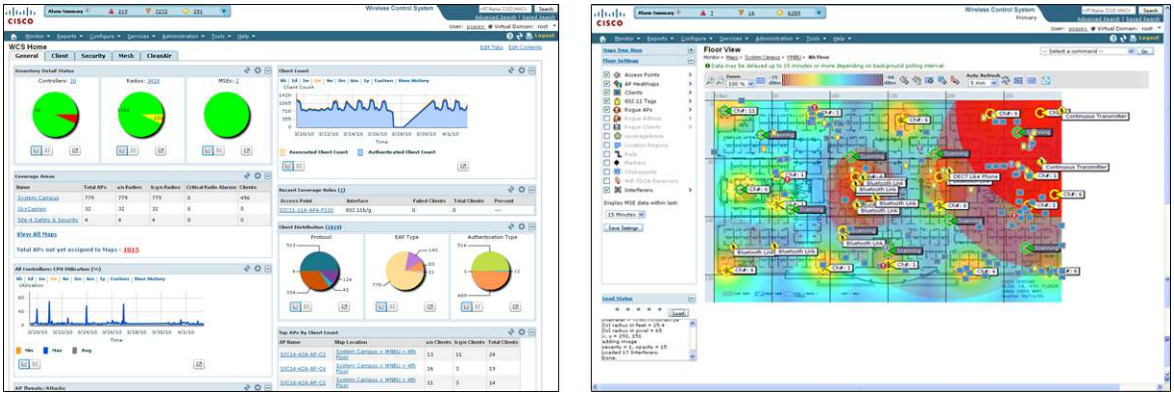
Cisco Wireless Control System (WCS)

Figure 1. Cisco Wireless Control System (WCS)



Product Overview

Cisco® Wireless Control System (WCS) is the industry's most comprehensive management platform for lifecycle management of 802.11n and 802.11a/b/g, enterprise-class wireless networks. This robust management platform delivers a cost-effective management solution that enables IT administrators to successfully plan, deploy, monitor, troubleshoot, and report on indoor and outdoor wireless networks (Figure 1).

As the management platform for the Cisco Unified Wireless Network, Cisco WCS supports the delivery of high-performance applications and mission-critical solutions that simplify business operations and improve productivity. It also supports Cisco CleanAir technology, a system-wide capability of the Cisco Unified Wireless Network that uses silicon-level intelligence to create a self-healing, self-optimizing wireless network. Delivering performance protection for 802.11n networks, Cisco CleanAir technology increases the reliability of wireless networks to support mission critical applications by automatically mitigating the impact of radio frequency (RF) interference.

Cisco WCS is a comprehensive platform that scales to meet the needs of small, midsize, and large-scale wireless LANs across local, remote, national, and international locations. This award-winning solution gives IT managers immediate access to the tools they need, when they need them, to more efficiently implement and maintain secure wireless LANs—all from a centralized location requiring minimal IT staffing.

Operational costs are significantly reduced through the Cisco WCS intuitive GUI, simplified ease-of-use, and built-in tools that deliver improved IT efficiency, lowered IT training costs, and minimized IT staffing requirements, even as the network grows. Unlike overlay management tools, Cisco WCS lowers operational costs by incorporating the full breadth of management requirements—from radio frequency to controllers to services—into a single unified platform.

Flexible, Easy-To-Use Platform

Cisco WCS is the ideal management platform for new and experienced IT administrators. Its simple, intuitive user interface eliminates complexity for users requiring an automated management experience, while comprehensive lifecycle management functions meet the needs of even the most advanced IT administrators. Cisco WCS is inherently flexible, allowing each user to customize their management interface to display only the most relevant information that is required to meet operational and business goals.

Seamless Scalability

Cisco WCS scales to manage hundreds of Cisco wireless LAN controllers, which in turn can manage thousands of Cisco Aironet® access points including the next-generation Cisco Aironet 3500, 1260, 1250 and 1140, Series 802.11n access points. For large-scale indoor and outdoor deployments, Cisco WCS Navigator can be included to simultaneously support up to 20 Cisco WCS platforms and 30,000 Cisco access points. Adding Cisco mobility services such as context-aware software and adaptive wireless intrusion prevention systems (wIPS) is simplified through Cisco WCS integration with the Cisco Mobility Services Engine (MSE).

