SIP CLF Problem Statement
draft-ietf-sipclf-problem-statement-01

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March 26, 2010

Changes since -00

- Review by John Elwell (thanks; not all comments incorporated yet.)
- Review by Cullen Jennings (thanks; not all comments incorporated yet.)
- Text on differentiating SIPCLF from CDRs.
- Addition of a “Data Model” section that describes the required SIP headers.
- These are ...

The Data Model

- Timestamp
- Source-IP:port
- Dest-IP:port
- Server-txn
- Client-txn
- From
- To
- Method
- Call-ID
- Cseq (number)
- R-URI
- Status
- Body
- Ordered list of other SIP fields

The Data Model

- The data model applies to all SIP entities:
  - UAC
  - UAS
  - Proxy
  - B2BUA (degenerate case of a Proxy)
  - Registrar/Redirect servers (special cases of UAS)

Data Model

- UAC (using minimum data model elements)

  Request: Timestamp Method R-URI Dest-IP:port Client-txn To From Call-ID CSeq

  Response: Timestamp Source-IP:port Status Client-txn To

Data Model

- UAS (using minimum data model elements)

  Request: Timestamp Method R-URI Source-IP:port Server-Txn To From Call-ID Cseq

  Response: Timestamp Dest-IP:port Status Server-Txn

Data Model

- Proxy (using minimum data model elements)

  (a) Incoming request from UAC

  Timestamp Method R-URI Source-IP:port Server-Txn To From Call-ID Cseq

  (b) Sending response to UAC

  Timestamp Dest-IP:port Status Server-Txn Client-txn To

  Note: Client-Txn and To may be null since no downstream identifier has been initiated yet.

Data Model

- Proxy (continued)

  (c) Sending request to downstream UAS

  Timestamp Method R-URI Dest-IP:port Server-Txn Client-txn To From Call-ID CSeq

  (d) Incoming response from downstream UAS

  Timestamp Source-IP:port Status Server-Txn Client-txn To

Back of the envelope calculations

Data model element sizes (reasonable size, in bytes)

- Timestamp (16)
- Source-IP:port (21)
- Dest-IP:port (21)
- Server-txn (80)
- Client-txn (80)
- From (80)
- To (80)
- Method (10)
- Call-ID (80)
- Cseq (10)
- R-URI (80)
- Status (3)

Back of the envelope calculations

Sample call flow

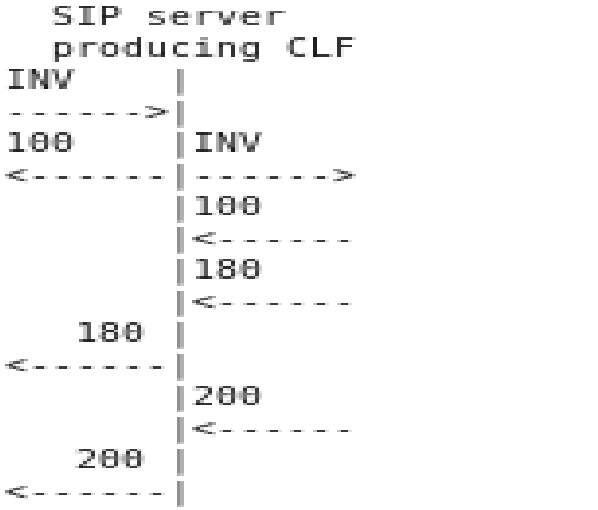

Figure 1: Simple SIP call

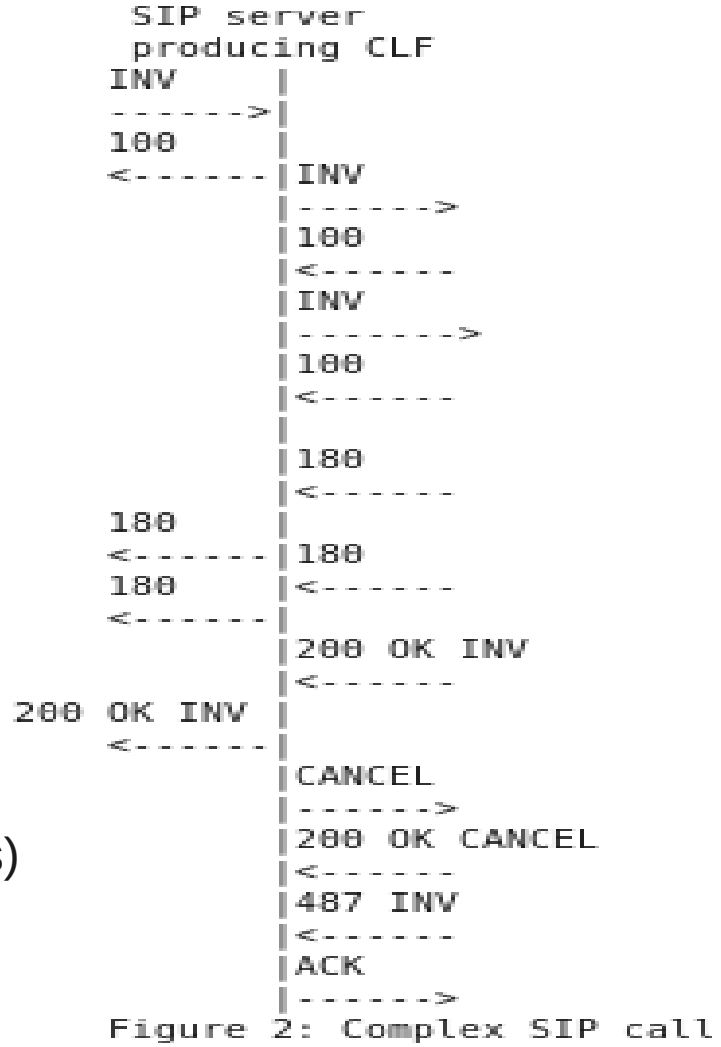

Figure 2: Complex SIP call

Figure 1: Simple proxy scenario
Figure 2: Complex proxy forking scenario (only 2 forks)
Assume no R-R, only session initiation

Back of the envelope calculations

Message generation rate

- Steady state: 300 – 1,000 INVITEs/second.
- Scenario 1: 8 messages given no retx, limited 1xx responses, no fork, no R-R.
- Scenario 2: 16 messages given no retx, limited 1xx responses, fork to 2 endpoints only, no R-R.
- CLF message generation rate (to a disk file, syslog, IPFIX, whatever):
  - Low: 2,400 messages/sec
  - High: 16,000 messages/sec
- If proxy forks to 3 endpoints: 23,000 messages/sec!

Back of the envelope calculations

CLF message bit rate

- Using Scenario 2 (the more complex of the two) for 1,000 INVITEs/sec:
  - $\sum_{i=1}^{16} len(msg_i)$ = 5,685 bytes = 45,480 bits/INVITE
  - 300 INVITEs/sec = 13.64 mbps
  - 1,000 INVITEs/sec = 45.48 mbps