

Cisco Small and Medium Business Class Solutions

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

Cisco SMB Class Solutions include intelligent application-enabling network services, innovative end-user applications, a solid network infrastructure, and responsive customer services, including financing, training, service, and support. Cisco SMB Class Solutions can help your business implement advanced applications without draining budgets, bandwidth, or staff.

Cisco SMB Class 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), delivered over the industry's most widely recognized routers and switches, provide “right-sized” and 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 network access to your company network with Cisco Aironet® access points

Cisco also provides the easy-to-use blueprints for extending network capability to support advanced applications in businesses from fewer than 20 users up to 1000 users. These blueprints are based on the Cisco extensive experience in creating networks for successful SMBs.

Cisco Network Foundation

Deploying the right network foundation is critical to competitiveness and profitability in the Internet era. Cisco networking solutions deliver wired and wireless intelligent services that address the business and technical challenges of SMBs by helping them increase business productivity, enhance information system resiliency, and reduce costs.

Cisco network foundation products include routers, switches, and wireless access points, which offer these advantages:

- Cisco is the worldwide leader in networking equipment with 90 percent of the router market and 60 percent of the switch market. Cisco IP-based networking solutions are the foundation of the Internet and most corporate, education, and government networks around the world.
- Cisco network foundations are designed for flexibility and scalability to support current requirements plus future applications, technologies, and growth.
- Using a cohesive solution yields bottom-line benefits ranging from tighter network security to easier manageability. Examples of important Cisco product synergies include:
 - Routers, switches, and wireless access points can all be configured (including quality of service [QoS] and security policies) and managed under one umbrella
 - Intelligent switches can recognize IP phone addresses and automatically place them in the proper voice VLANs
 - Common software and management tools reduce the cost and time associated with training and maintenance
- Cisco products are designed for high availability, to safeguard business operations, and to lower total cost of ownership.
- Cisco network foundation solutions provide increased business resiliency by detecting and preventing network security threats.
- The QoS features embedded in Cisco routers and switches classify, prioritize, and control network traffic, helping to ensure that time-sensitive applications such as voice and video are handled first while lower-priority applications continue to run reliably. QoS enables applications to perform better while maximizing network and bandwidth resources.
- Cisco network foundation solutions are backed by the company's award-winning technical support services, which help to ensure ease of installation, maintenance, and support of your network.
- The network of qualified Cisco resellers and partners provides solid expertise and numerous management options.
- Cisco redefines best in class routing with the industry's FIRST portfolio engineered for secure, wire-speed delivery of concurrent data, voice, and video services.

- The Cisco integrated systems approach to embedded services speeds application deployment and reduces operating costs and complexity.
- Founded on more than 20 years of innovation and leadership—FIRST to embed security and voice services into a single routing system.
- Integrated Services Routers provide customers with unparalleled services performance and investment protection.

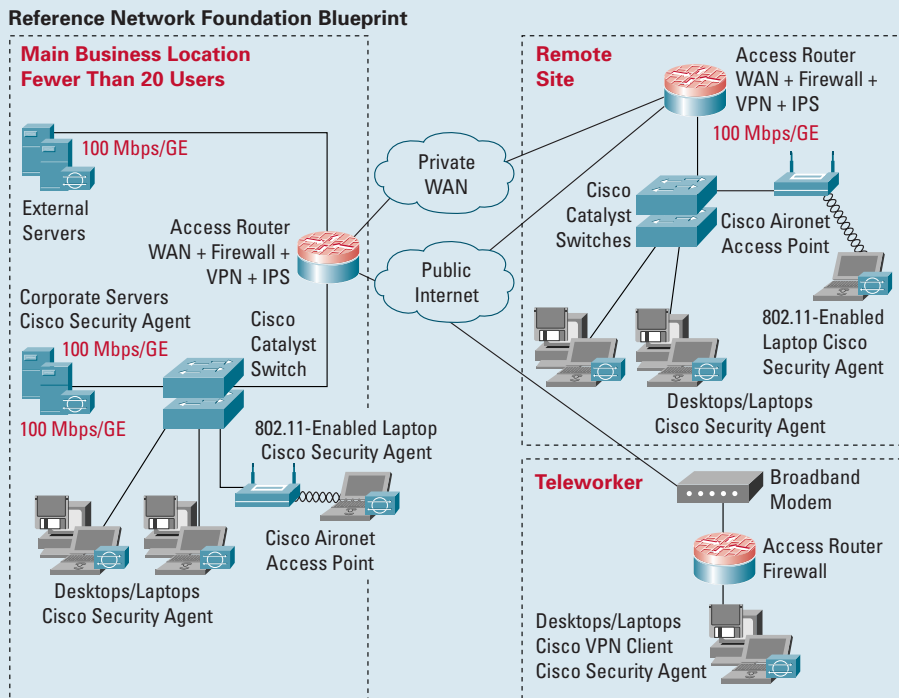
Cisco network foundation blueprints for SMBs are formulated according to size:

- Network Foundation Blueprint: fewer than 20 user ports per site
- Network Foundation Blueprint: 20 to 50 user ports per site
- Network Foundation Blueprint: 50 to 100 user ports per site
- Network Foundation Blueprint: 100 to 250 user ports per site
- Network Foundation Blueprint: 250 to 500 user ports per site
- Network Foundation Blueprint: 500 to 1000 user ports per site

Introduction

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 Fewer Than 20 User Ports per Site



Note: See footnote to Figure 6.

Product Table

This product table briefly describes Cisco solutions for SMBs with fewer than 20 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

	Fewer Than 20 Users (SMB Complete)	Fewer Than 20 Users (SMB Enhanced)
Router	<p>Cisco 1841 Integrated Services Router</p> <p>This Modular Integrated Service Router, powered by Cisco IOS® Software, supports high performance, Secure wired and wireless data/voice/video.</p> <p>The Cisco 1841 Integrated Service Router is an economical and highly flexible solution for a small business looking for secure Internet and intranet</p>	<p>Cisco 2801 Integrated Services Router</p> <p>This entry-level rack-mount router, powered by Cisco IOS Software, supports multiservice data/voice/video/fax integration and features VLAN and VPN support, multiple WAN access options, and more.</p> <p>The Cisco 2801 Integrated Services Router is an economical and highly flexible solution for a small business looking for secure Internet and intranet access for its main business location.</p> <p>Security</p> <ul style="list-style-type: none"> On-board encryption, up to 500 VPN tunnels, 1200 intrusion detection systems (IDS) signatures Network Admission Control (NAC) <p>Voice</p> <ul style="list-style-type: none"> Up to 1 T1/E1 Voice support for branch offices, designed for low density IP Telephony, and Voice Mail <p>Deployment Flexibility</p> <ul style="list-style-type: none"> Desktop or 19" Form Factors, FE Switch Ports, VLANs, Wireless, POE <p>Enhanced Modularity for Investment Protection</p> <ul style="list-style-type: none"> More slots for advanced services via AIM, HWIC, VIC, WIC options <p>Optimized Services Performance</p> <ul style="list-style-type: none"> Wire-speed services provide up to 500% performance improvement over Cisco 1700 <p>Scalability and Resiliency</p> <ul style="list-style-type: none"> Inline power for IP phones Scalable services and interface options allow growth

Table 1: Solution Features for Main Business Location (Continued)

	Fewer Than 20 Users (SMB Complete)	Fewer Than 20 Users (SMB Enhanced)
WAN services	Yes	Yes
Integrated LAN switch	Yes	Yes
Integrated security	Yes Cisco IOS Firewall Cisco IOS IDS	Yes Cisco IOS Firewall Hardware VPN accelerator Cisco IOS and NM IDS
Integrated content engine	No	No
Access Point (External)	<p>Cisco Aironet 1100 Series The Cisco Aironet 1100 Series delivers an affordable and upgradable wireless LAN (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 802.11g 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 1100 Series 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 802.11g 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>
External switch	<p>Cisco Catalyst® 3550 Series</p> <ul style="list-style-type: none"> Stackable, multilayer switch, that provides high availability, QoS, and security to enhance network operations Serves as both a powerful access layer switch for wiring closets and as a backbone switch for midsize networks 	<p>Cisco Catalyst 3560 Series</p> <ul style="list-style-type: none"> All the advance Layer 2–4 intelligent services available in the Cisco Catalyst 3550 plug integrated IEEE 802.3af standard compliant Power over Ethernet (PoE) Lowers the cost of ownership providing power on every 10/100-Mbps port for IP telephony and wireless LAN deployments

Table 1: Solution Features for Main Business Location (Continued)

