Cisco Unified Wireless Networking v7.1 (CUWN)

Course Summary

Description

This course enables a network administrator to deploy a WLAN enterprise solution through the identification and successful implementation of site-appropriate hardware and software features in a Cisco Unified Wireless Network.

Objectives
At the end of this course, students will be able to:

- Identify how the CUWN solution meets the challenges of successful WLAN deployments
- Select and properly install the Cisco Unified Wireless Network hardware appropriate to site and use requirements
- Administer CUWN, 802.11 security policies, and QoS appropriately to protect and optimize performance on the wireless network
- Configure and implement the key CUWN security features to mitigate WLAN security threats
- Utilize a recommended troubleshooting methodology and the various tools available to gather and assess system data to isolate equipment failures and security threats

Topics

- Cisco Wireless LAN Solutions
- CUWN Installation and Configuration
- CUWN Administration
- CUWN Security
- CUWN Maintenance and Troubleshooting

Audience

The primary audience for this course is as follows: Channel Field Engineers, Cisco Network Consulting Engineers New UC Partners and Customer Network Engineer.

The secondary audience for this course is as follows: Customer Network Manager.

Prerequisites

Students should have CCNA or equivalent work experience Familiarity with Windows and Windows Networking Prior attendance of CWLF or IUWNE (recommended).

Duration

Five days

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Course Outline

I. Cisco Wireless LAN Solutions

A. Characterizing Cisco Enterprise Wireless LANs
1. Enterprise WLAN Solutions
2. Cisco: First in Creating and Deploying Wireless Standards
3. Cisco Compatible Extensions Program
4. Cisco Unified Wireless Network Solutions
5. Cisco Unified Wireless Network Portfolio
6. Successful Wireless Deployments Require Careful Planning
7. Cisco Wireless LAN Professional Service

B. Identifying Hardware Models
1. Cisco Wireless LAN Controllers
2. Cisco Access Points
3. Cisco 3300 Series Mobile Services Engine

C. Describing WLC Terms and Protocols
1. Overview of Ports and Interfaces
2. VLAN
3. Distribution System Port
4. 802.3x Flow Control
5. AP Communication Protocols
6. Network Management Protocols
7. More About the IEEE 802.11n Protocol

II. CUWN Installation and Configuration

A. Installing Hardware Components
1. Standalone WLCs
2. Integrated WLCs

B. Configuring the WLC Setup
1. Initial Setup
2. CLI Wizard Configuration Tool
3. Web-based Setup

C. Configuring WLC Settings
1. Connect to the WLC Web Interface
2. WLC Settings

D. Configuring LAG
1. Concept
2. Guidelines
3. WLC Configuration

E. Describing AP Operational Modes
1. AP Modes
2. AP Mode—Local
3. AP Mode—Monitor
4. AP Mode—Rogue Detector
5. AP Mode—Sniffer
6. AP Mode—Bridging
7. AP Mode—H-REAP (FlexConnect)
8. OfficeExtend APs
9. Security > AAA > AP Policies

F. Configuring 802.11 Protocols, Performance Optimization, and Auto RF
1. 802.11n Introduction
2. 802.11 Global Parameters
3. Protection Mechanism
4. Split MAC Architecture
5. Radio Resource Management

G. Implementing Cisco CleanAir
1. Introduction to CleanAir
2. CleanAir Concepts
3. CleanAir Modes of Operation
4. Air Quality Configuration and Reporting
5. CleanAir Enabled RRM
6. RRM—Transmit Power Control
7. RRM—Coverage Hole Detection
8. RRM—Profile Thresholds

III. CUWN Administration

A. Associating an AP to a WLC
1. AP Discovery and Join Process
2. AP Join Order
3. AP Failover Process
4. Controller High-Availability Design

B. Configuring Mobility Groups and Roaming
1. Wireless Roaming Concepts
2. Mobility Groups
3. Mobility Messaging
4. Auto-Anchor Mobility
5. Static IP Mobility

C. Administering Individual WLANs and AP Groups
1. WLAN
2. Passive Client Support
3. AP Groups
4. H-REAP Groups

D. Configuring QoS
1. QoS Overview
2. 802.11e/WMM
3. QoS Packet Marking Mappings
4. QoS Process
5. QoS Profiles-WMM Implemented
6. QoS Roles
7. Parameters Affecting Voice and Video Quality

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Course Outline (cont'd)

8. VoIP Phone Support Features
9. Enhanced EDCA Support
10. Configuring Video Parameters

E. Performing General Administration
1. Login Banner
2. Controller > Network Routes > New
3. Cisco Discovery Protocol
4. Controller > Internal DHCP Server > New / Edit
5. Multicast
6. Video Multicast Delivery Challenges
7. Evolving Need for Video over WLAN
8. Cisco VideoStream Technology

F. Describing 802.11 Weak Security Policy
1. Open Authentication
2. Pre-Shared Key Authentication—Static WEP
3. Web Authentication

IV. CUWN Security

A. Configuring Security Parameters
1. Configuring the Local Database
2. MAC Filtering
3. Access Control Lists
4. Peer-to-Peer Blocking Mode
5. Configuring RADIUS Authentication
6. Local EAP
7. LDAP Configuration
8. Management Frame Protection

B. Configuring CUWN to Support 802.1X Authentication
1. Wireless Security for Clients
2. Cisco Enhanced 802.11 WEP Security
3. Wi-Fi Protected Access
4. 802.11i/WPA2
5. 802.11i Authentication and Key Management
6. Cisco Centralized Key Management
7. 802.11i and WPA/WPA2 Differences
8. Public Key Infrastructure Principles
9. Security Policy Logic
10. Configuring WPA and WPA2 Enterprise Security
11. Virtual Private Network Pass-Through

V. CUWN Maintenance and Troubleshooting

A. Troubleshooting CUWN
1. debug and show Commands
2. Troubleshooting Basics
3. Association Troubleshooting

B. Gathering VLAN Traffic and Other Data
1. AP Sniffer Mode
2. Message Logging
3. WLC Statistics
4. Monitor > Wireless > Clients > Detail

C. Configuring Policies and Management
1. Aggressive Load Balancing
2. Wireless > 802.11b/g/n > RRM > Coverage
3. Wireless Protection Policies
4. Rogue Policies
5. Monitoring Rogue APs
6. Intrusion Detection Management
7. Client Exclusion Policies
8. Monitor > Clients > Remove
9. Monitor > Clients > LinkTest

D. Loading Device Code and Managing Configuration Data
1. Controller > Inventory
2. AP Hardware and Software Information
3. Upgrading WLC Code
4. AP Pre-Image Download
5. Manual Upgrade of WLC Code
6. Retrieving Files from the WLC
7. Wireless > All APs > Detail
8. Commands > Reset to Factory Default
9. Commands > Reboot System > Save and Reboot or Reboot Without Save

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