Cisco Unified Intelligence Suite	The Cisco Unified Intelligence Suite offers customers a powerful Web-based reporting platform that is as flexible as it is intuitive. Customers can report on the details of every contact across all channels from a single interface, regardless of the resources involved. <ul style="list-style-type: none"> · Essential Operate Services (ESW) required for most features 	4-46
Cisco Unified Intelligent Contact Management Enterprise	Cisco Unified Intelligent Contact Management Enterprise provides call routing and CTI for multisite, TDM-based or IP-based contact centers in a distributed, fault-tolerant architecture. It offers: <ul style="list-style-type: none"> · Cisco Pre-Routing and Cisco Post-Routing, customer profile routing (CPR), and enterprise reporting · True Virtual ACD capabilities with third party PBXs · Essential Operate Services (ESW) required for most features 	4-46
Cisco Unified Intelligent Contact Management Hosted	Cisco Unified Intelligent Contact Management Hosted helps service providers address a full range of business opportunities. It offers: <ul style="list-style-type: none"> · Open architecture · An Expert Advisor option—Expanding the scope of the contact center by allowing presence-enabled enterprise knowledge workers to handle incoming customer contacts · Essential Operate Services (ESW) required for most features 	4-47
SOFTWARE SUBSCRIPTION AND LICENSING		

Cisco Unified Workspace Licensing	Cisco Unified Workspace Licensing allows organizations to cost-effectively access a wide range of Cisco Unified Communications applications and services in a cost-effective, simple package. It includes client and server software, licensing, service and support, and software subscription on a per-user basis.	4–48
Cisco Unified Communications Software Subscription	Cisco Unified Communications Software Subscription allows you to purchase major software version upgrades of various Cisco Unified Communications products at a reduced cost through a 1-, 2-, 3- or 5-year subscription.	4–49
SERVICES		
Cisco Unified Communications Services	Services, delivered by Cisco and our partners, help organizations deploy a secure, resilient Cisco Unified Communications solution, enabling powerful ways to collaborate with coworkers, partners, and customers across any workspace.	4–50

Video At-a-Glance		
Cisco TelePresence System	<p>The Cisco TelePresence system integrates advanced audio, high-definition video, and interactive elements with the power of the underlying network to deliver an immersive in-person experience.</p> <ul style="list-style-type: none"> • The system supports life-like images with ultra high-definition video and spatial audio. • The system integrates cameras, a lighting array, microphones, and speakers, all tuned to optimize the experience. • Integration with enterprise groupware, such as Microsoft Exchange and Lotus Notes, makes it easy to schedule and launch calls. • The solution offers scalable, no-latency multipoint meetings for up to 48 sites, interoperability with video conferencing, and secure and scalable intercompany calling. • Specialized applications such as Cisco TelePresence Expert on Demand and Cisco TelePresence Recording Studio take Cisco TelePresence beyond business meetings for new face-to-face interactions and transactions. • Operates on an integrated voice, video, and data network with intelligent architecture capabilities for ensuring reliability, quality of service (QoS), and security. 	4–50
Cisco TelePresence System 500	The smaller footprint of the Cisco TelePresence System 500 gives organizations the flexibility to deploy Cisco TelePresence within personal offices to support one-on-one meetings, or to join large, multipoint Cisco TelePresence calls.	4–51
Cisco TelePresence System 1000	The Cisco TelePresence System 1000 is ideal for small group or one-on-one meetings around the “virtual table”.	4–53
Cisco TelePresence System 1300 *NEW*	The new Cisco TelePresence System 1300 is a single-screen system designed for the general-purpose room. With a streamlined industrial design and three cameras, it can support up to six people without requiring a dedicated conference room. The endpoint also features integrated audio conferencing capabilities and innovations that reduce bandwidth requirements.	4–54
Cisco TelePresence System 3000	The Cisco TelePresence System 3000 is an ideal endpoint for group meetings, creating an environment for six people to sit around the “virtual table” in a single location.	4–55
Cisco TelePresence System 3200	The Cisco TelePresence System 3200 enables organizations to host up to 18 meeting participants in a single large room.	4–56
Cisco TelePresence Manager	Cisco TelePresence Manager software makes it easy for you to schedule and manage Cisco TelePresence calls.	4–58
Cisco TelePresence Multipoint Switch	Easily and reliably include three or more locations in a single meeting, with support for up to 48 locations.	4–59
Cisco TelePresence Recording Server *NEW*	The Cisco TelePresence Recording Server transforms the Cisco TelePresence system into a high-definition recording studio.	4–60
Cisco Unified Video Advantage	<ul style="list-style-type: none"> • Video is now just a phone call. Cisco Unified Video Advantage brings video communications to Cisco Unified IP Phones and Cisco IP Communicator • Cisco SMARTnet services available 	4–62
Cisco Unified Videoconferencing 3500 Series Products	<p>The Cisco Unified Videoconferencing 3500 Series provides a flexible, cost-effective video infrastructure for Cisco Unified Communications solutions.</p> <ul style="list-style-type: none"> • It supports multiple standards, codecs, and protocols for broad connectivity with room-based and desktop video, including standard-definition and high-definition endpoints. • It facilitates voice and video interoperability for Cisco TelePresence solutions. • Includes Software Application Support and Software Applications Support with Upgrades (SAS/SASU) 	4–62

Cisco Physical Security	For product information on Cisco Video Surveillance products, see Chapter 5, "Security".	See 5-1
Cisco Digital Media System	For product information, see Chapter 7 "Video and Broadband Cable".	See 7-1

WebEx At-a-Glance		
Cisco WebEx Meeting Center	Cisco WebEx Meeting Center allows business professionals to easily and reliably reach across the web to collaborate and work, inside or outside their organization.	4-64
Cisco WebEx Training Center	Cisco WebEx Training Center is an online classroom solution that enables you to deliver dynamic, interactive learning to anyone who has web access and a browser.	4-64
Cisco WebEx Event Center	Cisco WebEx Event Center is an online events- and webinar application for you to manage the entire online event lifecycle from planning, promoting, and presenting to follow-up and analysis	4-65
Cisco WebEx Support Center	Cisco WebEx Support Center enables IT and customer support to reduce costs, increase the productivity of their technical support representatives, reduce customer downtime, and increase customer satisfaction by improving the efficiency and effectiveness of remote support.	4-65
Cisco WebEx Connect	Cisco WebEx Connect is an enterprise-class, on-demand unified communications client that delivers instant messaging, rich presence, and team spaces to bring people, data, and processes together.	4-66
SERVICES		
Cisco WebEx Advanced Services	Cisco WebEx Advanced Services can help you reach and exceed your collaboration goals with a range of services that can be tailored to your organization. Our teams follow industry standard project management processes while leveraging the Cisco lifecycle approach to service engagements. Allow our consultants to assess your collaboration requirements and develop a plan to reach your goals. The five pillars of Advanced Services are Implementation/Adoption, eLearning & eMarketing Consulting, Personalized Training, Product Customization and Video webcasting.	4-67

Product Ordering Website

To place an order or for more part numbers, visit: <http://www.cisco.com/en/US/ordering/index.shtml>. This chapter only provides a small subset of all part numbers available. See the URL listed in the "For More Information" section of each product to get a complete list of part numbers.

Unified Communications

Cisco AS5350XM Universal Gateway

The Cisco AS5350XM Universal Gateway is a 1-rack-unit (1RU) gateway supporting 2- to 16-port T1/E1 or 1 CT3 configurations. The Cisco AS5350XM provides voice, fax, data, and session-border-control (SBC) services on any port at any time. This cost-effective platform is ideally suited for service provider and enterprise environments.



Ideal for Companies That Need These Features

- Cisco AS5350XM Universal Gateway
- High density in a small footprint (up to 20 CT1/CE1 or 1 CT3, any codec type, fax protocol or modem type)
 - High-performance voice, fax, data, and session-border-control (SBC) services
 - Concurrent voice gateway and SBC
 - High call rates (up to 20 calls per second)
 - Enhanced performance for processor-intensive Tool Command Language (TCL) or VoiceXML scripting for complex voice services
 - T.38 real-time fax relay, T.37 fax store and forward, fax detection, and unified communications

Key Features

- The Cisco AS5400XM Universal Gateway is ideally suited for service provider and enterprise environments that require innovative voice, fax, and data services.
- This universal gateway has a 2-rack unit (2RU), CT3-capable universal gateway with hot-swappable cards and internal redundant power supply.

- This universal gateway offers best-in-class voice, fax, remote access, and session-border-control (SBC) services.
- The gateway provides concurrent gateway and SBC operation.
- This gateway includes the following feature cards: 4 or 8 T1/E1/Primary Rate Interface (PRI) feature cards (ISDN calls terminated on the card); one CT3 feature card; a 60- or 108-channel universal port feature card; and a 384-channel voice feature card.
- This gateway has two 10/100/1000 autosensing Gigabit Ethernet LAN ports.
- This gateway has redundant 8-Mbps serial backhaul ports for Frame Relay, High-Level Data Link Control (HDLC) or Point-to-Point Protocol (PPP) WAN backhaul.
- The gateway provides one fast console port for local administrative access and one auxiliary port for remote administrative access, as well as redundant LAN and WAN backhaul ports.
- The gateway is European Telecommunications Standards Institute/Network Equipment Building Standards (ETSI/NEBS) Level 3 compliant, and has a redundant AC or DC power supply with dual fans.
- The gateway is interoperable with the Cisco Signaling System 7 (SS7) Interconnect for Voice Gateway (signaling gateway).

Specifications

Feature	Cisco AS5350XM
Processor	750 MHz RISC processor
SDRAM	512 MB (default), 1 GB (maximum)
System Flash	128 MB (default), 1 GB (maximum)
Feature Card Slots	3 slots
Trunk Feature Cards	2 T1/E1/PRI, 4 T1/E1/PRI, 8 T1/E1/PRI, 1 CT3
DSP Feature Cards	60 Universal port card, 108 Universal port card 384 port voice/fax card
Egress Ports	2 10/100/1000 autosensing Gigabit Ethernet LAN ports 2 8-Mbps serial ports T1/E1 DS1 and CT3 trunk feature cards
LAN Protocols	IP, IPX, AppleTalk, DECnet, ARA, NetBEUI, bridging, HSRP, 802.1Q
WAN Protocols	Frame Relay, PPP, HDLC (leased line)
Routing Protocols	Routing Information Protocol (RIP), RIPv2, OSPF, IGRP, EIGRP, BGPv4, IS-IS, AY-EIGRP, IPX-EIGRP, Next Hop Resolution Protocol (NHRP), AppleTalk Update-based Routing Protocol (AURP)
QoS Protocols	IP Precedence, Resource Reservation Protocol (RSVP), Weighted Fair Queuing (WFO), Weighted Random Early Detection (WRED), Multichassis Multilink PPP (MMP), fragmentation and interleaving, 802.1P
Access Protocols	PPP, Serial Line Internet Protocol (SLIP), TCP Clear, IPXCP, ATCP, ARA, NBFCP, NetBIOS over TCP/IP, NetBEUI over PPP, protocol translation (PPP, SLIP, ARA, X.25, TCP, local-area transport [LAT], Telnet), and Xremote
Bandwidth Optimization	Multilink PPP (MLPPP), TCP/IP header compression, Bandwidth Allocation Control Protocol (BACP)
Voice Compression	G.711, G.723.1 (5.3K and 6.3K), G.726, G.729ab, G. Clear, GSM-FR, AMR-NB, iLBC
DSP Voice Features	Echo cancellation, programmable up to 128 MB; Voice activity detection, silence suppression, comfort noise generation; Fixed and adaptive jitter buffering; Call progress tone detection and generation—Dial tone, busy, ring-back, congestion, and re-order tones with local country variants; DTMF Multifrequency (MF); Continuity Testing (COT)
Voice and Fax Signaling Protocols	H.323v2, H.323v3, H.323v4, SIP, MGCP 1.0, TGCP 1.0, Voice XML, Real-Time Streaming Protocol (RTSP), Extended Simple Mail Transfer Protocol (ESMTP); T.38 real-time fax relay; T.37 fax store and forward; Fax detection; Fax and modem passthrough; Open Settlements Protocol (OSP); Media Recording Control Protocol (MRCP); TTS Servers; ASR Servers
SS7	Integrated Signaling Link Terminal (ISLT), MTP1, MTP2, IUA, RUDP backhaul
Network Security	RADIUS or TACACS+, PAP, CHAP, and MSCHAP authentication, local user/password database DNIS, CLID, call-type pre-authentication Inbound/outbound traffic filtering (including IP, IPX, AppleTalk, bridged traffic) Network Address Translation (NAT) and dynamic access lists (ACLs) SNMPv2, SNMPv3, SSHv2 H.235

Virtual Private Networking	IP Security (IPSec) and policy enforcement (RADIUS or TACACS+) L2TP; Layer 2 Forwarding (L2F), and generic routing encapsulation (GRE) tunnels Firewall security and intrusion detection QoS features (committed access rate [CIR], Random Early Detection [RED], IP Precedence, policy-based routing)
Session Border Control	H.323 to H.323 (including Cisco Unified Communications Manager); H.323 to SIP (including Cisco Unified Communications Manager); SIP to SIP (including Cisco Unified Communications Manager); 1000 concurrent calls with 2000 sessions in flow-through mode
Channelized T1	Robbed-bit signaling; Loop Start; Immediate Start, and Wink Start Protocols
Channelized E1	CAS, PR1, E1 R2, leased line, Frame Relay, G.703, G.704
ISDN Protocols Supported	Sync mode PPP, V.110 at rates up to 38400 bps; Network- and user-side ISDN; NFAS with backup D-channel; QSIG, Feature Group B, Feature Group D; DoVBS
Modem Protocols Supported	V.90 or V.92 standard supporting rates of 56000 to 28000 in 1333 bps increments; V.92 Modem on Hold and Quick Connect; V.44 Compression supporting increased throughput by more than 100 percent for Internet browsing; K56Flex at 56000 to 32000 in 2000-bps increments ITU-T V.34 Annex 12 at 33600 and 31200 bps; ITU-T V.34 at 28800, 26400, 24000, 21600, 19200, 16800, 14400, 12000, 9600, 7200, 4800, or 2400 bps; V.32bis 14400, 12000, 9600, 7200, 4800; V.32 9600, 4800; V.22bis 2400, 1200; V.21 300; Bell 103, 300; V.22 1200; V.23 1200/75; ITU-T V.42 (including Microcom Networking Protocol [MNP] 2-4 and Link Access Procedure for Modems [LAPM] error correction; ITU-T V.42bis (1000 nodes) and MNP 5 data compression; Async-mode PPP
Full Cisco IOS Software Support	IP Plus and Enterprise Plus feature sets including 3DES and Lawful Intercept images
Console and Auxiliary Ports	Asynchronous serial (RJ-45)
Chassis	Dimensions (H x W x D): 1.75 x 17.5 x 20.5 in.; Weight (fully loaded): 22 lbs. (10 kg)
Memory Information	<ul style="list-style-type: none"> • Main SDRAM—2 slots, 512 MB default memory, 1 GB max memory • System Flash—1 slot, 128 MB default memory, 1 GB max memory

For More Information

For more information about the Cisco AS5350XM Universal Gateway, visit:
<http://www.cisco.com/en/US/products/hw/iad/index.html>

Cisco AS5400XM Universal Gateway

The Cisco AS5400XM Universal Gateway offers exceptional capacity in only two rack units (2RU) and provides voice, fax, and data services on any port at any time. High-density (up to one CT3 of voice over IP [VoIP] and two CT3 of time-division multiplexing [TDM] switching), low-power consumption (as low as 3.5A at 48 VDC per CT3 of G.711), and universal port digital signal processors (DSPs) make the Cisco AS5400XM Universal Gateways ideal for many network deployment architectures, especially co-location environments and mega points of presence (POPs).



Ideal for Companies That Need These Features

- | | |
|---|---|
| Cisco AS5400XM Universal Gateway | <ul style="list-style-type: none"> • High density in a small footprint (up to 20 CT1/CE1 or 1 CT3, any codec type, fax protocol or modem type) • High-performance voice, fax, data, and SBC services • Concurrent voice gateway and SBC • High call rates (up to 20 calls per second) • Enhanced performance for processor-intensive TCL or VoiceXML scripting for complex voice services • T.38 real-time fax relay, T.37 fax store and forward, fax detection, and unified communications |
|---|---|

Key Features

- The Cisco AS5400XM Universal Gateway is ideally suited for service provider and enterprise environments that require innovative voice, fax, and data services.
- This universal gateway has a 2-rack unit (2RU), CT3-capable universal gateway with hot-swappable cards and internal redundant power supply.
- This universal gateway offers best-in-class voice, fax, remote access, and session-border-control (SBC) services.
- The gateway provides concurrent gateway and SBC operation.

- This gateway includes the following feature cards: 4 or 8 T1/E1/Primary Rate Interface (PRI) feature cards (ISDN calls terminated on the card); one CT3 feature card; a 60- or 108-channel universal port feature card; and a 384-channel voice feature card.
- This gateway has two 10/100/1000 autosensing Gigabit Ethernet LAN ports.
- This gateway has redundant 8-Mbps serial backhaul ports for Frame Relay, High-Level Data Link Control (HDLC) or Point-to-Point Protocol (PPP) WAN backhaul.
- The gateway provides one fast console port for local administrative access and one auxiliary port for remote administrative access, as well as redundant LAN and WAN backhaul ports.
- The gateway is European Telecommunications Standards Institute/Network Equipment Building Standards (ETSI/NEBS) Level 3 compliant, and has a redundant AC or DC power supply with dual fans.
- The gateway is interoperable with the Cisco Signaling System 7 (SS7) Interconnect for Voice Gateway (signaling gateway).

Specifications

Feature	Cisco AS5400XM
Processor	750 MHz RISC processor
Calls Supported	Voice, fax, and remote access services to 648 concurrent calls (to 1CT3/16E1s)
SDRAM	512 MB (default), 1 GB (maximum)
Boot Flash	N/A
System Flash	128 MB (default), 1 GB (maximum)
Feature Card Slots	7
Trunk Feature Cards	4 T1/E1/PRI, 8 T1/E1/PRI, 1 CT3
DSP Feature Cards	60 Universal port card, 108 Universal port card 384 low complexity, 192 medium complexity or 144 high complexity port voice/fax card
Egress Ports	2 10/100/1000 autosensing Gigabit Ethernet LAN ports 2 8-Mbps serial ports; T1/E1 DS1 and CT3 trunk feature cards
LAN Protocols	IP, IPX, AppleTalk, DECnet, ARA, NetBEUI, bridging, HSRP, 802.1Q
WAN Protocols	Frame Relay, PPP, HDLC (leased line)
Routing Protocols	Routing Information Protocol (RIP), RIPv2, OSPF, IGRP, EIGRP, BGPv4, IS-IS, AY-EIGRP, IPX-EIGRP, Next Hop Resolution Protocol (NHRP), AppleTalk Update-based Routing Protocol (AURP)
QoS Protocols	IP Precedence, Resource Reservation Protocol (RSVP), Weighted Fair Queuing (WFO), Weighted Random Early Detection (WRED), Multichassis Multi-link PPP (MMP), fragmentation and interleaving, 802.1P
Access Protocols	PPP, Serial Line Internet Protocol (SLIP), TCP Clear, IPXCP, ATCP, ARA, NBFCP, NetBIOS over TCP/IP, NetBEUI over PPP, protocol translation (PPP, SLIP, ARA, X.25, TCP, local-area transport [LAT], Telnet), and Xremote
Bandwidth Optimization	Multilink PPP (MLPPP), TCP/IP header compression, Bandwidth Allocation Control Protocol (BACP)
Voice Compression	G.711, G.723.1 (5.3K and 6.3K), G.726, G.729ab, G. Clear, GSM-FR, AMR-NB, iLBC
DSP Voice Features	Echo cancellation, programmable up to 128 MB; Voice activity detection, silence suppression, comfort noise generation; Fixed and adaptive jitter buffering; Call progress tone detection and generation—Dial tone, busy, ring-back, congestion, and re-order tones with local country variants; DTMF Multifrequency (MF); Continuity Testing (COT)
Virtual Private Networking	IP Security (IPSec) and policy enforcement (RADIUS or TACACS+) L2TP, Layer 2 Forwarding (L2F), and generic routing encapsulation (GRE) tunnels Firewall security and intrusion detection QoS features (committed access rate [CIR], Random Early Detection [RED], IP Precedence, policy-based routing)
Session Border Control	H.323 to H.323 (including Cisco Unified Communications Manager); H.323 to SIP (including Cisco Unified Communications Manager); SIP to SIP (including Cisco Unified Communications Manager) 1000 concurrent calls with 2000 sessions in flow-through mode

Voice and Fax Signaling Protocols	H.323v2, H.323v3, H.323v4, SIP, MGCP 1.0, TGCP 1.0, Voice XML, Real-Time Streaming Protocol (RTSP), Extended Simple Mail Transfer Protocol (ESMTP); T.38 real-time fax relay; T.37 fax store and forward; Fax out (transmission) Group 3, standards EIA 2388 Class 2 and EIA 592 Class 2.0 at modulations V.33, V.17, V.29, V.27ter, V.21; ITU-T T.30, T.4; Fax detection; Fax and modem passthrough; Open Settlements Protocol (OSP), Media Recording Control Protocol (MRCP); TTS Servers; ASR Servers
Channelized T1	Robbed-bit signaling; Loop Start; Immediate Start, and Wink Start Protocols
Channelized E1	CAS, PR1, E1 R2, leased line, Frame Relay, G.703, G.704
ISDN Protocols Supported	Sync mode PPP, V.110 at rates up to 38400 bps; Network- and user-side ISDN; NFAS with backup D-channel; QSIG, Feature Group B, Feature Group D; DoVBS
Modem Protocols Supported	V.90 or V.92 standard supporting rates of 56000 to 28000 in 1333-bps increments; V.92 Modem on Hold and Quick Connect; V.44 Compression supporting increased throughput by more than 100 percent for Internet browsing; K56Flex at 56000 to 32000 in 2000-bps increments; ITU-T V.34 Annex 12 at 33600 and 31200 bps; ITU-T V.34 at 28800, 26400, 24000, 21600, 19200, 16800, 14400, 12000, 9600, 7200, 4800, or 2400 bps; V.32bis 14400, 12000, 9600, 7200, 4800; V.32 9600, 4800; V.22bis 2400, 1200; V.21 300; Bell 103, 300; V.22 1200; V.23 1200/75; ITU-T V.42 (including Microcom Networking Protocol [MNP] 2-4 and Link Access Procedure for Modems [LAPM] error correction; ITU-T V.42bis (1000 nodes) and MNP 5 data compression; Async-mode PPP
Full Cisco IOS Software Support	IP Plus and Enterprise Plus feature sets including 3DES and Lawful Intercept images
Console and Auxiliary Ports	Asynchronous serial (RJ-45)
Chassis	Dimensions (H x W x D): 3.5 x 17.5 x 18.25 in.; Weight (fully loaded): 35 lbs. maximum (15.8 kg)
Memory Information	<ul style="list-style-type: none"> • Main SDRAM—2 slots, 512 MB default memory, 1 GB max memory • System Flash—1 slot, 128 MB default memory, 1 GB max memory

For More Information

For more information about the Cisco AS5400XM Universal Gateway, visit:
<http://www.cisco.com/en/US/products/hw/iaf/index.html>.

Cisco AS5850 Universal Gateway

The Cisco AS5850 Universal Gateway is a high-density gateway with carrier-class attributes, offering high availability and exceptionally high capacity. It supports a wide range of IP-based, value-added services such as high-volume Internet access, corporate VPNs, long distance for Internet service providers (ISPs), international wholesale long distance, distributed prepaid calling, Cisco Signaling System 7 (SS7) interconnect and managed voice services including hosted IP telephony, managed IP private branch exchange (PBX), multiservice VPNs, and IP contact centers.



Ideal for Companies That Need These Features

Cisco AS5850 Universal Gateway

- Support for up to 2688 sessions of data, voice, or fax services using T1, E1, DS-3, or STM-1 trunk interfaces, with larger configurations supported for dial and time-division multiplexing (TDM) switching
- Service provider or large enterprise installations
- High port count behind one IP address
- Highly available single system with multiple redundancy
- Wholesale dial and voice, retail dial and voice, TDM grooming, or wireless applications

Key Features

- The Cisco AS5850 Universal Gateway offers hot-swappable, redundant power supplies and power feeds.
- This universal gateway provides redundant digital signal processors (DSPs) and route switch controllers (RSCs) a redundant blower for cooling, and Call Admission Control (CAC).
- Supports any codec at 100-percent capacity, simplifying network engineering.
- Supports Route Processor Redundancy Plus (RPR+) for high availability.
- This gateway provides thermal management and power management and redundant fans.
- This gateway offers the DSP Resource Recovery feature.
- Supports H.323v2, H.323v3, H.323v4, Session Initiation Protocol (SIP), and Media Gateway Control Protocol (MGCP) 1.0 and provides application-specific support, including support for AOL and Prodigy traffic.
- Offers WAN optimization, including routing filters, snapshot routine, and dial-on-demand routing (DDR).
- This gateway is European Telecommunications Standards Institute/Network Equipment Building Standards (ETSI/NEBS) Level 3 compliant.

- The gateway is interoperable with the Cisco Signaling System 7 (SS7) Interconnect for Voice Gateway (signaling gateway).
- This gateway provides Stratum-3 clock support and 802.1Q/1p VLAN/Inter-Switch Link (ISL) support.
- This gateway provides up to three chassis per rack (14RU chassis) and only 30A at 48V for 4 CT3 cards of high-complexity voice (11ma per voice channel, 12ma with route processor redundancy).

Specifications

Feature	Cisco AS5850
Slots	12 feature board slots; 2 ERSC slots
Processor	650 MHz Broadcom 1250 Dual Core
ERSC Switch Fabric	5 Gbps, Layer 3/4 switching
Memory	1 GB SDRAM with ECC per ERSC 128 MB SDRAM (with parity) per feature card
Trunk Cards	Single CT3 plus 216 DSP Channel feature card; 24 Ce1/CT1 feature card; Single port Channelized STM-1 feature card
Universal Port Card	324 Channel DSP-feature card
Egress Ports	Dual Gigabit load-balanced redundant Ethernet ports with GBIC interfaces for user traffic Dual 10/100 Mbps Ethernet port with RJ-45 connector for management traffic
LAN Protocols	IP, bridging, HSRP, 802.1Q
Service Support	Port Policy Management and SS7/C7
Routing Protocols	RIP, RIPv2, OSPF, IGRP, EIGRP, BGPv4, IS-IS, NHRP
Access Protocols	PPP, SLIP, TCP Clear
Bandwidth Optimization	Multilink PPP (MLPPP), TCP/IP header compression, Bandwidth Allocation Control Protocol (BACP), Bandwidth on demand, Nonfacility-associated signaling (NFAS), traffic shaping
Network Security	RADIUS or TACACS+, PAP or CHAP authentication, local user/password database, DNIS, CLID, call-type pre-authentication, Inbound/outbound traffic filtering (including IP), SNMPv2, SNMPv3
Virtual Private Networking	IP Security (IPSec) and policy enforcement (RADIUS or TACACS+) L2TP, Layer 2 Forwarding (L2F), and generic routing encapsulation (GRE) tunnels; Firewall security and intrusion detection; QoS features (committed access rate [CIR], Random Early Detection [RED], IP Precedence, policy-based routing)
Channelized T1	PRI, robbed-bit signaling; Loop Start; Immediate Start, and Wink Start Protocols
Channelized DS3	PRI, robbed-bit signaling; Loop Start; Immediate Start, and Wink Start Protocols
Channelized E1	CAS, PRI, E1 R2, SS7 IMT
Channelized STM-1	CAS, PRI, E1 R2, SS7 IMT
Voice Compression	G.711, G.7231 (5.3K and 6.3K), G.726, G.729ab, G. Clear, GSM-FR,
DSP Voice Features	Echo cancellation, programmable up to 128 MB; Transparent transcoding between A-law and mu-law encoding; Voice activity detection, silence suppression, comfort noise generation; Fixed and adaptive jitter buffering; Call progress tone detection and generation—Dial tone, busy, ring-back, congestion, and re-order tones with local country variants; DTMF, Multifrequency (MF); Continuity Testing (COT)
Voice and Fax Signaling Protocols	H.323v2, H.323v4, SIP, MGCP 1.0, TGCP 1.0, Voice XML, Real-Time Streaming Protocol (RTSP), Extended Simple Mail Transfer Protocol (ESMTP); Fax out (transmission) Group 3, standards EIA 2388 Class 2 and EIA 592 Class 2.0 at modulations V.33, V.17, V.29, V.27ter, V.21; ITU-T T.30, T.4; Fax detection; Fax and modem passthrough; Open Settlements Protocol (OSP), Media Recording Control Protocol (MRCP) to enable TTS and ASR Services
ISDN Protocols Supported	Sync mode PPP; V.110 at rates up to 38400 bps; Network- and user-side ISDN; NFAS with backup D-channel; QSIG, Feature Group B, Feature Group D; DoVBS

Modem Protocols Supported	V.90 or V.92 standard supporting rates of 56000 to 28000 in 1333-bps increments; V.92 Modem on Hold and Quick Connect; V.44 Compression supporting increased throughput by more than 100 percent for Internet browsing; K56Flex at 56000 to 32000 in 2000-bps increments; ITU-T V.34 Annex 12 at 33600 and 31200 bps; ITU-T V.34 at 28800, 26400, 24000, 21600, 19200, 16800, 14400, 12000, 9600, 7200, 4800, or 2400 bps; V.32bis 14400, 12000, 9600, 7200, 4800; V.32 9600, 4800; V.22bis 2400, 1200; V.21 300; Bell 103, 300; V.22 1200; V.23 1200/75; ITU-T V.42 (including Microcom Networking Protocol [MNP] 2-4 and; Link Access Procedure for Modems [LAPM] error correction; ITU-T V.42bis (1000 nodes) and MNP 5 data compression
Wireless Protocol	Vt110
Full Cisco IOS Software Support	IP Plus feature sets including 3DES and Lawful Intercept images
Console	Asynchronous serial (RJ-45)
Chassis	Dimensions (H x W x D): 24.5 x 17.5 x 12.4 in.; Weight (fully loaded): 220 lbs. (100 kg)
Memory Information	<ul style="list-style-type: none"> • ERSC SDRAM—1 GB default memory, 1 GB max memory • Feature Cards SDRAMs—128 MB default memory, 128 MB max memory • NOTE: Ships with all required memory

For More Information

For more information about the Cisco AS5850 Universal Gateway, visit:
<http://www.cisco.com/en/US/products/hw/iad/index.html>.

Cisco Unified Border Element

The Cisco Unified Border Element (Cisco UBE) is an intelligent unified communications network element. Formerly known as the Cisco Multiservice IP-to-IP Gateway, the Cisco Unified Border Element, in addition to other Cisco IOS Software features, includes session border controller (SBC) functions that enable end-to-end IP-based transport of voice, video, and data between independent unified communications networks. SBCs are critical components for scaling unified communications networks from being "IP islands" within a single customer network to becoming an end-to-end IP community. One of the most significant uses of the Cisco Unified Border Element is to allow call-control elements such as Cisco Unified Communications Manager to connect to service providers for public-switched-telephone-network (PSTN) access offerings over Session Initiation Protocol (SIP) trunks. Today, the Cisco UBE is used as an IP-to-IP gateway by service provider, enterprise, and commercial customers to interconnect SIP and H.323 voice and video networks.

Ideal for Companies That Need These Features

Cisco Unified Border Element

- Session management—Counts and manages the number of sessions flowing through a router
- Interworking—Interconnects different signaling methods and variants
- Demarcation—Acts as a distinct demarcation point between the two networks
- Security—Acts as a Layer 7 device that intelligently allows or disallows traffic between networks

Key Features

The Cisco Unified Border Element delivers the following features and benefits:

- Essential network border security features
- Privacy features for hiding internal network address structure from other administrative domains
- Layer 7 application layer gateway features
- Interworking features for interconnecting different voice-over-IP (VoIP) network types, such as H.323-to-SIP
- Dual tone multifrequency (DTMF) interworking
- Capacity control and improved call routing control using carrier-based routing
- Codec filtering by restricting codecs advertised on outbound call legs
- Billing and settlement features
- Software and hardware media-termination-point (MTP) functions for Cisco Unified Communications Manager (applies to Cisco 2800 and 3800 Series Integrated Services Routers only)
- Support for changing codecs during rotary dial-peer selection
- Simultaneous operation with TDM gateways on Cisco integrated service routers, permitting graceful migration from TDM to IP trunking
- Support for Lawful Intercept capabilities
- Support for Open Settlement Protocol
- Configurable Session Initiation Protocol (SIP) trunk profiles support
- Available in various licensing configurations to match customer capacity and price-point needs

Selected Part Numbers and Ordering Information

FL-CUBE-25(=)	Feature license applicable on any Cisco IOS Software platform for 25 simultaneous sessions
FL-INTVSVRV-261X(=)	Cisco 261x Integrated Voice Video License: IP-to-IP Gateway
FL-INTVSVRV-2811(=)	Cisco 2811 Integrated Voice Video License: IP-to-IP Gateway
FL-INTVSVRV-3845(=)	Cisco 3845 Integrated Voice Video License: IP-to-IP Gateway
FL-GK-IP7200(=)	Cisco 7200 IP-to-IP Gateway
FL-INTVSVRV-5X(=)	Cisco AS5350XM & AS5400XM Integrated Voice Video License: IP-to-IP Gateway

For More Information

For more information about Cisco Unified Border Element, visit:
<http://www.cisco.com/en/US/products/sw/voicesw/ps5640/index.html>

Cisco Voice Gateways

Cisco voice gateways interface directly to private branch exchanges (PBXs) or public telephone networks to carry voice traffic across IP networks by converting IP calls to standard telephony calls, and conversely. They provide connectivity between packet telephony and traditional telephony such as public switched telephone network (PSTN), private branch exchanges (PBXs), fax machines, and other devices.

Cisco VG200 Series Gateways provide:

- High-density gateways for centralized deployments of analog phones, fax machines, modems, voicemail systems, and speakerphones
- Low-density gateways for distributed deployments of analog phones, fax machines, modems, and speakerphones
- A broad range of features for enterprise voice systems based on Cisco Unified Communications Manager or Cisco Unified Communications Manager Express

Cisco offers the Cisco VG202 and VG204 (low density), and the VG224 and VG248 (high density) dedicated analog voice gateways. The full line of Cisco access and integrated routers can also add analog and digital voice gateway functions through the use of network modules and voice interface cards.

Key Features

- Cisco VG202 and VG204 Analog Phone Gateways
 - 2 and 4 full-featured analog phone lines, respectively, for use as extensions to Cisco Unified Communications Manager or Cisco Unified Communications Manager Express systems in a desktop form factor with a fanless design.
 - Based on a Cisco IOS Software platform, the Cisco VG204 and Cisco VG202 offer identical functions and support similar network topologies as the Cisco VG224.
- Cisco VG224 Analog Phone Gateway
 - High-density, 24-port Cisco IOS Software gateway for analog phones, fax machines, modems, and speakerphones within an enterprise voice system based on Cisco Unified Communications Manager or Cisco Unified Communications Manager Express.
 - Integration with the IP-based phone system increases manageability, scalability, and cost-effectiveness.
 - Commercial businesses can use the Cisco VG224 in conjunction with Cisco Unified Communications Manager Express to effectively augment an integrated services router environment.
 - With Cisco Unified Communications Manager or Cisco Unified Communications Manager Express, the Cisco VG224 can provide supplementary analog services while using the Cisco IOS Software gateway for reliable fax and modem delivery.
- Cisco VG248 48-Port Analog Phone Gateway
 - 1-unit-high, rack-mountable device allowing 48 analog devices (phones, fax machines, and modems) to be used with Cisco Unified Communications Manager.
 - Organizations with large numbers of analog phones can deploy IP telephony while maintaining the investment in traditional handsets. The analog lines are full-featured, with caller ID, message waiting lights, and feature codes. The price per port is competitive with a traditional private branch exchange (PBX).
 - Supports the traditional voicemail Simple Message Desk Interface (SMDI) voicemail interface that allows the connection of a Cisco Unified Communications Manager network to a traditional voicemail system. It also allows the sharing of existing SMDI-based voicemail systems between the Cisco Unified Communications Manager and the traditional PBX.

Ideal for Companies That Need These Features

- Cisco VG202 2-Port Analog Phone Gateway**
- Skinny Client Control Protocol (SCCP), Media Gateway Control Protocol (MGCP), Session Initiation Protocol (SIP), or H.323 support for analog ports
 - Cost-effective, desktop form factor with a fanless design, FXS interfaces for Cisco Unified Communications Manager Express (CME) or Cisco Unified Communications Manager applications
- Cisco VG224 24-Port Analog Phone Gateway**
- SCCP, MGCP, SIP, or H.323 support for analog ports
 - Cost-effective, 1-rack unit (1RU), FXS interfaces for Cisco Unified CME or Cisco Unified Communications Manager applications
 - High concentration of analog voice ports for basic calls, with supplementary services such as transfer, hold, park, and pickup
- Cisco VG248 48-Port Analog Phone Gateway**
- SMDA termination; ability to allow the sharing of SMDI-based voicemail systems between the Cisco Unified Communications Manager and a traditional PBX

Selected Part Numbers and Ordering Information

VG202	Cisco VG202 analog phone gateway
VG204	Cisco VG204 analog phone gateway
VG224	Cisco VG224 analog phone gateway
VG248	Cisco VG248 analog phone gateway

For More Information

For more information about Cisco Voice Gateways, visit: <http://www.cisco.com/go/voicegate>.

Cisco MCS 7800 Series Media Convergence Servers

The Cisco Media Convergence Server product family provides robust hardware platforms for hosting Cisco Unified Communications software products. Technical support, service dispatch, and replacement of failed hardware are provided as part of a standard Cisco maintenance contract.



Cisco MCS 7800 Media Convergence Servers have different model designations based on their capacity and fault-tolerance features. A given Cisco MCS 7800 model will also have different generation designations (such as -I2) based on its vintage, specifications, and original manufacturer. An orderable part number for a Cisco MCS 7800 will convey its model, generation, original manufacturer, and whether the server is “bare-metal”, shipped with a software media kit, or shipped with a factory preinstalled software image. For example, the Cisco MCS 7835-I2-IPC2/-CCX2/-CCE2/-ECS1 is model 7835, manufacturer IBM, generation 2, shipped as “bare-metal”, vs. the Cisco MCS 7835I2-K9-CMC2/UCB1A, which is the same hardware but ships with a factory preinstalled image of Cisco Unified Communications Manager 7(1)(2) for – CMC2 or Cisco Unity Connection 7(1) for UCB1A.

Cisco Unified Communications Manager also supports a “software-only” procurement model where servers may be purchased direct from supported server vendors such as IBM, provided the vendor, make, model, and parts list are exact matches for the corresponding Cisco MCS 7800 model or generation. These hardware specifications can be found at <http://www.cisco.com/go/swonly>.

Compatibility among Cisco MCS 7800 models or generations and versions of Cisco Unified Communications software should be verified prior to a new order, a hardware migration, or a software upgrade.

Many of these server models also have an optional tape drive (for backups) for purchase. Below are highlight Cisco Unified Communication Manager MCS model use cases. For Cisco Unified Contact Center, please consult the Contact Center Hardware and Software Specification as well as The Cisco Unified Contact Center Software Compatibility Matrix for what MCS models for use with Cisco Unified Contact Center Enterprise and Express solutions. For Cisco Unity Hardware configuration requirements please see http://www.cisco.com/en/US/prod/collateral/voicesw/ps6789/ps5745/ps2237/product_data_sheet0900aecd802132ef.html

For Cisco Unity Connection Hardware configuration requirements please see http://www.cisco.com/en/US/prod/collateral/voicesw/ps6789/ps5745/ps6509/data_sheet_c78-491743.html

Cisco MCS 7816

The Cisco MCS 7816 is a 1-rack-unit (1RU) high entry-level server platform with a single CPU, single disk drive, and a single non-hot-swap power supply. Typical deployments are 500 users or less per server.

Cisco MCS 7825

The Cisco MCS 7825 is a 1RU high-value server platform with a single CPU, two hard drives - configured as a Redundant Array of Independent Disks 1 (RAID1), and a single non-hot-swap power supply. Typical deployments are 1000 users or less per server.

Cisco MCS 7828

The Cisco MCS 7828 is a more powerful variant of the Cisco MCS 7825 for use with Cisco Unified Communications Manager Business Edition. Depending on generation, it has a more powerful CPU, more memory, and more hard disk space than the Cisco MCS 7825, but is otherwise identical. Typical deployments are 500 users or less per server.

Cisco MCS 7835

The Cisco MCS 7835 is a 2RU high, high-availability server platform with a single CPU, up to eight hot-swap hard disks, dependent on software product (usually only two), a RAID 1/0 controller, hot-swap redundant fans, and redundant hot-swap power supplies. Typical deployments are 2500 users or less per server.

Cisco MCS 7845

The Cisco MCS 7845 is a more powerful variant of the Cisco MCS 7835 used for higher-capacity deployments. It uses dual CPUs and up to eight hot-swap hard disks (though usually only four are supported by the Cisco software); otherwise it is identical to the Cisco MCS 7835. Typical deployments are for 5000 to 7500 users or less per server.

Ideal for Companies That Need These Features

Cisco MCS 7816	<ul style="list-style-type: none">• Low-price solution ideal for small customer deployments• Rack form-factor
Cisco MCS 7825	<ul style="list-style-type: none">• Small customer deployments where storage fault tolerance is important• Rack-form factor
Cisco MCS 7835	<ul style="list-style-type: none">• Medium-sized customer deployments where storage fault tolerance is important• Power and fan redundancy• Rack-form factor
Cisco MCS 7845	<ul style="list-style-type: none">• Large-sized customer deployments where storage fault tolerance is important and power and fan redundancy are important• Rack-form factor

Specifications

Specifications vary by Cisco MCS 7800 model, generation and manufacturer. Please see the datasheets at <http://www.cisco.com/go/mcs> and the parts lists at <http://www.cisco.com/go/swonly> for specifications.

Selected Part Numbers and Ordering Information

The part number to order depends on a number of factors, including but not limited to:

- The 7800 model, e.g. 7816, 7825, etc.
- The manufacturer and generation, e.g. -H3, -I3, etc.
- Whether the server will be shipped "bare-metal", or with a software media kit, or with a factory pre-installed software image
- With what software product the server will be used

Sample part numbers are provided below to illustrate part number syntax for the above factors. Check the documentation for your software product as well as the descriptions of the part numbers below for assistance with ordering the correct hardware.

MCS-7816-I4-CCE1 / MCS-7816- I4-CCX1 / MCS-7816- I4-IPC1	Cisco Media Convergence Server 7816- I4
MCS-7816-H4-CCE1 / MCS-7816- H4-CCX1 / MCS-7816- H4-IPC1	Cisco Media Convergence Server 7816- H4
MCS-7825- I4-IPC1 / MCS-7825- I4-ECS1 / MCS-7825- I4-CCX1	Cisco Media Convergence Server 7825- I4
MCS-7835-H2-IPC2 / MCS-7835-H2-ECS1 / MCS-7835-H2-CCX1	Cisco Media Convergence Server 7835-H2 V02
MCS-7835-I2-IPC2 / MCS-7835-I2-ECS1 / MCS-7835-I2-CCX1	Cisco Media Convergence Server 7835-I2 V02
MCS-7845-H2-IPC2 / MCS-7845-H2-ECS1 / MCS-7845-H2-ECS2 / MCS-7845-H2-CCX1/CCE2	Cisco Media Convergence Server 7845-H2 V02

MCS-7845-I2-IPC2 / MCS-7845-I2-ESC1 / MCS-7845-I2-ESC2 / MCS-7845-I2-CCX1 CCX1/CCE2	Cisco Media Convergence Server 7845-I2 V02
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For More Information

For more information about the Cisco Media Convergence Server, visit:
<http://www.cisco.com/go/mcs> and <http://www.cisco.com/go/swonly>.

Cisco ATA Analog Telephone Adapter

The Cisco ATA 186 Analog Telephone Adaptor brings analog telephones into the networked world. The Cisco ATA addresses the low-end product portfolio need by targeting the enterprise, business local services, small-office environment, and the emerging managed voice-services market. These cost-effective handset-to-Ethernet adaptors help enable analog devices, such as phones and fax machines, to support voice-over-IP (VoIP) services.



Cisco ATA adapters can be configured to use the standards-based VoIP protocols Session Initiation Protocol (SIP) and Skinny Client Control Protocol (SCCP).

Ideal for Companies That Need These Features

- Cisco ATA Analog Telephone Adaptors**

- Analog devices such as phones and fax machines enabled to support VoIP services by converting the analog signal into an IP signal
 - Continuing use of existing analog phones with IP network

Key Features

- Autoprovisioning with Trivial File Transfer Protocol (TFTP) provisioning servers
- Automatic assignment of IP address, network route IP, and subnet mask through Dynamic Host Configuration Protocol (DHCP)
- Optional web configuration through built-in web server
- Optional touch-tone telephone keypad configuration with voice prompt
- Administration password to protect configuration and access
- Advanced preprocessing to optimize full-duplex voice compression
- High-performance line-echo cancellation to eliminate noise and echo
- Voice activity detection (VAD) and comfort noise generation (CNG) to save bandwidth by delivering voice, not silence
- Dynamic network monitoring to reduce jitter artifacts such as packet loss

Specifications

Feature	Cisco ATA 186	Cisco ATA 188
Telephone and network interfaces	2 RJ-11 FXS ports 1 RJ-45 interface for network connections	2 RJ-11 FXS ports 1 RJ-45 interface for network connections 1 RJ-45 "switch port" for connection to PC or another downstream Ethernet device Note: "Daisy chaining" multiple ATAs together through the second RJ-45 port is not supported
Dimensions (H x W x D)	1.5 x 6.5 x 5.75 in. (3.8 x 16.5 x 14.6 cm)	1.5 x 6.5 x 5.75 in. (3.8 x 16.5 x 14.6 cm)
Weights	15 oz (425 gm)	15 oz (425 gm)
VoIP Protocols	SIP (RFC 2543); SCCP	SIP (RFC 2543); SCCP

Selected Part Numbers and Ordering Information

ATA186-I1-A	Cisco ATA 186 2-port adaptor, 600 ohm impedance ¹
ATA186-I2-A	Cisco ATA 186 2-port adaptor, complex impedance (270 ohm in series w/ 750 ohm and 150 nF in parallel) ¹

1. Some countries have telephone networks that list multiple impedance requirements, so closely approximate the impedance of the typical handsets used in the region when selecting the proper configuration to avoid poor echo cancellation performance.

For More Information

For more information about the Cisco ATA analog telephone adapters, visit:
<http://www.cisco.com/en/US/products/hw/gatecont/ps514/index.html>.

Cisco Smart Business Communications System

The Cisco Smart Business Communications System (SBCS) combines voice, data, video, fax, and wireless into a single, purpose-built platform. This easy-to-deploy, easy-to-use solution will change the way customers communicate among their employees and with their customers, helping them become more efficient and more effective. With flexible support for up to 48 users and expansion capabilities for up to 64 users and up to five interconnected offices, the Cisco Smart Business Communications System can grow as customers grow.

Key Features

- Comprehensive connectivity—Cisco Unified Communications 500 Series for Small Business includes robust voice and call-processing capabilities, voice messaging, public-switched-telephone-network (PSTN) and Internet connectivity, integrated firewall, and an optional integrated wireless LAN (WLAN) access point. Up to five Cisco Unified 500 Series can be connected for interoffice calling and transfers, including phone connectivity for remote employees, teleworkers, and other mobile staff.
- Full portfolio of IP phones—The Cisco Smart Business Communications System supports the full portfolio of Cisco Unified IP Phones, including new value-priced Cisco Unified Communications 500 Series IP Phones and the Cisco SPA500 Series family of affordable IP phones for small business, designed to work specifically with the Cisco Unified Communications 500 Series. The phones offer a robust feature set and provide an intuitive, rich user experience with wideband audio to connect employees and offices, application support on the phone to enhance productivity, and encryption for enhanced security.
- Switching—Innovative Cisco Catalyst Express 520 Series switches with Power over Ethernet (PoE) support a variety of networking needs, with best-practice configuration through Cisco Smartports. Seamless integration support for the new Cisco ESW 500 Series Switches quickly and simply integrate with Cisco SBCS. The ESW switch portfolio includes Fast Ethernet, Gigabit Ethernet, and PoE models, are supported by a competitive warranty and services and provide a single high-performance and secure platform for any small business voice, video, data and wireless need.
- Routing—The Cisco Unified Communications 500 Series supports static routing and routing between VLANs and the built-in interfaces. Additionally, SBCS can be used with the Cisco 520 Series Secure Router which combines Internet access and wireless services to protect the business from threats and malware in a single easy-to-use device. The Cisco 520 Series Secure Router brings together multiple technologies to help lower costs, improve network security, and simplify network management.
- Application integration—Desktop applications provide capabilities such as visual access to voicemail, integration with e-mail, click to dial from any application, integrated faxing, and dynamic call recording. These applications include Cisco Unified CallConnector, Microsoft Dynamics CRM software, and additional third-party business-productivity applications. The following new integrated Smart Applications on the Cisco Unified Communications 500 Series platform bolster productivity: Cisco WebEx PhoneConnect, TimeCardView (with Cisco Unity Express) and Single Number Reach.
- Collaboration—The Cisco Smart Business Communications System supports impromptu video communications, instant messaging, and presence capabilities to accelerate business processes for competitive advantage. It provides support for 8-party impromptu voice conferencing and up to 32-party Meet Me conference bridge capabilities.
- Secure wireless—Cisco Mobility Express provides highly secure, integrated business-class wireless network capabilities for greater flexibility. It allows customers to offer wireless guest access to the Internet without providing access to the internal network.
- Simplified management—A GUI-based system configuration and management tool, Cisco Configuration Assistant, makes it easy to set up and administer the Cisco SBCS.
- Reduced complexity and improved reliability—Cisco SBCS reduces the complexity of the typical multivendor small business network and improves reliability through tighter integration of the critical components of an organization's network and phone system, all supported end to end by Cisco.
- Easy to own—The application is simple to order, with easy finance options available through Cisco Capital (includes Easy Lease); multilevel service options help ensure optimal return on investment (ROI).
- Flexible deployment options—The application works in customer premises, hosted, or managed service scenarios. It is available in desktop or 19-inch rack-mount form factors.

Specifications

Feature	Cisco Smart Business Communications System
Platform	Cisco Unified Communications 500 Series, Cisco Catalyst Express 520 Series Switches, Cisco 521 Wireless Express Access Point, Cisco 526 Wireless Express Mobility Controller, Cisco Unified IP Phones

Phones supported	521G, 521SG, 524G, 524SG, 7985G, 7975G, 7971G-GE, 7970G, 7965G, 7961G/GE, 7960G, 7945G, 7941G/GE, 7940G, 7912G, 7911G, 7905G, 7902G, 3911, wireless phone 7920, expansion module 7914, IP Conference station 7936, Cisco IP Communicator, Cisco Unified Video Advantage video telephony offering
IOS Images	12.4(11)XW9 (on Cisco UC500)

Selected Part Numbers and Ordering Information

Cisco Smart Business Communications System

Cisco Unified Communications 500 Series

UC520-8U-4FXO-K9	8U Unified CME base, Cisco Unity Express, and phone FL w/4FXO, 1VIC
UC520-24U-8FXO-K9	24U Unified CME base, Cisco Unity Express, and phone FL w/8FXO, 1VIC
UC520-48U-12FXO-K9	48U Unified CME base, Cisco Unity Express, and phone FL w/12FXO, 1VIC

Cisco Unified Communications 500 Series Models with Optional Integrated WLAN Access Point

UC520W-8U-4FXO-K9	8U Unified CME base, Cisco Unity Express, and phone FL w/4FXO, 1VIC, Wi-Fi
UC520W-16U-4FXO-K9	16U Unified CME base, Cisco Unity Express, and phone FL w/4FXO, 1VIC, Wi-Fi

Cisco 520 Series Secure Router

SR520ADSL-K9=	Cisco Secure Router 520-ADSL features ADSL over basic telephone service WAN connectivity
SR520WADSL-K9=	Cisco Secure Router 520W-ADSL features ADSL over basic telephone service WAN connectivity and integrated wireless support

Cisco Catalyst Express 520 Series Switches

WS-CE520-8PC-K9	8 10/100 access ports with PoE + 1 10/100/1000 or SFP ports
WS-CE520-24TT-K9	24 10/100 access ports + 2 10/100/1000 ports

Cisco ESW 500 Series Switches

ESW-540-24P-K9	24 10/100 ports with PoE + 4 10/100/1000BASET (2 combo* SFP ports)
ESW-520-48P-K9	48 10/100 ports with PoE + 2 10/100/1000BASET and SFP ports
ESW-520-24P-K9	24-port 10/100/1000 with PoE and 4 combo* SFP ports

*Combo SFP slots include one 10/100/1000BASET Ethernet port and 1 SFP Gigabit Ethernet slot for fiber, 1 port active at a time

Cisco Mobility Express Products

Cisco 521G Wireless Express Access Point

AIR-AP521G-A-K9	Standalone mode upgradeable to controller mode; 802.11b/g; integrated antennas; FCC regulatory domain
AIR-LAP521G-A-K9	Controller mode; 802.11b/g; integrated antennas; FCC regulatory domain Requires WLC526

License-based upgrades are available for the Unified Communications 500 Series models. This allows upgrades from the 8-user, desktop form factor version to the 16-user version. In addition, the 24-user system, available in the 19-inch rack mount form factor, can be upgraded to a 32 or 48-user system and a 32 user system can be upgraded to 48 users. A software license upgrade from 48 to 64 users is also available. Upgrades to 64 users must be from a 48 user system; upgrades to 64 users from a 24 or 32 user system are not available.

For customers that want to move from the 8/16-user version to the 24/32/48-user version, a hardware replacement is required. The Cisco to Cisco Technology Migration Program (TMP) will provide a 10 percent credit of the original list price toward the larger system. More information on the TMP can be found at <http://www.cisco.com/go/tradein>.

For More Information

For more information about the Cisco Smart Business Communications System, visit: <http://www.cisco.com/go/sbcs>.

Cisco Unified Communications Manager

Cisco Unified Communications Manager is the powerful call-processing component of the Cisco Unified Communications Solution. It is a scalable, distributable, and highly available enterprise IP telephony call-processing solution that focuses on lowering the total cost of ownership for customers and improving the user experience of end users and system administrators. Major highlights include:

- Local route groups and transformation patterns greatly reduce the configuration effort to create dial plans.
- Intelligent bridge selection saves customers money by optimizing the use of video bridge resources.
- Trusted relay points enable trusted quality of service and Call Admission Control, as well as trusted VLAN traversal for unified communications software clients.

- Early offer support with G.729 on Session Initiation Protocol (SIP) trunks provides the savings of low-bandwidth codecs.

Key Features

- Cisco Unified Communications Manager is installed on Cisco 7800 Series Media Convergence Server platforms and selected third-party servers.
- Multiple Cisco Unified Communications Manager servers can be clustered and managed as a single entity. The application offers scalability from 1 to 30,000 IP phones per cluster, with load-balancing and call-processing service redundancy. Interlinking allows system capacity to reach 1 million users in a system of more than 100 sites. The solution aggregates the power of multiple, distributed installations, enhancing the scalability and accessibility of the servers to phones, gateways, and applications, and triple call-processing server redundancy improves overall system availability.
- Call Admission Control (CAC) helps ensure that voice quality of service (QoS) is maintained across constricted WAN links, and automatically diverts calls to alternate public-switched-telephone-network (PSTN) routes when WAN bandwidth is not available.
- Devices can automatically update location information as they move from location to location to improve CAC and emergency service performance.
- This solution effectively supports IP phone activities; Cisco Unified Communications Manager Assistant has been ported to an Extensible Markup Language (XML) service that can be run on the phone, allowing assistants that handle executive and manager phones to have increased features without having to rely on a PC to provide the user interface.
- Cisco Unified Communications Manager integrates with a Lightweight Directory Access Protocol (LDAP) directory such as Active Directory to provide required security features.
- Cisco Unified Communications Manager provides improved call routing to remote phones connected over a WAN. It allows alternate routing when the WAN is out of bandwidth or out of service. It provides routing to the originally called phone number through the PSTN or can call an alternate phone such as a mobile phone during a WAN failure or an out-of-bandwidth situation.
- Access through a full GUI and a command-line interface facilitates diagnostics. The solution supports all system management activities such as disk-space monitoring, system monitoring, and upgrades, which are either automated or controlled. The solution supports basic systems management features such as starting or stopping services and rebooting the appliance.
- The solution is preloaded with Cisco Security Agent.
- An expanded Session Initiation Protocol (SIP) trunk interface conforms to RFC 3261, allowing support of video calls over the SIP trunk. Cisco Unified Communications Manager supports line-side devices, including IETF RFC 3261-compliant devices available from Cisco and other manufacturers.
- The Resource Reservation Protocol (RSVP) agent on a Cisco router extends CAC capability beyond a hub-and-spoke topology within a cluster.
- Simple Network Management Protocol (SNMP) support allows managers to set and report traps on conditions that could affect service and send them to the remote-monitoring systems.

Specifications

Feature	Cisco Unified Communications Manager ¹
Pre-installed Software	Cisco Unified Communications Manager, configuration database, administrative software, CDR Analysis and Reporting Tool, Bulk Administration Tool (BAT), Real-Time Monitoring Tool (RTMT), Cisco Conference Bridge, Locale Installer, JTAPI, Telephony Service Provider, Cisco Unified Communications Manager Assistant, Cisco Unified Mobility, Cisco Unified IP Phone Address Book Synchronizer, Cisco Dialed Number Analyzer
Platforms	Media Convergence Server (MCS); Selected third-party servers
New and Enhanced User Features	<ul style="list-style-type: none"> • For easier administration, saving you time and resources—Calling party normalization: E.164 with “+” dialing; local route groups and transformation; trusted relay point; intelligent bridge selection, IP phone migration tool, Cisco Data Migration Assistant enhancements. • Mobility features—Dial via Office; directed call park; reverse callback; simultaneous ring time-of-day access list • Greater interoperability with partners—Click to conference with IBM Sametime; simultaneous ring Uniform Resource Identifier (URI) dialing with Microsoft OCS; T.38 Fax interoperability with Microsoft Exchange; Active Directory 2008, Q.SIG variant provisioning, IPv6 support, Open LDAP support, H.235 video support • New telephony features—Directed call pick up; do not disturb — call reject; extension mobility feature safe; Phone services provisioning, abbreviated dialing enhancements, drop any conference party from CTI-enabled endpoint • Additional localization—Estonian; Latvian; Lithuanian • New SIP support—Single button barge; join across lines; busy-lamp-field (BLF) alert; BLF pickup; conference chaining; do not disturb — call reject; Cisco Unified IP Phone 7931G

New and Enhanced System Capabilities	<ul style="list-style-type: none"> Abbreviated dialing enhancements Alternate automatic routing (AAR): Attenuation and gain adjustment per device (phone and gateway) Automated bandwidth selection: auto route selection (ARS) Codec support for automated bandwidth selection: G.711 (mu-law and a-law), G.722, G.722.1, G.723.1, G.728, G.729A/B, GSM-EFR, GSM-FR, and wideband audio (proprietary 16-bit resolution; 16-kHz sampled audio); Digit analysis and call treatment (digit string insertion, deletion, stripping, dial access codes, and digit string translation); Distributed call processing—Deployment of devices and applications across an IP network; Virtual clusters of up to eight Cisco Unified Communications Manager servers for scalability, redundancy, and load balancing; Maximum of 7500 IP phones per Cisco Unified Communications Manager server and 30,000 per server cluster (configuration-dependent); Maximum of 100,000 busy-hour call completions (BHCCs) per Cisco Unified Communications Manager server and 250,000 per server cluster (configuration-dependent); Intercluster scalability to more than 100 sites or clusters through H.323 gatekeeper; Intracenter feature and management transparency Fax over IP—G.711 pass-through and Cisco Fax Relay: Forced authorization codes and client matter codes (account codes); Hotline and private line automated ringdown (PLAR); Hunt groups—Broadcast, circular, longest idle, and linear; Language support for client-user interfaces (languages specified separately) IPv6 support—Dual stack deployment of IPv4 and IPv6 is supported, enabling graceful migrations from IPv4 to IPv6 networks Multiple remote Cisco Unified Communications Manager platform administration and debug utilities—Prepackaged alerts, monitor views, and historical reports with RTMT; Real-time and historical application performance monitoring through operating system tools and SNMP; Monitored data collection service: Remote terminal service for off-net system monitoring and alerting; Real-time event monitoring and presentation to common syslog; Trace setting and collection utility; Browse to onboard device statistics; Clusterwide trace setting tool; Trace collection tool; Multisite (cross-WAN) capability with intersite CAC Off-premises extension (OPX); Outbound call blocking; Out-of-band dual tone multifrequency (DTMF) signaling over IP; PSTN failover on route nonavailability—AAR; Call preservation—redundancy and automated failover—on call-processing failure; Station-to-station Q.SIG variant provisioning, to configure either ISO or ECMA variants on a gateway or trunk basis to a single Cisco Unified Communications Manager cluster. Security—Device authentication; New model phones have an embedded X.509v3 certificate; a certificate authority proxy function (CAPF) is used to install locally significant certificate in the phones. Cisco Unified SRST Silence suppression and voice activity detection; Simplified North American Numbering Plan (NANP) and non-NANP support; T.38 fax support (H.323 and SIP); Time-of-day, day-of-week, and day-of-year routing and restrictions SIP line and trunk enhancements; directed call pickup, join across lines, single button barge, and others. Added security with support of secure RTP over SIP trunk. Toll restriction—Dial-plan partition; Toll-fraud prevention—Prevent trunk-to-trunk transfer; Drop conference call when originator hangs up; Require forced authorization codes Unified device and system configuration; Unified dial plan Video codecs: H.261, H.263, H.264, and Cisco Wideband Video Codec (Cisco Unified Video Advantage) Video Telephony (SCCP, H.323, and SIP)
Sample Subset of Administrative Features	<ul style="list-style-type: none"> Conceals seconds calculation Mean Opinion Score (MOS) calculation using K-Factor Support for password aging, complex password requirements, one-time passwords, with LDAP directory Voice quality statistics on a call-by-call basis Application discovery and registration to SNMP manager Intelligent Bridge Selection Automated alternate routing groups, local route groups, and transformation patterns AXL SOAP API with performance and real-time information, bulk administration

1. Additional RAM may be required in Media Convergence Servers to support existing and enhanced services in Cisco Unified Communications Manager.

Selected Part Numbers and Ordering Information

UNIFIED-CM-70	Cisco Unified CM 70 Top Level Part Number
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For More Information

For more information about Cisco Unified Communications Manager, visit: <http://www.cisco.com/go/callmgr>.

Cisco Unified Communications Manager Assistant

Included with Cisco Unified Communications Manager, Cisco Unified Communications Manager Assistant provides the call-routing and call-management capabilities required in a manager or administrative assistant business environment while giving users a choice of phone devices that better fit their needs. By combining a PC-based console application with various softkeys and display panes on Cisco Unified IP Phones, it can present users job-specific tools, such as directories with Click-to-Dial and drag-and-drop functions, to more efficiently manage calls.

Cisco Unified Communications Manager Assistant is configured in either proxy-line mode or shared-line mode. In proxy-line mode, managers and assistants have different directory numbers or lines on their phones, but calls to managers are usually diverted to the assistant's line based on customizable dynamic filters. In shared-line mode, both managers and assistants share the same directory number, but assistants can handle calls without disturbing managers. Either mode can be used in conjunction with the PC-based console application or a new Extensible Markup Language (XML)-based phone service that does not require a PC.

Ideal for Companies That Need These Features

Cisco Unified Communications Manager Assistant

- Administrative assistants who need an efficient way to monitor and manage calls for multiple managers
- Managers who regularly have their calls answered by an assistant

For More Information

For more information about Cisco CMA, visit: <http://www.cisco.com/go/ipma>.

Cisco Unified Communications Manager Business Edition

Cisco Unified Communications Manager Business Edition (CUCMBE) is designed for medium-sized businesses with up to 500 employees and up to 20 sites (19 remote sites). The Cisco Unified Communications Manager Business Edition integrates the benefits of voice, video, mobility, and messaging on a single platform. Previously, organizations needed one hardware server for each application. Consolidating applications on a single server makes the Cisco Unified Communications Manager Business Edition a cost-effective solution by eliminating the need to have multiple hardware servers to run each application. It also dramatically simplifies the installation, support, upgrade, and ongoing management of the system, thereby reducing the total cost of ownership (TCO).

Key Features

The Cisco Unified Communications Manager Business Edition inherits nearly all of the core features and functions of the Cisco Unified Communications Manager and Cisco Unity Connection products. Some of the core capabilities are summarized here.

- Call control—In addition to standard telephony features such as call coverage, call transfer, call waiting, hold, conference, park, and pickup, Cisco Unified Communications Manager Business Edition delivers a powerful set of telephony features for medium-sized businesses -- for instance, intercom with whisper page, do not disturb, hold reversion, immediate divert to voicemail, and hunt groups.
- Lightweight Directory Access Protocol (LDAP) synchronization and authentication
- Support for up to 20 Survivable Remote Site Telephony (SRST) sites using a centralized call-processing model
- Session Initiation Protocol (SIP) support
- Call Admission Control (CAC)
- Powerful Cisco Unified Mobility capabilities
- Cisco Unity Connection voice and integrated messaging
- Conferencing and calendaring integration
- Personal Web administration

Specifications

Feature	Cisco Unified Communications Manager Business Edition
Platform	The Cisco Unified Communications Manager Business Edition software suite is supported on the Cisco MCS 7828 Unified Communications Manager Business Edition Appliance, a member of the Cisco media convergence server portfolio.
Maximum total users	500
Mailboxes and voicemail ports	500 mailboxes and 24 voicemail ports
Number of remote sites	20 (centralized call processing, with Cisco Unified Survivable Remote Site Telephony [SRST] for redundancy)

Telephony and voicemail feature limitations	Cisco Unified Communications Manager Business Edition supports all the standard telephony features of Cisco Unified Communications Manager and voice-messaging features of Cisco Unity Connection except the following: <ul style="list-style-type: none">• Call processing and voicemail redundancy• Distributed call processing—Cisco Unified Communications Manager Business Edition is supported only in the centralized call-processing model with Cisco Unified SRST.
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User and Administrator Features

For a summary of user and administrator features, please refer to the Cisco Unified Communications Manager 7.0 and Cisco Unity Connection 7.0 data sheets.

Supports 14 core languages for user locales, the voicemail telephone user interface, and the GUI.

In addition to the core languages, Cisco Unified Communications Manager supports an additional 13 user localizations.

Selected Part Numbers and Ordering Information

Cisco Unified Communications Manager Business Edition can be ordered in a couple of different ways, either independently (with traditional licenses) or as part of a workspace bundle (with workspace licenses).

Both Cisco Unified Communications Manager Business Edition licenses require purchasing a starter bundle. The starter bundles include all the unified communications server and client software for the applications included under the licenses, the Cisco MCS 7828 server hardware for deploying Cisco Unified Communications Manager Business Edition, and licenses for the first 50 users. To deploy Cisco Unified Presence, customers need to purchase a separate adjunct server.

MCS7828I4-K9-WL	CUCMBE, 7828-I4 appliance, Workspace License 50 Users
MCS7828H3-K9-WL	CUCMBE, 7828-H3 appliance, Workspace License 50 Users

For More Information

For more information about the Cisco Unified Communications Manager Business Edition, visit:
<http://www.cisco.com/go/cmbe>.

Cisco Unified Communications Manager Express

Cisco Unified Communications Manager Express provides call processing for Cisco Unified IP phones for small-office or branch-office environments. It enables the large portfolio of Cisco integrated services routers to deliver unified communications features that are commonly needed by business users to meet the voice and video communications requirements of the small or medium-sized office. Cisco Unified Communications Manager Express allows the deployment of a cost-effective, highly reliable communications system using a single device using Cisco IOS Software.

Key Features

- Low cost —This full-featured call processing solution is integrated into Cisco Integrated Services Routers and Cisco Multi-service Access Routers that deliver a small footprint and are simple to deploy, administer, and maintain
- Comprehensive feature set—Innovative key system and small private branch exchange (PBX) capabilities available within feature-rich Cisco IOS software
- Business process transformation—Integration with existing business process applications, such as Customer Relationship Management (CRM), delivered in combination with Cisco Unified CallConnector applications
- Increased employee productivity—Users have call control, location, and status of other users with Cisco Unified CallConnector for Microsoft Windows, a presence-based Windows application
- User-specified call handling—Users can take advantage of single number reach by extending incoming business calls to mobile or home phones based on rules they specify with Cisco Unified CallConnector Mobility
- Easy installation and changes—An intuitive management interface makes moves, adds and changes easy
- Industry-leading investment protection—The solution designed to support up to 250 users can interoperate with Cisco Unified Communications Manager, and enables planned migration strategies in support of future growth requirements

Specifications

Feature	Cisco Unified Communications Manager Express
Platform	Cisco 1861, 2801, 2811, 2821, 2851, 3250, 3270, 3825, and 3845 Integrated Services Routers, Cisco Unified 500 Series for Small Business as part of Cisco Smart Business Communications System
Phones Supported	All Cisco Unified IP Phones 7900 Series and Cisco Unified SIP Phones 3900 Series

IOS Images	Version 3.3 supported with IOS 12.4 mainline; Version 3.4 with IOS 12.4(4)T; Version 4.0 with IOS 12.4(9)T; Version 4.1 with 12.4(15)T; Version 7.0 with 12.4(20)T; Version 7.1 with 12.4(24)T; Version 4.0 is the recommended release for most customers.
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Selected Part Numbers and Ordering Information

Cisco Integrated Service Routers Unified Communications Bundles that include the Cisco Router, Cisco Unified Communications Manager Express Feature License, Cisco Unity Express hardware and licensing, Cisco Unified IP Phone licensing and Cisco Unified CallConnector for Microsoft Windows licensing.

C3845-35UC-VSEC/K9	UC plus Security with Cisco Unity Express—Cisco 3800 Series Integrated Services Routers: Cisco 3845 base router, 128 MB flash, 512 MB DRAM, DSP-64, NME-CUE, CCME FL for 35 users, CUE FL for 35 users, 35 phone device licenses, Cisco IOS Advanced IP Services, 10 UCC desktop client licenses
C2851-35UC-VSEC/K9	UC plus Security with Cisco Unity Express—Cisco 2800 Series Integrated Services Routers: Cisco 2851 base router, 128 MB flash, 256 MB DRAM, DSP-48, NME-CUE, CCME FL for 35 users, CUE FL for 35 users, 35 phone device licenses, Cisco IOS Advanced IP Services, 10 UCC desktop client licenses
C2801-10UC-VSEC/K9	UC plus Security with Cisco Unity Express—Cisco 2800 Series Integrated Services Routers: Cisco 2801 base router, 128 MB flash, 256 MB DRAM, DSP-32, AIM-CUE, CCME FL for 10 users, CUE FL for 10 users, 10 phone device licenses, Cisco IOS Advanced IP Services, 2 UCC desktop client licenses
C3845-35UC/K9	UC with Cisco Unity Express—Cisco 3800 Series Integrated Services Routers: Cisco 3845 base router, 128 MB flash, 512 MB DRAM, DSP-64, NME-CUE, CCME FL for 35 users, CUE FL for 35 users, 35 phone device licenses, Cisco IOS SP Services, 10 UCC desktop client licenses
C2851-35UC/K9	UC with Cisco Unity Express—Cisco 2800 Series Integrated Services Routers: Cisco 2851 base router, 128 MB flash, 256 MB DRAM, DSP-48, NME-CUE, CCME FL for 35 users, CUE FL for 35 users, 35 phone device licenses, Cisco IOS SP Services, 10 UCC desktop client licenses
C2801-10UC/K9	UC with Cisco Unity Express—Cisco 2800 Series Integrated Services Routers: Cisco 2801 base router, 128 MB Flash, 256 MB DRAM, DSP-32, AIM-CUE, CCME FL for 10 users, CUE FL for 10 users, 10 phone device licenses, Cisco IOS SP Services 2 UCC desktop client licenses
C1861-UC-4FXO-K9	UC with Cisco Unity Express—Cisco 1800 Series Integrated Services Routers: Cisco 1861, 128 MB flash, 256 MB DRAM, DSP-32, 4 FXS, 4 FXO/2BRI, 8 PoE, AIM-CUE, CCME FL for 8 users, CUE license for 8 users, 10 phone device licenses, Cisco IOS SP Services, 2 UCC desktop client licenses

For More Information

For more information about the Cisco Unified Communications Manager Express, visit: <http://www.cisco.com/go/ccme>.

Cisco Unified Survivable Remote Site Telephony

Cisco Unified Survivable Remote Site Telephony (SRST) provides critical backup telephony functions at remote branch offices when connectivity to the centrally located Cisco Unified Communications Manager fails (that is, the WAN link is interrupted). During WAN outage the Cisco Unified SRST-enabled router provides robust telephony services (including off-net calls to 911). This product is ideal for enterprise organizations looking to cost-effectively deploy IP telephony in their branch-office locations. Cisco Unified SRST is available on the Cisco 880 Series, 1861, and 2800 and 3800 Series Integrated Services Routers and the Cisco Catalyst 6500 Series Switches using the Cisco Communications Media Module (CMM).

Key Features

- Business resiliency is achieved through redundant, localized call processing with intelligent and automatic failover configuration—no manual IT or telecom intervention is required.
- This single appliance device is ideal for routing, security, public switched telephone network (PSTN) gateway services, and call control during WAN outages.
- Cisco Unified SRST supports all Cisco Unified IP Phones, supporting 8 to 730 phones per platform.
- All common PSTN interfaces and protocols are supported, in addition to support for both internal and external calling during failover with calls maintained during failover and fall-back.
- Voicemail is supported during WAN outages with local Cisco Unity Express or centralized Cisco Unity unified messaging through the PSTN.

Selected Part Numbers and Ordering Information

SRST Platform Density and Feature License*			
Part Number	Part Number (spare)	Platform	Number of Phones Supported

Included	Included	Cisco 880	Up to 4
Included	Included	Cisco 1861	Up to 15
FL-SRST-25	FL-SRST-25=	Cisco 2801	Up to 25 phones
FL-SRST-50	FL-SRST-50=	Cisco 2821	Up to 50 phones
FL-SRST-100	FL-SRST-100=	Cisco 2851	Up to 100 phones
FL-SRST-250	FL-SRST-250=	Cisco 3845	Up to 250 phones
***	***	Cisco 3845	Up to 730 phones
FL-SRST-480	FL-SRST-480=	Cisco Catalyst 6500 Communication Media Module	Up to 336 phones**

* The number of phones supported by SRST have been changed to multiples of 5 starting with Cisco IOS Software Release 12.4(15)T3.

** The Cisco Catalyst 6500 Series CMM supports Cisco Unified SRST 4.0 with Cisco IOS Software Release 12.4, and Cisco Unified SRST 2.1 with Cisco IOS Software Release 12.2(13)ZC.

*** There are no corresponding part numbers, but you can purchase multiple parts to reach the desired phone count.

For More Information

For more information about Cisco Unified SRST, visit: <http://www.cisco.com/go/srst>.

Cisco Unified IP Phones 3900 Series

The Cisco Unified SIP Phone 3911 is an affordable, entry-level single-line SIP-based endpoint that is designed for environments with low communication needs such as lobbies, hallways, cafeterias, classrooms and can be used within retail and manufacturing environments.

The Cisco Unified SIP Phone 3911 can grow with the organization whether it is a small, mid-sized or large enterprise business. Easy to administer and maintain, the endpoint includes support for speakerphone, dedicated keys for common telephony features and LED's for status of commonly used functions.

Key Features

- Half-duplex speakerphone and microphone
- Fixed keys for one-touch access to redial, transfer, conference, hold, line, select, mute, speakerphone and voicemail keys
- LED's to indicate status of commonly used features
- 2 line x 24 character monochrome display
- Two menu select keys and two-way rocker for scrolling control

Specifications

Feature	Cisco Unified IP Phones 3900 Series
Integral Switch	No
Display	144x32 monochrome
Programmable (line) keys	0
Programmable (soft) keys	0
Speakerphone	Half-duplex
Headset port	No
Wideband audio	No
iLBC support	No
“5-way” navigation cluster	No
XML application	No
Extension mobility	No
Video Advantage Camera support	No
Signaling protocol	SIP

Selected Part Numbers and Ordering Information

CP-3911	Cisco Unified SIP Phone 3911
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For More Information

For more information on the Cisco Unified SIP Phone 3900 Series, go to <http://www.cisco.com/en/US/products/ps10326/index.html>.

Cisco Unified IP Phones 6900 Series

The Cisco Unified IP Phone 6900 Series is a complementary addition to the Cisco Unified IP Phone portfolio for enterprises that includes the Cisco Unified IP Phone 3900 and IP Phone 7900 Series.

