

Deploying advanced applications enables small and medium-sized businesses (SMBs) like yours to increase innovative services, productivity, customer satisfaction, profitability, and other profit-line benefits. Cisco® Secure Wireless Office solutions deliver tailored, integrated networking services that enable SMBs to create an intelligent, empowered environment. With an environment based on Cisco Secure Wireless Office solutions, you can achieve transparent, secure access to important resources-while at the workplace, your home, a remote or branch office, or on the road.

Cisco Secure Wireless Office solutions include intelligent, application-enabling network services, innovative end-user applications, a solid network infrastructure, and responsive customer services such as financing, training, service, and support. Cisco Secure Wireless Office solutions can help your business implement advanced applications without draining budgets, bandwidth, or staff.

Cisco Secure Wireless Office solutions are delivered with and through Cisco Systems® partners. They are designed specifically to meet the needs of SMBs:

- Tailored, cohesive, and intelligent networks power your business now and in the future.
- Intelligent, application-enabling services (connectivity, voice, mobility, security, and business resilience) are delivered over the industry's most widely recognized routers and switches, providing “right-size,” proven solutions for your business.
- You can enjoy high performance, rich features, scalability, investment protection, and adaptability while reducing total cost of ownership.
- You can wirelessly enable access to your company network with Cisco Aironet® access points and achieve integrated wireless with Cisco integrated services routers.

Cisco provides easy-to-use blueprints for extending network capability to support advanced applications in businesses that have 20 to 500 users, offering a choice of integrated, all-in-one products and dedicated appliances, giving you the flexibility to create a “right-size” infrastructure that meets your specific business and budget needs. These blueprints are based on Cisco's extensive experience in creating networks for successful SMBs.



CISCO SECURE WIRELESS OFFICE SOLUTION

When professionals conduct business away from their desks, they lose access to valuable network resources, which impedes their ability to respond rapidly to customer requests, collaborate effectively in meetings, and sometimes even close a deal. Now that wireless solutions have matured, however, companies can afford to extend their information infrastructures to workers in meeting rooms, public areas at their main business locations, airports, hotels, and their homes. A recent study conducted by NOP World Technology on behalf of Cisco Systems shows that wireless technology can enable workers to stay connected an additional 3.5 hours a day, empowering them to respond more quickly to customers, partners, and colleagues.

Now, employees can take advantage of time between meetings and retain access to critical information resources wherever and whenever needed. Business-critical wireless solutions extend access to applications, Web content, and communications channels to workers that are away from their desks, improving employee responsiveness to customers and partners, increasing business productivity, and enhancing collaboration. Cisco Secure Wireless Office solutions also enable SMBs to more quickly facilitate network adds, moves, and changes. Plus, if a business is in a temporary location or plans to move, transporting its wireless technology is easy.

IT managers of SMBs can extend business networks using wireless LAN (WLAN) technology to increase employee productivity. However, securing the wireless network is equally vital.

Like cordless phones, WLAN technology uses radio waves to transport data, which makes these networks open-access by design. If security is not enabled, the radio signals transporting the data are vulnerable to unauthorized receivers. Although units are shipped from the factory without security enabled to comply with interoperability rules, wireless access points and network interface cards have built-in security. This embedded security makes it easy to successfully set up and enforce a standardized means of securing a wireless network.

Cisco offers SMB customers intelligent networking products and solutions that help increase employee productivity, support innovative services, improve customer satisfaction, and reduce business operating costs.

Cisco Secure Wireless Office solutions allow you to provide your employees with secure, reliable, and convenient access to the information they need, whether they are in the office, at a customer site, at home, or on the road. With enhanced capabilities in the areas of voice, security, and mobility-and investment protection you can count on-Cisco Secure Wireless Office solutions are able to meet your business needs, both now and into the future.

The Cisco Structured Wireless-Aware Network (SWAN) provides the framework for integrating a wired and wireless network. Cisco SWAN enables IT managers to deploy and operate wireless networks within main headquarters and branch offices or in vertical retail, manufacturing, and healthcare locations. This framework provides organizations of all sizes with the same level of security, scalability, reliability, and ease of deployment and management that wired LANs deliver.

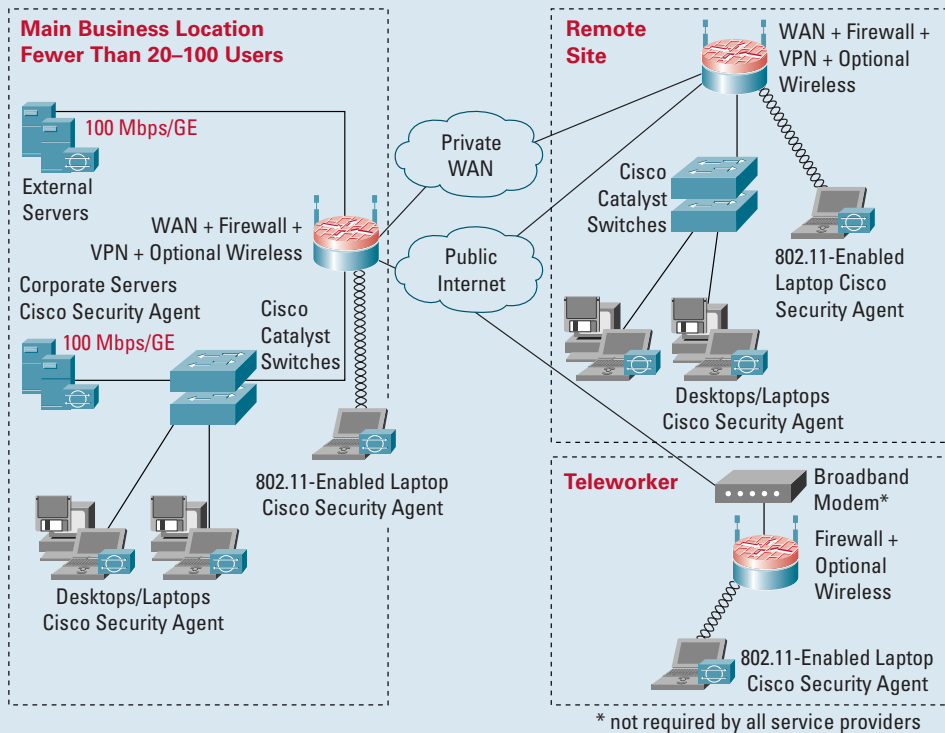
Cisco SWAN integrates WLAN services into the Cisco wired network-making wireless a true extension of the wired network. Available on specific Cisco LAN switches and routers, the framework uses familiar Cisco IOS® Software switch- and router-management features for integrated management of Cisco access points and client devices.

