

Implementing Cisco IP Telephony and Video, Part 1 - On Demand (CIPTV1 1.0)

Modality: On Demand

Duration: 40 Hours

CLC: 10 Units

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Course Outline:

Module 1: Cisco Unified Communications Manager Introduction

Lesson 1: Describing the Role of Cisco Unified Communications Manager, Its Architecture, and Its Deployment and Redundancy Options

- Overview of the Cisco Collaboration Solution
- Cisco Unified Communications Manager Functions
- Cisco Unified Communications Manager Architecture
- Cisco Unified Communications Manager Models
- Cisco Unified Communications Manager Redundancy

Lesson 2: Performing Initial Cisco Unified Communications Manager Configuration

- Cisco Unified Communications Manager Servers
- Cisco Unified Communications Manager Services
- Cisco Unified Communications Manager Groups
- Cisco Unified Communications Manager Configurations Elements: Enterprise Parameters
- Cisco Unified Communications Manager Configuration Elements: Service Parameters
- Cisco Unified Communications Manager Configuration Elements: Device Settings

Lesson 3: Deploying Endpoints and Users

- Comparison of Endpoint Supported by Cisco Unified Communications Manager
- Endpoint Configuration Elements
- Cisco Unified Communications Manager User Accounts
- Types of LDSP Integration: Synchronization
- Types of LDAP Integration: Authentication
- LDAP Integration Features: Attribute Mapping

- LDAP Integration Feature: Filters

Lesson 4: Deploying IP Phone Services

- Overview of Cisco IP Phone Services
- Cisco IP Phone Services: Deployment Options

Module 2: Dial Plan Introduction and Implementation of Single-Site On-Cluster Calling

Lesson 1: Describing Dial Plan Components

- Dial Plan Overview
- Dial Plan Components and Their Functions
- Comparison of Dial Plan Configuration Elements

Lesson 2: Implementing Endpoint Addressing and Call Routing

- Endpoint Addressing
- Cisco Unified Communications Manager Call Routing Overview
- Cisco Unified Communications Call-Routing Logic
- Addressing Methods and Digit Analysis
- Variable-Length Patterns, Overlapping Patterns, and Urgent Priority

Lesson 3: Implementing Calling Privileges

- Calling Privileges Overview
- Calling Privileges Configuration Elements
- Partitions and CSSs
- Partition and CSS Considerations
- Partition and CSS Configuration

Lesson 4: Implementing Call Coverage in Cisco Unified Communications Manager

- Call Coverage Overview
- Call Hunting
- Call Hunting Scenarios
- Call Queuing
- Call Hunting and Call Queuing Configuration

Module 3: Implementation of Single-Site Off Cluster Calling

Lesson 1: Analyzing Single-Site Off-Cluster Calling Requirements

- PSTN Access Methods
- TDM Gateway vs. Cisco UBE
- TDM Gateway Comparison
- Audio and Video Codec Selection
- PSTN Numbering Plans

Lesson 2: Implementing PSTN Access Using MGCP Gateways

- MGCP Gateway Implementation Overview
- MGCP Gateway Support in Cisco Unified Communications Manager
- MGCP Gateway Implementation Considerations
- Implement an MGCP Gateway in Cisco Unified Communications Manager
- Integrate Cisco IOS MGCP Gateways with Cisco Unified Communications Manager
- Configure Cisco IOS MGCP Gateway Fractional PRIs
- Path Selection in Cisco Unified Communications Manager
- Route Groups in Cisco Unified Communications Manager
- Route Lists in Cisco Unified Communications Manager
- Digit Manipulation Requirements with Multiple Paths
- Digit Manipulation Configuration Elements in Cisco Unified Communications Manager
- PSTN Access Digit Manipulation Example

Lesson 3: Describing Cisco IOS H.323 and SIP Gateways

- H.323 and SIP Gateway Overview
- Dial Peer Overview
- Inbound Dial Peer Selection
- Discovery 1: Exploring Cisco IOS Gateway Functions
- Outbound Dial Peer Selection
- Discovery 2: Exploring Cisco IOS Gateway Functions
- Digit Manipulation Features
- Codec Configuration
- COR Configuration

Lesson 4: Implementing PSTN Access Using H.323 Gateways

- H.323 PSTN Gateway Configuration in Cisco Unified Communications Manager Deployments
- Dial Plan Design and Documentation

Lesson 5: Describing the Cisco Unified Border Element

- Cisco Unified Border Element Overview
- Protocol Interworking on the Cisco Unified Border Element
- Media Flows on the Cisco Unified Border Element
- Codec Negotiation on the Cisco Unified Border Element

Lesson 6: Using the Cisco Unified Border Element to Access the PSTN via a SIP Trunk

- PSTN SIP Access Overview
- Configuration Requirements in Cisco Unified Communications Manager
- Configuration Requirements for the Cisco Unified Border Element

