Operating

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This chapter covers the operational features of the Cisco BTS 10200 Softswitch H.323 implementation, including billing, measurements, events and alarms, and announcements.

Billing

This section describes several billing features applicable to H.323, including

- Identifying Call Legs as Video-Enabled
- Billing Data Generation for Video Calls
- Billing Records for Calls to or from Cisco CallManager
- Updated Billing Field Descriptions
- Link Failure Recovery Process

> **Note** For detailed information regarding billing fields, see the *Cisco BTS 10200 Softswitch Billing Guide, Release 6.0.4*.

Identifying Call Legs as Video-Enabled

The VIDEO-SUPP flag in the H323-TG-PROFILE and H323-TERM-PROFILE tables allows the service provider to identify individual call legs as video-enabled in the billing data record.

> **Note** This flag affects only CDB fields. It does not affect the fields in the PacketCable-based event messages.

Billing Data Generation for Video Calls

The Cisco BTS 10200 Softswitch uses H.245 flow-around mode to transmit video calls. In this mode, the system does not perform dynamic identification of video calls for billing purposes. Instead, the system identifies video-capable call legs by looking up the static provisioning in the H323-TG-PROFILE and H323-TERM-PROFILE tables for both the originating and terminating endpoints.

The Cisco BTS 10200 Softswitch examines the Bearer Capability field of incoming SETUP messages and takes the following actions:

- For an outgoing H.323 call, if either of the endpoints is configured as not video-capable (in H323-TG-PROFILE and H323- TERM-PROFILE tables), the system identifies the outgoing call leg as "speech" in the CDR.

- If the call is coming from (or going to) an H.323 TG that is video-capable (VIDEO-SUPP=Y), all call legs on this TG to (or from) H.323 video phones connected to the Cisco BTS 10200 Softswitch are identified as video-capable in the CDRs.

The following calling conditions do not have any effect on the billing record generated by the Cisco BTS 10200 Softswitch:

- Use of the privacy button on either of the phones in the call

- A midcall change from video mode to speech mode

Billing Records for Calls to or from Cisco CallManager

For calls involving a connection between the Cisco BTS 10200 Softswitch and Cisco CallManager, the Cisco BTS 10200 Softswitch creates the completed call billing record before the voice path is fully established. (For calls not involving Cisco CallManager, the Cisco BTS 10200 Softswitch creates call billing records after the voice path is fully established.)

Updated Billing Field Descriptions

Descriptions of the following fields were updated in the *Cisco BTS 10200 Softswitch Billing Guide, Release 6.0.4*. See the updated descriptions for these (and all other billing fields) in that document.

- Source Carrier Id

- Destination Carrier Id

- Source Service Provider Id

- Source Service Provider Id

- Originating H.323 Network Provider Id

- Destination H.323 Network Provider Id

Measurements

There are a number of traffic measurements applicable to H.323. For detailed information regarding billing fields, see the "Traffic Measurements" section in the *Cisco BTS 10200 Softswitch Operations and Maintenance Guide, Release 6.0.4*.

Events and Alarms

There are a number of events and alarms applicable to H.323. For a detailed list and description of these data fields, see the *Cisco BTS 10200 Softswitch Troubleshooting Guide, Release 6.0.4*.

Announcements

The Cisco BTS 10200 Softswitch supports a full range of announcements; however, there are no announcements specific to the H.323 protocol implementation.

> **Note**   See the "Cause Code to Announcement ID Mappings" section in the *Cisco BTS 10200 Softswitch Provisioning Guide, Release 6.0.4* for details on the announcement files and announcement provisioning.

Link Failure Recovery Process

This section explains what to do if the active signaling link on the Cisco BTS 10200 Softswitch goes down. The procedures in this section are based on the configuration tasks described in the "Prerequisites for H.323 Networks" section on page 2-4.

Dual Links for H.323 Signaling Transport

There are two signaling links on each CA. During normal operation, one of these links on the active CA is active and used for transporting H.323 (and other VoIP) signaling. The other link is standby. If the active signaling link goes down, the H.323 process restarts, and reestablishes communications over a good link (either of the signaling links on the CA). Typically, the link that comes up active is not the same link that originally went down. For example, if the system was originally transmitting H.323 traffic through IF1 (IP address 10.89.225.17), after the restart it might transmit through IF2 (IP address 10.89.226.17).

Automatic Recovery Process When GWs are Registered to a GK

When the Cisco BTS 10200 Softswitch H.323 GWs are registered to a GK, typically, no operator intervention is required. The link failure and recovery process occurs as follows.

