Source: **TSG SA WG2**
Title: **CRs on 23.228 (IMS Stage 2)**
Agenda Item: **7.2.3**

The following Change Requests (CRs) have been approved by TSG SA WG2 and are requested to be approved by TSG SA plenary #24.
Note: the source of all these CRs is now S2, even if the name of the originating company(ies) is still reflected on the cover page of all the attached CRs.

S2 doc #	Title	Spec	CR #	cat	Version in	REL	WI	S2 meeting	Clauses affected
S2-042195	Session based messaging corrections to align with draft-ietf-simple-message-sessions-04	23.228	413r2	C	6.5.0	6	IMS2	S2 #40	5.16.2.1, 5.16.2.2.1, 5.16.2.2.2, 5.16.2.2.3, 5.16.2.2.4
S2-041568	IPv6-IPv4 interworking	23.228	418r1	B	6.5.0	6	IMS2	S2 #39	5.4.2a, 5.18.0
S2-041626	IPv4-IPv6 interworking flows	23.228	419r2	C	6.5.0	6	IMS2	S2 #39	5.18.0, 5.18.1, 5.18.2
S2-041404	SDP acronym	23.228	420	D	6.5.0	6	IMS2	S2 #39	3.3
S2-041613	Clarification of Message Charging Principles	23.228	421r2	F	6.5.0	6	IMS2	S2 #39	5.16.2.1
S2-041614	Service indication in Session Initiation	23.228	422r4	B	6.5.0	6	IMS2	S2 #39	4.2.4
S2-041615	Registration Requirement related to Application Server	23.228	424r2	F	6.4.5	6	IMS2	S2 #39	4.2.4, 5.2.1
S2-041616	Registration Status Event Sub/Notification between Application Server and S-CSCF	23.228	425r4	F	6.5.0	6	IMS2	S2 #39	4.2.4
S2-042193	Definition of Private User Identity	23.228	427r1	F	6.5.0	6	IMS2	S2 #40	4.3.3.1
S2-042270	Clarification of IMS identity sharing	23.228	428r2	F	6.5.0	6	IMS2	S2 #40	4.3.3.4
S2-042147	Updates on the Gq interface in 23.228	23.228	430r1	F	6.5.0	6	QoS1	S2 #40	4.6.1, 5.4.7.0
S2-042106	IMS procedures modification for token generation	23.228	431	C	6.5.0	6	QoS1	S2 #40	5.6.1, 5.6.2, 5.11.3.1, 5.11.3.3
S2-042268	Release of Session based messaging session with intermediate node	23.228	432r2	F	6.5.0	6	IMS2	S2 #40	5.16.2.2.4 and a new subclause 5.16.2.2.5
S2-042191	Information storage after registration	23.228	434r1	F	6.5.0	6	IMS	S2 #40	5.2.2.5

3GPP TSG SA WG2 meeting #40 **Tdoc ⌘S2-042195**
Sophia Antipolis, France, 17th – 21st May 2004

CR-Form-v7

CHANGE REQUEST

⌘ **23.228** **CR** **413** ⌘**rev** **2** ⌘ Current version: **6.5.0** ⌘

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

Proposed change affects: UICC apps⌘ [ ] ME [X] Radio Access Network [ ] Core Network [X]

Title:	⌘	Session based messaging corrections to align with draft-ietf-simple-message-sessions-04
Source:	⌘	SA2 (RIM, Ericsson)
Work item code:	⌘	IMS2
Date:	⌘	20/05/2004
Category:	⌘	**C**
Release:	⌘	Rel-6

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)

Reason for change:	⌘	Previous versions of the message-sessions draft in IETF supported the inviting UE to either offer to host the message session or request the invited UE to host the session. This capability has been removed from the latest version (draft-ietf-simple-message-sessions-04) and now the inviter always hosts the message session. As the inviting UE will have to host the message session, SBLP will not be possible with Session based messaging sessions.
Summary of change:	⌘	Options for invited party to host the message session removed. It is clarified that SBLP shall not be applied to Session based messaging.
Consequences if not approved:	⌘	Stage 2 work on session based messaging will be out of alignment with IETF message session protocol development.

Clauses affected:	⌘	5.16.2.1, 5.16.2.2.1, 5.16.2.2.2, 5.16.2.2.3, 5.16.2.2.4

Other specs Affected:	⌘	Y	N		⌘
			X	Other core specifications	
			X	Test specifications	
			X	O&M Specifications	

Other comments:	⌘	The first revision of this CR was agreed at SA2#39. The rev.1 of this CR removes the possibility to use token based SBLP on the message media component.

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.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.

<< Changed section >>

5.16.2 Session-based Messaging

5.16.2.0 General

This subclause describes architectural concepts and procedures for fulfiling the requirements for Session-based Messaging described in TS 22.340 [29a].

5.16.2.1 Architectural principles

Session-based IMS messaging communications shall as much as possible use the same basic IMS session delivery mechanisms (e.g. routing, security, service control) as defined in clause 4 and 5 of this document. For session based messaging the session shall include a messaging media component, other media components may also be included.

As ~~When~~ the messaging media component does not require QoS beyond best-effort, it is expected that the UE will have an appropriate IP-CAN bearer available for the messaging media component prior to starting session initiation. ~~In the case when the messaging media component does not require the reservation of additional bearer resources, the UE shall not require the u~~Hence, use of the preconditions mechanism defined in RFC 3312[41] is not required for Session based messaging establishment that only includes a messaging media component.

NOTE: Pre-conditions mechanism may still be required for session establishment with additional media components that require the establishment of additional IP-CAN bearers.

Authorization-token based SBLP shall not be applied by the UE to IP-CAN bearers that carry the session-based messaging media components.

Once the session containing a messaging media component is established, messages in the session are transported between the session participants as per the parameters defined in the messaging media component part of the session description (SDP).

~~In the SDP offer t~~The inviting UE ~~should~~ shall ~~offer to~~ host the message session (accept a connection for the message session from the other endpoint) ~~and indicate that it is also prepared for the other party to host the message session~~. In order to offer to host the message session the UE first needs a~~n~~ best-effort IP-CAN bearer on which it can accept the connection for the message media component.

~~NOTE: SBLP applied to session based messaging media components restricts the ability of the UE to host the message session.~~

Messages within a message session should be transported over a connection-oriented reliable transport protocol. Message sessions may be either established end to end between two UEs or may involve one or more intermediate nodes (e.g. a chat server for multi party chat or to perform per message charging).

For addressing chat-group-type session based messaging the concept of Public Service Identities is used.

Session based messaging is available for users that are registered in the IMS.

The session based messaging shall be able to provide the following functionality:

- Per-message-based charging, as well as content- and size-based charging.
- Operator-controlled policy to be set on the size and content of the messages.
- Support for a messaging media component as part of a session where other media components are also included.
- Support for messaging-only sessions.

5.16.2.2 Procedures to enable Session based Messaging

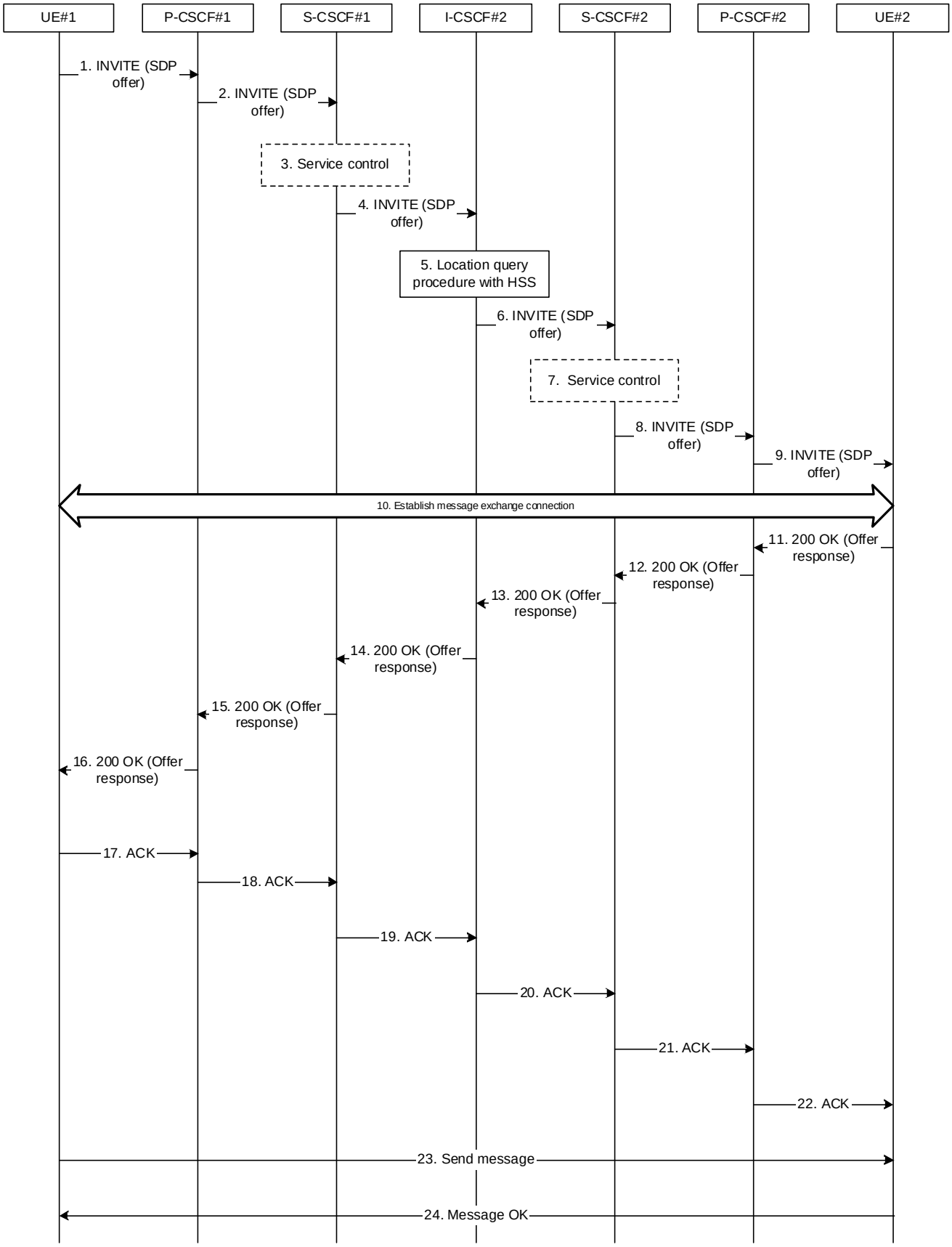
5.16.2.2.0 General

IMS users shall be able to exchange session-based messages with each other by using the procedures described in this sub-clause. These procedures shall allow the exchange of any type of multimedia content (subject to possible restrictions based on operator policy and user preferences/intent), for example but not limited to:

- Pictures, video clips, sound clips with a format defined by 3GPP TS 26.xxx [37]

5.16.2.2.1 Session based messaging procedure to registered public user identity

The following procedure shows the establishment of a message session between two registered UEs where the UEs are able to exchange messages end-to-end.


UE#1
P-CSCF#1
S-CSCF#1
I-CSCF#2
S-CSCF#2
P-CSCF#2
UE#2
1. INVITE (SDP offer)
2. INVITE (SDP offer)
3. Service control
4. INVITE (SDP offer)
5. Location query procedure with HSS
6. INVITE (SDP offer)
7. Service control
8. INVITE (SDP offer)
9. INVITE (SDP offer)
10. Establish message exchange connection
11. 200 OK (Offer response)
12. 200 OK (Offer response)
13. 200 OK (Offer response)
14. 200 OK (Offer response)
15. 200 OK (Offer response)
16. 200 OK (Offer response)
17. ACK
18. ACK
19. ACK
20. ACK
21. ACK
22. ACK
23. Send message
24. Message OK

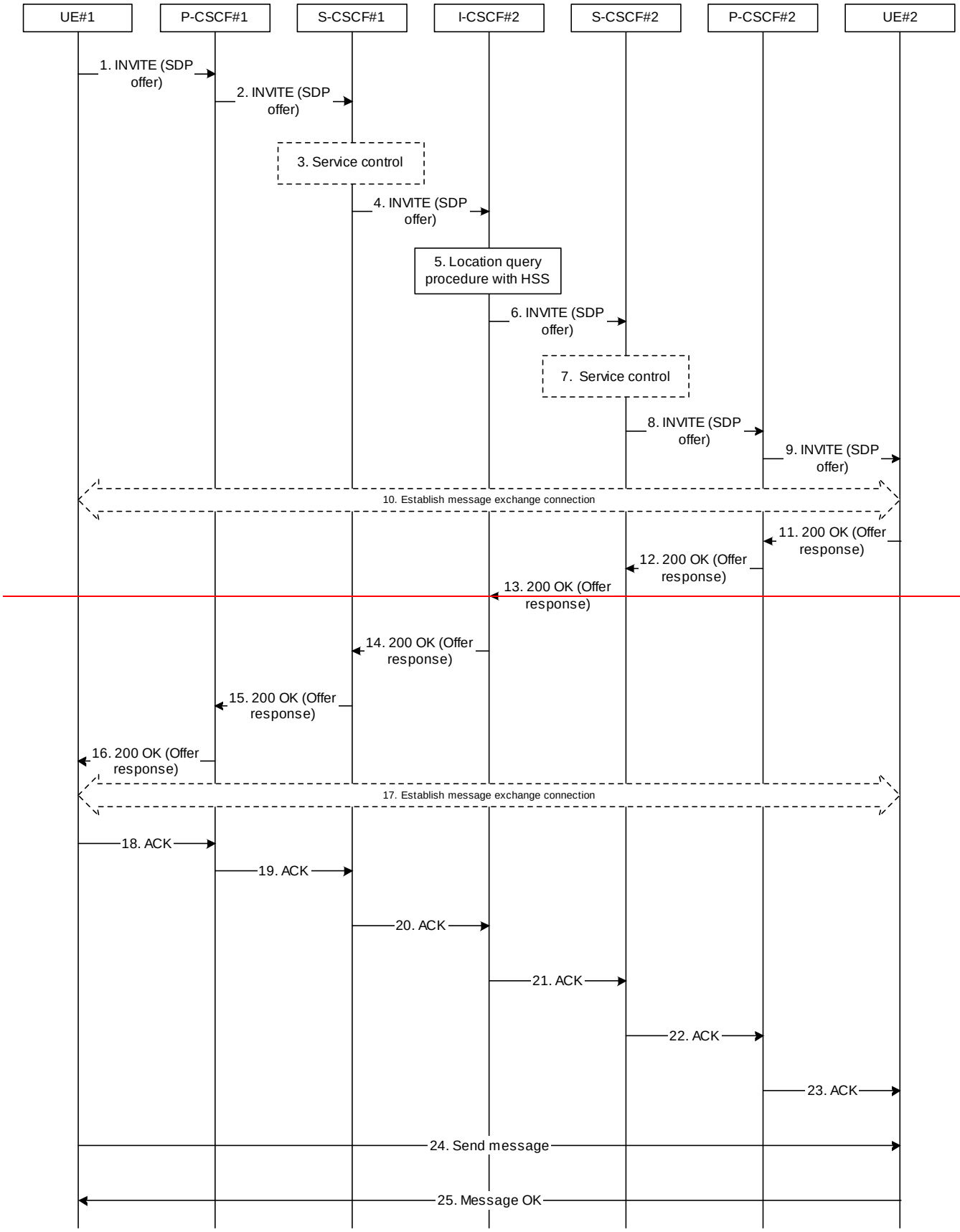


Figure 5.48a: Message session establishment

1. UE#1 sends the SIP INVITE request, containing an initial SDP, to the P-CSCF. ~~The initial SDP indicates that UE#1 wishes to establish a message session and whether the UE#1 is able to host the session.~~

2. P-CSCF#1 forwards the INVITE request to S-CSCF#1 along the path determined upon UE#1's most recent registration procedure.

3. Based on operator policy S-CSCF#1 may reject the INVITE request with an appropriate response. S-CSCF#1 may invoke whatever service control logic is appropriate for this INVITE request. This may include routing the INVITE request to an application server, which processes the request further on.

4. S-CSCF#1 forwards INVITE request to I-CSCF#2.

5. I-CSCF#2 performs Location Query procedure with the HSS to acquire the S-CSCF address of the destination user (S-CSCF#2).

6. I-CSCF#2 forwards INVITE request to S-CSCF#2.

7. Based on operator policy S-CSCF#2 may reject the INVITE request with an appropriate response. S-CSCF#2 may invoke whatever service control logic is appropriate for this INVITE request. This may include routing the INVITE request to an application server, which processes the request further on.

8. S-CSCF#2 forwards the INVITE request to P-CSCF#2 along the path determined upon UE#2's most recent registration procedure.

9. P-CSCF#2 forwards the INVITE request to UE#2.

10. ~~If UE#1 offered to host the session then~~ UE#2 establishes with UE#1 a reliable end-end connection for exchange of the message media.

11.–16. UE#2 accepts the message session with a 200 OKresponse.The 200 OK response traverses back to UE#1.

~~17. If UE#1 requested UE#2 to host the session then UE#1 establishes with UE#2 a reliable end-end connection for exchange of the message media.~~

17~~8~~-22~~12~~. UE#1 acknowledges the 200 OK with an ACK which traverses back to UE#2.

23~~4~~. UE#1 generates the message content and sends it to UE#2 using the established message connection.

24~~5~~. UE#2 acknowledges the message with a response that indicates that the UE#2 has received the message. The response traverses back to UE#1. After receiving the message UE#2 renders the multimedia content to the user.

Further messages may be exchanged in either direction between UE#1 and UE#2 using the established connection.

5.16.2.2.2 Session based messaging procedure using multiple UEs

Session based messaging between more than two UEs require the establishment of a session based messaging conference.

Within session based messaging conferences including multiple UEs (e.g. multiparty chat conferences) an MRFC/MRFP or an IMS AS shall be used to control the media resources.

When MRFC/MRFP are used, then conferencing principles are used to provide the chat service:

- MRFP must be able to establish message connections with all involved parties.

- MRFC/MRFP must be able to receive messages from conference participants and to distribute messages to all or some of the participants.