Cisco secure wireless blueprints for SMBs are formulated according to size:

- Secure Wireless Blueprint: 20 to 100 user ports per site
- Secure Wireless Blueprint: 100 to 250 user ports per site
- Secure Wireless Blueprint: 250 to 500 user ports per site

This reference blueprint provides a network diagram and product table for your main office, remote office, and teleworkers. This is only a suggested blueprint.

Figure 1: Network Diagram for SMBs with 20-100 User Ports per Site



This network blueprint is intended to be an educational resource and a starting point in planning your network solution; it is not a final recommendation from Cisco. To determine the deployment most appropriate for your company we suggest you work with a Cisco representative, Cisco channel partner, or a solutions provider.

Product Table

This product table briefly describes Cisco networking solutions for SMBs with 20 to 100 user ports per site. It is intended to be a starting point in choosing Cisco products for your main business location, remote offices, and teleworkers.

Table 1: Solution Features for Main Business Location and Remote Sites

	20-100 Users (SMB Complete)	20-100 Users (SMB Enhanced)
Router	<p>Cisco 2811 integrated services routers Cisco 2800 Series integrated services routers bring big-company capabilities to small businesses with an award-winning combination of multiservice (data, voice, video, and fax) integration, flexible LAN and WAN configurations, security options, high-performance processors, a router-integrated content delivery system (requires optional module), and investment protection in a compact solution.</p> <p>The modularity of the Cisco 2800 Series enables small businesses to update their networks as budget and business application needs dictate.</p> <p>Cisco 1800 Series fixed and modular integrated services routers Increased performance for broadband delivery of concurrent, secure services, including data, quality of service (QoS) for voice and video, security, and wireless.</p> <p>Consolidated additional LAN/WAN features in a single box (integrated backup, 8-port managed switch, Power over Ethernet [PoE]).</p> <p>Security Advanced security with integrated firewall, VPN, IPS, VLANs.</p> <p>Wireless 802.11a/b/g Optional integrated IEEE 802.11a/b/g secure wireless LAN (multiple options for antennas).</p> <p>Management Easy deployment and remote management capabilities through embedded GUI and Cisco IOS® Software-based tools</p>	<p>Cisco 2851 integrated services routers Cisco 2800 Series integrated services routers bring big-company capabilities to small businesses with an award-winning combination of multiservice (data, voice, video, and fax) integration, flexible LAN and WAN configurations, security options, high-performance processors, a router-integrated content delivery system (requires optional module), and investment protection in a compact solution.</p> <p>The modularity of the Cisco 2800 Series enables small businesses to update their networks as budget and business application needs dictate.</p> <p>Purpose-built for integrated services:</p> <p>Security Onboard encryption, Network Admission Control (NAC), inline intrusion prevention system (IPS), dynamically loaded signatures, more VPN tunnels, and high-performance firewalls.</p> <p>Voice Designed for medium density; addresses IP telephony, voicemail, auto attendant, and conferencing needs.</p> <p>Comprehensive Layer 2 and Layer 3 services</p> <ul style="list-style-type: none"> Fast Ethernet (FE)/Gigabit Ethernet (GE) switch ports, VLANs, application optimization, and PoE Wire-speed, concurrent services and headroom to grow

Table 1: Solution Features for Main Business Location and Remote Sites

	20-100 Users (SMB Complete)	20-100 Users (SMB Enhanced)
	<p><i>*New*</i></p> <p>Cisco 1800 Series fixed-configuration integrated services routers, featuring:</p> <ul style="list-style-type: none"> • Integrated 8-port switch • DSL support • Optional 802.11a/b/g support • Optional PoE 	<p><i>Modularity and investment protection</i></p> <p>More slots for advanced services via NM, NME, NME-X, and NME-XD support with PVDM and AIM modules; works with previous Cisco 1700, 2600, and 3700 Series interfaces; adds new services.</p> <p><i>Scalability, density, and resiliency</i></p> <p>Inline IP phone power, online insertion, and scalable services and interface options for growth.</p>
WAN services	Yes	Yes
Integrated switch/Ethernet module ports	Yes	Yes
Integrated security	<p>Yes</p> <p>Cisco IOS firewall</p> <p>Cisco IOS VPN</p> <p>Cisco IOS Intrusion Detection System (IDS)</p>	<p>Yes</p> <p>Cisco IOS firewall</p> <p>Hardware VPN accelerator</p> <p>Cisco IOS and NM IDS</p>
Integrated content	<p>Yes</p> <p>Network module</p>	<p>Yes</p> <p>Network module</p>
Access point (external)	<p>Cisco Aironet 1100 Series access points</p> <p>The Cisco Aironet 1100 Series delivers an affordable and upgradable WLAN solution, setting the enterprise standard for high-performance, secure, manageable, and flexible WLANs.</p> <p>The Cisco Aironet 1100 Series supports a single radio and is available in an IEEE 802.11a/g version or IEEE 802.11b version that is field-upgradable to 802.11g. The access point offers flexibility and investment protection for wireless networks.</p>	<p>Cisco Aironet 1200 Series access points</p> <p>The Cisco Aironet 1200 Series is the flagship of the Cisco Aironet Family, setting the enterprise standard for high-performance, secure, manageable, and flexible WLANs. The modular design of the Cisco Aironet 1200 Series allows single or dual radio configuration for up to 54-Mbps connectivity in both the 2.4- and 5-GHz bands; and provides full compliance with IEEE 802.11a/b/g standards.</p>

Table 1: Solution Features for Main Business Location and Remote Sites

	20-100 Users (SMB Complete)	20-100 Users (SMB Enhanced)
	<p>With the IEEE 802.11g version, users can enjoy up to 54-Mbps data rates while maintaining full backward compatibility with legacy 802.11b devices. Administrators can configure a Cisco Aironet 1100 Series access point to support both 802.11g and legacy 802.11b clients for investment protection or, for higher performance, it may be configured to support only 802.11g clients.</p> <p><i>*New*</i></p> <ul style="list-style-type: none"> • Cisco Aironet 1130AG Series for offices and similar environments • Support for the IEEE 802.11i security standard and Wi-Fi Protected Access 2 (WPA2) • Wireless IDS partnership with air defense • Cisco Compatible Extensions Version 3, including Extensible Authentication Protocol-Flexible Authentication via Secure Tunneling (EAP-FAST) • Cisco IOS Software Release 12.3(2)JA <p><i>Wireless management</i></p> <p>CiscoWorks WLAN Solution Engine (WLSE) Express is the integrated security and management solution for managing Cisco Aironet access points located in one or multiple locations. CiscoWorks WLSE Express can manage up to 50 Cisco Aironet access points, or, through an optional license upgrade, up to 100 Cisco Aironet access points.</p> <p>CiscoWorks WLSE Express provides an integrated, embedded authentication, authorization, and accounting (AAA) server for user authentication, making it an ideal solution for SMBs.</p>	<p>Providing numerous configuration and upgrade options, the Cisco Aironet 1200 Series supports a variety of clients in mixed frequency and mixed throughput environments. Whether configured for single 802.11a coverage, single 802.11g coverage, 802.11b/g coverage, or for trimode 802.11a/b/g coverage, the Cisco Aironet 1200 Series offers the greatest flexibility and investment protection, allowing network administrators to deploy a wireless network optimized for their particular needs.</p> <p><i>*New*</i></p> <ul style="list-style-type: none"> • Cisco Aironet 1230AG Series for challenging RF environments • 802.11a radio modules for Cisco Aironet 1200 Series access points • Support for the IEEE 802.11i security standard and WPA2 • Wireless IDS partnership with air defense • Cisco Compatible Extensions Version 3, including EAP-FAST • Cisco IOS Software Release 12.3(2)JA <p><i>Wireless management</i></p> <p>CiscoWorks WLSE Express is the integrated security and management solution for managing Cisco Aironet access points located in one or multiple locations. CiscoWorks WLSE Express can manage up to 50 Cisco Aironet access points, or, through an optional license upgrade, up to 100 Cisco Aironet access points.</p> <p>CiscoWorks WLSE Express provides an integrated, embedded AAA server for user authentication, making it an ideal solution for SMBs.</p>

