

## CISCO WIRELESS CONTROL SYSTEM (WCS)

**Figure 1.** Cisco Wireless Control System (WCS)



### PRODUCT OVERVIEW

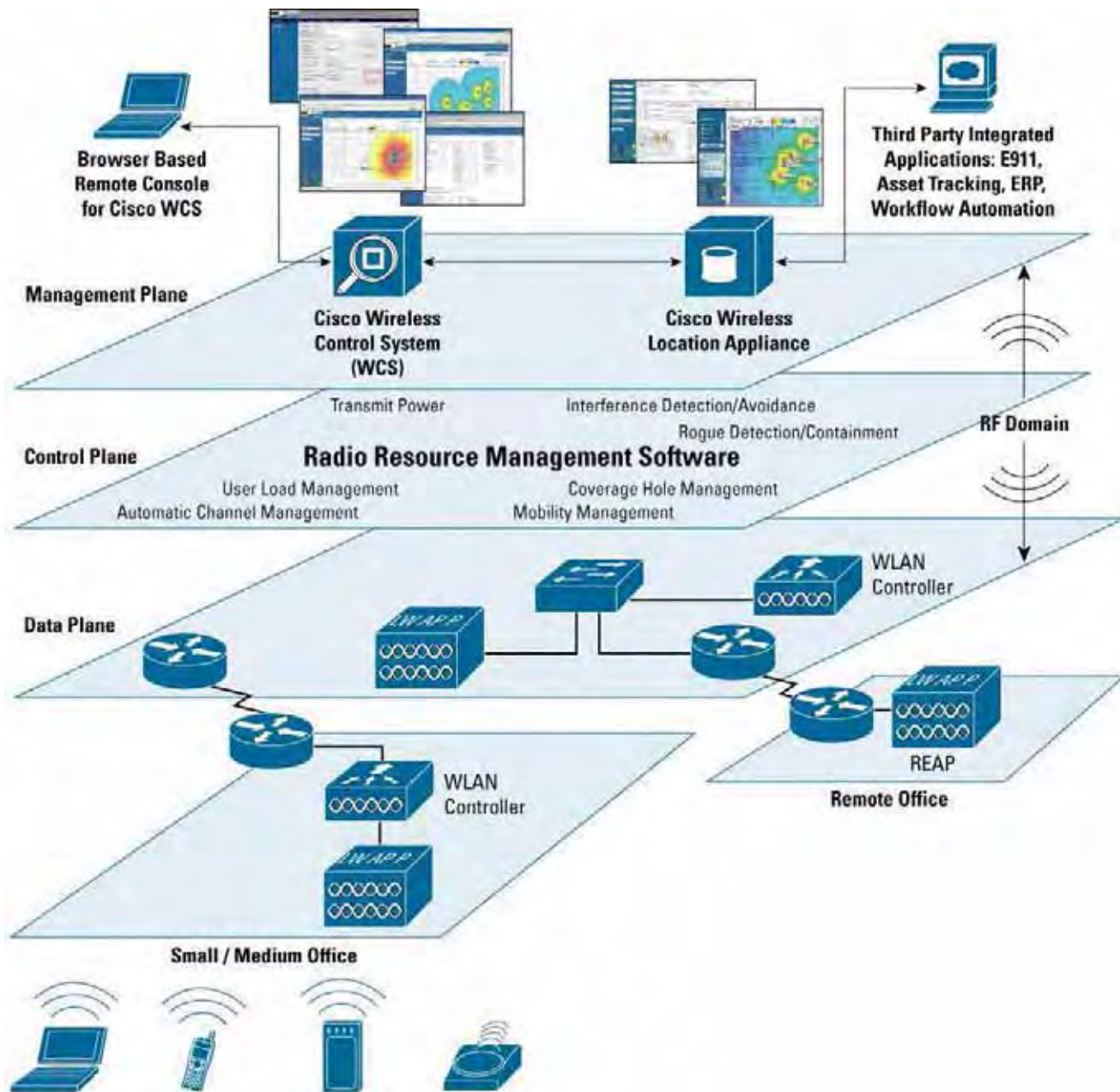
#### Cisco Wireless Control System (WCS)

Cisco® Wireless Control System (WCS) is the industry's leading platform for wireless LAN planning, configuration, and management. It provides a powerful foundation that allows IT managers to design, control, and monitor enterprise wireless networks from a centralized location, simplifying operations and reducing total cost of ownership. Cisco WCS is a component of the Cisco Centralized WLAN Solution. This solution is available as part of the Cisco Integrated Wireless Network.

