

Cisco Wireless LAN Network Planning and Design Service

Increase the accuracy, speed, and efficiency of deploying a secure Cisco® Unified Wireless Network solution.



Take a Proactive Approach to Deploying a Secure Wireless LAN

Cisco and our Wireless LAN Specialized Partners help you to design, build, and operate a secure wireless network based on a holistic approach to business mobility:

- Improve the availability, security, management, performance, and interoperability of your wireless network solution
- Develop technical requirements, assess architectural readiness, and review your implementation plan
- Identify potential problems that might arise during the implementation
- Improve the efficiency of network staging, migration, and integration
- Achieve reliable wireless LAN data access and mitigate risk

Wireless Network Security

The Cisco Secure Wireless Solution is grounded in Cisco Motion, Cisco's innovative vision for business mobility that delivers practical solutions to integrate mobile devices, applications, security, and disparate networks into a unified platform. The Cisco Motion vision helps empower businesses to meet and exceed mobility demands and move beyond basic wireless networking into the next generation of business mobility, transforming the way business is done by fostering broader collaboration and new levels of productivity.

The components required for secure deployment and operation of a wireless network are built into the Cisco Unified Wireless Network infrastructure and use Cisco wireless controllers, access points, wireless management system, and mobility services engine to provide comprehensive wireless security that reduces capital costs while simplifying security operations. As part of the Cisco Self-Defending Network, the Secure Wireless architecture delivers layered defenses for more thorough protection, with greater accuracy and operational efficiency for both network operations and security operations teams within IT departments.

Wireless technology and services must be fully integrated into your organization's security framework and provide the same level of privacy and protection as the wired infrastructure. When integrating a Cisco

Secure Wireless Solution with your wired infrastructure, the challenge is to design, build, and operate a secure wireless network in alignment with your business requirements that can scale with the evolving business environment.

Deploying a Secure Cisco Unified Wireless Network Solution

Cisco and our Wireless LAN Specialized Partners offer a broad portfolio of end-to-end services based on proven methodologies for planning, designing, implementing, operating, and optimizing the performance of a variety of secure wireless network solutions and technologies.

Proactive network security and intrusion detection and prevention are integral to the Cisco Unified Wireless Network. Our services help you effectively implement devices and strategies to keep data private and secure.

Cisco engineers have deep knowledge of wireless, mobility, and security technologies. They use proven methodologies gained through years of experience designing and deploying some of the world's most complex enterprise-level secure wireless networks.

The Cisco Wireless LAN Network Planning and Design Service offers seven capabilities to help you deploy a secure Cisco Unified Wireless Network solution:

- Cisco Wireless LAN Architectural and Security Design Service
- Cisco Wireless LAN Performance and Security Assessment Service
- Cisco Wireless LAN RF Assessment Service
- Cisco Wireless LAN Configuration Service
- Cisco Wireless LAN Security NAC Implementation Service
- Wireless LAN Post Deployment Validation Service
- Cisco Wireless LAN Project Management Service

Cisco Wireless LAN Architectural and Security Design Service

Cisco can help you improve the availability, security, management, performance, and interoperability of your wireless network security solution by working with you to develop technical requirements, assess architectural readiness and develop a high-level design, as well as review and make necessary modifications to your implementation plan. (See Table 1.)

Table 1. Cisco Wireless LAN Architectural and Security Design Service Benefits, Activities, and Deliverables

Benefits	
<ul style="list-style-type: none"> • Improve efficiency throughout the lifecycle of your wireless network security solution and more effectively meet end-user service-delivery requirements by identifying the current and future requirements for your wireless LAN environment. • Optimize the security configurations of your wireless network • Improve the return on your investment and speed solution deployment by identifying and planning for necessary infrastructure changes. • Reduce rework during the design and deployment phases by developing a recommended architecture of your proposed system that addresses business and technical requirements and creates the foundation for system deployment. • Identify problems that might potentially arise during the implementation and gain recommendations for hardware and software changes to provide more efficient network staging, migration, and integration. 	
Activities	Deliverables
<p>Technical Requirements Development Review requirements, including:</p> <ul style="list-style-type: none"> • Objectives and scope of your planned deployment • Client devices (including their interoperability) • Security and authentication policies and options • Infrastructure management, availability, performance, and scalability • Mobility Services Engine applications including context-aware, Adaptive Wireless Intrusion Prevention Systems (AwIPS), Mobile Intelligent Roaming (MIR) and secure client manager • Desired coverage levels and areas • Capacity requirements (number of users) • Required signal strength and signal-to-noise ratio • Frequency bands of operation 	<ul style="list-style-type: none"> • Typically includes a customer requirements document.

