The SIP INFO Method

Status of this Memo

Abstract

   This document proposes an extension to the Session Initiation Proto-
   col. This extension adds the INFO method to the SIP protocol. The
   intent of the INFO method is to allow for the carrying of session
   related control information that is generated during a session. One
   example of such session control information is ISUP and ISDN signal-
   ing messages used to control telephony calls services.

   Another example might include reporting of signal strength in a wire-
   less mobility application.

1 Introduction

   The SIP protocol handles the transport of session control information
   during the setup and tear down stages of a SIP controlled session.

   While SIP re-INVITEs can be used during a session to change the char-
   acteristics of the session (generally to change the properties of
   media flows related to the session), there is no general purpose
   mechanism to carry session control information during the session.

   Although it is true that users and/or user agents involved in the
   session can communicate directly during the session, this does not
   ensure that SIP proxy servers that are involved in the setup and tear
   down of the session will also be involved in the exchange of mid-
   session control information.

   One good example of mid-session control information that will need to
   be carried between SIP user agents is PSTN mid-call signaling mes-
   sages. These messages exist for both SS7 based ISUP signaling and
   ISDN DSS1 based signaling.

   Another hypothetical use of mid-session control is the use of SIP to
   support wireless mobility applications. In this scenario it can be
   envisioned that mid session messages would be sent to a control
   entity to report on the signal strength for a wireless handset from
   various base stations. The control entity would then use this infor-
   mation to control handoffs between the base stations.

   It can also be envisioned that there will be non telephony inspired
   uses of a mechanism for relaying mid session information between par-
   ticipants of the session and to Proxy Servers interested in the ses-
   sion.

   This document proposes the addition of the INFO Request method to the
   SIP specification to be used for carrying of mid session information
   along the session signaling path.

2 Mid Call Telephony Signaling Messages

   One use for the INFO method is the need to carry mid call signaling
   information resulting from the interworking between an ISUP or ISDN
   network/device and a SIP controlled network.

   One specific example of this interworking is when the SIP controlled
   network is used for transport between two PSTN locations. For this
   type of call, there will be a PSTN leg from the calling party to the
   SIP network, a SIP leg through the SIP network and a PSTN leg from
   the SIP network to the called party. There needs to be a method to

carry mid-call PSTN signaling from the originating PSTN network,
through the SIP network to the destination PSTN network.

2.1 ISUP Messages

The following is a partial list of the mid-call ISUP messages:

Full Message Name	Abbreviated Name	ISUP Type
Facility Accepted	FAA	ANSI/ITU
Facility Reject	FRJ	ANSI/ITU
Facility Request	FAR	ANSI/ITU
Forward Transfer	FOT	ANSI/ITU
Identification Request	IDR	ITU
Identification Response	IDF	ITU
Facility Deactivated	FAD	ANSI
Facility Information	FAI	ANSI
Facility	FAC	ANSI/ITU
Information	INF	ANSI/ITU
Information Request	INR	ANSI/ITU
Pass Along Message	PAM	ANSI/ITU
Suspend	SUS	ANSI/ITU
Resume	RES	ANSI/ITU
User-to-User Information	USR	ANSI/ITU

2.2 Example PSTN Call Flow

The following is an example call flow showing the use of INFO message
for carrying PSTN mid-call signaling messages.

```
        Orig PSTN    Ingress GW   SIP Server   Egress GW   Dest PSTN
                        GW1          SPS          GW2
              ------------>------------>------------>------------>
              IAM          Invite SPS   Invite GW2   IAM


              <-----------<------------<------------<------------
              ANM          200 OK       200 OK       ANM

              ------------>------------>------------>------------>
                           ACK SPS1     ACK SPS3


              <-----------<------------<------------<------------
              USR          INFO         INFO         USR
                           ISUP MIME    ISUP MIME
                           USR          USR


              ------------>------------>------------>------------>
              USR          INFO         INFO         USR
                           ISUP MIME    ISUP MIME
                           USR          USR


              <-----------<------------<------------<------------
              REL          BYE          BYE          REL

              ------------>------------>------------>------------>
              RLC          200 OK       200 OK       RLC
```
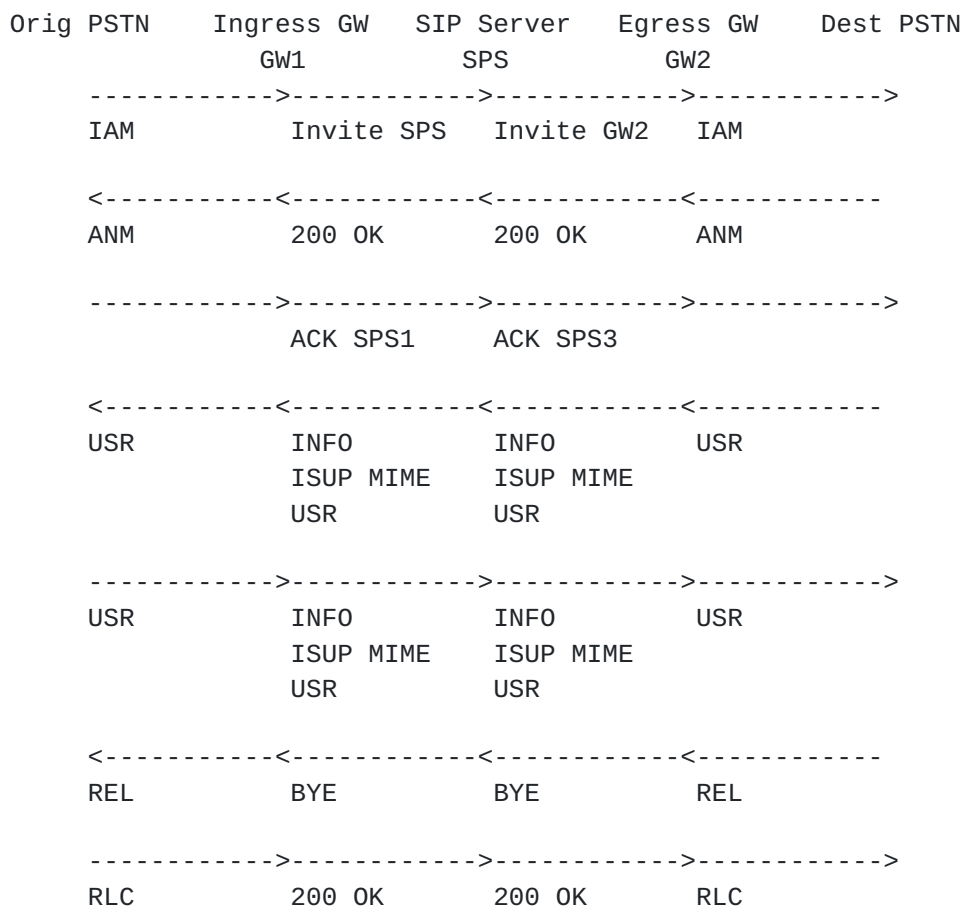
[3](3) INFO Method

