

Source: TSG CN WG1
Title: CRs to Rel-6 WI “IMS2” for TS 24.147
Agenda item: 9.1
Document for: APPROVAL

This document contains **12 CRs on Rel-6 Work Item “IMS2”**, that have been agreed by TSG CN WG1 CN#36 meeting and forwarded to TSG CN Plenary meeting #26 for approval.

TDoc #	Tdoc Title	Spec	CR #	Rev	CAT	C_Version	WI	Rel
N1-041708	Removing editor's note on other protocols	24.147	001		C	6.0.0	IMS2	Rel-6
N1-041760	Alternative procedure for removing all conference participants	24.147	007		F	6.0.0	IMS2	Rel-6
N1-041979	Update of SIP Chapter to new CPCP terminology	24.147	008	1	F	6.0.0	IMS2	Rel-6
N1-041762	Update of CPCP Chapter	24.147	009		F	6.0.0	IMS2	Rel-6
N1-041980	Removal of "Conference Notification Service" Role	24.147	010	1	F	6.0.0	IMS2	Rel-6
N1-041981	Update of signaling flows	24.147	011	1	F	6.0.0	IMS2	Rel-6
N1-041982	Introduction of XCAP Change	24.147	012	1	B	6.0.0	IMS2	Rel-6
N1-041983	Correction of BFCP clause	24.147	013	1	F	6.0.0	IMS2	Rel-6
N1-041985	Correction Flow Adding a user to the conference with CPCP	24.147	016	1	F	6.0.0	IMS2	Rel-6
N1-041986	Correction - Flow “conference creation with CPCP”	24.147	017	1	F	6.0.0	IMS2	Rel-6
N1-041987	Correction expelling/terminating flow using CPCP	24.147	018	1	F	6.0.0	IMS2	Rel-6
N1-041790	p-asserted id in response from conf AS/MRFC	24.147	019		F	6.0.0	IMS2	Rel-6

**3GPP TSG-CN1 Meeting #36
Seoul, Korea, 15-19 November 2004**

Tdoc N1-041708

CR-Form-v7.1	
CHANGE REQUEST	
⌘ 24.147 CR 1 ⌘ rev - ⌘	Current version: 6.0.0 ⌘

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:	⌘ Removing Editor's Note on other protocols	
Source:	⌘ Nokia	
Work item code:	⌘ IMS2	Date: ⌘ 27/10/04
Category:	⌘ C	Release: ⌘ Rel-6
	Use <u>one</u> 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 <u>one</u> of the following releases: Ph2 (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) Rel-7 (Release 7)

Reason for change:	⌘ Scope section still includes note and hints on other protocols. All other protocols are already listed in the related paragraphs
Summary of change:	⌘ Deletion of mentioning other protocols
Consequences if not approved:	⌘ Other protocols are mentioned that are not used

Clauses affected:	⌘									
Other specs affected:	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="text-align: center;">Y</td> <td style="text-align: center;">N</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> <tr> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> </table> Other core specifications ⌘ Test specifications ⌘ O&M Specifications ⌘	Y	N	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	⌘
Y	N									
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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.
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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.

1 Scope

The present document provides the protocol details for conferencing within the IP Multimedia Core Network subsystem (IMS) based on the Session Initiation Protocol (SIP), SIP Events, the Session Description Protocol (SDP), the Conference Policy Control Protocol (CPCP) [and](#), the Binary Floor Control Protocol (BFCP) ~~and other protocols~~.

~~Editor's note: The "other protocols" that are mentioned here need to be listed in detail, in order to replace the phrase "other protocols". This TS only covers protocols in the scope of CN1.~~

The present document does not cover the signalling between a MRFC and a MRFP.

Where possible the present document specifies the requirements for this protocol by reference to specifications produced by the IETF within the scope of SIP, SIP Events, SDP, CPCP [and](#), BFCP ~~and other protocols~~, either directly, or as modified by 3GPP TS 24.229. Where this is not possible, extensions to SIP are defined within the present document. The document has therefore been structured in order to allow both forms of specification.

The present document is applicable to Application Servers (ASs), Multimedia Resource Function Controllers (MRFCs), Multimedia Resource Function Processors (MRFP), Media Gateway Control Functions (MGCFs) and to User Equipment (UE) providing conferencing capabilities.

CR-Form-v7.1

CHANGE REQUEST

⌘ **24.147 CR 7** ⌘ rev **-** ⌘ Current version: **6.0.0** ⌘

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:	⌘ Alternative procedure for removing all conference participants		
Source:	⌘ Infineon Technologies		
Work item code:	⌘ IMS2	Date:	⌘ 22/10/2004
Category:	⌘ F	Release:	⌘ Rel-6
	<i>Use <u>one</u> of the following categories:</i> 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 .		<i>Use <u>one</u> of the following releases:</i> Ph2 (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) Rel-7 (Release 7)

Reason for change:	⌘ In the last meeting a procedure was introduced to remove all conference participants with a single REFER request. The Refer-To header of that REFER request was set to "*@*". Unfortunately, an asterisk is only allowed in the userinfo part and it is not possible to have one in the hostport part. This change request proposes therefore an alternative procedure to remove all conference participants with a single SIP request. The proposed procedure uses the C-URI within the Refer-To Header.
Summary of change:	⌘ The wildcarded SIP-URI is replaced with the C-URI
Consequences if not approved:	⌘ The procedure to remove all participants with a single REFER request is not changed

Clauses affected:	⌘ 5.3.1.6.3, 5.3.2.6.2.2, 5.3.2.6.2.4										
Other specs affected:	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;">⌘</td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;">⌘</td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;">⌘</td> <td style="text-align: center;">X</td> </tr> </table> Other core specifications Test specifications O&M Specifications	Y	N	⌘	X	⌘	X	⌘	X		⌘
Y	N										
⌘	X										
⌘	X										
⌘	X										
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: SIP Part, Conference Participant Role -----

5.3.1.6.3 Removing a conference participant from a conference

In order to remove a conference participant from a conference, the removing conference participant shall apply one of the following procedures:

- 1) removing a conference participant from a conference by sending a REFER request to the conference focus, as described in this subclause; or
- 2) removing a conference participant from a conference by adding a new element to the ACL, as described in subclause 7.3.2.

It is out of the scope of the present document, how the UE decides which of the above mentioned procedures shall be applied.

Upon generating a REFER request to remove a conference participant from a conference, the removing conference participant shall:

- 1) set the request URI of the REFER request to the conference URI of the conference from which the conference participant shall be removed
- 2) set the Refer-To header of the REFER request:
 - a) to the address of the conference participant who should be removed from the conference, including the "method" parameter set to "BYE", if a single conference participant should be removed from the conference; or
 - b) to **"*@*"the conference URI** and the "method" parameter to "BYE", if all conference participants shall be removed from the conference.

NOTE 1: Other headers of the REFER request will be set in accordance with 3GPP TS 24.229 [5].

NOTE 2: The removal of all conference participants from the conference will terminate the conference if the conference policy is set accordingly.

- 3) send the REFER request towards the conference focus that is hosting the conference.

Afterwards the removing conference participant shall treat incoming NOTIFY requests that are related to the previously sent REFER request in accordance with RFC 3515 [17] and may indicate the received information to the user.

----- SECOND CHANGE: SIP Part, Conference Focus Role -----

5.3.2.6.2.2 Request from a conference participant to remove another conference participant from a conference

Upon receipt of a REFER request that includes:

- a) a conference URI in the request URI; and,
- b) a Refer-To header including:
 - 1) a valid SIP URI, or tel URL ~~or wildcarded SIP URI "*@*"~~; and
 - 2) the "method" parameter set to "BYE".

The conference focus shall:

- 1) check if the conference URI is allocated. If the conference URI is not allocated, the conference focus shall reject the request in accordance with RFC 3261 [7]. The following actions in this subclause shall only be performed if the conference URI is allocated;

- 2) check if the SIP URI or tel URL of the Refer-To header is identical to the conference URI or belongs to a user who is currently a participant of the referenced conference. ~~If there is no corresponding conference participant, the conference focus shall perform the actions as described in subclause 5.3.2.6.2.4~~If this verification fails, then reject the request in accordance with RFC 3261 [7];
- 3) verify the identity of the user as described in subclause 5.7.1.4 of 3GPP TS 24.229 [5] and authorize the request as described in subclause 5.7.1.5 of 3GPP TS 24.229 [5]. The following actions in this subclause shall only be performed if the request can be authorized;
- 4) generate a final response to the REFER request in accordance with RFC 3515 [17];
- 5) if a single conference participant is indicated in the Refer-To header, remove this conference participant from the conference according to subclause 5.3.2.6.2.3. If the Refer-To header includes the conference URI, remove all conference participants ~~shall be removed~~ from the conference by performing, i.e. the Refer-To header includes the wildcarded SIP URI "*"@*", ~~perform~~ the procedures described in subclause 5.3.2.6.2.3 for each conference participant individually; and
- 6) based on the progress of this removal, send NOTIFY messages in accordance with the procedures of RFC 3515 [17] towards the conference participant who sent the REFER request.

5.3.2.6.2.3 Conference focus removes conference participant from a conference

When removing a conference participant from a conference, the conference focus shall:

- 1) generate a BYE request on the dialog that was established when the conference participant joined or created the conference, in accordance to the procedures described in 3GPP TS 24.229 [5] and RFC 3261 [7];
- 2) release the resources, related to the conference participant from the conference mixer.

~~5.3.2.6.2.4~~ ~~Abnormal cases~~

~~The conference focus shall return a 404 (Not Found) response if the request URI of a REFER request includes an allocated conference URI but the SIP URI or tel URL in the Refer-To header refers to a user who is not a participant of the referenced conference.~~

CR-Form-v7.1

CHANGE REQUEST

⌘ **24.147 CR 9** ⌘ rev **-** ⌘ Current version: **6.0.0** ⌘

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:	⌘ Update of CPCP chapter		
Source:	⌘ Infineon Technologies		
Work item code:	⌘ IMS2	Date:	⌘ 28/10/2004
Category:	⌘ F	Release:	⌘ Rel-6
	Use <u>one</u> 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 <u>one</u> of the following releases: Ph2 (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) Rel-7 (Release 7)

Reason for change:	⌘ CPCP has lately undergone a lot of changes. This change request makes the necessary updates to clause 7 of TS 24.147:
Summary of change:	⌘ This change request adapts the privileged user and conference policy server sections to the latest XCON decisions. Changes are necessary because – the former CPCP draft has been split into three separate IDs; and – parts of the user privileges (read/modify conference policy) have been shifted to a new conference policy privilege document. Please note that the floor policy element has been removed from the conference policy document. Furthermore, some improvements are incorporated into clause 7, e.g. the conference policy document can now contain the media streams element. Please note that the support of the media streams element does not mean that media policy is supported.
Consequences if not approved:	⌘ Clause 7 is not up to date

Clauses affected:	⌘ 2, 3.1, 3.2, 7.3.1, 7.3.2								
Other specs affected:	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;">⌘</td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;">⌘</td> <td style="text-align: center;">X</td> </tr> </table> Other core specifications	Y	N	⌘	X	⌘	X	⌘	
Y	N								
⌘	X								
⌘	X								
	Test specifications	⌘							

O&M Specifications

Other comments: ⌘ N1-041761-CPCPupdate-part1 makes identical changes to clause 2 and 3 of TS 24.147

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----- **FIRST CHANGE: References & Definitions** -----

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

- [1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".
- [2] 3GPP TS 22.228: "Service requirements for the Internet Protocol (IP) multimedia core network subsystem; Stage 1".
- [3] 3GPP TS 23.218: "IP Multimedia (IM) session handling; IM call model; Stage 2".
- [4] 3GPP TS 24.228: "Signalling flows for the IP multimedia call control based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP); Stage 3".
- [5] 3GPP TS 24.229: "Internet Protocol (IP) multimedia call control protocol based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP); Stage 3".
- [6] 3GPP TS 23.228: "IP Multimedia Subsystem (IMS); Stage 2".
- [7] IETF RFC 3261 (June 2002): "SIP: Session Initiation Protocol".
- [8] draft-ietf-sipping-conferencing-framework-01 (October 2003): "A Framework for Conferencing with the Session Initiation Protocol".

Editor's note: The above document cannot be formally referenced until it is published as an RFC.

- [9] draft-ietf-sipping-cc-conferencing-01 (June 2003): "Session Initiation Protocol Call Control - Conferencing for User Agents".

Editor's note: The above document cannot be formally referenced until it is published as an RFC.

- [10] IETF RFC 3265 (June 2002): "Session Initiation Protocol (SIP) - Specific Event Notification".
- [11] draft-ietf-sipping-conference-package-03 (February 2004): "A Session Initiation Protocol (SIP) Event Package for Conference State".

Editor's note: The above document cannot be formally referenced until it is published as an RFC.

- [12] 3GPP TS 29.228: "IP Multimedia (IM) Subsystem Cx and Dx Interfaces; Signalling flows and message contents".
- [13] IETF RFC 3323 (November 2002): "A Privacy Mechanism for the Session Initiation Protocol (SIP)".
- [14] IETF RFC 3325 (November 2002): "Private Extensions to the Session Initiation Protocol (SIP) for Asserted Identity within Trusted Networks".
- [15] 3GPP TS 29.208: "End to end Quality of Service (QoS) signalling flows".

- [16] IETF RFC 2833 (May 2000): "RTP Payload for DTMF Digits, Telephony Tones and Telephony Signals".
- [17] IETF RFC 3515 (April 2003): "The Session Initiation Protocol (SIP) Refer Method".
- [18] 3GPP TS 22.141: "Presence service; Stage 1".
- [19] draft-ietf-sip-callee-caps-03 (December 2003): "Indicating User Agent Capabilities in the Session Initiation Protocol (SIP)".

Editor's note: The above document cannot be formally referenced until it is published as an RFC.

- [20] draft-ietf-sip-referredby-05 (March 2004): "The SIP Referred-By Mechanism".

Editor's note: The above document cannot be formally referenced until it is published as an RFC.

- [21] IETF RFC 2616 (June 1999): "Hypertext Transfer Protocol - HTTP/1.1".
- [22] draft-ietf-simple-xcap-02 (February 2004): "The Extensible Markup Language (XML) Configuration Access Protocol (XCAP)".

Editor's note: The above document cannot be formally referenced until it is published as an RFC.

- [23] draft-ietf-xcon-cpcp-xcap-010 (October 2004): "The Conference Policy Control Protocol (CPCP)".

Editor's note: The above document cannot be formally referenced until it is published as an RFC.

- [24] 3GPP TS 33.141: "Presence service; Security".
- [25] 3GPP TS 24.109: "Bootstrapping interface (Ub) and Network application function interface (Ua); Protocol details".
- [26] IETF RFC 2246 (January 1999): "The TLS Protocol Version 1.0".
- [27] IETF RFC 3310 (September 2002): "Hypertext Transfer Protocol (HTTP) Digest Authentication Using Authentication and Key Agreement (AKA)".
- [28] draft-ietf-xcon-bfcp-00 (July 2004): "The Binary Floor Control Protocol (BFCP)".

Editor's note: The above document cannot be formally referenced until it is published as an RFC.

- [29] [draft-ietf-xcon-conference-policy-privileges-01: "Privileges for Manipulating a Conference Policy"](#).

Editor's note: The above document cannot be formally referenced until it is published as an RFC.

- [30] [draft-ietf-xcon-cpcp-xcap-03 \(October 2004\): "An Extensible Markup Language \(XML\) Configuration Access Protocol \(XCAP\) Usages for Conference Policy Manipulation and Conference Policy Privileges Manipulation"](#).

Editor's note: The above document cannot be formally referenced until it is published as an RFC.

3 Definitions, symbols and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in 3GPP TS 21.905 [1], 3GPP TS 22.141 [2] and the following apply:

Conferencing AS: an Application Server that supports functionality specific to a SIP conference focus

The following terms and definitions given in 3GPP TS 23.228 [2] apply (unless otherwise specified):

**Public Service Identity
Three-way session**

For the purposes of the present document, the following terms and definitions given in 3GPP TS 23.228 [7] subclauses 4.3.3.1 and 4.6 apply:

IP-Connectivity Access Network (IP-CAN)

The following terms and definitions given in draft-ietf-sipping-conferencing-framework [8] apply (unless otherwise specified):

Conference
Conference-Aware Participant
Conference notification service
Conference Policy
Conference Policy Control Protocol
Conference Policy Server (CPS)
Conference-Unaware Participant
Conference URI
Focus
Media Policy
Media policy server
Membership Policy
Mixer
Participant
Tightly Coupled Conference

The following terms and definitions given in draft-ietf-sipping-cc-conferencing [9] apply (unless otherwise specified):

Conference Factory URI

For the purposes of the present document, the following terms and definitions given in draft-ietf-sip-callee-caps [19] apply:

Feature parameter

For the purposes of the present document, the following terms and definitions given in 3GPP TS 23.002 [2] subclauses 4.1.1.1 and 4a.7 apply:

Call Session Control Function (CSCF)
Home Subscriber Server (HSS)
Media Gateway Control Function (MGCF)
Multimedia Resource Function Controller (MRFC)
Multimedia Resource Function Processor (MRFP)

For the purposes of the present document, the following terms and definitions given in 3GPP TS 23.218 [5] subclause 3.1 apply:

Filter criteria
Initial filter criteria
Initial request
Subsequent request

For the purposes of the present document, the following terms and definitions given in 3GPP TS 23.228 [7] subclauses 4.3.3.1 and 4.6 apply:

Interrogating-CSCF (I-CSCF)
Policy Decision Function (PDF)
Proxy-CSCF (P-CSCF)
Public user identity
Serving-CSCF (S-CSCF)

For the purposes of the present document, the following terms and definitions given in 3GPP TR 21.905 [1] apply:

User Equipment (UE)

For the purposes of the present document, the following terms and definitions given in draft-ietf-xcon-cpcp-xcap [23] apply:

~~Access Control List (ACL)~~

Dial-Out List (DL)

[Refer List \(RL\)](#)

Privileged User

For the purposes of the present document, the following terms and definitions given in 3GPP TS 33.141 [24] subclause 3.1 apply:

Authentication Proxy

For the purposes of the present document, the following terms and definitions given in draft-ietf-xcon-bfcp [28] apply:

Floor

Floor chair

Floor control server

Editor's note: A definition of floor participant needs to be defined for the procedures on floor control, but this needs to be resolved first in draft-ietf-xcon-bfcp, which currently uses the term client, which differs from the IETF requirements draft.

3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

ACL	Access Control List
AMR	Adaptive Multi-Rate
AS	Application Server
BFCP	Binary Floor Control Protocol
CN	Core Network
CPCP	Conference Policy Control Protocol
CPS	Conference Policy Server
CSCF	Call Session Control Function
DL	Dial-Out List
FQDN	Fully Qualified Domain Name
HSS	Home Subscriber Server
HTTP	HyperText Transfer Protocol
I-CSCF	Interrogating CSCF
IM	IP Multimedia
IMS	IP Multimedia CN subsystem
IP	Internet Protocol
IP-CAN	IP-Connectivity Access Network
MGCF	Media Gateway Control Function
MRFC	Multimedia Resource Function Controller
MRFP	Multimedia Resource Function Processor
PCL	Privilege Control List
P-CSCF	Proxy CSCF
PSI	Public Service Identity
RL	Refer List
S-CSCF	Serving CSCF
SDP	Session Description Protocol
SDP	Session Description Protocol
SIP	Session Initiation Protocol
TLS	Transport Layer Security
UE	User Equipment
XCAP	Extensible Markup Language (XML) Configuration Access Protocol
XML	eXtensible Markup Language

----- SECOND CHANGE: CPCP Chapter -----

7 Protocol for conference policy control at the Ut reference point

7.1 Introduction

void

7.2 Functional entities

7.2.1 User Equipment (UE)

For the purpose of SIP based conferences, the UE may implement the role of a privileged user as described in subclause 7.3.1.

The UE shall implement HTTP digest AKA (see RFC 3310 [27]) and it shall initiate a bootstrapping procedure with the bootstrapping server function located in the home network, as described in 3GPP TS 24.109 [25].

The UE shall acquire the subscriber's certificate from PKI portal by using a bootstrapping procedure, as described in 3GPP TS 24.109 [25].

The UE shall implement Transport Layer Security (TLS) (see RFC 2246 [26]). The UE shall be able to authenticate the authentication proxy based on the received certificate during TLS handshaking phase.

7.2.2 Media Resource Function Controller (MRFC)

As the function split between the MRFC and the conferencing AS is out of scope of the present document, the procedures for the MRFC are described together with those for the conferencing AS in subclause 7.2.3.

7.2.3 Conferencing Application Server (Conferencing AS)

As the function split between the conferencing AS and the MRFC is out of scope of the present document, only the procedures are described for a combined conferencing AS and MRFC. The AS and MRFC may either be collocated, or interoperate using a proprietary protocol and a proprietary functional split.

For the purpose of SIP-based conferences, the conferencing AS/MRFC shall act as a Conference Policy Server (CPS), as described in subclause 7.3.2.

The conferencing AS/MRFC may implement the role of a privileged user as described in subclause 7.3.1.

If there is no authentication proxy in the network, then the conferencing AS/MRFC shall:

- implement the role of a network application function, as described in 3GPP TS 24.109 [25];
- support HTTP digest authentication and certificate authentication; and
- implement TLS (see RFC 2246 [26]).

Editor's Note: It needs to be clarified what physical entities can contain the Authentication Proxy and its relationship with the IMS architecture. Documentation for the case of a separate authentication proxy may need to be provided.

7.3 Role

7.3.1 Privileged user

Editors note: It needs to be specified which IP-CAN transport can be used by CPCP. This is for further study, based on information requested from SA2.

A privileged user shall support the manipulation of some or all of the conference policy data elements that are defined in draft-ietf-xcon-cpcp-~~xcap~~ [23] ~~and that are listed in subclause 7.3.2~~. The conference policy elements, which can be manipulated or read by a specific privileged user, are specified by the conference policy ~~meta data~~ ~~self~~, which is ~~defined in draft-ietf-xcon-conference-policy-privileges [29]~~.

A privileged user shall support the XCAP usage for conference policy manipulation as described in draft-ietf-xcon-cpcp-xcap [30]. The ~~manipulation~~ ~~edification~~ of the conference policy data elements may trigger the conference focus to perform the procedures of subclause 5.3.2. Therefore, the privileged user can perform the actions associated with these ~~manipulated~~ conference policy data elements, as described in draft-ietf-xcon-cpcp-~~xcap~~ [23].

If the privileged user is the creator of the conference, then the privileged user may modify the conference policy privileges document as described in draft-ietf-xcon-cpcp-xcap [30]. The privileges document contains the conference policy meta data for the conference, as defined in draft-ietf-xcon-conference-policy-privileges [29].

The privileged user who terminates the conference by deleting the conference policy document as described in draft-ietf-xcon-cpcp [23] and draft-ietf-xcon-cpcp-xcap [30] shall not delete the conference policy privileges document.

NOTE 1: The user who creates the conference becomes a privileged user as described in draft-ietf-xcon-conference-policy-privileges ~~sepep-xcap~~ [29~~23~~] when the conference is created. It is irrelevant by which means the user creates the conference, e.g. by using CPCP, SIP or a web interface.

~~Editor's Note: It needs to be investigated if further text is needed, that describes the usage of CPCP, XCAP and HTTP in this subclause.~~

NOTE 2: It is outside the scope of the present document how the user can discover the conference policy server (CPS).

7.3.2 Conference Policy Server (CPS)

The conference policy server shall support the XCAP usages for conference policy and conference policy privileges manipulation as defined in draft-ietf-xcon-cpcp-xcap [30].

Upon conference creation, the CPS shall create a conference policy document for the conference as described in draft-ietf-xcon-cpcp [23]. ~~that shall contain the conference settings element and may contain any other of the following conference policy data elements:~~

- ~~—conference info element;~~
- ~~—conference time element;~~
- ~~—conference authorization rules;~~
- ~~—conference dial out list (DL);~~
- ~~—conference refer list; and~~
- ~~—conference floor policy element.~~

~~Each~~ The conference policy data elements of the conference policy document shall be set due to local policy, if not otherwise indicated by the conference creator. If a conference is not created by means of CPCP, as described in draft-ietf-xcon-cpcp [23] and draft-ietf-xcon-cpcp-xcap [30], the CPS shall automatically create a conference policy document for the conference.

NOTE 1: Conference policy can be preconfigured completely, or standard details can be preconfigured and the conference created in accordance with clauses 5 and 6.

NOTE 2: Media poliy control is not specified in this version of the document.

If the corresponding conference policy element exists, the conference policy server shall be able to perform at least the following actions, as described in ~~draft-ietf-xcon-epcp-xcap [23]~~:

- ~~—allowing a user to join a conference;~~
- ~~—inviting a user to a conference;~~
- ~~—blocking a user from joining a conference;~~
- ~~—expelling a conference participant from a conference; and~~
- ~~—stopping a conference.~~

Upon creation of a conference policy document, the CPS shall also create a conference policy privileges document for the conference. The privilege document shall be created in accordance with draft-ietf-xcon-conference-policy-privileges [30] and the naming conventions of draft-ietf-xcon-cpcp-xcap [30]. The conference policy meta data shall be set due to local policy, if not otherwise indicated by the conference creator.

The CPS shall reject requests to delete the privileges document in accordance with RFC 2616 [21] as long as the conference policy document exists.

~~Furthermore, t~~The conference policy server shall be able to delete the conference policy document,~~as described in draft-ietf-xcon-epcp-xcap [23].~~ The deletion of the conference policy document can be triggered by the conference focus or by a user with sufficient privileges, as described in draft-ietf-xcon-cpcp [23] and draft-ietf-xcon-cpcp-xcap [30]. The deletion of the conference policy document terminates the conference, as described in subclause 5.3.2.7. The CPS shall also delete the conference policy privileges document that is associated with the conference when the conference is terminated.

CR-Form-v7.1

CHANGE REQUEST

⌘ **24.147 CR 19** ⌘ rev **-** ⌘ Current version: **6.0.0** ⌘

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:	⌘ p-asserted id in response from conf AS/MRFC		
Source:	⌘ Siemens		
Work item code:	⌘ IMS2	Date:	⌘ 17/11/2004
Category:	⌘ F	Release:	⌘ Rel-6
	Use <u>one</u> 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 <u>one</u> of the following releases: Ph2 (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) Rel-7 (Release 7)

Reason for change:	⌘ In the flow for "Conference URI can be resolved by the originating home network the conferencing AS/MRFC does not include a p-asserted ID in the 183 response. However, according to 24.229 a MRFC has to insert the p-asserted-ID in a 183 response. In addition, the conferencing AS/MRFC includes a p-asserted ID in all the other flows in 24.147 in the 183 response.
Summary of change:	⌘ Include a p-asserted-id in 183 sent from the conferencing AS/MRFC
Consequences if not approved:	⌘ Inconsistent handling of p-asserted id in conferencing AS/Mrfc

Clauses affected:	⌘ A.4.2.1.2										
Other specs affected:	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;"> </td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;"> </td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;"> </td> <td style="text-align: center;">X</td> </tr> </table>	Y	N		X		X		X	Other core specifications Test specifications O&M Specifications	⌘
Y	N										
	X										
	X										
	X										
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.

Error! No text of specified style in document.

3

Error! No text of specified style in document.

A.4.2.1.2 Conference URI can be resolved by the originating home network

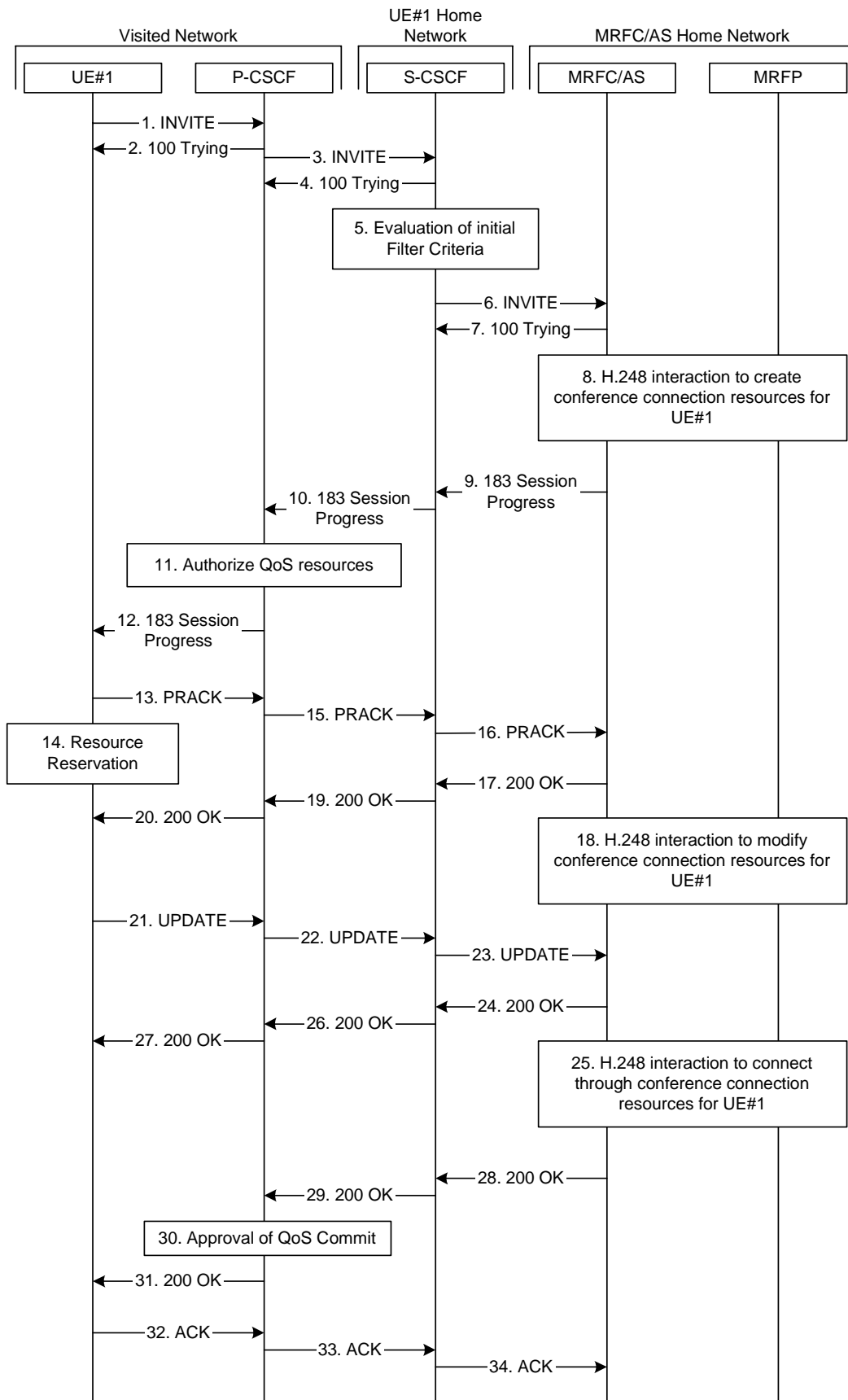


Figure A.4.2.1.2-1: User calling into a conference - MRFC/AS is not located in user's home network - conference URI can be resolved by the originating home network

Figure A.4.2.1.2-1 shows a user calling into a conference by using a conference URI. The focus of that conference is at a MRFC/AS which are located in another network. The conference URI in this example can be resolved by the originating home network.

The details of the flows are as follows:

1. INVITE request (UE to P-CSCF) - see example in table A.4.2.1.2-1

A UE wants to join a conference. For this purpose the UE is aware of the related conference URI that was obtained by means outside the present document.

The UE determines the complete set of codecs that it is capable of supporting for this conference. It builds a SDP Offer 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.

For this example, it is assumed that UE#1 is willing to establish a multimedia session comprising a video stream and an audio stream. The video stream supports two codecs, either H.263 or MPEG-4 Visual. The audio stream supports the AMR codec.

Table A.4.2.1.2-1: INVITE request (UE to P-CSCF)

```

INVITE sip:conference1@mrfc2.home2.net SIP/2.0
Via: SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 70
Route:<sip:pcscf1.visited1.net:7531;lr;comp=sigcomp>, <sip:orig@scscf1.home1.net;lr>
P-Preferred-Identity: "John Doe" <sip:user1_public1@home1.net>
P-Access-Network-Info: 3GPP-UTRAN-TDD; utran-cell-id-3gpp=234151D0FCE11
Privacy: none
From: <sip:user1_public1@home1.net>; tag=171828
To: <sip:conference1@mrfc2.home2.net>
Call-ID: cb03a0s09a2sdfg1kj490333
Cseq: 127 INVITE
Require: precondition, sec-agree
Proxy-Require: sec-agree
Supported: 100rel
Security-Verify: ipsec-3gpp; q=0.1; alg=hmac-sha-1-96; spi-c=98765432; spi-s=87654321;
port-c=8642; port-s=7531
Contact: <sip:[5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp>
Allow: INVITE, ACK, CANCEL, BYE, PRACK, UPDATE, REFER, MESSAGE
Content-Type: application/sdp
Content-Length: (...)

v=0
o=- 2987933615 2987933615 IN IP6 5555::aaa:bbb:ccc:ddd
s=-
c=IN IP6 5555::aaa:bbb:ccc:ddd
t=0 0
m=video 3400 RTP/AVP 98 99
b=AS:75
a=crr:qos local none
a=crr:qos remote none
a=des:qos mandatory local sendrecv
a=des:qos none remote sendrecv
a=rtpmap:98 H263
a=fmtp:98 profile-level-id=0
a=rtpmap:99:MP4V-ES
m=audio 3456 RTP/AVP 97 96
b=AS:25.4
a=crr:qos local none
a=crr:qos remote none
a=des:qos mandatory local sendrecv
a=des:qos none remote sendrecv
a=rtpmap:97 AMR
a=fmtp:97 mode-set=0,2,5,7; maxframes=2
a=rtpmap:96 telephone-event

```

Request-URI: contains the conference URI.

7. **100 (Trying) response (MRFC/AS to S-CSCF) - see example in table A.4.2.1.2-7 (related to table A.4.2.1.2-6)**

The MRFC/AS responds to the INVITE request (6) with a 100 (Trying) response provisional response.

Table A.4.2.1.2-7: 100 (Trying) response (MRFC/AS to S-CSCF)

```
SIP/2.0 100 (Trying) response
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
    pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
    [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
From:
To:
Call-ID:
CSeq:
Content-Length: 0
```

8. **H.248 interaction to create conference connection resources for UE#1**

MRFC initiates a H.248 interaction to create an connection point for UE#1 in MRFP.

9. **183 (Session Progress) response (MRFC/AS to S-CSCF) - see example in table A.4.2.1.2-9 (related to table A.4.2.1.2-6)**

The media stream capabilities of the conference are returned along the signalling path, in a 183 (Session Progress) provisional response (to 6).

