

Hands-On

Cisco IP Phone Provisioning, Adds, Moves, Changes, Features, Apps & Troubleshooting

(CUCM, CME or IOS)



Course Description

Cisco Ethernet phone (ephone) technology has become ubiquitous, but feature sets have become more complex with each new phone type and IOS release. Cisco's emphasis on collaborative technologies, including voice, video, IM, and voice mail, have made UC phone setup more complex.

The Cisco IP Phone Provisioning & Troubleshooting course (for various Cisco CallManager types including CUCM, CME or IOS command line) brings students up to speed quickly, looking at the capabilities of various Cisco phones, and how to add and remove service, plus make changes to existing phone users and features. Different methods can be emphasized, including Cisco's robust Cisco Unified Communications Manager (CUCM) solution, Communication Manager Express (CME), and/or use of a Cisco router IOS command line with the telephony-service command.



Concepts like users, phone numbers, templates, features, etc. are distinguished, with examples of how to create, remove, or change service. This also involves selection of different CODEC types, and examples of PLAR, FXO, FXS, voice mail, and common features like call forwarding, Extension Mobility, calling name and number, etc. plus choosing the actual phone protocol (SCCP or SIP). Device License Units (DLUs) are discussed. Depending upon the needs of a class, initial setup of CUCM can be demonstrated, including virtualization software (i.e. vSphere ESXi, VMWare), plus network topology for DHCP, TFTP, CME router, and phone connections. Fundamental parts of the routing database can be explained, including dial plans, partitions, and Calling Search Space (CSS).

Different phone types and their features are explored, such as the popular 7900 and 8800 series. Power options like PoE/inline power are compared, along with the testing and use of phone features, including voice, video or collaborative features (IM, Unity, Presence). Phone options like headsets, expansion modules, Bluetooth connectivity, PC client, external cameras, etc. can be explained and demonstrated, per the needs of the class. Troubleshooting techniques are used to solve phone registration issues, plus power, provisioning (show, debug), and call routing issues (DNA, logs), including how to back-up and restore the database.

Target Audience

Technical staff who are responsible for server set-up, IP phone provisioning & troubleshooting, plus certain management or

alarm monitoring personnel who may help support and troubleshoot the IP phone network.

Prerequisites

There are no set prerequisites. Students may benefit from some existing IP networking background, and/or packet telephony network experience with a Cisco or other IP telephony phone system.

Course Outline

Module 1 : Cisco IP Phone Networks

- Typical Network Topology
- Publication & Subscriber Server Topology
- CME Router Topology
- PoE vs. Inline Adapters
- Unity Voice Mail, Unified Presence, Jabber
- DNS, DHCP, TFTP, NTP
- Trunking - SIP, H.323, H.225

Module 2 : Using CUCM and/or CME

- Command Line Access
- Graphical User Interface (GUI) Access
- Virtual Machines
 - vSphere EXSI
 - VMWare
- Publication/Subscriber and/or CME Router
- NTP Server
- CODEC Profiles

- Time & Date, Region, Location
- Call Routing Overview
- Voice Productivity Features
 - Features: Pickup, Park, Transfer, Forward, Music on Hold, etc.
 - Directories, LDAP
 - Unified Communications (Voicemail)
 - SNR/Mobility Features
 - Unified Presence
 - Cisco Configuration Professional (CCP) (optional)
 - Other Features of Interest (per student request)
- Device License Units (DLU)

Module 3 : Provisioning Ephones

- CUCM - Unified CM Administration
 - Create a User
 - Create a Phone (SIP, SCCP)
 - Button Templates
 - Show CDP Neighbors, MAC lookup
 - Add a Directory Number
 - Adding Features
 - Configuration File & TFTP
- CME - Call Manager Express (Optional)
 - Differences between CUCM & CME
 - Sample Provisioning
- CLI (versus GUIs)
 - NTP Server
 - Telephony-Service command
 - Adding Ephones
 - Adding Ephone-DN

- Assigning MAC Address
- Adding/Deleting Features
- Bulk Administration Tool (BAT)
- Examples

Module 4 : Phones

- 7900 Series (i.e. 7945)
- 8800 Series (i.e. 8845)
- Customer Provided ephone models
- Feature Sets per model (i.e. voice, video, etc.)
- SIP vs. SCCP, compatibility issues
- CODEC support
- Peripherals
 - Expansion Modules
 - Speakers, Cameras
 - Headsets
- Sample Installation
 - Switchport Connections
 - Power
 - Accessory & Expansion Module connections
 - Setup Menu - typical settings
 - Boot-up
- Feature Testing
 - Making a Call
 - Fixed Feature Keys
 - Soft Keys
 - Call Pickup, Call Transfer, Call Forwarding, etc.

- Changing Features
- Changing & Moving Phones
- Cisco Jabber
 - What Does It Do?
 - Installation & Use

Module 5 : Troubleshooting

- Common Faults
 - Phone Registration Issues (DNS, TFTP, Switchports)
 - No Power
 - Cable Verification
 - Phone Software & Setting Menu
 - show & debug commands
- Cisco Unified Reporting - System Reports, CDR, CAR
- Cisco Real-Time Monitoring Tool (RTMT)
- Locating & Reading System Logs
- Disaster Recover System (DRS)
 - Backup & Restore
- Cisco Unified OS Administration
 - OS Settings
- Dialed Number Analyzer (DNA)
- Other topics of interest to students

Notes

The course is customized based upon the needs and previous experience of the students. It can be combined with other courses such as Cisco IP Telephony (CIPT) or Cisco Collaboration (voice & video) courses.

Delivery Method

Instructor-Led with numerous exercises and Hands-On labs throughout.

Equipment Requirements

(This apply's to our hands-on courses only)

BTS always provides equipment to have a very successful Hands-On course. BTS also encourages all attendees to bring their own equipment to the course. This will provide attendees the opportunity to incorporate their own gear into the labs and gain valuable training using their specific equipment.

Course Length

3 Days