This chapter provides brief descriptions of the following Cisco Unified Communications system components:

- Cisco Integrated Services Routers, page 3-2
- Cisco Unified Computing System, page 3-3
- Cisco 7800 Series Media Convergence Servers, page 3-4
- Cisco Unified IP Phones, page 3-5
- Cisco Unified IP Phone Expansion Modules, page 3-6
- Cisco Unified Communications Manager, page 3-6
- Cisco Unified Communications Manager Business Edition, page 3-7
- Cisco Unified Communications Manager Session Management Edition, page 3-7
- Cisco Unified Communications Manager Express, page 3-8
- CiscoUnified Survivable Remote Site Telephony, page 3-9
- Cisco Unified Presence, page 3-9
- Cisco Hosted Collaboration Solution, page 3-10
- Cisco Virtualization Experience Infrastructure, page 3-10
- Cisco TelePresence, page 3-10
- Cisco Cius, page 3-10
- Cisco Intercompany Media Engine, page 3-11
- Cisco Emergency Responder, page 3-11
- Cisco Unified Attendant Consoles, page 3-12
- Cisco Unified Border Element, page 3-12
- Cisco RSVP Agent, page 3-13
- Cisco Unified Application Environment, page 3-13
- Cisco Unified Contact Center Enterprise and Cisco Unified Intelligent Contact Management Enterprise Software, page 3-14
- Cisco Unified Contact Center Express, page 3-14
- Cisco Unified Customer Voice Portal, page 3-15
Cisco Integrated Services Routers

The Cisco 1800, 2800, 3800, 2900, 3900, 3900E series integrated services routers can be deployed as voice gateway routers as part of the Cisco IP Communications solution. Deployments can use these routers as voice gateways with call component process for Cisco Unified Communications Manager.

The Cisco 1800 Series integrated services routers are ideal for small to medium-sized businesses and small enterprise branch offices. The 1800 series routers help businesses to reduce costs by deploying a single, resilient system for fast, secure delivery of multiple mission-critical business services. The Cisco 1861 integrated services router is a modular platform that provides voice, data, voice-mail, automated attendant, video, and security capabilities. It includes:

- Cisco Unified Communications Manager Express or Survivable Remote Site Telephony for call processing for up to 8 users
- Optional Cisco Unity Express, for voice messaging and automated attendant
• LAN switching with Power over Ethernet (PoE) expandable through Cisco Catalyst Switches
• Onboard voice ports for PSTN, PBX, and key system connections

Cisco 2800 and 3800 series integrated services routers communicate directly with Cisco Unified Communications Manager, allowing for the deployment of IP telephony solutions for large enterprises and service providers that offer managed network services. These routers provide a highly flexible and scalable solution for small and medium-sized branches and regional offices.

The Cisco 2800 and 3800 series voice gateway routers support a wide range of packet telephony-based voice interfaces and signaling protocols, providing connectivity support for more than 90 percent of PBX and PSTN connection points. Signaling support includes T1/E1 Primary Rate Interface (PRI), T1 channel associated signaling (CAS), E1-R2, T1/E1 QSIG protocol, T1 Feature Group D (FGD), Basic Rate Interface (BRI), foreign exchange office (FXO), ear and mouth (E&M), and foreign exchange station (FXS). These voice gateway routers can be configured to support from 2 to 540 voice channels.

The Cisco 2900 and 3900 series integrated services routers (ISRs) offer secure, wire-speed delivery of concurrent data, voice, and video services. The modular design of these routers provides maximum flexibility and allows you to configure the router to meet evolving needs.

The routers support virtual private network (VPN) encryption acceleration, intrusion-protection and firewall functions, and optional integrated call processing and voice mail. A wide variety of legacy network modules and interfaces, service modules (SMs), internal services modules (ISMs), next-generation packet voice/data modules (PVDM3), Services Performance Engines (SPEs), high-density interfaces for a wide range of connectivity requirements, and sufficient performance and slot density for future network expansion requirements and advanced applications are available.

Cisco 2900 and 3900 series integrated services routers with Cisco IOS Release 15.x supports FXS ports, Conferencing and transcoding DSP resources with the following gateways—MGCP 0.1, H.323, SCCP, and SIP. The Cisco 2900 and 3900 Series gateways with the PVDM3 DSPs do not support Cisco fax relay.

For additional information, go to:

Cisco Unified Computing System

Cisco Unified Computing System (Cisco UCS) is an architecture that integrates computing resources (CPU, memory, and I/O), IP networking, network-based storage, and virtualization, into a single highly available system. This level of integration provides economies of power and cooling, simplified server connectivity into the network, dynamic application instance repositioning between physical hosts, and pooled disk storage capacity. The architecture uses Unified fabric that provides transport for LAN, storage, and high-performance computing traffic over a single infrastructure with the help of technologies such as Fiber Channel over Ethernet. Cisco's unified fabric technology is built on a 10-Gbps Ethernet foundation that eliminates the need for multiple sets of adapters, cables, and switches for LANs, SANs, and high-performance computing networks.

The Cisco Unified Computing System:
• Streamlines data center resources to reduce total cost of ownership
• Scales service delivery to increase business agility
• Radically reduces the number of devices requiring setup, management, power, cooling, and cabling

For more details on the Cisco Unified Computing System architecture, go to:
http://www.cisco.com/go/ucs
Two types of Cisco Unified Computing System servers are available for a Unified Communications solution:

- **B-Series Blade Servers**—The Cisco UCS B200 M2 Blade Server support production-level virtualization and other mainstream data center workloads. The server is a half-width, 2-socket blade server with substantial throughput and scalability. Up to eight Cisco UCS B200 M2 Blade Servers can be housed in a Cisco UCS 5108 Blade Server Chassis, with a maximum of 320 blade servers per Unified Computing System.

- **C-Series Rack-Mount Servers**—Two models of low-profile, rack-mount C-series servers are available:
  - The Cisco UCS C200 M2 server is a high-density, 2-socket, 1 rack unit (RU) rack-mount server built for production-level network infrastructure, web services, and mainstream data center, branch, and remote-office applications.
  - The Cisco UCS C210 M2 server is a general purpose, 2-socket, 2 rack unit (RU) rack-mount server that balances performance, density, and efficiency for storage-intensive workloads. The system is built for applications such as network file servers and appliances, storage servers, database servers, and content-delivery servers.

 Cisco Unified Communications can run virtualized on UCS. For more information go to:

http://www.cisco.com/go/uc-virtualized

### Cisco 7800 Series Media Convergence Servers

Cisco Media Convergence Servers (MCS) provide highly available server platforms to host applications within the Cisco Unified Communications system. These platforms address enterprise customer requirements for Cisco Unified Communications Manager installations from two to 30,000 IP phones within a single Cisco Unified Communications Manager cluster.

Cisco Unified Communications Manager is supported on specific Cisco MCS 7800 series servers or on customer-provided servers that have been verified by Cisco to meet the following minimum requirements:

- Processor speed must be 2.0 GHz or greater
- Physical memory size must be 2 GB or greater
- Physical hard disk size must be 72 GB or larger

For a complete list of currently supported hardware configurations, refer to the documentation available at:

www.cisco.com/go/swonly

**Note**

The Cisco MCS 7828 servers support only Unified Communications Manager Business Edition.

For more information about these components, go to:

Cisco Unified IP Phones

Cisco Unified IP Phones are full-featured telephones that provide voice communication over an IP network. They function much like digital business phones, allowing you to place and receive phone calls and to access features such as mute, hold, transfer, speed dial, call forward, and more. In addition, because Cisco IP Phones are connected to your data network, they offer enhanced IP telephony features, including access to network information and services, and customizable features and services. Many phone models also support security features that include file authentication, device authentication, signaling encryption, and media encryption.

