Cisco BTS 10200 Softswitch SIP P-Charge-Info Header Feature, Release 6.0.3

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The support for the SIP P-Charge-Info Header feature allows the Cisco BTS 10200 Softswitch to convey the charge party information of a call.

Note This implementation is based on the IETF document: *P-Charge-Info—A Private Header (P-Header) Extension to the Session Initiation Protocol (SIP) draft-york-sipping-p-charge-info-08.*

Contents

Overview of the Feature

Currently, the BTS 10200 Softswitch identifies the caller to be charged for a call using the following headers:

- P-Asserted-Identity
- FROM header
- P-DCS-Billing-Info (if enabled)

The identity or number collected is received by the SIP User Agent (UA), and displayed to the end user. This number is also used for billing purposes by the network entities involved in carrying out the session.

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However, in some network configurations, the caller ID presented to the receiving UA may be different from the number desired for billing purposes. The SIP P-Charge-Info header fulfills the need to pass an additional billing identifier that is used to convey the billing information about the calling party. This identifier is used between network entities for accurate billing of services.

Prerequisites

A prerequisite for SIP P-Charge-Info header feature is that all inbound calls to the BTS 10200 Softswitch should be from trusted entities, and provide a trusted Universal Resource Identifier (URI).

Additionally, the SIP P-charge-Info header is applicable only within a single private administrative domain, or between different administrative domains having a trust relationship.

P-Charge-Info Header in Outbound Calls

For outbound calls, BTS 10200 Softswitch SIP interface creates a SIP invite message and checks if the **ENABLE_P_CHARGE_INFO_HDR** token is enabled in the **SOFTSW_TG_PROFILE** table. When enabled, BTS 10200 Softswitch adds the P-Charge-Info header to the outbound invite message.

The P-charge-Info header consists of a SIP URI that indicates the number to be charged for the session. It may also contain optional parameters, such as Nature Of Address (NOA) and Numbering Plan Indicator (NPI). The NPI and NOA are used when the ISUP charge number value needs to be sent as part of P-Charge-Info header. The ISUP charge number is required in a SIP message when SIP is used to connect two PSTN segment and charging information is conveyed between them.

Example of P-Charge-Info Header in a SIP INVITE

```
P-Charge-Info: sip:4075555555@sia-SYS04CA146.ipclab.cisco.com
```

Example of a P-Charge-Info Header with NPI and NOA

```
P-Charge-Info: <sip:6835555555@@sia-SYS04CA146.ipclab.cisco.com>;npi=ISDN;noa=3
```

The NPI parameter may contain these values:

- 000—unknown (no interpretation)
- 001—ISDN (Telephony) numbering plan (Recommendation E-164)
- 010—spare (no interpretation)
- 011—reserved (for CCITT data numbering plan)
- 100—reserved (for CCITT telex numbering plan)
- 101—private numbering plan
- 110—spare (no interpretation)
- 111—spare (no interpretation)

The NOA parameter may contain these values:

- 00—spare (no interpretation)
- 02—ANI not available or not provided
- 03—ANI of the calling party, and represents the national number

- 04—spare (no interpretation)
- 05—ANI of the called party, and represents the subscriber number
- 06—ANI of the called party and number is not present
- 07—ANI of the called party, and represents the national number

Note The **ENABLE_P_CHARGE_INFO_HDR** token can only be set to Y when the **ENBALE_P_DCS_BILLING_INFO_HDR** token present in **SOFTSW_TG_PROFILE** table is set to N.

P-Charge-Info Header in Inbound Calls

When the P-Charge-Info header feature is activated (in case of inbound calls), the P-Charge-Info field is used exclusively to populate the charging party information. Absence of a P-Charge-Info header or disabling the feature indicates that charge party information is not available. In such scenarios, the charge number is generated in the billing record as being done currently in BTS10200.

Note When the **ENABLE_P_CHARGE_INFO_HDR** is set to *N*, a P-Charge-Info header received in the invite message is ignored by BTS 10200 Softswitch.

Note If carrier routing is provisioned, the **send_CN** token in the **CARRIER** table should be enabled to send the charge number in the outbound SIP INVITE message.

