Troubleshooting Overview

This section provides the necessary background information and available resources to troubleshoot the Cisco Unified CallManager.

The section covers following topics:

- Cisco Unified CallManager
- Serviceability
- Hardware and Software Compatibility
- General Model of Problem Solving
- Network Failure Preparation
- IP Telephony Networks
- Where to Find More Information

Cisco Unified CallManager

Cisco Unified CallManager serves as a software-based, call-processing component of the Cisco Unified Communications Solution. The Cisco Unified Communications Applications Server provides a high-availability server platform for Cisco Unified CallManager call processing, services, and applications. Because Cisco Unified CallManager is a software application, enhancing its capabilities in production environments requires only upgrading software on the server platform.

The Cisco Unified CallManager system extends enterprise telephony features and functions to packet telephony network devices such as IP phones, media processing devices, voice-over-IP (VoIP) gateways, and multimedia applications. The Cisco Unified CallManager system includes a suite of integrated voice applications for performing voice conferencing and manual attendant console functions. Because of this suite of voice applications, no need exists for special-purpose, voice-processing hardware.

Supplementary and enhanced services such as hold, transfer, forward, conference, multiple-line appearances, automatic route selection, speed dial, last-number redial, and other features extend to IP phones and gateways. Additional data, voice, and video services, such as unified messaging, multimedia conferencing, collaborative contact centers, and interactive multimedia response systems, interact through Cisco Unified CallManager open telephony application programming interface (API).

Distribution of Cisco Unified CallManager and all Cisco Unified IP phones, gateways, and applications across an IP network provides a distributed, virtual telephony network. This architecture improves system availability and scalability. Call admission control ensures that voice quality of service (QoS) is maintained across a constricted WAN link and automatically diverts calls to alternate public switched telephone network (PSTN) routes when WAN bandwidth is not available.

Cisco Unified CallManager Administration, a web-based interface to the database, provides remote device and system configuration and serviceability. This interface also provides access to HTML-based online help for users and administrators.

Cisco Unified CallManager provides signaling and call control services to Cisco integrated telephony applications as well as to third-party applications. It performs the following primary functions:

- Call processing
- Signaling and device control
- Dial plan administration
- Phone feature administration
- Directory services
- Operations, administration, management, and provisioning (OAM&P)
- Programming interface to external voice-processing applications such as Cisco SoftPhone, Cisco Unified IP Interactive Voice Response, Cisco Personal Assistant, and Cisco Unified CallManager Attendant Console

Serviceability

Administrators can use the Cisco Unified CallManager Administration service tool to troubleshoot system problems. This web-based tool, Serviceability, provides the following services:

- Alarms—Saves alarms and events generated by Cisco Unified CallManager services for troubleshooting and provides alarm message definitions.
- Trace—Saves trace information generated by Cisco Unified CallManager services to various log files for troubleshooting. Administrators can configure and collect trace information.
- Real-Time Monitoring Tool—Monitors real-time behavior of the components in a Cisco Unified CallManager cluster.
- Service Activation—Displays activation status of Cisco Unified CallManager feature services. Administrators use Service Activation to activate and deactivate feature services.
- Control Center—Displays status of Cisco Unified CallManager services. Administrators use Control Center to start and stop services.

Access Cisco Unified CallManager Serviceability from the Cisco Unified CallManager Administration window by choosing Cisco Unified CallManager Serviceability from the Navigation drop-down list box. Installing the Cisco Unified CallManager software automatically installs Cisco Unified CallManager Serviceability and makes it available.

Refer to the *Cisco Unified CallManager Serviceability Administration Guide* and the *Cisco Unified CallManager Serviceability System Guide* for detailed information and configuration procedures on the serviceability tools.

Hardware and Software Compatibility

Refer to the Cisco Unified CallManager Compatibility Matrix document for compatible versions of all Cisco Unified CallManager components.

General Model of Problem Solving

When troubleshooting a telephony or IP network environment, define the specific symptoms, identify all potential problems that could be causing the symptoms, and then systematically eliminate each potential problem (from most likely to least likely) until the symptoms disappear.

The following steps provide guidelines to use in the problem-solving process.

Step 1   Analyze the network problem and create a clear problem statement. Define symptoms and potential causes.

Step 2   Gather the facts that you need to help isolate possible causes.

Step 3   Consider possible causes based on the facts that you gathered.

Step 4   Create an action plan based on those causes. Begin with the most likely problem and devise a plan in which you manipulate only one variable.

Step 5   Implement the action plan, performing each step carefully while testing to see whether the symptom disappears.

Step 6   Analyze the results to determine whether the problem has been resolved. It the problem has been resolved, the process is complete.

Step 7   If the problem has not been resolved, create an action plan based on the next most probable cause on your list. Return to Step 4 and repeat the process until the problem has been solved.

Make sure that you undo anything that you changed while implementing your action plan. Remember that you want to change only one variable at a time.

Note   If you exhaust all the common causes and actions (either those outlined in this document or others that you have identified in your environment), contact Cisco TAC.

Network Failure Preparation

You can always recover more easily from a network failure if you are prepared ahead of time. To determine if you are prepared for a network failure, answer the following questions:

- Do you have an accurate physical and logical map of your internetwork that outlines the physical location of all of the devices on the network and how they are connected as well as a logical map of network addresses, network numbers, and subnetworks?

- Do you have a list of all network protocols that are implemented in your network for each of the protocols implemented and a list of the network numbers, subnetworks, zones, and areas that are associated with them?

- Do you know which protocols are being routed and the correct, up-to-date configuration information for each protocol?

- Do you know which protocols are being bridged? Are there any filters configured in any of these bridges, and do you have a copy of these configurations? Is this applicable to Cisco Unified CallManager?

- Do you know all the points of contact to external networks, including any connections to the Internet? For each external network connection, do you know what routing protocol is being used?
- Has your organization documented normal network behavior and performance, so you can compare current problems with a baseline?

If you can answer yes to these questions, faster recovery from a failure results.

IP Telephony Networks

Refer to the *Cisco Technical Solution Series: IP Telephony Solution Guide* for information on troubleshooting IP telephony networks.

Where to Find More Information

Refer to the following documents for further information about related Cisco IP telephony applications and products:

- *Release Notes for Cisco Unified CallManager Release 5.0(2)*
- *Installing Cisco Unified CallManager Release 5.0(2)*
- *Upgrading Cisco Unified CallManager Release 5.0(2)*
- *Cisco Unified CallManager System Guide*
- *Cisco Unified CallManager Security Guide*.
- *Cisco Unified CallManager Administration Guide*
- *Cisco Unified CallManager Serviceability Administration Guide*
- *Cisco Unified CallManager Serviceability System Guide*
- *Cisco Unified CallManager Features and Services Guide*
- *Troubleshooting Guide for Cisco Unified CallManager*
- *Cisco Unified CallManager Bulk Administration Guide*
- *Cisco Unified IP Phone Administration Guide for Cisco Unified CallManager*