A Mechanism for Transporting User to User Call Control Information in SIP

draft-johnston-cuss-sip-uui-00

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History

- Initial version draft-johnston-sipping-cc-uui-00 was submitted in 2006.

- Most of the text adopted from draft-johnston-sipping-cc-uui-09.

- Revised as draft-johnston-cuss-sip-cc-uui-00 after formation of CUSS WG
  - Added James Rafferty as co-author

Mechanism Background

- Based on the requirements and use cases in draft-johnston-cuss-cc-uui-reqs-00
- Why INFO is not used
  - INFO can only be sent in a dialog
  - Call control UUI needs to be transported at time of dialog establishment
- Why Other Protocol Encapsulation Not Used
  - Some protocols (ISDN, NSS, etc.) have UUI transport
  - If these protocols are being encapsulated, there is no need for a native SIP UUI mechanism
  - However, it is unreasonable to implement one of these protocols just to get UUI transport

Mechanism Options

- MIME body
- URI parameter
- Header field
- Others?

MIME Body

- SIP can carry any body without any extensions

- Bodies are difficult to work with in redirection and REFER scenarios (REQ-3)

- Bodies can not be removed by proxies (REQ-9)

- Bodies for UUI will require Multipart MIME when SDP is present

URI Parameter

- UUI could be carried as a URI parameter in the Request-URI

- Does not survive proxy retargeting (REQ-4)

- Does not work for terminating requests (REQ-2)

Header Field

- Just like Call-Info header field, but without URL to dereference

  – Similar to what SALUD WG is doing for Alert-Info header field

- Meets all requirements

- Multiple instances of deployed running code today

- Also need a SIP option tag to meet REQ-8

Proposed Mechanism

```
UUI = "User-to-User" HCOLON uui-data *(SEMI uui-param)
uui-data    = token
uui-param   = enc-param | cont-param | purp-param |
    generic-param
enc-param   = "encoding=" ("hex" | "IA5" | token)
cont-param  = "content=" token
purp-param  = "purpose=" token
```

- Encoding, content, and purpose require an IANA registry
- Need to define values for ISDN interworking
    - Separate draft
- Need to add quoted string for IA5 encoding

Next Steps

- More discussion of mechanism

Backup Slides

Call Flows 1

```
        Originator                    Proxy                  Terminator
            |                           |                        |
            |    INVITE (UUI) F1        |                        |
            |------------------------->|   INVITE (UUI) F2       |
            |          100 Trying F3   |----------------------->|
            |<-------------------------|          200 OK F4      |
            |             200 OK F5    |<-----------------------|
            |<-------------------------|                        |
            |  ACK F6                   |                        |
            |------------------------->|              ACK F7     |
            |                          |----------------------->|
```
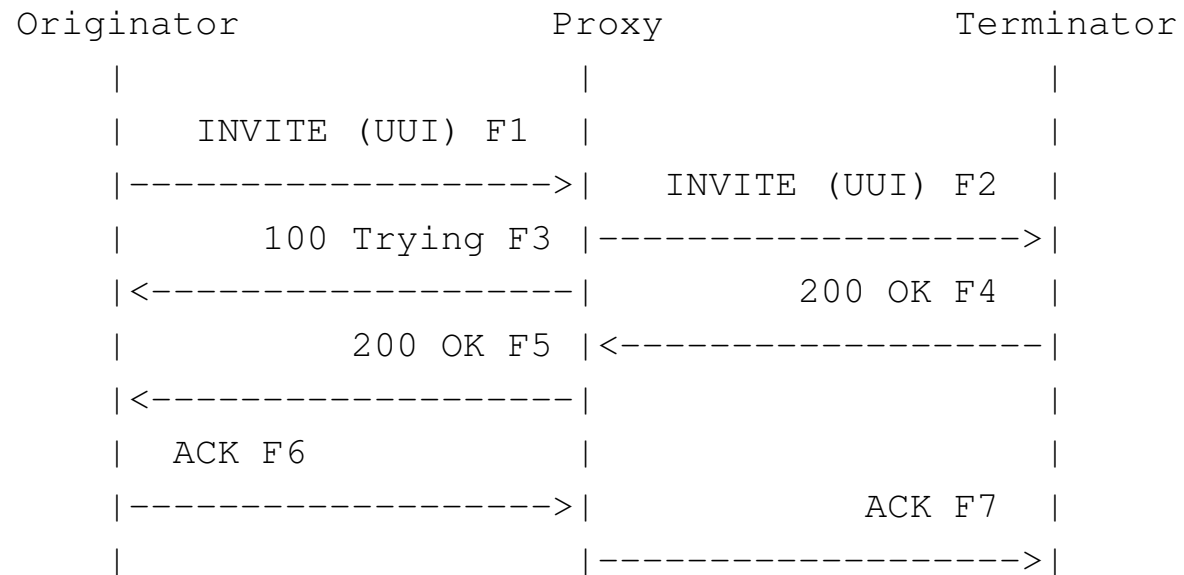
Figure 1. Call flow with UUI exchanged between Originator and
Terminator.

