



Troubleshooting Cisco Unified Communications Systems

Length
5 days

Format
Lecture/lab

Track
Support

Version
1.0

Course Description

This 5-day hands-on class equips network professionals with the knowledge and skills required to troubleshoot Unified Communications Systems / solutions in Enterprise, Mid-Market, and Commercial deployments. TUC teaches troubleshooting methodology, triage, resources, tools and fixes at the integrated system / solution level, and for components including Cisco Unified Call Manager, Cisco Unity, videoconferencing, and infrastructure.

Who Should Attend

This course is designed for IPT professionals who troubleshoot Unified Communications solutions and components by identifying and isolating problems, recommending solutions, and implementing fixes.

Recommended Prerequisites

- Cisco Voice over IP (CVOICE)
- Cisco IP Telephony Part 1 (CIPT1)
- Implementing Gateways and Gatekeepers (GWGK)
- Implementing Cisco Quality of Service (QOS)

Related Training

This course replaces the *IP Telephony Troubleshooting (IPTT)* course.

TUC

Learning Objectives

After you complete this course, you will be able to:

- Use a systematic methodology to troubleshoot Cisco Unified Communication systems
- Diagnose a call setup issue and resolve the issues
- Troubleshoot the quality of both voice and video streams
- Given a trouble call that has been isolated to a Cisco Unified Communications component, isolate the specific problem, propose a solution, and, where appropriate, implement the solution.



Learning
Solutions

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Course Outline

Module 1: A Methodology and Tools for Troubleshooting Cisco Unified Communications Systems

Lesson 1: Introducing Cisco Unified Communications Systems Troubleshooting

- Cisco Unified Communications Systems Network Infrastructure
- Cisco Unified CallManager
- Cisco Unity
- Voice Clients

Lesson 2: Understanding Troubleshooting Methodology in Cisco Unified Communications Systems

- Preparing Your Network for Troubleshooting and Recovery
- Systematic Troubleshooting Methods
- Define the Problem
- Gather Facts
- Consider Possibilities
- Create Action Plan
- Implement Action Plan
- Observe Results
- Restart the Problem-Solving Process
- Document Results

Lesson 3: Gathering Information for Troubleshooting

- Cisco Unified CallManager Serviceability Alarms
- Configuring Trace
- Dialed Number Analyzer
- Controlling Services
- Real-Time Monitoring Tool
- Performance Monitor and Data Logging Alerts
- Trace and Log Central
- Trace Output
- Syslog Viewer
- Command-Line Interface
- Sniffer Traces

Module 2: Troubleshoot Cisco Unified CallManager-Related Issues

Lesson 1: Troubleshooting Common Endpoint Registration Issues

- Endpoint Registration Troubleshooting
- Cisco IP Phone Initialization
- Troubleshooting Endpoints with Ping
- Troubleshooting Device Issues
- Troubleshooting Cisco Unified CallManager Issues
- Troubleshooting SIP Endpoints

Lesson 2: Troubleshooting Cisco Unified CallManager Availability Issues

- Cisco Unified CallManager System Stops Responding
- Cisco Unified CallManager Administration Does Not Display
- Slow Web Server Response

Lesson 3: Troubleshooting Cisco Unified CallManager Security Issues

- Securing IP Voice Communication
- Troubleshooting Security on Endpoints
- Troubleshooting Issues with the CAPF Service
- Troubleshooting Authentication String Errors
- Troubleshooting LSC Validation
- Troubleshooting CTL Security Tokens

Lesson 4: Troubleshooting Database Replication Issues

- Database Replication Issues
- Diagnosing Database Replication with CallManager 5.x
- Diagnosing Database Replication with CallManager 4.x
- Resolving Database Replication Issues
- Re-Creating the Subscription of CallManager 5.x
- Re-Creating the Subscription of CallManager 4.x



Learning Solutions



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Course Outline

Module 2 (Continued)

Lesson 5: Troubleshooting LDAP Replication Issues

- LDAP Synchronization
- Synchronization Issues with the DC-Directory Service
- Reinitializing LDAP Replication
- Resolving Directory Synchronization Issues
- Troubleshooting Microsoft Active Directory Integration
- Directory Synchronization
- Resolving Informix Database Synchronization Issues
- Resolving Synchronization Issues Using Active Directory

