CISCO SYSTEMS

Solution Overview

Cisco Unified Wireless Network

As users become increasingly mobile and business applications become more interactive, innovative wireless services and applications are critical in helping companies maintain agility and differentiation. Cisco Systems® addresses the need for enterprise-class wireless connectivity with the Cisco® Unified Wireless Network. This unified wired and wireless solution delivers the industry's best wireless LAN security, innovation, and investment protection. The Cisco Unified Wireless Network supports real-time business-critical applications and creates a secure, mobile, interactive workplace for organizations deploying WLANs. This document introduces the products, features, benefits, and future migration plans of the Cisco Unified Wireless Network.

CHALLENGE

A worldwide revolution is occurring in business. Wi-Fi enabled notebook computers are proliferating and driving the adoption of enterprise wireless LANs (WLANs)—making business mobile. Unlike past technology advancements that were driven by technology professionals, the explosion of enterprise WLANs is being driven by mobile users, traveling executives, wireless applications, and mobility services like voice services, guest access, enhanced security, and location services. The acceleration of enterprise adoption of WLAN technology is radically transforming business operations, the network edge, data centers, and centralized IT control.

Today's business climate requires anywhere, anytime connectivity. Mobility changes the way organizations do business. Real-time interaction, instant messaging, text paging, voice services, network access while traveling, and real-time network access in the office are transforming the business environment. In an increasingly competitive business environment, companies need fast responses and want immediate results.

WLANs are now business-critical. End users are embracing the freedom and flexibility of wireless connectivity, and business executives are recognizing the competitive advantage of business-critical mobile applications. Organizations are deploying WLANs to increase employee productivity, enhance collaboration, and improve responsiveness to customers.

The increasing need for anytime connectivity is creating new challenges for today's networking professionals, who must respond to the growing demand for WLANs in an era of tight budgets and reduced resources. These networking professionals are discovering that in the absence of a corporate sanctioned wireless network, employees are deploying their own unauthorized access points that put the entire network at risk.

Network managers need to protect their networks and deliver secure WLAN access for their organizations. They need a wireless infrastructure that embraces the unique attributes of radio frequency (RF) technology and effectively supports today's business applications. They need to keep their wired network secure while laying a foundation for the smooth integration of new applications that embrace wireless technology. Network managers need a WLAN solution that takes full advantage of existing tools, knowledge, and network resources to cost-effectively address critical WLAN security, deployment, and control issues.

SOLUTION

The Cisco Unified Wireless Network is the industry's only unified wired and wireless solution to deliver cost-effective wireless networks for business critical mobility. This innovative solution brings mobility to endpoint devices and users, providing them with anytime, anywhere network access. This award-winning solution delivers industry-leading mobility services that enable innovative applications to streamline business operations and improve productivity.

The Cisco Unified Wireless Network combines the best elements of wireless and wired networking to deliver scalable, manageable, and secure WLANs with a low total cost of ownership. It includes innovative RF capabilities that enable real-time access to core business applications and provides proven enterprise-class secure connectivity. The Cisco Unified Wireless Network delivers the same level of security, scalability, reliability, ease of deployment, and management for wireless LANs that organizations expect from their wired LANs.

The Cisco Unified Wireless Network is an integrated end-to-end solution that addresses all layers of the WLAN, from client devices and access points, to the network infrastructure, to network management, to the delivery of advanced wireless services integration and award-winning, worldwide, 24-hour product support. It delivers the industry's best wireless LAN security, innovation, and investment protection. It is the only solution to integrate innovative access point technology with an award-winning centralized management system, intelligent control, real-time location services and a wide array of interoperable Cisco Compatible client devices.

The Cisco Unified Wireless Network helps reduce overall operational expenses by simplifying network deployment, operations, and management. With this solution, several, hundreds, or thousands of central or remotely located access points can be easily managed from a centralized management console. The flexibility of the Cisco Unified Wireless Network allows network managers to design networks to meet their specific needs, whether implementing highly integrated network designs or simple overlay networks.

Building Enterprise-Class Wireless LANs

The Cisco Unified Wireless Network is deployable in corporate offices, hospitals, retail stores, manufacturing floors, warehouse environments, educational institutions, financial institutions, local and national government organizations, and other locations worldwide. It supports Wi-Fi enabled business applications and active RFID devices for a variety of uses, including mobile healthcare, inventory management, retail point-of-sale, video surveillance, real-time data access, asset tracking, and network visibility.

The Cisco Unified Wireless Network enables on-the-road access from venues such as public hotspots, hotels, convention centers, and airports for mobile users and traveling executives. It delivers real-time mobility services to a variety of business environments, providing enhanced security, voice services, guest access and location services for campus and branch offices. Customers can confidently deploy the Cisco Unified Wireless Network knowing that their investment is protected.