Provisioning the Feature

This section explains how to provision the feature. In this procedure, “you” refers to the service provider.

Note The commands shown in this section are only examples; you need to enter values that are appropriate for your network and service requirements. The CLI syntax allows you to use commands in uppercase or lowercase. It also allows you to enter hyphens (-) or underscores (_) interchangeably. (Exceptions, if any, are noted in the procedures.)

For a complete list of tokens for each CLI table, as well as the allowed values, default values, and detailed descriptions for each token, see the *Cisco BTS 10200 Softswitch CLI Database* at this website: *http://www.cisco.com/en/US/docs/voice_ip_comm/bts/6.0.3/BTS603_Mainpage.html*

SUMMARY STEPS

1. **Add softsw_tg_profile**

DETAILED STEPS

	Command	Purpose
Step 1	**Add softsw_tg_profile** id=tg_profile-1; ENABLE_P_CHARGE_INFO_HDR = Y;	The **ENABLE_P_CHARGE_INFO_HDR** in the softswitch trunk group profile table specifies whether to process the P-Charge-Info header when received in the invite message, and/or insert the P-Charge-Info header in the outgoing invite message. The **ENBALE_P_DCS_BILLING_INFO_HDR** token in the **SOFTSW_TG_PROFILE** table must be disabled to enable the P-Charge-Info header feature.

Managing the Feature

Table 1 shows how the charge (number) information is populated in the SIP invite based on the values of **ENABLE_P_CHARGE_INFO_HDR** and **ENBALE_P_DCS_BILLING_INFO_HDR** tokens.

Table 1 Charge Number Information in SIP Invite

ENABLE_P_CHARGE_INFO_HDR	ENBALE_P_DCS_BILLING_INFO_HDR	P-Charge-Info Header in Incoming Invite	P-DCS-Billing-Info Header in Incoming Invite	Charge Number Information in SIP Invite is filled from
Y	N	Y	Y	P-Charge-Info header. The outgoing P-Charge-Info header corresponds to the charge number in the incoming P-Charge-Info header.
Y	N	Y	N	P-Charge-Info header. The outgoing P-Charge-Info header corresponds to the charge number in the incoming P-Charge-Info header.
Y	N	N	Y	The P-Charge-Info header will not be present in the SIP INVITE.
Y	N	N	N	The P-Charge-Info header will not be present in the SIP INVITE.

Note The above table is applicable when call forwarding feature is not invoked.

The BTS 10200 sends the P-Charge-Info header in the outgoing INVITE in the following scenarios. Note that the **ENABLE_P_CHARGE_INFO_HDR** should be Y.

- The incoming INVITE had P-Charge-Info or P-DCS-Billing-INFO header information
- The incoming Initial Address Message (IAM) had charge number.
- When a call is forwarded from a BTS 10200 subscriber to a SIP trunk-group
- When an incoming trunk group has main subscriber ID, and has a billing DN associated with it. And, the call is routed to a SIP trunk group.
- The incoming trunk group has ANI screening enabled, and ANI screening has a main subscriber ID with a billing DN associated with it. The ANI screening is passed, and call is routed to a SIP trunk group.
- When a 8XX or LNP query returns a charge number.

Note The charge number and calling number must be different in the above scenarios.

Additional References

Related Documents

Related Topic	Document Title
Summary of features and usage guidelines for this release	*Cisco BTS 10200 Softswitch Release Notes*
Reference listing of all CLI tables and tokens	*Cisco BTS 10200 Softswitch CLI Database*
SIP Trunks and SIP Trunk Provisioning Example	*Cisco BTS 10200 Softswitch SIP Guide, Release 6.0.3*
SIP Subscribers	*Cisco BTS 10200 Softswitch Provisioning Guide, Release 6.0.3*

Standards

Standard	Title
IETF Draft: draft-york-sipping-p-charge-info-08	*P-Charge-Info—A Private Header (P-Header) Extension to the Session Initiation Protocol (SIP).*

Any Internet Protocol (IP) addresses used in this document are not intended to be actual addresses. Any examples, command display output, and figures included in the document are shown for illustrative purposes only. Any use of actual IP addresses in illustrative content is unintentional and coincidental.