

## COURSE OVERVIEW:

---

Implementing Cisco IP Telephony Video, Part 2 (CIPTV2) v1.0 is a five-day course that prepares the learner for implementing Cisco Unified Communications Manager, Cisco VCS-C, and Cisco Expressway series in a multisite voice and video network. It covers globalized call routing, URI call routing, global dial plan replication based on the ILS, Cisco Unified SRST, mobility features, call admission control, integration of Cisco VCS and Cisco Unified Communications Manager, and Cisco Mobile Remote access on Cisco Expressway Series.

## WHO SHOULD ATTEND

---

The primary target audiences for the course are:

- Network Administrators and Network Engineers
- CCNP Collaboration candidates

Secondary audiences are:

- Systems Engineers

## PREREQUISITES

---

- The knowledge and skills that a learner must have before attending this course are as follows:
- Working knowledge of converged voice, video, and data networks
- Working knowledge of the MGCP, SIP, and H.323 protocols and their implementation on Cisco IOS gateways
- Ability to configure and operate Cisco routers and switches
- Ability to configure and operate Cisco Unified Communications Manager in a single-site and multisite environments

## COURSE OBJECTIVES

---

Upon completing this course, you will be able to meet these objectives:

- Describe multisite deployment issues and solutions, and describe and configure required dial plan elements



- Implement bandwidth management and CAC to prevent oversubscription of the IP WAN
- Implement Device Mobility, Cisco Extension Mobility, and Cisco Unified Mobility
- Implement Cisco VCS Control and Cisco Expressway Series
- Describe and implement CCD and ILS

## COURSE OUTLINE:

---

### Module 1: Multisite Deployment Implementation

#### Lesson 1: Identifying Issues in a Multisite Deployment

- Multisite Deployment Issues Overview
- Quality Issues
- Bandwidth Issues
- Availability Issues
- Overview of Dial Plan Issues
- Fixed-Length vs. Variable-Length Numbering Plans
- Optimized Call Routing and PSTN Backup
- Overlapping and Nonconsecutive Numbers
- PSTN Requirements
- Dial Plan Scalability Issues
- NAT and Security Issues

#### Lesson 2: Identifying Multisite Deployment Solutions

- Multisite Deployment Solution Overview
- Quality of Service
- Overview of Solutions to Bandwidth Limitations
- Low-Bandwidth Codecs and RTP-Header Compression
- Local Conference Bridges
- Transcoders
- Mixed Conference Bridge
- Multicast MOH from Branch Router Flash
- Call Admission Control
- Availability Overview
- PSTN Backup

- MGCP Fallback: Normal Operation
- Fallback for IP Phones: Normal Operation
- Call Forward Unregistered
- Automated Alternate Routing
- Mobility Solutions
- Overview of Dial Plan Solutions
- NAT and Security Solutions

## **Lesson 3: Implementing a +E.164-based Dial Plan for Internationals Multisite Deployments**

- Overview of Multisite Connection Options
- SIP Trunk Review
- H.323 Trunks
- Trunk Implementation Overview
- Multisite Dial Plan Overview
- Implementing Site Codes for On-Net Calls
- Implementing PSTN Access
- Implementing Selective PSTN Breakout
- Implementing PSTN Backup for On-Net Intersite Calls
- Implementing TEHO
- Globalized Call Routing Overview
- Globalization of Localized Call Ingress on Gateways
- Localized Call Egress
- Globalized Call Routing Examples

## **Lesson 4: Implementing a URI-Based Dial Plan for Multisite Deployments**

- URI Dialing Overview
- URI Endpoint Addressing Review
- URI Partitions and CSSs Review
- URI Call Sources Review
- Blended Addressing
- FQDNs in Directory URIs
- URI Call Routing

## Module 2: Centralized Call-Processing Redundancy Implementation

### Lesson 1: Implementing SRST and MGCP Fallback

- Remote Site Redundancy Overview
- MGCP Fallback Operation
- Cisco Unified SRST Operation
- Cisco Unified Communications Manager Express in SRST Mode
- Dial Plan Requirements for MGCP Fallback and Cisco Unified SRST Scenarios

## Module 3: Bandwidth Management and CAC Implementation

### Lesson 1: Managing Bandwidth

- Bandwidth Management Options
- Cisco Unified Communications Manager Codec Configuration
- Local Conference Bridge Implementation
- Transcoder Implementation
- Multicast MOH from Branch Router Flash Implementation