The Cisco Unified IP Phone 6900 Series introduces a simple and earth-friendly ergonomic design, delivering an enhanced user experience for customers seeking cost-effective, robust voice communication services with traditional telephony-like user experience. This phone is an ideal solution for enterprise campus, enterprise branch office, satellite office, remote teleworking, and contact center environments.



The Cisco Unified IP Phone 6900 Series also brings a more responsible design with earth-friendly enhancements to reduce power consumption and increase energy savings for customers. These phones take advantage of recyclable and reground plastics and offer a deep-sleep mode option, which reduces power consumption in off-work hours and offers 50-percent power savings versus normal daytime use.

Key Features

- Backlit, antiglare, pixel-based graphical monochrome displays offer readability and scrollable access to calling features and text-based XML applications.
- Tri-color illuminated line and feature keys provide quick call status indication.
- Four dynamic soft-label keys and a scroll toggle-bar present calling and navigation options.
- You have a choice of two colors (charcoal and arctic white) and handset styles (slimline and standard).
- The Cisco Unified IP Phone 6900 Series phones have fixed keys for common telephony functions such as mute, hold, conference, transfer, messaging, and directories.
- The keys are rounded and ergonomic.
- You can co-locate your PC within your workspace with an integrated 10/100 Ethernet switch on the phone.
- The phones have a full-duplex speakerphone and integrated headset ports.
- The phones offer seven user-adjustable ringtones.
- A deep-sleep power option provides up to 50-percent savings in power consumption during off-work hours.
- The Cisco Unified IP Phone 6900 Series phones support Cisco Skinny Client Control Protocol (SCCP).
- The phones support G.711, G.711.1, G.729a, G.729b, and G.729ab audio-compression codecs.
- Software upgrade support is provided through a Trivial File Transfer Protocol (TFTP) server.

Specifications

Feature	6921	6941	6961
Integral Switch	10/100	10/100	10/100
Display	396 x 81 pixel backlit anti-glare monochrome	396 x 162 pixel backlit anti-glare monochrome	396 x 81 pixel backlit anti-glare monochrome
Programmable (line) keys	2	4	12
Programmable (soft) keys	4	4	4
Speakerphone	Full-duplex	Full-duplex	Full-duplex
Headset port	Yes	Yes	Yes
Wideband audio	No	No	No
iLBC support	No	No	No
2-way Rocker with Select Key	Yes	Yes	Yes
XML application	Yes - limited	Yes - limited	Yes - limited
MIDlet-enabled applications	No	No	No
Extension mobility	Yes	Yes	Yes

Signaling protocol	SCCP	SCCP	SCCP
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Selected Part Numbers and Ordering Information

CP-6921-C-K9=	Cisco Unified IP Phone 6921, Charcoal, Standard Handset
CP-6921-WL-K9=	Cisco Unified IP Phone 6921, Arctic White, Slimline Handset
CP-6941-CL-K9=	Cisco Unified IP Phone 6941, Charcoal, Slimline Handset
CP-6941-W-K9=	Cisco Unified IP Phone 6941, Arctic White, Standard Handset
CP-6961-C-K9=	Cisco Unified IP Phone 6961, Charcoal, Standard Handset
CP-6961-W-K9=	Cisco Unified IP Phone 6961, Arctic White, Standard Handset

For More Information

For more information about the Cisco Unified IP Phone 6900 Series portfolio, visit: <http://www.cisco.com/go/ipphones/6900>.

Cisco Unified IP Phone 7900 Series

With Cisco Unified IP Phones, organizations can take full advantage of converged voice and data networks while retaining the convenience and user friendliness they expect from a business phone. These endpoints help improve productivity by meeting the needs of different users throughout organizations. The Cisco Unified IP Phone 7975G, 7965G, 7962G and 7960G models are designed to address the communication needs for more active communication requirements. The Cisco Unified IP Phone 7945G, 7942G and 7940G models address the communication needs for moderate levels of communication requirements. The Cisco Unified IP Phone 7911G and 7906G models address the communication needs for low to medium communications environments. Almost all models in the portfolio support multiple call appearance per line. This empowers users to have multiple call sessions, navigated through the use of the rocker or navigation cluster on a single line appearance on the 7900 Series phone.



Key Features

- Touchscreen support on Cisco Unified IP Phone 7975G
- Dynamic softkeys for call features and functions
- Support for endpoint applications including XML, MIDlets, Cisco Unified Communications Widgets and Cisco Unified Application Environment on selected models
- Automatic phone discovery, VLAN configuration, and registration
- Quality of service (QoS) through support of 802.1Q/p, in addition to configurable Differentiated Services (DiffServ) and type of service (ToS)
- Voice Activity Detection (VAD), silence suppression, comfort-noise generation, and error concealment
- G.711a, G.711u, and G.729ab audio-compression codec support; selected models also support the G.722 wideband codec
- Software upgrade support through a Trivial File Transfer Protocol (TFTP) server
- Integrated inline power support, which allows the phone to receive power over the LAN

Specifications

Feature	7906G	7911G	7931G	Conf. Station 7936G	Conf. Station 7937G
Integral Switch	No	10/100	10/100	No	No
Display	192x64 monochrome	192x64 monochrome	192x64 graphical, monochrome, backlit	Pixel-based	Pixel-based
Programmable (line) keys	0	0	24	0	0
Programmable (soft) keys	4	4	4	3	4
Speakerphone	Yes (listen only)	Yes (listen only)	Yes	Yes	Yes
Headset port	No	No	Yes	No	No

Wideband audio	Limited	Limited	Limited	No	Yes
iLBC support	Yes	Yes	Yes	No	No
“5-way” navigation cluster	No	No	No	No	No
XML application	Yes	Yes	Yes	No	Yes
Extension mobility	Yes	Yes	Yes	No	Yes
Video Advantage Camera support	No	Yes	Yes	No	No
Signaling protocol	SCCP/SIP	SCCP/SIP	SCCP/SIP	SCCP	SCCP
Feature	7940G	7942G	7945G	7960G	7962G
Integral Switch	10/100	10/100	10/100/1000	10/100	10/100
Display	Monochrome 5"	4-bit grayscale, 5"	Digital, 16-bit graphical backlit TFT Color, 5"	Mono-chrome, 5"	4-bit grayscale, 5"
Programmable (line) keys	0	2-lighted	2-lighted	0	6-lighted
Programmable (soft) keys	4	4	4	4	4
Speakerphone	Yes	Yes	Yes	Yes	Yes
Headset port	Yes	Yes, wideband support	Yes, wideband support	Yes	Yes, wideband support
Wideband audio	No	Yes	Yes	No	Yes
iLBC support	No	Yes	Yes	No	Yes
“5-way” navigation cluster	No	No	Yes	No	No
XML application	Yes	Yes	Yes	Yes	Yes
Extension mobility	Yes	Yes	Yes	Yes	Yes
Video Advantage Camera support	Yes	Yes	Yes	Yes	Yes
Signaling protocol	SCCP	SCCP/SIP	SCCP/SIP	SCCP	SCCP/SIP
Feature	7965G	7975G	7985G	7921G/7925G	
Integral Switch	10/100/1000	10/100/1000	10/100	N/A	
Display	Digital, 16-bit graphical backlit TFT Color, 5"	Digital, 16-bit graphical backlit TFT Color, 5.6"	8.4" color for 2-way video	Digital, 16-bit graphical backlit TFT Color, 2"	
Programmable (line) keys	6-lighted	8-lighted	1	N/A	
Programmable (soft) keys	4	5	5	2	
Speakerphone	Yes	Yes	Yes	Yes	
Headset port	Yes, wideband support	Yes, wideband support	Yes	Yes	

Wideband audio	Yes	Yes	No	Yes
iLBC support	Yes	Yes	No	Yes
“5-way” navigation cluster	Yes	Yes	Yes	Yes
XML application	Yes	Yes	Yes	Yes
Extension mobility	Yes	Yes	No	Yes
Video Advantage Camera support	Yes	Yes	N/A	No
Signaling protocol	SCCP/SIP	SCCP/SIP	SCCP	SCCP

Selected Part Numbers and Ordering Information

CP-7985-NTSC	Cisco Unified IP Phone 7985
CP-7971G	Cisco Unified IP Phone 7975G
CP-7965G	Cisco Unified IP Phone 7965G
CP-7962G	Cisco Unified IP Phone 7962G
CP-7960G	Cisco Unified IP Phone 7960G
CP-7945G	Cisco Unified IP Phone 7945G
CP-7942G	Cisco Unified IP Phone 7942G
CP-7940G	Cisco Unified IP Phone 7940G
CP-7925G	Cisco Unified IP Phone 7925G
CP-7921G	Cisco Unified IP Phone 7921G
CP-7931G	Cisco Unified IP Phone 7931G
CP-7911G	Cisco Unified IP Phone 7911G
CP-7906G	Cisco Unified IP Phone 7906G
CP-7937	Cisco Unified IP Conferencing Station 7937G
CP-7936G	Cisco Unified IP Conferencing Station 7936G

For More Information

For more information about the Cisco Unified IP Phone 7900 Series portfolio, visit: <http://www.cisco.com/go/ipphones/7900>.

Cisco Unified Attendant Console Portfolio

The Cisco Unified Attendant Console Portfolio comprises three full-featured software-based solutions, associated with a Cisco Unified IP Phone, which are designed to enable attendant operators to accept calls, easily look up busy status and dispatch incoming calls either through blind or consultative transfers to users. The applications support the ability to prioritize call queues, such that operator attendants can address the most important queues to the business (i.e., sales, service, etc). The Cisco Unified Department Attendant Console supports up to 150 Cisco Unified IP Phones and up to two operator clients per department. The Cisco Unified Business Attendant Console supports up to 500 Cisco Unified IP Phones and up to six operator clients. The Cisco Unified Enterprise Attendant Console supports up to 100,000 Cisco Unified IP Phones and up to 25 operator clients per attendant console system.

Key Features

Cisco Unified Department Attendant Console

- This application supports a maximum of 150 Cisco Unified IP Phones and two operator clients per department.
- Supports a call queuing engine, busy status, as well as directory search capabilities that are integrated into the Cisco Unified Communications Manager directory.

- One call queue and three directory search options allow the department administrators to quickly find call destinations and effectively dispatch calls. These search options include last name, first name, and extension.

Cisco Unified Business Attendant Console

- This application supports a maximum of 500 Cisco Unified IP Phones and up to six operator clients per attendant console system.
- Supports a powerful queuing engine to direct the calls to the operator and provides the operator several monitoring features to help ensure that incoming calls are handled efficiently. Four directory search options allow the operator to quickly find call destinations and quickly dispatch calls.
- Four directory search fields allow the operator to quickly find call destinations and quickly dispatch calls.
- For the operator who needs in-depth presence information, Cisco Unified Presence can be integrated with the Cisco Unified Business Attendant Console.

Cisco Unified Enterprise Attendant Console

- Supports a maximum of 100,000 Cisco Unified IP Phones and up to 25 operator clients per attendant console system
- Supports a powerful call queuing engine to direct the calls to the operator and provides the operator several monitoring features to help ensure that incoming calls are handled efficiently
- Six directory search fields allow the operator to quickly find call destinations and quickly dispatch calls
- Utilities for installing, configuring and synchronizing the directory database simplify administration
- Integrates with Cisco Unified Presence Server to provide rules-based presence in support of multiple devices and weighting per device (i.e., desk-based workers can weight their desk phone high and their mobile phone low)
- Emergency mode switch enables redirection of calls in an emergency
- Night mode service based on time and day
- Supports both zoom text and JAWS screen reader for enhanced accessibility

Selected Part Numbers and Ordering Information

CUD-ATT-CON	The Cisco Unified Department Attendant Console is ordered on a per-department administrator (operator client) basis. A maximum of two department administrators are supported per department with 150 IP phones. When ordering, the first client includes the software license for the Cisco Unified Department Attendant Console server. Ordering the Cisco Unified Department Attendant Consoles requires the use of the Cisco Dynamic Configuration Tool. Input "CUD-ATT-CON=" on the Dynamic Configuration Tool to begin the configuration, and then select from 1 to 10 Cisco Unified Department Attendant Consoles.
CUB-ATT-CON	The Cisco Unified Business Attendant Console is ordered on a per-operator client basis. Ordering the Cisco Unified Business Attendant Consoles requires the use of the Cisco Dynamic Configuration Tool. Input "CUB-ATT-CON=" on the Dynamic Configuration Tool to begin the configuration, and then select from 1 to 6 Cisco Unified Business Attendant Consoles.
CUE-ATT-CON	The Cisco Unified Enterprise Attendant Console is ordered on a per-operator client basis. Ordering the Cisco Unified Enterprise Attendant Console requires the use of the Cisco Dynamic Configuration Tool. Input "CUE-ATT-CON=" on the Dynamic Configuration Tool to begin the configuration and then select from 1 to 25 Cisco Unified Enterprise Attendant Consoles.

For More Information

For more information about Cisco Unified Attendant Consoles, visit: <http://www.cisco.com/go/ac>.

Cisco Emergency Responder

Cisco Emergency Responder enhances emergency calling from Cisco Unified Communications Manager. It helps ensure that Cisco Unified Communications Manager sends emergency calls to the appropriate Public Safety Answering Point (PSAP) and then helps the PSAP identify the caller's location and, if necessary, return the call.

Key Features

- Cisco Emergency Responder automatically tracks IP phone locations by their MAC or IP addresses, eliminating the need for administrators to update location when an IP phone is relocated.
- Cisco Emergency Responder provides instructions to Cisco Unified Communications Manager to route emergency calls to a public-switched-telephone-network (PSTN) gateway capable of reaching the responsible Public Safety Answering Point (PSAP) for the caller's location.
- Cisco Emergency Responder identifies the caller's location to local exchange carriers (LECs) and PSAPs, replacing the calling-party number associated with an emergency call with one that corresponds to the caller's

- location, eliminating the need to update the Automatic Location Information (ALI) database when an IP phone is relocated.
- Cisco Emergency Responder integrates with Intrado V9-1-1 service, centralizing and automating the initial administration of Emergency Location Identification Numbers (ELINs) and Emergency Response Locations (ERLs) for on-premises users, and facilitating emergency call completion with user-entered location information for off-premises users.
 - Cisco Emergency Responder facilitates PSAP callback to reach the most recent callers from each location, including callers from stations without direct-inward-dialing (DID) numbers.
 - Cisco Emergency Responder provides voice, web and email alerts to customer security personnel, enabling them to assist emergency callers immediately, and to direct fire, police, or ambulance services when they arrive.
 - Cisco Emergency Responder is a software appliance that simplifies software installation and upgrade and enhances system security and stability.

Specifications

Feature	Cisco Emergency Responder			
Supported Platform	Cisco 7800 Series Media Convergence Servers			
Software Compatibility	Cisco Unified Communications Manager Cisco Unified Operations Manager More information about specific models and releases supported is available at: http://www.cisco.com/en/US/products/sw/voicesw/ps842/prod_release_notes_list.html .			
Product Compatibility	Cisco Unified IP Phones 7902G, 7905G, 7910G, 7910G+SW, 7911G, 7912G, 7940G, 7941G, 7941G-GE, 7942G, 7945G, 7960G, 7961G, 7961G-GE, 7962G, 7965G, 7970G, 7971G-GE, 7975G, 7985G; Cisco Unified Wireless IP Phones 7920, 7921 (IP-subnet-based tracking only); Cisco Unified IP Conference Stations 7935, 7936; Cisco Unified SIP Phone 3911, Cisco Unified Personal Communicator; Cisco IP Communicator; Cisco IP Softphone (IP-subnet-based tracking only); Cisco ATA 180 Series analog telephone adaptors (manual configuration only); Cisco VG 200 Series analog phone gateways (manual configuration only); Cisco Catalyst Express 500, Express 520, 2900 XL, 2940, 2950, 2960, 2970, 3500XL, 3550, 3560, 3560-E, 4000, 4500, 4500-E, 4900, 5000, 5500, 6000, 6500 and 6500-E Series LAN switches; Cisco Ethernet Switching Network Modules in Cisco 3700 Series Multiservice Access Routers, 2800 and 3800 Series Integrated Services Routers. More information about specific models and releases supported is available at: http://www.cisco.com/en/US/products/sw/voicesw/ps842/prod_release_notes_list.html .			
System Capacity	MCS 7816	MCS 7825	MCS 7835	MCS 7845
Automatically Tracked Phones	6000	12,000	20,000	30,000
Manually Configured Phones	1000	2500	5000	10,000
Roaming Phones (per Cisco Emergency Responder Cluster)	600	1200	2000	3000
Switches	200	500	1000	2000
Switch Ports	12,000	30,000	60,000	120,000

For More Information

For more information about the Cisco Emergency Responder, visit: <http://www.cisco.com/go/cer>.

Cisco IP Communicator

Cisco IP Communicator—a software-based application that delivers enhanced telephony support through the PC—is designed to meet diverse customer needs by serving as a supplemental telephone when traveling, a telecommuting device, or as a primary desktop telephone. With Cisco IP Communicator, remote users don't just take their office extension with them; they also enjoy access to the same familiar phone services that they have in the office.

Ideal for Companies That Need These Features

- | | |
|------------------------------|--|
| Cisco IP Communicator | <ul style="list-style-type: none"> • A softphone that provides high-quality voice calls and extensive telephony features • A supplemental telephone that provides access to phone extensions and services outside the office |
|------------------------------|--|

Key Features

- Works with Cisco Unified Video Advantage: Cisco IP Communicator brings video telephony to the telecommuter's and mobile worker's communication experience. Available video is automatically displayed.
- Easy to use: Cisco IP Communicator 7x offers many of the features supported with Cisco Unified IP phones, including support for support for (Extensible Markup Language [XML]) applications, and call recording & silent monitoring capabilities for efficient recording of calls and monitoring of contact center agents. The application provides autodetection of Cisco VPN Clients.
- Offers premium voice quality: Cisco IP Communicator has an Audio Tuning wizard for setting audio levels properly, advanced-jitter-buffer and packet-loss-concealment algorithms, and echo suppression and noise cancellation. In addition, Cisco IP Communicator 7x introduced support for internet Low Bit Rate Codec (iLBC), for enhanced voice quality for remote workers with low bandwidth considerations, as well as G.722 wideband audio codec to enhance which enhances voice quality and provides a clearer and richer audio experience.
- Easy to manage: Administration is unified with Cisco Unified IP Phones and automatic software upgrades; system administrators can provision Cisco IP Communicator as they would any other Cisco Unified IP Phone.

Selected Part Numbers and Ordering Information

SW-IPCOMM-E1	Cisco IP Communicator Software
SW-CCM-UL-IPCOMM-E	Station User License for Cisco Unified Communications Manager
IPCOMM7-SW	Cisco IP Communicator 7.0
IPCOMM7-LIC	Cisco IP Communicator 7.0 User License

For More Information

For more information about Cisco IP Communicator, visit: <http://www.cisco.com/go/ipcommunicator>.

Cisco Unified Application Environment

Cisco Unified Application Environment offers an increasingly rich portfolio of ready-to-use packaged applications that deliver immediate out-of-box value and custom development tools that allow clients to transform their business by integrating unified communications into other business applications as well as build their own custom applications.

Key Features

- A rich portfolio of packaged applications available today, with more being added each month. These applications span a wide variety of markets; some are designed for specific industries such as retail and healthcare, whereas others are applicable to all industries.
- These automated test tools perform functional, load, system, and regression tests to reduce test cycles and increase the success rate of project completion.
- This set of application lifecycle management tools standardizes, centralizes, and automates management of all unified communications applications.
- A standard applications container facilitates development, quality assurance, and operations to collaboratively manage scalability, performance, and reliability of all unified communications applications.
- The solution summarizes implementation differences across products and versions to minimize interoperability challenges, so customers can upgrade their unified communications infrastructure without breaking their applications.
- Increased support for integrated development environments including Eclipse and Microsoft Visual Studio, allows web and enterprise developers who lack telephony skills to easily and rapidly develop feature-rich applications.

Specifications

Components	Cisco Unified Application Environment
Cisco Unified Application Designer	The Cisco Unified Application Designer is a visual integrated development environment (IDE). Without learning the complex details of telephony protocols, developers with little or no Unified Communications development expertise can use the Cisco Unified Application Designer to easily and rapidly develop rich applications that converge voice and video with enterprise applications and data.
Cisco Unified Application Server	The Cisco Unified Application Server is an application server for converged voice, video and data applications. It abstracts the complexity of telephony protocols, protects the reliability of the IP call processing system from the applications, and provides a standard way to manage applications.

Cisco Unified Media Engine	The Cisco Unified Media Engine is a software-only media server. It provides ready-to-use and sophisticated media processing capabilities for all applications built using the Cisco Unified Application Designer.
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Selected Part Number and Ordering Information

Configuration and ordering of Cisco Unified Application Environment products can be complicated because of the arbitrary and highly variable nature of the application developed. Please consult your Cisco account team or channel partner if you have any configuration, ordering and pricing questions.

For More Information

For more information about Cisco Unified Application Environment, visit:
http://www.cisco.com/en/US/netsol/ns738/networking_solutions_package.html.

Cisco Unified MeetingPlace Conferencing

Cisco Unified MeetingPlace conferencing is a rich-media collaboration solution within Cisco Unified Communications. It delivers an exceptional user experience with integrated voice, video, and web collaboration and industry-leading setup, attendance, and in-meeting controls. You can realize significant cost savings and security because the solution is deployed on-premises, over your IP network. In addition, the Cisco Unified MeetingPlace solution extends the value of Cisco WebEx meeting applications with integrated, on-premises voice conferencing.

Key Features

- **Cost savings**—Cisco Unified MeetingPlace conferencing is deployed on-premises on an organization's converged IP network, a scenario that can reduce costs by virtually eliminating conferencing telephony and service fees paid to service providers.
- **Deployment flexibility**—On-premises voice conferencing for Cisco WebEx meeting applications—You can deploy the Cisco Unified MeetingPlace solution as a complete on-premises voice, video, and web conferencing solution or integrate it with Cisco WebEx web conferencing services. These solutions together combine the cost savings advantages of on-premises voice conferencing with the productivity benefits of on-demand web conferencing.
- **Tightly integrated rich-media conference setup**—Cisco Unified MeetingPlace conferencing supports multiple interfaces for initiating impromptu conferences or scheduling future rich-media conferences. In a single step, meeting organizers can schedule or initiate immediate voice, video, and Web resources through a Web interface, touch-tone and Cisco Unified IP Phone, and Microsoft Outlook or IBM Lotus Notes calendar.
- **Easy attendance of rich-media conferences**—Attending a rich-media conference is as simple as a single mouse click. Cisco Unified MeetingPlace conferencing simultaneously launches the Web conference and dials out to the user's voice or video endpoint (either a room-based video system or desktop endpoint). Participants can also connect to the voice and video portions of the conference by directly dialing in from any video endpoint or telephone.
- **Advanced rich-media conference capabilities and control:**
 - Cisco Unified MeetingPlace conferencing tightly integrates voice, video, and Web conferencing capabilities for highly engaging and productive virtual meetings and interactions. With feature-rich voice, video, and Web conferencing capabilities, support for presentation of rich content, and preconfigured meeting application templates, Cisco Unified MeetingPlace conferencing gives organizations a single conferencing solution that meets a wide range of conferencing needs, including collaborative meetings, presentations, training, and Web seminars.
 - Cisco Unified MeetingPlace conferencing provides industry-leading in-meeting controls within the Web conference. Without disrupting a meeting, users know who is attending, how users are attending (voice, video, or web), who is speaking, and who is sharing.
 - With carrier-grade hardware and advanced system software, the Cisco Unified MeetingPlace solution delivers the scalability, reliability, simplified administration, security, and cost-effectiveness that IT organizations require.
- **Security:**
 - The solution offers a dedicated on-network system; each customer is provided with a dedicated Cisco Unified MeetingPlace solution integrated with the private network.
 - The solution offers Internet lockdown controls; meetings can be set up as internal-only meetings and held entirely behind the corporate firewall or as external meetings that are accessible to Internet and internal participants. Administrators and meeting organizers have complete control.
 - The solution offers access authentication, encryption, and in-session meeting controls.

For More Information

For more information about Cisco Unified MeetingPlace conferencing, visit: <http://www.cisco.com/go/meetingplace>.

Cisco Unified MeetingPlace Express

Cisco Unified MeetingPlace Express, part of the Cisco Unified Communications family of products, is an integrated voice, Web, and video conferencing solution that helps midsize organizations realize the cost savings and productivity benefits of deploying conferencing over internal networks. Cisco Unified MeetingPlace Express provides simple, powerful conferencing functions that are easy to deploy and manage. As a component of the Cisco Unified Communications System, Cisco Unified MeetingPlace Express delivers productivity that goes beyond traditional conferencing solutions by enabling rich-media conferencing used in a broad range of communication scenarios.

Key Features

- **Cost savings and security**—Cisco Unified MeetingPlace Express is deployed in-house on an organization's converged IP network, a scenario that can reduce costs by virtually eliminating conferencing telephony and service fees paid to service providers.
- **Easy deployment and management**—Cisco Unified MeetingPlace Express is a software solution installed on a single server that supports industry-standard protocols (H.323 and SIP), to help ensure connectivity with a range of telephony systems, including Cisco Unified Communications Manager and Cisco Unified Communications Manager Express.
- **Simple conference setup and attendance**—Cisco Unified MeetingPlace Express includes Microsoft Outlook, Web, Cisco Unified IP Phone, and touchtone phone interfaces for setting up and attending meetings. In a single step, meeting organizers can initiate an immediate (reservationless) voice, Web, and video conference from any of these interfaces.
- **Advanced voice, web, and video conferencing**—Cisco Unified MeetingPlace Express tightly integrates voice, Web, and video conferencing capabilities, making it well-suited for interactive meetings and presentations. Meeting attendees experience high-quality voice conferencing, and video participants see the person who is speaking or the person who last spoke.
- **Cisco Unified MeetingPlace Express provides innovative meeting-management functions** that facilitate more productive meetings. From the Web interface, users can mute and unmute themselves, see who is in the meeting and how they are participating (voice, video, or Web), see who is speaking, and see who is sharing content.
- **Cisco Unified Personal Communicator users can share content** through a simple screen-sharing interface served by Cisco Unified MeetingPlace Express. In addition to adding impromptu Web conferencing support, Cisco Unified Personal Communicator environments can add multiparty voice and video capabilities with Cisco Unified MeetingPlace Express VT.
- **Security**—Security features include Secure Sockets Layer (SSL) encryption; behind-the-firewall deployment; and multiple meeting security options, including meeting access authentication and in-meeting controls such as "lock-meeting" and "remove-participants" functions. The solution offers Internet lockout controls; meetings can be set up as internal-only meetings and held entirely behind the corporate firewall or as external meetings that are accessible to Internet and internal participants. Administrators and meeting organizers have complete control.

Specifications

Feature	Cisco Unified MeetingPlace Express
IP Phone Application Compatibility	Cisco Unified IP Phone 7940 Series, Cisco Unified IP Phone 7960 Series, Cisco Unified IP Phone 7970 Series, Cisco IP Communicator
Capacity	Cisco Unified MeetingPlace Express can support a variety of combinations of voice, web, and video conferencing capacity, as well as varying amounts of recording capacity. The maximum meeting size is 200 concurrent users of voice conferencing, 200 concurrent users of web conferencing, and 200 concurrent users of video conferencing.
Call Control System Compatibility	<ul style="list-style-type: none">• Cisco Unified Communications Manager Version 3.3 or later (video is supported with version 4.1 or later, 5.1 or later, and 6.0 or later)• Cisco Unified Communications Manager Express 3.3 or later (does not support video in meetings)• Standards-based H.323 * or SIP ** call-control systems
Platform	<p>Cisco Media Convergence Servers</p> <ul style="list-style-type: none">• Voice, web, and video conferencing media convergence server part numbers—MCS-7825-H3-RC1, MCS-7825-I3-RC1, MCS-7825-H2-RC1, MCS-7825-I2-RC1, MCS-7825-H1-RC1, MCS-7825-I1-RC1, MCS-7835-H2-RC1, MCS-7835-I2-RC1, MCS-7835-H1-RC1, MCS-7835-I1-RC1, MCS-7845-H2-RC1, MCS-7845-I2-RC1, MCS-7845-H1-RC1, and MCS-7845-I1-RC1• Media-convergence-server part numbers for voice conferencing with lite meeting room only—MCS-7825H-3.0-IPC1, MCS-7825I-3.0-IPC1, MCS-7835H-3.0-IPC1, MCS-7835I-3.0-IPC1, and MCS-7845H-3.0-IPC1 (supports web conferencing) <p>Plus exact equivalent third-party servers (for information, visit http://www.cisco.com/go/swonly; DVD drive required)</p>

Client Compatibility	<p>Microsoft Windows</p> <ul style="list-style-type: none"> Operating system—Windows 2000 Pro (SP2 or later), Windows 2000 Server Edition (SP2 or later), Windows 2000 Advanced Server (SP2 or later), Windows XP (SP1 or later) or Windows Vista (Business or Enterprise) Browser—Internet Explorer 5.5 or later; Netscape 7.1 or later; Mozilla 1.6 or later; or Firefox 1.0.3 or later Adobe Flash Player—8 or later <p>Apple Macintosh</p> <ul style="list-style-type: none"> Operating system—Mac OS 9.2* or Mac OS 10.2 or later Browser—Safari 1.1 or later; Netscape 7.1 or later; Mozilla 1.21* or 1.6 or later; or Firefox 1.0.3 or later Adobe Flash Player—8 or later <p>Linux**</p> <ul style="list-style-type: none"> Operating system—Red Hat 9 or Red Hat Enterprise Linux 3 or later Browser—Netscape 7.1 or later; Mozilla 1.4 or 1.6 or later; or Firefox 1.0.3 or later Adobe Flash Player—8 or later <p>Sun Solaris**</p> <ul style="list-style-type: none"> Operating system—Solaris 9 or Solaris 10 Browser—Netscape 7.1; Mozilla 1.4 or 1.7 or later; or Firefox 1.0.3 or later Adobe Flash Player—8 or later
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For More Information

For more information about Cisco Unified MeetingPlace Express, visit: <http://www.cisco.com/go/meetingplaceexpress>.

Cisco Unified Personal Communicator

An integral component of the Cisco Unified Communications Family of products, Cisco Unified Personal Communicator transparently integrates your most frequently used communications applications and services into a single, unified client. From an easy-to-use interface on a PC or Mac, it provides quick and easy access to powerful communications tools—softphone, presence, instant messaging, visual voicemail, click to call, employee directory, communication history, video, and web conferencing—to help you communicate effectively and work more productively.

Ideal for Companies That Need These Features

Cisco Unified Personal Communicator

- A unified client that transparently integrates presence, voice, video, instant messaging, and Web conferencing
- Powerful communications capabilities integrated with the personal computer, including integrated contact lists, Click-to-Call, voicemail playback, inbound call notification, and media escalation
- A supplemental telephone that provides access to phone extensions and services outside the office

Key Features

- Communication integration—Take advantage of a single, intuitive interface for voice and video calls, instant messaging, voicemail playback, web conferencing, and integrated directories.
- Presence: View real-time availability of other Cisco Unified Personal Communicator and Cisco Unified IP Phone users. You can also display customized messages, set an out-of-office message, and automatically show your availability based on free and busy status on your Microsoft Outlook Calendar.
- Do not disturb (DND): Easily block incoming calls with synchronized DND status from your Cisco Unified Personal Communicator or Cisco Unified IP Phone or use the privacy preference setting to block instant messages when you need additional privacy.
- Contact list—Search your corporate directory from one easy-to-use interface to locate contacts quickly and simply click to call. Add your most frequently contacted personal contacts, co-workers, and federated business contacts.
- Click to call—Dial from the contact list, using either the integrated softphone or an associated Cisco Unified IP Phone. You can also click to call directly from Microsoft Outlook using an Outlook toolbar.
- Integrated voice and video calling: Exchange ideas face-to-face with a coordinated video display on the PC screen and audio conversation with the softphone. You can place video calls using Cisco Unified Personal Communicator, Cisco Unified Video Advantage, or the Cisco Unified IP Phone 7985G, a personal desktop videophone.
- Instant messaging—Chat in real time using instant messaging with other Cisco Unified Personal Communicator users to save time and reduce phone tag. Conferencing—Create voice or video conferencing sessions by simply merging conversation sessions. There is no need to call into a separate conference bridge.
- Web conferencing—Launch a Cisco Unified MeetingPlace or Cisco Unified MeetingPlace Express web conferencing session at a moment's notice to share content, such as a presentation, with others.

- Voice messages—Access secure Cisco Unity or Cisco Unity Connection encrypted voicemail messages—view, play back, sort, and delete messages—all from within the application.

Selected Part Numbers and Ordering Information

UPC-CLIENT-K9-PC	Cisco Unified Personal Communicator
UPC-CAMERAS-24=	Cisco VT Camera II 24 Unit Bundle
UPC7-K9-PC	Cisco Unified Personal Communicator 70
UPC7-CLIENT-LIC	Cisco Unified Personal Communicator 70 User License

For More Information

For more information about the Cisco Unified Personal Communicator, visit: <http://www.cisco.com/go/unifiedpersonalcom>.

Cisco Unified Presence

Cisco Unified Presence is a standards-based platform that collects information from multiple sources about user availability and communications capabilities to provide rich presence status and facilitate presence-enabled communications with Cisco Unified Communications and other critical business applications.

Ideal for Companies That Need These Features

- Cisco Unified Presence
- Looking to increase productivity by providing the ability to connect with colleagues on the first try by knowing their availability in advance on either Cisco Unified Personal Communicator or Cisco Unified IP Phone
 - Seeking to enhance collaboration by sharing availability information and instant messages with co-workers within your business or between businesses with Cisco Unified Personal Communicator
 - Exposing presence information and user communications capabilities in corporate web directories, point-of-sales applications, or customer-relationship-management systems through Cisco Unified Application Environment and standards-based application programming interfaces (APIs) on Cisco Unified Presence
 - Allowing subject matter experts anywhere in your enterprise to handle incoming customer calls with presence capabilities delivered with Cisco Unified Expert Advisor, Cisco Unified Presence, and Cisco Unified Personal Communicator

Key Features

- Cisco Unified Presence provides enterprise-class scalability, redundancy, and high availability desired by large businesses and organizations.
- Cisco Unified Presence provides a standards-based connectivity to any Session Initiation Protocol (SIP) or SIMPLE capable application or network.
- Cisco Unified Presence supports business-to-business federation with Cisco Unified Presence and Microsoft Live Communications Server (LCS) or Microsoft Office Communications Server (OCS) to enable them to secure exchange instant messaging and presence information between users in different businesses or organizations.
- Cisco Unified Presence provides the SIP proxy services needed to support large Cisco Customer Voice Portal 4.0 (and later) deployments.

Selected Part Numbers and Ordering Information

SW-CUP6.0-K9=	License Cisco Unified Presence 6.0 Application Software
CUP6.0-U-K9=	SW Upgrade UPS 1.0 to CUP 6.0
SW-CUP70-K9	Cisco Unified Presence 70 Application Software
CUP-Server-LIC	Cisco Unified Presence Server User Licenses

For More Information

For more information about Cisco Unified Presence, visit: <http://www.cisco.com/en/US/products/ps6837/index.html>.

Cisco UC Integration for Microsoft Office Communicator

Instantly access enhanced Cisco Unified Communications directly from Microsoft Office Communicator 2007 on your PC. With this easy-to-deploy desktop integration, extend proven Cisco unified communications services to your workspace and benefit from the investment protection and reduced complexity delivered by a single call control solution.

Ideal for Companies That Need these Features

Cisco UC Integration for Microsoft Office Communicator

- Existing or prospective Cisco Unified Communications Manager customers with existing investments in Microsoft Office Communications Server (OCS) seeking to enable real-time UC experience from existing Microsoft Office Communicator presence & IM client.

Key Features

- Integrated Cisco IP softphone—Click to call directly from your desktop to have a business-class communication experience with embedded Cisco IP softphone.
- Cisco IP phone quality & rich mid-call control—Have a business-class desktop communications experience with the quality and reliability that you experience with your Cisco IP deskphone in the office.
- Deskphone control—Simply click to make or answer business calls through your desk phone using its calling features & resources to have a rich communications experience.
- Phone presence—Adds telephony presence to your contact list - providing additional information on when the contact might be available.
- One click voice messages & communications history access—With a mouse click access your corporate voice messages and communications history and rapidly respond to voice messages or missed calls.
- Impromptu multiparty conferencing—If you need to initiate an impromptu collaboration session with multiple contacts on your contact list, you can also initiate multiparty conference calls from your desktop and quickly add additional participants.

Select Product Parts and Ordering Information

UCIMOC-71-K9	Cisco Unified Communications Integration™ for Microsoft Office Communicator
UCIMOC-71-LIC	Cisco Unified Communications Integration™ for Microsoft Office Communicator License

For More Information

For more information about Cisco UC Integration™ for Microsoft Office Communicator, visit: <http://www.cisco.com/go/ucintegrationmicrosoft>.

Cisco Unity Connection

Cisco Unity Connection provides voicemail or integrated messaging with speech recognition and call routing rules on an easy-to-manage Linux platform.

Key Features

- Access voice messages anytime from a variety of clients and devices: e-mail inbox, web browser, desk phone, instant messaging client, and mobile phones, including natural language-based speech access on phones.
- The flexible platform allows for configuration as voicemail or integrated messaging on a Linux appliance.
- The system is scalable to 144 ports and 10,000 users per server.
- The solution supports Voice Profile for Internet Mail (VPIM) to facilitate interoperability with older voicemail systems.
- Integration with the Cisco Fax Server allows you to send and receive fax messages from your e-mail inbox.
- The solution offers robust Automated-Attendant functions that include intelligent routing and easily customizable call-screening and message-notification options.

Specifications

Feature	Cisco Unity Connection 7.1
Unity Voice Mail (VM) and Unified Messaging (UM) possible configurations	<ul style="list-style-type: none">10,000 users and 144 ports maximum, 50,000 VPIM networked users with 10 nodesConfigured for Cisco Unified Communications Manager or configured for legacy PBX/dual integration
Options	Voice Mail, IMAP Client Messaging, Text To Speech, Cisco Personal Communications Assistant web client

Selected Part Numbers and Ordering Information

UNITYCN7-25USR	Cisco Unity Connection, 24 ports, 25 users - All user Features
UNITYCN7-100USR	Cisco Unity Connection, 24 ports, 100 users - All user Features

For More Information

For more information about Cisco Unity Connection, visit: <http://www.cisco.com/go/unityconnection>.

Cisco Unity Express

Cisco Unity Express provides integrated messaging, voicemail, Automated Attendant services, and optional interactive voice response (IVR) and time card services specifically for the small- and medium-sized office or branch office. The application is delivered on either a network module or advanced integration module, both of which are supported on a variety of voice-enabled integrated services routers.

Ideal for Companies That Need these Features

Cisco Unity Express

- Integrated messaging, voicemail, Automated Attendant, or interactive-voice-response (IVR) or time card services at the branch or small office to support local users
- Up to 250 users per site

Key Features

- The solution offers affordable messaging and greeting services for increased customer service and rich employee communications.
- Intuitive telephone prompts and a web-based interface provide fast, convenient voicemail and Automated Attendant administration.
- Cisco Unity Express can view, sort, search, and play back voice messages using the display of a Cisco Unified IP Phone or your e-mail client.
- The new TimeCard View solution is a time and attendance application that allows employees, supervisors, and payroll specialists to enter and manage time-card data.
- The solution offers scalability from 4 to 16 concurrent voicemail or Automated Attendant calls and 12 to 250 mailboxes.
- The solution is deployable with Cisco Unified Communications Manager Express, Cisco Unified Communications Manager, Cisco Unity, and Cisco Unity Connection systems.

Specifications

Feature	Cisco Unity Express
Hardware	NME-CUE or AIM-CUE, fully self-contained modules with onboard storage, memory, and processing supporting a variety of mailbox densities, storage capacities, and concurrent sessions to meet the needs of every small-to-medium office or branch
Software	Cisco Unity Express release 7.0
Platform Supported	Cisco 1800, 2800, and 3800 Series Integrated Services Routers

For More Information

For more information about Cisco Unity Express, visit: <http://www.cisco.com/go/cue>.

Speech Connect for Cisco Unity Unified Messaging

Speech Connect for Cisco Unity is a speech-enabled Automated Attendant for the enterprise. Internal or external callers can speak the name of an employee into the phone and instantly be connected to that employee. Enhanced software fine-tunes pronunciation, improving accuracy over time for superior voice-recognition performance.

Key Features

- Speech Connect for Cisco Unity offers unmatched performance in speech recognition because of advanced disambiguation, the names-tuning service, and a dynamic names dictionary.

Selected Part Numbers and Ordering Information

SC-UNITY-NAME	One Speech Connect Cisco Unity Name
SC-GUEST-NAME	One Speech Connect Non-Cisco Unity Name
SPCH-CON-DAY2	Speech Connect Day2 Name Tuning—1 Name for 1 Year

For More Information

For more information about Speech Connect for Cisco Unity unified messaging, visit: <http://www.cisco.com/en/US/products/ps9676/index.html>.

Cisco Unity Unified Messaging

Cisco Unity unified messaging is a reliable, secure, scalable, and full-featured unified messaging platform.

Key Features

- Access voice messages anytime from a variety of clients and devices: Email inbox, web browser, desk phone, instant messaging client, and mobile phones, including speech access on phones.
- The flexible platform allows for configuration as voicemail or unified messaging, with a single message store on a Microsoft Exchange or Lotus Domino email server or a separate message store for voice messages.
- The system is scalable to 200 ports and 15,000 users per server; it offers server options with multiple processors, redundant fans, redundant power supplies, and Redundant Array of Independent Disks (RAID) hard disk drives.
- The solution supports Audio Messaging Interchange Specification analog (AMIS-A), Voice Profile for Internet Mail (VPIM), and Cisco Unity Bridge for Octel to facilitate interoperability with older voicemail systems.
- Integration with the Cisco Fax Server allows you to send and receive fax messages from your email inbox.

Specifications

Feature	Cisco Unity Unified Messaging
Unity Voice Mail (VM) and Unified Messaging (UM) Possible Configurations	15,000 users and 200 ports maximum, 250,000 networked users Configured for Cisco Unified Communications Manager or configured for legacy PBX/dual integration
Options	Voice Mail; Unified Messaging; Microsoft Exchange or Lotus Domino message store; Failover for Exchange; Cisco Unity Bridge for Exchange

Selected Part Numbers and Ordering Information

Cisco Unity 7.0 Software and Server Licenses	
UNITY7-USR-E	Cisco One Unity VM/UM for Exchange User
UNITY7X-SL-32	Cisco Unity server license for VM or UM, 32 ports
UNITY7X-SL-MAX	Cisco Unity server license for VM or UM, maximum ports

For More Information

For more information about Cisco Unity unified messaging, visit: <http://www.cisco.com/go/unity>.

Cisco Unified Messaging Gateway

The Cisco Unified Messaging Gateway provides an open and secure method of intelligently routing messages and exchanging subscriber and directory information within a unified messaging network. It acts as the central hub in a network of Cisco unified messaging solutions and third-party gateways that interface with older voicemail systems.

Ideal for Companies That Need these Features

Cisco Unified Messaging Gateway

- Scale the unified messaging network as required for branch-office customers and larger distributed enterprises
- Simplify configuration tasks and centralize voicemail system management
- Transparently integrate Cisco Unified Communications solutions into existing voicemail installations

Key Features

- Integrate small to large-scale unified messaging deployments that consist of more than five Cisco Unity Express systems.
- Integrate up to 10,000 mixed Cisco Unity Express, Cisco Unity, and Cisco Unity Connection systems.

Specifications

Feature	Cisco Unified Messaging Gateway
Hardware	NME-UMG or NME-UMG-EC
Platform Supported	Cisco 2800 and 3800 Series Integrated Services Routers

For More Information

For more information about the Cisco Unified Messaging Gateway, visit: <http://www.cisco.com/go/umg>.

Cisco Voice and Security Bundles

Voice and security bundles are designed for enterprise branch offices, small and medium-sized businesses (SMBs), and managed network service providers seeking consolidated, easy-to-order, versatile, and cost-effective solutions.

- Cisco Integrated Services Router Unified Communications Bundles include a Cisco integrated services router with necessary memory and the recommended Cisco IOS Software feature set; Cisco Unified Communications Manager Express licenses for call processing; Cisco Unity Express hardware, software, and feature licenses for voicemail and integrated messaging; Digital-signal-processor (DSP) resources for conferencing and public-switched-telephone-network (PSTN) connectivity to IP; Phone device licenses to deploy Cisco Unified IP Phones; Cisco Unified CallConnector for Microsoft Windows personal client desktop integration
- Cisco Unified Communications Manager Express Voice Bundles include a Cisco integrated services router with necessary memory and the recommended Cisco IOS Software feature set; Cisco Unified Communications Manager Express licenses for call processing; DSP resources for conferencing and PSTN connectivity to IP.
- Cisco Unified Survivable Remote Site Telephony (Unified SRST) Voice Bundles include a Cisco integrated services router with necessary memory and the recommended Cisco IOS Software feature set; Cisco Unified SRST feature licenses; DSP resources to support PSTN connectivity to IP
- H-VSEC Bundles include a Cisco integrated services router with necessary memory and the recommended Cisco IOS Software feature set; Cisco Unified Communications Manager Express feature license, which can also be used for SRST; DSP resources for conferencing and PSTN connectivity to IP; Cisco Unified Border Element licenses for connecting to a SIP telephony provider or to connect multiple sites together; Cisco IOS Advanced IP Services; A Cisco AIM-VPN accelerator card for maximum performance of security features, including VPN tunneling

For customers who want to deploy security features along with voice features using the Cisco Integrated Services Router enabled with either Cisco Unified Communications Manager Express, or Cisco Unified Survivable Remote Site Telephony (SRST) they can buy the voice-plus-security versions of these bundles. The voice-plus-security bundles add security features such as VPN, firewall, and intrusion detection systems (IDSs) to the existing voice and data features provided.

Ideal for Companies That Need These Features

Cisco Voice and Security Bundles

- Support for 8 to 250 phones per location; data, IP telephony, and VPN in an all-in-one solution based on a Cisco integrated services router
- Low entry price for a complete unified communications solution with room to grow in the future
- Investment protection (for customers who may migrate from Cisco Unified Communications Manager Express to Cisco Unified Communications Manager as the future dictates)

Selected Part Numbers and Ordering Information

Cisco Integrated Services Router Unified Communications Voice plus Security Bundles	
C3845-35UC-VSEC/K9	Cisco 3845 UC Bundle with IOS Adv IP Services, PVDM2-64, NME-CUE, 35 CME feature licenses, CUE user mailbox licenses and phone device licenses.128 MB Flash/512 MB DRAM, 10 UCC Personal licenses
C2851-35UC-VSEC/K9	Cisco 2851 UC Bundle with IOS Adv IP Services, PVDM2-48, NME-CUE, 35 CME feature licenses, CUE user mailbox licenses and phone device licenses. 128 MB Flash/256 MB DRAM, 10 UCC Personal licenses
C2801-10UC-VSEC/K9	Cisco 2801 UC Bundle with IOS Adv IP Services, PVDM2-32, AIM-CUE, 10 CME feature licenses, CUE user mailbox licenses and phone device licenses. 128 MB Flash/256 MB DRAM, 2 UCC Personal licenses
C1861-2B-VSEC/K9	Cisco 1861 UC Bundle with IOS Adv IP Services, PVDM2-32, On board CUE hardware, 8 CME feature licenses, CUE user mailbox licenses and phone device licenses. 4 FXS ports,2 BRI ports, 8 Power Over Ethernet ports. 128 MB Flash/256 MB DRAM, 2 UCC Personal licenses
Cisco Unified Communications Manager Express Voice plus Security Bundles	
C3845-VSEC-CCME/K9	Cisco 3845 Voice Bundle with IOS Adv IP Services, PVDM2-64, FL-CCME (250 users), 128 MB Flash/512 MB DRAM
C2851- VSEC-CCME/K9	Cisco 2851 Voice Bundle with IOS Adv IP Services, PVDM2-48, FL-CCME (100 users), 128 MB Flash/256 MB DRAM

C2801-VSEC-CCME/K9	Cisco 2801 Voice Bundle with IOS Adv IP Services, PVDM2-8, FL-CCME (25 users), 128 MB Flash/256 MB DRAM
Cisco Survivable Remote Site (SRST) Voice plus Security Bundles	
CISCO3845-SRST/K9	Cisco 3845 Voice Bundle with IOS Adv IP Services, PVDM2-64, FL-SRST (250 users), 128 MB Flash/512 MB DRAM
CISCO2851-SRST/K9	Cisco 2851 Voice Bundle with IOS SP Services, PVDM2-48, FL-SRST (100 users), 128 MB Flash/256 MB DRAM
CISCO2801-SRST/K9	Cisco 2801 Voice Bundle with IOS Adv IP Services, PVDM2-8, FL-SRST (25 users), 128 MB Flash/256 MB DRAM
Cisco H-VSEC Bundles	
C3845-H-VSEC/K9	Cisco 3845 High Performance Voice Security Bundle with IOS Advanced IP Services, PVDM2-64, AIM-VPN/SSL-3, 25 User SSL License, 100 users feature license for CME/SRST, 512 MB Flash/1 GB DRAM
C2851-H-VSEC/K9	Cisco 2851 High Performance Voice Security Bundle with IOS Advanced IP Services, PVDM2-48, AIM-VPN/SSL-2, 10 User SSL License, 50 users feature license for CME/SRST, 256 MB Flash/512 MB DRAM
C2821-H-VSEC/K9	Cisco 2821 High Performance Voice Security Bundle with IOS Advanced IP Services, PVDM2-32, AIM-VPN/SSL-2, 10 User SSL License, 50 users feature license for CME/SRST, 256 MB Flash/512 MB DRAM
C2801-H-VSEC/K9	Cisco 2801 High Performance Voice Security Bundle with IOS Advanced IP Services, PVDM2-8, AIM-VPN/SSL-2, 10 User SSL License, 25 users feature license for CME/SRST, 128 MB Flash/384 MB DRAM

For More Information

For more information about Cisco Unified Communications Manager Express, visit: <http://www.cisco.com/go/ccme>.

For more information about Cisco Unified Survivable Remote Site Telephony, visit: <http://www.cisco.com/go/srst>.

Cisco Unified Mobile Communicator

As an integral part of the Cisco Unified Communications Family of products, Cisco Unified Mobile Communicator is a software application that enables collaboration by securely extending Cisco Unified Communications to mobile smartphones. With Cisco Unified Mobile Communicator, you can place and receive calls, access company directory contacts, check presence information, and review voice-mail messages, as well as receive Cisco Unified MeetingPlace notifications and other vital information, all from a single, intuitive interface.

Key Features

- Unified contact list—Search your corporate directory (Microsoft Active Directory) and personal contacts (Microsoft Outlook) from one, easy-to-use interface to locate contacts quickly.
- Presence—View a person's availability status from the directory on your mobile handset.
- Single business number—Single number reach, supported by Cisco Unified Mobility, makes it easier for you to be reached and gives you the flexibility to answer the call that is most important for you at a given time.
- Dial via Office—Transparently place calls through Cisco Unified Communications Manager to reduce toll charges and meet regulatory requirements.
- Secure text messaging—Send and receive text messages from colleagues when they are unavailable to talk. Incoming messages are conveniently grouped by person, showing the sender, the priority, and a brief subject line, if available.
- Visual voicemail—You have visual access to Cisco Unity and Cisco Unity Connection voicemail messages. Select, view, play back, and delete messages in any order—all from your smartphone.
- Conferencing—Receive Cisco Unified MeetingPlace conference notifications on your smartphone. With a simple press of a button, you can access the conference bridge.
- Call logs—View a list of recent calls on your mobile device and learn what calls were missed, placed, and received from your mobile device and your Cisco Unified IP Phone.
- Broad operator and device support—Working simultaneously across multiple networks, mobile operators, and handset platforms, Cisco Unified Mobile Communicator helps ensure end-user choice and delivery.
- Enterprise-grade security—Cisco Unified Mobility Advantage server is deployed securely behind the enterprise firewall. It uses industry-standard Secure Sockets Layer (SSL) and Transport Layer Security (TLS) encryption to protect transmission of data between handsets and your corporate infrastructure.
- Management—Simple, web-based management allows IT staff to manage user activation, configuration, and administration; set system privileges and security; report statistics; and manage devices. The end-user portal allows provisioning, directory management, and configuration of user preferences.

Selected Part Numbers and Ordering Information

CUMC-K9-V3	Cisco Unified Mobile Communicator
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For More Information

For more information about Cisco Unified Mobile Communicator, visit: <http://www.cisco.com/en/US/products/ps7271/index.html>.

Cisco Unified Mobility

Cisco Unified Mobility is a native application to Cisco Unified Communications Manager that streamlines communications and optimizes the communications experience with single number reach.

Key Features

- Single Number Reach—Publish one number for multiple devices to simplify communications and preserve your office identity.
- Transparently move active phone calls between your mobile phone and your Cisco Unified IP Phone without interrupting a call to optimize the communications experience.
- Answer calls on the device that is most suitable to you at any given time with the ability to ring up to four devices simultaneously.
- Anchor calls in Cisco Unified Communications Manager to apply policy.

For More Information

For more information about Cisco Unified Mobility, visit: <http://www.cisco.com/en/US/products/ps6567/index.html>.

Cisco WebEx Meeting Center on the iPhone

Cisco WebEx Meeting Center for the iPhone is a free downloadable application for the iPhone that allows users to actively collaborate in Cisco WebEx Meeting Center meetings.

Key Features

- Schedule meetings and invite attendees from your iPhone
- Start and/or attend scheduled meetings from your iPhone with integrated audio and data
- View shared presentations, applications and desktops with live annotations
- View the meeting attendee list
- Give presentation control to other meeting participants joined from a computer
- Chat with meeting participants

For More Information

For more information about Cisco WebEx Meeting Center for iPhone, visit: <http://www.webex.com/iphone/>

Cisco WebEx Meeting Center on SmartPhone Browsers

Using the browser on a smartphones, users can attend fully participate in Cisco WebEx Meeting Center meetings, view presentations applications and desktops with live annotations.

Key Features

- Attend pre-scheduled meetings from your smartphone with integrated audio and data
- View shared presentations, applications and desktops with live annotations
- View the meeting attendee list

For More Information

For more information about Cisco WebEx Meeting Center on Smartphone Browsers, visit: <http://www.webex.com/mobile/>

Cisco Mobile Supervisor

Cisco Mobile Supervisor for is a free application available from Apple Inc's App Store that extends the Cisco Supervisor Desktop (CSD) of Cisco Unified Contact Center Express to the iPhone 3G and iPod Touch.

Key Features

- A list of Contact Service Queues (CSQs) belonging to a selected team
 - The Voice CSQ Summary report for a selected CSQ

- The list of agents (along with their states) belonging to the selected CSQ
- A list of agents (along with their states) belonging to a selected team
- Color-coded indicators to identify whether a CSQ's Calls in a Queue or Oldest Call in a Queue fields have exceeded user-configured thresholds. You can specify/change these threshold values at any time.

For More Information

For more information about the Cisco Mobile Supervisor, visit:

http://www.cisco.com/en/US/prod/collateral/voicesw/custcosw/ps5693/ps1846/ciscomobile_vds.html

Nokia Call Connect for Cisco

Enables select Nokia dual-mode handsets to operate on Cisco Unified Wireless Networks (VoWLAN/802.11 b/g) and access advanced features of Cisco Unified Communications Manager and Cisco Unified Communications Manager Express to reduce cellular costs and improve communications.

Key Features

- Access mid-call features, including call pick-up, group pick-up, call park, shared line appearance and conferencing
- Extension dialing
- Enterprise voice mail messaging waiting indicator
- Enhance in-building mobility experience with pervasive Cisco Unified Wireless Network coverage

For More Information

For more information about Nokia Call Connect for Cisco, visit: <http://www.cisco.com/go/nokia>

Cisco Unified Contact Center Enterprise

Cisco Unified Contact Center Enterprise delivers skills-based contact routing, voice self-service, computer telephony integration (CTI), and multichannel contact management over an IP infrastructure. With multichannel automatic-call-distributor (ACD) functions combined with IP telephony in a unified solution, companies can rapidly deploy a distributed contact center infrastructure. Cisco Unified Contact Center Enterprise supports single and multisite deployments in both all-IP environments and mixed IP and time-division multiplexing (TDM) environments. It segments customers, monitors resource availability, and delivers each contact to the most appropriate resource anywhere in the enterprise or at home. The software profiles each customer contact using related data such as dialed number and calling line ID, caller-entered digits, data submitted on a Web form, and information obtained from a customer database lookup. This combination of customer and contact center data is processed through user-defined routing scripts that graphically reflect a company's business rules.

Ideal for Companies That Need these Features

Cisco Unified Contact Center Enterprise

- Single contact center solution to support agents located in multiple locations, including formal contact centers, branch offices, and home agents
- Single contact center solution to support inbound, outbound, e-mail, and Web collaboration channels
- A fully redundant solution

Key Features

- Cisco Unified Contact Center Enterprise offers full scalability from less than a hundred to thousands of seats; it supports multisite contact centers and customer-relationship-management (CRM) integration.
- Carrier-class, distributed fault tolerance helps ensure uninterrupted operation.
- Multichannel interaction is possible, including Web collaboration with chat and callback, e-mail, voicemail, and fax routing.
- The solution provides continuous-contact call detail records.
- The solution provides common agent and supervisor desktops across all Cisco customer-interaction-management products.
- Cisco Unified Contact Center Enterprise provides predefined and custom real-time and historical reports; real-time data is also integrated in the agent and supervisor desktops.
- Support for custom call treatment for calls in queue includes support for music in queue and custom messaging; a standard screen pop allows any caller-entered information to be forwarded to the agent.
- Cisco Unified Contact Center Enterprise supports agent-supervisor interaction through chat; agent-supervisor messages are predefined.
- The solution offers enterprise presence integration through Cisco Unified Expert Advisor and Cisco Agent Desktop to tie in or extend intelligently routed calls to knowledge workers or informal agents.

Selected Part Numbers and Ordering Information

IPCE-BUNDLE	Requires the purchase of one CCE Server license. This license entitles the user to deploy the following necessary components: (redundant) Router; (redundant) Logger; (redundant) Communications Manager Peripheral Gateway(s); (redundant) IVR Peripheral Gateway(s) for connection to Cisco Self-Service and Queuing (IVR) systems, CVP and IP-IVR (non-Cisco IVRs require third-party IVR port licenses); Administrative workstation(s); Historical database server(s); WebView Reporting server and reporting user connections; Internet Script Editor (ISE) server and ISE user connections; application gateways; (redundant) CTI server for third-party CTI connections (only for non-agent desktop application)
IPCE-SVR	Contact Center Enterprise server license

For More Information

For more information about Cisco Unified Contact Center Enterprise, visit: <http://www.cisco.com/go/ipcc>.

Cisco Unified Contact Center Express

Cisco Unified Contact Center Express provides easy-to-deploy, easy-to-use, highly available, and sophisticated customer interaction management for 1 to 300 agents by supporting a highly available virtual contact center with integrated self-service applications across multiple sites secured with Cisco Security Agent. All Cisco Unified Contact Center Express solutions are tightly integrated with Cisco Unified Communications Manager.

Ideal for Companies That Need these Features

Cisco Unified Contact Center Express

- Contact center-in-a-box that delivers intelligent routing, call treatment, network-to-desktop and computer telephony integration (CTI), and integrated self-service for customer contact management over an IP infrastructure
- Ability to handle e-mail and Web-based contacts and provide outbound dialing support
- Sophisticated workforce management
- Ability to integrate multiple Cisco Unified Contact Center Express systems in the cloud under the control of Cisco Unified Intelligent Contact Management, including pre- and postrouting and centralized reporting
- Redundancy with high availability

Cisco Unified Contact Center Express is a virtual contact center that is easy to deploy, configure, and manage. It is available in three different packages [Standard, Enhanced, and Premium] to help ensure the right match with your business requirements. This interactive-voice-response (IVR) self-service solution is fully integrated with contact center operations, including the ability to deploy advanced self-service technologies such as Automatic Speech Recognition (ASR) and Text to Speech (TTS).

Key Features

- Cisco Unified Contact Center Express reduces business costs while improving customer response by providing sophisticated and distributed automatic call distributor (ACD), interactive voice response (IVR), computer telephony integration (CTI), and agent and desktop services.
- The solution offers numerous sophisticated options traditionally associated with enterprise contact centers, including the ability to handle e-mail and Web-based contacts, presence integration, outbound preview dialing, and a complete workforce-management solution.
- Administration is browser-based, integrating with Cisco Unified Communications Manager browser-based administration.
- The solution provides ongoing contact call detail records.
- The standard screen allows any caller-entered information to be forwarded (through a pop) to the agent.
- The solution provides predefined or custom historical reports; real-time reports are provided within the agent and supervisor desktops.
- The solution offers high availability with automatic failover for mission-critical deployments.
- This complete, enterprise-wide, scalable unified contact center solution works in the Cisco Customer Interaction Network.
- Cisco Unified Contact Center Express fully supports agent-supervisor interaction through chat and predefined messages.
- The solution offers full IP call queue points and prompts; it collects voice interaction capabilities.
- Optional Automatic Speech Recognition (ASR) and Text-to-Speech (TTS) capabilities are available.
- The solution supports custom call treatment such as music for calls in queue.
- Offers Cisco Mobile Supervisor feature enabling supervisors to receive real-time reports on the go on their Apple iPhone or iPod Touch.

NOTE: This is an abbreviated list of Cisco Unified Contact Center features.

Selected Part Numbers and Ordering Information

IPCX-70-STANDARD	New 70 Standard deployment
IPCX-70-ENHANCED	New 70 Enhanced deployment
IPCX-70-PREMIUM	New 70 Premium deployment
IPCX-70-STD-ADDON	Add-ons to an existing 70 Standard deployment
IPCX-70-ENH-ADDON	Add-ons to an existing 70 Enhanced deployment
IPCX-70-PRE-ADDON	Add-ons to an existing 70 Premium deployment

For More Information

For more information about Cisco Unified Contact Center Express, visit: <http://www.cisco.com/go/ipccexpress>.

Cisco Unified Contact Center Hosted Edition

The Cisco Unified Contact Center Hosted Edition solution is suitable for both enterprise customers and service providers. For service providers, it creates a new, high-margin service revenue stream for incumbent providers as well as new service carriers. The service provider hosts the contact center infrastructure software, which is shared by multiple business customers, in its central office or data center. Subscribing business customers can have IP infrastructures, time-division multiplexing (TDM) infrastructures, or a combination of the two. For the enterprise customer with multiple branch offices or divisions, the value is a centralized contact center infrastructure with the ability to offer services to its various divisions or satellite offices.

Ideal for Companies That Need These Features

- Cisco Unified Contact Center Hosted Edition
- Multiple business units that function autonomously

This solution is ideal for very large enterprise customers who want to deploy a single solution to support multiple businesses such as state government. It is also ideal for service providers that want to offer managed contact center services to their customers.

Key Features

- Cisco Unified Contact Center Hosted is a virtual call center; calls are routed to contact center agents independent of their location, a service especially appealing to businesses with branch offices or home agents.
- Network routing with a computer-telephony-integration (CTI) network-based automatic call distributor (ACD) is combined with CTI services.
- Network interactive-voice-response (IVR) functions are located in the network to provide information to callers or to collect information from callers before they speak with a live agent.
- Calls are routed between contact centers based on call-context information (dialed number and caller ID), agent availability, and customer information from databases.

Selected Part Numbers and Ordering Information

IPCH-BUNDLE	The Hosted bundle consists of two separately-licensed sets of components. The base licenses for the shared infrastructure, such as the NAM, the network interfaces, shared network IVRs, CICMs, and Hosted IPCC Agent licenses; (redundant) Router; (redundant) Logger; (redundant) Communications Manager Peripheral Gateway(s); (redundant) IVR Peripheral Gateway(s) for connection to Cisco IVR systems ISN and IP-IVR (non-Cisco IVRs require third-party IVR port licenses); Administrative workstation(s); Historical database server(s); WebView server and WebView user connections; Internet Script Editor (ISE) server and ISE user connections; application gateways; (redundant) CTI server for third-party CTI connections (only for non-agent desktop application)
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For More Information

For more information about Cisco Unified Contact Center Hosted, visit: <http://www.cisco.com/go/ipcchosted>.

Cisco Unified Customer Voice Portal

The Cisco Unified Customer Voice Portal integrates with both traditional time-division multiplexing (TDM) and IP-based contact centers to provide an unparalleled call-management and call-treatment solution with self-service voice and a video IVR option that can use information available on the corporate web server. With support for ASR and TTS capabilities, callers can obtain personalized answers to complex questions and can

conduct business in new and innovative ways—with or without a live agent. The Unified CVP solution offers a unique capability of providing the voice processing on Cisco integrated services routers and access servers, thus allowing the same self-service application to be deployed at a retail office or at large customer call centers, thus significantly reducing customers' bandwidth usage.

Ideal for Companies That Need These Features

Cisco Unified Customer Voice Portal

- Offset high costs associated with assisted-service contact center agents by directing more customer interactions to automated voice and video self-service
- Improved effectiveness of automated voice and video self-service at lower cost by treating calls at the most effective location
- A consistent customer experience across self-service (web and phone) and assisted-service environments

Selected Part Numbers and Ordering Information

CVP-70-SERVER-SW	CVP 70 Server Software
CVP-STU-70-UE60	Call Studio 70 for CVP 70 and CVP Universal Edition 6.0
CVP-7X-PTS	CVP 7X Self-Service Port License

For More Information

For more information about Cisco Unified Customer Voice Portal, visit: <http://www.cisco.com/go/cvp>.

Cisco Unified Expert Advisor

Cisco Unified Expert Advisor expands the scope of the contact center by allowing presence-enabled enterprise knowledge workers to handle incoming customer calls without the need for the rigid tools and business rules typically found in formal contact centers. Cisco Unified Expert Advisor can be deployed as an add-on to Cisco Contact Center solutions, or in a standalone mode without any formal contact center agents in the call flow. Experts receive precall data, allowing faster problem resolution. The solution is highly flexible and customizable, allowing enterprises to implement the most appropriate architecture and business logic to meet their customer contact needs.

Ideal for Companies That Need these Features

Cisco Unified Expert Advisor

- Formal contact centers with agents that require escalation to third- or fourth-level support or specialists in the enterprise who have the ability to improve on customer service by addressing the sought-after "first-call resolution."
- Small to medium-sized contact centers that require extension of customer calls to knowledge workers and for informal contact centers that do not process a high load of calls or where most customers address their needs from a self-service application.
- Environments where there is only a self-service or queuing application and no formal agents.

Key Features

- The solution improves first-call resolution and increases customer satisfaction by allowing subject matter experts anywhere in the enterprise to handle incoming customer calls.
- When deployed with Cisco contact center solutions, formal agents can request expert help with the click of a button.
- Agents can transfer the caller to the expert, or engage in a three-way conference with the caller and the expert.
- When deployed in standalone mode, Cisco Unified Expert Advisor provides robust, efficient customer interactions without the need for traditional contact center agents.
- Real-time and historical reports give decision makers detailed insights and control over their customer interaction flows. The solution offers higher rates of first-call resolution and reduced customer turnover.

Selected Part Numbers and Ordering Information

UNIFIED-EA-7X	Cisco Unified Expert Advisor Top Level Bundle
EA-USR-LIC=	EA Single Seat (Presence License ordered separately)
EA7X-RTS-LIC-K9=	EA 7x Runtime Srv License (Presence License ordered separately)

For More Information

For more information about Cisco Unified Expert Advisor, visit: <http://www.cisco.com/go/ea>.

Cisco Unified Intelligence Suite

The Cisco Unified Intelligence Suite comprises two components: Intelligence Center and the Archiver data repository. The suite also includes advanced integration tools that help users evolve the platform into an enterprise-wide information portal.

Intelligence Center is a web-based application that provides real-time and historical reporting in an easy-to-use, wizard-based interface. The Archiver is an external Microsoft Structured Query Language (MS-SQL) data repository that adds significant scalability and flexibility to Cisco Unified Contact Center reporting. The advanced integration tools allow customers to integrate data from nontraditional contact center sources such as Really Simple Syndication (RSS) feeds, external websites, and third-party databases to further improve business efficiency and effectiveness.

Ideal for Companies That Need these Features

Cisco Unified Intelligence Suite

- Powerful web-based reporting platform that is as flexible as it is intuitive
- The ability to report on the details of every contact across all channels from a single interface, regardless of the resources involved

Key Features

- Cisco Unified Intelligence Suite offers real-time and historical reporting in an easy-to-use, wizard-based interface.
- The solution offers a variety of presentation formats such as interactive grids, charts, web pages, and RSS feeds.
- Administrators can control access to features, reports, and data by granting privileges to individual users or groups of users.
- The solution offers integrated reporting for any data source, including third-party automatic call distributors (ACDs), Cisco Unified Workforce Management, customer relationship management (CRM), and QM products.
- The solution offers the ability to move between reports through hyperlinks providing drill-up, drill-down, and drill-across capabilities.
- Advanced drill-down capabilities allow customers to link multiple reports, including the ability to drill across data sources for maximum flexibility.

For More Information

For more information about the Cisco Unified Intelligence Suite, visit: <http://www.cisco.com/go/cc>.

Cisco Unified Intelligent Contact Management Enterprise

Through a combination of multichannel contact management, intelligent routing, and network-to-desktop computer telephony integration (CTI), the Cisco Unified Intelligent Contact Management Enterprise segments customers, monitors resource availability, and delivers each contact to the most appropriate resource anywhere in the enterprise.

The Cisco Unified Intelligent Contact Management Enterprise solution allows customers to keep their current legacy solutions in place regardless of TDM or IP voice transports, while giving them a migration path to new technologies such as VOIP, multi-channel and presence. When deployed with the Cisco Unified Customer Voice Portal, it lets customers begin to move call routing and queuing into the IP network, while leaving their existing TDM automatic call distributors (ACDs) and agents in place. Therefore, customers can decide to replace aging technologies independently, when it makes the most sense for them.

Ideal for Companies That Need These Features

Cisco Unified Intelligent Contact Management Enterprise

- Customers with existing, multi-site, single or multi vendor legacy ACD infrastructure looking for a unified call routing and CTI solution
- Customers looking for a migration path from their existing TDM architecture to an IP solution
- Customers who require unified routing across media types and across disparate vendor PBX and ACD solutions

Key Features

- Cisco Unified Intelligent Contact Management Enterprise offers carrier-class, distributed fault tolerance for uninterrupted operation.
- The solution provides profiles using contact-related data: dialed number and calling line ID (CLID), caller-entered digits, data submitted on a Web form, or information obtained from a customer profile database lookup. Profiles are processed with user-defined routing scripts that graphically reflect business rules. The solution routes each contact to the optimum resource anywhere in the enterprise, and delivers a unique and rich set of call-event and customer-profile data to the targeted desktop as a contact arrives, personalizing service and maximizing efficiency.

- Cisco Unified Intelligent Contact Management Enterprise gives customers the choice to interact through their phone, the web, voice over IP (VoIP), text chat, e-mail, or IM.
- The solution provides centralized management control over customer contacts, allowing users to implement a single set of business rules that uniformly address customer needs independent of contact channel or resource location.

Selected Part Numbers and Ordering Information

ICME-BUNDLE	Requires the purchase of at least one ACD PG and one ICM Agent license. Functionality included: monitor third-party ACD (call and agent); Call routing, including pre-routing from a carrier network and port-routing from an ACD; Historical database server(s); WebView server and WebView user connections; Internet Script Editor (ISE) server and ISE user connections; application, SQL, and ICM-to-ICM gateways; redundant deployment of all licensed components; Integrations through the ICM interfaces with third-party devices that are not intended for agent desktop usage; Connections to Cisco IVR systems (IP-IVR and CVP) and all related functions an ICM can perform, such as monitoring, reporting, and routing.
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For More Information

For more information about Cisco Unified Intelligent Contact Management Enterprise, visit: <http://www.cisco.com/go/icmee>.

Cisco Unified Intelligent Contact Management Hosted

The Cisco Unified Intelligent Contact Management Hosted solution allows a service provider to quickly become a strategic business partner by hosting a broad continuum of mission-critical customer applications. With current users, its functions create new revenue opportunities while strengthening customer loyalty.

Ideal for Companies That Need These Features

Cisco Unified Intelligent Contact Management Hosted

- Open architecture facilitates a smooth migration from circuit-switched to packet-based voice technology while facilitating business-to-business services, e-commerce, and multimedia applications such as Web collaboration and e-mail response management, all transparent to the end user.
- Ability to deliver critical applications tailored to each customer's business strategy, and to sharply differentiate from competitors, making it easier to gain entry and obtain feature or transport revenue (for the service provider)
- Services to take advantage of value-added service provider capabilities to meet business goals (for the customer)

This solution benefits the service provider and the customer as well.

Key Features

- From this virtual call center, calls are routed to contact center agents independent of their location, a service especially appealing to businesses with branch offices or home agents.
- A network-based automatic call distributor (ACD) is combined with computer-telephony-integration (CTI) services.
- Network interactive-voice-response (IVR) functions are located in the network to provide information to callers or to collect information from callers before they speak with a live agent.
- Calls are routed between contact centers based on call-context information (dialed number and caller ID), agent availability, and customer information from databases.

Selected Part Numbers and Ordering Information

HOSTED-BUNDLE	Consists of two separately-licensed sets of components. The base licenses for the shared infrastructure, such as the NAM and the network interfaces. This is an "a la carte" licensing model; a customized system can be licensed by selecting the required volume and options The software licenses for dedicated customer components such as the ICM instances, peripheral gateway, agents, and so on. These are ACD PG and Agent licenses.
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For More Information

For more information about Cisco Unified Intelligent Contact Management Hosted, visit: <http://www.cisco.com/en/US/products/sw/custcosw/ps1973/index.html>.

Cisco Unified Workspace Licensing

- Cisco Unified Workspace Licensing allows organizations to cost-effectively access a wide range of Cisco Unified Communications applications and services in a cost effective, simple package. It includes client and server software, licensing, service and support, and software subscription on a per-user basis.
- Cisco Unified Workspace Licensing is available in four versions to meet a variety of customer needs:
- **Business Edition**— Built on the Cisco Unified Communications Manager Business Edition platform, this edition offers call control, voice messaging, unified clients, mobility, and presence in a package optimized to the need of smaller businesses.
 - **Entry Edition**—This edition provides basic dial tone and mobility features.
 - **Standard Edition**—This edition provides the same benefits as Business Edition, but is optimized for larger businesses.
 - **Professional Edition**—This edition includes all features in Standard Edition plus mobile communicator client, audio, video and web conferencing, and other advanced capabilities.

Ideal for Companies That Need these Features

- Cisco Unified Workspace Licensing

 - Complete, media-rich unified communications experience for all their users across their workspace
 - Flexibly deploy UC applications as their evolving business needs dictate
 - Timely access to Cisco's latest software updates for major, minor, and maintenance releases, as well as online tools and communities that help solve issues quickly.
 - Offer workspace applications at a more affordable initial cost of acquisition
 - A simplified way to purchase and manage licensing, service and support

Specifications

Function	Included in Cisco Unified Workspace Licensing	Business Edition	Entry Edition	Standard Edition	Professional Edition
Video conferencing	Cisco Unified MeetingPlace Express or Cisco Unified MeetingPlace	No	No	No	Yes
Audio conferencing	Cisco Unified MeetingPlace or Cisco Unified MeetingPlace Express solution	No	No	No	Yes
Mobile phone client	Cisco Unified Mobile Communicator Client	No	No	No	Yes
Presence	Cisco Unified Presence Profile	Yes	No	Yes	Yes
Mobility (with Sim ring services)	Cisco Unified Mobility Profile	Yes	Yes	Yes	Yes
Soft client	Cisco Unified Personal Communicator or Cisco Unified IP Communicator with Cisco Unified Video Advantage	Yes	Yes, Cisco IP Communicator only	Yes	Yes
Messaging	Cisco Unity or Cisco Unity Connection solution	Cisco Unity Connection only	No	Yes	Yes

Phone and call control	License for one or unlimited number of Cisco IP phones per user	One	One	One	Unlimited
Call control	Starting platform	Cisco Unified Communications Manager Business Edition Workspace Bundle	Cisco Unified Communications Manager	Cisco Unified Communications Manager	Cisco Unified Communications Manager
User count	Supported user counts	50–500	100+	100+	100+

Selected Part Numbers and Ordering Information

Product Number	Description	UCSS Product Number	Product Number
LIC-UWL-ENTRY	Unified Workspace Licensing Entry, 1 User	UCSS-UWL-ENTRY	CON-ESW-UWLET1 CON-ESW-UWLET1K CON-ESW-UWLET10K
LIC-UWL-PRO	Unified Workspace Licensing PRO, 1 User	UCSS-UWL-PRO	CON-ESW-PRO1 CON-ESW-PRO1K CON-ESW-PRO10K
LIC-UWL-STD	Unified Workspace Licensing STD, 1 User	UCSS-UWL-STD	CON-ESW-UWLST1 CON-ESW-UWLST1K CON-ESW-UWLST10K

For More Information

For more information about Cisco Unified Workspace Licensing, visit: <http://www.cisco.com/go/cuwl>.

