Cisco Unified Wireless Network

Introducing the Cisco Unified Wireless Network

The Cisco® Unified Wireless Network is the industry's only unified wired and wireless solution that increases employee productivity, enhances collaboration, and improves responsiveness to customers while cost-effectively addressing the security, deployment, management, and control issues facing large-scale enterprise and commercial wireless LAN rollouts.

This award-winning solution is a fulfillment of Cisco Motion, a holistic approach to business mobility that combines applications, devices, and the network as the platform to deliver industry-relevant mobility while simplifying deployment and reducing the burden on IT resources.

The Cisco Unified Wireless Network is designed for corporate and branch offices, hospitals, retail stores, manufacturing sites, warehouse environments, educational institutions, financial institutions, local and national government organizations, and any other location where mobile connectivity is needed. Designed as a multiservice solution, the Cisco Unified Wireless Network supports general wireless-enabled business applications such as e-mail, voice communications, and Internet access, as well as specialized applications such as nurse call systems, inventory management, retail point-of-sale, video surveillance, and many others. To facilitate integration with mobile business processes, the Cisco Unified Wireless Network supports a variety of mobility services to enhance security, voice, guest, client and context-aware services. In addition, Cisco works with a wide variety of tested and proven technology partners to deliver an even broader range of specialized applications targeted to different industries.

Solution Components

Based on industry standards such as IEEE 802.11, the Cisco Unified Wireless Network is an integrated end-to-end solution that addresses all layers of the wireless LAN, from client devices and access points to the network infrastructure, network management, delivery of advanced wireless services, and award-winning, worldwide, 24-hour product support.

The Cisco Unified Wireless Network includes the following primary components:

- **Client devices:** PC cards, Wi-Fi tags, and other client adapters that connect desktops, assets such as equipment or retail goods, and mobile devices to the wireless network.
  - The Cisco Compatible Extensions program enables mobile client devices and Wi-Fi tags to simply and securely connect to a Cisco Unified Wireless Network for optimal performance.
  - The Cisco Secure Services Client is a software supplicant that enables businesses of all sizes to deploy a single authentication framework across multiple device types to access both wired and wireless networks, delivering simplified management, robust security, and lower total cost of ownership.
- **Access points:** Cisco Aironet® access points and bridges that connect wireless devices to wired networks, providing ubiquitous network access.

- **Network unification components:** A variety of platforms, such as wireless LAN controllers, integrated switches, and routers, that deliver comprehensive wireless network services such as dynamic RF management and self-configuration.
- **Network management tools:** Cost-effective tools that provide a complete view of the wireless LAN network for easier planning, configuration, and management from a central location.
- **Mobility services:** An open mobility services platform delivers mobility services to enable mobile business applications.
  - **Context-Aware mobility:** Provide real-time contextual information about mobile assets to help increase an organizations' efficiency and support immediate access to information such as location, temperature, and device availability to help businesses make informed decisions.
  - **Adaptive wIPS:** Protect the wired and wireless network from wireless threats through comprehensive detection and mitigation of known and unknown threats and proactive threat prevention that is designed into the network.
  - **Secure Client Manager:** Centrally provision, monitor, update, and assist with troubleshooting of devices whether they are connected on wired or wireless networks.
  - **Mobile Intelligent Roaming:** Deliver transparent handoff of mobile business communications allowing users to roam transparently between cellular and Wi-Fi networks when using a dual-mode device.
  - **Guest access services:** Allow customers, vendors, and other non-employees to access wired and wireless network resources without compromising enterprise security, by basing privileges on user type and physical location.
  - **Security services:** Unified wired and wireless security helps ensure network information integrity by enabling location-based authentication and precise detection, identification, and prevention of wireless threats.
  - **Voice services:** Extend the mobility of the Cisco Unified Wireless Network to enable business communications using Wi-Fi-enabled clients and Wi-Fi- and cellular-compatible smart phones with end-to-end quality of service (QoS) and manageability.

Figure 1 shows the components of the Cisco Unified Wireless Network solution.