The Cisco Unified Communications system supports these Cisco Unified IP Phone series:

- **Business CommunicationsEndpoints: Cisco Unified IP Phones 6900 Series**

  The Cisco Unified IP Phones 6900 Series is an innovative portfolio of endpoints, delivering cost-effective business-grade voice communication services to customers worldwide. The Cisco Unified IP Phone 6900 Series offers personalization options, including the choice of two colors and two handset weights. These devices are also energy efficient, consuming less power in support of customer green initiatives. Different Cisco Unified IP Phone 6900 Series models are available with and without displays.

  For more information about the Cisco Unified IP Phones 6900 Series, go to:
  

- **Advanced Business Endpoints: Cisco Unified IP Phones 7900 Series**

  The Cisco Unified IP Phones 7900 Series provides IP phones with color liquid crystal display (LCD), including dynamic soft keys for call features and functions. This series also offers support for information services, including Extensible Markup Language (XML) capabilities to extend IP phone systems. The capability to customize XML-based services allows users access a variety of information, such as stock quotes, employee directories, and web content.

  For more information about the Cisco Unified IP Phones 7900 Series, go to:
  

- **Advanced Professional Media Endpoints: Cisco Unified IP Phones 8900 Series**

  The Cisco Unified IP Phones 8900 Series phones accelerate business success by delivering a high-performance, rich multimedia communications experience. This series offers a broad portfolio of XML and MIDlet applications that can help a company transform its business processes, reduce operating and administration costs, and boost productivity.

  For more information about the Cisco Unified IP Phones 8900 Series, go to:
  

- **Advanced Collaborative Media Endpoints: Cisco Unified IP Phones 9900 Series**

  The Cisco Unified IP Phones 9900 Series supports interactive, high-performance business video, enabled directly from the endpoint, with an optional Cisco Unified Video Camera that supports full-screen, two- and multiparty H.264 standard video.

  For more information about the Cisco Unified IP Phone 9900 Series, go to:
  
Cisco Unified IP Phone Expansion Modules

The Cisco Unified IP Phone Expansion Modules 7914, 7915, and 7916 are used by administrative assistants and others who need to determine the status of a number of lines beyond the current line capability of the phone.

The Cisco Unified IP Phone Expansion Modules 7914, 7915, and 7916 extend the capability of the Cisco Unified IP Phones 7960G, 7961G, 7961G-GE, 7962G, 7965G, 7970G, 7971G-GE, or 7975G with additional buttons and an LCD. The Cisco Unified IP Phone Expansion Module 7914 provides 14 buttons per module, and the Cisco Unified IP Phone Expansion Modules 7915 and 7916 provide up to 24 buttons per module. Cisco Unified IP Phones 796xG and 797xG can support up to two Cisco Unified IP Phone Expansion Modules. If the IP phone uses Cisco inline power or IEEE802.3af PoE, then the Cisco Unified IP Phone Expansion Modules 7914, 7915, and 7916 require the use of an external power adaptor (CP-PWR-CUBE-3).

Note

When two Expansion Modules are used with a single phone, the second module must be the same model as the first one.

Cisco Unified Communications Manager

Cisco Unified Communications Manager software is the call processing component of the Cisco Unified Communications system. Cisco Unified Communications Manager extends enterprise telephony features and capabilities to packet telephony network devices such as IP phones, media processing devices, voice over IP (VoIP) gateways, and multimedia applications. Additional services such as unified messaging, multimedia conferencing, collaborative contact centers, and interactive multimedia response systems are made possible through Cisco Unified Communications Manager open telephony APIs. Cisco Unified Communications Manager offers a suite of integrated voice applications and utilities, including the Cisco Unified Communications Manager Attendant Console, an ad-hoc conferencing application, the Cisco Unified Communications Manager Bulk Administration Tool, the Cisco Unified Communications Manager CDR (call detail record) Analysis and Reporting Tool, the Cisco Unified Communications Manager Real-Time Monitoring Tool, and the Cisco Unified Communications Manager Assistant application.

The dial plan feature in Unified Communications Manager enable you to:

- Route calls based on the physical location context of the caller.
- Represent calling and called party numbers in a global form such as that described by the International Telecommunications Union's E.164 recommendation.
- Present calls to users in a format based on local dialing habits.
- Present calls to external networks (for example, the PSTN) in a manner compatible with the local requirements for calling party number, called party number, and their respective numbering types.
- Derive the global form of the calling party number on incoming calls from gateways, based on the calling number digits and the numbering type.

For additional information, go to:
Cisco Unified Communications Manager Business Edition

The Cisco Unified Communications Manager Business Edition 3000, 5000, and 6000 are the call-processing, mobility, and messaging component of the Cisco Unified Communications system for medium-sized businesses. Communications Manager Business Edition includes the features and capabilities of Cisco Unified Communications Manager, Cisco Unified Mobility, and Cisco Unity Connection co-resident on a single, low-cost Media Convergence Server.

The Cisco Unified Communications Manager Business Edition is designed to support 150 to 500 users in one main and up to five remote locations. It also supports up to 575 Skinny Client Control Protocol (SCCP) or Session Initiation Protocol (SIP) IP phones or video endpoints per Cisco Unified Communications Manager Business Edition autonomous system. Installation is simplified as the applications come pre-loaded onto the server. And management of all applications can be performed through a consolidated interface.

The Cisco Unified Communications Manager Business Edition supports corporate directory synchronization. This feature enables Cisco Unified Communications Manager Business Edition to synchronize directly with an existing corporate directory using LDAP integration. This feature enables administrators to provision users automatically from the corporate directory into the Cisco Unified Communications Manager Business Edition database, thus allowing administrators to maintain a single directory. This method avoids having to add, remove, or modify core user information manually in Cisco Unified Communications Manager Business Edition each time a change occurs in the corporate directory. This feature also helps the end-users authenticate using single sign-on functionality, thus reducing the number of passwords across the network.

For additional information, go to:

Cisco Unified Communications Manager Session Management Edition

Cisco Unified Communications Manager Session Management Edition integrates multivendor private branch exchanges into one network and centralizes applications, trunking, dial plan, and policy control. It reduces communication tolls, cuts administrative overhead, and supports easier migration to a full IP telephony environment.

Cisco Unified Communications Manager Session Management Edition extends collaboration applications such as unified messaging, mobility, TelePresence, social networking, and web applications (using Web 2.0 interfaces) to every user on the network. Unified applications are deployed at the network core, so users on multivendor PBXs can use centrally deployed applications.

Cisco Unified Communications Manager Session Management Edition supports the following features:
- H.323 Annex M1 intercluster trunks
- SIP intercluster trunks
- SIP trunks
- H.323 trunks
- MGCP trunks
- Encrypted calls
- Multi vendor SIP and Q.SIG interoperability with Nortel, Siemens, Avaya, and Microsoft
Cisco Unified Communications Manager Express

Cisco Unified Communications Manager Express is an entry-level call processing system that provides a wide range of IP telephony features for small to medium-sized businesses and autonomous small enterprise branch offices with up to 450 phones.

All files and configurations for IP phones are stored internally on a single Cisco Integrated Services router or on the new Unified Communications 500 Series router for a cost-effective, highly reliable, IP communications solution. Cisco Unified Communications Manager Express helps ensure investment protection and offers scalability because all hardware and software is fully compatible with Cisco Unified Communications Manager and Cisco Unified Survivable Remote Site Telephony.