Activities	Deliverables
<p>Architectural Readiness Review and High-Level Design Development</p> <ul style="list-style-type: none"> • Evaluate the readiness of your existing network architecture and infrastructure to support wireless LAN services. • Develop a high-level conceptual architecture of your proposed system. 	<ul style="list-style-type: none"> • Wireless LAN high-level design report that includes: <ul style="list-style-type: none"> ◦ Wireless LAN architecture diagram and design recommendations ◦ Wireless LAN security architecture design and recommendations ◦ Required data rates, target throughput, and desired availability ◦ Network and security management recommendations ◦ Software release recommendations for access points, controllers, MSE, and Wireless Control System (WCS) ◦ Client device recommendations
<p>Implementation Plan Review</p> <ul style="list-style-type: none"> • Assess aspects of the planned deployment, including: <ul style="list-style-type: none"> ◦ Existing and planned security infrastructure elements such as VPN concentrators, RADIUS servers, and external authentication databases such as Active Directory, Windows NT, and Local Directory Authentication Protocol (LDAP) ◦ An assessment of the proposed wired network infrastructure deployment ◦ An assessment of the planned network management infrastructure deployment • Analyze the potential effects of integrating the new solution with existing IT infrastructure software operations and security management procedures. • Review and analyze the technical and procedural requirements for solution deployment, integration, and management. • Recommend changes to hardware and software. 	<ul style="list-style-type: none"> • Typically includes a wireless LAN implementation plan that includes plans for network staging, testing, and installation, as well as topology, configuration, test scripts, and acceptance criteria.

Cisco Wireless LAN Performance and Security Assessment Service

Keeping your wireless LAN operating smoothly sometimes calls for an overall network architecture review. This service analyzes the architectural and RF performance of your existing wireless LAN, focusing on coverage, interference, traffic patterns, device configurations, and security. It helps you understand how these aspects of your wireless LAN compare with leading practices and recommends design and configuration changes as needed. (See Table 2.)

Table 2. Cisco Wireless LAN Security Performance and Security Assessment Service Benefits, Activities, and Deliverables

Benefits	
<ul style="list-style-type: none"> • Discover wireless LAN security risks before they affect your business. • Identify areas with incomplete wireless coverage or security monitoring to avoid application service disruption or security risks. • Test for wireless network vulnerabilities and threats due to less than optimal security configurations. • Compare current state with Cisco recommended security configurations and provide suggestions for improvement. 	
Activities	Deliverables
<ul style="list-style-type: none"> • Wireless LAN Coverage Analysis: Identify the areas that have coverage at the defined threshold level using a passive site survey. • RF Interference Analysis: Identify areas that exhibit high noise/interference and possible root causes. • Traffic Pattern Analysis: Collect WLAN metrics and characterize utilization and performance. • Access Point Configuration Analysis: Compare the baseline configuration against leading practices and verify consistency of configuration among devices. • Wireless LAN Security Analysis: Assess client security implementation (authentication and encryption) and infrastructure security implementation. 	<ul style="list-style-type: none"> • Wireless performance and security assessment report, which summarizes and prioritizes discovered vulnerability and other critical findings, and recommends actions to improve the coverage, performance, and security state of the network to meet your organization's goal.

Cisco Wireless LAN RF Assessment Service

Make informed decisions about how to build your secure wireless network architecture with an assessment of your environment's ability to allow secure wireless LAN access in the desired coverage area. (See Table 3.)

Table 3. Cisco Wireless LAN RF Assessment Service Benefits, Activities, and Deliverables

Benefits	
<ul style="list-style-type: none"> Enhance access to reliable wireless LAN data. Mitigate risk by providing a foundation for addressing coverage and interference challenges. Proactively address network security during planning, design, and implementation. 	
Activities	Deliverables
<ul style="list-style-type: none"> Inspect and document your physical plant and wireless network by a physical walk-through. Identify facility structural elements and wireless communication devices such as cordless phones, cameras, or monitoring systems that might interfere with the transmission and reception of radio signals or with the ability to mount and power wireless transmitters and access points. Scan for other significant wireless LAN networks or major sources of non-802.11 interference. Test propagation characteristics, coverage area, and signal quality by placing RF transmitters within your facility. Diagram access point placement and coverage in relation to your building's overall footprint. (You provide the building floor plans.) 	<ul style="list-style-type: none"> A complete bill of materials indicating the equipment needed for the wireless LAN implementation. Wireless LAN RF assessment survey report, which includes: <ul style="list-style-type: none"> Physical locations of potential existing access points Recommended access point power and channel settings Antenna type, location, and orientation specifications Power, mounting, and cabling specifications Any known or measured sources of interference Cisco best practice recommendations to use in developing your RF and wireless LAN design