Table A.4.2.1.2-9: 183 (Session Progress) response (MRFC/AS to S-CSCF)

```
SIP/2.0 183 Session Progress
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
    pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
    [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Record-Route: <sip:scscf1.home1.net/1r>, <sip:pcscf1.visited1.net/1r>
P-Asserted-Identity: "Conference Server" <sip:mrfl.home1.net>
P-Charging-Vector: icid-value="AyretyU0dm+6O2IrT5tAFrbHLso=023551024"; orig-ioi=home1.net;
    term-ioi=home2.net
P-Charging-Function-Addresses: ccf=[5555::b99:c88:d77:e66]; ccf=[5555::a55:b44:c33:d22];
    ecf=[5555::1ff:2ee:3dd:4cc]; ecf=[5555::6aa:7bb:8cc:9dd]
Privacy: none
From:
To: <sip:conferencel@mrflc2.home2.net>; tag=314159
Call-ID:
CSeq:
Require: 100rel
Contact: <sip:conferencel@mrflc2.home2.net>;isfocus
Allow: INVITE, ACK, CANCEL, BYE, PRACK, UPDATE, REFER, MESSAGE
RSeq: 9021
Content-Type: application/sdp
Content-Length: (...)

v=0
o=- 2987933623 2987933623 IN IP6 5555::1111:2222:3333:4444
s=-
c=IN IP6 5555::1111:2222:3333:4444
t=0 0
m=video 10001 RTP/AVP 98 99
b=AS:75
a=curr:qos local none
a=curr:qos remote none
a=des:qos mandatory local sendrecv
a=des:qos mandatory remote sendrecv
a=conf:qos remote sendrecv
a=rtpmap:98 H263
a=fmtp:98 profile-level-id=0
a=rtpmap:99 MP4V-ES
m=audio 6544 RTP/AVP 97 96
b=AS:25.4
a=curr:qos local none
a=curr:qos remote none
a=des:qos mandatory local sendrecv
a=des:qos mandatory remote sendrecv
a=conf:qos remote sendrecv
a=rtpmap:97 AMR
a=fmtp:97 mode-set=0,2,5,7; maxframes=2
a=rtpmap:96 telephone-event
```

Contact: Contains the conference URI for the conference allocated at the MRFC/AS and the "isfocus" feature parameter.

P-Charging-Vector: The MRFC/AS inserts this header and populates the icid parameters with an unique value and the terminating Inter Operator Identifier (IOI) for the home network of the MRFC/AS and puts back the originating IOI.

P-Charging-Function-Addresses: The MRFC/AS populates the P-Charging-Function-Addresses header field to be passed to the S-CSCF.

Editor's Note: It has to be investigated if the MRFC/AS includes a P-Asserted-Identity header. If it includes this header, it needs to be investigated which value needs to be populated in it.

13. PRACK request (UE to P-CSCF) - see example in table A.4.2.1.2-13

The UE 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 any change in media flows, or if there was more than one choice of codec for a media flow, then UE includes a new SDP offer in the PRACK request sent to the MRFC/AS.

For this example, assume the UE chooses H.263 as the codec to use for the single video stream. Therefore, UE#1 sends a new SDP offer in the PRACK request.

Table A.4.2.1.2-13: PRACK request (UE to P-CSCF)

```

PRACK sip:conference1@mrfc2.home2.net SIP/2.0
Via: SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 70
P-Access-Network-Info: 3GPP-UTRAN-TDD; utran-cell-id-3gpp=234151D0FCE11
Route: <sip:pcscf1.visited1.net:7531;lr;comp=sigcomp>, <sip:scscf1.home1.net;lr>
From: <sip:user1_public1@home1.net>; tag=171828
To: <sip:conference1@mrfc2.home2.net>;tag=314159
Call-ID: cb03a0s09a2sdfg1kj490333
Cseq: 128 PRACK
Require: precondition, sec-agree
Proxy-Require: sec-agree
Security-Verify: ipsec-3gpp; q=0.1; alg= hmac-sha-1-96; spi-c=98765432; spi-s=87654321;
port-c=8642; port-s=7531
Rack: 9021 127 INVITE
Content-Type: application/sdp
Content-Length: (...)

v=0
o=- 2987933615 2987933616 IN IP6 5555::aaa:bbb:ccc:ddd
s=-
c=IN IP6 5555::aaa:bbb:ccc:ddd
t=0 0
m=video 3400 RTP/AVP 98
b=AS:75
a=curr:qos local none
a=curr:qos remote none
a=des:qos mandatory local sendrecv
a=des:qos mandatory remote sendrecv
a=rtpmap:98 H263
a=fmtp:98 profile-level-id=0
m=audio 3456 RTP/AVP 97 96
b=AS:25.4
a=curr:qos local none
a=curr:qos remote none
a=des:qos mandatory local sendrecv
a=des:qos mandatory remote sendrecv
a=rtpmap:97 AMR
a=fmtp:97 mode-set=0,2,5,7; maxframes=2
a=rtpmap:96 telephone-event

```

Request-URI: takes the value of the Contact header of the received 183 (Session Progress) response.

14. Resource reservation

After determining the final media streams in step #13, the UE initiates the reservation procedures for the resources needed for this session.

15. PRACK request (P-CSCF to S-CSCF) - see example in table A.4.2.1.2-15

The P-CSCF forwards the PRACK request to the S-CSCF.

Table A.4.2.1.2-15: PRACK request (P-CSCF to S-CSCF)

```
PRACK sip:conference1@mrfc2.home2.net SIP/2.0
Via: SIP/2.0/UDP pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
    [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 69
P-Access-Network-Info:
Route: <sip:scscf1.home1.net;lr>
From:
To:
Call-ID:
Cseq:
Require: precondition
RAck:
Content-Type:
Content-Length:

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

16. PRACK request (S-CSCF to MRFC/AS) - see example in table A.4.2.1.2-16

S-CSCF forwards the PRACK request to the MRFC/AS based on the Request URI of the PRACK request. The S-CSCF does not re-write the Request URI.

Table A.4.2.1.2-16: PRACK request (S-CSCF to MRFC/AS)

```
PRACK sip:conference1@mrfc2.home2.net SIP/2.0
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
    pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
    [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 68
From:
To:
Call-ID:
Cseq:
Require:
RAck:
Content-Type:
Content-Length:

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

17. 200 (OK) response (MRFC/AS to S-CSCF) - see example in table A.4.2.1.2-17 (related to table A.4.2.1.2-16)

The MRFC/AS acknowledges the PRACK request (16) with a 200 (OK) response.

Table A.4.2.1.2-17: 200 (OK) response (MRFC/AS to S-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
    pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
    [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
From:
To:
Call-ID:
CSeq:
Content-Type: application/sdp
Content-Length: (...)

v=0
o=- 2987933623 2987933624 IN IP6 5555::aaa:bbb:ccc:ddd
s=-
c=IN IP6 5555::eee:fff:aaa:bbb
t=0 0
m=video 10001 RTP/AVP 98
b=AS:75
a=curr:qos local none
a=curr:qos remote none
a=des:qos mandatory local sendrecv
a=des:qos mandatory remote sendrecv
a=conf:qos remote sendrecv
a=rtpmap:98 H263
a=fmtp:98 profile-level-id=0
m=audio 6544 RTP/AVP 97 96
b=AS:25.4
a=curr:qos local none
a=curr:qos remote none
a=des:qos mandatory local sendrecv
a=des:qos mandatory remote sendrecv
a=conf:qos remote sendrecv
a=rtpmap:97 AMR
a=fmtp:97 mode-set=0,2,5,7; maxframes=2a=rtpmap:96 telephone-event
```

18. H.248 interaction to modify connection for UE#1

MRFC initiates a H.248 interaction to modify the connection established in step #11 and instructs MRFP to reserve the multimedia processing resources for UE#1 according to the preceding resource negotiation between the UE#1 and the MRFC.

19. 200 (OK) response (S-CSCF to P-CSCF) - see example in table A.4.2.1.2-19

S-CSCF forwards the 200 (OK) response to the P-CSCF.

Table A.4.2.1.2-19: 200 (OK) response (S-CSCF to P-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
    [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
From:
To:
Call-ID:
CSeq:
Content-Type:
Content-Length:

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

20. 200 (OK) response (P-CSCF to UE) - see example in table A.4.2.1.2-20

The P-CSCF forwards the 200 (OK) response to the UE.

Table A.4.2.1.2-20: 200 (OK) response (P-CSCF to UE)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
From:
To:
Call-ID:
CSeq:
Content-Type:
Content-Length:

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

21. UPDATE request (UE to P-CSCF) - see example in table A.4.2.1.2-21

When the resource reservation is completed, the UE sends the UPDATE request to the MRFC/AS, via the signalling path established by the INVITE request.

Table A.4.2.1.2-21: UPDATE request (UE to P-CSCF)

```

UPDATE sip:conferencel@mrfc2.home2.net SIP/2.0
Via: SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 70
Route: <sip:pcscf1.visited1.net:7531;lr;comp=sigcomp>, <sip:scscf1.home1.net;lr>
P-Access-Network-Info: 3GPP-UTRAN-TDD; utran-cell-id-3gpp=234151D0FCE11
From: <sip:user1_public1@home1.net>; tag=171828
To: <sip:conferencel@mrfc2.home2.net>;tag=314159
Call-ID: cb03a0s09a2sdfglkj490333
Cseq: 129 UPDATE
Require: sec-agree
Proxy-Require: sec-agree
Security-Verify: ipsec-3gpp; q=0.1; alg=hmac-sha-1-96; spi-c=98765432; spi-s=87654321;
port-c=8642; port-s=7531
Content-Type: application/sdp
Content-Length: (...)

v=0
o=- 2987933615 2987933617 IN IP6 5555::aaa:bbb:ccc:ddd
s=-
c=IN IP6 5555::aaa:bbb:ccc:ddd
t=0 0
m=video 0 RTP/AVP 98
b=AS:75
a=curr:qos local sendrecv
a=curr:qos remote none
a=des:qos mandatory local sendrecv
a=des:qos mandatory remote sendrecv
a=rtptime:98 H263
a=fmtp:98 profile-level-id=0
m=audio 3456 RTP/AVP 97 96
b=AS:25.4
a=curr:qos local sendrecv
a=curr:qos remote none
a=des:qos mandatory local sendrecv
a=des:qos mandatory remote sendrecv
a=rtptime:97 AMR
a=fmtp:97 mode-set=0,2,5,7; maxframes=2
a=rtptime:96 telephone-event

```

Request-URI: takes the value of the Contact header of the received 183 (Session Progress) response.

22. UPDATE request (P-CSCF to S-CSCF) - see example in table A.4.2.1.2-22

The P-CSCF forwards the UPDATE request to the S-CSCF.

Table A.4.2.1.2-22: UPDATE request (P-CSCF to S-CSCF)

```
UPDATE sip:conference1@mrfc2.home2.net SIP/2.0
Via: SIP/2.0/UDP pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
    [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 69
P-Access-Network-Info:
P-Charging-Vector: icid-value="AyretyU0dm+6O2IrT5tAFrbHLso=023551024";
    ggsn=[5555::4b4:3c3:2d2:1e1]; pdp-sig=no; gcid=723084371; auth-token=43876559; flow-id=3
Route: <sip:scscf1.home1.net;lr>
From:
To:
Call-ID:
Cseq:
Content-Type:
Content-Length:

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

23. UPDATE request (S-CSCF to MRFC/AS) - see example in table A.4.2.1.2-23

S-CSCF forwards the UPDATE request to the MRFC/AS based on the Request URI of the UPDATE request. The S-CSCF does not re-write the Request URI.

Table A.4.2.1.2-23: UPDATE request (S-CSCF to MRFC/AS)

```
UPDATE sip:conference1@mrfc2.home2.net SIP/2.0
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
    pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
    [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 68
From:
To:
Call-ID:
Cseq:
Content-Type:
Content-Length:

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

24. 200 (OK) response (MRFC/AS to S-CSCF) - see example in table A.4.2.1.2-24 (related to table A.4.2.1.2-23)

The MRFC/AS acknowledges the UPDATE request (23) with a 200 (OK) response.

Table A.4.2.1.2-24: 200 (OK) response (MRFC/AS to S-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
    pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
    [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
From:
To:
Call-ID:
CSeq:
Content-Type: application/sdp
Content-Length: (...)

v=0
o=- 2987933623 2987933625 IN IP6 5555::aaa:bbb:ccc:ddd
s=-
c=IN IP6 5555::eee:fff:aaa:bbb
t=0 0
m=video 0 RTP/AVP 98
b=AS:75
a=curr:qos local sendrecv
a=curr:qos remote sendrecv
a=des:qos mandatory local sendrecv
a=des:qos mandatory remote sendrecv
a=rtpmap:98 H263
a=fmtp:98 profile-level-id=0
m=audio 6544 RTP/AVP 97 96
b=AS:25.4
a=curr:qos local sendrecv
a=curr:qos remote sendrecv
a=des:qos mandatory local sendrecv
a=des:qos mandatory remote sendrecv
a=rtpmap:97 AMR
a=fmtp:97 mode-set=0,2,5,7; maxframes=2
a=rtpmap:96 telephone-event
```

The SDP indicates that the resource reservation was successful both in the local and the remote segment.

25. H.248 interaction to modify connection

MRFC initiates a H.248 interaction to connect through the multimedia processing resources for UE#1 in MRFP.

26. 200 (OK) response (S-CSCF to P-CSCF) - see example in table A.4.2.1.2-26

The S-CSCF forwards the 200 (OK) response to the P-CSCF.

Table A.4.2.1.2-26: 200 (OK) response (S-CSCF to P-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
    [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
From:
To:
Call-ID:
CSeq:
Content-Type:
Content-Length:

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

27. 200 (OK) response (P-CSCF to UE) - see example in table A.4.2.1.2-27

The P-CSCF forwards the 200 (OK) response to the UE.

Table A.4.2.1.2-27: 200 (OK) response (P-CSCF to UE)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
From:
To:
Call-ID:
CSeq:
Content-Type:
Content-Length:

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

28. 200 (OK) response (MRFC/AS to S-CSCF) - see example in table A.4.2.1.2-28 (related to table A.4.2.1.2-7)

After the success modification of the session (25), the MRFC/AS sends a 200 (OK) response final response to the INVITE request (6) to the I-CSCF.

Table A.4.2.1.2-28: 200 (OK) response (MRFC/AS to S-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
    pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
    [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Record-Route: <sip:scscf1.home1.net;lr>, <sip:pcscf1.visited1.net;lr>
From:
To:
Call-ID:
CSeq: 127 INVITE
Contact: <sip:conference1@mrfc2.home2.net>;isfocus
Content-Length:0
```

Contact: contains the conference URI for the conference allocated at the MRFC/AS and the "isfocus" feature parameter.

29. 200 (OK) response (S-CSCF to P-CSCF) - see example in table A.4.2.1.2-29

The S-CSCF sends a 200 (OK) response final response along the signalling path back to the P-CSCF.

Table A.4.2.1.2-29: 200 (OK) response (S-CSCF to P-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
    [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Record-Route:
From:
To:
Call-ID:
CSeq:
Contact:
Content-Length:
```

30. Approval of QoS commit

The P-CSCF approves the commitment of the QoS resources if it was not approved already in step (14).

31. 200 (OK) response (P-CSCF to UE) - see example in table A.4.2.1.2-31

The P-CSCF forwards the 200 (OK) response final response to the session originator. The UE can start the media flow(s) for this session.

Table A.4.2.1.2-31: 200 (OK) response (P-CSCF to UE)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Record-Route: <sip:scscf1.home1.net;lr>, <sip:pcscf1.visited1.net:7531;lr;comp=sigcomp>
From:
To:
Call-ID:
CSeq:
Contact:
Content-Length:
```

32. ACK request (UE to P-CSCF) - see example in table A.4.2.1.2-32

The UE starts the media flow for this session, and responds to the 200 (OK) response (31) with an ACK request sent to the P-CSCF.

Table A.4.2.1.2-32: ACK request (UE to P-CSCF)

```
ACK sip:conferencel@mrfc2.home2.net:2342 SIP/2.0
Via: SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 70
Route: <sip:pcscf1.visited1.net:7531;lr;comp=sigcomp>, <sip:scscf1.home1.net;lr>
From: <sip:user1_public1@home1.net>; tag=171828
To: <sip:conferencel@mrfc2.home2.net>; tag=314159
Call-ID: cb03a0s09a2sdfglkj490333
Cseq: 127 ACK
Content-Length: 0
```

Cseq: is required to be the same value as Cseq contained in original INVITE request (3).

33. ACK request (P-CSCF to S-CSCF) - see example in table A.4.2.1.2-33

The P-CSCF forwards the ACK request to the S-CSCF.

Table A.4.2.1.2-33: ACK request (P-CSCF to S-CSCF)

```
ACK sip:conferencel@mrfc2.home2.net:2342 SIP/2.0
Via: SIP/2.0/UDP pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
    [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 69
Route: <sip:scscf1.home1.net;lr>
From:
To:
Call-ID:
Cseq:
Content-Length:
```

34. ACK request (S-CSCF to MRFC/AS) - see example in table A.4.2.1.2-34

S-CSCF forwards the ACK request to the MRFC/AS based on the Request URI of the ACK request. The S-CSCF does not re-write the Request URI.

Table A.4.2.1.2-34: ACK request (S-CSCF to MRFC/AS)