Comprehensive Wireless LAN Lifecycle Management

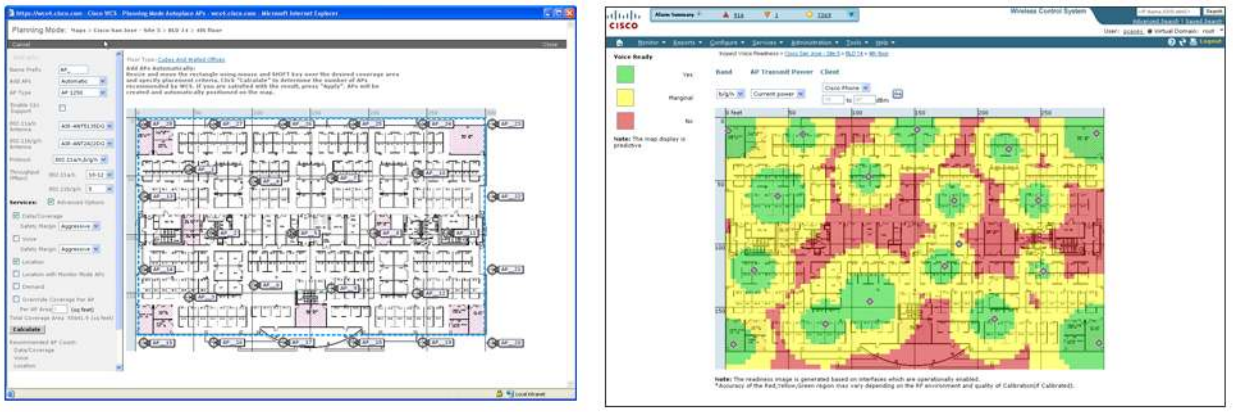
Cisco WCS cost-effectively supports all phases of the wireless LAN lifecycle from planning and deployment, to monitoring, to troubleshooting, and customized reporting. Cisco WCS makes wireless LAN operations more efficient and effective for all lifecycle phases (Figure 2).

Figure 2. Comprehensive Wireless LAN Lifecycle Management

Planning

Designing a wireless LAN that effectively supports business-critical data, voice, and video services is simplified with the Cisco WCS suite of built-in planning and design tools (Figure 3).

Figure 3. Simplified Wireless LAN Planning and Design



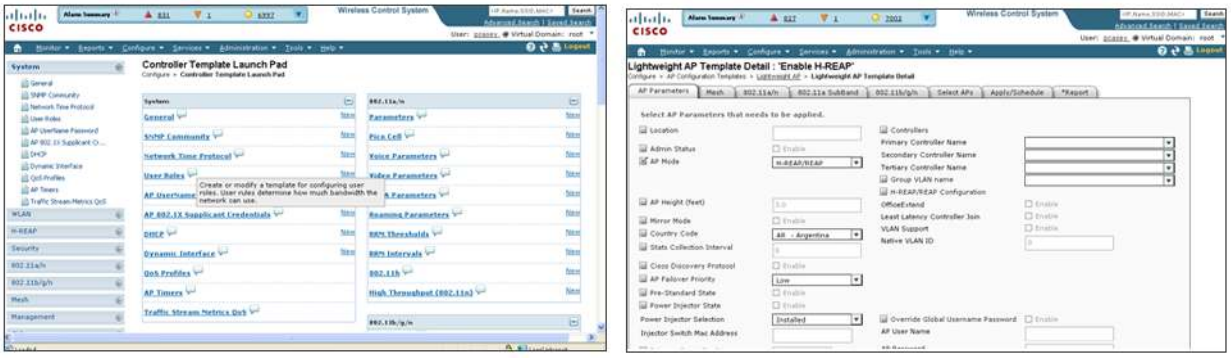
Cisco WCS planning and design tools simplify the process of defining access point placement and determining access point coverage areas for standard and irregularly shaped buildings. These tools give IT administrators clear visibility into the RF environment. They make it easier to visualize the ideal RF environment, to anticipate future coverage needs, and assess wireless LAN events. They help IT administrators reduce, and in many cases eliminate, improper RF designs and coverage problems that can lead to end-user trouble tickets.