	Fewer Than 20 Users (SMB Complete)	Fewer Than 20 Users (SMB Enhanced)
External switch (continued)	<p>Cisco Catalyst 2950 Series</p> <ul style="list-style-type: none"> Fixed-configuration, stackable, and standalone switches for Fast Ethernet and Gigabit Ethernet 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 3550 Series</p> <ul style="list-style-type: none"> Stackable, multilayer switch that provides high availability, QoS, and security to enhance network operations Serves as both a powerful access layer switch for wiring closets and as a backbone switch for midsize networks
Pay as You Expand Your Network	Customers who need a mixture of 10/100, 10/100/1000 ports, PoE, and wiring closet aggregation capability can incrementally develop the access environment, paying only for what they need.	
Intelligence Made Easy	<p>Simple Embedded Management Software helps users perform initial and basic setup with minimal setup</p> <ul style="list-style-type: none"> Cisco Express Setup—set up the switch through a Web browser, eliminating the need to understand the command-line interface (CLI) Smartports is a cross-Catalyst solution that offers a set of pre-tested, Cisco-recommended, switch port configurations templates to consistently and reliably configure essential Security, Availability, (QoS) and Manageability features with minimal effort and expertise. For more info on Smartports, please go to http://www.cisco.com/go/smartports The Cisco Cluster Management Suite next-generation network management tool, integrates touchless software upgrades and customizable installations 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. Key features include Cisco Spanning-Tree Protocol enhancements, Dynamic Trunking Protocol, voice VLAN capabilities, Internet Group Management Protocol, and embedded Cisco Cluster Management Suite Software. For added feature availability, the Cisco Redundant Power System 675 provides seamless protection against Internal power supply failures (optional).	
Security	Increase LAN security with capabilities that secure network management traffic through the protection of passwords and configuration information; that offer options for network security based on users, ports, and MAC addresses; and that enable more immediate responses to intruder and hacker detection. Key features include 802.1x with enhancements, private VLAN edge, port security, MAC address notification, and support for RADIUS and TACACS+.	

Solution Features for Remote Sites

	Fewer Than 10 Users (SMB Complete)	Fewer Than 10 Users (SMB Enhanced)
Router	<p>Cisco 1700 Fixed access routers This fixed configuration router, powered by Cisco IOS Software, offers dual-WAN redundancy with built-in 10/100 switch and comprehensive network security. The Cisco 1700 (fixed configuration) routers deliver integrated network security services including hardware accelerated IPSec VPN, stateful firewall with URL filtering, and IDS to protect the network and secure data traveling over the Internet. The Cisco series fixed Access Router is an economical and highly flexible solution for a small business looking for secure Internet and intranet access for its remote location.</p> <p>Security High Performance Security Services Secure broadband access Manageable, Integrated 4-port Switch</p> <p>Broadband Variety of DSL and Ethernet access with integrated ISDN/V.90 back up</p> <p>Manageability Variety of needs based management Options such as CiscoWorks and SDM Cisco IOS features—extensive debugging, syslog features and Out-of-Band management</p> <p>Scalability Config Express, IE2100, Easy VPN, SDM</p>	<p>Cisco 1841 Integrated Services Router This entry-level rack-mount router, powered by Cisco IOS Software, supports multiservice data/voice/video/fax integration and features VLAN and VPN support, multiple WAN access options, and more. The Cisco 1841 Integrated Services Router is an economical and highly flexible solution for a small business looking for secure Internet and intranet access for its remote location.</p>
WAN services	Yes Broadband (xDSL/Cable), Ethernet, VPN	Yes T1/E1, Broadband (xDSL/Cable), Leased Line, Frame Relay, VPN
Integrated LAN switch	Yes PoE, 802.1p,q STP	Yes 802.1p,q STP
Integrated security	Yes Cisco IOS Firewall Cisco IOS VPN (AES/3DES) Cisco IOS IPS Easy VPN, DMVPN	Yes Cisco IOS Firewall H/W VPN accelerator (AES/3DES) Cisco IOS IPS Easy VPN, DMVPN, Network Admission Control

Solution Features for Remote Sites (Continued)

	Fewer Than 10 Users (SMB Complete)	Fewer Than 10 Users (SMB Enhanced)
Integrated content	No	No
Access Point (External)	<p>Cisco Aironet 1100 Series 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 802.11g 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 1100 Series 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 802.11g 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>
External switch	<p>Cisco Catalyst 3550 Series</p> <ul style="list-style-type: none"> Stackable, multilayer switch that provides high availability, QoS, and security to enhance network operations Serves as both a powerful access layer switch for wiring closets and as a backbone switch for midsize networks <p>Cisco Catalyst 2950 Series</p> <ul style="list-style-type: none"> Fixed-configuration, stackable, and standalone switches for Fast Ethernet and Gigabit Ethernet 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</p> <ul style="list-style-type: none"> All the advance Layer 2–4 intelligent services available in the Cisco Catalyst 3550 plug integrated IEEE 802.3af standard compliant PoE Lowers the cost of ownership providing power on every 10/100-Mbps port for IP telephony and wireless LAN deployments <p>Cisco Catalyst 3550 Series</p> <ul style="list-style-type: none"> Stackable, multilayer switch that provides high availability, QoS, and security to enhance network operations Serves as both a powerful access layer switch for wiring closets and as a backbone switch for midsize networks
Pay as You Expand Your Network	Customers who need a mixture of 10/100, 10/100/1000 ports, PoE, and wiring closet aggregation capability can incrementally develop the access environment, paying only for what they need.	

Solution Features for Remote Sites (Continued)

	Fewer Than 10 Users (SMB Complete)	Fewer Than 10 Users (SMB Enhanced)
Intelligence Made Easy	<p>Simple Embedded Management Software helps users perform initial and basic setup with minimal setup</p> <ul style="list-style-type: none"> • Cisco Express Setup—set up the switch through a Web browser, eliminating the need to understand the CLI • Smartports is a cross-Catalyst solution that offers a set of pre-tested, Cisco-recommended, switch port configurations templates to consistently and reliably configure essential Security, Availability, QoS and Manageability features with minimal effort and expertise. For more info on Smartports, please go to http://www.cisco.com/go/smartports • The Cisco Cluster Management Suite next-generation network management tool, integrates touchless software upgrades and customizable installations thereby saving tremendous time and resources in deploying network intelligence at the edge. 	
High Availability	<p>Increase network uptime and employee productivity with rapid failover recovery, Layer 2 load balancing, bandwidth aggregation, redundancy, and simplified administration. Key features include Cisco Spanning-Tree Protocol enhancements, Dynamic Trunking Protocol, voice VLAN capabilities, Internet Group Management Protocol, and embedded Cisco Cluster Management Suite Software. For added feature availability, the Cisco Redundant Power System 675 provides seamless protection against Internal power supply failures (optional).</p>	
Security	<p>Increase LAN security with capabilities that secure network management traffic through the protection of passwords and configuration information; that offer options for network security based on users, ports, and MAC addresses; and that enable more immediate responses to intruder and hacker detection. Key features include 802.1x with enhancements, private VLAN edge, port security, MAC address notification, and support for RADIUS and TACACS+.</p>	