```
ACK sip:conferencel@mrfc2.home2.net:2342 SIP/2.0
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
    pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
    [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 68
From:
To:
Call-ID:
Cseq:
Content-Length:
```

CR-Form-v7.1

CHANGE REQUEST

⌘ **24.147 CR 8** ⌘ rev **1** ⌘ Current version: **6.0.0** ⌘

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:	⌘ Update of SIP chapter to new CPCP terminology		
Source:	⌘ Infineon Technologies		
Work item code:	⌘ IMS2	Date:	⌘ 27/10/2004
Category:	⌘ F	Release:	⌘ Rel-6
	Use <u>one</u> 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 <u>one</u> of the following releases: Ph2 (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) Rel-7 (Release 7)

Reason for change:	⌘ CPCP has lately undergone a lot of changes. This change request makes the necessary updates to the references, definitions, conferencing overview and SIP chapter.
Summary of change:	⌘ The new CPCP related IDs are introduced into the references chapter. The current CPCP terms are introduced into the definitions chapter and the conferencing overview chapter is adapted to the latest XCON decisions (the former CPCP draft has been split into three separate IDs). Furthermore, the general subsections within the conference participant and conference focus sections are updated.
Consequences if not approved:	⌘ The SIP chapter is not up to date

Clauses affected:	⌘ 4, 5.3.1.3.1, 5.3.1.3.3, 5.3.1.5.1, 5.3.1.6.3, 5.3.2.5.1, 5.3.2.6.2.1										
Other specs affected:	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> </table>	Y	N	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Other core specifications Test specifications O&M Specifications	⌘
Y	N										
<input type="checkbox"/>	<input checked="" type="checkbox"/>										
<input type="checkbox"/>	<input checked="" type="checkbox"/>										
<input type="checkbox"/>	<input checked="" type="checkbox"/>										
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: Conferencing Overview -----

4 Conferencing overview

The basic services for the IP Multimedia core network Subsystem (IMS), as defined in 3GPP TS 24.229 [5], allow a user to initiate, modify and terminate media sessions based on the Session Initiation Protocol, as defined in RFC 3261 [7]. Although these basic mechanisms already allow multi party calls, more sophisticated services for communication between multiple parties can be made available by the network.

The conferencing service provides the means for a user to create, manage, terminate, join and leave conferences. It also provides the network with the ability to give information about these conferences to the involved parties.

The network operator or the user may apply membership and media policies to a conference by using a conference policy control protocol.

Conferencing applies to any kind of media stream by which users may want to communicate, this includes e.g. audio and video media streams as well as instant message based conferences or gaming. Floor control, as part of the conferencing service offers control of shared conference resources at the MRFP, using BFCP.

The framework for SIP conferences is specified in draft-ietf-sipping-conferencing-framework [8].

The architecture for the 3GPP conference service is specified in 3GPP TS 23.228 [6] and 3GPP TS 23.218 [3].

The present document specifies the usage of SIP, SDP, CPCP and BFCP to realize 3GPP conference service based on the protocols specified by the IETF defined conference service as per RFCs and Internet Drafts listed in clause 2. However, since the IETF conference service has various scenarios and features as described in draft-ietf-sipping-conferencing-framework [8], 3GPP conference service is a subset of the above IETF defined conference service. 3GPP conference service has the following characteristics as shown below:

- loosely coupled conferencing is outside the scope of this release;
- the focus, conference policy server and media policy server are collocated in a AS/MRFC in this release; and
- the mixer and floor control server are located in the MRFP.

The conference policy consists of several conference policy data elements, which are defined by an Extensible Markup Language (XML) Schema. CPCP is used to manipulate the conference policy. There also exists an XML Schema that enumerates the conference policy meta data that enables the conference creator to assign certain privileges to users. The XML Configuration Access Protocol (XCAP) application usages that are used to store and manipulate the conference policy and the conference policy privileges are defined in draft-ietf-xcon-cpcp-xcap [30]. CPCP is defined in draft-ietf-xcon-cpcp-xcap [23] as a usage of the Extensible Markup Language (XML). The XML Configuration Access Protocol (XCAP), which is defined in draft-ietf-simple-xcap [22]. XCAP is transported via the Hypertext Transfer Protocol (HTTP), which is defined in RFC 2616 [21]. Therefore the signalling flows in this Annex show the exchange of HTTP messages.

----- SECOND CHANGE: SIP Chapter, Participant Role -----

5.3.1 Conference Participant

5.3.1.1 General

In addition to the procedures specified in subclause 5.3.1, the conference participant shall support the procedures specified in 3GPP TS 24.229 [5] appropriate to the functional entity in which the conference participant is implemented.

5.3.1.2 Tightly coupled conferences

The conference participant shall be able to act as a subscriber to the conferencing event package, as described in draft-ietf-sipping-conference-package [11].

5.3.1.3 Conference creation

5.3.1.3.1 General

A conference can be created:

- 1) by means of SIP, as described in subclause 5.3.1.3.2 or subclause 5.3.1.3.3; or
- 2) by means of CPCP, as described in subclause 7.3.2, [draft-ietf-xcon-cpcp \[23\]](#) and [draft-ietf-xcon-cpcp-xcap \[30\]](#).

NOTE: Additionally, creation of a conference can be provided by other means, e.g. via a Web-page.

The conference participant shall make use of the procedures for session establishment as described in subclauses 5.1.2A and 5.1.3 of 3GPP TS 24.229 [5] when creating conferences by means of SIP.

5.3.1.3.2 Conference creation with a conference factory URI

Upon a request to create a conference with a conference factory URI, the conference participant shall:

- 1) generate an initial INVITE request in accordance with subclause 5.1.3.1 of 3GPP TS 24.229 [5]; and
- 2) set the request URI of the INVITE request to the conference factory URI.

On receiving a 200 (OK) response to the INVITE request with the "isfocus" feature parameter indicated in Contact header, the conference participant shall store the content of the received Contact header as the conference URI. In addition to this, the conference participant may subscribe to the conference event package as described in draft-ietf-sipping-conference-package [11] by using the stored conference URI.

NOTE 1: A conference participant can decide not to subscribe to the conference event package for conferences with a large number of attendees, due to, e.g. the signalling traffic caused by the notifications about users joining or leaving the conference.

NOTE 2: A conference can also be created with a conference URI. The procedures for this case at the conference participant are identical to those for joining a conference, as described in subclause 5.3.1.4.1. It is not assumed that the conference participant is aware that the conference gets created in this case.

NOTE 3: Discovery mechanisms for the conference factory URI are outside the scope of the present document.

5.3.1.3.3 Three-way session creation

When a conference participant is participating in two or more SIP sessions and wants to join together two or more of these active sessions to a so-called three-way session, the conference participant shall perform the following steps.

- 1) create a conference at the conference focus by sending an INVITE request with the conference factory URI for the three-way session towards the conference focus, as described in subclause 5.3.1.3.2;
- 2) decide and perform for each of the active sessions, that are requested to be joined to the three-way session, how the remote user shall be invited to the three-way session, which can either be:
 - a) by performing the procedures for inviting a user to a conference by sending an REFER request to the user, as described in subclause 5.3.1.5.2; or
 - b) by performing the procedures for inviting a user to a conference by sending a REFER request to the conference focus, as described in subclause 5.3.1.5.3;
- 3) release the active session with a user, by applying the procedures for session release in accordance with RFC 3261 [7], after a NOTIFY request has been received from that user, indicating that the user has successfully joined the three-way session, i.e. including:

- a) a body of content-type "message/sipfrag" that indicates a "200 OK" response; and,
 - b) a Subscription-State header set to the value "terminated"; and,
- 4) treat the created three-way session as a normal conference, i.e. [the conference participant](#) shall apply the applicable procedures of subclause 5.3.1 for it.

5.3.1.4 Joining a conference

5.3.1.4.1 User joining a conference by using a conference URI

Upon generating an initial INVITE request to join a conference for which the conference URI is known to the conference participant, the conference participant shall:

- 1) set the request URI of the INVITE request to the conference URI; and
- 2) send the INVITE request towards the conferencing AS that is hosting the conference.

NOTE 1: The initial INVITE request is generated in accordance with 3GPP TS 24.229 [5].

NOTE 2: The mechanisms by which the conference participant / user gets aware of the conference URI are outside the scope of the present document.

On receiving a 200 (OK) response to the INVITE request with the "isfocus" feature parameter indicated in Contact header, the conference participant shall store the contents of the received Contact header as the conference URI. In addition to that the conference participant may subscribe to the conference event package as described in draft-ietf-sipping-conference-package [11] by using the stored conference URI.

NOTE 3: A conference participant can decide not to subscribe to the conference event package for conferences with a large number of attendees, due to the signalling traffic caused by the notifications about e.g. users joining or leaving the conference.

5.3.1.4.2 User joining a conference after receipt of a REFER request

Upon receipt of a REFER request that includes a Refer-To header which includes the "method" uri parameter set to INVITE, the conference participant shall:

- 1) handle the REFER request in accordance with RFC 3515 [17];
- 2) perform the actions as described in subclause 5.3.1.4.1 for a user joining a conference; and
- 3) if the received REFER request included a Referred-By header, include the Referred-By header in accordance with draft-ietf-sip-referredby [20] in the INVITE request that is sent for joining the conference.

5.3.1.5 Inviting other users to a conference

5.3.1.5.1 General

Upon inviting another user to a conference, the conference participant has to decide which of the following procedures has to be applied:

- 1) inviting an user to a conference by sending a REFER request to the user directly, as described in subclause 5.3.1.5.2;
- 2) inviting a user to a conference by sending a REFER request to the conference focus, as described in subclause 5.3.1.5.3;
- 3) inviting a user to a conference by adding a new element to the ~~DL~~ [dial-out list \(DL\) of the conference policy](#), as described in ~~subclause 7.3.2~~ [draft-ietf-xcon-cpcp \[23\] and draft-ietf-xcon-cpcp-xcap \[30\]](#); or
- 4) inviting a user to a conference by adding a new element to the ~~ACL~~ [refer list \(RL\) of the conference policy](#), as described in [draft-ietf-xcon-cpcp \[23\] and draft-ietf-xcon-cpcp-xcap \[30\]](#) ~~subclause 7.3.2~~.

It is out of the scope of the present document, how the UE decides which of the above procedures shall be applied.

5.3.1.5.2 User invites other user to a conference by sending a REFER request to the other user

Upon generating a REFER request that is destined to a user in order to invite that user to a specific conference, the conference participant shall:

- 1) set the request URI of the REFER request to the address of the user who is invited to the conference;
- 2) set the Refer-To header of the REFER request to the conference URI of the conference that the other user shall be invited to, including the "method" parameter set to "INVITE"; and

NOTE: Other headers of the REFER request will be set in accordance with 3GPP TS 24.229 [5].

- 3) send the REFER request towards the user who is invited to the conference.

The UE may additionally include the Referred-By header to the REFER request and set it to the URI of the conference participant that is sending the REFER request.

Afterwards the UE shall treat incoming NOTIFY requests that are related to the previously sent REFER request in accordance with RFC 3515 [17] and may indicate the received information to the user.

5.3.1.5.3 User invites other user to a conference by sending a REFER request to the conference focus

Upon generating a REFER request that is destined to the conference focus in order to invite another user to a specific conference, the conference participant shall:

- 1) set the request URI of the REFER request to the conference URI to which the user is invited to;
- 2) set the Refer-To header of the REFER request to the SIP URI or tel URL of the user who is invited to the conference;
- 3) include the "method" parameter with the value "INVITE" in the Refer-To header; and

NOTE: Other headers of the REFER request will be set in accordance with 3GPP TS 24.229 [5].

- 4) send the REFER request towards the conference focus that is hosting the conference.

The UE may additionally include the Referred-By header to the REFER request and set it to the URI of the conference participant that is sending the REFER request.

Afterwards the UE shall treat incoming NOTIFY requests that are related to the previously sent REFER request in accordance with RFC 3515 [17].

5.3.1.6 Leaving a conference

5.3.1.6.1 Conference participant leaving a conference

When leaving a conference, the conference participant shall:

- 1) generate a BYE request on the dialog that was established when joining or creating the conference, in accordance to the procedures described in 3GPP TS 24.229 [5] and RFC 3261 [7];
- 2) if the conference participant is subscribed to the conference state event information of that conference, the conference participant shall not renew this subscription and let the related subscription timer expire. When a related NOTIFY request is received which does not include a Subscription-State header set to the value "terminated", the conference participant shall:
 - a) wait for an implementation dependant time, if a related NOTIFY request with the Subscription-State header set to the value "terminated" is received; and
 - b) afterwards, if no such NOTIFY request is received, unsubscribe from the conference state event information by performing the procedures as described in RFC 3265 [10] and draft-ietf-sipping-conference-package [11].

NOTE 1: A conference participant leaving a conference will cause the conference notification service to send a NOTIFY request with updated conference state information to all conference participants, including the participant who just left. Therefore the time between sending the BYE request and receiving the next NOTIFY request is very short. The conference participant does not immediately unsubscribe from the conference event package in order to not cause unnecessary traffic on the air interface.

NOTE 2: After the conference participant leaves the conference it can receive NOTIFY requests that cross the BYE request sent by the conference participant. In this case, the NOTIFY request will not include a Subscription-State header with the value "terminated", as it was issued before the conference focus / conference notification service got aware of the conference participant leaving the conference. Due to this another NOTIFY request may be received within a short period of time (see NOTE 1), that carries the Subscription-State header set to "terminated".

5.3.1.6.2 Conference focus removes conference participant from a conference

Upon receipt of a BYE request on the dialog that was established when joining or creating a conference, the conference participant shall:

- 1) respond to the BYE request as described in 3GPP TS 24.229 [5] and RFC 3261 [7]; and
- 2) if the conference participant is subscribed to the conference state event information of that conference, perform the actions for not renewing the subscription to the conference state event information as described for the conference participant leaving a conference in subclause 5.3.1.6.1.

5.3.1.6.3 Removing a conference participant from a conference

In order to remove a conference participant from a conference, the removing conference participant shall apply one of the following procedures:

- 1) removing a conference participant from a conference by sending a REFER request to the conference focus, as described in this subclause; or
- 2) removing a conference participant from a conference by ~~adding a new element to the ACL~~[establishing a conference policy authorization rule](#), as described in [draft-ietf-xcon-cpcp \[23\]](#) and [draft-ietf-xcon-cpcp-xcap \[30\]](#)~~subclause 7.3.2.~~

It is out of the scope of the present document, how the UE decides which of the above mentioned procedures shall be applied.

Upon generating a REFER request to remove a conference participant from a conference, the removing conference participant shall:

- 1) set the request URI of the REFER request to the conference URI of the conference from which the conference participant shall be removed
- 2) set the Refer-To header of the REFER request:
 - a) to the address of the conference participant who should be removed from the conference, including the "method" parameter set to "BYE", if a single conference participant should be removed from the conference; or
 - b) to "*@*" and the "method" parameter to "BYE", if all conference participants shall be removed from the conference.

NOTE 1: Other headers of the REFER request will be set in accordance with 3GPP TS 24.229 [5].

NOTE 2: The removal of all conference participants from the conference will terminate the conference if the conference policy is set accordingly.

- 3) send the REFER request towards the conference focus that is hosting the conference.

Afterwards the removing conference participant shall treat incoming NOTIFY requests that are related to the previously sent REFER request in accordance with RFC 3515 [17] and may indicate the received information to the user.

----- THIRD CHANGE: SIP Chapter, Focus Role -----

5.3.2 Conference Focus

5.3.2.1 General

In addition to the procedures specified in subclause 5.3.2, the conference focus shall support the procedures specified in 3GPP TS 24.229 [5] appropriate to the functional entity in which the conference focus is implemented. When performing 3rd party call control the conference focus shall follow the procedures of subclause 5.7.5 of 3GPP TS 24.229 [5].

5.3.2.2 Generic procedures for all conference related methods at the conference focus

5.3.2.2.1 Conference focus originating case

The conference focus shall follow the procedures of 3GPP TS 24.229 [5] subclause 5.7.3 when acting as an originating UA.

5.3.2.2.2 Conference focus terminating case

Upon receipt of a conference related initial request the conference focus shall follow the procedures of 3GPP TS 24.229 [5] subclause 5.7.1.2 in relation to the contents of the P-Charging-Function-Addresses header and the P-Charging-Vector header.

When creating the first response for this initial request, the conference focus shall:

- 1) include the P-Charging-Vector header including:
 - a) the value of the icid parameter as received in the initial request;
 - b) the value of the orig-ioi parameter as received in the initial request; and
 - c) the term-ioi parameter, indicating the network of the conference focus; and
- 2) include the P-Charging-Function-Addresses header as received in the initial request or, if the P-Charging-Function-Addresses header was not received in the initial request, indicate the values applicable for the conference in the P-Charging-Function-Addresses header.

When creating responses for an initial INVITE request, the conference focus shall additionally send the 200 (OK) response to the initial INVITE request only after the resource reservation has been completed.

5.3.2.3 Conference creation

5.3.2.3.1 Conference creation with a conference factory URI

Upon receipt of an INVITE request that includes a conference factory URI in the request URI, the conference focus shall:

- 1) check if the conference factory URI is allocated and reject the request in accordance with RFC 3261 [7] if it is not allocated. The following actions in this subclause shall only be performed if the conference factory URI is allocated;

NOTE: The mechanism by which the conference focus gets aware whether a URI is a conference factory URI is out of the scope of the present document. One possibility would be that an operator uses a specific user part (e.g. conference-factory@home1.net) or host part (e.g. conference-factory.home1.net) for identification of conference factory URIs.

- 2) verify the identity of the user as described in subclause 5.7.1.4 of 3GPP TS 24.229 [5] and authorize the request as described in subclause 5.7.1.5 of 3GPP TS 24.229 [5]. The following actions in this subclause shall only be performed if the request can be authorized;
- 3) allocate a conference URI and may allocate a temporary conference URI; and
- 4) if "preconditions" were indicated as required in the INVITE request, generate a first provisional response to the INVITE request, indicating the temporary conference URI in the Contact header if allocated, else the conference URI.

At the same time, resources will also be requested from the mixer.

If the conference focus generates any 1xx or 2xx response to the INVITE request, the conference focus shall include the "isfocus" feature parameter in accordance with the procedures of draft-ietf-sip-callee-caps [19].

Upon receipt of an indication from the mixer that conference resources have been through-connected, the conference focus shall generate a 200 (OK) response to the INVITE request, indicating the "isfocus" option tag as a parameter to the conference URI in the Contact header.

5.3.2.3.2 Conference creation with a conference URI

Upon receipt of an INVITE request that includes a conference URI in the request URI and the conference has not been created yet, the conference focus shall:

- 1) check if the conference URI is allocated reject the request in accordance with RFC 3261 [7] if it is not allocated. The following actions in this subclause shall only be performed if the conference factory URI is allocated;
- 2) verify the identity of the user as described in subclause 5.7.1.4 of 3GPP TS 24.229 [5] and authorize the request as described in subclause 5.7.1.5 of 3GPP TS 24.229 [5]. The following actions in this subclause shall only be performed if the request can be authorized; and
- 3) if "preconditions" were indicated as required in the INVITE request, generate a first provisional response to the INVITE request, indicating the conference URI in the Contact header.

At the same time, resources will also be requested from the mixer.

If the conference focus generates any 1xx or 2xx response to the INVITE request, the conference focus shall include the "isfocus" feature parameter in accordance with the procedures of draft-ietf-sip-callee-caps [19].

Upon receipt of an indication from the conference mixer that conference resources have been through-connected, the conference focus shall generate a 200 (OK) response to the INVITE request, indicating the conference URI in the Contact header.

5.3.2.4 User joining a conference

5.3.2.4.1 User joining a conference by using a conference URI

Upon receipt of an INVITE request that includes a conference URI in the request URI, the conference focus shall:

- 1) check if the conference URI is allocated. If the conference URI is not allocated, the conference focus shall reject the request in accordance with RFC 3261 [7]. The following actions shall only be performed if the conference URI is allocated;
- 2) verify the identity of the user as described in subclause 5.7.1.4 of 3GPP TS 24.229 [5] and authorize the request as described in subclause 5.7.1.5 of 3GPP TS 24.229 [5]. The following actions in this subclause shall only be performed if the request can be authorized; and
- 3) generate a provisional response to the INVITE request, indicating the conference URI in the Contact header.

At the same time, resources will also be requested from the mixer.

If the conference focus generates any 1xx or 2xx response to the INVITE request, the conference focus shall include the "isfocus" feature parameter in accordance with the procedures of draft-ietf-sip-callee-caps [19].

Upon receipt of an indication from the mixer that conference resources have been through-connected, the conference focus shall generate a 200 (OK) response to the INVITE request, indicating the conference URI in the Contact header.

5.3.2.5 Invitation of users to a conference

5.3.2.5.1 General

The conference focus can invite users to a conference by sending an INVITE request to the user, as described in subclause 5.3.2.5.3. This procedure will be triggered at the conference focus:

- 1) by the entries in the dial-out list (DL) of the conference policy for the conference at the moment the conference focus starts hosting the conference, as described in subclause 7.3.2 [and draft-ietf-xcon-cpcp \[23\]](#);
- 2) by a privileged user adding another user to the DL of the conference policy of the conference, as described in [draft-ietf-xcon-cpcp \[23\] and draft-ietf-xcon-cpcp-xcap \[30\]](#) ~~subclause 7.3.2~~; or
- 3) by a REFER request received from authorized users, that request the conference focus to invite other users to the conference, as described in subclause 5.3.3.5.2.

Additionally, the conference focus can invite users to a conference by sending a REFER request to the user, as described in subclause 5.3.2.5.4. This procedure will be triggered at the conference focus:

- 1) by the entries in the ~~access control list (ACL)~~ [refer list \(RL\)](#) of the conference policy for the conference, ~~whose Access type sub element is set to the value "Allowed" and whose Refer sub element is set to the value "true"~~; at the moment the conference focus starts hosting the conference, as described in subclause 7.3.2 [and draft-ietf-xcon-cpcp \[23\]](#); or
- 2) by a privileged user adding another user to the [ACL](#) ~~RL~~ of the conference policy of the conference, as described in [draft-ietf-xcon-cpcp \[23\] and draft-ietf-xcon-cpcp-xcap \[30\]](#) ~~subclause 7.3.2~~.

5.3.2.5.2 Request from a user to invite another user to a conference

Upon receipt of an REFER request that includes:

- a) a conference URI in the request URI; and
- b) a Refer-To header including:
 - a valid SIP URI or tel URL; and,
 - the "method" parameter set to "INVITE";

the conference focus shall:

- 1) check if the conference URI is allocated. If the conference URI is not allocated, the conference focus shall reject the request in accordance with RFC 3261 [7]. The following actions in this subclause shall only be performed if the conference URI is allocated;
- 2) verify the identity of the user as described in subclause 5.7.1.4 of 3GPP TS 24.229 [5] and authorize the request as described in subclause 5.7.1.5 of 3GPP TS 24.229 [5]. The following actions in this subclause shall only be performed if the request can be authorized;
- 3) generate a final response to the REFER request in accordance with RFC 3515 [17];
- 4) invite the user indicated in the Refer-To header by performing the procedures as described in subclause 5.3.2.5.3;
- 5) if the received REFER request included a Referred-By header, include the Referred-By header in accordance with draft-ietf-sip-referredby [20] in the INVITE request that is sent for joining the conference; and
- 6) based on the progress of this invitation, send NOTIFY messages in accordance with the procedures of RFC 3515 [17] towards the user who sent the REFER request.

5.3.2.5.3 Inviting a user to a conference by sending an INVITE request

When generating an INVITE request in order to invite a user to a specific conference, the conference focus shall:

- 1) set the request URI of the INVITE request to the address of the user who is invited to the conference;
- 2) set the P-Asserted-Identity header of the INVITE request to the conference URI of the conference that the user shall be invited to;
- 3) set the Contact header of the INVITE request to the conference URI of the conference that the user shall be invited to, including the "isfocus" feature parameter;
- 4) if the INVITE request is generated due to a received REFER request from another conference participant and that received REFER request included a Referred-By header, include the Referred-By header in accordance with draft-ietf-sip-referredby [20] in the INVITE request;
- 5) request the resources required for the new user from the conference focus; and
- 6) send the INVITE request towards the user who is invited to the conference.

NOTE: Requests are generated in accordance with 3GPP TS 24.229 [5].

Afterwards the conference focus shall proceed the session establishment as described in 3GPP TS 24.229 [5].

5.3.2.5.4 Inviting a user to a conference by sending a REFER request

When generating a REFER request in order to invite a user to a specific conference, the conference focus shall:

- 1) set the request URI of the REFER request to the address of the user who is invited to the conference;
- 2) set the P-Asserted-Identity header of the REFER request to the conference URI of the conference that the user shall be invited to;
- 3) set the Refer-To header of the REFER request to the conference URI of the conference that the other user shall be invited to, including the "method" uri parameter set to "INVITE"; and

NOTE 1: Other headers of the REFER request will be set in accordance with 3GPP TS 24.229 [5].

- 4) send the REFER request towards the user who is invited to the conference.

NOTE 2: Requests are generated in accordance with 3GPP TS 24.229 [5].

Afterwards the conference focus shall treat incoming NOTIFY requests that are related to the previously sent REFER request in accordance with RFC 3515 [17].

5.3.2.6 Leaving a conference

5.3.2.6.1 Conference participant leaving a conference

Upon receipt of a BYE message from a conference participant, the conference focus shall:

- 1) respond to the BYE request as described in 3GPP TS 24.229 [5] and RFC 3261 [7]; and
- 2) release the resources, related to the conference participant from the conference mixer.

5.3.2.6.2 Removing a conference participant from a conference

5.3.2.6.2.1 General

The conference focus can remove a conference participant from a conference by terminating the dialog with the conference participant. This is done by sending a BYE request to the participant, as described in subclause 5.3.2.6.2.3. The removal of a conference participant by the conference focus will be triggered:

- 1) by a privileged user expelling a conference participant from the conference by [establishing a conference policy authorization rule, as described in draft-ietf-xcon-cpcp \[23\] and draft-ietf-xcon-cpcp-xcap \[30\]](#); ~~modifying the ACL of the conference policy, as described in subclause 7.3.2;~~
- 2) by a REFER request received from authorized users, that request the conference focus to remove the conference participant from the conference, as described in subclause 5.3.2.6.2.2; or
- 3) by local administration procedures.

5.3.2.6.2.2 Request from a conference participant to remove another conference participant from a conference

Upon receipt of a REFER request that includes:

- a) a conference URI in the request URI; and,
- b) a Refer-To header including:
 - 1) a valid SIP URI, tel URL or wildcarded SIP URI "*@*"; and
 - 2) the "method" parameter set to "BYE".

The conference focus shall:

- 1) check if the conference URI is allocated. If the conference URI is not allocated, the conference focus shall reject the request in accordance with RFC 3261 [7]. The following actions in this subclause shall only be performed if the conference URI is allocated;
- 2) check if the SIP URI or tel URL of the Refer-To header belongs to a user who is currently a participant of the referenced conference. If there is no corresponding conference participant, the conference focus shall perform the actions as described in subclause 5.3.2.6.2.4;
- 3) verify the identity of the user as described in subclause 5.7.1.4 of 3GPP TS 24.229 [5] and authorize the request as described in subclause 5.7.1.5 of 3GPP TS 24.229 [5]. The following actions in this subclause shall only be performed if the request can be authorized;
- 4) generate a final response to the REFER request in accordance with RFC 3515 [17];
- 5) if a single conference participant is indicated in the Refer-To header, remove this conference participant from the conference according to subclause 5.3.2.6.2.3. If all conference participants shall be removed from the conference, i.e. the Refer-To header includes the wildcarded SIP URI "*@*", perform the procedures described in subclause 5.3.2.6.2.3 for each conference participant individually; and
- 6) based on the progress of this removal, send NOTIFY messages in accordance with the procedures of RFC 3515 [17] towards the conference participant who sent the REFER request.

5.3.2.6.2.3 Conference focus removes conference participant from a conference

When removing a conference participant from a conference, the conference focus shall:

- 1) generate a BYE request on the dialog that was established when the conference participant joined or created the conference, in accordance to the procedures described in 3GPP TS 24.229 [5] and RFC 3261 [7];
- 2) release the resources, related to the conference participant from the conference mixer.

5.3.2.6.2.4 Abnormal cases

The conference focus shall return a 404 (Not Found) response if the request URI of a REFER request includes an allocated conference URI but the SIP URI or tel URL in the Refer-To header refers to a user who is not a participant of the referenced conference.

5.3.2.7 Conference termination

A conference shall be terminated by the conference focus:

- 1) when the conference policy dictates it.
- 2) when the conference policy document has been deleted by means of CPCP, as described in draft-ietf-xcon-cpcp-xcap [23]; or
- 3) when no dedicated rules for conference termination exist in the conference policy; and:
 - either the conference was created with a conference factory URI and the conference creator has left the conference; or
 - the last conference participant has left or has been removed from the conference.

To terminate an existing conference, the conference focus shall:

- 1) remove all present conference participants from the conference by performing the procedures as described in subclause 5.3.2.6.2.3 for each participant individually;
- 2) trigger the deletion of the conference policy at the CPS if the conference termination was not initiated by the removal of the conference policy document; and
- 3) deallocate the conference URI.

CR-Form-v7.1

CHANGE REQUEST

⌘ **24.147 CR 10** ⌘ rev **1** ⌘ Current version: **6.0.0** ⌘

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:	⌘ Removal of "Conference Notification Service" Role		
Source:	⌘ Infineon Technologies		
Work item code:	⌘ IMS2	Date:	⌘ 03/11/2004
Category:	⌘ F	Release:	⌘ Rel-6
	Use <u>one</u> 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 <u>one</u> of the following releases: Ph2 (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) Rel-7 (Release 7)

Reason for change:	⌘ The role definitions in the SIP part are not in line with the Conferencing Framework. The "Conference Notification Service" can not be defined as a separate logical role because the Conferencing Framework states the following: <i>Conference Notification Service: A conference notification service is a logical function provided by the focus. The focus can act as a notifier [4], accepting subscriptions to the conference state, and notifying subscribers about changes to that state. [...]</i>
Summary of change:	⌘ The conference notification service is integrated into the focus role
Consequences if not approved:	⌘ TS 24.147 is not in line with the conferencing framework. Functions that belongs to the focus are unnecessarily distributed among different roles

Clauses affected:	⌘ 2, 5.3.1.2, 5.3.3						
Other specs affected:	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> </table> Other core specifications	Y	N	<input type="checkbox"/>	<input checked="" type="checkbox"/>	⌘	
Y	N						
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	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> </table> Test specifications	Y	N	<input type="checkbox"/>	<input checked="" type="checkbox"/>	⌘	
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	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> </table> O&M Specifications	Y	N	<input type="checkbox"/>	<input checked="" type="checkbox"/>	⌘	
Y	N						
<input type="checkbox"/>	<input checked="" type="checkbox"/>						
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: References & Definitions** -----

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

- [1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".
- [2] 3GPP TS 22.228: "Service requirements for the Internet Protocol (IP) multimedia core network subsystem; Stage 1".
- [3] 3GPP TS 23.218: "IP Multimedia (IM) session handling; IM call model; Stage 2".
- [4] 3GPP TS 24.228: "Signalling flows for the IP multimedia call control based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP); Stage 3".
- [5] 3GPP TS 24.229: "Internet Protocol (IP) multimedia call control protocol based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP); Stage 3".
- [6] 3GPP TS 23.228: "IP Multimedia Subsystem (IMS); Stage 2".
- [7] IETF RFC 3261 (June 2002): "SIP: Session Initiation Protocol".
- [8] draft-ietf-sipping-conferencing-framework-043 (October 2004): "A Framework for Conferencing with the Session Initiation Protocol".

Editor's note: The above document cannot be formally referenced until it is published as an RFC.

- [9] draft-ietf-sipping-cc-conferencing-045 (October 2004): "Session Initiation Protocol Call Control - Conferencing for User Agents".

Editor's note: The above document cannot be formally referenced until it is published as an RFC.

- [10] IETF RFC 3265 (June 2002): "Session Initiation Protocol (SIP) - Specific Event Notification".
- [11] draft-ietf-sipping-conference-package-03 (February 2004): "A Session Initiation Protocol (SIP) Event Package for Conference State".

Editor's note: The above document cannot be formally referenced until it is published as an RFC.

- [12] 3GPP TS 29.228: "IP Multimedia (IM) Subsystem Cx and Dx Interfaces; Signalling flows and message contents".
- [13] IETF RFC 3323 (November 2002): "A Privacy Mechanism for the Session Initiation Protocol (SIP)".
- [14] IETF RFC 3325 (November 2002): "Private Extensions to the Session Initiation Protocol (SIP) for Asserted Identity within Trusted Networks".
- [15] 3GPP TS 29.208: "End to end Quality of Service (QoS) signalling flows".

- [16] IETF RFC 2833 (May 2000): "RTP Payload for DTMF Digits, Telephony Tones and Telephony Signals".
- [17] IETF RFC 3515 (April 2003): "The Session Initiation Protocol (SIP) Refer Method".
- [18] 3GPP TS 22.141: "Presence service; Stage 1".
- [19] draft-ietf-sip-callee-caps-03 (December 2003): "Indicating User Agent Capabilities in the Session Initiation Protocol (SIP)".

Editor's note: The above document cannot be formally referenced until it is published as an RFC.

- [20] draft-ietf-sip-referredby-05 (March 2004): "The SIP Referred-By Mechanism".

Editor's note: The above document cannot be formally referenced until it is published as an RFC.

- [21] IETF RFC 2616 (June 1999): "Hypertext Transfer Protocol - HTTP/1.1".
- [22] draft-ietf-simple-xcap-02 (February 2004): "The Extensible Markup Language (XML) Configuration Access Protocol (XCAP)".

Editor's note: The above document cannot be formally referenced until it is published as an RFC.

- [23] draft-ietf-xcon-cpcp-xcap-00 (April 2004): "The Conference Policy Control Protocol (CPCP)".

Editor's note: The above document cannot be formally referenced until it is published as an RFC.

- [24] 3GPP TS 33.141: "Presence service; Security".
- [25] 3GPP TS 24.109: "Bootstrapping interface (Ub) and Network application function interface (Ua); Protocol details".
- [26] IETF RFC 2246 (January 1999): "The TLS Protocol Version 1.0".
- [27] IETF RFC 3310 (September 2002): "Hypertext Transfer Protocol (HTTP) Digest Authentication Using Authentication and Key Agreement (AKA)".
- [28] draft-ietf-xcon-bfcp-00 (July 2004): "The Binary Floor Control Protocol (BFCP)".

Editor's note: The above document cannot be formally referenced until it is published as an RFC.

----- SECOND CHANGE: SIP Roles -----

5 Protocol using SIP and SIP events for conferencing

5.1 Introduction

Void

5.2 Functional entities

5.2.1 User Equipment (UE)

For the purpose of SIP based conferences, the UE shall implement the role of a Conference participant as described in subclause 5.3.1.

5.2.2 Media Resource Function Controller (MRFC)

As the function split between the MRFC and the conferencing AS is out of scope of the present document, the procedures for the MRFC are described together with those for the conferencing AS in subclause 5.2.2.

For the purpose of SIP based conferences, the MRFC shall regard the MRFP as a mixer, as described in draft-ietf-sipping-conferencing-framework [8] and draft-ietf-sipping-cc-conferencing [9].

5.2.3 Conferencing Application Server (AS)

As the functional split between the conferencing AS and the MRFC is out of scope of the present document, the procedures are described for a combined conferencing AS and MRFC. The AS and MRFC may either be collocated, or interoperate using a proprietary protocol and a proprietary functional split.

For the purpose of SIP based conferences, the conferencing AS/MRFC shall implement the role of a conference focus, as described in subclause 5.3.2 and as a conference notification service, as described in subclause 5.3.3. The conferencing AS/MRFC may implement the role of a conference participant as described in subclause 5.3.1.

5.2.4 Media Gateway Control Function (MGCF)

For the purpose of SIP based conference, the MGCF shall implement the role of Conference participant as described in subclause 5.3.1.

5.3 Role

5.3.1 Conference Participant

5.3.1.1 General

In addition to the procedures specified in subclause 5.3.1, the conference participant shall support the procedures specified in 3GPP TS 24.229 [5] appropriate to the functional entity in which the conference participant is implemented.

5.3.1.2 ~~Tightly coupled conferences~~ [Subscription for conference event package](#)

The conference participant ~~shall be able to act as a subscriber~~ [may subscribe](#) to the conference ~~ing~~ event package, as described in draft-ietf-sipping-conference-package [11].

----- THIRD CHANGE: Conference Notification Service -----

5.3.3 Conference Notification Service

5.3.3.1 General

In addition to the procedures specified in subclause 5.3.3, the conference notification service shall support the procedures specified in 3GPP TS 24.229 [5] appropriate to the functional entity in which the conference notification service is implemented.

5.3.3.2 Subscription to conference event package

Upon receipt of a SUBSCRIBE request that includes a conference URI in the request URI and the "conference" tag in the Event header, the conference notification service shall:

- 1) check if the conference URI is allocated and reject the request in accordance with RFC 3261 [7] if it is not allocated. The following actions ~~shall~~ in this subclause [shall](#) only be performed if the conference URI is allocated;

- 2) verify the identity of the user as described in subclause 5.7.1.4 of 3GPP TS 24.229 [5] and authorize the request as described in subclause 5.7.1.5 of 3GPP TS 24.229 [5]. The following actions shall only be performed if the request can be authorized; and
- 3) establish the subscription to the conference state event information as described in RFC 3265 [10] and draft-ietf-sipping-conference-package [11].

CR-Form-v7.1

CHANGE REQUEST

⌘ **24.147 CR 11** ⌘ rev **1** ⌘ Current version: **6.0.0** ⌘

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:	⌘ Update of signalling flows		
Source:	⌘ Infineon Technologies		
Work item code:	⌘ IMS2	Date:	⌘ 02/11/2004
Category:	⌘ F	Release:	⌘ Rel-6
	Use <u>one</u> 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 <u>one</u> of the following releases: Ph2 (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) Rel-7 (Release 7)

Reason for change:	⌘ I.) The MRFC/AS does not indicate support for - the "conference" event package; and - the SUBSCRIBE, NOTIFY methods. II.) The UE does not indicate support for SUBSCRIBE and NOTIFY methods.
Summary of change:	⌘ Signalling flows are corrected to show that the MRFC/AS may indicate support for the "conference" event package and the SUBSCRIBE, NOTIFY methods. Signalling flows are corrected to show that the UE may indicate support for the SUBSCRIBE and NOTIFY methods.
Consequences if not approved:	⌘ Some configuration options are not shown by the signalling flows

Clauses affected:	⌘ 2, 5.3.1.4.2, 5.3.2.5.2, 5.3.2.5.3, A.3.2.1, A.3.2.2, A.4.2.1.1, A.4.2.1.2, A.4.3.1.3										
Other specs affected:	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;">⌘</td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;">⌘</td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;">⌘</td> <td style="text-align: center;">X</td> </tr> </table> Other core specifications Test specifications O&M Specifications	Y	N	⌘	X	⌘	X	⌘	X	⌘	
Y	N										
⌘	X										
⌘	X										
⌘	X										
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: References** -----

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

- [1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".
- [2] 3GPP TS 22.228: "Service requirements for the Internet Protocol (IP) multimedia core network subsystem; Stage 1".
- [3] 3GPP TS 23.218: "IP Multimedia (IM) session handling; IM call model; Stage 2".
- [4] 3GPP TS 24.228: "Signalling flows for the IP multimedia call control based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP); Stage 3".
- [5] 3GPP TS 24.229: "Internet Protocol (IP) multimedia call control protocol based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP); Stage 3".
- [6] 3GPP TS 23.228: "IP Multimedia Subsystem (IMS); Stage 2".
- [7] IETF RFC 3261 (June 2002): "SIP: Session Initiation Protocol".
- [8] draft-ietf-sipping-conferencing-framework-01 (October 2003): "A Framework for Conferencing with the Session Initiation Protocol".

Editor's note: The above document cannot be formally referenced until it is published as an RFC.

- [9] draft-ietf-sipping-cc-conferencing-01 (June 2003): "Session Initiation Protocol Call Control - Conferencing for User Agents".

Editor's note: The above document cannot be formally referenced until it is published as an RFC.

- [10] IETF RFC 3265 (June 2002): "Session Initiation Protocol (SIP) - Specific Event Notification".
- [11] draft-ietf-sipping-conference-package-03 (February 2004): "A Session Initiation Protocol (SIP) Event Package for Conference State".

Editor's note: The above document cannot be formally referenced until it is published as an RFC.

- [12] 3GPP TS 29.228: "IP Multimedia (IM) Subsystem Cx and Dx Interfaces; Signalling flows and message contents".
- [13] IETF RFC 3323 (November 2002): "A Privacy Mechanism for the Session Initiation Protocol (SIP)".
- [14] IETF RFC 3325 (November 2002): "Private Extensions to the Session Initiation Protocol (SIP) for Asserted Identity within Trusted Networks".
- [15] 3GPP TS 29.208: "End to end Quality of Service (QoS) signalling flows".

- [16] IETF RFC 2833 (May 2000): "RTP Payload for DTMF Digits, Telephony Tones and Telephony Signals".
- [17] IETF RFC 3515 (April 2003): "The Session Initiation Protocol (SIP) Refer Method".
- [18] 3GPP TS 22.141: "Presence service; Stage 1".
- [19] draft-ietf-sip-callee-caps-03 (December 2003): "Indicating User Agent Capabilities in the Session Initiation Protocol (SIP)".

Editor's note: The above document cannot be formally referenced until it is published as an RFC.

- [20] ~~draft-ietf-sip-referredby-05~~ IETF RFC 3892 (September ~~March~~ 2004): "The [Session Initiation Protocol \(SIP\) Referred-By Mechanism](#)".

~~Editor's note:~~ The above document cannot be formally referenced until it is published as an RFC.

- [21] IETF RFC 2616 (June 1999): "Hypertext Transfer Protocol - HTTP/1.1".
- [22] draft-ietf-simple-xcap-02 (February 2004): "The Extensible Markup Language (XML) Configuration Access Protocol (XCAP)".

Editor's note: The above document cannot be formally referenced until it is published as an RFC.

- [23] draft-ietf-xcon-cpcp-xcap-00 (April 2004): "The Conference Policy Control Protocol (CPCP)".

Editor's note: The above document cannot be formally referenced until it is published as an RFC.

- [24] 3GPP TS 33.141: "Presence service; Security".
- [25] 3GPP TS 24.109: "Bootstrapping interface (Ub) and Network application function interface (Ua); Protocol details".
- [26] IETF RFC 2246 (January 1999): "The TLS Protocol Version 1.0".
- [27] IETF RFC 3310 (September 2002): "Hypertext Transfer Protocol (HTTP) Digest Authentication Using Authentication and Key Agreement (AKA)".
- [28] draft-ietf-xcon-bfcp-00 (July 2004): "The Binary Floor Control Protocol (BFCP)".

Editor's note: The above document cannot be formally referenced until it is published as an RFC.

----- SECOND CHANGE (NEU): SIP Part, Conference Participant Role -----

5.3.1.4.2 User joining a conference after receipt of a REFER request

Upon receipt of a REFER request that includes a Refer-To header which includes the "method" uri parameter set to INVITE, the conference participant shall:

- 1) handle the REFER request in accordance with RFC 3515 [17];
- 2) perform the actions as described in subclause 5.3.1.4.1 for a user joining a conference; and
- 3) if the received REFER request included a Referred-By header, include the Referred-By header in accordance with [RFC 3892](#)~~draft-ietf-sip-referredby~~ [20] in the INVITE request that is sent for joining the conference.

----- THIRD CHANGE (NEU): SIP Part, Conference Participant Role -----

5.3.2.5.2 Request from a user to invite another user to a conference

Upon receipt of an REFER request that includes:

- a) a conference URI in the request URI; and
- b) a Refer-To header including:
 - a valid SIP URI or tel URL; and,
 - the "method" parameter set to "INVITE";

the conference focus shall:

- 1) check if the conference URI is allocated. If the conference URI is not allocated, the conference focus shall reject the request in accordance with RFC 3261 [7]. The following actions in this subclause shall only be performed if the conference URI is allocated;
- 2) verify the identity of the user as described in subclause 5.7.1.4 of 3GPP TS 24.229 [5] and authorize the request as described in subclause 5.7.1.5 of 3GPP TS 24.229 [5]. The following actions in this subclause shall only be performed if the request can be authorized;
- 3) generate a final response to the REFER request in accordance with RFC 3515 [17];
- 4) invite the user indicated in the Refer-To header by performing the procedures as described in subclause 5.3.2.5.3;
- 5) if the received REFER request included a Referred-By header, include the Referred-By header in accordance with [RFC 3892](#)~~draft-ietf-sip-referredby~~ [20] in the INVITE request that is sent for joining the conference; and
- 6) based on the progress of this invitation, send NOTIFY messages in accordance with the procedures of RFC 3515 [17] towards the user who sent the REFER request.

----- FOURTH CHANGE (NEU): SIP Part, Conference Focus Role -----

5.3.2.5.3 Inviting a user to a conference by sending an INVITE request

When generating an INVITE request in order to invite a user to a specific conference, the conference focus shall:

- 1) set the request URI of the INVITE request to the address of the user who is invited to the conference;
- 2) set the P-Asserted-Identity header of the INVITE request to the conference URI of the conference that the user shall be invited to;
- 3) set the Contact header of the INVITE request to the conference URI of the conference that the user shall be invited to, including the "isfocus" feature parameter;
- 4) if the INVITE request is generated due to a received REFER request from another conference participant and that received REFER request included a Referred-By header, include the Referred-By header in accordance with [RFC 3892](#)~~draft-ietf-sip-referredby~~ [20] in the INVITE request;
- 5) request the resources required for the new user from the conference focus; and
- 6) send the INVITE request towards the user who is invited to the conference.

NOTE: Requests are generated in accordance with 3GPP TS 24.229 [5].

Afterwards the conference focus shall proceed the session establishment as described in 3GPP TS 24.229 [5].

----- FIFTH CHANGE: Annex A.3 -----

A.3 Flows demonstrating the creation of a conference

A.3.1 Introduction

Clause A.3 covers the flows that show how a user can create conferences at a MRFC/AS.

A.3.2 User automatically creating a conference with a conference factory URI

A.3.2.1 MRFC/AS is located in user's home network

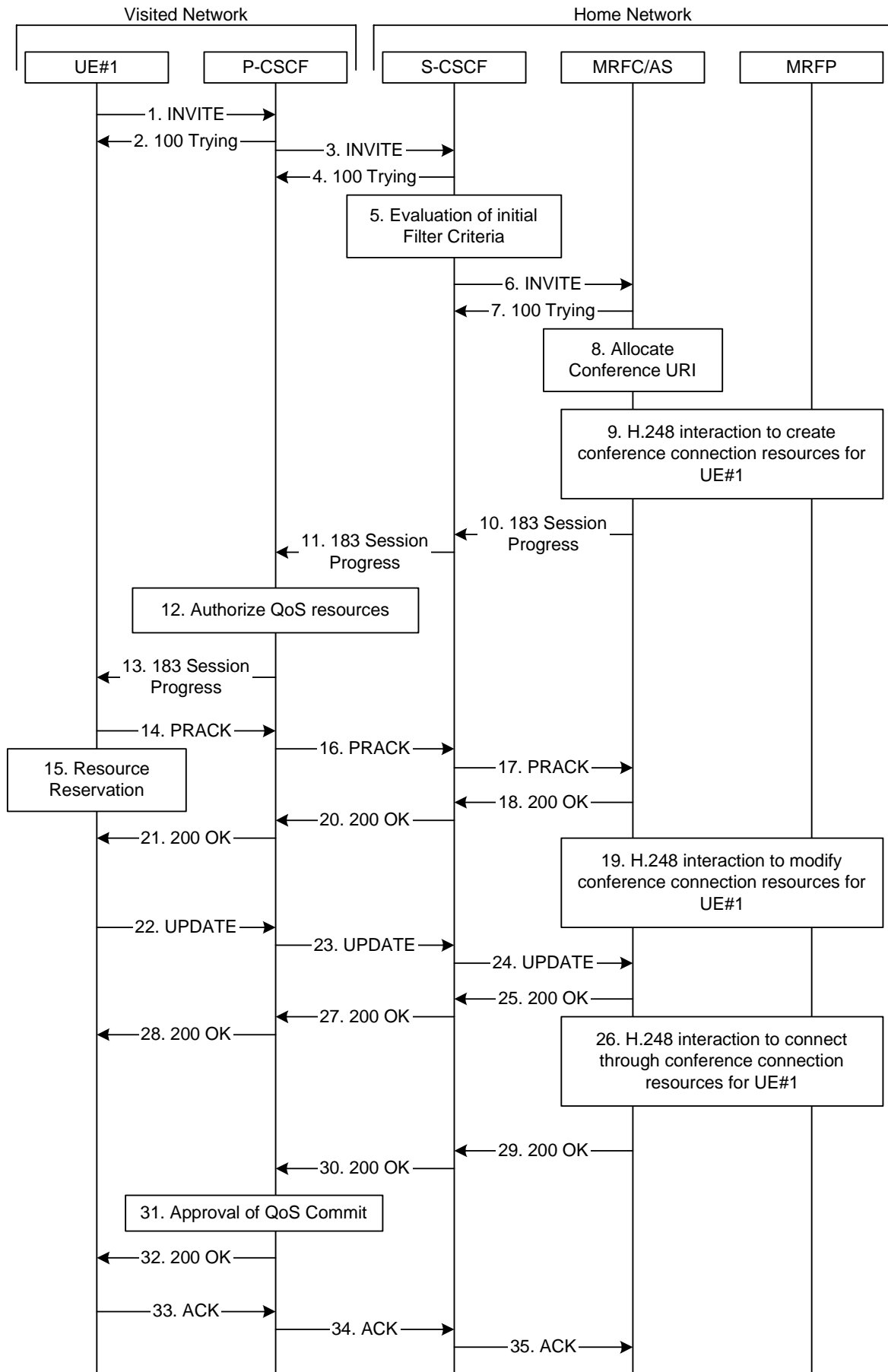


Figure A.3.2.1-1: User automatically creating a conference with a conference factory URI - MRFC/AS is located in user's home network

Figure A.3.2.1-1 shows an user creating a conference by using a conference-factory URI. The conference is created at a MRFC/AS of the users home network.

The details of the flows are as follows:

1. INVITE request (UE to P-CSCF) - see example in table A.3.2.1-1

A UE wants to create a conference. For this purpose the UE is aware of a conference-factory URI that was obtained by means outside the present document (e.g. due to pre-configuration or via other protocols, such as http).

The UE determines the complete set of codecs that it is capable of supporting for this conference. It builds a SDP Offer 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.

For this example, it is assumed that UE#1 is willing to establish a multimedia session comprising a video stream and an audio stream. The video stream supports two codecs, either H.263 or MPEG-4 Visual. The audio stream supports the AMR codec. The UE sends the INVITE request to the P-CSCF.

Table A.3.2.1-1: INVITE request (UE to P-CSCF)

```

INVITE sip:conference-factory1@mrfc1.home1.net SIP/2.0
Via: SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 70
Route:<sip:pcscf1.visited1.net:7531;lr;comp=sigcomp>, <sip:orig@scscf1.home1.net;lr>
P-Preferred-Identity: "John Doe" <sip:user1_public1@home1.net>
P-Access-Network-Info: 3GPP-UTRAN-TDD; utran-cell-id-3gpp=234151D0FCE11
Privacy: none
From: <sip:user1_public1@home1.net>; tag=171828
To: <sip:conference-factory1@mrfc1.home1.net>
Call-ID: cb03a0s09a2sdfg1kj490333
Cseq: 127 INVITE
Require: precondition, sec-agree
Proxy-Require: sec-agree
Supported: 100rel
Security-Verify: ipsec-3gpp; q=0.1; alg=hmac-sha-1-96; spi-c=98765432; spi-s=87654321;
port-c=8642; port-s=7531
Contact: <sip:[5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp>
Allow: INVITE, ACK, CANCEL, BYE, PRACK, UPDATE, REFER, MESSAGE, SUBSCRIBE, NOTIFY
Content-Type: application/sdp
Content-Length: (...)

v=0
o=- 2987933615 2987933615 IN IP6 5555::aaa:bbb:ccc:ddd
s=-
c=IN IP6 5555::aaa:bbb:ccc:ddd
t=0 0
m=video 3400 RTP/AVP 98 99
b=AS:75
a=curr:qos local none
a=curr:qos remote none
a=des:qos mandatory local sendrecv
a=des:qos none remote sendrecv
a=rtpmap:98 H263
a=fmtp:98 profile-level-id=0
a=rtpmap:99:MPVMP4V-ES
m=audio 3456 RTP/AVP 97 96
b=AS:25.4
a=curr:qos local none
a=curr:qos remote none
a=des:qos mandatory local sendrecv
a=des:qos none remote sendrecv
a=rtpmap:97 AMR
a=fmtp:97 mode-set=0,2,5,7; maxframes=2
a=rtpmap:96 telephone-event

```

Request-URI: contains the conference factory URI.

7. 100 (Trying) response (MRFC/AS to S-CSCF) - see example in table A.3.2.1-7 (related to table A.3.2.1-6)

The MRFC/AS responds to the INVITE request (6) with a 100 (Trying) provisional response.

Table A.3.2.1-7: 100 (Trying) response (MRFC/AS to S-CSCF)

```
SIP/2.0 100 Trying
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
    pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
    [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
From:
To:
Call-ID:
CSeq:
Content-Length: 0
```

8. Allocate conference URI

The MRFC/AS allocates a conference URI, based on local information and information gained from the conference-factory URI, as well as information gained from other elements of the SIP signalling.

9. H.248 interaction to create connection

The MRFC initiates a H.248 interaction to create an IMS connection point for UE#1 in MRFP and to determine media capabilities of the MRFP.

10. 183 (Session Progress) response (MRFC/AS to S-CSCF) - see example in table A.3.2.1-13 (related to table A.3.2.1-6)

The MRFC determines the complete set of codecs that it is capable of supporting for this conference. It determines the intersection with those appearing in the SDP in the INVITE request.

The media stream capabilities of the destination are returned along the signalling path, in a 183 (Session Progress) provisional response (to 6).

Table A.3.2.1-10: 183 (Session Progress) response (MRFC/AS to S-CSCF)

```

SIP/2.0 183 Session Progress
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
    pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
    [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Record-Route: <sip:scscf1.home1.net/lr>, <sip:pcscf1.visited1.net/lr>
P-Asserted-Identity: "Conference Server" <sip:mrflc1.home1.net>
P-Charging-Vector: icid-value="AyretyU0dm+602IrT5tAFrbHLso=023551024"; orig-ioi=home1.net;
    term-ioi=home1.net
P-Charging-Function-Addresses: ccf=[5555::b99:c88:d77:e66]; ccf=[5555::a55:b44:c33:d22];
    ecf=[5555::1ff:2ee:3dd:4cc]; ecf=[5555::6aa:7bb:8cc:9dd]
Privacy: none
From:
To: <sip:conference-factory1@mrflc1.home1.net>; tag=314159
Call-ID:
CSeq:
Require: 100rel
Contact: <sip:lmaa234269@mrflc1.home1.net>;isfocus
Allow: INVITE, ACK, CANCEL, BYE, PRACK, UPDATE, REFER, MESSAGE, SUBSCRIBE, NOTIFY
RSeq: 9021
Content-Type: application/sdp
Content-Length: (...)

v=0
o=- 2987933623 2987933623 IN IP6 5555::aaa:bbb:ccc:ddd
s=-
c=IN IP6 5555::eee:fff:aaa:bbb
t=0 0
m=video 10001 RTP/AVP 98 99
b=AS:75
a=curr:qos local none
a=curr:qos remote none
a=des:qos mandatory local sendrecv
a=des:qos mandatory remote sendrecv
a=conf:qos remote sendrecv
a=rtpmap:98 H263
a=fmtp:98 profile-level-id=0
a=rtpmap:99 MP4V-ES
m=audio 6544 RTP/AVP 97 96
b=AS:25.4
a=curr:qos local none
a=curr:qos remote none
a=des:qos mandatory local sendrecv
a=des:qos mandatory remote sendrecv
a=conf:qos remote sendrecv
a=rtpmap:97 AMR
a=fmtp:97 mode-set=0,2,5,7; maxframes=2
a=rtpmap:96 telephone-event

```

- Contact:** Contains the IP address or FQDN of the MRFC/AS and a temporary identifier of the conference being created in the user part. The URI for the allocated conference is not indicated yet. The "isfocus" feature parameter is included, as this temporary contact is still a conference URI.
- P-Charging-Vector:** The MRFC/AS inserts this header and populates the icid parameters with a unique value and populates the term-ioi parameter with the identifier of its own network.
- P-Charging-Function-Address:** The MRFC/AS stores the P-Charging-Function-Addresses header field to be passed to the S-CSCF.

11. 183 (Session Progress) response (S-CSCF to P-CSCF) - see example in table A.3.2.1-11

The S-CSCF forwards the 183 (Session Progress) response to the P-CSCF.

Table A.3.2.1-14: PRACK request (UE to P-CSCF)

```

PRACK sip:lmaa234269@mrfl1.home1.net SIP/2.0
Via: SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 70
P-Access-Network-Info: 3GPP-UTRAN-TDD; utran-cell-id-3gpp=234151D0FCE11
Route: <sip:pcscfl.visited1.net:7531;lr;comp=sigcomp>, <sip:scscfl.home1.net;lr> From:
  <sip:user1_public1@home1.net>; tag=171828
To: <sip:conference-factory1@mrfl1.home1.net>;tag=314159
Call-ID: cb03a0s09a2sdfg1kj490333
Cseq: 128 PRACK
Require: precondition, sec-agree
Proxy-Require: sec-agree
Security-Verify: ipsec-3gpp; q=0.1; alg=hmac-sha-1-96; spi-c=98765432; spi-s=87654321;
  port-c=8642; port-s=7531
Rack: 9021 127 INVITE
Content-Type: application/sdp
Content-Length: (...)

v=0
o=- 2987933615 2987933616 IN IP6 5555::aaa:bbb:ccc:ddd
s=-
c=IN IP6 5555::aaa:bbb:ccc:ddd
t=0 0
m=video 3400 RTP/AVP 98
b=AS:75
a=curr:qos local none
a=curr:qos remote none
a=des:qos mandatory local sendrecv
a=des:qos mandatory remote sendrecv
a=rtpmap:98 H263
a=fmtp:98 profile-level-id=0
m=audio 3456 RTP/AVP 97 96
b=AS:25.4
a=curr:qos local none
a=curr:qos remote none
a=des:qos mandatory local sendrecv
a=des:qos mandatory remote sendrecv
a=rtpmap:97 AMR
a=fmtp:97 mode-set=0,2,5,7; maxframes=2
a=rtpmap:96 telephone-event

```

15. Resource reservation

After determining the final media streams in step #11, the UE initiates the reservation procedures for the resources needed for this session.

16. PRACK request (P-CSCF to S-CSCF) - see example in table A.3.2.1-16

The P-CSCF forwards the PRACK request to the S-CSCF.

Table A.3.2.1-16: PRACK request (P-CSCF to S-CSCF)

```
PRACK sip:lmaa234269@mrfc1.home1.net SIP/2.0
Via: SIP/2.0/UDP pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
    [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 69
P-Access-Network-Info:
Route: <sip:scscf1.home1.net;lr>
From:
To:
Call-ID:
Cseq:
Require: precondition
RAck:
Content-Type:
Content-Length:

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

17. PRACK request (S-CSCF to MRFC/AS) - see example in table A.3.2.1-17

The S-CSCF forwards the PRACK request to the MRFC/AS.

