

CR-Form-v5

CHANGE REQUEST

⌘ **24.228 CR 62** ⌘ rev **2** ⌘ Current version: **5.0.0** ⌘
1

For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.

Proposed change affects: ⌘ (U)SIM ME/UE Radio Access Network Core Network

Title:	⌘ SS#1c update		
Source:	⌘ Siemens, Nokia, <u>Ericsson</u>		
Work item code:	⌘ IMS-CCR	Date:	⌘ <u>17-0507-06-2002</u>
Category:	⌘ F	Release:	⌘ Rel-5
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	F (correction)	2 (GSM Phase 2)	
	A (corresponds to a correction in an earlier release)	R96 (Release 1996)	
	B (addition of feature),	R97 (Release 1997)	
	C (functional modification of feature)	R98 (Release 1998)	
	D (editorial modification)	R99 (Release 1999)	
	Detailed explanations of the above categories can be found in 3GPP TR 21.900 .		REL-4 (Release 4)
			REL-5 (Release 5)

Reason for change:	⌘ SS#1c update based on CR#004
Summary of change:	⌘ See CR#004
Consequences if not approved:	⌘ 24.228 call flows are not standard compliant

Clauses affected:	⌘ 17.3.3
Other specs affected:	⌘ <input type="checkbox"/> Other core specifications ⌘ <input type="checkbox"/>
	<input type="checkbox"/> Test specifications
	<input type="checkbox"/> O&M Specifications
Other comments:	⌘

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at: http://www.3gpp.org/3G_Specs/CRs.htm. Below is a brief summary:

- 1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under <ftp://ftp.3gpp.org/specs/>. For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

17.3.3 S-S#1c

17.3.3.1 (S-S#1c) Different network operators performing origination and termination, with configuration hiding by originating network operator (MO#2, MT#2 assumed)

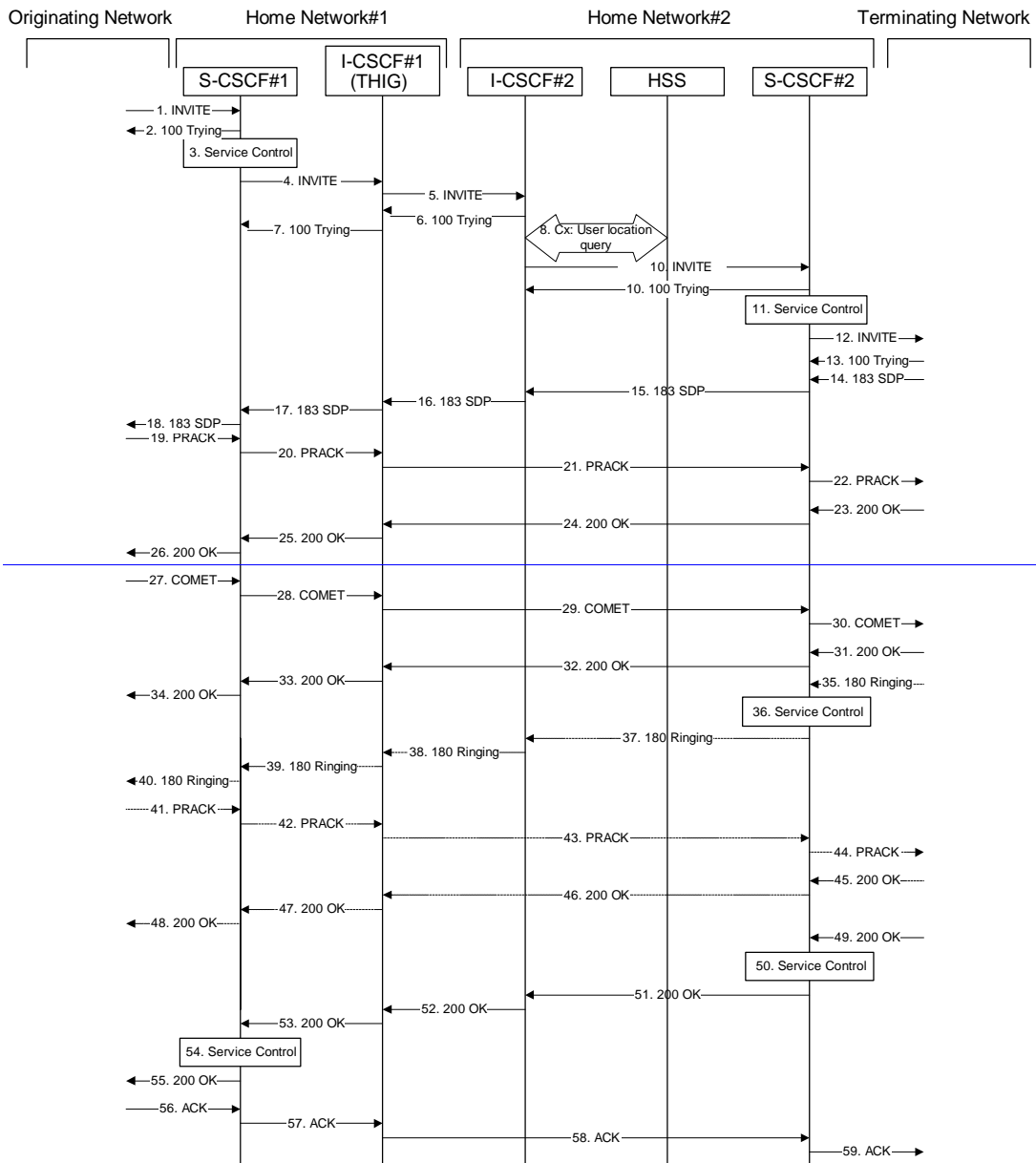
Figure 17.3.3.1-1 shows a S-CSCF handling session origination (S-CSCF#1) which performs an analysis of the destination address, and determines that it belongs to a subscriber of a different operator. The originating network operator desires to keep their configuration hidden, so forwards the request through an I-CSCF (I-CSCF#1) to a well-known entry point in the destination operator's network, I-CSCF#2. I-CSCF#2 queries the HSS for current location information, and finds the S-CSCF assigned to the subscriber (S-CSCF#2), and forwards the request to S-CSCF#2. The terminating network operator does not desire to keep their configuration hidden, so I-CSCF#2 does not insert itself into the signalling path for future exchanges.

Origination sequences that share this common S-CSCF to S-CSCF procedure are:

- MO#1a** Mobile origination, roaming, without a THIG. The "Originating Network" of S-S#1c is therefore a visited network.
- MO#1b** Mobile origination, roaming, with a THIG in home network. The "Originating Network" of S-S#1c is therefore a visited network.
- MO#2** Mobile origination, located in home service area. The "Originating Network" of S-S#1c is therefore the home network.
- CS-O** CS Networks origination. The "Originating Network" of S-S#1c is the home network. The element labeled S-CSCF#1 is the MGCF of the CS-O procedure.

Termination sequences that share this common S-CSCF to S-CSCF procedure are:

- MT#1a** Mobile termination, roaming, without a THIG. The "Terminating Network" of S-S#1c is a visited network.
- MT#1b** Mobile termination, roaming, with a THIG in home network. The "Terminating Network" of S-S#1c is a visited network.
- MT#2** Mobile termination, located in home service area. The "Terminating Network" of S-S#1c is the home network.