Solution Features for Teleworker or SMB Sites of up to 5 Users

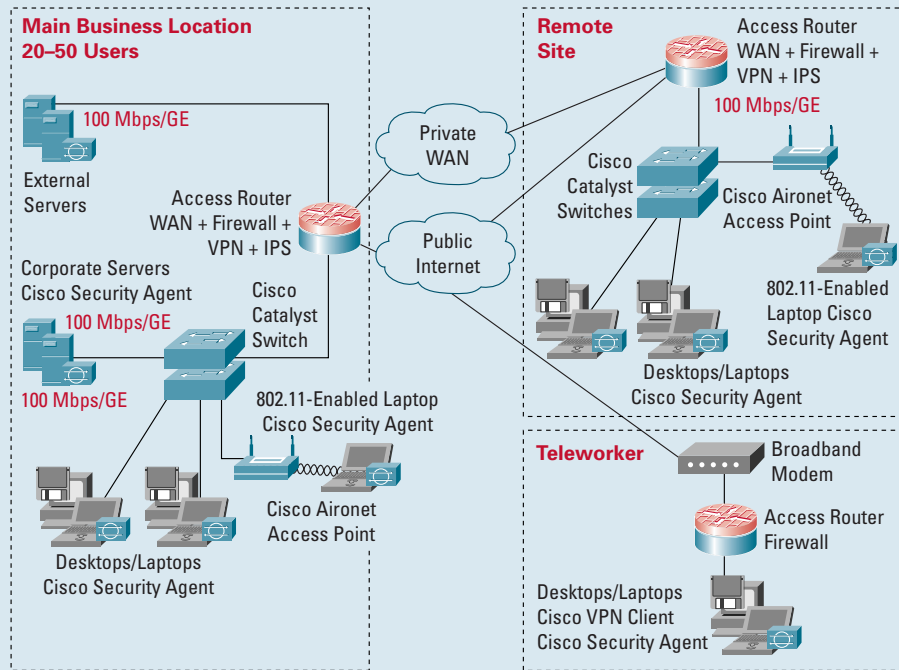
Broadband router	Cisco SOHO Series (Single-site Small Business)	Cisco 800 Series secure routers (Teleworker and Small Remote Office)
	<p>The Cisco SOHO Series provides affordable, secure, multi-user access for small-office and home-office customers while reducing deployment and operational costs for small and medium-sized businesses.</p> <p>Cisco SOHO Series allows up to five in a small office to share a secure broadband connection with an integrated stateful inspection firewall, strong encryption for VPN, and easy set-up with a Web-based setup tool.</p>	<p>Cisco 800 Series routers provide secure Internet and corporate network connectivity to teleworkers and small remote offices. This router series offers a wide range of integrated security services, QoS for high-quality data, voice, and video applications and easy deployment and management. They deliver the industry's lowest total cost of ownership for connecting teleworkers and small remote offices to the corporate network.</p> <p>The Cisco New 800 Series empowers teleworkers and small remote offices with a secure data, voice, and video connection offering the same level of access to the network as they enjoy in the corporate office.</p> <p>Enhanced support for VPN, DMVPN, Stateful firewall, IDS, and URL filtering</p> <p>Port-based VLAN for DMZ and 802.1x NAC</p> <p>Wireless Access Combines manageability and scalability features of Cisco IOS integrated with secure, 802.11 g Wireless access</p> <p>QoS QoS for Voice (VoIP) and Multicast (V³PN)No voice support/no voice interface card support</p> <p>Broadband Offers options based on xDSL or Cable</p> <p>Manageability Variety of needs based management Options such as CiscoWorks and SDM</p> <p>Cisco IOS features—extensive debugging, syslog features and Out-of-Band management</p> <p>Scalability Easy VPN, SDM, CRWS</p>

Introduction

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 20 to 50 User Ports per Site

Reference Network Foundation Blueprint



Note: See footnote to Figure 6.

Product Table

This product table describes Cisco networking solutions for SMBs with 20 to 50 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

	20-50 Users (SMB Complete)	20-50 Users (SMB Enhanced)
Router	<p>Cisco 2801 Integrated Services Router</p> <p>This entry-level rack-mount router, powered by Cisco IOS Software, supports multiservice data/voice/video/fax integration and features VLAN and VPN support, multiple WAN access options, and more.</p> <p>The Cisco 2801 Integrated Services Router is an economical and highly flexible solution for a small business looking for secure Internet and intranet access for its main business location.</p>	<p>Cisco 2811 Integrated Services Router</p> <p>The Cisco 2800 Series of Integrated Services Routers brings big-company capabilities to small businesses with its award-winning combination of multiservice integration (data/voice/video/fax), flexible LAN and WAN configurations, security options, range of high-performance processors, 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 network as budget and business application needs dictate.</p> <p>Purpose-built for Integrated Services Security</p> <ul style="list-style-type: none"> On-board encryption, NAC, Inline IPS, Dynamically-loaded signatures More VPN tunnels, high performance firewalls <p>Voice</p> <ul style="list-style-type: none"> Designed for medium density; IP Telephony; Voice Mail, Auto Attendant and Conferencing needs <p>Comprehensive L2 and L3 services</p> <ul style="list-style-type: none"> FE/GE Switch Ports, VLANs, Application Optimization, POE Wire-speed concurrent services and headroom to grow

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

	20–50 Users (SMB Complete)	20–50 Users (SMB Enhanced)
Router (continued)		<p>Modularity and Investment Protection More slots for advanced services via NM, NME, NME-X, NME-XD support with PVDM and AIM modules; works with previous 1700, 2600 and 3700 interfaces, adds New services</p> <p>Scalability, Density, and Resiliency Inline IP phone power, online insertion and Scalable services and interface options for growth.</p>
WAN services	Yes	Yes
Integrated switch	Yes	Yes
Integrated security	Yes Cisco IOS Firewall Cisco IOS VPN Cisco IOS IDS	Yes Cisco IOS Firewall H/W VPN accelerator Cisco IOS and NM IDS
Integrated content	No	Yes/Network Module
Access Point	<p>Cisco Aironet 1100 Series 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 802.11g 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 1100 Series 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 802.11g 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>

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

	20–50 Users (SMB Complete)	20–50 Users (SMB Enhanced)
External switch	<p>Cisco Catalyst 3550 Series</p> <ul style="list-style-type: none"> Stackable, multilayer switch that provides high availability, QoS, and security to enhance network operations Serves as both a powerful access layer switch for wiring closets and as a backbone switch for midsize networks <p>Cisco Catalyst 2950 Series</p> <ul style="list-style-type: none"> Fixed-configuration, stackable, and standalone switches for Fast Ethernet and Gigabit Ethernet 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</p> <ul style="list-style-type: none"> All the advance Layer 2–4 intelligent services available in the Catalyst 3550 plug integrated IEEE 802.3af standard compliant PoE Lowers the cost of ownership providing power on every 10/100-Mbps port for IP telephony and wireless LAN deployments <p>Cisco Catalyst 3550 Series</p> <ul style="list-style-type: none"> Stackable, multilayer switch that provides high availability, QoS, and security to enhance network operations Serves as both a powerful access layer switch for wiring closets and as a backbone switch for midsize networks
Pay as You Expand Your Network	Customers who need a mixture of 10/100, 10/100/1000 ports, Power over Ethernet, and wiring closet aggregation capability can incrementally develop the access environment, paying only for what they need.	
Intelligence Made Easy	<p>Simple Embedded Management Software helps users perform initial and basic setup with minimal setup</p> <ul style="list-style-type: none"> Cisco Express Setup—set up the switch through a Web browser, eliminating the need to understand the CLI Smartports is a cross-Catalyst solution that offers a set of pre-tested, Cisco-recommended, switch port configurations templates to consistently and reliably configure essential Security, Availability, QoS and Manageability features with minimal effort and expertise. For more info on Smartports, please go to http://www.cisco.com/go/smartports The Cisco Cluster Management Suite next-generation network management tool, integrates touchless software upgrades and customizable installations 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. Key features include Cisco Spanning-Tree Protocol enhancements, Dynamic Trunking Protocol, voice VLAN capabilities, Internet Group Management Protocol, and embedded Cisco Cluster Management Suite Software. For added feature availability, the Cisco Redundant Power System 675 provides seamless protection against Internal power supply failures (optional).	

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

	20–50 Users (SMB Complete)	20–50 Users (SMB Enhanced)
Security	Increase LAN security with capabilities that secure network management traffic through the protection of passwords and configuration information; that offer options for network security based on users, ports, and MAC addresses; and that enable more immediate responses to intruder and hacker detection. Key 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 5 Users