With the Cisco Unified Wireless Network, now you can…

- Un-tether employees from their desks to create a more responsive and collaborative work environment
- Access information anytime, anywhere
- Build mobility directly into the network
- Increase employee productivity and responsiveness while achieving a solid return on investment for the wireless network

Cisco Unified Wireless Network Elements

The Cisco Unified Wireless Network is composed of five interconnected elements that work together to deliver a unified enterprise-class wireless solution. The five interconnected elements are client devices, access points, network unification, world-class network management, and mobility services. Beginning with a base of client devices, each element adds capabilities as network needs evolve and grow, interconnecting with the elements above and below it to create a comprehensive, secure WLAN solution (Figure 1). Cisco offers a wide range of WLAN products to support the five interconnecting elements of the Cisco Unified Wireless Network (Figure 2).

Figure 1. Cisco Unified Wireless Network Elements Work Together to Deliver a Unified Enterprise-Class Wireless Solution
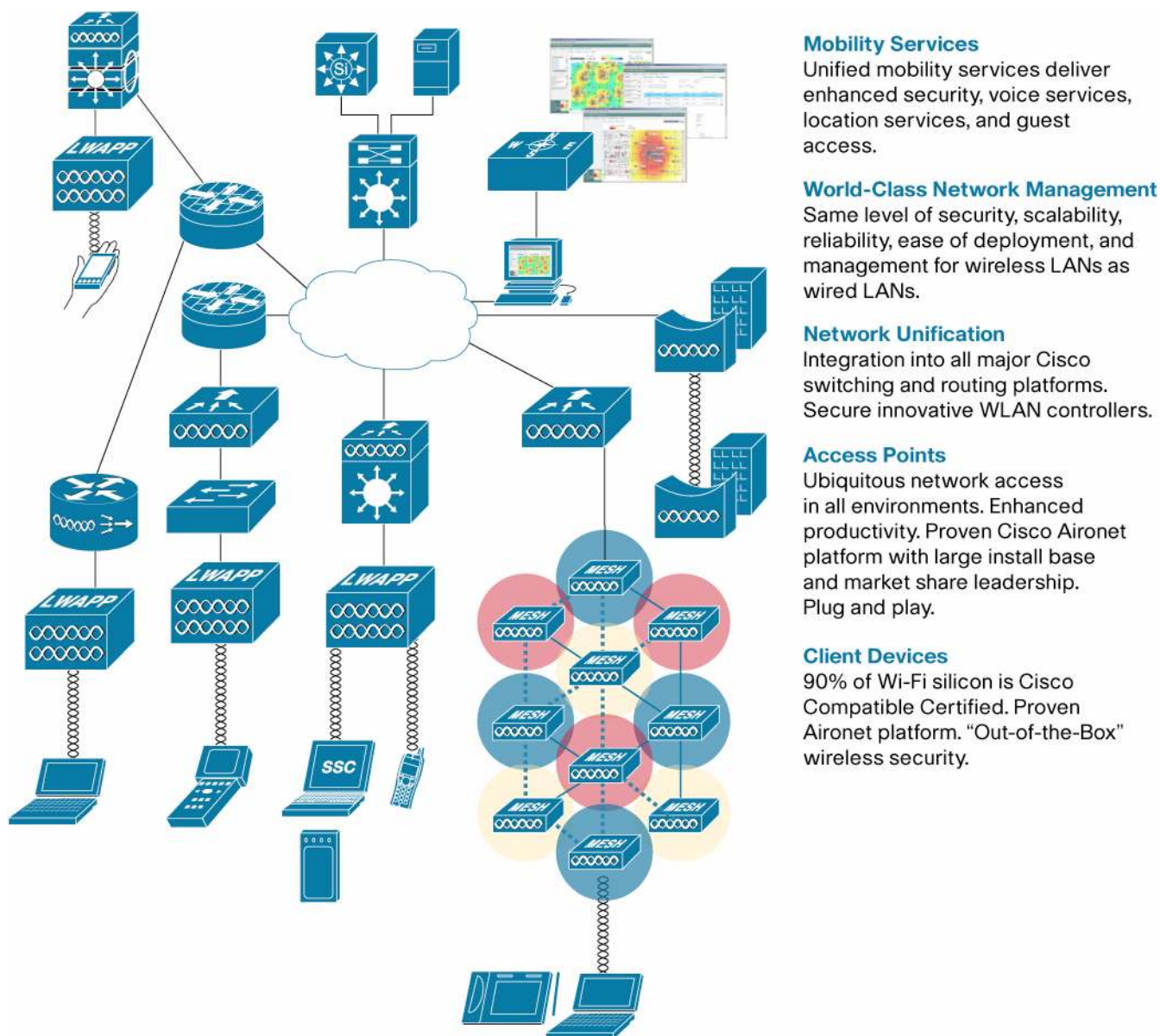
Mobility Services
Unified mobility services deliver enhanced security, voice services, location services, and guest access.