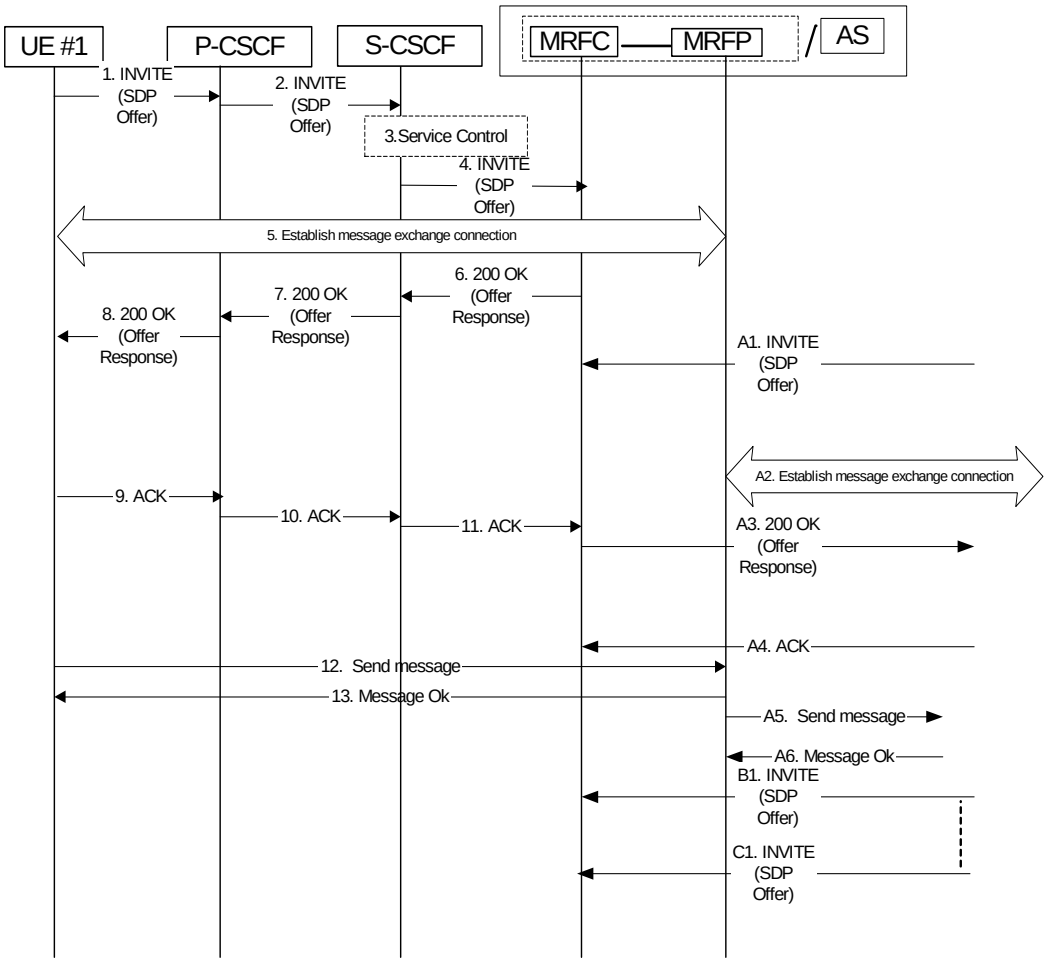
- In order to enable the UE managing information related to the session based messaging conference the MRFC may be co-located with an IMS AS.

- MRFC/MRFP roles and interactions with an AS are described in more detail in chapters 4.7 and 5.14.1 and 5.14.2.

- The interface for session based messaging between MRFC and MRFP is not standardised in this release.When an AS is used, then the IMS service control architecture is used to provide the chat service. Both signalling and user plane are then supported by the AS. For more details, see section 4.2.

The following flow shows the originating session based messaging set up using an intermediate server for a chat service. In this case the intermediate chat server is addressesed by the UE#1 using a PSI. It is assumed that UE#1 is the first UE entering the chat session.

NOTE: Interactions between MRFC and MRFP are not shown in the flows below since these interactions are not standardized.


UE #1
P-CSCF
S-CSCF
MRFC
MRFP
AS
1. INVITE (SDP Offer)
2. INVITE (SDP Offer)
3.Service Control
4. INVITE (SDP Offer)
5. Establish message exchange connection
6. 200 OK (Offer Response)
7. 200 OK (Offer Response)
8. 200 OK (Offer Response)
A1. INVITE (SDP Offer)
A2. Establish message exchange connection
9. ACK
10. ACK
11. ACK
A3. 200 OK (Offer Response)
A4. ACK
12. Send message
13. Message Ok
A5. Send message
A6. Message Ok
B1. INVITE (SDP Offer)
C1. INVITE (SDP Offer)

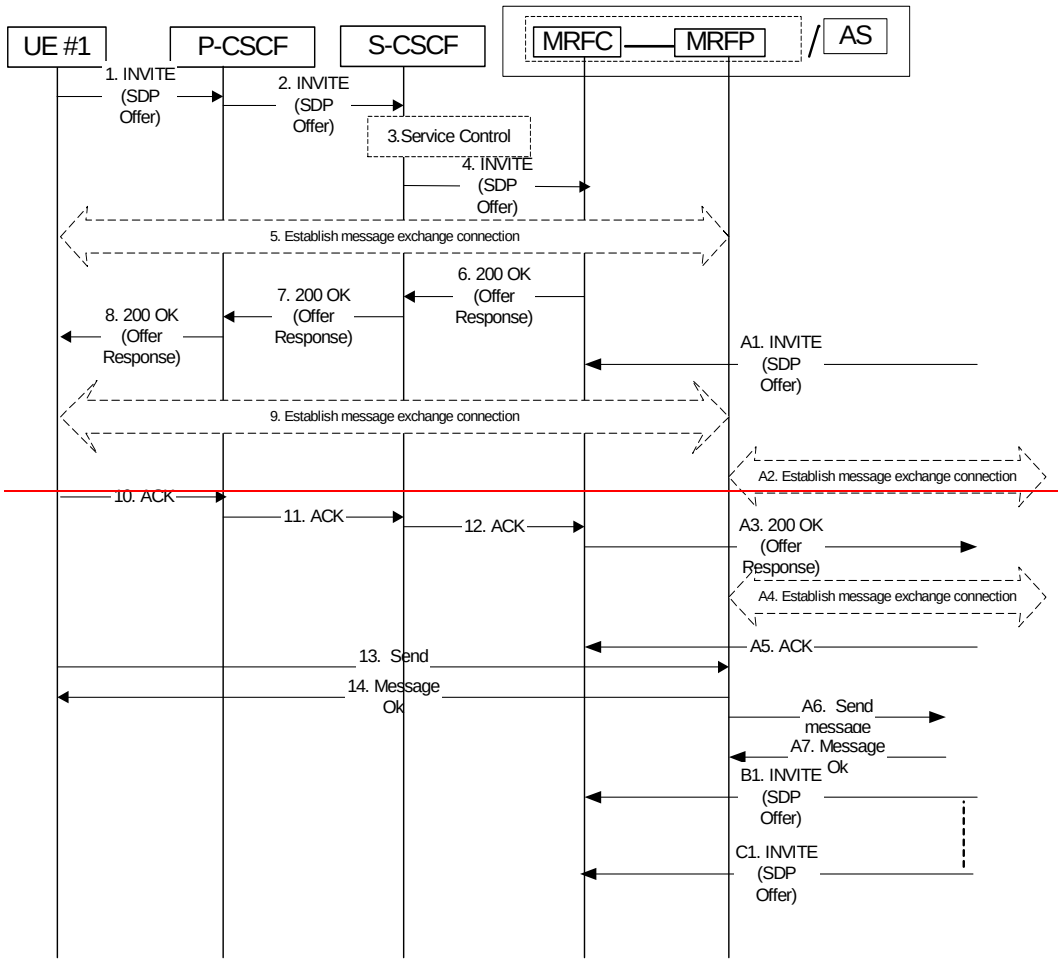


Figure 5.48b: Session based messaging using a chat server

1. UE #1 generates and sends an INVITE request addressed to a conferencing or chat PSI. The SDP offer indicates that UE#1 wants to establish a message session and contains all necessary information to do that.

2. P-CSCF forwards the INVITE to S-CSCF that then forwards the INVITE to the MRFC (AS).

3. S-CSCF#1 may invoke service control for UE#1.

4. S-CSCF forwards the INVITE request to the MRFC/AS.

5. MRFP/AS establishes reliable end –to-end connection for exchange of the message media. ~~Since in this case the MRFP/AS hosts the session, the connection establishment towards UE#1 for exchange of the message media is not performed at this time.~~

6-8. MRFC/AS acknowledges the INVITE.

~~9. MRFP/AS establishes reliable end –to-end connection for exchange of the message media.~~

1~~0~~9-11~~2~~. UE#1 acknowledges the establishment of the messaging session.

12~~3~~. UE#1 sends a message towards the MRFP/AS.

13~~4~~. MRFP/AS acknowledges the message

A1. Another UE sends an INVITE request addressed to the same conferencing or chat PSI. The initial SDP indicates that the UE wants to establish a message session and contains all necessary information to do that

A2. MRFP/AS initiates the establishment of a messaging path connection towards the UE#2. ~~MRFP/AS hosts the session and the connection is not established at this point if the UE#2 also offers to host the session in its response.~~

A3. MRFC/AS acknowledges the INVITE

~~A4. MRFP/AS initiates the establishment of a messaging path connection towards the UE#2.~~

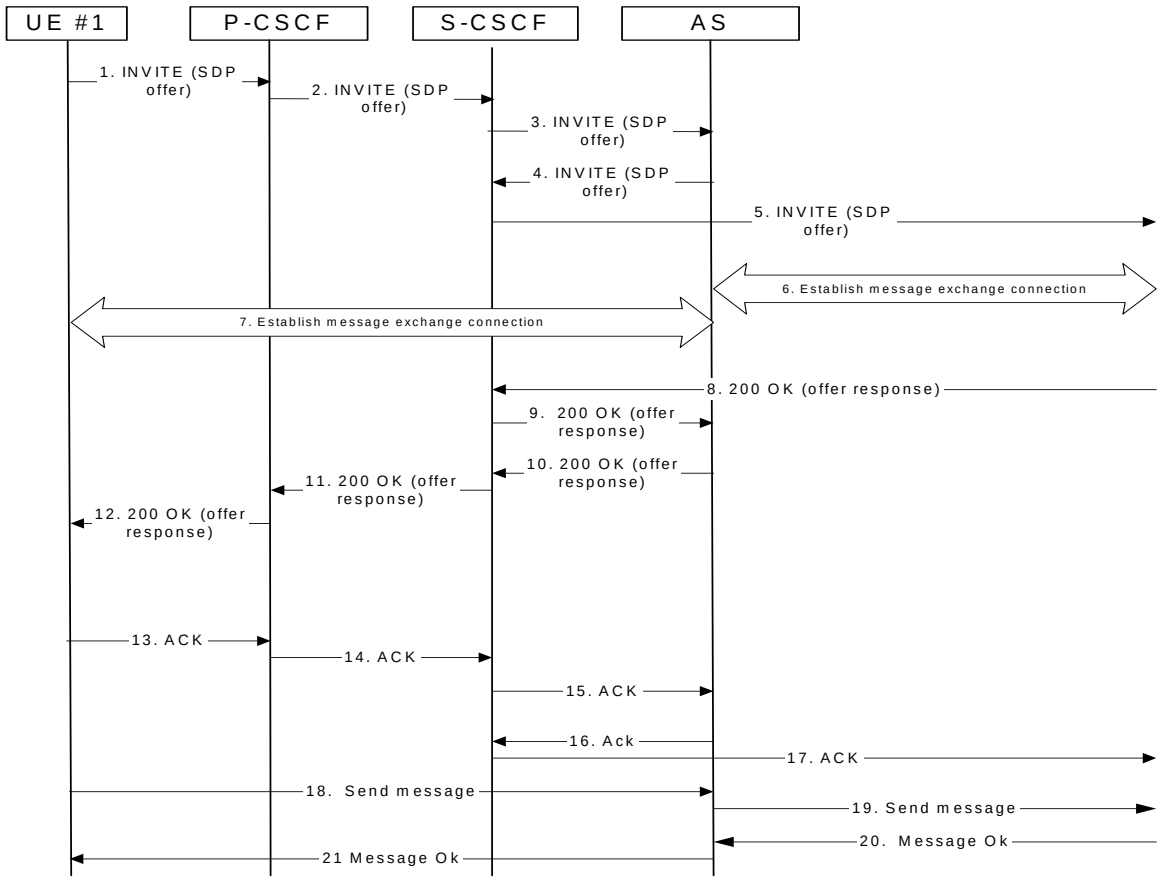
A4~~5~~. UE#2 acknowledges the establishment of the session.A6-A7. MRFP/AS forwards the message to all recipients e.g. all in the chat room.

B1-C1. INVITE requests (i.e. from new possible participants to the session) may arrive at any time.

Further messages may be exchanged in either direction between UEs using the established connection via the MRFC/MRFP or AS.

5.16.2.2.3 Session based messaging procedure with an intermediate node

The following procedure shows the originating session based messaging involving an intermediate node.


UE #1
P-CSCF
S-CSCF
AS
1. INVITE (SDP offer)
2. INVITE (SDP offer)
3. INVITE (SDP offer)
4. INVITE (SDP offer)
5. INVITE (SDP offer)
6. Establish message exchange connection
7. Establish message exchange connection
8. 200 OK (offer response)
9. 200 OK (offer response)
10. 200 OK (offer response)
11. 200 OK (offer response)
12. 200 OK (offer response)
13. ACK
14. ACK
15. ACK
16. Ack
17. ACK
18. Send message
19. Send message
20. Message Ok
21 Message Ok

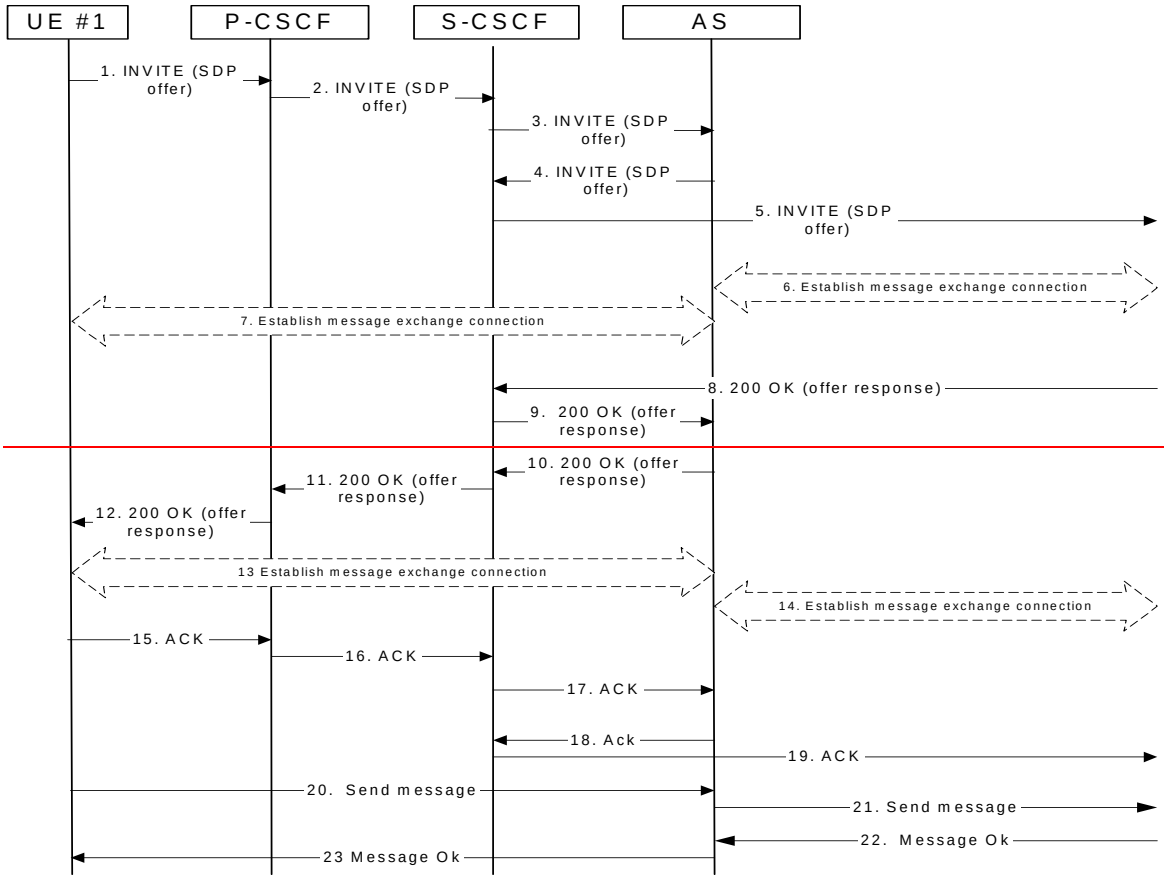

UE #1
P-CSCF
S-CSCF
AS
1. INVITE (SDP offer)
2. INVITE (SDP offer)
3. INVITE (SDP offer)
4. INVITE (SDP offer)
5. INVITE (SDP offer)
6. Establish message exchange connection
7. Establish message exchange connection
8. 200 OK (offer response)
9. 200 OK (offer response)
10. 200 OK (offer response)
11. 200 OK (offer response)
12. 200 OK (offer response)
13 Establish message exchange connection
14. Establish message exchange connection
15. ACK
16. ACK
17. ACK
18. Ack
19. ACK
20. Send message
21. Send message
22. Message Ok
23 Message Ok

Figure 5.48c: Session based messaging with an intermediate node

1. UE#1 sends the SIP INVITE request addressed to UE#2, containing an initial SDP, to the P-CSCF. ~~The initial SDP indicates that UE#1 wishes to establish a message session and whether the UE#1 is able to host the session.~~

2. P-CSCF#1 forwards the INVITE request to S-CSCF along the path determined upon UE#1's most recent registration procedure.

3. Based on operator policy S-CSCF may reject the INVITE request with an appropriate response. S-CSCF may invoke whatever service control logic is appropriate for this INVITE request. In this case the Filter Criteria trigger the INVITE request to be routed to an application server that acts as as an intermediate node for the message session.

4. The AS may modify the contents of the SDP (such as IP address/port numbers). The AS sends the INVITE request to S-CSCF

5. S-CSCF forwards the INVITE request to the destination network. The destination network will perform the terminating procedure.