Table A.3.2.1-17: PRACK request (S-CSCF to MRFC/AS)

```
PRACK sip:lmaa234269@mrfc1.home1.net SIP/2.0
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
    pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
    [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 68
P-Access-Network-Info:
From:
To:
Call-ID:
Cseq:
Require:
RAck:
Content-Type:
Content-Length:

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

18. 200 (OK) response (MRFC/AS to S-CSCF) - see example in table A.3.2.1-18 (related to table A.3.2.1-17)

The MRFC/AS acknowledges the PRACK request (17) with a 200 (OK) response.

Table A.3.2.1-18: 200 (OK) response (MRFC/AS to S-CSCF)

```

SIP/2.0 200 OK
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
    pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
    [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
From:
To:
Call-ID:
CSeq:
Content-Type: application/sdp
Content-Length: (...)

v=0
o=- 2987933623 2987933624 IN IP6 5555::aaa:bbb:ccc:ddd
s=-
c=IN IP6 5555::eee:fff:aaa:bbb
t=0 0
m=video 10001 RTP/AVP 98
b=AS:75
a=curr:qos local none
a=curr:qos remote none
a=des:qos mandatory local sendrecv
a=des:qos mandatory remote sendrecv
a=conf:qos remote sendrecv
a=rtpmap:98 H263
a=fmtp:98 profile-level-id=0
m=audio 6544 RTP/AVP 97 96
b=AS:25.4
a=curr:qos local none
a=curr:qos remote none
a=des:qos mandatory local sendrecv
a=des:qos mandatory remote sendrecv
a=conf:qos remote sendrecv
a=rtpmap:97 AMR
a=fmtp:97 mode-set=0,2,5,7; maxframes=2
a=rtpmap:96 telephone-event

```

19. H.248 interaction to modify connection

MRFC initiates a H.248 interaction to modify the connection established in step #9 and instructs MRFP to reserve the multimedia processing resources for UE#1 according to the preceding resource negotiation between the UE#1 and the MRFC.

20. 200 (OK) response (S-CSCF to P-CSCF) - see example in table A.3.2.1-20

The S-CSCF forwards the 200 (OK) response to the P-CSCF.

Table A.3.2.1-20: 200 (OK) response (S-CSCF to P-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
    [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
From:
To:
Call-ID:
CSeq:
Content-Type:
Content-Length:

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


21. 200 (OK) response (P-CSCF to UE) - see example in table A.3.2.1-21

The P-CSCF forwards the 200 (OK) response to the UE.

Table A.3.2.1-21: 200 (OK) response (P-CSCF to UE)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
From:
To:
Call-ID:
CSeq:
Content-Type:
Content-Length:

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

22. UPDATE request (UE to P-CSCF) - see example in table A.3.2.1-22

When the resource reservation is completed, the UE sends the UPDATE request to the MRFC/AS, via the signalling path established by the INVITE request.

Table A.3.2.1-22: UPDATE request (UE to P-CSCF)

```

UPDATE sip:lmaa234269@mrfc1.home1.net SIP/2.0
Via: SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 70
Route: <sip:pcscf1.visited1.net:7531;lr;comp=sigcomp>, <sip:scscf1.home1.net;lr>
P-Access-Network-Info: 3GPP-UTRAN-TDD; utran-cell-id-3gpp=234151D0FCE11
From: <sip:user1_public1@home1.net>; tag=171828
To: <sip:conference-factory1@mrfc1.home1.net>; tag=314159
Call-ID: cb03a0s09a2sdfglkj490333
Cseq: 129 UPDATE
Require: sec-agree
Proxy-Require: sec-agree
Security-Verify: ipsec-3gpp; q=0.1; alg=hmac-sha-1-96; spi-c=98765432; spi-s=87654321;
port-c=8642; port-s=7531
Content-Type: application/sdp
Content-Length: (...)

v=0
o=- 2987933615 2987933617 IN IP6 5555::aaa:bbb:ccc:ddd
s=-
c=IN IP6 5555::aaa:bbb:ccc:ddd
t=0 0
m=video 0 RTP/AVP 98
b=AS:75
a=curr:qos local sendrecv
a=curr:qos remote none
a=des:qos mandatory local sendrecv
a=des:qos mandatory remote sendrecv
a=rtpmap:98 H263
a=fmtp:98 profile-level-id=0
m=audio 3456 RTP/AVP 97 96
b=AS:25.4
a=curr:qos local sendrecv
a=curr:qos remote none
a=des:qos mandatory local sendrecv
a=des:qos mandatory remote sendrecv
a=rtpmap:97 AMR
a=fmtp:97 mode-set=0,2,5,7; maxframes=2
a=rtpmap:96 telephone-event

```

23. UPDATE request (P-CSCF to S-CSCF) - see example in table A.3.2.1-23

The P-CSCF forwards the UPDATE request to the S-CSCF.

Table A.3.2.1-23: UPDATE request (P-CSCF to S-CSCF)

```
UPDATE sip:lmaa234269@mrfc1.home1.net SIP/2.0
Via: SIP/2.0/UDP pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
    [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 69
P-Access-Network-Info:
P-Charging-Vector: icid-value="AyretyU0dm+6O2IrT5tAFrbHLso=023551024";
    ggsn=[5555::4b4:3c3:2d2:1e1]; pdp-sig=no; gcid=723084371; auth-token=43876559; flow-id=3
Route: <sip:scscf1.home1.net;lr>
From:
To:
Call-ID:
Cseq:
Content-Type:
Content-Length:

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

24. UPDATE request (S-CSCF to MRFC/AS) - see example in table A.3.2.1-24

The S-CSCF forwards the UPDATE request to the MRFC/AS.

Table A.3.2.1-24: UPDATE request (S-CSCF to MRFC/AS)

```
UPDATE sip:lmaa234269@mrfc1.home1.net SIP/2.0
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
    pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
    [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 68
P-Access-Network-Info:
From:
To:
Call-ID:
Cseq:
Content-Type:
Content-Length:

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

25. 200 (OK) response (MRFC/AS to S-CSCF) - see example in table A.3.2.1-25 (related to table A.3.2.1-24)

The MRFC/AS acknowledges the UPDATE request (24) with a 200 (OK) response.

Table A.3.2.1-25: 200 (OK) response (MRFC/AS to S-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
    pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
    [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
From:
To:
Call-ID:
CSeq:
Content-Type: application/sdp
Content-Length: (...)

v=0
o=- 2987933623 2987933625 IN IP6 5555::aaa:bbb:ccc:ddd
s=-
c=IN IP6 5555::eee:fff:aaa:bbb
t=0 0
m=video 0 RTP/AVP 98
b=AS:75
a=curr:qos local sendrecv
a=curr:qos remote sendrecv
a=des:qos mandatory local sendrecv
a=des:qos mandatory remote sendrecv
a=rtpmap:98 H263
a=fmtp:98 profile-level-id=0
m=audio 6544 RTP/AVP 97 96
b=AS:25.4
a=curr:qos local sendrecv
a=curr:qos remote sendrecv
a=des:qos mandatory local sendrecv
a=des:qos mandatory remote sendrecv
a=rtpmap:97 AMR
a=fmtp:97 mode-set=0,2,5,7; maxframes=2
a=rtpmap:96 telephone-event
```

The SDP indicates that the resource reservation was successful both in the local and the remote segment.

26. H.248 interaction to modify connection

MRFC initiates a H.248 interaction to connect through the multimedia processing resources for UE#1 in MRFP.

27. 200 (OK) response (S-CSCF to P-CSCF) - see example in table A.3.2.1-27

The S-CSCF forwards the 200 (OK) response to the P-CSCF.

Table A.3.2.1-27: 200 (OK) response (S-CSCF to P-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
    [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
From:
To:
Call-ID:
CSeq:
Content-Type:
Content-Length:

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

28. 200 (OK) response (P-CSCF to UE) - see example in table A.3.2.1-28

The P-CSCF forwards the 200 (OK) response to the UE.

Table A.3.2.1-28: 200 (OK) response (P-CSCF to UE)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
From:
To:
Call-ID:
CSeq:
Content-Type:
Content-Length:

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

29. 200 (OK) response (MRFC/AS to S-CSCF) - see example in table A.3.2.1-29 (related to table A.3.2.1-6)

After the success modification of the session (26), the MRFC/AS sends a 200 (OK) response final response to the INVITE request (6) to the S-CSCF.

Table A.3.2.1-29: 200 (OK) response (MRFC/AS to S-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
    pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
    [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Record-Route: <sip:scscf1.home1.net;lr>, <sip:pcscf1.visited1.net;lr>
From:
To:
Call-ID:
CSeq: 127 INVITE
Contact: <sip:conference1@mrfc1.home1.net>;isfocus
Allow-Events: conference
Content-Length:0
```

Contact: [C](#)eontains the conference URI for the conference allocated at the MRFC/AS and the "isfocus" feature parameter.

Allow-Events: [The MRFC/AS indicates support for the "conference" event package](#)

30. 200 (OK) response (S-CSCF to P-CSCF) - see example in table A.3.2.1-30

The S-CSCF sends a 200 (OK) response final response along the signalling path back to the P-CSCF.

Table A.3.2.1-30: 200 (OK) response (S-CSCF to P-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
    [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Record-Route:
From:
To:
Call-ID:
CSeq:
Contact:
Allow-Events:
Content-Length:
```

31. Approval of QoS commit

The P-CSCF approves the commitment of the QoS resources if it was not approved already in step (12).

32. 200 (OK) response (P-CSCF to UE) - see example in table A.3.2.1-32

The P-CSCF forwards the 200 (OK) response final response to the session originator. The UE can start the media flow(s) for this session.

Table A.3.2.1-32: 200 (OK) response (P-CSCF to UE)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Record-Route: <sip:scscf1.home1.net;lr>, <sip:pcscf1.visited1.net:7531;lr;comp=sigcomp>
From:
To:
Call-ID:
CSeq:
Contact:
Allow-Events:
Content-Length:
```

33. ACK request (UE to P-CSCF) - see example in table A.3.2.1-33

The UE starts the media flow for this session, and responds to the 200(OK) response (32) with an ACK request sent to the P-CSCF.

Table A.3.2.1-33: ACK request (UE to P-CSCF)

```
ACK sip:conferencel@mrfl.home1.net:2342 SIP/2.0
Via: SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 70
Route: <sip:pcscf1.visited1.net:7531;lr;comp=sigcomp>, <sip:scscf1.home1.net;lr>From:
    <sip:user1_public1@home1.net>; tag=171828
To: <sip:conference-factory1@mrfl.home1.net>;tag=314159
Call-ID: cb03a0s09a2sdfglkj490333
Cseq: 127 ACK
Content-Length: 0
```


34. ACK request (P-CSCF to S-CSCF) - see example in table A.3.2.1-34

The P-CSCF forwards the ACK request to the S-CSCF.

Table A.3.2.1-34: ACK request (P-CSCF to S-CSCF)

```
ACK sip:conferencel@mrfcl.home1.net:2342 SIP/2.0
Via: SIP/2.0/UDP pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
    [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 69
Route: <sip:scscf1.home1.net;lr>
From:
To:
Call-ID:
Cseq:
Content-Length:
```

35. ACK request (S-CSCF to MRFC/AS) - see example in table A.3.2.1-35

The S-CSCF forwards the ACK request to the MRFC/AS.

Table A.3.2.1-35: ACK request (S-CSCF to MRFC/AS)

```
ACK sip:conferencel@mrfcl.home1.net:2342 SIP/2.0
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
    pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
    [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 68
From:
To:
Call-ID:
Cseq:
Content-Length:
```

A.3.2.2 MRFC/AS is not located in user's home network

Figure A.3.2.2-1 shows an user creating a conference by using a conference-factory URI. The conference is created at a MRFC/AS located in a different network than user's S-CSCF.

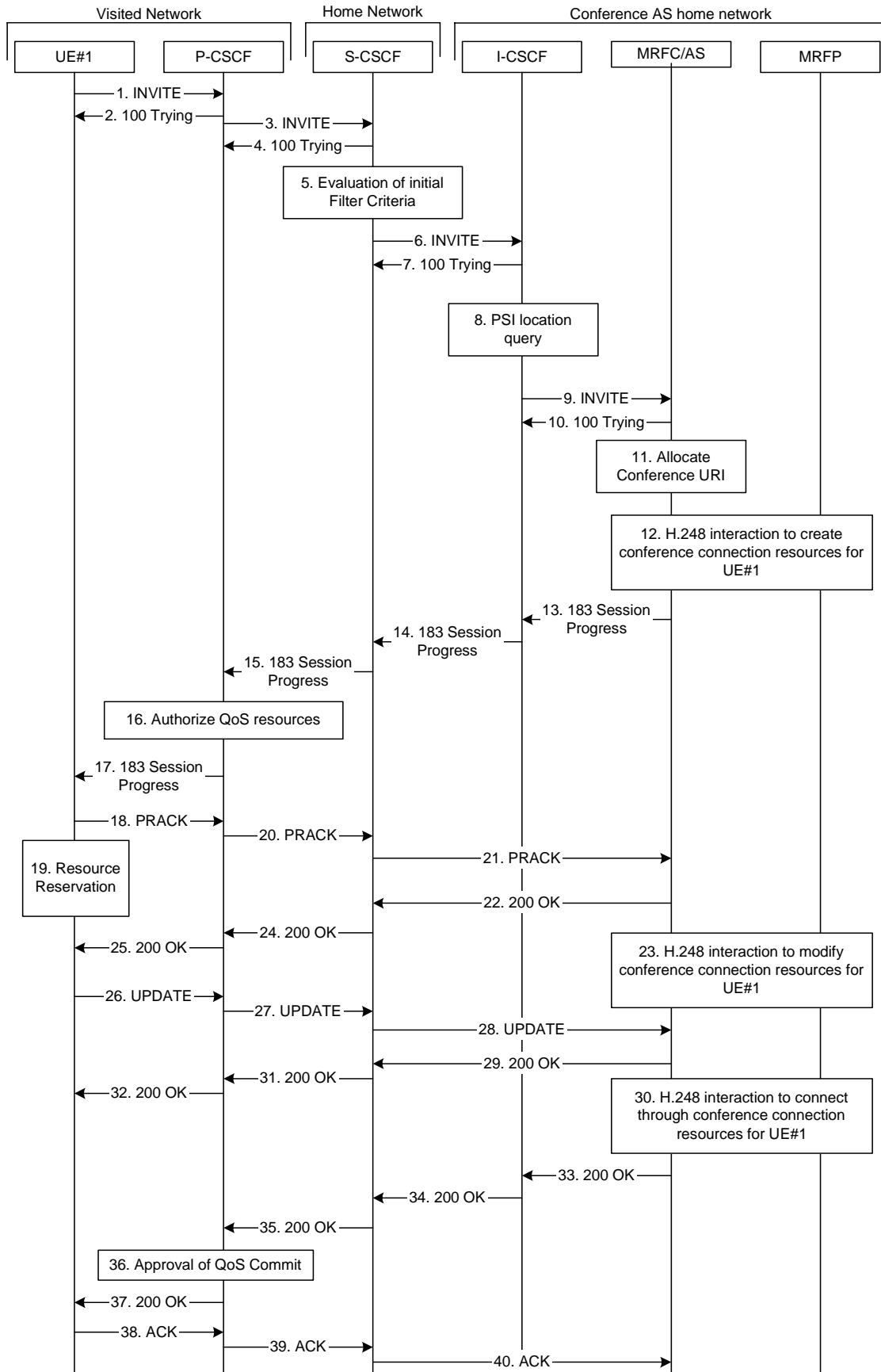


Figure A.3.2.2-1: User automatically creating a conference with a conference factory URI - MRFC/AS is not located in user's home network

The details of the flows are as follows:

1. INVITE request (UE to P-CSCF) - see example in table A.3.2.2-1

A UE wants to create a conference to a MRFC/AS in other network. For this purpose the UE is aware of a conference-factory URI that was obtained by means outside the present document (e.g. due to pre-configuration or via other protocols, such as http)

The UE determines the complete set of codecs that it is capable of supporting for this conference. It builds a SDP Offer 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.

For this example, it is assumed that UE#1 is willing to establish a multimedia session comprising a video stream and an audio stream. The video stream supports two codecs, either H.263 or MPEG-4 Visual. The audio stream supports the AMR codec. The UE sends the INVITE request to the P-CSCF.

Table A.3.2.2-1: INVITE request (UE to P-CSCF)

```

INVITE sip:conference-factory@home2.net SIP/2.0
Via: SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 70
Route: <sip:pcscf1.visited1.net:7531;lr;comp=sigcomp>, <sip:orig@scscf1.home1.net;lr>
P-Preferred-Identity: "John Doe" <sip:user1_public1@home1.net>
P-Access-Network-Info: 3GPP-UTRAN-TDD; utran-cell-id-3gpp=234151D0FCE11
Privacy: none
From: <sip:user1_public1@home1.net>; tag=171828
To: <sip:conference-factory@home2.net>
Call-ID: cb03a0s09a2sdfglkj490333
Cseq: 127 INVITE
Require: precondition, sec-agree
Proxy-Require: sec-agree
Supported: 100rel
Security-Verify: ipsec-3gpp; q=0.1; alg=hmac-sha-1-96; spi-c=98765432; spi-s=87654321;
port-c=8642; port-s=7531
Contact: <sip:[5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp>
Allow: INVITE, ACK, CANCEL, BYE, PRACK, UPDATE, REFER, MESSAGE, SUBSCRIBE, NOTIFY
Content-Type: application/sdp
Content-Length: (...)

v=0
o=- 2987933615 2987933615 IN IP6 5555::aaa:bbb:ccc:ddd
s=-
c=IN IP6 5555::aaa:bbb:ccc:ddd
t=0 0
m=video 3400 RTP/AVP 98 99
b=AS:75
a=curr:qos local none
a=curr:qos remote none
a=des:qos mandatory local sendrecv
a=des:qos none remote sendrecv
a=rtpmap:98 H263
a=fmtp:98 profile-level-id=0
a=rtpmap:99:MPVMP4V-ES
m=audio 3456 RTP/AVP 97 96
b=AS:25.4
a=curr:qos local none
a=curr:qos remote none
a=des:qos mandatory local sendrecv
a=des:qos none remote sendrecv
a=rtpmap:97 AMR
a=fmtp:97 mode-set=0,2,5,7; maxframes=2
a=rtpmap:96 telephone-event

```

Request-URI: contains the conference factory URI.

Table A.3.2.2-7: 100 (Trying) response (I-CSCF to S-CSCF)

```
SIP/2.0 100 (Trying) response
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
    pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
    [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
From:
To:
Call-ID:
CSeq:
Content-Length: 0
```

8. Public service identity (PSI) location query

The I-CSCF resolves the conference-factory URI. In this example the I-CSCF queries HSS to resolve the MRFC/AS PSI to be contacted. The HSS responds with the address of the MRFC/AS.

For detailed message flows see 3GPP TS 29.228 [11].

Table A.3.2.2-8a provides the parameters in the SIP INVITE request, which are sent to the HSS.

Table A.3.2.2-8a Cx: User location query procedure (I-CSCF to HSS)

Message source and destination	Cx: Information element name	Information source in SIP INVITE	Description
I-CSCF to HSS	Public Service Identity (PSI)	Request-URI:	This information element indicates the public user identity

Table A.3.2.2-8b provides the parameters sent from the HSS that need to be mapped to SIP INVITE and sent to MRFC/AS.

Table A.3.2.2-8b Cx: User location query procedure (HSS to I-CSCF)

Message source and destination	Cx: Information element name	Mapping to SIP header in SIP INVITE	Description
HSS to I-CSCF	MRFC/AS address	IP packet destination address	This information element indicates the MRFC/AS address which serves the PSI.

11. Allocate conference URI

MRFC/AS allocates a conference URI, based on local information and information gained from the conference-factory URI, as well as information gained from other elements of the SIP signalling.

12. H.248 interaction to create connection

MRFC initiates a H.248 interaction to create an connection point for UE#1 in MRFP and to determine media capabilities of MRFP.

13. 183 (Session Progress) response (MRFC/AS to I-CSCF) - see example in table A.3.2.2-13 (related to table A.3.2.2-9)

The MRFC determines the complete set of codecs that it is capable of supporting for this conference. It determines the intersection with those appearing in the SDP in the INVITE request.

The media stream capabilities of the destination are returned along the signalling path, in a 183 (Session Progress) provisional response (to 8).

Table A.3.2.2-13: 183 (Session Progress) response (MRFC/AS to I-CSCF)

```
SIP/2.0 183 Session Progress
Via: SIP/2.0/UDP icscf1.home2.net;branch=z9hG4bK32f432.1, SIP/2.0/UDP
scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
[5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Record-Route: <sip:scscf1.home1.net;lr>, <sip:pcscf1.visited1.net;lr>
P-Asserted-Identity: "Conference Server" <sip:mrfc1.home2.net>
P-Charging-Vector: icid-value="AyretyU0dm+6O2Irt5tAFrbHLso=023551024"; orig-ioi=home1.net;
term-ioi=home2.net
P-Charging-Function-Addresses: ccf=[5555::b99:c88:d77:e66]; ccf=[5555::a55:b44:c33:d22];
ecf=[5555::1ff:2ee:3dd:4cc]; ecf=[5555::6aa:7bb:8cc:9dd]
Privacy: none
From:
To: <sip:conference-factory1@home2.net>; tag=314159
Call-ID:
CSeq:
Require: 100rel
Contact: <sip:conferencel@mrfc1.home2.net>;isfocus
Allow: INVITE, ACK, CANCEL, BYE, PRACK, UPDATE, REFER, MESSAGE, SUBSCRIBE, NOTIFY
RSeq: 9021
Content-Type: application/sdp
Content-Length: (...)

v=0
o=- 2987933623 2987933623 IN IP6 5555::aaa:bbb:ccc:ddd
s=-
c=IN IP6 5555::eee:fff:aaa:bbb
t=0 0
m=video 10001 RTP/AVP 98 99
b=AS:75
a=curr:qos local none
a=curr:qos remote none
a=des:qos mandatory local sendrecv
a=des:qos mandatory remote sendrecv
a=conf:qos remote sendrecv
a=rtpmap:98 H263
a=fmtp:98 profile-level-id=0
a=rtpmap:99 MP4V-ES
m=audio 6544 RTP/AVP 97 96
b=AS:25.4
a=curr:qos local none
a=curr:qos remote none
a=des:qos mandatory local sendrecv
a=des:qos mandatory remote sendrecv
a=conf:qos remote sendrecv
a=rtpmap:97 AMR
a=fmtp:97 mode-set=0,2,5,7; maxframes=2
a=rtpmap:96 telephone-event
```

Contact:

Contains the conference URI for the conference allocated at the MRFC/AS and the "isfocus" feature parameter.

18. PRACK request (UE to P-CSCF) - see example in table A.3.2.2-18

The UE 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 any change in media flows, or if there was more than one choice of codec for a media flow, then UE includes a new SDP offer in the PRACK request sent to the MRFC/AS.

For this example, assume the UE chooses H.263 as the codec to use for the single video stream. Therefore, UE#1 sends a new SDP offer in the PRACK request.

Table A.3.2.2-18: PRACK request (UE to P-CSCF)

```

PRACK sip:conference1@mrfc1.home2.net SIP/2.0
Via: SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 70
P-Access-Network-Info: 3GPP-UTRAN-TDD; utran-cell-id-3gpp=234151D0FCE11
Route: <sip:pcscf1.visited1.net:7531;lr;comp=sigcomp>, <sip:scscf1.home1.net;lr>
From: <sip:user1_public1@home1.net>; tag=171828
To: <sip:conference-factory1@home2.net>;tag=314159
Call-ID: cb03a0s09a2sdfgklkj490333
Cseq: 128 PRACK
Require: precondition, sec-agree
Proxy-Require: sec-agree
Security-Verify: ipsec-3gpp; q=0.1; alg=hmac-sha-1-96; spi-c=98765432; spi-s=87654321;
    port-c=8642; port-s=7531
Rack: 9021 127 INVITE
Content-Type: application/sdp
Content-Length: (...)

v=0
o=- 2987933615 2987933616 IN IP6 5555::aaa:bbb:ccc:ddd
s=-
c=IN IP6 5555::aaa:bbb:ccc:ddd
t=0 0
m=video 3400 RTP/AVP 98
b=AS:75
a=curr:qos local none
a=curr:qos remote none
a=des:qos mandatory local sendrecv
a=des:qos mandatory remote sendrecv
a=rtpmap:98 H263
a=fmtp:98 profile-level-id=0
m=audio 3456 RTP/AVP 97 96
b=AS:25.4
a=curr:qos local none
a=curr:qos remote none
a=des:qos mandatory local sendrecv
a=des:qos mandatory remote sendrecv
a=rtpmap:97 AMR
a=fmtp:97 mode-set=0,2,5,7; maxframes=2
a=rtpmap:96 telephone-event

```

19. Resource reservation

After determining the final media streams in step #11, the UE initiates the reservation procedures for the resources needed for this session.

20. PRACK request (P-CSCF to S-CSCF) - see example in table A.3.2.2-20

The P-CSCF forwards the PRACK request to the S-CSCF.

Table A.3.2.2-20: PRACK request (P-CSCF to S-CSCF)

```
PRACK sip:conference1@mrfc1.home2.net SIP/2.0
Via: SIP/2.0/UDP pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
    [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 69
P-Access-Network-Info:
Route: <sip:scscf1.home1.net;lr>
From:
To:
Call-ID:
Cseq:
Require: precondition
RAck:
Content-Type:
Content-Length:

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

21. PRACK request (S-CSCF to MRFC/AS) - see example in table A.3.2.2-21

The S-CSCF resolves the Request-URI and forwards the PRACK request directly to the MRFC/AS.

Table A.3.2.2-21: PRACK request (S-CSCF to MRFC/AS)

```
PRACK sip:conference1@mrfc1.home2.net SIP/2.0
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
    pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
    [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 68
From:
To:
Call-ID:
Cseq:
Require:
RAck:
Content-Type:
Content-Length:

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

22. 200 (OK) response (MRFC/AS to S-CSCF) - see example in table A.3.2.2-22 (related to table A.3.2.2-21)

The MRFC/AS acknowledges the PRACK request (20) with a 200 (OK) response.

Table A.3.2.2-22: 200 (OK) response (MRFC/AS to S-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
    pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
    [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
From:
To:
Call-ID:
CSeq:
Content-Type: application/sdp
Content-Length: (...)

v=0
o=- 2987933623 2987933624 IN IP6 5555::aaa:bbb:ccc:ddd
s=-
c=IN IP6 5555::eee:fff:aaa:bbb
t=0 0
m=video 10001 RTP/AVP 98
b=AS:75
a=curr:qos local none
a=curr:qos remote none
a=des:qos mandatory local sendrecv
a=des:qos mandatory remote sendrecv
a=conf:qos remote sendrecv
a=rtpmap:98 H263
a=fmtp:98 profile-level-id=0
m=audio 6544 RTP/AVP 97 96
b=AS:25.4
a=curr:qos local none
a=curr:qos remote none
a=des:qos mandatory local sendrecv
a=des:qos mandatory remote sendrecv
a=conf:qos remote sendrecv
a=rtpmap:97 AMR
a=fmtp:97 mode-set=0,2,5,7; maxframes=2
a=rtpmap:96 telephone-event
```

23. H.248 interaction to modify connection

MRFC initiates a H.248 interaction to modify the connection established in step #11 and instructs MRFP to reserve the multimedia processing resources for UE#1 according to the preceding resource negotiation between the UE#1 and the MRFC.

24. 200 (OK) response (S-CSCF to P-CSCF) - see example in table A.3.2.2-24

The S-CSCF forwards the 200 (OK) response to the P-CSCF.

Table A.3.2.2-24: 200 (OK) response (S-CSCF to P-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
    [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
From:
To:
Call-ID:
CSeq:
Content-Type:
Content-Length:

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


25. 200 (OK) response (P-CSCF to UE) - see example in table A.3.2.2-25

The P-CSCF forwards the 200 (OK) response to the UE.

Table A.3.2.2-25: 200 (OK) response (P-CSCF to UE)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
From:
To:
Call-ID:
CSeq:
Content-Type:
Content-Length:

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

26. UPDATE request (UE to P-CSCF) - see example in table A.3.2.2-26

When the resource reservation is completed, the UE sends the UPDATE request to the MRFC/AS, via the signalling path established by the INVITE request.

Table A.3.2.2-26: UPDATE request (UE to P-CSCF)

```

UPDATE sip:conference1@mrfc1.home2.net SIP/2.0
Via: SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 70
Route: <sip:pcscf1.visited1.net:7531;lr;comp=sigcomp>, <sip:scscf1.home1.net;lr>
P-Access-Network-Info: 3GPP-UTRAN-TDD; utran-cell-id-3gpp=234151D0FCE11
From: <sip:user1_public1@home1.net>; tag=171828
To: <sip:conference-factory1@home2.net>;tag=314159
Call-ID: cb03a0s09a2sdfglkj490333
Cseq: 129 UPDATE
Require: sec-agree
Proxy-Require: sec-agree
Security-Verify: ipsec-3gpp; q=0.1; alg=hmac-sha-1-96; spi-c=98765432; spi-s=87654321;
port-c=8642; port-s=7531
Content-Type: application/sdp
Content-Length: (...)

v=0
o=- 2987933615 2987933617 IN IP6 5555::aaa:bbb:ccc:ddd
s=-
c=IN IP6 5555::aaa:bbb:ccc:ddd
t=0 0
m=video 0 RTP/AVP 98
b=AS:75
a=curr:qos local sendrecv
a=curr:qos remote none
a=des:qos mandatory local sendrecv
a=des:qos mandatory remote sendrecv
a=rtpmap:98 H263
a=fmtp:98 profile-level-id=0
m=audio 3456 RTP/AVP 97 96
b=AS:25.4
a=curr:qos local sendrecv
a=curr:qos remote none
a=des:qos mandatory local sendrecv
a=des:qos mandatory remote sendrecv
a=rtpmap:97 AMR
a=fmtp:97 mode-set=0,2,5,7; maxframes=2
a=rtpmap:96 telephone-event

```

27. UPDATE request (P-CSCF to S-CSCF) - see example in table A.3.2.2-27

The P-CSCF forwards the UPDATE request to the S-CSCF.