Broadband router	<p>Cisco SOHO Series (Single-site Small Business) The Cisco SOHO Series provides affordable, secure, multi-user access for small-office and home-office customers while reducing deployment and operational costs for small and medium-sized businesses.</p> <p>Cisco SOHO Series allows up to five in a small office to share a secure broadband connection with an integrated stateful inspection firewall, strong encryption for VPN, and easy set-up with a Web-based setup tool.</p>	<p>Cisco 800 Series secure routers (Teleworker and Small Remote Office) Cisco 800 Series routers provide secure Internet and corporate network connectivity to teleworkers and small remote offices. This router series offers a wide range of integrated security services, QoS for high-quality data, voice, and video applications and easy deployment and management. They deliver the industry's lowest total cost of ownership for connecting teleworkers and small remote offices to the corporate network.</p> <p>The Cisco New 800 Series empowers teleworkers and small remote offices with a secure data, voice, and video connection offering the same level of access to the network as they enjoy in the corporate office.</p> <p>Enhanced support for VPN, DMVPN, Stateful firewall, IDS, and URL filtering</p> <p>Port-based VLAN for DMZ and 802.1x NAC</p> <p>Wireless Access Combines manageability and scalability features of Cisco IOS integrated with secure, 802.11 g Wireless access</p> <p>QoS QoS for Voice (VoIP) and Multicast (V³PN) No voice support/no voice interface card support</p> <p>Broadband Offers options based on xDSL or Cable</p>
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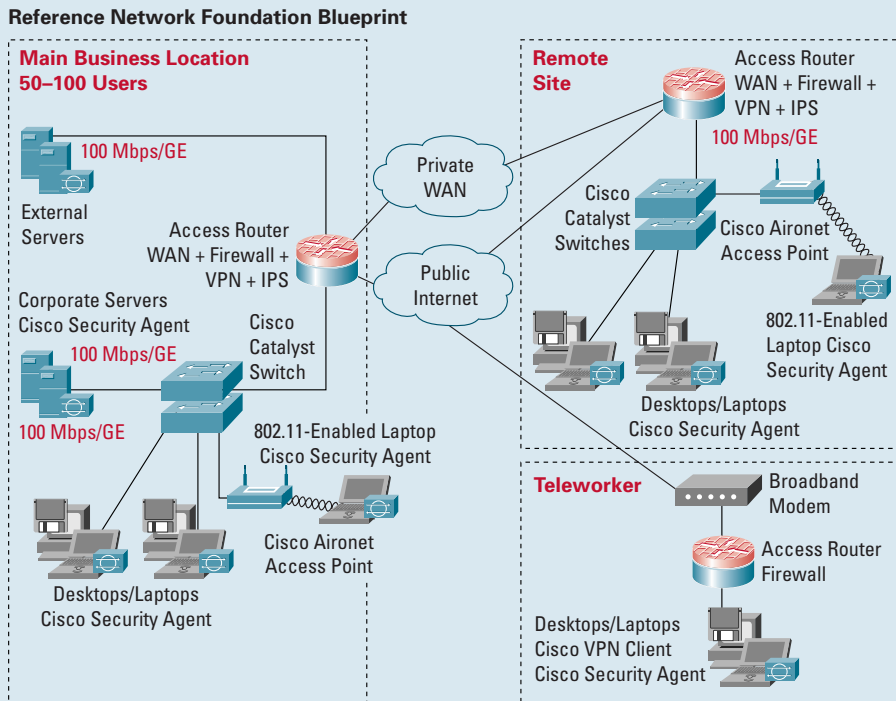
Solution Features for Teleworker or SMB Sites of up to 5 Users (Continued)

Broadband router (continued)	<p>Manageability Variety of needs based management Options such as CiscoWorks and SDM</p> <p>Cisco IOS features—extensive debugging, syslog features and Out-of-Band management</p> <p>Scalability Easy VPN, SDM, CRWS</p>
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Introduction

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 50 to 100 User Ports per Site



Note: See footnote to Figure 6.

Product Table

This product table briefly describes Cisco solutions for businesses requiring 50 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 3: Solution Features for Main Business Location Site and Remote Sites

	50-100 Users (SMB Complete)	50-100 Users (SMB Enhanced)
Router	<p>Cisco 2811 Integrated Services Router</p> <p>The Cisco 2800 Series of Integrated Services Router brings big-company capabilities to small businesses with its award-winning combination of multiservice integration (data/voice/video/fax), flexible LAN and WAN configurations, security options, range of high-performance processors, 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 network as budget and business application needs dictate.</p>	<p>Cisco 2851 Integrated Services Router</p> <p>The Cisco 2800 Series Integrated Services Routers brings big-company capabilities to small businesses with its award-winning combination of multiservice integration (data/voice/video/fax), flexible LAN and WAN configurations, security options, range of high-performance processors, 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 network as budget and business application needs dictate.</p> <p>Security On-board encryption, NAC, Inline IPS, Dynamically-loaded signatures More VPN tunnels, high performance firewalls</p> <p>Voice Designed for medium density; IP Telephony; Voice Mail, Auto Attendant and Conferencing needs</p> <p>Comprehensive L2 and L3 services FE/GE Switch Ports, VLANs, Application Optimization, POE</p> <p>Wire-speed concurrent services and headroom to grow</p>

Table 3: Solution Features for Main Business Location Site and Remote Sites (Continued)

	50–100 Users (SMB Complete)	50–100 Users (SMB Enhanced)
Router (continued)		<p>Modularity and Investment Protection More slots for advanced services via NM, NME, NME-X, NME-XD support with PVDM and AIM modules; works with previous 1700, 2600, and 3700 interfaces, adds New services</p> <p>Scalability, Density, and Resiliency 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	Yes Cisco IOS Firewall Cisco IOS VPN Cisco IOS IDS	Yes Cisco IOS Firewall H/W VPN accelerator Cisco IOS and NM IDS
Integrated content	Yes/Network module	Yes/Network module
Access Point (External)	<p>Cisco Aironet 1100 Series 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 802.11g 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 The Cisco Aironet 1200 Series is the flagship of the Aironet line, setting the enterprise standard for high performance, secure, manageable and flexible WLANs. The modular design of the Cisco Aironet 1200 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, 802.11b, and 802.11g 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 tri-mode 802.11a/b/g coverage, the Cisco Aironet 1200 offers the greatest flexibility and investment protection allowing network administrators to deploy a wireless network optimized for their particular application.</p>

Table 3: Solution Features for Main Business Location Site and Remote Sites (Continued)

	50–100 Users (SMB Complete)	50–100 Users (SMB Enhanced)
External switch	<p>Cisco Catalyst 3550 Series</p> <ul style="list-style-type: none"> Stackable, multilayer switch, that provides high availability, QoS, and security to enhance network operations Serves as both a powerful access layer switch for wiring closets and as a backbone switch for midsize networks <p>Cisco Catalyst 2950 Series</p> <ul style="list-style-type: none"> Fixed-configuration, stackable, and standalone switches for Fast Ethernet and Gigabit Ethernet 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</p> <ul style="list-style-type: none"> All the advance Layer 2–4 intelligent services available in the Catalyst 3550 plug integrated IEEE 802.3af standard compliant PoE Lowers the cost of ownership providing power on every 10/100-Mbps port for IP telephony and wireless LAN deployments <p>Cisco Catalyst 3550 Series</p> <ul style="list-style-type: none"> Stackable, multilayer switch that provides high availability, QoS, and security to enhance network operations Serves as both a powerful access layer switch for wiring closets and as a backbone switch for midsize networks
Pay as You Expand Your Network	Customers who need a mixture of 10/100, 10/100/1000 ports, PoE, and wiring closet aggregation capability can incrementally develop the access environment, paying only for what they need.	
Intelligence Made Easy	<p>Simple Embedded Management Software helps users perform initial and basic setup with minimal setup</p> <ul style="list-style-type: none"> Cisco Express Setup—set up the switch through a Web browser, eliminating the need to understand the CLI Smartports is a cross-Catalyst solution that offers a set of pre-tested, Cisco-recommended, switch port configurations templates to consistently and reliably configure essential Security, Availability, QoS and Manageability features with minimal effort and expertise. For more info on Smartports, please go to http://www.cisco.com/go/smartports The Cisco Cluster Management Suite next-generation network management tool, integrates touchless software upgrades and customizable installations 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. Key features include Cisco Spanning-Tree Protocol enhancements, Dynamic Trunking Protocol, voice VLAN capabilities, Internet Group Management Protocol, and embedded Cisco Cluster Management Suite Software. For added feature availability, the Cisco Redundant Power System 675 provides seamless protection against Internal power supply failures (optional).	

Table 3: Solution Features for Main Business Location Site and Remote Sites (Continued)

	50–100 Users (SMB Complete)	50–100 Users (SMB Enhanced)
Security	Increase LAN security with capabilities that secure network management traffic through the protection of passwords and configuration information; that offer options for network security based on users, ports, and MAC addresses; and that enable more immediate responses to intruder and hacker detection. Key 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 5 Users

Broadband router	Cisco SOHO Series (Single-site Small Business)	Cisco 800 Series secure routers (Teleworker and Small Remote Office)
	<p>The Cisco SOHO Series provides affordable, secure, multi-user access for small-office and home-office customers while reducing deployment and operational costs for small and medium-sized businesses.</p> <p>Cisco SOHO Series allows up to five in a small office to share a secure broadband connection with an integrated stateful inspection firewall, strong encryption for VPN, and easy set-up with a Web-based setup tool.</p>	<p>Cisco 800 Series routers provide secure Internet and corporate network connectivity to teleworkers and small remote offices. This router series offers a wide range of integrated security services, QoS for high-quality data, voice, and video applications and easy deployment and management. They deliver the industry's lowest total cost of ownership for connecting teleworkers and small remote offices to the corporate network.</p> <p>The Cisco New 800 Series empowers teleworkers and small remote offices with a secure data, voice, and video connection offering the same level of access to the network as they enjoy in the corporate office.</p> <p>Enhanced support for VPN, DMVPN, Stateful firewall, IDS, and URL filtering</p> <p>Port-based VLAN for DMZ and 802.1x NAC</p> <p>Wireless Access Combines manageability and scalability features of Cisco IOS integrated with secure, 802.11 g Wireless access</p> <p>QoS QoS for Voice (VoIP) and Multicast (V³PN) No voice support/no voice interface card support</p>