Specialized Cisco WCS planning tools enable immediate assessment of the WLAN's readiness to support voice-over-WLAN and context-aware (location) services. Voice-over-WLAN services support single and dual-mode Wi-Fi-enabled phones. Context-aware services use Cisco's patent pending "RF fingerprinting" technology to locate, track, and manage Wi-Fi-enabled devices and their contextual information in conjunction with Cisco MSE.

Deployment

Getting the wireless LAN up and running quickly and cost-effectively to meet end-user needs is streamlined with the broad array of Cisco WCS integrated configuration templates. These easy-to-use templates and deployment tools help IT managers provision and configure the wireless LAN to expressly deliver the services that their business requires (Figure 4).

Figure 4. Flexible Deployment Tools and Configuration Templates



Cisco WCS flexible templates, available through an easy-to-use interface, make it simple to apply common configurations across one or more wireless LAN controllers regardless of their location in the network, whether on the same LAN as Cisco WCS, on separate routed subnets, or across a wide-area connection.

At the click of a button, IT administrators can streamline even the most complex controller configurations, updates, and scheduling across the entire wireless network. Auto-provisioning access points is just as simple, with easy-to-use templates that support customized configuration of single or multiple access points.

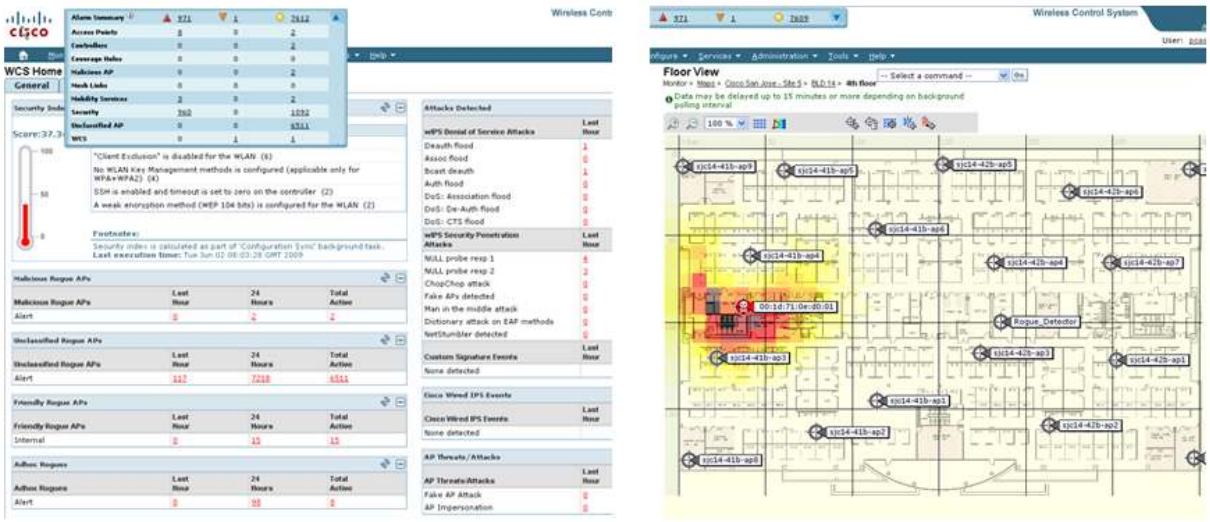
Monitoring

Cisco WCS is the ideal management platform for monitoring the entire wireless LAN to maintain robust performance and deliver an optimal wireless experience to mobile end users. Cisco WCS centralized interface makes it easy to access information where it's needed, when it's needed—on demand or as scheduled (Figure 1).

Cisco WCS easy-to-use graphical displays serve as a starting point for maintenance, security, troubleshooting, and future capacity planning activities. Quick access to actionable data about healthy and unhealthy events occurring on the network is available from a variety of entry points, making Cisco WCS vital to ongoing network operations.

The ever-present alarm summary in Cisco WCS simplifies access to critical information, faults, and alarms based on their severity; facilitating faster assessment of outstanding notifications and supporting quicker resolution of trouble tickets. Detecting, locating, and containing unauthorized (rogue) devices is fully supported when location services are enabled (Figure 5).