Table 1: Solution Features for Main Business Location and Remote Sites

	20-100 Users (SMB Complete)	20-100 Users (SMB Enhanced)
External switch	<p>Cisco Catalyst 2950 Series switches</p> <ul style="list-style-type: none"> Fixed-configuration, stackable, and standalone switches for FE/GE connectivity For networks that require additional security, advanced QoS, and high availability, enhanced image software delivers intelligent services such as rate limiting and security filtering 	<p>Cisco Catalyst 3560 Series switches</p> <p>The Cisco Catalyst 3560 Series is a line of fixed-configuration switches that includes IEEE 802.3af and PoE in FE/GE configurations.</p> <p>The Cisco Catalyst 3560 switch is an ideal access-layer switch for LAN access or branch-office environments, combining both 10/100/1000 and PoE configurations for maximum productivity and investment protection while enabling the deployment of new applications such as IP telephony, wireless access, video surveillance, building management systems, and remote video kiosks.</p> <p>The Cisco Catalyst 3560 Series now includes models that support 24- and 48-port 10/100/1000 with optional standards-based PoE. These models will help enable broader 10/100/1000 and PoE deployment options with integrated security, availability, and QoS.</p> <p>The Cisco Network Assistant is a centralized management application that simplifies the administration of Cisco switches, routers, and wireless access points. Free of charge, the Cisco Network Assistant provides configuration wizards that greatly simplify the implementation of converged networks and intelligent network services.</p>
Pay as you expand your network	Customers that need a mixture of 10/100 ports, 10/100/1000 ports, PoE, and wiring closet aggregation capabilities can incrementally develop their access environments, paying only for what they need.	
Intelligence made easy	Simple, embedded management software helps users perform initial and basic setup with ease:	
	<ul style="list-style-type: none"> Cisco Express Setup—Sets up the switch through a Web browser, eliminating the need to understand the command-line interface (CLI) Cisco Smartports—Can be used on all switches in the Cisco Catalyst Family and offers a set of pretested, Cisco-recommended, switch port configuration templates to consistently and reliably configure essential security, availability, QoS, and manageability features with minimal effort and expertise. For more info on Smartports, visit http://www.cisco.com/go/smartports Cisco Cluster Management Suite—A next-generation network management tool, integrating touchless software upgrades and installations that can be customized, thereby saving tremendous time and resources in deploying network intelligence at the edge 	

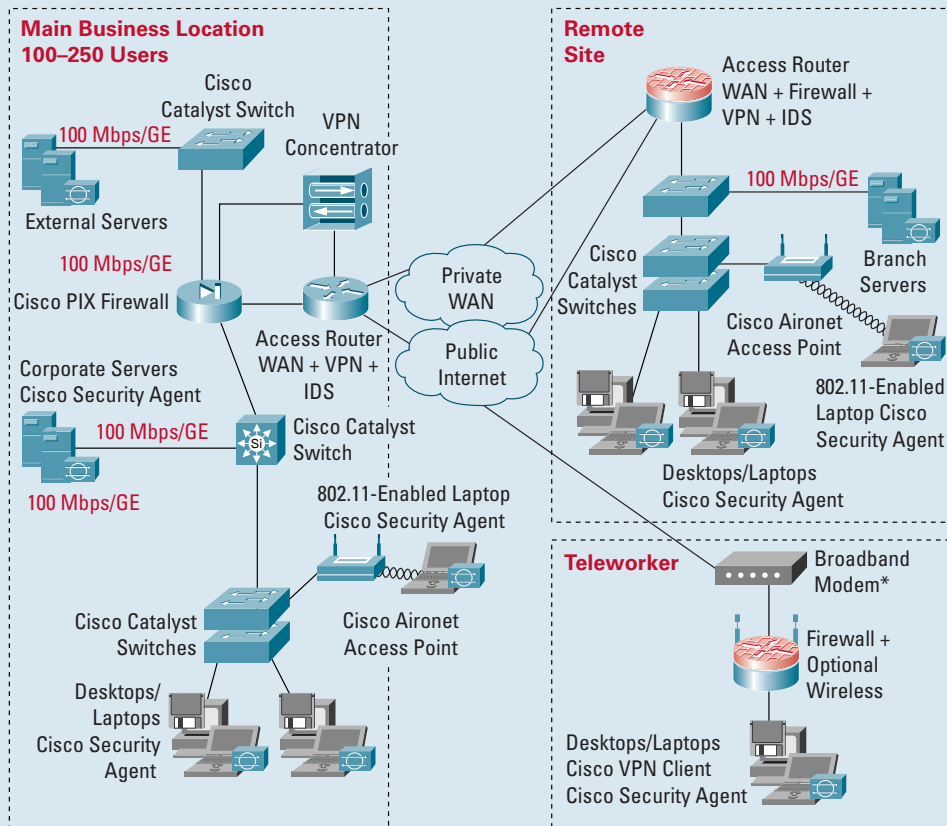
Table 1: Solution Features for Main Business Location and Remote Sites