Table A.3.2.2-27: UPDATE request (P-CSCF to S-CSCF)

```
UPDATE sip:conferecel@mrfc1.home2.net SIP/2.0
Via: SIP/2.0/UDP pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
    [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 69
P-Access-Network-Info:
P-Charging-Vector: icid-value="AyretyU0dm+6O2IrT5tAFrbHLso=023551024";
    ggsn=[5555::4b4:3c3:2d2:1e1]; pdp-sig=no; gcid=723084371; auth-token=43876559; flow-id=3
Route: <sip:scscf1.home1.net;lr>
From:
To:
Call-ID:
Cseq:
Content-Type:
Content-Length:

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

28. UPDATE request (S-CSCF to MRFC/AS) - see example in table A.3.2.2-28

The S-CSCF forwards the UPDATE request to the MRFC/AS.

Table A.3.2.2-28: UPDATE request (S-CSCF to MRFC/AS)

```
UPDATE sip:conferencel@mrfc1.home2.net SIP/2.0
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
    pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
    [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 68
From:
To:
Call-ID:
Cseq:
Content-Type:
Content-Length:

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

29. 200 (OK) response (MRFC/AS to S-CSCF) - see example in table A.3.2.2-29 (related to table A.3.2.2-28)

The MRFC/AS acknowledges the UPDATE request (27) with a 200 (OK) response.

Table A.3.2.2-29: 200 (OK) response (MRFC/AS to S-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
    pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
    [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
From:
To:
Call-ID:
CSeq:
Content-Type: application/sdp
Content-Length: (...)

v=0
o=- 2987933623 2987933625 IN IP6 5555::aaa:bbb:ccc:ddd
s=-
c=IN IP6 5555::eee:fff:aaa:bbb
t=0 0
m=video 0 RTP/AVP 98
b=AS:75
a=curr:qos local sendrecv
a=curr:qos remote sendrecv
a=des:qos mandatory local sendrecv
a=des:qos mandatory remote sendrecv
a=rtpmap:98 H263
a=fmtp:98 profile-level-id=0
m=audio 6544 RTP/AVP 97 96
b=AS:25.4
a=curr:qos local sendrecv
a=curr:qos remote sendrecv
a=des:qos mandatory local sendrecv
a=des:qos mandatory remote sendrecv
a=rtpmap:97 AMR
a=fmtp:97 mode-set=0,2,5,7; maxframes=2
a=rtpmap:96 telephone-event
```

The SDP indicates that the resource reservation was successful both in the local and the remote segment.

30. H.248 interaction to modify connection

MRFC initiates a H.248 interaction to connect through the multimedia processing resources for UE#1 in MRFP.

31.200 (OK) response (S-CSCF to P-CSCF) - see example in table A.3.2.2-31

The S-CSCF forwards the 200 (OK) response to the P-CSCF.

Table A.3.2.2-31: 200 (OK) response (S-CSCF to P-CSCF)

```
SIP/2.0 200 (OK)
Via: SIP/2.0/UDP pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
    [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
From:
To:
Call-ID:
CSeq:
Content-Type:
Content-Length:

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

32. 200 (OK) response (P-CSCF to UE) - see example in table A.3.2.2-32

The P-CSCF forwards the 200 (OK) response to the UE.

Table A.3.2.2-32: 200 (OK) response (P-CSCF to UE)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
From:
To:
Call-ID:
CSeq:
Content-Type:
Content-Length:

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

33. 200 (OK) response (MRFC/AS to I-CSCF) - see example in table A.3.2.2-33 (related to table A.3.2.2-9)

After the success modification of the session (29), the MRFC/AS sends a 200 (OK) response final response to the INVITE request (8) to the I-CSCF.

Table A.3.2.2-33: 200 (OK) response (MRFC/AS to I-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP icscf1.home2.net;branch=z9hG4bK32f432.1, SIP/2.0/UDP
scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
[5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Record-Route: <sip:scscf1.home1.net;lr>, <sip:pcscf1.visited1.net;lr>
From:
To:
Call-ID:
CSeq: 127 INVITE
Contact: <sip:conferencel@mrfc1.home2.net>;isfocus
Allow-Events: conference
Content-Length:0
```

Contact: [C](#)ontains the conference URI for the conference allocated at the MRFC/AS and the "isfocus" feature parameter.

Allow-Events: [The MRFC/AS indicates support for the "conference" event package](#)

34. 200 (OK) response (I-CSCF to S-CSCF) - see example in table A.3.2.2-34

The I-CSCF forwards the 200(OK) response to the S-CSCF

Table A.3.2.2-34: 200 (OK) response (I-CSCF to S-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
    pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
    [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Record-Route:
From:
To:
Call-ID:
CSeq:
Contact:
Allow-Events:
Content-Length:0
```

35. 200 (OK) response (S-CSCF to P-CSCF) - see example in table A.3.2.2-35

The S-CSCF sends a 200 (OK) response final response along the signalling path back to the P-CSCF.

Table A.3.2.2-35: 200 (OK) response (S-CSCF to P-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
    [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Record-Route:
From:
To:
Call-ID:
CSeq:
Contact:
Allow-Events:
Content-Length:
```

36. Approval of QoS commit

The P-CSCF approves the commitment of the QoS resources if it was not approved already in step (12).

37. 200 (OK) response (P-CSCF to UE) - see example in table A.3.2.2-37

The P-CSCF forwards the 200 (OK) response final response to the session originator. The UE can start the media flow(s) for this session.

Table A.3.2.2-37: 200 (OK) response (P-CSCF to UE)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Record-Route: <sip:scscf1.home1.net;lr>, <sip:pcscf1.visited1.net:7531;lr;comp=sigcomp>
From:
To:
Call-ID:
CSeq:
Contact:
Allow-Events:
Content-Length:
```


38. ACK request (UE to P-CSCF) - see example in table A.3.2.2-38

The UE starts the media flow for this session, and responds to the 200 (OK) response (32) with an ACK request sent to the P-CSCF.

Table A.3.2.2-38: ACK request (UE to P-CSCF)

```
ACK sip:conferencel@mrfl.home2.net SIP/2.0
Via: SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 70
Route: <sip:pcscf1.visited1.net:7531;lr;comp=sigcomp>, <sip:scscf1.home1.net;lr>
From: <sip:user1_public1@home1.net>; tag=171828
To: <sip:conference-factory1@home2.net>; tag=314159
Call-ID: cb03a0s09a2sdfglkj490333
Cseq: 127 ACK
Content-Length: 0
```

39. ACK request (P-CSCF to S-CSCF) - see example in table A.3.2.2-39

The P-CSCF forwards the ACK request to the S-CSCF.

Table A.3.2.2-39: ACK request (P-CSCF to S-CSCF)

```
ACK sip:conferencel@mrfl.home2.net SIP/2.0
Via: SIP/2.0/UDP pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
[5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 69
Route: <sip:scscf1.home1.net;lr>
From:
To:
Call-ID:
Cseq:
Content-Length:
```

40. ACK request (S-CSCF to MRFC/AS) - see example in table A.3.2.2-40

The S-CSCF forwards the ACK request to the MRFC/AS.

Table A.3.2.2-40: ACK request (S-CSCF to MRFC/AS)

```
ACK sip:conferencel@mrfl.home2.net SIP/2.0
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
[5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 68
From:
To:
Call-ID:
Cseq:
Content-Length:
```

----- THIRD CHANGE: A.4.2 -----

A.4 Flows demonstrating a user joining a conference**A.4.1 Introduction**

Void

A.4.2 User calling into a conference

A.4.2.1 MRFC/AS is not located in user's home network

A.4.2.1.1 Conference URI resolved by the terminating home network

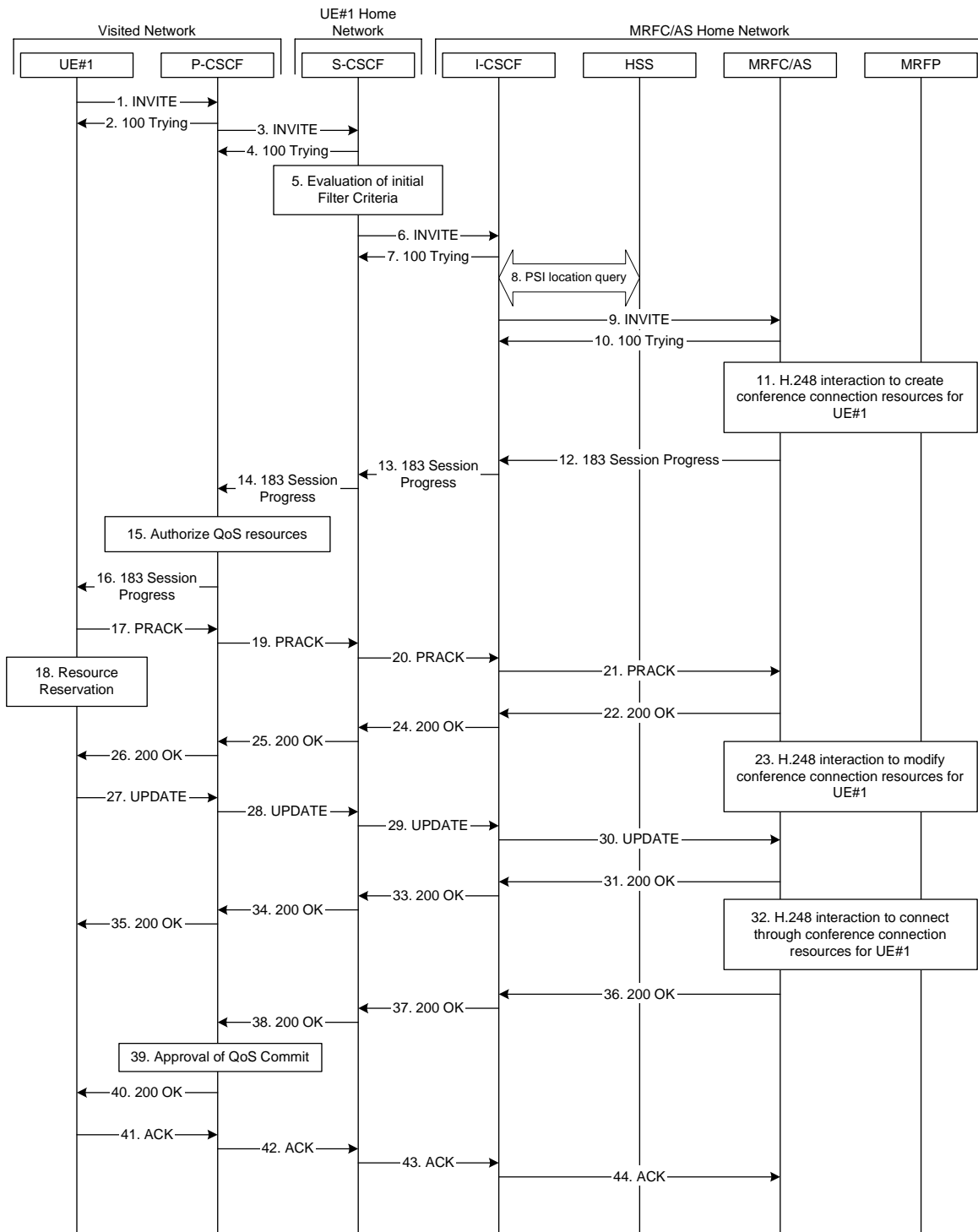


Figure A.4.2.1.1-1: User calling into a conference - network MRFC/AS is not located in user's home network - conference URI resolved by the terminating home network

Figure A.4.2.1.1-1 shows a user calling into a conference by using a conference URI. The focus of that conference is at a MRFC/AS which are located in another network. The conference URI in this example cannot be resolved by the originating home network.

The details of the flows are as follows:

1. INVITE request (UE to P-CSCF) - see example in table A.4.2.1.1-1

A UE wants to join a conference. For this purpose the UE is aware of the related conference URI that was obtained by means outside the present document (e.g. via other protocols, such as http).

The UE determines the complete set of codecs that it is capable of supporting for this conference. It builds a SDP Offer 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.

For this example, it is assumed that UE#1 is willing to establish a multimedia session comprising a video stream and an audio stream. The video stream supports two codecs, either H.263 or MPEG-4 Visual. The audio stream supports the AMR codec capable of sending two simultaneous video streams, either H261 or The UE sends the INVITE request to the P-CSCF.

Table A.4.2.1.1-1: INVITE request (UE to P-CSCF)

```

INVITE sip:conference1@home2.net SIP/2.0
Via: SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 70
Route: <sip:pcscf1.visited1.net:7531;lr;comp=sigcomp>, <sip:orig@scscf1.home1.net;lr>
P-Preferred-Identity: "John Doe" <sip:user1_public1@home1.net>
P-Access-Network-Info: 3GPP-UTRAN-TDD; utran-cell-id-3gpp=234151D0FCE11
Privacy: none
From: <sip:user1_public1@home1.net>; tag=171828
To: <sip:conference1@home2.net>
Call-ID: cb03a0s09a2sdfg1kj490333
Cseq: 127 INVITE
Require: precondition, sec-agree
Proxy-Require: sec-agree
Supported: 100rel
Security-Verify: ipsec-3gpp; q=0.1; alg=hmac-sha-1-96; spi-c=98765432; spi-s=87654321;
  port-c=8642; port-s=7531
Contact: <sip:[5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp>
Allow: INVITE, ACK, CANCEL, BYE, PRACK, UPDATE, REFER, MESSAGE, SUBSCRIBE, NOTIFY
Content-Type: application/sdp
Content-Length: (...)

v=0
o=- 2987933615 2987933615 IN IP6 5555::aaa:bbb:ccc:ddd
s=-
c=IN IP6 5555::aaa:bbb:ccc:ddd
t=0 0
m=video 3400 RTP/AVP 98 99
b=AS:75
a=curr:qos local none
a=curr:qos remote none
a=des:qos mandatory local sendrecv
a=des:qos none remote sendrecv
a=rtpmap:98 H263
a=fmtp:98 profile-level-id=0
a=rtpmap:99:MPVMP4V-ES
m=audio 3456 RTP/AVP 97 96
b=AS:25.4
a=curr:qos local none
a=curr:qos remote none
a=des:qos mandatory local sendrecv
a=des:qos none remote sendrecv
a=rtpmap:97 AMR
a=fmtp:97 mode-set=0,2,5,7; maxframes=2
a=rtpmap:96 telephone-event

```

Request-URI: contains the conference URI.

4. 100 (Trying) response (S-CSCF to P-CSCF) - see example in table A.4.2.1.1-4

The S-CSCF responds to the INVITE request (3) with a 100 (Trying) response provisional response.

Table A.4.2.1.1-4: 100 (Trying) response (S-CSCF to P-CSCF)

```
SIP/2.0 100 (Trying) response
Via: SIP/2.0/UDP pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
    [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
From:
To:
Call-ID:
CSeq:
Content-Length: 0
```

5. Evaluation of initial filter criteria

The S-CSCF validates the service profile of this subscriber and evaluates the initial filter criteria.

6. INVITE request (S-CSCF to I-CSCF) - see example in table A.4.2.1.1-6

The S-CSCF performs an analysis of the destination address, and determines the network operator to whom the destination subscriber belongs. Since the originating operator does not desire to keep their internal configuration hidden, the S-CSCF forwards the INVITE request directly to the I-CSCF in the destination network.

As the S-CSCF does not know whether the I-CSCF at home2.net is a loose router or not, it does not introduce a Route header.

8. Public service identity (PSI) location query

The I-CSCF sends a query to the HSS to find out the MRFC/AS at which the conference has been created. The HSS responds with the address of the MRFC/AS at which the conference is hosted. The HSS responds with the address of the MRFC/AS.

For detailed message flows see 3GPP TS 29.228 [11].

Table A.4.2.1.1-8a provides the parameters in the SIP INVITE request, which are sent to the HSS.

Table A.4.2.1.1-8a Cx: User location query procedure (I-CSCF to HSS)

Message source and destination	Cx: Information element name	Information source in SIP INVITE	Description
I-CSCF to HSS	Public Service Identity (PSI)	Request-URI:	This information element indicates the public user identity

Table A.4.2.1.1-8b provides the parameters sent from the HSS that need to be mapped to SIP INVITE and sent to MRFC/AS.

Table A.4.2.1.1-8b Cx: User location query procedure (HSS to I-CSCF)

Message source and destination	Cx: Information element name	Mapping to SIP header in SIP INVITE	Description
HSS to I-CSCF	MRFC/AS address	IP packet destination address	This information element indicates the MRFC/AS address which serves the PSI.

11. H.248 interaction to create conference connection resources for UE#1

MRFC initiates a H.248 interaction to create an connection point for UE#1 in MRF.

12. 183 (Session Progress) response (MRFC/AS to I-CSCF) - see example in table A.4.2.1.1-12 (related to table A.4.2.1.1-9)

The media stream capabilities of the conference are returned along the signalling path, in a 183 (Session Progress) provisional response (to 9).

Table A.4.2.1.1-12: 183 (Session Progress) response (MRFC/AS to I-CSCF)

```
SIP/2.0 183 Session Progress
Via: SIP/2.0/UDP icscf2_s.home2.net;branch=z9hG4bK871y12.1, SIP/2.0/UDP
    scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
    pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
    [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Record-Route: <sip:scscf1.home1.net;lr>, <sip:pcscf1.visited1.net;lr>
P-Asserted-Identity: "Conference Server" <sip:mrfc1.home2.net>
P-Charging-Vector: icid-value="AyretyU0dm+602Irt5tAFrbHLso=023551024"; orig-ioi=home1.net;
    term-ioi=home2.net
P-Charging-Function-Addresses: ccf=[5555::b99:c88:d77:e66]; ccf=[5555::a55:b44:c33:d22];
    ecf=[5555::1ff:2ee:3dd:4cc]; ecf=[5555::6aa:7bb:8cc:9dd]
Privacy: none
From:
To: <sip:conferencel@home2.net>; tag=314159
Call-ID:
CSeq:
Require: 100rel
Contact: <sip:conferencel@home2.net>;isfocus
Allow: INVITE, ACK, CANCEL, BYE, PRACK, UPDATE, REFER, MESSAGE, SUBSCRIBE, NOTIFY
RSeq: 9021
Content-Type: application/sdp
Content-Length: (...)

v=0
o=- 2987933623 2987933623 IN IP6 5555::aaa:bbb:ccc:ddd
s=-
c=IN IP6 5555::eee:fff:aaa:bbb
t=0 0
m=video 10001 RTP/AVP 98 99
b=AS:75
a=curr:qos local none
a=curr:qos remote none
a=des:qos mandatory local sendrecv
a=des:qos mandatory remote sendrecv
a=conf:qos remote sendrecv
a=rtpmap:98 H263
a=fmtp:98 profile-level-id=0
a=rtpmap:99 MP4V-ES
m=audio 6544 RTP/AVP 97 96
b=AS:25.4
a=curr:qos local none
a=curr:qos remote none
a=des:qos mandatory local sendrecv
a=des:qos mandatory remote sendrecv
a=conf:qos remote sendrecv
a=rtpmap:97 AMR
a=fmtp:97 mode-set=0,2,5,7; maxframes=2
a=rtpmap:96 telephone-event
```

Contact: Contains the conference URI for the conference allocated at the MRFC/AS and the "isfocus" feature parameter.

P-Charging-Vector: The MRFC/AS inserts this header and populates the icid parameters with an unique value and the terminating Inter Operator Identifier (IOI) for the home network of the MRFC/AS and puts back the originating IOI.

P-Charging-Function-Addresses: The MRFC/AS populates the P-Charging-Function-Addresses header field to be passed to the I-CSCF.

17. PRACK request (UE to P-CSCF) - see example in table A.4.2.1.1-17

The UE 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 any change in media flows, or if there was more than one choice of codec for a media flow, then UE includes a new SDP offer in the PRACK request sent to the MRFC/AS.

For this example, assume the UE chooses H.263 as the codec to use for the single video stream. Therefore, UE#1 sends a new SDP offer in the PRACK request.

Table A.4.2.1.1-17: PRACK request (UE to P-CSCF)

```

PRACK sip:conference1@home2.net SIP/2.0
Via: SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 70
P-Access-Network-Info: 3GPP-UTRAN-TDD; utran-cell-id-3gpp=234151D0FCE11
Route: <sip:pcscf1.visited1.net:7531;lr;comp=sigcomp>, <sip:scscf1.home1.net;lr>
From: <sip:user1_public1@home1.net>; tag=171828
To: <sip:conference1@home2.net>;tag=314159
Call-ID: cb03a0s09a2sdfgklkj490333
Cseq: 128 PRACK
Require: precondition, sec-agree
Proxy-Require: sec-agree
Security-Verify: ipsec-3gpp; q=0.1; alg= hmac-sha-1-96; spi-c=98765432; spi-s=87654321;
    port-c=8642; port-s=7531
Rack: 9021 127 INVITE
Content-Type: application/sdp
Content-Length: (...)

v=0
o=- 2987933615 2987933616 IN IP6 5555::aaa:bbb:ccc:ddd
s=-
c=IN IP6 5555::aaa:bbb:ccc:ddd
t=0 0
m=video 3400 RTP/AVP 98
b=AS:75
a=curr:qos local none
a=curr:qos remote none
a=des:qos mandatory local sendrecv
a=des:qos mandatory remote sendrecv
a=rtpmap:98 H263
a=fmtp:98 profile-level-id=0
m=audio 3456 RTP/AVP 97 96
b=AS:25.4
a=curr:qos local none
a=curr:qos remote none
a=des:qos mandatory local sendrecv
a=des:qos mandatory remote sendrecv
a=rtpmap:97 AMR
a=fmtp:97 mode-set=0,2,5,7; maxframes=2
a=rtpmap:96 telephone-event

```

Request-URI: takes the value of the Contact header of the received 183 (Session Progress) response.

18. Resource reservation

After determining the final media streams in step #17, the UE initiates the reservation procedures for the resources needed for this session.

19. PRACK request (P-CSCF to S-CSCF) - see example in table A.4.2.1.1-19

The P-CSCF forwards the PRACK request to the S-CSCF.

Table A.4.2.1.1-19: PRACK request (P-CSCF to S-CSCF)

```
PRACK sip:conference1@home2.net SIP/2.0
Via: SIP/2.0/UDP pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
    [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 69
P-Access-Network-Info:
Route: <sip:scscf1.home1.net;lr>
From:
To:
Call-ID:
Cseq:
Require: precondition
RAck:
Content-Type:
Content-Length:

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

20. PRACK request (S-CSCF to I-CSCF) - see example in table A.4.2.1.1-20

The S-CSCF performs an analysis of the destination address, and determines the network operator to whom the destination subscriber belongs. Since the originating operator does not desire to keep their internal configuration hidden, the S-CSCF forwards the PRACK request directly to the I-CSCF in the destination network.

As the S-CSCF does not know whether the I-CSCF at home2.net is a loose router or not, it does not introduce a Route header.

Table A.4.2.1.1-20: PRACK request (S-CSCF to I-CSCF)

```

PRACK sip:conference1@home2.net SIP/2.0
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
    pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
    [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 68
From:
To:
Call-ID:
Cseq:
Require:
RAck:
Content-Type:
Content-Length:

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

```

21. PRACK request (I-CSCF to MRFC/AS) - see example in table A.4.2.1.1-21

I-CSCF forwards the PRACK request to the MRFC/AS that was resolved during the PSI location query (8).

Table A.4.2.1.1-21: PRACK request (I-CSCF to MRFC/AS)

```
PRACK sip:conference1@home2.net SIP/2.0
Via: SIP/2.0/UDP icscf2_s.home2.net;branch=z9hG4bK871y12.1, SIP/2.0/UDP
    scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
    pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
    [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 67
From:
To:
Call-ID:
Cseq:
Require:
RAck:
Content-Type:
Content-Length:

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


22. 200 (OK) response (MRFC/AS to I-CSCF) - see example in table A.4.2.1.1-22 (related to table A.4.2.1.1-21)

The MRFC/AS acknowledges the PRACK request (21) with a 200 (OK) response.

Table A.4.2.1.1-22: 200 (OK) response (MRFC/AS to I-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP icscf2_s.home2.net;branch=z9hG4bK871y12.1, SIP/2.0/UDP
     scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
     pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
     [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
From:
To:
Call-ID:
CSeq:
Content-Type: application/sdp
Content-Length: (...)

v=0
o=- 2987933623 2987933624 IN IP6 5555::aaa:bbb:ccc:ddd
s=-
c=IN IP6 5555::eee:fff:aaa:bbb
t=0 0
m=video 10001 RTP/AVP 98
b=AS:75
a=curr:qos local none
a=curr:qos remote none
a=des:qos mandatory local sendrecv
a=des:qos mandatory remote sendrecv
a=conf:qos remote sendrecv
a=rtpmap:98 H263
a=fmtp:98 profile-level-id=0
m=audio 6544 RTP/AVP 97 96
b=AS:25.4
a=curr:qos local none
a=curr:qos remote none
a=des:qos mandatory local sendrecv
a=des:qos mandatory remote sendrecv
a=conf:qos remote sendrecv
a=rtpmap:97 AMR
a=fmtp:97 mode-set=0,2,5,7; maxframes=2a=rtpmap:96 telephone-event
```

23. H.248 interaction to modify connection for UE#1

MRFC initiates a H.248 interaction to modify the connection established in step #11 and instructs MRFP to reserve the multimedia processing resources for UE#1 according to the preceding resource negotiation between the UE#1 and the MRFC.

24. 200 (OK) response (I-CSCF to S-CSCF) - see example in table A.4.2.1.1-24

The I-CSCF forwards the 200 (OK) response to the S-CSCF.

Table A.4.2.1.1-24: 200 (OK) response (I-CSCF to S-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP icscf2_s.home2.net;branch=z9hG4bK871y12.1, SIP/2.0/UDP
     scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
     pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
     [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
From:
To:
Call-ID:
CSeq:
Content-Type:
Content-Length:

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

25. 200 (OK) response (S-CSCF to P-CSCF) - see example in table A.4.2.1.1-25

S-CSCF forwards the 200 (OK) response to the P-CSCF.

Table A.4.2.1.1-25: 200 (OK) response (S-CSCF to P-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
    [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
From:
To:
Call-ID:
CSeq:
Content-Type:
Content-Length:

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

26. 200 (OK) response (P-CSCF to UE) - see example in table A.4.2.1.1-26

The P-CSCF forwards the 200 (OK) response to the UE.

Table A.4.2.1.1-26: 200 (OK) response (P-CSCF to UE)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
From:
To:
Call-ID:
CSeq:
Content-Type:
Content-Length:

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

27. UPDATE request (UE to P-CSCF) - see example in table A.4.2.1.1-27

When the resource reservation is completed, the UE sends the UPDATE request to the MRFC/AS, via the signalling path established by the INVITE request.

Table A.4.2.1.1-27: UPDATE request (UE to P-CSCF)

```

UPDATE sip:conferencel@home2.net SIP/2.0
Via: SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 70
Route: <sip:pcscf1.visited1.net:7531;lr;comp=sigcomp>, <sip:scscf1.home1.net;lr>
P-Access-Network-Info: 3GPP-UTRAN-TDD; utran-cell-id-3gpp=234151D0FCE11
From: <sip:user1_public1@home1.net>; tag=171828
To: <sip:conferencel@home2.net>;tag=314159
Call-ID: cb03a0s09a2sdfglkj490333
Cseq: 129 UPDATE
Require: sec-agree
Proxy-Require: sec-agree
Security-Verify: ipsec-3gpp; q=0.1; alg=hmac-sha-1-96; spi-c=98765432; spi-s=87654321;
port-c=8642; port-s=7531
Content-Type: application/sdp
Content-Length: (...)

v=0
o=- 2987933615 2987933617 IN IP6 5555::aaa:bbb:ccc:ddd
s=-
c=IN IP6 5555::aaa:bbb:ccc:ddd
t=0 0
m=video 0 RTP/AVP 98
b=AS:75
a=curr:qos local sendrecv
a=curr:qos remote none
a=des:qos mandatory local sendrecv
a=des:qos mandatory remote sendrecv
a=rtpmap:98 H263
a=fmtp:98 profile-level-id=0
m=audio 3456 RTP/AVP 97 96
b=AS:25.4
a=curr:qos local sendrecv
a=curr:qos remote none
a=des:qos mandatory local sendrecv
a=des:qos mandatory remote sendrecv
a=rtpmap:97 AMR
a=fmtp:97 mode-set=0,2,5,7; maxframes=2
a=rtpmap:96 telephone-event

```

Request-URI: takes the value of the Contact header of the received 183 (Session Progress) response.

28. UPDATE request (P-CSCF to S-CSCF) - see example in table A.4.2.1.1-28

The P-CSCF forwards the UPDATE request to the S-CSCF.

Table A.4.2.1.1-28: UPDATE request (P-CSCF to S-CSCF)

```
UPDATE sip:conference1@home2.net SIP/2.0
Via: SIP/2.0/UDP pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
    [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 69
P-Access-Network-Info:
P-Charging-Vector: icid-value="AyretyU0dm+6O2IrT5tAFrbHLso=023551024";
    ggsn=[5555::4b4:3c3:2d2:1e1]; pdp-sig=no; gcid=723084371; auth-token=43876559; flow-id=3
Route: <sip:scscf1.home1.net;lr>
From:
To:
Call-ID:
Cseq:
Content-Type:
Content-Length:

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


30. UPDATE request (I-CSCF to MRFC/AS) - see example in table A.4.2.1.1-30

I-CSCF forwards the UPDATE request to the MRFC/AS that was resolved during the PSI location query (8).
The I-CSCF does not re-write the Request URI.

Table A.4.2.1.1-30: UPDATE request (I-CSCF to MRFC/AS)

```
UPDATE sip:conference1@home2.net SIP/2.0
Via: SIP/2.0/UDP icscf2_s.home2.net;branch=z9hG4bK871y12.1, SIP/2.0/UDP
    scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
    pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
    [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 67
From:
To:
Call-ID:
Cseq:
Content-Type:
Content-Length:

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


31. 200 (OK) response (MRFC/AS to I-CSCF) - see example in table A.4.2.1.1-31 (related to table A.4.2.1.1-30)

The MRFC/AS acknowledges the UPDATE request (30) with a 200 (OK) response.

Table A.4.2.1.1-31: 200 (OK) response (MRFC/AS to I-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP icscf2_s.home2.net;branch=z9hG4bK871y12.1, SIP/2.0/UDP
    scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
    pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
    [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
From:
To:
Call-ID:
CSeq:
Content-Type: application/sdp
Content-Length: (...)

v=0
o=- 2987933623 2987933625 IN IP6 5555::aaa:bbb:ccc:ddd
s=-
c=IN IP6 5555::eee:fff:aaa:bbb
t=0 0
m=video 0 RTP/AVP 98
b=AS:75
a=curr:qos local sendrecv
a=curr:qos remote sendrecv
a=des:qos mandatory local sendrecv
a=des:qos mandatory remote sendrecv
a=rtpmap:98 H263
a=fmtp:98 profile-level-id=0
m=audio 6544 RTP/AVP 97 96
b=AS:25.4
a=curr:qos local sendrecv
a=curr:qos remote sendrecv
a=des:qos mandatory local sendrecv
a=des:qos mandatory remote sendrecv
a=rtpmap:97 AMR
a=fmtp:97 mode-set=0,2,5,7; maxframes=2
a=rtpmap:96 telephone-event
```

The SDP indicates that the resource reservation was successful both in the local and the remote segment.

32. H.248 interaction to modify connection

MRFC initiates a H.248 interaction to connect through the multimedia processing resources for UE#1 in MRFP.

33. 200 (OK) response (I-CSCF to S-CSCF) - see example in table A.4.2.1.1-31

The I-CSCF forwards the 200 (OK) response to the S-CSCF.

Table A.4.2.1.1-31: 200 (OK) response (I-CSCF to S-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
    pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
    [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
From:
To:
Call-ID:
CSeq:
Content-Type: application/sdp
Content-Length: (...)

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

34. 200 (OK) response (S-CSCF to P-CSCF) - see example in table A.4.2.1.1-34

The S-CSCF forwards the 200 (OK) response to the P-CSCF.

Table A.4.2.1.1-34: 200 (OK) response (S-CSCF to P-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
    [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
From:
To:
Call-ID:
CSeq:
Content-Type:
Content-Length:

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

35. 200 (OK) response (P-CSCF to UE) - see example in table A.4.2.1.1-35

The P-CSCF forwards the 200 (OK) response to the UE.

Table A.4.2.1.1-35: 200 (OK) response (P-CSCF to UE)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
From:
To:
Call-ID:
CSeq:
Content-Type:
Content-Length:

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

36. 200 (OK) response (MRFC/AS to I-CSCF) - see example in table A.4.2.1.1-36 (related to table A.4.2.1.1-9)

After the success modification of the session (32), the MRFC/AS sends a 200 (OK) response final response to the INVITE request (9) to the I-CSCF.

Table A.4.2.1.1-36: 200 (OK) response (MRFC/AS to I-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP icscf2_s.home2.net;branch=z9hG4bK871y12.1, SIP/2.0/UDP
scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
[5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Record-Route: <sip:scscf1.home1.net;lr>, <sip:pcscf1.visited1.net;lr>
From:
To:
Call-ID:
CSeq: 127 INVITE
Contact: <sip:conferencel@home2.net>;isfocus
Allow-Events: conference
Content-Length:0
```

Contact: contains the conference URI for the conference allocated at the MRFC/AS and the "isfocus" feature parameter.

Allow-Events: [The MRFC/AS indicates support for the "conference" event package](#)

37. 200 (OK) response (I-CSCF to S-CSCF) - see example in table A.4.2.1.1-37

The I-CSCF sends a 200 (OK) response final response along the signalling path back to the S-CSCF.

Table A.4.2.1.1-37: 200 (OK) response (I-CSCF to S-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
    pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
    [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Record-Route:
From:
To:
Call-ID:
CSeq:
Contact:
Allow-Events:
Content-Length:
```

38. 200 (OK) response (S-CSCF to P-CSCF) - see example in table A.4.2.1.1-38

The S-CSCF sends a 200 (OK) response final response along the signalling path back to the P-CSCF.

Table A.4.2.1.1-38: 200 (OK) response (S-CSCF to P-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
    [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Record-Route:
From:
To:
Call-ID:
CSeq:
Contact:
Allow-Events:
Content-Length:
```

39. Approval of QoS commit

The P-CSCF approves the commitment of the QoS resources if it was not approved already in step (15).

40. 200 (OK) response (P-CSCF to UE) - see example in table A.4.2.1.1-40

The P-CSCF forwards the 200 (OK) response final response to the session originator. The UE can start the media flow(s) for this session.

Table A.4.2.1.1-40: 200 (OK) response (P-CSCF to UE)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Record-Route: <sip:scscf1.home1.net;lr>, <sip:pcscf1.visited1.net:7531;lr;comp=sigcomp>
From:
To:
Call-ID:
CSeq:
Contact:
Allow-Events:
Content-Length:
```

41. ACK request (UE to P-CSCF) - see example in table A.4.2.1.1-41

The UE starts the media flow for this session, and responds to the 200(OK) response (40) with an ACK request sent to the P-CSCF.

Table A.4.2.1.1-41: ACK request (UE to P-CSCF)

```
ACK sip:conferencel@home2.net:2342 SIP/2.0
Via: SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 70
Route: <sip:pcscf1.visited1.net:7531;lr;comp=sigcomp>, <sip:scscf1.home1.net;lr>
From: <sip:user1_public1@home1.net>; tag=171828
To: <sip:conferencel@home2.net>;tag=314159
Call-ID: cb03a0s09a2sdfg1kj490333
Cseq: 127 ACK
Content-Length: 0
```

42. ACK request (P-CSCF to S-CSCF) - see example in table A.4.2.1.1-42

The P-CSCF forwards the ACK request to the S-CSCF.