Figure 5. Ever-Present Alarm Summary and Simplified Rogue Device Detection and Location



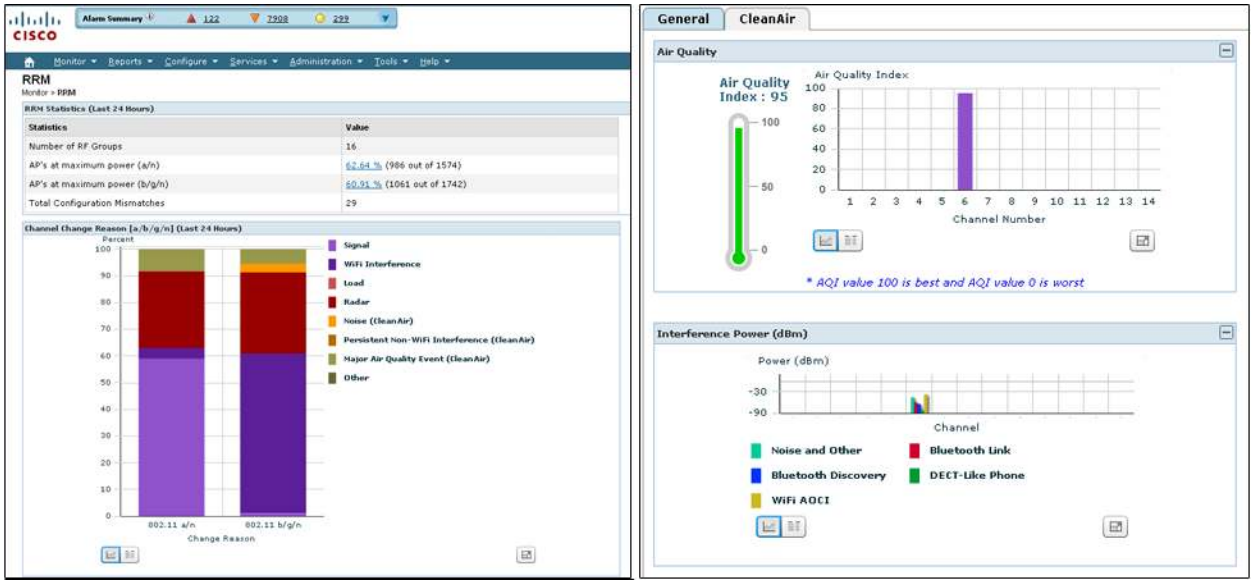
Troubleshooting

The integrated workflows and expansive array of troubleshooting tools in Cisco WCS help IT administrators quickly identify, isolate, and resolve problems across all components of the Cisco Unified Wireless Network. Cisco WCS supports rapid troubleshooting of any size WLAN with minimal IT staffing.

Cisco WCS makes it easy to quickly assess service disruptions, receive notices about performance degradation, research resolutions, and take action to remedy nonoptimal situations. Integrated workflows support seamless linkage between all tools, alarms, alerts, searches, and reports for all infrastructure components and client devices.

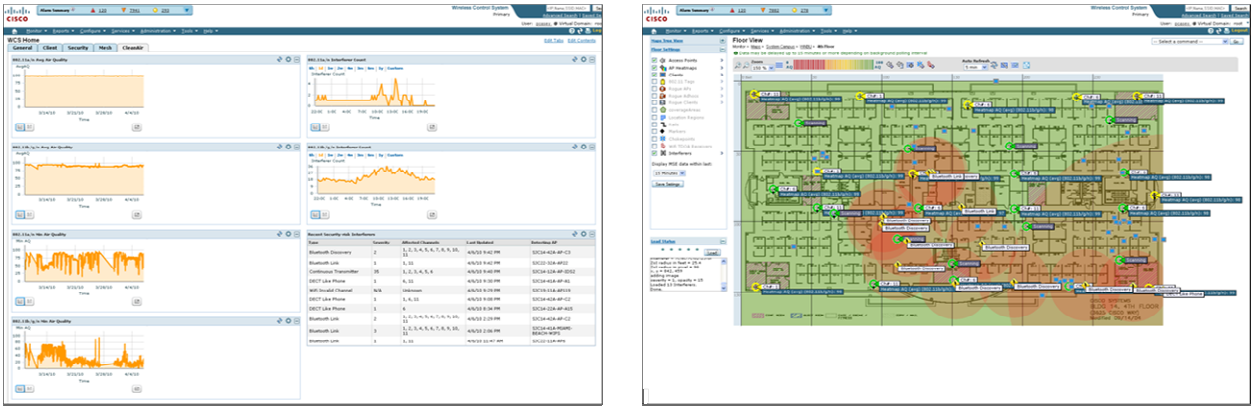
A variety of tools work together to help IT administrators understand the operational nuances occurring on the WLAN and discover nonoptimal events occurring outside baseline parameters such as client connection or roaming problems. The ever-present search tool in Cisco WCS facilitates cross-network access to immediate and historic information about devices and assets located anywhere in the wireless network. For clear visibility of RF performance, statistics, and air quality, radio resource management (RRM) and air quality information is available (Figure 6).