Solution Features for Teleworker or SMB Sites of up to 5 Users (Continued)

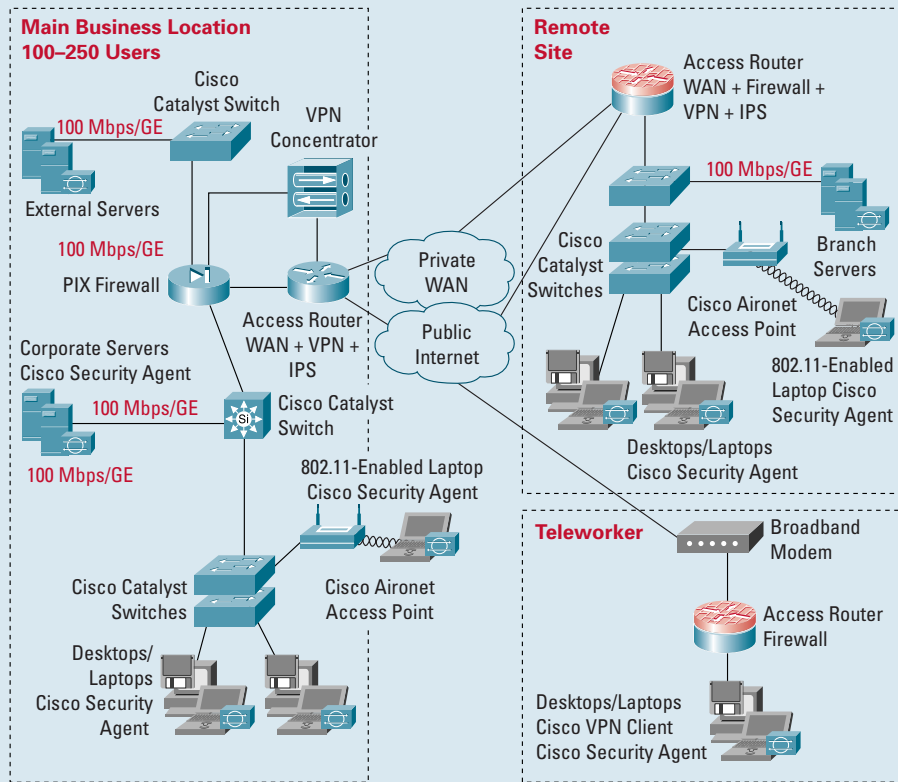
Broadband router (continued)	<p>Broadband Offers options based on xDSL or Cable</p> <p>Manageability Variety of needs based management Options such as CiscoWorks and SDM</p> <p>Cisco IOS features—extensive debugging, syslog features and Out-of-Band management</p> <p>Scalability Easy VPN, SDM, CRWS</p>
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Introduction

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

Figure 4: Network Diagram for SMBs with 100 to 250 User Ports per Site

Reference Network Foundation Blueprint



Note: See footnote to Figure 6.

Product Table

This product table briefly describes Cisco solutions for businesses 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. Cisco offers a choice of integrated, all-in-one products and dedicated appliances, giving you the flexibility to create a “right-sized” infrastructure that meets your specific business and budget needs.

Table 4: Solution Features for Main Business Location and Remote Location

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 Router</p> <p>The Cisco 3845 Integrated Services Router is the flagship of the Access portfolio, providing high-performance routing, low-density switching, security, voice, IP telephony, voice mail, video, and content networking in a single, integrated solution. This design enables small and medium-sized businesses 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 routers eases deployment and management, lowers network cost and complexity, and provide unmatched investment protection.</p> <p>Purpose-built for Integrated Service Security</p> <p>On-board encryption, NAC, Optional Inline IPS, Dynamically-loaded signatures, greater VPN tunnels, and high performance firewalls</p> <p>Voice</p> <p>Optimized for large enterprise branch IP Telephony, Voice Mail, Auto Attendant and Conferencing needs. Featuring highest density levels for analog/digital voice, legacy/dial aggregation</p>	<p>Cisco 2851 Integrated Services Router</p> <p>The Cisco 2800 Series of Integrated Services Routers brings big-company capabilities to small businesses with its award-winning combination of multiservice integration (data/voice/video/fax), flexible LAN and WAN configurations, security options, range of high-performance processors, 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 network as budget and business application needs dictate.</p> <p>Security</p> <p>On-board encryption, NAC, Inline IPS, Dynamically-loaded signatures</p> <p>More VPN tunnels, high performance firewalls</p> <p>Voice</p> <p>Designed for medium density; IP Telephony; Voice Mail, Auto Attendant and Conferencing needs</p> <p>Comprehensive L2 and L3 services</p> <p>FE/GE Switch Ports, VLANs, Application Optimization, POE</p> <p>Wire-speed concurrent services and headroom to grow</p>

Table 4: Solution Features for Main Business Location and Remote Location (Continued)

Main Location	100–250 Users (SMB Complete) (Integrated)	100–250 Users (SMB Enhanced) (External Firewall, VPN, and Voice Recommended)
Router (continued)	<p>Cisco Comprehensive L2 and L3 services FE/GE Switch Ports, VLANs, Wireless, Application Optimization, POE, Wire-speed for up to T3/E3 throughput</p> <p>Maximum Modularity and Investment Protection Cisco 3845 routers provide four slots for network modules. Capable of supporting up to 4 NM, NME, NME-X or 2 NMD, NME-XD. Four single-width or two double-width HWIC slots, two AIM slots, four PVDM slots, two USB ports, and optional support of up to 48 ports of IP phone power output. Works with 1700, 2600, 3700 NMs, VICs, WICs</p> <p>Scalability, Density, and Resiliency Highest levels of resiliency with redundant power supply options, optional Inline power and hot-swappable NM's. Scalable services and interfaces for future requirements</p>	<p>Modularity and Investment Protection More slots for advanced services via NM, NME, NME-X, NME-XD support with PVDM and AIM modules; works with previous 1700, 2600, and 3700 interfaces, adds New services</p> <p>Scalability, Density, and Resiliency 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 H/W VPN accelerator Cisco IOS and NM IDS	Yes Cisco IOS and NM IDS
Integrated Content	Yes/Network module	Yes/Network module

Table 4: Solution Features for Main Business Location and Remote Location (Continued)

Main Location	100–250 Users (SMB Complete) (Integrated)	100–250 Users (SMB Enhanced) (External Firewall, VPN, and Voice Recommended)
Access Point (External)	<p>Cisco Aironet 1100 Series 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 802.11g 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 The Cisco Aironet 1200 Series is the flagship of the Aironet line, setting the enterprise standard for high performance, secure, manageable and flexible WLANs. The modular design of the Cisco Aironet 1200 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, 802.11b, and 802.11g 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 tri-mode 802.11a/b/g coverage, the Cisco Aironet 1200 offers the greatest flexibility and investment protection allowing network administrators to deploy a wireless network optimized for their particular application.</p>
External switch	<p>Cisco Catalyst 2950 Series Cisco Catalyst 3550 Series</p> <p>Core + Distribution 3550 and Access 3560 PWR or Core + Distribution 3550 and Access 2950</p> <p>Cisco Catalyst 3560 Series</p> <ul style="list-style-type: none"> All the advance Layer 2–4 intelligent services available in the Cisco Catalyst 3550 plug integrated IEEE 802.3af standard compliant PoE Lowers the cost of ownership providing power on every 10/100-Mbps port for IP telephony and wireless LAN deployments 	<p>Cisco Catalyst 3750 Cisco Catalyst 3560 Series Cisco Catalyst 4500 Series</p> <p>Core + Distribution 4500 (Layer 3) and Access 4500 PWR or Core + Distribution 3750 (Layer 3) and Access 3750 PWR</p> <p>Cisco Catalyst 4500 Series</p> <ul style="list-style-type: none"> Chassis-based high-density, high-performance switches offering wire-speed, multilayer 10/100/1000-Mbps switching Offers integrated resiliency, control, and intelligent services, including granular QoS, predictable performance, advanced security, and comprehensive management for converged network deployments

Table 4: Solution Features for Main Business Location and Remote Location (Continued)