Figure 1. The Cisco Unified Wireless Network Components

Manageable and Scalable

Award-winning Cisco management allows from several to thousands of local and remote access points to be configured and monitored simply and efficiently. Automatic recognition of new access points results in correct configuration, helping to ensure that remote offices are applying the same security protocols as large campuses. Centralized management relieves network administrators of once-manual tasks, enabling the wireless network to scale as quickly as is needed.

Available and Reliable

Cisco automatic RF management supports wireless LAN controller clustering for redundancy and intelligent network monitoring to help ensure a highly available wireless LAN. Upon failure of an access point, the adjacent access points automatically compensate, increasing their radio power to reduce or eliminate coverage holes. To provide a better end-user experience, the Cisco Unified Wireless Network uses an intelligent algorithm that associates new users with the best access point based on a combination of traffic load and signal strength.

Investment Protection

Many Cisco customers have purchased Cisco Aironet access points that operate autonomously, that is, without benefit of centralized management from a Cisco Wireless LAN Controller and the Cisco Unified Wireless Network feature set. To protect customers' investment, autonomous (also called standalone) Aironet access points can be upgraded via a free software upgrade to support the Lightweight Access Point Protocol (LWAPP), which is needed for the unified solution. Autonomous access points are based on Cisco IOS® Software and may be upgraded in the field to lightweight mode, using Cisco Wireless Control System (WCS) or manually, thereby providing customers with a smooth path from core to unified features.

The Cisco Unified Wireless Network feature set is delivered by lightweight access points, wireless LAN controllers, and the Cisco WCS management solution and delivers the most comprehensive set of capabilities in the industry, including guest access, wireless intrusion detection and intrusion prevention, scalable Layer 3 roaming, and context-aware services. See "Why Migrate to Wireless Network?" for more details.

Cisco Client Devices

The Cisco Aironet Wireless LAN Client Adapters quickly connect desktop and mobile computing devices to the wireless LAN in 802.11a/b/g/n-compliant networks. For additional form factors and operating systems, Cisco has teamed up with industry leaders to provide the Cisco Compatible Extensions program. At the same time, the Cisco Unified Wireless IP Phone 7921 delivers high-quality voice and data applications to enterprise desktops. Table 1 provides information about these products and the Cisco Compatible Extensions program.

Table 1. Cisco Client Devices

Product	Features	Customer Requirements	Part Number
Cisco Aironet Client Adapters 	• Cisco Aironet IEEE 802.11a/b/g CardBus Wireless LAN Client Adapters: For laptops and tablet PCs • Cisco Aironet IEEE 802.11a/b/g PCI Wireless LAN Client Adapters: For low-profile slim desktop and point-of-sale devices • Cisco Aironet 5-GHz, 54-Mbps Wireless LAN Client Adapters (CB20A): For 802.11a-only wireless connectivity	• High-performance 802.11a/b/g wireless connectivity for untethered access to network resources, the Internet, and e-mail • Supported by 802.11n networks as an 802.11a/b/g client • Supported by 802.11n networks as an 802.11a client	• AIR-PI21AG-*X-K9: 802.11a/b/g Low Profile PCI Adapter • AIR-CB21AG-*X-K9: 802.11a/b/g CardBus See the Cisco Aironet 802.11a/b/g Wireless LAN Client Adapter Data Sheet for more information.
Cisco Compatible Extensions 	• Provides tested compatibility for wireless LAN client devices and Wi-Fi tags with licensed Cisco infrastructure innovations • Helps assure compatibility through extensive, independent testing • Enables widespread availability of wireless client devices that integrate with Cisco wireless networks	A variety of wireless form factors that securely and easily connect with a Cisco Unified Wireless Network	See the Cisco Compatible Extensions program description for more information.
Cisco Unified Wireless IP Phone 7921 	• An easy-to-use IEEE 802.11a/b/g wireless IP phone that provides comprehensive voice communications in conjunction with Cisco Unified CallManager and Cisco Unified CallManager Express • Enterprise security features include 802.11i (802.1x Authentication + TKIP Encryption, 802.1x Authentication + AES Encryption) • Advanced QoS features include 802.11e and seamless roaming	• Ideal for on-campus and in-building use • Ideal for mobile employees in healthcare clinics, warehouse/distribution centers, retail stores, and manufacturing facilities • Ideal for large enterprises with Cisco Unified Communications Systems and small and medium-sized businesses with Cisco Unified CallManager Express	• CP-7921G-A-K9 See the Cisco Unified Wireless IP Phone 7921G Data Sheet for more information.

