

## Implementing and Operating Cisco Collaboration Core Technologies

**Duration: 5 Days**    **Course Code: CLCOR**    **Version: 1.0**

### Overview:

The Implementing Cisco Collaboration Core Technologies (CLCOR) course will provide you with the knowledge and skills needed to implement and deploy core collaboration and networking technologies, including infrastructure and design, protocols, codecs, and endpoints, Cisco IOS XE gateway and media resources, Call Control, QoS, and additional Cisco collaboration applications.

The course will help you to integrate and troubleshoot Cisco Unified Communications Manager with Lightweight Directory Access Protocol (LDAP) for user synchronization and user authentication, implement Cisco Unified Communications Manager provisioning features and configure and Troubleshoot Collaboration Endpoints.

**Please note that this course is a combination of Instructor-Led and Self-Paced Study - 5 days in the classroom and approx 3 days of self study. The self-study content will be provided as part of the digital courseware that you will receive at the beginning of the course and should be part of your preparation for the exam.**

### Target Audience:

Engineers involved in the implementation and operation of a Cisco Collaboration solution.

### Objectives:

- **After completing this course, you should be able to:**
- Describe the Cisco Collaboration solutions architecture.
- Compare the IP Phone signaling protocols of SIP, H323, MGCP and SCCP.
- Integrate and troubleshoot Cisco Unified Communications Manager with LDAP for user synchronization and user authentication.
- Implement Cisco Unified Communications Manager provisioning features.
- Describe the different codecs and how they are used to transform analogue voice into digital streams.
- Describe a dial plan, and explain call routing in Cisco Unified Communications Manager.
- Implement PSTN access using MGCP gateways.
- Implement a Cisco gateway for PSTN access.
- Configure calling privileges in Cisco Unified Communications Manager.
- Implement toll fraud prevention.
- Implement globalized call routing within a Cisco Unified Communications Manager cluster.
- Implement and troubleshoot media resources in Cisco Unified Communications Manager.
- Describe Cisco Instant Messaging and Presence, the call flows and the protocols.
- Describe and configure endpoints and commonly required features.
- Configure and troubleshoot Cisco Unity Connection integration.
- Configure and troubleshoot Cisco Unity Connection call handlers.
- Describe how MRA is used to allow endpoints to work from outside the company.
- Analyze traffic patterns and quality issues in converged IP networks supporting voice, video, and data traffic.
- Define QoS and its models.
- Implement and Configure classification and marking options on Cisco Catalyst switches.

### Prerequisites:

**Attendees should meet the following prerequisites:**

- Working knowledge of fundamental terms of computer

### Testing and Certification

**Recommended as preparation for the following exams:**

- 350-801 CLCOR - Implementing Cisco Collaboration Core

- networking, including LANs, WANs, switching, and routing
- Basics of digital interfaces, public switched telephone networks (PSTNs), and voice over IP (VoIP)
  - Fundamental knowledge of converged voice and data networks and Cisco Unified Communications Manager deployment
  - CCNA - Implementing and Administering Cisco Solutions
  - CLFNDU - Understanding Cisco Collaboration Foundations

#### Technologies

Students looking to obtain their CCNP Collaboration will also need to pass a CCNP Collaboration Concentration exam. Passing the 350 - 801 exam will also provide the Cisco Certified Specialist - Collaboration Core certification.

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#### Follow-on-Courses:

- CLACCM - Implementing Cisco Advanced Call Control and Mobility Services
  - CLCEI - Implementing Cisco Collaboration Cloud and Edge Solutions
  - CLICA - Implementing Cisco Collaboration Applications
  - CLAU1 - Implementing Automation for Cisco Collaboration Solutions
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## Content:

### Describing the Cisco Collaboration Solutions Architecture

- Overview of Cisco Collaboration Solutions Architecture
- Collaboration Deployment Models
- Licensing
- High Availability
- Capacity Planning
- Security Requirements
- Disaster Recovery
- Dial Plan
- IP Network Protocols
- Codecs

### Exploring Call Signaling over IP Networks

Bullet

- IP Phone Initialization
- Single Site On-Cluster Calling
- Single Site On-Cluster Call Setup Troubleshooting
- Describe the Call Setup and Teardown Process
- Describe SIP Call Signaling for Call Setup and Teardown
- Compare the Call Control Protocols
- Describe DTMF Signaling over IP Networks

### Integrating Cisco Unified Communications Manager LDAP

- Overview of LDAP Integration in Cisco Unified Communications Manager
- LDAP Synchronization in Cisco Unified Communications Manager
- LDAP Authentication in Cisco Unified Communications Manager
- LDAP Attribute Mapping in Cisco Unified Communications Manager
- LDAP Considerations in Cisco Unified Communications Manager
- Access Control Groups in Cisco Unified Communications Manager
- Feature Group Templates in Cisco Unified Communications Manager

### Implementing Cisco Unified Communications Manager Provisioning Features

- Overview of Provisioning Options
- Self-Provisioning Prerequisites
- Self-Provisioning Components
- Self-Provisioning Authentication Modes
- Batch-Provisioning Tools

### Exploring Codecs

- Define Codecs
- Compare Audio Codecs
- Compare Video Codecs
- Evaluate the Effects of Encryption on Codecs

