

# WDAWL (DEPLOYING ADVANCED CISCO WIRELESS LANS)

## 1.2

### Objetivo

Upon completion of this course, students will be able to:

- Differentiate the characteristics of a unified wireless LAN architecture, and configure and test the controllers, access points, and basic features
- Describe the procedures to configure Layer 2 and Layer 3 roaming
- Describe the procedure to configure QoS on the network to optimize audio and video flows
- Describe the process to configure Cisco Unified Wireless using IPv6
- Perform routine maintenance, network monitoring, and common troubleshooting tasks on the Cisco wireless LAN

### Público Alvo

This course is designed for engineers responsible for the planning, deployment and management of the advanced functions of an enterprise WLAN using lightweight access points with controllers.

### Pré-Requisitos

It is recommended, but not required, that students have the following knowledge and skills before attending this course:

- Cisco WLC Operation and Configuration (Base: Course WDBWL 1.2);
- Basic Networking Knowledge (Routing & VLANs);
- Familiarity with Microsoft Windows and Windows networking.

### Carga Horária

16 horas (2 dias).

### Conteúdo Programático

#### Course Introduction

- Course Goal and Objectives
- Course Flow
- Additional References

#### Client Mobility Between Subnets

- Understanding Same Subnet Roaming
- Describe the wireless LAN terms and concepts involved in client mobility
- Describe the Terminology of Roaming
- Define the terms that are used to describe client mobility in a Cisco Wireless network
- Describe the Function of the Mobility Group
- Describe Mobility Messaging
- Identify the types of mobility messages that are used between WLCs
- Describe Auto-anchor Mobility

Describe the auto-anchor functionality and operation at Layer 2  
Describe Auto-Anchor Configuration

### **Understanding Inter-subnet Mobility**

Identify and describe the differences between mobility at layer 2 and mobility at layer 3  
Describe Autonomous AP Mobility  
Describe Intra-Controller Client Association between APs joined to the same WLC  
Describe Inter-Controller Mobility Layer 2  
Describe Inter-Controller client between APs joined to different controllers  
Describe Impact of AP Groups on Mobility  
Describe how the use of AP groups can affect client mobility  
Describe Interface Groups and Mobility  
Describe how mobility is provided for clients that use a static IP address

### **Identifying Advanced Mobility Issues**

Describe Wi-Fi Alliance Voice Enterprise Certification  
Describes the main 802.11 amendments used in Voice Enterprise  
Describe 802.11v Support with Apple Devices  
Describe the benefits of 802.11v as they apply to Apple devices  
Describe RX-SOP  
Describe how RX - Start of Packet (SOP) enhances mobility  
Describe Optimized Roaming  
Describes how Optimized Roaming enhances the user's Wi-Fi experience

### **Configuring Quality of Service**

Describe QoS Overview  
Define QoS in a wireless LAN (WLAN) environment  
Describe 802.11e/WMM  
Describe how wireless QoS is implemented under 802.11e and Wi-Fi Multi Media  
Describe QoS Packet Marking Mappings  
Describes the mappings that are used in QoS packet marking between the wired and wireless segments of the network  
Describes QoS Process  
Explain how QoS markings are used and their role in prioritizing packets in the end-to-end network delivery  
Describes QoS implementation and configuration on a WLC using both static metal levels and Alloy profiles  
Describe QoS Roles for Guest Users  
Describes the creation and application of QoS roles to limit bandwidth contention  
Describe Create Guest User Roles via the GUI  
Describe Parameters Affecting Voice and Video Quality  
Identifies WLC parameters that impact voice and video applications  
Describe VoIP Phone Support Features  
Identifies the WLC settings that impact VoIP functionality  
Describe Enhanced EDCA Support  
Describes how to implement 802.11e EDCA for third-party voice and video devices  
Configure EDCA Parameters using the WLC GUI  
Configuring Video Parameters  
Describe the configuration and application of Call Admission Control for video clients  
Configuring the WLC to Support Video Clients on a WLAN

Practical Use: Monitoring WLC QoS on the Switch Infrastructure

## **Implementing Video over Wi-Fi**

Multicast Review

Describe the configuration to support multicast traffic in the wireless network

Describe Cisco VideoStream Technology

Describe IPv4 VideoStream Flow Diagram

Describe Enabling Multicast Direct: Reliable Multicast

Describe Adding Media Streams

## **Implementing VideoStream In A FlexConnect Deployment**

Identify VideoStream requirements and issues over FlexConnect wireless networks

Describe VideoStream in FlexConnect Environments

Describe the VideoStream features available and their implementation in a FlexConnect deployment

## **Integrating the WLC with MS Lync SDN**

Describe the Cisco WLC Lync SDN integration features and its operation

Describe WLC MS Lync SDN Integration Overview

Describe the Cisco MS Lync SDN Integration

Describe WLC MS Lync SDN Integration Configuration

Describe MS Lync integration configuration

Describe WLC MS Lync SDN Integration Verification

Describe how to validate a WLC MS Lync integration.