Product	Features	Customer Requirements	Part Number
Cisco Secure Services Client 	• A single authentication framework for multiple device types based on the IEEE 802.1X standard • Full integration with the Cisco Unified Wireless Network and the Cisco Self-Defending Network • Security policy functions protect network endpoint devices, enforce security policies, and control network access	A single solution for secure and manageable identity-based client connectivity to wired and wireless networks	• AIR-SC5.0-XP2K See the Cisco Secure Services Client Data Sheet for more information.

Cisco Aironet Access Points

Unless otherwise noted, all Cisco Aironet access points are available in a lightweight or standalone version. Standalone access points may be upgraded using a free sofware upgrade to lightweight mode to work with a wireless LAN controller and take advantage of the full benefits of the Cisco Unified Wireless Network.

Indoor rugged access points feature a rugged metal case, extended operating temperature, and external antenna versatility, providing an extended range and flexible installation options for RF environments such as factories, warehouses, and retailers.

Indoor access points feature integrated antennas and an aesthetically pleasing case for easy deployment in offices and similar facilities.

Wireless mesh access points and outdoor rugged access points offer high-speed, cost-effective, and secure wireless connectivity between multiple fixed or mobile networks or for metropolitan networks or enterprise campuses.

Table 2 lists ordering information for these Cisco Aironet access points.

Table 2. Cisco Aironet Indoor Rugged, Indoor, Wireless Mesh, and Outdoor Rugged Access Points

Product	Features	Customer Requirements	Part Number
Indoor Rugged Access Points			
Cisco Aironet 1250 Series	• Industry's first business-class access point based on the IEEE 802.11n draft 2.0 standard • Provides reliable and predictable WLAN coverage to improve the end-user experience for both existing 802.11a/b/g clients and new 802.11n clients • Offers combined data rates of up to 600 Mbps to meet the most rigorous bandwidth requirements	• Designed for both office and challenging RF environments • Especially beneficial for environments with the following characteristics: ◦ Challenging RF environments (for example, manufacturing plants, warehouses, clinical environments) ◦ Bandwidth-intensive applications (for example, digital imaging, file transfers, network backup) ◦ Real-time, latency-sensitive applications such as voice and video ◦ Need to support existing 802.11a/b/g and new 802.11n wireless clients	Access point platform with pre-installed radio modules: • AIR-AP1252AG-x-K9: 802.11a/g/n-draft 2.0 2.4/5-GHz Modular Autonomous Access Point; 6 RP-TNC • AIR-AP1252G-x-K9: 802.11g/n-draft 2.0 2.4-GHz Modular Autonomous Access Point; 3 RP-TNC • AIR-LAP1252AG-x-K9: 802.11a/g/n-draft 2.0 2.4/5-GHz Modular Unified Access Point; 6 RP-TNC • AIR-LAP1252G-x-K9: 802.11g/n-draft 2.0 2.4-GHz Modular Unified Access Point; 3 RP-TNC See the Cisco Aironet 1250 Series Ordering Guide for more information.
Cisco Aironet 1240AG Series	• Second-generation 802.11a/g dual-band indoor rugged access point • 2.4-GHz and 5-GHz antenna connectors for greater range or coverage versatility and more flexible installation options using the broad selection of Cisco antennas available	• Ideal for challenging indoor RF environments • Recommended for offices and similar environments • Ideal for deployments above suspended ceilings • Recommended for outdoors when deployed in a weatherproof NEMA-rated enclosure	• AIR-AP1242AG-x-K9: 802.11a/g Nonmodular Cisco IOS Software-Based Access Point; RP-TNC • AIR-LAP1242AG-x-K9: 802.11a/g Nonmodular LWAPP Access Point; RP-TNC See the Cisco Aironet 1240AG Series 802.11a/b/g Data Sheet for more information.
Indoor Access Points			
Cisco Aironet 1130AG Series	Low-profile, enterprise-class 802.11a/g access point with integrated antennas for easy deployment in offices and similar RF environments	Ideal for offices and similar environments	• AIR-AP1131AG-*X-K9 See the Cisco Aironet 1130AG Series Ordering Guide for more information.
Wireless Mesh Access Points			
Cisco Aironet 1520 Series	• Next-generation outdoor wireless mesh access point • Integrated dual band 802.11 a/b/g radios, Ethernet, fiber and cable modem interface • Provides easy and flexible deployments for outdoor wireless network • Available in a lightweight version only	• Ideal for outdoors • Recommended for industrial deployments and local government, public safety, and transit agencies	• AIR-LAP1522AG-X*-K9: See the Cisco Aironet 1520 Series Lightweight Outdoor Mesh Access Point Ordering Guide for more information.
Cisco Aironet 1500 Series	• Mesh access point that enables cost-effective, scalable deployment of secure outdoor wireless LANs for metropolitan networks or enterprise campuses • Available in a lightweight version only	• Ideal for outdoors • Recommended for providing wireless services and applications to local government, public safety, and transit agencies	• AIR-LAP1510AG-*X-K9: • Cisco Aironet 1510AG Lightweight Outdoor Mesh Access Point, FCC configuration See the Cisco Aironet 1500 Series Ordering Guide for more information.
Outdoor Rugged Access Points			
Cisco Aironet 1400 Series	• High-speed, high-performance outdoor bridging solution for line-of-sight applications • Offers affordable alternative to leased-line services • Available in a standalone version only	• High-speed building-to-building or campus connectivity • Share LAN/Internet access between two or more sites • Fast installation	• AIR-BR1410A-*X-K9: With integrated antenna • AIR-BR1410A-A-K9-N: With N-Type connector for use with external antennas See the Cisco Aironet 1400 Series Bridge Data Sheet for more information.

