



Wireless LAN Solutions

At-A-Glance

Why Should I Care About Wireless LANs?

Wireless LANs (WLANs) enable users to access network resources and applications securely, anytime and anywhere a wireless network is deployed. The accelerated adoption of WLAN technology in enterprises is radically transforming business operations, data centers, centralized IT control, and the network edge.

In contrast to past advances in technology, enterprise WLAN adoption is being driven by mobile users and traveling executives, rather than by technology professionals. Other factors driving the adoption of this technology include the proliferation of Wi-Fi-enabled notebooks and of wireless applications and advanced services like wireless voice over IP (VoIP).

With secure, high-speed access to their networks, employees can increase their productivity, benefit from better collaboration tools, and stay better informed and more responsive to customers. Increasingly, end users are embracing the freedom and flexibility of wireless connectivity, and business executives are recognizing the competitive advantages of business-critical mobile applications.

What Problems Need To Be Solved?

Faced with an increasing demand for WLANs as well as tight budgets and reduced resources, networking professionals must respond with WLAN solutions that take full advantage of existing tools, knowledge, and network resources in order to cost-effectively address critical issues of WLAN security and control. They need a solution that excels in the unique attributes of RF technology, that effectively supports today's business applications, and that lays the foundation for the integration of new applications.

Enterprise wireless networks must meet requirements in five fundamental areas:

- **Client Devices**—Because more than 95 percent of today's notebooks are Wi-Fi-enabled and many specialized client devices are now available for industry-specific applications, WLAN solutions must ensure that client devices interoperate securely with the WLAN infrastructure. WLANs must also consistently provide the features required to support an array of client devices.
- **Mobility Platform**—WLAN solutions must provide 802.11a/b/g connectivity for WLAN clients via access points that facilitate specialized RF deployment, management, and performance features.
- **Network Unification**—WLAN solutions must integrate the wired and wireless network. Network unification is critical for network control, scalability, security, and reliability. Systemwide wireless LAN functions, such as security policies, intrusion prevention, RF management, quality of service (QoS), and mobility must be available to support enterprise applications.

- **Network Management**—WLAN solutions must allow IT managers to design, control, and monitor their enterprise wireless networks from a centralized location. Centralized network management is critical for simplifying operations and reducing total cost of ownership.
- **Unified Advanced Services**—A robust WLAN must support new mobility applications, emerging Wi-Fi technologies, and advanced threat detection and prevention capabilities. This support must be cost-effective and easy to deploy and implement.

The Cisco Unified Wireless Network

The Cisco® Unified Wireless Network is an industry-leading, comprehensive solution that provides world-class network management, advanced services and addresses all enterprise-class requirements.

Maintaining Network Security

Security is a primary consideration when implementing WLANs. Cisco Systems® leads the industry in delivering enterprise-class, standards-based WLAN security. Cisco wireless security features include support for 802.11i, 802.1X, Wi-Fi Protected Access (WPA), WPA2, and mobile VPNs. Cisco also supports WLAN intrusion prevention systems (IPSs), which detect and mitigate rogue access points, unassociated client devices, and ad hoc networks. Network Admission Control (NAC) is a part of this solution and is also supported by the Cisco Unified Wireless Network. NAC helps ensure that all wired and wireless endpoint devices (such as PCs, laptops, servers, and PDAs) that access network resources are adequately protected from security threats.

For more information about Cisco wireless security solutions, visit: <http://www.cisco.com/go/aironet/security>

Managing the Network

Advanced wireless management solutions lower the daily cost of operating and maintaining large-scale WLANs. Cisco simplifies WLAN management by providing clear visibility and control of the RF environment. This increases network scalability, improves troubleshooting, and enhances productivity for network administrators, resulting in lower operating costs. The Cisco WLAN management solution includes features such as real-time RF scanning, monitoring, and control that are integrated directly into the WLAN infrastructure and deliver self-configuring, self-optimizing, and self-healing wireless networks. Cisco also offers the industry's first location solution that simultaneously tracks thousands of devices from directly within the WLAN infrastructure using Cisco's patent-pending RF fingerprinting technology.

Unifying the Network

End-to-end wired and wireless network integration and smooth integration into existing networks minimizes the network's total cost of ownership. Cisco delivers a unified wireless and wired infrastructure, providing a single point of control for all WLAN traffic and secure Layer 2 and Layer 3 roaming. Cisco also integrates and extends indoor networks to the outdoors.

The Cisco Compatible Extensions program for WLAN devices provides further integration and extensive, independent testing of third-party devices, helping to ensure the compatibility of client devices with licensed Cisco infrastructure innovations. For more information about Cisco Compatible Extensions, visit:

<http://www.cisco.com/go/ciscocompatible/wireless>

For more information about the features and benefits of the Cisco Unified Wireless Network, visit:

<http://www.cisco.com/go/unifiedwireless>

What Are the Benefits of Wireless LANs?

Improved Productivity

With a wireless connection, employees can enjoy full access to their network-based applications and data, enabling them to work from a wide variety of locations within range of an access point. As a result, workers can stay connected and be fully productive from almost anywhere. A November 2003 study by NOP World, one of the world's largest research and business information companies, found that WLANs boosted employee productivity by an average of 27 percent. Taking into account the reported employee average of daily time savings and hourly wages, the average total value of time saved resulting from WLAN use comes to about US\$14,000 annually per employee. For more information, visit:

http://newsroom.cisco.com/dlls/2003_NOP_WLAN_Benefits_Study.pdf

Enhanced Collaboration and Responsiveness

Today, workers require constant access to the Internet and to electronic resources on the company intranet. Wireless technology lets employees take advantage of these capabilities continuously throughout the day, conducting research and communicating with coworkers, customers, and business partners through e-mail and instant messaging, without the physical restrictions of a wired connection.