6. ~~If UE#1 offered to host the session then t~~The destination UE or AS in the terminating network establishes with the AS a reliable end-end connection for exchange of the message media.

7. ~~If UE#1 offered to host the session then t~~The AS establishes with UE#1 a reliable end-end connection for exchange of the message media.

8.–9. The UE or AS in the terminating network accepts the message session with a 200 OKresponse.The 200 OK response is forwarded to the AS by the S-CSCF

10.–12. The AS accepts the message session with a 200 OKresponse.The 200 OK response traverses back to UE#1

~~13. If UE#1 requested the other party to host the session then UE#2 establishes with the AS a reliable end-end connection for exchange of the message media.~~

~~14. If UE#1 requested the other party to host the session then the AS establishes with the UE or AS in the terminating network a reliable end-end connection for exchange of the message media.~~

13~~5~~-15~~7~~. UE#1 acknowledges the 200 OK with an ACK which traverses back to the AS.

~~18~~16-~~19~~17. The AS acknowledges the 200 OK response by an ACK from UE#1 which traverses back to the UE or AS in the terminating network via the S-CSCF.

18~~20~~. UE#1 generates the message content and sends it to the AS using the established message connection.

~~21~~19. The AS forwards the message content and using the established message connection with the terminating network.

~~22~~20. The UE or AS in the terminating network acknowledges the message with a response that indicates that the reception of the message. The response traverses back to the AS.

21~~3~~. The AS forwards the response that back to UE#1.

Further messages may be exchanged in either direction between UE#1 and the terminating network using the established connection via the AS.

5.16.2.2.4 Session based messaging release procedure

The following procedure shows the release of a message session, which was established between two UEs. It is assumed that UE#1 is the session host.

~~Note 1: The following call flow may be not applicable in case SBLP is used.~~

Note 1~~2~~: The following call flow assumes that a separate IP-CAN bearer is used to send and receive messages.

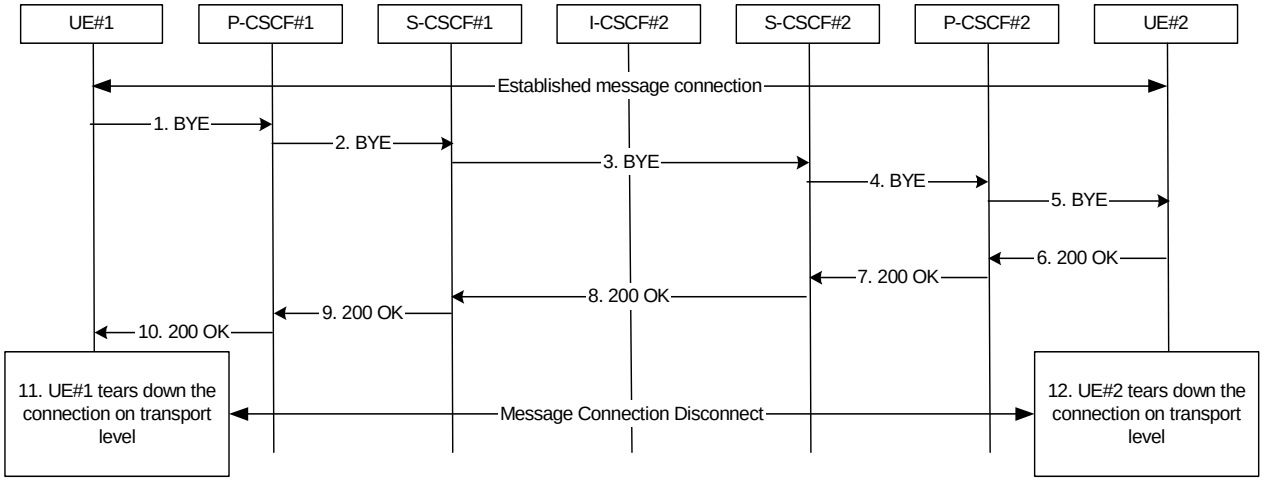


Figure 5.48d: Message session release procedure

1.–5. UE#1 indicates its intent to terminate the message session by sending a BYE request to UE#2.

6.–10. UE#2 agrees to end the session and acknowledges the BYE request by sending a 200 OK to UE#1, which traverses back the signalling path.

11. Session host UE#1 shall tear down the message connection on the transport level and destroy local state for the message session. In case UE#1 does not use the IP-CAN bearer for any other service, it may decide to release the bearer.

12. UE#2 shall tear down the message connection on the transport level and destroy local state for the message session. In case UE#2 does not use the IP-CAN bearer for any other service, it may decide to release the bearer.

3GPP TSG-SA2 Meeting #39
Shenzhen, China, 19-23 April 2004

Tdoc ⌘S2-041568

CR-Form-v7

CHANGE REQUEST

⌘ **23.228** **CR** **418** ⌘**rev** **1** ⌘ Current version: **6.5.0** ⌘

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

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network ☒

Title:	⌘	IPv6-IPv4 interworking
Source:	⌘	SA2 (Nortel Networks)
Work item code:	⌘	IMS2
Date:	⌘	19/04/2004
Category:	⌘	**B**
Release:	⌘	Rel-6

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)

Reason for change:	⌘	SA plenary discussed that SA2 need to urgently specify the minimum requirements for the UEs which support IPv4 IMS in order to minimise the number of different implementations to support in the future. Based on the TR 23.881, the following is proposed in this CR: • Re-use the existing interworking concepts in 23.228, currently for IPv6 IMS to IPv4 SIP networks, for IPv6 to IPv4 IMS interworking
Summary of change:	⌘	Add possible usage of IMS-ALG and TrGW for IPv4 IMS to IPv6 IMS interworking by making the interworking section generic instead of specific to IMS to external networks interworking
Consequences if not approved:	⌘	Lack of smooth migration path.

Clauses affected:	⌘	5.4.2a, 5.18.0

Other specs affected: ⌘	Y	N	
		X	Other core specifications
		X	Test specifications
		X	O&M Specifications

⌘

Other comments: ⌘

How to create CRs using this form:
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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.

5.4.2a IP version interworking

Following interworking scenarios exist:

Application Level Interworking

It should be possible for users connected to ~~IPv6~~ an IMS network to communicate with users that are connected to ~~IPv4~~ SIP based networks that use a different IP version via interworking. Section 5.18 describes in more detail how such interworking is performed for IMS.

Transport Level Interworking

Inter-working also includes tunnelling level interconnection of IMS networks via ~~IPv4~~ transit networks that use a different IP version using for example, configured tunnels as described in 3GPP TS 23.221[7]. Figure 5.5b below shows an example configuration scenario where two IPv6 IMS networks are connected via an IPv4 network.

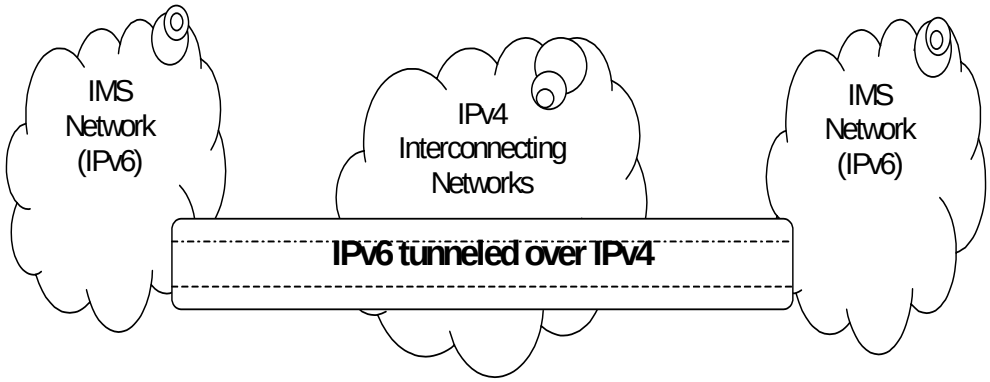

Figure 5.5b: Example tunneling of IPv6 traffic over IPv4 networks

NEXT CHANGE

5.18 Architecture scenarios for IP version Interworking

5.18.0 General

The IP version interworking should not adversely affect IMS sessions that ~~are primarily IPv6 only~~do not require IP version interworking.
The network shall, at a minimum, support mechanisms that support IP version interworking for UEs, which comply with previous release of specifications. In addition, any impacts due to specific properties of the IP CAN shall be taken care of by the IP-CAN itself without affecting the IMS. One possible architecture scenario can be based on the principle defined in 3GPP TS 23.221[7] using gateways.

Figure 5.49 shows a high-level architecture diagram for one interworking model. In this case, the TrGW is a NA(P)T-PT providing the translation function.

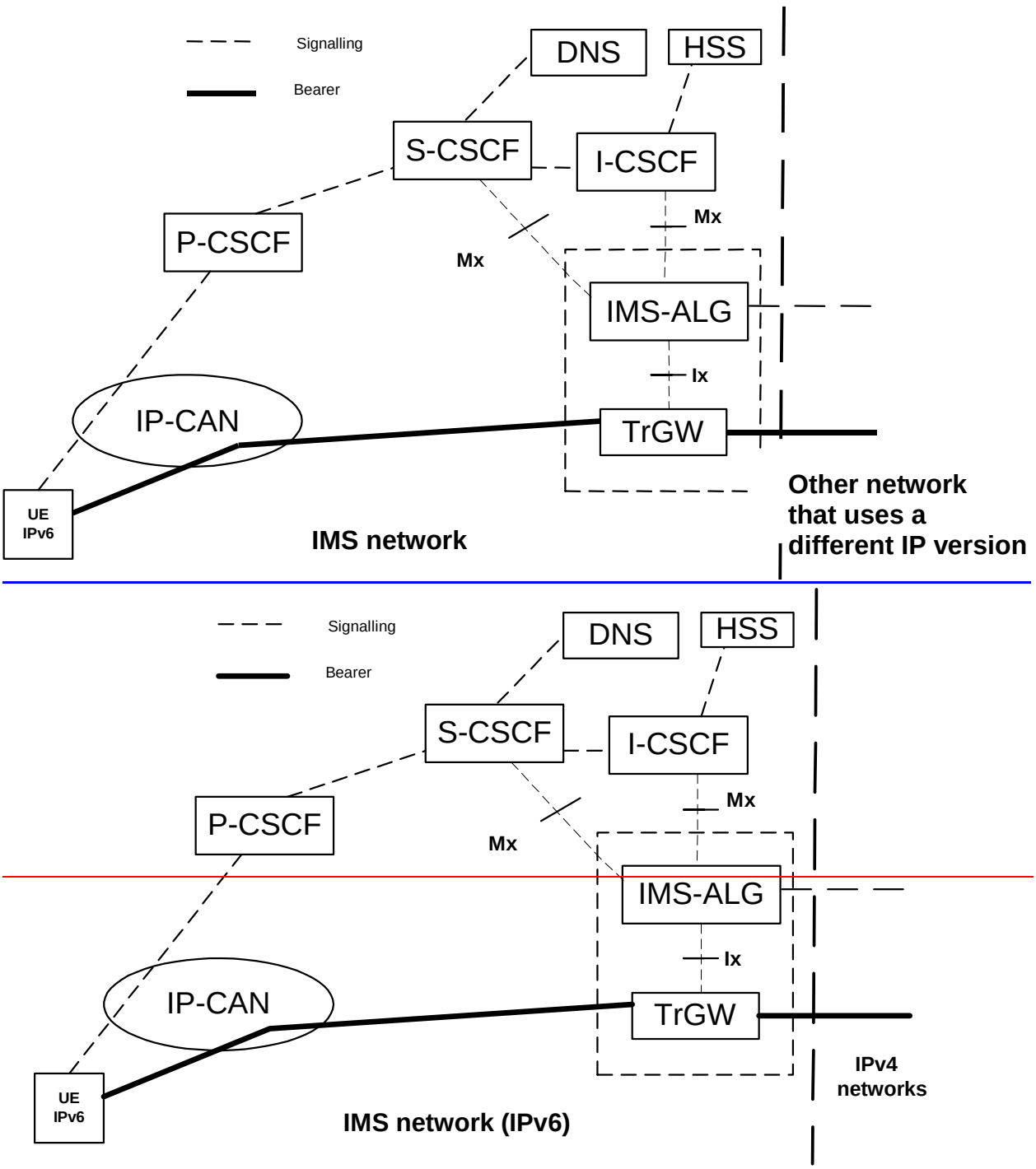

Figure 5.49 General IP version interworking principle with TrGW

It is FFS whether there are any additional mechanisms (other than the principles described here) that can be used for IMS IP version interworking.

Note that the standardisation and functional requirements of Ix reference point are FFS.

The Mx reference point allows S-CSCF/I-CSCF to communicate with an IMS ALG function in order to provide interworking with ~~IPv4 SIP~~ networks that use a different IP version. It is FFS whether both S-CSCF and I-CSCF need to communicate with the IMS ALG.

Note that the procedure of inserting the IMS ALG (e.g. which CSCF is responsible) in relation to originating and terminating sessions are for FFS.

3GPP TSG-SA2 Meeting #39
Shenzhen, China, 19 – 23 April 2004

Tdoc ⌘S2-041626

CR-Form-v7

CHANGE REQUEST

⌘ **23.228** **CR** **419** ⌘**rev** **2** ⌘ Current version: **6.5.0** ⌘

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

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network **X**

Title:	⌘	IPv4-IPv6 interworking flows
Source:	⌘	SA2 (Ericsson)
Work item code:	⌘	IMS2
Date:	⌘	22/04/2004
Category:	⌘	**C**
Release:	⌘	Rel-6

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	Complete the stage 2 work on IP version interworking
Summary of change:	⌘	Include session flow examples for originating and terminalsing IMS sessions. Also, clarify that the interfaces such as Mx & Ix will not be standardised in this release as relevant IETF work has not progressed much.
Consequences if not approved:	⌘	Incomplete stage 2 work for one of the key functions for Release 6 (IP version interworking) remains incomplete.

Clauses affected:	⌘	5.18.0, 5.18.1, 5.18.2

Other specs affected: ⌘	Y	N		⌘
		X	Other core specifications	
		X	Test specifications	
		X	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/specs/CR.htm. Below is a brief summary:

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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.

5.18 Architecture scenarios for IP version Interworking

5.18.0 General

The IP version interworking should not adversely affect IMS sessions that are primarily IPv6 only.
The network shall, at a minimum, support mechanisms that support IP version interworking for UEs, which comply with previous release of specifications. In addition, any impacts due to specific properties of the IP CAN shall be taken care of by the IP-CAN itself without affecting the IMS. One possible architecture scenario can be based on the principle defined in 3GPP TS 23.221[7] using gateways.

Figure 5.49 shows a high-level architecture diagram for one interworking model. In this case, the TrGW is a NA(P)T-PT providing the translation function.

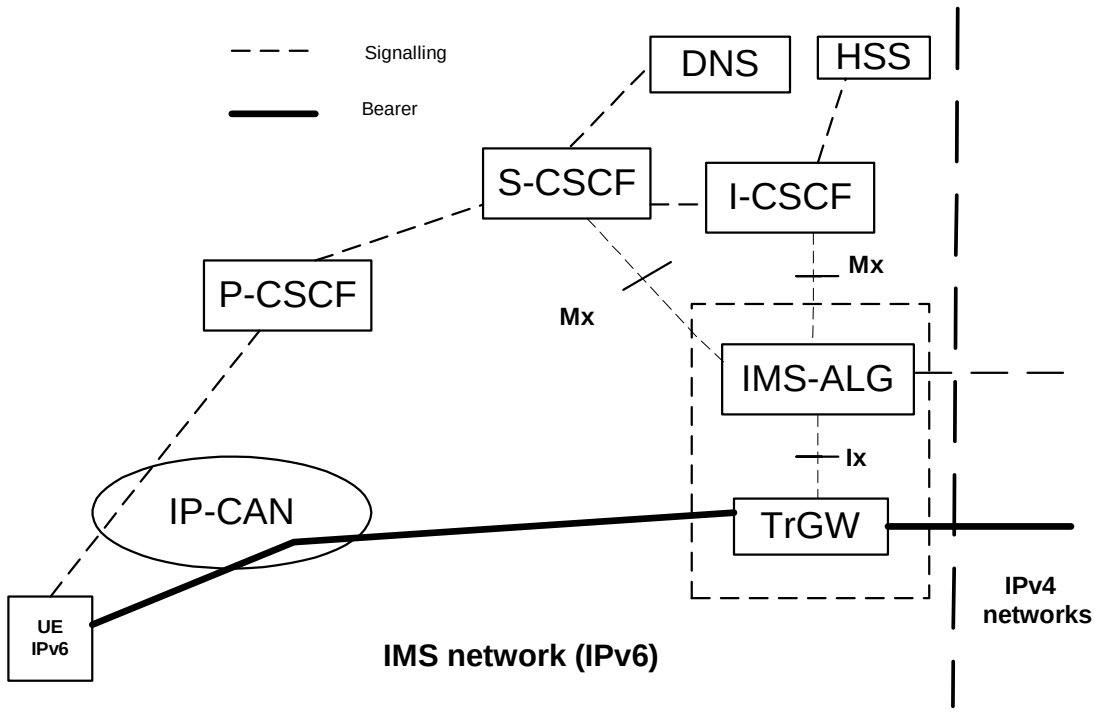

Figure 5.49 General IP version interworking principle with TrGW

It is FFS whether there are any additional mechanisms (other than the principles described here) that can be used for IMS IP version interworking.

Note that the standardisation and functional requirements of Ix reference point are FFS.

The Mx reference point allows S-CSCF/I-CSCF to communicate with an IMS ALG function in order to provide interworking with IPv4 SIP networks. It is FFS whether both S-CSCF and I-CSCF need to communicate with the IMS ALG.

The Mx & Ix reference points are not specified within this release of the specification.

~~Note that the procedure of inserting the IMS-ALG (e.g. which CSCF is responsible) in relation to originating and terminating sessions are for FFS.~~

5.18.1 Originating Session Flows towards IPv4 SIP network

~~Note this section will contain high-level session flow and interaction for originating session.~~

The following example session flow shows a scenario where the S-CSCF is responsible for inserting the IMS-ALG in the session path. No I-CSCF node shown in this scenario, if configuration requires presence of an I-CSCF then it would have been collocated with the IMS-ALG.