Product	Features	Customer Requirements	Part Number
Cisco Aironet 1300 Series	Outdoor access point/bridge offers high-speed and cost-effective wireless connectivity between multiple fixed or mobile networks and clients	Ideal for outdoor areas, network connections within a campus area, temporary networks for portable or military operations, or outdoor infrastructure for mobile networks	● AIR-BR1310G-X-K9: With integrated antenna ● AIR-BR1310G-X-K9-R: With RP-TNC connector for use with external antennas ● AIR-BR1310G-A-K9-T: For transportation applications See the Cisco Aironet 1300 Series Ordering Guide for more information.

*X = regulatory domain

Cisco Wireless LAN Controllers

As components of the Cisco Unified Wireless Network, Cisco wireless LAN controllers present network administrators with the visibility and control necessary to effectively and securely manage business-class WLANs and work with the Cisco Mobility Services Engine (MSE) and Cisco WCS to deliver mobility services.

The main differences between Cisco wireless LAN controllers are in their capacities and form factors. All the Cisco wireless LAN controllers used in the Cisco Unified Wireless Network architecture offer the features described in Table 3.

Table 3. Features and Benefits of Cisco Wireless LAN Controllers

Features	Benefits
Scalability	Scalable architecture provides business-critical wireless services for locations of all sizes.
Integrated Radio Resource Management (RRM)	Creates an intelligent RF control plane for self-configuration, self-healing, and self-optimization.
Zero-configuration deployment	The system can be deployed without the need to modify existing routing and switching infrastructures, and without configuring access points.
Multilayered security	Flexible security policies adapt to changing corporate security needs. Intrusion detection, location, and containment preserve the integrity of wireless networks and protect sensitive corporate information.
Mobility management	Intersubnet roaming without special client software facilitates device management. No changes to core routing infrastructure makes roaming easy.
Reliability	Automated recovery from lightweight access point and wireless LAN controller failures maximizes the availability of the wireless network.
Intuitive management interfaces	Better visibility and control of the air space reduces operational costs.