	20-100 Users (SMB Complete)	20-100 Users (SMB Enhanced)
High availability	Increase network uptime and employee productivity with rapid failover recovery, Layer 2 load balancing, bandwidth aggregation, redundancy, and simplified administration. Features include Cisco Spanning Tree Protocol enhancements, Dynamic Trunking Protocol (DTP), voice and VLAN capabilities, Internet Group Management Protocol (IGMP), and embedded Cisco Cluster Management Suite Software. For added feature availability, the optional Cisco RPS 675 Redundant Power System provides protection against internal power supply failures.	
Security	Increase LAN security with capabilities that secure network management traffic through the protection of passwords and configuration information. These capabilities offer options for network security based on users, ports, and MAC addresses and enable more immediate responses to intruder and hacker detection. Features include 802.1x with enhancements, private VLAN edge, port security, MAC address notification, and support for RADIUS and TACACS+	
Solution Features for Teleworker or SMB Sites of up to 20 Users		
Broadband router	<p>Secure Cisco 850 Series routers (teleworkers and small remote offices)</p> <p>Increased performance to run concurrent, integrated services (data, QoS for voice and video, security, and wireless).</p> <p><i>Security</i></p> <p>Basic security with integrated firewall and VPN or advanced security with integrated firewall, VPN, IPSs, and VLANs.</p> <p><i>Wireless 802.11</i></p> <p>Secure wireless IEEE 802.11b/g; single, fixed antenna.</p>	<p>Secure Cisco 870 Series routers (teleworkers and small remote offices)</p> <p>Increased performance to run concurrent, integrated services (data, QoS for voice and video, security, and wireless).</p> <p><i>Security</i></p> <p>Basic security with integrated firewall and VPN or advanced security with integrated firewall, VPN, IPSs, and VLANs.</p> <p><i>Wireless 802.11</i></p> <p>Optional integrated IEEE 802.11b/g; secure WLAN; multiple options for antennas.</p>

SECURE WIRELESS BLUEPRINT: 100 TO 250 USER PORTS PER SITE

This reference blueprint provides a network diagram and product table for your main office, remote office, and teleworkers. This is only a suggested blueprint.

Figure 2: Network Diagram for SMBs with 100-250 User Ports per Site



* not required by all service providers

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Product Table

This product table briefly describes Cisco networking solutions for SMBs with 100 to 250 user ports per site. It is intended to be a starting point in choosing Cisco products for your main business location, remote offices, and teleworkers.

Table 2: Solution Features for Main Business Location and Remote Sites

Main Location	100-250 Users (SMB Complete; Integrated)	100-250 Users (SMB Enhanced; External Firewall, VPN, and Voice Recommended)
Router	<p>Cisco 3845 integrated services routers</p> <p>The Cisco 3845 Integrated Services Router is the flagship of Cisco's Integrated Services Router portfolio, providing high-performance routing, low-density switching, security, voice, IP telephony, voicemail, video, and content networking in a single, integrated solution. This design enables SMBs to adapt incrementally to evolving business needs. By transparently integrating advanced technologies, adaptive services, and secure communications into a single, resilient system, the Cisco 3845 Series eases deployment and management, lowers network cost and complexity, and provides unmatched investment protection.</p> <p>Purpose-built for integrated service:</p> <p><i>Security</i></p> <p>Onboard encryption, NAC, optional inline IPS, dynamically loaded signatures, more VPN tunnels, and high-performance firewalls.</p> <p><i>Voice</i></p> <p>Optimized for large-enterprise branch IP telephony, voicemail, auto attendant, and conferencing needs. Featuring highest density levels for analog and digital voice, as well as legacy and dial aggregation.</p> <p><i>Comprehensive Layer 2 and Layer 3 services</i></p> <p>FE/GE switch ports, VLANs, wireless, application optimization, PoE, and wire speed for up to T3/E3 throughput.</p>	<p>Cisco 2851 integrated services routers</p> <p>Cisco 2800 Series integrated services routers bring big-company capabilities to small businesses with an award-winning combination of multiservice (data, voice, video, and fax) integration, flexible LAN and WAN configurations, security options, high-performance processors, a router-integrated content-delivery system (requires optional module), and investment protection in a compact solution.</p> <p>The modularity of the Cisco 2800 Series enables small businesses to update their networks as budget and business application needs dictate.</p> <p>Purpose-built for integrated services:</p> <p><i>Security</i></p> <p>Onboard encryption, NAC, inline IPS, dynamically loaded signatures, more VPN tunnels, and high-performance firewalls.</p> <p><i>Voice</i></p> <p>Designed for medium density; addresses IP telephony, voicemail, auto attendant, and conferencing needs.</p> <p><i>Comprehensive Layer 2 and Layer 3 services</i></p> <ul style="list-style-type: none"> • FE/GE switch ports, VLANs, application optimization, and PoE • Wire-speed, concurrent services and headroom to grow

Table 2: Solution Features for Main Business Location and Remote Sites

Main Location	100-250 Users (SMB Complete; Integrated)	100-250 Users (SMB Enhanced; External Firewall, VPN, and Voice Recommended)
	<p><i>Maximum modularity and investment protection</i></p> <p>Cisco 3845 Series integrated services routers provide 4 slots for network modules; capable of supporting up to 4 NM, NME, NME-X or 2 NMD, NME-XD; 4 single-width or 2 double-width HWIC slots; 2 AIM slots; 4 PVDM slots; 2 USB ports; and optional support of up to 48 ports of IP phone power output; works with Cisco 1700, 2600, and 3700 Series NMs, VICs, and WICs.</p> <p><i>Scalability, density, and resiliency</i></p> <p>Highest levels of resiliency with redundant power supply options, optional inline power and hot-swappable NMs; scalable services and interfaces for future requirements.</p>	<p><i>Modularity and investment protection</i></p> <p>More slots for advanced services via NM, NME, NME-X, and NME-XD support with PVDM and AIM modules; works with previous Cisco 1700, 2600, and 3700 Series interfaces; adds new services.</p> <p>Scalability, density, and resiliency</p> <p>Inline IP phone power, online insertion, and scalable services and interface options for growth.</p>
WAN services	Yes	Yes
Integrated security	Yes Cisco IOS firewall Hardware VPN accelerator Cisco IOS and NM IDS	Yes Cisco IOS and NM IDS
Integrated content	Yes Network module	Yes Network module
Access point (external)	<p>Cisco Aironet 1100 Series</p> <p>The Cisco Aironet 1100 Series delivers an affordable and upgradable WLAN solution, setting the enterprise standard for high-performance, secure, manageable, and flexible WLANs. The Cisco Aironet 1100 Series supports a single radio and is available in an IEEE 802.11a/g version or IEEE 802.11b version that is field-upgradable to 802.11g. The access point offers flexibility and investment protection for wireless networks. With the IEEE 802.11g version, users can enjoy up to 54-Mbps data rates while maintaining full backward compatibility with legacy 802.11b devices. Administrators can configure the access point to support both 802.11g and legacy 802.11b clients for investment protection or, for higher performance, it may be configured to support only 802.11g clients.</p>	<p>Cisco Aironet 1200 Series</p> <p>The Cisco Aironet 1200 Series is the flagship of the Cisco Aironet line, setting the enterprise standard for high-performance, secure, manageable, and flexible WLANs. The modular design of the Cisco Aironet 1200 Series allows single or dual radio configuration for up to 54-Mbps connectivity in both the 2.4- and 5-GHz bands, and provides full compliance with IEEE 802.11a/b/g standards. Providing numerous configuration and upgrade options, the Cisco Aironet 1200 Series supports a variety of clients in mixed frequency and mixed throughput environments. Whether configured for single 802.11a coverage, single 802.11g coverage, 802.11b/g coverage or for trimode 802.11a/b/g coverage, the Cisco Aironet 1200 Series offers the greatest flexibility and investment protection, allowing network administrators to deploy wireless networks optimized for their particular needs.</p>