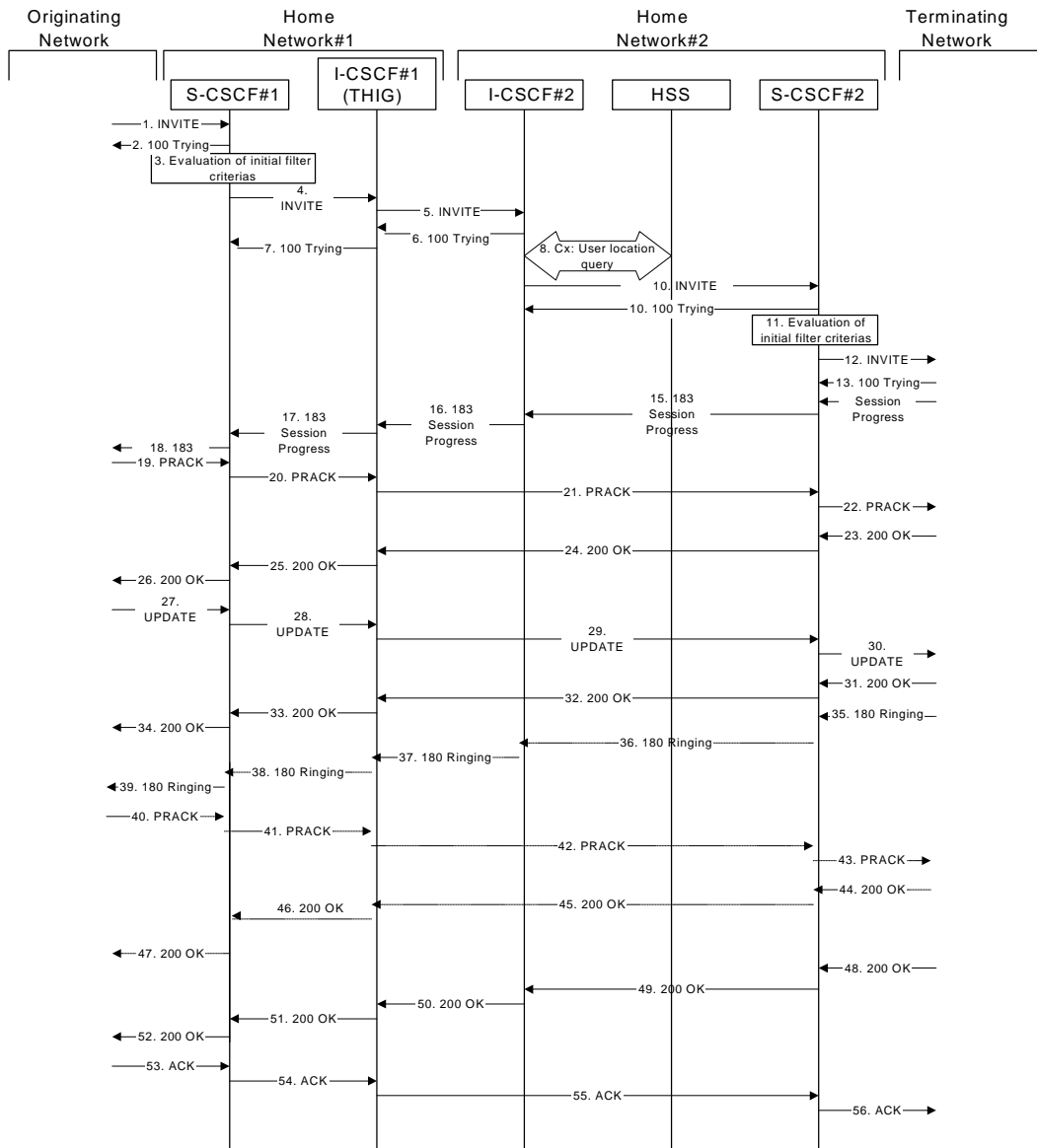


Figure 17.3.3.1-1: S-S#1c

Procedure S-S#1c is as follows:

1. INVITE (MO to S-S#1c) – see example in table 17.3.3.1-1

The INVITE request is sent from the UE to S-CSCF#1 by the procedures of the originating signalling flow.

Table 17.3.3.1-1: INVITE (MO to S-S#1c)

```
INVITE sip:+1-212-555-2222@home1.net;user=phone;scscf1.home1.net SIP/2.0
Via: SIP/2.0/UDP pcscf1.home1.net;branch=431h23.1, SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]
Max-Forwards: 69
Route: sip:scscf1.home1.net;lr+1-212-555-2222@home1.net;user=phone
Record-Route: sip:431h23.1@pcscf1.home1.net;lr
Supported: 100rel
Remote-Party-IDP-Asserted-Identity: "John Doe" <sip:user1_public1@home1.nettel:+1-212-555-1111>;privacy=off
Privacy: none
Anonymity: Off
From: "Alien Blaster" <sip:B36(SHA-1(user1_public1@home1.net; time=36123E5B; seq=72))@localhost>;tag=171828
To: sip:B36(SHA-1(+1-212-555-2222; time=36123E5B; seq=73))@localhost
Call-ID: cb03a0s09a2sdfglkj490333
Cseq: 127 INVITE
```

```

Require: precondition
Supported: 100rel
Contact: sip:[5555::aaa:bbb:ccc:ddd]
Content-Type: application/sdp
Content-Length: (...)

v=0
o=- 2987933615 2987933615 IN IP6 5555::aaa:bbb:ccc:ddd
s=-
c=IN IP6 5555::aaa:bbb:ccc:ddd
t=907165275 0
m=video 3400 RTP/AVP 99
b=AS:54.6
a=curr:goss local none
a=curr:goss remote none
a=des:goss mandatory local sendrecv
a=des:goss none remote sendrecv
a=goss+mandatory-sendrecv-
a=rtpmap:99:MPV
m=video 3402 RTP/AVP 99
b=AS:54.6
a=curr:goss local none
a=curr:goss remote none
a=des:goss mandatory local sendrecv
a=des:goss none remote sendrecv
a=goss+mandatory-sendrecv-
a=rtpmap:99:MPV
m=audio 3456 RTP/AVP 97 96 0 15
b=AS:25.4
a=curr:goss local none
a=curr:goss remote none
a=des:goss mandatory local sendrecv
a=des:goss none remote sendrecv
a=goss+mandatory-sendrecv-
a=rtpmap:97 AMR
a=fmtp:97 mode-set=0,2,5,7; maxframes=2
a=rtpmap:96 G726-32/8000
a=goss+mandatory-sendrecv-
m=audio 3458 RTP/AVP 97 96 0 15
b=AS:25.4
a=rtpmap:97 AMR
a=fmtp:97 mode-set=0,2,5,7; maxframes=2
a=rtpmap:96 G726-32/8000
a=curr:goss local none
a=curr:goss remote none
a=des:goss mandatory local sendrecv
a=des:goss none remote sendrecv
a=goss+mandatory-sendrecv-

```

2. 100 Trying (S-S#1c to MO) – see example in table 17.3.3.1-2

S-CSCF#1 responds to the INVITE request (1) with a 100 Trying provisional response.

Table 17.3.3.1-2: 100 Trying (S-S#1c to MO)

```

SIP/2.0 100 Trying
Via: SIP/2.0/UDP pcscf1.home1.net;branch=431h23.1, SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]
From:
To:
Call-ID:
CSeq:
Content-Length: 0

```

3. ~~Service Control~~ Evaluation of Filter Criteria

S-CSCF#1 validates the service profile of this subscriber, and evaluates the initial filter criterias.

performs whatever service control logic is appropriate for this session attempt.

— S-CSCF#1 examines the media parameters, and removes any choices that the subscriber does not have authority to request.

— For this example, assume the subscriber is not allowed video.

4. INVITE (S-CSCF to I-CSCF) – see example in table 17.3.3.1-4

S-CSCF#1 performs an analysis of the destination address, and determines the network operator to whom the destination subscriber belongs. Since the originating operator desires to keep their internal configuration hidden, S-CSCF#1 forwards the INVITE request to I-CSCF#1.

S-CSCF examines the media parameters, and removes any choices that the destination subscriber does not have authority to request. For this example, assume the destination subscriber is not allowed stereo, so only a single audio stream is permitted.

Table 17.3.3.1-4: INVITE (S-CSCF to I-CSCF)

```
INVITE sip:user2_public1@home2.net:sip:icscf1_s.home1.net SIP/2.0
Via: SIP/2.0/UDP sip:scscf1.home1.net SIP/2.0/UDP pcscf1.home1.net;branch=431h23.1, SIP/2.0/UDP
[5555::aaa:bbb:ccc:ddd]
Max-Forwards: 68
Route: sip:+1-212-555-2222@home1.net;user=phonesip:icscf1_s.home1.net;lr
Record-Route: sip:332b23-1@scscf1.home1.net;lr, sip:431h23-1@pcscf1.home1.net;lr
Supported:
Remote-Party-ID-Asserted-Identity: "John Doe" <tel:+1-212-555-
1111sip:user1_public1@home1.net>;privacy=off;screen=yes
Privacy: none
P-Asserted-Identity: "John Doe" <tel:+1-212-555-1111>
Privacy: none
Anonymity:
From:
To:
Call-ID:
Cseq:
Required:
Supported:
Contact:

Content-Type:
Content-Length: (...)

v=0
o=- 2987933615 2987933615 IN IP6 5555::aaa:bbb:ccc:ddd
s=-
c=IN IP6 5555::aaa:bbb:ccc:ddd
t=907165275 0
m=video 0 RTP/AVP 99
b=AS:54.6
a=curr:goss local none
a=curr:goss remote none
a=des:goss mandatory local sendrecv
a=des:goss none remote sendrecv
a=rtpmap:99:MPV
m=video 0 RTP/AVP 99
b=AS:54.6
a=curr:goss local none
a=curr:goss remote none
a=des:goss mandatory local sendrecv
a=des:goss none remote sendrecv
a=rtpmap:99:MPV
m=audio 3456 RTP/AVP 97 96 0 15
b=AS:25.4
a=curr:goss local none
a=curr:goss remote none
a=des:goss mandatory local sendrecv
a=des:goss none remote sendrecv
a=goss mandatory sendrecv
a=rtpmap:97 AMR
a=fmtp:97 mode-set=0,2,5,7; maxframes=2
a=rtpmap:96 G726-32/8000
m=audio 3458 RTP/AVP 97 96 0 15
b=AS:25.4
a=curr:goss local none
a=curr:goss remote none
a=des:goss mandatory local sendrecv
a=des:goss none remote sendrecv
a=goss mandatory sendrecv
a=rtpmap:97 AMR
a=fmtp:97 mode-set=0,2,5,7; maxframes=2
a=rtpmap:96 G726-32/8000
```

Request-URI: Set to the I-CSCF that will perform the translation needed to maintain configuration independence.