Table 4 lists ordering information for Cisco wireless LAN controllers.

Table 4. Ordering Information for Cisco Wireless LAN Controllers

Product	Features	Customer Requirements	Part Number
Wireless LAN Controllers			
Cisco 4400 Series Wireless LAN Controller	• Modular support of 12, 25, 50, or 100 Cisco Aironet access points • The Cisco 4402 with 2 Gigabit Ethernet ports supports configurations for 12, 25, and 50 access points • The Cisco 4404 with 4 Gigabit Ethernet ports supports configurations for 100 access points • IEEE 802.1D Spanning Tree Protocol for higher availability • IPSec encryption • Industrial-grade resistance to electromagnetic interferences (EMI)	• For midsize to large deployments • High availability	• AIR-WLC4402-12-K9 • AIR-WLC4402-25-K9 • AIR-WLC4402-50-K9 • AIR-WLC4404-100-K9 See the Cisco Wireless LAN Controllers Data Sheet for more information.
Cisco 2100 Series Wireless LAN Controller	• Supports up to 6, 12 or 25 Cisco Aironet access points • Eight Ethernet ports, two of which can provide power directly to Cisco APs • Desk mountable	• For retail, enterprise branch offices, or SMB deployments	• AIR-WLC2106-K9 • AIR-WLC2112-K9 • AIR-WLC2125-K9 See the Cisco 2106 Wireless LAN Controller Data Sheet for more information.
Cisco Catalyst® 6500 Series /7600 Series Wireless Services Module (WiSM)	• Wireless LAN Controller for Cisco Catalyst 6500 or Cisco 7600 Series Router • Supports 300 Cisco Aironet access points • IPSec encryption • Industrial-grade resistance to electromagnetic interferences (EMI) • Intrachassis and interchassis failover • Interoperable with Cisco Catalyst 6500 Series Firewall and IDS services modules	• Embedded system for the Cisco Catalyst 6500 Series and Cisco 7600 Series Router infrastructure • For large-scale deployments • High availability	• WS-SVC-WISM-1-K9 • WS-SVC-WISM-1-K9= (spare) See the Cisco Catalyst Wireless Services Module Data Sheet for more information.
Cisco Catalyst 3750G Integrated WLAN Controller	• Cisco Catalyst 3750G Series Switch with wireless LAN controller capabilities • Modular support of 25 or 50 Cisco Aironet access points per switch (and up to 200 access points per stack*) • IPSec encryption • Industrial-grade resistance to electromagnetic interferences (EMI)	• For midsize to large deployments • High availability	• WS-C3750G-24WS-S25 • WS-C3750G-24WS-S50 See the Cisco Catalyst 3750G Integrated Wireless LAN Controller Data Sheet for more information.
Cisco Wireless LAN Controller Module for Cisco Integrated Services Routers	• Wireless LAN controller integrated into Cisco integrated services routers • Supports 6, 8, 12, or 25 Cisco Aironet access points	• Embedded system for Cisco 2800/3800 Series and Cisco 3700 Series routers • For retail, small to medium-sized deployments or branch offices	• NME-AIR-WLC6-K9 • NME-AIR-WLC6-K9= (spare) • NME-AIR-WLC8-K9 • NME-AIR-WLC8-K9= (spare) • NME-AIR-WLC12-K9 • NME-AIR-WLC12-K9= (spare) • NME-AIR-WLC25-K9 • NME-AIR-WLC25-K9= (spare) See the Cisco WLAN Controller Modules Data Sheet for more information.

Please refer to the Cisco Wireless LAN Controller Ordering Guide supplement to learn when to add the following SKUs to track the deployment of voice and context-aware mobility applications.

- **LIC-WLC-VOICE=**—Voice over WLAN license for Wireless LAN controller
- **LIC-WLC-CAS=**—Context-Aware Mobility license for Wireless LAN controller

Cisco Mobility Services

The Cisco 3300 Series Mobility Services Engine (MSE) is an open platform that provides a new approach for the delivery of mobility services to enable mobile business applications. A combination of hardware and software, the Mobility Services Engine is an appliance-based solution that supports a suite of Cisco Mobility Services to provide centralized and scalable service delivery. Cisco Mobility Services are a set of value-added network services that consolidate intelligence from various points in the network to enable and optimize the delivery of business mobility applications. The Cisco Context-Aware Mobility software is a mobility service and integrates with the Cisco Unified Wireless Network to capture and integrate into business processes detailed contextual information such as location, temperature, availability, and applications used.