Cisco Unified Communications Manager Express provides key system and PBX modes of operation on a single network and several industry-unique features, including:

- Call processing for local IP and analog phones attached to a Cisco router
- Support for analog phones in SCCP mode, Session Initiation Protocol (SIP) line side support with supported Cisco Unified IP phones, and a robust set of PSTN interfaces
- Call routing over a WAN with calling party name and number information, and compressed voice for reduced WAN bandwidth utilization
- Support for peripheral services such as voice mail, automated attendant, and IP-based XML and Telephony Application Programming Interface (TAPI) applications
- Interoperability with Cisco Unified CallManager and the Cisco Unity Express
- Simple software configuration change on the Cisco router converts system to a highly available survivable telephony gateway with support for more features than SRST for a remote site in a centralized Cisco Unified Communications Manager deployment

System management features in the Cisco Unified Communications Manager Express environment enable you to:

- Accomplish initial installation of Cisco Unified Communications Manager Express easily using the Quick Configuration Tool (QCT) that prompts for answers to pertinent questions
- Perform everyday administration and remote troubleshooting using the Cisco IOS software command-line interface (CLI)
- Add users, phones, and extensions or make changes for system and integrated voice-mail using a single web-based GUI designed for nontechnical staff
- Monitor deployments with Cisco Monitor Manager and Cisco Monitor Director
- Use Cisco Configuration Agent (CCA) for configuration tasks

For additional information, go to:

Cisco Unified Survivable Remote Site Telephony

Cisco Unified Communications Manager with Cisco Unified Survivable Remote Site Telephony (SRST) allows companies to extend high-availability IP telephony to their remote branch offices with a cost-effective solution that is easy to deploy, administer, and maintain. The SRST capability is embedded in the Cisco IOS Software that runs on the Cisco integrated services routers.

SRST software automatically detects a connectivity failure between Cisco Unified Communications Manager and IP phones at a branch office. SRST initiates a process to automatically configure the Cisco integrated services routers to provide call-processing backup redundancy for the IP phones and PSTN access in the affected office. The router provides essential call-processing services for the duration of the failure, helping ensure that critical phone capabilities are operational. Upon restoration of the connectivity to the Cisco Unified Communications Manager, the system automatically shifts call-processing functions back to the primary Cisco Unified Communications Manager cluster.

For additional information, go to:

Cisco Unified Presence

Cisco Unified Presence enables the deployment of Session Initiation Protocol (SIP) or eXtensible Messaging and Presence Protocol (XMPP) technology to support unified communication in an enterprise environment. SIP enhances the voice network by providing a core set of behaviors for session establishment and control that can be applied in a wide array of features and services. In addition to core SIP support, Cisco Unified Presence uses SIMPLE (SIP for Instant Messaging and Presence Leveraging Extensions) technology to support instant messaging (IM) and presence. XMPP provides real-time communication of applications including instant messaging, presence, multi-party chat, voice and video calls, and collaboration.

The presence engine collects user presence information (such as busy, idle, away, or available status) and user capabilities (such as the ability to support voice, video, instant messaging, and web collaboration), and compiles the data in a repository that can facilitate aggregate presence information from multiple resources for each user. This repository is accessed by the applications and features that each user employs. A user can apply unique user rules and privacy to ensure that only authorized applications and users have access to presence information.

Cisco Unified Presence integrates with various desktop clients and applications. It enables Cisco Unified Personal Communicator to perform functions such as click-to-dial and phone control as well as voice, video, and web collaboration. In addition, Cisco Unified Presence provides a core IM service for Cisco Unified IP Phones that are connected to Cisco Unified Communications Manager. Cisco Unified Presence also supports interoperability with Microsoft and IBM Lotus, enabling specific functions to work with Cisco Unified IP Phones supported on Cisco Unified Communications Manager.

The SIP/SIMPLE and XMPP interfaces on Cisco Unified Presence make it one of the most open platforms available and can provide value add presence and call control capabilities to any standards based application or service. This native dual protocol support allows for borderless business-to-business communication through the use of federation, which facilitates the exchange of presence and IM with any business that uses one of the major enterprise IM solutions such as Webex Connect, Microsoft or IBM Lotus Sametime, as well as public IM solutions such as GoogleTalk or AOL.

For additional information, go to:
Cisco Hosted Collaboration Solution

The Cisco Hosted Collaboration Solution is an architecture for delivering Unified Communications and Collaboration as a hosted service. The Cisco Hosted Collaboration Solution helps Cisco partners to develop and offer broad, differentiated services that increase revenue, and to minimize costs and maximize operational efficiency of services.

For more information about Cisco Hosted Collaboration Solution, go to:

Cisco Virtualization Experience Infrastructure

The Cisco Virtualization Experience Infrastructure (VXI) system integrates virtualized data centers, networks, and endpoints with desktop virtualization services for comprehensive media, security, and performance acceleration. The Cisco Desktop Virtualization solution delivers the following features:

- Unprecedented control and increased security
- Rapid deployment, scaling, and lifecycle management of virtual desktops
- Improved user experience and application responsiveness
- Greater control of desktop total cost of ownership (TCO)

For more information about the Cisco Desktop Virtualization, go to:

Cisco TelePresence

The Cisco TelePresence EX90 for the desktop lets colleagues instantly collaborate face-to-face, whether separated by a hallway, a street, or several time zones. It enables faster decision making, enhances relationships, and improves efficiency. The Cisco TelePresence EX90 includes the following features:

- Full high-definition 24-inch screen with vivid, life-like 1080p30 video
- Simple touch-screen control
- One-touch sharing of high-definition (HD) content
- A built-in document camera feature
- An included wideband handset, with an option to add a headset

For more information about the Cisco TelePresence System EX Series, go to:

Cisco Cius

Cisco Cius is a business tablet that supports mobile, cloud computing, HD video, business process and collaborative applications.
With an ultra-portable form factor, powerful collaborative capabilities and flexible connectivity, Cisco Cius uniquely addresses the needs of today's workforce. Because it delivers the same rich computing, communications and collaboration experience in the office, around campus and off campus, companies can consolidate the number of devices employees need with a single device.

Support for wired, wireless, and 3G/4G data service means that there are no connectivity restrictions with Cisco Cius. And when it comes to collaboration, there are no compromises. The tablet's 7-inch, high-resolution, touch-target color display offers the perfect balance between the pocket portability of smartphones and the larger display and functionality of a laptop.

For more information about Cisco Cius, go to:  

**Cisco Intercompany Media Engine**

The Cisco Intercompany Media Engine (Cisco IME) allows you to establish direct IP connectivity between enterprises by combining peer-to-peer technologies with existing PSTN infrastructure. It moves calls from the PSTN to Direct SIP trunks. The term boundary-less Unified Communications is used to describe this technology because it allows for the business-to-business extension of Unified Communications capabilities such as high-fidelity codecs, enhanced caller ID, and video telephony outside the corporate networks. The solution learns routes in a dynamic, secure manner and provides for secure communications between organizations across the internet. Organizations that work closely together and have high levels of intercompany communications will benefit most from the enhanced communications offered by Cisco IME.

Cisco IME provides the following:

- Allows any two enterprises in the world to connect over the public internet as well as support for closed user groups (CUGs) to allow cooperating enterprises to work with each other
- Requires minimal configuration; dial plan restructuring or entry of anyone else's dial plan is not required
- Requires no Service Provider support beyond public IP and basic PSTN
- Cisco IME monitors the QoS of the Real-Time Transport Protocol (RTP) traffic in real time and fallback to PSTN automatically if problems arise.