World-Class Network Management
Same level of security, scalability, reliability, ease of deployment, and management for wireless LANs as wired LANs.

Network Unification
Integration into all major Cisco switching and routing platforms. Secure innovative WLAN controllers.

Access Points
Ubiquitous network access in all environments. Enhanced productivity. Proven Cisco Aironet platform with large install base and market share leadership. Plug and play.

Client Devices
90% of Wi-Fi silicon is Cisco Compatible Certified. Proven Aironet platform. "Out-of-the-Box" wireless security.
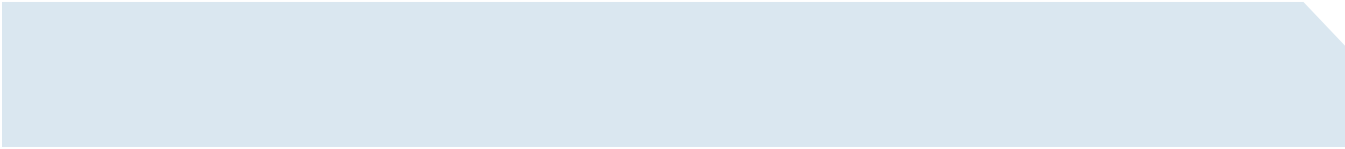
Figure 2. Cisco Unified Wireless Network Product Portfolio

Mobility Services
Unified built-in support of leading-edge applications—not an afterthought. Cisco Wireless Location Appliance, Cisco WCS, Cisco Self-Defending Network, NAC, and Wi-Fi phones.

World-Class Network Management
World-class network management system (NMS) that visualizes and helps secure your air space via Cisco WCS.

Network Unification
Network infrastructure that functions smoothly across a range of platforms: Cisco Catalyst 6500 Series Wireless Services Module (WiSM), Cisco Wireless LAN Controller Module (WLCM) for Integrated Services Routers, Cisco Catalyst 3750 Series Integrated Wireless LAN Controller, and Cisco 4400 Series and 2000 Series wireless LAN controllers and 2000 Series wireless LAN controllers.

Access Points
Access points dynamically configured and managed through LWAPP or operating autonomously. Cisco Aironet access points: 1500, 1300, 1240AG, 1230AG, 1130AG, and 1000. Bridges: 1400 and 1300.

Client Devices
Secure clients that work out of the box. Cisco Compatible, Cisco Secure Services Client, and Cisco Aironet client devices.

The Cisco Unified Wireless Network is an industry-leading, comprehensive solution that encompasses client devices, access points, controllers, switches and routers, world-class management, and mobility services with enterprise-class support. It provides solid investment protection via a robust product portfolio, unified architecture, smooth migration path to future enhancements, and extensive technology migration programs. It supports real-time business-critical applications and creates a secure, mobile, interactive workplace for organizations deploying WLANs.

Cisco Unified Wireless Network Deployment

The five elements of the Cisco Unified Wireless Network are fundamental to building secure, successful enterprise-class WLANs. Customers can select the Cisco Unified Wireless Network elements and products that best meet their wireless networking needs. Customers can begin with client devices, lightweight access points, and wireless LAN controllers; and then add additional elements, such as Cisco WCS and the Cisco Wireless Location Appliance, as their wireless networking requirements grow.

The Cisco solution is services-oriented. In addition to full 802.11a/b/g wireless support and dynamic RF management capabilities, it includes immediate support for mobility services including voice services, enhanced security with a built-in Intrusion Prevention System (IPS) that includes support for Network Admission Control (NAC) and the Cisco Self-Defending Network, real-time high resolution location services, and flexible guest access. These mobility services are built-in and ready for immediate implementation or can be deployed over time via a phased integration. Customers decide when and how to implement these mobility services based on their organizational timelines and requirements.

Details about each element of the Cisco Unified Wireless Network are listed below.

Client Devices

More than 95 percent of today's notebooks are Wi-Fi enabled, and a diverse array of specialized Wi-Fi client devices are now available for industry-specific applications. To address enterprise WLAN needs, client devices must interoperate securely with leading WLAN infrastructures and must consistently provide the features that organizations require.

Cisco Compatible and Cisco Aironet Client Devices—Cisco Compatible client devices or Cisco Aironet client devices are strongly recommended for the Cisco Unified Wireless Network. With more than 90 percent of shipping client devices certified as Cisco Compatible, almost any client device that is selected will support Cisco's powerful advanced features.

By providing third party tested compatibility, the Cisco Compatible Extensions program helps to ensure the widespread availability of client devices from a variety of suppliers that are interoperable with a Cisco WLAN infrastructure. More than 300 wireless devices are Cisco Compatible certified today (with more being added all the time). More than 90 percent of today's notebooks are Cisco Compatible certified.