Although the MSE and context-aware mobility software are recommended, the Cisco Wireless Location Appliance is an alternate option for simultaneously tracking Wi-Fi devices from within the WLAN infrastructure. Table 5 lists ordering information for the Mobility Services Engine, Context-Aware Software and the Wireless Location Appliance.

Table 5. Ordering Information for the Mobility Services Engine, Context-Aware Software and the Wireless Location Appliance

Product	Features	Customer Requirements	Part Number
Cisco Mobility Services Engine			
Cisco 3300 Series Mobility Services Engine	Extensible platform for rapid delivery of services and applications • Allows the abstraction of services and applications from control and network so that each may evolve independently • Common framework for hosting multiple mobility services • Open API to support third-party and partner application development Offers scalability as multiple services can be deployed on a single Mobility Services Engine or a single service can span multiple Mobility Services Engines.		**Hardware SKU:** • AIR-MSE-3350-K9—Cisco 3350 Mobility Services Engine See the Cisco Mobility Services Engine Data Sheet for more information.

Product	Features	Customer Requirements	Part Number
Cisco Context-Aware Software	Hosted by the Cisco Mobility Services Engine • Cisco Context-Aware software allows for the tracking of up to 18,000 clients and tags for contextual information. • Separate licenses are required for Context-Aware software for clients and Context-Aware software for tags.	• For customers ranging from enterprises to industries such as healthcare, finance, retail, manufacturing, and federal organizations • Supports critical applications including zone/inventory management, asset tracking, condition tracking, presence and network-location services.	**Software SKUs for the Cisco 3300 Series Mobility Services Engine:** • AIR-CAS-3KC-K9—License for Tracking 3,000 Client devices • AIR-CAS-6KC-K9—License for Tracking 6,000 Client devices • AIR-CAS-12KC-K9—License for Tracking 12,000 Client devices • AIR-CAS-3KT-K9—License for Tracking 3,000 Tag devices • AIR-CAS-6KT-K9—License for Tracking 6,000 Tag devices • AIR-CAS-12KT-K9—License for Tracking 12,000 Tag devices See the Cisco Context-Aware Software Data Sheet for more information.
Wireless Location Appliance			
Cisco 2710 Wireless Location Appliance	• Scalable location tracking and asset management for up to 2500 devices • Enhanced network visibility • Support of chokepoint technology and Cisco Compatible Wi-Fi tags for high-fidelity, deterministic location notification • Tight integration with a spectrum of technology and application partners through a rich and open application programming interface (API) • Enhanced WLAN security through accurately locating rogue access points • Advanced planning and deployment tools for accurate calibration	• For customers ranging from enterprises to industries such as healthcare, finance, retail, manufacturing, and federal organizations • Supports critical applications including high-value asset tracking, location-based security, enhanced network management, and business policy enforcement	• AIR-LOC2710-L-K9 See the Cisco Wireless Location Appliance Data Sheet for more information.

Cisco Network Management

Cisco currently has two management platforms available to support Cisco WLANs: the Cisco WCS and the CiscoWorks Wireless LAN Solution Engine (WLSE) or CiscoWorks WLSE Express.

The CiscoWorks WLSE and CiscoWorks WLSE Express support standalone access points and standalone WLAN bridges.

Cisco WCS is a component of the Cisco Unified Wireless Network. Cisco WCS supports Cisco Aironet lightweight access points and Cisco wireless LAN controllers. With Cisco Unified Wireless Network Software Release 4.2 and later, Cisco WCS also supports status and alarm monitoring of Cisco Aironet standalone access points and includes a built-in tool that simplifies the process to migrate these access points to operate as lightweight access points. Feature development on the Cisco WCS will continue at an accelerated rate in conjunction with the release of new features for the Cisco wireless LAN controller family.