For additional information, go to:  

**Cisco Emergency Responder**

Cisco Emergency Responder enhances emergency calling from Cisco Unified Communications Manager. It helps assure that Cisco Unified Communications Manager sends emergency calls to the appropriate Public Safety Answering Point (PSAP) for the caller’s location, and that the PSAP can identify the caller’s location and, if necessary, return the call. Cisco Emergency Responder can also notify customer security personnel of an emergency call in progress and of a caller’s location.

Cisco Emergency Responder helps Cisco Unified Communications Manager customers comply more effectively with their legal or regulatory obligations and reduce their risk of liability related to emergency calls. It includes these key features:

- Automatically tracks IP phone location
Cisco Unified Attendant Consoles

The three attendant console products supported by Cisco Unified Communications Manager are as follows:

- Cisco Unified Enterprise Attendant Console
- Cisco Unified Business Attendant Console
- Cisco Unified Department Attendant Console

Associated with a Cisco Unified IP Phone, the Cisco Unified Attendant Consoles provide the human attendant console operator with the tools to quickly accept and effectively dispatch incoming calls to individuals across the organization. The applications offer a rich set of features, including a call-queuing engine, endpoint busy status, presence integration, and full Cisco Unified Communications Manager directory search.

For more information about the Cisco Unified Attendant Consoles, go to:

Cisco Unified Border Element

The Cisco Unified Border Element (Enterprise Edition) is Cisco’s enterprise optimized Session Border Controller, supported on the Cisco 2900 and 3900 Series Integrated Services Routers (ISR) and the Cisco 1000 Series Aggregation Services Routers (ASR). The Cisco Unified Border Element (CUBE) interconnects Unified Communications networks securely, flexibly and reliably. CUBE enables end-to-end voice, video, and data between independent unified communications networks. Deploying CUBE is essential for routing voice calls beyond the enterprise boundary to Service Providers. With SIP Trunking, CUBE cuts PSTN costs and provides substantial customer savings.

The Cisco Unified Border Element with SIP trunking lowers total communications costs, optimizes network interconnections and enables rich collaboration applications. This session border controller ensures interoperability, security, and service assurance by providing the capabilities that today’s IP networks require, including the following:

- Session management
- Security
- Interworking
- Demarcation

The Cisco Unified Border Element Enterprise Edition with SIP trunking also offers the following:

- Exceptional scalability, with each chassis able to scale up to 16,000 sessions
Extensive support for digital signal processors (DSPs) in the platform to promote complex media manipulation
Box-to-box and in-box redundancy so that calls can continue during unscheduled outages

For additional information, go to: www.cisco.com/go.cube

Cisco RSVP Agent

Cisco RSVP Agent is a Cisco IOS Software feature that uses the network to deliver call admission control and quality of service for Cisco Unified Communications Manager deployments. Cisco RSVP Agent employs Resource Reservation Protocol (RSVP), an IETF standards-based signaling protocol for reserving bandwidth in an IP network. The RSVP protocol enables dynamic adjustment to changes in the network, supports complex network topologies, and enables call admission decisions.

Cisco RSVP Agent offers benefits such as the following:

- Provides guaranteed WAN bandwidth for Cisco Unified Communications Manager calls
- Supports complex network topologies, including meshed designs, redundant links, and dynamically changing topologies
- Controls the quality and availability of voice and video calls, and authorization of calls
- Provides seamless interworking of any call control signaling that Cisco Unified Communications Manager supports such as SIP, H.323, Media Gateway Control Protocol (MGCP), and Skinny Client Control Protocol (SCCP).

For additional information, go to: http://www.cisco.com/en/US/products/ps6832/index.html

Cisco Unified Application Environment

Cisco Unified Application Environment enables the rapid development, reliable execution, and automated management of applications that converge voice and video with enterprise applications and data. It is a suite of products including:

- Cisco Unified Application Designer—Enables developers to visually construct applications by dragging and dropping prebuilt functions onto a graphical communications business logic canvas and visually updating parameters associated with the graphical functions.
- Cisco Unified Application Server—Abstracts the complexity of telephony protocols, separates application logic from core call routing to protect Cisco Unified Communications Manager, and provides a standard way to manage all of an organization's unified communications applications.
- Cisco Unified Media Engine—Provides ready-to-use, sophisticated media processing capabilities for all applications built using the Cisco Unified Application Designer-functions such as interactive voice response (IVR), conferencing, transcoding, text-to-speech (TTS), speech recognition, and speaker verification.

For additional information, go to: http://www.cisco.com/en/US/products/ps6789/Products_Sub_Category_Home.html
Cisco Unified Contact Center Enterprise and Cisco Unified Intelligent Contact Management Enterprise Software

Cisco Unified Contact Center Enterprise (UCCE) provides a full-featured distributed contact center infrastructure, which segments customers, provides call treatment and network-to-desktop computer telephony integration (CTI), monitors resource availability, and delivers each contact to the most appropriate resource. It provides a VoIP contact center solution that integrates inbound and outbound voice applications with Internet applications, including real-time chat, web collaboration and e-mail. UCCE is complemented by additional components and products which provide reporting, desktop, IVR, social media, and other functionality.

For more information about Unified Contact Center Enterprise, go to:
and:

Cisco Unified Contact Center Express

Cisco Unified Contact Center Express meets the needs of midmarket and enterprise branch-office or departmental companies that need easy-to-deploy, easy-to-use, secure, virtual, highly available, and sophisticated customer interaction management for up to 400 agents. Cisco Unified Contact Center Express support for powerful, agent-based service as well as fully integrated self-service applications results in reduced business costs and improved customer response by providing sophisticated and distributed automatic call distributor (ACD), interactive voice response (IVR), computer telephony integration (CTI), and agent and desktop services in a single-server, contact-center-in-a-box deployment while offering the flexibility to scale to larger, more demanding environments. Cisco Unified Contact Center Express helps ensure your business rules for inbound and outbound voice and email; and customer interaction management helps ensure that each contact is delivered to the right agent the first time.

For additional information, go to:
Cisco Hosted Collaboration Solution

The Cisco Hosted Collaboration Solution is an architecture that delivers Unified Communications and Collaboration as a hosted service. The Cisco Hosted Collaboration Solution allows Cisco partners to provide a wide range of Cisco collaboration applications to their customers in a subscriber based model. This solution is composed of four integrated components:

- Cisco Unified Communications and Collaboration
- Optimized Virtualization Platform
- Centralized Management
- Service Provider System Architecture

For additional information, go to:

Cisco Virtualization Experience Clients

Cisco Virtualization Experience Client (VXC) endpoints allow you to move to desktop virtualization without compromising a rich collaborative user experience.

The Cisco VXC 2100 is a compact device that is physically integrated with Cisco Unified IP Phone 8900 or 9900 Series, optimizing desk real-estate. It supports Power-over-Ethernet and is equipped with two video ports and four USB ports to support a mouse and keyboard or other peripherals in a virtual desktop environment.

The Cisco VXC 2200 is a sleek, stand-alone, small footprint zero client device which also provides users with access to a virtual desktop and business applications running in a virtualized desktop environment. Designed with the green workspace in mind, the VXC 2200 can be powered via Power over Ethernet or an optional power supply, and is equipped with two video ports and four USB ports to support a mouse and keyboard or other peripherals in a virtual desktop environment.