Cisco Wireless LAN Configuration Service

Implementation services for Cisco wireless LAN solutions are primarily delivered through Cisco Wireless LAN Specialized Partners. However, for technologies and applications that are relatively new, Cisco can perform service activities in conjunction with our channel partners. Cisco can provide onsite implementation support and wireless LAN security implementation engineering. (See Table 4.)

Table 4. Cisco Wireless LAN Configuration Service Benefits, Activities, and Deliverables

Benefits	
<ul style="list-style-type: none"> Cisco engineers work with your organization's staff to install, configure, test, and tune the functionality of your solution to help ensure a smooth integration into your production environment. Broaden and deepen your wireless LAN expertise through knowledge transfer provided by the engineers deploying your system. 	
Activities	Deliverables
<p>Wireless LAN Controller and WCS Onsite Implementation</p> <ul style="list-style-type: none"> Recommend code versions for the wireless LAN MSE, WCS, controllers, and access points. Implement the recommended version of WCS, MSE, controller, and access point firmware, if required. Configure the wireless LAN WCS, MSE, and/or controller for your network. Assign access points to the required controller according to the design, if required. Configure: <ul style="list-style-type: none"> The security policy, including 802.1x (or VPN) authentication to the RADIUS server and back-end database Mobility management, including Layer 2/Layer 3 roaming (if required) RF network optimization, including RF interference detection Transmission power and channel optimization Security monitoring, including rogue access point detection and containment Intrusion detection, quality-of-service (QoS) settings, load balancing, policy provisioning, and customized fault settings Support test and turn-up of the controllers and access points. 	<ul style="list-style-type: none"> Onsite implementation of the LAN MSE and controller. A wireless LAN MSE and controller implementation checklist with configurations.

Activities	Deliverables
Wireless LAN Security Onsite Implementation Engineering <ul style="list-style-type: none"> Recommend code versions for the security appliances. Develop security policies in accordance with business requirements. Configure security policies to support secure wireless LAN solution. Test security policies to validate they are implemented correctly. Sample test clients against security policies and verify authentication and encryption for a secure wireless LAN. Recommend best practices in security policy management. 	<ul style="list-style-type: none"> An optimized secure wireless implementation checklist to support your production security policies.

Cisco Wireless LAN Security NAC Implementation Service (Optional)

Whether you are expanding your Network Admission Control (NAC) architecture to support the wireless network security solution or developing a new NAC architecture, Cisco can help you to successfully integrate NAC into your wireless network by assessing your network's readiness to support NAC, developing a detailed solution design, and providing ongoing knowledge transfer to your IT staff. (See Table 5.)

Table 5. Cisco Wireless LAN NAC Implementation Service Benefits, Activities, and Deliverables

Benefits	
<ul style="list-style-type: none"> Cisco NAC limits the potential damage from emerging security threats and risks by allowing only compliant and trusted endpoint devices onto the network and restricting the access of noncompliant devices. Cisco helps you assess the readiness of your IT infrastructure, network and security devices, software operations, and security management procedures to support integration of NAC. Gain assistance developing the implementation strategy and plan for corporate wide deployment, integration, and management. Enable your IT staff to test and gain experience with the NAC solution by having Cisco install and configure a limited NAC deployment in your lab or small-scale production environment such as a branch office or VPN. Cisco engineers support your team through a full-scale Cisco NAC solution implementation to help integrate the solution smoothly into your production environment. 	
Activities	Deliverables
NAC Readiness Assessment <ul style="list-style-type: none"> Analyze your business, technical, and operational requirements for your NAC solution. Jointly define the architectural, topological, and functional requirements for the solution. Identify components in your network that do not support NAC capabilities. Deliver an impact analysis detailing requirements for redundancy, scalability, and hardware and software upgrades. Provide detailed requirements for: <ul style="list-style-type: none"> Appliance-based and architecture-based framework approaches to NAC Endpoint security software, including Cisco Security Agent, Cisco Trust Agent, and antivirus software The Cisco Clean Access NAC appliance Network router and switch devices with NAC capabilities Cisco Secure Access Control Server (ACS) Cisco VPN 3000 Series Concentrators 	<ul style="list-style-type: none"> Typically includes a detailed Cisco NAC network readiness assessment report with analysis, findings, and recommendations.
NAC Design Development <ul style="list-style-type: none"> Develop a detailed solution design, providing network diagrams and sample software configurations for protocols, policies, and features. Specify hardware and software requirements, including Cisco security management tools. Provide a design specification that defines the network topology and configuration recommendations for network access devices, Cisco Secure ACS, management software, endpoint software such as the Cisco Security Agent, and antivirus technology. 	<ul style="list-style-type: none"> Typically includes a Cisco NAC design specification with detailed network diagrams and sample configurations for NAC components.
NAC Limited Deployment <ul style="list-style-type: none"> Support custom installation, configuration, testing, tuning, and integration of the solution. Provide documentation covering NAC component configuration, maintenance, and support. 	<ul style="list-style-type: none"> A Cisco NAC implementation in a lab or production environment.