With Cisco WCS, network administrators have a single solution for RF prediction, policy provisioning, network optimization, troubleshooting, user tracking, security monitoring, and wireless LAN systems management. Robust graphical interfaces make wireless LAN deployment and operations simple and cost-effective. Detailed trending and analysis reports make Cisco WCS vital to ongoing network operations.

Cisco WCS runs on a server platform with an embedded database. This provides the scalability necessary to manage hundreds of Cisco Wireless LAN Controllers, which in turn can manage thousands of Cisco lightweight access points. Cisco Wireless LAN Controllers can be located on the same LAN as Cisco WCS, on separate routed subnets, or across a wide-area connection. This makes Cisco WCS the ideal wireless LAN management platform for even the largest enterprise environments. (Figure 2)

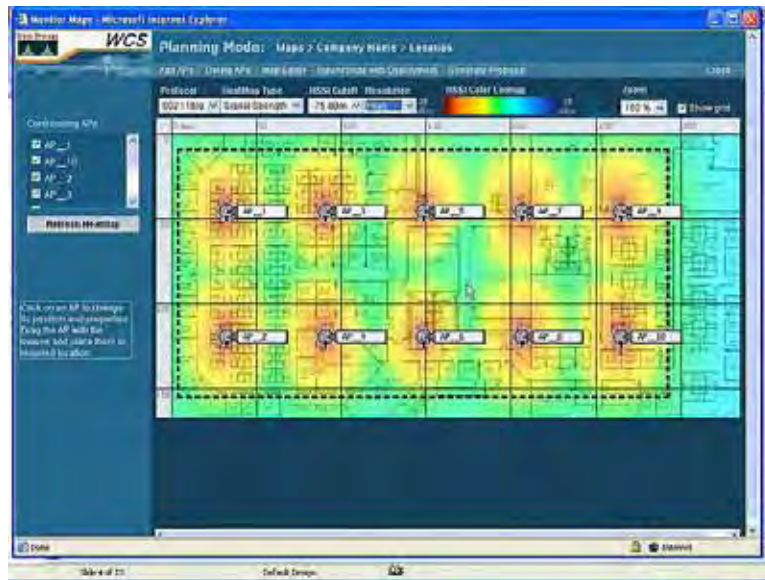
**Figure 2.** Enterprise Wide RF Intelligence



Cisco WCS enables the following functions across an entire wireless network:

- **Wireless LAN Planning and Design**
  - Cisco WCS provides integrated RF prediction tools that can be used to create a detailed wireless LAN design, including lightweight access point placement, configuration, and performance/coverage estimates. IT staff can import real floor plans into Cisco WCS and assign RF characteristics to building components to increase design accuracy. Graphical heat maps help IT staff visualize anticipated wireless LAN behavior for easier planning and faster rollout (Figure 3).