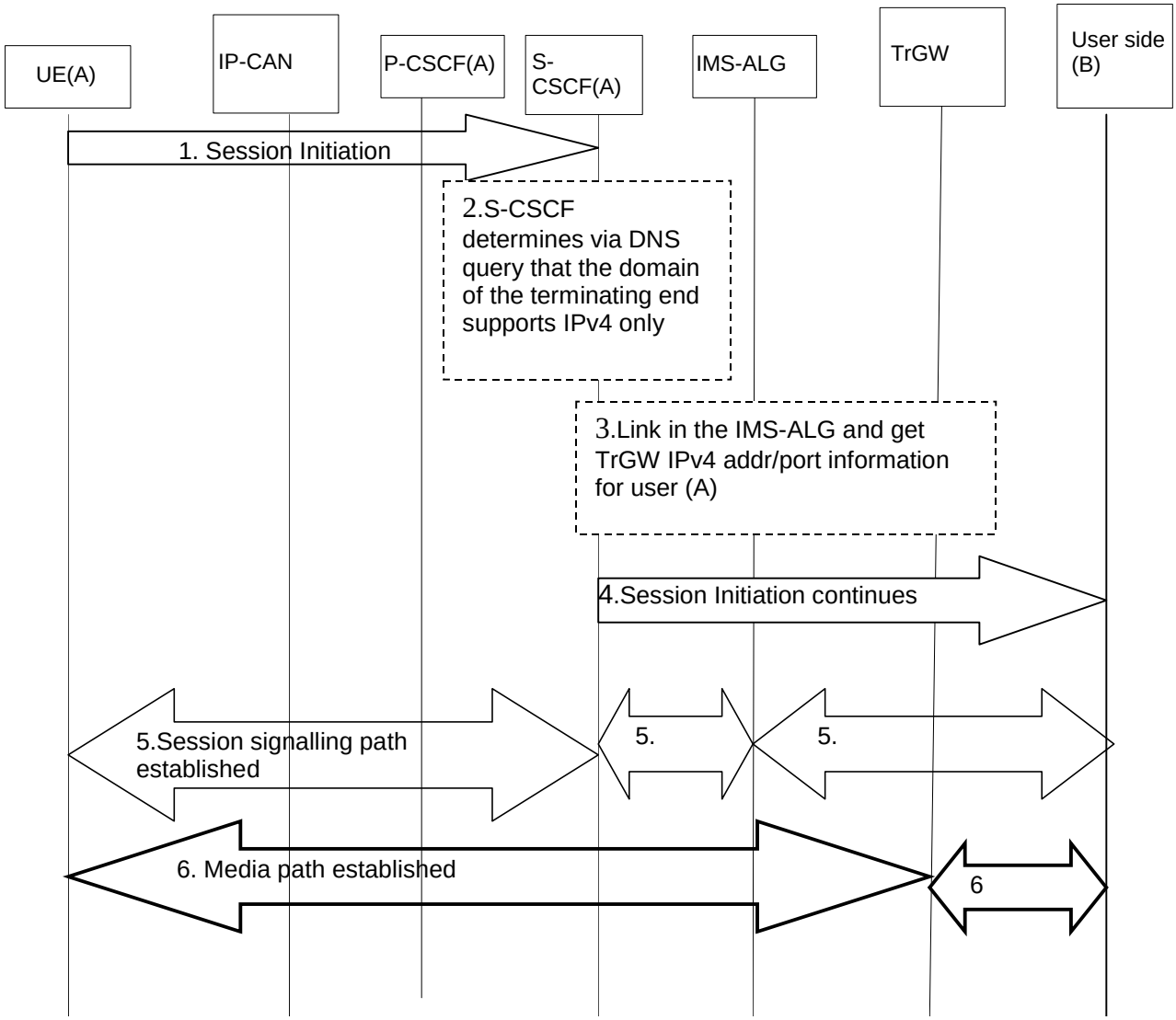

Figure xxx. Originating IMS session towards an IPv4 end point

1. UE (A) initiates an IMS session towards User B, via the session path for IMS and the session is analysed at the S-CSCF of UE (A).

2. S-CSCF for user A determines via DNS (or other mechanism) that the User B's domain cannot be communicated via IPv6 but can be via IPv4.

3. S-CSCF then acquires the necessary resources (via IMS ALG and TrGW) such as the IPv4 address and ports on behalf of user A so that User A can communicate with user B transparently.

4. The S-CSCF/IMS-ALG continues IMS signalling towards User B network where User A's IPv6 address/port information is replaced by IPv4 information.

5. When User (B) responds to the session initiation requests, the IMS-ALG will replace the IPv4 address/port information of User (B) with its own IPv6 information for signalling and with TrGW IPv6 information for the media path as the contact information of User (B) and forward the request to S-CSCF of UE (A). Session signalling path is then established between the UE and the S-CSCF, the S-CSCF and the IMS-ALG, the IMS-ALG and the external network for User B.

6. The media path is established between the UE (A) and the TrGW, via the IP-CAN, and then between the TrGW and user B.

At session release, the IP address/Port information will be released for reuse by other sesssions.

5.18.2 Terminating Session Flows from IPv4 SIP network

~~Note this section will contain high level session flow and interaction for terminating session.~~

The following session flow shows an example of a terminating session from an IPv4 SIP client towards and IPv6 IMS client. In order for the IPv6 IMS client to be reachable by the IPv4 network, it is assumed that the IPv4 network discovers (via mechanism such as DNS query) the IMS-ALG as the entry point to the IPv6 IMS network.

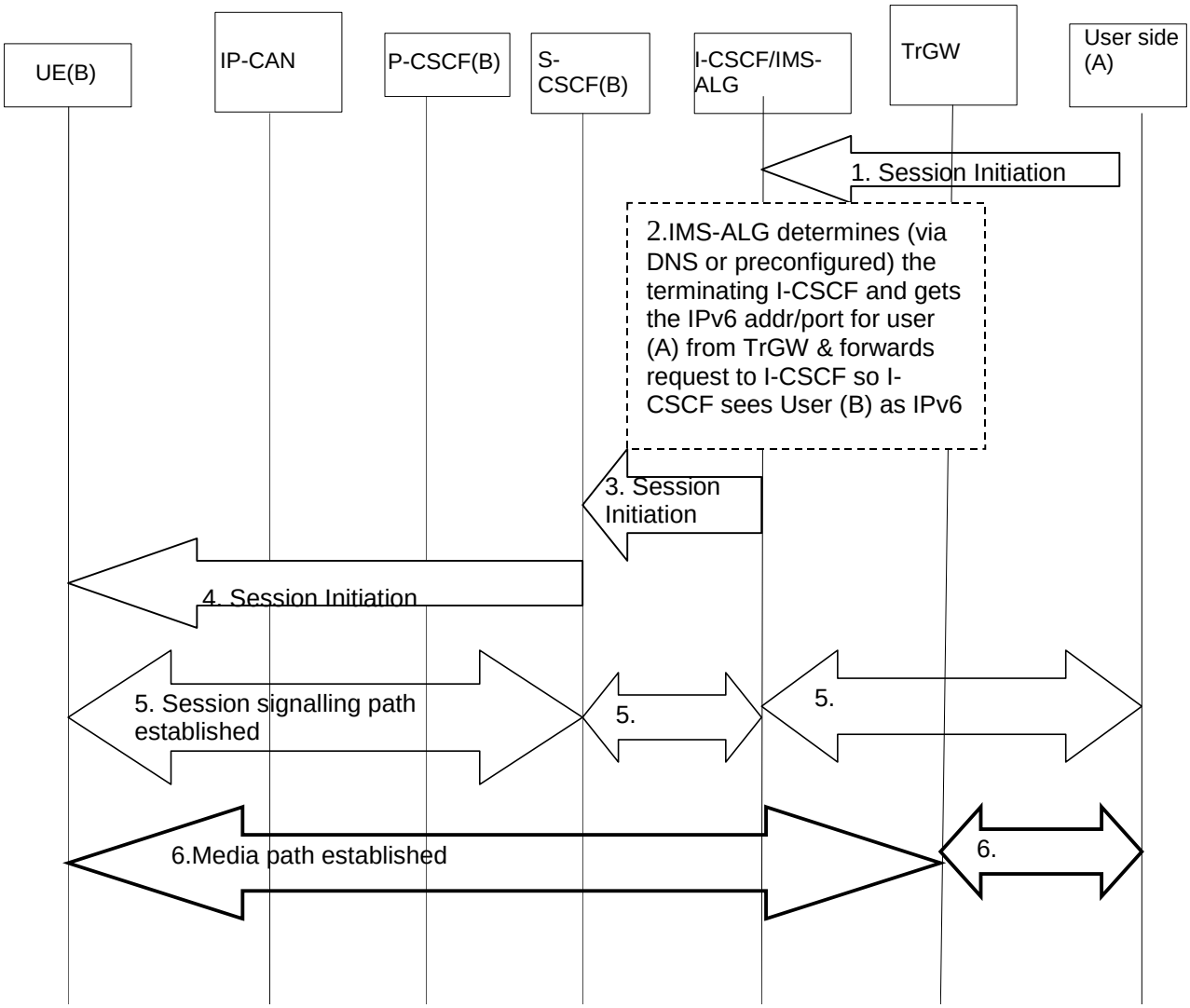

Figure xxy. Terminating IPv4 SIP session towards an IPv6 IMS user

1. In the IMS-ALG, a terminating session is received. IMS-ALG determines either via DNS query or via preconfiguration the appropriate I-CSCF for the user (B) in the IMS network.
2. IMS-ALG also communicates with TrGW to get the mapping of IPv6 address and ports on behalf of user (A) and replaces the User (A) information in the incoming SIP message and forwards the message towards S-CSCF. From S-CSCF point of view, it continues setting up the IMS session like any other IMS sessions.
3. The incoming session arrives in the S-CSCF for the user (B).
4. Session set up continues as usual in the IMS domain towards user (B).
5. When UE (B) responds to the session initiation requests, the IMS-ALG will replace the IPv6 address/port information of User (B) with its own IPv4 information for signalling and with TrGW IPv4 information for the media path as contact information of UE (B) and forward the request towards the network of User (A). Session signalling path is established between User (B) and S-CSCF, S-CSCF and I-CSCF/IMS-ALG and IMS-ALG and the external User (A)'s network.
6. Media path is established between UE (B) and the TrGW, via the IP-CAN, and then between the TrGW and User (A).

At session release, the IP address/Port information will be released for reuse by other sesssions.

3GPP TSG-SA WG2 Meeting #39
Shenzhen, China, 19-23 April 2004

Tdoc ⌘S2-041404

CR-Form-v7

CHANGE REQUEST

⌘ **23.228** **CR** **420** ⌘**rev** **-** ⌘ Current version: **6.5.0** ⌘

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

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network ☐

Title:	⌘	SDP acronym
Source:	⌘	SA2 (Siemens)
Work item code:	⌘	IMS-2
Date:	⌘	13/04/2004
Category:	⌘	**D**
Release:	⌘	Rel-6

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	The acronym SDP appears 147 times in the text of version 6.5.0 of TS 23.228 (and in addition in many figures), however it is not mentioned in the list of abbreviations.
Summary of change:	⌘	Add "SDP" to the list of abbreviations in subclause 3.3.
Consequences if not approved:	⌘	

Clauses affected:	⌘	3.3			
Other specs affected:	⌘	**Y**	**N**		
			X	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘				

How to create CRs using this form:
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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.

3.3 Abbreviations

For the purposes of the present document the following abbreviations apply. Additional applicable abbreviations can be found in GSM 01.04 [1].

AMR	Adaptive Multi-rate
API	Application Program Interface
AS	Application Server
BCSM	Basic Call State Model
BG	Border Gateway
BGCF	Breakout Gateway Control Function
BS	Bearer Service
CAMEL	Customised Application Mobile Enhanced Logic
CAP	Camel Application Part
CDR	Charging DataRecord
CN	Core Network
CS	Circuit Switched
CSCF	Call Session Control Function
CSE	CAMEL Service Environment
DHCP	Dynamic Host Configuration Protocol
DNS	Domain Name System
ENUM	E.164 Number
GGSN	Gateway GPRS Support Node
GLMS	Group and List Management Server
GMLC	Gateway Mobile Location Centre
GUP	Generic User Profile
HSS	Home Subscriber Server
I-CSCF	Interrogating-CSCF
IETF	Internet Engineering Task Force
IM	IP Multimedia
IMS	IP Multimedia Core Network Subsystem
IMS ALG	IMS Application Level Gateway
IMSI	International Mobile Subscriber Identifier
IP	Internet Protocol
IPv4	Internet Protocol version 4
IPv6	Internet Protocol version 6
IP-CAN	IP-Connectivity Access Network
ISDN	Integrated Services Digital Network
ISIM	IMS SIM
ISP	Internet Service Provider
ISUP	ISDN User Part
MAP	Mobile Application Part
MGCF	Media Gateway Control Function
MGF	Media Gateway Function
NAI	Network Access Identifier
NA(P)T-PT	Network Address (Port-Multiplexing) Translation-Protocol Translation
OSA	Open Services Architecture
P-CSCF	Proxy-CSCF
PDF	Policy Decision Function
PDN	Packet Data Network
PDP	Packet Data Protocol e.g., IP
PEF	Policy Enforcement Function
PLMN	Public Land Mobile Network
PSI	Public Service Identity
PSTN	Public Switched Telephone Network
QoS	Quality of Service
RAB	Radio Access Bearer
RFC	Request for Comments
SCS	Service Capability Server
S-CSCF	Serving-CSCF
SDP	Session Description Protocol

SGSN	Serving GPRS Support Node
SLF	Subscription Locator Function
SSF	Service Switching Function
SS7	Signalling System 7
SIM	Subscriber Identity Module
SIP	Session Initiation Protocol
SGW	Signalling Gateway
THIG	Topology Hiding Inter-network Gateway
TrGW	Translation Gateway
UE	User Equipment
UMTS	Universal Mobile Telecommunications System
URL	Universal Resource Locator
USIM	UMTS SIM

3GPP TSG-SA WG2 Meeting #39
Shenzhen, China, 19-23 April 2004

Tdoc ⌘S2-041613

CR-Form-v7

CHANGE REQUEST

⌘ **23.228** **CR** **421** ⌘**rev** **2** ⌘ Current version: **6.5.0** ⌘

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

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network **X**

Title:	⌘	Clarification of Message Charging Principles
Source:	⌘	SA2 (Siemens)
Work item code:	⌘	IMS2
Date:	⌘	22/04/2004
Category:	⌘	**F**
Release:	⌘	Rel-6

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	Chapter 5.16.2.1 of 23.228 does not describe the use cases when an intermediate node is necessary to support certain charging mechanisms.
Summary of change:	⌘	Clarify the usage of an intermediate node for charging in case of message sessions.
Consequences if not approved:	⌘	Message charging principles are not clear.

Clauses affected:	⌘	5.16.2.1			
Other specs affected:	⌘	**Y**	**N**		
			X	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘				

How to create CRs using this form:
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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.

********** MODIFIED SECTION **********

5.16.2.1 Architectural principles

Session-based IMS messaging communications shall as much as possible use the same basic IMS session delivery mechanisms (e.g. routing, security, service control) as defined in clause 4 and 5 of this document. For session based messaging the session shall include a messaging media component, other media components may also be included.

When the messaging media component does not require QoS beyond best-effort, it is expected that the UE will have an appropriate IP-CAN bearer available for the messaging media component prior to starting session initiation. In the case when the messaging media component does not require the reservation of additional bearer resources, the UE shall not require the use of the preconditions mechanism defined in RFC 3312[41] for Session based messaging establishment.

Once the session containing a messaging media component is established, messages in the session are transported between the session participants as per the parameters defined in the messaging media component part of the session description (SDP).

In the SDP offer the UE should offer to host the message session (accept a connection for the message session from the other endpoint) and indicate that it is also prepared for the other party to host the message session. In order to offer to host the message session the UE first needs an IP-CAN bearer on which it can accept the connection for the message media component.

NOTE: SBLP applied to session-based messaging media components restricts the ability of the UE to host the message session.

Messages within a message session should be transported over a connection-oriented reliable transport protocol. Message sessions may be either established end to end between two UEs or may involve one or more intermediate nodes (e.g. a chat server for multi party chat or to perform per message charging).

For addressing chat-group-type session based messaging the concept of Public Service Identities is used.

Session based messaging is available for users that are registered in the IMS.

The session based messaging shall be able to provide the following functionality:

- Per-message-based charging, as well as content- and size-based charging.
- Operator-controlled policy to be set on the size and content of the messages.
- Support for a messaging media component as part of a session where other media components are also included.
- Support for messaging-only sessions.

If charging mechanisms like charging based on the message content, message type or number of sent and/or received messages (see TS 22.340 [29a]) are required, then an intermediate node (messaging AS) shall be involved, which is able to inspect the SIP signalling as well as the exchanged messages and their content. Such an intermediate node may also provide support for time- and/or volume based charging.

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Shen Zhen, China, 19th – 23th April 2004.

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CHANGE REQUEST

⌘ **23.228** **CR** **422** ⌘**rev** **4** ⌘ Current version: **6.5.0** ⌘

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

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network ☒

Title:	⌘	Service indication in Session Initiation
Source:	⌘	SA2 (Fujitsu, NTT DoCoMo)
Work item code:	⌘	IMS2
Date:	⌘	06/04/2004
Category:	⌘	**F**
Release:	⌘	Rel-6

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)

Reason for change:	⌘	In order to make sure IMS services are provided properly, it is important that S-CSCF performs checks for ISC interactions first before any other IMS related procedures, e.g. applying caller preference, however, this reqirement is not stated now.
Summary of change:	⌘	It is proposed to add a new requirement for the ISC interface to address the correct order of the procedures S-CSCF performs.
Consequences if not approved:	⌘	The order of the functions the S-CSCF performs is not clear in the specification.

Clauses affected:	⌘	4.2.4			
Other specs affected:	⌘	Y	N		⌘
			X	Other core specifications	
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘				

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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

4.2.4 IP multimedia Subsystem Service Control Interface (ISC)

The ISC interface is between the Serving CSCF and the service platform(s).

An Application Server (AS) offering value added IM services resides either in the user's home network or in a third party location. The third party could be a network or simply a stand-alone AS.