Cisco shows its commitment to leading innovation by providing pre-standard features through the Cisco Compatible Extensions program to fulfill customer's diverse enterprise application requirements. Cisco enables its partners to provide software upgrades for Cisco Compatible mobile devices to help ensure investment protection and a migration path to future industry standards and to future Cisco WLAN infrastructure features. IT managers can confidently deploy their WLANs, even if they serve different client device types, when Cisco Compatible client devices are used.

No other WLAN vendor has the ability to take advantage of tomorrow's enhancements today, providing the ability to confidently deploy robust, scalable, secure, and manageable solutions. With the Cisco Compatible Extensions program, Cisco is able to deliver next-generation WLAN features—today.

The Cisco Unified Wireless Network also supports Wi-Fi Certified or IEEE 802.11 clients, but Cisco Compatible or Cisco Aironet client devices are recommended for their innovative, advanced Cisco-verified features.

Cisco Secure Services Client—The Cisco Secure Services Client is also recommended. The Cisco Secure Services Client is a software supplicant that enables organizations to deploy a single authentication framework on multiple device types to access both wired and wireless networks. This capability helps organizations simplify management, improve security and lower their total cost of ownership (TCO). The software client manages the user and device identity and the network access protocols required for secure access. It delivers intelligent services to optimize the user experience when connecting to a Cisco unified wired and wireless network.

Access Points

Organizations need secure 802.11a/b/g connectivity for WLAN clients via access points that adhere to standards, while also delivering specialized air/RF deployment, management, and performance features. Organizations also need reliable WLAN solutions for wide-area networking for outdoor areas, campuses, or building-to-building connectivity.

Cisco Aironet Access Points and Bridges—Cisco offers a range of enterprise-class access points and wireless bridges designed to fit the needs of a variety of installation environments and requirements. The Cisco Aironet family offers the broadest, most flexible line of wireless devices in the industry, with products for the carpeted enterprise, ruggedized environments, and challenging environments like the outdoors.

- **Cisco Aironet Access Points**—Cisco Aironet access points provide ubiquitous network access for a variety of indoor and outdoor wireless environments. Customers are encouraged to deploy Cisco Aironet lightweight access points to receive all the features, benefits, and mobility services of the Cisco Unified Wireless Network.

  Cisco Aironet is an award-winning, industry leading platform with worldwide market share leadership. It is the standard for enterprise WLANs. Cisco Aironet access points offer secure, manageable, and reliable wireless connectivity with exceptional capacity, range, and performance. They support a wide array of deployment options such as single or dual radios, integrated or external antennas, and rugged metal enclosures. Cisco Aironet access points deliver the versatility, high capacity, security, and enterprise-class features demanded by WLAN customers. These access points come standard with plug and play wireless features for "zero-touch" configuration. For example:

  - Cisco Aironet 1000 or 1130AG Series access points are ideal for offices and similar environments which have little environmental variability. These access points have integrated antennas that provide predictable omnidirectional coverage patterns.
  - Cisco Aironet 1230AG or 1240AG Series access points are ideal for more challenging RF environments like factories and warehouses or above suspended ceilings which tend to require flexible external antennas and rugged metal cases.
  - Cisco Aironet 1500 Series lightweight outdoor mesh access points deliver cost-effective, scalable deployment of secure outdoor wireless LANs for network connections within a campus area, outdoor infrastructure for mobile users, or public access for outdoor areas.

- **Cisco Aironet lightweight access points**—Cisco Aironet lightweight access points are dynamically configured and managed through LWAPP. All Cisco Aironet lightweight access points connect to Cisco wireless LAN controllers, so customers can "mix and match" access points and wireless LAN controllers within their networks. Lightweight access points provide RF access via a unique split media access control (MAC) architecture, wherein some timing critical functions are managed within the access point and other functions are managed at the controller. All Cisco Aironet lightweight access points support mobility services such as fast secure roaming for voice and location services for real-time network visibility. Location and management services are supported by the Cisco Wireless Location Appliance and the Cisco Wireless Control System (WCS).

- **Cisco Aironet autonomous access points**—Cisco Aironet access points operating autonomously are individually managed via Cisco IOS Software, CLI, a web interface, the CiscoWorks Wireless LAN Solution Engine (WLSE) or CiscoWorks WLSE Express. Customers are encouraged to upgrade their existing Cisco Aironet access points operating autonomously to run LWAPP and operate as lightweight access points to receive all the features, benefits, and mobility services of the Cisco Unified Wireless Network. Free upgrade software is available from Cisco to assist with this migration. Autonomous access points that have been converted to operate as lightweight access points can be managed by Cisco WCS or a CiscoWorks WLSE (Models 1130-19 or 1133) that has been converted to operate as a Cisco WCS. Learn more about migrating Cisco Aironet autonomous access points and the CiscoWorks WLSE to the unified architecture by reading the following documents:

- ◦ [Why Migrate to the Cisco Unified Wireless Network?](#)
- ◦ [Guidelines and Tools for Migrating to the Cisco Unified Wireless Network](#)
- ◦ [Cisco Aironet Access Point Support for Lightweight Access Point Protocol Product Bulletin](#)
- ◦ [CiscoWorks WLSE Migration to Cisco WCS Product Bulletin](#)