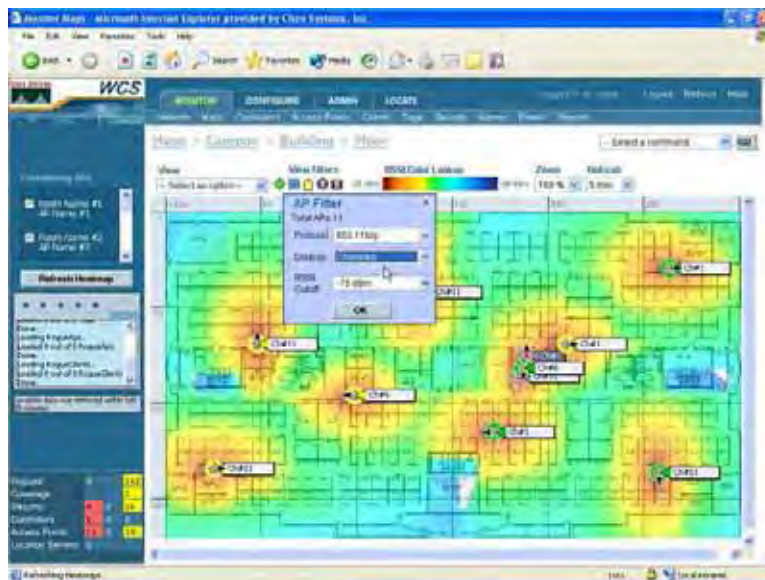
**Figure 3.** Planning Tool



### Network Monitoring and Troubleshooting

Cisco WCS provides tools that enable IT managers to visualize the layout of their wireless network and monitor ongoing WLAN performance. This includes detailed heat maps that show RF coverage on top of imported floorplans. Cisco WCS also provides a portal into the real-time RF management capabilities provided by Cisco Wireless LAN Controllers, including channel assignments and access point transmit power settings. In addition, Cisco WCS provides quick visibility into coverage holes, alarms, and key utilization statistics for easy WLAN monitoring and troubleshooting (Figure 4).

**Figure 4.** Visualize RF Coverage



## Location Tracking

Cisco provides a variety of options for efficiently tracking wireless devices, including Wi-Fi enabled laptops, PDAs, voice handsets, and mobile assets equipped with 802.11 transceivers. The base version of Cisco WCS can determine which access point a wireless device is associated with, giving IT managers a general proximity of where wireless devices are situated. Environments that require more granular location services can implement an optional version of Cisco WCS, called Cisco WCS with location, that uses Cisco's patent pending "RF fingerprinting" technology. This technology compares real-time client RSSI information to known RF building characteristics, making Cisco the only WLAN infrastructure with the ability to accurately locate a wireless device to within a few meters (Figure 5). In addition, Cisco WCS with location can be deployed in conjunction with the [Cisco Wireless Location Appliance](#) to simultaneously track thousands of wireless clients in real-time.

With these advanced location tracking capabilities, the Cisco Centralized WLAN Solution is an ideal platform for helping to enable key business applications that take advantage of wireless mobility, such as asset tracking, inventory management, and enhanced 911 (e911) services for voice. By incorporating location tracking into the wireless LAN infrastructure itself, Cisco reduces the complexities of wireless LAN deployment and minimizes total cost of ownership.

**Figure 5.** Accurately Pinpoint a Wireless Client's Location



## Wireless Protection

Cisco WCS provides a full suite of tools for managing and enforcing security policies within a Cisco wireless infrastructure. These include:

- **RF attack signatures and wireless intrusion prevention**—Cisco WCS helps IT staff to create customizable attack signature files that can be used to rapidly detect common RF-related attacks, such as denial of service (DoS), Netstumbler, and FakeAP. Cisco WCS can be programmed to automatically generate alarms if an attack is detected. Detailed trending reports (Figure 6) enable IT staff to identify recurring security threats before they can cause significant harm.