Cisco Unified Communications Software Subscription

Cisco Unified Communications Software Subscription is a product offering that allows you to purchase major software version upgrades of various Cisco Unified Communications products at a reduced cost. You are able to:

- Stay up-to-date—Get the latest product enhancements whenever there is a Cisco Unified Communications major software release, at no additional charge.
- Stay protected—During the term of your subscription agreement, you have guaranteed access to new software upgrades.
- Stay cost-effective—Whether you purchase a 1-, 2-, 3-, or 5-year subscription plan, Cisco Unified Communications Software Subscription can help you plan for the future while saving you money compared to repeat purchases of new software or individual upgrades.
- Stay productive—The process of planning, buying, deploying, and maintaining your Cisco Unified Communications upgrades is much easier and faster.

When combined with Cisco Unified Communications Essential Operate Service, you have timely access to Cisco's latest software updates for major, minor, and maintenance releases, as well as online tools and communities that help solve issues quickly.

Ideal for Companies That Need these Features

- | | |
|---|--|
| Cisco Unified Communications Software Subscription | <ul style="list-style-type: none"> • Maximizing return on investment and lower total ownership costs • Keeping pace with technology advancements and enhance productivity • Protecting Cisco Unified Communications investment in the future, regardless of what happens • Predicting and planning IP communications budgets over multiple years or budget only once |
|---|--|

Selected Part Numbers and Ordering Information

Order UCSS under CUWL-LIC	Cisco Unified Communications Software Subscription for Cisco Unified Workspace Licensing
UCSS-UCM	Cisco Unified Communications Software Subscription for Cisco Unified Communications Manager
UCSS-CUCM-BE	Cisco Unified Communications Software Subscription for Cisco Unified Communications Manager Business Edition

UCSS-UNITY	Cisco Unified Communications Software Subscription for Cisco Unity
UCSS-UNITYCN	Cisco Unified Communications Software Subscription for Cisco Unity Connection
UCSS-MTPLACE	Cisco Unified Communications Software Subscription for Cisco Unified MeetingPlace
UCSS-MPE	Cisco Unified Communications Software Subscription for Cisco Unified MeetingPlace Express and Cisco Unified MeetingPlace Express VT
UCSS-CCE	Cisco Unified Communications Software Subscription for Cisco Unified Contact Center Enterprise
UCSS-CCX	Cisco Unified Communications Software Subscription for Cisco Unified Contact Center Express
UCSS-CCH	Cisco Unified Communications Software Subscription for Cisco Unified Contact Center Hosted
UCSS-CUP	Cisco Unified Communications Software Subscription for Cisco Unified Presence
UCSS-UPC	Cisco Unified Communications Software Subscription for Cisco Unified Personal Communicator
UCSS-CUMC	Cisco Unified Communications Software Subscription Cisco Unified Mobile Communicator
UCSS-ICME	Cisco Unified Communications Software Subscription for Intelligent Contact Management Enterprise
UCSS-PIVR	Cisco Unified Communications Software Subscription for IP Interactive Voice Response (IP IVR)
UCSS-ER	Cisco Unified Communications Software Subscription for Emergency Responder

For More Information

For more information about Cisco Unified Communications Software Subscription, visit: <http://www.cisco.com/go/ucss>.

Cisco Unified Communications Services

Cisco and our partners offer a comprehensive portfolio of services to help protect, maintain, and optimize your Unified Communications solution.

- To find the appropriate service, visit the Service Finder tool at <http://www.cisco-servicefinder.com> (enter a product description or part number or search by product series family). Cisco SMARTnet support is available for all your hardware products. Cisco Essential Operate Service (ESW) is available for all your software Cisco products. The combination of hardware and software services is critical to optimizing product performance.
- For more information about Cisco Unified Communications Services, visit <http://www.cisco.com/go/ucservices>.
- For more information about Cisco Services, see Chapter 10, "Cisco Services."

Video

Cisco TelePresence System

Critical to delivering the Cisco TelePresence experience are three critical principles: quality that is as good as being there, a system that is extremely simple to use, and an architecture that uses existing services to provide a low total cost of ownership. The Cisco TelePresence solution gives users the tools to cost-effectively improve productivity; gain closer ties to customers, partners, and suppliers; and promote internal collaboration.

Designed to deliver an immersive "in-person" experience, the Cisco TelePresence solution incorporates high-quality spatial audio and lifelike video in a specially tuned environment. The full-duplex audio and near-zero latency allow you to communicate in real time, catching every comment and every nuance of the conversation. The industry-leading, 1080p high-definition video makes every expression and every gesture clearly visible, whether you are meeting across town or across time zones. You can now collaborate globally, not compromise on communications.

The Cisco TelePresence solution is designed to take advantage of the tools you use every day. It integrates with both enterprise groupware and unified communications, so scheduling a Cisco TelePresence meeting is as simple as booking a meeting. Whether you are meeting with one or many sites, the simple and intuitive user interface eliminates the need for staff, training, or manuals so that you can focus on the business opportunity—

not the technology. And thanks to the simplicity and reliability of this solution, you can focus your IT resources on strategic projects instead of operational tasks.

The Cisco TelePresence solution delivers the industry's leading in-room experience, so users can conduct business as easily and naturally as in person, but more cost-effectively. The solution offers intercompany capabilities for secure face-to-face communications across enterprise networks, interoperability with standards-based video conferencing, and scalable, cost-effective multipoint capabilities with support for up to 48 sites in a single meeting.

The Cisco TelePresence solution uses intelligent network architecture, with innovative services and integrated security—and industry-leading reliability. It takes advantage of the real-time collaborative communications services built into the network, delivering quality of service, security, and high availability. You can deploy and scale the application quickly, with a low total cost of ownership, for immediate productivity gains. Your organization can depend on this solution as a strategic communications platform that provides an in-person experience with the quality, simplicity, and reliability of a telephone call.

Key Features

- The solution is available as an entire portfolio of rooms and endpoints in a variety of configurations to meet all meeting and collaboration needs, from one-on-one meetings to very large team meetings or classroom applications.
- The solution is simple to use and it integrates with Microsoft Outlook and Lotus Notes for one-button-to-push meeting initiation.
- Meeting participants can share documents, photos, video, and physical objects through Cisco TelePresence Auto-Collaboration.
- Cisco TelePresence systems can participate in multipoint meetings by using the Cisco TelePresence Multipoint Switch.
- The Cisco TelePresence solution provides comprehensive security through media and signaling encryption for point-to-point and multipoint calls. Built-in encryption maintains the immersive meeting experience without adding discernable latency.
- Participants can meet with other organizations through intercompany Cisco TelePresence meetings.
- The solution interoperates with existing, standards-based video conferencing equipment.
- The Cisco TelePresence environment incorporates advanced audio, high-quality video, and room environments.

Cisco TelePresence System 500

The Cisco TelePresence System 500 brings the virtual in-person experience of Cisco TelePresence meetings directly into the private office. Creating a new category called Cisco TelePresence, the Cisco TelePresence System 500 allows individuals, subject matter experts, and executives to join Cisco TelePresence calls with equal stature—appearing life-size on Cisco TelePresence System 3000 and other endpoints.

The Cisco TelePresence System 500 is ideal for joining large, multilocation group meetings, such as operational reviews, status update meetings, and quarterly customer presentations. It also supports personal meetings such as negotiations, job interviews, and personnel reviews.



Specifications

Feature	Cisco TelePresence System 500
Product compatibility	<ul style="list-style-type: none">• Cisco TelePresence System 1000 with CTS software version 1.4 or later• Cisco TelePresence System 3000 with CTS software version 1.4 or later• Cisco TelePresence System 3200 with CTS software version 1.4 or later• Cisco Unified Communications Manager 6.0 or later• Cisco TelePresence Multipoint Switch 1.0 or later• Cisco TelePresence Manager 1.4 or later
Software compatibility	Cisco TelePresence System software Version 1.4 or later
Protocols	Cisco Discovery Protocol, SIP, IP Dynamic Host Configuration Protocol (DHCP), Secure Shell (SSH) Protocol, 802.1p/q, and Real-Time Transport Protocol (RTP)
Connectivity	Ethernet (1 LAN, RJ-45 connection -- 100/1000m), internal 4-port Ethernet switch, and high-definition video connector
Programming interfaces	Web-based user interface; IP address assignment can be statically configured or configured through the Cisco TelePresence administrator Web interface

Physical dimensions (H x W x D)	Minimum room dimensions: 8 x 6 x 8 feet • Table top: Height 3'0.5", Width 3'2", Depth 1'4.5"; Base width 2'7.5", Base depth 1'4.5" • Freestanding pedestal: Height 5'6.5", Width 3'2"; Base width 2'9", Base depth 2'1" • Wall mounted pedestal: Height 5'6.5", Width 3'2"; Base width 2'9", Base depth 1'1.5" • Wall mounted: Height 2'6", Width 3'2"
Weight	230 lb with pedestal; 65 lb without pedestal and CODEC
Power	350W (3 Amps @ 120V to 1.5 Amps @ 240V); Two power plugs are required
Video and Audio Specifications	
Bandwidth consumption	3 to 4 Mbps (1080p) or 1 to 3 Mbps (720p) for IP QoS connections is recommended. Note: The bandwidth recommendations for the Cisco TelePresence System 500 are identical to those for the Cisco TelePresence System 1000.
Video standards	HM.264
Video frame rate	30 frames per second using H.264
Data and graphics frame rate	• Graphics sharing at 5 frames per second (standard configuration) • Optional graphics sharing at 30 frames per second using a dedicated presentation codec
Native National Television Standards Committee (NTSC)	720p and 1080p
Resolution	1920 x 1080 Native
Audio standards	G.711 and AAC-LD (22 kHz)
Audio features	Cisco Dynamic Echo Cancellation
Cisco TelePresence high-definition camera	• Complementary Metal Oxide Semiconductor (CMOS) 2/3-inch sensor • C-mount lens • 1080p 30 • Minimum illumination 300 lux • Manual focus
H.264 interoperability	Using CIF and G.711 with CUVC35xx Series platforms
Additional Specifications	
Firmware upgrades	Downloadable from Cisco Unified Communications Manager
Video network features	Intelligent packet loss recovery of video transmission
Network interface	• 1 LAN or Ethernet (RJ-45); 100/1000 Mbps • Internal 4-port Ethernet switch with 2 PoE (IEEE 802.3af) ports on codec

Selected Part Numbers and Ordering Information

Power cords	Select the appropriate power cord pair option to plug into the wall outlets in the country where the Cisco TelePresence system will be deployed.
Auxiliary control unit	CTS-LIGHT-CTRL—This is an optional control unit that is used to turn off system lighting when not in a meeting and is not required for Cisco TelePresence 500 operation. The built-in lighting for the system is included and does not need to be ordered separately.
Presentation codec	CTS-HFR-COLLAB—This chargeable option adds a dedicated presentation codec to enable high-frame-rate Auto Collaboration.
Mounting Options (Choose one at NC)	• CTS500-STRUC-PED—This mounting option provides a free standing floor mount for the CTS-500 with codec integrated to the pedestal • CTS500-STRUC-TABL—This mounting option is for the display sitting on a table or shelf and codec sits on the floor with a cable harness • CTS500-STRUC-WALL—This mounting option is for the display attached to a wall and codec sits on the floor with a cable harness

For More Information

For more information about the Cisco TelePresence System, visit: <http://www.cisco.com/go/telepresence>.

Cisco TelePresence System 1000

The Cisco TelePresence System 1000 is ideal for small group or one-on-one meetings around the “virtual table”. Two Cisco TelePresence System 1000 endpoints in a single meeting create a virtual table for up to 4 participants. The Cisco TelePresence System 1000 is suitable for uses such as direct customer engagements, small presentations, regular one-on-one meetings with remote employees or partners, supply-chain dealings, press briefings, operational or engineering reviews, or negotiations and interviews.



Specifications

Feature	Cisco TelePresence System 1000
Product compatibility	<ul style="list-style-type: none"> • Cisco TelePresence System 500 with CTS software version 1.5 or later • Cisco TelePresence System 3000 with CTS software version 1.1 or later • Cisco TelePresence System 3200 with CTS software version 1.4 or later • Cisco Unified Communications Manager 5.1 or later • Cisco TelePresence Multipoint Switch 1.0 or later • Cisco TelePresence Manager 1.4 or later
Software compatibility	Cisco TelePresence System software Version 1.2
Protocols	Cisco Discovery Protocol, SIP, IP, Dynamic Host Configuration Protocol (DHCP), Secure Shell (SSH) Protocol, 802.1p/q, and Real-Time Transport Protocol (RTP)
Connectivity	Ethernet (1 LAN, RJ-45 connection—100/1000m), internal 4-port Ethernet switch, and high-definition video connector (socket and cable)
Programming interfaces	Web-based user interface; IP address assignment can be statically configured or configured through the Cisco TelePresence Web interface
Physical dimensions (H x W x D)	61 x 62 x 14 in.; Designed for small conference room or office
Power	Maximum—1160W (9.7A @ 120V to 4.8A @ 240V); Typical—1079W (9A @ 120V to 4.5A @ 240V)
Video and Audio Specifications	
Bandwidth	1-3 Mbps (720p) or 3-4 Mbps (1080p) for IP QoS connections is recommended; on average, a Cisco TelePresence System 1000 uses 1-2 Mbps (1080p)
Video standards	H.264
Frame rates	30 frames per second using H.264
Data and graphics frame rate	Graphics sharing at 5 frames per second (standard configuration) Optional graphics sharing at 30 frames per second using a dedicated presentation codec
Native National Television Standards Committee (NTSC)	720p and 1080p
Resolution	1920 x 1080 native
Audio standards	G.711 and AAC-LD (22 kHz)
Audio features	Cisco Dynamic Echo Cancellation
Cisco TelePresence High-Definition Camera	• CMOS 2/3-in. sensor; C Mount Lens; 1080p 30; Minimum illumination 300 Lux; Manual focus
Additional Specifications	
Firmware upgrades	Downloadable from Cisco Unified Communications Manager
Dimensions (H x W x D)	61 x 62 x 14 in.
Footprint	Small conference room or executive office
Weight	690 lb (freight weight)
Video network features	Intelligent packet loss recovery of video transmission
Network interface	1 LAN or Ethernet (RJ-45); 100/1000 Mbps
Ethernet, Internet, and intranet connectivity	Cisco Discovery Protocol, 802.1p/q, TCP/IP, DHCP, and SSH

Selected Part Numbers and Ordering Information

CTS-1000	Cisco TelePresence System 1000
Power Cords	Select the appropriate power cord option to plug into the wall outlets in the country where the TelePresence system will be deployed.
Lighting Fixtures	Select the appropriate system lighting fixture based on the region where the TelePresence system will be deployed. Special lighting fixtures are required for Europe and Japan.
Auxiliary control unit	CTS-LIGHT-CTR—This is an optional control unit that is not required for Cisco TelePresence 1000 operation.
Presentation Codec	CTS-HFR-COLLA—This is a chargeable option to add a dedicated presentation codec to enable high frame rate Auto Collaboration.

For More Information

For more information about the Cisco TelePresence System, visit: <http://www.cisco.com/go/telepresence>.

Cisco TelePresence System 1300

The Cisco TelePresence System 1300 brings the virtual in-person Cisco TelePresence experience to the multipurpose conference room. With a streamlined industrial design, one screen, and three cameras, it can support up to six people without requiring a dedicated teleconferencing room. All team members participate life-size in Cisco TelePresence calls with automatic voice-activated switching.

The Cisco TelePresence System 1300 is ideal for multipoint group meetings, such as operational reviews, status update meetings, and quarterly customer presentations. It also supports multilocation collaborative group meetings such as design reviews, and general working sessions for geographically dispersed teams.



Specifications

Product compatibility	<ul style="list-style-type: none">• Cisco TelePresence System 500 with Cisco TelePresence System Software v1.5 or later• Cisco TelePresence System 1000 with Cisco TelePresence System Software v1.5 or later• Cisco TelePresence System 3000 with Cisco TelePresence System Software v1.5 or later• Cisco TelePresence System 3200 with Cisco TelePresence System Software v1.5 or later• Cisco Unified Communications Manager 6.1 or 7.0 or later• Cisco TelePresence Multipoint Switch 1.5 or later• Cisco TelePresence Manager 1.5 or later
Software compatibility	Cisco TelePresence System Software Version 1.5 or later
Protocols	Cisco Discovery Protocol, SIP, IP, Dynamic Host Configuration Protocol (DHCP), Secure Shell (SSH) Protocol, 802.1p/q, and Real-Time Transport Protocol (RTP)
Connectivity	Ethernet (1 LAN, RJ-45 connection - 100/1000m), internal 4-port Ethernet switch, and high-definition video connector
Programming interfaces	Web-based user interface; IP address assignment can be statically configured or configured through the Cisco TelePresence administrator web interface
Physical dimensions (H x W x D)	Wall-mounted: 774 x 80 x 75 in. (196.7 x 203.2 x 19.1 cm)
Weight	600 lb (272 kg) (freight weight)
Power	Cisco TelePresence system (typical): 1228W (12.8A @ 120V)
Video and Audio Specifications	
Bandwidth consumption	Recommended for IP QoS connections: 3 to 4 Mbps (1080p) or 1 to 3 Mbps (720p) Note: The bandwidth recommendations for the Cisco TelePresence System 1300 are identical to those for the Cisco TelePresence System 1000.
Video standards	H.264
Video frame rate	30 frames per second using H.264
Data and graphics frame rate	<ul style="list-style-type: none">• Graphics sharing at 5 frames per second (standard configuration)• Optional graphics sharing at 30 frames per second using a dedicated presentation codec
Native National Television Standards Committee (NTSC)	720p and 1080p

Resolution	1920 x 1080 Native
Audio standards	G.711 and AAC-LD (22 kHz)
Audio features	Cisco Dynamic Echo Cancellation
Cisco TelePresence high-definition camera	<ul style="list-style-type: none"> • Complementary Metal Oxide Semiconductor (CMOS) 2/3-inch sensor • C-mount lens • 1080p 30 fps • Minimum illumination 300 lux • Manual focus
H.264 interoperability	Using Common Intermediate Format (CIF) and G.711 with Cisco Unified Video Conferencing 3500 Series platforms
Additional Specifications	
Firmware upgrades	Downloadable from Cisco Unified Communications Manager
Video network features	Intelligent packet loss recovery of video transmission
Network interface	<ul style="list-style-type: none"> • 1 LAN or Ethernet (RJ-45): 100/1000 Mbps • Internal 4-port Ethernet switch with 2 PoE (IEEE 802.3af) ports on codec

Selected Part Numbers and Ordering Information

CTS-1300-65	Cisco TelePresence System 1300-65
Power Cords	Select the appropriate power cord pair option to plug into the wall outlets in the country where the Cisco TelePresence system will be deployed.
Presentation codec	CTS-HFR-COLLAB This chargeable option adds a dedicated presentation codec to enable high-frame-rate Auto Collaboration.

For More Information

For more information about the Cisco TelePresence System 1300, visit: <http://www.cisco.com/go/telepresence>.

Cisco TelePresence System 3000

The Cisco TelePresence System 3000 is an ideal endpoint for group meetings, creating an environment for six people to sit around the “virtual table” in a single location. Two Cisco TelePresence System 3000 systems in a meeting create a virtual table for 12 participants. The Cisco TelePresence System 3000 is suitable for uses such as customer engagements, presentations to small or large groups, supply-chain dealings, press briefings, operational or engineering reviews, negotiations, or regular team meetings.



Specifications

Feature	Cisco TelePresence System 3000
Product compatibility	Cisco TelePresence System 500 with CTS software version 1.5 or later; Cisco TelePresence System 1000 with CTS software version 1.1 or later; Cisco TelePresence System 3200 with CTS software version 1.4 or later; Cisco Unified Communications Manager 5.1 or later; Cisco TelePresence Multipoint Switch 1.0 or later; Cisco TelePresence Manager 1.0 or later
Software compatibility	Cisco TelePresence System software Version 1.1 or later
Protocols	Cisco Discovery Protocol, SIP, IP Dynamic Host Configuration Protocol (DHCP), Secure Shell (SSH) Protocol, 802.1p/q, and Real-Time Transport Protocol (RTP)
Connectivity	Ethernet (1 LAN, RJ-45 connection—100/1000m), internal 4-port Ethernet switch, and high-definition video connector
Programming interfaces	Web-based user interface; IP address assignment can be statically configured or configured through the Cisco TelePresence administrator Web interface
Physical dimensions (H x W x D)	8 x 15 x 19 feet of space is required at minimum
Weight	2020 lb (freight weight)
Power	Maximum—5292W (44.1A @ 120V to 22A @ 240V) Typical—4410W (36.8A @ 120V to 18.4A @ 240V)

Video and Audio Specifications	
Bandwidth consumption	3-9 Mbps (720p) or 9-12 Mbps (1080p) for IP QoS connections recommended; on average, a Cisco TelePresence System 3000 uses 6-8 Mbps (1080p)
Video standards	H.264
Frame rates	30 frames per second using H.264
Data and graphics frame rate	Graphics sharing at 5 frames per second (standard configuration) Optional graphics sharing at 30 frames per second using a dedicated presentation codec
Native National Television Standards Committee (NTSC)	720p and 1080p
Resolution	1920 x 1080 Native
Audio standards	G.711 and AAC-LD (22 kHz)
Cisco TelePresence High-Definition Camera	<ul style="list-style-type: none"> • CMOS 2/3-inch sensor • C Mount Lens • 1080p 30 • Minimum illumination 300 Lux • Manual focus
Audio features	Cisco Dynamic Echo Cancellation for spatial audio
Additional Specifications	
Firmware upgrades	Downloadable from Cisco Unified Communications Manager
Video network features	Intelligent packet loss recovery of video transmission
Network interface	1 LAN or Ethernet (RJ-45); 100/1000 Mbps; Internal 4-port Ethernet switch with 2 PoE (IEEE 802.3af) ports on codec

Selected Part Numbers and Ordering Information

CTS-3000	Cisco TelePresence System 3000
Power Cords	Select the appropriate power cord option to plug into the wall outlets in the country where the TelePresence system will be deployed.
Laptop Connectivity Modules	Select the appropriate connectivity modules based on the country where the TelePresence system will be deployed. These modules allow participants to plug their laptop PC's or other portable electronic devices into power outlets integrated into the system table legs.
Lighting Fixtures	Select the appropriate system lighting fixture based on the region where the TelePresence system will be deployed. Special lighting fixtures are required for Europe and Japan.
Auxiliary control unit	CTS-LIGHT-CTR—This is an optional control unit that is not required for Cisco TelePresence System 3000 operation.
Projectors	Projector options are offered to meet country specific regulatory requirements. Select from standard, Chinese or none.
Presentation Codec	CTS-HFR-COLLAB—This is a chargeable option to add a dedicated presentation codec to enable high frame rate Auto Collaboration.

For More Information

For more information about the Cisco TelePresence System, visit: <http://www.cisco.com/go/telepresence>.

Cisco TelePresence System 3200

For large, distributed organizations striving to thrive and grow in today's global virtual economy, the Cisco TelePresence System 3200 brings the power of Cisco TelePresence technology to larger room venues. Ideal for headquarters sites or large regional offices, the system allows large teams to meet and collaborate virtually using the Cisco TelePresence solution when much of the team is in one physical location. With seating for up to 18 participants in a single room, the system delivers the same superior video and audio quality as the rest of the Cisco TelePresence portfolio. Applications for the Cisco TelePresence 3200 include large team meetings, cross-functional team meetings, and training or classroom events. The solution can now scale to fit your organization's wide range of meeting needs today and into the future.



The Cisco TelePresence 3200 is ideal for large group meetings with many participants in a single location, connecting to other satellite groups in remote locations. It provides an equal seat at the table for participants for applications such as operations reviews, status update meetings, quarterly meetings with clients or partners, executive presentations, or meetings requiring staff to be present.

Specifications

Feature	Cisco TelePresence System 3200
Product compatibility	<ul style="list-style-type: none">• Cisco TelePresence System 500 with Cisco TelePresence System software 1.4 or later• Cisco TelePresence System 1000 with Cisco TelePresence System software 1.2 or later• Cisco TelePresence System 3000 with Cisco TelePresence System software 1.2 or later• Cisco Unified Communications Manager 6.0 or later• Cisco TelePresence Multipoint Switch 1.0 or later• Cisco TelePresence Manager 1.4 or later
Software compatibility	Cisco TelePresence System Software 1.4 or later
Protocols	Cisco Discovery Protocol, SIP, IP, Dynamic Host Configuration Protocol (DHCP), Secure Shell (SSH) Protocol, 802.1p/q, and Real-Time Transport Protocol (RTP)
Connectivity	Ethernet (1 LAN, RJ-45 connection—100/1000m), internal 4-port Ethernet switch, and high-definition video connector
Programming interfaces	Web-based user interface; you can configure IP address assignment statically or through the Cisco TelePresence administrator Web interface
Physical dimensions (H x W x D)	8 x 24 x 23 feet minimum room dimensions for reduced back-row table configuration (total room capacity of 14 participants). Dimensions for the 12-person second row table are 8 x 31 x 23 feet. Note that higher ceilings may be required to mount an optional data display. Contact your Cisco Authorized Technology Provider (ATP) partner for data display options and mounting options.
Weight	Approximately 2595 lb (1177 kg; freight weight)
Power	8856 W (73.8 A @ 120V to 36.9 A @ 240V maximum)
Video and Audio Specifications	
Bandwidth consumption	15.3 Mbps (1080p, best motion handling) or 11.7 Mbps (720p, best motion handling) for IP QoS connections recommended 19.8Mbps (1080p best) or 16.2Mbps (720p best) when including at 30 fps presentation codec. Note that the bandwidth recommendations for the Cisco TelePresence 3200 are identical to those for the Cisco TelePresence 3000.
Video standards	H.264
Video frame rate	30 frames per second using H.264
Data and graphics frame rate	Graphics sharing at 5 frames per second (standard configuration) Optional graphics sharing at 30 frames per second using a dedicated presentation codec
Native National Television Standards Committee (NTSC)	720p and 1080p
Resolution	1920 x 1080 native
Audio standards	G.711 and AAC-LD (22 kHz)
Audio features	Cisco Dynamic Echo Cancellation for spatial audio
Cisco TelePresence High-Definition Camera	<ul style="list-style-type: none">• CMOS 2/3-inch sensor• C Mount Lens• 1080p 30• Minimum illumination 300 Lux• Manual focus
Additional Specifications	
Firmware upgrades	Downloadable from Cisco Unified Communications Manager
Video network features	Intelligent packet loss recovery of video transmission
Network interface	<ul style="list-style-type: none">• 1 LAN or Ethernet (RJ-45); 100/1000 Mbps• Internal 4-port Ethernet switch with 2 PoE (IEEE 802.3af) ports on codec

Selected Part Numbers and Ordering Information

Power Cords	Select the appropriate power cord option to plug into the wall outlets in the country where the TelePresence system will be deployed.
Laptop Connectivity Modules	Select the appropriate connectivity modules based on the country where the TelePresence system will be deployed. These modules allow participants to plug their laptop PC's or other portable electronic devices into power outlets integrated into the system table legs.
Lighting Fixtures	Select the appropriate system lighting fixture based on the region where the TelePresence system will be deployed. Special lighting fixtures are required for Europe and Japan.
Projectors	Projector options are offered to meet country specific regulatory requirements. Select from standard, Chinese or none.
Presentation Codec	CTS-HFR-COLLAB This is a chargeable option to add a dedicated presentation codec to enable high frame rate Auto Collaboration.

For More Information

For more information about the Cisco TelePresence System, visit: <http://www.cisco.com/go/telepresence>.

Cisco TelePresence Manager

Cisco TelePresence Manager software makes it easy for you to schedule and manage Cisco TelePresence calls. As an integral part of the Cisco TelePresence experience, the software facilitates call scheduling and setup from common enterprise groupware such as Microsoft Exchange and Lotus Notes.

Key Features

- Web-based user interface for easy administration
- Easy scheduling to minimize user training and support
- Ability to launch calls with one button on the phone interface
- Microsoft Exchange and Lotus Notes compatibility
- Integration with Cisco Unified Call Manager for call control
- Optimized resource allocation for multipoint calls
- Consolidated views of scheduled meetings with export functions for ROI reporting

Specifications

Feature	Cisco TelePresence Manager
Product compatibility	Cisco MCS 7835-H2 and MCS 7835-I2 Media Convergence Servers
Software compatibility	Microsoft Internet Explorer 6.0
Protocols	HTTP, HTTPS, Cisco AVVID XML Layer (AXL) with SOAP, Simple Network Management Protocol (SNMP), and CTI
Connectivity	IP
Reliability and availability	High availability through Cisco MCS 7835 Media Convergence Server platform

Selected Part Numbers and Ordering Information

CTS-MAN1.3	Cisco TelePresence Manager 1.3 ¹
MCS-7835-H2-CTS1	Cisco MCS 7835-H2 Media Convergence Server
MCS-7835-I2-CTS1	Cisco MCS 7835-I2 Media Convergence Server ²
LIC-CTS-MAN-MS	Cisco TelePresence Manager Integration for MS Exchange
LIC-CTS-MAN-IBM	Cisco TelePresence Manager Integration for IBM Domino ³
LIC-CTS-MAN-10	Cisco TelePresence Manager Device License: 10 units
LIC-CTS-MAN-50	Cisco TelePresence Manager Device License: 50 units
LIC-CTS-MAN-100	Cisco TelePresence Manager Device License:100 units

1. One Cisco media convergence server is required per Cisco TelePresence Manager implementation.
2. One integration is required per Cisco TelePresence Manager Implementation.

3. License required. Based on number of Cisco TelePresence systems under management.

For More Information

For more information about the Cisco TelePresence System, visit: <http://www.cisco.com/go/telepresence>.

Cisco TelePresence Multipoint Switch

Easily and reliably include three or more locations in a single meeting with the Cisco TelePresence Multipoint Switch. With support for up to 48 locations in a single meeting across many endpoints, the switch allows all participants to be seen in life-like, high-definition video and heard in CD-quality, spatial audio with no perceivable latency. The Cisco TelePresence Multipoint Switch is an affordable, purpose-built appliance that offers superior scalability and is easy to install. It delivers automatic voice-activated switching either site-by-site or by individual table segment.

Key Features

- Easy meeting setup through enterprise groupware such as Microsoft Outlook or Lotus Notes
- One-button-to-push meeting start with the in-room IP phone
- The system supports connections among 48 single-screen Cisco TelePresence 500 or Cisco TelePresence 1000 endpoints, 16 triple-screen Cisco TelePresence 3000 or Cisco TelePresence 3200 endpoints, or a mix of both in a single meeting.
- Voice-activated switching with spatial audio and seating location on screen maintained as switching occurs
- When linked with the Cisco Unified Video Conferencing 3515 or 3545 MCU, the Cisco TelePresence Multipoint Switch provides full interoperability with the installed base of H.323 and SIP (Session Initiation Protocol) video conferencing endpoints.
- Latency of less than 10 milliseconds for transparent switching between sites or segments during a multipoint call
- Data sharing and auto-collaboration to share images with all other participants and rooms
- Web-based administration with role-based profiles for administrators at both group and department levels

Specifications

Feature	Cisco TelePresence Multipoint Switch		Cisco TelePresence Interoperability
Product compatibility	Cisco TelePresence System Version 1.4.2 or later		
Software compatibility	Cisco TelePresence Manager Version 1.5 or later		
Call signaling	SIP trunk with Cisco Unified Communications Manager Version 6.1.3 or later and IP Version 4 (IPv4)		
Media protocol	Real-Time Control Protocol (RTCP) and Real-Time Transport Protocol (RTP), User Datagram Protocol (UDP), and IP Unicast		
Video protocol	H.264 baseline high-definition (HDTV) 16:9 aspect ratio		H.264 baseline standard definition (TV) 4:3 aspect ratio (on demand only)
Video resolution	Progressive 1080p (1920 x 1080 pixels at 30 frames per second [fps]) and 720p (1280 x 720 pixels at 30 fps)		Common Interchange Format (CIF), 352 x 288 pixels at 30 fps)
Auto collaboration video	1024 x 768 pixels at 5 fps or 30fps presentation video		Not supported in current release
Audio	Advanced Audio Coding with low delay (AAC-LD/HBR) 22-MHz (CD-quality) audio; 4 channel audio streams		Full toll-quality G.711 single channel audio (4 channels mixed)
Additional hardware	No additional hardware required		At least 1 Cisco Unified Videoconferencing 3500 MCU (model 3515/12, 3515/24, or 3545)

Cisco TelePresence Attribute	
Capacity	Up to 48 1080p 30-fps video streams
Maximum meeting size	A single multipoint meeting can accommodate up to the total capacity of the system, which supports 48 video streams (1 plasma display = 1 video stream), so 16 Cisco TelePresence System 3000 endpoints or Cisco TelePresence System 3200, 48 Cisco TelePresence System 1000 endpoints or Cisco TelePresence System 500, or a mix can participate in a single meeting.

Concurrent meetings	The total capacity of CTMS is 48 simultaneous video streams, with each plasma display representing one video stream. This capacity can be divided into any number of meetings. For example, with three Cisco TelePresence System 1000 endpoints per meeting, the switch supports 16 concurrent meetings. The maximum number of concurrent meetings (with at least 2 Cisco TelePresence System 500 or Cisco TelePresence System 1000 endpoints) is 24.
Latency (added by Cisco TelePresence Multipoint Switch)	Less than 10 milliseconds (ms)
Jitter (added by Cisco TelePresence Multipoint Switch)	Less than 0.05%
Availability	99.99% (estimated)
SNMP MIBs	RFC 1213, ENTITY, IF, ENTITY-FRU-CONTROL, HOSTRESOURCES, UMSEVENT, UMSLMSENSOR, and CiscoTelePresenceCall MIB
CDR data	CDR ASCII format
Administrative interface	HTTP and HTTPS, Secure Shell (SSH) Protocol, role-based access control (RBAC), and password protection
API (Application Programming Interface)	SOAP/XML for real-time (active meeting) conference and participant management
QoS	Support for Differentiated Services (DiffServ) markings

Selected Part Numbers and Ordering Information

CTS-CTMS-1.5	Cisco TelePresence Multipoint Switch (CTMS)
LIC-CTMS-1.5 (Included)	Cisco CTMS Software License/Application
MCS-7845-H2-CTS2 (Included – standard)	Cisco MCS 7845-H2 Media Convergence Server (HP)
MCS-7845-I2-CTS2 (Included – alternate)	Cisco MCS 7845-I2 Media Convergence Server (IBM)

For More Information

For more information about the Cisco TelePresence System, visit: <http://www.cisco.com/go/telepresence>.

Cisco TelePresence Recording Server

The Cisco TelePresence Recording Server transforms Cisco TelePresence into a high-definition recording studio. Using an intuitive user interface, you can create high-quality video to deliver rich, immersive messages immediately for internal and external communications such as training or crisis management. Distributing and viewing video content is easy, and you can replay recordings on Cisco TelePresence endpoints or on the web on standard browser-based players.

Key Features

- High-definition recording—Videos are recorded in H.264 1080p high definition for playback on any Cisco TelePresence system. You can immediately view recorded content or share recorded content with other users of Cisco TelePresence endpoints.
- Standard-definition (SD) recording—Videos are simultaneously recorded in standard definition for playback on standard browser-based video players such as Adobe Flash or Apple QuickTime.
- Autocollaboration support—You can record videos with full data presentations using the Cisco TelePresence Auto Collaborate channel to capture the PC presentation as a separate video stream. You can then play this stream back in concert with the high-definition video and audio to provide a fully synchronized presentation that is viewable with standard PC browser-based viewers.
- Easy-to-use controls—All user controls for the Cisco TelePresence Recording Server are incorporated into the Cisco TelePresence IP Phone interface. You can start, stop, pause, and play back recordings as well as sharing them through email messages.
- Onscreen prompting—You are prompted onscreen during the recording session with features such as self-view and data presentation displayed on the main monitor, allowing you to maintain eye contact with your virtual audience.
- Public and private recordings—Videos can be public or private. For private recordings you must enter a security PIN, similar to voicemail, in order to create and view these recordings. You can share private recordings with people who would also be required to authenticate themselves before accessing the recording.

- Multiresolution recording
- Synchronized data recording
- Security

Specifications

Feature	Cisco TelePresence Recording Server
Product compatibility	Cisco TelePresence Version 1.5.1 or later
Software compatibility	Cisco TelePresence System Software Version 1.5.1 or later
Call signaling	Session Initiation Protocol (SIP) trunk with Cisco® Unified Communications Manager Version 7.0 or later and IP Version 4 (IPv4)
Media protocol	Real-Time Control Protocol (RTCP) and Real-Time Transport Protocol (RTP), User Datagram Protocol (UDP), and IP Unicast
Video protocols	H.264 (MPEG 4 Part 10)
Audio protocols	AAC-LD, AAC-LC, G.711, and G.722
Video resolution	CIF, 720p, and 1080
Session capacity	Up to 24 simultaneous 1080p recording or playback sessions
Storage capacity	Up to 300 hours of 1080p and CIF recordings
Streaming video	Support for HTTP streaming of recorded content using Adobe Flash
Security features	<ul style="list-style-type: none"> • Integration with Active Directory through Lightweight Directory Access Protocol (LDAP) for access • Secure management through HTTPS • Password-protected conferences
System Hardware Specifications	Cisco MCS 7845 Media Convergence Server ¹
Hardware	Cisco MCS 7845 (Cisco MCS 7845-H2 for HP or Cisco MCS 7845-I2 for IBM) quad-core-processor server; Restriction of Hazardous Substances (RoHS)-compliant
Connectivity	Dual 1-Gb Ethernet network interfaces
Power	100 to 132 VAC (10A) and 200 to 240 VAC (6.1A); 50 to 60 Hz
Reliability	30,000 hours mean time between failure (MTBF) (estimated)
Dimensions (H x W x D)	3.38 x 17.54 x 26.01 in. (8.59 x 44.54 x 66.07 cm)
Weight	60 lb (27.22 kg)
OS software	Red Hat Linux AS 3
Origin	Manufactured in United States
Hardware data sheet	http://www.cisco.com/en/US/prod/collateral/voicesw/ps6790/ps5748/ps378/product_data_sheet0900aecd80587390.html

1. For a description of the Cisco MCS 7800 Series Media Convergence Servers, see 4–14.

Selected Part Numbers and Ordering Information

CTS-CTRS-1.6-K9	Cisco TelePresence Recording Server
LIC-CTS-CTRS-1.6	Cisco CTRS Software License/Application
MCS-7845-H2-CTRS	Cisco MCS 7845-H2 Media Convergence Server (HP)
MCS-7845-I2-CTRS	Cisco MCS 7845-I2 Media Convergence Server (IBM)

For More Information

For more information about the Cisco TelePresence Recording Server, visit: <http://www.cisco.com/go/telepresence>.

Cisco TelePresence Services

Critical to delivering the innovative Cisco TelePresence experience are integrated services delivered by our certified partners and Cisco. Designed specifically for multi-site organizations, these services accelerate a successful deployment and deliver a high-quality, reliable, “in-person” Cisco TelePresence experience.

For More Information

For more information on Cisco TelePresence Services, visit: <http://www.cisco.com/go/telepresenceservices>.

Cisco Unified Video Advantage

Cisco Unified Video Advantage (formerly Cisco VT Advantage) adds video to your communications experience by providing video telephony functions to Cisco Unified IP Phones (Cisco Unified IP Phones 7900 Series and Cisco IP Communicator softphone application). With Cisco Unified Video Advantage, video telephony is now just a phone call.

This solution comprises Cisco Unified Video Advantage software and Cisco VT Camera II, a video telephony USB camera. With Cisco Unified Video Advantage, you can use the familiar phone interface to make and receive video calls on your Cisco Unified IP Phone with the video component displayed on your PC. Enterprise organizations can take advantage of their existing IP networks to extend video to everyone in their organization.

Ideal for Companies That Need These Features

- Cisco Unified Video Advantage**

 - Desktop video calling
 - High-quality video with rich telephony features on their PC
 - Transparent integration with desktop IP phone or Cisco IP Communicator for familiar phone interface

Key Features

- Consistent voice and video user experience: Cisco Unified Video Advantage offers easy, low-cost, high-quality video calling. Familiar call features such as call forward, transfer, conference, hold, and mute are initiated through the phone, and available video is viewed through the PC.
- Easy to manage: Unified administration is possible with Cisco Unified IP Phones and automatic software upgrades.

Selected Part Numbers and Ordering Information

CUVA-V2=	Cisco Unified Video Advantage with VT Camera II
CUVA-V2-24BUN=	Cisco Unified Video Advantage and VT Camera II 24-Unit Pack
CUVA-SW-2X	Cisco Unified Video Advantage 2.x Software Only
CUVA-SW-2X-10=	Cisco Unified Video Advantage 2.x Software 10-User License

For More Information

For more information about Cisco Unified Video Advantage, visit: <http://www.cisco.com/en/US/products/sw/voicesw/ps5662/>.

Cisco Unified Videoconferencing 3500 Series

Cisco Unified Videoconferencing is a video infrastructure solution for Cisco Unified Communications. The solution allows participants to collaborate effectively and share information in real time to help organizations eliminate the barriers of time, distance, and resources and permit people around the world to function as if they were in the same room. The solution supports multiple protocols to facilitate connectivity with a wide variety of video-enabled devices from desktop video telephony to standard-definition and high-definition room systems, WebEx Meeting Center, and Cisco TelePresence systems.

Key Features

- Multiprotocol support—broad video interoperability—The Cisco Unified Videoconferencing 3500 Series supports multiple standards, codecs, and protocols, including H.323, Session Initiation Protocol (SIP), Skinny Client Control Protocol (SCCP), and H.320, to help ensure broad connectivity with traditional and emerging video environments, including traditional room and desktop video conferencing systems, newer high-definition (HD) video solutions, Cisco TelePresence solutions, and Cisco Unified Communications Manager video telephony environments.
- High-performance, flexible solution—The Cisco Unified Videoconferencing 3500 Series offers an optimized experience for everyone. Its powerful hardware design has flexible processing capabilities to provide an exceptional user experience that is also scalable and cost-effective.

- High-definition (HD) conferencing—The Cisco Unified Videoconferencing 3545 System fully supports standards-based HD video conferencing endpoints.
- High-quality standard-definition video conferencing—Because every port has dedicated audio and video encoders, standard-definition (SD) endpoints can connect to any conference, at any supported bit rate, with any supported audio or video codec, at any supported SD resolution, and with any screen layout.
- High-capacity standard-definition video conferencing—The Cisco Unified Videoconferencing 3545 System has the flexibility to distribute processing resources that are not being fully used by personal or desktop video conferencing endpoints.
- Cisco Unified Videoconferencing desktop video has been integrated with Cisco WebEx™ Meeting Center to provide more advanced video capabilities for WebEx® meetings.
- The solution enhances the collaboration capabilities of Microsoft Office Communications (MOC) and Sametime by adding embedded, multiparty video. MOC and Sametime users can now initiate impromptu video communications with other MOC and Sametime users or with any video solution that can connect to Cisco Unified Videoconferencing.
- The Cisco Unified Videoconferencing ISDN Gateway Modules allow ISDN H.320 endpoints to participate in the same conferences as IP-based H.323, Skinny Client Control Protocol (SCCP), or Session Initiation Protocol (SIP) endpoints.
- Advanced solution management, desktop video, and streaming media—Cisco Unified Videoconferencing Manager—Cisco Unified Videoconferencing Systems can be managed as standalone devices or with the Cisco Unified Videoconferencing Manager, which helps organizations of all sizes use their video conferencing resources more effectively.

Specifications

Feature	Cisco Unified Videoconferencing 3500 Series
Video Capabilities	Video codecs—H.261, H.263, and H.264; Live video resolutions—Quarter Common Intermediate Format (QCIF), Common Intermediate Format (CIF), Standard Input Format (SIF), 4CIF, 1280 x 720p, and 1920 x 1080p (switched HD service only); Presentation video resolutions—Video Graphics Array (VGA), Super Video Graphics Array (SVGA), and Extended Graphics Array (XGA); Video bandwidth—Up to 2 Mbps per port; Full transcoding and transrating for all SD (up to and including 4CIF) video codecs and speeds on all ports; All-continuous-presence layout options support both SD and HD participants (for HD service); 4CIF resolution on all ports for all layout combinations; H.264 codec on all ports for all layout combinations; QualiVision for highly improved, standards-based video quality in networks with packet loss; supports both SD and HD connections; QoS support with Differentiated Services (DiffServ), type of service (ToS), and IP Precedence; Per-user (rather than per-conference) video processing, allowing unique and optimal video settings for each user
Audio Capabilities	SD audio codecs—G.711, G.722, G.722.1, G.723.1, G.728, and G.729A; DTMF tone detection (in-band, H.245 tones, and RFC 2833); Entry and exit sounds played when conference participants join or leave a conference; Ability to record and upload custom messages; Full transcoding and mixing on all audio ports
Signaling Protocols	H.323; SCCP; SIP; H.320 with gateway modules
Security	H.235 Advanced Encryption Standard (AES) and Data Encryption Standard (DES) encryption on both SD and HD connections, up to 128-bit keys, for secure audiovisual conferencing; Password-protected web GUI user access with multiple levels: administrator, operator, and user; Strong password enforcement; HTTPS and Secure Sockets Layer (SSL); PIN-protected conferences to help ensure privacy; Security warning page option; Serial port disable and enable; Session inactivity time-out and user lockout (manual and auto) capabilities; Security event logging
Feature	Cisco Unified Videoconferencing 3545 System
LAN Interface	One 10/100 Ethernet port, IEEE 802.3, 8-pin RJ-45 on each console
Serial Port	EIA-232, 9-pin D-type
Dimensions	3.50 x 17.25 x 10.0 in. (8.89 x 438.15 x 25.4 cm)
Weight	176 lb (8 kg) for empty chassis (with two power supplies)
Power	100-240 VAC autosense, 50–60 Hz, 202W maximum; Dual redundant power supplies; U.S. power cable included; Other power cables available
Environment	Operating temperature—32 to 122°F (0 to 50°C); Storage temperature—13 to 158°F (25 to 70°C); Humidity to 5 to 90% noncondensing

For More Information

For more information about the Cisco Unified Videoconferencing 3500 Series, visit: <http://www.cisco.com/go/ipvc>.

WebEx

Cisco WebEx Meeting Center

Cisco WebEx Meeting Center allows business professionals to easily and reliably reach across the web to collaborate and work, inside or outside their organization. The solution increases the reach, speed, and cost-effectiveness of business through media-rich web-based meetings that enable multiple parties to conduct business meetings online—regardless of where they might be. Cisco WebEx Meeting Center enables companies to extend their business models over the web in a high-touch yet low-cost manner.

Ideal for Companies That Need These Features

Cisco WebEx Meeting Center

- Ability to meet remote colleagues, customers, and partners online to share presentations and collaborate
- Software as a Service (SaaS) delivery model that allows them to deploy a web conferencing solution over the web, eliminating the need for hardware and resources to maintain the infrastructure
- A secure and reliable method to collaborate both inside and outside the firewall

Key Features

- Integrated live audio, video, and data—Easily create dynamic and persuasive multimedia presentations that integrate live audio, video, and data. Use powerful presentation techniques such as animations and Macromedia Flash to deliver the true presentation experience.
- Powerful annotation tools—Presenters and participants can annotate and make notes on documents as if on a white board, for concise and clear communication or editing.
- Meeting platform you can trust—When the technology fails there is no makeup session. Rest assured; all Cisco WebEx meetings run on Cisco WebEx Collaboration Cloud, ensuring security, reliability, and performance.
- Cisco WebEx Network Based Recording (NBR)—With a simple click, you can record all your events, which are then available for replay. Choose from multiple options such as requiring registration, destination URL, and post meeting surveys.
- Multiplatform—Let your prospects join your meetings on the platform of their choice: Windows, Mac, Linux, and UNIX.
- Join WebEx meetings on your smartphones including iPhone, BlackBerry, Nokia, and more.

For More Information

For more information about Cisco WebEx Meeting Center, visit: <http://www.cisco.com/en/US/products/ps10409/index.html>.

Cisco WebEx Training Center

Cisco WebEx Training Center is a hosted online training solution that enables you to deliver dynamic, interactive learning to anyone who has web access and a browser. Designed to provide instructors with flexible, easy-to-use tools that encourage interactions and engage learners, Cisco WebEx Training Center is the leading virtual classroom solution on the market. With this application, you can significantly decrease the cost of delivering live training, reach your learners more often, and reduce the time your learners spend away from their jobs and their customers.

Ideal for Companies That Need These Features

Cisco WebEx Training Center

- Online classroom for interactive learning
- Comprehensive online learning management with registrations, testing, hands-on labs, and breakout rooms
- Software-as-a-service (SaaS) delivery model that allows them to deploy a web conferencing solution over the web, eliminating the need for hardware and resources to maintain the infrastructure
- Secure and reliable method to conduct events both inside and outside the firewall

Key Features

- Keep learners engaged and involved with Quick Response tools that make it easy for instructors and learners to communicate. These tools allow students to interact with instructors and other students with the click of an icon.
- Promote collaborative learning with virtual breakout sessions that allow students to break into small groups to work on projects, roll-play, or develop case studies. Instructors can roam from group to group to provide guidance and support.

- Provide remote learners with hands-on access to software training with Cisco WebEx Hands-On Labs. Accelerate the roll-out of software applications by providing students with access to remote lab computers for hands-on training through the Internet.
- Assess the understanding and ability of your learners to apply your training with the integrated Cisco WebEx Testing Engine. Deliver tests before, after, or during live training sessions, and integrate with LMS systems.
- Take full advantage of Cisco WebEx Integrated Audio to simplify the scheduling and management of audio sessions for your live online training programs. Innovative features such as Active Talker allow instructors and students to see who is speaking, promoting personal interactions and enabling instructors to “spot” audio distractions (hold music) and mute the line to minimize interruptions.
- Deliver live interactive training to learners regardless of their computing platform, with multiplatform support for Windows, Mac, Linux, Solaris, and UNIX.

For More Information

For more information about Cisco WebEx Training Center, visit: <http://www.cisco.com/en/US/products/ps10410/index.html>.

Cisco WebEx Event Center

Cisco WebEx Event Center is an online event-management application for you to manage the entire online event lifecycle from planning, promoting, and presenting to follow-up and analysis. Whether you need to increase your lead numbers, launch a new product, or hold all-hands company meetings, Cisco WebEx Event Center can help you cost-effectively target the right people—anywhere—and get your message across at every touch point, not just during a live online event.

Ideal for Companies That Need These Features

- | | |
|---------------------------------|--|
| Cisco WebEx Event Center | <ul style="list-style-type: none"> • Ability to deliver marketing events and corporate events over the web • Comprehensive online event management with registrations, promotions, and follow-ups • Robust online event session features for high-quality, professional event production • Software-as-a-service (SaaS) delivery model that allows them to deploy web-based event management over the web, eliminating the need for hardware and resources to maintain the infrastructure • Secure and reliable method to conduct events both inside and outside the firewall |
|---------------------------------|--|

Key Features

- Sophisticated event management features that are easy for any technically novice marketers—From customizable HTML templates and event registration forms to automated lead management and lead scoring, Cisco WebEx Event Center has the features you need for a successful webcast that delivers the results you want, and allows you to integrate to your CRM application, such as Salesforce.com.
- Higher return on investment (ROI)—Extend the life of your events with Cisco WebEx Network Based Recording (NBR). With a simple click, you can record all your events, which are then available for replay. Choose from multiple options such as requiring registration or destination URL, or even posting surveys.
- Webcast platform you can trust—When the technology fails there is no makeup session. Rest assured; all Cisco WebEx events run on Cisco WebEx Collaboration Cloud, ensuring security, reliability, and performance.
- Audio broadcast—Cisco WebEx Event Center offers multiple audio options to meet your event needs and budget. Audio broadcast allows presenters to deliver over a regular telephone while the event participants listen through their computers.
- Multiplatform—Let your prospects join your event on the platform of their choice: Windows, Mac, Linux, or UNIX.

For More Information

For more information about Cisco WebEx Event Center, visit: <http://www.cisco.com/en/US/products/ps10411/index.html>.

Cisco WebEx Support Center

Cisco WebEx Support Center enables IT and customer support to reduce costs, increase the productivity of their technical support representatives, reduce customer downtime, and increase customer satisfaction by improving the efficiency and effectiveness of remote support.

Ideal for Companies That Need These Features

Cisco WebEx Support Center

- Ability to remotely deliver technical support as if onsite
- Reduced support time and cost with anywhere, secure access for the customer and the support representative
- Software-as-a-service (SaaS) delivery model that allows them to deploy a remote support solution over the web, eliminating the need for hardware and resources to maintain the infrastructure
- Secure and reliable method to deliver technical support both inside and outside the firewall

Key Features

- View and control at application and desktop level—When providing support, customers can decide whether they want to share a single application versus their entire desktop. This feature is very important from the security perspective.
- Bring in subject matter experts easily and transfer the session or conference in others.
- Cisco WebEx Network Based Recording (NBR)—All support interactions can be recorded for auditing, tracking, and security purposes. Both audio and visual support session details are recorded.
- Sign on to a client's machine using firewall-friendly technology.
- Measure and improve support organization performance with detailed reporting.
- Performance, reliability, security, and 24-hour support—All Cisco WebEx support sessions run on the Cisco WebEx Collaboration Cloud, which offers better than 99.99-percent reliability and provides exceptional security. Information is never stored on our servers; we use 128-bit Secure Sockets Layer (SSL) and Advanced Encryption Standard (AES) encryption.
- Remotely access and manage computers—Through the use of Cisco WebEx Remote Support and Cisco WebEx Remote Access, you can remotely support and provide proactive support to computers anywhere in the world through the Internet, without the need to access firewalls and open ports on the customer site.
- Cross-platform compatibility—You can support your customers on multiple platforms, Windows, Mac, Linux, and UNIX.
- Integrate out-of-the-box with Salesforce.com and Remedy; application programming interfaces (APIs) are available for other technologies.

For More Information

For more information about Cisco WebEx Support Center, visit: <http://www.cisco.com/en/US/products/ps10412/index.html>.

Cisco WebEx Connect

Cisco WebEx Connect is an enterprise-class, on-demand unified communications client that delivers enterprise instant messaging, rich presence, and team spaces to bring people, data, and processes together. WebEx Connect delivers this through software-as-a-service, meaning no hardware to deploy, no capital expenditures and a much lower cost of maintenance and administration.

Ideal for Companies That Need These Features

Cisco WebEx Connect

- Unified communications and collaboration
- Rich presence and enterprise instant messaging

Key Features

- One unified interface for business collaboration—Users can work with others as if they are in the same room, allowing them to make informed decisions in real time using rich presence, enterprise IM, video, voice over IP (VoIP), desktop sharing, and chat features. Integration with Cisco Unified Communications Solutions delivers transparent communication and collaboration.
- Cross-company collaboration—Users can work closely with colleagues, partners, or customers inside and outside your organization. They can create virtual team spaces where they can access shared assets instantly from any computer, including documents, and persistent discussions.
- Dynamic end-user collaboration without giving up control—Administrators can add, update, or deactivate users easily with batch functions and manage enterprise usage by creating any number of domains and subdomains.
- Avoidance of added infrastructure—Speed deployment and reduce maintenance costs by taking advantage of the Cisco WebEx Collaboration Cloud, a private global network that provides security, reliability, and scalability on demand. There is no hardware to purchase, maintenance or upgrade costs, and no long software deployment cycles.
- Security and accreditation—The Cisco WebEx Collaboration Cloud delivers data content security and uses Secure Sockets Layer (SSL) and Advanced Encryption Standard (AES) encryption; the application is audited against Sas 70-Type II.

For More Information

For more information about Cisco WebEx Connect, visit: <http://www.webex.com/enterprise/webex-connect.html>.

Cisco WebEx Advanced Services

Cisco WebEx Customer Advocacy offers a wide range of advanced services that can help customers reach and exceed their collaboration objectives. Cisco WebEx Advanced Services offers tailored services to help customers with collaboration specific needs including WebEx deployment and implementation, WebEx adoption, virtual training and eLearning, and on-line marketing. Cisco WebEx Advanced Services also offers personalized training programs that allow customers to receive private, tailored instructor-led training sessions for their employees. Product customization services are available for those customers who have unique requirements for their WebEx application such as single sign-on, directory integration, or e-commerce. For those customers who are hosting an important event, Cisco WebEx Advanced Services offers high quality video webcasting services, which allows customers to broadcast their events over the Internet with high quality video while also offering attendee interactivity such as chat and online Q&A.

Cisco WebEx Advanced Services teams follow industry standard project management processes. Additionally, our Advanced Services teams leverage the Cisco lifecycle approach to customer engagements: plan, prepare, design, integrate, operate, and optimize. Customers benefit from a consistent and programmatic approach to assessing their needs and receiving services that will net their desired results.

Key Services

- Enterprise implementation
- WebEx adoption
- eLearning and eMarketing consulting
- Personalized training programs
- Product customization
- Video webcast services

For More Information

For more information about Cisco WebEx Advanced Services, visit <http://www.webex.com/product-overview/professional-services.html> or contact us at AdvancedServicesSalesTea@webex.com.

Chapter 5: Security

Security At-a-Glance		
Product	Features	Page
ENDPOINT SECURITY		
Cisco IOS Security	Cisco IOS Software delivers a sophisticated set of security capabilities for a comprehensive, layered security approach throughout the network infrastructure. Cisco IOS security technologies help to defend critical business processes against attack and disruption, protect privacy, and support policy and regulatory compliance controls.	5–3
Cisco Security Agent	Cisco Security Agent protects endpoints from all types of malware and confidential data loss with a lower total cost of ownership.	5–5
Cisco NAC Appliance	This easily deployed network-admission-control (NAC) solution allows network administrators to authenticate, authorize, validate, quarantine, and remediate wired, wireless, and remote users and their machines prior to allowing access to the network.	5–6
NETWORK SECURITY		
Cisco ASA 5500 Series Adaptive Security Appliances	Cisco ASA 5500 Series Adaptive Security Appliances are easy-to-deploy solutions that integrate world-class firewall, unified communications (voice and video) security SSL and IPSec VPN, intrusion prevention systems (IPSs), content security services, and secure unified communications in a flexible, modular product family.	5–10
Cisco Intrusion Prevention Systems (IPS)	Cisco Intrusion Prevention System (IPS) solutions accurately identify, classify, and stop malicious traffic, including worms, spyware, adware, network viruses, and application abuse, before they affect business resiliency.	5–15
Cisco Catalyst 6500 Series Firewall Services Module	The Cisco Catalyst 6500 Series Firewall Services Module (FWSM) is a high-speed, integrated firewall module for Cisco Catalyst 6500 Switches and Cisco 7600 Series Routers that provides some of the fastest firewall data rates in the industry: 5-Gbps throughput, 100,000 cells per second (CPS), and 1 million concurrent connections. Up to four FWSMs can be installed in a single chassis, providing scalability to 20 Gbps per chassis. Based on Cisco PIX Firewall technology, the Cisco Catalyst 6500 FWSM offers large enterprises and service providers excellent security, reliability, and performance.	5–18
Cisco Catalyst 6500 Series/7600 Series WebVPN Services Module	The Cisco Catalyst 6500 Series/7600 Series WebVPN Services Module is a high-speed, integrated SSL VPN services module for Cisco Catalyst 6500 Series Switches and Cisco 7600 Series Routers that addresses the scalability, performance, application support, and security required for large-scale, remote-access SSL VPN deployments. Taking advantage of the broad, industry-proven application support and endpoint security provided by Cisco VPN 3000 Series Concentrators, the Cisco WebVPN Services Module is ideally suited to meet the secure connectivity demands of any organization.	5–19
Cisco SSL VPN Solutions	Cisco SSL VPN solutions offer a flexible and secure way to extend networking resources to virtually any remote user with access to the Internet and a Web browser. The Cisco Adaptive Security Appliance SSL VPN functions let organizations cost-effectively and securely extend the reach of their network resources to telecommuters, partners, and mobile workers.	5–20
Cisco Virtual Office	Virtual office solutions from Cisco boost flexibility and productivity and extend the enterprise by delivering secure, rich, and manageable network services to teleworkers and employees working outside the traditional office environment.	5–23
E-MAIL AND WEB SECURITY		
Cisco IronPort E-mail Security Solutions	Cisco IronPort E-mail Security Solutions provide a multi-layer approach to stopping e-mail-based threats.	5–23
Cisco IronPort Secure Web Gateway Appliances	The Cisco IronPort S-Series web security appliance combines traditional URL filtering, reputation filtering, malware filtering, and data security on a single platform to address the growing challenges of both securing and controlling web traffic.	5–27
Cisco IronPort M-Series Security Management Appliance	The Cisco IronPort M-Series security management appliance complements all of the Cisco IronPort e-mail and web security appliances. By ensuring top performance for all of your application security gateways, the Cisco IronPort M-Series provides one location for you to monitor all corporate policy settings and audit information.	5–30

APPLICATION SECURITY		
Cisco ACE Web Application Firewall	Cisco ACE WAF protects Web applications and helps organizations comply with regulatory requirements.	5–32
SYSTEM MANAGEMENT AND CONTROL		
Cisco Security Manager	Cisco Security Manager is an enterprise-class management application designed to configure firewall, VPN, and intrusion prevention system (IPS) security services on Cisco network and security devices.	5–34
Cisco Security Monitoring, Analysis, and Response System (MARS)	The Cisco Security Monitoring, Analysis, and Response System (MARS) is a centralized monitoring, event-correlation, and attack-mitigation system.	5–36
Cisco Secure Access Control System (ACS) 5.0	<ul style="list-style-type: none"> Control network access and identity based on dynamic conditions and attributes. ACS 5.0 next-generation platform features a simple yet powerful, rule-based policy model and a new, intuitive management interface designed for optimum control and visibility. Cisco ACS plays an important part of numerous Cisco solutions including Cisco Virtual Office (CVO), Cisco PCI Compliance solution, Cisco Network Admission Control (NAC), and many more. ACS 5.0 currently supports many but not all access scenarios. ACS 4.2 will continue to be available for customers that require it. 	5–37
Cisco Secure Access Control System (ACS) Express 5.0	Ideal for the small or medium enterprise, regional office, or retail branch, ACS Express packs a lot of punch into a relatively economical and easy to operate package. ACS Express supports up to 50 network devices and 350 users.	5–39
Cisco Secure Access Control Server (ACS) 4.2	<p>Supporting all deployment scenarios, Cisco Secure ACS provides the key building block for almost any network access and identity strategy. Cisco Secure ACS is the world's most trusted solution of its kind installed at 86 of the S&P 500 and at over 40,000 enterprises world-wide.</p> <ul style="list-style-type: none"> Cisco Secure ACS 4.2 is offered in either software version (Windows) or as an appliance (Solution Engine) 	5–40
Cisco Secure Access Control Server (ACS) 4.0	Cisco Secure ACS View is a dedicated reporting, monitoring, and troubleshooting device, designed to work on top of Cisco Secure ACS 4.x deployments. ACS View is ideal for organizations requiring the highest levels of control and compliance, as well as to any other enterprise wishing to strengthen their visibility to the access to their corporate resources.	5–42
Cisco Enterprise Policy Manager	Cisco Enterprise Policy Manager (EPM) is a feature-rich, XACML based, policy management and authorization product that helps secure enterprise applications and data. Cisco Security Manager centrally manages firewall, VPN, and intrusion prevention systems (IPSs) (configuration, changes, and updates).	5–43
PHYSICAL SECURITY		
Cisco Physical Access Gateway	The Cisco Physical Access Gateway is the primary means for the Cisco Physical Access Control solution to connect door hardware, such as locks and readers, to your IP network. One gateway can control up to two doors and can scale to thousands of doors at a fixed cost per door.	5–44
Cisco Physical Access Manager	Cisco Physical Access Manager is the management application for the Cisco Physical Access Control solution. Its easy-to-use interface lets you configure Cisco Physical Access gateways and modules, monitor activity, enroll users, and integrate with IT applications and data stores.	5–44
Cisco Video Surveillance 2500 Series IP Cameras—Standard Definition	The Cisco Video Surveillance 2500 Series IP Cameras are feature-rich, professional digital cameras designed for superior performance in a wide variety of environments. The cameras have an enhanced, progressive scan imager for excellent video and color, even in the most demanding lighting conditions. They use MPEG-4 compression to produce DVD-quality video. These fully featured high-resolution cameras include automatic day/night mode, dual streams, bidirectional audio, motion detection, alarm inputs and outputs, and an analog BNC for ease of installation.	5–46
Cisco Video Surveillance 4000 Series IP Cameras—High Definition	Cisco Video Surveillance 4000 Series IP Cameras are true high-definition (HD) video surveillance IP digital cameras designed for superior performance in a wide variety of video surveillance applications. These cameras provide efficient network usage with the highest-quality video. Contact closures and two-way audio allow integration with microphones, speakers, and access control systems. With their open, standards-based design, the cameras provide an ideal platform for integration and operation as independent devices or as part of a Cisco Video Surveillance network.	5–47

Cisco Video Surveillance 2000 Series IP Domes *NEW*	The Cisco Video Surveillance 2000 Series IP Dome is a high-resolution, feature-rich digital IP camera that delivers superior performance in a wide variety of environments. The camera employs MPEG-4 compression of up to 30 frames per second (fps) at D1 NTSC resolution (720 x 480) or 25 fps at D1 PAL resolution (720 x 576), offering efficient network usage while providing high-quality video. It also supports MJPEG compression.	5-49
Cisco Video Surveillance Stream Manager Software	Cisco Video Surveillance Stream Manager Software is the switching and recording software used in Cisco Video Surveillance IP Gateways, Convergence Chassis, Service Nodes, and Integrated Gateways. The software provides virtual matrix switching to connect cameras, keyboards, and monitors, plus video storage and recall for display on analog monitors or PCs. Cisco Video Surveillance Stream Manager Software provides powerful features for the operation and management of a video surveillance solution.	5-50
Cisco Video Surveillance Media Server Software	The Cisco Video Surveillance Media Server manages, replicates, distributes, and archives video streams. As the core component of the Cisco network-centric video surveillance software portfolio, the Cisco Video Surveillance Media Server offers the power and flexibility to meet a diverse range of video surveillance requirements.	5-51
Cisco Video Surveillance Operations Manager Software	Working in conjunction with the Cisco Video Surveillance Media Server, the Cisco Video Surveillance Operations Manager authenticates and manages access to video feeds. It is a centralized administration tool for management of media servers, cameras, encoders, and viewers and meets the diverse needs of administrators, systems integrators, and operators.	5-52
Cisco Physical Security Multiservices Platform	The Cisco Physical Security Multiservices Platform encompasses a suite of three server models that offer organizations innovative choices for network digital recording and playback. With built-in analog video encoder cards and Fibre Channel interfaces, the multiservices platform enables direct connectivity from analog closed-circuit television (CCTV) cameras and for IP video directed from the network, and allows playback of the recordings over an IP network. Viewing recorded video streams is possible anytime, anywhere.	5-53
Cisco IPICS Server Software	The Cisco IPICS Server is a security-enhanced, Linux-based platform installed on select Cisco 7800 Series Media Convergence Servers, a family of proven and reliable hardware platforms that you can deploy in mobile command units or in headquarters, branch offices, or operations centers. Other Cisco IPICS system components include the Cisco IPICS Push-to-Talk Management Center (PMC), Cisco IPICS Phone Client, Cisco IPICS Operational Views (Ops Views), Cisco Land Mobile Radio (LMR) gateways, Router Media Service (RMS), and Session Initiation Protocol (SIP) telephony gateways.	5-54
SERVICES		
Cisco Security Services	Cisco Services address all aspects of planning, deploying, operating, and optimizing the network to help shorten implementation times and lower operating costs in building networks that support business goals. Cisco Security Services portfolio provides solutions for threat management, event management, vulnerability management, and compliance support across a broad range of industries and advanced technologies, including unified communications, storage networking, and wireless networks. Cisco Services for Physical Security provides comprehensive offerings to help plan, design, implement and operate physical security solutions. http://www.cisco.com/go/services/security	5-55

Product Ordering Website

To place an order or for more part numbers, visit: <http://www.cisco.com/en/US/ordering/index.shtml>.

This chapter only provides a small subset of all part numbers available. See the URL listed in the "For More Information" section of each product to get a complete list of part numbers.

Cisco IOS Security

Cisco IOS Software routers ship with the industry's most comprehensive security services, intelligently embedding data, security, voice, and wireless in the platform portfolio for fast, scalable delivery of mission-critical business applications. The Cisco 800 Series Routers and Cisco 1800, 2800, and 3800 Series Integrated Services Routers are ideal for small businesses and enterprise branch offices, delivering a rich, integrated solution for connecting remote offices, mobile users, and partner extranets or service provider-managed customer premises equipment (CPE). The Cisco 7200 Series and 7301 Routers and the Cisco ASR 1000 Series Aggregation Services Routers are ideal for aggregation of WAN security services in campus and enterprise environments.

Cisco IOS Software routers include security services that address customer concerns regarding threat management, VPN and secure communications, integrated network solutions, and security management. With

the convergence of features such as advanced firewall, VPN services, intrusion prevention system (IPS), Cisco Network Access Control (NAC), and content filtering, the Cisco IOS Security routers give customers flexibility to choose a solution that meets their bandwidth, LAN and WAN density, and multiservice requirements while benefiting from advanced security.

Ideal for Companies That Need These Features

- Cisco IOS Software
- An integrated security solution that includes firewall, VPN, remote access, IPS, and content-filtering technologies
 - Low total cost of ownership by taking advantage of the existing infrastructure for modular and flexible deployment options
 - An integrated stateful inspection firewall with powerful security and multiprotocol routing all on the same routing platform
 - Scalability options from the Cisco 800 Series up to the Cisco 7200 Series, the Cisco 7301, and the Cisco ASR 1000 Series Aggregation Services Routers
 - Integrated, secure network solutions including secure unified communications and secure mobility
 - Secure extranet and intranet perimeters and Internet connectivity for secure branch and remote offices
 - Ability to meet compliance regulations such Payment Card Industry (PCI), Health Insurance Portability and Accountability Act (HIPAA), or Sarbanes-Oxley Act of 2002 (SOX) that require firewall or data-encryption services

Key Features

- Cisco IOS Security offers an advanced firewall that includes zone-based firewall, which provides secure, stateful, application-based packet inspection to support the latest protocols and advanced applications.
- Cisco IOS Firewall offers a threat--management foundation to deploy secure access policies at all network interfaces.
- Cisco IOS Intrusion Prevention System (IPS) is an inline, deep-packet inspection feature that effectively mitigates a wide range of network attacks. Supporting thousands of attack signatures, it provides the network intelligence to accurately identify, classify, and stop or block malicious traffic in real time.
- Cisco IOS Content Filtering helps your organization protect itself from known and new Internet threats, improve employee productivity, and enforce business policies for regulatory compliance.
- Cisco IOS IP Security (IPsec) and Secure Sockets Layer (SSL) VPN offer services for site-to-site VPN and unified remote-access security. These services include standards-based IPsec VPN, Cisco Group Encrypted Transport VPN, Dynamic Multipoint VPN (DMVPN), Easy VPN, and SSL VPN.
- Dynamic, per-user authentication and authorization for LAN, WAN, and VPN clients.
- Cisco Network Admission Control (NAC) support extends the ability of the network to enforce organizational security policies on devices seeking network access by delivering NAC services on an integrated services module.

Specifications

Feature	Cisco IOS Security
Supported Network Interfaces	All network interfaces on supported platforms
Supported Platforms	Cisco 1800, 2800, 3800, 7200 Series and 7301 router platforms ASR 1000 (supports full feature set) Cisco 800, series router platform includes all firewall features with the exception of authentication proxy
Max IPsec Tunnel	Cisco 800—up to 20; Cisco 1800—up to 800; Cisco 2800—up to 1500; Cisco 3800—up to 2500; 7200/7301 bundles—up to 5000
Cisco IOS Firewall Performance ¹	Cisco 800—10 Mbps; Cisco 1800—125 Mbps; Cisco 2800—530 Mbps; Cisco 3825—855 Mbps; Cisco 3845—1 Gbps; Cisco 7200/7301 Bundles—1 Gbps; ASR 1000-20 Gbps

1. UDP traffic on

Selected Part Numbers and Ordering Information

The Cisco IOS Security router bundles are based on the Cisco 800 Series Routers, Cisco 1800, 2800, and 3800 Series Integrated Services Routers, and Cisco 7200 Series and 7301 routers providing a full range of security features. These bundles include entry security bundles, enhanced security bundles for added performance and scale, and entry voice (Voice Security [VSEC]) and premier voice (H-VSEC) bundles for combined security and unified communications. These bundles are orderable through a single part number at a reduced price compared to ordering each component separately.

Cisco 7600 Series security bundles are based on the Cisco 7600 Series E chassis and the IP Security (IPsec) VPN SPA.

Cisco ASR 1000 Series Aggregation Services Router security bundles are available for the Cisco ASR 1002, ASR 1004, and ASR 1006 chassis and include the respective Cisco IOS XE feature licenses without the need for additional hardware support in the form of security blades or modules.

For part numbers and more information about Cisco Security router bundles, visit Chapter 1, "Routing" or <http://www.cisco.com/go/securitybundles>.

For More Information

For more information about the Cisco IOS Security feature set, visit: <http://www.cisco.com/go/routersecurity>.

Cisco Security Agent

Businesses are under intense pressure to protect their IT assets from attacks that are increasing in frequency and sophistication. At the same time they need to address stringent compliance requirements and minimize expenses and complexity.

Cisco Security Agent 6.0 is the first endpoint security solution that integrates behavioral-based intrusion protection, data-loss prevention, and signature-based antivirus into a single, manageable agent. This exceptional blend of capabilities defends servers and desktops against sophisticated zero-day attacks and enforces acceptable-use and compliance policies within a simplified management infrastructure.

Ideal for Companies That Need These Features

- Cisco Security Agent
- Zero-update protection to prevent brand new exploits, targeted attacks
 - Continuously defends critical servers that cannot be taken offline to patch
 - Identification and control of sensitive data
 - Regulatory-compliance monitoring and enforcement
 - Enhanced visibility into threats in the network
 - Automatic, no-cost antivirus signature updates
 - Always-on protection, even when not connected to the corporate network
 - Lower total cost of ownership

Key Features

- Provides industry-leading protection against day zero exploits for laptops, desktops, servers, and POS devices.
- Provides visibility and control of sensitive data across all endpoints; protecting against data loss from both end-user actions and targeted malware.
- Access to sensitive files is audited; policy controls can be implemented to stop malicious data transfers to removable media or through insecure network applications
- Imposes restrictions for wireless and remote users (i.e. cannot copy sensitive information to removable media while off the corporate network).
- Provides behavioral-based protection from known and unknown threats.
- Zero-update protection is critical when addressing brand new exploits or variants that take advantage of published/unpublished system and application vulnerabilities.
- Offers network collaboration that strengthens the security posture of the organization.
- Offers comprehensive management, visibility, and reporting.
- Critical endpoint component of the Cisco Self-Defending Network architecture

Specifications

Feature	Cisco Security Server Agent	Cisco Security Desktop Agent	Cisco Security Agent Management Console
Platforms	<ul style="list-style-type: none">• Windows 2003 Server• Windows 2000 Server and Advanced Server• Solaris 10 SPARC architecture (64-bit kernel)• Solaris 9 SPARC architecture (64-bit kernel)• Solaris 8 SPARC architecture (64-bit kernel)• Red Hat Enterprise Linux 5.0 ES and A• Red Hat Enterprise Linux 4.0 ES and AS• Red Hat Enterprise Linux 3.0 ES and AS• SUSE Enterprise Linux 10• VMWare ESX Guest OS	<ul style="list-style-type: none">• Windows Vista• Windows Embedded Point of Service (WEPOS)• Windows XP Professional• Windows XP Tablet Edition• Windows 2000 Professional• Red Hat Enterprise Linux 5.0 WS• Red Hat Enterprise Linux 4.0 WS• Red Hat Enterprise Linux 3.0 WS• VMWare ESX Guest OS	<ul style="list-style-type: none">• Microsoft Windows 2003 R2 Server and Advanced Server

Selected Part Numbers and Ordering Information

CSA-SRVR-K9=	Cisco Security Agent [1 Server Agent Bundle]
CSA-B10-SRVR-K9	Cisco Security Agent [10 Server Agent Bundle]

CSA-B25-SRVR-K9	Cisco Security Agent [25 Server Agent Bundle]
CSA-B100-SRVR-K9	Cisco Security Agent [100 Server Agent Bundle]
CSA-B25-DTOP-K9	Cisco Security Agent [25 Desktop Agent Bundle]
CSA-B100-DTOP-K9	Cisco Security Agent [100 Desktop Agent Bundle]
CSA-B250-DTOP-K9	Cisco Security Agent [250 Desktop Agent Bundle]
CSA-B1000-DTOP-K9	Cisco Security Agent [1,000 Desktop Agent Bundle]
CSA-DLPD-25-K9	Cisco Security Agent [25 DLP Desktop Agent Upgrade]
CSA-DLPD-100-K9	Cisco Security Agent [100 DLP Desktop Agent Upgrade]
CSA-DLPD-250-K9	Cisco Security Agent [250 DLP Desktop Agent Upgrade]
CSA-DLPD-1000-K9	Cisco Security Agent [1,000 DLP Desktop Agent Upgrade]

For More Information

For more information about Cisco Security Agent, visit: <http://www.cisco.com/go/csa>.