Route: Topmost Route header set to the I-CSCF that will perform the translation needed to maintain configuration independence.

Updated to cause I-CSCF to forward the request to the proper terminating network operator. In the case of a TEL-URL, it has to be translated to a globally routable SIP-URL before sending the INVITE request. For this address translation the S-CSCF may use the services of an ENUM-DNS-based database structure, or any other suitable translation database.

SDP The SDP contains the restricted set of codecs allowed by the network operator. The "m=" lines for the second audio stream shows a port number zero, which removes it from the negotiation.

Editor's Note: It remains to be clarified if the use of the word "may" in the above sentence, needs to be changed to "shall". 23.228v170 states that an S-CSCF shall support an ENUM-DNS translation mechanism, so the above text needs to be aligned with Stage 2.

5. INVITE (I-CSCF to I-CSCF) – see example in table 17.3.3.1-5

I-CSCF#1 forwards the INVITE request to I-CSCF#2.

Table 17.3.3.1-5: INVITE (I-CSCF to I-CSCF)

```
INVITE sip:user2_public1@home2.net+1-212-555-2222@home2.net;user=phone SIP/2.0
Via: SIP/2.0/UDP icscf1_s.home1.net,
     SIP/2.0/UDP Token(SIP/2.0/UDP scscf1.home1.net,
     SIP/2.0/UDP pcscf1.home1.net;branch=431h23.1)@home1.net;tokenized-by=home1.net,
     SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]+
Max-Forwards: 67
Record-Route: sip:312a32.1@icscf1_s.home1.net;lr,
              sip:Token(sip:scscf1.home1.net;lr,
              sip:431h23.1@pcscf1.home1.net;lr)@home1.net;tokenized-by=home1.net
Supported:
Remote-Party-IDP-Asserted-Identity:
Privacy:
P-Asserted-Identity:
Privacy:
Anonymity:
From:
To:
Call-ID:
Cseq:
Require:
Supported:

Contact:

Content-Type:
Content-Length:

v=
o=
s=
c=
t=
m=

b=
a=
a=
a=
a=
a=
m=
b=
a=
a=
a=
a=
a=
m=
b=
```

```

a=
a=
a=
a=
a=
a=
m=
b=
a=
a=
a=
a=
a=
a=
a=

```

Via/Record-Route: Translated to maintain configuration independence of the home#1 operator.

6. 100 Trying (I-CSCF to I-CSCF) – see example in table 17.3.3.1-6

I-CSCF#2 respond to the INVITE request (5) with a 100 Trying provisional response.

Table 17.3.3.1-6: 100 Trying (I-CSCF to I-CSCF)

```

SIP/2.0 100 Trying
Via: SIP/2.0/UDP icscf1_s.home1.net,
    SIP/2.0/UDP Token(SIP/2.0/UDP scscf1.home1.net, _SIP/2.0/UDP
    pcscf1.home1.net;branch=431h23.1)@home1.net;tokenized-by=home1.net, SIP/2.0/UDP
    [5555::aaa:bbb:ccc:ddd]
From:
To:
Call-ID:
CSeq:
Content-Length: 0

```

7. 100 Trying (I-CSCF to S-CSCF) – see example in table 17.3.3.1-7

I-CSCF#1 determines the Via header, and forwards the 100 Trying provisional response to S-CSCF#1.

Table 17.3.3.1-7: 100 Trying (I-CSCF to S-CSCF)

```

SIP/2.0 100 Trying
Via: SIP/2.0/UDP scscf1.home1.net;branch=332b23.1, SIP/2.0/UDP pcscf1.home1.net;branch=431h23.1,
    SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]
From:
To:
Call-ID:
CSeq:
Content-Length:

```

8. Cx: User Location Query procedure

The I-CSCF sends a query to the HSS to find out the S-CSCF of the called user. The HSS responds with the address of the current S-CSCF for the terminating subscriber.

For detailed message flows see 3GPP TS 29.228.

Table 7.3.2-6a provides the parameters in the SIP INVITE request (flow 5), which are sent to the HSS.

Table 7.3.2-6b provides the parameters sent from the HSS that are mapped to the SIP INVITE request (flow 9) and sent to the S-CSCF.

9. INVITE (I-CSCF to S-CSCF) – see example in table 17.3.3.1-9

I-CSCF#2 forwards the INVITE request to the S-CSCF (S-CSCF#2) that will handle the session termination.

Table 17.3.3.1-9: INVITE (I-CSCF to S-CSCF)


```

INVITE sip:user2_public1@home2.net;ip=scscf2.home2.net SIP/2.0
Via: SIP/2.0/UDP icscf2_s.home2.net, SIP/2.0/UDP icscf1_s.home1.net, SIP/2.0/UDP Token(SIP/2.0/UDP
scscf1.home1.net, SIP/2.0/UDP pcscf1.home1.net;branch=431h23.1)@home1.net;tokenized-
by=home1.net, SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]
Max-Forwards: 66
Route: sip:+1-212-555-2222@home2.net;user=phone sip:scscf2.home2.net;lr
Record-Route:
Supported:
Remote-Party-IDP-Asserted-Identity:
Privacy:
P-Asserted-Identity:
Privacy:
Anonymity:
From:
To:
Call-ID:
Cseq:
Required:
Supported:
Contact:
Content-Type:
Content-Length:

v=
o=
s=
c=
t=
m=
b=
a=
a=
a=
a=
a=
m=
b=
a=
a=
a=
a=
a=
m=
b=
a=
a=
a=
a=
a=
m=
b=
a=
a=
a=
a=
a=
a=
a=
a=
a=
a=
a=
a=
a=

```

10. 100 Trying (S-CSCF to I-CSCF) – see example in table 17.3.3.1-10

S-CSCF#2 responds to the INVITE request with a 100 Trying provisional response.

Table 17.3.3.1-10: 100 Trying (S-CSCF to I-CSCF)

```

SIP/2.0 100 Trying
Via: SIP/2.0/UDP icscf2_s.home2.net, SIP/2.0/UDP icscf1_s.home1.net, SIP/2.0/UDP Token(SIP/2.0/UDP
scscf1.home1.net, SIP/2.0/UDP pcscf1.home1.net;branch=431h23.1)@home1.net;tokenized-
by=home1.net, SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]
From:
To:
Call-ID:
CSeq:

```

Content-Length: 0

11. Service ControlEvaluation of initial filter criteria

S-CSCF#2 validates the service profile of this subscriber and evaluates the initial filter criteria.S-CSCF#2 performs whatever service control logic is appropriate for this session attempt

- S-CSCF#2 examines the media parameters, and removes any choices that the destination subscriber does not have authority to request.
- For this example, assume the destination subscriber is not allowed stereo, so only a single audio stream is permitted.

12. INVITE (S-S#1c to MT) – see example in table 17.3.3.1-12

S-CSCF#2 forwards the INVITE request, as determined by the termination procedure. S-CSCF#2 remembers (from the registration procedure) the UE Contact address and the next hop CSCF for this UE.

S-CSCF#2 examines the media parameters, and removes any choices that the destination subscriber does not have authority to request. For this example, assume the destination subscriber is not allowed stereo, so only a single audio stream is permitted.

Table 17.3.3.1-12: INVITE (S-S#1c to MT)

```
INVITE sip:[5555::eee:fff:aaa:bbb] sip:pcscf2.home2.net SIP/2.0
Via: SIP/2.0/UDP scscf2.home2.net;branch=764z87.1, SIP/2.0/UDP icscf2_s.home2.net, SIP/2.0/UDP
icscf1_s.home1.net, SIP/2.0/UDP Token(SIP/2.0/UDP scscf1.home1.net, SIP/2.0/UDP
pcscf1.home1.net;branch=431h23.1)@home1.net;tokenized-by=home1.net, SIP/2.0/UDP
[5555::aaa:bbb:ccc:ddd]+
Max-Forwards: 65
Route: sip:pcscf2.home2.net;lr sip:+1-212-555-2222@home2.net;user=phone
Record-Route: sip:764z87.1@scscf2.home2.net;lr, sip:312a32.1@icscf1_s.home1.net;lr,
sip:Token(sip:scscf1.home1.net;lr, sip:431h23.1@pcscf1.home1.net;lr)@home1.net;tokenized-
by=home1.net
Supported:
Remote-Party-IDP-Asserted-Identity:
Privacy:
P-Asserted-Identity:
Privacy:
Anonymity:
From:
To:
Call-ID:
Cseq:
Required:
Supported:
Contact:
P-Called-Party-ID: <sip:user2_public1@home2.net>
Content-Type:
Content-Length: (...)

v=0
o=- 2987933615 2987933615 IN IP6 5555::aaa:bbb:ccc:ddd
s=-
c=IN IP6 5555::aaa:bbb:ccc:ddd
t=907165275 0
m=video 0 RTP/AVP 99
m=video 0 RTP/AVP 99
m=audio 3456 RTP/AVP 97 96 0 15
b=AS:25.4
a=qos:mandatory sendrecv
a=rtpmap:97 AMR
a=fmtp:97 mode-set=0,2,5,7; maxframes=2
a=rtpmap:96 G726-32/8000
m=audio 0 RTP/AVP 97 96 0 15
```

13. 100 Trying (MT to S-S#1c) – see example in table 17.3.3.1-13

S-CSCF#2 receives a 100 Trying provisional response to the INVITE request, as specified by the termination procedures.