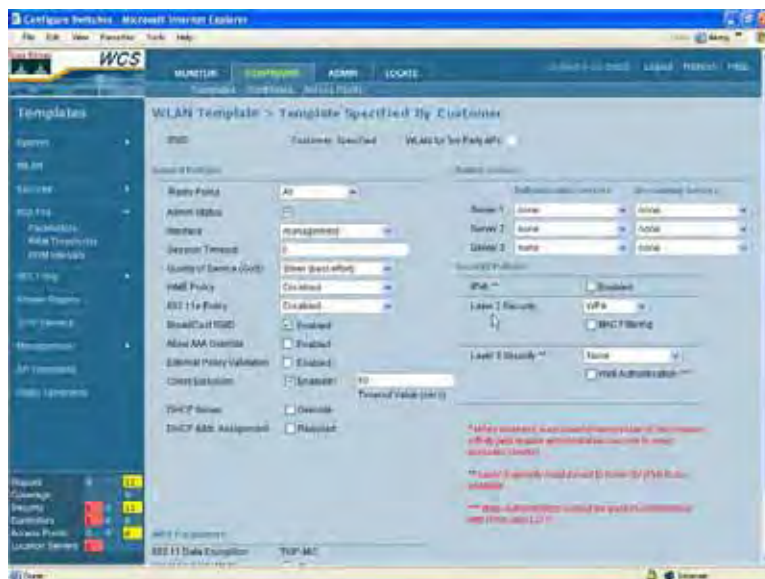


**Figure 6.** Summary of Wireless Security Threats



- **Rogue detection, location, and containment**—The Cisco WCS platform uses patent-pending technology to constantly monitor the air space looking for unauthorized access points and ad-hoc networks. If unauthorized devices appear, Cisco WCS can be used to determine their location and assess the level of threat. If deemed malicious, IT managers can use Cisco WCS to properly contain these rogue devices. Detailed trending reports help to identify potential recurring problems.
- **Policy creation and enforcement**—Cisco WCS contains a service policy engine (Figure 7) that allows network administrators to easily create virtual LAN (VLAN), RF, quality of service (QoS), and security policies. With Cisco WCS, IT staff can create multiple unique service set identifiers (SSIDs) with individual security parameters. For example, a “guest” SSID can be secured with Web authentication; a “voice” SSID might be required to take advantage of the Wired Equivalent Privacy (WEP) capabilities inherent to voice handsets; and normal data traffic can be secured using 802.11i or IP Security (IPSec). Cisco WCS can be used to enforce security policies across an entire Cisco wireless network, in individual Cisco Wireless LAN Controllers, or even on individual lightweight access points.

**Figure 7.** Policy Engine



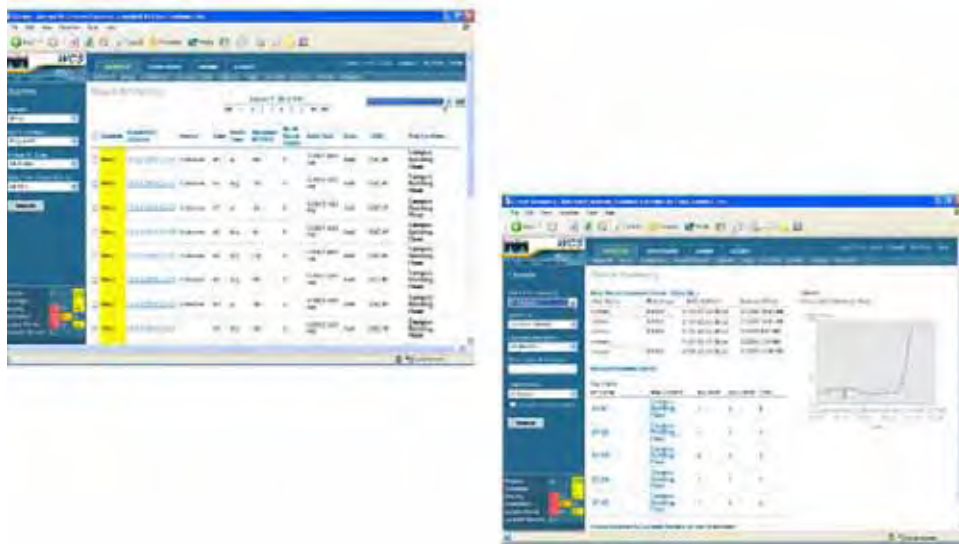
- **User exclusion lists**—IT staff can use Cisco WCS to proactively exclude specific users from associating with the wireless network. In addition, if unusual activity is detected, offending devices can be flagged and excluded if they are considered to be malicious. These devices cannot access wireless LAN services until timing on the exclusion list expires, or IT staff decides to grant them wireless LAN access.