Cisco NAC Appliance

The Cisco NAC Appliance is an easily deployed network-admission-control (NAC) solution that allows network administrators to authenticate, authorize, evaluate, and remediate wired, wireless, and remote users and their devices prior to granting access to the network. It prevents unauthorized access to the network by requiring proper user credentials as they connect to the network. It determines whether devices are compliant with security policies and remediates vulnerabilities before network access is allowed. To enhance its ease of use, the NAC appliance comes preinstalled with rule sets for operating system updates, antivirus software updates, and antispyware software updates from all major vendors, simplifying the task of determining which policies to enforce and how to enforce them.



Customers will need at least one Cisco NAC Server, which performs device compliance checks as users attempt to access the network. It can be deployed as a virtual gateway or as a real IP gateway. Customers also need at least one Cisco NAC Manager to define access policies and to manage the Cisco NAC Server(s). The Cisco NAC Agent is an optional client software component for more stringent vulnerability assessment. The Cisco NAC Profiler is an optional device that provides device profiling service. It keeps a real-time, contextual inventory of all devices in a network, including nonauthenticating devices such as IP phones and printers. The Cisco NAC Guest Server is another optional device that provides secure guest access service.

The Cisco NAC Appliance is ideal for midsize and large enterprises that are looking for a client policy enforcement solution. It complements wireless deployments, remote-access deployments, and other security products, such as Cisco Security Agent and Cisco Security Monitoring, Analysis and Response System (MARS). The Cisco NAC Appliance is the market's most widely deployed NAC solution.

The appliance is available with 100, 250, 500, and 1500-user license-based Cisco NAC Server seats. The number of users is defined as online, concurrent users. The appliance is available either as a "standard" manager, which can support up to 20 NAC servers, or as a manager "lite," which can support up to 3 NAC servers.

The Cisco NAC Profiler facilitates the deployment and management of Cisco NAC by discovering, tracking, and monitoring the location, types, and behavior of all LAN-attached endpoints. It also uses the information about the device to apply appropriate Cisco NAC policies.

The Cisco NAC Guest Server vastly simplifies the provisioning, notification, management, and reporting of guest users on wired and wireless networks.

Ideal for Companies That Need These Features

Cisco NAC Appliance

- A client policy enforcement solution
- License-based server seats for 100, 250, 500... up to 3500 users
- Support for up to 20 NAC servers
- Simplified provisioning, notification, management, and reporting of guest users on wired and wireless networks

Key Features

- Authentication integration—The Cisco NAC Appliance supports roles-based access control by acting as an authentication proxy for most forms of authentication, natively integrating with Kerberos, Lightweight Directory Access Protocol (LDAP), RADIUS, Active Directory, eDirectory, and S/Ident. It allows administrators to maintain multiple user profiles with varying degrees of access.
- Vulnerability assessment—The Cisco NAC Appliance supports scanning of all Windows-based operating systems, Mac OS, Linux machines, and non-PC networked devices such as Xbox, PlayStation 2, and personal digital assistants. It conducts network-based scans or can use custom-built scans as required. In a managed domain, it can also conduct scans of Windows registries without client software.

- **Device quarantine**—The Cisco NAC Appliance laces noncompliant machines into quarantine, preventing the spread of infection while maintaining access to remediation resources; it quarantines these machines by using subnets as small as /30, or by using a quarantine VLAN.
- **Automatic security policy updates**—The Cisco NAC Appliance provides predefined policies for the most common network access criteria, including policies that check for critical operating system updates and common antivirus software virus definition updates. It eases the management cost on network administrators, who can rely on the Cisco NAC Appliance system to constantly maintain updated policies.
- **Centralized management**—The web-based management console allows administrators to define the types of scans required for each role as well as the related remediation packages necessary for recovery. One Cisco NAC Manager management console can manage up to 20 NAC servers.
- **Remediation and repair**—The Cisco NAC Appliance gives devices access to remediation servers during quarantine that can provide operating system patches and updates, virus-definition files, or endpoint security solutions such as Cisco Security Agent. Administrators have the option of automatically installing these fixes using the Cisco NAC Appliance enforcement agent.
- **Single Sign On (SSO)**—The appliance supports SSO with VPN clients, Microsoft Windows, and wireless deployments.
- **Solution for major customer pain points**—This appliance supports identity-based access control, Guest Access, and managed and unmanaged assets.
- **Flexibility**—The appliance is ideal for flexible deployment scenarios; it supports wireless, remote-access (VPN), branch offices (WAN), and main campus (LAN) environments. Both in- and out-of-band deployments are possible.
- **Autoremediation for Windows**
- **Device profiling service**—The Cisco NAC profiler discovers, tracks, and monitors the location, types, and behavior of all LAN-attached endpoints, thereby providing automation, intelligence, and visibility for the customers.
- **Guest access service**—The Cisco NAC Guest Server provides full secure guest access life cycle support, including provisioning, notification, management, and reporting of guest users on wired and wireless networks.

Specifications

Cisco NAC Servers and NAC Managers			
Feature	Cisco NAC Appliance 3310	Cisco NAC Appliance 3350	Cisco NAC Appliance 3390
Product	<ul style="list-style-type: none"> • Cisco NAC Server for 100, 250, and 500 users • Cisco NAC Lite Manager 	<ul style="list-style-type: none"> • Cisco NAC Server for 1500, 2500, and 3500 users • Cisco NAC Standard Manager 	<ul style="list-style-type: none"> • Cisco NAC Super Manager
Processor	Dual-core Intel Xeon 2.33-GHz	Dual-core Intel Xeon 3.0-GHz	2 x dual-core Intel Xeon 3.0-GHz
Memory	1 GB PC2-4200 (2 x 512 MB)	2 GB PC2-5300 (2 x 1 GB)	4 GB PC2-5300 (4 x 1 GB)
Memory bus clock	1333-MHz FSB	1333-MHz FSB	1333-MHz FSB
Controller	Embedded SATA RAID Controller	Smart Array E200i Controller	Smart Array E200i Controller
Hard disk	80-GB NPH SATA drive	2 x 72-GB SFF SAS RAID drives	4 x 72-GB SFF SAS RAID drives
Removable media	CD/DVD-ROM drive	CD/DVD-ROM drive	CD/DVD-ROM drive
Network Connectivity			
Ethernet network interface cards (NICs)	<ul style="list-style-type: none"> • 2 x Integrated Broadcom 10/100/1000 5708 NICs • 2 x Intel e1000 Gigabit NICs (PCI-X) 	<ul style="list-style-type: none"> • 2 x Integrated Broadcom 10/100/1000 5721 NICs • 2 x Intel e1000 Gigabit NICs (PCI-X) 	<ul style="list-style-type: none"> • 2 x Integrated Broadcom 10/100/1000 5721 NICs • 2 x Intel e1000 Gigabit NICs (PCI-X)
10BASE-T cable support	Category (Cat) 3, 4, or 5 unshielded twisted pair (UTP) up to 328 ft. (100m)	Cat 3, 4, or 5 UTP up to 328 ft. (100m)	Cat 3, 4, or 5 UTP up to 328 ft. (100m)
10/100/1000BASE-TX cable support	Cat 5 UTP up to 328 ft. (100m)	Cat 5 UTP up to 328 ft. (100m)	Cat 5 UTP up to 328 ft. (100m)
Secure Sockets Layer (SSL) accelerator card	None	Cavium CN1 120-NHB-E	Cavium CN1 120-NHB-E

Interfaces			
Serial ports	1	1	1
USB 2.0 ports	4 (two front, two rear)	4 (one front, one internal, two rear)	4 (one front, one internal, two rear)
Keyboard port	1	1	1
Video port	1	1	1
Mouse port	1	1	1
External SCSI port	None	None	None
System Unit			
Form factor	Rack-mount 1 RU	Rack-mount 1 RU	Rack-mount 1 RU
Weight	35 lb (15.87 kg) fully configured	35 lb (15.87 kg) fully configured	35 lb (15.87 kg) fully configured
Dimensions	1.70 x 16.78 x 27.75 in. (4.32 x 42.62 x 70.49 cm)	1.70 x 16.78 x 27.75 in. (4.32 x 42.62 x 70.49 cm)	1.70 x 16.78 x 27.75 in. (4.32 x 42.62 x 70.49 cm)
Power supply	650W auto-switching, PFC	Dual 700W (redundant)	Dual 700W (redundant)
Cooling fans	6; non-hot plug, nonredundant	9; redundant	9; redundant
BTU rating	2910 BTUs/hr (at 120 VAC); 2870 (at 240 VAC)	2910 BTUs/hr (at 120 VAC); 2870 (at 240 VAC)	2910 BTUs/hr (at 120 VAC); 2870 (at 240 VAC)
Components	Cisco NAC Profiler	Cisco NAC Guest Server	
Processor	Dual-core Intel Xeon 3.0-GHz	Dual-core Intel Xeon 2.33-GHz	
Memory	2 GB PC2-5300 (2 x 1 GB)	1 GB PC2-4200 (2 x 512 MB)	
Memory bus clock	1333-MHz FSB	1333-MHz FSB	
Controller	Smart Array E200i Controller	Embedded SATA RAID controller	
Hard disk	2 x 72-GB SFF SAS RAID drives	80-GB NPH SATA drive	
Removable media	CD/DVD-ROM drive	CD/DVD-ROM drive	
Network Connectivity			
Ethernet network interface cards (NICs)	<ul style="list-style-type: none"> 2 x Integrated Broadcom 10/100/1000 5708 NICs 2 x Intel e1000 Gigabit NICs (PCI-X) 	<ul style="list-style-type: none"> 2 x integrated Broadcom 10/100/1000 5708 NICs 2 x Intel e1000 Gigabit NICs (PCI-X) 	
10BASE-T cable support	Cat 3, 4, or 5 UTP up to 328 ft (100m)	Cat3, 4, or 5 UTP up to 328 ft (100m)	
10/100/1000BASE-TX cable support	Cat 5 UTP up to 328 ft (100m)	Cat5 UTP up to 328 ft (100m)	
Interfaces			
Serial ports	1	1	
USB 2.0 ports	4 (one front, one internal, two rear)	4 (two front, two rear)	
Keyboard ports	1	1	
Video ports	1	1	
Mouse ports	1	1	
External SCSI ports	None	None	
System Unit			
Form factor	Rack-mount 1 RU	Rack-mount 1 RU	
Weight	35 lb (15.87 kg) fully configured	35 lb (15.87 kg) fully configured	
Dimensions	1.70 x 16.78 x 27.75 in. (4.32 x 42.62 x 70.49 cm)	1.70 x 16.78 x 27.75 in. (4.32 x 42.62 x 70.49 cm)	

Power supply	Dual 700W (redundant)	650W auto switching, PFC	
Cooling fans	9; redundant	6; non-hot plug, nonredundant	
BTU rating	2910 BTUs per hour (at 120 VAC); 2870 (at 240 VAC)	2910 BTUs per hour (at 120 VAC); 2870 (at 240 VAC)	

Selected Part Numbers and Ordering Information

Cisco NAC Server	
NAC3310-100-K9	Cisco NAC Appliance 3310 Server—Max 100 users
NAC3310-100FB-K9	Cisco NAC Appliance 3310 Server Failover Bundle—Max 100 users
NAC3310-100FBUL	Cisco NAC Appliance 3310 FB License Upgrade—100 to 250 users
NAC3310-100UL	Cisco NAC Appliance 3310 License Upgrade—100 to 250 users
NAC3310-250-K9	Cisco NAC Appliance 3310 Server—Max 250 users
NAC3310-250FB-K9	Cisco NAC Appliance 3310 Server Failover Bundle—Max 250 users
NAC3310-250FBUL	Cisco NAC Appliance 3310 FB License Upgrade—250 to 500 users
NAC3310-250UL	Cisco NAC Appliance 3310 License Upgrade—250 to 500 users
NAC3310-500-K9	Cisco NAC Appliance 3310 Server—Max 500 users
NAC3310-500FB-K9	Cisco NAC Appliance 3310 Server Failover Bundle—Max 250 users
NAC3350-1500-K9	Cisco NAC Appliance 3350 Server—Max 1500 users
NAC3350-1500FB-K9	Cisco NAC Appliance 3350 Server Failover Bundle—Max 1500 users
NAC3350-1500FBUL	Cisco NAC Appliance 3350 FB License Upgrade—1500 to 2500 users
NAC3350-1500UL	Cisco NAC Appliance 3350 License Upgrade—1500 to 2500 users
NAC3350-2500-K9	Cisco NAC Appliance 3350 Server—Max 2500 users
NAC3350-2500FB-K9	Cisco NAC Appliance 3350 Server Failover Bundle—Max 2500 users
NAC3350-2500FBUL	Cisco NAC Appliance 3350 FB License Upgrade—2500 to 3500 users
NAC3350-2500UL	Cisco NAC Appliance 3350 License Upgrade—2500 to 3500 users
NAC3350-3500-K9	Cisco NAC Appliance 3350 Server—Max 3500 users
NAC3350-3500FB-K9	Cisco NAC Appliance 3350 Server Failover Bundle—Max 3500 users
Cisco NAC Manager	
NACMGR-3-K9	Cisco NAC Appliance 3310 Manager—Max 3 servers
NACMGR-3FB-K9	Cisco NAC Appliance 3310 Manager Failover Bundle—Max 3 servers
NACMGR-20-K9	Cisco NAC Appliance 3350 Manager—Max 20 servers
NACMGR-20FB-K9	Cisco NAC Appliance 3350 Manager Failover Bundle—Max 20 servers
NACMGR-40-K9	Cisco NAC Appliance 3390 Manager—Max 40 servers
NACMGR-40FB-K9	Cisco NAC Appliance 3390 Manager Failover Bundle—Max 40 servers
Cisco NAC Profiler	
NAC3350-PROF-K9	Cisco NAC 3350 Profiler—Max up to 40K devices
NAC3350-PROF-FB-K9	Cisco NAC 3350 Profiler Failover Bundle—Max up to 40K devices
NAC3350-CLT-K9=	Cisco NAC3350 Collector—Up to NAC Srv user count
Cisco NAC Guest Server	
NAC3310-GUEST-K9	Cisco NAC Guest Server

For More Information

For more information about the Cisco NAC Appliance, visit: <http://www.cisco.com/go/NAC>.

Cisco ASA 5500 Series Adaptive Security Appliances

Cisco ASA 5500 Series Adaptive Security Appliances are purpose-built solutions that combine best-in-class security and VPN services with an innovative, extensible services architecture. Designed as a core component of the Cisco Self-Defending Network, the Cisco ASA 5500 Series provides proactive threat defense that stops attacks before they spread through the network, controls network activity and application traffic, and delivers flexible VPN connectivity. The result is a powerful multifunction network security appliance family that provides the security breadth and depth for protecting home-office, branch-office, small and medium-sized business, enterprise, and data center networks while reducing the overall deployment and operations costs and complexities associated with providing this new level of security.



Ideal for Companies That Need These Features

Cisco ASA 5500 Series Firewall Edition

- Ability to deploy new applications securely while protecting valuable assets from unauthorized access
- Transparent firewall, virtualization, and intelligent network integration;
- Comprehensive management solutions to lower operational costs;
- Flexible centralized management solutions

Cisco ASA 5500 Series IPS Edition

- Customers that need to meet compliance mandates, existing Cisco ASA customers looking to enhance their security with intrusion prevention, growing customers that require their security solution to scale as they grow
- Accurate inline prevention technologies
- Multivector threat identification
- Efficient traffic capture techniques, load-balancing capabilities, and visibility into encrypted traffic
- Powerful management, event correlation, and support services

Cisco ASA 5500 Content Security Edition

- Market-leading content security capabilities, including antivirus and antispyware, URL and content filtering, antiphishing, and antispam.
- Threat-protected VPN
- Easy deployment and management

Cisco ASA 5500 Series SSL/IPsec VPN Edition

- SSL and IPsec VPN for any deployment environment
- Clientless and full network VPN access
- Flexible/shared licensing for different deployment needs
- Cost-effective option for organizations needing only basic remote access capabilities

Key Features

- Market-proven security and VPN capabilities—Full-featured, high-performance firewall, intrusion prevention system (IPS), content security, and SSL/IPsec VPN technologies deliver robust application security, user- and application-based access control, worm and virus mitigation, malware protection, content filtering, and remote user-site connectivity.
- Extensible services architecture—Taking advantage of a modular services processing and policy framework offered by the Cisco ASA 5500 Series Adaptive Security Appliances, businesses can apply specific security and network services on a per-traffic flow basis, delivering highly granular policy controls and a wide range of protective services with streamlined traffic processing. The efficiencies of this policy framework, as well as software and hardware extensibility through user-installable security services modules (SSMs) and security services cards (SSCs), advance the evolution of existing services and the deployment of new services without requiring a platform replacement or performance compromise. With these capabilities, the Cisco ASA 5500 Series provides the foundation for highly customizable security policies and exceptional services extensibility to help protect against the fast-evolving threat environment.
- Reduced deployment and operations costs—The multifunction Cisco ASA 5500 Series allows for platform configuration and management standardization, helping to decrease the costs of deployment and ongoing operations.

Specifications

Feature	Cisco ASA 5505	Cisco ASA 5510	Cisco ASA 5520	Cisco ASA 5540	Cisco ASA 5550	Cisco ASA 5580-20	Cisco ASA 5580-40
Network location	Small Business, Branch Office, Enterprise Teleworker	Internet Edge	Internet Edge	Internet Edge	Internet Edge, Campus	Data Center, Campus	Data Center, Campus

Performance Summary							
Maximum firewall (Mbps)	150 Mbps	300 Mbps	450 Mbps	650 Mbps	1.2 Gbps	5 Gbps (real-world HTTP), 10 Gbps (jumbo frames)	10 Gbps (real-world HTTP), 20 Gbps (jumbo frames)
Maximum firewall connections	10000 / 25,000	50,000 / 130,000	280,000	400,000	650,000	1,000,000	2,000,000
Maximum firewall connections/second	4000	9000	12,000	25,000	36,000	90,000	150,000
Packets per second (64 byte)	85,000	190,000	320,000	500,000	600,000	2,500,000	4,000,000
Maximum 3DES/AES VPN throughput	100 Mbps	170 Mbps	225 Mbps	325 Mbps	425 Mbps	1 Gbps	1 Gbps
Maximum site-to-site and remote access VPN sessions	10 / 25	250	750	5000	5000	10,000	10,000
Maximum SSL VPN user sessions ¹	25	250	750	2500	5000	10,000	10,000
Bundled SSL VPN user session ¹	2	2	2	2	2	2	2
Technical Summary							
Memory	256 MB	256 MB	512 MB	1 GB	4 GB	8 GB	12 GB
Minimum system flash	64 MB	64 MB	64 MB	64 MB	64 MB	1 GB	1 GB
Integrated ports ²	8 port 10/100 switch with 2 Power over Ethernet ports	5-10/100 / 2-10/100/1000, 3-10/100 +4-10/100/1000, 4 SFP (with 4GE SSM)	4-10/100/1000, 1-10/100 +4-10/100/1000, 4 SFP (with 4GE SSM)	4-10/100/1000, 1-10/100 +4-10/100/1000, 4 SFP (with 4GE SSM)	8-10/100/1000, 4-SFP, 1-10/100	2-10/100/1000 Management +4-10/100/1000 (with ASA5580-4GE-CU) + 4 GE SR LC (with ASA5580-4GE-Fi) +2 10GE SR LC (with ASA5580-2X10GE-SR)	2-10/100/1000 Management +4-10/100/1000 (with ASA5580-4GE-CU) + 4 GE SR LC (with ASA5580-4GE-Fi) +2 10GE SR LC (with ASA5580-2X10GE-SR)
Maximum virtual interfaces (VLANs)	3 (trunking disabled) / 20 (trunking enabled)	50 / 100	150	200	250	100 (250 ³)	100 (250 ⁵)
Expansion Capabilities							
SSC/SSM/ICs supported	AIP SSC	CSC SSM, AIP SSM, 4GE SSM	CSC SSM, AIP SSM, 4GE SSM	CSC SSM, AIP SSM, 4GE SSM	Not Available	4-10/100/1000, 4-GE SR LC, 2-10GE SR LC	4-10/100/1000, 4-GE SR LC, 2-10GE SR LC
	Cisco ASA 5505	Cisco ASA 5510	Cisco ASA 5520	Cisco ASA 5540	Cisco ASA 5550	Cisco ASA 5580-20	Cisco ASA 5580-40
SSC/SSM/IC Expansion	1-SSC	1-SSM	1-SSM	1-SSM	Not Available	6-IC	6-IC
Intrusion Prevention	Yes (with AIP SSC)	Yes (with AIP SSM)	Yes (with AIP SSM)	Yes (with AIP SSM)	Not Available	Not Available	Not Available

Concurrent threat mitigation throughput (Mbps) (firewall + IPS services)	75 (with AIP SSC)	150 (with AIP SSM-10) 300 (with AIP SSM-20)	225 (with AIP SSM-10) 375 (with AIP SSM-20) 450 (with AIP SSM-40)	500 (with AIP SSM-20) 650 (with AIP SSM-40)	Not available	Not available	Not available
Content Security (anti-virus, anti-spyware, file blocking)	Not available	Yes (with CSC SSM)	Yes (with CSC SSM)	Yes (with CSC SSM)	Not available	Not available	Not available
Maximum number of users for anti-virus, anti-spyware, file blocking (CSC SSM only)	Not available	500 (CSC-SSM-10) 1000 (CSC-SSM-20)	500 (CSC-SSM-10) 1000 (CSC-SSM-20)	500 (CSC-SSM-10) 1000 (CSC-SSM-20)	Not available	Not available	Not available
Content Security Plus License features	Not available	Anti-spam, anti-phishing, URL filtering	Anti-spam, anti-phishing, URL filtering	Anti-spam, anti-phishing, URL filtering	Not available	Not available	Not available
Cisco Adaptive Security Appliance Software Version (latest)	8.0	8.0	8.0	8.0	8.0	8.1	8.1
Application-layer firewall services	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Layer 2 transparent firewalling	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Security contexts (included/maximum)⁴	0/0	0/0 / 2/5	2/20	2/50	2/50	2/50	2/50
GTP/GPRS inspection⁴	Not available	Not available	Yes	Yes	Yes	Yes	Yes
High availability support⁵	Not supported Stateless A/S	Not supported A/A and A/S	A/A and A/S	A/A and A/S	A/A and A/S	A/A and A/S	A/A and A/S
SSL and IPsec VPN services	Yes	Yes	Yes	Yes	Yes	Yes	Yes
VPN clustering and load balancing	Not available	Not available / Yes	Yes	Yes	Yes	Yes	Yes
Advanced endpoint assessment⁴	Yes	Yes	Yes	Yes	Yes	Yes	Yes

- Beginning with Cisco ASA Software v7.1, SSL VPN (Web VPN) capability requires a license. Systems include 2 SSL VPN users by default for evaluation and remote management purposes
- Beginning with Cisco ASA Software v7.2.3, the ASA 5510 Security Plus license enables 2 10/100/1000 interfaces and 3 10/100 interfaces
- Supported in a future ASA software release
- Licensed features
- A/S = Active/Standby; A/A = Active/Active

Selected Part Numbers and Ordering Information

Cisco ASA 5500 Series Firewall Edition Bundles	
ASA5505-BUN-K9	Cisco ASA 5505 10-User Bundle includes 8-port Fast Ethernet switch, 10 IPsec VPN peers, 2 SSL VPN peers, Triple Data Encryption Standard/Advanced Encryption Standard (3DES/AES) license
ASA5505-K8	Cisco ASA 5505 10-User Bundle includes 8-port Fast Ethernet switch, 10 IPsec VPN peers, 2 SSL VPN peers, Data Encryption Standard (DES) license
ASA5505-50-BUN-K9	Cisco ASA 5505 50-User Bundle includes 8-port Fast Ethernet switch, 10 IPsec VPN peers, 2 SSL VPN peers, 3DES/AES license
ASA5505-UL-BUN-K9	Cisco ASA 5505 Unlimited-User Bundle includes 8-port Fast Ethernet switch, 10 IPsec VPN peers, 2 SSL VPN peers, 3DES/AES license

ASA5505-SEC-BUN-K9	Cisco ASA 5505 Unlimited-User Security Plus Bundle includes 8-port Fast Ethernet switch, 25 IPsec VPN peers, 2 SSL VPN peers, DMZ, stateless Active/Standby high availability, 3DES/AES license
ASA5510-BUN-K9	Cisco ASA 5510 Firewall Edition includes 3 Fast Ethernet interfaces, 250 IPsec VPN peers, 2 SSL VPN peers, 3DES/AES license
ASA5510-K8	Cisco ASA 5510 Firewall Edition includes 3 Fast Ethernet interfaces, 250 IPsec VPN peers, 2 SSL VPN peers, DES license
ASA5510-SEC-BUN-K9	Cisco ASA 5510 Security Plus Firewall Edition includes 2 Gigabit Ethernet + 3 Fast Ethernet interfaces, 250 IPsec VPN peers, 2 SSL VPN peers, Active/Standby high availability, 3DES/AES license
ASA5520-BUN-K9	Cisco ASA 5520 Firewall Edition includes 4 Gigabit Ethernet interfaces + 1 Fast Ethernet interface, 750 IPsec VPN peers, 2 SSL VPN peers, Active/Active and Active/Standby high availability, 3DES/AES license
ASA5520-K8	Cisco ASA 5520 Firewall Edition includes 4 Gigabit Ethernet interfaces + 1 Fast Ethernet interface, 750 IPsec VPN peers, 2 SSL VPN peers, Active/Active and Active/Standby high availability, DES license
ASA5540-BUN-K9	Cisco ASA 5540 Firewall Edition includes 4 Gigabit Ethernet interfaces + 1 Fast Ethernet interface, 5000 IPsec VPN peers, 2 SSL VPN peers, 3DES/AES license
ASA5540-K8	Cisco ASA 5540 Firewall Edition includes 4 Gigabit Ethernet interfaces + 1 Fast Ethernet interface, 5000 IPsec VPN peers, 2 SSL VPN peers, DES license
ASA5550-BUN-K9	Cisco ASA 5550 Firewall Edition includes 8 Gigabit Ethernet interfaces + 1 Fast Ethernet interface, 4 Gigabit SFP interfaces, 5000 IPsec VPN peers, 2 SSL VPN peers, 3DES/AES license
ASA5550-K8	Cisco ASA 5550 Firewall Edition includes 8 Gigabit Ethernet interfaces + 1 Fast Ethernet interface, 4 Gigabit SFP interfaces, 5000 IPsec VPN peers, 2 SSL VPN peers, DES license
ASA5580-20-BUN-K8	Cisco ASA 5580-20 Firewall Edition includes 2 management interfaces, 5000 IPsec VPN peers, 2 SSL VPN peers, DES license
ASA5580-20-BUN-K9	Cisco ASA 5580-20 Firewall Edition includes 2 management interfaces, 5000 IPsec VPN peers, 2 SSL VPN peers, 3DES/AES license
ASA5580-20-4GE-K9	Cisco ASA 5580-20 Firewall Edition 4 Gigabit Ethernet Bundle includes 4 Gigabit Ethernet interfaces, 2 management interfaces, 5000 IPsec VPN peers, 2 SSL VPN peers, Dual AC power, 3DES/AES license
ASA5580-20-8GE-K9	Cisco ASA 5580-20 Firewall Edition 8 Gigabit Ethernet Bundle includes 8 Gigabit Ethernet interfaces, 2 management interfaces, 5000 IPsec VPN peers, 2 SSL VPN peers, Dual AC power, 3DES/AES license
ASA5580-40-BUN-K8	Cisco ASA 5580-40 Firewall Edition includes 2 management interfaces, 5000 IPsec VPN peers, 2 SSL VPN peers, DES license
ASA5580-40-BUN-K9	Cisco ASA 5580-40 Firewall Edition includes 2 management interfaces, 5000 IPsec VPN peers, 2 SSL VPN peers, 3DES/AES license
ASA5580-40-8GE-K9	Cisco ASA 5580-40 Firewall Edition 8 Gigabit Ethernet Bundle includes 8 Gigabit Ethernet interfaces, 2 management interfaces, 5000 IPsec VPN peers, 2 SSL VPN peers, Dual AC power, 3DES/AES license
ASA5580-40-10GE-K9	Cisco ASA 5580-40 Firewall Edition 4 10Gigabit Ethernet Bundle includes 4 10Gigabit Ethernet interfaces, 2 management interfaces, 5000 IPsec VPN peers, 2 SSL VPN peers, Dual AC power, 3DES/AES license
Cisco ASA 5500 Series IPS Edition Bundles	
ASA5505-50-AIP5-K9	Cisco ASA 5505 50-User IPS Edition includes AIP-SSC-5, 8-port Fast Ethernet switch, 10 IPsec VPN peers, 2 SSL VPN peers, 3DES/AES license
ASA5505-U-AIP5P-K9	Cisco ASA 5505 Unlimited-User IPS Edition includes AIP-SSC-5, DMZ support, high availability, 8-port Fast Ethernet switch, 10 IPsec VPN peers, 2 SSL VPN peers, 3DES/AES license
ASA5510-AIP10-K9	Cisco ASA 5510 IPS Edition includes AIP-SSM-10, firewall services, 250 IPsec VPN peers, 2 SSL VPN peers, 5 Fast Ethernet interfaces
ASA5510-AIP10SP-K9	Cisco ASA 5510 IPS Edition includes AIP-SSM-10, firewall services, 250 IPsec VPN peers, 2 SSL VPN peers, 2 Gigabit Ethernet interfaces, 3 Fast Ethernet interfaces, and high availability
ASA5510-AIP20SP-K9	Cisco ASA 5510 IPS Edition includes AIP-SSM-20, firewall services, 250 IPsec VPN peers, 2 SSL VPN peers, 2 Gigabit Ethernet interfaces, 3 Fast Ethernet interfaces, and high availability

ASA5520-AIP10-K9	Cisco ASA 5520 IPS Edition includes AIP-SSM-10, firewall services, 750 IPsec VPN peers, 2 SSL VPN peers, 4 Gigabit Ethernet interfaces, 1 Fast Ethernet interface
ASA5520-AIP20-K9	Cisco ASA 5520 IPS Edition includes AIP-SSM-20, firewall services, 750 IPsec VPN peers, 2 SSL VPN peers, 4 Gigabit Ethernet interfaces, 1 Fast Ethernet interface
ASA5520-AIP40-K9	Cisco ASA 5520 IPS Edition includes AIP-SSM-40, firewall services, 750 IPsec VPN peers, 2 SSL VPN peers, 4 Gigabit Ethernet interfaces, 1 Fast Ethernet interface
ASA5540-AIP20-K9	Cisco ASA 5540 IPS Edition includes AIP-SSM-20, firewall services, 5000 IPsec VPN peers, 2 SSL VPN peers, 4 Gigabit Ethernet interfaces, 1 Fast Ethernet interface
ASA5540-AIP40-K9	Cisco ASA 5540 IPS Edition includes AIP-SSM-40, firewall services, 5000 IPsec VPN peers, 2 SSL VPN peers, 4 Gigabit Ethernet interfaces, 1 Fast Ethernet interface
Cisco ASA 5500 Series Content Security Edition Bundles	
ASA5510-CSC10-K9	Cisco ASA 5510 Content Security Edition includes CSC-SSM-10, 50-user antivirus/anti-spyware with 1-year subscription, firewall services, 250 IPsec VPN peers, 2 SSL VPN peers, 3 Fast Ethernet interfaces
ASA5510-CSC20-K9	Cisco ASA 5510 Content Security Edition includes CSC-SSM-20, 500-user antivirus/anti-spyware with 1-year subscription, firewall services, 250 IPsec VPN peers, 2 SSL VPN peers, 3 Fast Ethernet interfaces
ASA5520-CSC10-K9	Cisco ASA 5520 Content Security Edition includes CSC-SSM-10, 50-user antivirus/anti-spyware with 1-year subscription, firewall services, 750 IPsec VPN peers, 2 SSL VPN peers, 4 Gigabit Ethernet interfaces, 1 Fast Ethernet interface
ASA5520-CSC20-K9	Cisco ASA 5520 Content Security Edition includes CSC-SSM-20, 500-user antivirus/anti-spyware with 1-year subscription, firewall services, 750 IPsec VPN peers, 2 SSL VPN peers, 4 Gigabit Ethernet interfaces, 1 Fast Ethernet interface
Cisco ASA 5500 Series SSL/IPsec VPN Edition Bundles	
ASA5505-SSL10-K9	Cisco ASA 5505 SSL/IPsec VPN Edition includes 10 IPsec VPN peers, 10 SSL VPN peers, 50 firewall users, 8-port Fast Ethernet switch
ASA5505-SSL25-K9	Cisco ASA 5505 SSL/IPsec VPN Edition includes 25 IPsec VPN peers, 25 SSL VPN peers, 50 firewall users, 8-port Fast Ethernet switch
ASA5510-SSL50-K9	Cisco ASA 5510 SSL/IPsec VPN Edition includes 250 IPsec VPN peers, 50 SSL VPN peers, firewall services, 3 Fast Ethernet interfaces
ASA5510-SSL100-K9	Cisco ASA 5510 SSL/IPsec VPN Edition includes 250 IPsec VPN peers, 100 SSL VPN 100 peers, firewall services, 3 Fast Ethernet interfaces
ASA5510-SSL250-K9	Cisco ASA 5510 SSL/IPsec VPN Edition includes 250 IPsec VPN peers, 250 SSL VPN peers, firewall services, 3 Fast Ethernet interfaces
ASA5520-SSL500-K9	Cisco ASA 5520 SSL/IPsec VPN Edition includes 750 IPsec VPN peers, 500 SSL VPN peers, firewall services, 4 Gigabit Ethernet interfaces, 1 Fast Ethernet interface
ASA5540-SSL1000-K9	Cisco ASA 5540 SSL/IPsec VPN Edition includes 5000 IPsec VPN peers, 1000 SSL VPN peers, firewall services, 4 Gigabit Ethernet interfaces, 1 Fast Ethernet interface
ASA5540-SSL2500-K9	Cisco ASA 5540 SSL/IPsec VPN Edition includes 5000 IPsec VPN peers, 2500 SSL VPN peers, firewall services, 4 Gigabit Ethernet interfaces, 1 Fast Ethernet interface
ASA5550-SSL2500-K9	Cisco ASA 5550 SSL/IPsec VPN Edition includes 5000 IPsec VPN peers, 2500 SSL VPN peers, firewall services, 8 Gigabit Ethernet interfaces, 1 Fast Ethernet interface
ASA5550-SSL5000-K9	Cisco ASA 5550 SSL/IPsec VPN Edition includes 5000 IPsec VPN peers, 5000 SSL VPN peers, firewall services, 8 Gigabit Ethernet interfaces, 1 Fast Ethernet interface
ASA5580-20-10K-K9	Cisco ASA 5580 SSL/IPsec VPN Edition includes 10,000 IPsec VPN peers, 10,000 SSL VPN peers, firewall services, 4 Gigabit Ethernet interfaces, 2 management interfaces, Dual AC power, 3DES/AES license
Security Services Modules	
ASA-SSM-AIP-5-K9=	Cisco ASA Advanced Inspection and Prevention Security Services Module 5
ASA-SSM-AIP-10-K9=	Cisco ASA Advanced Inspection and Prevention Security Services Module 10
ASA-SSM-AIP-20-K9=	Cisco ASA Advanced Inspection and Prevention Security Services Module 20
ASA-AIP-40-INC-K9=	Cisco ASA Advanced Inspection and Prevention Security Services Module 40
ASA-SSM-CSC-10-K9=	Cisco ASA Content Security and Control Security Services Module 10 with 50-user antivirus/anti-spyware, 1-year subscription

ASA-SSM-CSC-20-K9=	Cisco ASA Content Security and Control Security Services Module 20 with 500-user antivirus/anti-spyware, 1-year subscription
SSM-4GE=	Cisco ASA 4-Port Gigabit Ethernet Security Services Module
Cisco ASA 5520 Adaptive Security Appliance for Unified Communications Security	
ASA5520-UC-BUN-K9	Cisco ASA 5520 Adaptive Security Appliance UC Security Edition; includes 4 Gigabit Ethernet interfaces, 1 Fast Ethernet interface, 1000 UC proxy sessions, 750 IPsec VPN peers, 2 SSL VPN peers, Active/Active and Active/Standby high availability, Triple Data Encryption Standard/Advanced Encryption Standard (3DES/AES) license
ASA5520-UC-BUN-K8	Cisco ASA 5520 Adaptive Security Appliance UC Security Edition; includes 4 Gigabit Ethernet interfaces, 1 Fast Ethernet interface, 1000 UC proxy license, 750 IPsec VPN peers, 2 SSL VPN peers, Active/Active and Active/Standby high availability, DES license
Cisco ASA 5540 Adaptive Security Appliance for Unified Communications Security	
ASA5540-UC-BUN-K9	Cisco ASA 5540 Adaptive Security Appliance UC Security Edition; includes 4 Gigabit Ethernet interfaces, 1 Fast Ethernet interface, 2000 UC proxy sessions, 5000 IPsec VPN peers, 2 SSL VPN peers, 3DES/AES license
ASA5540-UC-BUN-K8	Cisco ASA 5540 Adaptive Security Appliance UC Security Edition includes 4 Gigabit Ethernet interfaces, 1 Fast Ethernet interface, 2000 UC proxy sessions, 5000 IPsec VPN peers, 2 SSL VPN peers, DES license
Cisco ASA 5550 Adaptive Security Appliance for Unified Communications Security	
ASA5580-20-UC-K9	Cisco ASA 5580 Adaptive Security Appliance UC Security Edition; includes 4 Gigabit Ethernet interfaces, 5000 UC proxy sessions, 10,000 IPsec VPN peers, 2 SSL VPN peers, 3DES/AES license,
ASA5580-20-UC-K8	Cisco ASA 5580 Adaptive Security Appliance UC Security Edition; includes 4 Gigabit Ethernet interfaces, 5000 UC proxy sessions, 10,000 IPsec VPN peers, 2 SSL VPN peers, DES license
Cisco ASA 5580 Series Interface Expansion Cards	
ASA5580-4GE-CU=	Cisco ASA 5580 4-port 10/100/1000 Ethernet interface card, RJ45
ASA5580-4GE-FI=	Cisco ASA 5580 4-port Gigabit Ethernet fiber interface card, SR, LC
ASA5580-2X10GE-SR=	Cisco ASA 5580 2-port 10 Gigabit Ethernet fiber interface card, SR, LC
Cisco ASA 5500 Series Software	
ASA-SW-UPGRADE=	Cisco ASA Software one-time upgrade for nonsupport customers

For More Information

For more information about the Cisco ASA 5500 Series Adaptive Security Appliance, visit: <http://www.cisco.com/go/asa>.

Cisco Intrusion Prevention System

Business networks of all sizes now face increasingly sophisticated attacks that can impede productivity, obstruct access to applications and resources, and cause significant communications disruption. In addition, because of compliance regulations and consumer privacy laws, business priorities now include minimizing legal liability, protecting brand reputation, and safeguarding intellectual property.

A core component of Cisco Self-Defending Network, Cisco IPS collaborates with other key network components for end-to-end network-wide protection. Threat information is shared between Cisco IPS and host-based IPS Cisco Security Agent and Cisco wireless controller. Available as a dedicated appliance, Cisco IPS is also integrated into Cisco firewall, switch, and router platforms for maximum protection and deployment flexibility.

This inline, network-based defense can identify, classify, and stop known and unknown threats, including worms, network viruses, application threats, system intrusion attempts, and application misuse.

Cisco IPS Sensors and Cisco IPS Sensor Software deliver high-performance, intelligent threat detection and protection. Cisco IPS with Global Correlation uses global threat information that has been turned into actionable intelligence, such as reputation scores, and pushed out to all enabled technologies. Reputation filtering and global inspection give Cisco IPS 70 several advantages:

- Twice the effectiveness of signature-only intrusion prevention systems
- More accurate with fewer false-positives using reputation
- 100 times faster than traditional signature-only methods

This technology provides metrics in both multimedia and transactional environments, so organizations can anticipate true IPS performance tailored to their business. The sensors can be deployed widely and



incrementally on servers and endpoints, as dedicated appliances and as service modules on routers, switches, and firewalls. They collaborate and adapt in real time to emerging threats.

In addition, with Cisco Services for IPS, organizations easily manage their IPS deployment with near-real time updates to the most recent threats.

Ideal for Companies That Need These Features

- Cisco IPS 4200 Series Sensors**
- Dedicated hardware appliance platform with performance levels from 300 Mbps to 4 Gbps
- Cisco Advanced Inspection and Prevention Security Services Module (AIP-SSM)**
- IPS security module or card for the Cisco ASA 5500 Series for companies that want to manage IPS with their firewall in one appliance
- Cisco IPS Advanced Integration Module (AIM)**
- IPS AIM for the Cisco 1841, 2800, and 3800 Series Integrated Services Routers with performance level of up to 45 Mbps
- Cisco IDS Services Module (NME)**
- IPS NME for the Cisco 2800 and 3800 Series Integrated Services Routers with performance level of up to 75 Mbps
- Cisco IDS Services Module 2 (ISDM-2)**
- IPS security module for Cisco Catalyst 6500 Series Switches with up to 500 Mbps performance
- Cisco IOS IPS**
- Focused set of IPS capabilities using Cisco IOS Software on the router with varying performance levels

Key Features

- Pervasive network integration—Cisco Intrusion Prevention System (IPS) solutions defeat threats from multiple vectors, including network, server, and desktop endpoints. The solutions extend across Cisco platforms, from purpose-built appliances to services modules integrated into firewall and routers and switches. A Cisco IPS solution protects the network from policy violations, vulnerability exploitations, and anomalous activity through detailed inspection of traffic at Layers 2 through 7, across the entire network.
- Collaborative threat prevention—A Cisco IPS solution employs a unique, system-wide security ecosystem that assesses and reacts to threats, delivering exceptional network scalability and resiliency. This ubiquitous alliance includes cross-solution feedback linkages, common policy management, multivendor event correlation, attack-path identification, passive-active fingerprinting, and host-based (Cisco Security Agent) IPS collaboration.
- Proactive posture adaptation—As an organization's network threat posture changes, a Cisco IPS solution evolves and adapts to stay ahead of the security landscape, mitigating threats by both known and unknown attacks. Extensive behavioral analysis, anomaly detection, policy adjustments, and rapid threat-response techniques save time, resources, and most importantly, the organization's assets and productivity.

NOTE: IPS technology strategically deployed throughout the network provides excellent end-to-end, zero-day protection. A Cisco IPS solution protects an organization's infrastructure and business.

Specifications

Feature	IPS-4240	IPS-4255	IPS-4260	IPS-4270	IPS Module (ISDM-2)	IPS Network Module (AIM)	IPS Network Module (NM-CIDS)
Performance	250 Mbps	500 Mbps	1 Gbps	2 Gbps	500 Mbps	45 Mbps	45 Mbps
Monitoring Interface	Four 10/100/1000 Base-TX	Four 10/100/1000 Base-TX	Autosensing 10/100/1000 Base-TX	Four 10/100/1000 Base-TX or Four 10-00Base-SX	PCI	Internal 10/100 Mbps Ethernet	Internal 10-100-Mbps Ethernet and external 10-100-Mbps Ethernet
Command and Control Interface	10/100 Base-TX	10/100 Base-TX	10/100 Base-TX	Two onboard 10/100/1000 Base-TX	PCI	10/100 Base-TX (on host ISR)	10/1010/100 Base-TX

Optional Interface			4x 10/100/ 1000 Base- TX 2x1000SX	<ul style="list-style-type: none"> Four 10/100/1000 Base-TX Two 1000Base-SX (fiber) (up to 16 total monitoring interfaces) 			
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Selected Part Numbers and Ordering Information

IPS 4200 Appliances	
IPS-4240-K9	Cisco IPS 4240 Sensor (chassis, software, SSH, four 10/100/1000BASE-TX interfaces with RJ-45 connector)
IPS4240-DC-K9	Cisco IPS 4240 NEBS-Compliant Sensor with DC power (chassis, software, SSH, four 10/100/1000BASE-TX interfaces with RJ-45 connector)
IPS-4255-K9	Cisco IPS 4255 Sensor (chassis, software, SSH, four 10/100/1000BASE-TX interfaces with RJ-45 connector)
IPS-4260-K9	Cisco IPS 4260 Sensor (chassis, software, SSH, two onboard 10/100/1000BASE-TX interfaces with RJ-45 connector)
IPS-4260-4GE-BP-K9	Cisco IPS 4260 Sensor with an included 4-GE copper NIC with hardware bypass (chassis, software, SSH, two onboard 10/100/1000BASE-TX interfaces with RJ-45 connector, and four 10/100/1000BASE-TX interfaces with built-in bypass)
IPS-4260-2SX-K9	Cisco IPS 4260 Sensor with an included NIC card (chassis, software, SSH, two onboard 10/100/1000BASE-TX interfaces with RJ-45 connector, and two fiber interfaces)
IPS4270-20-K9	Cisco IPS 4270 Sensor (chassis, redundant power, software, SSH, two onboard 10/100/1000BASE-TX interfaces with RJ-45 connector)
IPS4270-20-4GE-K9	Cisco IPS 4270 Sensor (chassis, redundant power, software, SSH, two onboard 10/100/1000BASE-TX interfaces with RJ-45 connector, and four 10/100/1000BASE-TX interfaces)
IPS4270-20-4SX-K9	Cisco IPS 4270 Sensor (chassis, redundant power, software, SSH, two onboard 10/100/1000BASE-TX interfaces with RJ-45 connector, and four fiber interfaces)
IPS-4GE-BP-INT=	Spare 4-port copper interface card with built-in hardware bypass for the Cisco IPS 4260 and 4270
IPS-2SX-INT=	Spare 2-port fiber interface card for the Cisco IPS 4260 and 4270
IPS Modules on ISR	
AIM-IPS-K9	Cisco Intrusion Prevention System Advanced Integrated Module for Cisco 1841, 2800, 3800
NME-IPS-K9	Cisco Intrusion Prevention System Advanced Integrated Module for Cisco 2800, 3800
Security Services Modules	
ASA-SSC-AIP-5-K9=	Cisco ASA Advanced Inspection and Prevention Security Services Card 5
ASA-SSM-AIP-10-K9=	Cisco ASA Advanced Inspection and Prevention Security Services Module 10
ASA-SSM-AIP-20-K9=	Cisco ASA Advanced Inspection and Prevention Security Services Module 20
ASA-AIP-40-INC-K9 =	Cisco ASA Advanced Inspection and Prevention Security Services Module 40
Select Bundles	
ASA5510-AIP10-K9	Cisco ASA 5510 IPS Edition includes AIP-SSM-10, firewall services, 250 IPsec VPN peers, 2 SSL VPN peers, 5 Fast Ethernet interfaces
ASA5520-AIP10-K9	Cisco ASA 5520 IPS Edition includes AIP-SSM-10, firewall services, 750 IPsec VPN peers, 2 SSL VPN peers, 4 Gigabit Ethernet interfaces, 1 Fast Ethernet interface
ASA5520-AIP20-K9	Cisco ASA 5520 IPS Edition includes AIP-SSM-20, firewall services, 750 IPsec VPN peers, 2 SSL VPN peers, 4 Gigabit Ethernet interfaces, 1 Fast Ethernet interface
ASA5520-AIP40-K9	Cisco ASA 5520 IPS Edition includes AIP-SSM-40, firewall services, 750 IPsec VPN peers, 2 SSL VPN peers, 4 Gigabit Ethernet interfaces, 1 Fast Ethernet interface

ASA5540-AIP20-K9	Cisco ASA 5540 IPS Edition includes AIP-SSM-20, firewall services, 5000 IPsec VPN peers, 2 SSL VPN peers, 4 Gigabit Ethernet interfaces, 1 Fast Ethernet interface
ASA5540-AIP40-K9	Cisco ASA 5540 IPS Edition includes AIP-SSM-40, firewall services, 5000 IPsec VPN peers, 2 SSL VPN peers, 4 Gigabit Ethernet interfaces, 1 Fast Ethernet interface

For More Information

For more information about Cisco Intrusion Prevention System, visit: <http://www.cisco.com/go/ips>.

Cisco Catalyst 6500 Series Firewall Services Module

The Cisco Catalyst 6500 Series Firewall Services Module (FWSM) is a high-speed, integrated firewall module for Cisco Catalyst 6500 Switches and Cisco 7600 Series Routers. It provides one of the fastest firewall data rates in the industry: 5-Gbps throughput, 100,000 cells per second (CPS), and 1 million concurrent connections. Up to four FWSMs can be installed in a single chassis, providing scalability to 20 Gbps per chassis. Based on Cisco PIX Firewall technology, the Cisco FWSM offers large enterprises and service providers exceptional security, reliability, and performance.



The Cisco FWSM includes numerous advanced features that help reduce costs and operational complexity while allowing organizations to manage multiple firewalls from the same management platform. Features such as resource manager helps organizations limit the resources allocated to any security context at any time, thus helping ensure that one security context does not interfere with another. The transparent firewall feature configures the FWSM to act as a Layer 2 bridging firewall, resulting in minimal changes to network topology.

Ideal for Companies That Need These Features

Cisco Catalyst 6500 Series Firewall Services Module • Ability to add an integrated firewall module for Cisco Catalyst 6500 Switches and Cisco 7600 Series routers

Key Features

- An integrated module—Installed inside a Cisco Catalyst 6500 Series Switch or Cisco 7600 Internet Router, the Cisco Catalyst 6500 Series Firewall Services Module (FWSM) allows any port on the device to operate as a firewall port and integrates firewall security inside the network infrastructure.
- Compatibility with future versions—The FWSM can handle up to 5 Gbps of traffic, providing exceptional performance to meet future requirements without requiring a system overhaul. Up to three additional FWSMs can be added to the Cisco Catalyst 6500 to achieve better than 10-Gigabit Ethernet scalability.
- Enhanced reliability—The FWSM is based on Cisco PIX technology and uses the same time-tested Cisco PIX Operating System, a secure, real-time operating system.
- Lower cost of ownership—The FWSM offers among the best price-to-performance ratios of any firewall. Because FWSM is based on the Cisco PIX Firewall, the cost of training and management is lower, and because it is integrated in the chassis, there are fewer boxes to manage.
- Ease of use—The intuitive GUI of the Cisco PIX Device Manager can be used to manage and configure the features within the FWSM. The FWSM can now be managed using the Cisco ASA 5500 Series Adaptive Security Device Manager (ASDM) v5.2 as well.
- Efficiency and productivity gains—Virtualized FWSM delivers multiple firewalls on one physical hardware platform. Network administrators can configure, deploy, and manage these functions as if they were separate devices. Using virtualization to reduce the number of physical devices in a network significantly reduces the cost and complexity of managing network infrastructure.

Specifications

Feature	Cisco Catalyst 6500 Series Firewall Services Module
Performance	5.5 Gbps throughput per service module; Up to four FWSMs (20 Gbps) per Catalyst 6500 chassis with static VLAN or IOS Policy-based Routing; 2.8 Mpps; 1 million concurrent connections; 100,000 connection setups and teardowns per second; 256,000 concurrent NAT or PAT translations; Jumbo Ethernet packets (8500 bytes) supported
VLAN Interfaces	1000 total per service module; 256 VLANs per security context in routed mode; 8 VLAN pairs per security context in transparent mode
Access Lists	Up to 80,000 access control entries in single context mode NOTE: The FWSM implements Layer 3 and 4 access control security checks in hardware with virtually no performance impact using non-upgradeable high-speed memory
Virtual Firewalls (Security Contexts)	20, 50, 100, 250 Virtual Firewall licenses; Virtual Firewalls and 1 administrative context are provided for testing purposes.

Selected Part Numbers and Ordering Information

Hardware	
WS-SVC-FWM-1-K9	Cisco Firewall Services Module for Cisco Catalyst 6500 and 7600 Series
WS-SVC-FWM-1-K9=	Cisco Firewall Services Module for Cisco Catalyst 6500 and 7600 Series (spare)
Security Bundles	
WS-C6506-E-FWM-K9	Cisco Catalyst 6506 Firewall Security System with Enhanced Chassis and Supervisor 720 3B
WS-C6509-E-FWM-K9	Cisco Catalyst 6509 Firewall Security System with Enhanced Chassis and Supervisor 720 3B
WS-C6513-FWM-K9	Cisco Catalyst 6513 Firewall Security System with Supervisor 720 3B
WS-6509EXL-2FWM-K9	Cisco Catalyst 6509 Firewall Security System with Enhanced Chassis, Supervisor 720 3BXL and two Firewall Service Modules
WS-6513XL-2FWM-K9	Cisco Catalyst 6513 Firewall Security System with Supervisor 720 3BXL and two Firewall Service Modules
WS-6506-EXL-FWM-K9	Cisco Catalyst 6506 Firewall Security System with Enhanced Chassis, Supervisor 720 3BXL and one Firewall Service Module
WS-6509-EXL-FWM-K9	Cisco Catalyst 6506 Firewall Security System with Enhanced Chassis, Supervisor 720 3BXL and one Firewall Service Module
WS-C6513-XL-FWM-K9	Cisco Catalyst 6513 Firewall Security System with Enhanced Chassis, Supervisor 720 3BXL and one Firewall Service Module
Software	
SC-SVC-FWM-1.1-K9	Firewall Services Module Software Release 1.1 for Cisco Catalyst 6500 and 7600 Series
SC-SVC-FWM-2.2-K9	Firewall Services Module Software Release 2.2 for Cisco Catalyst 6500 and 7600 Series
SC-SVC-FWM-2.3-K9	Firewall Services Module Software Release 2.3 for Cisco Catalyst 6500 and 7600 Series
SC-SVC-FWM-3.1-K9	Firewall Services Module Software Release 3.1 for Cisco Catalyst 6500 and 7600 Series
SC-SVC-FWM-3.2-K9	Firewall Services Module Software Release 3.2 for Cisco Catalyst 6500 and 7600 Series

NOTE: Cisco Firewall Services Module Software 1.1 has reached end-of-sale status. Customers are encouraged to upgrade or purchase FWSM Software 2.3 or 3.1, 3.2.

For More Information

For more information about the Cisco Catalyst 6500 Series Firewall Services Module, visit: <http://www.cisco.com/en/US/products/hw/modules/ps2706/ps4452/index.html>.

Cisco Catalyst 6500 Series/7600 Series WebVPN Services Module

The Cisco Catalyst 6500 Series/7600 Series WebVPN Services Module is a high-speed, integrated SSL VPN services module for Cisco Catalyst 6500 Series Switches and Cisco 7600 Series Routers that addresses the scalability, performance, application support, and security required for large-scale, remote-access SSL VPN deployments. Supporting up to 32,000 SSL VPN users and 128,000 connections per chassis, the Cisco WebVPN Services Module can cost-effectively meet the capacity requirements of large enterprises. The innovative virtualization capabilities integrated into the module simplify the policy creation and enforcement for diverse enterprise user communities and make it an ideal solution for managed service providers. Taking advantage of the broad, industry-proven application support and endpoint security provided by Cisco VPN 3000 Series Concentrators, the Cisco WebVPN Services Module is ideally suited to meet the secure connectivity demands of any organization.

Ideal for Companies That Need These Features

- Cisco Catalyst 6500 Series/ 7600 Series WebVPN Services Module** • Ability to add a high-speed, integrated SSL VPN services module for Cisco Catalyst 6500 Series Switches and Cisco 7600 Series routers

Key Features

- Integration with network infrastructure—Incorporating VPN into the Cisco Catalyst 6500 Series Switches and Cisco 7600 Series Internet Routers helps secure the network without the need for extra overlay equipment or network alterations.

- Virtualization and Virtual Route Forwarding (VRF) awareness—Virtualization technology is a way to pool resources while masking the physical attributes and boundaries of the resources from the resource users. Up to 128 VRF-aware virtual contexts are supported per module.
- Advanced endpoint security—A primary component of the Cisco WebVPN Services Module, Cisco Secure Desktop offers preconnection security posture assessment and a consistent and reliable means of eliminating all traces of sensitive data.
- Scalability—A single module is capable of supporting up to 8000 simultaneous users and up to 32,000 concurrent connections. Up to four modules can be supported in a single chassis to support up to 32,000 simultaneous SSL VPN users and 128,000 connections.
- Ease of deployment—The Cisco Catalyst 6500 Series/7600 Series WebVPN Services Module comes with integrated device-manager support. This support helps configure and provision the module without the need for an external element management system, providing a ready-to-deploy solution.

Specifications

Feature	Cisco Catalyst 6500 Series/7600 Series WebVPN Services Module
Scalability	Up to 8000 users; Up to 300 Mbps; Up to 64 SSL VPN virtual contexts and 64 gateways; Up to 4 modules in a chassis
Virtualization	Ability to divide into multiple contexts, with each context as a complete logical representation of the WebVPN Services Module, complete with separate policies and configuration
VRF-Aware	VRF mapping: Single-IP model (URL-based or login-name-based); Multiple-IP model; Per-VRF AAA server; Per-VRF DNS server; Per-VRF gateway; Per-VRF number of users
User Authentication	RADIUS; Windows NT, Active Directory, UNIX NIS; Group-based access control using Cisco Secure Access Control Server (ACS)
End-System Integrity (Cisco Secure Desktop integration)	Antivirus check; Personal firewall check; Seeks to minimize risk of temporary and downloaded files and cookies from remaining on system
Redundancy and Load Sharing	Stateless failover; Cisco IOS Software server-load balancing (SLB) and Content Switching Module integration within the chassis; Active/Active failover
Application Support	Web access, file services, e-mail, Telnet, file transfer, legacy applications, specialized applications
Browser Support	Netscape, Internet Explorer, Firefox
Protocols	SSL 3.0 and 3.1; TLS 1.0
Configuration and Management	Console CLI, HTTP, HTTPS, Telnet, Secure Shell (SSH)
Syslog Support	Console display, external server, internal buffer
Cipher Suites	SSL_RSA_WITH_RC4_128_MD5; SSL_RSA_WITH_RC4_128_SHA; SSL_RSA_WITH_DES_CBC_SHA; SSL_RSA_WITH_3DES_EDE_CBC_SHA
Network Access Control	IP address, Differentiated Services Code Point/Type of Service (DSCP/ToS), TCP/UDP port, per-user, per-group

Selected Part Numbers and Ordering Information

WS-SVC-WEBVPN-K9	WebVPN Services Module for Cisco Catalyst 6500 Series and Cisco 7600 Series
SC-SVC-WVPN-11-K9	WebVPN Services Module Software 1.1

For More Information

For more information about the Cisco Catalyst 6500 Series/7600 Series WebVPN Services Module, visit: <http://www.cisco.com/en/US/products/ps6404/index.html>.

Cisco SSL VPN Solutions

Today's remote-access VPN deployments require the ability to safely and easily extend corporate network access beyond managed desktops to different users, devices, and endpoints. The Cisco SSL VPN Client with Cisco ASA 5500 Series SSL and IPsec VPN Edition allows organizations to securely provide network access to a broad array of users, including mobile and fixed endpoints, remote offices, contractors, and business partners.

Supporting a wide range of deployment and application environments, the Cisco ASA 5500 Series SSL/IPsec VPN Edition delivers maximum value to organizations with its exceptionally comprehensive set of Secure Socket Layer (SSL) and IP Security (IPsec) VPN features, performance, and scalability. The Cisco ASA 5500 Series SSL/IPsec VPN Edition also allows organizations to use a powerful combination of multiple market-

proven firewall, intrusion-prevention-system (IPS), and content-security technologies on a single, unified platform.

Ideal for Companies That Need These Features

- Cisco SSL VPN Client, the Cisco AnyConnect Client**
- Comprehensive breadth of platform and endpoint support in a simple-to-manage, flexible, easy-to-deploy, cost-effective solution
 - Concurrent user scalability from 10–10,000 sessions per device and tens of thousands of sessions per cluster
 - Combined SSL and true IPsec remote access capability, coupled with industry-leading firewall, IPS, and content security capabilities
 - High quality application support for delay-sensitive applications such as voice and video

Key Features

- Deployment flexibility—The Cisco SSL VPN with Cisco ASA 5500 Series Adaptive Security Appliance extends the appropriate SSL VPN technology, either clientless or full-network access, on a resource-granular per-session basis, depending on the user group or endpoint accessing the network.
- Comprehensive network access—Broad application and network resource access is provided through the Cisco AnyConnect VPN Client, an automatically downloadable network-tunneling client that provides access to virtually any application or resource.
- Optimized network performance—The Cisco AnyConnect VPN Client provides an optimized VPN connection for latency-sensitive traffic, such as voice-over-IP (VoIP) traffic or TCP-based application access.
- Ubiquitous clientless access—The solution delivers secure remote access to authenticated users on both managed and unmanaged endpoints, facilitating increased productivity by providing “anytime access” to the network.
- Granular control—The solution empowers network and IT management with additional tools to provide controlled access to corporate network resources and applications.
- Exceptional management flexibility—The application simplifies the complexity of managing diverse, remote-access connectivity requirements common in today’s enterprise.
- Low total cost of ownership (TCO)—The solution reduces expensive help-desk calls associated with network connectivity problems and eliminates the administration costs of managing VPN client software on every endpoint.

Specifications

Feature	ASA 5505	ASA 5510	ASA 5520	ASA 5540	ASA 5550	ASA 5580-20	ASA 5580-40
Maximum VPN Throughput	100 Mbps	170 Mbps	225 Mbps	325 Mbps	425 Mbps	1 Gbps	1 Gbps
Maximum Concurrent SSL VPN Sessions ¹	25	250	750	2500	5000	10,000	10,000
Maximum Concurrent IPsec VPN Sessions ¹	25	250	750	5000	5000	10,000	10,000
Profile	Desktop	1-RU	1-RU	1-RU	1-RU	4-RU	4-RU
Stateful Failover	No	Licensed feature ²	Yes	Yes	Yes	Yes	Yes
VPN Load Balancing	No	Licensed feature ²	Yes	Yes	Yes	Yes	Yes
Interfaces	Eight 10/100 copper Ethernet ports with dynamic port grouping (include two Power over Ethernet ports), three USB ports	Five 10/100 copper Ethernet ports, two USB ports	Four 10/100/1000 copper Ethernet ports, one out-of-band management port, two USB ports	Four 10/100/1000 copper Ethernet ports, one out-of-band management port, two USB ports	Eight Gigabit Ethernet ports, four SFP fiber ports, one Fast Ethernet port	Two USB ports, two RJ-45 Management ports, two Gigabit Ethernet Management ports with interface expansion cards: -Up to 12 10 Gigabit Ethernet (10GE) ports -Up to 24 Gigabit Ethernet ports -Up to 24 10/100/1000 Ethernet ports	

1. Devices include a license for two SSL VPN users for evaluation and remote management purposes. The total concurrent IPsec and SSL (clientless and tunnel-based) VPN sessions may not exceed the maximum concurrent IPsec session count shown in the chart. The SSL VPN session number may also not exceed the number of licensed sessions on the device. The ASA 5580 Series supports greater simultaneous users than the ASA 5550 Series at comparable overall SSL VPN throughput as the ASA 5550 Series. These items should be taken in to consideration as part of your capacity planning.

2. Upgrade is available with Cisco ASA 5510 Security Plus license.

Selected Part Numbers and Ordering Information

The following tables provide a subset of ordering information for the Cisco ASA 5500 Series SSL/IPsec VPN Edition. All Cisco ASA 5500 Series appliances include maximum IPsec concurrent users in the base configuration of the chassis. All SSL VPN features are included under a single feature license. Every Cisco ASA 5500 Series model can support SSL VPN through the purchase of an SSL VPN license. SSL VPN on the Cisco ASA 5500 Series may be purchased under a single part number as an edition bundle, or the chassis and SSL VPN feature license may be purchased separately, as indicated in Table 3. SSL VPN Users licenses are not additive. Upgrade Licenses paths are available for migration to higher Concurrent SSL users counts. To place an order, visit the Cisco Ordering Home Page.

Edition Bundles	
ASA5505-SSL10-K9	Cisco ASA 5505 SSL/IPsec VPN Edition for 10 concurrent SSL VPN users
ASA5505-SSL25-K9	Cisco ASA 5505 SSL/IPsec VPN Edition for 25 concurrent SSL VPN users
ASA5510-SSL50-K9	Cisco ASA 5510 SSL/IPsec VPN Edition for 50 concurrent SSL VPN users
ASA5510-SSL100-K9	Cisco ASA 5510 SSL/IPsec VPN Edition for 100 concurrent SSL VPN users
ASA5510-SSL250-K9	Cisco ASA 5510 SSL/IPsec VPN Edition for 250 concurrent SSL VPN users
ASA5520-SSL500-K9	Cisco ASA 5520 SSL/IPsec VPN Edition for 500 concurrent SSL VPN users
ASA5540-SSL1000-K9	Cisco ASA 5540 SSL/IPsec VPN Edition for 1000 concurrent SSL VPN users
ASA5540-SSL2500-K9	Cisco ASA 5540 SSL/IPsec VPN Edition for 2500 concurrent SSL VPN users
ASA5550-SSL2500-K9	Cisco ASA 5550 SSL/IPsec VPN Edition for 2500 concurrent SSL VPN users
ASA5550-SSL5000-K9	Cisco ASA 5550 SSL/IPsec VPN Edition for 5000 concurrent SSL VPN users
ASA5580-20-10K-K9	Cisco ASA 5580-20 SSL/IPsec VPN Edition for 10,000 concurrent SSL VPN users

Cisco ASA Chassis and Applicable SSL VPN Licenses							
SSL VPN User Requirements	ASA 5505	ASA 5510	ASA 5520	ASA 5540	ASA 5550	ASA 5580-20	Part Number
10 SSL VPN users	X	X	X	X	X	X	ASA5500-SSL-10
25 SSL VPN users	X	X	X	X	X	X	ASA5500-SSL-25
50 SSL VPN users		X	X	X	X	X	ASA5500-SSL-50
100 SSL VPN users		X	X	X	X	X	ASA5500-SSL-100
250 SSL VPN users		X	X	X	X	X	ASA5500-SSL-250
500 SSL VPN users			X	X	X	X	ASA5500-SSL-500
750 SSL VPN users			X	X	X	X	ASA5500-SSL-750
1000 SSL VPN users				X	X	X	ASA5500-SSL-1000
2500 SSL VPN users				X	X	X	ASA5500-SSL-2500
5000 SSL VPN users					X	X	ASA5500-SSL-5000
10,000 SSL VPN users						X	ASA5500-SSL-10K

For More Information

For more information about the Cisco SSL VPN Client with Cisco ASA 5500 Series Adaptive Security Appliance, visit: <http://www.cisco.com/go/asa>.

Cisco Virtual Office

Remote worker solutions from Cisco boost flexibility and productivity and extend the enterprise by delivering secure, rich, and manageable network services to teleworkers and employees working outside the traditional office environment. By providing full IP phone, wireless, data, and video services, Cisco Virtual Office provides a smooth, office-caliber experience to staff, wherever they may be located.

The Cisco Virtual Office solution consists of the following components:

- A remote-site presence with a Cisco 800 Series Integrated Services Router and a Cisco Unified IP Phone 7900 Series phone.
- Headend presence remote-site aggregation includes a VPN router and centralized management software for policy, configuration, and identity controls. Cisco and approved partners provide deployment and ongoing services for successful deployment and integration as well as consultative guidance for automating the deployment.

Deployment Options

Cisco Virtual Office includes provisioning and management through numerous management tools that provide the ability to define network-wide policy, use identity for authorization, and actively update configurations at remote sites.

Cisco Virtual Office Express refers to a simplified architecture to address initial installation steps. It extends the same network services available through the Cisco Virtual Office solution but is distinct in its ability to quickly set up the secured connections between sites. Cisco Virtual Office Express has a reduced number of management and headend components to provide rich functions while keeping operating costs low.

Solution Benefits

The Cisco Virtual Office solution addresses many of the requirements associated with remote working for both end users and organizations alike. In doing so, it also provides benefits across three distinct organizational groups:

- For end users—Cisco Virtual Office allows schedule flexibility and improves work/life balance by providing the ability to work at home or on the road. The solution also provides integrated family support with multiple Service Set Identifiers (SSIDs) for wireless and separate VLANs for a secure “split-tunneling.”
- For IT groups—Cisco Virtual Office simplifies the process of extending real-time, high-performance network services to remote locations. These services are delivered without any compromise to the overall security policy. Traffic is protected through VPN technologies, and authorization to access corporate resources is managed through strict identity controls. This solution also provides architecture for centralized, simplified management and operations, and contributes to improved scalability security and low total cost of ownership. For example, Cisco IT effectively supports more than 15,000 Cisco Virtual Office deployments with just a handful of resources. This support is particularly important because users at these locations have heightened expectations for the delivery of virtual office services, and these locations typically do not have IT staff for onsite support. For an even simpler deployment model, Cisco Virtual Office Express comprises a single, integrated device that results in initial cost savings as well as investment protection in the form of the scalability and modularity of the routers as business needs expand. With only one management solution to learn, training needs are minimized and ongoing operations are simplified.
- For businesses and organizations—This solution improves productivity of the workforce while saving costs associated with energy, facilities, and real estate. It also enables better business resiliency, allowing the workforce to stay secure and connected if employees cannot get to the office or are traveling.

A Differentiated Solution

Teleworkers and technology that enables teleworking has existed for many years, but the solutions in the past have typically lacked a critical component, creating a barrier to adoption. Perhaps the solution is not robust enough to handle communication and collaboration applications. Perhaps it lacks the proper security controls to comply with corporate standards. Or perhaps it does not use unified communications or wireless technologies, making it less convenient. Cisco Virtual Office delivers a truly comprehensive solution that addresses each of these concerns, providing mutual benefits to the end user, the IT department—and ultimately—the business.

For More Information

For more details about the Cisco Virtual Office solution, visit: <http://www.cisco.com/go/cvo>.

For more details about Cisco teleworking solutions, visit: <http://www.cisco.com/go/teleworker>.

Cisco IronPort E-mail Security Solutions

The Cisco IronPort E-mail Security Solutions are some of the most sophisticated systems available today. In production at eight of the ten largest Internet service providers (ISPs) and more than 40 percent of Fortune 1000 companies, these systems have a demonstrated record of unparalleled security and reliability. The same code base that powers the most sophisticated customers is available in all of IronPort e-mail security solutions to protect enterprises of all sizes. By reducing the downtime associated with spam, viruses, and a wide variety of other threats, these products facilitate the administration of corporate mail systems and reduce the burden on

technical staff. Cisco IronPort e-mail security solutions support and protect organizations' e-mail systems, not only from today's threats, but from those certain to evolve in the future.

Ideal for Companies That Need These Features

- Cisco IronPort E-mail Security Services

 - Anti-spam and anti-virus solution
 - Data loss prevention (DLP)
 - Regulatory compliance
 - E-mail encryption
- Cisco IronPort Hosted E-mail Service

 - Reduced data center footprint
 - More effective hosted solution
 - More control over hosted solution
- Cisco IronPort Hybrid Hosted E-mail Security

 - Protection of company-sensitive data
 - Enforcement of LDAP-based group policies
 - Hybrid with OpEx pricing model
 - Single management interface
- Cisco IronPort Managed E-mail Security

 - Outsource e-mail security while retaining access to appliances
 - Predictable cost model

NOTE: Please contact IronPort for sizing of specific appliances.

Key Features

- IronPort AsyncOS—IronPort AsyncOS is a unique, high-performance software architecture engineered from the ground up to address concurrency-based communications bottlenecks and the limitations of file-based queuing.
- IronPort Reputation Filters—IronPort Reputation Filters perform a real-time e-mail threat assessment and then identify suspicious e-mail senders. Suspicious senders are rate-limited or blocked, preventing malicious traffic from entering the network. As the first line of defense on the IronPort e-mail security appliances, Reputation Filters dispose of up to 90 percent of incoming spam at the connection level -- saving bandwidth, conserving system resources, and yielding the very highest levels of security for critical messaging systems. A proven preventive solution, IronPort Reputation Filters defend the largest Internet service provider (ISP) and enterprise networks, as well as small and medium-sized businesses (SMBs), in production environments around the world.
- IronPort Anti-Spam—The catch rate of IronPort Anti-Spam is 97 to 99 percent. Its false positive rate is less than 1 in 1 million. To eliminate the broadest range of known and emerging e-mail threats, IronPort Anti-Spam combines best-of-class conventional techniques with breakthrough context-sensitive detection technology.
- IronPort Virus Outbreak Filters—IronPort Virus Outbreak Filters detect new virus outbreaks in real time, and then quarantine suspicious messages -- offering protection up to 42 hours before traditional anti-virus solutions.
- IronPort E-mail Encryption—IronPort E-mail Encryption technology revolutionizes e-mail encryption, meeting compliance requirements while delivering powerful new business-class e-mail features.
- IronPort Data Loss Prevention (DLP)—IronPort delivers high-performance, comprehensive data loss prevention for data in motion, helping organizations both large and small prevent leaks, enforce compliance, and protect their brand and reputation.
- The IronPort SenderBase Network—SenderBase collects data from more than ten times the networks of competing monitoring systems, with data on more than 30 percent of the world's e-mail and Web traffic. This volume provides a very statistically significant sample size, resulting in immediate and accurate detection of even low-volume mail senders. A highly diverse group of more than 100,000 organizations, including some of the largest networks in the world, contribute information to IronPort's SenderBase on a remarkable 5 billion messages per day. SenderBase gives mail administrators excellent real-time visibility into security threats from around the world.
- The Threat Operations Center—The 24-hour Threat Operations Center (TOC) provides a view into global traffic activity, enabling IronPort to analyze anomalies, uncover new threats, and track traffic trends.

Specifications

Chassis/Processor	C160	C360	C660	X1060
Form Factor	17" 1U rack-mounted chassis	19" rack-mountable, 2U rack height	19" rack-mountable, 2U rack height	19" rack-mountable, 2U rack height
Dimensions	1.7" (h) x 17" (w) x 22" (d)	3.5" (h) x 19" (w) x 29" (d)	3.5" (h) x 19" (w) x 29" (d)	3.5" (h) x 19" (w) x 29" (d)
CPU	Single Intel Processor	One Intel multi-core processor	Two Intel Multi-Core Processors	Two Intel Multi-Core Processors
Power Supplies	--	Hot-plug redundant, 700 watts, 100/240 volts	Hot-plug redundant, 750 watts, 100/240 volts	Hot-plug redundant, 750 watts, 100/240 volts

Storage	4GB	35GB	70GB	70GB
RAID	RAID 1 configuration	RAID 1 configuration; Dual channel hardware with battery-backed cache	RAID 1+0 configuration; Dual channel hardware with battery-backed cache	RAID 1+0 configuration; Dual channel hardware with battery-backed cache
Drives	Two 250GB SATA drives	Two hot-swappable, 300GB Ultra 3 SCSI	Four hot-swappable, 300 GB Serial attached SCSI	Four hot-swappable, 300 GB Serial attached SCSI
Capacity	--	35GB effective queue capacity, 45GB non-mail (e.g. log) capacity	70 GB queue capacity, 110 GB discretionary capacity (reporting data, logs, configuration, archives)	70 GB queue capacity, 110 GB discretionary capacity (reporting data, logs, configuration, archives)
Connectivity				
Ethernet	Two Embedded Intel Gigabit NICs	One Intel 10/100 BaseT and two Broadcom Gigabit BaseT Ethernet ports	Two Broadcom Gigabit BaseT and One Intel 10/100 BaseT Ethernet ports	Two Broadcom Gigabit BaseT and One Intel 10/100 BaseT Ethernet ports
Serial	1 DB-9 Serial Port	One RS-232 (DB-9) Serial Port	One RS-232 (DB-9) Serial Port	One RS-232 (DB-9) serial port (Two-port fiber-optic NIC)
Mail Operations				
Mail Injection Protocols	SMTP, ESMTP, Secure SMTP over TLS	SMTP, ESMTP, Secure SMTP over TLS	SMTP, ESMTP, Secure SMTP over TLS	--
Mail Delivery Protocols	SMTP, ESMTP, Secure SMTP over TLS	SMTP, ESMTP, Secure SMTP over TLS	SMTP, ESMTP, Secure SMTP over TLS	SMTP, ESMTP, Secure SMTP over TLS
DNS	Internal resolver/ cache; Can resolve using local DNS or Internet DNS servers	Internal resolver/ cache; Can resolve using local DNS or Internet DNS servers	Internal resolver/ cache; Can resolve using local DNS or Internet DNS servers	Internal resolver/ cache; Can resolve using local DNS or Internet DNS servers
LDAP	--	Integrates with Active Directory, Notes, Domino and OpenLDAP servers	Integrates with Active Directory, Notes, Domino and OpenLDAP servers	Integrates with Active Directory, Notes, Domino and OpenLDAP servers
Interfaces/Configuration				
Web Interface	Accessible by HTTP or HTTPS	Accessible by HTTP or HTTPS	Accessible by HTTP or HTTPS	Accessible by HTTP or HTTPS
Command Line Interface	Accessible via SSH or Telnet; Configuration Wizards	Accessible via SSH or Telnet; Configuration Wizard or command-based	Accessible via SSH or Telnet; Configuration Wizard or command-based	Accessible via SSH or Telnet; Configuration Wizard or command-based
File Transfer	SCP or FTP	SCP or FTP	SCP or FTP	SCP or FTP
Programmatic Monitoring	XML-based configuration files	XML over HTTP(S)	XML over HTTP(S)	XML over HTTP(S)
Configuration Files	--	XML-based configuration files archived or transferred to cluster	XML-based configuration files archived or transferred to cluster	XML-based configuration files archived or transferred to cluster
Cryptographic Algorithms				
TLS (Encrypted SMTP)	--	56-bit DES, 168-bit 3DES, 128-bit RC4, 128-bit AES and 256-bit-AES	56-bit DES, 168-bit 3DES, 128-bit RC4, 128-bit AES and 256-bit-AES	56-bit DES, 168-bit 3DES, 128-bit RC4, 128-bit AES and 256-bit-AES
DomainKeys Signing	--	512, 768, 1024, 1536 and 2048-bit RSA	512, 768, 1024, 1536 and 2048-bit RSA	512, 768, 1024, 1536 and 2048-bit RSA

SSH for System Management	--	768 and 1024-bit RSA	768 and 1024-bit RSA	768 and 1024-bit RSA
Programmatic Monitoring	--	RC4-SHA and RC4-MD5	--	--
HTTPS for System Management	--	RC4-SHA and RC4-MD5	RC4-SHA and RC4-MD5	RC4-SHA and RC4-MD5

Selected Part Numbers and Ordering Information

Information below pertains to IronPort's bundle offerings. For a-la-carte, government, or educational pricing, contact an IronPort sales representative at sales@ironport.com.

