**Q&A**

# Cisco Wireless LAN Controllers

**Q.** What are Cisco® wireless LAN controllers?

**A.** Cisco wireless LAN controllers are ideal for enterprise and service provider wireless LAN deployments and provide system wide wireless LAN functions, such as creating and enforcing security policies, intrusion prevention, RF management, quality of service (QoS), and mobility. They work in conjunction with Cisco lightweight access points and Cisco Wireless Control System (WCS) to provide the control, scalability, and reliability that IT managers need to build secure, large-scale wireless networks.

Cisco wireless LAN controllers smoothly integrate into existing enterprise and service provider networks. They can communicate with Cisco lightweight access points over any Layer 2 (Ethernet) or Layer 3 (IP) infrastructure using the Lightweight Access Point Protocol (LWAPP). With Cisco wireless LAN controllers, important wireless LAN configuration and management functions can be completely automated across all enterprise and service provider locations—from branch offices to outdoor campuses.

**Q.** What are the different types of controllers?

**A.** Cisco Systems currently offers Cisco 2000 Series and 4400 Series wireless LAN controllers. Additionally, Cisco offers the Catalyst 6500 Series Wireless Services Modules (WiSM) and the Cisco Wireless LAN Controller Module for Cisco Integrated Services Routers (ISR).

The Cisco 2000 Series Wireless LAN Controller supports up to six lightweight access points, making it ideal for small and medium-sized enterprise facilities, such as branch offices.

The Cisco 4400 Series is available in two models—the 4402 with two Gigabit Ethernet ports comes in configurations that support 12, 25 and 50 lightweight access points, and the 4404 with four Gigabit Ethernet ports supports up to 100 lightweight access points. The 4402 provides one expansion slot and the 4404 provides two expansion slots that can be used to add enhanced functionality. The 4400 WLAN Controller supports an optional redundant power supply to ensure maximum availability. This unique combination of capabilities makes the Cisco WLAN system uniquely suited for large-scale WLAN deployments.

The Cisco WiSM smoothly integrates into existing Cisco Catalyst 6500 Series enterprise networks. It communicates using the emerging Lightweight Access Point Protocol (LWAPP) standard to establish secure connectivity between access points and modules across Layer 3 networks. The Cisco WiSM scales to deliver secure, enterprise wireless access to main, branch, and remote campuses. 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. For even greater scalability, the Cisco WiSM can be deployed in conjunction with other Cisco wireless LAN controllers.

The Cisco Wireless LAN Controller Module manages up to six Cisco Aironet lightweight access points and is supported on Cisco 2800 and 3800 Series Integrated Services Routers and Cisco 3700 Series routers. This new controller allows SMBs and enterprise branch offices to cost-effectively and easily deploy and manage secure WLANs.

**Q.** What are some of the benefits of Cisco wireless LAN controllers?

**A.** By managing all access points as a complete wireless LAN system, Cisco wireless LAN controllers provide maximum scalability, performance, and wireless LAN control. In addition, all Cisco wireless LAN controllers can be deployed in an N+1 configuration for cost-effective, system-level resiliency. Cisco wireless LAN controllers come equipped with embedded software with Radio Resource Management (RRM) algorithms to detect and adapt to changes in the air space in real time—creating a self-configuring, self-optimizing, and self-correcting wireless LAN environment.

These adjustments create the optimal topology for wireless networking in much the same way that routing protocols compute the best possible topology for IP networks.

**Q.** What are the security features in the Cisco Wireless LAN Controller?

**A.** Cisco wireless LAN controllers provide multiple layers of wireless LAN security for complete enterprise protection. This includes support for industry standards, such as:

- 802.11i, Wi-Fi Protected Access 2 (WPA2), WPA, and Wired Equivalent Privacy (WEP)
- 802.1X with multiple Extensible Authentication Protocol (EAP) types, including Protected EAP (PEAP), EAP with Transport Layer Security (EAP-TLS), EAP with Tunneled TLS (EAP-TTLS), and Cisco LEAP
- VPN termination (IP Security [IPSec])

Cisco wireless LAN controllers also play a prominent role in rogue access point detection and containment, as well as wireless intrusion prevention. With Cisco wireless LAN controllers, IT staff can create and enforce consistent security policies across an entire wireless network.

**Q.** Is the Cisco Wireless LAN Controller part of the Cisco Integrated Wireless Network framework?

**A.** Yes, Cisco Wireless LAN controllers are an integral part of the Cisco Integrated Wireless Network framework. For complete details on the Cisco Integrated Wireless Network framework, please visit: http://www.cisco.com/go/securewireless

**Q.** What is wireless LAN controller clustering?

**A.** Cisco uses innovative clustering technology between wireless LAN controllers to help ensure mobility across an entire wireless network. With clustering, IT staff can effortlessly create logical groups of controllers, which proactively share network and user information for transparent roaming. By transferring context information from one controller to another (network addresses, QoS parameters, access control lists, and security policies), users can roam throughout a controller mobility group and receive consistent wireless services—regardless of location. No special client software or modifications to the routing infrastructure are required. In addition, controller mobility groups are established with the click of a mouse and can span an entire wireless network, making system wide mobility easy and cost-effective.

**Q.** Is there a scalability limit on how many controllers I can have in my network?

**A.** Up to 24 Cisco wireless LAN controllers can be placed in a single controller cluster, creating a very large wireless LAN system. Multiple clusters of controllers can be deployed throughout an enterprise for unlimited scalability.

**Q.** Can the CiscoWorks Wireless LAN Solution Engine (WLSE) manage Cisco 2000 Series and 4400 Series wireless LAN controllers?

**A.** No. The CiscoWorks WLSE does not currently support Cisco 2000 Series and 4400 Series wireless LAN controllers.

**Q.** What options are available for the stand-alone controllers?

**A.** The Cisco 4400 Series supports an optional redundant power supply, SFPs (mini-GBICs), and an optional VPN termination module. No options are currently available for the Cisco 2000 Series.

**Q.** What redundancy features are available for the Wireless LAN Controllers?

**A.** The Wireless LAN Controllers support a number of redundancy features, including:

- **N+1 Controller Redundancy**—if a WLAN Controller fails, the APs joined to that controller automatically failover to an alternate controller
- **AP Redundancy**—if an AP fails, the Controller automatically increases power on the neighboring APs to compensate and provide coverage

The 4400 adds the following redundancy features:

- **Interface Failover**—if a physical port fails, the logical interfaces associated with the failed port automatically move to another port
- **Redundant Power Supplies**—an optional redundant power supply to ensure maximum availability

**Q.** If I purchase a Wireless LAN Controller with a certain AP capacity (e.g. 4402 with support for 12 APs), is there an upgrade path to add additional capacity (e.g., 4402 with support for 25 APs)?
**A.** No. The AP capacity is programmed into the units at the factory and there is no mechanism to upgrade this value in the field. Keep in mind that controllers can be clustered together to add additional capacity. As a wireless network grows, IT managers simply add controllers to the cluster to add capacity.

**Q.** Why would I want to use VPN to secure my wireless clients?
**A.** While WPA and WPA2 provide a high level of security, supplicants that support WPA/WPA2 may not be available for all clients. In this situation, an alternative way to secure the client connection is to use VPN technology.

**Q.** Why choose integrated VPN termination on the WLAN controller versus using an external VPN server?
Some network designs may require client VPN traffic to terminate at the edge of the network versus backhauling all of the traffic back to a central VPN server. For example, a branch office may not have an external VPN termination server on site. Rather than backhaul client VPN traffic across the WAN to a central VPN server, the client VPN traffic can be terminated locally on the WLAN controller.

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