- **Cisco Aironet Wireless Bridges**—Cisco Aironet wireless bridges create a new benchmark for wireless bridging by providing a high-performance and feature-rich solution for connecting multiple LANs in a metropolitan area or public access environment. These innovative bridges provide deployment personnel with a flexible, easy-to-use solution that meets the security requirements of wide-area networking professionals. They support both point-to-point and point-to-multipoint configurations with industry-leading range and support for data rates up to 54 Mbps. For example:

  - ◦ Cisco Aironet [1300](#) Series outdoor access points/bridges can be deployed as autonomous access points, bridges, or workgroup bridges. These devices have a ruggedized enclosure and provide high-speed, cost-effective wireless connectivity between multiple fixed or mobile networks and clients.

  - ◦ Cisco Aironet [1400](#) Series wireless bridges offer autonomous, high-speed, high-performance outdoor bridging for line-of-sight applications. They provide a ruggedized enclosure that is optimized for harsh outdoor environments with extended operating temperature ranges.

Network Unification

Integration of the wired and wireless network is critical for unified network control, scalability, security, and reliability. System wide wireless LAN functions, such as security policies, intrusion prevention, RF management, QoS, and mobility must be available to support enterprise-class wireless applications. Smooth integration into existing enterprise networks must be readily supported.

Cisco Wireless LAN Controllers—Cisco's solution supports a network infrastructure that functions smoothly across a range of platforms. It delivers the same level of security, scalability, reliability, ease of deployment, and management for wireless LANs as wired LANs. It provides a solid migration path into all major Cisco switching and routing platforms via Cisco wireless LAN controllers. Cisco is the only vendor that delivers a complete end-to-end solution that is unified and innovative, and that provides solid investment protection to help ensure a secure, mobile, interactive workplace for the wired and wireless network.

Today's wired and wireless unification occurs with the [Cisco Catalyst 6500 Series Wireless Services Module (WiSM)](#), [Cisco Catalyst 3750 Series Integrated Wireless LAN Controllers](#), and [Cisco Wireless LAN Controller Module for Integrated Services Routers](#). Cisco WiSM provides unparalleled security, mobility, redundancy, and ease-of-use for business-critical wireless LANs. It is designed for medium-sized and large enterprise facilities with clustering capabilities of up to 3600 lightweight access points per roaming domain. It scales to 300 lightweight access points per module with support for 10,000+ wireless client devices. The Cisco Catalyst 3750G Integrated Wireless LAN Controller adds wireless LAN controller functions to the stackable, highly resilient Cisco Catalyst 3750G Series Switches to improve operating efficiency and security, mobility, and ease of use for business-critical wireless LANs. The Cisco Wireless LAN Controller module for Integrated Services Routers allows small-to-medium businesses and enterprises to cost-effectively deploy and manage secure wireless LAN's at branch offices. It manages up to six Cisco Aironet lightweight access points and is supported on Cisco 2800/3800 Series Integrated Services Routers and Cisco 3700 Series Integrated Services Routers.

Cisco also offers two enterprise-class stand-alone wireless LAN controllers with the Cisco [4400](#) and [2000](#) Series. These stand alone controllers fully integrate with the network infrastructure to deliver enhanced security features, enforce QoS polices and deliver other mobility services. The capacity of these controllers ranges from six access points with the 2000 Series and up to 100 access points with the 4400 Series. These controllers can be clustered together to provide support for up to 2400 access points per roaming domain.

Cisco wireless LAN controllers are responsible for system wide wireless LAN functions, such as integrated IPS, real-time RF management, zero touch deployment, and N+1 redundancy. These controllers work with lightweight access points and a management device to deliver

enhanced performance and advanced management capabilities. Cisco wireless LAN controllers provide the control, scalability, security, and reliability that network managers need to build secure, enterprise-scale wireless networks—from branch offices, to small businesses, to main campuses.

World-Class Network Management

Network managers need a reliable, cost-effective tool for wireless LAN planning, configuration, and management. This tool must be centrally available and support simplified operations and easy-to-use graphical interfaces.

Cisco Wireless Control System—Cisco's world-class WLAN management interface is the industry-leading Cisco Wireless Control System (WCS). Cisco WCS brings ease of use to wireless LAN management via a centralized management tool. This platform provides a powerful foundation that allows IT managers to design, control, and monitor their enterprise wireless networks from a centralized location, simplifying operations and reducing the total cost of ownership.

