CHAPTER 1

Cisco H.323 Signaling Interface

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Introduction

This chapter provides an overview of the Cisco H.323 Signaling Interface (HSI) system and subsystems and contains the following sections:

- Cisco HSI Overview, page 1-1
- Cisco HSI System Description, page 1-2
- Operational Environment, page 1-5
- Cisco HSI Recovery, page 1-5

Cisco HSI Overview

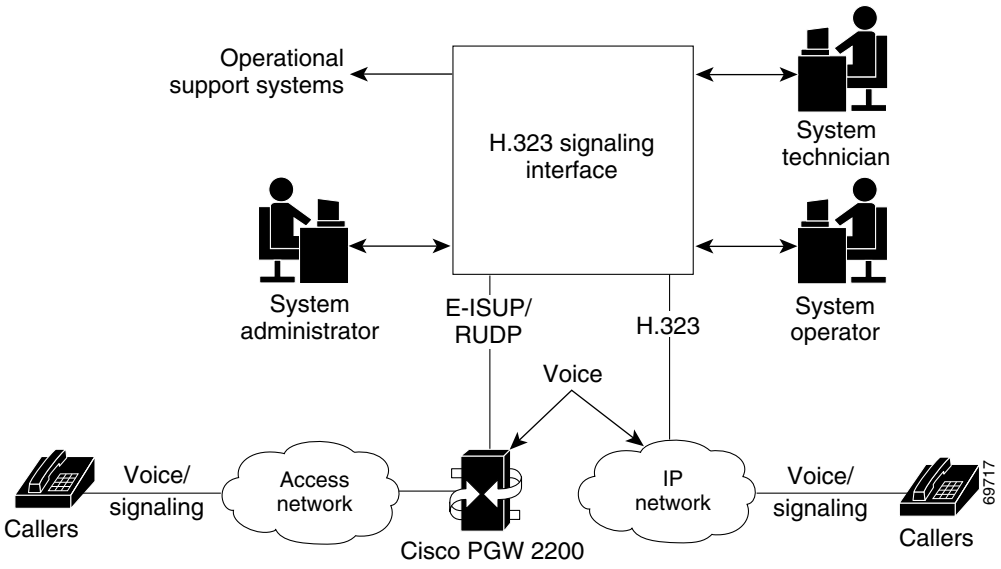
The Cisco HSI adds an H.323 interface to the Cisco Public Switched Telephone Network (PSTN) Gateway (PGW 2200). This interface allows calls to be established between the PSTN and an H.323 network (see Figure 1-1).

The Cisco HSI provides the following services:

- Translation of signaling protocols for establishing, controlling, and releasing calls
- Administration of network parameters and protocol capabilities
- System and call-related statistics
- Fault reporting
- Overload management
- Event logging
- Simple Network Management Protocol (SNMP) interface

The Cisco HSI operates in a load sharing configuration, whereas the PGW 2200 operates in an active/standby configuration. This allows the benefits of redundancy (if an HSI fails, the remaining HSIs continue to operate) and simple scaling (you can insert additional HSIs as the network expands). The number of HSIs required should be a minimum of two, to ensure that the system continues to process calls despite an equipment failure.

Figure 1-1 Cisco HSI System Overview



PGW 2200

The PGW 2200 consists of the hardware and software that perform the signaling and call control tasks (such as digit analysis, routing, and circuit selection) and seamlessly switch calls from the PSTN through to the IP network.

IP Network

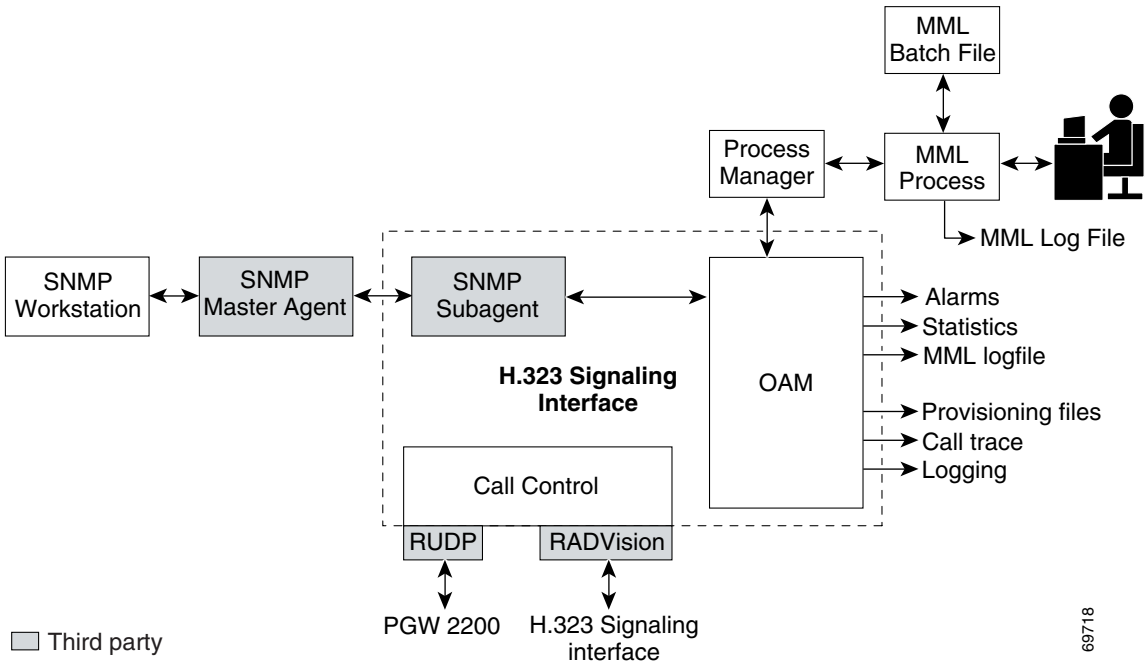
The purpose of the Cisco HSI is to enable the PGW 2200 to interoperate with the H.323 network.