Activities	Deliverables
NAC Implementation Engineering <ul style="list-style-type: none"> Develop detailed plans for installation, configuration, integration, and management. Deliver onsite support for installation, configuration, testing, tuning, and integration of the solution. 	<ul style="list-style-type: none"> A Cisco NAC implementation in a production environment.

Wireless LAN Post Deployment Validation Service

In providing onsite and remote wireless LAN postdeployment validation, our team of wireless LAN specialists assesses coverage, measures interference, evaluates overall wireless LAN network capacity, and makes recommendations for improvement. (See Table 6.)

Table 6. Cisco Wireless LAN Post Deployment Validation Service Benefits, Activities, and Deliverables

Benefits	
<ul style="list-style-type: none"> After the wireless LAN access points are installed and the network is configured, receive Cisco validation that the system is operating in accordance with the design through a survey of the RF environment for coverage, interference, and general performance. 	
Activities	Deliverables
<ul style="list-style-type: none"> Survey the RF environment for general performance after wireless LAN access point installation and network configuration. Assess coverage and interference by using specialized wireless LAN data collection and analysis tools. 	<ul style="list-style-type: none"> Typically includes a wireless LAN postdeployment validation report that details measured RF coverage, recommended changes, and any known or measured sources of interference.

Cisco Wireless LAN Project Management Service

Effective project management helps you to reduce risk and resolve problems quickly during your wireless LAN deployment. An experienced project manager with wireless technology expertise helps you manage projects throughout the network lifecycle. (See Table 7.)

Table 7. Cisco Wireless LAN Project Management Service Benefits, Activities, and Deliverables

Benefits	
<ul style="list-style-type: none"> Simplify the process of wireless LAN solution deployment by utilizing established best practice WLAN project parameters. Systematic and methodical approach to attaining a WLAN solution that meets business objectives and is completed on time and on budget. 	
Activities	Deliverables
<ul style="list-style-type: none"> Conduct a project kickoff to review WLAN project scope and deliverables with the engineering team as well as key stakeholders. Create a customized project plan that incorporates WLAN best practice methodology while helping ensure alignment with business objectives and timeline. Develop a joint communications plan and facilitate regular project status meetings. Identify, assign, and track completion of tasks and action items. 	<ul style="list-style-type: none"> Typically includes a project plan outlining tasks, timeline, deliverables, and milestones.

Services to Help You Operate and Optimize Your Cisco Wireless Network

In addition to the Cisco Wireless LAN Network Planning and Design Service, Cisco and our network of skilled partners offer operate and optimize services for the wireless LAN. Operate services help you to proactively improve network availability, manage costs, and reduce risk. Optimization services help you to achieve operational excellence through ongoing performance improvement and expanded services, thereby increasing your ability to compete in an ever-changing world.

Operate

Cisco SMARTnet Service

Unexpected problems can arise in any network. If your wireless LAN is a critical part of your business operations, you need a way to resolve problems rapidly.

Cisco SMARTnet[®] Service is an award-winning technical support service that gives you direct, anytime access to Cisco engineers and an extensive range of technical resources. Cisco SMARTnet Service delivers rapid issue resolution, flexible device-by-device coverage, and premium service options to help you maximize operational efficiency of your wireless LAN.

Cisco Software Application Support Services

Network security is a dynamic undertaking, with new threats emerging daily. To protect the integrity of the network and reduce downtime, which can affect your business, you need up-to-date software applications as well as secure network hardware.

Cisco Software Application Support Services help you enhance your wireless LAN security, performance, and functionality. Receive expert problem diagnosis and resolution and advice on software features. Access essential wireless LAN software application support, including cost-saving application updates and new Cisco software application versions and documentation from Cisco.com.

