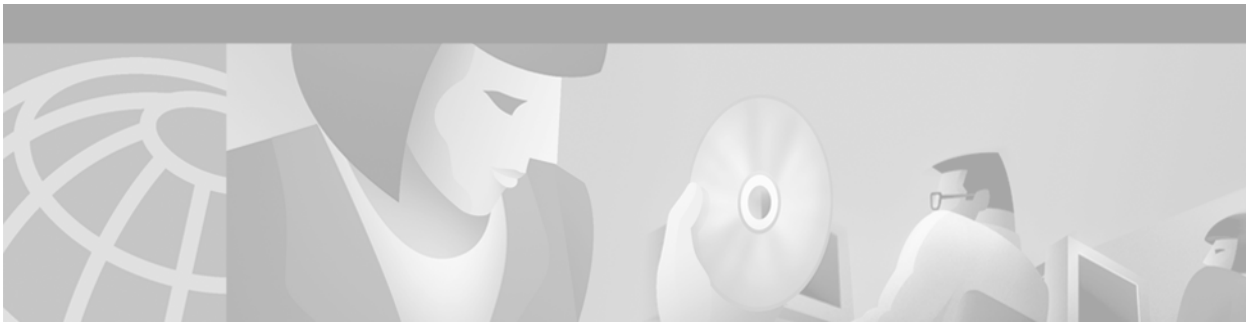

Ecosystem Gatekeeper Interoperability Enhancements, Phase 2

Feature History

Release	Modification
12.1(2)T	This feature was introduced.
12.1(5)XM1	Support for the Cisco AS5400 universal gateway was added.
12.1(5)XM2	Support was added for the Cisco AS5350 and Cisco AS5400 universal gateways.

This document describes the Ecosystem Gatekeeper Interoperability Enhancements, Phase 2, a subset of the H.323 Support for Virtual Interfaces feature that was introduced in Cisco IOS Release 12.1(2)T. This document contains the following sections:

Feature Overview

The H.323 Support for Virtual Interfaces feature supplements the existing support for alternate gatekeepers and adds support for the alternate gatekeeper field (altGKInfo) to the admission rejection (ARJ). This allows a gateway to move between gatekeepers during the admission request (ARQ) phase.

The altGKInfo consists of two subfields: the alternateGatekeeper and the altGKisPermanent flag. The alternateGatekeeper is the list of alternate gatekeepers. The altGKisPermanent is a flag that indicates whether the gatekeepers in the associated alternateGatekeeper field are permanent or temporary.

- If the current state of altGKisPermanent flag is TRUE, the new altGKInfo of any registration, admission, and status (RAS) messages received from one of the alternate gatekeepers is accepted and the new list will replace the existing list.
- If the current state of altGKisPermanent flag is FALSE, the altGKInfo of any RAS messages received from one of the alternate gatekeepers will be ignored.

If the current permanent gatekeeper becomes nonresponsive and the altGKisPermanent flag is set to FALSE, the gateway sets the internal state of the altGKisPermanent flag to TRUE. This allows the gateway to accept the alternate gatekeeper list from one of the gatekeepers in the existing alternate gatekeeper list.

Handling of AltGKInfo in ARJ Messages

When the gateway accepts the alternate gatekeeper list from first the ARJ message, the gateway retransmits an ARQ message to a gatekeeper on the alternate gatekeeper list. The selection is based on priority of the alternate gatekeepers.

The retransmission of the ARQ message depends on the current state of the altGKisPermanent flag and the current state of the needToRegister flag of each alternate gatekeeper as follows:

- If the altGKisPermanent is TRUE and the needToRegister is YES or NO, the gateway sends an RRQ to the alternate gatekeeper. If the registration request is successful, the retry counter is reset and the gateway retransmits an ARQ to the permanent alternate gatekeeper. All subsequent RAS messages (including those pertaining to calls that were established before the change in gatekeepers) are transmitted to the permanent alternate gatekeeper.
- If the altGKisPermanent is FALSE and the needToRegister is NO, the retry counter is reset and the gateway retransmits an ARQ to the alternate gatekeeper.All subsequent RAS messages, however, are still sent to the primary gatekeeper. It is up to the primary gatekeeper to coordinate the redirection of messages to the alternate gatekeeper.
- If the altGKisPermanent is FALSE and the needToRegister is YES, the condition is considered illegal and redirection within the ARJ is not supported.

If the gateway receives an ARJ message without the AltGKInfo field, it accepts the rejection.

If the gateway exhausts the list of alternate gatekeepers without receiving any response from an alternate gatekeeper, the gateway returns to the RRQ phase.

Benefits

The H.323 Support for Virtual Interfaces feature allows gateways to move between gatekeepers without requiring a reconfiguration of the gateway or a gatekeeper failover in the gateway.

Gateways can be configured to switch from their primary gatekeeper to an alternate gatekeeper if a failure or outage occurs. If an outage occurs and gateways move from one gatekeeper to another, there may be an imbalance in the number of gateways registered to each gatekeeper. The H.323 Support for Virtual Interfaces helps to restore the balance (when the outage has been corrected) by allowing some of the gateways to be moved back to their proper gatekeepers.

Restrictions

The H.323 Support for Virtual Interfaces feature has the following restrictions and limitations:

- The maximum number of alternate gatekeepers remains eight (including static gatekeepers).

- The process of retransmission to an alternate gatekeeper can be time-consuming.