Lesson 7: Using Cisco Unified Border Element for URI Dialing

- Cisco Unified Border Element URI Dialing Overview

- Cisco Unified Communications Manager URI Dialing Configuration Requirements
- Cisco Unified Border Element URI Dialing Configuration Requirements

Lesson 8: Describing Dial Plan Interworking

- Dial Plan Interworking Characteristics
- Dial Plan Interworking Support

Module 4: Media Resources

Lesson 1: Describing Media Resources in Cisco Unified Communications Manager

- Media Resources Overview
- Audio Conferences
- Video Conferences
- Transcoders
- Media Termination Points
- Annunciators
- Music on Hold
- Video on Hold
- Trusted Relay Points

Lesson 2: Implementing Annunciators and MOH

- MOH Support in Cisco Unified Communications Manager
- Unicast and Multicast MOH Characteristics
- MOH Audio Source Selection
- MOH Configuration
- Annunciator Support in Cisco Unified Communications Manager
- Annunciator Configuration Procedure
- Media Resource Access Control Overview
- Conference Bridge Selection
- Media Resource Access Control Configuration

Lesson 3: Implementing MTPs

- MTP Types and Functions
- MTP Requirements for SIP Trunks
- MTP Requirements for H.323
- MTP Configuration Procedure

Module 5: Audio and Video Conferencing

Lesson 1: Describing Conferencing Devices and Their Functions

- Devices That Support Audio or Video Conferencing
- Comparison of Audio Conference Bridges
- Comparison of Video Conference Bridges

- Conference Bridge Integration Options in Cisco Unified Communications Manager

Lesson 2: Implementing Conference Bridges

- Cisco Unified Communications Manager Software Audio Conference Bridge
- Cisco IOS-based Conference Bridges
- Cisco Unified Communications Manager- and Cisco IOS-based Conference Bridge Configuration

Lesson 3: Describing Cisco TelePresence MSE 8000

- Cisco TelePresence MSE 8000 Overview
- Cisco TelePresence MSE 8000 Feature Blades
- Cisco TelePresence MSE 8000 Capabilities
- Cisco TelePresence MSE 8000 Feature Blade Configuration

Lesson 4: Implementing Cisco TelePresence Server

- Cisco TelePresence Server Overview
- Integration of Cisco TelePresence Server and Cisco Unified Communications Manager
- Configuration Example of Cisco TelePresence Server Integration

Lesson 5: Implementing Cisco TelePresence Conductor

- Cisco TelePresence Conductor Characteristics
- Options for Integrating Cisco TelePresence Conferencing Resources
- Integration of Cisco TelePresence Conductor and Cisco Unified Communications Manager

Module 6: Quality of Service

Lesson 1: Analyzing Quality of Service Requirements

- Issues in Packet-Switching Networks
- Solutions to Packet-Switching Network Issues
- Bandwidth Calculations
- Bandwidth Calculations for Layer 2 Overhead
- Bandwidth Calculations for Video Calls

Lesson 2: Describing QoS Components and their Functions

- Three Models of QoS: Best-Effort
- Three Models of QoS: IntServ
- Resource Reservation Protocol
- Three Models of QoS: DiffServ
- Differentiated Services Code Point
- Overview of QoS Components
- Classification
- Marking

- Mapping Classes and Markings
- Congestion Management
- Congestion Avoidance
- Policing
- Shaping
- Link Efficiency Methods: Compression
- Link Efficiency Methods: LFI

Lesson 3: Implementing Marking

- Marking Methods
- Class-Based Markings
- Trust Boundaries
- Mapping Layer 2 CoS to Layer 3 QoS
- Marking Configuration Example

Lesson 4: Implementing Policing and Shaping

- Comparison of Policing and Shaping
- Class-Based Policing: Single Bucket
- Class-Based Policing: Dual Buckets
- Class-Based Policing: Dual Rate
- Class-Based Shaping
- Low Latency Queuing
- Monitoring LLQ
- Calculating Bandwidth for LLQ

Example 1: Single-Rate Single Token Bucket Class-Based Policing

Example 2: Single-Rate Dual Token Buckets Class-Based Policing

Example 3: Class-Based Shaping

Labs

- Lab1: Configuring Cisco Unified Communications Manager Initial Settings
- Lab 2: Deploying Endpoints and Users
- Lab 3: Implementing Endpoint Addressing and Call Routing
- Lab 4: Implementing Calling Privileges
- Lab 5: Implementing Call Coverage
- Lab 6: Implementing PSTN Calling Using MGCP Gateways
- Lab 7: Implementing PSTN Calling Using H.323 Gateways
- Lab 8: Implementing PSTN Calling Using SIP Trunks Through Cisco Unified Border Element
- Lab 9: Using Cisco Unified Border Element for URI Dialing
- Lab 10: Implementing Annunciators and MOH
- Lab 11: Implementing Conference Bridges
- Lab 12: Implementing Cisco TelePresence Conductor