The Serving-CSCF to AS interface is used to provide services residing in an AS. Two cases were identified:

- Serving-CSCF to an AS in Home Network.
- Serving-CSCF to an AS in External Network (e.g., Third Party or Visited)

The SIP Application Server may host and execute services. The SIP Application Server can influence and impact the SIP session on behalf of the services and it uses the ISC interface to communicate with the S-CSCF.

The S-CSCF shall decide whether an Application Server is required to receive information related to an incoming SIP session request to ensure appropriate service handling.. The decision at the S-CSCF is based on (filter) information received from the HSS. This filter information is stored and conveyed on a per application server basis for each user. The name(s)/address(es) information of the application server(s) are received from the HSS.

For an incoming SIP request, the S-CSCF shall perform any filtering for ISC interaction before performing other routing procedures towards the terminating user, e.g. forking, caller preferences etc.

The S-CSCF does not handle service interaction issues.

Once the IM SSF, OSA SCS or SIP Application Server has been informed of a SIP session request by the S-CSCF, the IM SSF, OSA SCS or SIP Application Server shall ensure that the S-CSCF is made aware of any resulting activity by sending messages to the S-CSCF.

From the perspective of the S-CSCF, The “SIP Application server”, “OSA service capability server” and “IM-SSF” shall exhibit the same interface behaviour.

When the name/address of more than one “application server” is transferred from the HSS, the S-CSCF shall contact the “application servers” in the order supplied by the HSS. The response from the first “application server” shall be used as the input to the second “application server”. Note that these multiple “application servers” may be any combination of the SIP Application server, OSA service capability server, or IM-SSF types.

The S-CSCF does not provide authentication and security functionality for secure direct third party access to the IM subsystem. The OSA framework provides a standardized way for third party secure access to the IM subsystem.

If a S-CSCF receives a SIP request on the ISC interface that was originated by an Application Server destined to a user served by that S-CSCF, then the S-CSCF shall treat the request as a terminating request to that user and provide the terminating request functionality as described above. Both registered and unregistered terminating requests shall be supported.

It shall be possible for an Application Server to generate SIP requests and dialogs on behalf of users. Such requests are forwarded to the S-CSCF serving the user, and the S-CSCF shall perform regular originating procedures for these requests.

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Shen Zhen, China, 19th – 23th April 2004.

CR-Form-v7

CHANGE REQUEST

⌘ **23.228** **CR** **424** ⌘**rev** **2** ⌘ Current version: **6.5.0** ⌘

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

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network **X**

Title:	⌘	Registration Requirement related to Application Server
Source:	⌘	SA2 (Fujitsu)
Work item code:	⌘	IMS2
Date:	⌘	05/04/2004
Category:	⌘	**F**
Release:	⌘	Rel-6

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	In IMS, some application servers need to be notified by user's registration status by the SIP core in order to perform services. Such services include Presence and PoC. The interface between AS and SIP core in IMS is the ISC interface. Therefore, the S-CSCF has a role in registration phase to check whether ISC interface needs to be invoked or not. However, such role is not included in the registration requirement currently.
Summary of change:	⌘	It is proposed to add the ISC interface checking to IMS registration requirement and clarify 4.2.4 so that filtering applies to all initial SIP request.
Consequences if not approved:	⌘	The requirements are not completed and the SIP messages that filtering will apply on is not clear.

Clauses affected:	⌘	4.2.4, 5.2.1

		Y	N		
Other specs affected:	⌘		X	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	

Other comments:	⌘	This CR covers the exsiting functionalities of Rel5 IMS and does not introduce new functionality for Rel6 IMS

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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

4.2.4 IP multimedia Subsystem Service Control Interface (ISC)

The ISC interface is between the Serving CSCF and the service platform(s).

An Application Server (AS) offering value added IM services resides either in the user's home network or in a third party location. The third party could be a network or simply a stand-alone AS.

The Serving-CSCF to AS interface is used to provide services residing in an AS. Two cases were identified:

- Serving-CSCF to an AS in Home Network.
- Serving-CSCF to an AS in External Network (e.g., Third Party or Visited)

The SIP Application Server may host and execute services. The SIP Application Server can influence and impact the SIP session on behalf of the services and it uses the ISC interface to communicate with the S-CSCF.

The S-CSCF shall decide whether an Application Server is required to receive information related to an incoming initial SIP ~~session~~ request to ensure appropriate service handling.. The decision at the S-CSCF is based on (filter) information received from the HSS. This filter information is stored and conveyed on a per application server basis for each user. The name(s)/address(es) information of the application server(s) are received from the HSS.

5.2.1 Requirements considered for registration

The following points are considered as requirements for the purpose of the registration procedures.

1. The architecture shall allow for the Serving-CSCFs to have different capabilities or access to different capabilities. E.g. a VPN CSCF or CSCFs in different stages of network upgrade.
2. The network operator shall not be required to reveal the internal network structure to another network. Association of the node names of the same type of entity and their capabilities and the number of nodes will be kept within an operator’s network. However disclosure of the internal architecture shall not be prevented on a per agreement basis.
3. A network shall not be required to expose the explicit IP addresses of the nodes within the network (excluding firewalls and border gateways).
4. It is desirable that the UE will use the same registration procedure(s) within its home and visited networks.
5. It is desirable that the procedures within the network(s) are transparent to the UE, when it register with the IM CN subsystem.
6. The Serving-CSCF is able to retrieve a service profile of the user who has IMS subscription. The S-CSCF shall check the registration request against the filter information and if necessary inform the application server about the registration of the user. The Serving-CSCF knows how to reach the Proxy-CSCF currently serving the user who is registered.

3GPP TSG-SA WG2 Meeting #39 *Tdoc ⌘S2-041616*
Shen Zhen, China, 19th – 23th April 2004.

CR-Form-v7

CHANGE REQUEST

⌘ **23.228** **CR** **425** ⌘**rev** **4** ⌘ Current version: **6.5.0** ⌘

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

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network **X**

Title:	⌘	Registration Status Event Sub/Notification between Application Server and S-CSCF
Source:	⌘	SA2 (Fujitsu, NTT DoCoMo)
Work item code:	⌘	IMS2
Date:	⌘	08/04/2004
Category:	⌘	**F**
Release:	⌘	Rel-6

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)

Reason for change:	⌘	The use of registratioin event package between Application Server and S-CSCF has been introduced in stage 3 specifications 24.229 and 23.218. However, the reqirement of such mechsiem is not clearly defined on the ISC interface in stage 2 specification. The CR adds such requirement for ISC interface.
Summary of change:	⌘	. It is also proposed to include such mechanism as part of the requirements of ISC interface.
Consequences if not approved:	⌘	How does the AS get registration status information from the IMS Core is not defined clearly in the stage 2 specification

Clauses affected:	⌘	4.2.4

Other specs affected: ⌘	Y	N		⌘
		X	Other core specifications	
		X	Test specifications	
		X	O&M Specifications	

Other comments:	⌘	This CR covers the existing functionalities of Rel5 IMS and does not introduce new functionality for Rel6 IMS

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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

4.2.4 IP multimedia Subsystem Service Control Interface (ISC)

The ISC interface is between the Serving CSCF and the service platform(s).

An Application Server (AS) offering value added IM services resides either in the user's home network or in a third party location. The third party could be a network or simply a stand-alone AS.

The Serving-CSCF to AS interface is used to provide services residing in an AS. Two cases were identified:

- Serving-CSCF to an AS in Home Network.
- Serving-CSCF to an AS in External Network (e.g., Third Party or Visited)

The SIP Application Server may host and execute services. The SIP Application Server can influence and impact the SIP session on behalf of the services and it uses the ISC interface to communicate with the S-CSCF.

The ISC interface shall be able support subcription to event notifications between the Application Server and S-CSCF to allow the Application Server to be notified of the implicit registered public user identities, registration state and UE capabilities and characteristics in terms of SIP User Agent capabilities and characteristics.

The S-CSCF shall decide whether an Application Server is required to receive information related to an incoming SIP session request to ensure appropriate service handling.. The decision at the S-CSCF is based on (filter) information received from the HSS. This filter information is stored and conveyed on a per application server basis for each user. The name(s)/address(es) information of the application server(s) are received from the HSS.

3GPP TSG-SA WG2 Meeting #40 **Tdoc ⌘S2-042193**
Sophia-Antipolis, France, 17-21 May 2004

CR-Form-v7

CHANGE REQUEST

⌘ **23.228** **CR** **427** ⌘**rev** **1** ⌘ Current version: **6.5.0** ⌘

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

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network **X**

Title:	⌘	Definition of Private User Identity
Source:	⌘	SA2 (Siemens)
Work item code:	⌘	IMS2
Date:	⌘	18/05/2004
Category:	⌘	**F**
Release:	⌘	Rel-6

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	Chapter 4.3.3.1 of 23.228 contains inconsistent text about the private user identity. It is not clear whether this identity describes the user or the subscription.
Summary of change:	⌘	Clarify that the private user identity describes the subscricption and not the user.
Consequences if not approved:	⌘	Inconsistent text in chapter 4.3.3.1 of 23.228.

Clauses affected:	⌘	4.3.3.1			
Other specs affected:	⌘	Y / N		⌘	
		☐ / X	Other core specifications		
		☐ / X	Test specifications		
		☐ / X	O&M Specifications		
Other comments:	⌘	This CR has no impact on other 3GPP specifications.			

How to create CRs using this form:
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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.

********** MODIFIED SECTION **********

4.3.3.1 Private user identities

Every IM CN subsystem user shall have one or more private user identities. The private identity is assigned by the home network operator, and used, for example, for Registration, Authorisation, Administration, and Accounting purposes. This identity shall take the form of a Network Access Identifier (NAI) as defined in RFC 2486 [14]. It is possible for a representation of the IMSI to be contained within the NAI for the private identity.

- The Private User Identity is not used for routing of SIP messages.
- The Private User Identity shall be contained in all Registration requests, (including Re-registration and De-registration requests) passed from the UE to the home network.
- An ISIM application shall securely store one Private User Identity. It shall not be possible for the UE to modify the Private User Identity information stored on the ISIM application.
- The Private User Identity is a unique global identity defined by the Home Network Operator, which may be used within the home network to ~~uniquely~~ identify the user's subscription (e.g. IM service capability) from a network perspective. The Private User Identity identifies the subscription, not the user.
- The Private User Identity shall be permanently allocated to a user's subscription (it is not a dynamic identity), and is valid for the duration of the user's subscription with the home network.
- The Private User Identity is used to identify the user's information (for example authentication information) stored within the HSS (for use for example during Registration).
- The Private User Identity may be present in charging records based on operator policies.
- ~~The Private User Identity identifies the subscription (e.g. IM service capability) not the user.~~
- The Private User Identity is authenticated only during registration of the user, (including re-registration and de-registration).
- The HSS needs to store the Private User Identity.
- The S-CSCF needs to obtain and store the Private User Identity upon registration and unregistered termination.

3GPP TSG-SA WG2 #40 **Tdoc ⌘S2-042270**
Sophia Antipolis, France, 17-21 May 2004

CR-Form-v7

CHANGE REQUEST

⌘ **23.228** **CR** **428** ⌘**rev** **1** ⌘ Current version: **6.5.0** ⌘

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

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network **X**

Title:	⌘	Clarification of IMS identity sharing
Source:	⌘	SA2 (Nortel Networks)
Work item code:	⌘	IMS2
Date:	⌘	20/5/2004
Category:	⌘	**F**
Release:	⌘	Rel-6

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)

Reason for change:	⌘	Current text on identity sharing does not correctly capture the intention that IMS identities should only be shared within an IMS Subscription. As a result the existing text has peculiar consequences for the S-CSCF selection algorithm at the HSS. Introducing this restriction implies that all Public User Identities of a subscription are served from the same S-CSCF. This implication should just be stated outright. Furthermore, the identity sharing capability was not intended to support services in which large numbers of different users can register a contact against a single identity, since this would imply all such users being part of the same subscription which would undermine the subscription concept. Finally, the requirement for a subscription option to prevent simultaneous registration of a shared identity by multiple contacts seem unnecessary.
Summary of change:	⌘	Clarification that IMS identities can only be shared within an IMS subscription. Clarification that all Public User Identities within a single subscription are registered at the same S-CSCF. Clarification that shared identities in Release 6 are not intended to support services in which large numbers of different users register a contact against a single identity. Removal of subscription option to prevent simultaneous registration of a shared identity by multiple contacts. Consistent capitalisation of terms.
Consequences if not approved:	⌘	IMS identities can be shared across multiple subscriptions. Unintended consequences for S-CSCF selection algorithm at the HSS.

Clauses affected:	⌘	4.3.3.4

		Y	N			
Other specs affected:	⌘		X	Other core specifications	⌘	
			X	Test specifications		
			X	O&M Specifications		
Other comments:	⌘					

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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.

**********First Change**********

4.3.3.4 Relationship of private and public user identities

The home network operator is responsible for the assignment of the private user identitiesifier, and public user identitiesfiers; other identities that are not defined by the operator may also exist.

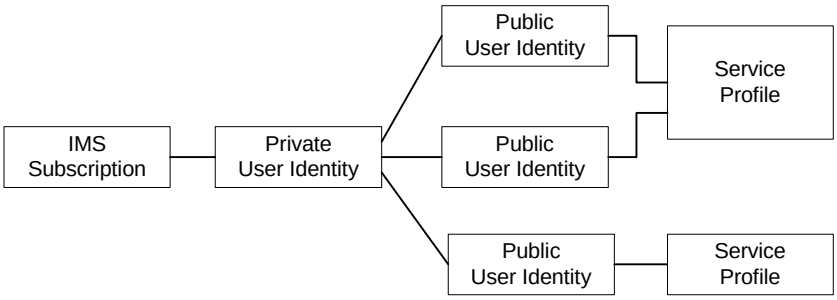

Figure 4.5: Relationship of the private user identity and public user identities

The IMS Service Profile is a collection of service and user related data as defined in 3GPP TS 29.228 [30]. The Service Profile is independent from the Implicit Registration Set, e.g. IMPUs with different Service Profiles may belong to the same Implicit Registration Set. Initial filter criteria in the service profile provide a simple service logic comprising of user / operator preferences that are of static nature i.e. they do not get changed on a frequent basis.

Application servers will provide more complex and dynamic service logic that can potentially make use of additional information not available directly via SIP messages (e.g. location, time, day etc.).

The IMS Service service profile is defined and maintained in the HSS and its scope is limited to IM CN Subsystem. A public user identity shall be registered at a single S-CSCF at one time. All public user identities of an IMS subscription shall be registered at the same S-CSCF. The service profile is downloaded from the HSS to the S-CSCF. Only one service profile per shall be associated with a Public public user identity is downloaded toat the S-CSCF at a given time (such as at registration, update of a profile etc.) based on the Public user identities being served by the S-CSCF. Nothing precludes that Mmultiple service profiles can may be defined in the HSS for a subscription. Each Public public user identity is associated with one and only one Service service Profileprofile. Each service profile is associated with one or more Public public user identities.

An ISIM application shall securely store the home domain name of the subscriber. It shall not be possible for the UE to modify the information from which the home domain name is derived.

It is not a requirement for a user to be able to register on behalf of another user which is third party registration specified in [12] or for a device to be able to register on behalf of another device or for combinations of the above for the IM CN subsystem for this release.

Public User user Identities identities may be shared across multiple UEsprivate user identities within the same IMS subscription. Hence, a particular Public public User user Identity identity may be simultaneously registered from multiple UEs that use different Private User Identities and different contact addresses. Subscription data may restrict a user from having the same Public User Identity simultaneously registered from multiple contact addresses. If a Public User Identity belongs to an IMS subscription and it is shared among the Private User Identities of a subscription, then it is assumed that all Private User Identities in the IMS subscription share the Public User Identity.

The relationship for such a shared Public public User user Identity identity with Private private User user Identitiesidentities, and the resulting relationship with service profiles and IMS subscription, is depicted in Figure 4.6.

-An IMS subscription may support multiple IMS users.

NOTE: The public user identity sharing mechanism described above is not intended to support sharing of identies across large numbers of private user identities, since this would result in all these users being forced to be associated with the same IMS subscription and hence the same S-CSCF.

NOTE: Subscription data is assumed to indicate which public user identities within a subscription are shared and which are not.

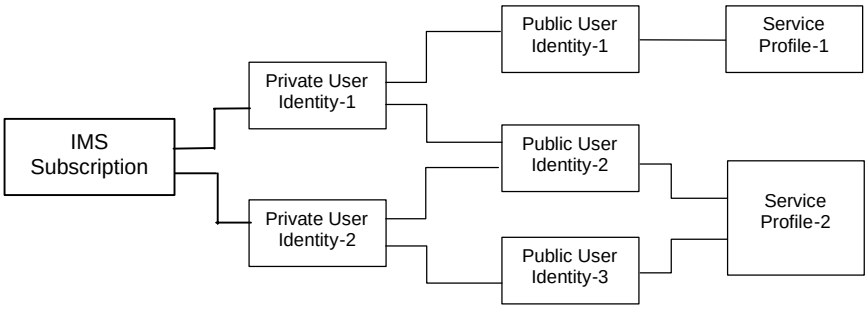

Figure 4.6 – The relation of a shared Public User Identity (Public-ID-2) and Private User Identities

~~All Service Profiles of a user, which share at least one common Private user identity through their relationship to public user identities, shall be associated to the same S-CSCF. Later releases may allow different Service Profiles that share the same Private user identity to be associated with different S-CSCFs.~~

All Service Profiles of a user shall be stored in the same HSS, even if the user has one or more shared ~~Public~~ public ~~U~~user ~~identities~~identities.

********** End of changes **********

3GPP TSG-SA2 Meeting #40
Sophia-Antipolis, France, 17th to 21st May 2004

Tdoc ⌘S2-042147

CR-Form-v7

CHANGE REQUEST

⌘ **23.228** **CR** **430** ⌘ **rev** **1** ⌘ Current version: **6.5.0** ⌘

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

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network ☒

Title:	⌘	Updates on the Gq interface in 23.228
Source:	⌘	SA2 (Orange)
Work item code:	⌘	QoS1
Date:	⌘	11/05/2004
Category:	⌘	**F**
Release:	⌘	Rel-6

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	In Rel-6, the Gq interface has been introduced between the P-CSCF and the PDF and all the procedures for SBLP have been defined. However, some part of the text in 23.228 still states that the interface between the P-CSCF and the PDF is not standardised.
Summary of change:	⌘	Removal of the sentences stating that the interface between the P-CSCF and the PDF is not standardised.
Consequences if not approved:	⌘	Uncorrect specifications

Clauses affected:	⌘	4.6.1, 5.4.7.0

		Y	N		
Other specs affected:	⌘		X	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	

Other comments:	⌘	

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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.