Cisco Virtualization Experience Client endpoints help you to:

- Choose from industry-leading desktop virtualization clients
- Deliver a better user experience with virtualized desktops
- Extend your investment in Power over Ethernet
- Conserve desktop real estate

For additional information, go to:

Cisco Unified Customer Voice Portal

The Cisco Unified Customer Voice Portal provides call-management and call-treatment solutions with self-service IVR capabilities, allowing callers to obtain personalized answers to complex questions and to conduct business without interacting with a live agent.

The Cisco Unified Customer Voice Portal includes support for agent queuing and for multisite call switching capabilities. It uses standard Internet technologies to provide a smooth customer experience even when transferring calls between several locations. With support for the Cisco Unified Intelligent
Contact Management and Cisco Unified Contact Center products, the Cisco Unified Customer Voice Portal delivers self-service as part of a comprehensive customer contact strategy that provides unique, personalized interactions.

The Cisco Unified Customer Voice Portal supports speech-enabled and touch-tone applications, which can be quickly integrated with back-end data and business rules that are available on the web. Using the standard Java 2 Platform, Enterprise Edition (J2EE) and Voice Extensible Markup Language (VoiceXML) with the graphical development tools provided with the portal (which are compliant with the Eclipse standard for building web applications), you can develop complex voice applications quickly and cost-effectively.

For additional information, go to:

**Cisco Unified Intelligence Suite and Intelligence Center**

Cisco Unified Intelligence Center extends the boundaries of traditional contact center reporting by creating a comprehensive information portal where data can be integrated from multiple sources and shared throughout an organization. With this intuitive advanced reporting platform, you can report on relevant business data and web components with ease. Unified Intelligence Center provides a dashboard-based canvas for grouping multiple reporting objects together, offering a comprehensive view of contact center statistics, linking multiple reports, and integrating third-party data including workforce management, quality management, and web content.

For additional information, go to:

**Cisco Computer Telephony Integration**

The Cisco Computer Telephony Integration (CTI) Option enables Cisco Unified Intelligent Contact Management (ICM) Enterprise and Cisco Unified Contact Center Enterprise to provide a complete network-to-desktop strategy, including comprehensive functionality at individual workstations.

For additional information, go to:

**Cisco Agent Desktop**

Cisco Agent Desktop is a computer telephony integration (CTI) solution for single- and multisite IP-based contact centers. It is easy to deploy, configure, and manage. Powerful tools help increase agent and supervisor productivity, improve customer satisfaction, and reduce costs. An intuitive GUI decreases IT dependency and simplifies customization, maintenance, and change management. Transparent integration with Cisco Unified Contact Center helps you easily deploy CTI capabilities at new locations as customer contact operations expand.

For additional information, go to:
Cisco MediaSense

Cisco MediaSense is a media recording platform that uses Web 2.0 Application Programming Interfaces (APIs) to expose its functionality to third-party customers so they can create custom applications.

The system is comprised of several components. The Capture Server terminates media streams for storage on a local disk; meta data associated with the recording is stored in a database, and exportable to open file format. The Application Management Server provides web services interfaces to enable applications to search for and retrieve recordings and associated call history and meta data.

Cisco MediaSense provides the following features:

- Audio capture
- Video capture
- Media storage and management
- Meta data storage and search
- Scalable and reliable architecture
- Open web-based application interfaces
- Integration with Cisco Unified Communications Manager recording interface

For additional information, go to:

Cisco Finesse

Cisco Finesse is the next-generation agent and supervisor desktop for Cisco Unified Contact Center Enterprise, providing benefits across a variety of communities that interact with the customer service organization. It is designed to provide a collaborative experience that improves the customer experience by enhancing customer service representative experience.

For IT professionals, Cisco Finesse offers smooth integration with the Cisco Collaboration portfolio. It is standards-compliant, and offers low cost of customization of the agent and supervisor desktops.

Note

The first release of Cisco Finesse, Release 8.5(1), is for lab use only. The production release of Cisco Finesse, Release 8.5(2), is scheduled to be available in the second half of CY11. This information is subject to change based on product requirements and schedules.

For more information about Cisco Finesse, go to:

Cisco Unified MeetingPlace

Cisco Unified MeetingPlace is a complete rich-media conferencing solution that integrates voice, video, and web collaboration capabilities. It allows users from any location to meet at any time and to easily integrating web, voice, and video conferencing into everyday communications.
Cisco Unified MeetingPlace provides intuitive interfaces for setting up, attending, and managing meetings. It allows immediate or future voice, video, and web conferences to be set up and attended in a single step—from Cisco Unified IP Phones, instant messaging clients, web browsers, and Microsoft Outlook and Lotus Notes calendars. Meeting participants have complete control over voice, video, and web conferences from a single browser interface.

Cisco Unified MeetingPlace can be deployed “on network,” behind a firewall, and integrated directly into an organization’s private voice and data networks and collaborative applications. This deployment enables cost savings because organizations can use their IP network infrastructures to reduce transport costs paid to service providers. In addition, on-network deployment results in a secure meeting environment by allowing organizations to isolate confidential meetings and content behind the firewall while providing the flexibility to meet with external parties. To prevent unauthorized access and toll fraud, Cisco Unified MeetingPlace integrates with the corporate directory to provide synchronized updates as an employee’s status changes.

Cisco MeetingPlace can be located in on-premises or hosted in off-site facilities. It can be managed in-house or management can be outsourced.

For additional information, go to:


Cisco IP Communicator

Cisco IP Communicator provides personal computers with the functionality of IP phones. This Microsoft Windows-based application provides high-quality voice calls to users from wherever they have access to the corporate network. It can serve as a supplemental telephone, a telecommuting device, or a primary desktop telephone.

When registered to Cisco Unified Communications Manager, Cisco IP Communicator has the functionality of a full-featured Cisco Unified IP Phone, including the ability to transfer calls, forward calls, and conference additional participants to an existing call. In addition, a Cisco IP Communicator that is registered to Cisco Unified Communications Manager can be provisioned like any other Cisco Unified IP Phone, which greatly simplifies phone management.

For additional information, go to:


Cisco Unified Personal Communicator

Cisco Unified Personal Communicator integrates a wide array of communications applications and services into a single desktop computer application. It provides access to a variety of communications tools, including voice (Cisco Unity or Unity Connection), video (Cisco TelePresence), web conferencing (Cisco Unified MeetingPlace), call management (Unified CM), directories (LDAP), and presence and instant messaging (Unified Presence) information. Cisco Unified Personal Communicator offers an easy-to-use interface that streamlines the communications experience and facilitates collaboration. With Cisco Unified Personal Communicator, users can communicate virtually anytime, from anywhere, and can easily escalate communication methods as required.

Cisco Unified Personal Communicator operates in Desk Phone (CTI control of the user’s desk phone for Click to Call) and Soft Phone (software client operation) modes, and is supported on Apple Macintosh and Microsoft Windows platforms.

For additional information, go to:
Cisco Unified Mobility

Cisco Unified Mobility gives users the ability to redirect incoming IP calls from Cisco Unified Communications Manager to different designated phones, such as cellular phones. Users can also transition active calls between their Cisco desktop and phone without interruption.

Cisco Unified Mobility includes these features:

- Streamlined communications, giving callers one number to dial, and by redirecting incoming calls to multiple phones
- Active calls can move between the Cisco desktop and mobile phone to take advantage of the best available resource
- Simplified message management, by directing unanswered calls to a Cisco Unity or Cisco Unity Connection account
- Personalized access lists that determine which business calls get extended to alternate phone numbers, and at what point that occurs

For more information about Cisco Unified Mobility, go to:

Cisco Jabber

Cisco Jabber helps enterprise users consolidate presence, instant messaging, voice and video, voice messaging, desktop sharing, and conferencing. Cisco Jabber provides integration across devices, including PCs, Macs, tablets, and smart phones.