Table 17.3.3.1-13: 100 Trying (MT to S-S#1c)

```
SIP/2.0 100 Trying
Via: SIP/2.0/UDP scscf2.home2.net;branch=764z87.1, SIP/2.0/UDP icscf2_s.home2.net, SIP/2.0/UDP
    icscf1_s.home1.net, SIP/2.0/UDP Token(SIP/2.0/UDP scscf1.home1.net, SIP/2.0/UDP
    pcscf1.home1.net;branch=431h23.1)@home1.net;tokenized-by=home1.net, SIP/2.0/UDP
    [5555::aaa:bbb:ccc:ddd]
From:
To:
Call-ID:
CSeq:
Content-Length: 0
```

14. 183 Session Progress (MT to S-S#1c) – see example in table 17.3.3.1-14 (related to 17.3.3.1-12)

The media stream capabilities of the destination are returned along the signalling path, in a 183 Session Progress provisional response to the INVITE request, as per the termination procedure.

Table 17.3.3.1-14: 183 Session Progress (MT to S-S#1c)

```
SIP/2.0 183 Session Progress
Via: SIP/2.0/UDP scscf2.home2.net;branch=764z87.1, SIP/2.0/UDP icscf2_s.home2.net, SIP/2.0/UDP
    icscf1_s.home1.net, SIP/2.0/UDP Token(SIP/2.0/UDP scscf1.home1.net, SIP/2.0/UDP
    pcscf1.home1.net;branch=431h23.1)@home1.net;tokenized-by=home1.net, SIP/2.0/UDP
    [5555::aaa:bbb:ccc:ddd]

Record-Route: sip:876t12-1@pcscf2.home2.net;lr, sip:764z87-1@scscf2.home2.net;lr,
    sip:312a32-1@icscf1_s.home1.net;lr, sip:Token(sip:scscf1.home1.net;lr,
    sip:431h23-1@pcscf1.home1.net;lr)@home1.net;tokenized-by=home1.net
Remote-Party-IDP-Asserted-Identity: "John Smith" <sip:user2_public1@home1.nettel:+1-212-555-2222>;
privacy=off
Privacy: none
Anonymity: Off
Require: 100rel
From:
To: sip:B36(SHA-1(+1-212-555-2222; time=36123E5B; seq=73))@localhost; tag=314159
Call-ID:
CSeq:
Require: 100rel
Contact: sip:[5555::eee:fff:aaa:bbb]
RSeq: 9021
Content-Disposition: precondition
Content-Type: application/sdp
Content-Length: (...)

v=0
o=- 2987933615 2987933615 IN IP6 5555::aaa:bbb:ccc:ddd
s=-
c=IN IP6 5555::eee:fff:aaa:bbb
t=907165275 0
m=video 0 RTP/AVP 99
m=video 0 RTP/AVP 99
m=audio 6544 RTP/AVP 97
b=AS:25.4 3
a=rtpmap:97 AMR
a=fmtp:97 mode-set=0,2,5,7; maxframes=2
a=qos:mandatory sendrecv confirm
m=audio 0 RTP/AVP 97 96 0 15
```

15. 183 Session Progress (S-CSCF to I-CSCF) – see example in table 17.3.3.1-15

S-CSCF#2 forwards the 183 Session Progress provisional response to I-CSCF#2.

Table 17.3.3.1-15: 183 Session Progress (S-CSCF to I-CSCF)

```
SIP/2.0 183 Session Progress
Via: SIP/2.0/UDP icscf2_s.home2.net, SIP/2.0/UDP icscf1_s.home1.net, SIP/2.0/UDP Token(SIP/2.0/UDP
  scscf1.home1.net, SIP/2.0/UDP pcscf1.home1.net;branch=431h23.1)@home1.net;tokenized-
  by=home1.net, SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]†
Record-Route:
P-Asserted-Identity: "John Smith" <sip:user2_public1@home1.net>
Privacy: none
Remote-Party-IDP-Asserted-Identity: "John Smith" <tel:+1-212-555-2222>;privacy=off;screen=yes
Privacy: none
Anonymity:–
Require:
From:
To:
Call-ID:
CSeq:
Require:
Contact:
RSeq:
Content-Disposition:–
Content-Type:
Content-Length:

v=
o=
s=
c=
t=
m=
m=
m=
b=
a=
a=
a=
a=
a=
m=
```

16. 183 Session Progress (I-CSCF to I-CSCF) – see example in table 17.3.3.1-16

I-CSCF#2 forwards the 183 Session Progress provisional response to I-CSCF#1.

Table 17.3.3.1-16: 183 Session Progress (I-CSCF to I-CSCF)

```
SIP/2.0 183 Session Progress
Via: SIP/2.0/UDP icscf1_s.home1.net, SIP/2.0/UDP Token(SIP/2.0/UDP scscf1.home1.net, SIP/2.0/UDP
  pcscf1.home1.net;branch=431h23.1)@home1.net;tokenized-by=home1.net, SIP/2.0/UDP
  [5555::aaa:bbb:ccc:ddd]†
Record-Route:
Remote-Party-IDP-Asserted-Identity:
Privacy:
P-Asserted-Identity:
Privacy:
Anonymity:–
Require:
From:
To:
Call-ID:
CSeq:
Require:
Contact:
RSeq:
Content-Disposition:–
Content-Type:
Content-Length:

v=
o=
s=
c=
t=
m=
```

```

m=
m=
b=
a=
a=
a=
a=
a=
a=
m=

```

17. 183 Session Progress (I-CSCF to S-CSCF) – see example in table 17.3.3.1-17

I-CSCF#1 forwards the 183 Session Progress provisional response to S-CSCF#1.

Table 17.3.3.1-17: 183 Session Progress (I-CSCF to S-CSCF)

```

SIP/2.0 183 Session Progress
Via: SIP/2.0/UDP scscf1.home1.net;branch=332b23.1, SIP/2.0/UDP pcscf1.home1.net;branch=431h23.1,
    SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]
Record-Route: sip:876t12-1@pcscf2.home2.net;lr, sip:764z87-1@scscf2.home2.net;lr,
    sip:312a32-1@icscf1_s.home1.net;lr, sip:332b23-1@scscf1.home1.net;lr,
    sip:431h23-1@pcscf1.home1.net;lr
Remote-Party-IDP-Asserted-Identity:
Privacy:
P-Asserted-Identity:
Privacy:
Anonymity:-
Require+
From:
To:
Call-ID:
CSeq:
Require:
Contact:
RSeq:
Content-Disposition:-
Content-Type:
Content-Length:

v=
o=
s=
c=
t=
m=
m=
m=
b=
a=
a=
a=
a=
a=
a=
m=

```

Record-Route: I-CSCF#1 determines the entry to the right of its own entry.

Via: determined by I-CSCF#1.

18. 183 Session Progress (S-S#1c to MO) – see example in table 17.3.3.1-18

S-CSCF#1 forwards the 183 Session Progress to the originator, as per the originating procedure.

Table 17.3.3.1-18: 183 Session Progress (S-S#1c to MO)

```

SIP/2.0 183 Session Progress
Via: SIP/2.0/UDP pcscf1.home1.net;branch=431h23.1, SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]
Record-Route:
Remote-Party-IDP-Asserted-Identity:
Privacy:

```

```

P-Asserted-Identity:
Privacy:
Anonymity:-
Require:
From:
To:
Call-ID:
CSeq:
Require:
Contact:
RSeq:
Content-Disposition:-
Content-Type:
Content-Length:

v=
o=
s=
c=
t=
m=
m=
m=
b=
a=
a=
a=
a=
a=
a=
m=

```

19. PRACK (MO to S-S#1c) – see example in table 17.3.3.1-19

The originator decides the final set of media streams, and includes this information in the PRACK request sent to S-CSCF#1 by the origination procedures.