Lesson 6: Troubleshooting Common Gateway Registration Issues

- Gateway Registration Issues
- MGCP Gateway Communications
- Verifying Gateway Status and Configuration
- Viewing Event Log Messages
- Troubleshooting Commands for Cisco Gateways
- Cisco IOS MGCP Gateway Troubleshooting
- H.323 and SIP Gateway Communications

Module 3: Troubleshoot Call Setup Issues

Lesson 1: Introducing Call Setup Issues and Causes

- Call Setup Issues
- Single-Site Call Setup Failure
- Intracluster Call Setup Failure
- Intercluster Call Setup Failure

Lesson 2: Troubleshooting On-Premises Single-Site Calling Issues

- Understanding Digit Collection in Cisco Unified CallManager
- On-Premises Call Setup Failure
- Partitions
- Calling Search Space
- Troubleshooting Single-Site Call Setup Failure
- One-Way Calling
- Call-Forwarding Issues
- Forwarding to Voice Mail Issues

Lesson 3: Troubleshooting Offsite Call Issues

- Common Offsite Calling Issues
- Gateway Troubleshooting Checklist
- Digit Collection and Analysis
- Issues with DDI
- Dial Plan Issues
- Troubleshooting Common Voice Issues

Lesson 4: Troubleshooting Intercluster Dial Plan Issues

- Multiple-Site Dial Plan Issues
- Overlapping Dial Plan
- Call Setup to Another Cluster
- Immediate Remote Call Drops

Lesson 5: Troubleshooting Gatekeepers in a Cisco Unified Communications System

- Gatekeeper Overview
- Review of RAS Messages
- Gatekeeper show and debug Commands
- Discovery and Registration Issues
- Gatekeeper Call Admission Issues
- Gatekeeper Clustering and Alternate Gatekeeper Issues

Module 4: Troubleshoot Voice and Video Quality Issues

Lesson 1: Defining Common Voice and Video Quality Issues

- Quality Issues
- Lack of Bandwidth
- End-to-End Delay
- Jitter
- Packet Loss
- QoS Requirements
- LAN QoS Considerations

Lesson 2: Troubleshooting VoIP Quality Problems

- Troubleshooting VoIP Quality Overview
- Identifying and Isolating Voice Quality Problems
- Troubleshooting Layer 2 Quality Problems
- Troubleshooting Voice Quality Issues on a Gateway
- QRT for Cisco IP Phones
- Troubleshooting Scenarios
- Voice Activity Detection



Learning Solutions



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Module 4 (Continued)

Lesson 3: Troubleshooting Echo

- Defining Echo
- Sources and Types of Echo
- Defining the Echo Cancellor
- Measuring Echo in a Cisco Unified Communications System
- Eliminating Echo in a Cisco Unified Communications System

Lesson 4: Troubleshooting Quality Problems of Cisco Unified Video Advantage

- Issues with Cisco Unified Video Advantage
- Verify CPU Speed
- CPU Throttling Solutions
- Cisco Unified CallManager IP Phone Settings
- Setting up a PC to Capture a System Crash
- USB Out of Bandwidth
- Remote Video Loss
- Cisco Audio Session Tunnel Traces

Module 5: Application Integration and Media Resource Issues

Lesson 1: Troubleshooting Common Cisco Unity Integration Issues

- How MWIs Function
- MWI Not Working
- MWI Is Delayed
- Call Transfer Problems

Lesson 2: Troubleshooting CTI Issues

- Computer Telephony Integration
- Cisco Unified CallManager CTI Manager
- Cisco Unified CallManager JTAPI and TSP
- CTI-Controlled Devices
- CTI Quick Buffer Encoding
- CTI Route Points and CTI Ports
- Troubleshooting Cisco Unified CallManager CTI Manager
- Troubleshooting Cisco Unified CallManager JTAPI and TSP

Lesson 3: Troubleshooting Media Resources

- Media Resources Overview
- Hardware-Based Media Resource Issues
- Software-Based Media Resource Issues

Course Labs

This course features 30 scenario-based troubleshooting challenge labs.

