

CISCO CCNP COLLABORATION

Cisco Certified Network Professional Collaboration Part 1 (CIPTv1 and CIPTv2)

Our Learning Exclusive

- Custom exam prep software and materials
- Exam delivery in classroom with 98% success
- Course specific thinQtank® Learning publications to promote a fun exciting learning
- Extended hours of training including immersive hands-on exercises
- WE DO NOT "TEACH THE TEST" We always deliver valuable hands-on experience
- Receive all reading material and study guides when you register
- All courses taught by CCIE expert instructors

Course Duration

- Seven days of instructor-led training
- 40% Lecture and 60% Hands-On Labs

Prerequisites

- Knowledge of computer networking, LANs, WANs, switching and routing
- Ability to configure and operation Cisco routers and switches, enablement of VLANs and DHCP
- Knowledge of digital interfaces, PSTN and VoIP
- Knowledge of converged voice, video, and data
- Knowledge of MGCP, SIP, H.323 protocols and implementation on Cisco IOS gateways
- Configure CUCM in single-site environment

Target Audience

- Network Administrators
- Network Engineers
- CCNP Collaboration candidates
- Systems engineers

Exam Information

- 300-070 – Implementing Cisco IP Telephony and Video, Part 1 (CIPTv1)
- 300-075 – Implementing Cisco IP Telephony and Video, Part 2 (CIPTv2)

Delivery Methods

- Instructor-Led Training
- Immersive Live-Online Training
- On-Site and Custom Delivery

Exclusives for Certification Success

- Class recordings so you can review your course any time
- Practice labs to continue your learning beyond the classroom
- Unlimited retakes of course for 24 months
- An exam voucher so you have everything you need to take the exam
- Digital courseware for 24/7 access to authorized course materials, including changes and updates
- Pre-built VMware deployments of collaboration platforms students take home

Course Overview

thinQtank® Learning is offering an industry unique seven-day training camp in which students can receive the first half of the Cisco CCNP Collaboration certification. As with all of our Cisco Training Experiences – exams are delivered in the classroom.

For collaboration and unified communications network engineers who want develop advanced collaboration skills designing, deploying, configuring, and troubleshooting Cisco Collaboration and Unified communications applications, devices and networks, the Cisco CCNP Collaboration certification is a job-role focused training and certification program that will expand your skills and ability to deliver business value.

Collaboration is becoming a critical necessity for business success and innovation. You can use your knowledge to lead the transformation and increase the effectiveness of your organizations collaboration experience.

Course Objectives

The CIPTv1 portion of the course trains network admins and to implement a Cisco Collaboration Solution at a single site environment with Cisco Unified Communications Manager (CUCM).

This portion of the course is comprised of several lab sessions and detailed lectures to teach students to complete post-installation tasks and CUCM configurations, as well as MGCP, H.323 and SIP trunk implementations. Students will also be able to implement audio/video conferencing and various other media resources into a single site configuration. Finally, students will learn best practice standards for Quality of Service in the network and how it relates to the quality standards of voice and video calls.

The CIPTv2 portion of the course provides students the skills and knowledge to implement Cisco Unified Communications Manager (CUCM), Cisco VCS-C and Cisco Expressway series in multisite voice and video networks. Students learn call routing options, global dial plan replication based on the ILS, Cisco Unified SRST, mobility features, call admission control, integration of Cisco VCS and CUCM, and Cisco Mobile Remote Access on Cisco Expressway Series.

Included hands-on labs allow students to practice successfully implementing dial plans for multisite deployments – both domestic and international, plus the implementation of bandwidth management, device mobility, extension mobility and Cisco Unified Mobility. Other lab work covers the implementation of Dial Plans in Cisco VCS Control to Interconnect with CUCM and implementation of mobile and remote access via Cisco Expressway.

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Course Objectives Cont.

CIPTv1 - Implementing Cisco IP Telephony and Video, Part 1

- Describe role of Cisco Unified Communications Manager in a Cisco Collaboration Solution, including functions, architecture, deployment and redundancy options
- Deploy endpoints, users, and Cisco IP Phone Services
- Describe the functions and the purpose of a dial plan
- Explain how to implement on-cluster calling
- Describe how to configure MGCP, H.323, and SIP gateways
- Describe how to create a dial plan that supports inbound and outbound off-cluster calling for numbers and URLs
- Describe the types of media resources that Cisco Unified Communications Manager supports
- How to configure Cisco Unified Communications Manager server software-based media resources and how to implement Cisco hardware-based media resources
- Describe how to implement audio and video conferencing devices that can be used with Cisco Unified Communications Manager, built-in Cisco Unified Communications Manager software audio bridge and, Cisco IOS-based audio and video conference bridges
- Describe how to deploy Cisco TelePresence conferencing products including Cisco TelePresence MSE 8000, Cisco TelePresence Server, Cisco TelePresence MCU, and Cisco TelePresence Conductor
- Describe QoS with emphasis on the components (or toolkit) that are used to provide services for various business applications