Table 2: Solution Features for Main Business Location and Remote Sites

Main Location	100-250 Users (SMB Complete; Integrated)	100-250 Users (SMB Enhanced; External Firewall, VPN, and Voice Recommended)
	<p><i>*New*</i></p> <ul style="list-style-type: none"> • Cisco Aironet 1130AG Series for offices and similar environments • Support for the IEEE 802.11i security standard and WPA2 • Wireless IDS partnership with air defense • Cisco Compatible Extensions Version 3, including EAP-FAST • Cisco IOS Software Release 12.3(2)JA <p><i>Wireless management</i></p> <p>CiscoWorks WLSE Express is the integrated security and management solution for managing Cisco Aironet access points located in one or multiple locations. CiscoWorks WLSE Express can manage up to 50 Cisco Aironet access points or, through an optional license upgrade, up to 100 Cisco Aironet access points. CiscoWorks WLSE Express also provides an integrated, embedded AAA server for user authentication, making it an ideal solution for SMBs.</p>	<p><i>*New*</i></p> <ul style="list-style-type: none"> • Cisco Aironet 1230AG Series for challenging RF environments • 802.11a radio modules for Cisco Aironet 1200 Series access points • Support for the IEEE 802.11i security standard and WPA2 • Wireless IDS partnership with air defense • Cisco Compatible Extensions Version 3, including EAP-FAST • Cisco IOS Software Release 12.3(2)JA <p><i>Wireless management</i></p> <p>CiscoWorks WLSE Express is the integrated security and management solution for managing Cisco Aironet access points located in one or multiple locations. CiscoWorks WLSE Express can manage up to 50 Cisco Aironet access points or, through an optional license upgrade, up to 100 Cisco Aironet access points. CiscoWorks WLSE Express provides an integrated, embedded AAA server for user authentication, making it an ideal solution for SMBs.</p>
	<p>Switching 100-250 Users (SMB Complete)</p> <p>Cisco Catalyst 2950 Series Cisco Catalyst 3560 Series Cisco Catalyst 2950 Series</p> <ul style="list-style-type: none"> • Fixed-configuration, stackable, and standalone switches for FE/GE connectivity • For networks that require additional security, advanced QoS, and high availability, enhanced image software delivers intelligent services such as rate limiting and security filtering 	<p>Switching 100-250 Users (SMB Enhanced)</p> <p>Cisco Catalyst 3750 Series Cisco Catalyst 3560 Series Cisco Catalyst 4500 Series Cisco Catalyst 3750 Series</p> <p>The Cisco Catalyst 3750 Series switch is an innovative product for midsize organizations and enterprise branch offices. Featuring Cisco StackWise™ technology, the switches improve LAN operating efficiency by combining ease of use and the highest resiliency available for stackable switches.</p> <p>Cisco StackWise technology is a revolutionary stacking architecture that brings high levels of resiliency, automation, and performance to stackable switches. With Cisco StackWise technology, customers can create a single, 32-Gbps switching unit with up to 9 Cisco Catalyst 3750 Series switches. Cisco StackWise technology</p>

Table 2: Solution Features for Main Business Location and Remote Sites

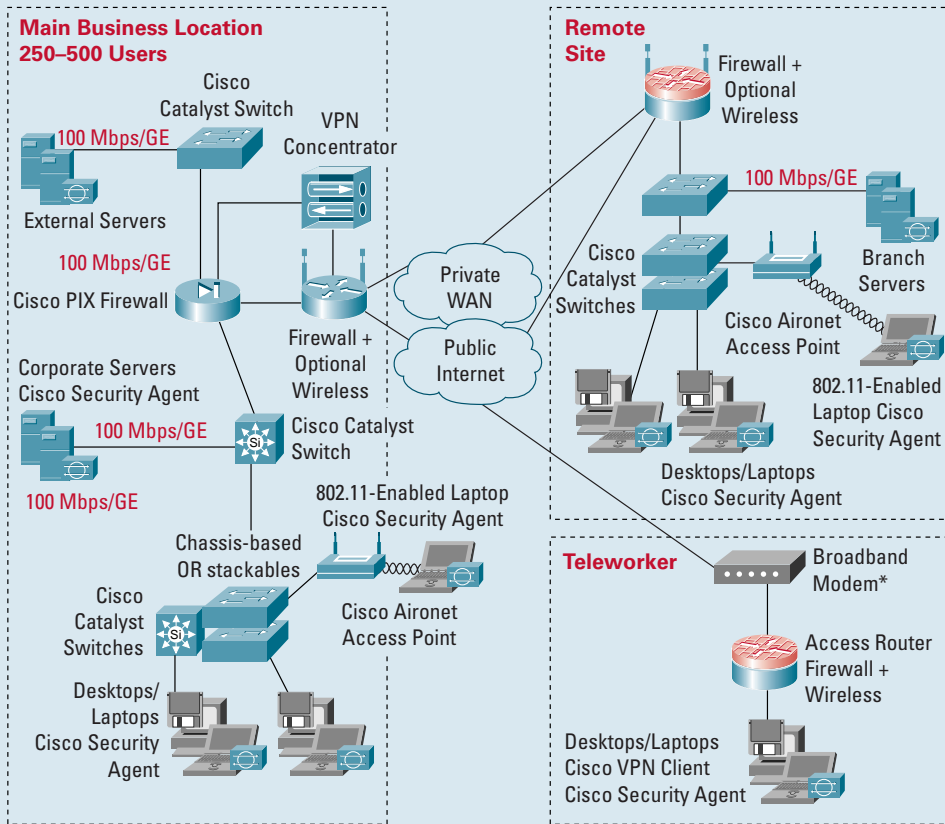
Main Location	100-250 Users (SMB Complete; Integrated)	100-250 Users (SMB Enhanced; External Firewall, VPN, and Voice Recommended)
	<p>Cisco Catalyst 3560 Series The Cisco Catalyst 3560 Series is a line of fixed-configuration switches that includes IEEE 802.3af and PoE in FE/GE configurations. The Cisco Catalyst 3560 switch is an ideal access-layer switch for LAN access or branch-office environments, combining both 10/100/1000 and PoE configurations for maximum productivity and investment protection while enabling the deployment of new applications such as IP telephony, wireless access, video surveillance, building management systems, and remote video kiosks.</p>	<p>supports both 10/100/1000 and PoE configurations for maximum productivity and investment protection while enabling the deployment of new applications such as IP telephony, wireless access, video surveillance, building management systems, and remote video kiosks.</p> <p>Cisco Catalyst 3560 The Cisco Catalyst 3560 Series is a line of fixed-configuration switches that includes IEEE 802.3af and PoE in FE/GE configurations. The Cisco Catalyst 3560 switch is an ideal access-layer switch for LAN access or branch-office environments, combining both 10/100/1000 and PoE configurations for maximum productivity and investment protection while enabling the deployment of new applications such as IP telephony, wireless access, video surveillance, building management systems, and remote video kiosks.</p> <p>Cisco Catalyst 4500 Series Chassis-based, high-density, high-performance switches offering wire-speed, multilayer 10/100/1000-Mbps switching, and PoE support.</p> <p>The Cisco Catalyst 4500 Series integrates nonblocking Layer 2-4 switching with optimal control, helping enable business resilience for enterprises and SMBs deploying business-critical applications.</p> <p>The Cisco Catalyst 4500 Series extends control to the network edge with intelligent network services, including sophisticated QoS, predictable performance, advanced security, and comprehensive management, delivering advanced control with integrated resiliency. Integrated resiliency in both hardware and software minimizes network downtime, helping to ensure workforce productivity, profitability, and customer success.</p> <p>The modular architecture, media flexibility, and expandability of the Cisco Catalyst 4500 Series extend deployment life while reducing the cost of ownership by minimizing recurring operational expenses and improving return on investment (ROI).</p>