Table A.4.2.1.1-42: ACK request (P-CSCF to S-CSCF)

```
ACK sip:conferencel@home2.net:2342 SIP/2.0
Via: SIP/2.0/UDP pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
[5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 69
Route: <sip:scscf1.home1.net;lr>
From:
To:
Call-ID:
Cseq:
Content-Length:
```

43. ACK request (S-CSCF to I-CSCF) - see example in table A.4.2.1.1-43

The S-CSCF performs an analysis of the destination address, and determines the network operator to whom the destination subscriber belongs. Since the originating operator does not desire to keep their internal configuration hidden, the S-CSCF forwards the ACK request directly to the I-CSCF in the destination network.

As the S-CSCF does not know whether the I-CSCF at home2.net is a loose router or not, it does not introduce a Route header.

Table A.4.2.1.1-43: ACK request (S-CSCF to I-CSCF)

```
ACK sip:conferencel@home2.net:2342 SIP/2.0
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
[5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 68
From:
To:
Call-ID:
Cseq:
Content-Length:
```

44. ACK request (I-CSCF to MRFC/AS) - see example in table A.4.2.1.1-44

I-CSCF forwards the ACK request to the MRFC/AS that was resolved during the PSI location query (8). The I-CSCF does not re-write the Request URI.

Table A.4.2.1.1-44: ACK request (I-CSCF to MRFC/AS)

```
ACK sip:conferencel@home2.net:2342 SIP/2.0
Via: SIP/2.0/UDP icscf2_s.home2.net;branch=z9hG4bK871y12.1, SIP/2.0/UDP
     scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
     pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
     [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 67
From:
To:
Call-ID:
Cseq:
Content-Length:
```

A.4.2.1.2 Conference URI can be resolved by the originating home network

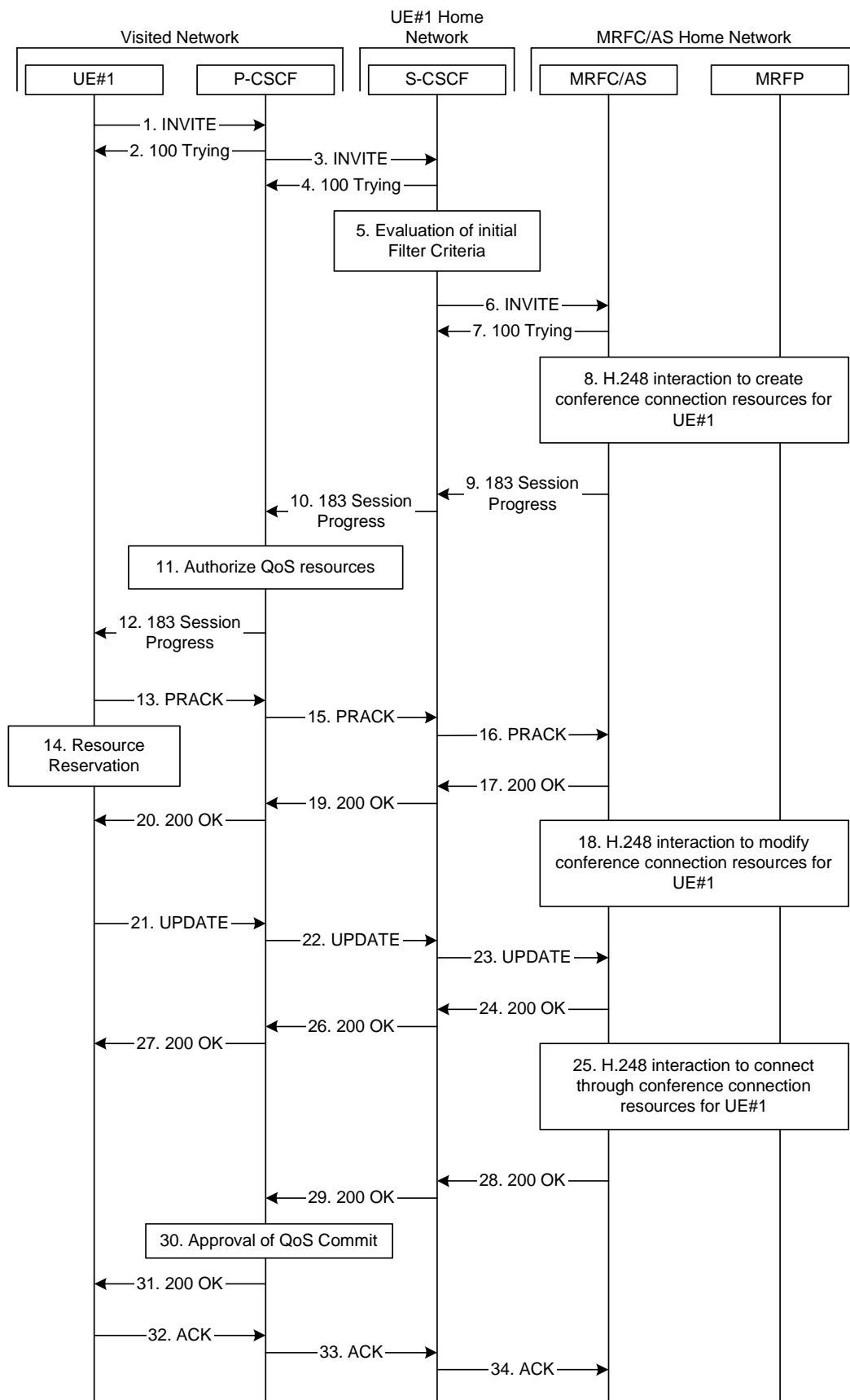


Figure A.4.2.1.2-1: User calling into a conference - MRFC/AS is not located in user's home network - conference URI can be resolved by the originating home network

Figure A.4.2.1.2-1 shows a user calling into a conference by using a conference URI. The focus of that conference is at a MRFC/AS which are located in another network. The conference URI in this example can be resolved by the originating home network.

The details of the flows are as follows:

1. INVITE request (UE to P-CSCF) - see example in table A.4.2.1.2-1

A UE wants to join a conference. For this purpose the UE is aware of the related conference URI that was obtained by means outside the present document.

The UE determines the complete set of codecs that it is capable of supporting for this conference. It builds a SDP Offer 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.

For this example, it is assumed that UE#1 is willing to establish a multimedia session comprising a video stream and an audio stream. The video stream supports two codecs, either H.263 or MPEG-4 Visual. The audio stream supports the AMR codec.

Table A.4.2.1.2-1: INVITE request (UE to P-CSCF)

```

INVITE sip:conference1@mrfc2.home2.net SIP/2.0
Via: SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 70
Route:<sip:pcscf1.visited1.net:7531;lr;comp=sigcomp>, <sip:orig@scscf1.home1.net;lr>
P-Preferred-Identity: "John Doe" <sip:user1_public1@home1.net>
P-Access-Network-Info: 3GPP-UTRAN-TDD; utran-cell-id-3gpp=234151D0FCE11
Privacy: none
From: <sip:user1_public1@home1.net>; tag=171828
To: <sip:conference1@mrfc2.home2.net>
Call-ID: cb03a0s09a2sdflkj490333
Cseq: 127 INVITE
Require: precondition, sec-agree
Proxy-Require: sec-agree
Supported: 100rel
Security-Verify: ipsec-3gpp; q=0.1; alg=hmac-sha-1-96; spi-c=98765432; spi-s=87654321;
port-c=8642; port-s=7531
Contact: <sip:[5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp>
Allow: INVITE, ACK, CANCEL, BYE, PRACK, UPDATE, REFER, MESSAGE, SUBSCRIBE, NOTIFY
Content-Type: application/sdp
Content-Length: (...)

v=0
o=- 2987933615 2987933615 IN IP6 5555::aaa:bbb:ccc:ddd
s=-
c=IN IP6 5555::aaa:bbb:ccc:ddd
t=0 0
m=video 3400 RTP/AVP 98 99
b=AS:75
a=curr:qos local none
a=curr:qos remote none
a=des:qos mandatory local sendrecv
a=des:qos none remote sendrecv
a=rtpmap:98 H263
a=fmtp:98 profile-level-id=0
a=rtpmap:99 MP4V-ES
m=audio 3456 RTP/AVP 97 96
b=AS:25.4
a=curr:qos local none
a=curr:qos remote none
a=des:qos mandatory local sendrecv
a=des:qos none remote sendrecv
a=rtpmap:97 AMR
a=fmtp:97 mode-set=0,2,5,7; maxframes=2
a=rtpmap:96 telephone-event

```

Request-URI: contains the conference URI.

7. **100 (Trying) response (MRFC/AS to S-CSCF) - see example in table A.4.2.1.2-7 (related to table A.4.2.1.2-6)**

The MRFC/AS responds to the INVITE request (6) with a 100 (Trying) response provisional response.

Table A.4.2.1.2-7: 100 (Trying) response (MRFC/AS to S-CSCF)

```
SIP/2.0 100 (Trying) response
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
    pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
    [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
From:
To:
Call-ID:
CSeq:
Content-Length: 0
```

8. **H.248 interaction to create conference connection resources for UE#1**

MRFC initiates a H.248 interaction to create an connection point for UE#1 in MRFP.

9. **183 (Session Progress) response (MRFC/AS to S-CSCF) - see example in table A.4.2.1.2-9 (related to table A.4.2.1.2-6)**

The media stream capabilities of the conference are returned along the signalling path, in a 183 (Session Progress) provisional response (to 6).

Table A.4.2.1.2-9: 183 (Session Progress) response (MRFC/AS to S-CSCF)

```
SIP/2.0 183 Session Progress
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
    pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
    [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Record-Route: <sip:scscf1.home1.net;lr>, <sip:pcscf1.visited1.net;lr>
P-Charging-Vector: icid-value="AyretyU0dm+602IrT5tAFrbHLso=023551024"; orig-ioi=home1.net;
    term-ioi=home2.net
P-Charging-Function-Addresses: ccf=[5555::b99:c88:d77:e66]; ccf=[5555::a55:b44:c33:d22];
    ecf=[5555::1ff:2ee:3dd:4cc]; ecf=[5555::6aa:7bb:8cc:9dd]
Privacy: none
From:
To: <sip:conferencel@mrfc2.home2.net>; tag=314159
Call-ID:
CSeq:
Require: 100rel
Contact: <sip:conferencel@mrfc2.home2.net>;isfocus
Allow: INVITE, ACK, CANCEL, BYE, PRACK, UPDATE, REFER, MESSAGE, SUBSCRIBE, NOTIFY
RSeq: 9021
Content-Type: application/sdp
Content-Length: (...)

v=0
o=- 2987933623 2987933623 IN IP6 5555::1111:2222:3333:4444
s=-
c=IN IP6 5555::1111:2222:3333:4444
t=0 0
m=video 10001 RTP/AVP 98 99
b=AS:75
a=curr:qos local none
a=curr:qos remote none
a=des:qos mandatory local sendrecv
a=des:qos mandatory remote sendrecv
a=conf:qos remote sendrecv
a=rtpmap:98 H263
a=fmtp:98 profile-level-id=0
a=rtpmap:99 MP4V-ES
m=audio 6544 RTP/AVP 97 96
b=AS:25.4
a=curr:qos local none
a=curr:qos remote none
a=des:qos mandatory local sendrecv
a=des:qos mandatory remote sendrecv
a=conf:qos remote sendrecv
a=rtpmap:97 AMR
a=fmtp:97 mode-set=0,2,5,7; maxframes=2
a=rtpmap:96 telephone-event
```

- Contact:** Contains the conference URI for the conference allocated at the MRFC/AS and the "isfocus" feature parameter.
- P-Charging-Vector:** The MRFC/AS inserts this header and populates the icid parameters with an unique value and the terminating Inter Operator Identifier (IOI) for the home network of the MRFC/AS and puts back the originating IOI.
- P-Charging-Function-Addresses:** The MRFC/AS populates the P-Charging-Function-Addresses header field to be passed to the S-CSCF.

Editor's Note: It has to be investigated if the MRFC/AS includes a P-Asserted-Identity header. If it includes this header, it needs to be investigated which value needs to be populated in it.

13. PRACK request (UE to P-CSCF) - see example in table A.4.2.1.2-13

The UE 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 any change in media flows, or if there was more than one choice of codec for a media flow, then UE includes a new SDP offer in the PRACK request sent to the MRFC/AS.

For this example, assume the UE chooses H.263 as the codec to use for the single video stream. Therefore, UE#1 sends a new SDP offer in the PRACK request.

Table A.4.2.1.2-13: PRACK request (UE to P-CSCF)

```

PRACK sip:conference1@mrfc2.home2.net SIP/2.0
Via: SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 70
P-Access-Network-Info: 3GPP-UTRAN-TDD; utran-cell-id-3gpp=234151D0FCE11
Route: <sip:pcscf1.visited1.net:7531;lr;comp=sigcomp>, <sip:scscf1.home1.net;lr>
From: <sip:user1_public1@home1.net>; tag=171828
To: <sip:conference1@mrfc2.home2.net>;tag=314159
Call-ID: cb03a0s09a2sdfgklkj490333
Cseq: 128 PRACK
Require: precondition, sec-agree
Proxy-Require: sec-agree
Security-Verify: ipsec-3gpp; q=0.1; alg= hmac-sha-1-96; spi-c=98765432; spi-s=87654321;
    port-c=8642; port-s=7531
Rack: 9021 127 INVITE
Content-Type: application/sdp
Content-Length: (...)

v=0
o=- 2987933615 2987933616 IN IP6 5555::aaa:bbb:ccc:ddd
s=-
c=IN IP6 5555::aaa:bbb:ccc:ddd
t=0 0
m=video 3400 RTP/AVP 98
b=AS:75
a=curr:qos local none
a=curr:qos remote none
a=des:qos mandatory local sendrecv
a=des:qos mandatory remote sendrecv
a=rtpmap:98 H263
a=fmtp:98 profile-level-id=0
m=audio 3456 RTP/AVP 97 96
b=AS:25.4
a=curr:qos local none
a=curr:qos remote none
a=des:qos mandatory local sendrecv
a=des:qos mandatory remote sendrecv
a=rtpmap:97 AMR
a=fmtp:97 mode-set=0,2,5,7; maxframes=2
a=rtpmap:96 telephone-event

```

Request-URI: takes the value of the Contact header of the received 183 (Session Progress) response.

14. Resource reservation

After determining the final media streams in step #13, the UE initiates the reservation procedures for the resources needed for this session.

15. PRACK request (P-CSCF to S-CSCF) - see example in table A.4.2.1.2-15

The P-CSCF forwards the PRACK request to the S-CSCF.

Table A.4.2.1.2-15: PRACK request (P-CSCF to S-CSCF)

```
PRACK sip:conference1@mrfc2.home2.net SIP/2.0
Via: SIP/2.0/UDP pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
    [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 69
P-Access-Network-Info:
Route: <sip:scscf1.home1.net;lr>
From:
To:
Call-ID:
Cseq:
Require: precondition
RAck:
Content-Type:
Content-Length:

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

16. PRACK request (S-CSCF to MRFC/AS) - see example in table A.4.2.1.2-16

S-CSCF forwards the PRACK request to the MRFC/AS based on the Request URI of the PRACK request. The S-CSCF does not re-write the Request URI.

Table A.4.2.1.2-16: PRACK request (S-CSCF to MRFC/AS)

```
PRACK sip:conference1@mrfc2.home2.net SIP/2.0
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
    pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
    [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 68
From:
To:
Call-ID:
Cseq:
Require:
RAck:
Content-Type:
Content-Length:

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

17. 200 (OK) response (MRFC/AS to S-CSCF) - see example in table A.4.2.1.2-17 (related to table A.4.2.1.2-16)

The MRFC/AS acknowledges the PRACK request (16) with a 200 (OK) response.

Table A.4.2.1.2-17: 200 (OK) response (MRFC/AS to S-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
    pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
    [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
From:
To:
Call-ID:
CSeq:
Content-Type: application/sdp
Content-Length: (...)

v=0
o=- 2987933623 2987933624 IN IP6 5555::aaa:bbb:ccc:ddd
s=-
c=IN IP6 5555::eee:fff:aaa:bbb
t=0 0
m=video 10001 RTP/AVP 98
b=AS:75
a=curr:qos local none
a=curr:qos remote none
a=des:qos mandatory local sendrecv
a=des:qos mandatory remote sendrecv
a=conf:qos remote sendrecv
a=rtpmap:98 H263
a=fmtp:98 profile-level-id=0
m=audio 6544 RTP/AVP 97 96
b=AS:25.4
a=curr:qos local none
a=curr:qos remote none
a=des:qos mandatory local sendrecv
a=des:qos mandatory remote sendrecv
a=conf:qos remote sendrecv
a=rtpmap:97 AMR
a=fmtp:97 mode-set=0,2,5,7; maxframes=2a=rtpmap:96 telephone-event
```

18. H.248 interaction to modify connection for UE#1

MRFC initiates a H.248 interaction to modify the connection established in step #11 and instructs MRFP to reserve the multimedia processing resources for UE#1 according to the preceding resource negotiation between the UE#1 and the MRFC.

19.200 (OK) response (S-CSCF to P-CSCF) - see example in table A.4.2.1.2-19

S-CSCF forwards the 200 (OK) response to the P-CSCF.

Table A.4.2.1.2-19: 200 (OK) response (S-CSCF to P-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
    [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
From:
To:
Call-ID:
CSeq:
Content-Type:
Content-Length:

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

20. 200 (OK) response (P-CSCF to UE) - see example in table A.4.2.1.2-20

The P-CSCF forwards the 200 (OK) response to the UE.

Table A.4.2.1.2-20: 200 (OK) response (P-CSCF to UE)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
From:
To:
Call-ID:
CSeq:
Content-Type:
Content-Length:

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

21. UPDATE request (UE to P-CSCF) - see example in table A.4.2.1.2-21

When the resource reservation is completed, the UE sends the UPDATE request to the MRFC/AS, via the signalling path established by the INVITE request.

Table A.4.2.1.2-21: UPDATE request (UE to P-CSCF)

```

UPDATE sip:conferencel@mrfc2.home2.net SIP/2.0
Via: SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 70
Route: <sip:pcscf1.visited1.net:7531;lr;comp=sigcomp>, <sip:scscf1.home1.net;lr>
P-Access-Network-Info: 3GPP-UTRAN-TDD; utran-cell-id-3gpp=234151D0FCE11
From: <sip:user1_public1@home1.net>; tag=171828
To: <sip:conferencel@mrfc2.home2.net>;tag=314159
Call-ID: cb03a0s09a2sdfglkj490333
Cseq: 129 UPDATE
Require: sec-agree
Proxy-Require: sec-agree
Security-Verify: ipsec-3gpp; q=0.1; alg=hmac-sha-1-96; spi-c=98765432; spi-s=87654321;
port-c=8642; port-s=7531
Content-Type: application/sdp
Content-Length: (...)

v=0
o=- 2987933615 2987933617 IN IP6 5555::aaa:bbb:ccc:ddd
s=-
c=IN IP6 5555::aaa:bbb:ccc:ddd
t=0 0
m=video 0 RTP/AVP 98
b=AS:75
a=curr:qos local sendrecv
a=curr:qos remote none
a=des:qos mandatory local sendrecv
a=des:qos mandatory remote sendrecv
a=rtpmap:98 H263
a=fmtp:98 profile-level-id=0
m=audio 3456 RTP/AVP 97 96
b=AS:25.4
a=curr:qos local sendrecv
a=curr:qos remote none
a=des:qos mandatory local sendrecv
a=des:qos mandatory remote sendrecv
a=rtpmap:97 AMR
a=fmtp:97 mode-set=0,2,5,7; maxframes=2
a=rtpmap:96 telephone-event

```

Request-URI: takes the value of the Contact header of the received 183 (Session Progress) response.

22. UPDATE request (P-CSCF to S-CSCF) - see example in table A.4.2.1.2-22

The P-CSCF forwards the UPDATE request to the S-CSCF.

Table A.4.2.1.2-22: UPDATE request (P-CSCF to S-CSCF)

```
UPDATE sip:conferencel@mrfc2.home2.net SIP/2.0
Via: SIP/2.0/UDP pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
    [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 69
P-Access-Network-Info:
P-Charging-Vector: icid-value="AyretyU0dm+6O2IrT5tAFrbHLso=023551024";
    ggsn=[5555::4b4:3c3:2d2:1e1]; pdp-sig=no; gcid=723084371; auth-token=43876559; flow-id=3
Route: <sip:scscf1.home1.net;lr>
From:
To:
Call-ID:
Cseq:
Content-Type:
Content-Length:

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

23. UPDATE request (S-CSCF to MRFC/AS) - see example in table A.4.2.1.2-23

S-CSCF forwards the UPDATE request to the MRFC/AS based on the Request URI of the UPDATE request. The S-CSCF does not re-write the Request URI.

Table A.4.2.1.2-23: UPDATE request (S-CSCF to MRFC/AS)

```
UPDATE sip:conference1@mrfc2.home2.net SIP/2.0
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
    pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
    [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 68
From:
To:
Call-ID:
Cseq:
Content-Type:
Content-Length:

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


24. 200 (OK) response (MRFC/AS to S-CSCF) - see example in table A.4.2.1.2-24 (related to table A.4.2.1.2-23)

The MRFC/AS acknowledges the UPDATE request (23) with a 200 (OK) response.

Table A.4.2.1.2-24: 200 (OK) response (MRFC/AS to S-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
    pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
    [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
From:
To:
Call-ID:
CSeq:
Content-Type: application/sdp
Content-Length: (...)

v=0
o=- 2987933623 2987933625 IN IP6 5555::aaa:bbb:ccc:ddd
s=-
c=IN IP6 5555::eee:fff:aaa:bbb
t=0 0
m=video 0 RTP/AVP 98
b=AS:75
a=curr:qos local sendrecv
a=curr:qos remote sendrecv
a=des:qos mandatory local sendrecv
a=des:qos mandatory remote sendrecv
a=rtpmap:98 H263
a=fmtp:98 profile-level-id=0
m=audio 6544 RTP/AVP 97 96
b=AS:25.4
a=curr:qos local sendrecv
a=curr:qos remote sendrecv
a=des:qos mandatory local sendrecv
a=des:qos mandatory remote sendrecv
a=rtpmap:97 AMR
a=fmtp:97 mode-set=0,2,5,7; maxframes=2
a=rtpmap:96 telephone-event
```

The SDP indicates that the resource reservation was successful both in the local and the remote segment.

25. H.248 interaction to modify connection

MRFC initiates a H.248 interaction to connect through the multimedia processing resources for UE#1 in MRFP.

26. 200 (OK) response (S-CSCF to P-CSCF) - see example in table A.4.2.1.2-26

The S-CSCF forwards the 200 (OK) response to the P-CSCF.

Table A.4.2.1.2-26: 200 (OK) response (S-CSCF to P-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
    [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
From:
To:
Call-ID:
CSeq:
Content-Type:
Content-Length:

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

27. 200 (OK) response (P-CSCF to UE) - see example in table A.4.2.1.2-27

The P-CSCF forwards the 200 (OK) response to the UE.

Table A.4.2.1.2-27: 200 (OK) response (P-CSCF to UE)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
From:
To:
Call-ID:
CSeq:
Content-Type:
Content-Length:

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

28. 200 (OK) response (MRFC/AS to S-CSCF) - see example in table A.4.2.1.2-28 (related to table A.4.2.1.2-7)

After the success modification of the session (25), the MRFC/AS sends a 200 (OK) response final response to the INVITE request (6) to the I-CSCF.

Table A.4.2.1.2-28: 200 (OK) response (MRFC/AS to S-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
[5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Record-Route: <sip:scscf1.home1.net;lr>, <sip:pcscf1.visited1.net;lr>
From:
To:
Call-ID:
CSeq: 127 INVITE
Contact: <sip:conference1@mrfc2.home2.net>;isfocus
Allow-Events: conference
Content-Length:0
```

Contact: contains the conference URI for the conference allocated at the MRFC/AS and the "isfocus" feature parameter.

Allow-Events: [The MRFC/AS indicates support for the "conference" event package](#)

29. 200 (OK) response (S-CSCF to P-CSCF) - see example in table A.4.2.1.2-29

The S-CSCF sends a 200 (OK) response final response along the signalling path back to the P-CSCF.

Table A.4.2.1.2-29: 200 (OK) response (S-CSCF to P-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
    [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Record-Route:
From:
To:
Call-ID:
CSeq:
Contact:
Allow-Events:
Content-Length:
```

30. Approval of QoS commit

The P-CSCF approves the commitment of the QoS resources if it was not approved already in step (14).

31. 200 (OK) response (P-CSCF to UE) - see example in table A.4.2.1.2-31

The P-CSCF forwards the 200 (OK) response final response to the session originator. The UE can start the media flow(s) for this session.

Table A.4.2.1.2-31: 200 (OK) response (P-CSCF to UE)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Record-Route: <sip:scscf1.home1.net;lr>, <sip:pcscf1.visited1.net:7531;lr;comp=sigcomp>
From:
To:
Call-ID:
CSeq:
Contact:
Allow-Events:
Content-Length:
```

32. ACK request (UE to P-CSCF) - see example in table A.4.2.1.2-32

The UE starts the media flow for this session, and responds to the 200 (OK) response (31) with an ACK request sent to the P-CSCF.

Table A.4.2.1.2-32: ACK request (UE to P-CSCF)

```
ACK sip:conferencel@mrfc2.home2.net:2342 SIP/2.0
Via: SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 70
Route: <sip:pcscf1.visited1.net:7531;lr;comp=sigcomp>, <sip:scscf1.home1.net;lr>
From: <sip:user1_public1@home1.net>; tag=171828
To: <sip:conferencel@mrfc2.home2.net>; tag=314159
Call-ID: cb03a0s09a2sdfglkj490333
Cseq: 127 ACK
Content-Length: 0
```

Cseq: is required to be the same value as Cseq contained in original INVITE request (3).

33. ACK request (P-CSCF to S-CSCF) - see example in table A.4.2.1.2-33

The P-CSCF forwards the ACK request to the S-CSCF.

Table A.4.2.1.2-33: ACK request (P-CSCF to S-CSCF)

```
ACK sip:conferencel@mrfc2.home2.net:2342 SIP/2.0
Via: SIP/2.0/UDP pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
    [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 69
Route: <sip:scscf1.home1.net;lr>
From:
To:
Call-ID:
Cseq:
Content-Length:
```

34. ACK request (S-CSCF to MRFC/AS) - see example in table A.4.2.1.2-34

S-CSCF forwards the ACK request to the MRFC/AS based on the Request URI of the ACK request. The S-CSCF does not re-write the Request URI.

Table A.4.2.1.2-34: ACK request (S-CSCF to MRFC/AS)

```
ACK sip:conferencel@mrfc2.home2.net:2342 SIP/2.0
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
    pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
    [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 68
From:
To:
Call-ID:
Cseq:
Content-Length:
```

----- FOURTH CHANGE: A.4.3 -----**A.4.3.1.3 MRFC/AS invites a user to a conference**

Editor's Note: The values of the charging related headers in this call flow have to be revised.

Figure A.4.3.1.3-1 shows an MRFC/AS inviting a user to a conference. The invitation is sent as a result of user1@home1.net sending a REFER request to the MRFC/AS. The MRFC/AS is located in a different network than user's S-CSCF.

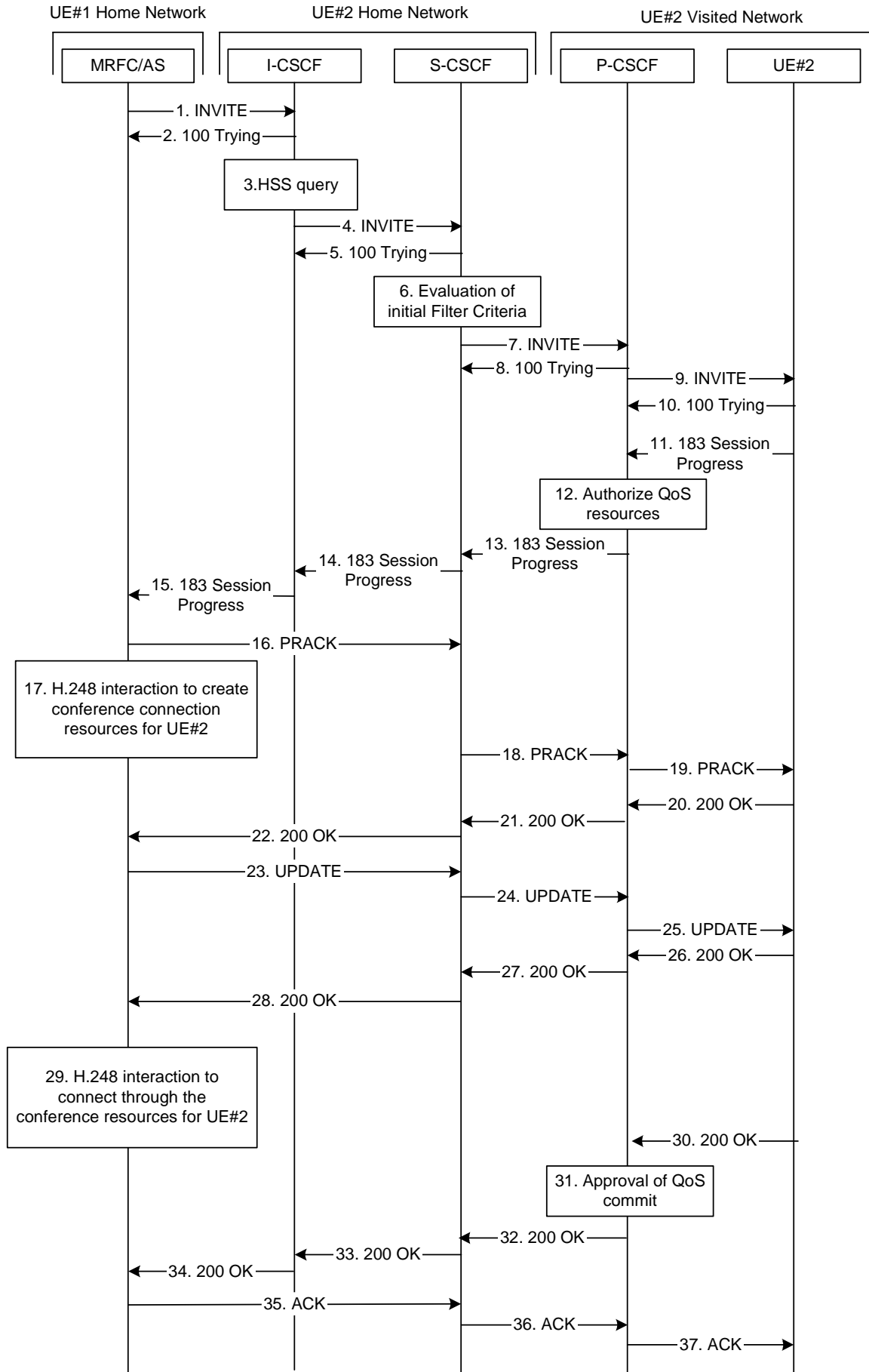


Figure A.4.3.1.3-1: MRFC/AS inviting a user to a conference - MRFC/AS routes directly to I-CSCF

The details of the flows are as follows:

1. INVITE request (MRFC/AS to I-CSCF) - see example in table A.4.3.1.3-1

In this example, the MRFC/AS is capable of resolving the terminating users I-CSCF address for this request. As a result of a DNS query, it has received the address of the I-CSCF as the next hop.

The MRFC/AS invites a user to a conference as it received a REFER request from another user.

The MRFC/AS determines the codecs that are applicable for this conference. It builds a SDP Offer 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). In this example, there is only one codec per media offered.

For this example, it is assumed that MRFC/AS is willing to establish a multimedia session comprising a video stream and an audio stream. The video stream supports H.263. The audio stream supports the AMR codec.

Table A.4.3.1.3-1: INVITE request (MRFC/AS to I-CSCF)

```

INVITE sip:user2_public1@home2.net SIP/2.0
Via: SIP/2.0/UDP mrfc1.home1.net;branch=z9hG4bK23273846
Max-Forwards: 70
P-Asserted-Identity: <sip:conferencel@mrfc1.home1.net>
P-Charging-Vector: icid-value="AyretyU0dm+602IrT5tAFrbHLso=023551024"; orig-ioi=home1.net
Privacy: none
From: <sip:conferencel@mrfc1.home1.net>;tag=171828
To: <sip:user2_public1@home2.net>
Call-ID: cb03a0s09a2sdfglkj490333
Cseq: 127 INVITE
Require: precondition
Supported: 100rel
Referred-By: <sip:user1_public1@home1.net>
Contact: <sip:conferencel@mrfc1.home1.net>;isfocus
Allow: INVITE, ACK, CANCEL, BYE, PRACK, UPDATE, REFER, MESSAGE, SUBSCRIBE, NOTIFY
Allow-Events: conference
Content-Type: application/sdp
Content-Length: (...)

v=0
o=- 2987933615 2987933615 IN IP6 5555::abc:def:abc:abc
s=-
c=IN IP6 5555::abc:def:abc:def
t=0 0
m=video 10001 RTP/AVP 98
b=AS:75
a=curr:gqos local none
a=curr:gqos remote none
a=des:gqos mandatory local sendrecv
a=des:gqos none remote sendrecv
a=rtpmap:98 H263
a=fmtp:98 profile-level-id=0
m=audio 6544 RTP/AVP 97 96
b=AS:25.4
a=curr:gqos local none
a=curr:gqos remote none
a=des:gqos mandatory local sendrecv
a=des:gqos none remote sendrecv
a=rtpmap:97 AMR
a=fmtp:97 mode-set=0,2,5,7; maxframes=2
a=rtpmap:96 telephone-event

```

Request-URI: contains the public user identity of UE#2.

P-Asserted-Identity: contains the asserted identity as configured in the MRFC/AS.

Contact: contains the conference URI for the conference allocated at the MRFC/AS and the "isfocus" feature parameter.

[Allow-Events:](#) [The MRFC/AS indicates support for the "conference" event package](#)

Referred-By: contains the same value as received in the Referred-By in the REFER request that was received from the user that requested the MRFC/AS send the INVITE request.

2. **100 (Trying) response (I-CSCF to MRFC/AS) - see example in table A.4.3.1.3-2**

The I-CSCF responds to the INVITE request with a 100 (Trying) provisional response.

Table A.4.3.1.3-2: 100 (Trying) response (I-CSCF to MRFC/AS)

```
SIP/2.0 100 Trying
Via: SIP/2.0/UDP conferencel@mrfc1.home1.net;branch=z9hG4bK23273846
From:
To:
Call-ID:
CSeq:
Content-Length: 0
```

3. **Cx: User Location Query procedure**

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

For detailed message flows see 3GPP TS 29.228[11].

4. **INVITE request (I-CSCF to S-CSCF) - see example in table A.4.3.1.3-4**

The INVITE request is forwarded to the S-CSCF.

Table A.4.3.1.3-4: INVITE request (I-CSCF to S-CSCF)

```

INVITE sip:user2_public1@home2.net SIP/2.0
Via: SIP/2.0/UDP icscf2.home2.net;branch=z9hG4bK241d17.2, SIP/2.0/UDP
    mrfcl.home1.net;branch=z9hG4bK23273846
Max-Forwards: 69
P-Asserted-Identity:
P-Charging-Vector:
Privacy:
From:
To:
Call-ID:
Cseq:
Require:
Supported:
Referred-By:
Contact:
Allow:
Allow-Events:
Content-Type:
Content-Length: (...)