Figure 6. Built-in Radio Resource Management and Air Quality Assessment



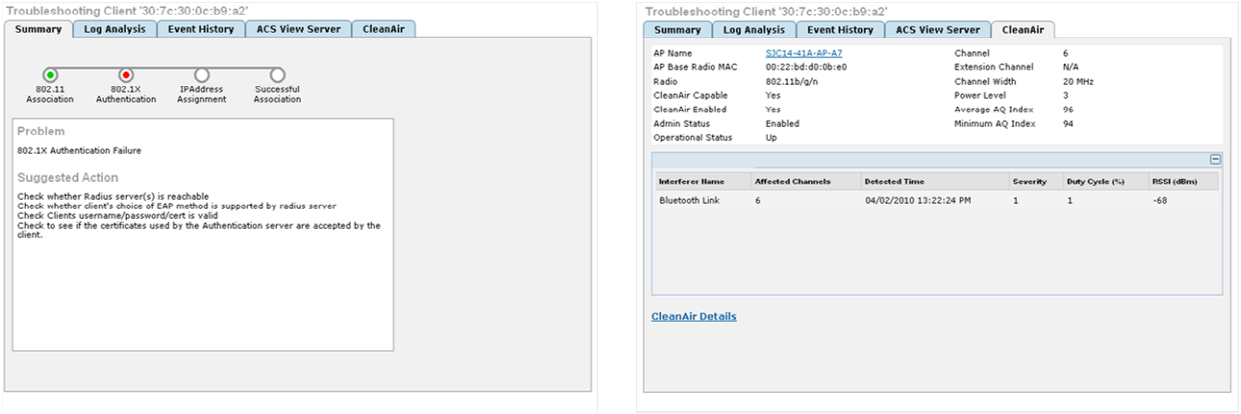
Cisco CleanAir technology supports finding, classifying, correlating and mitigating sources of interference from Wi-Fi and non-Wi-Fi sources such as rogue access points, microwave ovens, Bluetooth devices and cordless phones. Cisco CleanAir improves air quality and creates a self-healing, self-optimizing wireless network that mitigates the impact of wireless interference sources (Figure 7).

Figure 7. Cisco CleanAir Technology



A built-in client troubleshooting tool provides a step-by-step method to analyze problems for all client devices. This tool helps reduce operating costs by speeding the resolution of trouble tickets for a variety of Wi-Fi client device types. This robust client troubleshooting tool can also assist with client trending analysis. When Cisco Compatible Extensions clients and Cisco CleanAir technology are used, specialized diagnostic tools are available to support enhanced analysis of connection problems (Figure 8).

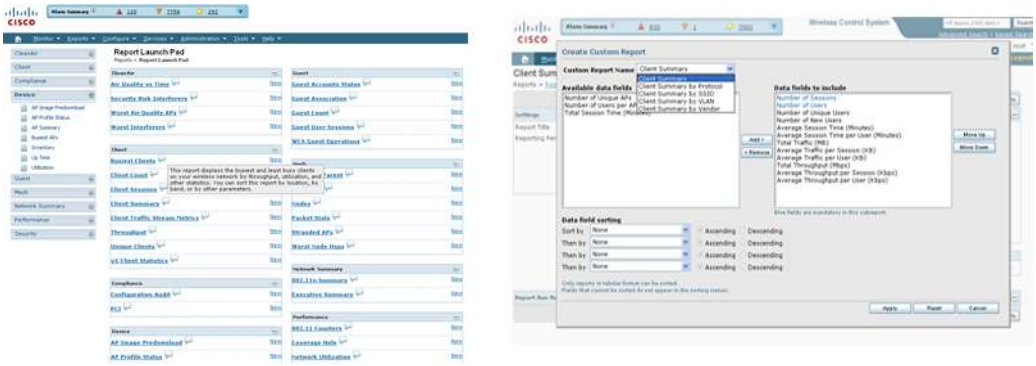
Figure 8. Built-in Client Troubleshooting Tool Supports Step-by-Step Problem Analysis



Reporting

Cisco WCS includes customizable reporting that assists IT teams in more effectively managing, maintaining, and evolving the wireless LAN to meet ongoing business and operations requirements. Flexible reports provide access to the right data, at the right time, in a format to meet any requirement (Figure 9).