Cisco Jabber client software works in conjunction with Cisco Unified Communications Manager to provide users with a unified client they can deploy across on-premise and cloud-based options.

Cisco Jabber clients include the following:

- Cisco Jabber for Mac
  Cisco Jabber for Mac provides presence, instant messaging, voice, visual voicemail, desktop sharing, and conferencing capabilities in the familiar Mac experience.

- Cisco Jabber for Android
  Cisco Jabber for Android provides Android users with enterprise voice over IP (VoIP) calling and access to the corporate directory while connected to the corporate network over Wi-Fi.

- Cisco Mobile for iPhone
  Cisco Mobile for iPhone provides enterprise voice over IP (VoIP) calling with handoff to GSM/cellular network and extensive mid call features such as Hold, Conference, Transfer and Swap. Business visual voicemail and access to corporate directory are supported on iPhone, iPad, and iPod touch.

- Cisco Mobile for Nokia
  Cisco Mobile for Nokia provides enterprise IM and Presence for on premise or SaaS deployments. It includes enterprise voice over IP (VoIP) calling with automatic handoff to cellular network and extensive mid-call features for Symbian smartphones. Corporate directory access and one click access to voicemail are included.
Cisco Unified Communications Integration™ for Microsoft Lync

Cisco Unified Communications Integration™ for Microsoft Lync provides seamless collaboration with Cisco Unified Communications and Microsoft instant messaging (IM) and Presence capabilities. It extends proven Cisco Unified Communications services to Microsoft Lync with a single easy-to-manage communications platform. This provides interoperability with Microsoft Lync Server 2010 and Microsoft Lync. Cisco UC Integration™ for Microsoft Lync uses the Client Services Framework (CSF) and incorporates it into Microsoft Lync. This integration allows for the use of audio telephony of existing Cisco Unified Communications Manager endpoints, acting both as a softphone (softphone mode) and controlling a Cisco Unified IP Phone (desk phone mode).

This integration for Microsoft Lync leverages a common unified client services framework to:

- Increase productivity—Instantly connect with colleagues, partners, and customers from anywhere and have a business-class communication experience with an integrated Cisco IP softphone.
- Streamline communications—View telephony presence status, access corporate voicemail and communications history, or simply click to call through Cisco Unified IP Phone directly from your desktop.
- Enhance collaboration—Initiate multiparty conference calls and quickly add more participants as needed.
- Reduced complexity—Extend proven attributes of Cisco Unified Communications Manager directly to your desktop with an easy-to-deploy integration and benefit from reduced management complexity of a single call control architecture.
- Protect investments—Make an immediate business impact with interoperable Cisco Unified Communications while protecting your investments in existing desktop applications.

For additional information, go to:


Cisco UC Integration™ for Cisco WebEx Connect

Cisco UC Integration(TM) for Cisco WebEx Connect is a collaborative software-as-a-service (SaaS) platform that enables developers, partners, and customers to create powerful collaborative business solutions that can extend their reach through collaborative solutions. Cisco WebEx Connect provides an open and extensible collaboration platform for enforcing enterprise-class security, scalability, performance, and availability, while delivering transparent communication with the Cisco Unified Communications solution. Cisco WebEx Connect contains two main components, the Cisco WebEx Connect Client and the Cisco WebEx Connect Platform.

For additional information, go to:

Cisco Unified Communications Widgets

Cisco Unified Communications Widgets applications deliver a productive and personalized user experience with Cisco Unified Communications applications and Cisco Unified IP Phones. These free-to-download and easy-to-add widgets streamline business communications and provide a tailored and familiar communications experience.

Cisco Unified Communications Widgets include the following:

- The Click to Call Widget is a Cisco Unified Communications application for PCs that lets users quickly place calls from desktop productivity applications or web browsers. Users can simply highlight and click on a phone number to make a call.

- The Visual Voicemail Widget for Cisco Unified IP Phones displays all Cisco Unity and Cisco Unity Connection voice messages on the phone display. Caller name, time of message, message length, and urgency are prominently displayed. Users can view, play, save, respond to, and delete messages without having to dial in to enterprise voicemail.

For additional information, go to:

Cisco Unified Video Advantage

Cisco Unified Video Advantage brings video telephony functionality to select Cisco Unified IP Phones and to the Cisco IP Communicator softphone application. Users make and receive calls using the familiar phone interface, with the video component displayed on user PCs without additional user action required. Enterprises can leverage their existing IP networks and desktop phones to extend video calling to everyone in the organization.

For additional information, go to:

Cisco Unity

Cisco Unity is a messaging platform designed for enterprises of all sizes. It provides unified messaging (e-mail, voice, and fax messages sent to one inbox) and full-featured voice mail. Cisco Unity interoperates with most legacy TDM PBXs and with Cisco Unified Communications Manager to enable a transition to IP telephony while protecting existing infrastructure investments.

Key features of Cisco Unity include:

- Integration with Outlook or Lotus Notes desktop clients.
- Telephone interface (TUI) for DTMF-based control of messages. An intuitive interface allows accessing, creating, replying to, and forwarding messages using a traditional telephone, and allows managing and customizing mailbox features.
- Web-based desktop interface that allows users to manage and customize their mailbox features and to access their voice messages directly from a PC.
- Text-to-speech (TTS) for telephone access to e-mail messages.
- Integration with Exchange or Lotus Domino to provide a single location to store and manage all of messages.
• Unity Digital Networking using integration into a common Active Directory or Lotus Domino Directory to provide seamless message exchange between users at several sites on different Cisco Unity servers.
• Mobile message access for Unified Messaging subscribers using Blackberry or Treo devices.
• Cisco FAX server support or integration with third-party FAX vendors to provide FAX messages in a single, unified inbox.
• Interoperability with a wide range of legacy TDM PBX systems using analog DTMF, serial SMDI, or digital set emulation.
• Interoperability with a wide range of legacy voice messaging system using AMIS, VPIM, or Cisco Unity Bridge (for Octel node emulation).

For additional information, go to:

Cisco Unity Connection

Cisco Unity Connection provides messaging capabilities for mid-size offices and small enterprises. It includes an intuitive telephone interface, voice-enabled navigation of messages, and desktop access to messages directly from a PC. Cisco Unity Connection integrates with Cisco Unified CallManager, Cisco Unified CallManager Express, and various legacy PBX models (using the PIMG) to support a variety of deployment models and configurations.

Key features of Cisco Unity Connection include:
• Voice-enabled message navigation (such as play, delete, reply, forward)
• Voice-enabled dialing to other system users
• Desktop messaging with the Unity Inbox web client
• Desktop messaging with IMAP-based e-mail clients
• Personal call transfer rules, which allow call routing based on caller, time of day, Outlook calendar status, and other parameters
• Text-to-speech (TTS), which allows access to Exchange e-mails from a telephone
• Message notifications to pagers, SMS phones, and other devices
• Automated attendant capabilities

For additional information, go to:

Cisco Survivable Remote Site Voicemail

Cisco Survivable Remote Site Voicemail (SRSV) provides backup voicemail service in the centralized messaging and centralized call processing deployment. SRSV utilizes Cisco Unity Express in the branch location to provide backup voicemail service for Cisco Unity Connection located in the headquarters when the connection between sites is unavailable. (See Figure 23-2.) During normal operation, Cisco Unified Messaging Gateway in the headquarters retrieves the configurations (for example, SRST phones, user, and mailbox information) from Cisco Unified CM and Cisco Unity Connection to provision and update the mailboxes in Cisco Unity Express SRSV based on a configured schedule. Cisco Unity
Express SRSV is active when only SRST is activated, and it remains idle otherwise. When the network connection between sites is restored, Cisco Unity Express SRSV uploads all messages (new, saved, deleted, and so forth) to Cisco Unity Connection.