Cisco Focused Technical Support Services

Resolving network-level issues quickly is critical for system reliability. Cisco builds on device-level technical support services by offering three levels of focused technical support for large, complex networks that are critical to business operations:

- Level 1: Cisco High-Touch Operations Management Service: Augment your staff with a dedicated operations manager eight hours a day, five days a week to expedite issue resolution, identify measures to help prevent issues from recurring, and manage service requests to closure.
- Level 2: Cisco High-Touch Technical Support Service: Add a designated team of specialized Cisco engineers to respond to your needs 24 hours a day, seven days a week.
- Level 3: Cisco High-Touch Engineering Service: Access a designated Cisco network engineer eight hours a day, five days a week to handle cases and resolve network issues. Maintain a stable network through root cause analysis and responsive, proactive, and corrective measures delivered by engineers whose expertise is aligned with your needs.

Cisco maintains a large, skilled workforce of high-touch network support specialists, backed by industry recognized certifications.

Optimize

Cisco Optimization Services take a two-stage approach to provide an integrated service offering:

- Cisco Network Optimization Service (NOS): Optimize your network's performance, enhancing security and increasing operational efficiency to help you increase your business profitability.
- Cisco Wireless LAN Optimization Service: Build on the Cisco Network Optimization Service by improving the performance of your wireless LAN to increase your return on investment and better align your network solutions to your business requirements.

Cisco Network Optimization Service

To make full use of your network investment, you need to enhance the performance and security of your network and improve operational efficiency. The Cisco Network Optimization Service provides advanced network-level support and consultative proactive support to help you optimize your Cisco routing and switching network.

These services focus on the core routing and switching network and help you make full use of your foundation technology and maintain optimal security. By helping you establish a network with the capacity to offer a broad range of services, evaluating the capabilities of your software to meet future needs, and taking measures to reduce risk when making changes, these services also help prepare your network for successful integration of new advanced technologies.

The Cisco Network Optimization Service is available on an annual subscription basis and consists of:

- Cisco Network Assessment Service
- Cisco Network Support Service
- Cisco Network Learning Service

Cisco Wireless LAN Optimization Service

Maintaining your wireless LAN to help keep business-critical applications available and operational through the lifetime of the network can increase employee productivity while reducing operational expenses. In supporting these applications, it is critical to proactively address quality-of-service, coverage, interference, and compatibility issues. If your wireless LAN has coverage gaps, poor quality of service, or software compatibility problems, your network users might not be able to complete business-critical transactions.

The Cisco Wireless LAN Optimization Service is a proactive optimization service that provides software, configuration, and coverage recommendations to help improve the performance level of your Cisco wireless LAN. Delivered by engineers with detailed knowledge of your wireless LAN network design and architecture, this service helps you support changes, while analyzing designs that enable your network to support additional applications and users. It allows you to assess your wireless LAN's performance using periodic onsite coverage, interference, throughput, and utilization measurements.

The service also assesses wireless applications and develops a strategy to manage Cisco wireless LAN software in a standardized way, helping improve network availability and reliability. It also increases your team's knowledge base of wireless LAN technology and solutions so that they can be better prepared to use new wireless LAN applications and solutions when they become available.

Cisco Wireless LAN Scoped Training Service

Ongoing operational expenses can be reduced when your network support organization has the benefit of effective professional training. Whether your wireless LAN technology is new to your IT environment or a new employee has joined your staff, the Cisco Wireless LAN Training Scoped Service can educate your organization on wireless technology, common problems, troubleshooting techniques, and operational best practices.

Learn more about these services in the Cisco Optimization Services Overview at www.cisco.com/go/wirelesslanservices under "Optimization Services."

Why Cisco Services

Cisco Services make networks, applications, and the people who use them work better together.

Today, the network is a strategic platform in a world that demands better integration between people, information, and ideas. The network works better when services, together with products, create solutions aligned with business needs and opportunities.

The unique Cisco Lifecycle approach to services defines the requisite activities at each phase of the network lifecycle to help ensure service excellence. With a collaborative delivery methodology that joins the forces of Cisco, our skilled network of partners, and our customers, we achieve the best results.

For More Information

For more information about Cisco Wireless LAN Services and the Cisco Motion vision that empowers enterprises to move into the next generation of business mobility, visit www.cisco.com/go/wirelesslanservices or contact your local account representative. All Cisco Services might not be available in all theaters.

Cisco Services.
**Making Networks Work
 Better Together.**



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