
Implementing Cisco Voice Communications and QoS

Duration: 5 Days Course Code: CVOICE Version: 8

Overview:

This course will provide delegates with knowledge of voice gateways, the characteristics of VoIP call legs, dial plans and their implementation, plus the basic implementation of IP phones in a Cisco Unified Communications Manager Express environment, as well as essential information about gatekeepers and Cisco Unified Border Element. Voice-related QoS mechanisms required in a Cisco Unified Communications network are also incorporated into this class.

Target Audience:

The primary audience for this course is Network Administrators, Network Engineers and CCNP Voice candidates.

Objectives:

- **After you complete this course you will be able to:**
 - Explain what a voice gateway is, how it works, and describe its usage, components, and features
 - Describe the characteristics and configuration elements of VoIP call legs
 - Describe how to implement IP phones using Cisco Unified Communications Manager Express
 - Describe the components of a dial plan and explain how to implement a dial plan on a Cisco Unified voice gateway
 - Explain what gatekeepers and Cisco Unified Border Elements are, how they work, and what features they support
 - Describe why QoS is needed, what functions it performs, and how it can be implemented in a Cisco Unified Communications network
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Prerequisites:

Attendees should meet the following prerequisites:

- Working knowledge of fundamental terms and concepts of computer networking to include LANs, WANs, and IP switching and routing
- Ability to configure and operate Cisco IOS routers in an IP environment at CCNA Level. ICND1 or CCNABC is Recommended
- Basic knowledge of traditional voice, converged voice, and data networks at the CCNA Voice Level. ICOMM is Recommended

Testing and Certification

Recommended preparation for exam(s):

- 642-437- Implementing Cisco Voice Communications and QoS

CVOICE is one of five courses required for the Cisco Certified Network Professional for Voice Career Certification

Follow-on-Courses:

The following courses are recommended for further study:

- CIPT1 – Implementing Cisco Unified Communications Manager Part 1
 - CIPT2 – Implementing Cisco Unified Communications Manager Part 2
 - CAPP5 – Integrating Cisco Unified Communications Applications
 - TVOICE - Troubleshooting Cisco Unified Communications
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Content:

Introduction to Voice Gateways

- Understanding Cisco Unified Communications Networks and the Role of Gateways
- Examining Gateway Call Routing and Call Legs
- Configuring Gateway Voice Ports
- Understanding DSP Functionality, Codecs, and Codec Complexity

VoIP Call Legs

- Examining VoIP Call Leg Characteristics and VoIP Media Transmission
- Explaining H.323 Signaling Protocol
- Explaining SIP Signaling Protocol
- Explaining MGCP Signaling Protocol
- Describing Requirements for VoIP Call Legs
- Configuring VoIP Call Legs

Cisco Unified Communications Manager Express Endpoints Implementation

- Introducing Cisco Unified Communications Manager Express
- Examining Cisco Unified Communications Manager Express Endpoint Requirements
- Configuring Cisco Unified Communications Manager Express Endpoints

Dial Plan Implementation

- Introducing Call Routing
- Understanding Dial Plans
- Describing Digit Manipulation
- Configuring Path Selection
- Configuring Calling Privileges

Gatekeeper and Cisco Unified Border Element Implementation

- Understanding Gatekeepers
- Examining Cisco Unified Border Element

Quality of Service

- Introducing QoS
- Understanding QoS Mechanisms and Models
- Explaining Classification, Marking, and Link Efficiency Mechanisms
- Managing Congestion and Rate Limiting
- Understanding Cisco AutoQoS

Labs

- Lab 1-1: Configuring Voice Ports
- Lab 1-2: Configuring DSPs
- Lab 2-1: Configuring VoIP Call Legs
- Lab 3-1: Configure Cisco Unified Communications Manager Express to Support Endpoints
- Lab 4-1: Implementing Digit Manipulation
- Lab 4-2: Implementing Path Selection
- Lab 4-3: Implementing Calling Privileges
- Lab 5-1: Implementing Gatekeepers
- Lab 5-2: Implementing Cisco Unified Border Element
- Lab 6-1: Implementing QoS Using AutoQoS and Manual Configuration

Additional Information:

Recertification:

Cisco professional level certifications (CCNP, CCNP SP Operations, CCNP Wireless, CCDP, CCNP Security, CCNP Voice, and CCIP) are valid for three years. To recertify, pass any 642 exam that is part of the professional level curriculum or pass any CCIE/CCDE written exam before the certification expiration date.

Achieving or recertifying any of the certifications above automatically extends your active Associate and Professional level certification(s) up to the point of expiration of the last certification achieved. For more information, access the Cisco About Recertification page

Further Information:

For More information, or to book your course, please Call/Email us on : - +254 713 027 191

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Implementing Cisco Unified Communications Manager Part 1

Duration: 5 Days Course Code: CIPT1 Version: 8.0

Overview:

This Implementing Cisco Unified Communications Manager Part 1 (CIPT1) course prepares delegates for implementing a Cisco Unified Communications Manager solution at a single-site environment. This course focuses primarily on Cisco Unified Communications Manager Version 8.0, which is the call routing and signaling component for the Cisco Unified Communications solution. Delegates will perform post-installation tasks, configure Cisco Unified Communications Manager, implement Media Gateway Control Protocol (MGCP) and H.323 gateways, and build dial plans to place on-net and off-net phone calls. You will also implement media resources, Cisco IP Phone Services, Cisco Unified Communications Manager native presence, and Cisco Unified Mobility.