CIPTv2 - Implementing Cisco IP Telephony and Video, Part 2

- Describe multisite deployment issues and solutions and describe and configure required dial plan elements
- Implement call-processing resiliency in remote sites by using Cisco Unified SRST and MGCP fallback
- 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

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Course Modules (CIPTv1 - Implementing Cisco IP Telephony and Video, Part 1)

1 Cisco Unified Communications Manager (CUCM) Intro

- Overview of the Cisco Collaboration Solution
- Functions
- Architecture
- Models
- Redundancy
- Servers
- Services
- Groups
- Configuration Elements
 - Enterprise Parameters
 - Service Parameters
 - Device Settings
- Comparison of Endpoints Supported by CUCM
- Endpoint Configuration Elements
- User Accounts
- LDAP Integration
 - Synchronization
 - Authentication
 - Attribute Mapping
 - Filters
- Cisco IP Phone Services
 - Overview
 - Deployment Options

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

- Dial Planning
 - Overview
 - Components and Their Functions
 - Comparison of Dial Plan Configuration Elements
- Endpoint Addressing
- CUCM Call Routing Overview
- Cisco Unified Communications Call-Routing Logic
- Addressing Methods and Digit Analysis
- Variable-Length Patterns, Overlapping Patterns, and Urgent Priority
- Calling Privileges Overview
- Calling-Privileges Configuration Elements
- Partitions and CSSs
 - Considerations
 - Configuration
- Call Coverage Overview
 - Call Hunting
 - Call Hunting Scenarios
 - Call Queuing
 - Call Hunting and Call Queuing Configuration

3 Implementation of Single-Site Off-Cluster Calling

- PSTN Access Methods
- TDM Gateway vs. Cisco UBE
- TDM Gateway Comparison
- Audio and Video Codec Selection
- PSTN Numbering Plans
- MGCP Gateway Implementation
 - Support in CUCM
 - Implementation Considerations
 - Implementing in CUCM
 - Integrating Cisco with CUCM
 - Configuring Gateway Fractional PRIs
- Path Selection in CUCM
- Route Groups in CUCM
- Route Lists in CUCM
- Digit Manipulation Requirements with Multiple Paths
- Digit Manipulation Configuration Elements in CUCM
- PSTN Access Digit Manipulation Example
- 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
- H.323 PSTN Gateway Configuration in CUCM
- Dial Plan Design and Documentation
- 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
- PSTN SIP Access Overview
- Configuration Requirements in CUCM
- Configuration Requirements for the Cisco Unified Border Element
- Cisco Unified Border Element URI Dialing Overview
- CUCM URI Dialing Configuration Requirements
- Cisco Unified Border Element URI Dialing Configuration Requirements
- Dial Plan Interworking Characteristics
- Dial Plan Interworking Support

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Course Modules (CIPTv1 - Implementing Cisco IP Telephony and Video, Part 1) Continued

4 Media Resources

- Media Resources Overview
- Audio Conferences
- Video Conferences
- Transcoders
- Media Termination Points
- Annunciators
- Music on Hold
- Video on Hold
- Trusted Relay Points
- MOH Support in CUCM
- Unicast and Multicast MOH Characteristics
- MOH Audio Source Selection
- MOH Configuration
- Annunciator Support in CUCM
- Annunciator Configuration Procedure
- Media Resource Access Control Overview
- Conference Bridge Selection
- Media Resource Access Control Configuration
- MTP Types and Functions
 - Requirements for SIP Trunks
 - Requirements for H.323
 - Configuration Procedure

5 Audio and Video Conferencing

- Devices That Support Audio or Video Conferencing
- Comparison of Audio Conference Bridges
- Comparison of Video Conference Bridges
- Conference Bridge Integration Options in CUCM
- CUCM Software Audio Conference Bridge
- Cisco IOS-based Conference Bridges
- CUCM and Cisco IOS-based Conference Bridge Configuration
- Cisco TelePresence MSE 8000
 - Overview
 - Feature Blades
 - Capabilities
 - Feature Blade Configuration
- Cisco TelePresence Server Overview
 - Integration of Cisco TelePresence Server and CUCM
 - Configuration Example of Cisco TelePresence Server Integration
- Cisco TelePresence Conductor Characteristics
- Options for Integrating Cisco TelePresence Conferencing Resources
- Integration of Cisco TelePresence Conductor and Cisco Unified Communications Manager