SRSV uses bandwidth from the WAN link during the following activities:

- Configuration uploads from Unified CM and Cisco Unity Connection to Cisco Unity Express SRSV
- Voice message uploads from Cisco Unity Express SRSV to Cisco Unity Connection when the WAN link is restored.

Survivable Remote Site Telephony (SRST) and Cisco Unity Express SRSV are one logical unit, with Cisco Unity Express SRSV installed in the SRST router.

For additional information, go to:

## Cisco Unity Express

Cisco Unity Express provides integrated, entry-level, voice mail and automated attendant services for small and medium offices or branches in Cisco Unified Communications Manager or Cisco Unified Communications Manager Express environments. In Cisco Unified Communications Manager environments, Cisco Unity Express provides local storage and processing of voice mail and automated attendant services, alleviating WAN bandwidth and QOS concerns for the branch office. Combining Cisco Unified Communications Manager Express with Cisco Unity Express provides a centralized voicemail solution for up to 10 Cisco Unified Communications Manager Express sites and a core set of phone features for everyday business needs while offering a variety of telephony feature sets that have been provided by traditional key systems and hybrid PBXs.

Cisco Unity Express voice messaging and auto-attendant includes the following key features:

- **Interactive Voice Response (IVR)** – integrates your automated attendant into the company database.
- **Paging and Announcement system** – provides live and scheduled paging to Cisco IP Phones and overhead speakers. Integrates with legacy paging systems.
- **TimeCardView** – integrated time and attendance management system for the branch office. Synchronize your payroll data to Intuit QuickBooks.
- **Networking across several sites**—Voice Profile for Internet Mail version 2 (VPIMv2) provides support for voice mail messaging interoperability between Cisco Unity Express sites and between Cisco Unity Express and Cisco Unity, with Non-Delivery Record (NDR) for networked messages and blind addressing.
- **Distribution lists**—public and private distribution lists of local and remote users can be created for sending messages to more than one subscriber.
- **Broadcast messages**—Privileged subscribers can send messages to all users on the network.
- **Password and PIN length flexibility**—Network administrators can set minimum lengths and expiry times for passwords and personal identification numbers (PINs) for greater network security.
- **SNMP MIB support**—Network administrators can remotely monitor the health and performance of the Cisco Unity Express system.
- **Support for caller ID information in incoming messages**—Permits playing of caller identification information as part of the message envelope for new incoming voice mail messages.
Cisco Unified SIP Proxy

Cisco Unified SIP Proxy is a high-performance, highly available Session Initiation Protocol (SIP) proxy server for centralized routing and SIP signaling normalization. By forwarding requests between call-control domains, Cisco Unified SIP Proxy provides the means for routing sessions within enterprise. The Cisco Unified SIP Proxy application is delivered in Network Module and Service Module form factors on Cisco 2900, 3800, 3900, and 3900E Series Integrated Services Routers.

The Cisco Unified SIP Proxy brings the following benefits to a network using Unified Communications Manager SIP trunks:

- Aggregation and routing—The Unified SIP Proxy is capable of connecting several SIP servers to each other without each of the servers connecting to every other one in a full-mesh configuration.
- Scalability—The Unified SIP Proxy can be used to terminate calls to and from the enterprise and IP-PSTN service providers. The proxy, in turn, distributes the calls across a pool of Unified Border Elements. More Unified Border Elements may be added to increase capacity.
- Availability and load balancing—The Unified SIP Proxy distributes calls over the pool of available Unified Border Elements and monitors the status of each Unified Border Element to ensure reliable call completion.
- Message normalization—The Unified SIP Proxy serves to hide differences in SIP protocol messaging by providing the means to manipulate headers and contents of the messages as they pass through the Unified SIP Proxy.

For additional information, go to:

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. The Cisco Unified Messaging Gateway includes the following key features:

- Centrally manage a network of branch-office telephony sites and automatically synchronize them with the central call control with Enhanced Survivable Remote Site Telephony (E-SRST).
- Automatically configures SRST routers for use with centralized Cisco Unified Communications Manager.
Cisco Unified Communications System Description Release 8.6(1)

Chapter 3 Cisco Unified Communications Component Overviews

Cisco VG200 Series Gateways

- Centrally manage a network of survivable branch-office voicemail sites and automatically synchronize the messages with the central Cisco Unity Connection with Survivable Remote Site Voicemail (SRSV).
- Transparently integrate Cisco Unified Communications solutions into existing voicemail installations
- Integrates small to large-scale unified messaging deployments that consist of 5 Cisco Unity Express systems and above and supports up to 10,000 mixed Cisco Unity Express, Cisco Unity, and Cisco Unity Connection systems.

For additional information, go to:

Cisco VG200 Series Gateways

The Cisco Unified Communications System supports the following VG200 Series Gateways:
- Cisco VG224 Analog Voice Gateway
- Cisco VG204 Analog Voice Gateway
- Cisco VG202 Analog Voice Gateway

The Cisco VG224 Analog Phone Gateway combines a high-density RJ21 analog interface with Cisco IOS Software manageability to provide a cost-effective platform for maximum functionality of existing analog phone equipment. It offers the following key benefits:
- High-density 24-port gateway for analog phones, fax machines, modems, and speakerphones
- DSP technology for fax and modem support
- Enhances an enterprise voice system architecture that is based on Cisco Unified Communications Manager or Cisco Unified Communications Manager Express

The Cisco VG204 Analog Voice Gateway combines granular RJ11 analog interfaces with Cisco IOS Software manageability to deliver a platform designed to maximize the functionality of existing distributed analog equipment in a Cisco Unified Communications system deployment. It offers the following key benefits:
- Low-density four-port gateway for analog phones, fax machines, modems, and speakerphones
- Enhances an enterprise voice system architecture that is based on a Cisco Integrated Services Router, Cisco modular access router or a Cisco VG224 in a Cisco Unified Communications Manager or Cisco Unified Communications Manager Express deployment
- Compact, fanless, desktop form-factor chassis that is wall-mountable

The Cisco VG202 Analog Voice Gateway combines granular RJ11 analog interfaces with Cisco IOS Software manageability to deliver a platform designed to maximize the functionality of existing distributed analog equipment in a Cisco Unified Communications system deployment. It offers the following key benefits:
- Low-density two-port gateway for analog phones, fax machines, modems, and speakerphones
- Enhances an enterprise voice system architecture that is based on a Cisco Integrated Services Router, Cisco modular access router, or a Cisco VG224 in a Cisco Unified Communications Manager or Cisco Unified Communications Manager Express deployment.
- Compact, fanless, desktop form-factor chassis that is wall-mountable
Cisco has taken a leading role in the definition and implementation of the IPv6 architecture within the Internet Engineering Task Force (IETF) and continues to lead the industry in IPv6 development and standardization.

The deployment of IPv6 is primarily driven by IPv4 address space exhaustion. As the worldwide usage of IP networks increases, the number of applications, devices, and services requiring IP addresses is rapidly increasing. Current estimates by the Internet Assigned Numbers Authority (IANA) and Regional Internet Registries (such as ARIN, LACNIC, and APNIC) indicate that their pools of un-allocated IPv4 addresses will be exhausted sometime between Q4 2011 and Q1 2012.