Cisco HSI System Description

The Cisco HSI system has two subsystems (see Figure 1-2):

- Operations, Administration, and Maintenance (OAM) subsystem
- Call control subsystem

Figure 1-2 Cisco HSI Subsystems



OAM Subsystem

The OAM subsystem provides the following services:

- Man-Machine Language (MML) interface that enables you to retrieve operational parameters and modify configuration values through direct input or through batch files
- SNMP interface that allows statistics and alarm retrieval
- Management to provide automatic restart of the Cisco HSI application and control over the running of the process
- Statistics, events, call trace, and alarm output to files
- Alarm events output to the MML interface
- Overload control

Call Control Subsystem

The call control subsystem provides the following services:

- Manages the communication between the Cisco PGW 2200 interface (EISUP) and H.323 stacks
- Implements Enhanced ISDN User Part (EISUP)
- Manages H.323 call control
- Performs the conversion of calls between H.323 and EISUP call control messages
- Provides call management and overload reduction actions

RUDP

RUDP transports the EISUP messages between the PGW 2200 and the Cisco HSI.

RUDP is a connection-oriented, packet-based transport protocol.

H.323

Cisco HSI Release 4.3 uses uses the H.323 version 4 stack. The HSI uses the H.225 (Q.931 and registration, admission, and status [RAS] protocol) and H.245 protocols to implement the H.323 gateway signaling function.

EISUP

EISUP is a protocol based on ISUP. EISUP is used for inter-PGW 2200 call control and for HSI-PGW 2200 messaging.. EISUP uses a subset of ISUP messages. The main differences between ISUP and EISUP are as follows:

- EISUP is for the control of packet voice connection.
- EISUP is transported over RUDP in an IP network.
- EISUP enables PGW 2200s to transport Session Description Protocol (SDP) information (such as endpoint IP address and codec specifications) for call endpoints.

The Cisco HSI provides a conversion between the EISUP call control protocol originating from the PGW 2200 and the H.323 call control protocol originating from the IP network (see Figure 1-1).

New Features in Cisco HSI Release 4.3

Cisco HSI Release 4.3 introduces support for the following features:

- H.323 Annex M.1 Support—Enables the interoperability of enhanced services with H.323 networks that support the H.323Annex M.1 protocol (for example, Cisco Call Manager). The tunneled QSIG content enabled by this feature supports interoperability not only with QSIG PBXs but also with SIP and other protocols (such as DPNSS and SS7), in conjunction with the Cisco PGW 2200. Enhanced service interoperability includes services such as call transfer/divert, call back services, and call completion. In addition, this feature enables full, end-to-end Route Optimization/Path Replacement for mixed Cisco Call Manager and DPNSS/QSIG PBX networks. Other services, such as message-waiting indication and caller ID services are also available.
- H.323 Alternate Endpoint Routing Capability—Enables greater call-completion rates by allowing the HSI to attempt connection to multiple H.323 gateway destinations. An external route server can interface with H.323 gatekeepers by using the simple but powerful GKTMP interface, which provides a selection of destinations to which the HSI can attempt to connect.
- Enhanced Performance—The Cisco HSI Release 4.3 provides improved performance. HSI 4.3 supports up to 10,000 simultaneous calls per HSI, at rates several times faster than previous releases.

Note To support N+1 redundancy, you must use at least two HSIs .

- Sun Solaris 10—Cisco HSI 4.3 runs on the Sun Solaris 10 operating system.

Operational Environment

This section provides operational environment requirements for the Cisco HSI.

Hardware Requirements

The Cisco HSI 4.3(2) operates on Sun Netra 210, and Sun Netra X4200 M2 platforms. The hardware requirements for the Cisco HSI are documented in the *Cisco Media Gateway Controller Hardware Installation Guide - Releases 7 & 9*. See the section "Cisco MGC Host Platforms" in Chapter 1.

Note Initially, see one of the following documents for hardware requirements, depending on the release of the PGW 2200 Softswitch with which HSI 4.3(2) must interoperate:

– Release Notes for the Cisco Media Gateway Controller Software Release 9.7(3)
– Release Notes for PGW 2200 Softswitch Release 9.8(1)

Software Requirements

The Cisco HSI 4.3 is compatible with Cisco PGW 2200 Softswitch Releases 9.7(3) and 9.8(1). The HSI supports live network upgrades from 9.5 and 9.6 to PGW 2220 Release 9.7(3).

The software requirements for the Cisco HSI are documented in the *Cisco Media Gateway Controller Software Release 9 Installation and Configuration Guide*.

Note Initially, see the following document for software requirements:
– Release Notes for the Cisco Media Gateway Controller Software Releasee 9.7(3)
– Release Notes for the Solaris 10 Environment Packages

Cisco HSI Recovery

The Cisco HSI automatically restarts the main application process if that process terminates.

Note If the system is rebooted, the HSI is not started automatically unless the HSI was already activated prior to the reboot.

The Cisco HSI incorporates a Process Manager that generates SNMP alarms to indicate application status.