Main Location	100–250 Users (SMB Complete) (Integrated)	100–250 Users (SMB Enhanced) (External Firewall, VPN, and Voice Recommended)
External switch (continued)	<p>Cisco Catalyst 3550 Series</p> <ul style="list-style-type: none"> Stackable, multilayer switch that provides high availability, QoS, and security to enhance network operations Serves as both a powerful access layer switch for wiring closets and as a backbone switch for midsize networks <p>Cisco Catalyst 2950 Series</p> <ul style="list-style-type: none"> Fixed-configuration, stackable, and standalone switches for Fast Ethernet and Gigabit Ethernet 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 3750 Series</p> <ul style="list-style-type: none"> Optimized for high-density Gigabit Ethernet deployments and includes a diverse range of switches that meet access, aggregation, or small-network backbone-connectivity requirements Offers StackWise™ Technology stacking architecture that brings unparalleled levels of resiliency, automation and performance to stackable switches <p>Cisco Catalyst 3560 Series</p> <ul style="list-style-type: none"> All the advance Layer 2–4 intelligent services available in the Cisco Catalyst 3550 plug integrated IEEE 802.3af standard compliant PoE Lowers the cost of ownership providing power on every 10/100-Mbps port for IP telephony and wireless LAN deployments
Pay as You Expand Your Network	Customers who need a mixture of 10/100, 10/100/1000 ports, PoE, and wiring closet aggregation capability can incrementally develop the access environment, paying only for what they need.	
Intelligence Made Easy	<p>Simple Embedded Management Software helps users perform initial and basic setup with minimal setup</p> <ul style="list-style-type: none"> Cisco Express Setup—set up the switch through a Web browser, eliminating the need to understand the command-line interface (CLI) Smartports is a cross-Catalyst solution that offers a set of pre-tested, Cisco-recommended, switch port configurations templates to consistently and reliably configure essential Security, Availability, QoS and Manageability features with minimal effort and expertise. For more info on Smartports, please go to http://www.cisco.com/go/smartports The Cisco Cluster Management Suite next-generation network management tool, integrates touchless software upgrades and customizable installations thereby saving tremendous time and resources in deploying network intelligence at the edge 	

Table 4: Solution Features for Main Business Location and Remote Location (Continued)

Main Location	100–250 Users (SMB Complete) (Integrated)	100–250 Users (SMB Enhanced) (External 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. Key features include Cisco Spanning-Tree Protocol enhancements, Dynamic Trunking Protocol, voice VLAN capabilities, Internet Group Management Protocol, and embedded Cisco Cluster Management Suite Software. For added feature availability, the Cisco Redundant Power System 675 provides seamless protection against Internal power supply failures (optional).	
Security	Increase LAN security with capabilities that secure network management traffic through the protection of passwords and configuration information; that offer options for network security based on users, ports, and MAC addresses; and that enable more immediate responses to intruder and hacker detection. Key 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 5 Users

Broadband router	Cisco SOHO Series (Single-site Small Business)	Cisco 800 Series secure routers (Teleworker and Small Remote Office)
	<p>The Cisco SOHO Series provides affordable, secure, multi-user access for small-office and home-office customers while reducing deployment and operational costs for small and medium-sized businesses.</p> <p>Cisco SOHO Series allows up to five in a small office to share a secure broadband connection with an integrated stateful inspection firewall, strong encryption for VPN, and easy set-up with a Web-based setup tool.</p>	<p>Cisco 800 Series routers provide secure Internet and corporate network connectivity to teleworkers and small remote offices. This router series offers a wide range of integrated security services, QoS for high-quality data, voice, and video applications and easy deployment and management. They deliver the industry's lowest total cost of ownership for connecting teleworkers and small remote offices to the corporate network.</p> <p>The Cisco New 800 Series empowers teleworkers and small remote offices with a secure data, voice, and video connection offering the same level of access to the network as they enjoy in the corporate office.</p> <p>Enhanced support for VPN, DMVPN, Stateful firewall, IDS, and URL filtering</p> <p>Port-based VLAN for DMZ and 802.1x NAC</p>

Solution Features for Teleworker or SMB Sites of up to 5 Users (Continued)

**Broadband router
(continued)**

Wireless Access

Combines manageability and scalability features of Cisco IOS integrated with secure, 802.11 g Wireless access

QoS

QoS for VoIP and Multicast (V³PN) No voice support/no voice interface card support

Broadband

Offers options based on xDSL or Cable

Manageability

Variety of needs based management Options such as CiscoWorks and SDM

Cisco IOS features—extensive debugging, syslog features and Out-of-Band management

Scalability

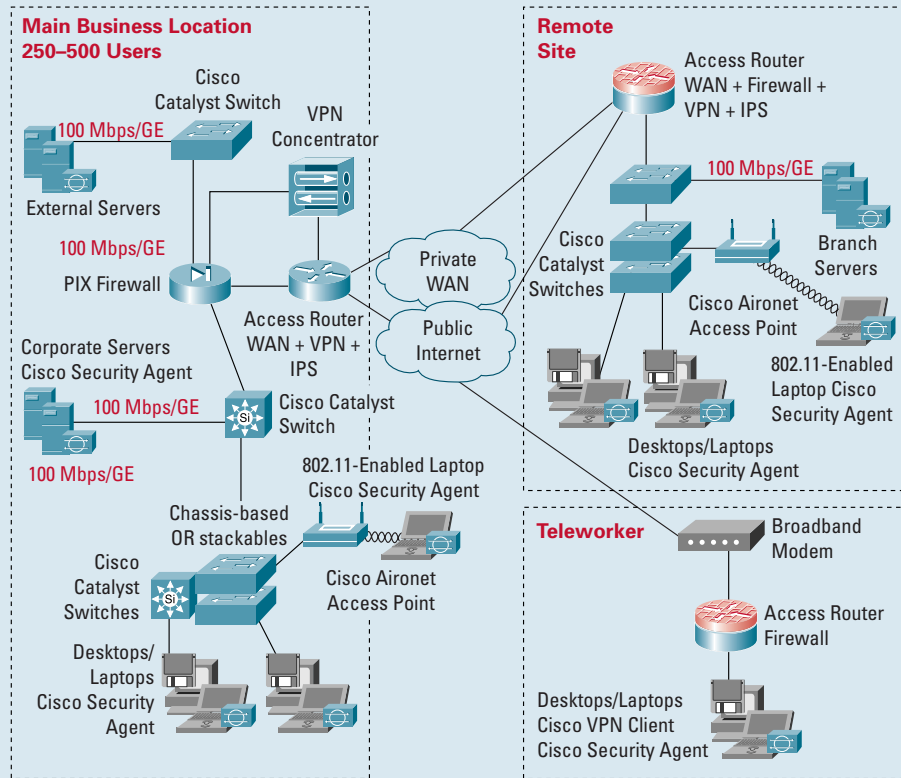
Easy VPN, SDM, CRWS

Introduction

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

Figure 5: Network Diagram for SMBs with 250 to 500 User Ports per Site

Reference Network Foundation Blueprint



Note: See footnote to Figure 6.

Product Table

This product table briefly describes Cisco solutions for businesses 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 5: Solution Features for Main Business Location and Remote Location

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</p> <p>The Cisco 3825 Integrated Services Router provide high-performance routing, low-density switching, security, voice, IP telephony, voice mail, 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/video), flexible LAN and WAN configurations, embedded security, high-performance processors, router-integrated content-delivery system (requires optional module), and investment protection in a compact solution. This design enables small and medium-sized businesses to adapt incrementally to evolving business needs. The expandability and versatility of the Cisco 3825 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 Security</p> <p>On-board encryption, NAC, Optional Inline IPS, Dynamically-loaded signatures, greater VPN tunnels, and high performance firewalls</p>	<p>Cisco 3845 Integrated Services Routers</p> <p>The Cisco 3845 Integrated Services Router is the flagship of the Access portfolio, providing high-performance routing, low-density switching, security, voice, IP telephony, voice mail, video, and content networking in a single, integrated solution. This design enables small and medium-sized businesses 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 routers eases deployment and management, lowers network cost and complexity, and provide unmatched investment protection.</p> <p>Purpose-built for Integrated Service Security</p> <p>On-board encryption, NAC, Optional Inline IPS, Dynamically-loaded signatures, greater VPN tunnels, and high performance firewalls</p> <p>Voice</p> <p>Optimized for large enterprise branch IP Telephony, Voice Mail, Auto Attendant and Conferencing needs. Featuring highest density levels for analog/digital voice, legacy/dial aggregation.</p>

Table 5: Solution Features for Main Business Location and Remote Location (Continued)