/********** First Change **********/

4.6.1 Proxy-CSCF

The Proxy-CSCF (P-CSCF) is the first contact point within the IM CN subsystem. Its address is discovered by UEs using the mechanism described in section “Procedures related to Local CSCF Discovery ”. The P-CSCF behaves like a Proxy (as defined in RFC 3261 [12] or subsequent versions), i.e. it accepts requests and services them internally or forwards them on. The P-CSCF shall not modify the Request URI in the SIP INVITE message. The P-CSCF may behave as a User Agent (as defined in the RFC 3261 [12] or subsequent versions), i.e. in abnormal conditions it may terminate and independently generate SIP transactions.

The Policy Decision Function (PDF) ~~is~~ may be a logical entity of the P-CSCF or a separate physical node. If the PDF is implemented in a separate physical node, the interface between the PDF and the P-CSCF is the Gq interface ~~not~~ standardised in 23.207 [9].

The functions performed by the P-CSCF are:

- Forward the SIP register request received from the UE to an I-CSCF determined using the home domain name, as provided by the UE.
- Forward SIP messages received from the UE to the SIP server (e.g. S-CSCF) whose name the P-CSCF has received as a result of the registration procedure.
- Forward the SIP request or response to the UE.

  Detect and handle an emergency session establishment request as per error handling procedures defined by stage-3.
- Generation of CDRs.
- Maintain a Security Association between itself and each UE, as defined in TS 33.203 [19].
- Should perform SIP message compression/decompression.

- Authorisation of bearer resources and QoS management. For details see TS 23.207 [9].

/********** Second Change **********/

5.4.7 Interaction between QoS and session signalling

5.4.7.0 General

At IP-CAN bearer activation the user shall have access to either IP-CAN services without service-based local policy, or IP-CAN services with service-based local policy. It is operator choice whether to offer both or only one of these alternatives for accessing the IM Subsystem.

When using IP-CAN without service-based local policy, the bearer is established according to the user’s subscription, local operator’s IP bearer resource based policy, local operator's admission control function and roaming agreements.

When using IP-CAN with service-based local policy, Service-Based Local Policy decisions (e.g., authorisation and control) are also applied to the bearer.

The description in this clause and the following sub-clauses (sub-clauses 5.4.7.1 – 5.4.7.7) is applicable for the case when service-based local policy is employed.

The IP-Connectivity Access Network contains a Policy Enforcement Function (PEF) that has the capability of policing packet flow into the IP network, and restricting the set of IP destinations that may be reached from/through an IP-CAN bearer according to a packet classifier. This service-based policy ‘gate’ function has an external control interface that allows it to be selectively ‘opened’ or ‘closed’ on the basis of IP destination address and port. When open, the gate allows packets to pass through (to the destination specified in the classifier) and when closed, no packets are allowed to pass through. The control is performed by a PDF, which ~~is~~ may be a logical entity of the P-CSCF, or a separate physical node. (Note: If the PDF is implemented in a separate physical node, the interface between the PDF and the P-CSCF is ~~not standardised~~the Gq interface standardised in 23.207 [9]).

There are eight interactions defined for service-based local policy:

1. Authorize QoS Resources.
2. Resource Reservation with Service-based Local Policy.
3. Approval of QoS Commit for resources authorised in (1), e.g. ‘open’ the ‘gate’.
4. Removal of QoS Commit for resources authorised in (1), e.g. ‘close’ the ‘gate’.
5. Revoke Authorisation for IP-CAN and IP resources.
6. Indication of IP-CAN bearer release from the PEF in the IP-Connectivity Access Network to the PDF.
7. Authorization of IP-CAN bearer modification
8. Indication of IP-CAN bearer modification from the PEF in the IP-Connectivity Access Network to the PDF.

These requirements and functional description of these interactions are explained further in the following sections. The complete specification of the interface between the Policy Decision Function and the Policy Enforcement Function is contained in TS 23.207.

/********** End of Change **********/

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Sophia-Antipolis, France, 17th to 21st May 2004

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CR-Form-v7

CHANGE REQUEST

⌘ **23.228** **CR** **431** ⌘ **rev** **-** ⌘ Current version: **6.5.0** ⌘

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

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network ☒

Title:	⌘	IMS procedures modification for token generation
Source:	⌘	SA2 (Orange)
Work item code:	⌘	QoS1
Date:	⌘	11/05/2004
Category:	⌘	**C**
Release:	⌘	Rel-6

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)

Reason for change:	⌘	In Rel-6, the Gq interface has been introduced between the P-CSCF and the PDF and all the procedures for SBLP have been defined. However, it was identified in previous meetings that there was an issue in the session establishment procedure when the PDF rejects a QoS authorisation request coming from the P-CSCF on the originating side. Such rejection might happen when the session characteristics are not consistent with the policy rules defined in the PDF. The current IMS session establishment specifies on the originating side that the P-CSCF send an authorisation request to the PDF when it receives the 183-PROGRESS from the terminating side. If the PDF rejects this authorisation request, the PDF has no way to react or try to change the session characteristics. The proposal in this CR is to modify the step where the P-CSCF makes the QoS authorisation request to the PDF to solve this issue.
Summary of change:	⌘	The QoS authorisation request is made on the originating side when the P-CSCF receives the INVITE Request from the UE. The authorisation token is also generated at that point in time.
Consequences if not approved:	⌘	There will be an unsolved issue in the IMS procedure in the case of a QoS authorisation reject from the PDF.

Clauses affected:	⌘	5.6.1, 5.6.2, 5.11.3.1, 5.11.3.3
Other specs	⌘	Y: ☐ N: ☒ Other core specifications ⌘

affected:	X Test specifications X 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/specs/CR.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.

/******************************** First Change ***********************************/

5.6.1 (MO#1) Mobile origination, roaming

This origination procedure applies to roaming users.

The UE is located in a visited network, and determines the P-CSCF via the CSCF discovery procedure described in section 5.1.1. The home network advertises either the S-CSCF or an I-CSCF as the entry point from the visited network.

When registration is complete, P-CSCF knows the name/address of the next hop in the signalling path toward the serving-CSCF, either I-CSCF(THIG) (if the home network wanted to hide their internal configuration) or S-CSCF (if there was no desire to hide the network configuration). I-CSCF, if it exists in the signalling path, knows the name/address of S-CSCF.

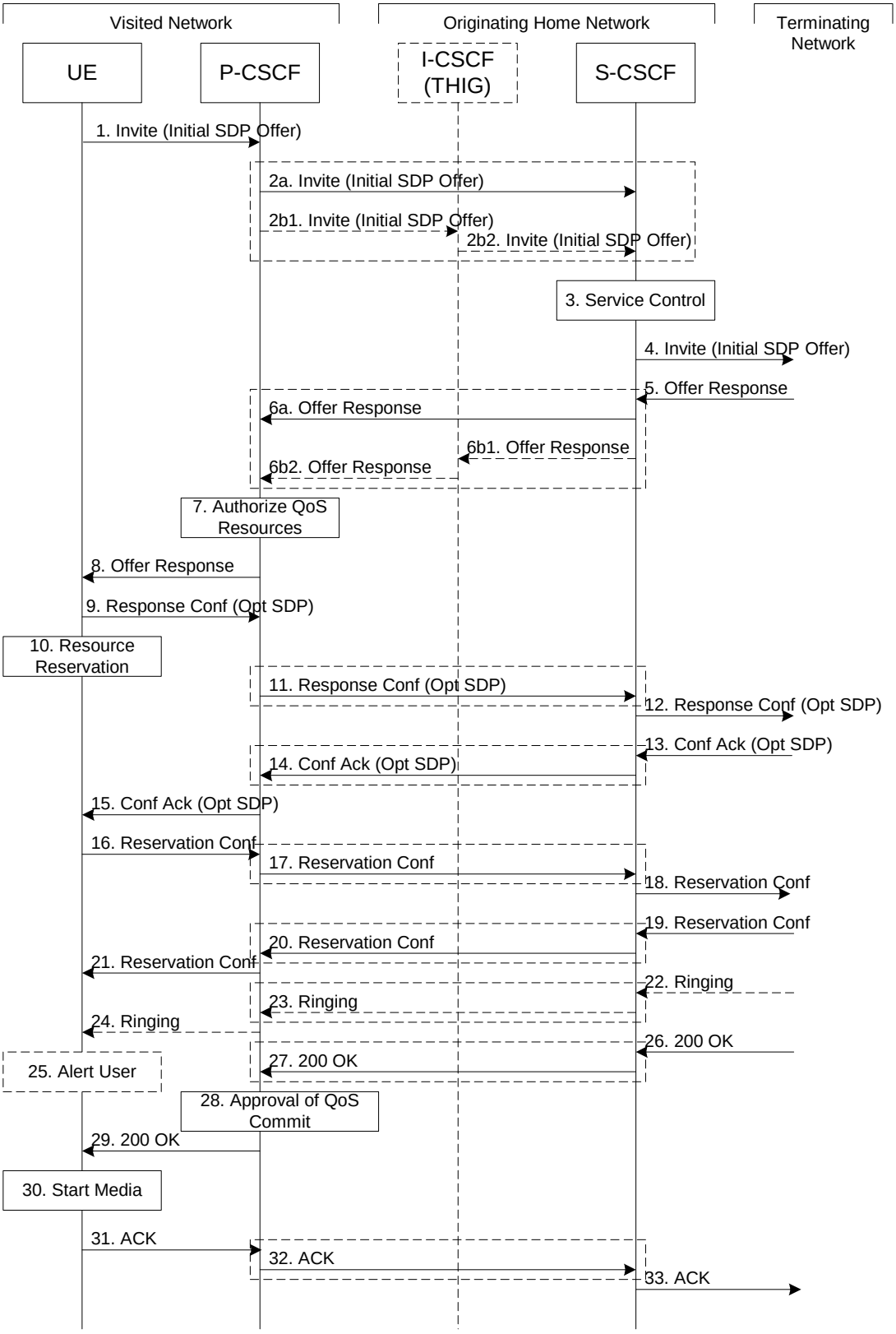

Figure 5.14: Mobile origination procedure - roaming

Procedure MO#1 is as follows:

1. UE sends the SIP INVITE request, containing an initial SDP, to the P-CSCF determined via the CSCF discovery mechanism. The initial SDP may represent one or more media for a multi-media session.

2. The Authorization-Token is generated by the PDF and stored in the P-CSCF. P-CSCF remembers (from the registration procedure) the next hop CSCF for this UE.

This next hop is either the S-CSCF that is serving the visiting UE (choice (a)), or an I-CSCF(THIG) within the home network that is performing the configuration hiding function for the home network operator (choice (b)).

(2a) If the home network operator does not desire to keep their network configuration hidden, the name/address of the S-CSCF was provided during registration, and the INVITE request is forwarded directly to the S-CSCF.

(2b) If the home network operator desires to keep their network configuration hidden, the name/address of an I-CSCF(THIG) in the home network was provided during registration, and the INVITE request is forwarded through this I-CSCF(THIG) to the S-CSCF.

(2b1) P-CSCF forwards the INVITE request to I-CSCF(THIG)

(2b2) I-CSCF(THIG) forwards the INVITE request to S-CSCF

3. S-CSCF validates the service profile, and invokes any origination service logic required for this user. This includes authorisation of the requested SDP based on the user's subscription for multi-media services.

4. S-CSCF forwards the request, as specified by the S-S procedures.

5. The media stream capabilities of the destination are returned along the signalling path, per the S-S procedures.

6. S-CSCF forwards the Offer Response message to P-CSCF. Based on the choice made in step #2 above, this may be sent directly to P-CSCF (6a) or may be sent through I-CSCF(THIG) (6b1 and 6b2).

7. P-CSCF authorises the resources necessary for this session. ~~The Authorization-Token is generated by the PDF.~~

8. The Authorization-Token is included in the Offer Response message. P-CSCF forwards the message to the originating endpoint

9. UE decides the offered set of media streams for this session, confirms receipt of the Offer Response and sends the Response Confirmation to the P-CSCF. The Response Confirmation may also contain SDP. This may be the same SDP as in the Offer Response received in Step 8 or a subset. If new media are defined by this SDP, a new authorization (as in Step 7) will be done by the P-CSCF(PDF) following Step 14. The originating UE is free to continue to offer new media on this operation or on subsequent exchanges using the Update method. Each offer/answer exchange will cause the P-CSCF(PDF) to repeat the Authorization step (Step 7) again.

10. After determining the needed resources in step 8, UE initiates the reservation procedures for the resources needed for this session.

11. P-CSCF forwards the Response Confirmation to S-CSCF. This may possibly be routed through the I-CSCF depending on operator configuration of the I-CSCF. Step 11 may be similar to Step 2 depending on whether or not configuration hiding is used.

12. S-CSCF forwards this message to the terminating endpoint, as per the S-S procedure.

13-15. The terminating end point responds to the originating end with an acknowledgement. If Optional SDP is contained in the Response Confirmation, the Confirmation Acknowledge will also contain an SDP response. If the SDP has changed, the P-CSCF validates that the resources are allowed to be used. Step 14 may be similar to Step 6 depending on whether or not configuration hiding is used.

16-18. When the resource reservation is completed, UE sends the successful Resource Reservation message to the terminating endpoint, via the signalling path established by the INVITE message. The message is sent first to P-CSCF. Step 17 may be similar to Step 2 depending on whether or not configuration hiding is used.

19-21. The terminating end point responds to the originating end when successful resource reservation has occured. If the SDP has changed, the P-CSCF authorizes that the resources are allowed to be used. Step 20 may be similar to Step 6 depending on whether or not configuration hiding is used.

22-24. Terminating end point may generate ringing and it is then forwarded via the session path to the UE. Step 23 may be similar to Step 6 depending on whether or not configuration hiding is used.

25. UE indicates to the originating user that the destination is ringing

26. When the destination party answers, the terminating endpoint sends a SIP 200-OK final response, as specified by the termination procedures and the S-S procedures, to S-CSCF.

27. S-CSCF sends a SIP 200-OK final response along the signalling path back to P-CSCF. Step 27 may be similar to Step 6 depending on whether or not configuration hiding is used.

28. P-CSCF indicates the resources reserved for this session should now be approved for use.

29. P-CSCF sends a SIP 200-OK final response to the session originator

30. UE starts the media flow(s) for this session

31-33. UE responds to the 200 OK with a SIP ACK message sent along the signalling path. Step 32 may be similar to Step 2 depending on whether or not configuration hiding is used.

5.6.2 (MO#2) Mobile origination, home

This origination procedure applies to users located in their home service area.

The UE is located in the home network, and determines the P-CSCF via the CSCF discovery procedure described in section 5.1.1. During registration, the home network allocates an S-CSCF in the home network.

When registration is complete, P-CSCF knows the name/address of S-CSCF.

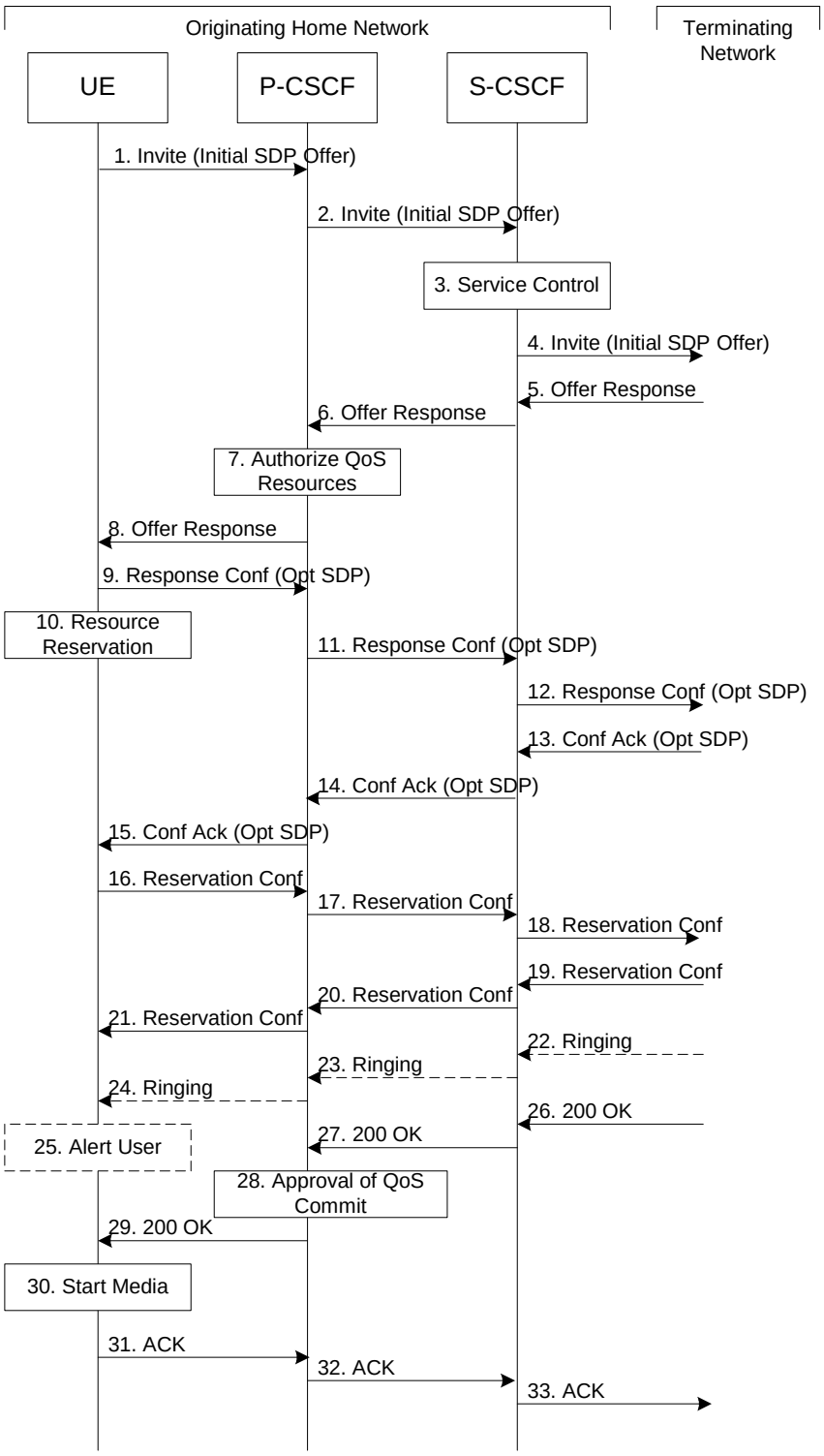

Figure 5.15: Mobile origination procedure - home

Procedure MO#2 is as follows:

1. UE#1 sends the SIP INVITE request, containing an initial SDP, to the P-CSCF determined via the CSCF discovery mechanism. The initial SDP may represent one or more media for a multi-media session.