• AS = Anti-Spam; AV = Anti-Virus; VOF = Virus Outbreak Filters; ENCR = IronPort E-mail Encryption

Single Appliance 1 year

AS	AS+AV	AS+AV+VOF	AS+AV+VOF+ENCR
EBUN-1A-EN-S-1Y	EBUN-1A-EN-SQ-1Y	EBUN-1A-EN-SQR-1Y	EBUN-1A-EN-SQRT-1Y

Single Appliance 3 year

AS	AS+AV	AS+AV+VOF	AS+AV+VOF+ENCR
EBUN-1A-EN-S-3Y	EBUN-1A-EN-SQ-3Y	EBUN-1A-EN-SQR-3Y	EBUN-1A-EN-SQRT-3Y

Dual Appliance 1 year

AS	AS+AV	AS+AV+VOF	AS+AV+VOF+ENCR
EBUN-2A-EN-S-1Y	EBUN-2A-EN-SQ-1Y	EBUN-2A-EN-SQR-1Y	EBUN-2A-EN-SQRT-1Y

Dual Appliance 3 year

AS	AS+AV	AS+AV+VOF	AS+AV+VOF+ENCR
EBUN-2A-EN-S-3Y	EBUN-2A-EN-SQ-3Y	EBUN-2A-EN-SQR-3Y	EBUN-2A-EN-SQRT-3Y

Specifications

Cisco IronPort Email Security Services

	Hosted Email Security	Hybrid Hosted Email Security	Managed Email Security
Customer Size	1000 and greater	1000 and greater	5000 and greater
Administration	Co-Managed: Customer and Cisco share the administration and management of the hosted device. Both are authorized to make configuration changes and generate reports. Cisco is primarily responsible for maintaining the device but can make changes on behalf of the customer.	Combined: The on-premise device is managed by the customer. The hosted device is co-managed (as described with hosted).	Fully Out-Tasked: Cisco manages and monitors the on-premise device on behalf of the customer.
Device Control and Visibility	Full - Customer has full access to the device, control over the configuration, and visibility into reports, message tracking, and quarantines.	Full - Customer has full access to the device, control over the configuration, and visibility into reports, message tracking, and quarantines.	Full - Customer has full access to the device, control over the configuration, and visibility into reports, message tracking, and quarantines.
Reporting	Instant or through Portal	Instant through single interface	Instant or through Portal
Hardware Shipped to Customer	None	C-Series or X-Series	C-Series & M-Series, VPN router
Content Filtering	Yes	Yes	Yes
Advanced content filtering and group policies	No	Yes	Yes
Email Authentication	Bounce Verification, DKIM, SPF, etc.	Bounce Verification, DKIM, SPF, etc.	Bounce Verification, DKIM, SPF, etc.
Quarantine Access	Spam, Policy, Content	Spam, Policy, Content	Spam, Policy, Content

Capacity Assurance	Yes - Cisco will scale the hosted infrastructure to meet the capacity demands of the customer within the licensed user level	Yes - Cisco will scale either/ both the supplied on-premise devices or/and the hosted infrastructure to meet the capacity demands of the customer within the licensed user level	Yes - Cisco will provide additional or larger hardware to meet the capacity demands of the customer within the licensed user level
Service Level Commitments	Service Level Agreements (SLA) for service uptime guaranteed at 99.999% availability. Service Level Objectives covering various operational service elements.	Service Level Agreements (SLA) for service uptime guaranteed at 99.999% availability. Service Level Objectives covering various operational service elements. (Note: On-premise devices are excluded).	Service Level Objectives (SLOs) covering various operational service elements including multiple "mean time to xxxx (MTTX)" objectives

Specifications

Cisco IronPort Email Security Services

Hosted Email - 1 year

AS	AS+AV	AS+AV+VOF
HE-EN-S-1Y	HE-EN-SA-1Y	HE-EN-SAV-1Y

Hosted Email - 3 year

AS	AS+AV	AS+AV+VOF
HE-EN-S-3Y	HE-EN-SA-3Y	HE-EN-SAV-3Y

Hosted Email - 5 year

AS	AS+AV	AS+AV+VOF
HE-EN-S-5Y	HE-EN-SA-5Y	HE-EN-SAV-5Y

Hybrid Hosted Email - 1 year

AS	AS+AV	AS+AV+VOF
HYB-EN-S-1Y	HYB-EN-SA-1Y	HYB-EN-SAV-1Y

Hybrid Hosted Email - 3 year

AS	AS+AV	AS+AV+VOF
HYB-EN-S-3Y	HYB-EN-SA-3Y	HYB-EN-SAV-3Y

Hybrid Hosted Email - 5 year

AS	AS+AV	AS+AV+VOF
HYB-EN-S-5Y	HYB-EN-SA-5Y	HYB-EN-SAV-5Y

Managed Email - 3 year

	AS+AV+VOF
	ME-EN-SAV-3Y (with Sophos) ME-EN-MAV-3Y (with McAfee)

Managed Email - 5 year

	AS+AV+VOF
	ME-EN-SAV-5Y (with Sophos) ME-EN-MAV-5Y (with McAfee)

Part Numbers: HE=Hosted Email; HYB= Hybrid Hosted Email; ME= Managed Email; AS = Anti-Spam; AV = Anti-Virus; VOF = Virus Outbreak Filters; ENCR = IronPort E-mail Encryption

For More Information

For more information about IronPort products, visit: <http://www.cisco.com/web/products/ironport> or http://www.ironport.com/products/email_security_appliances.html

Cisco IronPort Secure Web Gateway Appliance

The Cisco IronPort S-Series web security appliance is the industry's first and only secure web gateway to combine traditional URL filtering, reputation filtering, malware filtering and data security on a single platform to address the latest web threats. By combining innovative technologies, the Cisco IronPort S-Series helps organizations address the growing challenges of both securing and controlling web traffic. With threats from botnets and exploited legitimate sites becoming more complex and sophisticated, the Cisco IronPort S-Series web security appliance delivers the most comprehensive Web security protection and enterprise-class performance.

Ideal for Companies That Need These Features

Cisco IronPort S-Series Secure Web Gateway Appliance

- A secure web gateway, with multiple layers of defense against malware
- High security and high performance
- Consolidated security, Acceptable Use Policy (AUP), application control, and content caching features, all on a single, integrated appliance
- HTTPS decryption and scanning
- Data security and off-box DLP support

Key Features

- **Fast Web proxy**—This feature allows for deep content analysis, which is critical for accurate detection of devious and rapidly mutating web-based malware.
- **Acceptable Use Policy (AUP)**—URL filtering from Cisco IronPort appliances enables the enforcement of corporate Internet usage policies.
- **Web Reputation**—This feature provides a powerful outer layer of malware defense. Taking advantage of the Cisco IronPort SenderBase Network, Cisco IronPort Web Reputation Filters analyze more than 50 different Web traffic- and network-related parameters to accurately evaluate the trustworthiness of a URL or IP address.
- **Integrated Layer 4 Traffic Monitor**—This monitor scans all ports at wire speed, detecting and blocking spyware "phone-home" activity.
- **Malware Filtering**—This solution is the first solution on the market that offers multiple antimalware scanning engines on a single, integrated appliance.
- **Data security and data loss prevention**—Empowers organizations to take quick, easy steps to enforce common sense data security policies; for example, preventing engineers from sending design files by webmail, blocking uploads by finance staff of Excel spreadsheets over 100KB, or preventing posts of content to blogs or social networking sites. These simple data security policies can be created for outbound traffic on HTTP, HTTPS and FTP.
- **Native FTP protection** allows Cisco IronPort web security appliances to provide complete visibility into FTP usage, enforcing acceptable use and data security policies, and preventing malware infections. Acting as an FTP proxy, the Cisco IronPort S-Series enables organizations to exercise granular control, including: allow/block FTP connections, restrict users/groups, control uploads/downloads, and restrict sent/received files to certain types or sizes.
- Additionally, Cisco IronPort web security appliances can score FTP servers with Web Reputation Filters (Cisco's industry-leading reputation service) and scan downloaded content for malware and spyware payloads with the IronPort Dynamic Vectoring and Streaming (DVS) engine. Cisco's FTP protection enforces simple, common sense data security policies based on file metadata, user, URL category and reputation. Alternately, FTP traffic can be passed to an external DLP solution for additional, more granular, scanning.
- The Cisco IronPort S-Series now has comprehensive coverage for the three most common protocols carrying business information across the boundary and over the Internet: HTTP, HTTPS, and FTP.

Multilayer, Multivendor Defense in Depth

- Cisco IronPort URL Filters offer broad reach and exceptional accuracy rate in controlling web content. The Cisco IronPort database contains more than 20 million sites (corresponding to more than 3 billion pages), with global coverage across 70 languages and 200 countries.
- The industry's first and best web reputation filters provide a powerful outer layer of malware defense. Using the Cisco IronPort SenderBase Network, Cisco IronPort Web Reputation Filters analyze more than 50 different web traffic- and network-related parameters to accurately evaluate the trustworthiness of a URL or IP address. Cisco IronPort Web Reputation Filters are the industry's only reputation system to include botsite protection, URL outbreak detection, and exploit filtering—protecting users from exploits delivered through cross-sight scripting (XSS), cross-sight request forgery, Structured Query Language (SQL) injections, or invisible iFrames.
- The Cisco IronPort Anti-Malware System enables the Cisco IronPort S-Series to be the first solution on the market that offers multiple antimalware scanning engines on a single, integrated appliance. Moreover, an administrator can run these scanning engines simultaneously to offer greater protection against malware threats, with little to no performance degradation. This system takes full advantage of the Cisco IronPort Dynamic Vectoring and Streaming (DVS) Engine, and verdict engines from Webroot and McAfee, to provide best-of-class protection against a wide variety of web-based threats.

- The Cisco IronPort DVS Engine was built to provide an integrated single-appliance solution with multiple antimalware scanning engines from different vendors. It employs sophisticated object parsing and streaming techniques to provide all of the Cisco IronPort AUP and security features for web traffic. Simultaneously, it takes full advantage of hardware optimizations (such as multicore scanning) to distribute these parallel operations and fully use the system resources.
- HTTPS decryption enables the Cisco IronPort S-Series to enforce acceptable use and security policies over HTTPS-decrypted data. The Cisco IronPort Web Security solution is the first to use web reputation and URL filtering to make HTTPS decryption decisions.

Comprehensive Management and Reporting Capabilities

- Cisco IronPort Web Security Manager provides a single, easy-to-understand view of all access and security policies configured on the appliance. Administrators manage all web access policies (including URL filtering, time-based policies, reputation filtering, and malware filtering) from a single location.
- Cisco IronPort Web Security Monitor provides valuable insight into overall web activity, as well as threat identification and prevention, within corporate networks. These on- and off-box reports are designed to provide actionable information as well as historical trends.
- Multiple deployment modes enable flexibility within a corporate network. Deployment modes include deployment as an explicit forward proxy for the network or transparent deployment off a Layer 4 switch or a Web Cache Communication Protocol (WCCP) router within the network. The Cisco IronPort S-Series appliance can be configured as a standalone proxy or to coexist with other proxies (such as in a proxy hierarchy for conditional routing, failover, and load balancing).
- Enterprise-grade Simple Network Management Protocol (SNMP) facilitates hands-off monitoring and alerting for critical system metrics, including hardware, performance, and availability. Support for SNMPv1, 2, and 3, along with a comprehensive enterprise-class alert engine, ensures oversight for all system parameters—including hardware, security, performance, and availability.
- Integrated authentication through standard directories (such as Lightweight Directory Access Protocol [LDAP] or Active Directory) and the ability to implement multiple authentication schemes (such as Microsoft NT LAN Manager [NTLM] or Basic) lets enterprises deploy the Cisco IronPort S-Series transparently, while taking advantage of preexisting authentication and access control policies within their networks.
- Extensive logging allows enterprises to keep track of all web traffic, benign and malware-related. Standard log formats include Apache, Squid or Squid-detailed, along with the ability to specify custom log formats consistent with enterprise logging policies.

Specifications

Model	S660	S360	S160
User Targets	5000+	500-5000	< 500
Chassis			
Form Factor	2RU	2RU	1RU
Dimensions	3.5" (h) x 17.5" (w) x 29.5" (d)	3.5" (h) x 17.5" (w) x 29.5" (d)	1.75" (h) x 17.5" (w) x 21.5" (d)
Power Supply	750 watts, 100/240 volts	750 watts, 100/240 volts	345 watts, 100/240 volts
Redundant Power Supply	Yes	Yes	No
Processor, Memory, and Disks			
CPUs	2x4 (2 Quad Cores) XEONS	1x4 (1 Quad Core) XEONS	1x2 (1 Dual Core) Pentium
Memory	8 GB	4 GB	4 GB
Disk Space	6x300 GB SAS	4x300 GB SAS	2x250 GB SATA
Hot Swappable Hard Drives	Yes	Yes	No
RAID	RAID 10, battery-backed 256MB cache	RAID 10, battery-backed 256MB cache	RAID 1, battery-backed 256MB cache
Interfaces			
Ethernet	6xGigabit NICs, RJ-45	6xGigabit NICs, RJ-45	2xGigabit NICs, RJ-45
Serial	1xRS-232 (DB-9) Serial	1xRS-232 (DB-9) Serial	1xRS-232 (DB-9) Serial
Fiber	Optional	No	No
Configuration, Logging, and Monitoring			
Web Interface	GUI-based (HTTP or HTTPS)	GUI-based (HTTP or HTTPS)	GUI-based (HTTP or HTTPS)

Command Line Interface	SSH or Telnet (Configuration Wizard or command-based)	SSH or Telnet (Configuration Wizard or command-based)	SSH or Telnet (Configuration Wizard or command-based)
Logging	Squid, Apache, syslog	Squid, Apache, syslog	Squid, Apache, syslog
Centralized Reporting	Supported	Supported	Supported
File Transfer	SCP, FTP	SCP, FTP	SCP, FTP
Configuration Files	XML-based	XML-based	XML-based
Centralized Configuration	Supported	Supported	Supported
Monitoring	SNMPv1-3, e-mail alerts	SNMPv1-3, e-mail alerts	SNMPv1-3, e-mail alerts

Selected Part Numbers and Ordering Information

The following information pertains to Cisco IronPort bundle offerings. For a-la-carte, government, or educational pricing please contact a Cisco IronPort sales representative at sales@ironport.com.

Note: All bundles include Platinum Support, Rails (4-Post Square), and Sawmill Software for Cisco IronPort URL Filtering, Web Reputation Filters, and Anti-Malware System; the Cisco IronPort Anti-Malware System includes signatures from Webroot and McAfee.

Note the following abbreviations:

URL = URL Filtering; ASPY = Antispyware; WEBREP = Cisco IronPort Web Reputation Filters; AV = Antivirus and antimalware

Single Appliance Bundles (1 Year)		
URL	URL+WREP	URL+WREP+ASPY+AV
WBUN-1A-EN-A-1Y	WBUN-1A-EN-AB-1Y	WBUN-1A-EN-ABC-1Y
Single Appliance Bundles (3 Year)		
URL	URL+WREP	URL+WREP+ASPY+AV
WBUN-1A-EN-A-3Y	WBUN-1A-EN-AB-3Y	WBUN-1A-EN-ABC-3Y
Single Appliance Bundles (5 Year)		
URL	URL+WREP	URL+WREP+ASPY+AV
WBUN-1A-EN-A-5Y	WBUN-1A-EN-AB-5Y	WBUN-1A-EN-ABC-5Y
Dual Appliance Bundles (1 Year)		
URL	URL+WREP	URL+WREP+ASPY+AV
WBUN-2A-EN-A-1Y	WBUN-2A-EN-AB-1Y	WBUN-2A-EN-ABC-1Y
Dual Appliance Bundles (3 Year)		
URL	URL+WREP	URL+WREP+ASPY+AV
WBUN-2A-EN-A-3Y	WBUN-2A-EN-AB-3Y	WBUN-2A-EN-ABC-3Y
Dual Appliance Bundles (5 Year)		
URL	URL+WREP	URL+WREP+ASPY+AV
WBUN-2A-EN-A-5Y	WBUN-2A-EN-AB-5Y	WBUN-2A-EN-ABC-5Y

For More Information

For more information about the Cisco IronPort S-Series Web Security Appliance, visit:
<http://www.cisco.com/web/products/ironport> or <http://www.ironport.com/web>.

Cisco IronPort M-Series Security Management Appliance

The Cisco IronPort M-Series Security Management Appliance complements all of the Cisco IronPort e-mail and web security appliances. By helping ensure top performance for all of your application security gateways, the Cisco IronPort M-Series provides one location for you to monitor all corporate policy settings and audit information. Designed and built as a flexible management tool to centralize and consolidate policy and runtime data, this product can provide a single management interface for all of your organization's Cisco IronPort security appliances. Optional features allow you to run all your security operations from a single appliance, or to spread the load across multiple appliances.

Ideal for Companies That Need These Features

Cisco IronPort M-Series Security Management Appliance

- Top performance from Cisco IronPort email and web security appliances
- A central platform for managing all reporting and auditing information
- Comprehensive visibility into all email traffic
- Flexible management and complete security control at the network gateway
- Deployment flexibility and management to protect corporate network integrity

Key Features

- Each Cisco IronPort M-Series appliance can host one or more of the innovative security management features available from the Cisco IronPort appliance to ease administrator workload.
- The end-user quarantine is a self-service solution, with an easy-to-use web or email-based interface and simple integration into existing directory and mail systems. All operations are automatic and self-managing, so there is no risk of a capacity overload. Most importantly, the Cisco IronPort Spam Quarantine requires no maintenance by the administrator or the end user.
- End users can be authenticated either through a corporate Lightweight Directory Access Protocol (LDAP) directory or with their regular email password for any standards-based Internet Message Access Protocol (IMAP) or point-of-presence (POP) server. Message distribution lists can be managed through one-click authentication from the quarantine message digests.
- Centralized reporting allows for consolidation of traffic data from multiple email security appliances to provide fully integrated security reporting.
- Cisco IronPort third-generation reporting technology provides comprehensive insight into even the highest-volume networks in the world. Detailed and accurate information is coalesced into clear and informative reports, suitable for all levels of your organization.
- Cross-application reporting provides insight into the threats being blocked from inside and outside your network, internal user behavior, and critical content security policy infractions [[is this what you mean? Otherwise, you're saying the reporting provides insight into ... policy]]. You can see which users are sending the most mail, and track policy infractions across any department, site, or communication medium.
- End-to-end communications auditing enables administrators to know where and when a communication took place. They can search message telemetry for multiple email security appliances or request-response data from the web and report the full scanning and delivery details.
- The Cisco IronPort M-Series is a centralized policy and device management system that provides fine-grained role-based and hierarchical access to security and policy settings across hundreds of Cisco IronPort S-Series devices, improving security and reducing management overhead by allowing for delegation of critical policy decisions.
- You can use the Cisco IronPort M-Series appliance to manage quarantines, reporting data, and message tracking information—letting you dedicate your other appliances to mitigating email and web security threats.
- All upgrades and new features are delivered directly from the Cisco IronPort appliance for your approval, and then automatically installed and managed.

Specifications

Chassis	IronPort M1060	IronPort M660	IronPort M160
Form Factor	19" rack-mountable 2RU rack height	19" rack-mountable 2RU rack height	19" rack-mountable 2RU rack height
Dimensions	3.5" (h) x 17.5" (w) x 29.5" (d)	3.5" (h) x 17.5" (w) x 29.5" (d)	1.75" (h) x 17.5" (w) x 21.5" (d)
Power Supply	750 watts, 100/240 volts	750 watts, 100/240 volts	345 watts, 100/240 volts
Processor, Memory, and Disks			
CPUs	2x4 (Quad Cores) Intel XEON	2x4 (Quad Core) Intel XEON	1x2 (Dual Core) Intel XEON
Disk Space	3 TB	1.8 TB	500 GB
RAID	RAID 10, battery-backed 256MB cache	RAID 10, battery-backed 256MB cache	RAID 1, battery-backed 256MB cache
Interfaces			
Ethernet	3xGigabit NICs, RJ-45	3xGigabit NICs, RJ-45	2xGigabit NICs, RJ-45
Fiber	Yes	No	No
Web Interface	GUI-based (HTTP or HTTPS)	GUI-based (HTTP or HTTPS)	GUI-based (HTTP or HTTPS)

Selected Part Numbers and Ordering Information

The following information pertains to Cisco IronPort bundle offerings. For a-la-carte, government, or educational pricing please contact a Cisco IronPort sales representative at sales@ironport.com.

Cisco IronPort Security Reporting Bundle

This bundle is for e-mail only.

- All new deals include a Cisco IronPort M160 Security Management Appliance
- All bundles include the following licenses for up to two E-mail Security Appliances
 - IronPort spam quarantine
 - Centralized e-mail reporting
 - Centralized message tracking
- All bundles include platinum support and rails (4-post square)
- For 5-year bundle contracts only—If IronPort, in its sole discretion, creates a new version or upgrade that is delivered to customer as part of the support and maintenance program and the software specifically licensed by the customer is incompatible with the IronPort hardware the customer uses to run the software, IronPort will upgrade the customer's incompatible hardware at no additional charge.

New Deals (1 Year)		
SKU	ISQ + Reporting + Tracking	Users
MBUN-1A-EN-ABC-1K-1Y	5000.00	100 to 999
MBUN-1A-EN-ABC-2K-1Y	11,675.00	1000 to 2000
New Deals (3 Years)		
SKU	ISQ + Reporting + Tracking	Users
MBUN-1A-EN-ABC-1K-3Y	9000.00	100 to 999
MBUN-1A-EN-ABC-2K-3Y	21,000.00	1000 to 2000
New Deals (3 Years)		
SKU	ISQ + Reporting + Tracking	Users
MBUN-1A-EN-ABC-1K-3Y	9000.00	100 to 999

Security Management Appliances	
M1050-BUN-R-NA	Cisco IronPort M1050, Standard Configuration
M650-BUN-R-NA	Cisco IronPort M650, Standard Configuration
M1060-BUN-R-NA	Cisco IronPort M1060, Standard Configuration
M660-BUN-R-NA	Cisco IronPort M660, Standard Configuration
M160-BUN-R-NA	Cisco IronPort M160, Standard Configuration
M1050-BUN-S-NA	Cisco IronPort M1050, Spare Unit (production unit required)
M650-BUN-S-NA	Cisco IronPort M650, Spare Unit (production unit required)
M1060-BUN-S-NA	Cisco IronPort M1060, Spare Unit (production unit required)
M660-BUN-S-NA	Cisco IronPort M660, Spare Unit (production unit required)
M160-BUN-S-NA	Cisco IronPort M160, Spare Unit (production unit required)
M1050-BUN-U-NA	Cisco IronPort M1050, Refurbished Unit
M650-BUN-U-NA	Cisco IronPort M650, Refurbished Unit

For More Information

For more information about the Cisco IronPort M-Series Security Management Appliance, visit:
<http://www.cisco.com/en/US/products/ps10155/index.html> or <http://www.ironport.com/management>.

Cisco ACE Web Application Firewall

Companies are increasing efficiency and profitably with the implementation of new Web 2.0 and service-oriented-architecture (SOA) application solutions. Unfortunately, criminals are increasingly exploiting these applications for identity theft, data theft, application disruption, and fraud, accelerating compliance efforts focused on application security as seen with the PCI DSS (Payment Card Industry Data Security Standard) 1.1 mandate.

The Cisco ACE Web Application Firewall provides full compliance with the latest PCI requirements. It combines deep Web application analysis with high-performance Extensible Markup Language (XML) inspection and management to address the full range of threats associated with Web application services. The result is dramatically reduced business exposure to attacks on modern mission-critical applications, protection of sensitive customer and corporate information, and enhanced availability.

Ideal for Companies That Need These Features

- Cisco ACE Web Application Firewall**
- A firewall with deep web application analysis with high-performance XML inspection
 - Compliance with sections 6.5 and 6.6 of the PCI DSS (Payment Card Industry Data Security Standard) 1.1 standard
 - A comprehensive Layer 7 security solution to complement existing network firewalls (for customers hosting web applications)

Key Features

- **Secure**—Built upon a proven understanding of XML, Cisco ACE WAF secures and protects Web applications from common attacks such as identity theft, data theft, application disruption, fraud, and targeted attacks.
- **Scalable**—With gigabit throughput, unparalleled support for concurrent transactions, and the ability to scale to the largest of data centers, Cisco ACE WAF enables uninterrupted collaboration in high-paced environments with fewer appliances to store and manage.
- **Simple**—With centralized enterprise-ready management, including pre-defined compliance and security profiles, Cisco ACE WAF can be simply deployed and easily managed, even with no prior application experience.
- **Compliant**—With out-of-the-box PCI customizable policies, Cisco ACE WAF allows you to protect your back-end databases and demonstrate compliance through securing, auditing, and reporting on web application activity.

Specifications

Feature	Cisco ACE Web Application Firewall
Transport Security	Full SSL v2/3 support with configurable cipher suites; FIPS 140-2 Level 3 platforms available
Cryptographic Support	Cryptographic algorithms including—Advanced Encryption Standard (AES); Data Encryption Standard (DES); Triple DES (3DES); Blowfish; RSA; Diffie-Hellmann; Digital Signature Algorithm (DSA); Secure Hash Algorithm 1 (SHA-1) and Message-Digest 5 (MD5)
Web Application Security	Full reverse proxy; Monitor mode deployment; Buffer overflow; HTTP parameter manipulation, Protocol compliance; Null byte blocking; Input encoding normalization; Response filtering and rewriting; Flexible firewall actions; Cookie and session tampering; Cross-site scripting (XSS); Command injection, SQL injection; Privacy enforcement by preventing information leak; Cryptography enforcement; Application and server error message cloaking; Referrer enforcement; Positive and negative security models; Custom rules and signatures; PCI compliance profiles
Administration	Web user interface; Command-line interface; SSH; Simple Network Management Protocol (SNMP); Roles-based access control (RBAC); Delegated administration; Central policy management and distributed enforcement; Import and export of configuration, statistics, and logs
Logging, Monitoring, and Auditing	Syslog and message and event logs; Traffic and service-level agreement (SLA) monitoring and reporting; Statistics for monitoring and various alerts and triggers; Audit trail of administrative operations

Selected Part Numbers and Ordering Information

Part Number	Product Name	Product Options	Support and Services
ACE-XML-K9 or ACE-XML-NF-K9	Cisco ACE Web Application Firewall Appliance	Chassis	CON-SNT-ACEXK9 or CON-SNT-ACEXNK9
ACE-XML-SW-6.0	Cisco ACE Web Application Firewall Software	Software	-
ACE-XML-FIPS or ACE-XML-NONFIPS	FIPS-compliant SSL acceleration or Non-FIPS-compliant SSL acceleration	Cryptography	CON-SNT-ACEXFIPS or CON-SNT-ACEXNFIP
ACE-WAF-GAT-LICFX or ACE-WAF-MGT-LICFX	Cisco ACE Web Application Firewall license or Cisco ACE Web Application Firewall Manager license	Licensing	CON-SAU-ACEWGW or CON-SAU-ACEWMG

For More Information

For more information about the Cisco ACE Web Application Firewall, visit: <http://www.cisco.com>.

Cisco Security Manager

Cisco Security Manager is an enterprise-class management application designed to configure firewall, VPN, and intrusion prevention system (IPS) security services on Cisco network and security devices. Cisco Security Manager can be used in networks of all sizes—from small networks to large networks consisting of thousands of devices—by using policy-based management techniques. Cisco Security Manager works in conjunction with the Cisco Security Monitoring, Analysis, and Response System (Cisco Security MARS). Used together, these two products provide a comprehensive security management solution that addresses configuration management, security monitoring, analysis, and mitigation.

Ideal for Companies That Need These Features

- Cisco Security Manager
- Scalable network management of centrally-provisioned Cisco firewalls, VPNs, and IPSs
 - Multi-product, multi-technology security provisioning for a unified management system
 - Configuration wizards to reduce complexity
 - Enhanced visibility through customized views: Device, Groups, and Topology
 - Advanced decision-support workflow

Key Features

- Cisco Security Manager provides a single integrated application for managing firewall, VPN, and intrusion-prevention-system (IPS) security services on Cisco security appliances and modules, routers, and switches.
- The solution reduces operational expenses while at the same time improving provisioning accuracy and consistency.
- The solution collaborates with Cisco Security Monitoring, Analysis and Response System (MARS) to form a comprehensive security management solution encompassing security provisioning, event monitoring, threat detection, and mitigation.
- The solution allows faster response to threats; it defines and assigns new security policies to thousands of devices in a few simple steps.
- Cisco Security Manager provides superior ease of use with a rich GUI.
- It supports true enterprise-class operational environments with support for multiple simultaneous security administrators with fine-grained control of access permissions; an optional “workflow” mode allows the security and network operations staff to work together effectively with the appropriate division of responsibilities.
- The solution supports provisioning for Cisco router platforms running a Cisco IOS Software security software image, Cisco ASA 5500 Series Adaptive Security Appliances, Cisco PIX security appliances, Cisco IPS 4200 Series Sensors, Cisco Catalyst 6500 Series/7600 Series with security services modules, and Cisco Catalyst 3000 and 4000 Series Switches.

Specifications

Server Requirements	
System hardware	IBM PC-compatible with a 2-GHz or faster processor; Color monitor with at least 1024 x 768 resolution and a video card capable of 16-bit colors; DVD-ROM drive; 100Base-T (100 Mbps) or faster network connection; single interface only; Keyboard and mouse
File system	NTFS
Memory (RAM)	2 GB
System Software ¹	Microsoft Windows 2003 Server—Enterprise Edition with SP1; Standard Edition with SP1; Microsoft Windows 2000—Advanced Server with SP4; Server with SP4; Professional with SP4
Browser	Microsoft Internet Explorer 6.0 (6.0.2600); or with SP1 (6.0.2800); Mozilla 1.7 or 1.7.5
Compression software	WinZip 9.0 or compatible
Hard drive space	20 GB
IP Address ²	One static IP address
Component	Minimum requirement
Client requirements	
System hardware	IBM PC-compatible with a 1-GHz or faster processor; Color monitor with video card set to 24-bit color depth; Keyboard; Mouse
Memory (RAM)	1 GB
Virtual memory/swap space	512 MB
Hard drive space	10 GB

Operating system¹	Microsoft Windows XP Professional with SP1 or higher; Microsoft Windows 2003—Server Edition with SP1; Enterprise Edition with SP1; Microsoft Windows 2000—Advanced Server with SP4; Professional with SP4
Browser	Microsoft Internet Explorer 6.0 (6.0.2600); or with SP1 (6.0.2800); Mozilla 1.7 or 1.7.5
Java³	Includes an embedded and completely isolated version of Java
Optional virtualization software	VMWare ESX Server 3.5

1. Supports only the U.S. English and Japanese versions of Windows. CS Manager does not support any other language version. Server only: Microsoft ODBC Driver Manager 3.510 or later is also required to work with Sybase database files.
2. If the server has more than one IP address, disable all but one address. The CS Manager installer displays a warning if it detects any dynamic IP addresses on the target server. Dynamic addresses are not supported.
3. Opening IPS Manager without required version of Java results in CS Manager server displaying a message to install the required Java version. This Java version does not interfere with browser settings or with other Java-based applications.

Selected Part Numbers and Ordering Information

Product Part Number	Product Description	Software Application Support (SAS) Service (to receive technical support and future minor software updates)
CSMST5-3.3-K9	Cisco Security Manager 3.3 Enterprise Edition Standard-5 Media Kit: 5-device limit	CON-SAS-CSM33M5
CSMST25-3.3-K9	Cisco Security Manager 3.3 Enterprise Edition Standard-25 Media Kit: 25-device limit	CON-SAS-CSM33SM
CSMPR50-3.3-K9	Cisco Security Manager 3.3 Enterprise Edition Professional-50 Media Kit: 50-device base license	CON-SAS-CSM33P50
CSMPR-LIC-50	Cisco Security Manager Enterprise Edition Professional: Incremental 50-device license	CON-SAS-CSMPRI50
CSMPR-LIC-100	Cisco Security Manager Enterprise Edition Professional: Incremental 100-device license	CON-SAS-CSMPRI1C
CSMPR-LIC-500	Cisco Security Manager Enterprise Edition Professional: Incremental 500-device license	CON-SAS-CSMPRI5C
CSMPR-LIC-1000	Cisco Security Manager Enterprise Edition Professional: Incremental 1000-device license	CON-SAS-CSMPRI1K
CSMST-PR-U-3.3-K9*	Cisco Security Manager Enterprise Edition Upgrade from Standard-25 to Professional-50	CON-SAS-CSMPRU33
CSMST5-3.3-MR-K9**	Cisco Security Manager 3.3 Enterprise Edition Standard-5 Minor Upgrade Media Kit	CON-SAS-CSM33MU5
CSMST25-3.3-MR-K9**	Cisco Security Manager 3.3 Enterprise Edition Standard-25 Minor Upgrade Media Kit	CON-SAS-CSM33MR
CSMPR50-3.3-MR-K9**	Cisco Security Manager 3.3 Enterprise Edition Professional-50 Minor Upgrade Media Kit	CON-SAS-CSM33MRK

* There is no upgrade part number provided to upgrade from Cisco Security Manager Standard-5. However, you can combine an existing Standard-5 license with a new Standard-25 or Professional-50 license on the same server. The result is Standard-30 or Professional-55, respectively.

** The minor release upgrade kits do not include a Cisco Security Manager license and require the use of your previously obtained Cisco Security Manager 3.1 or 3.2 license.

For More Information

For more information about Cisco Security Manager, visit: <http://www.cisco.com/go/csmanager>.

Cisco Security Monitoring, Analysis, and Response System (MARS)

Cisco Security Monitoring, Analysis and Response System (MARS) is a family of high-performance, scalable appliances for threat management, monitoring, and mitigation that enable customers to make more effective use of network and security devices by combining traditional security event monitoring with network intelligence, context correlation, vector analysis, anomaly detection, hotspot identification, and automated mitigation capabilities. By combining network intelligence, an understanding of network topology, and automated mitigation capabilities, Cisco Security MARS helps companies accurately identify and eliminate network attacks while maintaining network compliance.



Ideal for Companies That Need These Features

- | | |
|--|--|
| Cisco Security MARS 25;
Cisco Security MARS 25R | <ul style="list-style-type: none">• Low-end device to plot network topology and gain insight into network topology• Ideal for small offices, test labs, departments, small retail establishments, DMZs, and CPE |
| Cisco Security MARS 55 | <ul style="list-style-type: none">• Consolidation of firewall and intrusion detection system (IDS) with network events and network flows in a small network• Ideal for small to medium-sized offices, remote branch offices, retail establishments, small businesses, DMZs, and CPE |
| Cisco Security MARS 110 | <ul style="list-style-type: none">• Ideal for second-generation appliances for large offices and CPE |
| Cisco Security MARS 110R | <ul style="list-style-type: none">• Ideal for large enterprises, central offices, and large firewalls |
| Cisco Security MARS 210 | <ul style="list-style-type: none">• Ideal for second-generation appliances for large enterprises, central offices, and large firewalls (FWSMs) |
| Cisco Security MARS GC; | <ul style="list-style-type: none">• Ideal for large distributed environments and multiservice switching platforms (MSSPs). |
| Cisco Security MARS GC2 | <ul style="list-style-type: none">• Useful for autonomous business units that are rolling activities to global teams and for state and federal governments for consolidating activities from various agencies |

Key Features

- Centralized monitoring—Cisco Security MARS provides detailed information about the network infrastructure, including routers, switches, firewalls, VPN concentrators, and endpoint devices, through a variety of device logs, alerts, and NetFlow communication. It also provides process threat information down to the IP and MAC address, nearest attached switch port, as well as the attack path through the network.
- Central event repository—The central event repository serves as a central repository for all events generated by security devices, such as firewalls, authentication servers, network intrusion prevention systems (IPSs) and intrusion detection systems (IDSs) and proxy servers. All collected events are cross-correlated in real time.
- Data reduction—Cisco Security MARS can reduce millions of security events to a handful of actual reported network incidents.
- Timely attack mitigation—Built-in expertise recognizes and recommends mitigation for attacks before they can bring down an entire network.
- End-to-end network awareness—The application integrates Network Address Translation (NAT), Port Address Translation (PAT), and MAC address information to identify attackers, targets, and network hotspots in graphical form for quick action. It uses the full configurations of all types of network devices and end systems. Pre- and post-NAT addresses can be displayed.
- Integrated vulnerability assessment—This solution determines whether a possible network attack is genuine or a false positive, reducing the number of alarms and the time needed to take action.
- Reduced deployment and operation cost—Cisco Security MARS discovers and then maps the topology of a network and becomes operational in a very short period of time.
- Standard 802.1x support—The application facilitates authentication of a host connecting to the switch port before obtaining an IP address.
- Cisco Distributed Threat Mitigation (DTM) and CICS support—This collaborative solution proactively identifies the most active signatures from the IPS appliance deployed in the network and, based on the most active threats detected on the network, distributes the same IPS signatures to the user-defined Cisco IOS IPS devices.
- Case management—Administrators can escalate an incident by creating a case and forwarding the case with notes to other users and security administrators.
- NetFlow analysis—Cisco IOS NetFlow data is collected and analyzed by Cisco Security MARS, at speeds as high as 300,000 flows per second.

Specifications

Feature	CS-MARS-25R-K9	CS-MARS-25-K9	CS-MARS-55-K9	CS-MARS-110-K9
Storage	120 GB (non-RAID)	120 GB (non-RAID)	240 GB RAID 0	1500 GB RAID 10 Hot-swappable
Form Factor	1RU x 16	1RU x 16	1RU x 25.6	2RU x 27 3/4" (D); 3.44" (H); 19" (W)
Power Supply	300W, 120/240V autoswitch	300W, 120/240V autoswitch	300W, 120/240V autoswitch	2 x 750W dual-redundant 120/240V autoswitch
Performance				
Events/sec.	50	500	1000	7500
Netflows/sec.	1500	15,000	30,000	150,000
Feature	CS-MARS-210-K9	CS-MAR-GC-K9	CS-MARS-GC2-K9	
Storage	2000 TB RAID 10 Hot-swappable	1 TB RAID 10 Hot-swappable	2 TB RAID 10 Hot-swappable	
Form Factor	2 RU x 27 3/4" (D); 3.44" (H); 19" (W)	4RU x 25.6	2 RU x 27 3/4" (D); 3.44" (H); 19" (W)	
Power Supply	2 x 750W dual-redundant 120/240V autoswitch	500W dual-redundant 120/240V autoswitch	2 x 750W dual-redundant 120/240V autoswitch	
Events/sec.	15,000			
Netflows/sec.	300,000			
Maximum Connections		Not restricted	Not restricted	

Selected Part Numbers and Ordering Information

Cisco SMARTnet Service Part Number		
CS-MARS-25R-K9	CON-SNT-MARS25R	Cisco Security MARS 25R
CS-MARS-25-K9	CON-SNT-MARS25	Cisco Security MARS 25
CS-MARS-55-K9	CON-SNT-MARS55	Cisco Security MARS 55
CS-MARS-110R-K9	CON-SNT-MARS110R	Cisco Security MARS 110R
CS-MARS-110-K9	CON-SNT-MARS110	Cisco Security MARS 110
CS-MARS-210-K9	CON-SNT-MARS210	Cisco Security MARS 210
CS-MARS-GC2R-K9	CON-SNT-MARSGC2R	Cisco Security MARS GC2R
CS-MARS-GC2-K9	CON-SNT-MARSGC2	Cisco Security MARS GC2

For More Information

For more information about Cisco Security MARS, visit: <http://www.cisco.com/en/US/products/ps6241/index.html>.

Cisco Secure Access Control System 5.0

Cisco Secure Access Control System (ACS) 5.0 is a next-generation platform for centralized control of network access policy and identity. ACS 5.0 features a simple yet powerful, rule-based policy model and a new, intuitive management interface designed for optimum control and visibility. Cisco ACS plays an important part of numerous Cisco solutions including, Cisco Virtual Office (CVO), Cisco PCI Compliance solution, Cisco Network Admission Control (NAC), and many more.

Cisco Secured ACS 5.0 provides:

- New rule-based policy model with added flexibility and manageability needed to meet evolving access policy needs.
- Integrated monitoring, reporting, and troubleshooting features for simplified management and increased compliance.

- Improved integration capabilities and distributed deployment support makes it the ideal network identity and access policy solution.
- Device administration—Authenticates administrators, authorizes commands, and provides an audit trail.

ACS 5.0 currently supports many but not all access scenarios. ACS 4.2 will continue to be available for customers that require it.

Key Features

Cisco Secure ACS 5.0 is the initial release of Cisco's next-generation network identity and access solution. It is a Policy Administration Point (PAP) and Policy Decision Point (PDP) for policy-based access control. This release delivers major new functionality, including:

- Powerful, attribute-driven rules-based policy model that addresses complex policy needs in a flexible manner
- Lightweight, web-based graphical user interface (GUI) with intuitive navigation and workflow
- Integrated advanced monitoring, reporting, and troubleshooting capabilities for maximum control and visibility
- Improved integration with external identity and policy databases including Windows Active Directory and Lightweight Directory Access Protocol (LDAP)-accessible databases simplifies policy configuration and maintenance
- Distributed deployment model that enables large scale deployments

The Cisco Secure ACS 5.0 rules-based policy model supports the application of different authorization rules under different conditions, and thus policy is contextual and not limited to authorization determined by single group membership. New integration capabilities allow information in external databases to be directly referenced in access policy rules, and attributes can be used both in policy conditions and authorization rules.

Cisco Secure ACS 5.0 features centralized collection and reporting for activity and system health information for full manageability of distributed deployments. It supports proactive operations such as monitoring and diagnostics and reactive operations such as reporting and troubleshooting. Advanced features include a deployment-wide session monitor, threshold-based notifications, entitlement reports, and diagnostic tools.

Specifications

Cisco Secure ACS 5.0 is available as a one rack-unit (1RU), security-hardened, Linux-based appliance with preinstalled Cisco Secure ACS software or as a software application and operating system image for installation on VMWare ESX 3.5.

Feature	Cisco Secure Access Control System 5.0
CPU	Intel E6400 Core2 Duo @ 2.13GHz; 2MB Level 2 cache
Frontside bus	1066 MHz
System memory	4GB, PC2-5300 DDR2 SDRAM, ECC
Hard disk drive	2 x 250GB SATA
Optical storage	DVD-ROM
Network connectivity	2 onboard 10/100/1000, RJ-45 connectors
I/O ports	1 Serial Port, 3 USB 2.0 (1 front, 2 rear), keyboard (PS/2), mouse (PS/2)
Rack-mounting	4 post (kit included)
Physical dimensions (1RU)	<ul style="list-style-type: none"> • 4.3 (W) x 50.8 (D) x 43.2 (H) cm • 1.70 (W) x 20 (D) x 1.7 (H) in.
Power	
Maximum power consumption	<ul style="list-style-type: none"> • 350W (maximum output, power supply rating) • 540W (maximum input, power supply rating)
Input low range	90 to 127 (nominal) VAC; 47-63 Hz
Input high range	180 to 264 (nominal) VAC; 47-63 Hz
Environmental	
Air temperature - Server on	50 to 95°F (10 to 35°C)
Air temperature - Server off	104 to 158°F (-40 to 70°C)
Altitude	2000m at 40C

Humidity (nonoperating)	95 percent, noncondensing at +35°C
Cooling system	2 blowers, 1 40mm fan, 1 air shroud

Selected Parts and Ordering Information

CSACS-1120-K9	Cisco Secure 1120 Appliance with ACS 5.0 pre-installed and base license
CSACS-5.0-IENVM-K9	Cisco Secure ACS 5.0 Virtual appliance software for VMWare ESX with base license
CSACS-5-MON-LIC=	Cisco Secure ACS 5.0 Advanced Monitoring and Reporting add-on license (enables session directory, threshold alerting, connectivity/troubleshooting tools and up to 12 months data collection)
CSACS-5-LRG-LIC=	Cisco Secure ACS 5.0 Large Deployment add-on license
CSACS-1120-UP-K9	ACS 1120 Appliance And 5.0 SW Upgrade From 1113 Appliance
CSACS-5.0-VM-UP-K9	ACS 5.0 VMware ESX Upgrade From 1113 Appliance
CSACS-1120-K9 CSACS-1120-UP-K9	Cisco Secure 1120 Appliance with ACS 5.0 pre-installed: <ul style="list-style-type: none"> • ACS 5.0 Appliance and hardware accessory kit (cables, adapters) • ACS 5.0 CD • ACS 5.0 Documentation Guide • ACS 4.x software CD (3) for data migration • ACS 4.2 software DVD for 1120 appliance (for customers that want to run 4.2 on 1120) • ACS 4.2 Documentation Guide • Software claim/licensing certificates
CSACS-5.0-IENVM-K9 CSACS-5.0-VM-UP-K9	Cisco Secure ACS 5.0 Virtual appliance software for VMWare ESX: <ul style="list-style-type: none"> • ACS 5.0 CD • ACS 5.0 Documentation Guide • ACS 4.x software CD (3) for data migration • Software claim/licensing certificates
CSACS-4.2SW1120-K9	<ul style="list-style-type: none"> • ACS 4.2 software DVD for 1120 appliance (for customers that want to run 4.2 on 1120) • ACS 4.2 Documentation Guide
CSACS-5-MON-LIC=	Cisco Secure ACS 5.0 Advanced Monitoring and Reporting add-on license: <ul style="list-style-type: none"> • Software claim/licensing certificates
CSACS-5-LRG-LIC=	Cisco Secure ACS 5.0 Large Deployment add-on license: <ul style="list-style-type: none"> • Software claim/licensing certificates

For More Information

For more information about the Cisco Secure ACS 5.0, visit: <http://www.cisco.com/go/acs>.

Cisco Secure Access Control System (ACS) Express 5.0

Ideal for the small or medium enterprise, Cisco Secure ACS Express 5.0 is an entry-level RADIUS and TACACS+ authentication, authorization, and accounting (AAA) system.

It packs a lot of punch into a relatively economic and easy to use package. ACS Express supports both network access and device administration (RADIUS and TACACS+).

The solution offers broad authentication protocol support and integral support for internal and external authentication databases. ACS Express is aimed for retail and enterprise branch-office deployments and small and medium-sized businesses (SMBs) with fewer than 350 users and 50 devices.

Ideal for Companies That Need These Features

- Cisco Secure ACS Express 5.0**
- An access control solution for fewer than 350 users and 50 devices
 - Streamlined GUI and management for SMB or branch-office deployments

Key Features

- Ease of use and low complexity helps organizations quickly set up and deploy an identity solution in their organizations.
- Cisco Secure ACS Express offers a simplified yet comprehensive access policy that allows the definition of multiple profiles for network access, wireless access, remote access, and device administration transparently.
- Cisco Secure ACS Express supports Active Directory, Lightweight Directory Access Protocol (LDAP), and one-time password (OTP) servers that allow deployments to integrate with customers' user repositories.

- Cisco Secure ACS Express supports a wide array of access protocols such as RADIUS, Extensible Authentication Protocol (EAP), and TACACS.
- Cisco Secure ACS Express can be upgraded and patched remotely.
- Cisco Secure ACS Express can be securely administered from the Web GUI (HTTPS) or through the scriptable command-line interface (CLI).

Specifications

Processor	Intel 352 Celeron D
Memory	1 GB RAM
Hard drive	250 GB
Optical Drive	DVD-ROM
Interfaces	Two onboard 10/100/1000 Ethernet NIC ports

Selected Part Numbers and Ordering Information

CSACS-5.0-EXP-K9	Cisco Secure ACS Express 5.0 appliance
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For More Information

For more information about the Cisco Secure ACS Express, visit: <http://www.cisco.com/en/US/products/ps8543/index.html>.

Cisco Secure Access Control System (ACS) 4.2 (For Windows)

Cisco Secure Access Control Server (ACS) 4.2 is an access policy control platform that helps you comply with growing regulatory and corporate requirements. Packing powerful performance, scalable and distributed deployment capabilities, and versatile operation, Cisco Secure ACS provides the key building block for almost any network access and identity strategy. Cisco Secure ACS 4.2 comes with a built-in support for multiple scenarios operating in tandem, including:

- Device administration—Authenticates administrators, authorizes commands, and provides an audit trail.
- Remote Access—Works with VPN and remote network access devices to enforce access policies
- Wireless—Authenticates and authorizes wireless users and hosts and enforces wireless-specific policies
- Network admission control—Communicates with posture and audit servers to enforce admission control policies

Cisco Secure ACS 4.2 for Windows is a software product to be installed by the customer. Cisco ACS 4.2 also comes in a ready-to-use appliance version with pre-installed software: Cisco Secure Access Control System Solution Engine (or ACS SE). For more information, see “Selected Part Numbers and Ordering Information” on page 41.

Ideal for Companies That Need These Features

Cisco Secure Access Control Server (ACS) 4.2	<ul style="list-style-type: none"> • Centralized access policy management for network resources • Management of network access for wired and wireless connections • Management of administrative access for network devices • Management of remote access • RADIUS or TACACS+ services • Accounting and log information for audit, planning, troubleshooting, or billing • 802.1x machine authentication
Cisco Secure ACS Solution Engine	<ul style="list-style-type: none"> • A dedicated, security-hardened, application-specific appliance package • Ideal for customers not willing to install or manage a Windows OS environment

Key Features

Cisco Secure Access Control Server (ACS) 4.2

- Cisco Secure ACS 4.2 supports two distinct protocols for authentication, authorization, and accounting (AAA): RADIUS and TACACS+ for the concurrent support of network access and network device access control.
- Cisco Secure ACS provides an onboard database while supporting Windows Active Directory, Lightweight Directory Access Protocol (LDAP), and Open Database Connectivity (ODBC) for integration with existing user databases. Support for RSA SecurID Authentication Manager and RADIUS-enabled token servers allows integration of strong authentication.
- Cisco Secure ACS supports a wide range of authentication protocols, including Password Authentication Protocol (PAP), Challenge Handshake Authentication Protocol (CHAP), Microsoft CHAP (MS-CHAP), Extensible Authentication Protocol-Message Digest algorithm 5 (EAP-MD5), EAP-Generic Token Card (EAP-GTC), Cisco LEAP, Protected EAP (PEAP), EAP-Flexible Authentication via Secure Tunneling (EAP-FAST), and EAP-Transport Layer Security (EAP-TLS) to support all authentication requirements.

- Cisco Secure ACS allows the configuration of complex network access policies that may include authentication protocol requirements, device restrictions, time-of-day restrictions, posture validation, and other access requirements. Cisco Secure ACS may apply downloadable access control lists (dACLs), VLAN assignments, and other authorization parameters.
- Cisco Secure ACS replication allows replication of administrator-defined configuration items across ACS Systems in the network, providing both flexibility and ease of administration for large networks.
- Cisco Secure ACS logs are viewable and exportable for use in other systems.

Cisco Secure ACS Solution Engine

- Dedicated ACS-only server; all appliance-based OS changes, additions, or configuration modifications are denied.
- Solution engine-specific management tools for generic appliance-management capabilities including backup, recovery, software upgrades, monitoring, maintenance, and troubleshooting functions.
- The solution provides authentication against Windows domains and remote logging capabilities of user accounting records.
- Built-in Network Time Protocol (NTP) functions maintain network timing synchronization and consistency with other Cisco Secure ACS appliances or network devices.

Specifications

Cisco Secure Access Control Server (ACS) 4.2	
Hardware Requirements	<ul style="list-style-type: none"> • IBM PC compatible with Pentium IV processor, 1.8 GHz or faster • 1GB RAM minimum • Color monitor with minimum graphics resolution of 256 colors at 800 x 600 resolution • CD-ROM drive • 100BaseT or faster network connection
OS Requirements	Windows Server 2003, R2, Service Pack 2
Cisco ACS Secure Solution Engine	
Processor	Pentium IV, 3.4 GHz
Memory	1 GB RAM
Hard drive	120 GB SATA
Optical Drive	CD/DVD combo
Interfaces	Two integrated 10/100/1000 Ethernet ports

Selected Part Numbers and Ordering Information

Cisco Secure Access Control Server (ACS) 4.2	
CSACS-4.2-WIN-K9	Cisco Secure ACS for Windows 4.2
CSACS-4.2-WIN-MR-K9	Upgrade to Cisco Secure ACS 4.2 for Windows from version 4.0 or 4.1
CSACS-4.2-WINUP-K9	Upgrade to Cisco Secure ACS 4.2 for Windows from version 3.x
Cisco Secure ACS 4.2 Solution Engine	
CSACSE-1113-K9	Cisco Secure ACS Solution Engine 4.2; includes Cisco 1113 hardware platform and Cisco Secure ACS Software 4.2
CSACSE4.2-SW-MR-K9	Cisco Secure ACS software upgrade to 4.2 for existing Cisco Secure ACS Solution Engine customers (1112 or 1113 appliances) with 4.0 or 4.1 software
CSACSE-4.2-SWUP-K9	Cisco Secure ACS software upgrade to 4.2 for existing Cisco Secure ACS Solution Engine customers (1112 or 1113 appliances) with 3.x software
CSACSE-1113-UP-K9	Upgrade for customers using Cisco Secure ACS for Windows, or Cisco ACS Solution Engine 1111/1112 platform to the Cisco Secure ACS Solution Engine 4.2; includes Cisco 1113 hardware platform and Cisco Secure ACS Software 4.2

For More Information

For more information about Cisco Secure ACS for Windows, visit:
<http://www.cisco.com/en/US/products/sw/secursw/ps2086/index.html>.

Cisco Secure Access Control System View 4.0

Cisco Secure ACS View 4.0 (ACS View) is a dedicated reporting, monitoring, and troubleshooting appliance designed to work with Cisco Secure ACS 4.x installations.

ACS View is designed to provide the highest levels of control and compliance making it an ideal choice for organizations that require the greatest levels of reporting and control, or for any other enterprise wishing to upgrade visibility to the usage of corporate resources.

- Cisco Secure ACS View provides:
- Aggregate views of system activity at the transaction level for both network access and device administration
 - Comprehensive view of network monitoring and planning, access problem detection and troubleshooting, and entitlement and compliance reporting
 - Web-based user interface that simplifies generating and accessing predefined and custom reports
 - Alert capabilities with thresholds and triggers on authentication activity for early detection of abnormal operation or trends.

Ideal for Companies That Need These Features

- Cisco Secure ACS View 4.0 (ACS View)**
- Enhanced reporting, monitoring, and troubleshooting for Cisco Secure ACS
 - Aggregation of reporting, alerts and monitoring data from multiple Cisco Secure ACS installations
 - Configurable thresholds and custom reporting tools all accessible from an easy to master GUI

Key Features

- The Cisco Secure ACS View dashboard provides quick access to favorite queries, generated reports, and alerts. The interactive viewer allows on-demand formatting, filtering, and sorting of generated reports to maximize the value of the information.
- Cisco Secure ACS View collects syslog messages from individual ACS servers or the central logging ACS server and has access to near-real time data without affecting the performance of the ACS deployment.
- Predefined authentication reports, session reports, device administration reports, configuration reports, and ACS administration reports provide Cisco Secure ACS View with ready-to-use functions.
- Cisco Secure ACS View includes a report design tool that allows you to pick and choose the data needed, group and aggregate data as required, and present the results in tabular and graphical form. It provides the flexibility to build queries and reports as required to meet organizational needs.
- Cisco Secure ACS View provides reports to assist in troubleshooting access problems. User authentication status and user account status are quickly available, and the customizable authentication failure code utility lists possible root causes and recommendation actions for resolution.
- User-defined alerts can be used to monitor authentication activity, device administration command activity, ACS server administration activity, ACS server backup and replication operations, and ACS server process status. System-defined threshold alerts monitor Cisco Secure ACS View system resources.

Specifications

Feature	Cisco Secure ACS View 4.0
Processor	Intel Core 2 Duo 2.13 Ghz
Memory	4 GB RAM
Hard drive	500 GB SATA
Optical Drive	DVD-ROM
Interfaces	Two onboard 10BASE-T/100BASE-TX/1000BASE-T Ethernet NIC ports

Selected Part Numbers and Ordering Information

CSACS4.0-VIEW-K9	Cisco Secure ACS View appliance with ACS View 4.0 software and license for managing two ACS systems (version 4.1.4 or 4.2 required)
CSACS4.0-VIEWLIC	License for managing an additional ACS system with Cisco Secure ACS View 4.0

For More Information

For more information about Cisco Secure ACS View, visit: <http://www.cisco.com/en/US/products/ps9302/index.html>.

Cisco Enterprise Policy Manager 3.3 (EPM)

Cisco Enterprise Policy Manager (EPM) 3.3 is a feature-rich, XACML-based policy management and authorization product that helps secure enterprise applications and data. Cisco EPM externalizes policy decision from individual-siloed applications, collaboration services, and data bases into a new entitlement layer shared by all. The Cisco EPM centralized application entitlement approach enables organizations to have secured and differentiated access to sensitive applications and information throughout the enterprise.

Cisco EPM 3.3 is packed with innovative, fine-grained controls, exceptional policy visibility, and excellent application and infrastructure support. Our newest 3.3 release also comes with improved performance, richer policy expressions, and better usability, allowing organizations to better meet their security and compliance requirements.

Organizations leveraging Cisco EPM 3.3 can now administer, enforce, and audit sophisticated authorization policies across heterogeneous application and IT environments, all with centralized management and visibility. This streamlining of application security and policy reduces budgets and implementation schedules by up to 30 percent.

Cisco EPM 3.3 consists of three distinct but transparently integrated components:

- Cisco Policy Administration Point (PAP)—Provides centralized administration, management, and monitoring of entitlement policies. It then delegates these policies and integrates them with enterprise information repositories.
- Cisco Policy Decision Point (PDP)—Provides run-time resolution of role-based and rule-based authorization policies.
- Policy Enforcement Points (PEP)—Enforces policy decisions made by the PDPs on a wide range of applications and environments.

Ideal for Companies That Need These Features

Cisco Enterprise Policy Manager (EPM) 3.3

- Highest levels of application access and usage controls.
- Centralized application policy (a.k.a. Entitlement) management and enforcement.
- Centralized audit of application access policies
- Persistent compliance of enterprise-wide application policy, visibility and control.
- Activation of new, more agile and complex enterprise business scenarios

Key Features

Streamline application security:

- Consistently define and enforce fine-grained access control per application, across the infrastructure, and across the enterprise.
- Rich, rule-based contextual entitlements take advantage of multiple distributed roles, rules, and attribute repositories.
- Snap-on integration with existing identity and authentication management infrastructure.
- Powerful delegation and modeling capabilities (subject and resource hierarchies, inheritance, exceptions, and scoping) offer ease of administration.
- Eliminates need to serialize behind identity management, single sign-on, or corporate role reconciliation initiatives.

Assure consistent compliance:

- Centralized and automated audit review across applications regardless of enforcement mechanism.
- The solution offers audit capabilities within applications and across the enterprise.
- The solution provides real-time reports and alerts on who can access what, who accessed what, and who made what administration change.
- You can easily create “Chinese Walls”, and enforce and audit segregation of duties.
- Forecast “What If?” scenarios to help security administrators understand the ramifications of policy changes.

Empower new business scenarios

- Rich entitlement policies are configured, deployed, and updated without application modification - allowing organizations to begin reaping the benefits of a service-oriented architecture (SOA).
- Maximum flexibility is achieved through central and application-specific role-based, attribute-based, and rule-based entitlements.
- Increased organizational agility is achieved through delegation to business users, removing IT as the bottleneck for urgent business-process changes.
- The solution offers time- and cost-effective deployment, including 45-minute installation and rapid realization of return on investment (ROI).

For More Information

Compared to other Cisco solutions, Cisco EPM is a project-oriented, software-driven solution. It is targeted at the CISOs, Line-of-Business Managers and Enterprise IT Architects of enterprises. For more information about Cisco Enterprise Policy Manager visit: <http://www.cisco.com/go/epm>.

Cisco Physical Access Gateway

An integral component of the Cisco Physical Access Control solution, the Cisco Physical Access Gateway is the primary module used to connect door hardware (readers, locks, etc.) to the IP network. The gateway can connect to a maximum of two doors and associated inputs and outputs.



The Cisco Physical Access Gateway is a mandatory component of any access-control deployment. The following optional modules may be connected to the Cisco Physical Access Gateway to control additional doors, inputs, and outputs:

- Cisco Physical Access Gateway Reader Module
- Cisco Physical Access Gateway Input Module
- Cisco Physical Access Gateway Output Module

Key Features

- Manage up to two doors
- Additional module support
- Reader and lock power
- Credential cache
- Event cache
- Encryption

Specifications

Feature	Cisco Physical Access Gateway			
Housing	Aluminum			
Dimensions (LxWxH)	<ul style="list-style-type: none">• 5 x 7 x 2.14 in.• 127 x 178 x 54.6 mm			
Weight	Without Plugs and Brackets	With Plugs	With Brackets	With Plugs and Brackets
	1.65 lb (749 g)	1.8 lb (817 g)	1.81 lb (823 g)	1.97 lb (891 g)
Certifications	<ul style="list-style-type: none">• FCC• UL• CE			
Operating Temperature	<ul style="list-style-type: none">• Indoors only• 32 to 122°F (0 to 50°C)			
Humidity	5 to 95% relative, non-condensing			
Power	<ul style="list-style-type: none">• There are two options to power the device:• 12 to 24 VDC (+/- 10%) through an external power supply• 802.3AF-compliant Power over Ethernet (PoE) connected to the Ethernet 0 connector			

Selected Part Numbers and Ordering Information

The Cisco Physical Access Gateway is available through Cisco Authorized Technology Provider (ATP)

CIAC-GW-K9	Cisco Physical Access Gateway
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For More Information

For more information about the Cisco Physical Access Gateway, visit: <http://www.cisco.com/go/physicalsecurity>.

Cisco Physical Access Manager

Cisco Physical Access Manager (Version 1.1) is the management application for the Cisco Physical Access Control solution. It comes installed on hardware, and is sold as an appliance. This application is used to configure Cisco Physical Access Gateways and Modules, monitor activity, enroll users, and integrate with IT applications and data stores.

Key Features

- Thin clients—Cisco Physical Access Manager supports a thin-client model. Clients from computers running the Windows operating system can contact Cisco Physical Access Manager and download and install an application that allows interaction with the Cisco Physical Access Manager for administrative purposes.
- Microsoft Active Directory integration—You can configure administrative users of Cisco Physical Access Manager to use Microsoft Active Directory for authentication.
- Badging and enrollment—An optional licensable module enables the creation of badge templates, badge printing, taking user photographs, and enrolling users into the Cisco Physical Access Manager user database.
- Device configuration—You can configure Cisco Physical Access Gateway hardware using Cisco Physical Access Manager. The access gateway contacts Cisco Physical Access Manager, to download pre-provisioned configuration information.
- Access policies—You can assign areas (comprising a group of doors) and users entry permission based on schedules.
- User rights—You can assign permissions to administrative users of the Cisco Physical Access Manager and you can tailor user profiles very specifically.
- Credential management—You can edit cardholder credentials, including system wide card formats.
- Alarm and event management—Cisco Physical Access Manager provides a view of events and alarms in the system. You can filter alarm and event views based on several criteria.
- Global I/O—You can associate events (contact closure inputs or card access denied, for example) to actions (activate output contact closures, send an e-mail message, etc.).
- Reporting—You can create standard and custom reports with Cisco Physical Access Manager.
- Audit trails—Cisco Physical Access Manager provides a log of all administrative uses of the system, arranged by user.
- Enterprise application integration—An optional licensable component allows Cisco Physical Access Manager to be synchronized with data from either external SQL databases or Microsoft Active Directory.
- Cisco Video Surveillance Manager integration—Cisco Physical Access Manager dynamically acquires camera inventory from Cisco Video Surveillance Manager and associates cameras to doors; you can view recorded or live video for every event from the door.
- License management—You can add license files (capacity upgrades or feature additions) to the application.
- Server administration—You can administer the Cisco Physical Access Manager appliance by performing tasks such as IP address assignment.
- Access gateway image management—You can upgrade Cisco Physical Access Gateway images using the Cisco Physical Access Manager.
- Configuration backup—You can back up the entire configuration to an external server.
- System restore—You can restore previously backed up configuration from an external server.
- High availability—You can configure two Cisco Physical Access Manager appliances as a pair to provide warm standby redundancy; you must install the secondary appliance with a high-availability license.
- URL Invocation—HPPT/S URLs can be invoked as a result of any event or alarm. Event data can be inserted in the URL to integrate with any external application that accepts URL invocations.

Specifications

The following table lists the hardware specifications of the Appliance on which Cisco Physical Access Manager Version 1.1 is installed.

CPU	Intel Core2 Duo 2.13-GHz processor with a 1066-MHz front side bus (FSB) and 2 MB of Level 2 cache
Memory	4 GB PC2-5300 DDR2 SDRAM ECC
Hard Drive	250 GB SATA 7200 RPM
Ethernet	2 X 10/100/1000 RJ-45, 10BASE-T, 100BASE-TX, 1000BASE-T
Weight	15.0 lb (6.8 kg), base chassis
Maximum Power Consumption	350W (maximum output, power supply rating) 540W (maximum input, power supply rating)

Selected Part Numbers and Ordering Information

The Cisco Physical Access Manager is available through Cisco Authorized Technology Provider (ATP) Partners.

CIAC-PAME-1125-K9	Appliance, bundled with Cisco Physical Access Manager Version 1.0 Software
CIAC-PAME-BD=	Cisco Physical Access Manager Badge Designer and Enroller
CIAC-PAME-HA=	Cisco Physical Access Manager High-Availability License

CIAC-PAME-M64=	Cisco Physical Access Manager 64-module capacity upgrade license
CIAC-PAME-M128=	Cisco Physical Access Manager 128-module capacity upgrade license
CIAC-PAME-M512=	Cisco Physical Access Manager 512-module capacity upgrade license
CIAC-PAME-M1024=	Cisco Physical Access Manager 1024-module capacity upgrade license
CIAC-PAME-EDI=	Cisco Physical Access Manager Enterprise Data Integration License

For More Information

For more information about the Cisco Physical Access Manager, visit: <http://www.cisco.com/go/physicalsecurity>.

Cisco Video Surveillance 2500 Series IP Cameras

The Cisco Video Surveillance 2500 Series IP Cameras are high-resolution, feature-rich digital cameras designed for superior performance in a wide variety of environments. The cameras employ MPEG-4 compression to stream 30 frames per second (fps) at D1 NTSC resolution (720 x 480) or 25 fps at D1 PAL resolution (720 x 576), offering efficient network usage while providing high-quality video. Contact closures and two-way audio allow integration with microphones, speakers, and access control systems. (Note: Not all features are supported when using the camera with Cisco Video Surveillance Manager.) With their open, standards-based design, the cameras provide an ideal platform for integration and operation as independent devices or as part of a Cisco Video Surveillance network.



Key Features

- **Wide dynamic range**—The cameras employ powerful digital imaging technology, allowing them to capture high-quality images in a wide variety of indoor and outdoor lighting conditions. They use a progressive scan image sensor with global electronic shuttering to ensure natural color rendition, zero blooming and smear, and minimal motion blurring.
 - **Embedded security and networking***—The cameras provide 802.1X authentication and hardware-based Advanced Encryption Standard (AES). For enhanced bandwidth management, the cameras support IP Multicast.
 - **Event notification***—The cameras can examine designated areas for activity and notify users or other applications when they detect activity that exceeds a predefined threshold. The cameras also provide two digital inputs and two digital outputs that you can use to initiate specific actions when an alarm is detected.
 - **Flexible power options**—The cameras support Power over Ethernet (PoE) 802.3af or DC power through an optional external power supply.
 - **Mounting options***—You can install the cameras with a fixed mount or with an optional external pan or tilt mount and motorized zoom lens.
 - **Wireless capabilities**—The wireless IP camera model supports 1 x 2 multiple input multiple output (MIMO) communication, which provides better data throughput and higher link range than single-antenna designs. The wireless IP camera offers strong wireless security using Wi-Fi Protected Access (WPA)/WPA2 and supports various network protocols for 802.1x authentication.
- * Not supported when the camera is used with Cisco Video Surveillance Manager.

Specifications

Feature	Cisco Video Surveillance 2500 Series IP Cameras
Imaging Device	1/3-in. complementary metal oxide semiconductor (CMOS) with wide dynamic range
Image Control	Automatic white balance (AWB), automatic back lighting, automatic gain control (AGC), auto/manual iris, sharpness, image quality, time stamp, and camera ID
Dynamic Range	102 dB typical/120 dB maximum
Minimum Illumination	<ul style="list-style-type: none"> • Color mode: F1.4 @ 0.4 lux (.04 fc) • Black and white mode: F1.4 @ 0.04 lux (0.004 fc)
Signal-to-Noise Ratio (SNR)	>48 dB
Lens Selection	Accepts manual or DC auto iris lens
Video Compression	MPEG-4 SP level 0 to 4, ASP level 0 to 5
Audio Compression*	G.711 A-Law, G.711 U-Law, G.726

Resolution and Frame Rate	<ul style="list-style-type: none"> • NTSC/PAL • 720 x 480/576 @ 30/25 fps (D1) • 704 x 480/576 @ 30/25 fps (4CIF) • 352 x 240/288 @ 30/25 fps (CIF)
Video Streaming	<ul style="list-style-type: none"> • Single-stream MPEG-4 up to D1 720 x 480/576 @ 30/25 fps • Dual-stream MPEG-4*: <ul style="list-style-type: none"> • Primary stream programmable up to 704 x 480/576 @ 25/20 fps • Secondary stream programmable up to 352 x 240/288 @ 25/20 fps
Memory	64 MB flash, 128 MB SDRAM
Protocols*	Dynamic Host Control Protocol (DHCP), File Transfer Protocol (FTP), Hypertext Transfer Protocol (HTTP), Secure HTTP (HTTPS), Network Time Protocol (NTP), Real-Time Transport Protocol (RTP), Real-Time Streaming Protocol (RTSP), Simple Mail Transfer Protocol (SMTP), Secure Sockets Layer/Transport Layer Security (SSL/TLS), Transmission Control Protocol/Internet Protocol (TCP/IP)
Housing	Aluminum
LEDs	Power, Ethernet link, and activity
Dimensions	<ul style="list-style-type: none"> • 3.1 x 2 x 4.8 in. • 80 x 50 x 122 mm
Weight	<ul style="list-style-type: none"> • 115 lb • 0.52 kg
Certifications	FCC, CE, and UL
Operating Temperature	Indoors: <ul style="list-style-type: none"> • 32 to 122°F • 0 to 50°C Outdoors (when installed in an appropriate outdoor enclosure with heating and cooling): <ul style="list-style-type: none"> • -40 to 158°F • -40 to 70°C

Selected Part Numbers and Ordering Information

The Cisco 2500 Series Video Surveillance IP Camera is available through Cisco Authorized Technology Provider (ATP) Partners.

CIVS-IPC-2500	Cisco Video Surveillance IP Camera, Wired
CIVS-IPC-2500W	Cisco Video Surveillance IP Camera, Wireless
CIVS-PWRPAC-12V	12 VDC @ 1.6A Power Supply

For More Information

For more information about the Cisco Video Surveillance 2500 Series IP Cameras, visit:
<http://www.cisco.com/go/physicalsecurity>.

Cisco Video Surveillance 4000 Series IP Cameras

Cisco Video Surveillance 4000 Series IP Cameras are feature-rich digital cameras designed for superior performance in a wide variety of video surveillance applications. The cameras employ true high-definition (HD) video and H.264 compression, streaming up to 30 frames per second (fps) at 1080p (1920 x 1080) resolution, and 60 fps at 720p (1280 x 720) resolution, offering efficient network usage with the highest-quality video. Contact closures and two-way audio allow integration with microphones, speakers, and access control systems. With their open, standards-based design, the cameras provide an ideal platform for integration and operation as independent devices or as part of a Cisco Video Surveillance network.

The Cisco Video Surveillance 4300 Series and 4500 Series IP Cameras (CIVS-IPC-4300 and CIVS-IPC-4500) have identical feature sets, with the exception of the additional digital signal processor (DSP) capabilities specifically designed to support real-time video analytics at the edge on the Cisco Video Surveillance 4500 Series IP Cameras. On these cameras, applications and end users have the option to run multiple analytics packages without compromising video streaming performance on the cameras. This highly flexible computing platform that will be compatible with future versions is ideal for next-generation video analytics applications.

Key Features

- True high-definition (HD) video—The cameras stream crisp and clear 1080p (1920 x 1080) video at 30 frames per second while maintaining surprisingly low network bandwidth. For fast-motion applications, you can set the cameras to stream 720p (1280 x 720) video at 60 frames per second.



- Progressive scan video—The cameras capture each frame at its entire resolution using progressive scan rather than interfaced video capture, which captures each field of video. This feature allows for better detail for video of moving objects such as faces and license plates on automobiles.
- Embedded security and networking—The cameras provide hardware-based Advanced Encryption Standard (AES). For enhanced bandwidth management, they support IP Multicast.
- Event notification—The cameras can examine designated areas for activity and notify users or other applications when they detect activity that exceeds a predefined sensitivity and threshold. The cameras also provide two digital inputs and two digital outputs that you can use to initiate specific actions when an alarm is detected.
- Day and night operation—The cameras provide true day and night functions including an automatic infrared (IR) filter in low-light scenes. With the appropriate IR-corrected lenses and IR illumination, the cameras can provide HD video in low-light environments.
- Optional USB memory card—The cameras support an optional USB memory card for onboard storage of video and other data.
- Flexible power options—The cameras support Power over Ethernet (PoE) 802.3af, 12-VDC, or 24-VAC power through an optional external power supply.
- Mounting options—You can install the cameras with a fixed mount or with an optional external pan or tilt mount and motorized zoom lens.