### Configuring Calling Privileges in Cisco Unified Communications Manager

- Calling Privileges Overview
- Partitions and CSSs
- Partition and CSS Considerations
- Time-of-Day Routing
- Client Matter Codes and Forced Authorization Codes

### Implementing Toll Fraud Prevention

- Toll Fraud Prevention Overview
- Cisco Unified Communications Manager CoS for Toll Fraud Prevention

### Implementing Globalized Call Routing

- Overview of Multisite Dial Plans
- Globalized Call Routing Overview
- Globalized Call Routing Number Formats
- Globalization of Localized Call Ingress
- Localization During Call Egress

### Implementing and Troubleshooting Media Resources in Cisco Unified Communications Manager

- Media Resources Overview in Cisco Unified Communications Manager
- Media Resource Selection and Access Control in Cisco Unified Communications Manager
- Describing the Annunciator Feature
- Describing Unicast and Multicast MOH Characteristics
- Audio and Video Conference Bridge Devices
- Audio and Video Conference Bridge Integration Options
- MTP and Transcoder Devices
- MTP and Transcoder Requirements

### Describing Cisco Instant Messaging and Presence

- Describe Cisco IM and Presence Features and Architecture
- Compare the Protocols XMPP and SIMPLE SIP
- Clustering
- Describe Cisco Unified Communications IM and Presence Components and Communication Flows

### Enabling Cisco Jabber

- Cisco Jabber Deployment Modes
- Cisco Jabber Operational Modes

### Configuring Cisco Unity Connection Integration

### Describing Collaboration Edge Architecture

- Describe Collaboration Edge ( Expressway -C, -E)
- Describe Supported Services for B2B Collaboration
- Describe Prerequisites for Mobile and Remote Access
- Describe Service Discovery
- Explore Expressway Settings for MRA
- Describe Cisco Unified Border Element (CUBE)

### Analyzing Quality Issues in Converged Networks

- Converged Networks
- Available Bandwidth
- Components of Network Delay
- End-to-End Delay Calculations
- Jitter
- Packet Loss

### Defining QoS and QoS Models

- QoS Defined
- Network Traffic Identification
- Divide Network Traffic into Classes and Define Policies
- QoS Mechanisms
- QoS Models
- DSCP Encoding
- Expedited Forwarding and Assured Forwarding
- Class Selector

### Implementing Classification and Marking

- Classification and Marking Overview
- Classification and Marking at the Network and Data Link Layers
- QoS Service Class
- Cisco Marking Recommendations
- QoS Markings in a SIP Call Flow
- MQC Classification and Marking Options

### Configuring Classification and Marking on Cisco Catalyst Switches

- Campus Classification and Marking
- Overview of QoS Trust Boundaries
- Ingress QoS Models
- QoS Marking and Table Maps
- Internals DSCP

### Labs

- Using Certificates
- Configure IP Network Protocols
- Configure and Troubleshoot Collaboration Endpoints
- Troubleshoot Calling Issues
- Configure and Troubleshoot LDAP

- Describing Call Admission Control
- Configure Regions and Locations to control which codec is negotiated and how much bandwidth can be consumed

#### Describing Dial Plans and Endpoint Addressing

- Dial Plan Overview
- Dial Plan Components and Their Functions
- Endpoint Addressing
- Overview of Cisco Unified Communications Manager Call Routing
- Cisco Unified Communications Manager Call-Routing Logic
- Address Methods and Digit Analysis
- Variable-Length Patterns, Overlapping Patterns and Urgent Priority

#### Implementing MGCP Gateways

- Overview of MGCP Gateways
- MGCP Gateway Implementation
- Path Selection in Cisco Unified Communications Manager
- Route Groups
- Route Lists and Route Patterns
- Digit Manipulation in Cisco Unified Communications Manager

#### Implementing Voice Gateways

- Overview of Dial Peers
- Digit Manipulation Features on Cisco IOS Gateways
- Codec and DTMP-Relay Selection on Cisco IOS Gateways

- Overview of Cisco Unity Connection Integration
- SIP Integration
- Typical Integration Mistakes
- Integration Considerations

#### Configuring Cisco Unity Connection Call Handlers

- Call Handler Overview
- System Call Handler
- Caller Input
- Operator Call Handler
- Goodbye Call Handler
- Directory Handler
- Interview Handler

- Integration in Cisco Unified Communications Manager
- Deploy an IP Phone Through Auto and Manual Registration
- Configure Self-Provisioning
- Configure Batch Provisioning
- Explore the Cisco VoIP Bandwidth Calculator
- Configure Regions and Locations
- Implement Endpoint Addressing and Call Routing
- Implement PSTN Calling Using MGCP Gateways
- Configure and Troubleshoot ISDN PRI
- Examine Cisco IOS Gateway Inbound and Outbound Dial-Peer Functions
- Implement and Troubleshoot Digit Manipulation on a Cisco IOS Gateway
- Configure Calling Privileges
- Implement Toll Fraud Prevention on Cisco Unified Communications Manager
- Implement Globalized Call Routing
- Deploy an On-Premise Cisco Jabber Client for Windows
- Configure the Integration between Unity Connection and CUCM
- Manage Unity Connection Users
- EAI: Configure QoS

### Further Information:

For More information, or to book your course, please call us on Head Office 01189 123456 / Northern Office 0113 242 5931

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