Table 2: Solution Features for Main Business Location and Remote Sites

Main Location	100-250 Users (SMB Complete; Integrated)	100-250 Users (SMB Enhanced; External Firewall, VPN, and Voice Recommended)
Pay as you expand your network	Customers that need a mixture of 10/100 ports, 10/100/1000 ports, PoE, and wiring closet aggregation capabilities can incrementally develop their access environments, paying only for what they need.	
Intelligence made easy	<p>Simple, embedded management software helps users perform initial and basic setup with ease:</p> <ul style="list-style-type: none"> • Cisco Express Setup-Sets up the switch through a Web browser, eliminating the need to understand the CLI • Cisco Smartports-Can be used on all switches in the Cisco Catalyst Family, and offers a set of pretested, Cisco-recommended, switch port configuration templates to consistently and reliably configure essential security, availability, QoS, and manageability features with minimal effort and expertise. For more information on Smartports, visit http://www.cisco.com/go/smartports • Cisco Cluster Management Suite-A next-generation network management tool, integrating touchless software upgrades and installations that can be customized, thereby saving tremendous time and resources in deploying network intelligence at the edge. 	
High availability	Increase network uptime and employee productivity with rapid failover recovery, Layer 2 load balancing, bandwidth aggregation, redundancy, and simplified administration. Features include Cisco Spanning Tree Protocol enhancements, DTP, voice and VLAN capabilities, IGMP, and embedded Cisco Cluster Management Suite Software. For added feature availability, the optional Cisco RPS 675 Redundant Power System provides protection against internal power supply failures.	
Security	Increase LAN security with capabilities that secure network management traffic through the protection of passwords and configuration information. These capabilities offer options for network security based on users, ports, and MAC addresses and enable more immediate responses to intruder and hacker detection. Features include 802.1x with enhancements, private VLAN edge, port security, MAC address notification, and support for RADIUS and TACACS+.	
Solution Features for Teleworker or SMB Sites of up to 20 Users		
Broadband router	<p>Secure Cisco 850 Series routers (teleworkers and small remote offices) Increased performance to run concurrent, integrated services (data, QoS for voice and video, security, and wireless).</p> <p><i>Security</i> Basic security with integrated firewall and VPN or advanced security with integrated firewall, VPN, IPSs, and VLANs.</p> <p><i>Wireless 802.11</i> Secure wireless IEEE 802.11b/g; single, fixed antenna.</p>	<p>Secure Cisco 870 Series routers (teleworkers and small remote offices) Increased performance to run concurrent, integrated services (data, QoS for voice and video, security, and wireless).</p> <p><i>Security</i> Basic security with integrated firewall and VPN or advanced security with integrated firewall, VPN, IPSs, and VLANs.</p> <p><i>Wireless 802.11</i> Secure wireless IEEE 802.11b/g; single, fixed antenna.</p>

This reference blueprint provides a network diagram and product table for your main office, remote office, and teleworkers. This is only a suggested blueprint.

Figure 3: Network Diagram for SMBs with 250-500 User Ports per Site



* not required by all service providers

This network blueprint is intended to be an educational resource and a starting point in planning your network solution; it is not a final recommendation from Cisco. To determine the deployment most appropriate for your company we suggest you work with a Cisco representative, Cisco channel partner, or a solutions provider.

Product Table

This product table briefly describes Cisco networking solutions for SMBs with 250 to 500 user ports per site. It is intended to be a starting point in choosing Cisco products for your main business location, remote offices, and teleworkers.

Table 3: Solution Features for Main Business Location and Remote Sites

Main Location	250-500 Users (SMB Complete; External Hardware Firewall, VPN, and Voice Recommended)	250-500 Users (SMB Enhanced; External Hardware Firewall, VPN, and Voice Recommended)
Router	<p>Cisco 3825 integrated services routers Cisco 3825 integrated services routers provide high-performance routing, low-density switching, security, voice, IP telephony, voicemail, video, and network analysis in a single, integrated solution.</p> <p>The Cisco 3825 Integrated Services Router brings big-company capabilities to small businesses with its combination of integrated services (data, voice, and video), flexible LAN and WAN configurations, embedded security, high-performance processors, a router-integrated content-delivery system (requires optional module), and investment protection in a compact solution. This design enables SMBs to adapt incrementally to evolving business needs.</p> <p>The expandability and versatility of the Cisco 3825 Integrated Services Router lets you "integrate as you go," adding advanced services such as hardware-assisted data compression and router-integrated application optimization.</p> <p>Purpose-built for integrated service:</p> <p><i>Security</i> Onboard encryption, NAC, optional inline IPS, dynamically loaded signatures, more VPN tunnels, and high-performance firewalls.</p> <p><i>Voice</i> Optimized for large-enterprise branch IP telephony, voicemail, auto attendant, and conferencing needs. Featuring highest density levels for analog and digital voice, as well as legacy and dial aggregation.</p>	<p>Cisco 3845 integrated services routers The Cisco 3845 Integrated Services Router is the flagship of the Cisco Integrated Services Router portfolio, providing high-performance routing, low-density switching, security, voice, IP telephony, voicemail, video, and content networking in a single, integrated solution. This design enables SMBs to adapt incrementally to evolving business needs. By transparently integrating advanced technologies, adaptive services, and secure communications into a single, resilient system, Cisco 3845 integrated services routers ease deployment and management, lower network cost and complexity, and provide unmatched investment protection.</p> <p>Purpose-built for integrated service:</p> <p><i>Security</i> Onboard encryption, NAC, optional inline IPS, dynamically loaded signatures, more VPN tunnels, and high-performance firewalls.</p> <p><i>Voice</i> Optimized for large-enterprise branch IP telephony, voicemail, auto attendant, and conferencing needs. Featuring highest density levels for analog and digital voice, as well as legacy and dial aggregation.</p> <p><i>Comprehensive Layer 2 and Layer 3 services</i> FE/GE switch ports, VLANs, wireless, application optimization, PoE, wire speed for up to T3/E3 throughput.</p>