Specifications

Feature	Cisco Video Surveillance 4000 Series IP Cameras
Imaging Device	1/3-in. complementary metal oxide semiconductor (CMOS)
Image Control	Automatic white balance (AWB), automatic back lighting, automatic gain control (AGC), auto/manual iris, sharpness, image quality, time stamp, and camera ID
Dynamic Range	65 dB
Minimum Illumination	<ul style="list-style-type: none"> • Color mode: F1.4 @ 0.4 lux (.04 fc) • Black and white mode: F1.4 @ 0.04 lux (0.004 fc)
Signal-to-Noise Ratio (SNR)	53 dB
Lens Selection	Accepts manual or DC auto iris lenses
Video Compression	H.264, MJPEG
Audio Compression*	G.711 A-Law, G.711 U-Law, AAC
Resolution and Frame Rate H.264	<ul style="list-style-type: none"> • 1920 x 1080 @ 30 fps (1080p) • 1280 x 720 @ 60 fps (720p) • 720 x 480/576 @ 30/25 fps (D1) • 704 x 480/576 @ 30/25 fps (4CIF) • 352 x 240/288 @ 30/25 fps (CIF)
Resolution and Frame Rate MJPEG	<ul style="list-style-type: none"> • 720 x 480/576 @ 30/25 fps (D1) • 704 x 480/576 @ 30/25 fps (4CIF) • 352 x 240/288 @ 30/25 fps (CIF)
Video Streaming	<ul style="list-style-type: none"> • Single-stream H.264 up to 1080p (1920 x 1080) @ 30 fps • Dual-stream H.264 and MJPEG • H.264: Primary stream programmable up to 1280 x 720 @ 25/20 fps • MJPEG: Secondary stream programmable up to 720 x 576 @ 25/20 fps
Memory	64 MB flash, 128 MB SDRAM
Protocols	Dynamic Host Control Protocol (DHCP), Hypertext Transfer Protocol (HTTP), Secure HTTP (HTTPS), Network Time Protocol (NTP), Real-Time Transport Protocol (RTP), Real-Time Streaming Protocol (RTSP), Simple Mail Transfer Protocol (SMTP), Secure Sockets Layer/Transport Layer Security (SSL/TLS), Transmission Control Protocol/Internet Protocol (TCP/IP), Secure Real-time Transport Protocol (SRTP), Cisco Discovery Protocol, Bonjour, Simple Network Management Protocol (SNMP), and Secure Shell (SSH)
Housing	Aluminum
LEDs	Power, Ethernet link, and activity
Dimensions	<ul style="list-style-type: none"> • 3.1 x 2 x 4.8 in. • 80 x 50 x 122 mm
Weight	<ul style="list-style-type: none"> • 1.15 lb • 0.52 kg
Certifications	FCC, CE, and UL

Operating Temperature	Indoors: <ul style="list-style-type: none"> • 32 to 122°F • 0 to 50°C Outdoors (when installed in an appropriate outdoor enclosure with heating and cooling): <ul style="list-style-type: none"> • -40 to 158°F • -40 to 70°C
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Selected Part Numbers and Ordering Information

The Cisco 4000 Series Video Surveillance IP Camera is available through Cisco Authorized Technology Provider (ATP) Partners.

CIVS-IPC-4300	Cisco Video Surveillance 4300 IP Camera, HD, Day/Night
CIVS-IPC-4500	Cisco Video Surveillance 4500 IP Camera, HD, DSP, Day/Night
CIVS-PWRPAC-12V	12 VDC @ 1.6A Power Supply

For More Information

For more information about the Cisco Video Surveillance 4000 Series IP Cameras, visit:
<http://www.cisco.com/go/physicalsecurity>.

Cisco Video Surveillance 2000 Series IP Domes

The Cisco Video Surveillance 2000 Series IP Domes are high-resolution, feature-rich digital IP cameras that you can deploy in a wide variety of environments. The cameras use MPEG-4 compression of up to 30 frames per second (fps) at D1 NTSC resolution (720 x 480) or 25 fps at D1 PAL resolution (720 x 576), for efficient network usage and high-quality video. They also support MJPEG compression.

The Cisco Video Surveillance 2500 and 2400 IP Dome models include the same core technology as the 2500 Series IP Cameras. However, the 2500 domes are vandal-resistant and support audio and alarm I/O, whereas the 2400 domes do not.



Key Features

- **Wide dynamic range**—The camera employs powerful digital imaging technology, allowing it to capture high-quality images in a wide variety of indoor and outdoor lighting conditions. It uses a progressive scan image sensor with global electronic shuttering to ensure natural color rendition, zero blooming and smear, and minimal motion blurring.
- **Dual streaming**—The camera can stream MPEG-4 and MJPEG video simultaneously. You can configure each video stream with individual resolution, quality, and frame-rate settings.
- **Embedded security and networking**—The camera provides 802.1X authentication and hardware-based Advanced Encryption Standard (AES). For enhanced bandwidth management, the camera supports IP Multicast.
- **Event notification**—The camera can examine designated areas for activity and then notify users or other applications when it detects activity that exceeds a predefined threshold. It also provides two digital inputs and two digital outputs that can initiate specific actions when an alarm is detected.
- **Flexible power options**—The camera supports Power over Ethernet (PoE) 802.3af and 12-VDC or 24-VAC power through an optional external power supply.
- **Day or night operation**—The camera provides true day or night operation and includes an infrared (IR) filter that automatically switches to night mode in low-light scenes. You can set this function to manual or automatic control.
- **Cisco Media Application Programming Interface (API)**—The camera supports the Cisco Media API, an open, standards-based interface that allows integration with compatible video surveillance management systems.

Specifications

Feature	Cisco Video Surveillance 2500 Series
Housing	Metal base and polycarbonate transparent cover with tamper-resistant mounting
LEDs	Power, Ethernet link, and activity
Hard Drive	6.25 x 5.00 in. / 158.7 x 146.2 mm
Dimensions (WxH)	Optional, for listening to audio provided by an encoder
Weight	8.0 lb / 3.6 kg

Certifications	FCC, CE, and UL
Operating temperature	Indoors: -5 to 55 ° C / 23 to 131 ° F
Feature	Cisco Video Surveillance 2400 Series
Housing	Metal base and polycarbonate transparent cover
LEDs	Power, Ethernet link, and activity
Hard Drive	6.6 x 4.5 in. /146.5 x 114.3 mm
Dimensions (WxH)	Optional, for listening to audio provided by an encoder
Weight	1.9 kg
Certifications	FCC, CE, and UL
Operating temperature	Indoors: 32 to 122 ° F 0 to 50 ° C

Selected Part Numbers and Ordering Information

CIVS-IPC-2520V	Cisco Video Surveillance 2520V Indoor/Outdoor Dome, Lens 2.8-10 mm
CIVS-IPC-2521V	Cisco Video Surveillance 2521V Indoor/Outdoor Dome, Smoked, Lens 2.8-10 mm
CIVS-IPC-2421	Cisco Video Surveillance 2421 Indoor Dome Lens 2.8-10 mm

For More Information

For more information about the Cisco Video Surveillance 2000 Series IP Domes, visit: <http://www.cisco.com/go/physicalsecurity>.

Cisco Video Surveillance Stream Manager Software

The Cisco Video Surveillance Stream Manager application is a collection of discrete software modules that provide advanced and flexible configuration, management, and operation of video surveillance networks and solutions. With intuitive GUIs and comprehensive features, Cisco Video Surveillance Stream Manager Software modules function as an integrated platform for security systems and enable true convergence of closed circuit television (CCTV) and the enterprise LAN. Stream manager applications provide digital video, audio, and serial data management across any IP network.

Cisco Video Surveillance Stream Manager Software modules combine the capabilities of many standalone hardware and software systems into one product, including features provided by digital video recorders, matrix switching systems, video multiplexers, and transmission systems. These system functions are available wherever and whenever there is network connectivity. Whether used in an enterprise network or a small or medium-sized business, the stream manager provides a managed distributed digital video system.

- The Cisco Video Surveillance Stream Manager Configuration Module identifies and programs Cisco Video Surveillance IP Gateway encoders, decoders, and storage devices.
- The Cisco Video Surveillance Stream Manager Administration and Monitoring Module enables monitoring of network, server use, and dynamic system health, and provides status reporting.
- The Cisco Video Surveillance Stream Manager Administration and Monitoring with Failover Module provides all the features of the Administration and Monitoring Module, with the addition of failover management.
- The Cisco Video Surveillance Stream Manager Client Viewing Module provides access to all system operations, including camera control, stored video review, and alarm notifications. This application is the primary PC application for viewing live or stored video from the network.
- The Cisco Video Surveillance Stream Manager Upgrade Module (included in the Cisco Video Surveillance Stream Manager Configuration Module) upgrades firmware in video surveillance hardware.

Key Features

- All-in-one video management solution
- User-friendly setup and operation
- IP virtual matrix switch functions
- Complete and secure video storage management
- Distributed processing on Cisco Video Surveillance devices, eliminating the need for a centralized server
- Activity detection and search
- Export video with authentication capabilities
- Advanced network visibility
- Sophisticated playback features, including trick replay functions

Specifications

Feature	Client Viewing Module	All Other Modules
CPU	Pentium dual-core, 2.8 GHz	Pentium IV, 2.8 GHz
RAM	1 GB	512 MB
Hard Drive	40 GB	40 GB
Audio Card	Optional, for listening to audio provided by an encoder	Optional, for listening to system alerts
Video Card	• ATI X1600XT 512MB PCI-e or • NVIDIA E-GEFORCE 7600GT CO 256MB DDR PCI-e	Standard PC video card
Network Card	10BASE-T, 100BASE-T, 1000BASE-T	10BASE-T, 100BASE-T, 1000BASE-T
Operating System	• Microsoft Windows XP Pro with Service Pack 2 or • Microsoft Windows Vista Business with Service Pack 1 (supported in Stream Manager 5.3)	• Microsoft Windows XP Pro with Service Pack 2 or • Microsoft Windows Vista Business with Service Pack 1 (supported in Stream Manager 5.3)
Web Services	Microsoft Net 2.0	Microsoft Net 2.0

Selected Part Numbers and Ordering Information

CIVS-SM-CFG50=	Cisco Video Surveillance Stream Manager Configuration Module
CIVS-SM-CL50=	Cisco Video Surveillance Stream Manager Client Viewing Module
CIVS-SM-AS50=	Cisco Video Surveillance Stream Manager Administration and Monitoring Module
CIVS-SM-ASF50=	Cisco Video Surveillance Stream Manager Administration and Monitoring with Failover Module

For More Information

For more information about the Cisco Video Surveillance Stream Manager, visit: <http://www.cisco.com/go/physicalsecurity>.

Cisco Video Surveillance Media Server Software

Cisco offers network-centric video surveillance software and hardware that supports video transmission, monitoring, recording, and management. Cisco Video Surveillance solutions work with the advanced features and functions of the IP network infrastructure—switches, routers, and other network security devices—to enable secure, policy-based access to live or recorded video. With support for many surveillance cameras, encoders, and applications, Cisco Video Surveillance solutions allow you to build high-quality video surveillance systems that optimize cost, performance, and capability.

The core component of the Cisco Video Surveillance Manager, Cisco Video Surveillance Media Server 6.0 performs the following networked video surveillance system functions:

- Collection and routing of video from a wide range of cameras and encoders over an IP network
- Secure local, remote, and redundant video archiving
- Event tagging for review and archival purposes
- Bandwidth management for both live distribution and historical recording

Cisco Video Surveillance Media Server is fully compatible with other Cisco Video Surveillance Manager applications that provide video display control and distribution (virtual matrix switching), a customizable web-based user interface for roles-based operation and management, system configuration, and options to support storage area networks (SANs) and network- and direct-attached storage (NAS and DAS). The media server and other Cisco Video Surveillance software applications run on Linux-based servers. As a result, you can upgrade your investment to include new features, address your evolving requirements, and support a diverse range of deployment scenarios.

Key Features

By using the power and advanced capabilities of IP networks, Cisco Video Surveillance Media Server Software allows you to add applications, users, cameras, and storage over time. As a result, the software provides exceptional video surveillance system flexibility and scalability to support:

- Deployments that range from small systems to those with thousands of cameras
- Hundreds of simultaneous users accessing live and recorded video
- Standard video codecs such as Motion JPEG, MPEG-2, MPEG-4, and H.264 simultaneously in a single Cisco Video Surveillance Media Server

- Conservation of storage using events, clipping, record-on-motion, and loop-based archival options
- Integration with other security and IT applications using open, standards-based API and Real-Time Transport Protocol (RTP) and Real-Time Streaming Protocol (RTSP) streaming
- IT-caliber, fault-tolerant storage for greater efficiency and easier maintenance

Specifications

The table below lists the minimum system requirements for server and client hardware for Media Server.

Feature	Server System	Client System
CPU	3-GHz Intel Pentium 4	3-GHz Intel Pentium 4
RAM	1 GB	1 GB
Hard Drive	200-GB hard drive	-
Video Card	-	nVidia or ATI AGP graphics adapter with 128 MB RAM
Network Connection	10/100 Ethernet Interface	10/100 Ethernet adapter
Operating System	SUSE Linux Enterprise Server (SLES) version 9 SP 3 or version 10 SP 1 (recommended)	Windows XP and Internet Explorer 6 or 7
Rack Space	1 to 5 RU	-

Selected Part Numbers and Ordering Information

CIVS-MS-SW6.0=	Cisco Video Surveillance Media Server 6.0
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For More Information

For more information about the Cisco Video Surveillance Media Server, visit: <http://www.cisco.com/go/physicalsecurity>.

Cisco Video Surveillance Operations Manager Software

Cisco offers network-centric video surveillance software and hardware that supports video transmission, monitoring, recording, and management. Cisco Video Surveillance solutions work with the advanced features and functions of the IP network infrastructure—switches, routers, and other network security devices—to enable secure, policy-based access to live or recorded video. With support for many third-party video surveillance cameras, encoders, and applications, Cisco Video Surveillance solutions allow you to build high-quality video surveillance systems that optimize cost, performance, and capability.

Cisco Video Surveillance Operations Manager is a component of the Cisco Video Surveillance Manager suite of products. It enables the efficient and effective configuration and management of video throughout an enterprise. It provides a secure web portal to configure, manage, display, and control video in an IP network, and provides the ability to easily manage a large number of security assets and users, including Cisco Video Surveillance Media Server instances, cameras, encoders, DVRs, and event sources, as well as digital monitors that are powered by Cisco Video Surveillance Virtual Matrix.

Key Features

- Offers superior price and performance for managing video surveillance deployments of any size
- Runs on commercial off-the-shelf (COTS) Linux-based servers, making it easier to upgrade to include new features, address your evolving requirements, and support a diverse range of deployment scenarios
- Offers customizable interface for operators and administrators
- Provides multitiered hierarchy of user roles and privileges
- Provides open license with no built-in limits on numbers of users or resources managed and no per-seat costs
- Is compatible with most popular web browsers
- Is compatible with the Cisco Video Surveillance Manager Platform, allowing many choices for cameras, encoders, and related devices, and allowing systems to expand over time

Specifications

The table below lists the minimum system requirements for Operations manager and client hardware.

Feature	Server System	Client System
CPU	3-GHz Intel Pentium 4	3-GHz Intel Pentium 4
RAM	1 GB	1 GB
Hard Drive	200-GB hard drive	-

Video Card	-	nVidia or ATI AGP graphics adapter with 128 MB RAM
Network Connection	10/100 Ethernet Interface	10/100 Ethernet adapter
Operating System	SUSE Linux Enterprise Server (SLES) version 9 SP 3 or version 10 SP 1 (recommended)	Windows XP and Internet Explorer 6 or 7
Rack Space	1 to 5 RU	-

Selected Part Numbers and Ordering Information

CIVS-OM-SW4.0=	Cisco Video Surveillance Operations Manager 4.0
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For More Information

For more information about the Cisco Video Surveillance Operations Manager, visit: <http://www.cisco.com/go/physicalsecurity>.

Cisco Physical Security Multiservices Platform

The Cisco Physical Security Multiservices Platform encompasses a suite of three server platforms for network digital recording and playback. The servers include built-in analog video encoder cards and options and Fibre Channel interfaces, and they enable direct connectivity from analog closed-circuit television (CCTV) cameras and for IP video directed from the network. Fully integrated with the Cisco Video Surveillance Manager software, each multiservices platform can provide high-quality MPEG-4 encoding and offers a wide array of features in a single, easy-to-use and easy-to-deploy component. Each device offers robust, scalable, and flexible options for replacing traditional analog or digital video recorders in a variety of video surveillance deployments.



The Cisco Physical Security Multiservices Platform includes the following devices:

- A 1-rack-unit (RU) multiservices platform—An entry-level device that supports up to four 750-GB or 1-TB Serial Advanced Technology Attachment (SATA) hard drives; it also supports one video-encoding PCI-e card or one PCI-X card.
- A 2RU multiservices platform—Supports up to twelve 750-GB or 1-TB SATA hard drives; it also supports PCI-e video-encoding cards.
- A 4RU multiservices platform—Supports up to twenty-four 750-GB or 1-TB SATA hard drives; it also supports video-encoding PCI-e and PCI-X cards.

Key Features

- Support for dual processor and dual-core Xeon processors
- 900W high-efficiency power supplies with redundancy option
- High-performance fans with built-in redundancy for optimized cooling
- PCI-X and PCI-e expansion slots that support Fibre Channel interfaces and video-encoding cards
- Hot-swappable hard-disk drives that you can remove without powering down the server; these drives support SAF-TE (Small Computer System Interface [SCSI]) and SES2 (single attachment station/SATA [SAS/SATA])
- System health and management features, including redundant cooling fans, a convenient power switch, reset button, and LED indicators
- Redundant Array of Independent Disks 5 (RAID5) for 2RU and 4RU platforms
- Efficient field serviceability

Specifications

1 RU Mechanical Specifications	
Housing	1RU x 19 in., 4 x SATA drive bays
Motherboard	Intel Xeon® 3200 Series, 2GB DDR2 SDRAM, one universal (x8) PCI-Express or one 64-bit PCI-X 133MHz slot
LEDs	Power, hard-drive activity, network activity, system overheat/fan fail
Weight	38 lb (172kg)
Dimension	1.7 in. (43 mm) x 17.2 in. (437 mm) x 19.8 in. (503 mm)
Power Supply	300 W
Power Requirements (no option cards)	<ul style="list-style-type: none"> • 110V/60Hz: Spinup Surge: 226 W, Steady-State: 139 W • 220V/60Hz: Spinup Surge: 237 W, Steady-State: 150 W

Operating Temperature	50° to 95° F (10° to 35°C)
2 RU Mechanical Specifications	
Housing	2RU x 19 in., 12 x SATA drive bays
Motherboard	Dual Intel 64-bit Xeon® Quad-Core or Dual-Core, 2GB DDR2 SDRAM, three (x8) PCI-e slots (2 with Gen 2.0) one (x4) PCI-e slot (using x8 slot)
LEDs	Power, hard drive activity, network activity, system overheat/fan fail
Weight	52 lb (23.6 Kg)
Dimension	3.5 in. (89 mm) x 17.2 in. (437 mm) x 25.5 in. (648 mm)
Power Supply	900W (1+1) redundant power supply
Power Requirements (no option cards)	<ul style="list-style-type: none"> • 110V/60Hz: Spinup surge: 596 W, steady-state: 345 W • 220V/60Hz: Spinup surge: 600 W, steady-state: 356 W
Operating Temperature	50° to 95° F (10° to 35°C)
4 RU Mechanical Specifications	
Housing	4RU x 19", 24 x SATA drive bays
Motherboard	Dual Intel 64-bit Xeon® Quad-Core or Dual-Core, 2GB DDR2 SDRAM, three (x8) PCI-e slots (2 with Gen 2.0) one (x4) PCI-e slot (Using x8 slot)
LEDs	Power, hard drive activity, network activity, system overheat/fan fail
Weight	75 lb (34 Kg)
Dimension	70 in. (178 mm) x 17.2 in. (437 mm) x 26.0 in. (660 mm)
Power Supply	900 W (2+1) redundant power supply
Power Requirements (no option cards)	<ul style="list-style-type: none"> • 110V/60Hz: Spinup surge: 982 W, steady-state: 455 W • 220V/60Hz: Spinup surge: 926 W, steady-state: 450 W
Operating Temperature	50° to 95° F (10° to 35°C)

Selected Part Numbers and Ordering Information

The Multiservices Platform is available through Cisco Authorized Technology Provider (ATP) Partners.

CIVS-MSP-2RU	2RU chassis with motherboard, RAID controller, one 900 W power supply, one CPU, (no drives or option cards)
CIVS-MSP-4RU	4RU chassis with motherboard, RAID controller, two 900 W power supplies, one CPU, (no drives or option cards)
CIVS-MSP-1RU	1RU chassis with motherboard and power supply (no drives or option cards)

For More Information

For more information about the Cisco Physical Security Multiservices Platform, visit: <http://www.cisco.com/go/physicalsecurity>.

Cisco IPICS Server Software

The Cisco IPICS Server supports the management of the Cisco IPICS system. First responders and safety and security personnel use the Cisco IPICS system to enable rapid incident response, collaborative crisis communications, notification, and comprehensive interoperable communications. The Cisco IPICS Server is used to create virtual talk groups (VTGs) to facilitate push-to-talk (PTT) communications between users of multiple types and technologies of Land Mobile Radios with users of PCs, landline phones, cellular and Nextel phones, and Cisco Unified IP Phones.

The Cisco IPICS Server is a security-enhanced, Linux-based platform installed on select Cisco 7800 Series Media Convergence Servers, a family of proven and reliable hardware platforms that you can deploy in mobile command units or in headquarters, branch offices, or operations centers. Other Cisco IPICS system components include the Cisco IPICS Push-to-Talk Management Center (PMC), Cisco IPICS Phone Client, Cisco IPICS Operational Views (Ops Views), Cisco Land Mobile Radio (LMR) gateways, Router Media Service (RMS), and Session Initiation Protocol (SIP) telephony gateways.

Cisco IPICS is a systems-level, network-based solution for voice interoperability. It takes full advantage of open IP standards and IP network infrastructure for greater resiliency, scaling, and security, and is part of a complete communications solution for organizations of all sizes.

Key Features

- All-in-one safety and security incident response, communications, and collaboration solution
- User-friendly setup and operation

- Centralized, remote, or distributed administration across locations, agencies, networks, and jurisdictions
- Complete and secure Virtual Push to Talk communications and management
- Support for secure incident management, response, notification, and messaging
- Customizable secure voice dial-in and dial-out access to radio channels and incident virtual talk groups
- Role-based user, dispatch console, operator, and system administrator management
- Support for radio resources, desktop PC clients, and Cisco Unified Communications IP Phone PTT clients
- Integrated support and management of Cisco integrated services routers and Land Mobile Radio gateways
- Proven IP network protocols for critical communications over IP Unicast, IP Multicast, Session Initiation Protocol (SIP), VPN, satellite, IP, and wireless networks

Selected Part Numbers and Ordering Information

CIS-IPICS2.0-K9(=)	Cisco IPICS 2.1 Server software and licenses, including licenses for: <ul style="list-style-type: none"> • 50 Cisco IPICS Virtual Talk Groups • 4 Cisco IPICS Channel/radio ports • 4 Cisco IPICS PMC clients • 10 Cisco IPICS IP Phone clients • 2 Cisco IPICS Operational Views
CIS-IPICS-PM1-K9(=)	Cisco IPICS Policy Engine for Cisco IPICS 2.1 or Higher Cisco IPICS Policy Engine Dial Port for Cisco IPICS 2.1 or Higher
CIS-VIP-DIAL(=)	Cisco IPICS Policy Engine Dial Port for Cisco IPICS 2.1 or Higher
CIS-VIP-VTG(=)	Cisco IPICS Virtual Talk Group (VTG) for Cisco IPICS 2.1 or Higher
CIS-VIP-CHNL(=)	Cisco IPICS Channel/Radio Port for Cisco IPICS 2.1 or Higher
CIS-PHN(=)	Cisco IPICS IP Phone Client License for Cisco IPICS 2.1 or Higher
CIS-PMC-K9(=)	Cisco IPICS PMC Client for Cisco IPICS 2.1 or Higher
CIS-OPSVIEW2(=)	Cisco IPICS Operational Views for IPICS 2.1 or Higher

For More Information

For more information about the Cisco IPICS Server, visit: <http://www.cisco.com/go/physicalsecurity>.

Cisco Security Services

Cisco and our partners can help you accelerate business transformation, operational maturity, and agility through consultative planning, solution development, and full deployment, creating network architectures that can optimize IT services and enhance your business.

Based on a lifecycle approach, the broad portfolio of Cisco Security Services helps maintain intelligent defenses against information security threats. The lifecycle approach is based on proven methodologies and best practices for designing, deploying, operating, and optimizing network solutions and technologies. This integrated security services portfolio provides solutions for threat management, event management, vulnerability management, and compliance support across a broad range of industries and advanced technologies, including unified communications, storage networking, and wireless networks.

Cisco Services for Physical Security provide comprehensive offerings to help plan, design, implement, and operate physical security solutions.

Cisco has a portfolio of technical services that help maintain the health and performance of every Cisco product. These services range from traditional maintenance to proactive and predictive services that use smart services capabilities. Cisco's Security Services provide detailed diagnostics and real-time alerts on core network devices to help resolve concerns quickly and improve network availability. The Cisco Technical Services portfolio is built on foundational capabilities and expanded performance capabilities to meet the changing technology needs of our customers.

- To find the right technical service for any Cisco product, use the Service Finder tool at <http://www.cisco-servicefinder.com>. Enter a product description or part number or search by product series family for a list of suggested services and support coverage options.
- For more information about Cisco Security planning, design, and optimization services, visit <http://www.cisco.com/go/services/security>.
- For more information about all services, refer to Chapter 10, "Cisco Services".

Chapter 6: Data Center

Data Security At-a-Glance		
Product	Features	Page
APPLICATION DELIVERY NETWORKING		
Cisco Application Control Engine (ACE) Product Series	<p>The Cisco ACE Family of application control engines simplify the way applications and business services are deployed, secured, and managed across the enterprise. The Cisco ACE products provide greater control over the application infrastructure, allowing organizations to quickly deploy and migrate applications to deliver more responsive services to the end user while simplifying the overall management of the data center. The application delivery products within the ACE family include:</p> <ul style="list-style-type: none"> • Cisco ACE Module for Cisco Catalyst 6500 Series Switches and Cisco 7600 Series Routers • Cisco ACE 4710 Appliance • Cisco ACE XML Gateway • Cisco ACE Global Site Selector (GSS) 4400 Series • Cisco CSS 11500 Series Content Services Switch 	6-3
Cisco Wide Area Application Services (WAAS) Product Series	<p>The Cisco WAAS Family of products are a comprehensive set of WAN optimization solutions that accelerate applications over the WAN, delivers video to the branch office, and provides local hosting of branch-office IT services. The WAN optimization products within the WAAS family include:</p> <ul style="list-style-type: none"> • Cisco Wide Area Application Services (WAAS) • Cisco Wide Area Application Services (WAAS) Mobile • Cisco Wide Area Application Engines (WAE 512, WAE 612). These can ship with ACNS, WAFS, or WAAS software installed on them. • Cisco Wide Area Virtualization Engine (WAVE) • Cisco Application and Content Networking System (ACNS) 	6-7
Cisco SSL Services Module for the Catalyst 6500 and 7600 Series	<p>The Cisco SSL Services Module for the Catalyst 6500 and 7600 Series switches offers the following features:</p> <ul style="list-style-type: none"> • Off-loading of SSL encryption and decryption • Scalable performance 	6-10
DATA CENTER SECURITY		
Cisco ASA 5580 Adaptive Security Appliance	The Cisco ASA 5580-20 and 5580-40 Adaptive Security Appliances deliver multigigabit security services. It supports both high-density copper and optical interfaces with scalability from Fast Ethernet to 10 Gigabit Ethernet	See 5-8
Cisco Catalyst 6500 Series Firewall Services Module (FWSM)	The Cisco Catalyst 6500 Series Firewall Services Module (FWSM) is a high-speed, integrated firewall that supports 5-Gbps data throughput rates, 100,000 cells per second (CPS), and 1 million concurrent connections. Based on Cisco PIX Firewall technology, the Cisco Catalyst 6500 FWSM offers excellent security, reliability, and performance.	See 5-14
DATA CENTER SWITCHING		
Cisco Nexus 7000 Series Switches	The Cisco Nexus 7000 Family of switches are designed specifically for the data center. This new platform offers exceptional scalability, continuous systems operation, and transport flexibility. It is a modular data center-class switching system designed for 10-Gigabit Ethernet networks. The Cisco Nexus architecture scales beyond 15 terabits per second, with future availability of 40- and 100-Gigabit Ethernet and unified fabric I/O modules.	6-11
Cisco Nexus 5000 Series Switches	The Cisco Nexus 5000 Series of data center-class switches, delivers an architecture built on high-performance Ethernet unified fabric. The platform consolidates separate Local Area Network (LAN), Storage Area Network (SAN) and server cluster network environments into a single unified fabric.	6-12
Cisco Nexus 2000 Series Switches	The Cisco Nexus 2000 Series Fabric Extender (FEX) provides a universal server-access platform that scales across a range of Gigabit Ethernet, 10 Gigabit Ethernet, unified fabric, rack, and blade-server environments.	6-13
Cisco Nexus 1000V Series Switches	<p>The Cisco Nexus 1000V Series Switch is an intelligent software virtual switch implementation for VMware ESX hypervisor environments. It supports Cisco VN-Link server virtualization technology, and provides:</p> <ul style="list-style-type: none"> • Policy-based virtual-machine (VM) connectivity • Mobile virtual-machine security and network policy • Nondisruptive operational model for server virtualization and networking teams 	6-13

Cisco Catalyst 6509 Enhanced Vertical Series Switch (6509-V-E)	The Cisco Catalyst 6509-V-E is a 9-slot chassis that supports bandwidth capacity (80 Gbps per slot) up to 1440 Gbps and enhanced cable-management capabilities. It offers customers investment protection through its support of all existing Cisco Catalyst 6500 Series modules.	See 2-2
Cisco Catalyst 4900 Series Switches	Cisco Catalyst 4900 Series Switches deliver wire-speed top-of-rack server aggregation services. They are designed (1- to 2-rack unit [1- to 2RU]) for space-constrained aggregation deployments where high-performance and advanced services are required.	See 2-10

DATA CENTER UNIFIED COMPUTING SYSTEM

Cisco Unified Computing System	<p>The Cisco Unified Computing System is a next-generation data center platform that unites compute, network, storage access, and virtualization into a cohesive system designed to reduce total cost of ownership (TCO) and increase business agility. The Cisco Unified Computing System is built from the following components:</p> <ul style="list-style-type: none"> • Cisco UCS 6100 Series Fabric Interconnects • Cisco UCS 5100 Series Blade Server Chassis • Cisco UCS 2100 Series Fabric Extenders • Cisco UCS B-Series Blade Servers • Cisco UCS C-Series Rack-Mount Servers • Cisco UCS Network Adapters • Cisco UCS Manager 	6-14
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STORAGE NETWORKING—FIBRE CHANNEL SWITCHING

Cisco MDS 9000 Multilayer Directors and Fabric Switches	<p>The Cisco MDS 9000 Multilayer Directors and Fabric Switches are storage area network (SAN) switches that deliver port density; multiprotocol integration; intelligent network services routing; an open platform for hosting intelligent storage services; and integrated management.</p> <ul style="list-style-type: none"> • Supports virtual SANs (VSANs), port, channels, embedded diagnostics, and advanced security. • Cisco Fabric Manager offers integration with CiscoWorks Resource Manager Essentials (RME) or other third-party SAN management platforms. • Multiprotocol support includes Fibre Channel, IBM Fiber Connection (FICON), Fibre Channel over IP (FCIP), and Small Computer System Interface over IP (iSCSI). • Provides an open platform for hosting third-party storage applications through the Fabric Application Interface Standard (FAIS)-based intelligent storage API (iSAPI) and SAN Tap Protocol. 	6-15
Cisco MDS Data Mobility Manager	Cisco MDS Data Mobility Manager (DMM), is a fabric-based data migration solution that transfers block data across heterogeneous storage volumes in a non-disruptive way irrespective of whether the host is online or offline.	6-17
Cisco MDS 9000 Storage Media Encryption	Cisco MDS 9000 Storage Media Encryption protects data at rest on heterogeneous tape drives and virtual tape libraries in a storage area network (SAN) environment using secure IEEE standard Advanced Encryption Standard (AES) algorithms.	6-18
Cisco MDS 9000 Optical Modules	Cisco MDS 9000 Optical Modules—The Cisco ONS 15530 DWDM Multiservice Aggregation Platform, Cisco ONS 15540 ESP Extended Services Platform, and Cisco ONS 15454 SDH Multiservice Provisioning Platform (MSPP) are dense wavelength-division multiplexing (DWDM) platforms that provide transport across dark fiber for business-continuation applications.	6-18
Cisco Catalyst Blade Switch 3000 and 3100 Series	<ul style="list-style-type: none"> • The Cisco Catalyst Blade Switches include Cisco Catalyst Ethernet blade switches and Cisco MDS Fibre Channel blade switches for blade servers. These switches support blade-server network services that extend from the blade-server edge to clients at the network edge. They provide a virtualized data center infrastructure that can help lower total cost of ownership. The Cisco Catalyst blade switch family includes: • Cisco Catalyst Blade Switch 3100 Series for Dell, specifically designed to meet the rigors of blade-server application infrastructure • Cisco Catalyst Blade Switch 3000 Series • Designed to support the HP BladeSystem c-Class 	6-18

SERVICES

Cisco Data Center Services	Cisco Services help you transform and optimize your data center infrastructure so you can reduce costs, deliver high availability and application performance, and better meet your service level agreements.	6-19
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Product Ordering Website

To place an order or for more part numbers, visit: <http://www.cisco.com/en/US/ordering/index.shtml>.

This chapter only provides a small subset of all part numbers available. See the URL listed in the "For More Information" section of each product to get a complete list of part numbers.

Cisco Application Control Engine (ACE) Series Module

The Cisco ACE Application Control Engine Module for Cisco Catalyst 6500 Series Switches and Cisco 7600 Series Routers is a next-generation load-balancing and application-delivery solution. These products ensure application availability, accelerate application performance, and protect applications while reducing data center costs. Cisco ACE also defends servers and applications in data centers. The Cisco ACE Module performs deep packet inspection and blocks malicious attacks. Highly Scalable Integrated Security enables IT professionals to comprehensively secure high-value applications in the data center and facilitates consolidation in the data center.

Key Features

- Maximized application availability—Ensures end users can access network services in an efficient, reliable and consistent manner. Cisco ACE takes advantage of highly scalable Layer 4 load balancing and Layer 7 content switching to optimize the transmission of network services.
- Accelerated application performance—Cisco ACE uses patented technologies to accelerate and compress application data, improving application responsiveness. Offloading and caching Secure Sockets Layer (SSL), TCP, and Extensible Markup Language (XML) each help improve server performance.
- Comprehensive application security—The Cisco ACE protects against application threats and denial-of-service (DoS) attacks with features such as Deep Packet Inspection, network and protocol security, highly scalable access-control capabilities, and a powerful XML firewall.

Selected Part Numbers and Ordering Information

WS-C6509E-ACE20-K9	Cisco ACE20 6509 Bundle with 8 Gbps Throughput License (I/O module sold separately)
WS-C6504E-ACE20-K9	Cisco ACE20 6504 Bundle with 4 Gbps Throughput License (I/O module sold separately)
C6509E-ACE20-8-K9	Cisco ACE20 8G 6509E SUP720-10G Bundle
WS-C6509-E-ACE-K9	Cisco ACE10 6509 Bundle with 8 Gbps Throughput License (I/O module sold separately)
WS-C6504-E-ACE-K9	Cisco ACE10 6504 Bundle with 4 Gbps Throughput License (I/O module sold separately)
ACE20-MOD-K9	Cisco ACE20 Service Module for Cisco Catalyst 6500 Series and Cisco 7600 Series—Includes 1000 SSL TPS and 5 Virtual Devices
ACE10-6500-K9	Cisco ACE10 Service Module for Cisco Catalyst 6500 Series and Cisco 7600 Series, Includes 1000 SSL TPS and 5 Virtual Devices
ACE-16G-LIC	16Gbps Throughput License for Cisco ACE20
ACE-08G-LIC	8-Gbps Throughput License for Cisco ACE 10 and Cisco ACE20
ACE-04G-LIC	4-Gbps Throughput License for Cisco ACE10 and Cisco ACE20
ACE-VIRT-250	250 Virtual Contexts License for Cisco ACE10 and Cisco ACE20
ACE-VIRT-100	100 Virtual Contexts License for Cisco ACE10 and Cisco ACE20
ACE-VIRT-050	50 Virtual Contexts License for Cisco ACE10 and Cisco ACE20
ACE-VIRT-020	20 Virtual Contexts License for Cisco ACE10 and Cisco ACE20

For More Information

For more information about the Cisco ACE Family, visit: <http://www.cisco.com/go/ace>.

Cisco ACE 4710 Appliance

The Cisco ACE 4710 supports multimedia load balancing for RTSP and SIP protocols, allowing customers to deploy a wider range of applications via the common application infrastructure. Services are delivered over a virtualized architecture to minimize power and cooling needs, as well as reduce provisioning time and capital expense. Cisco ACE 4710 Appliance provides application acceleration using patented flash forward, delta encoding, and compression technologies. It uses a full range of Cisco application switching technologies, including Layer 4 load balancing and Layer 7 content switching, server offload with SSL, caching, and TCP processing. It reduces the volume of data transferred, thus enhancing the overall end-user experience.



Ideal for Companies That Need These Features

- Cisco ACE 4710 Appliance
- Availability, acceleration, and security of data center applications
 - Secure data center and critical business applications
 - Data center consolidation through the use of fewer servers, load balancers, and firewalls

Selected Part Numbers and Ordering Information

ACE-4710-1F-K9	License Bundle: ACE 4710, 1 Gbps Throughput, 5,000 SSL TPS, 500 Mbps Compression, 5 Virtual Devices, Application Acceleration License, Embedded Device Manager
ACE-4710-2F-K9	License Bundle: ACE 4710, 2 Gbps Throughput, 7500 SSL TPS, 1Gbps Compression, 5 Virtual Devices, Application Acceleration License, Embedded Device Manager
ACE-4710-4F-K9	License Bundle: ACE 4710, 4 Gbps Throughput, 7500 SSL TPS, 2Gbps Compression, 5 Virtual Devices, Application Acceleration License, Embedded Device Manager
ACE-4710-0.5F-K9	One ACE 4710 Hardware, 0.5Gbps, 100 SSL, 100Mbps, Comp-5VC, 50 Application Acceleration
ACE-4710-BAS-2PAK	Two units of ACE 4710 Hardware, 1Gbps, 1K SSL, 100Mbps Comp, 5VC, 50 Application Acceleration
ACE-AP-01-LIC	1 Gbps License
ACE-AP-SW-3.2	Software Version 3.2

Cisco ACE XML Gateway

The Cisco ACE XML Gateway brings application intelligence into the network and facilitates deployment of secure, reliable, and accelerates Extensible Markup Language (XML) applications and Web services. It simplifies access to XML information while reducing the potential introduction of new vulnerabilities. It allows the auto-provisioning of Web services between the Universal Description Discovery and Integration (UDDI) registry and application servers, and provides message-level security for XML-based network traffic. It improves XML application responsiveness by offloading computationally intensive operations to the network infrastructure. This dramatic performance improvement helps eliminate Web services deployment barriers.



Ideal for Companies That Need These Features

- Cisco ACE XML Gateway
- High speed XML traffic throughput
 - Integrated XML firewall that provides services protection between different trust zones
 - Reduced time to deployment of web services solutions

Selected Part Numbers and Ordering Information

NOTE: The minimum software required is Cisco ACE XML Gateway Software Version 5.1.

ACE-XML-K9	Cisco ACE XML Gateway Appliance (chassis)
ACE-XML-NF-K9	Cisco ACE XML Gateway Non FIPS Hardware Option
ACE-XML-GAT-LICFX	Cisco ACE XML—Gateway FlexLM License for Software versions 5.2 and above
ACE-XML-MGT-LICFX	Cisco ACE XML—Manager FlexLM License for Software versions 5.2 and above
ACE-WAF-GAT-LICFX	Cisco ACE Web Application Firewall FlexLM License

Cisco ACE Global Site Selector (GSS) 4400 Series

The Cisco ACE GSS (Global Site Selector) 4400 Series, along with Cisco ACE Modules, represents the next generation of application switches and Domain Name System (DNS) appliances. Together these devices form an application-fluent networking solution that maximizes availability, acceleration, and security for data center applications.



The Cisco GSS 4492R Global Site Selector is part of the Cisco ACE Application Control Engine product line and a crucial component of any data center architecture that requires an appliance-based, security-focused, universal global load balancer. Using a special protocol (Keepalive Application Protocol [KAL-AP]) facilitates the exchange of application load and availability between the Cisco ACE GSS 4492R and the Cisco ACE Application Control Engine Module. It is deployed on a Cisco ACE Application Control Engine Modules.

Key Features

The Cisco GSS 4492R:

- Provides resilient architecture critical for disaster recovery and multisite web applications deployments.
- Optional software supports full Domain Name System (DNS) and Dynamic Host Configuration Protocol (DHCP) services, allowing the GSS to be deployed as a DNS appliance.
- Offers advanced traffic management for multisite Web application deployments.
- Offers innovative DNS-focused distributed denial-of-service (DDoS) protection software to mitigate the effects of DNS-based DDoS attacks.
- Provides a centralized command and control of DNS resolution process for direct and precise control of global load-balancing processes.
- Offers site persistence for e-commerce applications.
- Supports a web-based GUI, role-based access, and a DNS wizard to simplify the DNS command and control.

Specifications

Feature	Cisco ACE GSS (Global Site Selector) 4400 Series
Ports	Two 10/100/1000 Fast Ethernet autosensing, one console port
DNS requests per second	Up to 30,000, depending on configuration
Network Management	Console port-CLI; Access to system through Telnet; Secure copy (SCP) or FTP; GUI-Secure HTTP (HTTPS) for Internet Explorer and Netscape Navigator; Network management MIBs; Read-only monitoring of network and device status, including RFC 1213: (MIB-II) and RFC 1514 (HOST-RESOURCES-MIB)
Storage	One 80-GB hard drive; Software image SF-GSS-V1.3-K9; 2 GB RAM; Pentium CPU
Physical	One-rack unit size chassis; 1 GB RAM; Prescott 3.2-GHz CPU
Power	Integrated AC power (autosensing 110V/60Hz)

Selected Part Numbers and Ordering Information

GSS-4492R-K9	Cisco GSS 4492R Global Site Selector
SF-GSS-V3.1-K9	Cisco Global Site Selector Software 3.1
SF-GSS-DDOSLIC	DDoS Mitigation software license

For More Information

For more information about the Cisco GSS 4492R, visit: <http://www.cisco.com/go/gss>.

Cisco CSS 11500 Series Content Services Switches

The Cisco CSS 11500 Series Content Services Switch offers a modular architecture for Web infrastructures. It runs the Cisco Web Network Services Software that helps businesses build global Web networks optimized for content delivery and e-commerce. By activating HTTP headers, the CSS 11500 Series helps to ensure availability, optimize utilization, reduce latency, increase scalability, and enhance security for websites, server farms, cache clusters, and firewall systems.



Ideal for Companies That Need These Features

Cisco CSS 11500 Series Content Services Switch

- Enterprises and service providers seeking to reduce data center costs, boost e-business application performance, offer enhanced services, ensure online transaction integrity, and provide the best possible online experience for customers, business partners, and internal workers.

Cisco CCS 11501 and CSS 11501S

- Standalone, fixed-configuration switching platform with up to 8 Fast Ethernet ports and 1 optional Gigabit Ethernet port.

Cisco CCS 11503 and Cisco CCS 11506

- Compact, high-performance, modular content switching platform with up to 32 Fast Ethernet ports or up to 6 Gigabit Ethernet ports.

Key Features

- The Cisco CSS 11500 introduces an intelligent, distributed architecture.
- The Cisco CSS 11500 delivers customized combinations of ports, performance, and services.
- Server offloads are accomplished through an integrated, high-capacity SSL module along with HTTP compression (WebNS 8.10), facilitating content switching functions.

- The Cisco CSS 11500 protects investment by facilitating upgrades of performance, ports, and services through modularity.
- Cisco CSS 11500 I/O modules deliver port density and flow performance.
- Fast Ethernet ports are 10/100BASE-TX with standard RJ-45 connectors, whereas the Gigabit Ethernet ports require Small Form-Factor Pluggable (SFP) gigabit interface converters (GBICs) (1000BASE-SX, 1000BASE-LX, or 1000BASE-T).

Specifications

Feature	Cisco CSS 11501	Cisco CSS 11503	Cisco CSS 11506
Modular Slots	N/A	3	6
Base Configuration	Switch Control with up to 8 10/100 Ethernet ports; up to 1 Gigabit Ethernet (GBIC) port	Switch Control Module; Control with up to 32 10/100 Ethernet ports; up to 2 -2, 8 or 16 port Gigabit Ethernet I/O module; 2 (GBIC) port	Switch Control Module; Control with up to 80 10/100 Ethernet ports; up to 5 – 2, 8 or 16 Gigabit Ethernet modules; 2 (GBIC) port
Max GB Ethernet Ports	1	6	12
SSL Module and HTTP Compression	CSS 11501S-C only	Max—2	Max—4
Session Accelerator Modules		Max—2	Max—5
Redundancy features	Active-active Layer 5 ASR Virtual IP Address (VIP) redundancy	Active-active Layer 5 ASR VIP redundancy	Active-active Layer 5; ASR; VIP redundancy; Active-standby SCM; Redundant switch fabric module; and power supplies
Height	1.75 in. (1 rack unit)	3.5 in. (2 rack units)	8.75 in. (5 rack units)
Bandwidth	Aggregate 6 Gbps	Aggregate 20 Gbps	Aggregate 40 Gbps
Storage	1 GB flash memory	1 GB flash memory	1 GB flash memory
Power	Integrated AC	Integrated AC or DC	Up to 3 AC or 3 DC

Selected Part Numbers and Ordering Information

CSS11506-2AC	Cisco 11506 Content Services Switch including SCM with 2 GE ports, flash drive, 2 switch modules, 2 AC power supplies, and a fan (requires SFP GBICs)
CSS11506-2DC	Cisco 11506 Content Services Switch including SCM with 2 GE ports, flash drive, 2 switch modules, 2 DC power supplies, and a fan (requires SFP GBICs)
CSS11503-AC	Cisco 11503 Content Services Switch including SCM with 2 GE ports, flash drive, and integrated AC power supply, integrated fan, and integrated switch module (requires SFP GBICs)
CSS11503-DC	Cisco 11503 Content Services Switch including SCM with 2 GE ports, flash drive, and integrated DC power supply, integrated fan, and integrated switch module (requires SFP GBICs)
CSS11501	Cisco 11501 Content Services Switch including SCM with 8 10/100 and 1 GE ports, flash drive, and integrated AC power supply, integrated fan, and integrated switch module (optional SFP GBICs)
CSS11501S-C-K9	Cisco 11501 Content Services Switch with SSL termination and HTTP compression including 8 10/100 and 1 GE ports, flash drive, and integrated AC power supply and integrated fan (optional SFP GBICs)
CSS5-SCM-2GE	Cisco CSS 11500 System Control Module with 2 GE ports and hard disk (requires SFP GBICs)
CSS5-IOM-8FE	Cisco CSS 11500 Fast Ethernet I/O Module—8-port TX
CSS5-IOM-16FE	Cisco CSS 11500 Fast Ethernet I/O Module—16-port TX
CSS5-IOM-2GE	Cisco CSS 11500 Gigabit Ethernet I/O Module—2-port (requires SFP GBICs)
CSS5-SAM	Cisco CSS 11500 Session Accelerator Module
CSS5-SSL-C-K9	Cisco CSS 11500 SSL Module and HTTP Compression

For More Information

For more information about the Cisco CSS 11500, visit: <http://www.cisco.com/go/11500>.

Cisco Wide Area Application Services (WAAS)

Cisco Wide Area Application Services (WAAS) is a powerful application-acceleration and WAN-optimization solution that facilitates branch-office server consolidation, performance improvements for centralized applications and services, and LAN-like service levels for remote users.



Key Features

- Cisco WAAS allows preservation of existing network policies, automatic discovery across any network topology, and end-to-end application traffic visibility for ease of monitoring, control, and troubleshooting.
- Cisco WAAS can facilitate consolidation of remote-office server infrastructure, including file servers, Web servers, e-mail servers, application servers, and database servers. The software minimizes deployment, operational, and management costs; improves data availability; and facilitates compliance with regulatory mandates.
- LAN-like performance—Cisco WAAS incorporates application-specific acceleration (Cisco WAAS Enterprise License) as well as WAN optimization that enable near-LAN performance for accessing centralized applications over the WAN, increasing employee productivity and collaboration across all branch-office application services including Web, file, video, e-mail, and enterprise applications.
- Simplified data protection—Cisco WAAS facilitates protection of application data during standard backup, retention, storage-management, and recovery procedures.
- Transparent integration—The solution integrates transparently with existing client, server, storage, and network infrastructure. It requires no changes to the infrastructure, and provides WAN-optimization capabilities without manipulating information that is vital for enabling value-added services that are hosted within the network infrastructure.

Selected Part Numbers and Ordering Information

WAAS-TRN-APL=	Cisco WAAS Transport License for 1 WAE Appliance
WAAS-ENT-APL=	Cisco WAAS Enterprise License for 1 WAE Appliance
WAAS-ENT-NM=	Cisco WAAS Enterprise License for 1 NME model 502 or 522
WAAS-CNTRL-MGR=	Cisco WAAS Central Manager License (1 per mgmt appliance)
WAAS-TRN2ENT-APL=	WAAS Transport to WAAS Enterprise upgrade License for 1 WAE

For More Information

For more information about Cisco Wide Area Application Services (WAAS), visit: <http://www.cisco.com/go/WAAS>.

Cisco Wide Area Application Services (WAAS) Mobile

Cisco Wide Area Application Services (WAAS) Mobile extends Cisco WAAS software application acceleration benefits to mobile employees who travel outside the branch office. It provides good performance under the most challenging network connectivity conditions. Designed with a small PC software footprint, WAAS mobile offers low total cost of ownership (TCO) and helps reduce the costs normally associated with installation of client software on mass-user PCs.

Key Features

- Support for lower-quality network connections not traveling over a dedicated branch-to-corporate-WAN leased line. Cisco WAAS Mobile allows remote users connecting via public Internet connections such as DSL, Wi-Fi, satellite, dial-up, cable and cellular high-quality access to business applications. These connections have lower bandwidth, higher packet loss and latency, and correct for additional challenges such as time-slicing delay in cellular environments.
- Cisco WAAS Mobile provides high application throughput improvement even under the most challenging network conditions that experience very high latency and packet loss. Typical end-user response time of throughput can be increased by 11 times even when encountering 10 percent packet loss.

Selected Part Numbers and Ordering Information

WAAS-MBL-SRV-SW	Cisco WAAS Mobile Server Software (Software Microsoft Windows Server hardware required)
WAAS-MBL-LIC25	Cisco WAAS Mobile 25 Concurrent User License
WAAS-MBL-LIC100	Cisco WAAS Mobile 100 Concurrent User License

For More Information

For more information about Cisco Wide Area Application Services (WAAS) mobile, visit:
<http://www.cisco.com/en/products/ps6474/index.html>.

Cisco Wide Area Application Engine (WAE) Appliances

The Cisco Wide Area Application Engine (WAE) Appliances offer a single, unified platform to host Cisco WAN-optimization and application-acceleration products, including Cisco Wide Area Applications Services (WAAS) Software and Cisco Application and Content Networking System (ACNS) Software that facilitate the consolidation of remote-office application infrastructure and services in the data center while providing LAN-like service levels to remote users. When deployed with Cisco WAAS, it overcomes the performance barriers created by the WAN through a sophisticated combination of application-acceleration and WAN-optimization techniques that mitigate application and transport latency, improve throughput, and minimize WAN bandwidth consumption for any TCP-based application. When deployed with Cisco ACNS Software, Cisco WAE Appliances address the need to distribute and receive high-bandwidth, media-rich content across the Internet or an intranet without performance losses or content-delivery delays.



Cisco WAE Family of Products

- Cisco WAE-512 Wide Area Application Engine—This engine is designed for small to medium-sized branch-office edge deployments. It is a low-cost, high-performance platform that is easy integration into existing branch-office network infrastructure, both logically and physically.
- Cisco WAE-612 Wide Area Application Engine—This engine is designed for large enterprise branches and regional offices deployments as well as core installations in medium-sized data centers.
- Cisco WAE-7326 Wide Area Application Engine—This engine is designed for deployment as a core WAN optimization and application-acceleration device in large enterprise data centers. It offers application-acceleration, maximum WAN optimization performance and very high scalability.

Key Features

- The Cisco WAE Appliance provides a solution for performance and scalability constraints imposed by the WAN.
- The Cisco WAE delivers increasingly rich application content and services to remote users.
- The Cisco WAE provides ways to control the explosive growth in bandwidth requirements generated by new applications and business processes; it transparently improves throughput and responsiveness for existing applications.
- The appliance centralizes distributed application and file-services infrastructure into corporate data centers, and facilitates collaborative applications.
- When the Cisco WAE-7326 is deployed using the Web Cache Communication Protocol Version 2 (WCCPv2), up to 32 Cisco WAE-7326 Appliances can be grouped together in a service group to support the largest enterprise deployments.
- With Cisco ACNS, the appliance can accelerate video-streaming solutions deployed at remote branches and help customers manage content caching and distribution.

Specifications

Feature	Cisco WAE-512	Cisco WAE-612	Cisco WAE-7326
RAM configurations	1 GB (2 GB optional)	2 GB (4GB optional)	4 GB max
Flash memory	128 MB of Compact Flash memory	128 MB of Compact Flash memory	128 MB of Compact Flash memory
Maximum storage	Two 250-GB SATA hard drives	Two 300-GB SAS hard drives	Six 300-GB SCSI hard drives
Network Interfaces	Two 10/100/1000	Two 10/100/1000	Two 10/100/1000
Power	One 350W AC	One 350W AC	One 350W AC
MPEG decoder (optional)	Yes (support only with Cisco ACNS software) MPEG-1 and 2; DB-15 audio connector; BNC composite video output; 7-pin DIN S-video output connector	Yes (support only with Cisco ACNS software) MPEG-1 and 2; DB-15 audio connector; BNC composite video output; 7-pin DIN S-video output connector	No
External SCSI connector	No	No	Dual-channel U320 SCSI

Dimensions (H x W x D)	1 rack unit, 1.75 x 172 x 22.1 in. (43 x 440 x 559 mm)	1 rack unit, 1.75 x 172 x 22.1 in. (43 x 440 x 559 mm)	1 rack unit, 3.36 x 175 x 27.64 in. (85.4 x 443.6 x 702.0 mm)
Maximum weight	28 lb. (12.7 kg)	28 lb. (12.7 kg)	64 lb. (29.03 kg)
Operating temperature	50 to 95F (10 to 35C)	50 to 95F (10 to 35C)	50 to 95F (10 to 35C)
Compliance	CE marking	CE marking	CE marking

Selected Part Numbers and Ordering Information

WAE-512-K9	Software and license options—Cisco WAAS or Cisco ACNS Storage options—One or two 250-GB SATA drives (part number DISK-SATA2-250GB) Memory options—Additional 1-GB memory (part number MEM-WAE-1GB) Optional 4-port network interface card (NIC) to support in-path (inline) deployments using Cisco WAAS (WAE-INLN-4CG)
WAE-612-K9	Software and license options—Cisco WAAS Software or Cisco ACNS Software Storage options—Two 300-GB SAS drives (part number DISK-SAS-300GB) Memory options—Additional 2-GB memory (part number MEM-WAE-2GB) Optional 4-port NIC to support in-path (inline) deployments using Cisco WAAS (PN# WAE-INLN-4CG)
WAE-674-K9	Includes 3 X 300 GB HDD and 4 GB RAM; no other HDD options are available Software and license options—Cisco WAAS Software or Cisco ACNS Software Memory options—Additional 4-GB memory (part number MEM-WAE-4GB) supported with Cisco WAAS only Power and fan option—Additional (redundant) power and fan available (PN#RED-PWR-FAN-674) Optional 4-port NIC to support in-path (inline) deployments using Cisco WAAS (PN# WAE-INLN-4CG)
WAE-7341-K9	Includes 4 X 300 GB HDD and 12 GB RAM; no other RAM or HDD options are available Software and license options—Cisco WAAS Software or Cisco ACNS Software Optional 4-port NIC to support in-path (inline) deployments using Cisco WAAS (PN# WAE-INLN-4CG)
WAE-7371-K9	Includes 6 X 300 GB HDD and 24 GB RAM; no other RAM or HDD options are available; Software and license options—Cisco WAAS Software or Cisco ACNS Software Optional 4-port NIC to support in-path (inline) deployments using Cisco WAAS (PN# WAE-INLN-4CG)
NME-WAE-302-K9	Network module for Cisco Integrated Services Routers; supports 250 TCP connections of only Cisco WAAS Transport license
NME-WAE-502-K9	Network module for Cisco Integrated Services Routers; supports 500 TCP connections Cisco WAAS Transport and Enterprise licenses
NME-WAE-522-K9	Network module for Cisco Integrated Services Routers; supports 800 TCP connections Cisco WAAS Transport and Enterprise licenses

For More Information

For more information about the Cisco Wide Area Application Engine (WAE) Appliances, visit: <http://www.cisco.com/go/wae>.

Cisco Wide Area Virtualization Engine (WAVE)

The Cisco Wide Area Virtualization Engine (WAVE) is a branch-office appliance that provides WAN optimization, embedded virtualization for local hosting, and branch-office video delivery. It allows IT organizations to centralize applications and storage in the data center while maintaining LAN-like application performance and delivering local branch-office IT services.

Cisco WAVE appliances are designed to enable local hosting of branch-office IT services using a network-embedded virtualization architecture. This architecture maintains native performance for WAN optimization while using the same hardware platform for additional hosted services and reducing the branch-office device footprint.

Key Features

- Improve employee productivity by enhancing the user experience for important business applications delivered over the WAN.
- Reduce the cost of branch-office operations by centralizing IT resources in the data center and lowering the cost of WAN bandwidth.



- Increase IT agility by reducing the time and resources required to deliver new IT services to the branch office.
- Simplify branch data protection for regulatory compliance purposes.

Selected Part Numbers and Ordering Information

WAVE-274-K9	Cisco WAVE-274 with chassis with 3 GB SDRAM, 250-GB hard disk drive (HDD), 2-port inline module, and AC power supply; Cisco WAAS Enterprise license included
WAVE-474-K9	Fixed hardware SKU with 1 X 250GB HDD, 3GB DRAM, 2-port inline card and Cisco WAAS Enterprise License included
WAVE-574-K9	Cisco WAVE-574 with chassis with 3 GB SDRAM, 500-GB HDD, and AC power supply; Cisco WAAS Enterprise license included

For More Information

For more information about the Cisco Wide Area Virtualization Engine (WAVE), visit: <http://www.cisco.com/go/WAAS>.

Cisco Application and Content Networking System (ACNS)

The Cisco Application and Content Networking System (ACNS) is a powerful digital media delivery solution that greatly reduces redundant digital media streaming traffic traversing a WAN from the data center to branch offices over satellite and terrestrial networks. With Cisco ACNS, organizations can deliver effective and large-scale corporate communications, on-demand training, and digital signage to remote branch offices, schools, and stores, with high-quality and minimal effect on the network, while taking advantage of investments in converged IP WANs. Cisco ACNS combines the technologies of transparent on-demand caching, scheduled repositioning, and live digital broadcasting to minimize the effect over the WAN.

Key Features

- Cisco ACNS provides live broadcasts and video on demand (VoD). Stream splitting at the edge delivers streams to hundreds of user desktops or TV displays.
- Cisco ACNS integrates with the Cisco Digital Media System (DMS).
- Cisco ACNS offers unicast and IP Multicast delivery. It delivers only one unicast video stream per digital media streaming source.
- Cisco ACNS offers continuous and transparent media content distribution with policy-based bandwidth throttling.
- Cisco ACNS has a multilayer hierarchy for high scalability and redundancy across the delivery path to thousands of user desktops, digital signs, kiosks, and so on.
- Cisco ACNS supports multi video formats, including Microsoft Windows Media, Real, Flash, H.264, and QuickTime.

Selected Part Numbers and Ordering Information

SF-ACNS-5.5-SA-K9	Cisco ACNS Software v.5.5 (SATA)
SF-ACNS-5.5-SC-K9	Cisco ACNS Software v.5.5 (SCSI)
SF-ACNS-5.5-SS-K9	Cisco ACNS Software v.5.5 (SAS)

For More Information

For more information about Cisco ACNS, visit: <http://www.cisco.com/go/acns>.

Cisco SSL Services Module for the Cisco Catalyst 6500 and Cisco 7600 Series

The Cisco SSL Services Module for the Catalyst 6500 and Cisco 7600 Series is an integrated services module for the Cisco Catalyst 6500 Series that offloads the processor-intensive tasks related to securing traffic with Secure Sockets Layer (SSL) and increases the number of secure connections supported by a website.

Ideal for Companies That Need These Features

SSL Services Module for the Catalyst 6500 and Cisco 7600 Series • Integrated SSL encryption and decryption security services for web connections

Key Features

- The SSL Services Module performs all Secure Sockets Layer (SSL)-related tasks, allowing servers to handle high-speed plaintext traffic.
- The SSL Services Module provides a simple means of addressing increased performance requirements by installing additional SSL modules in a Cisco Catalyst 6500 Switch. The module offers scalable SSL processing—2500 connection setups per second per module; and 10,000 per chassis fully populated with SSL modules.
- It maintains persistence even when clients request new session IDs in integrated mode with the Cisco Content Services Module (CSM).
- The SSL Services Module provides cost savings by requiring only a single certificate copy versus a copy for each server subject to customer and certificate authority agreement.

Specifications

Feature	Cisco SSL Services Module for the Catalyst 6500 and Cisco 7600 Series
System Capacity and Performance	2500 connection setups/sec per module—10K per chassis; 60K concurrent client connections—240K per chassis; 300 Mbps bulk rate encryption—1.2 Gbps per chassis; 256 key pairs; 256 key certificates; Up to 2K key sizes—256 proxy servers
Scalability	Up to four SSL modules in the same Catalyst 6500
Integration with Server Load Balancing	Tightly integrated in the Cisco Catalyst 6500 Switch with the CSM

Selected Part Numbers and Ordering Information

WS-SVC-SSL-1-K9=	Cisco SSL Module for Catalyst 6500 and Cisco 7600 Series Switches
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For More Information

For more information about Cisco SSL Services Module for the Catalyst 6500 & Cisco 7600 Series switches, visit: http://www.cisco.com/en/US/products/hw/modules/ps2706/prod_module_series_home.html.

Cisco Nexus 7000 Series Switches

The Cisco Nexus 7000 Series are the first switches designed specifically to meet data center-class requirements. Built to meet the most mission-critical data center requirements, it delivers continuous system operation and virtualized, pervasive services. The Cisco Nexus 7000 Series is a modular line of switches designed for highly scalable end-to-end 10-Gigabit Ethernet data center networks. It features a fabric architecture that scales beyond 15 terabits per second (Tbps), with future support for 40 and 100 Gigabit Ethernet.

The Cisco Nexus 7000 Series is based on a proven operating system (Cisco NX-OS), with enhanced features to deliver real-time system upgrades with exceptional manageability and serviceability. Its innovative design is built to support end-to-end data center connectivity, consolidating IP, storage, and interprocess communication (IPC) networks on a single Ethernet fabric.



Ideal for Companies That Need These Features

Cisco Nexus 7000 Series

- Infrastructure scalability
- Optimized CPU resources
- Scalable security with link-layer encryption, security-group access control lists, and role-based access control
- Operational continuity for lossless, nondisruptive upgrades and zero service downtime
- A connectivity management processor (CMP) to provide integrated out-of-band management access
- Transport flexibility
- Virtualized control-plane and data-plane forwarding results in optimized performance
- Virtual device contexts (VDCs) to maximize software and hardware resource usage while providing strong security and software fault isolation

Key Features

- The Cisco Nexus 7000 supports up to two hundred fifty-six 10-Gigabit Ethernet or three hundred eighty-four 10/100/1000 Ethernet ports in a single 10-slot chassis.
- The Cisco Nexus 7000 has a fully modular and fully redundant 10-slot chassis with front-to-back airflow and integrated cable management.
- Dual dedicated supervisor modules provide exceptional high-availability features with no service interruptions, even during hardware and software upgrades.

- A highly scalable fabric architecture supports up to five fabric modules for load-balanced, fault-tolerant operation; the switch is designed to deliver 230 Gbps per slot of bandwidth at release, with future support for more than 500 Gbps per slot.
- The switch provides virtual output queuing and fabric arbitration, delivers quality of service (QoS) and fairness across all ports, even during congestion, and provides the basis for future unified I/O.
- The switch offers integrated security hardware support for Cisco TrustSec, providing data confidentiality while simplifying and scaling access control.
- The switch has fully distributed forwarding engines, providing scalable packet processing and forwarding.
- Three load-sharing power supply modules allow either 110- or 220-VAC inputs. With 220-VAC inputs these power supplies will deliver fault tolerance for a fully loaded chassis with worst-case N+1 and grid redundancy.

Selected Part Numbers and Ordering Information

N7K-C7010	Cisco Nexus 7000 Series 10 Slot Chassis-includes cable management and fans, does not include Power Supplies
N7K-C7010-FAB-1	Cisco Nexus 7000 10 Slot Fabric Module-46Gbps per slot
N7K-C7018	Cisco Nexus 7000 Series 18-Slot chassis including fan trays, no power supply
N7K-SUP1	Cisco Nexus 7000 Series Supervisor Module-includes external 8GB Log Flash, does not include optional external 2GB Expansion Flash
N7K-LAN1K9	Cisco Nexus 7000 LAN Enterprise License (L3 protocols)
N7K-M132XP-12	Cisco Nexus 7000 Series 32 Port 10Gb Ethernet Module (requires SFP+ Optic Modules)
N7K-M148GT-11	Cisco Nexus 7000 Series 48 Port 10/100/1000 Ethernet Module
N7K-M148GS-11	Cisco Nexus 7000 Series 48 Port 1 Gigabyte SFP

For More Information

For more information about the Cisco Nexus 7000 Series, visit: <http://www.cisco.com/go/nexus>.

Cisco Nexus 5000 Series Switches

The Cisco Nexus 5000 Series is a family of line-rate, low-latency, lossless 10 Gigabit Ethernet, Cisco Data Center Ethernet, and Fibre Channel over Ethernet (FCoE) switches for data center applications. With low latency, front-to-back cooling, and rear-facing ports, the Cisco Nexus 5000 Series is designed for data centers transitioning to 10 Gigabit Ethernet as well as for those ready to deploy a unified fabric that can handle their LAN, SAN and server cluster, networking all over a single link (or dual links for redundancy).



Key Features

- High-performance, low-latency 10 Gigabit Ethernet, delivered by a cut-through switching architecture, for 10 Gigabit Ethernet server access in next-generation data centers
- Cisco Data Center Ethernet, a main component of Cisco Data Center 3.0 architecture, with features, including Layer 2 multipathing, which increases scalability in the data center
- Unified fabric with Fibre Channel over Ethernet (FCoE) for I/O consolidation, reducing power and cabling requirements and simplifying data center networks especially for SAN consolidation Fibre Channel
- Virtual machine optimized services for higher asset utilization, simplified server connections, rapid server provisioning, security, and quality of service (QoS)

Selected Part Numbers and Ordering Information

N5K-C5010P-BF	Cisco Nexus 5000 1RU Chassis no PS, 2 Fan Modules, 20 ports (req SFP+)
N5K-C5020P-BF	Cisco Nexus 5000 2RU Chassis no PS, 5 Fan Modules, 40 ports (req SFP+)
N5K-C5020P-BFS	Cisco Nexus 5020 2RU Chassis, Storage Enabled
N5K-M1600(=)	Cisco Nexus 5000 1000 Series Module 6-port 10 GE (req SFP+)
N5K-M1-BLNK(=)	Cisco Nexus 5000 1000 Series Expansion Module Blank

For More Information

For more information about the Cisco Nexus 5000 Series, visit: <http://www.cisco.com/go/nexus>.

Cisco Nexus 2000 Series Switches

The Cisco Nexus 2000 Series Fabric Extender (FEX) is a new category of data center products that provide a universal server-access platform that scales across a range of Gigabit Ethernet, 10 Gigabit Ethernet, unified fabric, rack, and blade-server environments. It is designed to simplify data center architecture and operations. The Cisco Nexus 2000 virtualizes the access layer of the network and extends the capabilities of Cisco Nexus switches to Gigabit Ethernet, 10 Gigabit Ethernet, and unified I/O environments.



Key Features

- The combination of the Cisco Nexus 2148T and Cisco Nexus 5000 Series Switches offers a highly cost-effective access layer solution for Gigabit Ethernet and mixed gigabit and 10 Gigabit Ethernet server environments.
- The Cisco Nexus 2148T provides scalability for supporting Gigabit Ethernet environments with flexible control over oversubscription.
- Basing the access layer on Cisco Nexus 5000 Series Switches protects investment into the future, providing an easy migration path to low-latency 10 Gigabit Ethernet and a unified network fabric that supports LAN, storage area network (SAN), and high-performance computing (HPC) networks, all over a single access layer connection.
- Standardizing on Cisco Nexus 5000 Series Switches allows data centers to support the same switch features across the entire access layer with a single point of management.

Selected Part Numbers and Ordering Information

N2K-C2148T-1GE	Cisco Nexus 2000 Series 1GE Fabric Extender, 1PS, 1 Fan Module, 48x1G-BaseT + 4x10GE (req SFP+)
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For More Information

For more information about the Cisco Nexus 2000 Series, visit: <http://www.cisco.com/go/nexus>.

Cisco Nexus 1000V Series Switches

The Cisco Nexus 1000V virtual machine access switch is an intelligent software switch implementation for VMware ESX environments. Running inside of the VMware ESX hypervisor, the Cisco Nexus 1000V supports Cisco VN-Link server virtualization technology, providing:

- Policy-based virtual machine (VM) connectivity
- Mobile VM security and network policy
- Non-disruptive operational model for your server virtualization, and networking teams

With the Cisco Nexus 1000V Series Switches, you can have a consistent networking feature set and provisioning process all the way from the virtual machine (VM) to the access, aggregation, and core switches. Your virtual servers can use the same network configuration, security policy, tools, and operational models as physical servers. Virtualization administrators can leverage predefined network policy that follows the nomadic VM and focus on virtual machine administration. This comprehensive set of capabilities helps you to deploy server virtualization faster and realize its benefits sooner.

The Cisco Nexus 1000V switch has two major components: the Virtual Ethernet Module (VEM) that executes inside the hypervisor, and the external Virtual Supervisor Module (VSM) that manages the VEMs.

Selected Part Numbers and Ordering Information

L-N1K-VLCPU-01	Nexus 1000V eDelivery CPU license Qty 1
L-N1K-VLCPU-04=	Nexus 1000V eDelivery CPU license Qty 4
L-N1K-VLCPU-16=	Nexus 1000V eDelivery CPU license Qty 16
N1K-VLCPU-16=	Nexus 1000V Paper CPU License Qty 16
L-N1K-VLCPU-32=	Nexus 1000V eDelivery CPU license Qty 32
N1K-VLEM-UCS-1	Nexus 1000V license PAK for 1 virtual Ethernet module on UCS

Note: Cisco Nexus 1000v software and licenses can also be ordered directly from your VMware reseller.

For More Information

For more information about the Cisco Nexus 1000V Series Switches, visit: <http://www.cisco.com/go/nexus>.

Cisco Unified Computing System

The Cisco Unified Computing System is a next-generation data center platform that unites compute, network, storage access, and virtualization into a cohesive system designed to reduce Total Cost of Ownership (TCO) and increase business agility. The system integrates a low-latency, lossless 10GE unified network fabric with enterprise-class, x86-architecture servers. The system is an integrated, scalable, multichassis platform in which all resources participate in a unified management domain.



The UCS is managed as a single system whether it has 1 server or 320 servers with thousands of virtual machines, this approach decouples scale from complexity. The Cisco Unified Computing System accelerates the delivery of new services simply, reliably, and securely through end-to-end provisioning and migration support for both virtualized and non-virtualized systems.

The Cisco Unified Computing System is designed to deliver:

- Reduced total cost of ownership (TCO) at the platform, site, and organizational levels
- Increased IT staff productivity and business agility through just-in-time provisioning and mobility support for both virtualized and non-virtualized environments
- A seamless integrated system that is managed, serviced, and tested as a whole
- Scalability through a design for up to 320 discrete servers and thousands of virtual machines, and the ability to scale I/O bandwidth to match demand
- Industry standards supported by a partner ecosystem of industry leaders

Cisco UCS Product Family of Products

The Cisco Unified Computing System is built from the following components:

- Cisco UCS 6100 Series Fabric Interconnects is a family of line-rate, low-latency, lossless, 10-Gbps Cisco Data Center Ethernet and FCoE interconnect switches that consolidate I/O within the system. Both 20-port 1RU and 40-port 2RU versions accommodate expansion modules that provide Fibre Channel and/or 10 Gigabit Ethernet connectivity.
- Cisco UCS 5100 Series Blade Server Chassis supports up to eight blade servers and up to two fabric extenders in a 6RU enclosure without the need for additional management modules.
- Cisco UCS 2100 Series Fabric Extenders bring unified fabric into the blade-server chassis, providing up to four 10-Gbps connections each between blade servers and the fabric interconnect, simplifying diagnostics, cabling, and management.
- Cisco UCS B-Series Blade Servers based on Intel Xeon processors adapt to application demands, intelligently scale energy use, and virtualization. Each blade server utilizes network adapters for access to the unified fabric. Cisco's unique memory-expansion technology substantially increases the memory footprint, maximizing performance and capacity for demanding virtualization and large-dataset workloads. In addition, the technology offers a more cost-effective memory footprint for less-demanding workloads.
- Cisco UCS C-Series Rack-Mount Servers offer a rack mount form factor. Cisco C-Series Servers may also be deployed as stand-alone computing devices in traditional environments while providing a variety of innovative features. C-Series Servers provide IT with increased flexibility and confidence to take advantage of Cisco's Unified Computing architecture.
- Cisco UCS Network Adapters are offered in a mezzanine-card form factor. Three types of adapters offer a range of options to meet application requirements, including adapters optimized for virtualization, compatibility with existing driver stacks, or efficient, high-performance Ethernet.

Key Features

- Reduced total cost of ownership at the platform, site, and organizational levels
- Increased IT staff productivity and business agility through just-in-time provisioning and mobility support for both virtualized and non-virtualized environments
- Enable scalability through a design for up to 320 discrete servers and thousands of virtual machines in a single highly available management domain
- Industry standards supported by a partner ecosystem of innovative, trusted industry leaders

Selected Part Numbers and Ordering Information

N10-S6100	Cisco Unified Computing System 6120XP 20-port Fabric Interconnect/0 PSU/2 fans/no SFP+
N10-S6200	Cisco Unified Computing System 6140XP 40-port Fabric Interconnect/0 PSU/5 fans/no SFP+
N20-C6508	Cisco Unified Computing System 5108 Blade Server Chassis/0 PSU/8 fans/0 fabric extender
N20-X00001	CPU Kits—2.93GHz Xeon X5570 95W CPU/8MB cache/DDR3 1333MHz (NOTE: other options include 2.53GHz, 2.26GHz, and 2.26GHz Xeon configurable CPU selections)

N01-M302GB1	Memory Kits—2GB DDR3-1333MHz RDIMM/PC3-10600/single rank 1Gb DRAMs (NOTE 4GB & 8GB memory options are available during configuration)
N20-AI0002	Mezzanine Cards—UCS 82598KR-CI 10-Gigabit Ethernet Adapter/PCIe/2-port 10Gb (NOTE Emulex, QLogic, and Virtual interface card options are available during configuration)
N20-D073GB	Hard Drive Options—73GB SAS 15K RPM SFF HDD/hot plug/B-series drive sled (NOTE 146GB option available during configuration)
Operation systems	UCS blade servers can be preconfigured with Red Hat, Novell, Microsoft, or VMware operating systems

For More Information

For more information about the Cisco Unified Computing System solutions, visit: <http://www.cisco.com/go/ucs>.

Cisco MDS 9000 Multilayer Directors and Fabric Switches

The Cisco MDS 9000 Multilayer Directors and Fabric Switches are storage area network (SAN) switches that deliver multiple layers of integrated intelligence, including multiprotocol integration (Fibre Channel, Small Computer System Interface over IP [iSCSI], Fibre Channel over IP [FCIP], and IBM Fiber Connection [FICON]), intelligent network services (virtual SANs [VSANs] and InterVSAN Routing, embedded diagnostics, role-based security, and encryption), and an open platform for hosting intelligent storage services and comprehensive, integrated management.