Cisco WCS is available today to deliver business-critical, easy-to-use, wireless network management. It supports centralized wireless LAN planning and design, RF management, location tracking, IPS, and WLAN systems configuration, monitoring, and management. It easily manages multiple controllers and their associated lightweight access points. It supports zero-touch deployment and robust graphical interfaces to make wireless LAN deployment and operations simple and cost-effective. Detailed trending and analysis reports support ongoing network operations. With Cisco WCS, network administrators have a single centralized solution for RF prediction, policy provisioning, network optimization, troubleshooting, user tracking, security monitoring, and wireless LAN systems management. To learn more about ordering Cisco WCS licenses, read the Cisco Wireless Control System (WCS) Licensing and Ordering Guide.

Additionally, CiscoWorks WLSE (Models 1130-19 and 1133) can be converted to operate as a Cisco WCS to manage lightweight access points and wireless LAN controllers. Learn more by reading the CiscoWorks WLSE Migration to Cisco WCS Product Bulletin.

Mobility 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.

Cisco Unified Wireless Network Mobility Services—Cisco's solution delivers unified support of leading-edge applications. This support is built into Cisco's end-to-end solution—not an afterthought. Cisco's solution is services-oriented and includes a variety of mobility services that are ready for immediate implementation or deployment over time via a phased integration. These services are enabled by the Cisco Unified Wireless Network as part of the Cisco Service-Oriented Network Architecture (SONA). Organizations can selectively deploy the services and applications that they need based on their individual requirements. Cisco's mobility services are industry-leading, innovative, and comprehensive.

The Cisco Unified Wireless Network cost-effectively supports new mobility applications, emerging Wi-Fi technologies, and advanced threat detection and prevention capabilities. It includes the following mobility services:

- **Voice Services**—Voice over WLAN (VoWLAN) allows organizations to provide cost-effective, real-time voice services using their existing wireless infrastructure. The power of VoWLAN is delivered to the enterprise by the comprehensive voice communications capabilities of the Cisco Wireless IP Phone 7920. This Wi-Fi phone supports intelligent services such as security, mobility, QoS, and management, across an end to end Cisco network.

- **Location Services**—Real-time location services support critical applications such as high-value asset tracking, IT management, location-based security, and business policy enforcement. Thousands of authorized and unauthorized active Wi-Fi devices and active RFID tags can be tracked simultaneously to within a few meters from directly within the WLAN infrastructure with the Cisco 2700 Series Wireless Location Appliance. This appliance brings the power of a cost-effective, high-resolution location solution to business critical applications. This innovative device provides the ability to integrate tightly with a spectrum of technology and

application partners through a rich and open application programming interface (API). It supports a free Location Appliance API that is available to customers and partners to facilitate the deployment of customized business applications and solutions. Cisco's location services can also be combined with voice services to support e911 emergency response capabilities.

- **Enhanced Security**—Cisco enhanced security services unify wired and wireless security to control and contain wireless threats, enforce security policy compliance, and safeguard information. Cisco enhanced security services include:
  - A robust wireless LAN Intrusion Prevention System (IPS) with rogue device detection that interfaces with the Cisco Self-Defending Network to help organizations identify, prevent, and adapt to both known and unknown security threats
  - Unified wired and wireless client device admission control that interfaces with Network Admission Control (NAC) to limit damage from emerging security threats such as viruses, worms, and spyware
  - Cisco Secure Services Client that delivers a single authentication framework across multiple device types to protect network endpoint devices and enforce security policies across the wired and wireless network
  - An integrated wired and wireless Intrusion Detection System (IDS)
  - Alerts, reporting, and management capabilities to monitor and maintain network security

- **Guest Access**—Guest access allows customers to keep their wireless networks secure while providing customers, vendors, and partners with controlled access to their WLANs. Organizations can use the Guest Access Lobby Ambassador feature on a Cisco wireless LAN controller to customize guest access configurations.

Cisco will continue to support and develop mobility services to empower customers with mobility solutions to solve business challenges, today and in to the future.

FEATURES

The Cisco Unified Wireless Network supports solid features and benefits through robust product capabilities. This powerful solution provides management centralization with control in the infrastructure.

- **Security**—A fundamental best practice of wireless LAN security is the ability to secure and control the RF environment. Cisco leads the industry in delivering enterprise-class RF security and WLAN security policy monitoring. Cisco wireless security features include:
  - Controlled access to the WLAN via numerous authentication and encryption policies, including 802.11i, Wi-Fi Protected Access (WPA), WPA2, and mobile VPNs
  - WLAN IPS that detects and mitigates rogue access points, unassociated client devices, and ad-hoc networks, and that provides customizable RF attack signatures to protect against common wireless threats
  - Secure management of infrastructure and RF-layer security boundaries
  - Integration with the Cisco Self-Defending Network and NAC

- **Management**—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 operational expenditures. Cisco management features include:
  - Simplified WLAN management and operations support that demystifies RF and removes the complexity of managing the RF environment
  - Real-time RF scanning, monitoring, and control integrated directly into the WLAN infrastructure, delivering a self-configuring, self optimizing, and self-healing wireless network
  - Simultaneous tracking of thousands of devices from directly within the WLAN infrastructure using Cisco's patent-pending RF fingerprinting technology