Table 3: Solution Features for Main Business Location and Remote Sites

Main Location	250-500 Users (SMB Complete; External Hardware Firewall, VPN, and Voice Recommended)	250-500 Users (SMB Enhanced; External Hardware Firewall, VPN, and Voice Recommended)
	<p><i>Comprehensive Layer 2 and Layer 3 services</i></p> <p>FE/GE switch ports, VLANs, wireless, application optimization, PoE, wire speed for up to T3/E3 throughput</p> <p><i>Maximum modularity and investment protection</i></p> <p>Provides 2 network module slots, which support any size network module-NM, NME, NME-X, NMD, or NME-XD; 4 single-width or 2 double-width HWIC slots; 2 AIM slots; 4 PVDM slots; 2 USB ports; and optional support for up to 24 ports of IP phone power output. Works with Cisco 1700, 2600, and 3700 Series NMs, VICs, and WICs.</p> <p><i>Scalability, density, and resiliency</i></p> <p>Highest levels of resiliency with optional inline power; scalable services and interfaces for future requirements. By transparently integrating advanced technologies, adaptive services, and secure communications into a single, resilient system, the Cisco 3825 Integrated Services Router eases deployment and management, lowers network cost and complexity, and provides unmatched investment protection. The modularity of the Cisco 3800 Series enables small businesses to update their networks as budgets and business application needs dictate.</p>	<p><i>Maximum modularity and investment protection</i></p> <p>Cisco 3845 routers provide 4 slots for network modules, and are capable of supporting up to 4 NM, NME, NME-X or 2 NMD, NME-XD; 4 single-width or 2 double-width HWIC slots; 2 AIM slots; 4 PVDM slots; 2 USB ports; and optional support of up to 48 ports of IP phone power output; works with Cisco 1700, 2600, and 3700 Series NMs, VICs, and WICs.</p> <p><i>Scalability, density, and resiliency</i></p> <p>Highest levels of resiliency with redundant power supply options, optional inline power, and hot-swappable NMs; scalable services and interfaces for future requirements.</p>
WAN services	Yes	Yes
Integrated content	Yes	Yes
	Network module	Network module
Access point (external)	<p>Cisco Aironet 1100 Series access points</p> <p>The Cisco Aironet 1100 Series delivers an affordable and upgradable WLAN solution, setting the enterprise standard for high-performance, secure, manageable, and flexible WLANs. The Cisco Aironet 1100 Series supports a single radio and is available in an IEEE 802.11a/g version or IEEE 802.11b version that is field-upgradable to 802.11g. The access point offers flexibility and investment protection for wireless</p>	<p>Cisco Aironet 1200 Series access points</p> <p>The Cisco Aironet 1200 Series is the flagship of the Cisco Aironet line, setting the enterprise standard for high-performance, secure, manageable, and flexible WLANs. The modular design of the Cisco Aironet 1200 Series allows single or dual radio configuration for up to 54-Mbps connectivity in both the 2.4- and 5-GHz bands and is fully compliant with the IEEE 802.11a/b/g standards. Providing</p>

Table 3: Solution Features for Main Business Location and Remote Sites

Main Location	250-500 Users (SMB Complete; External Hardware Firewall, VPN, and Voice Recommended)	250-500 Users (SMB Enhanced; External Hardware Firewall, VPN, and Voice Recommended)
	<p>networks. With the IEEE 802.11g version, users can enjoy up to 54-Mbps data rates while maintaining full backward compatibility with legacy 802.11b devices. Administrators can configure the access point to support both 802.11g and legacy 802.11b clients for investment protection or, for higher performance, it may be configured to support only 802.11g clients.</p> <p><i>*New*</i></p> <ul style="list-style-type: none"> oCisco Aironet 1130AG Series for offices and similar environments oSupport for the IEEE 802.11i security standard and WPA2 oWireless IDS partnership with air defense oCisco Compatible Extensions Version 3, including EAP-FAST oCisco IOS Software Release 12.3(2)JA Wireless management <p>CiscoWorks WLSE Express is the integrated security and management solution for managing Cisco Aironet access points located in one or multiple locations. CiscoWorks WLSE Express can manage up to 50 Cisco Aironet access points or, through an optional license upgrade, up to 100 Cisco Aironet access points. CiscoWorks WLSE Express provides an integrated, embedded AAA server for user authentication, making it an ideal solution for SMBs.</p>	<p>numerous configuration and upgrade options, the Cisco Aironet 1200 Series supports a variety of clients in mixed frequency and mixed throughput environments. Whether configured for single 802.11a coverage, single 802.11g coverage, 802.11b/g coverage. or for trimode 802.11a/b/g coverage, the Cisco Aironet 1200 Series offers the greatest flexibility and investment protection, allowing network administrators to deploy wireless networks optimized for their particular needs.</p> <p><i>*New*</i></p> <ul style="list-style-type: none"> • Cisco Aironet 1230AG Series for challenging RF environments • 802.11a radio modules for Cisco Aironet 1200 Series access points • Support for the IEEE 802.11i security standard and WPA2 • Wireless IDS partnership with air defense • Cisco Compatible Extensions Version 3, including EAP-FAST • Cisco IOS Software Release 12.3(2)JA <p><i>Wireless management</i></p> <p>CiscoWorks WLSE Express is the integrated security and management solution for managing Cisco Aironet access points located in one or multiple locations. CiscoWorks WLSE Express can manage up to 50 Cisco Aironet access points or, through an optional license upgrade, up to 100 Cisco Aironet access points. CiscoWorks WLSE Express also provides an integrated, embedded AAA server for user authentication, making it an ideal solution for SMBs.</p>