   The INFO method is used for communicating mid-session control infor-
   mation along the signaling path for the session. The signaling path
   for the INFO method is the signaling path established as a result of
   the session setup. This can be either direct signaling between the
   calling and called user agent or a signaling path involving SIP proxy
   servers that were involved in the session setup and added themselves
   to the Record-Route header on the initial INVITE message.

   The mid-session control information can be communicated in either an
   INFO message header or as part of an attachment.

If the control information is telephony signaling information then
the signaling message shall be carried as part of an ISUP attachment
to the INFO message as described in draft-ietf-sigtran-mime-
isup-00.txt.

2.1 **Header Field Support for INFO Method**

The following table is an extension of tables 4 and 5 in the SIP
specification. Refer to Section 6 of the SIP Specification for a
description of the content of the table.

Header	Where	INFO
Accept	R	-
Accept-Encoding	R	-
Accept-Language	R	o
Allow	200	-
Allow	405	o
Authorization	R	o
Call-ID	gc	m
Contact	R	-
Contact	1xx	-
Contact	2xx	-
Contact	3xx	-
Contact	485	-
Content-Encoding	e	o
Content-Length	e	o
Content-Type	e	*
CSeq	gc	m
Date	g	o
Encryption	g	o
Expires	g	-
From	gc	m
Hide	R	o
Max-Forwards	R	o
Organization	g	o

Header	Where	INFO
Priority	R	o
Proxy-Authenticate	407	o
Proxy-Authorization	R	o
Proxy-Require	R	o
Require	R	o

```
       Retry-After              R        -
       Retry-After          404,480,486  o
       Retry-After              503      o
       Retry-After          600,603      o
       Response-Key             R        o
       Record-Route             R        o
       Record-Route             2xx      o
       Route                    R        o
       Server                   r        o
       Subject                  R        -
       Timestamp                g        o
       To                     gc(1)      m
       Unsupported              420      o
       User-Agent               g        o
       Via                    gc(2)      m
       Warning                  r        o
       WWW-Authenticate         401      o
```

2.2 Responses to the INFO Request Method

A 200 OK response shall be sent if the INFO request was successful.

A 481 Call Leg/Transaction Does Not Exist shall be sent if the INFO request does not match any existing call leg.

Other request failure (4xx), Server Failure (5xx) and Global Failure (6xx) responses can also be sent for the INFO Request.

2.3 Message Body Inclusion

The INFO request may contain a message body.

2.4 Behavior of SIP User Agents

The protocol rules applied by the SIP User Agent shall be similar to those used for the BYE request. However, the INFO message shall not change the state of the session.

2.5 Behavior of SIP Proxy and Redirect Servers

2.5.1 Proxy Server

The protocol rules applied by the SIP Proxy Server shall be similar to those applied used for the BYE request. However, the INFO message shall not change the state of the session.

2.5.2 Forking Proxy Server

The protocol rules applied by the SIP Forking Proxy Server shall be similar to those applied used for the BYE request. However, the INFO message shall not change the state of the session.

2.5.3 Redirection Server

A redirection server should not receive the INFO method as it is a part of the signaling path only at the initiation of the session. As such, a redirection server should send a 403 Forbidden response.

2.6 Security Considerations

There are no security issues specific to the INFO method. The security requirements specified in the SIP specification apply to the INFO method.

3.0 References

[1] M. Handley, H. Schulzrinne, E. Schooler, and J. Rosenberg, "SIP: Session Initiation Protocol", RFC 2543, March 1999.

[2] C. Huitema, "The multipart/sip-id media type", Internet Draft, Internet Engineering Task Force, February 5, 1999. Work in Progress

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