- Advanced WLAN planning, deployment, and management tools
- Enhanced troubleshooting and diagnostic tools for proactive performance and fault monitoring, including graphical heat maps for easy analysis
- Centralized policy engines that enable system-level security and QoS policies to be easily configured and enforced

- **Performance**—WLAN coverage must be reliable and RF bandwidth must be optimized to help ensure maximum WLAN performance. Cisco achieves this via the following capabilities:
  - QoS for voice and delay-sensitive applications, including over-the-air bandwidth contracts
  - Real-time capacity management with load balancing
  - High-capacity, versatile deployments in office locations or rugged environments, with support for a broad range of operating temperatures
  - Self-healing WLANs for high availability, including coverage hole detection and correction

- **Mobility**—End users need uninterrupted network access when roaming across access points (within and between subnets). Cisco's WLAN solution delivers the following:
  - Secure Layer 2 and Layer 3 roaming
  - "Follow-me VPNs," which enable clients to maintain VPN tunnels when roaming
  - Fast secure scalable roaming in 802.11i environments
  - Context transfer of security and QoS policies, allowing users' identities to follow them as they roam
  - Wireless without boundaries both indoors and outdoors including dynamic wireless mesh networks

- **Scalability**—A wireless network must scale to meet current and future business requirements. Cisco provides:
  - Support for WLAN deployment in the campus, branch offices, remote sites, and outdoor locations
  - Support for deployment of several, hundreds, or thousands of central or remotely located access points
  - WLAN resiliency, redundancy, and fault tolerance

- **Integration**—End-to-end wired and wireless network integration minimizes the total cost of ownership. Cisco minimizes the total cost of ownership for WLANs by supporting:
  - A unified wireless and wired infrastructure, delivering a single point of control for all WLAN traffic
  - Extension of rich, intelligent Cisco infrastructure device features to wireless traffic such as QoS and management policies
  - Support for several types of authentication, authorization, and accounting (AAA) servers
  - Client integration with the Cisco Compatible Extensions program
  - Easy migration of Cisco Aironet autonomous access points to run LWAPP

- **Services/Applications**—An enterprise-class WLAN must support mobility services and applications that use the unique attributes of the wireless network. Cisco includes support for:
  - Voice services through a software application or a handset device
  - High-resolution location tracking for users and assets
  - Guest access to enable customers, consultants, contractors, suppliers, and vendors
  - Application-specific devices (ASDs), such as those used in retail or manufacturing environments

BENEFITS

The Cisco Unified Wireless Network enables enterprises to deploy wireless with confidence. The business benefits of the Cisco Unified Wireless Network are real and tangible. These benefits are achieved while maintaining enterprise-class security levels, and include:

- **Reduced TCO**—The Cisco Unified Wireless Network reduces TCO through minimizing the operational and capital costs associated with managing and deploying the wireless network. Cisco's solution provides:
  - Scalable, problem-free administration that does not increase the burden on the IT staff
  - Control of wireless deployment costs without sacrificing reliability
  - Cost-effective point-to-point or point-to-multipoint wireless bridges designed specifically for ease of installation and operation
  - Built-in support for a variety of mobility services that are ready for immediate implementation or deployment over time via a phased integration.

- **Enhanced WLAN Visibility and Control**—Cisco provides enhanced visibility and control of the wireless LAN, helping to ensure that wireless applications are delivered securely and reliably throughout an entire enterprise and managed centrally for greater scalability and ease of use.
  - Thousands of authorized and unauthorized active Wi-Fi devices can be tracked simultaneously to within a few meters from directly within the WLAN infrastructure
  - System design delivers built-in resiliency and centralized control and management
  - Plug-and-play wireless devices with zero-touch configuration

- **Dynamic RF Management**—Cisco is a leader in RF innovation, creating intelligent WLAN solutions that capitalize on the unique attributes of radio technology.
  - Detect changes in the RF environment and dynamically adapt to these changes in real time
  - Intelligent RF control plane for self-configuration, self-healing, and self-optimization

- **Advanced WLAN Security and Network Protection**—An integrated WLAN IPS protects the network from security breaches and unsecured WLAN connections that put the entire network at risk.
  - Customizable attack signature files can be used to rapidly detect and contain common RF-related attacks, such as Netstumbler, FakeAP, and void11
  - Advanced RF fingerprinting technology supports high-accuracy device tracking
  - Cisco Self-Defending Network and NAC limit damage from emerging security threats such as viruses, worms, and spy ware
  - Wired and wireless rogue access point and client containment maintain network security and prevent unauthorized users from accessing enterprise resources
  - Cisco Compatible client devices extend air/RF rogue detection capabilities