Large-scale deployments can also add the Cisco WCS Navigator for enhanced scalability, manageability, and visibility of large-scale implementations of the Cisco Unified Wireless Network. This powerful, software-based solution gives network administrators cost-effective, easy access to information from multiple, geographically dispersed Cisco WCS management platforms.

Table 6 lists ordering information for WCS, CiscoWorks WLSE and CiscoWorks WLSE Express.

Table 6. Ordering Information for WCS, CiscoWorks WLSE and CiscoWorks WLSE Express

Wireless Network Management			
Cisco Wireless Control System (WCS)	• Industry's leading platform for wireless LAN planning, configuration, management, and troubleshooting • Manages Cisco wireless LAN controllers, Cisco Aironet access points, Cisco outdoor mesh access points and the Cisco Wireless Location Appliance • Monitors and migrates Cisco Aironet standalone access points • Supports up to 3000 lightweight access points, 1250 standalone access points, and 750 wireless LAN controllers • Design, control, and monitor the enterprise wireless network from a centralized location • Hierarchical maps • Policy management templates • Centralized software upgrades • Integrated location tracking (optional)	• Centralized management of the Cisco Unified Wireless Network • Simplified migration of standalone (autonomous) access points to operate as lightweight access points • For businesses deploying mobility services • Easily add support for location services with Wireless Location Appliance • Works with Windows and Linux	• WCS-APBASE-50 • WCS-APBASE-100 • WCS-APBASE-500 • WCS-APLOC-50 • WCS-APLOC-100 • WCS-APLOC-500 • WCS-APLOC-UPG-50 • WCS-APLOC-UPG-100 • WCS-APLOC-UPG-500 • WCS-ENT-1000 • WCS-ENT-2500 • WCS-ENT-10000 • WCS-ENT-50000 • WCS-WLSE-APB-50 • WCS-WLSE-APB-100 • WCS-WLSE-APB-500 • WCS-WLSE-APB-1000 • WCS-WLSE-APB-2500 • WCS-WLSE-APL-50 • WCS-WLSE-APL-100 • WCS-WLSE-APL-500 • WCS-WLSE-APL-1000 • WCS-WLSE-APL-2500 • Cisco WCS Demonstration License: AIR-WCS-DEMO-K9 See the Cisco Wireless Control System (WCS) Licensing and Ordering Guide for more information. See the Cisco WCS Data Sheet for more information.
Cisco Wireless Control System (WCS) Navigator	• Aggregated platform for enhanced scalability, manageability, and visibility of large-scale implementations of the Cisco Unified Wireless Network	• Cost-effective, easy access to information from up to 20 geographically dispersed Cisco WCS management platforms and up to 30,000 Cisco Aironet lightweight access points from a single management console	• WCS-NAV-20 See the Cisco WCS Navigator Licensing and Ordering Guide for more information.
CiscoWorks Wireless LAN Solution Engine Enterprise (WLSE Enterprise)	• For Cisco Aironet standalone access points and bridges • Different set of features than the Cisco WCS	• For large enterprise deployments of more than 100 Cisco Aironet standalone access points and/or bridges	• CWWLSE-1133-K9 See the CiscoWorks Wireless LAN Solution Engine Enterprise 2.13 Data Sheet for more information.

CiscoWorks Wireless LAN Solution Engine Express (WLSE Express)	• For Cisco Aironet standalone access points and bridges • Different set of features than the Cisco WCS	• For small and midsize businesses and enterprise branch office WLAN deployments of up to 100 Cisco Aironet standalone access points	• CWWLSE-2.12EXLCUK9 See the CiscoWorks Wireless LAN Solution Engine Express 2.13 Data Sheet for more information.

Cisco Aironet Antennas and Accessories

Access point and bridge antennas must be ordered separately. The Cisco Aironet 2.4 GHz and 5 GHz Antennas and Accessories datasheet is located at: http://www.cisco.com/en/US/prod/collateral/wireless/ps7183/ps469/product_data_sheet09186a008022b11b.html

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