1. If there is a failure on the interface or active link used for H.323 signaling, the H.323 process restarts automatically, and might begin transmitting through the other signaling interface (with an IP address different from the one that was used before the restart).

2. When communication is restored, the Cisco BTS 10200 Softswitch automatically reregisters with the GK and includes its current (new) IP address for H.323 signaling.

3. The next time the peer H.323 GW checks the GK for the IP address of the Cisco BTS 10200 Softswitch, it obtains the latest information.

Automatic Recovery Process When No GK Is Used (Direct Routing)

If a GK is not used, direct routing has been set up on each peer H.323 GW that communicates with the Cisco BTS 10200 Softswitch. This should have been done when the network was set up, as described in the "Setting Up Direct Routing on the Peer H.323 GW" section on page 2-4.

Link Failure and Recovery Scenario

The link failure and recovery scenario is as follows:

1. If there is a failure on the interface or active link used for H.323 signaling, the H.323 process restarts automatically, and might begin transmitting through the other signaling interface (with an IP address different from the one that was used before the restart). However, the H.323 GW is not aware of the current (new) IP address for H.323 signaling.

2. The next time the H.323 GW attempts to signal the Cisco BTS 10200 Softswitch to set up a call, it uses the incorrect IP address (the address of the interface that went down).

3. For 3 seconds, the H.323 GW continues trying to reach the original IP address of the Cisco BTS 10200 Softswitch (provisioned as preference 1 in the GW) for the call setup. Only after these attempts time out does the GW look up the second dial-peer (provisioned as preference 2) and find the IP address for the other (now active) interface. At that time, the call can be completed.

Manual Intervention for Process Recovery (Optional)

When not connected to a GK, the H.323 GW, cannot automatically update its IP address data; therefore, the 3-second call setup delays will continue. If you want to restore normal call setup times (optional) perform the following steps:

Step 1 On the UNIX level on the active CA, enter the following command (example shown) to determine the IP addresses of the signaling interfaces (IF1 and IF2).

```
prica37# nslookup h3a-SYS37CA146.ipclab.cisco.com
```

A typical system response is shown below:

```
Server: lion.ipclab.cisco.com
Address: 10.89.224.1
Name: h3a-SYS37CA146.ipclab.cisco.com
Addresses: 10.89.226.17, 10.89.225.17
```

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Tip   The domain name for this H.323 link always includes h3a-SYS. The full domain name is shown in the Network Information Data Sheet (NIDS) that was supplied with your system. Alternatively, you can search in the DNS server for domain names containing h3a-SYS.

Step 2 On the Cisco BTS 10200 Softswitch, enter the following CLI command (example shown) to determine which signaling interface (IF1 or IF2) is active on the active CA. The active signaling interface carries the H.323 signaling (and other protocol signaling, if present). The system response contains an IP address for the currently active signaling link.

```
status h323-gw id=GW37_Central_4
```

A typical system response is shown below.

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Note   The IP ADDRESS displayed in this system response in the active IP address.

```
status h323-gw id=TB37_Central_4

ADMIN STATE -> ADMIN_INS
H3A PROCESS NUMBER -> 40
H3A PROCESS NAME -> H3A4
```

```
ENDPOINT ID -> 6333EC4400000005
ACTIVE CALLS -> 0
RAS STATE -> CCH323_RAS_STATE_IDLE
RAS PORT -> 57781
IP ADDRESS -> 10.89.225.17
REGISTERED GATEKEEPER ID -> H5-GK
PRIMARY GATEKEEPER ID -> H5-GK
PRIMARY GATEKEEPER PORT -> 1719
PRIMARY GATEKEEPER IP -> 10.89.227.80
H323 VERSION -> 4
TIME TO LIVE -> 60
NUM ALT GATEKEEPERS -> 0
ALT GATEKEEPER PERMANENT -> TRUE
THRESHOLD ENABLED -> FALSE
OUT OF RESOURCES -> FALSE
ALT GATEKEEPER LIST ->
```

Step 3   On the peer H.323 GW, display the dial-peers applicable to the H.323 signaling, and determine which dial-peer has the top preference.

Step 4   If the dial-peer with the top preference *is not* set to the IP address of the currently active signaling interface on the Cisco BTS 10200 Softswitch, change the preference levels on the dial-peers on the H.323 GW. The dial-peer with the top preference should contain the IP address of the currently active link.

Step 5   Verify that the active connection is functioning properly by completing several test calls.

Step 6   Check for any alarms on the system that might indicate difficulties with H.323 call processing.