Cisco MDS 9000 Product Family of Products

- Cisco MDS 9500 Series Multilayer Directors—Offer up to five hundred twenty-eight 1-, 2-, and 4-Gbps autosensing Fibre Channel ports and up to forty-four 10-Gbps Fibre Channel ports in a single 13-slot chassis. Chassis are also available in 9- and 6-slot configurations; High availability—The directors offer nondisruptive software upgrades, stateful processor restart and failover, and redundancy of all major components; High performance—The directors offer up to 2.2 terabits per second (Tbps) per system, with each crossbar providing 100-percent system throughput; Multiprotocol support—The directors integrate Fibre Channel, FICON, FCIP, and iSCSI in single platform for optimal consolidation and SAN extension; Hosting of intelligent storage applications (network-based virtualization, volume management, data replication, data migration, storage media encryption, backup, and snapshot capabilities); Data center consolidation needs; Modularity and flexibility for future growth
- Cisco MDS 9200 Multilayer Fabric Switches—Moderate port densities—The switches offer up to 66 Fibre Channel ports in a single 2-slot chassis; Multiprotocol support—The switches integrate Fibre Channel, FCIP, and iSCSI in single platform for optimal consolidation and SAN extension; Hosting of intelligent storage applications (network-based virtualization, volume management, data replication, data migration, storage media encryption, backup, and snapshot capabilities); Modularity and flexibility for future growth
- Cisco MDS 9100 Series Multilayer Fabric Switch—Low base port count with pay-as-you-grow port licensing for up to 64.4-Gbps Fibre Channel ports—The base configuration has eight 4-Gbps Fibre Channel ports on the Cisco MDS 9124, and sixteen 4-Gbps Fibre Channel ports on the Cisco MDS 9134; Small form factor—The switch occupies 1 rack unit (1RU), so is ideal for space-constrained environments; Fibre Channel-only connectivity; Entry-level SAN where price per port is more important than future modularity and flexibility

Key Features

- Flexibility and investment protection—Share common switching modules across all Cisco MDS 9500 Series products, including the Cisco MDS 9200 Series. The chassis provide a 3RU base system consisting of eighteen 1-, 2-, and 4-Gigabit Ethernet ports; they are expandable with a variety of optional modules.
- Sophisticated diagnostics—The Cisco MDS 9000 provides intelligent diagnostics, protocol, decoding, and network analysis tools as well as integrated call-home capability for added reliability, faster problem resolution, and reduced service costs.
- Configurable—The Cisco MDS 9000 provides embedded Cisco Fabric Manager, open application programming interfaces (APIs), and integration and third-party SAN and network management platforms.
- Open platform—The platform is ideal for hosting intelligent storage services such as network-based volume management, data migration, and Cisco MDS 9000 Network-Accelerated Serverless Backup.
- Integrated mainframe support—Mainframe-ready, the Cisco MDS 9000 supports cascaded FICON fabrics, as well as intermix of FICON and open systems Fibre Channel Protocol (FCP) traffic on the same switch.

Specifications

Feature	MDS 9513 Director	MDS 9509 Director	MDS 9506 Director
Modular Slots	13 slots; 2 for supervisors, 11 for connectivity	9 slots; 2 for supervisors, 7 for connectivity	6 slots; 2 for supervisors, 4 for connectivity
Maximum Number of Ports per Switch	528 1/2/4-Gbps Fibre Channel ports	336 1/2/4-Gbps Fibre Channel ports	192 1/2/4-Gbps Fibre Channel ports
Multiprotocol/Multitransport	Yes: Fibre Channel, FCIP, iSCSI, IP-FC, and FICON		
Dimensions (H x W X D)	24.5 x 17.37 x 28.0 in. (62.23 x 44.12 x 71.12 cm)	24.5 x 17.37 x 18.4 in. (62.23 x 44.12 x 46.74 cm)	12.25 x 17.37 x 21.75 in. (31.12 x 44.12 x 55.25 cm)
Max Buffer Credits per port	4095	4095	4095
Port Channel	Up to 16 ports per Port Channel across switching modules		
Optics Support	Fibre Channel, Ethernet, CWDM, and DWDM		
HW-Enforced Zoning Support	N_Port WWN, F_Port WWN, N_Port FCID, Port Broadcast		
Feature	MDS 9124 Fabric Switch	MDS 9134 Fabric Switch	MDS 9222i Fabric Switch
Fixed Slot	Fixed auto-sensing 1/2/4-Gbps Fibre Channel ports	Fixed auto-sensing 1/2/4-Gbps Fibre Channel ports	2 slots; 1 fixed configuration—18 1/2/4-Gbps Fibre Channel ports and 4 GE ports; 1 open slot for connectivity
Maximum Number of Ports per Switch	24 1/2/4-Gbps Fibre Channel ports	32 1/2/4-Gbps Fibre Channel ports + 2 10-Gbps Fibre Channel ports	16 1/2/4-Gbps + 48 1/2/4-Gbps Fibre Channel ports + 4 GE ports
Multiprotocol/Multitransport	No—Fibre Channel only	Yes—Fibre Channel and FICON	
Dimensions (H x W X D)	1.75 x 17.35 x 16.0 in. (4.5 x 44.5 x 40.6 cm)	1.76 x 17.16 x 18.89 in. (4.47 x 43.59 x 47.98 cm)	5.25 x 17.32 x 22.66 in. (13.36 x 44.12 x 57.56 cm)

Selected Part Numbers and Ordering Information

MDS 9500 Base Configuration	
DS-C9506	MDS 9506 Chassis
DS-C9506-2K9	MDS 9506 Base Configuration; Chassis, 2-Sup-2.2, 1.9K AC power supply
DS-C9509	MDS 9509 Chassis
DS-C9509-2K9	MDS 9509 Base Configuration; Chassis, 2-Sup-2.2, 3K AC power supply
DS-C9513	MDS 9513 Chassis
DS-C9513-K9	MDS 9513 Base Configuration; Chassis, 2-Sup-2.2 Fabric, 2 6K AC power supply
DS-X9530-SF2-K9	MDS 9500 Supervisor/Fabric 2
MDS 9000 Modules	
DS-X9032-SSM	MDS 9000 Storage Services Module
DS-X9112	MDS 9000 12-port 1/2/4-Gbps FC Module
DS-X9124	MDS 9000 24-port 1/2/4-Gbps FC Module
DS-X9148	MDS 9000 48-port 1/2/4-Gbps FC Module
DS-X9248-48K9	4/44-Port Host-Optimized 8-Gbps FC Module
DS-X9248-96K9	48-Port 8-Gbps Fibre Channel Switching Module
DS-X9224-96K9	24-Port 8-Gbps Fibre Channel Switching Module
DS-X9304-18K9	MDS 9000 4-port GE and 18-port FC Module
DS-X9304-18FK9	MDS 9000 4-port GE and 18-port FC FIPS Module

DS-X9308-SMIP	MDS 9000 8-port 1 GE IP Storage Services Module
DS-SFP-FC-2G-SW	1/2-Gbps Fibre Channel-SW SFP, LC
DS-SFP-FC-2G-LW	1/2-Gbps Fibre Channel-LW SFP, LC
DS-SFP-FC4G-SW	1/2/4-Gbps Fibre Channel-Shortwave SFP, LC
DS-SFP-FC4G-MR	1/2/4-Gbps Fibre Channel-Longwave SFP, LC (4km reach)
DS-SFP-FC4G-LW	1/2/4-Gbps Fibre Channel-Longwave SFP, LC (10km reach)
DS-SFP-FCGE-SW	1-Gbps Ethernet and 2-Gbps Fibre Channel-SW, SFP, LC
DS-SFP-FCGE-LW	1-Gbps Ethernet and 2-Gbps Fibre Channel-LW, SFP, LC
DS-X2-FC10G-SR	10-Gbps Fibre Channel-Shortwave, SC
DS-X2-FC10G-LW	10-Gbps Fibre Channel-Longwave, SC
DS-SFP-GE-T	Gigabit Ethernet Copper, SFP, RJ-45

MDS 9500 Memory Options

MEM-MDS-FLD512M=	MDS 9500 Sup Compact Flash Disk, 512 MB, Spare
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MDS 9200 Base Configuration

DS-C9222i-K9	MDS 9222i 18-port FC and 4-port GE + 1-slot Modular Switch
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MDS 9100

DS-C9124-K9	MDS 9124 8-port base
DS-C9134-K9	MDS 9134 16-port base
DS-C9134-1K9	MDS 9134 32-port base
DS-C9134-8-K9	MDS 9134 with 32 FC ports enabled
DS-2C9134-K9	2x MDS 9134s stacked as a bundle via copper CX4 with 48-port enabled
DS-2C9134-1K9	2x MDS 9134s stacked as a bundle via copper CX4 with 64-port enabled

For More Information

For more information about the Cisco MDS 9000, visit: <http://www.cisco.com/go/storagenetworking>.

Cisco MDS Data Mobility Manager (DMM)

The Cisco Data Mobility Manager (DMM), a fabric-based data migration solution that transfers block data non-disruptively across heterogeneous storage volumes and across distances, irrespective of whether the host is online or offline, is such a solution. With no host components to deploy, the time-consuming, costly, and sensitive task of installing and licensing hardware and software on servers is avoided. In addition, host CPU and bandwidth cycles are available to the application in their entirety, so applications do not experience any deterioration in performance.

Selected Part Numbers and Ordering Information

M92DMM184K9=	Cisco Data Mobility Manager (DMM) License for one 18/4 on Cisco MDS 9200
M95DMM184K9=	Cisco Data Mobility Manager (DMM) License for one 18/4 on Cisco MDS 9500
M9222iDMMK9=	Cisco Data Mobility Manager (DMM) License for Cisco MDS 9222i

For More Information

For more information about the Cisco MDS DMM, visit: <http://www.cisco.com/go/storagenetworking>.

Cisco MDS 9000 Storage Media Encryption

Cisco Storage Media Encryption (SME) protects data at rest on heterogeneous tape drives and Velocity Template Languages (VTLs) in a storage-area-network (SAN) environment using secure IEEE-standard Advanced Encryption Standard (AES) algorithms. Supported natively on the Cisco MDS 9000 18/4-Port Multiservice Module, and the Cisco MDS 9222i Multiservice Modular Switch, Cisco SME capabilities are provided as a fabric service so that traffic between any host and storage device on the fabric can use the Cisco SME services. Furthermore, these encryption and compression capabilities are transparent to the hosts and storage devices and are available for devices in all virtual SANs (VSANs) in the fabric without the need for reconfiguration or rewiring, eliminating downtime for deployment. Cisco SME provisioning and key management are both integrated into Cisco Fabric Manager; no additional software is required.

Selected Part Numbers and Ordering Information

M9500SME1MK9	Cisco Storage Media Encryption package for one MPS-18/4 or MPS-18/4 FIPS module in the Cisco MDS 9500 series
DS-SCR-K9=	Smart Card Reader for Cisco SME

For More Information

For more information about the Cisco MDS 9000 Storage Media Encryption, visit: <http://www.cisco.com/go/storagenetworking>.

Cisco MDS 9000 Optical Modules

The Cisco MDS 9000 optical interface modules operate with the following platforms:

- Cisco ONS15454 SDH Multiservice Provisioning Platform (MSPP)

The Cisco MDS 9000 optical interface modules offer a broad range of storage-area-network (SAN) connectivity solutions for both local and extended reach. Small Form-Factor Pluggable (SFP) modules for the Cisco MDS 9000 are available in either short- or long-wave options to support Fibre Channel and Gigabit Ethernet connections over distances of up to 500 meters and 10 kilometers, respectively. Cisco Coarse Wavelength-Division Multiplexing (CWDM) SFPs and passive add/drop multiplexers provide cost-effective, multiprotocol, extended-distance connectivity by optimizing the use of the existing optical infrastructure.

Selected Part Numbers and Ordering Information

CISCO15454	Cisco ONS 15454 SDH Multiservice Provisioning Platform (MSPP)
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For More Information

For more information about the Cisco MDS 9000 Optical Modules, visit: <http://www.cisco.com/go/storagenetworking>.

Cisco Catalyst Blade Switch 3000 and 3100 Series

Cisco Catalyst Blade Switch 3100 Series and the Cisco Catalyst Blade Switch 3000 Series are specifically designed to meet the rigors of blade server application infrastructure.

The Cisco Catalyst Blade Switch 3000 Series provides cost-effective gigabit Ethernet connectivity, while the Cisco Catalyst Blade Switch 3100 series provides high performance 10Gb Ethernet connectivity and innovative Virtual Blade Switch (VBS) technology. The Cisco Catalyst Blade Switches help address the problems of server sprawl within the data center infrastructure.

These servers allow mixing and matching of Gigabit Ethernet and 10 Gigabit Ethernet switches, providing customers with a cost-effective migration path. Switch capacity can be incrementally upgraded as server needs demand. Cisco blade switches are optimized for IBM, HP, Dell, and FSC storage environments. These products introduce an innovative new technology called the virtual blade switch (VBS), which allows up to 8 physical switches to be combined into a single logical switch. These products represent the foundation of the many additional functions that the Cisco Catalyst Blade Switch 3100 Series delivers.



Key Features

- The VBS is self-managing and self-configuring. When switches are added or removed, the master switch automatically loads the Cisco IOS Software version running on the VBS to the new switch, loads the global configuration parameters, and updates all the routing tables to reflect changes. Upgrades are applied universally and simultaneously to all members of the VBS.
- The VBS is highly resilient. Each switch can operate both as master controller and as forwarding processor. Each switch in the VBS can serve as a master, creating a 1:N availability scheme for network control. In the unlikely event of a single-unit failure, all other units continue to forward traffic and maintain operation.
- The VBS offers industry-leading mechanisms for marking, classification, and scheduling to deliver superior performance for data, voice, and video traffic, all at wire speed.

- The VBS supports a comprehensive set of security features for connectivity and access control, including access control lists (ACLs), authentication, port-level security, and identity-based network services with IEEE 802.1x and extensions. This set of features not only helps prevent external attacks, but also defends the network against “man-in-the-middle” attacks. The VBS-enabled switch also supports the Cisco Network Admission Control (NAC) security framework.
- The VBS-enabled switch is managed as a single object and has a single IP address.

Selected Part Numbers and Ordering Information

WS-CBS3125G-S	Cisco Catalyst Blade Switch 3125G for HP w/ IP Base
WS-CBS3125X-S	Cisco Catalyst Blade Switch 3125X for HP w/ IP Base
WS-CBS3020-HPQ	Cisco Catalyst Blade Switch 3020 for HP
WS-CBS3130G-S	Cisco Catalyst Blade Switch 3130G for Dell M1000e with IP Base
WS-CBS3130X-S	Cisco Catalyst Blade Switch 3130X for Dell M1000e with IP Base
WS-CBS3030-DEL-S WS-CBS3030-DEL-F	Cisco Catalyst Blade Switch 3030 for Dell
WS-CBS3032-DEL	Cisco Catalyst Blade Switch 3032 for Dell M1000e
WS-CBS3012-IBM-I	Cisco Catalyst Switch Module 3012 for IBM
WS-CBS3110G-S-I	Cisco Catalyst Switch Module 3110G for IBM BladeCenter w/ IP Base
WS-CBS3110X-S-I	Cisco Catalyst Switch Module 3110X for IBM BladeCenter w/ IP Base
WS-CBS3040-FSC	Cisco Catalyst Blade Switch 3040 for FSC

For More Information

For more information about the Cisco Catalyst Blade Switches, visit: <http://www.cisco.com/go/bladeswitch>.

Cisco Data Center Services

Cisco Data Center Services Cisco Services help you transform and optimize your data center infrastructure so you can reduce costs, deliver high availability and application performance, and better meet your service level agreements.

Accelerate Data Center Transformation

Today, the data center is a strategic asset in a world that demands better integration among people, information, and ideas. Your business and your data center work better when technology products and services are aligned with your business needs and opportunities. Using a unique network-based perspective and a unified view of data center assets, Cisco and our industry-leading partners deliver services that accelerate the transformation of your data center.

Why Cisco?

It is the network that connects all resources, data and applications, and is at the heart of the data center’s ability to rapidly provide IT services anytime, anywhere, to anybody. In a highly virtualized data center, the network ensures that the environment is agile, responsive, and secure. Cisco’s understanding of data center interdependencies gives us a powerful advantage in unifying infrastructure, simplifying complex operations, and amplifying business opportunities.

Cisco Services brings over a decade of expertise providing comprehensive solutions for some of the most complex and challenging data center environments in the world. The Cisco Services team includes data center veterans with architectural and operational expertise in virtualization, server, storage, networking, and applications. Cisco delivers proven methodologies, best practices, and a commitment to transfer knowledge to your IT organization so you can accelerate your data center initiatives.

Achieve Business Success Through an Architectural Approach

In collaboration with your team and our partner ecosystem, we take an architectural approach to help you create a more intelligent, responsive, integrated data center infrastructure. Through a robust portfolio of services, we can help you align IT to the needs of your business, unify data center silos, and create a flexible architecture optimized for your organization. We can help you assess readiness to support proposed solutions, integrate new capabilities, and help keep the data center secure, available, and operating reliably.

Optimize Your IT Infrastructure As Your Data Center Evolves

Data centers must continually evolve to meet business needs. Cisco's Data Center Optimization Service provides expertise, best practices and knowledge transfer to help your IT organization respond to business changes, deliver next generation services, and stay ahead of the competition.

Together with our rich diverse ecosystem of partners, Cisco Services helps you deploy and optimize a data center solution that is customized for your unique business needs. Our focus is on your success today and tomorrow.

For More Information

- For more information about Cisco Data Center Services, visit <http://www.cisco.com/go/dcservices>.
- To find the right technical service for any Cisco product, use the Service Finder tool at <http://www.cisco-servicefinder.com>. Enter a product description or part number or search by product family.
- For more information about all services, refer to Chapter 10, "Cisco Services".

Chapter 7: Video and Broadband Cable

Video and Broadband Cable At-a-Glance		
Product	Features	Page
VIDEO		
Cisco Digital Media System	The Cisco Digital Media System (DMS) is a comprehensive suite of digital signage, Enterprise TV, and desktop video applications that allows companies to use digital media to increase sales, enhance customer experience and facilitate learning. Support from Cisco's broad partner ecosystem of deployment, solution development, and content creation partners ensures a successful digital media implementation.	7-2
Cisco Digital Media Encoders	Cisco Digital Media Encoders (DMEs) are integrated components of the Cisco Digital Media System for desktop video. They provide live and on-demand streaming digital media across an IP network. The Cisco Digital Media Encoder 1100 is a portable encoder, and the Cisco Digital Media Encoder 2200 is a multiprocessor, studio-quality audio and video encoding appliance.	7-3
Cisco Digital Media Manager	Cisco Digital Media Manager (DMM) is an integrated component of the Cisco Digital Media System for digital signage, Enterprise TV, and desktop video. This Web-based application allows content authors to easily manage and publish content to the Cisco Video Portal or other end devices.	7-4
Cisco Digital Media Players	Cisco Digital Media Players (DMPs) are highly reliable, IP-based hardware endpoints that enable digital signage and Enterprise TV through the ability to play high-definition live and on-demand video, motion graphics, Web, and dynamic content on digital displays.	7-5
Cisco LCD Professional Series Displays	Cisco LCD Professional Series Displays are large-format professional-quality displays ideally suited for digital signage and enterprise TV solutions. They are available in 40- and 52-inch models and offer full 1080p resolution.	7-6
Cisco Video Portal	Cisco Video Portal is an integrated component of the Cisco Digital Media System for desktop video. The Cisco Video Portal and Reporting Tool is a web-based video portal that audiences can use to browse, search, and view digital media interactively; it includes a Web-based reporting tool.	7-7
Cisco Media Processing	Cisco Media Processing provides media conversion, real-time post production, editing, formatting, and network distribution capabilities in a single networked solution to help businesses develop more targeted and effective visual communications that drive intimacy with employees and customers.	7-8
Cisco Media Experience Engine 3000	The Cisco Media Experience Engine 3000 (MXE 3000) is a media-processing platform that allows users to adapt and customize content for different video experiences. Media files can easily be shared between digital signage, desktop video, mobile devices, and other applications. The Cisco MXE 3000 can be deployed as a standalone device or used to complement a Cisco Digital Media System (DMS) deployment by extending the reach of media users to create content once to be played on all DMS applications as well as mobile devices.	7-8
Cisco Physical Security	For product information on Cisco Video Surveillance products, refer to Chapter 5, "Security."	See 5-1
BROADBAND CABLE		
Cisco uBR7225 Series Universal Broadband Router	The Cisco uBR7225VXR Universal Broadband Router is a low-cost entry and midlevel cable modem termination system (CMTS), offering cable operators, multiunit businesses, and Internet service providers (ISPs) an excellent and cost-effective platform for the delivery of high-speed data, voice, and video services.	7-9
Cisco uBR7246VXR Universal Broadband Router	This modular, standards-based communications-grade Cable Modem Termination System (CMTS) integrated router is ideal for high-growth broadband cable deployments.	7-10
Cisco uBR10012 Universal Broadband Router	This broadband router delivers the services, performance, scale, and carrier-class reliability that large cable operators and Internet service providers (ISPs) demand.	7-11
Cisco uBR3x10 RF Switch	This broadband router delivers the services, performance, scale, and carrier-class reliability that large cable operators and Internet service providers (ISPs) demand.	7-13

SERVICES

Cisco Services

Cisco and our partners offer a portfolio of technical services that help you design, deploy, and operate your Cisco Digital Media System.

7-15

Product Ordering Website

To place an order or for more part numbers, visit: <http://www.cisco.com/en/US/ordering/index.shtml>.

This chapter only provides a small subset of all part numbers available. See the URL listed in the "For More Information" section of each product to get a complete list of part numbers.

Cisco Digital Media System

The Cisco Digital Media System (DMS) is a comprehensive suite of digital signage, Enterprise TV, and desktop video applications that allows companies to use digital media to increase sales, enhance customer experience and facilitate learning. Support from Cisco's broad partner ecosystem of deployment, solution development, and content creation partners ensures a successful digital media implementation.

Digital Signage

Cisco Digital Signage provides scalable, centralized management and publishing of high-quality content to networked, on-premise digital signage displays

Built on the power of the Cisco Digital Media System, Cisco Digital Signage leverages the same hardware and management platform as and can interoperate with Cisco Enterprise TV, or can operate as a standalone application.

To provide assistance in content strategy and creation, Cisco offers these content development services.

Cisco Digital Media Creative Services (DMCS), with a focus on strategy, helps customers and partners design, create, and transform content for digital signage. DMCS helps deliver the optimum visual experience through a three-part process:

- Creative brief
- Content strategy
- Content design

For more information visit: www.cisco.com/go/dmcs.

The Cisco Academy of Digital Signage (ADS) is a global qualification program that trains media professionals to create and optimize media content for digital signage so that businesses may quick-start digital signage deployments. ADS provides a hands-on, practical approach to content design based on the established creative strategy. For more information visit: www.cisco.com/go/dms/ads.

Enterprise TV

Cisco Enterprise TV is an interactive application that enables organizations to deliver on-demand video and broadcast live TV channels over an IP network to digital displays.

On-screen menus and program guides give users access to Enterprise TV content, and organizations can customize lineups and create their own content libraries. Users can navigate through channel menus and select from on-demand content with a remote control or other remote devices.

Built on the power of the Cisco Digital Media System, Cisco Enterprise TV leverages the same hardware and management platform as and can interoperate with Cisco Digital Signage, or can operate as a standalone application.

Desktop Video

Built on the power of the Cisco Digital Media System, Cisco Desktop Video gives customers, employees, partners, and students access to high-quality and compelling videos on demand and live webcasts at their desktops. Digital Media can be browsed, searched, and viewed over the network through a unique, easy-to-use Cisco Video Portal experience--anywhere, anytime.

Key Features

- Communicate richly and effectively with targeted customers, investors, partners, and media. In addition, they can deliver crucial information and training to employees, suppliers, and partners.
- Target consumers with tailored content directly to their desktop or other IP-enabled devices.
- Offer live and on-demand events and content to geographically dispersed audiences.
- The Cisco Digital Media System provides applications and solutions for a variety of industries, including financial services, retail, and education.

Integrated Components of the Cisco Digital Media System

The Cisco Digital Media System includes five product lines:

- Creation with Cisco Digital Media Encoders (DMEs)
- Management with the Cisco Digital Media Manager (DMM)
- Publishing to the Cisco Digital Media Players (DMPs)
- Access through the Cisco Video Portal
- Display with the Cisco LCD Professional Series Displays

In addition to the five products in the DMS product line, the Cisco Media Experience Engine 3000 (MXE 3000) allows users to further extend the reach of their media content. As a complimentary solution to your DMS deployment, the MXE 3000 enables any-to-any media transformation in the network, enabling users to create content once to be played on all DMS applications as well as mobile devices. Please refer to [Table 7-1](#) on page 8 for more information on the MXE 3000.

Cisco Digital Media Encoders

Cisco Digital Media Encoders provide live and on-demand streaming digital media across an IP network. Organizations can schedule and manage live events from multiple encoders from a single administration interface. The encoders can be locally managed or remotely managed through the Cisco Digital Media Manager. The Cisco Digital Media Encoder can be used as a standalone encoder or as an integrated component of the overall Cisco Digital Media System for Desktop Video.



The studio-level (Cisco DME 2200) and portable (Cisco DME 1100) encoders provide live and on-demand streaming digital media across an IP network in a variety of encoding formats, inputs, and monitoring functions.

Key Features

The Cisco Digital Media Encoder 1100 offers the following features:

- Designed for both professionals and novices, the rugged-design, lightweight encoder is ideal for outdoor venues, classrooms, and conference rooms because it can extend Webcasting “outside of the studio”.
- Lightweight, single channel
- Encoding of video live for live network distribution
- Local management; or remote management through the Cisco Digital Media Manager

The Cisco Digital Media Encoder 2200 offers the following features:

- Designed for advanced users who require multiple audio and video input options and a variety of encoding formats and functions.
- Studio-level, dual channel— a good choice for the corporate office or data center
- Live encoding/transcoding of media from analog and digital sources into standard formats (WMV, FLV, H.264, and so on.)
- Local management via an embedded LCD; or remote management through the Cisco Digital Media Manager

Specifications

Feature	Cisco Digital Media Encoder 1100	Cisco Digital Media Encoder 2200
Supported live streaming formats	Windows Media 9 MPEG-4/H.264	Windows Media 9 MPEG-4/H.264
Supported on-demand formats	Flash (.flv) (on-demand) Windows Media MPEG-4/H.264	Flash (.flv) (on-demand) Windows Media MPEG-4/H.264
Video inputs	Composite; S-Video	2 composite; 2 S-Video; 2 SDI (SMPTE - 259M) Video with embedded audio inputs (AES/EBU)
Audio inputs	1 balanced stereo (XLR3) Unbalanced stereo (RCA)	2 balanced stereo (XLR); 2 Unbalanced stereo (RCA); 2 digital audio (AES/EBU) inputs through SDI inputs
Ethernet ports	1 GB; 10/100 Mb	2 10/100/1000 Mbps
Hard disk space	100 GB	One 100 GB
RAM	1 GB	4 GB
Processor	Single 2.19-GHz Intel Core 2 Duo CPU	Dual core AMD Opteron, 2.2 GHz
Additional ports	2 USB 2.0 and VGA monitor	2 USB 2.0 and VGA monitor
Dimensions (H x W x D)	4.5 x 7.75 x 12 in. (1.143 x 19.67 x 30.48 cm)	3.5 x 19 x 23 in. (8.89 x 48.26 x 58.42 cm)
Weight	75 lb. (3.41 kg)	48.62 lb. (19.05 kg)
Power	110-220V; 50-60 Hz	110-220V; 50-60 Hz

Selected Part Numbers and Ordering Information

DMS-DME-1100	Cisco Digital Media Encoder 1100
DMS-DME-2200	Cisco Digital Media Encoder 2200

For More Information

For more information on Cisco Digital Media Encoders, visit: <http://www.cisco.com/go/dms>.

Cisco Digital Media Manager

The Cisco Digital Media Manager allows content authors to manage, schedule, and publish compelling digital media for live or on-demand playback across digital signage displays for Cisco Digital Signage and Enterprise TV, and to the Cisco Video Portal for Cisco Desktop Video. An integrated part of the Cisco Digital Media System, the web-based Cisco Digital Media Manager is the single, central management application for all Cisco Digital Media System products.

Content managers can:

- Manage content assets and create playlists for digital signage and desktop video
- Schedule instant and future content deployments and playback schedules for digital signage, Enterprise TV, and desktop video
- Report on playback schedules for digital signage and on video usage for desktop video
- Manage Q&A for live desktop video broadcasts
- Synchronize slides for both live and video on demand desktop video events

Content designers can:

- Customize signage screen layouts and zones for digital signage
- Customize and brand Enterprise TV skins and menus
- Customize and brand the Cisco Video Portal interface for desktop video

IT users can:

- Manage user accounts for role-based access control, and configure user-specific content restrictions for desktop video users via LDAP/Active Directory
- Configure and manage Cisco Digital Media Encoders for desktop video
- Remotely configure, manage, and monitor digital signage networks
- Manage event-based alerts and server appliances

Specifications

Features	Cisco Digital Media Manager
Product compatibility	Compatible with Cisco Application and Content Networking System (ACNS), the Cisco Video Portal and Cisco Video Portal Reports tool, Cisco Digital Media Players, and Cisco Digital Media Encoders
Programming interface	Web-based management
Requirements	Cisco Digital Media Manager Client
Browser	Microsoft Windows — Internet Explorer 6.0 or later, Mozilla 1.8 or later, or Firefox 1.5 or later recommended; Linux or UNIX—Mozilla 1.0 or Firefox 1.0 minimum ; Mozilla 1.8 or later or Firefox 1.5 or later recommended ; Apple Macintosh—Safari 2.0 minimum; Safari 2.0 or Firefox 1.5 or later recommended
Cisco Live Event Module Browser	Microsoft Windows—Internet Explorer 6.0 or later; Apple Macintosh—Mac OS X; VMWare Fusion: Windows XP or Vista—Internet Explorer, v6.0 or later

Selected Part Numbers and Ordering Information

Software on Server Appliance	
DMM5.0-BASE-K9	Cisco Digital Media Manager Base V5.0 Perpetual Software License
DMM-VPMS.0-K9	Cisco Digital Media Manager Video Portal Manager V5.0 Perpetual Software License
DMM-DSMS.0-K9	Cisco Digital Media Manager Digital Signage Module V5.0 Perpetual Software License
DSM-FL-10	Cisco Digital Media Manager, Digital Signage Feature License for Up To 10 DMPs
DSM-FL-100	Cisco Digital Media Manager, Digital Signage Feature License for Up To 100 DMPs
DSM-FL-1000	Cisco Digital Media Manager, Digital Signage Feature License for Up To 1000 DMPs
DMM-LEMS.0-K9	Cisco Digital Media Manager Video Portal Module Live Event Module V5.0 Perpetual Software License

DMM-ETVM5.0-K9	Cisco Digital Media Manager Enterprise TV Module V5.0 Perpetual Software Licence
DMM-SNMP5.0-K9	Cisco Digital Media Manager Ver. 5.0 SNMP Module Perptl. SW Lic.

For More Information

For more information about the Cisco Digital Media System, visit: <http://www.cisco.com/go/dms>.

Cisco Digital Media Players

Cisco Digital Media Players (DMPs) are highly reliable, IP-based hardware endpoints that enable digital signage and Enterprise TV through the ability to play high-definition live and on-demand video, motion graphics, Web, and dynamic content on digital displays. The DMP hardware options include support for standard-definition and high-definition MPEG-2 and MPEG-4/H.264, Flash, RSS, and other Web formats and dynamic data.



Using the Cisco Digital Media System's Cisco Digital Media Manager, organizations can flexibly and remotely publish centralized content over the Web to networked digital signs. Cisco Digital Media Players can be attached to virtually any on-premise digital signage display at any location, including branch-office banks, retail stores, break rooms, or lobbies, helping organizations reach their primary audiences anywhere, anytime.

Cisco Digital Media Players deliver flexible and real-time publishing; low ongoing operational costs and ease of use; speed of deployment; and leverage the scalability and power of the network.

The Cisco Digital Media Player 4305G includes such features as:

- Support for MPEG 1/2/4 Part 2 video in standard definition and high definition as well as graphics, Web content, Adobe Flash 7 or less, animation and tickers.
- 2-GB local storage for reliability and performance
- Small form factor: 7.5 x 5 x 1.5 in. at 1 lb
- Low power consumption
- IP-enabled delivery of live broadcasting and on-demand video content

The Cisco Digital Media Player 4400G includes such features as:

- Support for MPEG 1/2/4 Part 10 video in standard definition and high definition as well as graphics, Web content, and Adobe Flash 9 animation, and tickers.
- 4-GB local storage for reliability and performance
- Small form factor: 10 x 8 x 2 in.; weighs 4.5 lb.
- Low power consumption
- IP-enabled delivery of live broadcasting and on-demand video content

Integrated with the Cisco Digital Media Manager, the Cisco Digital Media Players provide:

- Remote management of display (on and off, volume, contrast, and brightness)
- Full-screen video playback or "on-screen zoning" of multiple content types on a single display
- Customizable onscreen presentation templates and playlists

Specifications

Feature	Cisco Digital Media Player 4305G	Cisco Digital Media Player 4400G
Supported protocols	FTP; HTTP; MPEG2-Transport Stream; User Datagram Protocol (UDP)	FTP; HTTP; MPEG2-Transport Stream; User Datagram Protocol (UDP)
Video codecs	Video MPEG 1; Video MPEG 2: Main Profile at High Level; Video MPEG 4 part 2: Advanced Simple Profile at Level 5; Aspect ratio: 4:3 and 16:9; HD (up to 1080 at 16:9) progressive and interlace video resolution; Video data rate up to 12 Mbps; Overall delay 1-3 sec Note: Please consult other Cisco documentation or your Cisco representative for exact audio codec, video codec, resolution, bit rate, and encapsulation combinations.	Video MPEG 1; Video MPEG 2: Main Profile at High Level; Video MPEG 4 part 10: Aspect ratio: 4:3 and 16:9; HD (up to 1080P at 16:9) progressive and interlace video resolution; Video data rate up to 12 Mbps; Overall delay 1-3 sec Note: Please consult other Cisco documentation or your Cisco representative for exact audio codec, video codec, resolution, bit rate, and encapsulation combinations.
Audio codecs	Audio MPEG 1 Layers 1 and 2; MPEG 4 AAC Low Complexity; AC-3; Audio data rate: 64-320 kbps Note: Please consult other Cisco documentation or your Cisco representative for exact audio codec, video codec, resolution, bit rate, and encapsulation combinations.	Audio MPEG 1 Layers 1 and 2; MPEG 4 AAC Low Complexity; AC-3; Audio data rate: 64-320 kbps Note: Please consult other Cisco documentation or your Cisco representative for exact audio codec, video codec, resolution, bit rate, and encapsulation combinations.

Remote Control	Transmitter Type and Maximum Supported Distance—Infrared (IR), 15 ft.	Transmitter Type and Maximum Supported Distance—Infrared (IR), 15 ft.
Flash memory	32 MB for OS; 2 GB for internal storage	4GB CF-card with endurance of 1,000,000 Write/Erase Cycles for OS and application storage
Physical connectors	Ethernet copper 10/100 BASE-T, RCA Video, S-Video, RCA Audio Left, RCA Audio Right, HDMI, and RS-232 and USB Cable Type* and Maximum Supported Length—Composite/RCA cable, 10 ft.; HDMI 1.1*, 16 ft.; S-Video, 10ft. * Cable quality can be a factor **An HDMI extender product can be used to extend the cable to 150 ft.	Ethernet copper 10/100 BASE-T, RCA Video, S-Video, Mini 3.5 mm Stereo Audio Jack, HDMI, and RS-232 and USB Cable Type* and Maximum Supported Length—Composite/RCA cable, 10 ft.; HDMI 1.1*, 16 ft.; S-Video, 10ft.; USB 2.0 (2), 15 ft.; SPDIF, 10 ft. * Cable quality can be a factor **An HDMI extender product can be used to extend the cable to 150 ft.
Functional	Video in—MPEG 1, MPEG 2, and MPEG 4 part 2 Audio in—Transport stream: Up to 6 audio packet IDs (part numbers) in transport stream Video out—Analog video (composite, S-Video); Digital video (HDMI) Audio out—Analog unbalanced audio (mono and stereo); MPEG 1 Layer 2: Selected; packet IDs in transport stream (1 of 6) MPEG 4 AAC and AC-3—Selected elementary audio (1 of 6)	Video in—MPEG 1, MPEG 2, and MPEG 4 part 10 Audio in—Transport stream: Up to 6 audio packet IDs (part numbers) in transport stream Video out—Analog video (composite, S-Video); Digital video (HDMI 1:1) Audio out—Analog unbalanced audio (mono and stereo); MPEG 1 Layer 2: Selected; packet IDs in transport stream (1 of 6) MPEG 4 AAC and AC-3: Selected elementary audio (1 of 6)
Power	Input voltage—5V Input current—3 ADC Power consumption—Peak: 12W; average: 5W	Input voltage—12V Input current—3 ADC Power consumption—Peak: 30W; average: 15W
Environmental	Operating temperature—410F to 1220F (5 to 500C); Passed 500-hour test of the uninterrupted video playback in 125.60F (520C) dry-heat environment Humidity—0 to 80% noncondensing	Operating temperature—410F to 1040F (5 to 500C); Passed 500-hour test of the uninterrupted video playback in 125.60F (520C) dry-heat environment Humidity—20 to 80% noncondensing

Selected Part Numbers and Ordering Information

DMP-4305G-K9	Cisco Digital Media Player 4305G (Note: Includes Cables Accessory Kit)
DMP-SW5.0-K9	Digital Signage User Lic. for DMP 4305G
DMP-4400G-K9	Cisco Digital Media Player 4400G (Note: Includes Cables Accessory Kit)
DMP-SW5.0-K9	Digital Signage User Lic. for DMP 4400G

For More Information

For more information about the Cisco Digital Media System, visit: <http://www.cisco.com/go/dms>.

Cisco LCD Professional Series Displays

Cisco LCD Professional Series Displays form an integral part of the overall Cisco Digital Media System (DMS) suite of products. Offering a complete end-to-end solution for digital signage and Enterprise TV, these displays are available in 40- and 52-inch models and offer full 1080p resolution.

Cisco LCD Professional Series Displays offer:

- An end-to-end Cisco solution
- Centralized, remote management through the Cisco Digital Media Manager (on and off, volume, contrast, and brightness)
- Cisco support and service offerings

Specifications

Feature	Cisco LCD 110 Pro 52S	Cisco LCD 100 Pro 40N
Diagonal Size	52 inches	40 inches
Native Resolution	1080p (1920*1080)	1080p (1920*1080)

Resolutions Supported	180p, 1080i, 720p	180p, 1080i, 720p
Brightness	700 cd/m2	470 cd/m2
Contrast Ratio	2000:1	3000:1
Viewing Angle (H/V)	178/178 degrees	178/178 degrees
Response Time (G-to-G)	8 ms	8 ms
Video Inputs	CVBS/Component/HDMI	CVBS/HDMI
Power Supply	AC 100 - 240 V~ (+/- 10%), 50/60 Hz	AC 100 - 240 V~ (+/- 10%), 50/60 Hz
VESA Mount	800*400 mm	600*400 mm
Weight (Set/Package)	36.8/47 Kg	19.0/22.5 Kg
Dimension	1211 X 713 X 137.1 mm	971 X 582.0 X 118.5 mm
Bezel Width	22 mm	40 mm

Selected Part Numbers and Ordering Information

LCD-110-PRO-52S	Cisco LCD Pro 110, 52 inch, 1080p, Bezel S, w/Remote Control
LCD-100-PRO-STD	Leg Stand for Displays (Note: Optional)
LCD-100-PRO-40S	Cisco LCD Pro 100, 40 inch, 1080p, Bezel N, w/Remote Control

For More Information

For more information about the Cisco LCD Professional Series Displays, visit: <http://www.cisco.com/go/dms>.

Cisco Video Portal

An integrated component of the Cisco Digital Media System for Cisco Desktop Video, the Cisco Video Portal helps users browse, search, and view digital media interactively at the desktop. Platform-independent, the Cisco Video Portal fits easily into an organization's existing network and IT infrastructure and supports major video formats such as Windows Media, Flash, and MPEG-4/H.264, QuickTime.

The Cisco Video Portal provides the following features:

- Customizable interface, program guide, and keyword search
- Personalized and featured playlists
- Advanced player controls: Full-screen video playback, fast forward, rewind
- Slide synchronization with video
- Submission and management of questions during live webcasts
- Video sharing
- Secure log in and access to user-specific content based on Active Directory/LDAP
- Detailed content and user access reporting: Who, what, when and how often

Specifications

Feature	Cisco Video Portal and Cisco Video Portal Reports Tool
Product compatibility	Compatible with Cisco Application and Content Networking System (ACNS) Software, Cisco Digital Media Manager, Cisco Digital Media Players, and Cisco Media Encoders
Components (software)	Web-based Cisco Video Portal and Cisco Video Portal Reports tool
Supported encoder file types	Microsoft Windows Media, Adobe Flash (.flv), Apple QuickTime (.mov), and MPEG/H.264 – Up to a maximum of 2 GB per file
Product Sizing Matrix	Cisco Video Portal and Cisco Video Portal Reports Tool
Product	Maximum Number of Connections
Cisco Video Portal 5.0 Perpetual Software License with Cisco 7825 Media Convergence Server	Up to 500 concurrent initial user access within the first minute

Cisco Video Portal 5.0 Perpetual Software License with Cisco 7835 Media Convergence Server	Up to 1000 initial user access within the first minute
Requirements	Cisco Video Portal Client
Browser	<ul style="list-style-type: none"> Windows—Internet Explorer 6.0 or later, Mozilla 1.8 or later, or Firefox 1.5 or later recommended Linux or UNIX support for Flash VoD files only— Mozilla 1.0 or Firefox 1.0 minimum; Mozilla 1.8 or later or Firefox 1.5 or later recommended Apple Macintosh support for Flash and QuickTime VoD files—Safari 2.0 minimum; Safari 2.0 or Firefox 1.5 or later recommended
Adobe Flash plug-in	Adobe Flash 8 plug-in or later recommended
Windows Media plug-in	Windows Media 9 or later (required if Windows Media content is offered)
QuickTime plug-in	QuickTime Player 7.1 or later recommended
Cisco Digital Media Manager Live Event Module 1.0	<ul style="list-style-type: none"> Windows— Internet Explorer 6.0 or later; Internet Explorer 6 or later recommended Apple Macintosh—VMWare Fusion Windows XP or Vista—Internet Explorer 6 or later recommended
Minimum supported resolution	1024 x 768
Requirements	Cisco Video Portal Reports Tool Client
Browser	<ul style="list-style-type: none"> Windows—Internet Explorer 5.5 or Firefox 1.5 minimum; Internet Explorer 6.0 or later or Firefox 1.5 or later recommended Linux or UNIX—Firefox 1.5 or later Apple Macintosh— Firefox 1.5 or later
Adobe Scalable Vector Graphics (SVG) plug-in	Adobe SVG 3.0 plug-in minimum; Adobe SVG 3.0.3 or later recommended (required only for Internet Explorer)

Selected Part Numbers and Ordering Information

Software on Server Appliance	
VP5.0-500-K9 VPR5.0-K9 MCS-7825H3-K9-VP5	Cisco Video Portal V5.0 for MCS-7825-H3 for up to 500 concurrent viewers
VP5.0-1000-K9 VPR5.0-K9 MCS-7835H2-K9-VP5	Cisco Video Portal V5.0 for MCS-7835-H2 for up to 1000 concurrent viewers

The DMS V4.1 to V5.0 Upgrade is available to all Cisco customers with a current Software Application Support (SAS) contract via <http://www.cisco.com>. Access to the DMS upgrades is available from this website by selecting the Support: Download Software: Video and Content Delivery: Cisco Digital Media System web page selections.

For More Information

For more information about the Cisco Digital Media System, visit: <http://www.cisco.com/go/dms>.

Cisco Media Processing

Collaboration and video are continuing to drive new business models for enterprises. Businesses need an effective solution to expand the reach of their video content to multiple devices.

Cisco Media Processing provides media conversion, real-time post production, editing, formatting, and network distribution capabilities in a single networked solution to help businesses develop more targeted and effective visual communications that drive intimacy with employees and customers.

Cisco Media Experience Engine 3000

The Cisco Media Experience Engine 3000 (MXE 3000) is the first Cisco Media Processing product. The Cisco MXE 3000 can be either a standalone solution or a complementary solution for Cisco DMS deployment, enabling any-to-any media transformation in the network so that users can create content once to be played on all Cisco DMS applications as well as mobile devices.

The media adaptation function enables users to view any media content on any endpoint device. Media files can easily be shared between digital signage, desktop video, mobile devices, and other applications.

Editing and production capabilities allow users to customize and enhance their viewing experience. Examples include inserting company logo overlays, creating transitions, clipping files to desired length, and enhancing color and video quality, allowing for a customized content piece.



Specifications

Supported Input Formats	Editing Systems, Avid, Final Cut Pro, Adobe Premiere AVI, DVD VoB files, Quick Time: All supported formats, MPEG-1: Elementary Stream, System Stream, Layer II Audio, AC3 Audio, MPEG-4: 3GPP, 3GPP2
Supported Output Formats	Windows Media: V7, V8, V9, MPEG-4V3, ISO-MPEG4-V1 Windows Media Audio: V2/V7/V8, ACELPnet, RealVideo 10, RealVideo 9, RealVideo 8, RealAudio 10, RealAudio 8 Quick Time: All supported codecs, MPEG-4, on2 Flash 8, MP3, WAV
Preprocessing and Media Preparation	<ul style="list-style-type: none">• Video: Blur, bumpers & trailers, color space conversion, contrast enhancement, cropping, de-interlacing and interlacing, fade-in & fade-out• In/Out trimming: Field frame control, gamma correction, hue rotation, inverse telecine, noise reduction, saturation, support for 16x9 and other aspect ratios, add/remove letter boxing and curtaining, temporal smoothing, video frame rate conversion and resizing with anti-alias filtering, watermarking, automated, thumbnail extraction
Workflow Automation	<ul style="list-style-type: none">• Job Submission• Profile building—An automated system that allows users to quickly apply customized processing setting to new jobs• Monitoring—A summary screen that provides insight into the status of queued jobs• Automated Folder Attendant—A program that facilitates integration between external systems and the Cisco MXE 3000 platform
System Features	<ul style="list-style-type: none">• Auto job restart• File distribution• Status notification

Selected Part Numbers and Ordering Information

MXE-3000	Cisco MXE 3000 Media Experience Engine Appliance (hardware only)
MXE-3000-LIC	Cisco MXE 3000 Media Experience Engine Software Version 2.0 (software only)

For More Information

For more information about the Cisco Media Experience Engine, visit: <http://www.cisco.com/go/mxe>.

Cisco uBR7225 Universal Broadband Router

The Cisco uBR7225VXR Universal Broadband Router is the successor to the Cisco uBR7100 and uBR7223 Series CMTS. The Cisco uBR7225VXR is a low-cost entry to midlevel CMTS in a 2RU modular chassis, offering cable operators, multiunit businesses, and Internet service providers (ISPs) an excellent and cost-effective platform for the delivery of high-speed data, voice, and video services. This new CMTS platform requires exceptionally low capital investment and minimal setup time, and it supports up to 5000 subscribers. The Cisco uBR7225VXR Universal Broadband Router is a service-enabling, communications-grade CMTS that offers high reliability, modular scalability, and significant investment protection.



Ideal for Companies That Need These Features

- | | |
|--|---|
| Cisco uBR7225VXR
Universal Broadband Router | <ul style="list-style-type: none">• Low entry-level pricing• Modularity for capacity growth and minimal setup time• A higher-capacity platform without the need for the additional capacity of the Cisco uBR10012 or the larger form factor of the Cisco uBR7246VXR |
|--|---|

Key Features

- The Cisco uBR7225 Universal Broadband Router supports PacketCable 1.1, DOCSIS 1.1, Euro-DOCSIS 2.0, and PacketCable Multimedia, increasing return on investment for converged services and speeding deployment of advanced IP services.
- Upgrade path to DOCSIS3.0 through the use of 8x8 line card
- The new low-cost line cards (part numbers UBR-E-28U and UBR-E-16U) lead to lower capital expenditures.
- This low-cost entry-level CMTS makes efficient use of capital expenditures while maintaining modularity for capacity growth.
- The Cisco uBR7225 provides up to 4 downstream and 16 upstream ports in a 2RU form factor.
- The router provides DOCSIS, Euro-DOCSIS, and J-DOCSIS support on one line card for operational savings and lower capital expenditures.

Specifications

Compact design suitable for rack-mount (2-RU) or desktop installation	Dimensions of 3.5 x 1732 x 21.8 in. (8.89 x 44.9 x 55.37 cm) (H x W x D); 45 lb (20.4 kg); Front, mid, and rear mountable in a 19 in. EIA standard rack; Depth fully loaded from the tip of cable management bracket to the tip of the UBR-NPE-G1 handle is 26.1 in. (66.29 cm)
Modulation	Downstream—64-QAM, 256-QAM; Upstream—QPSK 8-, 16-, 32-, 64-QAM
Downstream frequency range	DOCSIS—6 MHz Annex B, 88–860 MHz; Euro-DOCSIS—8 MHz Annex A, 85–860 MHz; J-DOCSIS—6 MHz Annex B extension, 70–860 MHz
Upstream frequency range	DOCSIS—6 MHz Annex B, 5–42 MHz; Euro-DOCSIS—8 MHz Annex A, 5–65 MHz; J-DOCSIS—6 MHz Annex B extension, 5–55 MHz
Compatible Cisco Network Processing Engines (NPEs)	The Cisco uBR7225VXR must contain one uBR7200-NPE-G2 (or uBR7200-NPE-G1) processor that must have at least 1 GB of DRAM (512 MB for uBR7200-NPE-G1); there is an upgrade option of a 2GB memory module that can be configured to be shipped with uBR7200-NPE-G2 to ensure best performance. FE/GE ports availability—3 GE ports (UBR-NPE-G2/G1).
Line cards with integrated upconverters/modulators (cable plant interfaces)	Modular design Line cards supported: <ul style="list-style-type: none">· UBR-E-28U;· UBR-MC28U Physical: <ul style="list-style-type: none">· Occupies a single slot in the Cisco uBR7225VXR chassis· Maximum 2 line cards per uBR7225VXR chassis· Hot-swappable; no slot dependency· Dimensions (H x W x D):1.35 x 13.5 x 10.56 in. (3.43 x 34.29 x 26.82 cm) Weight: <ul style="list-style-type: none">· UBR-E-28U—6 lb (2.72 kg) Power consumption: <ul style="list-style-type: none">· UBR-E-28U— 80W (273 Btu/h)· Integrated upconverter specifications:· High-level output—+61 dBmV, 53 to 857 MHz· Optimized for 64 and 256 quadrature amplitude modulation (QAM)· Software configurable from 45 to 61 dBmV output power in units of dBmV
Included AC power supply	Single or dual redundant power supplies; 100 to 240 VAC input, 50/60 Hz frequency; 5.5 A maximum AC input current; 300W (maximum) output DC or 25 @ 11.28V; AC-input cable: 18-QEG4 3-wire cable with 3-lead IEC-320 receptacle on power supply end and country-dependent plug on power source end

Software Compatibility

The Cisco uBR7225VXR is supported in Cisco IOS Software Release 12.2SB, which includes PacketCable Multimedia Specification (PCMM), admission control, advanced-mode DOCSIS Set-Top Gateway (DSG), and Cisco Service Independent Intercept (SII) features.

For More Information

For more information about the Cisco uBR7225, visit: <http://cisco.com/en/US/products/ps8474/index.html>.

Cisco uBR7246VXR Universal Broadband Router

The Cisco uBR7246VXR Universal Broadband Router (UBR), a member of the Cisco uBR7200 Series, provides a single, Layer 3 routing, multiservice, scalable platform that gives cable companies the ability to deliver IP data, voice, and video services to DOCSIS, Euro-DOCSIS, and PacketCable-compliant cable modems, set-top boxes, and multimedia terminal adapters.



Ideal for Companies That Need These Features

- Cisco uBR7246VXR Universal Broadband Router
- Flexible port expansion for multiservice deployment options
 - Service support for up to 10,000 subscribers per chassis with 3.2 Gbps back plane
 - Powerful processor and edge intelligence; field-proven and high reliability
 - Support for multimedia services
 - High tolerance to hybrid fiber coaxial (HFC) network and spectrum noise

Key Features

- Modular design—1,000 to 10,000 subscribers supported based on different configurations
- Five 9's availability for low cost maintenance
- Advanced physical layer (PHY)

- A-TDMA and DOCSIS compliant; Euro-DOCSIS 2.0 (A-TDMA only); DOCSIS 1.1 qualified, and PacketCable 1.1 qualified; iComLabs qualified to Euro-DOCSIS 1.0, 1.1, and 2.0 (A-TDMA only) specifications; also supports Advanced Mode DSG.
- Powerful Layer 3 routing intelligence and sophistication
- Upgrade path to DOCSIS3.0 through the use of 8 x 8 line card

Specifications

Number of Cable Line Card Slots	4
Supported Cable Line Cards (Cable Plant Interfaces)	uBR7200 Series MC28U Broadband Processing Engine
Port Adapter Slots (LAN/WAN Interfaces)	2
Supported PA categories	Ethernet Serial, HSSI, ATM, POS, DPT
Power Supply Slots	2
Input/Output (I/O) controller	uBR7200-I/O-2FE/E, not required if UBR7200-NPE-G1 or UBR-NPE-G2 are installed in the system
I/O flash options for PCMCIA slots	Flash disk (48 MB); Flash disk (128 MB)
Network Processing Engines (NPE)	UBR7200-NPE-G2, UBR7200-NPE-G1
Add-on processor memory options	512 MB or 1 GB for uBR7200-NPE-G1 1 GB or 2 GB for uBR7200-NPE-G2
Router Bandwidth	3.2 Gbps

For More Information

For more information about the Cisco uBR7200, visit: <http://www.cisco.com/en/US/products/hw/cable/ps2217/index.html>.

Cisco uBR10012 Universal Broadband Router

The Cisco uBR10012 Universal Broadband Router (UBR) addresses the volume, capacity, and complexity of large cable headends or distribution hubs. The router delivers the highest level of service availability and capacity of any production cable modem termination system (CMTS) available today. It employs a mix of distributed, centralized, and parallel processing to facilitate consistently high, real-world performance. The Cisco uBR10012 is CableLabs qualified to PacketCable 1.1 and DOCSIS 2.0 specifications. The product is also qualified for EuroDOCSIS 2.0, and DOCSIS 3.0 Bronze specifications.

The Cisco uBR10012 Universal Broadband Router powers the world's largest DOCSIS 3.0 downstream channel bonding install base, with more than 1 million revenue-generating subscribers and counting. The combination of the 5 downstream, 20 upstream RF cards, the 24 downstream channel bonding cards (wideband shared port adapter (SPA)) the DOCSIS Timing Interface (DTI) card on the Cisco uBR10012, plus an external DTI server, allows the deployment of DOCSIS 1.1 and 2.0 modems mixed with the new DOCSIS 3.0 modems for downstream channel bonding over low-cost video-on-demand (VoD) edge quadrature-amplitude-modulation (QAM) ports.

With new hardware support of the Cisco 10000 Performance Routing Engine 4 (PRE4) processor, the 10 Gigabit Ethernet WAN card, and the 6-wideband SPA carrier, the Cisco uBR10012 Universal Broadband Router provides a maximum of 184 downstream ports per chassis to meet ever-increasing IP data, voice, and video bandwidth needs.



Ideal for Companies That Need These Features

Cisco uBR10012 Universal Broadband Router

- Large subscriber bases
- Edge routing or aggregation of DOCSIS traffic
- High-end throughput, capacity, and service handling
- Advanced multimedia service delivery
- Sophisticated Layer 3 routing intelligence
- Complex network interface configurations

Key Features

- Powerful processing and throughput
- Five 9's availability
- Highest density and capacity—5,000 to 64,000 subscribers with ever-increasing RF density offered by the platform

- Scalable, real-world proven performance
- A-TDMA and DOCSIS 2.0 support
- Advanced intelligence features

Specifications

Feature	Cisco uBR10012 Universal Broadband Router
Modular Slots	Flash—48 MB; System—minimum128 MB
Supported Cards	Cisco MC5X20H Broadband Processing Engine (BPE), Cisco 24-port Wideband Downstream Shared Port Adapter, Cisco 5-Port Gigabit Ethernet Shared Port Adapter, Cisco 1-Port 10GE LAN-PHY Shared Port Adapter, and Gigabit Ethernet Half-Height (HH-1GE) network uplink card
Processor Type	Parallel Express Forwarding (PXF)
Flash Memory	64 MB (default); 128 MB (maximum)
DRAM Memory	1 GB DRAM minimum
Software Supported	Cisco IOS Software Release 12.2(33)SCB recommended; Cisco IOS Software Release 12.3(9)BC minimum to support the Cisco PRE-2, Cisco IOS Software Release 12.3(13)BC minimum to support the Cisco Gigabit Ethernet Half-Height Line Card, Cisco IOS Software Release 12.3(17)BC2 minimum to support the Cisco MC5X20H BPE; Cisco IOS Software Release 12.2(33)SCB minimum to support the Cisco Performance Routing Engine 4, Cisco 10000 Series SPA Interface Processor-600, Cisco 5-Port Gigabit Ethernet Shared Port Adapter, and Cisco 1-Port 10GE LAN-PHY Shared Port Adapter.
Power Supply	DC, AC
Hot-Swappable	Yes
Backplane Capacity	51.2 Gbps
Dimensions (H x W x D)	31.25 x 17.2 x 22.75 in. (79.4 x 43.7 x 57.8 cm)—18 rack units (RU) Mounting: 19 in. rack mountable (front or rear), 2 units per 7 ft. rack Note: Mounting in 23 in. racks is possible with optional third-party hardware
Weight	235 lb. (106.6 kg) fully-configured chassis

Selected Part Numbers and Ordering Information

Cisco uBR10012 Series Chassis Bundles	
U10012-1D5X20H-C	Cisco uBR10012 with PRE-2, DTCC and 1 MC5X20H card
U10012-1M5X20H-C	Cisco uBR10012 with PRE-2, TCC and 1 MC5x20 Cards
U10012-2M5X20H-HA	Cisco uBR10012 with 2 PRE-2, 2 TCC and 2 MC5x20 Cards
U10012-2D5X20H-HA	Cisco uBR10012 with 2 PRE-2, 2 DTCC and 2 MC5X20H cards
Cisco uBR10012 Series Pricing Bundles	
UBR10-P2TG	Cisco uBR10012 Bundle incl. 1 PRE2, 1 TCC+, 1 HH-1GE, 1 HH-CARRIER
UBR10-P2TG-HA	Cisco uBR10012 Bundle incl. 2 PRE2, 2 TCC+, 2 HH-1GE, 1 HH-CARRIER
UBR10-P2DTG	Cisco uBR10012 Bundle incl. 1 PRE2, 1 DTCC+, 1 HH-1GE, 1 HH-CARRIER
UBR10-P2DTG-HA	Cisco uBR10012 Bundle incl. 2 PRE2, 2 DTCC, 2 HH-1GE, 1 HH-CARRIER
UBR10-P2DT5G	Cisco uBR10012 Bundle incl. 1 PRE2, 1 DTCC+, 1 4-SPA SIP, 1 5x1 GE SPA
UBR10-P2DT5G-HA	Cisco uBR10012 Bundle incl. 2 PRE2, 2 DTCC, 2 4-SPA SIP, 2 5x1 GE WAN SPA
UBR10-P4DT5G	Cisco uBR10012 Bundle incl. 1 PRE4, 1 DTCC+, 1 4-SPA SIP, 1 5x1 GE WAN SPA
UBR10-P4DT5G-HA	Cisco uBR10012 Bundle incl. 2 PRE4, 2 DTCC, 2 4-SPA SIP, 2 5x1 GE WAN SPA
UBR10-P4DT10G	Cisco uBR10012 Bundle incl. 1 PRE4, 1 DTCC+, 1 4-SPA SIP, 1 1x10 GE WAN SPA
UBR10-P4DT10G-HA	Cisco uBR10012 Bundle incl. 2 PRE4, 2 DTCC, 2 4-SPA SIP, 2 1x10 GE WAN SPA
UBR-5G-SIP-D3SPA	Cisco uBR10012 BR10K bundle, includes 1 5 GE SPA, 1 DS SPA, 1 SPA carrier
UBR-10G-SIP-D3SPA	Cisco uBR10012 BR10K bundle, includes 1 10 GE SPA, 1 DS SPA, 1 SPA carrier
UBR10-PRE4-D3SPA	Cisco uBR10012 BR10012 bundle, includes 1 PRE-4, 1 D3.0 downstream SPA
Cisco uBR10012 Series Line Cards	

SPA-24XDS-SFP=	Cisco uBR10012 24-port Wideband Downstream Shared Port Adapter
UBR10-2XDS-SIP	Cisco uBR10012 Wideband Downstream-only SPA Carrier Card
UBR10-2XDS-SIP=	Cisco uBR10012 Wideband Downstream-only SPA Carrier Card
SPA-24XDS-SFP	Cisco uBR10012 24-port Wideband Downstream Shared Port Adapter
UBR10-MC5X20H-D	Cisco uBR10K High-Performance Card, 5DS w/upx, 20US, Spec An
UBR10-MC5X20H-D=	Cisco uBR10K High-Performance Card, 5DS w/upx, 20US, Spec An
UBR10-4MC5X20H-D	Cisco 4 uBR10-MC5X20H-D Line cards
10000-SIP-600	Cisco 10000 Series SPA Interface Processor-600
10000-SIP-600=	Cisco 10000 Series SPA Interface Processor-600
SPA-5X1GE-V2	Cisco 5-Port Gigabit Ethernet Shared Port Adapter
SPA-5X1GE-V2=	Cisco 5-Port Gigabit Ethernet Shared Port Adapter
SPA-1X10GE-L-V2	Cisco 1-Port 10GE LAN-PHY Shared Port Adapter
SPA-1X10GE-L-V2=	Cisco 1-Port 10GE LAN-PHY Shared Port Adapter

Cisco uBR10012 Series Processors

ESR-PRE2	Performance Routing Engine, 1GB DRAM, 64MB Flash
ESR-PRE2=	Performance Routing Engine
ESR-PRE4	Performance Routing Engine 4
ESR-PRE4=	Performance Routing Engine 4

Cisco uBR10012 Series Coax Cables

CAB-RFSW520QTIMF2	Quad-shield RF cable bundle, MC520 to HFC plant, 3m
CAB-RFSW520QTIMF2=	Spare quad-shield RF cable bundle, MC520 to HFC plant, 3m
CAB-RFSW520QTPMF2	RF cable bundle, MC520/RFSW to HFC plant, 3m, with UCH2
CAB-RFSW520QTPMF2=	Spare RF cable bundle, MC520/RFSW to HFC plant, 3m, with UCH2
CAB-RFSW520QTIMM2	Quad-shield RF cable bundle, MC520 to RF switch, 1m, with UCH2
CAB-RFSW520QTIMM2=	Spare quad-shield RF cable bundle, MC520 to RF switch, 1m, with UCH2

For More Information

For more information about the Cisco uBR10012 Series, visit:
<http://www.cisco.com/en/US/products/hw/cable/ps2209/index.html>.

Cisco uBR 3x10 RF Switch

The Cisco uBR 3x10 RF Switch is an integral part of the Cisco uBR10012 High Availability solution. It offers a fully redundant system that helps cable operators exceed PacketCable system availability, minimize service disruptions, and simplify operations.



Ideal for Companies That Need These Features

- Cisco uBR 3x10 RF Switch**
- Advanced services such as VoIP, DSG STB deployments, and highly available commercial services
 - Carrier-class N+1 network and service architecture
 - High-density high-availability service support
 - Scalability to tens of thousands of subscribers

Key Features

- N+1 redundancy
- Hot swap capability of all RF switch modules with no RF service disruption
- Support for DOCSIS and Euro-DOCSIS RF performance specifications
- Comprehensive set of high availability features
- Redundancy Readiness Verification, for proactive redundancy health monitoring and reporting

- Fully passive working path
- Position-sensing latching relays
- Unmatched port density and flexibility

Specifications

Feature	Cisco uBR 3x10 RF Switch
Input Power Requirements	AC:—100 to 240 VAC, 50 to 60 Hz, operating range: 90 to 254 VAC; DC:—48 to -60 VDC, operating range: 140.5 to -72 VDC, 200 mVpp ripple/noise
Unit Control	10BaseT Ethernet—SNMP; Switching time from active (working) to standby (protect)—150 mS maximum after SNMP command
Connectors	RF connectors—MCX; AC power—IEC320 type; DC power—Three terminal block; Ethernet—RJ-45; RS-232 Bus—9-pin male D
Reliability	41,000 MTBF @ +50C as calculated by BellCore 5, 80 percent confidence factor
Dimensions (H x W x D)	5.25 x 17.5 x 14.8 in. (13.335 x 44.45 x 37.592 cm)
Environmental	Operational temperature range—0 to +40C; Operating temperature range—5 to +55C
Weight	36 lbs.
RF Requirements	<ul style="list-style-type: none"> • Input/output impedance—75 ohms • Maximum RF input power—+15 dBm (63.75 dBmV) • Switch type—Electro-mechanical, absorptive for working path, non-absorptive on the protect path • Switch setting time per switch module—20 ms maximum • Downstream frequency range—54 to 860 MHz • Typical downstream insertion loss—+/- 1.1 dB from CMTS to cable plant; +/- 2.1 dB from protect to cable plant; 5.5 dB from working to output; 8.0 dB from, protect to output • Downstream insertion loss flatness— +/- 1.1 dB from CMTS to cable plant; +/- 2.1 dB from protect to cable plant • Downstream output return loss—> 15.0dB at <450 MHz, > 12.0 dB at >= 450 MHz • Downstream input return loss—> 15.0 dB • Downstream isolation—> 60 dB from channel to channel in working mode; > 52 dB from CMTS to protect when in protect mode • Upstream frequency range—5 to 70 MHz; Typical upstream insertion loss: 4.1 dB from cable plant to CMTS; 5.2 dB from cable plant to protect • Upstream insertion loss flatness—+/- 0.4 dB from cable plant to CMTS; +/- 0.6 dB from cable plant to protect • Upstream input return loss—> 16 dB • Upstream isolation—>60 dB from channel to channel in working mode> 60 dB from CMTS to protect when in protect mode • Protect mode—CMTS return loss > 10 dB, cable plant return loss: > 10 dB

Selected Part Numbers and Ordering Information

Cisco RF Switch Series	
UBR-RFSW	Cisco N+1 RF Switch for CMTS Routers
Cisco RF Switch Series Cables	
CAB-RFSW520QTPMF2	Cisco RF cable bundle, MC520/RFSW to HFC plant, 3m, with UCH2
CAB-RFSW520QTPMF2=	Spare RF cable bundle, MC520/RFSW to HFC plant, 3m, with UCH2
CAB-RFSW520QTIMM2	Quad-shield RF cable bundle, MC520 to RF switch, 1m, with UCH2
CAB-RFSW520QTIMM2=	Spare quad-shield RF cable bundle, MC520 to RF switch, 1m, with UCH2

For More Information

For more information about the Cisco uBR 3x10 RF Switch, visit:
<http://www.cisco.com/en/US/products/hw/cable/ps2929/index.html>.

Cisco Services

Cisco and our partners offer a portfolio of technical services that help you maintain the health and performance of every Cisco product. Offerings range from traditional maintenance to proactive and predictive services.

- To find the right technical service for any Cisco product, use the Service Finder tool at <http://www.cisco-servicefinder.com>. Enter a product description or SKU or search by product series family.
- For more information about Cisco Technical Services, go to <http://www.cisco.com/go/ts>.

In addition, Cisco and our partners accelerate business transformation, operational maturity, and agility through consultative planning, solution development, and full deployment, creating network architectures that optimize IT services and enhance your business.

For more information about Cisco Advanced Services, visit <http://www.cisco.com/go/techservices>.

For more information about all services, refer to Chapter 10, "Cisco Services".

Chapter 8: Optical Networking

Optical Networking At-a-Glance		
Product	Features	Page
METRO CORE		
Cisco ONS 15600 SONET/SDH Multiservice Switching Platform	<ul style="list-style-type: none">• This solution allows service providers to transparently integrate their metropolitan (metro) core and metro edge networks while dramatically reducing initial turn-up costs.• It provides 320 gigabits of switching, grooming, aggregation, and bandwidth-management capacity in a single shelf.• The platform supports 32 OC-192/STM-64 (XFP) or 128 OC-48/STM-16, OC-12/STM-4, OC-3/STM-1, or Gigabit Ethernet (SFP pluggable) optical interfaces in a single shelf.• The platform offers any service, any port (ASAP) service cards that hold up to four pluggable I/O (ASAP 4-PIO or ASAP-1-PIO modules, each capable of supporting up to four 2.5-Gbps SFP optics or one 10-Gbps XFP optics capable of both fixed-rate and multirate formats.• The platform combines the functions of multiple metro systems, including SONET/SDH multiplexers and digital cross-connect network elements.• It provides carrier-class availability, serviceability, and management.• This scalable, easy-to-use platform supports all metro topologies.	8-2
Cisco ONS 15454 SONET/SDH Multiservice Provisioning Platform	<p>This platform integrates the functions of traditional SONET or SDH network elements with next-generation SONET/SDH transport and multiservice interfaces:</p> <ul style="list-style-type: none">• SONET/SDH aggregated services (SFP/XFP-based) include: 144 x OC-3/STM-1; 80 x OC-12/STM-4; 24 x OC-48/STM-16; 4 x OC-192/STM64• SONET/SDH aggregated services include: 224 x DS-1; 192 x DS-3, 252 x E-1; 48 x E-3• Data services include: Private-line; Switched; Layer 2 and Layer 3, including 10/100BASE-T, Gigabit Ethernet, and Resilient Packet Ring (RPR)• Storage services include: 1 Gbps; 2-Gbps Fibre Channel; IBM Fibre Connection (FICON)• The solution combines multiplexing, optical networking, and switching functions in one easy-to-use platform that supports all metro topologies.	8-3
METRO, REGIONAL, AND LONG-HAUL DWDM		
Cisco ONS 15454 Multiservice Transport Platform (MSTP)	<p>This solution delivers integrated, intelligent dense wavelength-division multiplexing (DWDM) functions, including fully reconfigurable optical add/drop multiplexer (ROADM) technology for metropolitan, regional networks, and long-haul networks (from 32 to 80 wavelengths per node).</p> <ul style="list-style-type: none">• It offers multiservice time-division multiplexing (TDM) and data aggregation over 2.5- and 10-Gbps wavelengths.• SONET/SDH wavelength and aggregated services include: OC-3/STM-1; OC-12/STM-4; OC-48/STM-16; OC-192/STM-64• 2-degree ROADM functions include: Zero to 32 or 40 channels of pass-through or add/drop multiplexer (ADM), A-to-Z wavelength provisioning, and full, real-time power monitoring of each individual wavelength• 8-degree ROADM functions include: Mesh Ring Interconnection up to 8 degrees with full (0 to 320 wavelength) ROADM pass or ADM• Omni-Directional Add/Drop at Multi-Degree Node• Data services include: Private-line, switched, and wavelength-based, including 10/100BASE-T, Gigabit Ethernet, 10 Gigabit Ethernet LAN physical layer, and 10 Gigabit Ethernet WAN physical layer• Storage services include: 1 Gbps; 2 Gbps; 4-Gbps Fibre Channel; 10-Gbps Fibre Channel; IBM Fibre Connection (FICON); Enterprise Systems Connection (ESCON); ETR/CLO; ISC-1; ISC-3 <p>Video services include D1 and high-definition television (HDTV).</p>	8-3
Cisco ONS 15216 Metropolitan/Regional DWDM System and Transmission Families	<p>The Cisco ONS 15216 Metropolitan/Regional DWDM System supports 32 ITU-grid wavelengths launched by the Cisco ONS 15454 MSTP, ONS MSP, ONS 15600, ONS 15310, or alien wavelengths and creates a more desirable per-wavelength cost. It offers:</p> <ul style="list-style-type: none">• Optical add/drop multiplexer (OADM)• Cisco ONS 15216 Erbium-Doped Fiber Amplifier (EDFA)-3 Optical Amplification• Compact, modular design	8-4

METRO EDGE ACCESS		
Cisco ONS 15310-MA SONET Multiservice Platform	<p>The Cisco ONS 15310-MA SONET Multiservice Platform offers high-density aggregation and transports up to 168 DS-1, 6 DS-3, or 32 Layer 1 or Layer 2/3 Ethernet ports (10, 100, and 1000 Mbps).</p> <ul style="list-style-type: none"> • It offers tremendous service flexibility, supporting DS-1, DS-3/EC1, Layer 1, and Layer 2/3 Ethernet, and Small Form-Factor Pluggable (SFP)-enabled optics for OC-3, OC-12, and OC-48. • Its environmentally hardened design supports up to 99.999-percent reliability for both access and edge networks. • The platform comes in a compact 6-rack unit (6RU) form factor. 	8–4
Cisco ONS 15310-MA SDH Multiservice Platform	<p>The Cisco ONS 15310-MA SDH Multiservice Platform offers high-density aggregation and transports up to 126 E-1, 6 E-3/DS-3, or 32 Layer 1 or Layer 2/3 Ethernet ports (10, 100, and 1000 Mbps).</p> <ul style="list-style-type: none"> • It offers tremendous service flexibility, supporting E-1, E-3/DS-3, Layer 1, and Layer 2/3 Ethernet, and Small Form-Factor Pluggable (SFP)-enabled optics for STM-1, STM-4, and STM-16. • Its environmentally hardened design supports up to 99.999-percent reliability for both access and edge networks. • The platform comes in a compact 6-rack unit (6RU) form factor. 	8–4
Cisco ONS 15310-CL SONET Multiservice Platform	<p>The compact 1RU single-system controller design of the Cisco ONS 15310-CL SONET Multiservice Platform is optimized for data and TDM services over protected SONET transport for the customer location. It offers:</p> <ul style="list-style-type: none"> • 1RU AC or dual-DC power chassis • Single system controller, timing, and synchronization • Two SFP optical ports for rings • 21 DS-1 and 3 DS-3 ports • One expansion slot • Fan cooling 	8–4
Cisco ONS 15305 SDH Multiservice Provisioning Platforms (MSPPs)	<p>Cisco ONS 15305 SDH Multiservice Provisioning Platforms are ultra-compact integrated systems that extend next-generation optical networks (access nodes or customer premises equipment [CPE]). The platforms offer:</p> <ul style="list-style-type: none"> • Low-cost access and CPE platform • E1, E3, DS-3, 10/100 BASE-T Ethernet, and Gigabit Ethernet • STM-1, STM-4, and STM-16 	8–5

OPTICAL NETWORK MANAGEMENT

Cisco Transport Manager 9.0	<p>Cisco Transport Manager 9.0 is an advanced optical transport domain manager that delivers element and network management layer functions:</p> <ul style="list-style-type: none"> • It offers efficient management of the entire Cisco ONS product family. • It provides a resilient, adaptable, and integrated carrier-class element-management-system (EMS) solution. • This powerful GUI-based management system makes advanced management capabilities such as A-to-Z circuit provisioning easy to learn and use. • The solution is cost-effective, using industry-standard platforms such as Sun Solaris, Oracle, and Microsoft Windows to fit smoothly into various IT environments. • The solution offers a variety of northbound interface options (for example, Simple Network Management Protocol [SNMP], TL1, and CORBA) 	8–5
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SERVICES

Cisco Services	Cisco and our partners offer a portfolio of technical services that help you maintain the health and performance of every Cisco product.	8–5
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Product Ordering Website

To place an order or for more part numbers, visit: <http://www.cisco.com/en/US/ordering/index.shtml>. This chapter only provides a small subset of all part numbers available. See the URL listed in the "For More Information" section of each product to get a complete list of part numbers.

Cisco ONS 15600 SONET/SDH Multiservice Switching Platform

The Cisco ONS SONET/SDH 15600 Multiservice Switching Platform (MSSP) provides flexibility in designing next-generation metropolitan (metro) networks. Fully engineered and optimized for metro applications, the Cisco ONS 15600 MSPP simplifies and revolutionizes bandwidth management in the metro core by allowing service providers to transparently integrate their metro core and metro edge networks, while dramatically reducing initial turn-up costs. The any service, any port (ASAP) interface cards of the Cisco ONS 15600 provide 1 to 16 ports of capacity per slot to aggregate and transport mission-critical regional and metro-area traffic using a modular, flexible, and scalable



design that allows single- and multiple-rate optics from OC-3/STM-1 to OC-192/STM-64, including Gigabit Ethernet SFP optics. Delivering scalability to 960 Gbps of traffic in a single rack, it complements the market-leading Cisco ONS 15454 MSPP by taking advantage of its proven architecture and operating software, allowing service providers to dramatically simplify their metro networks and realize immediate cost, space, and operational benefits. The Cisco ONS 15600 MSPP provides complete integration of metro core and edge networks for service provisioning and network management.

For More Information

For more information about the Cisco ONS 15600 platforms, visit: <http://www.cisco.com/go/ons15600>.

Cisco ONS 15454 SONET/SDH Multiservice Provisioning Platform

The Cisco ONS 15454 Multiservice Provisioning Platform (MSPP) provides key building blocks in optical networks because of its unprecedented transport performance and economics. It offers supercharged transport capability by combining the best of traditional SONET/SDH time-division multiplexing (TDM) and statistical multiplexing in single units. The Cisco ONS 15454 aggregates traditional facilities such as E-1/DS-1, E-3/DS-3, VC-3/VC-4/STS-1, STM-1/OC-3, STM-4/OC-12, and STM-16/OC-48, including multi-wavelength dense wavelength-division multiplexing (DWDM) optics, and also supports data interfaces for 10 Gigabit Ethernet, 100 Gigabit Ethernet, and Gigabit Ethernet data and video. This drastically improved efficiencies in the transport layer and breakthrough cost savings for initial and life-cycle deployment. A single Cisco ONS 15454 shelf can support combinations of STM-1/OC-3/c, STM-4/OC-12/c, STM-16/OC-48/c, and STM-64/OC-192. It also offers an international optical transport solution that combines the best of traditional SONET/SDH time-division multiplexing (TDM) and statistical multiplexing in a single platform.