Because the current IPv4 address space is unable to satisfy the potential huge increase in the number of users and the geographical needs of the Internet expansion, many companies are either migrating to or planning their migration to IPv6, which offers a virtually unlimited supply of IP addresses.

The process of transforming the Internet from IPv4 to IPv6 is likely to take several years. During this period, IPv4 will co-exist with and then gradually be replaced by IPv6.

It is recommended that you deploy IPv6 in a dual-stack Cisco Unified Communications Manager (Unified CM) cluster with approved dual-stack devices (phones, gateways, and so forth). This approach is recommended to avoid IPv6-only deployments, which are not currently supported in production environments. Single-site and multiple-site distributed call processing deployments are supported, but multiple-site deployments with centralized call processing are not supported.

An IPv6 address consists of 8 sets of 16-bit hexadecimal values separated by colons (:], totaling 128 bits in length. For example:

```
2001:0db8:1234:5678:9abc:def0:1234:5678
```

Leading zeros can be omitted, and consecutive zeros in contiguous blocks can be represented by a double colon (::). Double colons can appear only once in the address. For example:

```
2001:0db8:0000:130F:0000:0000:087C:140B can be abbreviated as
2001:0db8:0:130F::87C:140B
```

As with the IPv4 Classless Inter-Domain Routing (CIDR) network prefix representation (such as 10.1.1.0/24), an IPv6 address network prefix is represented the same way:

```
2001:db8:12::/64
```

The following Cisco Unified Communications products support IPv6:

- Cisco Unified Communications Manager—All Cisco Media Convergence Server (MCS) platforms
- Cisco IP Phones
- Gateways
  - SIP gateways (2800, 2900, 3800, 3900, 3900E Series; Cisco AS5400XM; Cisco AS5350XM)
  - Cisco VG224, VG204, VG202  SCCP Analog Gateways
  - SCCP FXS ports on Cisco ISR 2800, 2900, 3800, 3900, 3900E Series Routers
Cisco Adaptive Security Appliances

Cisco ASA 5500 Series Adaptive Security Appliances provide intelligent threat defense and highly secure communications services. These solutions help organizations lower their deployment and operational costs while delivering comprehensive network security for networks of all sizes.

Cisco Adaptive Security Appliances integrate:

- Stop attacks before they penetrate the network perimeter
- Protect resources and data, as well as voice, video, and multimedia traffic
- Control network and application activity
- Reduce deployment and operational costs
- Adaptable architecture for rapid and customized security services deployment
- Advanced intrusion prevention services that defend against a broad range of threats
- Highly secure remote access and unified communications to enhance mobility, collaboration, and productivity

For more information about these components, go to:

Management and Serviceability Components

The Cisco Unified Communications Solution includes the following complementary products, solutions, and services to help centrally manage an entire deployment:

- Resource Management Essentials—Allows network administrators to view and update the status and configuration of all Cisco devices, including switches, access servers, and routers, from anywhere on the network through a standard web client. RME can rapidly and reliably deploy Cisco software images and view configurations of Cisco routers and switches.
- Cisco Unified Operations Manager—Used for comprehensive monitoring with proactive and reactive diagnostics for the Cisco Unified Communications system. It provides:
  - Built-in rules, which provide contextual diagnostics and enable troubleshooting of service-impacting outages.
  - A real-time, service-level view of the Cisco Unified Communications system, including the current operational status of each element.
Capabilities for application-level testing of telephony functions, which can be used proactively and reactively to identify problems and ensure that applications are functioning properly, for dial-plan validation, as well as for monitoring video-enabled endpoints.

- **Cisco Unified Service Monitor**—Used to monitor and evaluate the quality of voice in Cisco Unified Communications solutions. It provides:
  - Continuous monitoring of active calls supported by the Cisco Unified Communications system with near-real-time notification when the voice quality of a call fails to meet a user-defined mean opinion score (MOS).
  - Reports that characterize the user experience as measured by the system and details on the endpoints that are most frequently related to voice-quality alerts.

- **Cisco Unified Provisioning Manager**—Used for the provisioning and activation of Cisco Unified Communications products. It allows administrators to manage initial deployments and implementations, and then permits delegation of the ongoing operational provisioning and activation tasks that are required for changes to services for individual subscribers. It provides:
  - A single, consolidated view of subscribers across the organization.
  - A set of business-level, policy-driven management abstractions for managing subscriber services across the Cisco Unified Communications infrastructure.

- **Cisco Unified Service Statistics Manager**—Provides statistics management, analysis, and reporting capabilities for a Unified Communications deployment. It leverages the data collection capabilities of Unified Operations Manager and Service Monitor to gather Cisco Unified Communications statistics information from a variety of Cisco devices and systems (including Unified Communications Manager, Unity, Unity Connection, Unified Communications Manager Express, Unity Express, Unified Contact Center, and Unified Contact Center Express). It stores the statistics in a database and provides statistical analysis and reporting.

- **CiscoWorks LAN Management Solution (LMS)**—Provides a suite of management tools that simplify configuring, administrating, monitoring, and troubleshooting Cisco networks. These tools provide an integrated system for sharing device information across applications, and offer capabilities that include:
  - Network discovery, topology views, end-station tracking, and VLAN management
  - 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
  - Presentation of current operational status of an IP Communications deployment and service-level views of the network
  - Contextual diagnostic tools to assist with troubleshooting
  - Presentation of service-quality alerts by using the information available through Cisco Unified Service Monitor (when deployed)
  - Presentation of current information about connectivity- and registration-related outages that are affecting IP phones in the network, and information that identifies the IP phones
  - Tracking of IP Communications devices and the IP phone inventory, tracking of IP phone status changes (providing reports that document move, add, and change operations on IP phones in the network)
  - Real-time notifications using SNMP traps, syslog notifications, and e-mail
  - Real-time voice quality monitoring and real-time voice quality alerts
Chapter 3  Cisco Unified Communications Component Overviews

Cisco Design Tools

The Cisco Unified Communications Solution includes the following Design Tools components.

- **Unified Communications Sizing Tool**—a web-based tool that assists users with hardware sizing of large or complex Cisco Unified Communications solutions by calculating the call processing requirements for products that have a major impact on performance and scalability.

  With the Unified Communications Sizing Tool, system engineers with Cisco Unified Communications solution experience or individuals with equivalent abilities can design and model solutions for existing and prospective customers. The tool requires various types of information to calculate the minimum size and type of devices required for a solution, such as the type and quantity of IP phones, gateways, and media resources. For most device types, the tool also requires the average number of call attempts per hour per device during the busy hour (known as busy hour call average or BHCA) and the average utilization time. The resulting calculations produced by the tool can be saved, copied, and sent to other users.

- **Quote Builder**—a solutions quoting application for Cisco Unified Communications products.

For more information about these components, go to:

With Quote Builder, users can build a system quote with design documents to aid in the implementation of the solution. Quote Builder also validates designs for common deployments. Quote Builder generates a bill of materials, a network diagram, and design guides for deployment. To access Quote Builder, go to the following URL.

- Solution Expert—a web-based tool that assists in the design, configuration, quoting, and ordering of Cisco Unified Communications products.

With Solution Expert, users can generate a recommended solution based on their requirements. Users can modify the recommended configuration if desired. Solution Expert validates any changes when it presents the new solution. Solution Expert also generates a bill of materials with list pricing, a Visio diagram, and other design documentation.