2. The Authorization-Token is generated by the PDF and stored in the P-CSCF. P-CSCF remembers (from the registration procedure) the next hop CSCF for this UE. In this case it forwards the INVITE to the S-CSCF in the home network.

3. S-CSCF validates the service profile, and invokes any origination service logic required for this user. This includes authorisation of the requested SDP based on the user's subscription for multi-media services.

4. S-CSCF forwards the request, as specified by the S-S procedures.

5. The media stream capabilities of the destination are returned along the signalling path, per the S-S procedures.

6. S-CSCF forwards the Offer Response message to P-CSCF

7. P-CSCF authorises the resources necessary for this session. ~~The Authorization-Token is generated by the PDF.~~

8. The Authorization-Token is included in the Offer Response message. P-CSCF forwards the message to the originating endpoint.

9. UE decides the offered set of media streams for this session, confirms receipt of the Offer Response and sends the Response Confirmation to P-CSCF. The Response Confirmation may also contain SDP. This may be the same SDP as in the Offer Response received in Step 8 or a subset. If new media are defined by this SDP, a new authorization (as in Step 7) will be done by the P-CSCF(PDF) following Step 14. The originating UE is free to continue to offer new media on this operation or on subsequent exchanges using the Update method. Each offer/answer exchange will cause the P-CSCF(PDF) to repeat the Authorization step (Step 7) again.

10. UE initiates resource reservation for the offered media.

11. P-CSCF forwards this message to S-CSCF

12. S-CSCF forwards this message to the terminating endpoint, as per the S-S procedure.

13-14. The terminating end point responds to the originating end with an acknowledgement. If Optional SDP is contained in the Response Confirmation, the Confirmation Acknowledge will also contain an SDP response. If the SDP has changed, the PCSCF authorises the media.

15. PCSCF forwards the answered media towards the UE.

16-18. When the resource reservation is completed, UE sends the successful Resource Reservation message to the terminating endpoint, via the signalling path established by the INVITE message. The message is sent first to P-CSCF.

19-21. The terminating end point responds to the originating end when successful resource reservation has occured. If the SDP has changed, the P-CSCF again authorizes that the resources are allowed to be used.

22-24. The destination UE may optionally perform alerting. If so, it signals this to the originating party by a provisional response indicating Ringing. This message is sent to S-CSCF per the S-S procedure. It is sent from there toward the originating end along the signalling path.

25. UE indicates to the originating user that the destination is ringing.

26-27. When the destination party answers, the terminating endpoint sends a SIP 200-OK final response along the signalling path to the originating end, as specified by the termination procedures and the S-S procedures, to S-CSCF.

28. P-CSCF indicates the resources reserved for this session should now be approved for use.

29. P-CSCF passes the 200-OK response back to UE

30. UE starts the media flow(s) for this session.

31-33. UE responds to the 200 OK with an ACK message which is sent to P-CSCF and passed along the signalling path to the terminating end.

/******************************* Second Change ********************************/

5.11.3 Procedures for codec and media characteristics flow negotiations

5.11.3.0 General

This section gives information flows for:

- the procedures for determining the set of negotiated characteritics between the endpoints of a multi-media session, determining the initial media characteristics (including common codecs) to be used for the multi-media session, and

- the procedures for modifying a session within the existing resources reservation or with a new resources reservation (adding/deleting a media flow, changing media characteristics including codecs, changing bandwidth requirements) when the session is already established.

5.11.3.1 Codec and media characteristics flow negotiation during initial session establishment

Initial session establishment in the IM CN subsystem must determine a negotiated set of media characteristics (including a common codec or set of common codecs for multi-media sessions) that will be used for the session. This is done through an end-to-end message exchange to determine the complete set of media characteristics, then the decision is made by the session initiator as to the initial set of media flows.

The session initiator includes an SDP in the SIP INVITE message that lists every media characteristics (including codecs) that the originator is willing to support for this session. When the message arrives at the destination endpoint, it responds with the media characteristics (e.g. common subset of codecs) that it is also willing to support for the session. Media authorisation is performed for these media characteristics. The session initiator, upon receiving the common subset, determines the media characteristics (including codecs) to be used initially.

The negotiation may take multiple media offered and answered between the end points until the media set is agreed upon.

Once the session is established, the procedures of section 5.11.3.2 may be used by either endpoint to change to a different media characteristic (e.g. codec) that was included in the initial session description, and for which no additional resources are required for media transport. The procedures of section 5.11.3.3 may be used by either endpoint to change the session, which requires resources beyond those allocated to the existing session.

The flow presented here assumes that service-based local policy is in use.

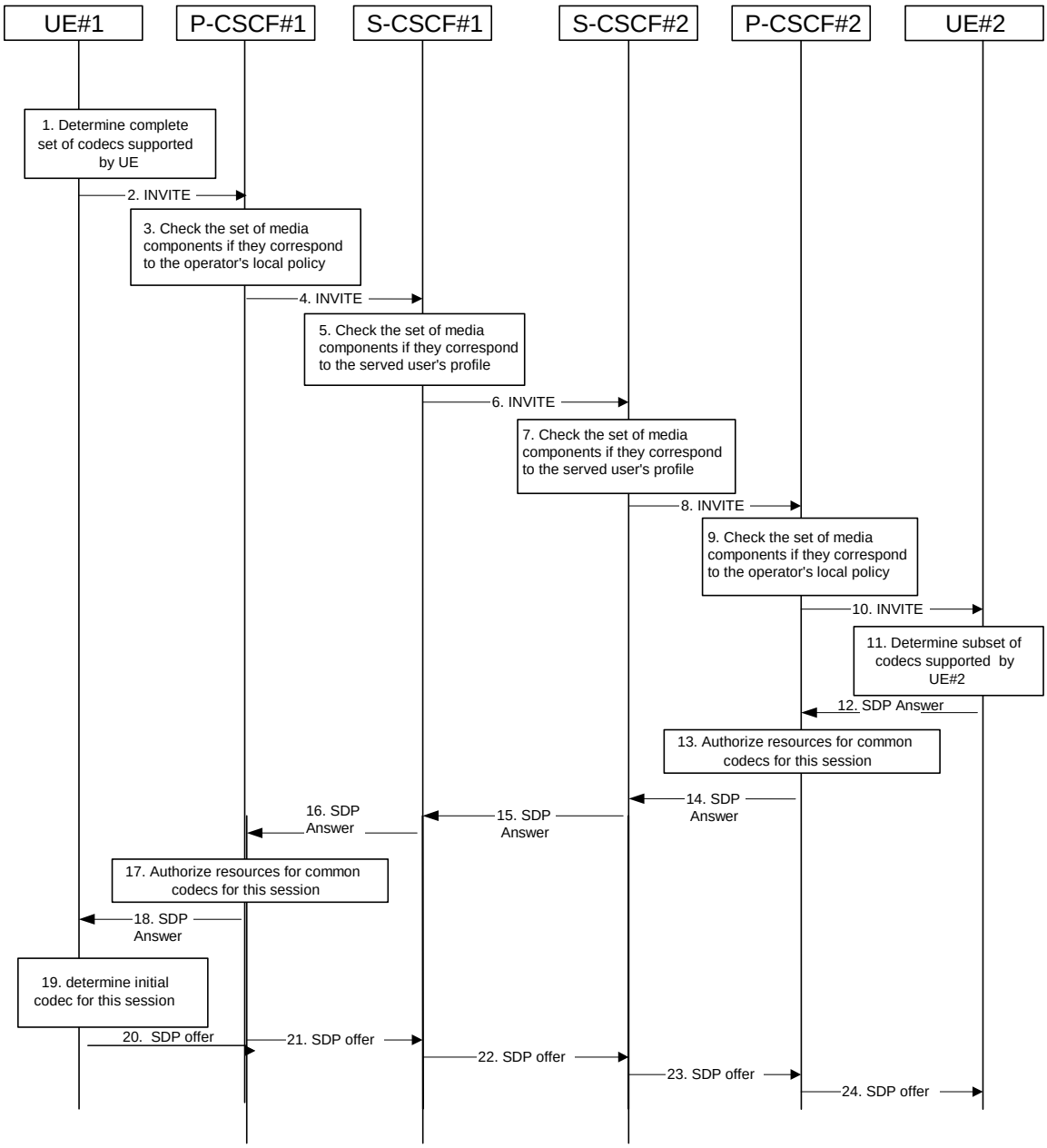

Figure 5.30: Codec negotiation during initial session establishment

The detailed procedure is as follows:

1. UE#1 inserts the codec(s) to a SDP payload. The inserted codec(s) shall reflect the UE#1's terminal capabilities and user preferences for the session capable of supporting for this session. It builds a SDP containing bandwidth requirements and characteristics of each, and assigns local port numbers for each possible media flow. Multiple media flows may be offered, and for each media flow (m= line in SDP), there may be multiple codec choices offered.

2. UE#1 sends the initial INVITE message to P-CSCF#1 containing this SDP

3. P-CSCF#1 examines the media parameters. If P-CSCF#1 finds media parameters ~~that local policy does~~ not allowed to be used within an IMS session (based on P-CSCF local policies or a QoS authorisation reject coming from the PDF), it rejects the session initiation attempt. This rejection shall contain sufficient information for the originating UE to re-attempt session initiation with media parameters that are allowed by local policy of P-CSCF#1's network according to the procedures specified in RFC 3261 [12].
   In this flow described in Figure 5.30 above the P-CSCF#1 allows the initial session initiation attempt to continue.
   The Authorisation token is generated by the PDF.

4. P-CSCF#1 forwards the INVITE message to S-CSCF#1

5. S-CSCF#1 examines the media parameters. If S-CSCF#1 finds media parameters that local policy or the originating user's subscriber profile does not allow to be used within an IMS session, it rejects the session initiation attempt. This rejection shall contain sufficient information for the originating UE to re-attempt session initiation with media parameters that are allowed by the originating user's subscriber profile and by local policy of S-CSCF#1's network according to the procedures specified in RFC 3261 [12].
   In this flow described in Figure 5.30 above the S-CSCF#1 allows the initial session initiation attempt to continue.

6. S-CSCF#1 forwards the INVITE, through the S-S Session Flow Procedures, to S-CSCF#2

7. S-CSCF#2 examines the media parameters. If S-CSCF#2 finds media parameters that local policy or the terminating user's subscriber profile does not allow to be used within an IMS session, it rejects the session initiation attempt. This rejection shall contain sufficient information for the originating UE to re-attempt session initiation with media parameters that are allowed by the terminating user's subscriber profile and by local policy of S-CSCF#2's network according to the procedures specified in RFC 3261 [12].
   In this flow described in Figure 5.30 above the S-CSCF#2 allows the initial session initiation attempt to continue.

8. S-CSCF#2 forwards the INVITE message to P-CSCF#2.

9. P-CSCF#2 examines the media parameters. If P-CSCF#2 finds media parameters ~~that local policy does~~ not allowed to be used within an IMS session (based on P-CSCF local policies or a QoS authorisation reject coming from the PDF), it rejects the session initiation attempt. This rejection shall contain sufficient information for the originating UE to re-attempt session initiation with media parameters that are allowed by local policy of P-CSCF#2's network according to the procedures specified in RFC 3261 [12].
   In this flow described in Figure 5.30 above the P-CSCF#2 allows the initial session initiation attempt to continue.
   The Authorization-Token is generated by the PDF.

10. The Authorization-Token is included in the INVITE message. P-CSCF#2 forwards the INVITE message to UE#2

11. UE#2 determines the complete set of codecs that it is capable of supporting for this session. It determines the intersection with those appearing in the SDP in the INVITE message. For each media flow that is not supported, UE#2 inserts a SDP entry for media (m= line) with port=0. For each media flow that is supported, UE#2 inserts a SDP entry with an assigned port and with the codecs in common with those in the SDP from UE#1.

12. UE#2 returns the SDP listing common media flows and codecs to P-CSCF#2

13. P-CSCF#2 authorises the QoS resources for the remaining media flows and codec choices.

14. P-CSCF#2 forwards the SDP response to S-CSCF#2.

15. S-CSCF#2 forwards the SDP response to S-CSCF#1

16. S-CSCF#1 forwards the SDP response to P-CSCF#1

17. P-CSCF#1 authorises the QoS resources for the remaining media flows and codec choices. ~~The Authorization-Token is generated by the PDF.~~

18. The Authorization-Token is included in the SDP message. P-CSCF#1 forwards the SDP response to UE#1

19. UE#1 determines which media flows should be used for this session, and which codecs should be used for each of those media flows. If there was more than one media flow, or if there was more than one choice of codec for a media flow, then UE#1 need to renegotiate the codecs by sending another offer to reduce codec to one with the UE#2.

20-24. UE#2 sends the “Offered SDP” message to UE#1, along the signalling path established by the INVITE request

The remainder of the multi-media session completes identically to a single media/single codec session, if the negotiation results in a single codec per media.

5.11.3.2 Codec or media characteristics flow change within the existing reservation

After the multi-media session is established, it is possible for either endpoint to change the set of media flows or media characteristics (e.g. codecs) for media flows. If the change is within the resources already reserved, then it is only necessary to synchronise the change with the other endpoint. Note that an admission control decision will not fail if the new resource request is within the existing reservation.

The flow presented here assumes that service-based local policy is in use.

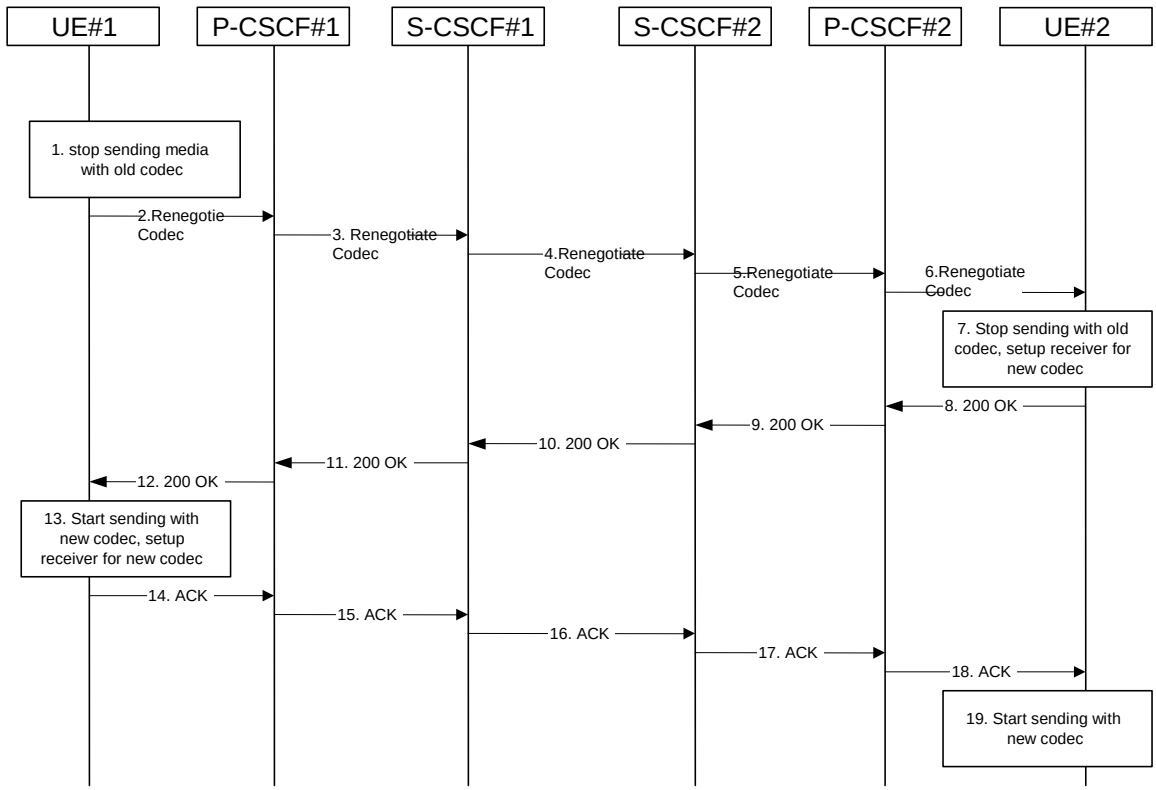

Figure 5.31: Codec or media flow change - same reservation

The detailed procedure is as follows:

1. UE#1 determines that a new media stream is desired, or that a change is needed in the codec in use for an existing media stream. UE#1 evaluates the impact of this change, and determines the existing resources reserved for the session are adequate. UE#1 builds a revised SDP that includes all the common media flows determined by the initial negotiation, but assigns a codec and port number only to those to be used onward. UE#1 stops transmitting media streams on those to be dropped from the session.

2-6. UE#1 sends an INVITE message through the signalling path to UE#2. At each step along the way, the CSCFs recognise the SDP is a proper subset of that previously authorised, and take no further action.

7. UE#2 receives the INVITE message, and agrees that it is a change within the previous resource reservation. (If not, it would respond with a SDP message, following the procedures of 5.11.3.1). UE#2 stops sending the media streams to be deleted, and initialises its media receivers for the new codec.

8-12. UE#2 forwards a 200-OK final response to the INVITE message along the signalling path back to UE#1.

13. UE#1 starts sending media using the new codecs. UE#1 also releases any excess resources no longer needed.

14-18. UE#1 sends the SIP final acknowledgement, ACK, to UE#2.

19. UE#2 starts sending media using the new codecs. UE#2 also releases any excess resources no longer needed

5.11.3.3 Codec or media characteristics flow change requiring new resources and/or authorisation

After the multi-media session is established, it is possible for either endpoint to change the set of media flows or media characteristics (e.g. codecs) for media flow(s). If the change requires different resources beyond those previously reserved, then it is necessary to perform the resource reservation and bearer establishment procedures. If the reservation request fails for whatever reason, the original multi-media session remains in progress.