Figure 9. Customizable Reports Meet Any Requirement



An extensive variety of reports is available to help IT managers stay on top of network trends, maintain network control, audit operations, and quickly address changing business and end-user requirements. Reports are customizable based on user-defined parameters. Detailed analysis of what is going on where and when in the network, as well as capacity planning, is simplified by collecting data from several reports and analyzing trends to understand how the WLAN has changed over time. Understanding WLAN trends makes it easier to plan for future enhancements and growth.

Features and Benefits

Table 1 lists the features and benefits of Cisco WCS.

Table 1. Cisco WCS Features and Benefits

Feature	Benefit
Ease of Use	• Simple, intuitive user interface eliminates complexity • Modularized interface supports user-defined customization to display only the most relevant information • Flexible platform accommodates new and experienced IT administrators
Scalability	• Manage hundreds of Cisco wireless LAN controllers and thousands of Cisco Aironet access points from centralized location • Scalable mobility services are delivered through integration with the Cisco MSE • Adding Cisco WCS Navigator facilitates simultaneous support up to 20 Cisco WCS platforms and 30,000 Cisco access points for large-scale indoor and outdoor deployments
WLAN Lifecycle Management	• Comprehensive wireless LAN lifecycle management includes a full range of planning, deployment, monitoring, troubleshooting, and reporting capabilities
Planning	• Built-in planning and design tools simplify defining access point placement and coverage • Information from 3rd party site survey tools can be easily imported and integrated into Cisco WCS to aid in WLAN design and deployment. • Specialized tools enable immediate assessment of the WLAN's readiness to support VoWLAN and context-aware (location) services • Support for on-demand coverage re-assessments helps reduce and in many cases eliminate, improper RF designs and coverage problems
Deployment	• A broad array of integrated controller and access point configuration templates deliver quick and cost-effective deployments • Network auditing is supported for effective configuration management • Software-based high availability maximizes uptime for services delivery and improves operational efficiency • Secure wired and wireless guest access gives controlled wireless access to customers, vendors, visitors, and partners while keeping the network secure • Tools and processes support monitoring, upgrading, and migrating selected Cisco Aironet standalone (autonomous) access points to operate as lightweight access points and run Control and Provisioning of Wireless Access Points (CAPWAP) • Role-based access control provides flexibility to segment the wireless network into one or more virtual domains controlled by a single Cisco WCS platform • Cisco Energy-Wise power savings are delivered with adaptive WLAN power management • Cisco WCS maps, hierarchies, and network designs can be easily exported and imported between one or more Cisco WCS servers.
Centralized Security and Network Protection	• Cisco's unified wireless security solution integrates security alerts, alarms, adaptive wireless intrusion prevention system (wIPS) and Cisco CleanAir technology into a single unified platform, from a centralized view—making it unprecedented in the industry. • Cisco CleanAir technology provides critical information about RF interferes that are potential security threats. • Robust adaptive wIPS supports quick detection, location, and containment of unauthorized (rogue) devices • Customized signature files protect against unauthorized intrusion and RF attacks • Automated alarms enable rapid responses to mitigate risks • Robust service policy engine supports multiple unique service set identifiers (SSIDs) with customizable security and enforcement parameters • Management frame protection (MFP) monitors the authentication of 802.11 management frames • Access point wired port authentication with 802.1X validates all access point credentials • Network security can be enhanced and power costs can be reduced by turning access points on or off at scheduled intervals. • Unified wired and wireless security is delivered though integration with Cisco Self-Defending Network and Cisco Network Admission Control (NAC)
Monitoring	• Centralized monitoring of the entire WLAN helps maintain robust WLAN performance and an optimal wireless experience • Cisco CleanAir provides detailed information about RF interference events, air quality, and interference security threats to help more efficiently assess, prioritize, and manage RF interference issues • Easy-to-use graphical displays serve as a starting point for maintenance, security, troubleshooting, and future capacity planning • Graphs, charts, and tables are interactive for quick configuration and reconfiguration • Hierarchical mapping trees, color-coding, and icons support quick visualization and status assessments of the network, devices, and air quality • Ever-present alarm summary provides robust fault, event, and alarm management • Google Earth integration helps visualize and manage outdoor wireless mesh deployments • Cisco Spectrum Expert can be utilized for Cisco Aironet access point enabled with CleanAir that are using the Cisco Spectrum Expert configuration