Table 17.3.3.1-19: PRACK (MO to S-S#1c)

```

PRACK sip:[5555::eee:fff:aaa:bbb] sip:scscf1.home1.net-SIP/2.0
Via: SIP/2.0/UDP pcscf1.home1.net;branch=431h23.1, SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]
Max-Forwards: 69
Route: sip:scscf1.home1.net;lr, sip:312a32-1@icscf1_s.home1.net;lr,
      sip:764z87-1@scscf2.home2.net;lr, sip:876t12-1@pcscf2.home2.net;lr, sip:[5555::eee:fff:aaa:bbb]
From: "Alien Blaster" <sip:B36(SHA-1(user1_public1@home1.net; time=36123E5B; seq=72))@localhost>;
      tag=171828
To: <sip:B36(SHA-1(555-2222; time=36123E5B; seq=73))@localhost>;tag=314159
Call-ID: cb03a0s09a2sdfglkj490333
Require: precondition
Cseq: 128 PRACK
Rack: 9021 127 INVITE
Content-Type: application/sdp
Content-Length: (...)

v=0
o=- 2987933615 2987933615 IN IP6 5555::aaa:bbb:ccc:ddd
s=-
c=IN IP6 5555::aaa:bbb:ccc:ddd
t=907165275 0
m=video 0 RTP/AVP 99
m=video 0 RTP/AVP 99
m=audio 3456 RTP/AVP 97
b=AS:25.4
a=curr:qos local none
a=curr:qos remote none
a=des:qos mandatory local sendrecv
a=des:qos none remote sendrecv
a=rtpmap:97 AMR
a=fmtp:97 mode-set=0,2,5,7; maxframes=2
a=qos+mandatory-sendrecv
m=audio 0 RTP/AVP 97 96 0 15

```

20. PRACK (S-CSCF to I-CSCF) – see example in table 17.3.3.1-20

S-CSCF#1 forwards the PRACK request to I-CSCF#1.

Table 17.3.3.1-20: PRACK (S-CSCF to I-CSCF)

```
PRACK sip:[5555::eee:fff:aaa:bbb]sip+iescf1_s.home1.net SIP/2.0
Via: SIP/2.0/UDP scscf1.home1.net;branch=332b23.1, SIP/2.0/UDP pcscf1.home1.net;branch=431h23.1,
SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]
Max-Forwards: 68
Route: sip:icscf1_s.home1.net;lr, sip:764z87.1@scscf2.home2.net;lr,
sip:876t12.1@pcscf2.home2.net;lr, sip:[5555::eee:fff:aaa:bbb]
From:
To:
Call-ID:
Cseq:
Require:
Rack:
Content-Type:
Content-Length:

v=
o=
s=
c=
t=
m=
m=
m=
b=
a=
a=
a=
m=
```

21. PRACK (I-CSCF to S-CSCF) – see example in table 17.3.3.1-21

I-CSCF#1 forwards the PRACK request to S-CSCF#2.

Table 17.3.3.1-21: PRACK (I-CSCF to S-CSCF)

```
PRACK sip:[5555::eee:fff:aaa:bbb] sip+scscf2.home2.net SIP/2.0
Via: SIP/2.0/UDP icscf1_s.home1.net, SIP/2.0/UDP Token(SIP/2.0/UDP scscf1.home1.net, SIP/2.0/UDP
pcscf1.home1.net;branch=431h23.1)@home1.net;tokenized-by=home1.net, SIP/2.0/UDP
[5555::aaa:bbb:ccc:ddd]+
Max-Forwards: 67
Route: sip:scscf2.home2.net;lr, sip:876t12.1@pcscf2.home2.net;lr, sip:[5555::eee:fff:aaa:bbb]
From:
To:
Call-ID:
Cseq:
Require:
Rack:
Content-Type:
Content-Length:

v=
o=
s=
c=
t=
m=
m=
m=
b=
a=
a=
a=
a=
a=
m=
```

22. PRACK (S-S#1c to MT) – see example in table 17.3.3.1-22

S-CSCF#2 forwards the PRACK request to the terminating endpoint, as per the termination procedure.

Table 17.3.3.1-22: PRACK (S-S#1c to MT)

```
PRACK sip:pcscf2.home2.net;lr_sip:[5555::eee:fff:aaa:bbb] SIP/2.0
Via: SIP/2.0/UDP scscf2.home2.net;branch=764z87.1, SIP/2.0/UDP icscf1_s.home1.net, SIP/2.0/UDP
Token(SIP/2.0/UDP scscf1.home1.net, SIP/2.0/UDP
pcscf1.home1.net;branch=431h23.1)@home1.net;tokenized-by=home1.net, SIP/2.0/UDP
[5555::aaa:bbb:ccc:ddd]
Max-Forwards: 66
Route: sip:pcscf2.home2.net;lr_sip:[5555::eee:fff:aaa:bbb]
From:
To:
Call-ID:
Cseq:
Require:
Rack:
Content-Type:
Content-Length:

v=
o=
s=
c=
t=
m=
m=
m=
b=
a=
a=
a=
a=
a=
a=
m=
```

23. 200 OK (MT to S-S#1c) – see example in table 17.3.3.1-23

The terminating endpoint responds to the PRACK request with a 200 OK response.

Table 17.3.3.1-23: 200 OK (MT to S-S#1c)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP scscf2.home2.net;branch=764z87.1, SIP/2.0/UDP icscf1_s.home1.net, SIP/2.0/UDP
Token(SIP/2.0/UDP scscf1.home1.net, SIP/2.0/UDP
pcscf1.home1.net;branch=431h23.1)@home1.net;tokenized-by=home1.net, SIP/2.0/UDP
[5555::aaa:bbb:ccc:ddd]
From:
To:
Call-ID:
CSeq:
Content-Type: application/sdp
Content-Length: (...)0

v=
o=
s=
c=
t=
m=
m=
m=
b=
a=
a=
a=
a=
a=
a=
m=
```

24. 200 OK (S-CSCF to I-CSCF) – see example in table 17.3.3.1-24

S-CSCF#2 forwards the 200 OK response to I-CSCF#1.

Table 17.3.3.1-24: 200 OK (S-CSCF to I-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP icscf1_s.home1.net, SIP/2.0/UDP Token(SIP/2.0/UDP scscf1.home1.net, SIP/2.0/UDP
pcscf1.home1.net;branch=431h23.1)@home1.net;tokenized-by=home1.net, SIP/2.0/UDP
[5555::aaa:bbb:ccc:ddd]
From:
To:
Call-ID:
CSeq:
Content-Type:
Content-Length:

v=
o=
s=
c=
t=
m=
m=
m=
b=
a=
a=
a=
a=
a=
a=
m=
```

25. 200 OK (I-CSCF to S-CSCF) – see example in table 17.3.3.1-25

I-CSCF#1 forwards the 200 OK response to S-CSCF#1.

Table 17.3.3.1-25: 200 OK (I-CSCF to S-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP scscf1.home1.net;branch=332b23.1, SIP/2.0/UDP pcscf1.home1.net;branch=431h23.1,
SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]
From:
To:
Call-ID:
CSeq:
Content-Type:
Content-Length:

v=
o=
s=
c=
t=
m=
m=
m=
b=
a=
a=
a=
a=
a=
a=
m=
```

Record-Route: Formed by I-CSCF#1 determining the entry to the right of its own entry.

Via: Determined by I-CSCF#1.

26. 200 OK (S-S#1c to MO) – see example in table 17.3.3.1-26

S-CSCF#1 forwards the 200 OK response to the originating endpoint.

Table 17.3.3.1-26: 200 OK (S-S#1c to MO)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP pcscf1.home1.net;branch=431h23.1, SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]
From:
To:
Call-ID:
CSeq:
Content-Type:
Content-Length:

v=
o=
s=
c=
t=
m=
m=
m=
b=
a=
a=
a=
a=
a=
a=
m=
```

27. **COMETUPDATE** (MO to S-S#1c) – see example in table 17.3.3.1-27

When the originating endpoint has completed the resource reservation procedures, it sends the **COMETUPDATE** request to S-CSCF#1 by the origination procedures.

Table 17.3.3.1-27: COMETUPDATE (MO to S-S#1c)

```
COMETUPDATE sip:[5555::eee:fff:aaa:bbb] sip:sescf1.home1.net SIP/2.0
Via: SIP/2.0/UDP pcscf1.home1.net;branch=431h23.1, SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]
Max-Forwards: 69
Route: sip:scscf1.home1.net;lr, sip:312a32-1@icscf1_s.home1.net;lr,
      sip:764z87-1@scscf2.home2.net;lr, sip:876t12-1@pcscf2.home2.net;lr, sip:[5555::eee:fff:aaa:bbb]
From: "Alien Blaster" <sip:B36(SHA-1(user1_public1@home1.net; time=36123E5B; seq=72))@localhost>;
      tag=171828
To: <sip:B36(SHA-1(555-2222; time=36123E5B; seq=73))@localhost>;tag=314159
Call-ID: cb03a0s09a2sdfglkj490333
Cseq: 129 COMETUPDATE
Content-Type: application/sdp
Content-Length: (...)

v=0
o=- 2987933615 2987933615 IN IP6 5555::aaa:bbb:ccc:ddd
s=-
c=IN IP6 5555::aaa:bbb:ccc:ddd
t=907165275 0
m=video 0 RTP/AVP 99
m=video 0 RTP/AVP 99
m=audio 3456 RTP/AVP 97
b=AS:25.4
a=curr:gqos local none
a=curr:gqos remote none
a=des:gqos mandatory local sendrecv
a=des:gqos none remote sendrecv
a=rtptime:97 AMR
a=fmtp:97 mode-set=0,2,5,7; maxframes=2
a=gqos+success-sendonly
m=audio 0 RTP/AVP 97 96 0 15
```

28. **COMETUPDATE** (S-CSCF to I-CSCF) – see example in table 17.3.3.1-28

S-CSCF#1 forwards the **COMETUPDATE** request to I-CSCF#1.