The flow presented here assumes that service-based local policy is in use.

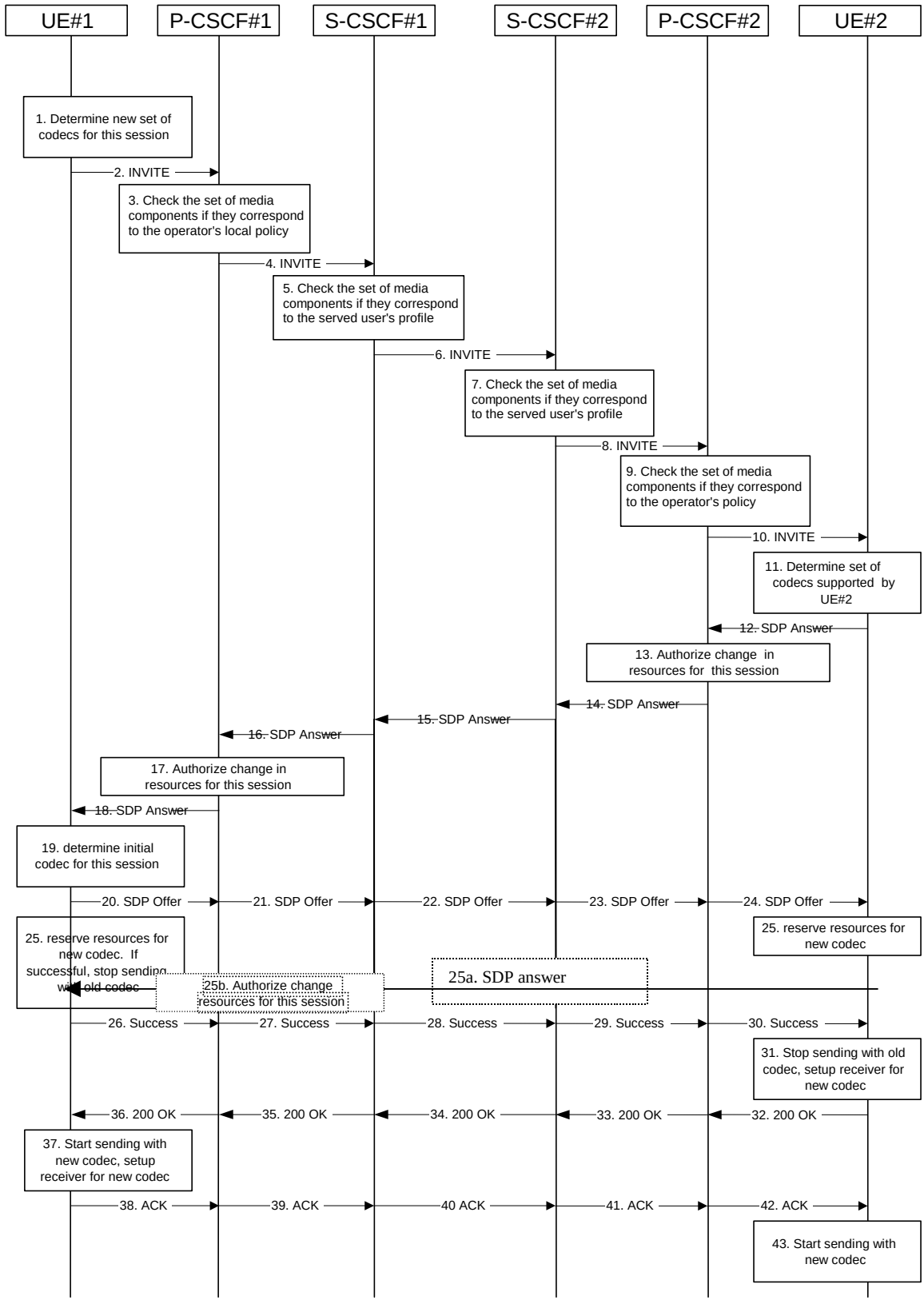

Figure 5.32: Codec or media flow change - new reservation

The detailed procedure is as follows:

1. UE#1 inserts the revised set of codecs to a SDP payload. The inserted codec(s) shall reflect the UE#1's terminal capabilities and user preferences for the session. It builds a SDP containing bandwidth requirements and characteristics of each, and assigns local port numbers for each possible media flow. Multiple media flows may be offered, and for each media flow (m= line in SDP), there may be multiple codec choices offered.

2. UE#1 sends an INVITE message to P-CSCF#1 containing this SDP

3. P-CSCF#1 examines the media parameters. If P-CSCF#1 finds media parameters ~~that local policy does~~ not allowed to be used within an IMS session (based on P-CSCF local policies or a QoS authorisation reject coming from the PDF), it rejects the session modification attempt. This rejection shall contain sufficient information for the originating UE to re-attempt session modification with media parameters that are allowed by local policy of P-CSCF#1's network according to the procedures specified in RFC 3261 [12].
   In this flow described in Figure 5.32 above the P-CSCF#1 allows the initial session modification attempt to continue.

4. P-CSCF#1 forwards the INVITE message to S-CSCF#1

5. S-CSCF#1 examines the media parameters. If S-CSCF#1 finds media parameters that local policy or the originating user's subscriber profile does not allow to be used within an IMS session, it rejects the session modification attempt. This rejection shall contain sufficient information for the originating UE to re-attempt session modification with media parameters that are allowed by the originating user's subscriber profile and by local policy of S-CSCF#1's network according to the procedures specified in RFC 3261 [12].
   In this flow described in Figure 5.32 above the S-CSCF#1 allows the initial session modification attempt to continue.

6. S-CSCF#1 forwards the INVITE, through the S-S Session Flow Procedures, to S-CSCF#2

7. S-CSCF#2 examines the media parameters. If S-CSCF#2 finds media parameters that local policy or the terminating user's subscriber profile does not allow to be used within an IMS session, it rejects the session modification attempt. This rejection shall contain sufficient information for the originating UE to re-attempt session modification with media parameters that are allowed by the terminating user's subscriber profile and by local policy of S-CSCF#2's network according to the procedures specified in RFC 3261 [12].
   In this flow described in Figure 5.32 above the S-CSCF#2 allows the initial session modification attempt to continue.

8. S-CSCF#3 forwards the INVITE message to P-CSCF#2.

9. P-CSCF#2 examines the media parameters. If P-CSCF#2 finds media parameters ~~that local policy does~~ not allowed to be used within an IMS session (based on P-CSCF local policies or a QoS authorisation reject coming from the PDF), it rejects the session modification attempt. This rejection shall contain sufficient information for the originating UE to re-attempt session modification with media parameters that are allowed by local policy of P-CSCF#2's network according to the procedures specified in RFC 3261 [12].
   In this flow described in Figure 5.32 above the P-CSCF#2 allows the initial session modification attempt to continue.

10. P-CSCF#2 forwards the INVITE message to UE#2

11. UE#2 determines the complete set of codecs that it is capable of supporting for this session. It determines the intersection with those appearing in the SDP in the INVITE message. For each media flow that is not supported, UE#2 inserts a SDP entry for media (m= line) with port=0. For each media flow that is supported, UE#2 inserts a SDP entry with an assigned port and with the codecs in common with those in the SDP from UE#1.

12. UE#2 returns the SDP listing common media flows and codecs to P-CSCF#2. It may additionally provide more codecs than originally offered and then the offered set need to be renegotiated.

13. P-CSCF#2 increases the authorisation for the QoS resources, if needed, for the remaining media flows and codec choices.

14. P-CSCF#2 forwards the SDP response to S-CSCF#2.

15. S-CSCF#2 forwards the SDP response to S-CSCF#1

16. S-CSCF#1 forwards the SDP response to P-CSCF#1

17. P-CSCF#1 increases the authorisation for the QoS resources, if needed, for the remaining media flows and codec choices.

18. P-CSCF#1 forwards the SDP response to UE#1

19. UE#1 determines which media flows should be used for this session, and which codecs should be used for each of those media flows. If there was more than one media flow, or if there was more than one choice of codec for a media flow, then UE#1 must include an SDP in the response message by including SDP to UE#2.

20-24. UE#1 sends the offered SDP message to UE#2, including the SDP from step #19 if needed.

25. UE#1 and UE#2 reserve the resources needed for the added or changed media flows. If the reservation is successfully completed by UE#1, it stops transmitting any deleted media streams.

25a. If UE#1 has sent an updated offer of SDP in steps 20-24, then UE#2 responds to the offer.

25b. P-CSCF#1 authorises the offered SDP sent by UE#2,

26-30. UE#1 sends the successful Resource Reservation Successful message with final SDP to UE#2, via the signalling path through the CSCFs.

31. UE#2 stops sending the media streams to be deleted, and initialises its media receivers for the new codec.

32-36. UE#2 sends the 200-OK final response to UE#1, along the signalling path

37. UE#1 starts sending media using the new codecs. UE#1 also releases any excess resources no longer needed.

38-40. UE#1 sends the SIP final acknowledgement, ACK, to UE#2 along the signalling path

43. UE#2 starts sending media using the new codecs. UE#2 also releases any excess resources no longer needed

/********** End of Change **********/

3GPP TSG SA WG2 meeting #40
Sophia Antipolis, France, 17th – 21st May 2004

Tdoc ⌘S2-042268

CR-Form-v7

CHANGE REQUEST

⌘ **23.228** **CR** **432** ⌘ **rev** **2** ⌘ Current version: **6.5.0** ⌘

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

Proposed change affects: UICC apps⌘ [ ] ME [X] Radio Access Network [ ] Core Network [X]

Title:	⌘	Release of Session based messaging session with intermediate node
Source:	⌘	SA2 (Ericsson)
Work item code:	⌘	IMS2
Date:	⌘	20/05/2004
Category:	⌘	**F**
Release:	⌘	Rel-6

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	Current stage 2 has not yet covered the procedures for release procedures for Session based messaging when using Intermediate node
Summary of change:	⌘	Introduce a new subclause to add session release for session based messaging using intermediate node
Consequences if not approved:	⌘	Unspecified/incomplete stage 2

Clauses affected:	⌘	5.16.2.2.4 and a new subclause 5.16.2.2.5

Other specs Affected: ⌘	Y	N	
		X	Other core specifications
		X	Test specifications
		X	O&M Specifications

⌘

Other comments:	⌘	This CR does not overlap with CR 413, even though they affect the same subclause

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.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.

<< Changed section >>

5.16.2.2.4 Session based messaging release procedure

The following procedure shows the release of a message session, which was established between two UEs. It is assumed that UE#1 is the session host.

Note 1: The following call flow may be not applicable in case SBLP is used.

~~Note 2: The following call flow assumes that a separate IP-CAN bearer is used to send and receive messages.~~

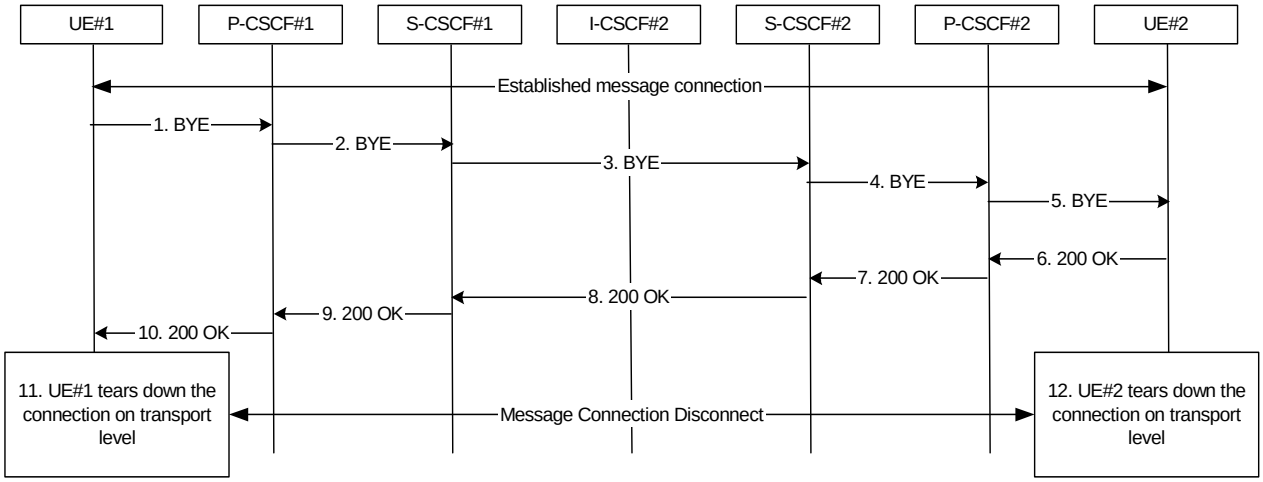

Figure 5.48d: Message session release procedure

1.–5. UE#1 indicates its intent to terminate the message session by sending a BYE request to UE#2.

6.–10. UE#2 agrees to end the session and acknowledges the BYE request by sending a 200 OK to UE#1, which traverses back the signalling path.

11. Session host UE#1 shall tear down the message connection on the transport level and destroy local state for the message session. ~~In case~~It is assumed that UE#1 ~~does not~~ uses the IP-CAN bearer for ~~any~~ some other services, ~~it may decide to release the bearer~~hence it keeps the bearer activated.

12. UE#2 shall tear down the message connection on the transport level and destroy local state for the message session. I~~n case~~t is assumed that UE#2 ~~does not~~ uses the IP-CAN bearer for ~~any~~ some other services;~~,~~ hence it keeps the bearer activated~~it may decide to release the bearer~~.

5.16.2.2.5 Session based messaging release procedure with an intermediate node

The following procedure shows the release of a message session, which was established between two UEs via an intermediate node. It is assumed that UE#1 is the session host.

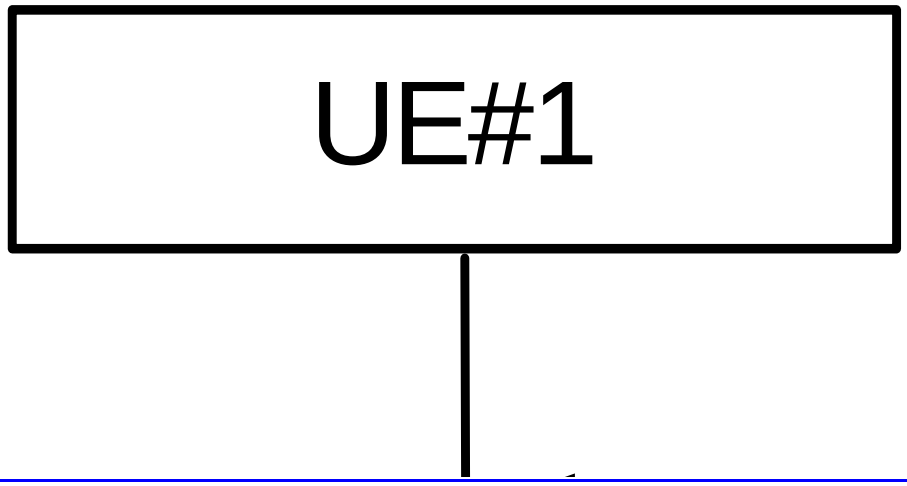

Figure 5.xxx: Message session release procedure with intermediate node

1.–3. UE#1 indicates its intent to terminate the message session by sending a BYE request to UE#2, via the AS.

4. The AS forwards the BYE request to the UE#2

5.–7. The AS may now either agree to end the session and acknowledges the BYE request by sending a 200 OK to UE#1 directly, which traverses back the signalling path, or wait until the UE#2 has agreed to end the session. In the example above the AS immediately accepts to end the session, the decision whether to accept a request to end the session from UE#1 without waiting for the response from UE#2 can be based upon the AS operator policy.

8. Session host UE#1 shall tear down the message connection on the transport level and destroy local state for the message session. It is assumed that UE#2 uses the IP-CAN bearer for some other services; hence it keeps the bearer activated. Any further data that might still be sent by UE#2 will not reach UE#1 in this scenario.

9. The AS receives the acknowledgement, from UE#2, to end the session

10. The AS shall tear down the message connection with UE#2 on the transport level and destroy local state for the message session.

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Sophia Antipolis, France, 17th – 21st May 2004

CR-Form-v7

CHANGE REQUEST

⌘ **23.228** **CR** **434** ⌘**rev** **1** ⌘ Current version: **6.5.0** ⌘

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

Proposed change affects: UICC apps⌘ [ ] ME [X] Radio Access Network [ ] Core Network [ ]

Title:	⌘	Information storage after registration
Source:	⌘	SA2 (Samsung)
Work item code:	⌘	IMS
Date:	⌘	12/05/04
Category:	⌘	***F***
Release:	⌘	Rel6

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	UE shall store Home network contact information in Service-route header after registration. However Table 5.1 contains wrong information about it.
Summary of change:	⌘	Modify UE part of 'Table 5.1 Information Storage before, during, and after the registration process' and add a sentence before the table.
Consequences if not approved:	⌘	The wrong contents in Table 5.1 will cause confusion.

Clauses affected:	⌘	5.2.2.5			
		Y	**N**		
Other specs affected:	⌘		X	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘				

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Below is a brief summary:

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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.

****** FIRST MODIFIED SECTION ******

5.2.2.5 Stored information.

Table 5.1 provides an indication of some of the information stored in the indicated nodes during and after the registration process. Note that Table 5.1 is not an exhaustive list of stored information, i.e. there can be additional information stored due to registration.

Table 5.1 Information Storage before, during and after the registration process

Node	Before Registration	During Registration	After Registration
UE - in local network	Credentials Home Domain Proxy Name/Address	Same as before registration	Credentials Home Domain Proxy Name/Address ~~Same as before registration~~
Proxy-CSCF - in Home or Visited network	Routing Function	Initial Network Entry point UE Address Public and Private User IDs	Final Network Entry point UE Address Public and Private User IDs
Interrogating-CSCF - in Home network	HSS or SLF Address	Serving-CSCF address/name P-CSCF Network ID Home Network contact Information	No State Information
HSS	User Service Profile	P-CSCF Network ID	Serving-CSCF address/name\
Serving-CSCF (Home)	No state information	HSS Address/name User profile (limited – as per network scenario) Proxy address/name P-CSCF Network ID Public/Private User ID UE IP Address	May have session state Information Same as during registration

****** END OF CHANGES ******