Feature	Benefit
Troubleshooting	• Troubleshooting any size WLAN can be performed with minimal IT staffing • Integrated workflows and tools help IT administrators quickly assess service disruptions, receive notices about performance degradation, research resolutions, and take action to remedy nonoptimal situations • Alerts, summaries, and reports about air quality and interferers are included with Cisco CleanAir technology to help troubleshoot the RF environment and mitigate interference from Wi-Fi and non-Wi-Fi sources • Ever-present search tool facilitates cross-network access to immediate and historic information • Client troubleshooting tool supports a step-by-step method to analyze problems and mis-configurations for all client devices with support to identify RF interferers that are affecting client devices • Specialized diagnostic tools support enhanced analysis of connection problems occurring with Cisco Compatible Extensions clients Version 5 or later • Radio resource management (RRM) tools provide visibility into performance, RF statistics and air quality • Voice tools support customizable queries to address VoWLAN problems
Reporting	• Extensive on-demand and automated reports can be run on immediate and historic network activity, performance, usage, devices, inventory, compliance, security and Cisco CleanAir. • Payment Card Industry (PCI) report analyzes WLAN for potential noncompliant events • Alarms and events can be forwarded to 3rd party north bound receivers and FCAPS applications that understand traps such as HP OpenView or IBM Tivoli Netcool. • Report data, timeframe, and format is customizable • Display options for charts, graphs, and tables provide enhanced flexibility • Out-put reports in CSV or PDF format as a saved file or email • Capacity planning is supported by trending together multiple reports for analysis
Cisco WCS Serviceability Program	• The Cisco WCS Serviceability Program gives organizations the opportunity to provide anonymous usage statistics and wireless operational information to Cisco. • This voluntary “opt-in” program gathers anonymous statistics from Cisco WCS and the network. No confidential data is collected. • Learn more about this program by reading the Wireless Product Improvement Program policy.
Specialized Cisco TAC Support	• Cisco WCS supports the “opt-in” collection of diagnostic data about Cisco wireless LAN controllers and Cisco Aironet access points to assist with wireless LAN Cisco TAC cases. This feature helps organizations experience faster resolution of wireless LAN Cisco TAC cases.

Summary

Cisco WCS is the ideal management platform for comprehensive lifecycle management of 802.11n and 802.11a/b/g enterprise-class indoor and outdoor wireless networks. This extremely flexible platform delivers a wide array of tools and resources for effective planning, deployment, monitoring, troubleshooting, and reporting of WLANs that span campus, remote, national, and international locations.

Cisco WCS eliminates the complexity of wireless LAN management. This award winning platform provides clear visibility and control of the wireless LAN and RF environment from an easy-to-use, centralized interface. It simplifies all WLAN operations, helping to ensure smooth Wi-Fi performance, RF interference mitigation with Cisco CleanAir, enhanced network security, and an optimal wireless experience for all mobile end users. Cisco WCS requires minimal IT staffing to meet the most demanding operational requirements. Cisco WCS is the ideal platform for maintaining a cost-effective, business-ready Cisco Unified Wireless Network.

Product Specifications

Table 2 lists the product specifications for Cisco WCS.