Call Flows 2

```
     Originator                    Proxy                   Terminator 2
         |                           |                           |
         |     INVITE (UUI) F1       |                           |
         |-------------------------->|   INVITE (UUI) F2          |
         |       100 Trying F3       |-------------------------->|
         |<-------------------------|          200 OK F4          |
         |           200 OK F5       |<-------------------------|
         |<-------------------------|                           |
         |   ACK F6                  |                           |
         |-------------------------->|            ACK F7          |
         |                           |-------------------------->|
```
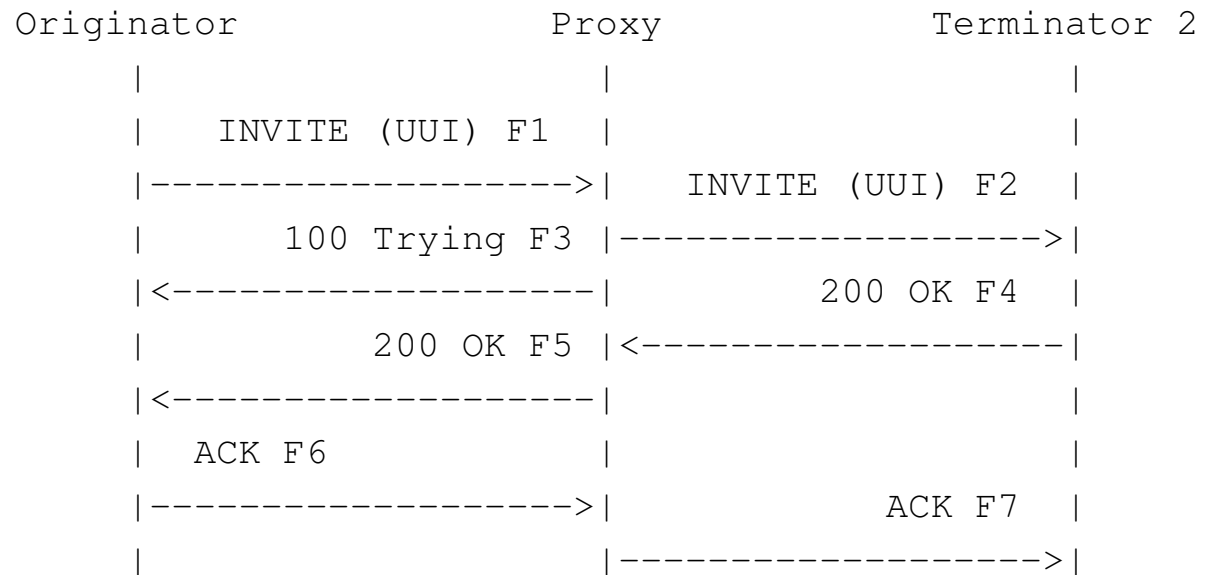
Figure 2. Call flow with Proxy Retargeting.