Table 17.3.3.1-28: COMETUPDATE (S-CSCF to I-CSCF)

```

COMETUPDATE sip:[5555::eee:fff:aaa:bbb]sip:icscf1_s.home1.net SIP/2.0
Via: SIP/2.0/UDP scscf1.home1.net;branch=332b23.1, SIP/2.0/UDP pcscf1.home1.net;branch=431h23.1,
SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]
Max-Forwards: 68
Route: sip:icscf1_s.home1.net;lr, sip:764z87.1@scscf2.home2.net;lr,
sip:876t12.1@pcscf2.home2.net;lr, sip:[5555::eee:fff:aaa:bbb]
From:
To:
Call-ID:
Cseq:
Content-Type:
Content-Length:

v=
o=
s=
c=
t=
m=
m=
m=
b=
a=
a=
a=
a=
a=
m=

```

29. **COMETUPDATE (I-CSCF to S-CSCF)** – see example in table 17.3.3.1-29

I-CSCF#1 forwards the **COMETUPDATE** request to S-CSCF#2.

Table 17.3.3.1-29: COMETUPDATE (I-CSCF to S-CSCF)

```

COMETUPDATE sip:[5555::eee:fff:aaa:bbb] sip:scscf2.home2.net SIP/2.0
Via: SIP/2.0/UDP icscf1_s.home1.net, SIP/2.0/UDP Token(SIP/2.0/UDP scscf1.home1.net, SIP/2.0/UDP
pcscf1.home1.net;branch=431h23.1)@home1.net;tokenized-by=home1.net, SIP/2.0/UDP
[5555::aaa:bbb:ccc:ddd]+
Max-Forwards: 67
Route: sip:scscf2.home2.net;lr, sip:876t12.1@pcscf2.home2.net;lr, sip:[5555::eee:fff:aaa:bbb]
From:
To:
Call-ID:
Cseq:
Content-Type:
Content-Length:

v=
o=
s=
c=
t=
m=
m=
m=
b=
a=
a=
a=
a=
m=

```

30. **COMETUPDATE (S-S#1c to MT)** – see example in table 17.3.3.1-30

S-CSCF#2 forwards the **COMETUPDATE** request to the terminating endpoint, as per the termination procedure.

Table 17.3.3.1-30: COMETUPDATE (S-S#1c to MT)

```

COMETUPDATE sip:[5555::eee:fff:aaa:bbb] sip:pcscf2.home2.net SIP/2.0

```

```

Via: SIP/2.0/UDP scscf2.home2.net;branch=764z87.1, SIP/2.0/UDP icscf1_s.home1.net, SIP/2.0/UDP
Token(SIP/2.0/UDP scscf1.home1.net, SIP/2.0/UDP
pcscf1.home1.net;branch=431h23.1)@home1.net;tokenized-by=home1.net, SIP/2.0/UDP
[5555::aaa:bbb:ccc:ddd]
Max-Forwards: 66
Route: sip:pcscf2.home2.net;lr_sip:[5555::eee+fff+aaa+bbb]
From:
To:
Call-ID:
Cseq:
Content-Type:
Content-Length:

v=
o=
s=
c=
t=
m=
m=
m=
b=
a=
a=
a=
m=

```

31. 200 OK (MT to S-S#1c) – see example in table 17.3.3.1-31

The terminating endpoint responds to the **COMETUPDATE** request with a 200 OK response.

Table 17.3.3.1-31: 200 OK (MT to S-S#1c)

```

SIP/2.0 200 OK
Via: SIP/2.0/UDP scscf2.home2.net;branch=764z87.1, SIP/2.0/UDP icscf1_s.home1.net, SIP/2.0/UDP
Token(SIP/2.0/UDP scscf1.home1.net, SIP/2.0/UDP
pcscf1.home1.net;branch=431h23.1)@home1.net;tokenized-by=home1.net, SIP/2.0/UDP
[5555::aaa:bbb:ccc:ddd]
From:
To:
Call-ID:
CSeq:
Content-Type: application/sdp
Content-Length: (...)
v=
o=
s=
c=
t=
m=
m=
m=
b=
a=
a=
a=
m=

```

32. 200 OK (S-CSCF to I-CSCF) – see example in table 17.3.3.1-32

S-CSCF#2 forwards the 200 OK response to I-CSCF#1.

Table 17.3.3.1-32: 200 OK (S-CSCF to I-CSCF)

```

SIP/2.0 200 OK
Via: SIP/2.0/UDP icscf1_s.home1.net, SIP/2.0/UDP Token(SIP/2.0/UDP scscf1.home1.net, SIP/2.0/UDP
pcscf1.home1.net;branch=431h23.1)@home1.net;tokenized-by=home1.net, SIP/2.0/UDP
[5555::aaa:bbb:ccc:ddd]
From:
To:
Call-ID:
CSeq:

```

```

Content-Type:
Content-Length:

V=
O=
S=
C=
t=
m=
m=
m=
b=
a=
a=
a=
m=

```

33. 200 OK (I-CSCF to S-CSCF) – see example in table 17.3.3.1-33

I-CSCF#1 forwards the 200 OK response to S-CSCF#1.

Table 17.3.3.1-33: 200 OK (I-CSCF to S-CSCF)

```

SIP/2.0 200 OK
Via: SIP/2.0/UDP scscf1.home1.net;branch=332b23.1, SIP/2.0/UDP pcscf1.home1.net;branch=431h23.1,
    SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]
From:
To:
Call-ID:
CSeq:
Content-Type:
Content-Length:

V=
O=
S=
C=
t=
m=
m=
m=
b=
a=
a=
a=
m=

```

Via: Determined by I-CSCF#1.

34. 200 OK (S-S#1c to MO) – see example in table 17.3.3.1-34

S-CSCF#1 forwards the 200 OK response to the originating endpoint.

Table 17.3.3.1-34: 200 OK (S-S#1c to MO)

```

SIP/2.0 200 OK
Via: SIP/2.0/UDP pcscf1.home1.net;branch=431h23.1, SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]
From:
To:
Call-ID:
CSeq:
Content-Type:
Content-Length:

V=
O=
S=
C=
t=
m=
m=
m=
b=

```

a
a
a
m

35. 180 Ringing (MT to S-S#1c) – see example in table 17.3.3.1-35 (related to table 17.3.3.1-12)

The terminating endpoint may optionally send a 180 Ringing provisional response indicating alerting is in progress. This response is sent by the termination procedure to S-CSCF#2.

Table 17.3.3.1-35: 180 Ringing (MT to S-S#1c)

```
SIP/2.0 180 Ringing
Via: SIP/2.0/UDP scscf2.home2.net;branch=764z87.1, SIP/2.0/UDP icscf2_s.home2.net, SIP/2.0/UDP
icscf1_s.home1.net, SIP/2.0/UDP Token(SIP/2.0/UDP scscf1.home1.net, SIP/2.0/UDP
pcscf1.home1.net;branch=431h23.1)@home1.net;tokenized-by=home1.net, SIP/2.0/UDP
[5555::aaa:bbb:ccc:ddd]
Record-Route: sip:876t12-1@pcscf2.home2.net;lr, sip:764z87-1@scscf2.home2.net;lr,
sip:312a32-1@icscf1_s.home1.net;lr, sip:Token(sip:scscf1.home1.net;lr,
sip:431h23-1@pcscf1.home1.net;lr)@home1.net;tokenized-by=home1.net
Require: 100rel
From:
To:
Call-ID:
CSeq:
Require: 100rel
Contact: sip:[5555::eee:fff:aaa:bbb]
RSeq: 9022
Content-Length: 0
```

36. Session Control

367. 180 Ringing (S-CSCF to I-CSCF) – see example in table 17.3.3.1-367

S-CSCF#2 forwards the 180 Ringing response to I-CSCF#2.

Table 17.3.3.1-367: 180 Ringing (S-CSCF to I-CSCF)

```
SIP/2.0 180 Ringing
Via: SIP/2.0/UDP icscf2_s.home2.net, SIP/2.0/UDP icscf1_s.home1.net, SIP/2.0/UDP Token(SIP/2.0/UDP
scscf1.home1.net, SIP/2.0/UDP pcscf1.home1.net;branch=431h23.1)@home1.net;tokenized-
by=home1.net, SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]
Record-Route:
Require:
From:
To:
Call-ID:
CSeq:
Require:
Contact:
RSeq:
Content-Length:
```

378. 180 Ringing (I-CSCF to I-CSCF) – see example in table 17.3.3.1-378

I-CSCF#2 forwards the 180 Ringing response to I-CSCF#1.