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 (continued)	<p>Voice Optimized for large enterprise branch IP Telephony, Voice Mail, Auto Attendant and Conferencing needs. Featuring highest density levels for analog/digital voice, legacy/dial aggregation</p> <p>Comprehensive L2 and L3 services FE/GE Switch Ports, VLANs, Wireless, Application Optimization, POE, Wire-speed for up to T3/E3 throughput</p> <p>Maximum Modularity and Investment Protection Two network module slots, which supports any size network module—NM, NME, NME-X, NMD, NME-XD, four single-width or two double-width HWIC slots, two AIM slots, four PVDM slots, two USB ports, and optional support for up to 24 ports of IP phone power output. Works with 1700, 2600, 3700 NMs, VICs, WICs</p> <p>Scalability, Density, and Resiliency 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 network as budgets and business application needs dictate</p>	<p>Comprehensive L2 and L3 services FE/GE Switch Ports, VLANs, Wireless, Application Optimization, POE, Wire-speed for up to T3/E3 throughput</p> <p>Maximum Modularity and Investment Protection Cisco 3845 routers provide four slots for network modules. Capable of supporting up to 4 NM, NME, NME-X or 2 NMD, NME-XD. Four single-width or two double-width HWIC slots, two AIM slots, four PVDM slots, two USB ports, and optional support of up to 48 ports of IP phone power output. Works with 1700, 2600, 3700 NMs, VICs, WICs</p> <p>Scalability, Density, and Resiliency 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
Content	Yes/Network module	Yes/Network module

Table 5: Solution Features for Main Business Location and Remote Location (Continued)

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)
Access Point (External)	<p>Cisco Aironet 1100 Series 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 802.11g 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 The Cisco Aironet 1200 Series is the flagship of the Aironet line, setting the enterprise standard for high performance, secure, manageable, and flexible WLANs. The modular design of the Cisco Aironet 1200 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, 802.11b, and 802.11g 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 tri-mode 802.11a/b/g coverage, the Cisco Aironet 1200 offers the greatest flexibility and investment protection allowing network administrators to deploy a wireless network optimized for their particular application.</p>
External switch	<p>Cisco Catalyst 2950 Series Cisco Catalyst 3550 Series Cisco Catalyst 3560 Series Cisco Catalyst 4500 Series</p> <p>Core + Distribution 4500 (Layer 3) and Access 3560 PWR or Core + Distribution 3550 (Layer 3) and Access 2950</p> <p>Cisco Catalyst 4500 Series</p> <ul style="list-style-type: none"> Chassis-based high-density, high-performance switches offering wire-speed, multilayer 10/100/1000-Mbps switching Offers integrated resiliency, control, and intelligent services, including granular QoS, predictable performance, advanced security, and comprehensive management for converged network deployments 	<p>Cisco Catalyst 3750 Cisco Catalyst 3560 Series Cisco Catalyst 4500 Series</p> <p>Core + Distribution 4500 (Layer 3) and Access 4500 PWR or Core + Distribution 3750 (Layer 3) and Access 3750 PWR</p> <p>Cisco Catalyst 4500 Series</p> <ul style="list-style-type: none"> Chassis-based high-density, high-performance switches offering wire-speed, multilayer 10/100/1000-Mbps switching Offers integrated resiliency, control, and intelligent services, including granular QoS, predictable performance, advanced security, and comprehensive management for converged network deployments

Table 5: Solution Features for Main Business Location and Remote Location (Continued)

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)
External switch (continued)	<p>Cisco Catalyst 3560 Series</p> <ul style="list-style-type: none"> All the advance Layer 2–4 intelligent services available in the Cisco Catalyst 3550 plug integrated IEEE 802.3af standard compliant PoE Lowers the cost of ownership providing power on every 10/100-Mbps port for IP telephony and wireless LAN deployments <p>Cisco Catalyst 3550 Series</p> <ul style="list-style-type: none"> Stackable, multilayer switch that provides high availability, QoS, and security to enhance network operations Serves as both a powerful access layer switch for wiring closets and as a backbone switch for midsize networks <p>Cisco Catalyst 2950 Series</p> <ul style="list-style-type: none"> Fixed-configuration, stackable, and standalone switches for Fast Ethernet and Gigabit Ethernet 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 3750 Series</p> <ul style="list-style-type: none"> Optimized for high-density Gigabit Ethernet deployments and includes a diverse range of switches that meet access, aggregation, or small-network backbone-connectivity requirements Offers StackWise Technology stacking architecture that brings unparalleled levels of resiliency, automation and performance to stackable switches <p>Cisco Catalyst 3560 Series</p> <ul style="list-style-type: none"> All the advance Layer 2–4 intelligent services available in the Cisco Catalyst 3550 plug integrated IEEE 802.3af standard compliant PoE Lowers the cost of ownership providing power on every 10/100-Mbps port for IP telephony and wireless LAN deployments
Pay as You Expand Your Network	Customers who need a mixture of 10/100, 10/100/1000 ports, PoE, and wiring closet aggregation capability can incrementally develop the access environment, paying only for what they need.	

Table 5: Solution Features for Main Business Location and Remote Location (Continued)

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)
Intelligence Made Easy	<p>Simple Embedded Management Software helps users perform initial and basic setup with minimal setup</p> <ul style="list-style-type: none"> Cisco Express Setup—set up the switch through a Web browser, eliminating the need to understand the CLI Smartports is a cross-Catalyst solution that offers a set of pre-tested, Cisco-recommended, switch port configurations templates to consistently and reliably configure essential Security, Availability, QoS, and Manageability features with minimal effort and expertise. For more info on Smartports, please go to http://www.cisco.com/go/smartports Cisco’s Cluster Management Suite next-generation network management tool, integrates touchless software upgrades and customizable installations 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. Key features include Cisco Spanning-Tree Protocol enhancements, Dynamic Trunking Protocol, voice VLAN capabilities, Internet Group Management Protocol, and embedded Cisco Cluster Management Suite Software. For added feature availability, the Cisco Redundant Power System 675 provides seamless protection against Internal power supply failures (optional).	
Security	Increase LAN security with capabilities that secure network management traffic through the protection of passwords and configuration information; that offer options for network security based on users, ports, and MAC addresses; and that enable more immediate responses to intruder and hacker detection. Key features include 802.1x with enhancements, private VLAN edge, port security, MAC address notification, and support for RADIUS and TACACS+.	

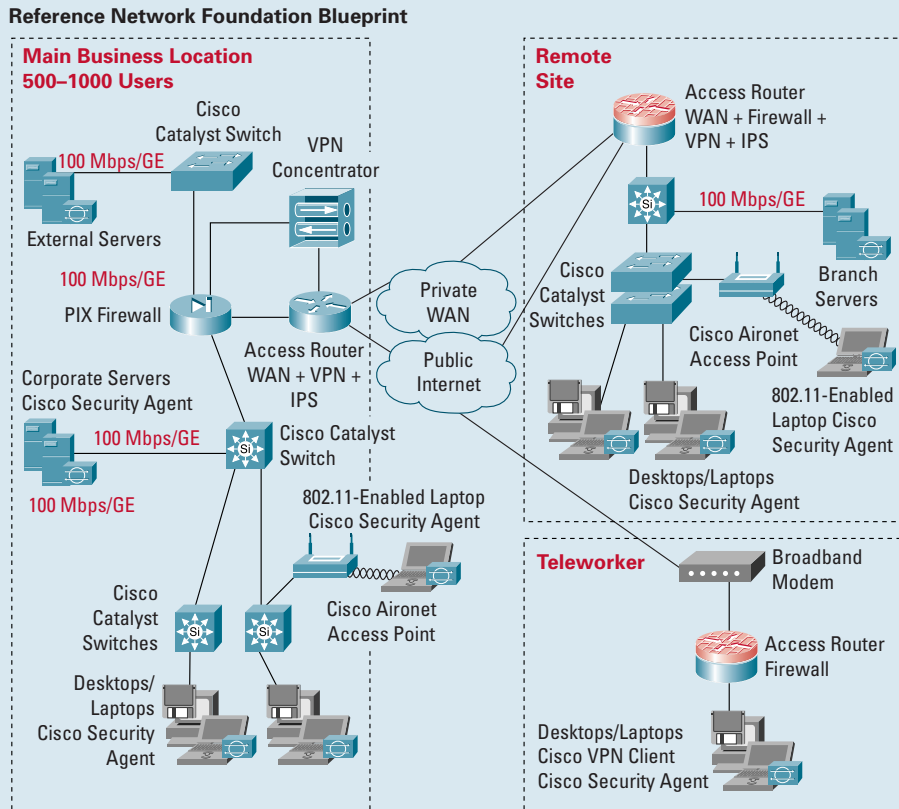
Solution Features for Teleworker or SMB Sites of up to 5 Users