### Lesson 2: Implementing CAC

- CAC Overview
- Enhanced Location CAC Characteristics
- Intracluster Enhanced Location CAC
- Intercluster Enhanced Location CAC
- Enhanced Location CAC Considerations
- Automated Alternate Routing

## Module 4: Implementation of Features and Applications for Multisite Deployments

### Lesson 1: Implementing Device Mobility

- Issues with Devices Roaming Between Sites
- Device Mobility Overview
- Device Mobility Configuration Elements
- Device Mobility Operation
- Device Mobility Considerations
- Device Mobility Interaction with Globalized Call Routing
- Device Mobility Configuration

## Lesson 2: Implementing Cisco Extension Mobility

- Issues with Users Roaming Between Sites
- Cisco Extension Mobility Overview
- Cisco Extension Mobility Configuration Elements
- Cisco Extension Mobility Operation
- Cisco Extension Mobility Considerations
- Cisco Extension Mobility Configuration

## Lesson 3: Implementing Cisco Unified Mobility

- Cisco Unified Mobility Overview
- Cisco Unified Mobility Call Flows
- Cisco Unified Mobility Implementation Requirements
- Cisco Unified Mobility MGCP or SCCP Gateway PSTN Access
- CSS Handling in Cisco Unified Mobility
- Cisco Unified Mobility Access-List Functions
- Cisco Unified Mobility Configuration

## Module 5: Cisco VCS and Cisco Expressway

### Lesson 1: Describing Cisco VCS and Cisco Expressway Series Deployment Options

- Cisco VCS and Cisco Expressway Series Overview
- Cisco VCS and Cisco Expressway Series Deployment Options
- Cisco VCS and Cisco Expressway Series Platforms, Licenses, and Features
- Cisco VCS and Cisco Expressway Clustering
- Cisco VCS and Cisco Expressway Series Initial Configuration

### Lesson 2: Deploying Users and Local Endpoints in Cisco VCS Control

- User Authentication Options
- Endpoint Registration
- Endpoint Authentication
- Cisco TMS Provisioning
- Zones
- Links
- Pipes

## **Lesson 3: Interconnecting Cisco Unified Communications Manager and Cisco VCS**

- Cisco Unified Communications Manager and Cisco VCS Interconnection Overview
- Call Flow between Cisco Unified Communications Manager and Cisco VCS
- Cisco VCS Dial Plan Components
- Configuration of Cisco Unified Communications Manager and Cisco VCS Interconnections
- FindMe Configuration Procedure

## **Lesson 4: Implementing Unified Communications Mobile and Remote Access**

- Unified Communications Mobile and Remote Access Overview
- Unified Communications Mobile and Remote Access Components
- Unified Communications Mobile and Remote Access Operations
- Unified Communications Mobile and Remote Access Configuration Procedure

## **Module 6: GDPR and CCD**

### **Lesson 1: Implementing ILS and GDPR**

- ILS Overview
- ILS Networking
- GDPR Overview
- ILS Network Configuration Procedure
- Exchange of Directory URIs
- Configuration of Directory URI Exchange
- Exchange of Numbers and Patterns
- Configuration of Number and Pattern Exchange
- Import and Export of Global Dial Plan Catalogs

### **Lesson 2: Implementing CCD**

- SAF and CCD Overview
- SAF Characteristics
- CCD Characteristics
- CCD Operation
- Monitoring Learned Routes
- Cisco Unified SRST Considerations
- Considerations When Using Globalized Call Routing

- Trunk Considerations
- Considerations When Using Clustering Over the WAN
- SAF and CCD Implementation Overview
- Configure SAF and CCD

## LAB OUTLINE

---

- Lab 1: Implementing a +E.164-Based Dial Plan for International Multisite Deployments
- Lab 2: Implementing a URI-Based Dial Plan for Multisite Deployments
- Lab 3: Implementing SRST and MGCP Fallback
- Lab 4: Implementing Bandwidth Management
- Lab 5: Implementing Enhanced Location CAC
- Lab 6: Implementing Device Mobility
- Lab 7: Implementing Extension Mobility
- Lab 8: Implementing Cisco Unified Mobility
- Lab 9: Configuring Cisco VCS Control to Register Endpoints
- Lab 10: Implementing a Dial Plan in Cisco VCS Control to Interconnect with Cisco Unified Communications Manager
- Lab 11: Implementing Mobile and Remote Access via Cisco Expressway