Table 17.3.3.1-378: 180 Ringing (I-CSCF to I-CSCF)

```
SIP/2.0 180 Ringing
Via: SIP/2.0/UDP icscf1_s.home1.net, SIP/2.0/UDP Token(SIP/2.0/UDP scscf1.home1.net, SIP/2.0/UDP
pcscf1.home1.net;branch=431h23.1)@home1.net;tokenized-by=home1.net, SIP/2.0/UDP
[5555::aaa:bbb:ccc:ddd]
Record-Route:
Require:
From:
To:
Call-ID:
CSeq:
Require:
```

```
Contact:
RSeq:
Content-Length:
```

389. 180 Ringing (I-CSCF to S-CSCF) – see example in table 17.3.3.1-389

I-CSCF#1 forwards the 180 Ringing response to S-CSCF#1.

Table 17.3.3.1-389: 180 Ringing (I-CSCF to S-CSCF)

```
SIP/2.0 180 Ringing
Via: SIP/2.0/UDP scscf1.home1.net;branch=332b23.1, SIP/2.0/UDP pcscf1.home1.net;branch=431h23.1,
    SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]
Record-Route: sip:876t12-1@pcscf2.home2.net;lr, sip:764z87-1@scscf2.home2.net;lr,
    sip:312a32-1@icscf1_s.home1.net;lr, sip:332b23-1@scscf1.home1.net;lr,
    sip:431h23-1@pcscf1.home1.net;lr
Require:
From:
To:
Call-ID:
CSeq:
Require:
Contact:
RSeq:
Content-Length:
```

Record-Route: Formed by I-CSCF#1 determining the entry to the right of its own entry.

Via: Determined by I-CSCF#1.

3940. 180 Ringing (S-S#1c to MO) – see example in table 17.3.3.1-3940

S-CSCF#1 forwards the 180 Ringing response to the originator, per the origination procedure.

Table 17.3.3.1-3940: 180 Ringing (S-S#1c to MO)

```
SIP/2.0 180 Ringing
Via: SIP/2.0/UDP pcscf1.home1.net;branch=431h23.1, SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]
Record-Route:
Require:
From:
To:
Call-ID:
CSeq:
Require:
Contact:
RSeq:
Content-Length:
```

4041. PRACK (MO to S-S#1c) – see example in table 17.3.3.1-401

The originator acknowledges the 180 Ringing provisional response (3940) with a PRACK request.

Table 17.3.3.1-401: PRACK (MO to S-S#1c)

```
PRACK sip:[5555::eee:fff:aaa:bbb] sip+scscf1.home1.net SIP/2.0
Via: SIP/2.0/UDP pcscf1.home1.net;branch=431h23.1, SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]
Max-Forwards: 69
Route: sip:scscf1.home1.net;lr, sip:312a32-1@icscf1_s.home1.net;lr,
    sip:764z87-1@scscf2.home2.net;lr, sip:876t12-1@pcscf2.home2.net;lr, sip:[5555::eee:fff:aaa:bbb]
From: "Alien Blaster" <sip:B36(SHA-1(user1_public1@home1.net; time=36123E5B; seq=72))@localhost>;
    tag=171828
To: <sip:B36(SHA-1(555-2222; time=36123E5B; seq=73))@localhost>;tag=314159
Call-ID: cb03a0s09a2sdfglkj490333
Cseq: 130 PRACK
Rack: 9022 127 INVITE
Content-Length: 0
```

412. PRACK (S-CSCF to I-CSCF) – see example in table 17.3.3.1-412

S-CSCF#1 forwards the PRACK request to I-CSCF#1.

Table 17.3.3.1-412: PRACK (S-CSCF to I-CSCF)

```
PRACK sip:[5555::eee:fff:aaa:bbb] sip:icscf1_s.home1.net SIP/2.0
Via: SIP/2.0/UDP scscf1.home1.net;branch=332b23.1, SIP/2.0/UDP pcscf1.home1.net;branch=431h23.1,
SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]
Max-Forwards: 68
Route: sip:icscf1_s.home1.net;lr, sip:764z87.1@scscf2.home2.net;lr,
sip:876t12.1@pcscf2.home2.net;lr, sip:[5555::eee:fff:aaa:bbb]
From:
To:
Call-ID:
Cseq:
Rack:
Content-Length:
```

423. PRACK (I-CSCF to I-CSCF) – see example in table 17.3.3.1-423

I-CSCF#1 forwards the PRACK request to S-CSCF#2.

Table 17.3.3.1-423: PRACK (I-CSCF to S-CSCF)

```
PRACK sip:[5555::eee:fff:aaa:bbb] sip:scscf2.home2.net SIP/2.0
Via: SIP/2.0/UDP icscf1_s.home1.net, SIP/2.0/UDP Token(SIP/2.0/UDP scscf1.home1.net, SIP/2.0/UDP
pcscf1.home1.net;branch=431h23.1)@home1.net;tokenized-by=home1.net, SIP/2.0/UDP
[5555::aaa:bbb:ccc:ddd]
Max-Forwards: 67
Route: sip:scscf2.home2.net;lr, sip:876t12.1@pcscf2.home2.net;lr, sip:[5555::eee:fff:aaa:bbb]
From:
To:
Call-ID:
Cseq:
Require:
Rack:
Content-Length:
```

434. PRACK (S-S#1c to MT) – see example in table 17.3.3.1-434

S-CSCF#2 forwards the PRACK request to the terminating endpoint.

Table 17.3.3.1-434: PRACK (S-S#1c to MT)

```
PRACK sip:[5555::eee:fff:aaa:bbb] sip:pcscf2.home2.net SIP/2.0
Via: SIP/2.0/UDP scscf2.home2.net;branch=764z87.1, SIP/2.0/UDP icscf1_s.home1.net;branch=312a32.1,
SIP/2.0/UDP Token(SIP/2.0/UDP scscf1.home1.net, SIP/2.0/UDP
pcscf1.home1.net;branch=431h23.1)@home1.net;tokenized-by=home1.net, SIP/2.0/UDP
[5555::aaa:bbb:ccc:ddd]
Max-Forwards: 66
Route: sip:pcscf2.home2.net;lr sip:[5555::eee:fff:aaa:bbb]
From:
To:
Call-ID:
Cseq:
Rack:
Content-Length:
```

445. 200 OK (MT to S-S#1c) – see example in table 17.3.3.1-445

The terminating endpoint responds to the PRACK request (434) with a 200 OK response.

Table 17.3.3.1-445: 200 OK (MT to S-S#1c)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP scscf2.home2.net;branch=764z87.1, SIP/2.0/UDP icscf1_s.home1.net, SIP/2.0/UDP
Token(SIP/2.0/UDP scscf1.home1.net, SIP/2.0/UDP
```



```
pcscf1.home1.net;branch=431h23.1)@home1.net;tokenized-by=home1.net, SIP/2.0/UDP
[5555::aaa:bbb:ccc:ddd]↵
From:
To:
Call-ID:
CSeq:
Content-Length: 0
```

456. 200 OK (S-CSCF to I-CSCF) – see example in table 17.3.3.1-456

S-CSCF#2 forwards the 200 OK response to I-CSCF#1.

Table 17.3.3.1-456: 200 OK (S-CSCF to I-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP icscf1_s.home1.net, SIP/2.0/UDP Token(SIP/2.0/UDP scscf1.home1.net, SIP/2.0/UDP
pcscf1.home1.net;branch=431h23.1)@home1.net;tokenized-by=home1.net, SIP/2.0/UDP
[5555::aaa:bbb:ccc:ddd]↵
From:
To:
Call-ID:
CSeq:
Content-Length:
```

467. 200 OK (I-CSCF to S-CSCF) – see example in table 17.3.3.1-467

I-CSCF#1 forwards the 200 OK response to S-CSCF#1.

Table 17.3.3.1-467: 200 OK (I-CSCF to S-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP scscf1.home1.net;branch=332b23.1, SIP/2.0/UDP pcscf1.home1.net;branch=431h23.1,
SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]
From:
To:
Call-ID:
CSeq:
Content-Length:
```

Via: Determined by I-CSCF#1.

478. 200 OK (S-S#1c to MO) – see example in table 17.3.3.1-478

S-CSCF#1 forwards the 200 OK response to the originating endpoint.

Table 17.3.3.1-478: 200 OK (S-S#1c to MO)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP pcscf1.home1.net;branch=431h23.1, SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]
From:
To:
Call-ID:
CSeq:
Content-Length:
```

489. 200 OK (MT to S-S#1c) – see example in table 17.3.3.1-489 (related to 17.3.3.1-13)

The final response to the INVITE (13), 200 OK, is sent by the terminating endpoint over the signalling path. This is typically generated when the subscriber has accepted the incoming session attempt. The response is sent to S-CSCF#2 per the termination procedure.