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

```

5. 100 (Trying) response (S-CSCF to I-CSCF) - see example in table 6.2.2.2-5

The S-CSCF responds to the INVITE request (3) with a 100 (Trying) provisional response.

Table 6.2.2.2-5: 100 (Trying) response (S-CSCF to I-CSCF)

```

SIP/2.0 100 Trying
Via: SIP/2.0/UDP icscf2.home2.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
    mrfcl.home1.net;branch=z9hG4bK23273846
From:
To:
Call-ID:
CSeq:
Content-Length: 0

```

6. Evaluation of initial filter criteria

The S-CSCF validates the service profile of this subscriber and evaluates the initial filter criteria.

7. INVITE request (S-CSCF to P-CSCF) - see example in table A.4.3.1.3-7

S-CSCF remembers (from registration procedures) the contact address of UE#2 and determines the P-CSCF assigned for UE#2 and routes message there.

11. 183 (Session Progress) response (UE#2 to P-CSCF) - see example in table A.4.3.1.3-11

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 request.

The UE responds with a 183 (Session Progress) response containing SDP back to the originator. This response is sent to the P-CSCF.

Table A.4.3.1.3-11: 183 (Session Progress) response (UE#2 to P-CSCF)

```
SIP/2.0 183 Session Progress
Via: SIP/2.0/UDP pcscf2.visited2.net:5088;comp=sigcomp;branch=z9hG4bK240f34.1, SIP/2.0/UDP
    scscf2.home2.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
    icscf2.home2.net;branch=z9hG4bK241d17.2, SIP/2.0/UDP
    mrfc1.home1.net;branch=z9hG4bK23273846
Record-Route: <sip:pcscf2.visited2.net:5088;lr;comp=sigcomp>, <sip:scscf2.home2.net;lr>
P-Access-Network-Info: 3GPP-UTRAN-TDD; utran-cell-id-3gpp=234151D0FCE11
Privacy: none
From:
To: <sip:user2_public1@home2.net>; tag=314159
Call-ID:
CSeq:
Require: 100rel
Contact: <sip:[5555::eee:fff:aaa:bbb]:8805;comp=sigcomp>
Allow: INVITE, ACK, CANCEL, BYE, PRACK, UPDATE, REFER, MESSAGE, SUBSCRIBE, NOTIFY
RSeq: 9021
Content-Type: application/sdp
Content-Length: (...)

v=0
o=- 2987933623 2987933623 IN IP6 5555::eee:fff:aaa:bbb
s=-
c=IN IP6 5555::eee:fff:aaa:bbb
t=0 0
m=video 3400 RTP/AVP 98
b=AS:75
a=curr:qos local none
a=curr:qos remote none
a=des:qos mandatory local sendrecv
a=des:qos mandatory remote sendrecv
a=conf:qos remote sendrecv
a=rtptime:98 H263
a=fmtp:98 profile-level-id=0
m=audio 3456 RTP/AVP 97 96
b=AS:25.4
a=curr:qos local none
a=curr:qos remote none
a=des:qos mandatory local sendrecv
a=des:qos mandatory remote sendrecv
a=conf:qos remote sendrecv
a=rtptime:97 AMR
a=fmtp:97 mode-set=0,2,5,7; maxframes=2
a=rtptime:96 telephone-event
```


Request-URI: takes the value of the Contact header of the received 183 (Session Progress) response.

17. Resource reservation

After determining the media streams, the MRFC/AS initiates the reservation procedures for the resources needed for this session.

18. PRACK request (S-CSCF to P-CSCF) - see example in table A.4.3.1.3-18

The P-CSCF forwards the PRACK request to the P-CSCF.

Table A.4.3.1.3-18: PRACK request (S-CSCF to P-CSCF)

```
PRACK sip:[5555::eee:fff:aaa:bbb]:8805;comp=sigcomp SIP/2.0
Via: SIP/2.0/UDP scscf2.home2.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
    mrfcl.home1.net;branch=z9hG4bK23273846
Max-Forwards: 69
Route: <sip:pcscf2.visited2.net;lr>
From:
To:
Call-ID:
Cseq:
RAck:
Content-Length:
```

19. PRACK request (P-CSCF to UE#2) - see example in table A.4.3.1.3-19

The P-CSCF forwards the PRACK request to UE#2.

Table A.4.3.1.3-19: PRACK request (P-CSCF to UE#2)

```
PRACK sip:[5555::eee:fff:aaa:bbb]:8805;comp=sigcomp SIP/2.0
Via: SIP/2.0/UDP pcscf2.visited2.net:5088;comp=sigcomp;branch=z9hG4bK240f34.1, SIP/2.0/UDP
    scscf2.home2.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
    mrfcl.home1.net;branch=z9hG4bK23273846
Max-Forwards: 68
From:
To:
Call-ID:
Cseq:
RAck:
Content-Length:
```

20. 200 (OK) response (UE#2 to P-CSCF) - see example in table A.4.3.1.3-20 (related to table A.4.3.1.3-19)

UE#2 acknowledges the PRACK request (19) with a 200 (OK) response.

Table A.4.3.1.3-20: 200 (OK) response (UE#2 to P-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP pcscf2.visited2.net:5088;comp=sigcomp;branch=z9hG4bK240f34.1, SIP/2.0/UDP
    scscf2.home2.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
    mrfcl.home1.net;branch=z9hG4bK23273846
P-Access-Network-Info: 3GPP-UTRAN-TDD; utran-cell-id-3gpp=234151D0FCE11
From:
To:
Call-ID:
CSeq:
Content-Length: 0
```


21. 200 (OK) response (P-CSCF to S-CSCF) - see example in table A.4.3.1.3-21

The P-CSCF forwards the 200 (OK) response to the S-CSCF.

Table A.4.3.1.3-21: 200 (OK) response (P-CSCF to S-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP scscf2.home2.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
    mrfc1.home1.net;branch=z9hG4bK23273846
From:
To:
Call-ID:
CSeq:
Content-Type:
Content-Length:
```

22. 200 (OK) response (S-CSCF to MRFC/AS) - see example in table A.4.3.1.3-22

The S-CSCF forwards the 200 (OK) response to the MRFC/AS.

Table A.4.3.1.3-22: 200 (OK) response (S-CSCF to MRFC/AS)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP mrfc1.home1.net;branch=z9hG4bK23273846
P-Access-Network-Info:
From:
To:
Call-ID:
CSeq:
Content-Type:
Content-Length:
```

23. UPDATE request (MRFC/AS to S-CSCF) - see example in table A.4.3.1.3-23

When the resource reservation in step (17) is completed, the MRFC/AS sends the UPDATE request to UE#2.

Table A.4.3.1.3-23: UPDATE request (MRFC/AS to S-CSCF)

```

UPDATE sip:[5555::eee:fff:aaa:bbb]:8805;comp=sigcomp SIP/2.0
Via: SIP/2.0/UDP mrfc1.home1.net;branch=z9hG4bK23273846
Max-Forwards: 70
Route: <sip:scscf2.home2.net;lr>, <sip:pcscf2.visited2.net;lr>
From: <sip:conferencel@mrfc1.home1.net>; tag=171828
To: <sip:user2_public1@home2.net>;tag=314159
Call-ID: cb03a0s09a2sdfg1kj490333
Cseq: 129 UPDATE
Content-Type: application/sdp
Content-Length: (...)

v=0
o=- 2987933615 2987933617 IN IP6 5555::abc:def:abc:abc
s=-
c=IN IP6 5555::abc:def:abc:def
t=0 0
m=video 0 RTP/AVP 98
b=AS:75
a=curr:qos local sendrecv
a=curr:qos remote none
a=des:qos mandatory local sendrecv
a=des:qos mandatory remote sendrecv
a=rtpmap:98 H263
a=fmtp:98 profile-level-id=0
m=audio 3456 RTP/AVP 97 96
b=AS:25.4
a=curr:qos local sendrecv
a=curr:qos remote none
a=des:qos mandatory local sendrecv
a=des:qos mandatory remote sendrecv
a=rtpmap:97 AMR
a=fmtp:97 mode-set=0,2,5,7; maxframes=2
a=rtpmap:96 telephone-event

```

Request-URI: takes the value of the Contact header of the received 183 (Session Progress) response.

24. UPDATE request (S-CSCF to P-CSCF) - see example in table A.4.3.1.3-24

The S-CSCF forwards the UPDATE request to the P-CSCF.

Table A.4.3.1.3-24: UPDATE request (S-CSCF to P-CSCF)

```
UPDATE sip:[5555::eee:fff:aaa:bbb]:8805;comp=sigcomp SIP/2.0
Via: SIP/2.0/UDP scscf2.home2.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
    mrfcl.home1.net;branch=z9hG4bK23273846
Max-Forwards: 69
Route: <sip:pcscf2.visited2.net;lr>
From:
To:
Call-ID:
Cseq:
Content-Type:
Content-Length:

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

25. UPDATE request (P-CSCF to UE#2) - see example in table A.4.3.1.3-25

The P-CSCF forwards the UPDATE request to UE#2.

Table A.4.3.1.3-25: UPDATE request (P-CSCF to UE#2)

```
UPDATE sip:[5555::eee:fff:aaa:bbb]:8805;comp=sigcomp SIP/2.0
Via: SIP/2.0/UDP pcscf2.visited2.net:5088;comp=sigcomp;branch=z9hG4bK240f34.1, SIP/2.0/UDP
    scscf2.home2.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
    mrfc1.home1.net;branch=z9hG4bK23273846
Max-Forwards: 68
From:
To:
Call-ID:
Cseq:
Content-Type:
Content-Length:

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

26. 200 (OK) response (UE#2 to P-CSCF) - see example in table A.4.3.1.3-26 (related to table A.4.3.1.3-25)

UE#2 acknowledges the UPDATE request (25) with a 200 (OK) response.

Table A.4.3.1.3-26: 200 (OK) response (UE#2 to P-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP pcscf2.visited2.net:5088;comp=sigcomp;branch=z9hG4bK240f34.1, SIP/2.0/UDP
     scscf2.home2.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
     mrfc1.home1.net;branch=z9hG4bK23273846
P-Access-Network-Info: 3GPP-UTRAN-TDD; utran-cell-id-3gpp=234151D0FCE11
From:
To:
Call-ID:
CSeq:
Content-Type: application/sdp
Content-Length: (...)

v=0
o=- 2987933623 2987933625 IN IP6 5555:: aaa:bbb:ccc:ddd
s=-
c=IN IP6 5555::aaa:bbb:ccc:ddd
t=0 0
m=video 0 RTP/AVP 98
b=AS:75
a=curr:qos local sendrecv
a=curr:qos remote sendrecv
a=des:qos mandatory local sendrecv
a=des:qos mandatory remote sendrecv
a=rtpmap:98 H263
a=fmtp:98 profile-level-id=0
m=audio 6544 RTP/AVP 97 96
b=AS:25.4
a=curr:qos local sendrecv
a=curr:qos remote sendrecv
a=des:qos mandatory local sendrecv
a=des:qos mandatory remote sendrecv
a=rtpmap:97 AMR
a=fmtp:97 mode-set=0,2,5,7; maxframes=2
a=rtpmap:96 telephone-event
```

27. 200 (OK) response (P-CSCF to S-CSCF) - see example in table A.4.3.1.3-27

The P-CSCF forwards the 200 (OK) response to the S-CSCF.

Table A.4.3.1.3-27: 200 (OK) response (P-CSCF to S-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP scscf2.home2.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
    mrfc1.home1.net;branch=z9hG4bK23273846
P-Access-Network-Info:
From:
To:
Call-ID:
CSeq:
Content-Type:
Content-Length:

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

28. 200 (OK) response (S-CSCF to MRFC/AS) - see example in table A.4.3.1.3-28

The S-CSCF forwards the 200 (OK) response to the MRFC/AS.

Table A.4.3.1.3-28: 200 (OK) response (S-CSCF to MRFC/AS)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP mrfc1.home1.net;branch=z9hG4bK23273846
From:
To:
Call-ID:
CSeq:
Content-Type:
Content-Length:

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

29. H.248 interaction to modify connection

MRFC initiates a H.248 interaction to connect through the multimedia processing resources for UE#2 in MRFP.

30. 200 (OK) response (UE#2 to P-CSCF) - see example in table A.4.3.1.3-30 (related to table A.4.3.1.3-9)

UE#2 sends a 200 (OK) response final response to the INVITE request (9) to the P-CSCF.

Table 6.2.2.2-30: 200 (OK) response (UE#2 to P-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP pcscf2.visited2.net:5088;comp=sigcomp;branch=z9hG4bK240f34.1 SIP/2.0/UDP
scscf2.home2.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
icscf2.home2.net;branch=z9hG4bK241d17.2, SIP/2.0/UDP
mrfc1.home1.net;branch=z9hG4bK23273846
Record-Route: <sip:pcscf2.visited2.net:5088;lr;comp=sigcomp>, <sip:scscf2.home2.net;lr>
P-Access-Network-Info: 3GPP-UTRAN-TDD; utran-cell-id-3gpp=234151D0FCE11
From:
To:
Call-ID:
CSeq: 127 INVITE
Contact: <sip:[5555::eee:fff:aaa:bbb]:8805;comp=sigcomp>
Content-Length:0
```

31. Approval of QoS commit

The P-CSCF approves the commitment of the QoS resources if it was not approved already in step (12).

32. 200 (OK) response (P-CSCF to S-CSCF) - see example in table A.4.3.1.3-32

The P-CSCF forwards the 200 (OK) response to the S-CSCF.

Table A.4.3.1.3-32: 200 (OK) response (P-CSCF to S-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP scscf2.home2.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
    icscf2.home2.net;branch=z9hG4bK241d17.2, SIP/2.0/UDP
    mrfc1.home1.net;branch=z9hG4bK23273846
Record-Route: <sip:pcscf2.visited2.net;lr>, <sip:scscf2.home2.net;lr>
P-Access-Network-Info:
From:
To:
Call-ID:
CSeq:
Contact:
Content-Length:0
```

33. 200 (OK) response (S-CSCF to I-CSCF) - see example in table A.4.3.1.3-33

The S-CSCF sends a 200 (OK) response final response along the signalling path back to I-CSCF.

Table A.4.3.1.3-33: 200 (OK) response (S-CSCF to I-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP icscf2.home2.net;branch=z9hG4bK241d17.2, SIP/2.0/UDP
    mrfc1.home1.net;branch=z9hG4bK23273846
Record-Route:
From:
To:
Call-ID:
CSeq:
Contact:
Content-Length:
```

34. 200 (OK) response (I-CSCF to MRFC/AS) - see example in table A.4.3.1.3-34

The I-CSCF forwards the 200 (OK) response final response to the session originator.

Table 6.2.2-34: 200 (OK) response (I-CSCF to MRFC/AS)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP mrfc1.home1.net;branch=z9hG4bK23273846
Record-Route:
From:
To:
Call-ID:
CSeq:
Contact:
Content-Length:
```

35. ACK request (MRFC/AS to S-CSCF) - see example in table A.4.3.1.3-35

The MRFC/AS responds to the 200 (OK) response (35) with an ACK request sent to the S-CSCF.

Table A.4.3.1.3-35: ACK request (MRFC/AS to S-CSCF)

```
ACK sip:[5555::eee:fff:aaa:bbb]:8805;comp=sigcomp SIP/2.0
Via: SIP/2.0/UDP mrfc1.home1.net;branch=z9hG4bK23273846
Max-Forwards: 70
Route: <sip:scscf2.home2.net;lr>, <sip:pcscf2.visited2.net;lr>
From: <sip:conferencel@mrfc1.home1.net>; tag=171828
To: <sip:user2_public1@home2.net>; tag=314159
Call-ID: cb03a0s09a2sdfglkj490333
Cseq: 127 ACK
Content-Length: 0
```


36. ACK request (S-CSCF to P-CSCF) - see example in table A.4.3.1.3-36

The S-CSCF forwards the ACK request to the P-CSCF.

Table A.4.3.1.3-36: ACK request (S-CSCF to P-CSCF)

```
ACK sip:[5555::eee:fff:aaa:bbb]:8805;comp=sigcomp SIP/2.0
Via: SIP/2.0/UDP scscf2.home2.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
    mrfcl.home1.net;branch=z9hG4bK23273846
Max-Forwards: 69
Route: <sip:pcscf2.visited2.net;lr>
From:
To:
Call-ID:
Cseq:
Content-Length:
```

37. ACK request (P-CSCF to UE#2) - see example in table A.4.3.1.3-37

The P-CSCF forwards the ACK request to the UE#2.

Table A.4.3.1.3-37: ACK request (P-CSCF to UE#2)

```
ACK sip:[5555::eee:fff:aaa:bbb]:8805;comp=sigcomp SIP/2.0
Via: SIP/2.0/UDP pcscf2.visited2.net:5088;comp=sigcomp;branch=z9hG4bK240f34.1, SIP/2.0/UDP
    scscf2.home2.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
    mrfcl.home1.net;branch=z9hG4bK23273846
Max-Forwards: 68
From:
To:
Call-ID:
Cseq:
Content-Length:
```

CR-Form-v7.1

CHANGE REQUEST

⌘ **24.147 CR 12** ⌘ rev **1** ⌘ Current version: **6.0.0** ⌘

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:	⌘ Introduction of XCAP Change		
Source:	⌘ Infineon Technologies		
Work item code:	⌘ IMS2	Date:	⌘ 04/11/2004
Category:	⌘ B	Release:	⌘ Rel-6
	Use <u>one</u> 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 <u>one</u> of the following releases: Ph2 (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) Rel-7 (Release 7)

Reason for change:	⌘ Currently, there exit no mechanism to inform the conference participant about changes in the conference policy document.
Summary of change:	⌘ A mechanism to inform the conference participant about changes in the conference policy document is introduced. This mechanism is based on the known Event Notification mechanism in conjunction with the profile delivery framework and the XCAP difference document.
Consequences if not approved:	⌘ Conference participant cannot be informed about changes in the conference policy document.

Clauses affected:	⌘ 2, 5.3.4, 5.3.4.1, 5.3.5, 5.3.5.1										
Other specs affected:	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="text-align: center;">Y</td> <td style="text-align: center;">N</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> </table>	Y	N	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Other core specifications Test specifications O&M Specifications	⌘
Y	N										
<input type="checkbox"/>	<input checked="" type="checkbox"/>										
<input type="checkbox"/>	<input checked="" type="checkbox"/>										
<input type="checkbox"/>	<input checked="" type="checkbox"/>										
Other comments:	⌘ It may be necessary to change the introduced reference numbers in accordance with other change requests										

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.
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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: References & Definitions** -----

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

- [1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".
- [2] 3GPP TS 22.228: "Service requirements for the Internet Protocol (IP) multimedia core network subsystem; Stage 1".
- [3] 3GPP TS 23.218: "IP Multimedia (IM) session handling; IM call model; Stage 2".
- [4] 3GPP TS 24.228: "Signalling flows for the IP multimedia call control based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP); Stage 3".
- [5] 3GPP TS 24.229: "Internet Protocol (IP) multimedia call control protocol based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP); Stage 3".
- [6] 3GPP TS 23.228: "IP Multimedia Subsystem (IMS); Stage 2".
- [7] IETF RFC 3261 (June 2002): "SIP: Session Initiation Protocol".
- [8] draft-ietf-sipping-conferencing-framework-01 (October 2003): "A Framework for Conferencing with the Session Initiation Protocol".

Editor's note: The above document cannot be formally referenced until it is published as an RFC.

- [9] draft-ietf-sipping-cc-conferencing-01 (June 2003): "Session Initiation Protocol Call Control - Conferencing for User Agents".

Editor's note: The above document cannot be formally referenced until it is published as an RFC.

- [10] IETF RFC 3265 (June 2002): "Session Initiation Protocol (SIP) - Specific Event Notification".
- [11] draft-ietf-sipping-conference-package-03 (February 2004): "A Session Initiation Protocol (SIP) Event Package for Conference State".

Editor's note: The above document cannot be formally referenced until it is published as an RFC.

- [12] 3GPP TS 29.228: "IP Multimedia (IM) Subsystem Cx and Dx Interfaces; Signalling flows and message contents".
- [13] IETF RFC 3323 (November 2002): "A Privacy Mechanism for the Session Initiation Protocol (SIP)".
- [14] IETF RFC 3325 (November 2002): "Private Extensions to the Session Initiation Protocol (SIP) for Asserted Identity within Trusted Networks".
- [15] 3GPP TS 29.208: "End to end Quality of Service (QoS) signalling flows".

- [16] IETF RFC 2833 (May 2000): "RTP Payload for DTMF Digits, Telephony Tones and Telephony Signals".
- [17] IETF RFC 3515 (April 2003): "The Session Initiation Protocol (SIP) Refer Method".
- [18] 3GPP TS 22.141: "Presence service; Stage 1".
- [19] draft-ietf-sip-callee-caps-03 (December 2003): "Indicating User Agent Capabilities in the Session Initiation Protocol (SIP)".

Editor's note: The above document cannot be formally referenced until it is published as an RFC.

- [20] draft-ietf-sip-referredby-05 (March 2004): "The SIP Referred-By Mechanism".

Editor's note: The above document cannot be formally referenced until it is published as an RFC.

- [21] IETF RFC 2616 (June 1999): "Hypertext Transfer Protocol - HTTP/1.1".
- [22] draft-ietf-simple-xcap-02 (February 2004): "The Extensible Markup Language (XML) Configuration Access Protocol (XCAP)".

Editor's note: The above document cannot be formally referenced until it is published as an RFC.

- [23] draft-ietf-xcon-cpcp-xcap-00 (April 2004): "The Conference Policy Control Protocol (CPCP)".

Editor's note: The above document cannot be formally referenced until it is published as an RFC.

- [24] 3GPP TS 33.141: "Presence service; Security".
- [25] 3GPP TS 24.109: "Bootstrapping interface (Ub) and Network application function interface (Ua); Protocol details".
- [26] IETF RFC 2246 (January 1999): "The TLS Protocol Version 1.0".
- [27] IETF RFC 3310 (September 2002): "Hypertext Transfer Protocol (HTTP) Digest Authentication Using Authentication and Key Agreement (AKA)".
- [28] draft-ietf-xcon-bfcp-00 (July 2004): "The Binary Floor Control Protocol (BFCP)".

Editor's note: The above document cannot be formally referenced until it is published as an RFC.

- [29] [draft-ietf-simple-xcap-package-02 \(July 2004\): " A Session Initiation Protocol \(SIP\) Event Package for Modification Events for the Extensible Markup Language \(XML\) Configuration Access Protocol \(XCAP\) Managed Documents "](#).

Editor's note: The above document cannot be formally referenced until it is published as an RFC.

- [30] [draft-ietf-sipping-config-framework-05 \(October 2004\): "A Framework for Session Initiation Protocol User Agent Profile Delivery"](#).

Editor's note: The above document cannot be formally referenced until it is published as an RFC.

----- SECOND CHANGE: New Role in SIP Part -----

5.3.4 Subscriber to conference policy changes

5.3.14.71 Subscription for conference policy XML document changes

In order to get notifications of changes to the conference policy XML document of the conference, the ~~conference participant~~ subscriber shall generate a SUBSCRIBE request in accordance with draft-ietf-simple-xcap-package [29] and draft-ietf-sipping-config-framework [30]. The ~~conference participant~~ subscriber shall set the request URI of this SUBSCRIBE request to the conference URI of the conference to which the conference policy document is associated.

----- **THIRD CHANGE: New Role in SIP Part**-----

5.3.5 Notifier of conference policy changes

5.3.5.2.18 Subscription acceptance to conference policy XML document changes and notification of state changes

Upon receipt of a SUBSCRIBE request that includes a conference URI in the request URI and the "sip-profile" tag in the Event header, the ~~conference-focus~~ notifier shall:

- 1) check if the conference URI is allocated and reject the request in accordance with RFC 3261 [7] if it is not allocated. The following actions in this subclause shall only be performed if the conference URI is allocated;
- 2) verify the identity of the user as described in subclause 5.7.1.4 of 3GPP TS 24.229 [5] and authorize the request as described in subclause 5.7.1.5 of 3GPP TS 24.229 [5]. The authorization policy mentioned in subclause 5.7.1.5 of 3GPP TS 24.229 [5] is given in this case by the conference policy, as described in subclause 7.3.2. The following actions shall only be performed if the request can be authorized;
- 3) establish the subscription to the profile change event notification package as described in RFC 3265 [10], draft-ietf-simple-xcap-package [29] and draft-ietf-sipping-config-framework [30]; and
- 4) generate notifications in accordance with draft-ietf-simple-xcap-package [29] and draft-ietf-sipping-config-framework [30] that contain the conference policy information the subscriber/~~conference participant~~ is allowed to receive. The user privileges of the conference policy privileges XML document define which elements of the conference policy XML document can be read by a particular subscriber.

----- **FOURTH CHANGE: Ut reference point**-----

7 Protocol for conference policy control at the Ut reference point

7.1 Introduction

void

7.2 Functional entities

7.2.1 User Equipment (UE)

For the purpose of SIP based conferences, the UE may implement the role of a privileged user as described in subclause 7.3.1. If the UE implements the role of a privileged user then the UE shall also implement the role of a subscriber to conference policy changes as described in subclause 5.3.4

The UE shall implement HTTP digest AKA (see RFC 3310 [27]) and it shall initiate a bootstrapping procedure with the bootstrapping server function located in the home network, as described in 3GPP TS 24.109 [25].

The UE shall acquire the subscriber's certificate from PKI portal by using a bootstrapping procedure, as described in 3GPP TS 24.109 [25].

The UE shall implement Transport Layer Security (TLS) (see RFC 2246 [26]). The UE shall be able to authenticate the authentication proxy based on the received certificate during TLS handshaking phase.

7.2.2 Media Resource Function Controller (MRFC)

As the function split between the MRFC and the conferencing AS is out of scope of the present document, the procedures for the MRFC are described together with those for the conferencing AS in subclause 7.2.3.

7.2.3 Conferencing Application Server (Conferencing AS)

As the function split between the conferencing AS and the MRFC is out of scope of the present document, only the procedures are described for a combined conferencing AS and MRFC. The AS and MRFC may either be collocated, or interoperate using a proprietary protocol and a proprietary functional split.

For the purpose of SIP-based conferences, the conferencing AS/MRFC shall act as a Conference Policy Server (CPS), as described in subclause 7.3.2.

[The conferencing AS/MRFC shall act as a notifier of conference policy changes as described in subclause 5.3.5.](#)

The conferencing AS/MRFC may implement the role of a privileged user as described in subclause 7.3.1.

If there is no authentication proxy in the network, then the conferencing AS/MRFC shall:

- implement the role of a network application function, as described in 3GPP TS 24.109 [25];
- support HTTP digest authentication and certificate authentication; and
- implement TLS (see RFC 2246 [26]).

Editor's Note: It needs to be clarified what physical entities can contain the Authentication Proxy and its relationship with the IMS architecture. Documentation for the case of a separate authentication proxy may need to be provided.

3GPP TSG-CN1 Meeting #36
Seoul, Korea, 15-19 November 2004

Tdoc N1-041983

CR-Form-v7.1	
<h2 style="margin: 0;">CHANGE REQUEST</h2>	
⌘ 24.147 CR 13 ⌘ rev 1 ⌘	Current version: 6.0.0 ⌘

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:	⌘ Correction of BFCP clause		
Source:	⌘ Infineon Technologies		
Work item code:	⌘ IMS2	Date:	⌘ 05/11/2004
Category:	⌘ F	Release:	⌘ Rel-6
	<i>Use <u>one</u> of the following categories:</i> 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 .		<i>Use <u>one</u> of the following releases:</i> Ph2 (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) Rel-7 (Release 7)

Reason for change:	⌘ Alignment with draft-ietf-xcon-bfcp-02		
Summary of change:	⌘ <ol style="list-style-type: none"> 1. Update of References and Definitions 2. In chapters describing floor control roles the document draft-ietf-xcon-bfcp-02 is referenced instead of having lists for supported operations of respective roles 3. References for discovering the IP address to be used in the TCP transport are deleted 		
Consequences if not approved:	⌘ Inconsistency between BFCP part of TS24.147 and BFCP as defined by IETF		

Clauses affected:	⌘ 2, 3, 6, 8, 8.2, 8.2.1, 8.2.2, 8.3.1, 8.3.2, 8.3.3										
Other specs affected:	<table border="1" style="display: inline-table; border-collapse: collapse; text-align: center;"> <tr> <td style="padding: 2px;">Y</td> <td style="padding: 2px;">N</td> </tr> <tr> <td style="padding: 2px;"><input type="checkbox"/></td> <td style="padding: 2px;"><input checked="" type="checkbox"/></td> </tr> <tr> <td style="padding: 2px;"><input type="checkbox"/></td> <td style="padding: 2px;"><input checked="" type="checkbox"/></td> </tr> <tr> <td style="padding: 2px;"><input type="checkbox"/></td> <td style="padding: 2px;"><input checked="" type="checkbox"/></td> </tr> </table>	Y	N	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Other core specifications Test specifications O&M Specifications	⌘
Y	N										
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<input type="checkbox"/>	<input checked="" type="checkbox"/>										
Other comments:	⌘										

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----- FIRST CHANGE -----

2 References

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- [8] draft-ietf-sipping-conferencing-framework-01 (October 2003): "A Framework for Conferencing with the Session Initiation Protocol".

Editor's note: The above document cannot be formally referenced until it is published as an RFC.

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- [11] draft-ietf-sipping-conference-package-03 (February 2004): "A Session Initiation Protocol (SIP) Event Package for Conference State".

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- [14] IETF RFC 3325 (November 2002): "Private Extensions to the Session Initiation Protocol (SIP) for Asserted Identity within Trusted Networks".
- [15] 3GPP TS 29.208: "End to end Quality of Service (QoS) signalling flows".
- [16] IETF RFC 2833 (May 2000): "RTP Payload for DTMF Digits, Telephony Tones and Telephony Signals".
- [17] IETF RFC 3515 (April 2003): "The Session Initiation Protocol (SIP) Refer Method".
- [18] 3GPP TS 22.141: "Presence service; Stage 1".
- [19] draft-ietf-sip-callee-caps-03 (December 2003): "Indicating User Agent Capabilities in the Session Initiation Protocol (SIP)".

Editor's note: The above document cannot be formally referenced until it is published as an RFC.

- [20] draft-ietf-sip-referredby-05 (March 2004): "The SIP Referred-By Mechanism".

Editor's note: The above document cannot be formally referenced until it is published as an RFC.

- [21] IETF RFC 2616 (June 1999): "Hypertext Transfer Protocol - HTTP/1.1".
- [22] draft-ietf-simple-xcap-02 (February 2004): "The Extensible Markup Language (XML) Configuration Access Protocol (XCAP)".

Editor's note: The above document cannot be formally referenced until it is published as an RFC.

- [23] draft-ietf-xcon-cpcp-xcap-00 (April 2004): "The Conference Policy Control Protocol (CPCP)".

Editor's note: The above document cannot be formally referenced until it is published as an RFC.

- [24] 3GPP TS 33.141: "Presence service; Security".
- [25] 3GPP TS 24.109: "Bootstrapping interface (Ub) and Network application function interface (Ua); Protocol details".
- [26] IETF RFC 2246 (January 1999): "The TLS Protocol Version 1.0".
- [27] IETF RFC 3310 (September 2002): "Hypertext Transfer Protocol (HTTP) Digest Authentication Using Authentication and Key Agreement (AKA)".
- [28] draft-ietf-xcon-bfcp-029 (July-October 2004): "The Binary Floor Control Protocol (BFCP)".

Editor's note: The above document cannot be formally referenced until it is published as an RFC.

3 Definitions, symbols and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in 3GPP TS 21.905 [1], 3GPP TS 22.141 [2] and the following apply:

Conferencing AS: an Application Server that supports functionality specific to a SIP conference focus

The following terms and definitions given in 3GPP TS 23.228 [2] apply (unless otherwise specified):

**Public Service Identity
Three-way session**

For the purposes of the present document, the following terms and definitions given in 3GPP TS 23.228 [7] subclauses 4.3.3.1 and 4.6 apply:

IP-Connectivity Access Network (IP-CAN)

The following terms and definitions given in draft-ietf-sipping-conferencing-framework [8] apply (unless otherwise specified):

Conference
Conference-Aware Participant
Conference notification service
Conference Policy
Conference Policy Control Protocol
Conference Policy Server (CPS)
Conference-Unaware Participant
Conference URI
Focus
Media Policy
Media policy server
Membership Policy
Mixer
Participant
Tightly Coupled Conference

The following terms and definitions given in draft-ietf-sipping-cc-conferencing [9] apply (unless otherwise specified):

Conference Factory URI

For the purposes of the present document, the following terms and definitions given in draft-ietf-sip-callee-caps [19] apply:

Feature parameter

For the purposes of the present document, the following terms and definitions given in 3GPP TS 23.002 [2] subclauses 4.1.1.1 and 4a.7 apply:

Call Session Control Function (CSCF)
Home Subscriber Server (HSS)
Media Gateway Control Function (MGCF)
Multimedia Resource Function Controller (MRFC)
Multimedia Resource Function Processor (MRFP)

For the purposes of the present document, the following terms and definitions given in 3GPP TS 23.218 [5] subclause 3.1 apply:

Filter criteria
Initial filter criteria
Initial request
Subsequent request

For the purposes of the present document, the following terms and definitions given in 3GPP TS 23.228 [7] subclauses 4.3.3.1 and 4.6 apply:

Interrogating-CSCF (I-CSCF)
Policy Decision Function (PDF)
Proxy-CSCF (P-CSCF)
Public user identity
Serving-CSCF (S-CSCF)

For the purposes of the present document, the following terms and definitions given in 3GPP TR 21.905 [1] apply:

User Equipment (UE)

For the purposes of the present document, the following terms and definitions given in draft-ietf-xcon-cpcp-xcap [23] apply:

Access Control List (ACL)

Dial-Out List (DL)

Privileged User

For the purposes of the present document, the following terms and definitions given in 3GPP TS 33.141 [24] subclause 3.1 apply:

Authentication Proxy

For the purposes of the present document, the following terms and definitions given in draft-ietf-xcon-bfcp [28] apply:

Floor

Floor chair

Floor control server

Floor participant

~~Editor's note: A definition of floor participant needs to be defined for the procedures on floor control, but this needs to be resolved first in draft-ietf-xcon-bfcp, which currently uses the term client, which differs from the IETF requirements draft.~~

----- **SECOND CHANGE (NEU)** -----

6 Protocol using SDP for conferencing

~~Editor's note: The usage of SDP for floor control ~~to create floors~~ is under study in IETF. If the mechanisms are defined and if they are suitable for IMS conferencing, then their usage needs to be ~~added~~ described in ~~to~~ this clause.~~

6.1 Introduction

Void

----- **THIRD CHANGE** -----

8 Protocol for floor control for conferencing

Editor's Note: BFCP requires message integrity protection and authentication that is based on a shared secret between the floor participant / floor chair and the floor control server. The generation of such a shared secret needs to be described and a reference to the corresponding specification needs to be added to this clause.

8.1 Introduction

Support of floor control is optional for participants and MRFP.

8.2 Functional entities

8.2.1 User Equipment (UE)

A UE may support the floor participant (see subclause 8.3.1) or floor chair role (see subclause 8.3.2). A floor chair may, but needs not ~~to~~ be a floor participant.

8.2.2 Media Resource Function Processor (MRFP)

An MRFP may support the floor control server role (see subclause 8.3.~~3~~⁴), the floor chair role (see subclause 8.3.2), or the floor participant role (see subclause 8.3.~~1~~³).

8.3 Role

8.3.1 Floor participant

The floor participant shall support [general client operations and floor participant operations as described in](#) ~~use~~ draft-ietf-xcon-bfcp [248].~~to:~~

- ~~—request a floor;~~
- ~~—release the floor;~~
- ~~—get the status of the floor.~~

BFCP messages shall be sent on any IP-CAN transport used for media in accordance with subclause 9.2.2 of 3GPP TS.24.229 [5].

~~The IP address to be used in the TCP transport shall be discovered in accordance with draft-ietf-xcon-bfcp [24].~~

~~Editor's Note: It needs to be investigated if further text is needed that describes the discovery of parameters needed to operate according to draft-ietf-xcon-bfcp [28]. These parameters include the transport address of the floor control server, the conference identifier, the user identifier, floor identifier and their association with media streams and the shared secret that is needed for mutual authentication and BFCP message integrity protection.~~

8.3.2 Floor chair

The floor chair shall support [client operations and floor chair operations as described in](#) draft-ietf-xcon-bfcp [284].~~to:~~

- ~~—grant the floor;~~
- ~~—revoke the floor;~~
- ~~—get the status of the floor.~~

BFCP messages shall be sent on any IP-CAN transport used for media in accordance with subclause 9.2.2 of 3GPP TS.24.229 [5].

~~The IP address to be used in the TCP transport shall be discovered in accordance with draft-ietf-xcon-bfcp [24].~~

~~Editor's Note: It needs to be investigated if further text is needed that describes the discovery of parameters needed to operate according to draft-ietf-xcon-bfcp [28]. These parameters include the transport address of the floor control server, the conference identifier, the user identifier, floor identifier and their association with media streams and the shared secret that is needed for mutual authentication and BFCP message integrity protection.~~

8.3.3 Floor control server

The floor control server shall support [floor control server operations as described in draft-ietf-xcon-bfcp \[284\]](#).~~to:~~

~~—manage requests for the floor;~~

~~—allow the interaction between the floor chair and floor participant.~~

~~The IP address to be used in the TCP transport shall be discovered in accordance with draft-ietf-xcon-bfcp [24], from the conference server.~~

NOTE: It is out of scope of this version of the document how the floor control server discovers the floor control policy of the conference, and how the floor control server manipulates the media policy of the conference due to changes in the status of any floor.

CR-Form-v7.1

CHANGE REQUEST

⌘ **24.147 CR 16** ⌘ rev **1** ⌘ Current version: **6.0.0** ⌘

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:	⌘ Correction Flow Adding a user to the conference with CPCP		
Source:	⌘ Siemens		
Work item code:	⌘ IMS2	Date:	⌘ 16/11/2004
Category:	⌘ F	Release:	⌘ Rel-6
	<i>Use <u>one</u> of the following categories:</i> 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 .		<i>Use <u>one</u> of the following releases:</i> Ph2 (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) Rel-7 (Release 7)

Reason for change:	⌘ The coding of the conference policy XML document has changed with draft-ietf-xcon-cpcp.
Summary of change:	⌘ Apply the changes as of draft-ietf-xcon-cpcp to the flows. ACL concept is substituted with conditons concept. Dialout-list coding changed
Consequences if not approved:	⌘ IMS conferencing not aligned with IETF drafts on CPCP.

Clauses affected:	⌘ A.4.6.1, A.4.6.2, A.4.7										
Other specs affected:	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;"> </td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;"> </td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;"> </td> <td style="text-align: center;">X</td> </tr> </table> Other core specifications	Y	N		X		X		X	⌘	
Y	N										
	X										
	X										
	X										
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.

A.4.6 Adding a user to a conference with CPCP

A.4.6.1 ~~Adding a user to the access control list with~~ Allowing a user to join the conference with CPCP

Figure A.4.6.1 shows a user ~~adding an user to the access control list (ACL) of a conference~~ changing an <authorization-rules> element so that an additional user is allowed to join the conference.

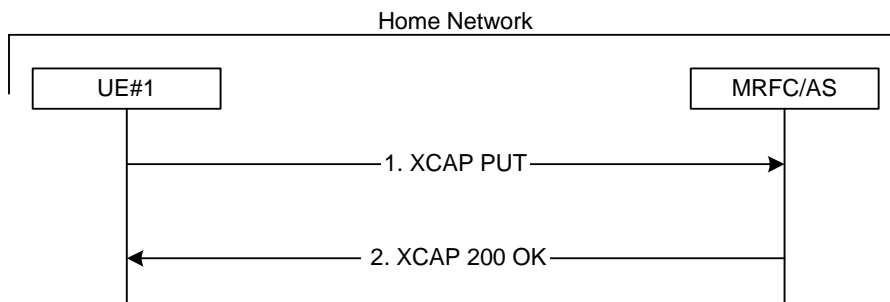


Figure A.4.6.1: User adding another user to the ACL of a conference with CPCP

The details of the flows are as follows:

1. XCAP PUT request (UE to MRFC/AS) - see example in table A.4.6.1-1

A user wants to allow a new user to join a conference. For this purpose the UE creates a XCAP document for CPCP. The UE includes ~~all parameters, that the user has set for the conference~~ the id of the new allowed user in the conditions element of the XCAP document and sends it to the MRFC/AS in a XCAP PUT request. The flow assumes an conference -policy document as created in subclause A.3.6 exists on the MRFC/AS.

Table A.4.6.1-1: XCAP PUT request (UE to MRFC/AS)

