
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

KENYA - training.kenya@clclearningafrica.com

TANZANIA - training.tanzania@clclearningafrica.com

UGANDA - training.uganda@clclearningafrica.com

RWANDA - training.rwanda@clclearningafrica.com

BURUNDI - training.burundi@clclearningafrica.com

ETHIOPIA - training.ethopia@clclearningafrica.com