Target Audience:

This course is designed for: Network administrators, network engineers and CCNP Voice candidates.

Objectives:

- Upon completing this course, the learner will be able to meet these overall objectives:
 - Describe Cisco Unified Communications Manager, including its functions, architecture, deployment and redundancy options, and how to install or upgrade
 - Perform Cisco Unified Communications Manager initial configuration and user management
 - Configure Cisco Unified Communications Manager to support on-cluster calling
 - Implement PSTN access in Cisco Unified Communications Manager and to build a dial plan in a single-site Cisco
 - Unified Communications Manager deployment
 - Implement Cisco Unified Communications Manager media resources
 - Implement Cisco Unified Communications Manager features and applications
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Prerequisites:

The knowledge and skills that a learner must have before attending this course are as follows:

- Working knowledge of fundamental terms and concepts of computer networking, including LANs, WANs, and IP switching and routing
 - Ability to configure and operate Cisco routers and switches and to enable VLANs and DHCP
 - Basics of digital interfaces, PSTN, and VoIP
 - Fundamental knowledge of converged voice and data networks
 - Ability to configure Cisco IOS gateways with traditional and VoIP call legs
 - Prior attendance of the following is recommended: ICND1, and ICND2 or CCNABC, ICOMM and CVOICE
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Testing and Certification

Recommended as preparation for:

- 642-447 - Implementing Cisco Unified Communications Manager Part 1
- CIPT1 is one of 4 courses required for the **Cisco Certified Network Professional (CCNP) Voice** Certification
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Follow-on-Courses:

- Implementing Cisco Unified Communications Manager Part 2 (CIPT2)
 - Troubleshooting Cisco Unified Communications (TVOICE)
 - Integrating Cisco Unified Communications Applications (CAPPS)
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Content:

Introduction to Cisco Unified Communications Manager

- Understanding Cisco Unified Communications Manager Architecture
- Understanding Cisco Unified Communications Manager Deployment and Redundancy Options

Administering Cisco Unified Communications Manager

- Managing Services and Initial Configuration of Cisco Unified Communications Manager
- Managing User Accounts in Cisco Unified Communications Manager

Single-Site On-Net Calling

- Understanding Endpoints in Cisco Unified Communications Manager
- Implementing IP Phones

Single-Site Off-Net Calling

- Implementing PSTN Gateways in Cisco Unified Communications Manager
- Configuring Cisco Unified Communications Manager Call-Routing Components
- Using Partitions and CSSs to Implement Calling Privileges for On-Net Calls
- Implementing Cisco Unified Communications Manager Digit Manipulation
- Implementing Gateway Selection and PSTN Access Features
- Implementing Call Coverage in Cisco Unified Communications Manager

Media Resources

- Implementing Media Resources in Cisco Unified Communications Manager

Feature and Application Implementation

- Configuring Cisco IP Phone Services
- Configuring Cisco Unified Communications Manager Native Presence
- Configuring Cisco Unified Mobility

Further Information:

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Implementing Cisco Unified Communications Manager Part 2

Duration: 5 Days Course Code: CIPT2 Version: 8.0

Overview:

Implementing Cisco Unified Communications Manager Part 2 (CIPT2) v8.0 prepares you for implementing Cisco Unified Communications solution in a multisite environment. It covers globalized call routing, Cisco Service Advertisement Framework (SAF) and Call Control Discovery (CCD), tail-end hop-off (TEHO), Cisco Unified Survivable Remote Site Telephony (SRST), and mobility features such as Device Mobility and Cisco Extension Mobility.

You will apply a dial plan for a multisite environment including TEHO, configure survivability for remote sites during WAN failure, and implement solutions to reduce bandwidth requirements in the IP WAN. You will also enable Call Admission Control (CAC), including Session Initiation Protocol (SIP) Preconditions and automated alternate routing (AAR).