Related Features and Technologies

The H.323 Support for Virtual Interfaces feature is related to the H.323 VoIP Gateway for Cisco Access Platforms feature and the Gateway Support for Alternate Gatekeepers feature.

Related Documents

- *Gateway Support for Alternate Gatekeepers*
- Configuring H.323 VoIP Gateway for Cisco Access Platforms
- Ecosystem Gatekeeper Interoperability Enhancements

Supported Platforms

The H.323 Support for Virtual Interfaces feature is supported on any existing IOS gateway platforms, including the following:

- Cisco 1700
- Cisco 2500 series
- Cisco 2600 series
- Cisco 3600 series
- Cisco 7200 series
- Cisco AS5300
- Cisco AS5350
- Cisco AS5400
- Cisco uBR900
- Cisco uBR904
- Cisco uBR910
- Cisco uBR924
- Cisco AS5400

Supported Standards, MIBs, and RFCs

Standards

No new or modified standards are supported by this feature.

MIBs

No new or modified MIBs are supported by this feature.

To obtain lists of MIBs supported by platform and Cisco IOS release and to download MIB modules, go to the Cisco MIB web site on Cisco Connection Online (CCO) at http://www.cisco.com/public/sw-center/netmgmt/cmtk/mibs.shtml.

RFCs

No new or modified RFCs are supported by this feature.

Prerequisites

The Cisco AS5350 and Cisco AS5400 do not support the Mica Modem Card, Microcom Modem Card, or VoIP Feature Card. Voice and modem functions are provided by the Universal Port Dial Feature card running SPE firmware. See the *Cisco AS5350 Universal Gateway Card Installation Guide* and the *Cisco AS5400 Universal Gateway Card Installation Guide* for more information. All references to the Cisco AS5300 in this document apply to the Cisco AS5350 and Cisco AS5400 platforms with the following exceptions:

- Use the Universal Port Dial Feature Card instead of the Mica or Microcom modem cards.
- Use SPE firmware instead of portware version 6.7.7.
- Run Cisco IOS Release 12.1(5)XM2 software for VoIP functionality.

Other Prerequisites

The H.323 Support for Virtual Interfaces feature requires the Cisco H.323 VoIP Gateway for Cisco Access Platforms feature.

Configuration Tasks

There are no configuration tasks for the H.323 Support for Virtual Interfaces.

Note If you configure static gatekeepers from the command line interface (CLI), they will still be inserted into the alternate gatekeeper list during the admission confirmation (ACF) phase.

Configuration Examples

Because there are no configuration tasks, no configuration examples are provided.

Command Reference

There are no new or modified commands for the Answer Supervision Reporting feature.

Debug Commands

There are no new or modified Debug commands supported by the Answer Supervision Reporting feature.

Glossary

ACF—An RAS message sent as an admission confirmation.

ARJ—An RAS message sent as an admission rejection.

ARQ—An RAS message sent as an admission request.

gatekeeper—A gatekeeper maintains a registry of devices in the multimedia network. The devices register with the gatekeeper at startup, and request admission to a call from the gatekeeper.

The gatekeeper is an H.323 entity that provides address translation and control access to the network for H.323 terminals and gateways. The gatekeeper may provide other services to the H.323 terminals and gateways, such as bandwidth management and locating gateways.

gateway—A gateway allows H.323 terminals to communicate with non-H.323 terminals by converting protocols. A gateway is the point at which a circuit-switched call is encoded and repackaged into IP packets.

A H.323 gateway is an endpoint that provides real-time, two-way communications between H.323 terminals on the network and other ITU-T terminals in the WAN, or to another H.323 gateway.

GCF—An RAS message sent as a gatekeeper confirmation.

GRJ—An RAS message sent as a gatekeeper rejection.

GRQ—An RAS message sent as a gatekeeper request.

E.164—ITU-T recommendation for international telecommunication numbering, especially in ISDN, BISDN, and SMDS. An evolution of standard telephone numbers.

H.323—An International Telecommunication Union (ITU-T) standard that describes packet-based video, audio, and data conferencing. H.323 is an umbrella standard that describes the architecture of the conferencing system, and refers to a set of other standards (H.245, H.225.0, and Q.931) to describe its actual protocol.

LRQ—A RAS message sent as a location request.

POTS—Plain old telephone service. Basic telephone service supplying standard single line telephones, telephone lines, and access to the PSTN.

PSTN—Public switched telephone network. PSTN refers to the local telephone company.

RAS—Registration, admission, and status protocol. This is the protocol that is used between endpoints and the gatekeeper to perform management functions. The RAS signaling function performs registration, admissions, bandwidth changes, status, and disengage procedures between the VoIP gateway and the gatekeeper.

RCF—An RAS message sent as a registration confirmation.

RRJ—An RAS message sent as a registration rejection.

RRQ—An RAS message sent as a registration request.

VoIP—Voice over IP. The ability to carry normal telephone-style voice over an IP-based Internet with POTS-like functionality, reliability, and voice quality. VoIP is a blanket term which generally refers to Cisco's standards-based (H.323, etc.) approach to IP voice traffic.

Note For a list of other internetworking terms, see *Internetworking Terms and Acronyms*, available on the Documentation CD-ROM and Cisco Connection Online (CCO) at the following URL: http://www.cisco.com/univercd/cc/td/doc/cisintwk/ita/index.htm.