Table 2. Product Specifications for Cisco WCS

Item	Specification
Operating Systems (Customer-Supplied Server)	**Cisco WCS can be deployed on a customer-supplied server running one of the following operating systems:** • Windows 2003 SP1, or subsequent service packs. Windows 2008 is not a supported platform • Redhat Linux AS/ES v4.0 (Release 4.2 and later) and Redhat Linux AS/ES v5.0 (Releases 4.2.x or 5.0 or later) • VMware ESX Server 3.0.1 or later. (Minimum hardware requirements for a dedicated and guaranteed VMware server: Intel® Xeon Quad CPU; 3.15 GHz, 8-GB RAM, 200-GB HDD)
Minimum Server Requirements	Cisco WCS High-End Server • 3000 lightweight access points, 1250 standalone access points, 750 wireless LAN controllers • Intel® Xeon Quad Core CPUs; 3.16 GHz, 8-GB RAM, 200-GB HDD (free space)
	Cisco WCS Standard Server • 2000 lightweight access points, 1000 standalone access points, 450 wireless LAN controllers • Intel® Dual Core CPU; 3.2 GHz, 4-GB RAM, 80-GB HDD (free space)
	Cisco WCS Low-End Server • 500 lightweight access points, 200 standalone access points, 125 wireless LAN controllers • Intel® CPU; 3.06 GHz, 2-GB RAM, 50-GB HDD (free space)
	CiscoWorks WLSE Models 1130-19 or 1133 running Cisco WCS • 1500 lightweight access points, 161 wireless LAN controllers • Intel Pentium 4 CPU; 3 GHz, 3-GB RAM, 38-GB HDD (free space)
Minimum Client Requirements	Internet Explorer 6.0/SP1 or later and Mozilla Firefox 3.5 or later
Management and Security	SNMP v1, v2c, v3 and TACACS+ PNG, JPEG, and AutoCAD (DXF and DWG) import file types supported
Managed Devices	Cisco 2000, 2100, 4100 and 4400, 5500 Series Wireless LAN Controllers; Cisco Catalyst® 6500 Series Wireless Services Module (WiSM), Cisco Catalyst 3750G Integrated Wireless LAN Controller, Cisco Wireless LAN Controller Module (WLCM and WLCM-E) for Integrated Services Routers; Cisco Aironet access points with CleanAir technology, Cisco Aironet lightweight access points, Cisco Aironet lightweight outdoor mesh access points, Cisco 3300 Series Mobility Services Engine (MSE), Cisco Wireless Location Appliance, Cisco Spectrum Expert Wi-Fi, Cisco Context-Aware Software, and Cisco Adaptive wIPS Software. Monitoring and migration of selected Cisco Aironet standalone (autonomous) access points. Monitoring of the standalone access points of Cisco 800, 1800, 2800, and 3800 Series Integrated Services Routers
Database	Integrated Solid FlowEngine SQL

Cisco WCS Licenses

Please read the Cisco WCS Licensing and Ordering Guide for complete information about selecting the correct Cisco WCS license SKUs as well as instructions for downloading, installing, and registering Cisco WCS software. A complete listing of Cisco WCS license SKUs is provided in Cisco WCS Licensing and Ordering Guide—Table 1.

Cisco WCS Demonstration License

Customers can experience Cisco WCS, the industry's leading platform for wireless LAN planning, configuration, management, and mobility services, for free for 30 days by downloading the new full featured, location-enabled Cisco WCS demonstration license. This license supports 10 access points for up to 30 days. Network configurations and set up for the demonstration license are retained to make it easier to transition to a licensed Cisco WCS copy. Register to receive a license for free at http://www.cisco.com/go/license or https://tools.cisco.com/SWIFT/Licensing/PrivateRegistrationServlet?DemoKeys=Y. Select Network Mgmt Products > Wireless Control System > Wireless Control System 30 day trial license. Then, after registration, download Cisco WCS software from the Cisco Wireless Software Center (login required). There is no Cisco Technical Assistance Center (TAC) support for the Cisco WCS demonstration license.

Ordering Information

To place an order for all Cisco WCS licenses except the Cisco WCS demonstration license, visit the Cisco Ordering Website.

Downloading Cisco WCS Software

Download current Cisco WCS software releases from http://www.cisco.com/cisco/software/navigator.html?mdfid=278875243 (login required).

Cisco Wireless LAN Services

Seamlessly integrate mobility services and take full advantage of the system-wide capabilities of the Cisco Unified Wireless Network with services from Cisco and partners. Better utilize the increased performance of the 802.11n standard while simplifying the transition to this new technology. For more details, visit: http://www.cisco.com/go/wirelesslanservices.

For More Information

For more information about Cisco WCS, contact your local account representative or visit http://www.cisco.com/en/US/products/ps6305/index.html.

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

For more information, read the Cisco WCS Licensing and Ordering Guide at http://www.cisco.com/en/US/products/ps6305/products_data_sheet0900aecd804b4646.html.

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