Target Audience:

This course is designed for: Network professionals who install, configure, and manage Cisco Unified Communications solutions

Objectives:

- Upon completing this course, the learner will be able to meet these overall objectives:
 - 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, MGCP fallback, and Cisco
 - Unified Communications Manager Express in Cisco Unified SRST mode
 - Implement bandwidth management and CAC to prevent oversubscription of the IP WAN
 - Implement Device Mobility and Cisco Extension Mobility
 - Describe and implement CCD deployments
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Prerequisites:

The knowledge and skills that a learner must have before attending this course are as follows:

- Working knowledge of converged voice 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 environment

To gain the prerequisite skills and knowledge, Cisco strongly recommends the knowledge of the following courses:

- Introducing Cisco Voice and UC Administration (ICOMM)
 - Implementing Cisco Voice Communications and QoS (CVOICE)
 - Implementing Cisco Unified Communications Manager, Part 1 (CIPT1)
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Testing and Certification

Recommended as preparation for :

- 642-457 - Implementing Cisco Communications Manager Part 2
CIPT2 is one of the courses required for the **Cisco Certified Network Professional (CCNP) Voice** Certification
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Follow-on-Courses:

- Troubleshooting Cisco Unified Communications (TVOICE)
 - Cisco Unified Communications Applications (CAPPS)
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Content:

Multisite Deployment Implementation:

- Identifying Issues in a Multisite Deployment
- Identifying Multisite Deployment Solutions
- Implementing Multisite Connections
- Implementing a Dial Plan for International Multisite Deployments

Centralized Call-Processing Redundancy Implementation:

- Examining Remote Site Redundancy Options
- Implementing SRST and MGCP Fallback
- Implementing Cisco Unified Communications Manager Express in SRST Mode

Bandwidth Management and CAC Implementation:

- Managing Bandwidth
- Implementing CAC

Implementation of Features and Applications for Multisite Deployments:

- Implementing Device Mobility
- Implementing Cisco Extension Mobility

Call Control Discovery:

- Implementing SAF and CCD

Further Information:

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Integrating Cisco Unified Communications Applications

Duration: 5 Days Course Code: CAPPS

Overview:

In the Integrating Cisco Unified Communications Applications (CAPPS) course, you will practice configuring and integrating Cisco's call management and voice mail systems from scratch. You will work with Cisco Unity Connection, which is integrated with Cisco Unified Communications Manager (CUCM), and with Cisco Unity Express, integrated with CUCM Express. You'll focus on voice mail administration and presence administration. You will learn how to add users, configure Class of Service, schedules, and distribution lists, and set up AutoAttendants for both systems. You'll connect your voice mail systems using Voice Profile for Internet Mail (VPIM) networking. You will also learn how to integrate the Cisco Unified Presence server with CUCM, deploy the Cisco Unified Personal Communicator (CUPC) client with desk phone control, and integrate Unity Connection for CUPC access.

Target Audience:

This course is designed for: Network administrators and network engineers CCNP Voice candidates Systems engineers

Objectives:

- Upon completing this course, the learner will be able to meet these overall objectives:
- Integrate Cisco Unity Connection with CUCM
- Unity Connection System Settings, Schedules, and Distribution Lists
- Integrate Unity Connection with Microsoft Active Directory
- Use Cisco Unity Connection Partitions and Search Spaces
- Implement Cisco Unity Connection Call Management
- Build an Audiotext Application using the Opening Greeting, Interview, and Call Handlers
- Configure Directory Call Handlers
- Configure Cisco Unity Connection Users, Class of Service, and Roles
- Set Up Message Notification
- Monitor and Troubleshoot Cisco Unity Connection and Cisco Unity Express
- Integrate Cisco Unity Express with CUCM Express
- Unity Express System Settings, Schedules, and Distribution Lists
- Configure Cisco Unity Express Users and Class of Service
- Unity Express Voice Mail Features, such as VoiceView and IMAP Messaging
- Configure the Cisco Unity Express AutoAttendant
- VPIM
- Cisco Unified Presence
- Configure CUCM for CUPS Integration
- Cisco Unified Presence and How to implement Cisco Unified Personal Communicator
- Configure CUPC Clients for Presence and Desk Phone Control
- Deploy IP Phone Messenger
- Configure Unity Connection Integration with Call Manager
- Troubleshoot Cisco Unified Presence

Prerequisites:

To gain the prerequisite skills and knowledge, Cisco strongly recommends the knowledge of the following courses:

- Introducing Cisco Voice and UC Administration (ICOMM)
- Implementing Cisco Unified Communications Voice over IP and QoS (CVOICE)

Testing and Certification

Recommended preparation for exam(s):

- 642-467 - Integrating Cisco Unified Communications Applications (CAPPS)
- CAPPS is one of the courses required for the **Cisco Certified Network Professional CCNP Voice** Certification

Content:

Introduction to Voice Mail

- General Requirements for Voice Mail Integration

Cisco Unity Connection in a CUCM Environment

- Integration with CUCM
- Configuring Unity Connection
- Using Partitions and Search Spaces
- Implementing Call Management
- Configuring Users
- Monitoring and Troubleshooting

Cisco Unity Express Implementation in CUCM Express Environment

- Basics of Unity Express
- Integration with CUCM Express
- Configuring Unity Express
- Configuring User Accounts
- AutoAttendant
- Troubleshooting

Voice Profile for Internet Mail Implementation (VPIM)

- Implementing VPIM in Unity Connection
- Implementing VPIM in Unity Express

Cisco Unified Presence Implementation

- Components and Communication Flows
- Integrating Unified Presence
- Configuring Features
- Implementing Unified Personal Communicator
- Verifying and Troubleshooting Tools

Further Information:

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