Call Flows 3

```
        Originator              Redirect Server          Terminator
            |                        |                        |
            |         INVITE F1      |                        |
            |----------------------->|                        |
            | 302 Moved (UUI) F2     |                        |
            |<-----------------------|                        |
            |          ACK F3        |                        |
            |----------------------->|                        |
            |   INVITE (UUI) F4      |                        |
            |------------------------------------------------>|
            |   200 OK F5                                     |
            |<------------------------------------------------|
            |   ACK F6                                        |
            |------------------------------------------------>|
```
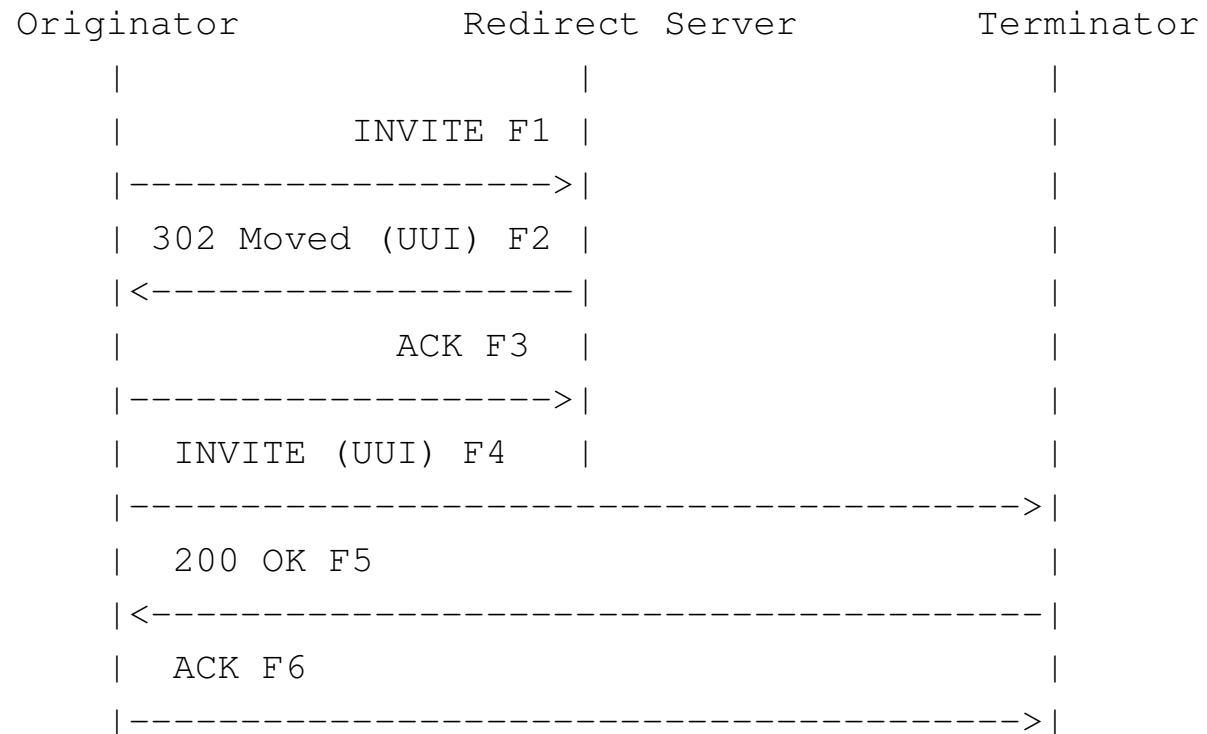
Figure 3. Call flow with UUI exchanged between Redirect Server and
Terminator