For More Information

For more information about the Cisco ONS 15454 platforms, visit: <http://www.cisco.com/go/ons15454>.

Cisco ONS 15454 Multiservice Transport Platform (MSTP)

The Cisco ONS 15454 Multiservice Transport Platform (MSTP) sets the industry benchmark for metropolitan and regional dense wavelength-division multiplexing (DWDM) solutions by using proven Cisco MSPP networking technologies to deliver simple, fast, and intelligent DWDM capabilities and lower capital expenditures (CapEx) and operating expenses (OpEx). A metropolitan network, being close to or on a customer's premises -- unlike its long-haul counterpart -- requires support for a great diversity of service interfaces. The service interfaces allow network providers to offer new tariffs and allow enterprise customers to natively transport a wide variety of services over a common transport network without unnecessary conversion stages and equipment. Additionally, a wide service mix simplifies the planning for services. The Cisco ONS 15454 MSTP, with its multiservice provisioning platform (MSPP) capabilities, supports a broad range of standards-based services in a single platform.



Critical to offering a wide service mix is the ability of a DWDM system to offer the level of transparency required by the service. The ultimate in network-management flexibility is achieved through an industry-leading, fully reconfigurable optical add/drop multiplexer (ROADM) that allows 0 to 32, 40, 72, or 80 channels of pass-through or add/drop, A-to-Z wavelength provisioning, and full, real-time power monitoring of each individual wavelength. The Cisco ONS 15454 MSTP solution offers the choice of multiservice aggregation, wavelength aggregation, and wavelength transport, combined with integrated, intelligent DWDM transmission, in a single platform to optimize network costs for any mix of service types. Using digital-wrapper technology (defined in ITU-T G.709) facilitates transparency while still allowing enhanced wavelength management and providing extended optical reach with integrated Forward Error Correction (FEC). The Cisco ONS 15454 MSTP is also used to build IP over DWDM (IPoDWDM) architectures. Cisco routers with integrated optics such as the Cisco CRS-1 Carrier Routing System (10 Gigabit Ethernet and OC-768), Cisco 12000 Series (10 Gigabit Ethernet), and Cisco 7600 Series (10 Gigabit Ethernet) have integrated, ITU-grid optics that allow for direct connection to the Cisco ONS 15454 MSTP without using external transponders.

For More Information

For more information about the Cisco ONS 15454 platforms, visit: <http://www.cisco.com/en/US/products/hw/optical/ps2006/ps5320/index.html>.

Cisco ONS 15216 Metropolitan/Regional DWDM System

The Cisco ONS 15216 Metropolitan/Regional DWDM System supercharges wavelength services by supporting up to 32 ITU-grid wavelengths, and provides unprecedented transport flexibility with optical filtering, optical add/drop multiplexer (OADM), optical performance monitoring, and amplification. It allows service providers to deliver more services per wavelength and more wavelengths per fiber.



The Cisco ONS 15216 Metropolitan Dense Wavelength-Division Multiplexing (DWDM) FlexLayer filter solution is an ultraflexible filter architecture that allows cable multiple system operators and service providers to build "pay-as-you-grow" networks with the flexibility to upgrade in service without provisioning channels that are not required. This approach creates a more desirable per-wavelength cost.

The FlexLayer architecture allows for deployment of point-to-point, point-to-multipoint, ring, bus, and tree-and-branch architectures. These networks can be deployed as unprotected or protected networks, and they can also be deployed in transmit-only applications for broadcast networks. This flexibility is inherent in the design of the FlexLayer architecture.

For More Information

For more information about the Cisco ONS 15216 platforms, visit: <http://www.cisco.com/en/US/products/tw/optical/ps1996/ps1999/index.html>.

Cisco ONS 15310-MA SONET Multiservice Platform

The Cisco ONS 15310-MA SONET Multiservice Platform is a compact but high-density SONET device capable of multiservice time-division multiplexing (TDM) and data aggregation and transport. The Cisco ONS 15310-MA offers tremendous service flexibility, supporting DS-1, DS-3/EC-1, Layer 1, and Layer 2/3 Ethernet (10, 100, and 1000 Mbps), and Small Form-Factor Pluggable (SFP)-enabled optics for OC-3, OC-12, and OC-48. The Cisco ONS 15310-MA is a hardened design, and supports up to 99.999-percent reliability for both access and edge networks. The Cisco ONS 15310-MA is a carrier-class multiservice provisioning platform (MSPP) that efficiently switches Ethernet and TDM traffic for use in metropolitan and regional optical networks. The Cisco ONS 15310-MA can be managed using the Cisco Transport Controller element management system and Cisco Transport Manager for network management.



For More Information

For more information about the Cisco ONS 15300 platforms, visit: <http://www.cisco.com/go/ons15300>.

Cisco ONS 15310-MA SDH Multiservice Platform

The Cisco ONS 15310-MA SONET Multiservice Platform is a compact but high-density SDH device capable of multiservice time-division multiplexing (TDM) and data aggregation and transport. The Cisco ONS 15310-MA SDH offers tremendous service flexibility, supporting E-1, E-3/DS-3, Layer 1, and Layer 2/3 Ethernet (10, 100, and 1000 Mbps), and Small Form-Factor Pluggable (SFP)-enabled optics for STM-1, STM-4, and STM-16. The Cisco ONS 15310-MA SDH is a hardened design, and supports up to 99.999-percent reliability for both access and edge networks. The Cisco ONS 15310-MA is a carrier-class multiservice provisioning platform (MSPP) that efficiently switches Ethernet and TDM traffic for use in metropolitan and regional optical networks. The Cisco ONS 15310-MA can be managed using the Cisco Transport Controller element management system and Cisco Transport Manager for network management.



For More Information

For more information about the Cisco ONS 15300 platforms, visit: <http://www.cisco.com/go/ons15300>.

Cisco ONS 15310-CL SONET Multiservice Platform

By extending the metropolitan (metro) edge to customer premises and providing direct high-speed LAN connectivity, the Cisco ONS 15310-CL SONET Multiservice Platform allows service providers to cost-effectively offer scalable, high-speed data services over their transport networks. For the enterprise, the Cisco ONS 15310-CL offers the efficiency, scalability, and high availability to meet the bandwidth demands of the mission-critical e-business infrastructure. These features are available without implementing new technology or upgrading the existing transport network infrastructure.



Optimized for the customer location, this evolutionary platform is based on the same technology as the industry-leading Cisco ONS 15454, Cisco ONS 15600 and ONS 15310-MA, supporting high optical

bandwidth, and it can support DS-1, DS-3, and Layer 1/2 10/100 Ethernet. The Cisco ONS 15310-CL also provides comprehensive STS- and VT-level bandwidth management and integrated data switching. The integrated multiservice optical networking functions of the Cisco ONS 15310-CL dramatically reduce service-delivery costs. Packaged in a 1-rack unit (1RU), industrially temperature-hardened Network Equipment Building Standards (NEBS) 3-compliant assembly, the Cisco ONS 15310-CL delivers fast provisioning and low initial cost, while maintaining a small footprint and low operational cost throughout the life of the product. It can be managed using the Cisco Transport Controller element management system and Cisco Transport Manager for network management.

For More Information

For more information about the Cisco ONS 15300 platforms, visit: <http://www.cisco.com/go/ons15300>.

Cisco ONS 15305 SDH Multiservice Provisioning Platform

The Cisco ONS 15305 Multiservice Provisioning Platform (MSPP) customer premises equipment (CPE) and aggregation solution is an ultra-compact, integrated system that offers cost-effective solutions. The platform provides native multiservice capabilities (that is, time-division multiplexing [TDM] interfaces, multiplexing, and Ethernet data interfaces).



The Cisco ONS 15305 aggregation platform provides the following TDM interfaces: protected or unprotected optical interfaces (8-port S-11 optical module, 2-port S-41 optical module, 1-port S-161 optical module, 1+1 MSP, SNCP, and 2F MS-SPRING for STM-16) and electrical customer interfaces (8- and 63-port E1 modules and a 6-port E3/DS-3 module). This product also provides native Ethernet customer access through an 8-port 10/100BASE-T module and a 2-port Gigabit Ethernet module (supports full Layer 2 capacity, bridging, VLANs, spanning tree, and priority management). An optional WAN module is available for point-to-multipoint applications.

For More Information

For more information about the Cisco ONS 15300 platforms, visit: <http://www.cisco.com/go/ons15300>.

Cisco Transport Manager 9.0

Cisco Transport Manager is an integrated optical element management system for Cisco ONS 15000 optical networking platforms. The software manages configuration, fault isolation, performance, and security for Cisco optical network elements. With integrated support for SONET, SDH, dense wavelength-division multiplexing (DWDM) and Ethernet, along with open interfaces to operations support systems (OSSs), Cisco Transport Manager delivers the full power of the wide range of advanced optical systems that Cisco offers today's network operators and enterprises.

Cisco Transport Manager is a powerful tool that increases the productivity of the network operations staff. The system provides GUI-based point-and-click network management. As such, the solution has a low learning curve while providing advanced management capabilities such as A-to-Z circuit provisioning. Explorer-style navigation, the extensive use of wizards, tool tips, legends, and online help make it easy for an operator to perform tasks quickly and efficiently. Many otherwise tedious, time-consuming, and error-prone tasks can be fully streamlined using the features of this software.

Cisco Transport Manager works for small networks, but can also scale up to 4000 network elements and 100 concurrent clients per server. This solution is appropriate for small enterprise networks as well as large service provider networks. Cisco Transport Manager is extremely cost-effective (uses industry-standard platforms such as Sun Solaris, Oracle, and Microsoft Windows). It fits smoothly into most companies' information technology environments. Using scalable Sun server platforms, customers can minimize initial investment, but still accommodate growth by adding additional processors, memory, and disk space.

For More Information

For more information about Cisco Transport Manager, visit: <http://www.cisco.com/en/US/products/sw/opticsw/ps2204/index.html>.

Cisco Services

Cisco and our partners offer a portfolio of technical services that help you maintain the health and performance of every Cisco product. Offerings range from traditional maintenance to proactive and predictive services.

- To find the right technical service for any Cisco product, use the Service Finder tool at <http://www.cisco-servicefinder.com>. Enter a product description or SKU or search by product series family.
- For more information about Cisco Technical Services, go to <http://www.cisco.com/go/ts>.

In addition, Cisco and our partners accelerate business transformation, operational maturity, and agility through consultative planning, solution development, and full deployment, creating network architectures that optimize IT services and enhance your business.

- For more information about Cisco Advanced Services, visit <http://www.cisco.com/go/techservices>.
- For more information about all services, refer to Chapter 10, "Cisco Services".

Chapter 9: Network Management

Network Management At-a-Glance

Product	Features	Page
NETWORK MANAGEMENT SOLUTIONS		
Cisco Network Application Performance Analysis (NAPA) Solution	This set of tools and services empowers enterprise IT to ensure delivery of consistent and optimized application performance levels across the network: <ul style="list-style-type: none"> Advanced application performance analytics Exceptional network and application performance visibility Faster problem detection, isolation and troubleshooting Open instrumentation Access to Cisco advanced services 	9-4
Cisco Proactive Automation of Change Execution (PACE) Solution	This solution offers products and services that accelerate operational success by helping IT organizations securely automate and control network changes and configurations. It helps enterprises meet compliance requirements, accelerate growth, ensure business continuity, and increase user productivity.	9-4
Cisco Video Assurance Management Solution (VAMS)	Cisco VAMS provides real-time, centralized monitoring of video transport over core, distribution, and aggregation networks. <ul style="list-style-type: none"> Monitors any changes in the multicast trees that might affect video performance Actively manages network events to help you maintain video service uptime and quality Supports correlation and aggregation of events in the core, distribution, and aggregation networks When video probes are placed at demarcation points along the video path in the network, they help identify, isolate, and troubleshoot video errors. Supported video probes include: Tektronix MTM400, Ineoquest, and Mixed Signals. 	9-5
NETWORK MANAGEMENT SERVICES MODULES		
Cisco Catalyst 6500/ Cisco 7600 Series Network Analysis Modules (NAMs) 1 and 2	The Cisco NAM is network-aware performance management instrumentation integrated in the Cisco Catalyst 6500 Series Switches and Cisco 7600 Series Routers that delivers exceptional visibility into network traffic. It provides granular insight into how the network is being used and how users experience the services the network offers to help improve application and network performance. With its built-in Traffic Analyzer GUI, the Cisco NAM provides quick access to the configuration menus and presents easy-to-read performance reports on voice, video, and TCP-based traffic.	9-6
Cisco Branch Routers Series Network Analysis Module (NAM)	The Cisco Branch Routers Series NAM is a services module integrated in the Cisco 2800 and 3800 Series Integrated Services Routers that provides application performance monitoring, traffic analysis, and troubleshooting in the empowered branch. It includes the Traffic Analyzer web interface, which can be accessed anywhere at any time, eliminating the need to send personnel to remote sites or to haul large amounts of data over WAN links to the central site.	
Cisco NAM 2200 Series Appliances	An extension of the Cisco NAM blades, the new Cisco NAM 2220 Series Appliances offer next-generation performance, industry-leading scalability, and maximum deployment flexibility, yet also include all of the world-class performance-monitoring, traffic-analysis, and troubleshooting features of the blades. The NAM appliances increase the reach of the NAM in places in the network not currently served by the blades or where high performance monitoring is essential.	
OPTICAL MANAGEMENT		
Cisco Transport Manager	The industry's most advanced optical transport domain manager, Cisco Transport Manager helps deliver the full power of the Cisco ONS 15000 Series and the Cisco MGX Voice Gateway products to a customer's operations personnel and back office systems.	See 8-5
ROUTING AND SWITCHING MANAGEMENT		
Cisco Active Network Abstraction	This flexible and powerful multivendor network resource-management system provides an enabling platform for value-added network and service-management applications in a multitechnology, multiservice network environment.	9-6

Cisco IP Solution Center	<p>This family of intelligent network management applications help reduce administration, management, and network operational costs by:</p> <ul style="list-style-type: none"> • Providing automated resource management and rapid profile-based provisioning capabilities that speed deployment and time-to-market of Multiprotocol Label Switching (MPLS) and Metro Ethernet technologies • Working with Cisco MPLS Diagnostics Expert to provide automated, workflow-based troubleshooting and diagnostic capabilities for MPLS VPN networks 	9-7
Cisco Multicast Manager	<p>Cisco Multicast Manager offers the following capabilities:</p> <ul style="list-style-type: none"> • Automated multicast discovery • Proactive polling engine • Real-time multicast diagnostics • Alerting and reporting 	9-7
CiscoWorks LAN Management Solution (LMS)	<p>Part of the Cisco NAPA and Cisco PACE solutions, CiscoWorks LMS provides critical applications needed to manage Cisco switch-based enterprise campus networks:</p> <ul style="list-style-type: none"> • CiscoWorks Campus Manager • CiscoWorks Device Fault Manager • CiscoWorks Resource Manager Essentials and CiscoView • CiscoWorks Internetwork Performance Manager • CiscoWorks Portal and CiscoWorks Assistant 	9-8
CiscoWorks Health and Utilization Manager (HUM)	<ul style="list-style-type: none"> • This Simple Network Management Protocol (SNMP)-based MIB polling application monitors network elements (such as CPU, memory, and interfaces, and links) for their availability and usage levels and provides historical reporting. • CiscoWorks HUM is licensed separately and integrates with the CiscoWorks LAN Management Solution (LMS). 	9-8
ENTERPRISE UNIFIED COMMUNICATIONS MANAGEMENT		
Cisco Unified Communications Management Suite	<ul style="list-style-type: none"> • This sophisticated toolset eases provisioning of Cisco Unified Communications network elements and services. • It monitors communications traffic across the network, to manage the servers and network elements providing the services to troubleshoot any events that might threaten the user experience, and to provide statistical analysis and trending of performance. • The suite is designed to address the specific needs of voice and video communications across a network. 	9-8
Cisco Unified Operations Manager	<p>Part of the Cisco Unified Communications Management Suite, Cisco Unified Operations Manager provides contextual diagnostic tools to facilitate trouble isolation and thereby increase the productivity of an organization's network managers. It also provides a real-time, service-level view of the entire Cisco Unified Communications System and presents the current operational status of each element.</p>	9-9
Cisco Unified Service Monitor	<p>Part of the Cisco Unified Communications Management Suite, Cisco Unified Service Monitor provides a low-cost, reliable method of monitoring and evaluating voice quality in Cisco Unified Communications Solutions.</p>	9-10
Cisco Unified Provisioning Manager	<p>Part of the Cisco Unified Communications Management Suite, Cisco Unified Provisioning Manager:</p> <ul style="list-style-type: none"> • Provides provisioning for Cisco Unified Communications initial deployments and implementations. • It remains in place to provide ongoing operational provisioning and activation services for individual subscriber changes. 	9-10
Cisco Unified Service Statistics Manager	<p>Part of the Cisco Unified Communications Management Suite, Cisco Unified Service Statistics Manager provides advanced statistics analysis and reporting capabilities.</p>	9-11
CiscoWorks QoS Policy Manager	<p>CiscoWorks QoS Policy Manager supports centralized management of network quality of service (QoS). It provides comprehensive QoS provisioning and monitoring capabilities so you can manage, tune, and optimize the performance characteristics of your Cisco network.</p>	9-11
Cisco Media Gateway Controller Node Manager	<p>Cisco Media Gateway Controller Node Manager is an element manager for the fault, configuration, performance, and security management of the Cisco PGW 2200 Softswitch gateway.</p>	9-12
SMALL BUSINESS NETWORK MANAGEMENT		
Cisco netManager for IP Infrastructure	<ul style="list-style-type: none"> • This solution provides simple, ready-to-use monitoring and diagnostics for small business network deployments (up to 100 devices and 100 wireless access points). • It supports Cisco and third-party network devices, printers, servers, and workstations. 	9-13

Cisco netManager for Unified Communications	<ul style="list-style-type: none"> This solution manages small voice and data networks (up to 1000 phones or users). It provides easy-to-use, out-of-the-box monitoring and diagnostics. 	9–13
VIDEO, CABLE, AND CONTENT-DELIVERY MANAGEMENT		
Cisco Broadband Access Center	<p>This centralized, automated platform controls and configures residential gateways and IP devices. It provides:</p> <ul style="list-style-type: none"> Recognition of all devices coming into the service provider network Generation and distribution of the appropriate IP lease and configuration files based on the service provider business policies Distributed architecture with central management and single point of integration Support for tens of millions of devices and designed to deal with performance impacting avalanche scenarios Support for DOCSIS, PacketCable, CableHome, and TR-069 device types 	9–14
Cisco Broadband Troubleshooter	<p>Cisco Broadband Troubleshooter provides a diagnostic tool for RF technicians to quickly and easily isolate problems in the cable plant. It performs the following functions:</p> <ul style="list-style-type: none"> Analyzes and sorts RF conditions into specific categories such as attenuation, provisioning, and noise or packet corruption (cyclic redundancy check [CRC]) errors Provides dashboard views of network health, cable modem termination system (CMTS), and cable modem statistic and snapshots Correlates cable modem to subscriber information Works with an optional tool to map cable modems and status to subscriber street-level views 	9–14
SECURITY AND ACCESS MANAGEMENT		
Cisco Security Management Suite	<ul style="list-style-type: none"> Cisco Security Management Suite offers best-of-class management applications as part of a self-defending network including: Cisco Security Manager, a policy-based configuration-management system designed to efficiently provision small-to large-scale Cisco firewall, VPN, and intrusion-prevention-system (IPS) deployments and Cisco Security Monitoring, Analysis and Response System (MARS), which delivers sophisticated monitoring, analysis, and mitigation functions for multivendor networks. Together, these two products form the Cisco Security Management Suite that delivers security administration and enforcement for the Cisco Self-Defending Network. 	9–14
Cisco Security Monitoring, Analysis, and Response System (MARS)	This appliance-based, all-inclusive solution provides exceptional insight into and control of an organization's existing security deployment.	See 5-26
BUILDING MANAGEMENT		
Cisco Network Building Mediator *NEW*	<p>The Cisco Network Building Mediator ("Mediator") is the industry's first solution that extends the network as a platform to transform the way buildings are built, operated, and experienced. The mediator is the intelligence powering the new Energy Intranet by interconnecting and enabling four critical elements: the convergence of building systems and IT and the dynamic balance of energy supply and energy demand. The integration of these disparate systems onto an IP network leads to a truly converged, energy-efficient building.</p> <p>The strategy of the Cisco Mediator is built on:</p> <ul style="list-style-type: none"> Any-to-any connectivity—Building, IT, and green technologies End-to-end management—Efficiency, conservation, and de-carbonization Extensible platform—Third-party applications and cloud services 	9–15
WIRELESS ACCESS MANAGEMENT		
CiscoWorks Wireless LAN Solution Engine and CiscoWorks Wireless LAN Solution Express	<ul style="list-style-type: none"> These applications provide centralized, systems-level application for managing and controlling an entire Cisco Aironet wireless LAN (WLAN) infrastructure. They facilitate Cisco Aironet WLAN deployments, enhance network security, maximize network availability, and reduce operating expenses. 	See 3-34
NETWORK CONFIGURATION AND CHANGE MANAGEMENT		
CiscoWorks Network Compliance Manager	<ul style="list-style-type: none"> Part of the Cisco Proactive Automation of Change Execution solution, CiscoWorks Network Compliance Manager tracks and regulates configuration and software changes throughout a multivendor network infrastructure (including Cisco routers, switches, firewalls, load balancers, and wireless access points). It provides exceptional visibility into network changes and can track compliance with a broad variety of regulatory, IT, corporate governance, and technology best practices. 	See 5-27

Cisco Network Registrar	<ul style="list-style-type: none"> · Cisco Network Registrar provides fast, scalable, and highly-available naming and addressing services for service provider and large enterprise networks. · The Cisco CNS Address and Name Registrar Dynamic Host Configuration Protocol (DHCP) server supports DHCP Safe Failover (redundant DHCP servers), dynamic Domain Name Server (DNS) updates, DOCSIS cable modems, and integration with directory services using Lightweight Directory Access Protocol Version 3 (LDAPv3). 	9–17
Cisco Mobile Wireless Transport Manager	<p>Cisco Mobile Wireless Transport Manager performs real-time updates of any system changes such as inventory, events, and performance counters. It:</p> <ul style="list-style-type: none"> · Accelerates time to service by providing GUI-based editing · Allows the operator to immediately view events from the Cisco Radio Access Network (RAN) Optimization solution and Cisco IP Transfer Point (ITP) networks · Improves network serviceability by allowing operators to proactively assess the readiness and general health of Cisco RAN and Cisco ITP · Enables easier network problem identification and troubleshooting · Provides northbound XML application programming interfaces (APIs) · Helps maintain system integrity by preventing accidental or malicious operations from unauthorized users 	9–17
SERVICES		
Lifecycle Services for Network Management Products and Solutions	Cisco and our partners offer a portfolio of technical services that help you maintain the health and performance of every Cisco product.	9–18
Technical Services for Operating Network Management Products	Cisco and our authorized partners offer technical support services that help you maximize the availability, security, and performance of your Cisco network management products. These services are available through your Cisco account manager or your local authorized partner.	9–18
Technical Support Offerings for Network Management Products	Technical support offerings for Network Management products.	9–19

Product Ordering Website

To place an order or for more part numbers, visit: <http://www.cisco.com/en/US/ordering/index.shtml>.

This chapter only provides a small subset of all part numbers available. See the URL listed in the “For More Information” section of each product to get a complete list of part numbers.

Cisco Network Application Performance Analysis Solution

The Cisco Network Application Performance Analysis (NAPA) solution is a set of tools and services that empowers enterprise IT to ensure delivery of consistent and optimized application performance levels across the network.

Key Features

- Faster identification and resolution of problems—Cisco NAPA helps identify whether a problem is related to the network, servers, or applications. When the problem is diagnosed, the Cisco NAPA solution provides the insight required to fix it.
- Significantly enhanced network planning capabilities—Cisco NAPA helps with predictive planning and optimization for successful deployment of new applications and network services.
- Reduced risk—By modeling network scenarios, this solution reduces the risks associated with new network deployments and provides better network performance.
- Access to Cisco Advanced Services

For More Information

For more information about the Cisco NAPA solution, visit: <http://www.cisco.com/go/napas>.

Cisco Proactive Automation of Change Execution (PACE) Solution

The Cisco Proactive Automation of Change Execution solution combines products and services that accelerate operational success by helping IT organizations securely automate and control network changes and configurations. This solution helps enterprises meet compliance requirements, accelerate growth, ensure business continuity, and increase user productivity. The solution is optimized to help medium-sized to large enterprises with challenges relating to compliance, in-house expertise, network complexity, and growth.

Solution Overview

- Cisco Configuration Assurance Solution
- CiscoWorks Network Planning Solution
- Cisco Secure Access Control Server

- CiscoWorks LAN Management Solution
- Cisco Advanced Services

Key Features

- As part of the Cisco Proactive Automation of Change Execution solution, scalability of the CiscoWorks Network Compliance Manager (NCM) software across geographies protects the software investment of high-growth companies.
- The solution prevents revenue loss by reducing network downtime due to misconfigurations.
- It reduces costs by identifying network inconsistencies that would require labor-intensive diagnosis.
- Configuration automation in the Cisco Proactive Automation of Change Execution solution saves money by allowing fewer administrators to manage large, complex networks.
- The solution helps prevent the potentially expensive repercussions of noncompliance.

For More Information

For more information about the Cisco Proactive Automation of Change Execution solution, visit: <http://www.cisco.com/go/pace>.

Cisco Video Assurance Management Solution

Get real-time centralized monitoring of your core, distribution, and aggregation networks for broadcast video transport. The Cisco Video Assurance Management Solution (VAMS) provides the framework for a flexible end-to-end assurance management platform for video.

The Cisco Video Assurance Management Solution comprises the following building blocks:

- Cisco Multicast Manager—Monitors any changes in the multicast trees that might affect video performance.
- Cisco Info Center—Actively manages network events to help you maintain video service uptime and quality.
- Cisco Active Network Abstraction—Supports correlation and aggregation of events in the core, distribution, and aggregation networks.
- Third-party video probes—Help you identify, isolate, and troubleshoot video errors at demarcation points along the video path in the network; supported video probes include: Tektronix MTM400, Ineoquest, and Mixed Signals

Ideal for Companies That Need These Features

Cisco Video Assurance Management Solution

- Reduced mean time to repair (MTTR)
- Proactive video-transport monitoring
- Enhanced video quality of experience
- Increased operational efficiency

Key Features

- Dynamic visualization of video metrics
- Custom service views
- Root-cause analysis
- Integration with other operations-support-system (OSS) and business-support-system (BSS) solutions
- Proactive video transport monitoring
- Data collection from probes
- Multicast data collection

For More Information

For more information about Cisco VAMS, visit: <http://www.cisco.com/go/vams>.

Cisco Catalyst 6500 Series/Cisco 7600 Series Network Analysis Modules 1 and 2

Cisco Branch Series Routers Network Analysis Module

Cisco NAM 2200 Series Appliances

The Cisco Network Analysis Modules (NAMs) comprise advanced instrumentation that provides comprehensive performance monitoring, exceptional traffic analysis, and insightful troubleshooting to help today's dynamic, evolving enterprises manage and improve application and network performance. The Cisco NAMs are available in both blades and appliances providing a one-stop shop of rich performance instrumentation deployed from the branch office to the data center for end-to-end network and application visibility.

Ideal for Companies That Need These Features

Cisco Network Analysis Modules

- Managed consistent and efficient delivery of applications and services to end users
- Improved operational effectiveness of switch, server, and application resources
- Quantification of the "before and after" of a business change on networks and applications
- Assurance of smooth delivery of VoIP services
- Visibility into WAN-optimized (Cisco WAAS) networks

Key Features

- Intelligent Application Performance (IAP) provides granular application performance metrics in both WAAS and non-WAAS environments to accurately characterize and improve the end user experience
- Application classification enables the identification of hundreds of protocols and flow-based monitoring provides real-time and historical performance reports on hosts, applications, and conversations using critical network resources
- Web-based captures provide deep, insightful data analysis to help resolve acute problems before they affect users
- Superior voice-quality monitoring uses mean opinion score (MOS) and critical performance indicators such as packet loss and jitter to help improve the quality of voice service. Both integrated blades and high-performance appliances provide exceptional visibility into network and application performance throughout the enterprise.

For More Information

For more information about the Cisco NAM, visit: <http://www.cisco.com/go/nam>.

Cisco Active Network Abstraction

Cisco Active Network Abstraction (ANA) is a flexible and powerful multivendor network resource management system. Cisco ANA enables value-added network and service management applications in a multitechnology, multiservice network environment.

The core technology of Cisco ANA includes a unique Virtual Network Element abstraction model that dynamically discovers and identifies basic network components, while obtaining end-to-end visibility of network resources, connections, and dependencies. The building blocks of this model are autonomous, virtual software-based network devices, each one cloning the characteristics and properties of its real-world counterpart. The aggregation of these devices creates the virtual model in the same way an aggregation of network elements creates a real-world network.

Ideal for Companies That Need These Features

Cisco Active Network Abstraction

- Multivendor network resource management
- A common device management infrastructure that will be compatible with future versions
- Simplified integration of OSS applications from one authoritative source
- Vendor-neutral management platform
- Consistent procedures and interfaces for all network elements
- Standards-based access to near real-time device and network information
- Integration software development kit for developers

Key Features

- Cisco Configurable Device Management Platform—The device management platform provides a single solution for multidevice, multitechnology, and multivendor element management. The platform features unified monitoring and configuration, and comes complete with prepackaged, commonly used element-management-system (EMS) functions.
- Cisco Network Fault Isolation and Service Fault Isolation—This technology provides extensive fault-analysis capabilities for quick and accurate fault detection, isolation, and correlation. It reduces trouble-ticket flooding

by analyzing the structure, configuration, and dependencies (logical and physical) of the virtual network to track down the virtual source of the fault to accurately reveal the real problem. With this technology, no costly rule maintenance is required.

- Cisco Network Discovery and Service Discovery—This technology provides accurate, real-time discovery of the network inventory, topology, and services. It allows users to view physical network aspects and topological relationships, and it accurately displays the logical inventory, complete with a service view, that spans network layers.
- Cisco Service Activation—This feature facilitates automatic configuration of any device regardless of vendor, model, or software version. The combined activation and configuration process dramatically quickens deployment, while eliminating unnecessary and error-prone manual processes. All activation and configuration activities are done in parallel with no single point of congestion.

For More Information

For more information about Cisco Active Network Abstraction, visit: <http://www.cisco.com/go/ana>.

Cisco IP Solution Center

Cisco IP Solution Center is a family of intelligent network-management applications that help reduce administration, management, and network operational costs

Ideal for Companies That Need These Features

Cisco IP Solution Center

- Scalable and reliable architecture for large-scale operations
- Single server solution and web GUI
- Open APIs and OSS interfaces that help:
 - Integrate IP VPN services into existing infrastructure
 - Integrate Cisco fault-management products with independent software vendor products for VPN-aware performance reporting

Key Features

- Tracking of Layer 3 and Layer 2 resources
- Rapid profile-based provisioning
- Autodiscovery of Layer 3 VPN and Layer 2 VPN services
- Ability to recognize incorrect service configuration
- Investment protection from Cisco IOS Software and Cisco IOS XR Software and line card changes

For More Information

For more information about Cisco IP Solution Center, visit: <http://www.cisco.com/go/isc>.

Cisco Multicast Manager

Cisco Multicast Manager is a web-based network-management application that simplifies the holistic discovery, visualization, monitoring, and troubleshooting of multicast networks to help ensure business continuity. This solution is appropriate for enterprise customers that employ multicast for financial market data for multiple system operators (MSOs) use multicast to transport video over IP, and for service providers that need to manage their multicast VPN (MVPN) environment.

Ideal for Companies That Need These Features

Cisco Multicast Manager

- As enterprise customers, the ability to employ multicast for financial market data
- As a cable operator, the ability to use multicast to transport video over IP
- As a service provider, the ability to manage multicast VPN (MVPN) environment

Key Features

- Automated multicast discovery—Cisco Multicast Manager discovers complete multicast topology from a single seed device, along with the multicast VPN (MVPN) provider and provider-edge devices and Virtual Route Forwarding (VRF) tables they support. Discovery bridges the provider edge to the customer edge to create an end-to-end view of the multicast environment.
- Active polling engine—Cisco Multicast Manager provides a highly scalable polling engine to detect multicast anomalies before they become mission-critical problems.
- Real-time multicast diagnostics—Cisco Multicast Manager provides the equivalent of a Cisco IOS Software Command-Line Interface “show tech” for multicast, along with Local Target Logic (LTL) checking and packets-per-second (pps) rates taken from the route processor, switch processor, or distributed forwarding card. Output can be sent by e-mail message directly to the Cisco Technical Assistance Center for further analysis.

- Alerts and reporting—Any exceptions detected by the polling engine are sent as Simple Network Management Protocol (SNMP) traps and logged for reporting purposes. Reports are available for rendezvous points, source-group packets-per-second (pps) rates, tree changes, interface bandwidth, and Layer 2 port pps rates. Real-time alerts originating from an Ineoquest IP Video Management System (iVMS) application are also actionable through the Video Operations Solution (VOS) add-on.

For More Information

For more information about Cisco Multicast Manager, visit: <http://www.cisco.com/go/cmm>.

CiscoWorks LAN Management Solution

CiscoWorks LAN Management Solution (LMS) is an integrated suite of management tools that simplify the configuration, administration, monitoring, and troubleshooting of Cisco networks. Built on popular, Internet-based standards, CiscoWorks LMS applications help network operators manage the network through a browser-based interface that can be accessed anytime and from anywhere within the network. CiscoWorks LMS maintains a centralized list of all Cisco network devices and their credentials. The list serves as a single repository for all CiscoWorks applications, whether they are installed locally or distributed in a multiserver deployment. CiscoWorks LMS Portal facilitates functional views that can be tailored to meet the needs of an individual or group of network operations staff, simplifying integration and navigation between Cisco network products and other third-party application functions.

Ideal for Companies That Need These Features

CiscoWorks LAN Management Solution

- A centralized system for sharing device information across all LMS applications
- Network discovery, topology views, end-station tracking, and VLAN management
- Real-time network discrepancy analysis with easy-to-deploy, device-specific best-practices templates
- Hardware and software inventory management, centralized configuration tools, and syslog monitoring
- Network response time and availability monitoring and tracking
- Real-time device, link, and port traffic management, analysis, and reporting
- Flexible license model

Key Features

- CiscoWorks Device Fault Manager provides detailed, real-time detection, analysis, and reporting of device faults. It often identifies problems before users realize they exist.
- CiscoWorks Campus Manager configures, manages, and visualizes complex physical and logical Layer 2 infrastructures, including VLAN, user tracking, and topology visualization tool.
- CiscoWorks Resource Manager Essentials provides network inventory, device configurations and changes, software updates, and syslog analysis.
- CiscoWorks Internetwork Performance Monitor offers proactive measurement of network response time and availability as well as real-time and historical analysis of congestion and latency problems.
- In CiscoWorks CiscoView, front-panel graphical displays of Cisco devices simplify user interaction with device components to change configuration parameters and monitor statistics.
- CiscoWorks Common Services provides a common model for data storage, login, user-role definitions, access privileges, and security protocols, as well as navigation and launch management.

For More Information

For more information about CiscoWorks LMS, visit: <http://www.cisco.com/go/lms>.

CiscoWorks Health and Utilization Manager (HUM)

CiscoWorks Health and Utilization Manager is a Simple Network Management Protocol (SNMP)-based MIB polling application that monitors network elements (such as CPU, memory, and interfaces or links) for their availability and usage levels and provides historical reporting. The application is offered separately and integrates with the CiscoWorks LAN Management Solution (LMS)

Ideal for Companies That Need These Features

CiscoWorks Health and Utilization Manager

- An add-on to CiscoWorks LMS for monitoring the health and usage of critical MIB parameters, such as CPU usage, interface and port availability, and so on, with historical trending and reporting

Key Features

- Monitors CPUs, memory, and interfaces and ports for usage and availability levels
- Provides historical trending on a daily, weekly, monthly, and annual basis
- Supports integration with CiscoWorks LMS

- Offers comprehensive reporting through, for example, a device dashboard, custom reports, and Top-N/Bottom-N reports
- Provides threshold breach event notification, reporting, and event handler support

For More Information

For more information about CiscoWorks Health and Utilization Manager, visit:
<http://www.cisco.com/en/US/products/ps9303/index.html>.

Cisco Unified Communications Management Suite

Cisco Unified Communications Management Suite is a comprehensive portfolio of communications applications integrated with a secure network infrastructure. To take full advantage of such a system, organizations need a communications-management solution that provides a dashboard view of the entire system status.

Solution Overview

- Cisco Unified Provisioning Manager
- Cisco Unified Operations Manager
- Cisco Unified Service Monitor
- Cisco Unified Service Statistics Manager

Key Features

Cisco Unified Communications Management Suite allows you to:

- Collect, analyze, and report statistical information from the network
- Manage moves, adds, and changes
- Track and report on user experience and mean opinion scores
- Monitor network elements, including Cisco Unified Communications Manager, the Cisco Unity system, gateways, and endpoints, including the underlying network
- Identify and diagnose problems, and test and track changes
- Maintain network inventory
- Deploy and provision the network

For More Information

For more information about the Cisco Unified Communications Management Suite, visit:
http://www.cisco.com/en/US/products/ps5747/Products_Sub_Category_Home.html.

Cisco Unified Operations Manager

Part of the Cisco Unified Communications Management Suite, Cisco Unified Operations Manager provides a real-time, service-level view of the entire Cisco Unified Communications System and presents the current operational status of each element. It continuously monitors the current operational status of elements such as Cisco Unified Communications Manager, Cisco Unified Communications Manager Express, Cisco Unity unified messaging, Cisco Unity Express, Cisco Unified Contact Center Enterprise, Cisco Unified Contact Center Express, and Cisco Unified MeetingPlace Express, as well as Cisco gateways, routers, switches, and IP phones. Cisco Unified Operations Manager also provides an integrated set of diagnostic capabilities for faster trouble isolation and resolution.

Ideal for Companies That Need These Features

Cisco Unified Operations Manager

- Real-time notifications and reports about the status of the network monitored to a higher-level entity
- Ability to manage multisite and multicluster unified communications environments
- Reduced administrative overhead through sharing device and credential information with other CiscoWorks tools deployed in the enterprise

Key Features

- Service-level view—A real-time, auto-refresh display provides status information about all the Cisco Unified Communications clusters and the elements of the clusters in the deployment. Drill-down views show the operational status of each element of the unified communications cluster and its interrelationships with other elements.
- Real-time alerts—Built-in intelligence monitors every device in a Cisco Unified Communications deployment for faults or outages, providing instant access to signaling-related and IP connectivity-related outage information. Alerts present the most up-to-date status.
- Diagnostic tests—A rich set of diagnostic tests can be used for trouble isolation and resolution. Synthetic tests serve to replicate user activity. Phone-status tests can be used to determine the current operational status of the IP phones in terms of signaling and IP connectivity. Administrators can use an IP test service-level

agent to simulate traffic in the network and then determine network characteristics, such as reachability status, response time, latency, jitter, packet loss, and network quality.

- Service-quality reporting—Service-quality reporting monitors and provides detailed information about devices to enable further troubleshooting. With this feature, administrators can initiate a probable path trace between the endpoints to identify any potential problems in intermediate nodes that could influence service quality.
- Reports—Reports provide historical alert, event, and service-quality reports for up to 30 days. Customizable reports can be reviewed through e-mail messages or the Cisco Unified Communications Operations Manager GUI.

For More Information

For more information about Cisco Unified Operations Manager, visit: <http://www.cisco.com/go/cuom>.

Cisco Unified Service Monitor

Part of the Cisco Unified Communications Management Suite, the Cisco Unified Service Monitor 1.1 provides a low-cost, reliable method of monitoring and evaluating voice quality in Cisco Unified Communications Solutions. It continuously monitors active calls supported by the Cisco Unified Communications System and provides near-real time notification when the voice quality of a call fails to meet a user-defined quality threshold. The end-user experience is expressed as mean opinion score (MOS), which is calculated based on the ITU G.107 standard.

Ideal for Companies That Need These Features

Cisco Unified Service Monitor

- Real-time management information and diagnostic tools to help ensure an efficient deployment and subscriber satisfaction
- Immediate monitoring and assessment of the quality of IP-based calls without elaborate setup or complicated installation problems

Key Features

- Cisco Unified Service Monitor evaluates the performance of the actual Real-Time Transport Protocol (RTP) data streams of the monitored calls.
- Cisco Unified Service Monitor uses the standards-based ITU G.107 R-factor to evaluate and score the monitored call. It supports IEEE 802.3af Power over Ethernet (PoE), FCC Class B-compliant, the application can be installed in any office environment.
- The phone-based Cisco Voice Transmission Quality (VTQ) solution (for Cisco Unified CallManager Version 4.2 and Cisco Unified Communications Manager Versions 4.3, 5.0, 5.1, or later) provides user-experience metrics, expressed as an MOS, at the end of all active calls in the network.
- Cisco Unified Service Monitor provides a distributed, scalable solution to facilitate cost-effective quality-of-voice monitoring.
- Voice-quality alerts present the information in a specialized Service Quality Alerts display that provides a launching point for diagnostic tools and processes.

For More Information

For more information about the Cisco Unified Service Monitor, visit: <http://www.cisco.com/go/cusm>.

Cisco Unified Provisioning Manager

Cisco Unified Provisioning Manager provides a reliable and scalable web-based solution for managing a company's crucial, next-generation communications services. It manages Cisco Unified Communications services in an integrated IP telephony, voicemail, and messaging environment that includes Cisco Unified Communications Manager (formerly known as Cisco Unified CallManager), Cisco Unified Communications Manager Express (formerly known as Cisco Unified CallManager Express), Cisco Unity, Cisco Unity Express, and Cisco Unity Connection systems.

Ideal for Companies That Need These Features

Cisco Unified Provisioning Manager

- Ability to perform initial installation and deployment of Cisco Unified Communications network elements and services
- Ability to perform ongoing operational provisioning and activation of services and subscriber changes
- Cost control for deployments and ongoing service provisioning
- Ability to expedite "time to dial tone"
- Policy control of management and services

Key Features

- A simple, wizard GUI for service ordering—Cisco Unified Provisioning Manager provides simple, flexible ordering. Orders can be scheduled to run at a later time. A single batch order may contain multiple types of

orders (add, change, or cancel) and multiple types of services, such as phone and voicemail additions or changes.

- Comprehensive policy and service parameter definition—Policy and service parameters can be defined by domains, service areas, and locations, and can be applied by configuration templates during initial deployment and rollout of new offices, locations, remote sites, and organizational overlays.
- User role-defined access—User roles define access to certain functions exposed through the web interface to the system users. The subscriber role dictates the services to which the subscriber is entitled.
- Inventory tracking—The tracking capabilities of the Cisco Unified Provisioning Manager allow users to track information about all services and subscribers in an internal asset-management and inventory system. Users can create and save advanced searches to produce reports in HTML or Microsoft Excel format. Cisco Unified Provisioning Manager comes with sample configuration and phone information reports.

For More Information

For more information about Cisco Unified Provisioning Manager, visit: <http://www.cisco.com/go/cupm>.

Cisco Unified Service Statistics Manager

Cisco Unified Service Statistics Manager is an easy-to-use, web-based software product that features a variety of advanced reports for executive, operations, and capacity-planning functions. Cisco Unified Service Statistics Manager offers both out-of-the-box reports and customizable reports that provide visibility into critical metrics, including call volume, service availability, call quality, resource usage, and capacity across the Cisco Unified Communications System, including across multiple clusters, gateways, and related devices. It facilitates viewing of information based on network, service, business, and user criteria and defining of service-level agreement (SLA) constructs as well as measuring and verifying them based on unified communications statistics collected.

Ideal for Companies That Need These Features

Cisco Unified Service Statistics Manager

- Statistical reporting, trending, and analysis for small, medium, and large Cisco Unified Communications deployments

Key Features

- Cisco Unified Statistics Manager integrates with and uses the data-collection capabilities of Cisco Unified Operations Manager and Cisco Unified Service Monitor to harvest and consolidate statistics information from a variety of Cisco devices and systems.
- The collected data is stored in a consolidated database that can be partitioned based on a variety of network, service, user, and business criteria for detailed analysis and reporting.
- Cisco Unified Statistics Manager provides out-of-the-box reports on critical metrics. Reports include IP phone and inventory reports; service-level agreement (SLA) reports; and customizable reports with data export in HTML, PDF, and CSV format. Reports on specific call metrics include reports about call volume, call duration, service availability, service quality, call completion, and MOS, as well as top numbers called, users, endpoints, and called numbers. Gateway and trunk traffic and usage reports with capacity trending are also available.
- Cisco Unified Statistics Manager also provides automatic report scheduling, generation, and distribution.
- The application provides call-failure analysis including cause code information.
- Cisco Unified Statistics Manager provides IP telephony testing.

For More Information

For more information about Cisco Unified Service Statistics Manager, visit: <http://www.cisco.com/go/cusssm>.

CiscoWorks QoS Policy Manager

CiscoWorks QoS Policy Manager (QPM) allows administrators to centrally define and administer Cisco IOS Software and Cisco Catalyst Operating System parameters needed for differentiating network traffic. This application helps to ensure high availability and predictable performance for business-critical applications that rely on advanced voice and video services.

Ideal for Companies That Need These Features

CiscoWorks QoS Policy Manager

- End-to-end QoS configuration and automated, reliable policy deployment, while eliminating device-by-device command streams
- Rules-based policies that combine static and dynamic port applications and host system traffic filters
- Cisco QoS Policy Manager services, including congestion management and avoidance and traffic shaping
- Ability to efficiently translate policies to specific QoS configuration commands to ensure consistency across domains
- Ability to validate policies quickly and reliably to LAN and WAN policy domains prior to deploying them
- Ability to generate web-based reports on QoS policies deployed in the network

Key Features

- Cisco QPM measures traffic throughput for top applications and service classes and troubleshoots problems with real-time and historical quality-of-service (QoS) feedback.
- Cisco QPM centrally defines roles and permissions for use with the Cisco Secure Access Control Server (ACS) privilege control. Policy views can be modified and deployed for different device groups.
- The application partitions the network into administrative and deployment domains and uses policy libraries for global QoS configuration. It modifies, scales, and monitors Cisco IOS AutoQoS voice policies on routers.
- Cisco QPM uses the secure, web-based GUI for accurate end-to-end QoS configuration and automated, reliable policy deployment, while eliminating device-by-device command streams. The Setup wizard intelligently determines QoS policies and properties at each network point that requires IP telephony QoS configuration based on Cisco design recommendations.
- Cisco QPM exposes QoS policy conflicts, uploads existing device configurations, presents command-line-interface (CLI) syntax that corresponds to policies, allows previewing of configuration changes before deployment, supports incremental access-control-list (ACL) updates, defines ACL ranges, and restores or applies a previous version of a policy database and backup to a remote server.
- An integral part of Cisco content networking, Cisco QPM Version 3.2 delivers the appropriate service levels to business-critical applications by supporting the extension of IP packet classification to include application signature, web URLs, and negotiated ports.
- Cisco QPM facilitates congestion management, congestion avoidance, and bandwidth control by selectively activating QoS mechanisms on intelligently grouped LAN and WAN interfaces and providing support for external application programming interfaces (APIs) to trigger event-based policy distribution.
- The application extends security by defining access-control policies to permit or deny transport of packets into or out of device interfaces.
- Cisco QPM supports device inventory import from CiscoWorks Resource Manager Essentials, shortening configuration time for devices targeted for policy enforcement and QoS monitoring.

For More Information

For more information about Cisco QPM, visit: <http://www.cisco.com/go/qpm>.

Cisco Media Gateway Controller Node Manager

Cisco Media Gateway Controller (MGC) Node Manager is a Cisco element manager for fault, configuration, and performance management of the Cisco PGW 2200 Softswitch. It integrates management access to all node components, effectively representing them as a single entity to the network operator. The software provides views of individual managed devices and logical objects, such as trunk groups and signaling links, making it easier to manage the components that make up a voice-over-IP (VoIP) media gateway control node.

Ideal for Companies That Need These Features

Cisco Media Gateway Controller Node Manager

- Network surveillance
- Cisco MGC Node Manager Diagnostic Tools
- Provisioning and configuration
- User access and performance

For More Information

For more information about the Cisco Media Gateway Controller Node Manager, visit: <http://www.cisco.com/en/US/products/sw/htmgtsw/ps1912/index.html>.

Cisco netManager for IP Infrastructure

Cisco netManager for IP Infrastructure provides a simple, ready-to-use, monitoring and diagnostics application for small and medium-sized network deployments (up to 100 devices and 100 wireless access points) comprising Cisco and third-party network devices, printers, servers, and workstations. A single Windows-based server or workstation running Cisco netManager software can monitor a network with up to 10 remote branches.

Ideal for Companies That Need These Features

Cisco netManager for IP Infrastructure

- Ability to monitor IP infrastructure with up to 100 devices and 1000 wireless access points, including Cisco and third-party network devices plus servers or workstations and printers

Key Features

- Cisco netManager monitors and evaluates the status of the Cisco Unified Communications System, including the underlying transport infrastructure.
- Cisco netManager presents the current operational status of the Cisco Unified Communications System through service-level views of the network.
- The application provides contextual tools to view current alert status, real-time physical connectivity, and historical information for performance and active monitoring and to determine the service effects of any outages.
- Cisco netManager monitors and evaluates the status of network devices and desktop office devices such as printers, servers, and workstations.
- Cisco netManager supports a broad range of Cisco network devices and third-party network devices.
- The application increases network-manager productivity and speeds troubleshooting by providing diagnostic tools and easy one-click access to embedded device-management systems.
- Cisco netManager deploys no agent software on the devices being monitored, so will not disrupt system operations.

For More Information

For more information about Cisco netManager for IP Infrastructure, visit: <http://www.cisco.com/go/netmanager>.

Cisco netManager for Unified Communications

Cisco netManager for Unified Communications monitors all components of small and medium-sized Cisco Unified Communications Systems, including the underlying IP transport infrastructure (functions of Cisco netManager for IP Infrastructure) and provides the current operational status of all the elements in the network through a real-time, service-level view.

Ideal for Companies That Need These Features

Cisco netManager for Unified Communications

- Ability to monitor Cisco Unified Communications deployments for up to 1000 users

Key Features

- Cisco netManager monitors and evaluates the status of the Cisco Unified Communications System, including the underlying transport infrastructure.
- Cisco netManager presents current operational status of the Cisco Unified Communications System through service-level views of the network.
- The application provides contextual tools to view current alert status, real-time physical connectivity, and historical information for performance and active monitoring and to determine the service effects of any outages.
- Cisco netManager facilitates faster trouble isolation by providing contextual diagnostic tools and easy one-click access to embedded device-management systems.
- Cisco netManager provides performance metrics of different Cisco Unified Communications elements, such as resource usage (for example, CPU and memory) through real-time trend charts.
- The application provides current information about connectivity- and registration-related outages affecting all the Cisco Unified IP Phones (phones based on both Session Initiation Protocol [SIP] and Skinny Client Control Protocol [SCCP]).
- Cisco netManager facilitates tracking of Cisco Unified Communications devices and Cisco Unified IP Phone inventory, and tracks IP phone status changes.
- Cisco netManager creates a variety of reports that conveniently summarize move, add, and change operations on IP phones in the network.

- The application deploys no agent software on the devices being monitored, so will not disrupt system operations.
- Rules and thresholds are built in.
- Automatic device identification and data collection facilitate easy setup and immediate monitoring of the managed network.

For More Information

For more information about Cisco netManager for Unified Communications, visit: <http://www.cisco.com/go/netManager>.

Cisco Broadband Access Center

Cisco Broadband Access Center (BAC) allows service providers to centralize the provisioning and management of subscriber devices through fully redundant and distributed product architecture.

Ideal for Companies That Need These Features

- | | |
|--------------------------------------|--|
| Cisco Broadband Access Center | • As a service provider, the ability to manage subscribers with network services using cable and DSL CPE devices |
|--------------------------------------|--|

Key Features

- Cisco BAC automatically recognizes end-user devices coming onto the service provider network. It assigns an appropriate class of service, dynamically generates device configuration files, and activates subscribers.
- Cisco BAC supports both preprovisioning of devices (giving customers a ready-to-use experience) and autoprovisioning so that service providers can easily support self-registration of customer-provided cable and DSL access devices.
- The solution provides embedded, high-performance data storage, optimized for device provisioning.
- Cisco BAC requires no additional external database.
- The solution provides an integrated Kerberos Protocol server for CableLabs PacketCable voice service provisioning.
- Cisco BAC has a Java-based provisioning application programming interface (API).
- Cisco BAC appliance-based distributed information caching and processing servers offer true scalability.

For More Information

For more information about the Cisco Broadband Access Center, visit:
<http://www.cisco.com/en/US/products/sw/netmgtsw/ps529/index.html>.

Cisco Broadband Troubleshooter

Cisco Broadband Troubleshooter is an easy-to-use tool that gives network administrators and technicians a GUI that streamlines RF problem resolution. The tool dynamically monitors RF characteristics on a per-modem or per-upstream basis, provides a measurement interface for the upstream that looks and feels like a spectrum analyzer, decentralizes RF monitoring and analysis, and automatically sorts and categorizes RF problem conditions. The product provides a fault-analysis tool that facilitates isolation of performance, cable plant, and Cisco Unified Communications Manager problems and characterizes upstream and downstream trouble patterns. Operators can quickly discern customer-premises-equipment (CPE) connectivity impairments by identifying noise, attenuation, provisioning, and packet-corruption problems.

For More Information

For more information about Cisco Broadband Troubleshooter, visit:
<http://www.cisco.com/en/US/products/sw/netmgtsw/ps530/index.html>.

Cisco Security Management Suite

The Cisco Security Management Suite is a framework of next-generation security-management tools designed for the operational management and policy administration of the Cisco Self-Defending Network. This suite of integrated applications simplifies the management process by automating tasks associated with the functional areas of security management: configuration, monitoring, analysis, mitigation, identity, and auditing. The result is an increased level of security assurance, better organizational productivity, and lower overall total cost of ownership (TCO).

The primary components of the Cisco Security Management Suite include the Cisco Security Manager and the Cisco Security Monitoring, Analysis, and Response System (MARS). With a powerful set of applications, an integrated architecture, and a comprehensive partnering strategy, the Cisco Security Management Suite is positioned to provide organizations with a best-of-class management solution for their security networks. This solution gives administrators tools that automate and simplify operational tasks.

The Cisco Security Management Suite delivers increased security, better organizational productivity, and lower overall TCO.

Ideal for Companies That Need These Features

Cisco Security Management Suite

- Policy consistency and security assurance
- Rapid threat mitigation for improved company network uptime
- Better control of and access to security information for forensics analysis and reporting
- Accounting and tracking of user network access and authorization

Key Features

- Provides a single integrated application for managing for managing firewall, VPN, and intrusion-prevention-system (IPS) security services on Cisco security appliances and modules, routers, and switches
- Reduces operational expenses while at the same time improving provisioning accuracy and consistency
- Collaborates with Cisco Security MARS to form a comprehensive security management solution encompassing security provisioning, event monitoring, threat detection, and mitigation
- Allows faster response to threats by defining and assigning new security policies to thousands of devices in a few simple steps
- Provides ease-of-use with a rich GUI
- Supports true enterprise-class operational environments with support for multiple simultaneous security administrators with fine-grained control of access permissions; an optional “workflow” mode allows the security and network operations staff to work together effectively with the appropriate division of responsibilities
- Supports provisioning for Cisco router platforms running a Cisco IOS Software security software image, Cisco ASA 5500 Series Adaptive Security Appliances, Cisco PIX security appliances, Cisco IPS 4200 Series Sensors, Cisco Catalyst 6500 Series/7600 Series with security services modules, and Cisco Catalyst 3000 and 4000 Series Switches

For More Information

For more information about the Cisco Security Management Suite, visit:

http://www.cisco.com/en/US/solutions/collateral/ns340/ns394/ns171/ns625/ns647/net_brochure0900aecd80400060.html.

Cisco Network Building Mediator

The Cisco Network Building Mediator (“Mediator”) is the industry’s first solution that extends the network as a platform to transform the way buildings are built, operated, and experienced. The Mediator:

- Enables sustainable energy reduction across global operations
- Takes full advantage of Cisco’s expertise in collaboration, convergence, and security to foster sustainable energy use
- Helps ensure that network applications will be compatible with future versions by providing flexible integration of new technologies that deliver energy efficiency, clean energy, and environmental stewardship



The Cisco Mediator is the intelligence powering the new Energy Intranet by interconnecting and enabling four critical elements: the convergence of building systems and IT and the dynamic balance of energy supply and energy demand. The integration of these disparate systems onto an IP network leads to a truly converged, energy-efficient building.

The strategy of Cisco Mediator is built on:

- Any-to-any connectivity—Building, IT, and green technologies
- End-to-end management—Efficiency, conservation, and de-carbonization
- Extensible platform—Third-party applications and cloud services

The Cisco Mediator collects data from the building, IT, energy supply, and energy demand systems that use different protocols and are otherwise unable to communicate. The mediator then normalizes the data into a common data representation, enabling it to perform any-to-any protocol translation and provide information to the end user in a uniform presentation.

This network-based framework creates a common, standards-based, open platform that then allows enterprise applications, cloud services, and building and IT systems to communicate. Protocol agnostic, Cisco Mediator extends the network to serve as an effective foundation for sustainability management.

Key Features

- Cisco Mediator supports Cisco EnergyWise technology to manage energy across IT and facilities.
- The mediator supports network protocols such as Simple Network Management Protocol (SNMP), Simple Object Access Protocol (SOAP), and XML.
- The solution supports open standard building automation protocols such as BACnet and Modbus.
- Cisco Mediator supports other third-party building automation protocols.
- Any-to-any protocol translation allows communication between multivendor systems.
- Cisco Mediator supports energy meters, including pulse meters and smart meters (Modbus or IP).

- The solution allows for flexible integration of energy-generating and energy-consuming devices.
- The solution provides tools to both monitor real-time energy consumption and create automated policies to control it.
- The solution supports automated demand response and automated fault diagnostics.
- The platform is hardened and secured through the Cisco Self-Defending Network.
- Role-based access control offers increased user security.
- Communication is secured through certificate encryptions.
- Cisco Mediator provides interactive, menu-directed tools that allow you to:
 - Configure the interfaces and protocols on the mediator
 - Create and edit schedules, alarms, logs, and trends
 - Perform remote installation
 - Back up and restore configuration
- The solution provides a graphical programming tool that allows users with a working knowledge of controls and automation to translate their knowledge into efficient and powerful control logic.
- The management framework is web-based.
- With this solution you can control and manage devices over the Internet.
- Cisco Mediator presents real-time information in web-based graphical views.
- With Cisco Mediator you can create customized webpages for facility operations management.
- Cisco Mediator provides a standards-based open interface that allows third-party applications to integrate with the mediator and offer services "over the cloud". Examples of such cloud services include:
 - Remote energy management
 - Automated demand response
 - Automated fault diagnostics
 - Remote facility management

Specifications

Feature	Cisco Network Building Mediator
Processor	Pentium-class @ 266 MHz
Memory	512 MB of SDRAM and 512 MB of Compact Flash
Communications	<ul style="list-style-type: none"> • 1- console port (RS-232) • 2- RS-232 • 4- RS-485 • 2- 10/100 BASE-T Ethernet ports • 4- Dallas 1-Wire® ports (for distributed I/O points) • 2- USB ports
Inputs	4- Counters (optionally, general purpose digital inputs)
Outputs	2- Solid-State single-pole relay outputs (0-60V, 1.0A AC/2.0A DC outputs, opto-isolated)
Power	24V DC or AC (24 universal DC power supply provided with unit)
Wattage	Typically 6 Watts (maximum10 Watts)
Weight	Approximately 35 oz.
Size	Approximately 8" x 6" x 1" (housing cover)
Temperature	Recommended ambient range: 0° to 70°C (32° to 158°F)
Agency listings	Safety—UL 60950-1, CAN/CSA-C22.2 No. 60950-1 EMC Emissions—47CFR Part 15 (CFR 47) Class A, CISPR2 2 Class A, EN55022 Class A, ICES003 Class A, EN61000-3-2, EN61000-3-3

Selected Part Numbers and Ordering Information

NBM4800-K9	Cisco Network Building Mediator 4800-Include 2000 Pts
NBM4800-PL	Cisco Network Building Mediator 4800-Add 1000 Pts License
NBM4800-INT	Cisco Network Building Mediator 4800-Intermediate Protocols
NBM4800-ADV	Cisco Network Building Mediator 4800-Advanced Protocols
NBM2400-K9	Cisco Network Building Mediator 2400-Include 250 Pts
NBM2400-PL	Cisco Network Building Mediator 2400-Add 250 Pts License

For More Information

For more information about the Cisco Video Surveillance Stream Manager, visit: <http://www.cisco.com/go/mediator>.

Cisco Network Registrar

Cisco Network Registrar is a full-featured Domain Name Server/ Dynamic Host Configuration Protocol (DNS/ DHCP) system that provides scalable naming and addressing services for service provider and enterprise networks. The application dramatically improves the reliability of naming and addressing services for enterprise networks.

Ideal for Companies That Need These Features

- Cisco Network Registrar** • Usability, better lease reservation performance, and an enhanced IPv6 capability to facilitate DOCSIS 3.0 deployment

Key Features

- Real-time server status dashboard
- Carrier-class lease reservation performance
- Sanity check before installation
- Configuration wizard—A configuration wizard helps users navigate through different Cisco Network Registrar configuration steps
- Searching capability improvement
- Installation wizard
- Lease query conformance
- Enhanced error reporting
- DHCPv6 enhancements

For More Information

For more information about Cisco Network Registrar, visit:
<http://www.cisco.com/en/US/products/sw/netmgts/ps1982/index.html>.

Cisco Mobile Wireless Transport Manager

With the Cisco Mobile Wireless Transport Manager (MWTM), Cisco offers monitoring and management capabilities for the Cisco Global System for Mobile Communications (GSM) Radio Access Network (RAN) Optimization solution, Cisco IP Transfer Point (ITP) networks, and Cisco Mobile Service Exchange Framework (mSEF).

Ideal for Companies That Need These Features

- Cisco Mobile Wireless Transport Manager** • Easy navigation through the various management and troubleshooting tasks required to support the GSM backhaul infrastructure

Key Features

- Event monitoring
- Performance reporting
- Troubleshooting
- Operations-support-system (OSS) integration
- Wizard-based provisioning
- Autodiscovery and topology
- Security
- Client/server architecture and OS support

For More Information

For more information about Cisco Mobile Wireless Transport Manager, visit: <http://www.cisco.com/go/mwtm>.

Lifecycle Services for Network Management Products and Solutions

Cisco and our authorized partners provide a comprehensive portfolio of services for your network management solutions across the planning, design, implementation, and operate phases of the Cisco Lifecycle Services approach.

Planning, Design, and Implementation Services

Cisco and our global network of partners help you increase your success through world-class professional services delivery. Proven methodologies and leading practices help you better understand and improve the state of your operations and your Cisco network management solutions and processes. In addition to increased customer satisfaction, these services help reduce the complexities of deploying network services and reduce excess operating costs for your business. These innovative service programs are delivered through a unique combination of consulting engineers, processes, tools, and partners to address your planning needs. Implementation service activities are delivered primarily through Cisco Certified Partners.

Cisco Services for Operations and Network Management

- Accelerate your design and implementation of network management solutions
- Increase the accuracy and efficiency of your Cisco Operations and Network Management solution deployment by providing expertise and methodologies
- Help to ensure the Cisco Operations and Network Management solution delivers expected features and functions through involvement in all aspects of the plan, design, and implementation activities
- Improve your operations staff's productivity by enhancing staff skills to support the Cisco Operations and Network Management solution

For More Information

For more information about Cisco Network Management Services, visit:
http://www.cisco.com/en/US/products/ps6835/serv_group_home.html

Technical Services for Operating Network Management Products

Cisco and our authorized partners offer technical support services that help you maximize the availability, security, and performance of your Cisco network management products. These services are available through your Cisco account manager or your local authorized partner.

Application Support

Application software support services are essential to keeping business-critical applications available, secure, and operating at optimal performance. They can help you reduce security, operational, and business risk by simplifying the process of keeping software releases current and supporting your staff with Cisco expertise and online tools.

Cisco Application Support for Network Management products include Software Application Support (SAS) and Software Application Support plus Upgrades (SASU).

Cisco Software Application Support provides:

- Around-the-clock, global access to certified Cisco Technical Assistance Center (TAC) engineers with specialized expertise in application software problems
- Unrestricted access to the extensive Cisco.com knowledge base, automated troubleshooting tools, and online support communities
- Access to ongoing application software updates for your licensed applications
- Software Application Support plus Upgrades includes all the deliverables of SAS plus access to major software application upgrades on your licensed applications, which can include significant new features and network management functions

Hardware Support

Cisco SMARTnet Service delivers rapid problem resolution, flexible device-by-device coverage, and premium service options to help maximize operational efficiency. SP Base provides similar device-level support tailored specifically for service provider customers.

Cisco SMARTnet Service and SP Base provide:

- Around-the-clock, global access to the Cisco TAC
- Registered access to the extensive Cisco.com knowledge base and tools
- Next-business-day advance hardware replacement (premium options available for business-critical devices, such as 2-hour replacement and onsite parts replacement and installation)
- Access to ongoing operating system software updates and upgrades
- Cisco operating system (Cisco IOS Software) software support to extend the life of Cisco devices with improved security, increased performance, bandwidth management, new protocol support, and greater interoperability
- Proactive diagnostics and real-time alerts on select devices with Smart Call Home

For More Information

For more information about Cisco Application Support, including SAS and SASU, visit: www.cisco.com/go/services/applicationsupport For more information about Cisco SMARTnet Service, visit: www.cisco.com/go/smartnet For more information about Cisco SP Base Service, visit: www.cisco.com/en/US/products/svcs/ps3034/ps2827/ps2960/serv_group_home.html.

To find the specific technical services available for your hardware product or software application, visit the Cisco Service Finder tool at www.cisco-servicefinder.com. To find a Cisco partner near you, visit: www.cisco.com/go/partnerlocator.

Technical Support Offerings for Network Management Products		
	Application Support: SAS or SASU	Hardware Support: Cisco SMARTnet or SP Base Service
Cisco Catalyst 6500/7600 Series Network Analysis (NAM) Modules 1 and 2		Cisco SMARTnet or SP Base Service
Cisco Branch Routers Series NAM		Cisco SMARTnet or SP Base Service
Cisco NAM 2200 Series Appliances		Cisco SMARTnet or SP Base Service
Cisco Transport Manager	SAS	
Cisco Active Network Abstraction	SAS	
Cisco IP Solution Center	SAS	
Cisco Multicast Manager	SAS	
Cisco Video Assurance Management Solution (VAMS)	SAS	
CiscoWorks LAN Management Solution (LMS)	SAS	
CiscoWorks Health and Utilization Manager	SAS	
Cisco Unified Communications Management Suite	SAS	
Cisco Unified Operations Manager	SAS	
Cisco Unified Service Monitor	SAS	
Cisco Unified Provisioning Manager	SAS	
Cisco Unified Service Statistics Manager	SAS	
CiscoWorks QoS Policy Manager	SAS	
Cisco Media Gateway Controller Node Manager	SAS*	Cisco SMARTnet or SP Base Service*
Cisco netManager for IP Infrastructure	SAS	
Cisco netManager for Unified Communications	SAS	
Cisco Broadband Access Center	SAS	
Cisco Broadband Troubleshooter	SAS and SASU	
Cisco Secure Access Control Server (ACS)	SAS*	Cisco SMARTnet or SP Base Service*
Cisco Security Management Suite-Cisco Security Manager	SAS	

Cisco Security Monitoring, Analysis, and Response System (MARS)		Cisco SMARTnet or SP Base Service
CiscoWorks Wireless LAN Solution Engine and CiscoWorks Wireless LAN Solution Express	SAS*	Cisco SMARTnet or SP Base Service*
CiscoWorks Network Compliance Manager	SAS	
Cisco Network Registrar	SAS	
Cisco Mobile Wireless Transport Manager	SAS	

*Products with SAS or SASU and Cisco SMARTnet or SP Base Service have hardware devices and software applications. Cisco SMARTnet or SP Base Service is the support service for the hardware and OS and SAS is the support for the software application. Both are required to ensure that the product is completely covered.

Chapter 10: Services

Today, the network is a strategic platform in a world that demands better integration between people, information, and ideas. The network works better when services, together with products, create solutions aligned with business needs and opportunities.

Together with our partners we provide world-class services to help customers plan, design, operate, and optimize their networks in order to realize the full value of their IT investment throughout the network lifecycle.

Put Cisco expertise to work for you:

- Increase your operational efficiency
- Accelerate technology deployment
- Improve risk management
- Align IT investments to business strategy

Planning and Design Services

Planning

Early preparation, planning, and sound design are critical—whether you are revamping your architecture or integrating new technologies. Cisco and our partners can work with you to explore your business opportunities and challenges, craft a solution architecture, and develop a strategy and architecture roadmap tied to your business goals.

Design

A detailed design is essential to reducing risk, delays, and the total cost of network deployments. Cisco and our partners can work with you to develop a design aligned with business goals and technical requirements and plans for staging, configuring, testing, and validating network operations prior to migration or implementation. We help you identify and resolve potential problems so you can integrate devices and systems without compromising network availability or performance.

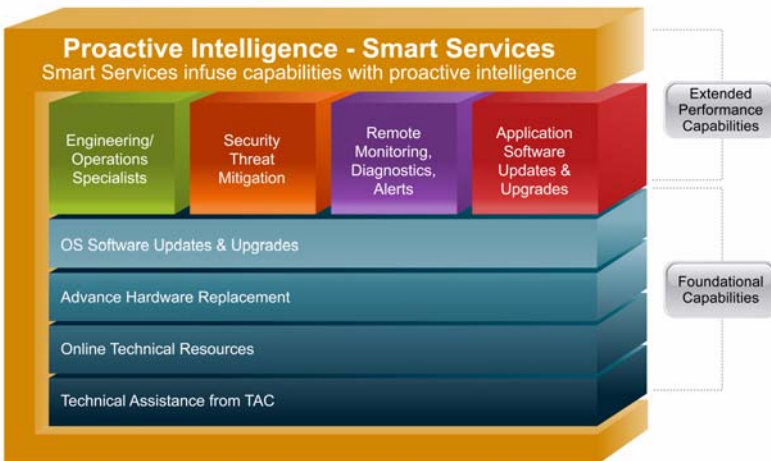
These upfront services available from Cisco and our partners can:

- Reduce cost and optimize performance
- Effectively manage change
- Smoothly integrate new technologies
- Enhance design and implementation value of migrations and ongoing operations
- Meet business requirements with proven tools and methodologies
- Deploy fully tested network solutions

Technical Services for Operating Your Network

Cisco and our partners have a portfolio of technical services that help maintain the health and performance of every Cisco product. These services range from traditional maintenance to proactive and predictive services that utilize smart services capabilities. These capabilities are infused with proactive intelligence to help you discover, predict, and resolve network issues faster; improve network availability, and lower operating costs. Technical services support your efforts to achieve the best possible network and application performance.

Figure 10-1: Technical Services Industry-leading Capabilities



Cisco Technical Services help:

- Gain critical insight into network performance
- Maintain business continuity
- Increase network uptime, operational efficiency, and reliability
- Strengthen IT security and compliance
- Lower operational costs
- Extend the value of your IT investments

Finding the Right Service:

The following services are available for enterprise, service provider, and small and medium business customers:

- Cisco SMARTnet Service—Offers immediate access to Cisco engineers and an extensive range of technical resources for rapid issue resolution, flexible device-by-device coverage, and premium service options. The Cisco SMARTnet Onsite Service option provides a field engineer at your location for replacement parts installation. Smart Call Home, an embedded support feature of Cisco SMARTnet, provides proactive diagnostics, alerts, and remediation capabilities for call-home enabled devices.
- Cisco SP Base Service—Gives service providers (SPs) anytime access to Cisco engineers and Cisco.com resources to help ensure the fast, expert response needed to resolve critical network issues. The Cisco SP Base Onsite option adds the services of a trained field engineer to install replacement parts on location.
- Cisco Smart Care Service—Gives small and medium-sized business (SMB) customers proactive support for the entire Cisco network in a single contract. Increases network visibility; supports continuous improvement; and verifies network security, reliability, and functionality.
- Cisco Smart Foundation Service—Provides cost-effective network support on select devices for SMB customers.
- Cisco Software Application Support Services—Strengthens the availability, functionality, and security of your Cisco software applications with Cisco Software Application Support (SAS) Service, Cisco Software Application Support plus Upgrades (SASU) Service, and Cisco Unified Communications Essential Operate Service (ESW).
- Cisco Focused Technical Support Services—Expedites the resolution of network operations issues with priority handling by Cisco network experts who have comprehensive knowledge of the customer's network. Cisco SMARTnet is a prerequisite for this service.

Cisco Technical Services also include the following technology-specific services:

- Cisco Unified Communications Operate Services—Maintains high availability, security, and operational efficiency of Cisco Unified Communications solutions.
- Cisco TelePresence™ Essential Operate Service—Provides system-level technical support that safeguards critical components and resolves issues with your Cisco TelePresence solution.
- Cisco Services for IPS—Keeps your Cisco Intrusion Prevention System (IPS) solution current on the latest threats so malicious or damaging traffic is accurately identified, classified, and stopped.
- Cisco Security IntelliShield Alert Manager Service—Provides easy access to customized, timely, accurate, vendor-neutral security intelligence to prevent, mitigate, and quickly remediate potential attacks.
- Cisco SMARTnet Service for SBCS—Delivers rapid issue resolution and complete solutions-level technical support for the Smart Business Communications System (SBCS).
- Cisco Unified Computing Support and Warranty Services—Helps you get the most from your unified computing investment with multiple service levels offering features tailored for unified computing needs.
- Cisco Remote Management Services—Provides 24-hour remote monitoring, management, and issue resolution for unified communications (Cisco Unified Communications Remote Management Services) and security applications (Cisco Security Remote Management Services).

To find the right technical service for any Cisco product, use the Service Finder tool at www.cisco-servicefinder.com. Enter a product description or SKU or search by product series family for a list of suggested services and support coverage options.

Services to Optimize Your Network

Cisco and our partners can help you make sure your network remains optimized to support your business objectives. We share knowledge and leading practices, complementing your team's experience.

Cisco Network Optimization Service combines network assessment, network support, and network learning in a tightly integrated, comprehensive package focused on optimizing your core routing and switching network to meet future needs and helping your team succeed with new technologies. Aspects of this service focused on architectural enhancement include:

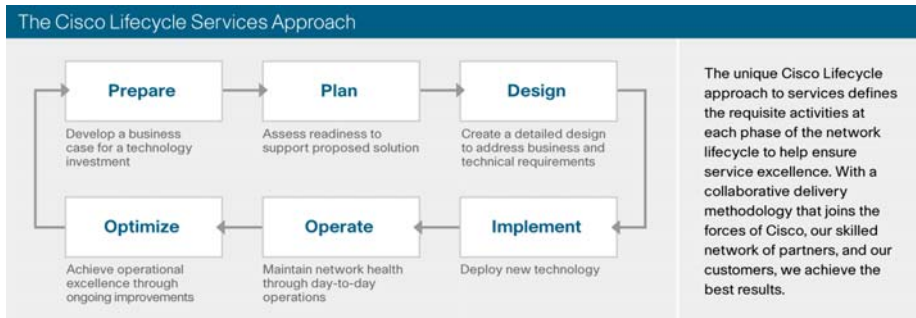
- Review of your architecture and/or design to resolve application performance problems

- Analysis of resiliency requirements for strategic locations within the IP infrastructure
- Review of your network management architecture, goals, and capabilities
- Review of your design priorities, goals, and requirements for modifying your existing architecture or design
- Ongoing design support for incremental changes to the network or architecture

Advanced technology optimization services are also available to help improve the performance of all the technologies on your network.

Cisco Lifecycle Services Approach

The Cisco Lifecycle Services approach defines the requisite activities at each phase of the network lifecycle, offering a services framework that is independent of who performs the service activities—Cisco, partners, or customers themselves—and enabling multiple parties to provide the support needed in a coordinated manner. Based on industry best practices and methodologies, the lifecycle approach aligns service and support activities with the customer's unique business and technology requirements.



For More Information

- Cisco Customers—Contact your Cisco representative or authorized Cisco partner to discuss recommended services to protect and extend your technology investment. To learn more about Cisco Services visit <http://www.cisco.com/go/services>
- Locate a Cisco Partner—For customers looking for a Cisco Partner who will help you with specialized network design, consultation, installation and support services visit <http://www.cisco.com/go/partnerlocator>.
- Cisco Authorized Partners—If you are an authorized partner, find information and resources to help you develop, sell and/or deliver services for Cisco products and solutions at <http://www.cisco.com/go/partnerservices>.