## **Understanding the Effects of Client Density on a Wireless Network**

What is a High Density Deployment?

Describe the effects of multiple clients in close proximity to each other have on the wireless network environment

## **Planning for Areas of High Client Density**

Determine the True Per-Connection Bandwidth Requirement

Describe the importance of determining the true per-client bandwidth requirements

Determining Throughput Requirements for a Coverage Area

Describe factors affecting the throughput that can be delivered in any single cell in a higher-density deployment

Higher Data Rates Increase Efficiency and Reduce the Effective Size of the Cell

Describe the effects of data rates on cell sizing in a higher-density environment

5 GHz Support is Critical for High-Density Deployments

Describe the effects of clients and their capabilities in delivering a successful higher-density WLA deployment.

RF Spectrum is a Finite Resource

Describe the impact that RF interference has on a high-density wireless deployment.

## **Wireless Mesh Networks**

The Mesh Architecture

Why Use a Mesh Architecture?

Describe the components and concepts that facilitate deployment of an Enterprise Mesh architecture

Describe the benefits mesh networks provide to an enterprise with difficult networking

Implementing Basic Wireless Mesh Networks

## **Providing Advanced Guest Access**

## Defining Guest Access with a Cisco WLC

Define what a guest network is and presents the technical requirements for a guest access solution using a Cisco WLC

### Methods for Providing Guest Access

Differentiate the methods available for providing guest access in the wired and wireless network.

### Configuring Guest Access

Describe the configuration of guest access capabilities on the WLC.

### Configuring Guest Traffic Segmentation or Path Isolation

### Preparing For an Anchor Foreign Relationship

### Auto Anchor for Wired Guest Access

### Sleeping Clients Guest Enhancements

### Sleeping Client Configuration

### Guest Networking Enhancements

Describe the enhancements to the guest network features that were introduced in WLC

### DNS Based ACLs Configuration

Describe the enhancements to the guest network features which were introduced in WLC 8.X code train.

Describing guest anchor behavior introduced in WLC code version 8.1

## Implementing Local Policies and Client Profiling

### Local Policies and Client Profiling

Define what Local Profiling provides and what Local Policies are.

### Configuring Client Profiles

### Configuring Policies

### Applying Policies

### Local Profiling Enhancements

Describe enhancements to the features in the latest code revisions.

## Implementing Cisco CMX Visitor Connect

Describe the operation and configuration of the CMX Visitor Connect service

Describe the operation of the CMX Visitor Connect B2C guest access solution

### Visitor Connect Configuration

Describe the actions required to configure Cisco Visitor Connect for use

### Practical Use: Implementing CMX Visitor Connect

### Practical Use: Implementing Social Auth CMX Visitor Connect

### CMX Facebook Wi-Fi Overview

### Facebook Wi-Fi Configuration

Describe the CMX Facebook Wi-Fi configuration process.

## Describing Wireless High Availability

### Basic High Availability

Describe basic WLC redundancy and failover concepts

### The Initial WLC High Availability Mechanisms

### AP Failover Process

### Initial High Availability Improvements

Describes the HA features introduced with the WLC code version 7.3.

### Upgrading WLCs when using HA

### HA Continues To Improve

Describes the HA features introduced in the WLC code versions 7.4 and 7.5.

Configuring Client and AP SSO

### **Enhancing Wireless High Availability**

The Latest HA Enhancements

Describes the HA features and improvements introduced in WLC code version 8.0.

The Latest HA Enhancements

Describes the HA features introduced in 8.1 version of the WLC code.

### **Configuring Clients for IPv6**

IPv6 Support

Introduce IPv6 operation

IPv6 Support in a Cisco Unified Wireless Network Environment prior to WLC code version 8.0

Protecting an IPv6 Network

Improving the efficiency of an IPv6 network

Cisco WLC Configuration to Support IPv6 Clients

Describe how to configure the Cisco WLC for efficient support of IPv6 clients

Practical Use: Configuring IPv6

### **Configuring the Infrastructure for IPv6**

IPv6 Support for Infrastructure Connections

IPv6 Management Address Assignment

Practical Use: IPv6 First Hop Security Configuration

### **Labs Outline**

Lab 1: Connecting to the remote labs

Lab 2: Monitoring WLC QoS on the Switch Infrastructure

Lab 3: Implementing CMX Visitor Connect

Lab 4: Implementing Social Auth CMX Visitor Connect

Lab 5: Configuring IPv6

Lab 6: Configure Mesh (Lab Exclusive BR Treinamentos)