Call Flows 4

```
      Originator              Referrer              Terminator
          |                       |                      |
          |   REFER (UUI) F1      |                      |
          |<----------------------|                      |
          |   202 Accepted F2     |                      |
          |---------------------->|                      |
          | NOTIFY (100 Trying) F3                       |
          |---------------------->|                      |
          |            200 OK F4  |                      |
          |<----------------------|                      |
          |   INVITE (UUI) F5     |                      |
          |------------------------------------------------------>|
          |   200 OK F6                                  |
          |<------------------------------------------------------|
          |   ACK F7                                     |
          |------------------------------------------------------>|
          | NOTIFY (200 OK) F8 |                         |
          |---------------------->|                      |
          |            200 OK F9  |                      |
          |<----------------------|                      |
```
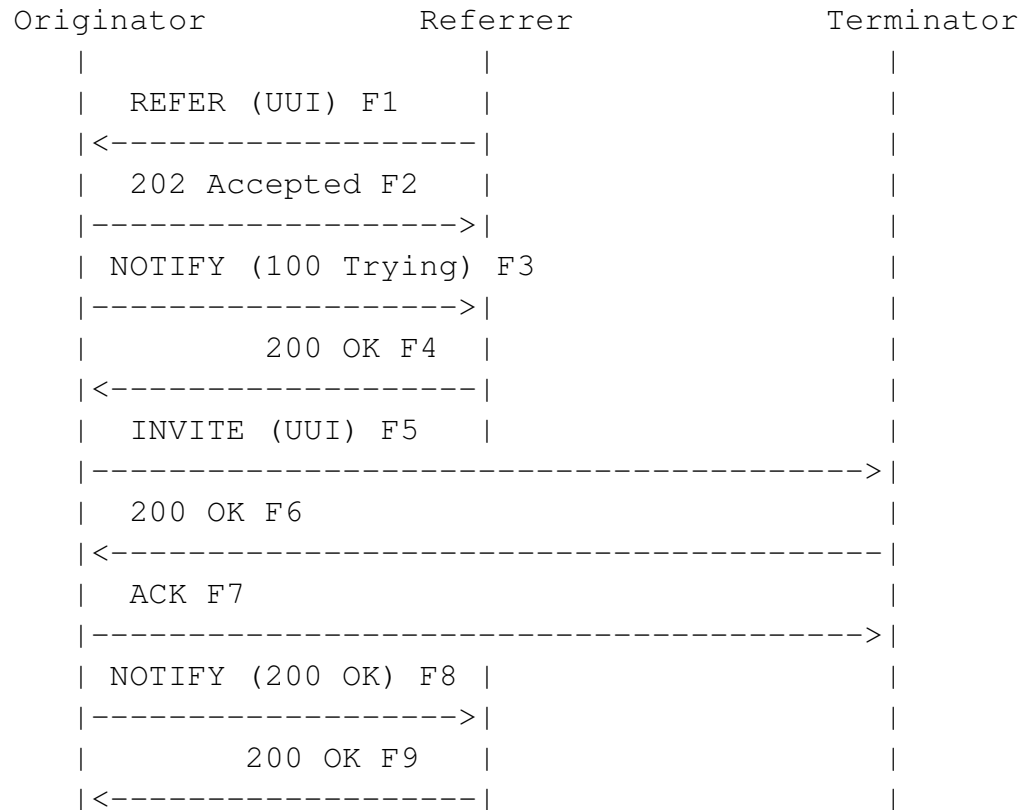
Figure 4. Call flow with transfer after answer.

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Requirements 1

- REQ-1: The mechanism will allow user agents (UAs) to insert and receive UUI data in SIP call setup requests and responses.

- REQ-2: The mechanism will allow UAs to insert and receive UUI data in SIP call teardown requests and responses.

- REQ-3: The mechanism will allow UUI to be inserted and retrieved in SIP redirects to INVITEs.

- REQ-4: The mechanism will allow UUI to be able to survive proxy retargeting.

Requirements 2

- REQ-5: The mechanism should not require processing entities to dereference a URL to retrieve the UUI information.

- REQ-6: The mechanism will minimize reliance on SIP extensions or uncommon SIP behavior.

- REQ-7: The mechanism will support interworking with call control related ITU-T Q.931 User to User Information Element (UU IE) [Q931] and ITU-T Q.763 User to User Information Parameter [Q763].

Requirements 3

- REQ-8: The mechanism will allow the inserter of UUI to be sure that the recipient understands the call control UUI mechanism.

- REQ-9: The mechanism will allow proxies to remove a particular type of UUI information from a request or response, or to block requests based on the presence of a particular type of UUI.