Return on Investment

WLANs deliver an excellent return on investment (ROI) by providing important benefits, such as flexibility, rapid deployment, easy scalability, low installation costs and improved productivity.

Why Cisco?

The Cisco Unified Wireless Network enables enterprises to deploy wireless LANs with confidence. When it comes to wireless connectivity, the Cisco solution sets the enterprise standard for performance, security, network management, and reliability.



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Client Devices	<p>Cisco Aironet® IEEE 802.11a/b/g CardBus Wireless LAN Client Adapters (http://www.cisco.com/en/US/products/hw/wireless/ps4555/index.html) quickly connect desktop and mobile computing devices to the wireless LAN in 802.11a/b/g-compliant networks.</p> <p>Cisco Compatible (http://www.cisco.com/go/ciscocompatible/wireless) client adapters are also available from a variety of vendors.</p>
Mobility Platform	<p>Cisco Aironet Access Points provide ubiquitous network access for a variety of indoor and outdoor wireless environments. They support a wide array of deployment options, such as single or dual radios, integrated or remote antennas, and rugged metal enclosures. Most Cisco Aironet access points can be deployed supporting either Lightweight Access Point Protocol (LWAPP) or operating autonomously (without wireless LAN controllers). However, to receive all the advanced features and benefits of the Cisco Unified Wireless Network, customers must upgrade their existing Cisco Aironet autonomous access points to run LWAPP and operate with a wireless LAN controller.</p> <p>Note that autonomous access points can be managed via CiscoWorks Wireless LAN Solution Engine (WLSE) or CiscoWorks WLSE Express. CiscoWorks WLSE is a systems-level application for managing and controlling Cisco Aironet access points and bridges operating autonomously.</p> <p>For a complete listing of Cisco Aironet access points and deployment recommendations, visit: http://www.cisco.com/en/US/products/ps6108/prod_brochure0900aecd8035a015.html</p> <p>Cisco Aironet 1500 Series Outdoor Wireless Mesh Access Points enable cost-effective, scalable deployments of secure outdoor wireless LANs. With dual-band, simultaneous support for IEEE 802.11a and 802.11b/g standards, the Cisco Aironet 1500 Series employs a patent-pending Adaptive Wireless Path Protocol to form a dynamic wireless mesh network between remote access points and to deliver secure wireless access to any Wi-Fi-compliant client. For more information, visit: http://www.cisco.com/en/US/products/ps6548/products_data_sheet0900aecd803642e6.html</p>
Network Unification— Wireless LAN Controllers and Wireless Integrated Switches and Routers	<p>Cisco 4400 Series and 2000 Series Wireless LAN Controllers use LWAPP to centrally control Cisco Aironet 1000 Series lightweight access points for WLAN performance optimization and automated network resiliency. Cisco wireless LAN controllers are ideal for enterprise WLAN deployments that require system-level security, scalability, and RF management. The Cisco 4400 Series is designed for medium-sized and large facilities. The Cisco 2000 Series is ideal for small and medium-sized environments. For more information, visit: http://www.cisco.com/en/US/products/ps6366/products_data_sheet0900aecd802570b0.html</p> <p>Cisco Catalyst® 6500 Series Wireless Services Modules (WiSMs) work in conjunction with Cisco Aironet lightweight access points to deliver secure wireless access to main, branch, and remote enterprise campuses. The modules are designed for medium-sized and large enterprise facilities with clustering capabilities of up to 3600 lightweight access points per roaming domain. Each module can scale to 300 lightweight access points, with support for 10,000+ wireless client devices. For more information, visit: http://www.cisco.com/en/US/products/ps6526/index.html</p> <p>Cisco Wireless LAN Controller Modules for integrated services routers allow small and medium-sized businesses (SMBs) and enterprise branch offices to cost-effectively deploy and manage secure WLANs. The modules deliver centralized security policies, wireless IPS capabilities, award-winning RF management, QoS, and Layer 3 fast secure roaming for WLANs. The Cisco Wireless LAN Controller Module manages up to six Cisco Aironet lightweight access points and is supported on Cisco 2800/3800 Series integrated services routers and Cisco 3700 Series routers. For more information, visit: http://www.cisco.com/en/US/products/hw/modules/ps2797/products_data_sheet0900aecd80364432.html</p>
Network Management	<p>The Cisco Wireless Control System (WCS) provides a powerful foundation that allows IT managers to design, control, and monitor enterprise wireless networks, simplifying operations and reducing the total cost of ownership. For more information, visit: http://www.cisco.com/en/US/products/ps6305/index.html</p> <p>Cisco Wireless Location Appliances simultaneously track thousands of devices from directly within the Wireless LAN infrastructure, bringing the power of a cost-effective, high-resolution location solution to critical applications such as high-value asset tracking, IT management, and location-based security. For more information, visit: http://www.cisco.com/en/US/products/ps6386/index.html</p>
Unified Advanced Services	<p>The Cisco Unified Wireless Network cost-effectively supports new mobility applications, emerging Wi-Fi technologies, and advanced threat detection and prevention capabilities. It supports advanced features such as wireless VoIP (http://www.cisco.com/en/US/products/hw/phones/ps379/ps5056/index.html) and location services, as well as advanced wireless security features such as NAC (http://www.cisco.com/en/US/products/ps6128/prod_technical_reference09186a0080540637.html), the Cisco Self-Defending Network (http://www.cisco.com/en/US/netsol/ns340/ns394/ns171/ns413/networking_solutions_package.html), and guest access.</p>