- **Unified Wired and Wireless Networks**—Cisco is the only vendor that delivers a complete, end-to-end solution that is unified and innovative, and that provides solid investment protection to ensure a secure, mobile, interactive workplace for the wired and wireless network.
  - Create and enforce authentication and access control policies
  - The same policies that have evolved for an enterprise's wired security (NAC, firewall), management (event correlation, VLANs, policy control), and QoS (802.1p, bandwidth management) can now be extended to the wireless world
  - Solid migration path through integration with all major Cisco routers and switches enables cohesive, robust enterprise wide networking capabilities

- **Mobility for the Enterprise**—Mobility becomes an intrinsic component of the enterprise, with Cisco helping IT managers to easily and securely deploy mission-critical WLANs that complement investments in the existing networking infrastructure—both indoors and outdoors.
  - Delivery of versatility, high capacity, security, and enterprise-class features demanded by WLAN customers
  - Context transfer enables identity-specific information to follow users as they roam between Layer 2 or Layer 3 domains
  - QoS and Wi-Fi multimedia support for VoIP
  - Easy-to-deploy wireless bridges
- **Enhanced Productivity, Collaboration, and Responsiveness**—Cisco technology helps an organization's employees accomplish more in every meeting, make faster decisions, and use every minute more effectively, whether in the office or on the road.
  - Healthcare environments can improve patient care
  - Universities and educational institutions can connect students and teachers
  - Financial institutions can have real-time access to client data
  - Government agencies can deliver faster access to information, thereby enhancing public safety
  - Manufacturing can share real-time data from the manufacturing floor and support "just-in-time" manufacturing and assembly
  - Retail environments can provide data mobility throughout the entire store and warehouse, allowing sales staff to serve customers more effectively
  - Public access WLANs can provide access to corporate networks while employees are on the road
  - Corporations can better track assets, access critical business information, and enhance employee productivity through real-time information exchange

CISCO UNIFICATION, INNOVATION, AND INVESTMENT PROTECTION

As the worldwide WLAN technology leader and innovator, Cisco offers the industry's most comprehensive product line for enterprise WLANs. Cisco will continue to lead the acceleration and evolution of WLAN technology into the next generation of enterprise networking. Cisco will evolve the Cisco Unified Wireless Network to continue to support new business applications, WLAN technology developments, and enterprise-class network demands.

Cisco's technology unification, innovation, and investment protection will help ensure a secure, mobile, interactive workplace for organizations deploying WLANs. Cisco will help to ensure customer investment protection through field firmware upgrades, software upgrades, and careful attention to future hardware requirements. Future enhancements will include enhanced mobility services, several deployment options, software enhancements, scalability features, security capabilities, hardware advancements, and wired + wireless integration. Customers can feel confident that with Cisco, their WLAN investments are protected both today and tomorrow.

CISCO WLAN FINANCING PROGRAM

Customers can add a Cisco wireless LAN financing package to their Cisco Systems Capital® Corporation lease to make deploying Cisco WLAN solutions easier. A Cisco Systems Capital Corporation lease allows companies to minimize their initial investments, control their budgets, and avoid technology obsolescence while increasing employee productivity, improving employee responsiveness to customers, and enhancing employee, partner, and customer collaboration. Read more at the Cisco Wireless LAN Financing Program.

SUMMARY

Today, business is mobile. The dramatic increase in the number of Wi-Fi enabled notebook computers and Cisco Compatible client devices available worldwide is leading to the rapid deployment of WLANs across enterprise campuses, branch offices, and remote locations. Organizations need anywhere, anytime connectivity. Organizations are deploying WLANs to increase employee productivity and efficiency, gain a competitive advantage, and provide network users with a new level of freedom and flexibility. WLANs are improving business operations and enabling real-time access to business-critical applications and network resources.

The Cisco Unified Wireless Network is the infrastructure that delivers cost-effective wireless networks for business-critical mobility. This award-winning solution supports innovative RF technology solutions and delivers the same level of security, scalability, and manageability for wireless LANs that organizations' expect in their wired LANs. This solution includes built-in enterprise-class security that identifies, prevents, and adapts to both known and unknown security threats. It includes unified mobility services that include voice services, location services, guest access and enhanced security.

Cisco has the flexibility and scalability to meet the requirements of networks of all sizes, from small businesses to large-scale enterprise multinational companies; within WLAN campus deployments or branch offices; at universities; in the retail, finance, manufacturing, and healthcare industries; or in hotspot locations.

The Cisco Unified Wireless Network allows companies to put the RF environment to work to improve the way they do business and enhance productivity through a mobile workforce. This solution addresses the deployment, management, and RF challenges associated with building business-critical WLANs. It reduces overall operational expenses and simplifies network deployment, operations, and management. This solution helps IT managers take full advantage of their existing tools, knowledge, and network resources to cost-effectively address critical WLAN security, implementation, and control issues.

FOR MORE INFORMATION

Contact your local account representative or visit the location below for more information.

For more information about the Cisco Unified Wireless Network, visit: http://www.cisco.com/go/unifiedwireless