### Wireless LAN Systems Management

Cisco WCS makes wireless LAN configuration, monitoring, and management as simple and effective as wired systems management. This includes the following core capabilities:

- **Troubleshooting**—Cisco WCS consolidates important network information, such as noise levels, signal-noise ratio, interference, signal strength, and network topology, which allows network administrators to isolate and resolve problems at all layers of a wireless network.
- **Software updates**—With Cisco WCS, upgrades to Cisco wireless LAN equipment can be performed from a centralized location, with a single click of a mouse.
- **Network mapping**—Cisco WCS can automatically discover individual devices within a wireless network. This eliminates the need for manual database configuration and maintenance, and provides accurate information for capacity planning and troubleshooting purposes.
- **Customized reports**—Numerous reports can be generated by Cisco WCS, to document network activity and system information. This includes client statistics, radio utilization data, 802.11 counters, RF management configuration history, and alarms (Figure 8).

**Figure 8.** Detected Rogue Access Point and Client Activity Reports



### Flexible and Secure Access

Cisco WCS uses Simple Network Management Protocol (SNMP) version 3 for the highest level of network management capabilities and security. This protocol is used for communication between a Cisco WCS server and individual wireless LAN controllers. The software also supports SNMP version 1 and version 2, which allows other network management platforms to query it.

Network administrators can access the Cisco WCS via any standard browser running HTTP or Secure HTTP (HTTPS), which helps ensure anytime, anywhere access to Cisco's management capabilities.

## FEATURES AND BENEFITS

Table 1 lists the features and benefits of Cisco WCS.

**Table 1.** Features and Benefits of Cisco WCS

Feature	Benefit
<b>Intuitive GUI</b>	IT staff can easily configure, monitor, and troubleshoot their wireless networks with minimal training
<b>Hierarchical Maps</b>	IT staff can quickly access different geographies, campuses, buildings, floors, and regions for better visibility and control
<b>Wireless LAN Planning Tools</b>	Accurate RF prediction tools increase the effectiveness of wireless LAN planning and design
<b>Integrated High Accuracy Location Tracking (Available in Cisco WCS with Location)</b>	Tracking users and devices protects assets and increases wireless LAN security
<b>Policy Management Templates</b>	Uniform QoS, security, and RF management policies can be easily created and enforced across an entire enterprise
<b>Complete Wireless LAN Intrusion Protection</b>	Customized signature files protect against unauthorized intrusion and RF attacks; automated alarms enable rapid response to mitigate risk
<b>Simple, Hands-Off Software Upgrades</b>	Cisco Wireless LAN Controllers and Cisco lightweight access points remain up-to-date with no hands-on intervention
<b>Robust APIs</b>	Interface provides integration with external software systems, including workflow software, fault management systems, and other applications that use wireless services

## SUMMARY

Cisco WCS is ideal for enterprise wireless LAN deployments, simplifying the deployment and operation of wireless networks and helping to ensure smooth performance, enhance security, and maximize network availability. Cisco WCS centrally manages all Cisco Wireless LAN Controllers and Cisco Aironet 1000 Series lightweight access points within campus environments and branch locations, eliminating complexity and providing network administrators with visibility and control of their wireless LANs.

## PRODUCT SPECIFICATIONS

Table 2 lists the product specifications for Cisco WCS.

**Table 2.** Product Specifications for Cisco WCS

Item	Specification
<b>Minimum Server Requirements</b>	<ul style="list-style-type: none"><li>• Windows 2000 SP4 or greater, Windows 2003 SP1 or greater, or Redhat Enterprise Linux ES v3.0</li><li>• Up to 500 APs: 2.4 GHz Pentium with 1 GB RAM</li><li>• Over 500 APs: Dual Processors (At least 2.4 GHz each) with minimum 2 GB RAM</li><li>• 20 GB hard drive</li></ul>
<b>Minimum Client Requirements</b>	Internet Explorer 6.0/SP1 or later
<b>Management</b>	SNMP v1, v2c, v3
<b>Managed Devices</b>	Cisco 2000, 4100 and 4400 Series Wireless LAN Controllers; Cisco Aironet 1000 Series lightweight access points
<b>Database</b>	Integrated Solid FlowEngine SQL

## **ORDERING GUIDE**

The base version of Cisco WCS provides a full suite of wireless LAN management capabilities. This includes RF management, a policy engine for creating and monitoring system-wide QoS and security policies, WLAN planning, and a robust set of tools for WLAN configuration, monitoring and troubleshooting.