Table 17.3.3.1-489: 200 OK (MT to S-S#1c)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP scscf2.home2.net;branch=764z87.1, SIP/2.0/UDP icscf2_s.home2.net;branch=871y12.1,
SIP/2.0/UDP icscf1_s.home1.net, SIP/2.0/UDP Token(SIP/2.0/UDP scscf1.home1.net, SIP/2.0/UDP
pcscf1.home1.net;branch=431h23.1)@home1.net;tokenized-by=home1.net, SIP/2.0/UDP
[5555::aaa:bbb:ccc:ddd])
Record-Route: sip:876t12-1@pcscf2.home2.net;lr, sip:764z87-1@scscf2.home2.net;lr,
sip:312a32-1@icscf1_s.home1.net;lr, sip:Token(sip:scscf1.home1.net;lr,
sip:431h23-1@pcscf1.home1.net;lr)@home1.net;tokenized-by=home1.net
From:
To:
Call-ID:
CSeq: 127 INVITE
Contact: sip:[5555::eee:fff:aaa:bbb]
Content-Type: application/sdp
Content-Length: (...)

v=0
o=- 2987933615 2987933615 IN IP6 5555::aaa:bbb:ccc:ddd
s=-
e=IN IP6 5555::eee:fff:aaa:bbb
t=907165275-0
m=video 0 RTP/AVP 99
m=video 0 RTP/AVP 99
m=audio 6544 RTP/AVP 97
b=AS:25.4
a=rtpmap:97 AMR
a=fmtp:97 mode-set=0,2,5,7;maxframes=2
a=qos+success-sendrecv
m=audio 0 RTP/AVP 97 96 0 15
```

50. Service Control

— S-CSCF#2 performs whatever service control logic is appropriate for this session completion.

4951. 200 OK (S-CSCF to I-CSCF) – see example in table 17.3.3.1-4951

The 200 OK response is forwarded to the I-CSCF#2.

Table 17.3.3.1-4954: 200 OK (S-CSCF to I-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP icscf2_s.home2.net, SIP/2.0/UDP icscf1_s.home1.net, SIP/2.0/UDP Token(SIP/2.0/UDP
scscf1.home1.net, SIP/2.0/UDP pcscf1.home1.net;branch=431h23.1)@home1.net;tokenized-
by=home1.net, SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd])
Record-Route:
From:
To:
Call-ID:
CSeq:
Contact:
Content-Type:
Content-Length:

v=
o=
s=
e=
t=
m=
m=
m=
b=
a=
a=
a=
m=
```

502. 200 OK (I-CSCF to I-CSCF) – see example in table 17.3.3.1-502

The 200 OK response is forwarded to I-CSCF#1.

Table 17.3.3.1-502: 200 OK (I-CSCF to I-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP icscf1_s.home1.net, SIP/2.0/UDP Token(sip:scscf1.home1.net, SIP/2.0/UDP
    pcscf1.home1.net;branch=431h23.1)@home1.net;tokenized-by=home1.net, SIP/2.0/UDP
    [5555::aaa:bbb:ccc:ddd]+
Record-Route:
From:
To:
Call-ID:
CSeq:
Contact:
Content-Type:
Content-Length:

v=
o=
s=
e=
t=
m=
m=
m=
b=
a=
a=
a=
m=
```

513. 200 OK (I-CSCF to S-CSCF) – see example in table 17.3.3.1-513

The 200 OK response is forwarded to S-CSCF#1.

Table 17.3.3.1-513: 200 OK (I-CSCF to S-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP scscf1.home1.net;branch=332b23.1, SIP/2.0/UDP pcscf1.home1.net;branch=431h23.1,
    SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]
Record-Route: sip:876t12.1@pcscf2.home2.net;lr, sip:764z87.1@scscf2.home2.net;lr,
    sip:312a32.1@icscf1_s.home1.net;lr, sip:332b23.1@scscf1.home1.net;lr,
    sip:431h23.1@pcscf1.home1.net;lr
From:
To:
Call-ID:
CSeq:
Contact:
Content-Type:
Content-Length:

v=
o=
s=
e=
t=
m=
m=
m=
b=
a=
a=
a=
m=
```

Record-Route: Formed by I-CSCF#1 determining the entry to the right of its own entry.

Via: Determined by I-CSCF#1.

54. Service Control

— S-CSCF#1 performs whatever service control logic is appropriate for this session completion.

525. 200 OK (S-S#1c to MO) – see example in table 17.3.3.1-525

The 200 OK response is returned to the originating endpoint, by the origination procedure.

Table 17.3.3.1-525: 200 OK (S-S#1c to MO)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP pcscf1.home1.net;branch=431h23.1, SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]
Record-Route:
From:
To:
Call-ID:
CSeq:
Contact:
Content-Type:
Content-Length:

v=
o=
s=
e=
t=
m=
m=
m=
b=
a=
a=
m=
```

536. ACK (MO to S-S#1c) – see example in table 17.3.3.1-536

The originating endpoint sends the final acknowledgement to S-CSCF#1 by the origination procedures.

Table 17.3.3.1-536: ACK (MO to S-S#1c)

```
ACK sip:[5555::eee:fff:aaa:bbb]sip:scscf1.home1.net SIP/2.0
Via: SIP/2.0/UDP pcscf1.home1.net;branch=431h23.1, SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]
Max-Forwards: 69
Route: sip:scscf1.home1.net;lr, sip:312a32.1@icscf1_s.home1.net;lr,
      sip:764z87.1@scscf2.home2.net;lr, sip:876t12.1@pcscf2.home2.net;lr, sip:[5555::eee:fff:aaa:bbb]
From: "Alien Blaster" <sip:B36(SHA-1(user1_public1@home1.net; time=36123E5B; seq=72))@localhost>;
      tag=171828
To: <sip:B36(SHA-1(555-2222; time=36123E5B; seq=73))@localhost>;tag=314159
Call-ID: cb03a0s09a2sdfglkj490333
Cseq: 127 ACK
Content-Length: 0
```

547. ACK (S-CSCF to I-CSCF) – see example in table 17.3.3.1-547

S-CSCF#1 forwards the ACK request to I-CSCF#1.

Table 17.3.3.1-547: ACK (S-CSCF to I-CSCF)

```
ACK sip:[5555::eee:fff:aaa:bbb]sip:iescf1_s.home1.net SIP/2.0
Via: SIP/2.0/UDP scscf1.home1.net;branch=332b23.1, SIP/2.0/UDP pcscf1.home1.net;branch=431h23.1,
      SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]
Max-Forwards: 68
Route: sip:icscf1_s.home1.net;lr, sip:764z87.1@scscf2.home2.net;lr,
      sip:876t12.1@pcscf2.home2.net;lr, sip:[5555::eee:fff:aaa:bbb]
From:
To:
Call-ID:
Cseq:
Content-Length:
```

558. ACK (I-CSCF to S-CSCF) – see example in table 17.3.3.1-558

I-CSCF#1 forwards the ACK request to S-CSCF#2.

Table 17.3.3.1-558: ACK (I-CSCF to S-CSCF)

```
ACK sip:[5555::eee:fff:aaa:bbb] sip:scscf2.home2.net SIP/2.0
Via: SIP/2.0/UDP icscf1_s.home1.net, SIP/2.0/UDP Token(SIP/2.0/UDP scscf1.home1.net, SIP/2.0/UDP
pcscf1.home1.net;branch=431h23.1)@home1.net;tokenized-by=home1.net, SIP/2.0/UDP
[5555::aaa:bbb:ccc:ddd]+
Max-Forwards: 67
Route: sip:scscf2.home2.net;lr, sip:876t12.1@pcscf2.home2.net;lr, sip:[5555::eee:fff:aaa:bbb]
From:
To:
Call-ID:
Cseq:
Content-Length:
```

569. ACK (S-S#1c to MT) – see example in table 17.3.3.1-569

S-CSCF#2 forwards the ACK request to the terminating endpoint, as per the termination procedure.

Table 17.3.3.1-569: ACK (S-S#1c to MT)

```
ACK sip:[5555::eee:fff:aaa:bbb] sip:pcscf2.home2.net SIP/2.0
Via: SIP/2.0/UDP scscf2.home2.net;branch=764z87.1, SIP/2.0/UDP icscf1_s.home1.net, SIP/2.0/UDP
Token(SIP/2.0/UDP scscf1.home1.net, SIP/2.0/UDP
pcscf1.home1.net;branch=431h23.1)@home1.net;tokenized-by=home1.net, SIP/2.0/UDP
[5555::aaa:bbb:ccc:ddd]+
Route: sip:pcscf2.home2.net;lr sip:[5555::eee:fff:aaa:bbb]
From:
To:
Call-ID:
Cseq:
Content-Length:
```

17.3.3.2 Termination failure (not provided)

An example of this flow is not shown in the present document.

17.3.3.3 Origination failure (not provided)

An example of this flow is not shown in the present document.