6 Quality of Service

- Issues in Packet-Switching Networks
- Solutions to Packet-Switching Network Issues
- Bandwidth Calculations
 - For Layer 2 Overhead
 - For Video Calls
- Three Models of QoS
 - Best-Effort
 - IntServ
 - Resource Reservation Protocol
 - 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
 - LFI
- Marking Methods
- Class-Based Markings
- Trust Boundaries
- Mapping Layer 2 CoS to Layer 3 QoS
- Marking Configuration Example
- 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

CIPTv1 Labs

- Configuring CUCM Initial Settings
- Deploying Endpoints and Users
- Implementing Endpoint Addressing and Call Routing
- Implementing Calling Privileges
- Implementing Call Coverage
- Implementing PSTN Calling Using MGCP Gateways
- Implementing PSTN Calling Using H.323 Gateways
- Implementing PSTN Calling Using SIP Trunks Through Cisco Unified Border Element
- Using Cisco Unified Border Element for URI Dialing
- Implementing Annunciators and MOH
- Implementing Conference Bridges
- Implementing Cisco TelePresence Conductor

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Course Modules (CIPTv2 - Implementing Cisco IP Telephony and Video, Part 2)

- 1** Multisite Deployment Implementation
- Multisite Deployment Issues
 - 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
 - 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
 - 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
 - URI Dialing
 - Endpoint Addressing Review
 - Partitions and CSSs Review
 - Call Sources Review
 - Blended Addressing
 - FQDNs in Directory URIs
 - Call Routing

- 2** Centralized Call-Processing Redundancy Implementation
- Remote Site Redundancy Overview
 - MGCP Fallback Operation
 - Cisco Unified SRST Operation
 - CUCM Express in SRST Mode
 - Dial Plan Requirements for MGCP Fallback and Cisco Unified SRST Scenarios

- 3** Bandwidth Management and CAC Implementation
- Bandwidth Management Options
 - Cisco Unified Communications Manager Codec Configuration
 - Local Conference Bridge Implementation
 - Transcoder Implementation
 - Multicast MOH from Branch Router Flash Implementation
 - CAC Overview
 - Enhanced Location CAC Characteristics
 - Intracluster Enhanced Location CAC
 - Intercluster Enhanced Location CAC
 - Enhanced Location CAC Considerations
 - Automated Alternate Routing

- 4** Implementation of Features and Applications for Multisite Deployments
- Issues with Devices Roaming Between Sites
 - Device Mobility
 - Configuration Elements
 - Operation
 - Considerations
 - Interaction with Globalized Call Routing
 - Configuration
 - Issues with Users Roaming Between Sites
 - Cisco Extension Mobility
 - Configuration Elements
 - Operation
 - Considerations
 - Configuration
 - Cisco Unified Mobility
 - Call Flows
 - Implementation Requirements
 - MGCP or SCCP Gateway PSTN Access
 - CSS Handling
 - Access-List Functions
 - Configuration

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Course Modules (CIPTv2 - Implementing Cisco IP Telephony and Video, Part 2) Continued

- 5** Cisco VCS and Cisco Expressway
- Overview
 - Deployment Options
 - Platforms, Licenses, and Features
 - Clustering
 - Initial Configuration
 - User Authentication Options
 - Endpoint Registration
 - Endpoint Authentication
 - Cisco TMS Provisioning
 - Zones
 - Links
 - Pipes
 - CUCM and Cisco VCS Interconnection Overview
 - Call Flow between CUCM and Cisco VCS
 - Cisco VCS Dial Plan Components
 - Configuration of CUCM and Cisco VCS Interconnections
 - FindMe Configuration Procedure
 - Unified Communications Mobile and Remote Access
 - Components
 - Operations
 - Configuration Procedure

- 6** GDPR and CCD
- 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
 - SAF and CCD
 - 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

- CIPTv2 Labs
- Implementing a +E.164-Based Dial Plan for International Multisite Deployments
 - Implementing a URI-Based Dial Plan for Multisite Deployments
 - Implementing SRST and MGCP Fallback
 - Implementing Bandwidth Management
 - Implementing Enhanced Location CAC
 - Implementing Device Mobility
 - Implementing Extension Mobility
 - Implementing Cisco Unified Mobility
 - Configuring Cisco VCS Control to Register Endpoints
 - Implementing a Dial Plan in Cisco VCS Control to Interconnect with CUCM
 - Implementing Mobile and Remote Access via Cisco Expressway

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