

Module 2 (Continued)

Lesson 6: Configuring VoIP Call Legs

Configuration Components of VoIP Dial Peer
Configuring DTMF Relay
Configuring FAX/Modem Support
Configuring Codecs
Limiting Concurrent Calls

Module 3: CUCM Express Endpoints Implementation

Lesson 1: Introducing CUCM Express

Introducing CUCM Express
CUCM Express Key Features and Benefits
CUCM Express Supported Platforms
CUCM Express Operation

Lesson 2: Examining CUCM Express Endpoint Requirements

Overview of CUCM Express Endpoints
Identifying CUCM Express Endpoint Requirements
Power over Ethernet
VLAN Infrastructure
IP Addressing and DHCP
Network Time Protocol
Endpoint Firmware and Configuration
Setting Up CUCM Express in SCCP Environment
Setting Up CUCM Express in SIP Environment

Lesson 3: Configuring CUCM Express Endpoints

Directory Numbers and Phones in CUCM Express
Creating Directory Numbers for SCCP Phones
Configuring SCCP Phone-Type Templates
Creating SCCP Phones
Creating Directory Numbers for SIP Phones
Creating SIP Phones
Configuring Cisco IP Communicator Support
Managing CUCM Express Endpoints
Verifying CUCM Express Endpoints

Module 4: Dial Plan Implementation

Lesson 1: Introducing Call Routing

Introducing Numbering Plans
Scalable Numbering Plans
Overlapping Numbering Plans
Private and Public Numbering Plan Integration
Number Plan Implementation Overview
Call Routing Overview

Lesson 2: Understanding Dial Plans

Defining Dial Plans
Endpoint Addressing
Call Routing and Path Selection
PSTN Dial Plan Requirements
ISDN Dial Plan Requirements
Digit Manipulation
Calling Privileges
Call Coverage

Lesson 3: Describing Digit Manipulation

Digit Collection and Consumption
Components of Digit Manipulation
Digit Stripping
Digit Forwarding
Digit Prefixing
Number Expansion
Caller ID Digits Manipulation
Digit Manipulation Using Voice Translation Rules and Profiles
Digit Manipulation Using dialplan-pattern Command
Verifying Digit Manipulation

Lesson 4: Configuring Path Selection

Call Routing and Path Selection
Dial-Peer Matching
Path Selection Strategies
Site-Code Dialing and Toll Bypass
Configuring Site-Code Dialing and Toll Bypass
Tail-End Hop-Off
Configuring TEHO

Lesson 5: Configuring Calling Privileges

Calling Privileges Characteristics
Implementing Calling Privileges on Gateways
Implementing Calling Privileges on SRST and CUCM Express
Configuring COR
Verifying COR

Cisco Voice Over IP

Module 5: Gatekeeper and Cisco Unified Border Element Implementation

Lesson 1: Understanding Gatekeepers

- Gatekeeper Overview
- Gatekeeper Signaling
- Gatekeeper Call Routing
- Gatekeeper-Based Call Admission Control
- Configuring Gatekeeper
- Configuring Gatekeeper Zones
- Configuring Zone Prefixes
- Configuring Technology Prefixes
- Adapting H.323 Gateways to Gatekeepers
- Configuring Gatekeeper CAC
- Verifying Basic Gatekeeper Functionality

Lesson 2: Examining Cisco Unified Border Element

- Cisco Unified Border Element Overview
- Protocol Interworking on Cisco Unified Border Element
- Media Flows on Cisco Unified Border Element
- Verifying Cisco Unified Border Element
- RSVP-Based CAC on Cisco Unified Border Element
- Cisco Unified Border Element Call Flows
- Configuring H.323-to-H.323 Interworking
- Configuring H.323-to-SIP Interworking
- Configuring Media Flow and Transparent Codec

Module 6: Quality of Service

Lesson 1: Introducing QoS

- QoS Issues
- QoS and Voice Traffic
- QoS for Unified Communications Networks
- QoS Requirements
- Methods for Implementing QoS Policy
- QoS Models

Lesson 2: Understanding QoS Mechanisms and Models

- DiffServ Model
- DSCP Encoding
- DiffServ Per-Hop Behaviors
- DiffServ Class Selector
- DiffServ QoS Mechanisms
- Cisco QoS Baseline Model

Lesson 3: Explaining Classification, Marking, and Link Efficiency Mechanisms

- Modular QoS CLI
- Configuring Classification
- Configuring Class-Based Marking
- Trust Boundaries
- Mapping CoS to Network Layer QoS
- Link Efficiency Mechanisms Overview
- Link Speeds and QoS Implications
- Serialization Issues
- Link Fragmentation and Interleaving
- Configuring MLP with Interleaving
- Configuring FRF.12 Frame Relay Fragmentation
- Configuring Class-Based Header Compression

Lesson 4: Managing Congestion and Rate Limiting

- Congestion and Its Solutions
- Policing and Shaping
- Measuring Traffic Rates
- Class-Based Policing
- Configuring Class-Based Policing
- Class-Based Shaping
- Configuring Class-Based Shaping
- Low-Latency Queuing
- Configuring LLQ
- Calculating Bandwidth for LLQ



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Course Outline

Module 6: (Continued)

Lesson 5: Understanding Cisco AutoQoS

Cisco AutoQoS VoIP
Configuring Cisco AutoQoS VoIP
Monitoring Cisco AutoQoS VoIP
Automation with Cisco AutoQoS
Cisco AutoQoS for the Enterprise
Configuring Cisco AutoQoS for the Enterprise
Monitoring Cisco AutoQoS for the Enterprise

Course Labs

Lab 1: Topology and Deployment
Lab 2: Exclusive - Lab Familiarity
Lab 3: Exclusive - VLAN, DHCP, and NTP Configuration
Lab 4: Enhanced - Voice Port Configuration
Lab 5: Enhanced - Communications Manager Express Configuration
Lab 6: Enhanced - Dial Plan Lab 1: VoIP Dial Peers
Lab 7: Enhanced - Dial Plan Lab 2: PSTN Dial Peers
Lab 8: Exclusive - Configuring H.323 Gateways and Codec Parameters
Lab 9: Exclusive - SIP Gateways
Lab 10: Exclusive - Configuring SCCP and SIP Endpoints
Lab 11: Dial Plan Lab 3: Digit Manipulation
Lab 12: Dial Plan Lab 4: Configuring Path Selection
Lab 13: Calling Privileges and Classes of Restriction
Lab 14: Call Coverage
Lab 15: Configuring Gatekeepers
Lab 16: Exclusive - Call Admission Control
Lab 17: Configuring Cisco Unified Border Element
Lab 18: Configuring AutoQoS
Lab 19: Exclusive - SIP Trunking



Learning
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