P-Charge-Info – A Private Header (P-Header) Extension to the Session Initiation Protocol (SIP)
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Abstract

This document describes ‘P-Charge-Info’, a private Session Initiation Protocol (SIP) header (P-header) used by a number of equipment vendors and carriers to convey simple billing information.
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1. Overview

In certain network configurations, it is desirable to decouple the Caller ID from the number used for billing purposes. This document describes the current usage of 'P-Charge-Info', a private SIP header, to provide simple billing information and requests the registration of this header with IANA as required by section 4.1 of RFC 3427 [RFC3427].

In a typical configuration, "Caller ID" is derived from one of the following SIP headers:

- Remote-Party-ID
- P-Asserted-Identity
- From (in the absence of the other two)

This number is typically presented to the receiving UA where it is usually displayed for the end user. It is also typically used for billing purposes by the network entities involved in carrying the session.

However, in a distributed environment the "Caller ID" presented to the receiving UA may not reflect the actual reality of the underlying network in terms of costs incurred on the PSTN. This may result in excessive charging of one carrier by another based on the erroneous assumption that the call was originating from a different point on the PSTN.

There exists a need for a way to pass an additional billing identifier that can be used between network entities in order to correctly bill for services. At least one equipment provider, Sonus Networks, and several carriers have been using the "P-Charge-Info" header for the last 2-3 years as a simple mechanism to exchange this billing identifier.

It should be noted that the 3GPP has also recognized the need for such a billing identifier and in section 4.6 of RFC 3455 [RFC3455] established a SIP P-Header, "P-Charging-Vector", to provide similar information. This header, though, is designed for use within 3GPP environments and thus includes parameters appropriate within a 3GPP context. It also allows for the use of any general value as the billing identifier whereas P-Charge-Info, as noted below, specifically requires a SIP URI as the content.
2. Requirements Language

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in RFC 2119.

3. The P-Charge-Info Header

3.1. Applicability Statement for the P-Charge-Info header

The P-Charge-Info header is applicable within a single private administrative domain or between different administrative domains where there is a trust relationship between the domains.

3.2. Usage of the P-Charge-Info header

The P-Charge-Info header is used to convey information related to billing record for a particular call. The P-Charge-Info header is typically inserted by the SIP proxy on the originating network.

3.2.1. Procedures at the UA

The P-Charge-Info header may be inserted by PSTN gateways acting as a SIP UA, either through local policy or as a result of information received via PSTN signaling, e.g. the charge parameter in an ISUP IAM message.

The P-Charge-Info header is not used/interpreted by a regular (i.e. non-gateway) UA and should not normally be seen by such a UA. If the header is transmitted to such a UA, the UA should ignore the header.

3.2.2. Procedures at the Proxy

A SIP proxy that supports this extension and receives a request, typically a SIP INVITE, without the P-Charge-Info header MAY insert a P-Charge-Info header. The contents of the inserted header may be decided based on local policy or by querying an external entity.

A SIP proxy that does not support this extension will pass any received P-Charge-Info header unmodified in compliance with RFC 3261.

3.3. Examples of Usage

The content of the P-Charge-Info header is typically simply a SIP URI used as a billing indicator. As such, an example would be as simple as:
P-Charge-Info: <sip:4075555555@1.2.3.4>

Any other applicable SIP URI could be used.

P-Charge-Info optionally includes the numbering plan indicator as an additional parameter. This is used when an ISUP message is built from a SIP message for scenarios where SIP is used to connect two PSTN segments and needs to pass charging information between them. An example of the usage of the optional header is:

P-Charge-Info: <sip:6835555555;npi=ISDN@10.10.7.21>

4. Formal Syntax

The Private Header specified in this document is described in both prose and an augmented Backus-Naur Form (BNF) defined in RFC 2234. Further, several BNF definitions are inherited from SIP and are not repeated here. Implementors need to be familiar with the notation and contents of SIP [1] and RFC 2234 [3] to understand this document.

The syntax of the P-Charge-Info header is described as follows:

\[
P-Charge-Info = "P-Charge-Info" HCOLON charge-param * (SEMI charge-param) \\
charge-param = (addr-spec) * (SEMI charge-params) \\
charge-params = (\("npi" EQUAL npi-value\)) \\
npi-value = ("ISDN" / "DATA" / "TELEX" / "PRIVATE" / "SPARE0" / "SPARE1" / "SPARE2" / "SPARE3" / "SPARE4" / "SPARE5" / "SPARE6" / "SPARE7")
\]

5. IANA Considerations

This document defines a private SIP extension header field (beginning with the prefixe "P-").

The extension is registered as a private extension field:

RFC Number: RFCXXXX [Note to IANA: Please fill in with the RFC number of this specification.]

Header Field Name: P-Charge-Info

Compact Form: none
6. Security Considerations

Given that the information contained in the P-Charge-Info header will be used for billing purposes the proxies that share this information MUST have a trust relationship.

If an untrusted entity were inserted between the trusted entities, it could potentially interfere with the billing records for the call. If the SIP connections are not made over a private WAN, a mechanism for securing the confidentiality and integrity of the SIP connection should be used to protect the information.

7. References

7.1. Normative References


7.2. Informative References


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