Broadband router	<p>Cisco SOHO Series (Single-site Small Business) The Cisco SOHO Series provides affordable, secure, multi-user access for small-office and home-office customers while reducing deployment and operational costs for small and medium-sized businesses.</p> <p>Cisco SOHO Series allows up to five in a small office to share a secure broadband connection with an integrated stateful inspection firewall, strong encryption for VPN, and easy set-up with a Web-based setup tool.</p>	<p>Cisco 800 Series secure routers (Teleworker and Small Remote Office) Cisco 800 Series routers provide secure Internet and corporate network connectivity to teleworkers and small remote offices. This router series offers a wide range of integrated security services, QoS for high-quality data, voice, and video applications and easy deployment and management. They deliver the industry's lowest total cost of ownership for connecting teleworkers and small remote offices to the corporate network.</p> <p>The Cisco New 800 Series empowers teleworkers and small remote offices with a secure data, voice, and video connection offering the same level of access to the network as they enjoy in the corporate office.</p> <p>Enhanced support for VPN, DMVPN, Stateful firewall, IDS, and URL filtering</p> <p>Port-based VLAN for DMZ and 802.1x NAC</p> <p>Wireless Access Combines manageability and scalability features of Cisco IOS integrated with secure, 802.11 g Wireless access</p> <p>QoS QoS for VoIP and Multicast (V³PN) No voice support/no voice interface card support</p> <p>Broadband Offers options based on xDSL or Cable</p> <p>Manageability Variety of needs based management Options such as CiscoWorks and SDM</p> <p>Cisco IOS features—extensive debugging, syslog features and Out-of-Band management</p> <p>Scalability Easy VPN, SDM, CRWS</p>
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Introduction

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 6: Network Diagram for SMBs with 500 to 1000 User Ports per Site



¹This 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

The product table briefly describes Cisco solutions for businesses with 500 to 1000 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 6: Solution Features for Main Business Location and Remote Sites

Main Location	500-1000 Users (SMB Complete) (External Hardware Firewall, VPN, and Voice Recommended)	500-1000 Users (SMB Enhanced) (External Hardware Firewall, VPN, and Voice Recommended)
Router	<p>Cisco 3845 Integrated Services Router</p> <p>The Cisco 3845 Integrated Services Router is the flagship of the Access portfolio, providing high-performance routing, low-density switching, security, voice, IP telephony, voice mail, video, and content networking in a single, integrated solution. This design enables small and medium-sized businesses 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 routers eases deployment and management, lowers network cost and complexity, and provide unmatched investment protection.</p> <p>Purpose-built for Integrated Service Security</p> <p>On-board encryption, NAC, Optional Inline IPS, Dynamically-loaded signatures, greater VPN tunnels, and high performance firewalls</p> <p>Voice</p> <p>Optimized for large enterprise branch IP Telephony, Voice Mail, Auto Attendant and Conferencing needs. Featuring highest density levels for analog/digital voice, legacy/dial aggregation.</p> <p>Comprehensive L2 and L3 services</p> <p>FE/GE Switch Ports, VLANs, Wireless, Application Optimization, POE, Wire-speed for up to T3/E3 throughput.</p>	<p>Cisco 7200 Series routers</p> <p>Cisco 7200 Series routers support high-speed media and high-density configurations with up to 1 million packets per second (Mpps) processing at competitive prices. By taking advantage of the modularity of the Cisco 7200 Series, customers can deploy scalable solutions to address a wide range of density, performance, and service requirements while ensuring investment protection for future network needs.</p> <p>Important strengths of the Cisco 7200 Series include modularity and broad set of interfaces and software support. With a choice of a 4- or 6-slot chassis, a selection of processors providing up to 1 Mpps processing, an extensive range of LAN and WAN interfaces with up to 48 ports per chassis, and single or dual power supplies, companies can customize their systems to achieve the performance, connectivity, and capacity desired.</p>

Table 6: Solution Features for Main Business Location and Remote Sites (Continued)

Main Location	500–1000 Users (SMB Complete) (External Hardware Firewall, VPN, and Voice Recommended)	500–1000 Users (SMB Enhanced) (External Hardware Firewall, VPN, and Voice Recommended)
Router (continued)	<p>Maximum Modularity and Investment Protection Cisco 3845 routers provide four slots for network modules. Capable of supporting up to 4 NM, NME, NME-X or 2 NMD, NME-XD. Four single-width or two double-width HWIC slots, two AIM slots, four PVDM slots, two USB ports, and optional support of up to 48 ports of IP phone power output. Works with 1700, 2600, 3700 NMs, VICs, WICs</p> <p>Scalability, Density, and Resiliency 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
Content	Yes/Network module	Yes/Cisco 565A Content Engine
Access Point (External)	<p>Cisco Aironet 1100 Series 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 802.11g 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 The Cisco Aironet 1200 Series is the flagship of the Aironet line, setting the enterprise standard for high performance, secure, manageable and flexible WLANs. The modular design of the Cisco Aironet 1200 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, 802.11b, and 802.11g 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 tri-mode 802.11a/b/g coverage, the Cisco Aironet 1200 offers the greatest flexibility and investment protection allowing network administrators to deploy a wireless network optimized for their particular application.</p>

Table 6: Solution Features for Main Business Location and Remote Sites (Continued)

Main Location	500–1000 Users (SMB Complete) (External Hardware Firewall, VPN, and Voice Recommended)	500–1000 Users (SMB Enhanced) (External Hardware Firewall, VPN, and Voice Recommended)
External switch	<p>Cisco Catalyst 2950 Series Cisco Catalyst 3550 Series Cisco Catalyst 3560 Series Cisco Catalyst 4500 Series</p> <p>Core + Distribution 4500 (Layer 3) and Access 3560 PWR or Core + Distribution 3550 (Layer 3) and Access 2950</p> <p>Cisco Catalyst 4500 Series</p> <ul style="list-style-type: none"> • Chassis-based high-density, high-performance switches offering wire-speed, multilayer 10/100/1000-Mbps switching • Offers integrated resiliency, control, and intelligent services, including granular QoS, predictable performance, advanced security, and comprehensive management for converged network deployments <p>Cisco Catalyst 3560 Series</p> <ul style="list-style-type: none"> • All the advance Layer 2–4 intelligent services available in the Cisco Catalyst 3550 plug integrated IEEE 802.3af standard compliant PoE • Lowers the cost of ownership providing power on every 10/100-Mbps port for IP telephony and wireless LAN deployments <p>Cisco Catalyst 3550 Series</p> <ul style="list-style-type: none"> • Stackable, multilayer switch that provides high availability, QoS, and security to enhance network operations • Serves as both a powerful access layer switch for wiring closets and as a backbone switch for midsize networks 	<p>Cisco Catalyst 3750 Cisco Catalyst 3560 Series Cisco Catalyst 4500 Series</p> <p>Core + Distribution 4500 (Layer 3) and Access 4500 PWR or Core + Distribution 3750 (Layer 3) and Access 3750 PWR</p> <p>Cisco Catalyst 4500 Series</p> <ul style="list-style-type: none"> • Chassis-based high-density, high-performance switches offering wire-speed, multilayer 10/100/1000-Mbps switching • Offers integrated resiliency, control, and intelligent services, including granular QoS, predictable performance, advanced security, and comprehensive management for converged network deployments <p>Cisco Catalyst 3750 Series</p> <ul style="list-style-type: none"> • Optimized for high-density Gigabit Ethernet deployments and includes a diverse range of switches that meet access, aggregation, or small-network backbone-connectivity requirements • Offers StackWise Technology stacking architecture that brings unparalleled levels of resiliency, automation and performance to stackable switches <p>Cisco Catalyst 3560 Series</p> <ul style="list-style-type: none"> • All the advance Layer 2–4 intelligent services available in the Cisco Catalyst 3550 plug integrated IEEE 802.3af standard compliant PoE • Lowers the cost of ownership providing power on every 10/100-Mbps port for IP telephony and wireless LAN deployments

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Main Location	500–1000 Users (SMB Complete) (External Hardware Firewall, VPN, and Voice Recommended)	500–1000 Users (SMB Enhanced) (External Hardware Firewall, VPN, and Voice Recommended)
External switch (continued)	<p>Cisco Catalyst 2950 Series</p> <ul style="list-style-type: none"> Fixed-configuration, stackable, and standalone switches for Fast Ethernet and Gigabit Ethernet 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 	
Pay as You Expand Your Network	Customers who need a mixture of 10/100, 10/100/1000 ports, PoE, and wiring closet aggregation capability can incrementally develop the access environment, paying only for what they need.	
Intelligence Made Easy	<p>Simple Embedded Management Software helps users perform initial and basic setup with minimal setup</p> <ul style="list-style-type: none"> Cisco Express Setup—set up the switch through a Web browser, eliminating the need to understand the CLI Smartports is a cross-Catalyst solution that offers a set of pre-tested, Cisco-recommended, switch port configurations templates to consistently and reliably configure essential Security, Availability, QoS, and Manageability features with minimal effort and expertise. For more info on Smartports, please go to http://www.cisco.com/go/smartports The Cisco Cluster Management Suite next-generation network management tool, integrates touchless software upgrades and customizable installations thereby saving tremendous time and resources in deploying network intelligence at the edge 	
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