A version of Cisco WCS is available that also includes high accuracy location tracking features. This helps enterprises to accurately track mobile devices to within several meters, including Wi-Fi enabled laptops, PDAs, voice handsets, 802.11 RFID tags, and rogue access points.

Both Cisco WCS and Cisco WCS with location come in Windows and Linux platforms, and support up to 50 Cisco Aironet 1000 Series lightweight access points in their standard configuration. Additional expansion licenses, sold in 100 access point increments, are required to support larger Cisco wireless networks. A site license can be purchased at any time, providing Cisco WCS management for an unlimited number of Cisco Aironet 1000 Series access points. (The site license is purchased as an extension to the standard configuration, not as a replacement.)

Customers can upgrade from Cisco WCS base to Cisco WCS location by purchasing the AIR-WCS-WL-UG-K9 (windows) or AIR-WCS-LL-UG-K9 (Linux) upgrade SKUs. If a Cisco WCS site license is in place, the AIR-WCS-WLL-S-UG SKU must also be purchased to upgrade the site license to support location services. If no site license is in place, each 100 access point expansion module must be upgraded by purchasing a separate AIR-WCS-WLL-EX-UG SKU. (Figure 9)



## ORDERING INFORMATION

Table 3 provides ordering information for Cisco WCS. To place an order, visit the Cisco Ordering Website:

<http://www.cisco.com/en/US/ordering/index.shtml>

**Table 3.** Ordering Information for Cisco WCS

Part Number	Product Name
<b>AIR-WCS-WB-1.0-K9</b>	Cisco WCS Base v1.0 up to 50 Cisco Aironet 1000 Series access points Win2K/2003Server
<b>AIR-WCS-LB-1.0-K9</b>	Cisco WCS Base v1.0 up to 50 Cisco Aironet 1000 Series access points, Linux
<b>AIR-WCS-WLB-100EX</b>	Cisco WCS Base Expansion License add 100 access points Win/Linux
<b>AIR-WCS-WLB-SITE</b>	Cisco WCS Base Site License for unlimited access points, Win/Linux
<b>AIR-WCS-WL-1.0-K9</b>	Cisco WCS w/Location v1.0 up to 50 Cisco Aironet 1000 Series access points W2K/2003
<b>AIR-WCS-LL-1.0-K9</b>	Cisco WCS w/Location v1.0 up to 50 Cisco Aironet 1000 Series access points, Linux
<b>AIR-WCS-WLL-100EX</b>	Cisco WCS w/Location Expansion License add 100 access points, Win/Linux
<b>AIR-WCS-WLL-SITE</b>	Cisco WCS w/Location Site License unlimited access points, Win/Linux

Part Number	Product Name
<b>AIR-WCS-WL-UG-K9</b>	Cisco WCS Base to Location System UG, Windows
<b>AIR-WCS-LL-UG-K9</b>	Cisco WCS Base to Location System Upgrade, Linux
<b>AIR-WCS-WL-EX-UG</b>	Cisco WCS Base to Location 100EX license UG, Windows
<b>AIR-WCS-LL-EX-UG</b>	Cisco WCS Base to Location 100EX license UG, Linux
<b>AIR-WCS-WL-S-UG-K9</b>	Cisco WCS Base to Location Site License UG, Windows
<b>AIR-WCS-LL-S-UG-K9</b>	Cisco WCS Base to Location Site License Upgrade, Linux

## SERVICE AND SUPPORT

Cisco offers a wide range of services programs to accelerate customer success. These innovative services programs are delivered through a unique combination of people, processes, tools, and partners, resulting in high levels of customer satisfaction. Cisco services help you protect your network investment, optimize network operations, and prepare your network for new applications to extend network intelligence and the power of your business. For more information about Cisco services, visit [Cisco Technical Support Services](#) or [Cisco Advanced Services](#).

## FOR MORE INFORMATION

For more information about Cisco WCS, contact your local account representative or visit: <http://www.cisco.com/go/securewireless>

For more information about the Cisco Integrated Wireless Network, visit: <http://www.cisco.com/go/integratedwireless>