Table 3: Solution Features for Main Business Location and Remote Sites

Main Location	250-500 Users (SMB Complete; External Hardware Firewall, VPN, and Voice Recommended)	250-500 Users (SMB Enhanced; External Hardware Firewall, VPN, and Voice Recommended)
	Switching 250-500 Users (SMB Complete)	Switching 250-500 Users (SMB Enhanced)
External switch	<p>Cisco Catalyst 2950 Series Cisco Catalyst 3560 Series Cisco Catalyst 4500 Series Cisco Catalyst 2950 Series</p> <ul style="list-style-type: none"> Fixed-configuration, stackable, and standalone switches for FE/GE connectivity For networks that require additional security, advanced QoS, and high availability, enhanced image software delivers intelligent services such as rate limiting and security filtering <p>Cisco Catalyst 3560 Series The Cisco Catalyst 3560 Series is a line of fixed-configuration switches that include IEEE 802.3af and PoE in FE/GE configurations. The Cisco Catalyst 3560 switch is an ideal access-layer switch for LAN access or branch-office environments, combining both 10/100/1000 and PoE configurations for maximum productivity and investment protection while enabling the deployment of new applications such as IP telephony, wireless access, video surveillance, building management systems, and remote video kiosks.</p> <p>Cisco Catalyst 4500 Series Chassis-based, high-density, high-performance switches offering wire-speed, multilayer 10/100/1000-Mbps switching. Offers integrated resiliency, control, and intelligent services, including QoS, predictable performance, advanced security, and comprehensive management for converged network deployments.</p>	<p>Cisco Catalyst 3750 Series Cisco Catalyst 3560 Series Cisco Catalyst 4500 Series Cisco Catalyst 3750 Series</p> <p>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. Cisco StackWise technology is a revolutionary stacking architecture that brings high levels of resiliency, automation, and performance to stackable switches. With Cisco StackWise technology, customers can create a single, 32-Gbps switching unit with up to 9 Cisco Catalyst 3750 Series switches. Cisco StackWise technology supports both 10/100/1000 and PoE configurations for maximum productivity and investment protection while enabling the deployment of new applications such as IP telephony, wireless access, video surveillance, building management systems, and remote video kiosks.</p> <p>Cisco Catalyst 3560 Series The Cisco Catalyst 3560 Series is a line of fixed-configuration switches that includes IEEE 802.3af and PoE in FE/GE configurations. The Cisco Catalyst 3560 switch is an ideal access-layer switch for LAN access or branch-office environments, combining both 10/100/1000 and PoE configurations for maximum productivity and investment protection while enabling the deployment of new applications such as IP telephony, wireless access, video surveillance, building management systems, and remote video kiosks.</p>

Table 3: Solution Features for Main Business Location and Remote Sites

Main Location	250-500 Users (SMB Complete; External Hardware Firewall, VPN, and Voice Recommended)	250-500 Users (SMB Enhanced; External Hardware Firewall, VPN, and Voice Recommended)
		Cisco Catalyst 4500 Series Chassis-based, high-density, high-performance switches offering wire-speed, multilayer 10/100/1000-Mbps switching and PoE support. The Cisco Catalyst 4500 Series integrates nonblocking Layer 2-4 switching with optimal control, helping enable business resilience for enterprises and SMBs deploying business-critical applications. The Cisco Catalyst 4500 Series extends control to the network edge with intelligent network services, including sophisticated QoS, predictable performance, advanced security, and comprehensive management, delivering advanced control with integrated resiliency. Integrated resiliency in both hardware and software minimizes network downtime, helping to ensure workforce productivity, profitability, and customer success. The modular architecture, media flexibility, and expandability of the Cisco Catalyst 4500 Series extend deployment life while reducing the cost of ownership by minimizing recurring operational expenses and improving ROI.
Pay as you expand your network	Customers that need a mixture of 10/100 ports, 10/100/1000 ports, PoE, and wiring closet aggregation capabilities can incrementally develop their access environments, paying only for what they need.	
Intelligence made easy	Simple, embedded management software helps users perform initial and basic setup with ease: <ul style="list-style-type: none"> Cisco Express Setup—Sets up the switch through a Web browser, eliminating the need to understand the CLI Cisco Smartports—Can be used on all switches in the Cisco Catalyst Family and offers a set of pretested, Cisco-recommended, switch port configuration templates to consistently and reliably configure essential security, availability, QoS, and manageability features with minimal effort and expertise. For more info on Smartports, visit http://www.cisco.com/go/smartports Cisco Cluster Management Suite—A next-generation network management tool, integrating touchless software upgrades and installations that can be customized, thereby saving tremendous time and resources in deploying network intelligence at the edge 	

Table 3: Solution Features for Main Business Location and Remote Sites

Main Location	250-500 Users (SMB Complete; External Hardware Firewall, VPN, and Voice Recommended)	250-500 Users (SMB Enhanced; External Hardware Firewall, VPN, and Voice Recommended)
High availability	Increase network uptime and employee productivity with rapid failover recovery, Layer 2 load balancing, bandwidth aggregation, redundancy, and simplified administration. Features include Cisco SpanningTree Protocol enhancements, DTP, voice and VLAN capabilities, IGMP, and embedded Cisco Cluster Management Suite Software. For added feature availability, the optional Cisco RPS 675 Redundant Power System provides protection against internal power supply failures.	
Security	Increase LAN security with capabilities that secure network-management traffic through the protection of passwords and configuration information. These capabilities offer options for network security based on users, ports, and MAC addresses and enable more immediate responses to intruder and hacker detection. Features include 802.1x with enhancements, private VLAN edge, port security, MAC address notification, and support for RADIUS and TACACS+.	

Solution Features for Teleworker or SMB Sites of up to 20 Users

Broadband router	Secure Cisco 850 Series routers (teleworkers and small remote offices)	Secure Cisco 870 Series routers (teleworkers and small remote offices)
	<p data-bbox="268 704 632 797">Increased performance to run concurrent, integrated services (data, QoS for voice and video, security, and wireless).</p> <p data-bbox="268 808 352 829"><i>Security</i></p> <p data-bbox="268 841 632 933">Basic security with integrated firewall and VPN or advanced security with integrated firewall, VPN, IPSs, and VLANs.</p> <p data-bbox="268 945 422 966"><i>Wireless 802.11</i></p> <p data-bbox="268 977 632 1040">Secure wireless IEEE 802.11b/g; single, fixed antenna.</p>	<p data-bbox="653 704 1016 797">Increased performance to run concurrent, integrated services (data, QoS for voice and video, security, and wireless).</p> <p data-bbox="653 808 737 829"><i>Security</i></p> <p data-bbox="653 841 1016 933">Basic security with integrated firewall and VPN or advanced security with integrated firewall, VPN, IPSs, and VLANs.</p> <p data-bbox="653 945 806 966"><i>Wireless 802.11</i></p> <p data-bbox="653 977 1016 1040">Optional integrated IEEE 802.11b/g; secure WLAN; multiple options for antennas.</p>



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