```

PUT http://xcap.home1.net/services/conference-policy/users/user1_public1/
conference.xml?/~~/ conference/authorization-rules/rule[@id="1"]/conditions/identity
HTTP/1.1 Confereceel/ACL/ACL-target-URI-HTTP/1.1
Content-Type:text/plain

<del>ACL-target-URI-Access-type="Allowed">sip:user4_public1@home4.net</del>
<conditions>
  <identity>
    <domain>home1.net</domain>
    <id>sip:atle@home2.net</id>
  </identity>
</conditions>
    
```

~~Editor's Note: The Content Type needs to be updated due to changes in draft-ietf-xcon-cpcp-xcap [23].~~

2. XCAP 200 (OK) response (MRFC/AS to UE)

The MRFC/AS returns a XCAP 200 (OK) response to the UE, indicating that the received XCAP PUT request and its content have been successfully processed.

A.4.6.2 Adding a user to the dial-out list with CPCP

Figure A.4.6.2 shows a user adding an user to the dial-out list (DL) of a conference.

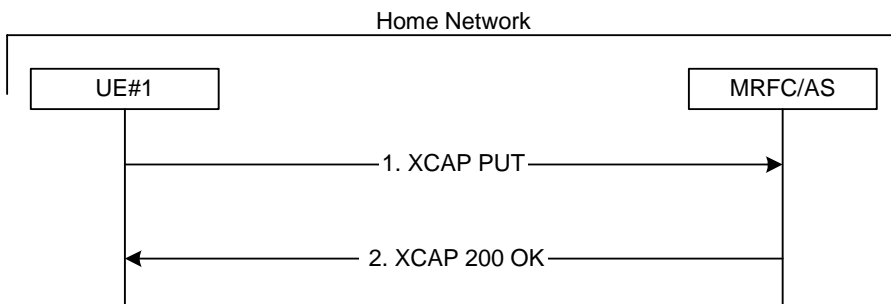


Figure A.4.6.2: User adding another user to the DL of a conference with CPCP

The details of the flows are as follows:

1. XCAP PUT request (UE to MRFC/AS) - see example in table A.4.6.2-1

A user wants the MRFC/AS to send a SIP INVITE request to ~~a~~ another user. For this purpose the UE creates a XCAP document for CPCP. The UE includes ~~all parameters~~ the additional input to the dialout-list, that the user has set for the conference in the XCAP document and sends it to the MRFC/AS in a XCAP PUT request. The flow assumes an conference-policy document as created in subclause A.3.6 exists on the MRFC/AS.

Table A.4.6.2-1: XCAP PUT request (UE to MRFC/AS)

```

PUT http://xcap.home1.net/services/conference-policy/users/user1_public1/
conference.xml?/~/Conference1conference/DLdialout-list/DL-target-URItarget--uri
HTTP/1.1
Content-Type:text/plain

<DL-target-URI>sip:user5_public1@home5.net</DL-target-URI>
<dialout-list>
  <target uri="sip:hannu@home1.net"/>
</dialout-list>
    
```

~~Editor's Note: The Content Type needs to be updated due to changes in draft-ietf-xeon-cpcp-xcap [23].~~

2. XCAP 200 (OK) response (MRFC/AS to UE)

The MRFC/AS returns a XCAP 200 (OK) response to the UE, indicating that the received XCAP PUT request and its content have been successfully processed.

A.4.7 Inviting a user to a conference with CPCP

The signalling flow for inviting a user to a conference by means of CPCP is basically identical to the signalling flow for adding a user to the ~~ACL~~DL, as described in subclause A.4.6.12. In this case, the ~~<ACL-target-uri> element~~ additionally contains a Refer sub element that is set to the value "true" inviting user will include the referred user in a <refer-list> element instead of a <dialout-list> element.

CR-Form-v7.1

CHANGE REQUEST

⌘ **24.147 CR 17** ⌘ rev **1** ⌘ Current version: **6.0.0** ⌘

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:	⌘ Correction - Flow "conference creation with CPCP"		
Source:	⌘ Siemens		
Work item code:	⌘ IMS2	Date:	⌘ 16/11/2004
Category:	⌘ F	Release:	⌘ Rel-6
	Use <u>one</u> 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 <u>one</u> of the following releases: Ph2 (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) Rel-7 (Release 7)

Reason for change:	⌘ CPCP underwent a major change that resulted in a modified CPCP policy XML document as of draft-ietf-xcon-cpcp..		
Summary of change:	⌘ Introduce the changes from draft-ietf-xcon-cpcp to the cpcp conference policy document into the flow. Correction of Figure A.3.6 as this figure does not show the challenge/response for authentication/authorization		
Consequences if not approved:	⌘ IMS conferencing not aligned with IETF. Implementations will not be compliant with IETF		

Clauses affected:	⌘ A.3.6										
Other specs affected:	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="text-align: center;">Y</td> <td style="text-align: center;">N</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> </table>	Y	N	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Other core specifications Test specifications O&M Specifications	⌘
Y	N										
<input type="checkbox"/>	<input checked="" type="checkbox"/>										
<input type="checkbox"/>	<input checked="" type="checkbox"/>										
<input type="checkbox"/>	<input checked="" type="checkbox"/>										
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.

A.3.6 Conference creation with CPCP

Figure A.3.6 shows an user creating a conference by CPCP. The conference is created at a MRFC/AS of the users home network. The flow assumes that the AS within the MRFC/AS implements a NAF role. The security is based on HTTP Digest Authentication with bootstrapped security association.

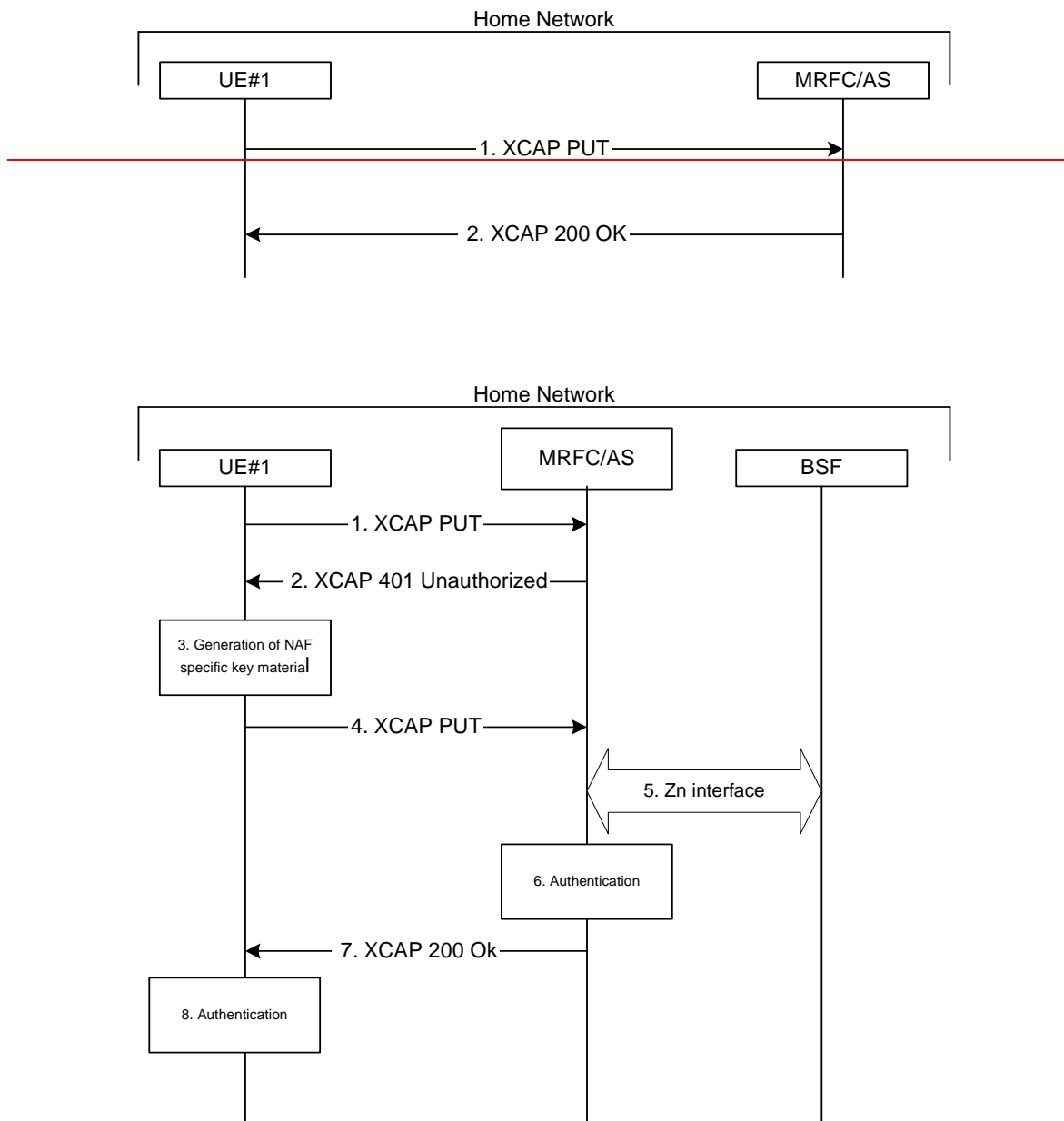


Figure A.3.6: User creating a conference with CPCP

The details of the flows are as follows:

1. XCAP PUT request (UE to MRFC/AS) - see example in table A.3.6-1

A user wants to create a conference. For this purpose the UE creates a [conference policy XML](#) XCAP document [by using for](#) CPCP. The UE includes all parameters, that the user has set for the conference in the XCAP document and sends it to the MRFC/AS in a XCAP PUT request.

Table A.3.6-1: XCAP PUT request (UE to MRFC/AS)

```

PUT http://xcap.homel.net/services/conference-policy/users/user1_public1/conference.xml
HTTP/1.1
Host:xcap.homel.net
User-Agent: NAF1 Application Agent; Release-6 3gpp-gba
Date: Thu, 08 Jan 2004 10:50:33 GMT
Content-Type:application/conference-policy+xml

<?xml version="1.0" encoding="US-ASCII"?>
<Conference xmlns="urn:ietf:params:xml:ns:conference-policy"
  xmlns:conference-mp="urn:ietf:params:xml:ns:conference-mp"
  xmlns:conference-fp="urn:ietf:params:xml:ns:conference-fp"
  xmlns:conference-se="urn:ietf:params:xml:ns:conference-se"
  xmlns:conference-dl="urn:ietf:params:xml:ns:conference-dl"
  xmlns:conference-pcl="urn:ietf:params:xml:ns:conference-pcl"
  xmlns:conference-acl="urn:ietf:params:xml:ns:conference-acl"
  xmlns:conference-time="urn:ietf:params:xml:ns:conference-time"
  xmlns:conference-info="urn:ietf:params:xml:ns:conference-info"
  xmlns:conference-settings="urn:ietf:params:xml:ns:conference-settings">
  <conference-settings:Conference-settings>
    <conference-uri:Conference-URI></conference-uri:Conference-URI>
    <Max-participant-count>23</Max-participant-count>
  </conference-settings:Conference-settings>
  <conference-info:Conference-info lang="en">
    <Subject>Good Advise</Subject>
    <Display-name>What you really need</Display-name>
    <Free-text>Read the directions, even if you don't follow them</Free-text>
    <Keywords>Mary Schmich</Keywords>
    <Host-info>
      <SIP-URI>sip:user1_public1@homel.net</SIP-URI>
      <TEL-URI>tel:+358504821437</TEL-URI>
      <E-mail>mailto:user1_public1@homel.net</E-mail>
      <Web-page>http://www.homel.net/users/user1_public1</Web-page>
    </Host-info>
  </conference-info:Conference-info>
  <conference-time:Conference-time>
    <Conference-occurrence>
      <Start-time>2004-04-01T09:00:00Z</Start-time>
      <Stop-time>2004-04-01T18:30:00Z</Stop-time>
    </Conference-occurrence>
  </conference-time:Conference-time>
  <conference-acl:ACL>
    <ACL-target-URI Access-type="Allowed">sip:*@homel.net</ACL-target-URI>
    <ACL-target-URI Access-type="Allowed">sip:*@home2.net</ACL-target-URI>
    <ACL-target-URI Access-type="Allowed">sip:*@home3.net</ACL-target-URI>
    <ACL-target-URI Access-type="Blocked">sip:*@unwanted.net</ACL-target-URI>
  </conference-acl:ACL>
  <conference-pcl:PCL>
    <PCL-target>
      <PCL-target-URI>sip:*@homel.net</PCL-target-URI>
      <Privileges>RIGHT_TO_SUBSCRIBE_TO_CONF_EVENT_PACKAGE</Privileges>
    </PCL-target>
    <PCL-target>
      <PCL-target-URI>sip:*@home2.net</PCL-target-URI>
      <Privileges>RIGHT_TO_SUBSCRIBE_TO_CONF_EVENT_PACKAGE</Privileges>
    </PCL-target>
    <PCL-target>
      <PCL-target-URI>sip:user3_public1@home3.net</PCL-target-URI>
      <Privileges>RIGHT_TO_SUBSCRIBE_TO_CONF_EVENT_PACKAGE</Privileges>
    </PCL-target>
  </conference-pcl:PCL>
  <conference-dl:DL>
    <DL-target>
      <DL-target-URI>sip:user2_public1@home2.net</DL-target-URI>
    </DL-target>
  </conference-dl:DL>
</Conference>

```

```

PUT http://xcap.homel.net/services/conference-policy/users/user1_public1/conference.xml
HTTP/1.1
Host:xcap.homel.net
User-Agent: NAF1 Application Agent; Release-6 3gpp-gba
Date: Thu, 08 Jan 2004 10:50:33 GMT
Content-Type:application/conference-policy+xml

<?xml version="1.0" encoding="US-ASCII"?>
<conference xmlns="urn:ietf:params:xml:ns:conference-policy"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <setting>
    <conference-uri></conference-uri>
    <max-participant-count>23</max-participant-count>
  </settings>
  <info xml:lang="en-us">
    <subject>Good Advise</subject>
    <display-name>What you really need</display-name>
    <free-text>Let's have a party</free-text>
    <keywords>beer party</keywords>
    <host-info>
      <uri>sip:user1_public1@homel.net</uri>
      <uri>tel:+358504821437</uri>
      <e-mail>mailto:user1_public1@homel.net</e-mail>
      <web-page>http://www.homel.net/users/user1_public1</web-page>
    </host-info>
  </info>
  <time:>
    <occurrence>
      <mixing-start-time required-participant="none">2004-04-01T09:00:00Z</mixing-start-
time>
      <mixing-stop required-participant="none"-time>2004-04-01T18:30:00Z</mixing-stop-
time>
    </occurrence>
  </time>
  <authorization-rules>
    <rule id="1">
      <conditions>
        <identity>
          <domain>homel.com</domain>
        </identity>
      <conditions>
        <actions>
          <allow-conference-state>true</allow-conference-state>
          <join-handling>allow</join-handling>
        </actions>
      <transformations/>
    </rule>
    <rule id="2">
      <conditions>
        <identity>
          <id>sip:user1_public1@homel.net</id >
        </identity>
      <conditions>
        </actions>
      <transformations>
        <is-key-participant>true</is-key-participant>
      <transformations/>
    </rule>
  </authorization-rules>
  <dialout-list>
    <target uri="sip:Holger@homel.net"/>
    <target uri="sip:Georg@homel.net"/>
  </dialout-list>
  <refer-list>
    <target uri="sip:Peter@homel.net">
  </refer-list>
  <media-streams>
    <audio/>
  </media-streams>
</conference>

```

2. XCAP 401 (Unauthorized) response (MRFC/AS to UE)

Upon receiving an unauthorized XCAP PUT the MRFC/AS implementing the NAF chooses to authenticate the UE using bootstrapped security association.

Table A.3.6-2: 401 Unauthorized response (NAF to UE)

```
HTTP/1.1 401 Unauthorized
Server: Apache/1.3.22 (Unix) mod_perl/1.27
Date: Thu, 08 Jan 2004 10:50:35 GMT
WWW-Authenticate: Digest realm="3GPP-bootstrapping@xcap.homel.net",
  nonce="6629fae49393a05397450978507c4ef1", algorithm=MD5, qop="auth,auth-int",
  opaque="5ccc069c403ebaf9f0171e9517f30e41"
```

WWW-Authenticate: The NAF challenges the user. The header instructs the UE to use HTTP Digest Authentication with a bootstrapped security association.

3. Generation of NAF specific keys at UE

UE shall verify that the second part of the realm attribute does correspond to the server it is talking to UE derives the NAF specific key material Ks_{NAF} as specified in 3GPP TS 33.220 [1].

NOTE: If UE does not have a bootstrapped security association available, it will obtain one by running bootstrapping procedure over Ub interface.

4. XCAP PUT request (UE to MRFC/AS) - see example in table A.3.6.2-4

UE generates the XCAP request by calculating the Authorization header values using the bootstrapping transaction identifier B-TID (base64 encoded) it received from the BSF as the username and the NAF specific key material Ks_{NAF} (base64 encoded) as the password, and sends the request to NAF.

Table A.3.6-4: XCAP PUT request (UE to MRFC/AS)

```
PUT /services/conference-policy/users/user1_public1/conference.xml HTTP/1.1
Host:xcap.homel.net
Date: Thu, 08 Jan 2004 10:50:37 GMT
User-Agent: NAF1 Application Agent; Release-6 3gpp-gba
Authorization: Digest username="base64(B-TID)", realm="3GPP-bootstrapping@xcap.homel.net",
  nonce="a6332ffd2d234==", uri="/", qop=auth-int, nc=00000001,
  cnonce="6629fae49393a05397450978507c4ef1", response="6629fae49393a05397450978507c4ef1,
  opaque="5ccc069c403ebaf9f0171e9517f30e41", algorithm=MD5
Content-Type:application/conference-policy+xml
```



```

<?xml version="1.0" encoding="US-ASCII"?>
<conference xmlns="urn:ietf:params:xml:ns:conference-policy"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <setting>
    <conference-uri ></conference-uri >
    <max-participant-count>23</max-participant-count>
  </settings>
  <info xml:lang="en-us">
    <subject>Good Advise</subject>
    <display-name>What you really need</display-name>
    <free-text>Let's have a party</free-text>
    <keywords>beer party</keywords>
    <host-info>
      <uri>sip:user1_public1@home1.net</uri>
      <uri>tel:+358504821437</uri>
      <e-mail>mailto:user1_public1@home1.net</e-mail>
      <web-page>http://www.home1.net/users/user1_public1</web-page>
    </host-info>
  </info>
  <time:>
    <occurrence>
      <mixing-start-time required-participant="none">2004-04-01T09:00:00Z</mixing-start-
      time>
      <mixing-stop required-participant="none"-time>2004-04-01T18:30:00Z</mixing-stop-
      time>
    </occurrence>
  </time>
  <authorization-rules>
    <rule id="1">
      <conditions>
        <identity>
          <domain>home1.com</domain>
        </identity>
      </conditions>
      <actions>
        <allow-conference-state>>true</allow-conference-state>
        <join-handling>allow</join-handling>
      </actions>
      <transformations/>
    </rule>
    <rule id="2">
      <conditions>
        <identity>
          <id>sip:user1_public1@home1.net</id >
        </identity>
      </conditions>
      </actions>
      <transformations>
        <is-key-participant>true</is-key-participant>
      </transformations/>
    </rule>
  </authorization-rules>
  <dialout-list>
    <target uri="sip:Holger@home1.net"/>
    <target uri="sip:Georg@home1.net"/>
  </dialout-list>
  <refer-list>
    <target uri="sip:Peter@home1.net">
  </refer-list>
  <media-streams>
    <audio/>
  </media-streams>
</conference>
<?xml version="1.0" encoding="US-ASCII"?>
<Conference xmlns="urn:ietf:params:xml:ns:conference-policy"
  xmlns:conference-mp="urn:ietf:params:xml:ns:conference-mp"
  xmlns:conference-fp="urn:ietf:params:xml:ns:conference-fp"
  xmlns:conference-sc="urn:ietf:params:xml:ns:conference-sc"
  xmlns:conference-dl="urn:ietf:params:xml:ns:conference-dl"
  xmlns:conference-pel="urn:ietf:params:xml:ns:conference-pel"
  xmlns:conference-acl="urn:ietf:params:xml:ns:conference-acl"
  xmlns:conference-time="urn:ietf:params:xml:ns:conference-time"
  xmlns:conference-info="urn:ietf:params:xml:ns:conference-info"
  xmlns:conference-settings="urn:ietf:params:xml:ns:conference-settings">
  <conference-settings:Conference-settings>
    <conference-uri:Conference-URI></conference-uri:Conference-URI>
    <Max-participant-count>23</Max-participant-count>
  </conference-settings:Conference-settings>

```

```

<conference-info:Conference-info lang="en">
  <Subject>Good Advise</Subject>
  <Display name>What you really need</Display name>
  <Free text>Read the directions, even if you don't follow them</Free text>
  <Keywords>Mary Schmich</Keywords>
  <Host-info>
    <SIP-URI>sip:user1_public1@home1.net</SIP-URI>
    <TEL-URI>tel:+358504821437</TEL-URI>
    <E-mail>mailto:user1_public1@home1.net</E-mail>
    <Web-page>http://www.home1.net/users/user1_public1</Web-page>
  </Host-info>
</conference-info:Conference-info>
<conference-time:Conference-time>
  <Conference-occurrence>
    <Start-time>2004-04-01T09:00:00Z</Start-time>
    <Stop-time>2004-04-01T18:30:00Z</Stop-time>
  </Conference-occurrence>
</conference-time:Conference-time>
<conference-acl:ACL>
  <ACL-target-URI Access-type="Allowed">sip:*@home1.net</ACL-target-URI>
  <ACL-target-URI Access-type="Allowed">sip:*@home2.net</ACL-target-URI>
  <ACL-target-URI Access-type="Allowed">sip:*@home3.net</ACL-target-URI>
  <ACL-target-URI Access-type="Blocked">sip:*@unwanted.net</ACL-target-URI>
</conference-acl:ACL>
<conference-pcl:PCL>
  <PCL-target>
    <PCL-target-URI>sip:*@home1.net</PCL-target-URI>
    <Privileges>RIGHT_TO_SUBSCRIBE_TO_CONF_EVENT_PACKAGE</Privileges>
  </PCL-target>
  <PCL-target>
    <PCL-target-URI>sip:*@home2.net</PCL-target-URI>
    <Privileges>RIGHT_TO_SUBSCRIBE_TO_CONF_EVENT_PACKAGE</Privileges>
  </PCL-target>
  <PCL-target>
    <PCL-target-URI>sip:user3_public1@home3.net</PCL-target-URI>
    <Privileges>RIGHT_TO_SUBSCRIBE_TO_CONF_EVENT_PACKAGE</Privileges>
  </PCL-target>
</conference-pcl:PCL>
<conference-dl:DL>
  <DL-target>
    <DL-target-URI>sip:user2_public1@home2.net</DL-target-URI>
  </DL-target>
</conference-dl:DL>
</Conference>

```

Authorization: This carries the response to the authentication challenge received in step 2 along with the username, the realm, the nonce, the URI, the qop, the NC, the cnonce, the response, the opaque, and the algorithm.

5. Zn: NAF specific key procedure

6. Authentication at NAF

MRFC/AS implementing NAF verifies the Authorization header by using the bootstrapping transaction identifier B-TID and the key material Ks_NAF obtained from BSF. NAF calculates the corresponding digest values using Ks_NAF, and compares the calculated values with the received values in the Authorization header. For details see 3GPP TS 24.109 [25].

7. 200 OK response (MRFC/AS to UE) - see example in table A.3.6.2-7

Table A.3.6-7: 200 OK response (MRFC/AS to UE)

```

HTTP/1.1 200 OK
Server: Apache/1.3.22 (Unix) mod_perl/1.27Content-Type: text/html
Authentication-Info: qop=auth-int, rspauth="6629fae49394a05397450978507c4ef1",
  cnonce="6629fae49393a05397450978507c4ef1", nc=00000001
Date: Thu, 08 Jan 2004 10:50:39 GMT
Expires: Fri, 09 Jan 2004 10:50:40 GMT

```

8. **Authentication at UE**

CR-Form-v7.1

CHANGE REQUEST

⌘ **24.147 CR 18** ⌘ rev **1** ⌘ Current version: **6.0.0** ⌘

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:	⌘ Correction expelling/terminating flow using CPCP		
Source:	⌘ Siemens		
Work item code:	⌘ IMS2	Date:	⌘ 16/11/2004
Category:	⌘ F	Release:	⌘ Rel-6
	<i>Use <u>one</u> of the following categories:</i> 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 .		<i>Use <u>one</u> of the following releases:</i> Ph2 (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) Rel-7 (Release 7)

Reason for change:	⌘ The coding of the conference policy XML document has changed with draft-ietf-xcon-cpcp
Summary of change:	⌘ ACL element is replaced by mechanism using <conditions> Correct URI in the flow for terminating the conference using CPCP
Consequences if not approved:	⌘ IMS conferencing not aligned with IETF

Clauses affected:	⌘ A.6.5, A.7.2						
Other specs affected:	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> </table> Other core specifications	Y	N	<input type="checkbox"/>	<input checked="" type="checkbox"/>	⌘	
Y	N						
<input type="checkbox"/>	<input checked="" type="checkbox"/>						
	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> </table> Test specifications	Y	N	<input checked="" type="checkbox"/>	<input type="checkbox"/>	⌘	
Y	N						
<input checked="" type="checkbox"/>	<input type="checkbox"/>						
	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> </table> O&M Specifications	Y	N	<input checked="" type="checkbox"/>	<input type="checkbox"/>	⌘	
Y	N						
<input checked="" type="checkbox"/>	<input type="checkbox"/>						
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.

*** 1st change ***

A.6.5 Expelling a conference participant from a conference with CPCP

Figure A.6.5 shows an user expelling an conference participant from a conference.

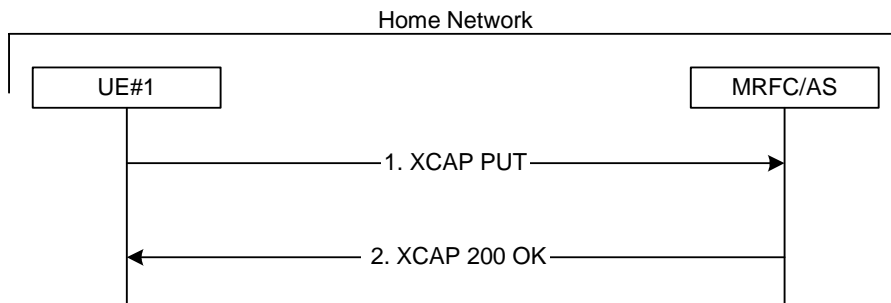


Figure A.6.5: User expelling a conference user from a conference with CPCP

The details of the flows are as follows:

1. XCAP PUT request (UE to MRFC/AS) - see example in table A.6.5-1

A user wants to expel a conference participant from a conference. For this purpose the UE creates a XCAP document for CPCP. The UE includes ~~all parameters, that the user has set for the conference in the XCAP an~~ [<except> element in the <conditions> element document](#) and sends it to the MRFC/AS in a HTTP XCAP request. [The flow assumes a conference-policy document as created in sub-clause A.3.6 exists on the MRFC/AS.](#)

Table A.6.5-1: XCAP PUT request (UE to MRFC/AS)

```

PUT http://xcap.home1.net/services/conferences/users/user1_public1/
conference.xml/~/conference/authorization-rules/rule[id="1"]/conditions/identity
HTTP/1.1?Conference1/ACL/ACL-target-URI-HTTP/1.1
Content-Type: application/conference-policy+xmltext/plain

<ACL-target-URI-Access-type="Expelled">sip:user3_public1@home3.net</ACL-target-URI>
<identity>
  <domain>home1.net</domain>
  <except>keith@home1.net</except>
</identity>
    
```

~~Editor's Note: The Content Type needs to be updated due to changes in draft ietf-xcap-cpcp-xcap [23].~~

2. XCAP 200 (OK) response (MRFC/AS to UE)

The MRFC/AS returns a XCAP 200 (OK) response to the UE, indicating that the received XCAP PUT request and its content have been successfully processed.

Afterwards the MRFC/AS will drop the indicated conference participant. An example signalling flow for the MRFC/AS dropping a user from a conference can be found in subclause A.6.4.

*** next change ***

A.7 Flows demonstrating conference termination

A.7.1 General

The SIP based flows for conference termination look identical to the call flows for a user leaving a conference (see subclause A.6.2) / a user being removed from a conference (see subclause A.6.4). The termination of the conference itself, after the last user has left / has been removed from the conference does not result in any exchange of SIP messages, but can be done with CPCP as shown in subclause 7.2.

A.7.2 Conference termination with CPCP

Figure A.7.2 shows a user terminating a conference with CPCP.

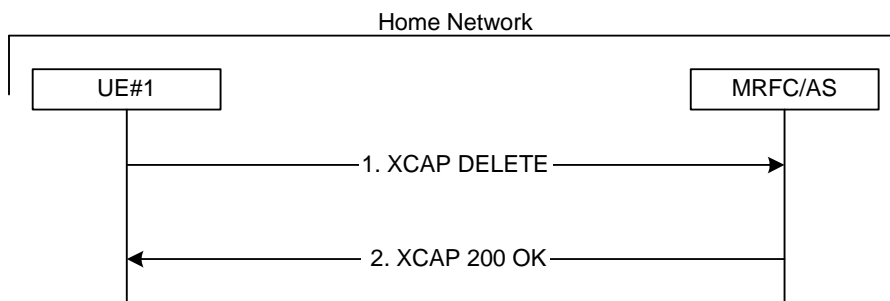


Figure A.7.2: User terminating a conference with CPCP

The details of the flows are as follows:

1. XCAP DELETE request (UE to MRFC/AS) - see example in table A.7.2-1

A user wants to terminate a conference. For this purpose the UE creates and sends to the MRFC/AS a XCAP DELETE request.

Table A.7.2-1: XCAP DELETE request (UE to MRFC/AS)

```
DELETE http://xcap.home1.net/services/conference-policy/users/user1_public1/
conference.xml?Conference1 HTTP/1.1
```

2. XCAP 200 (OK) response (MRFC/AS to UE)

The MRFC/AS returns a XCAP 200 (OK) response to the UE, indicating that the received XCAP DELETE request and its content have been successfully processed.

Afterwards the MRFC/AS will drop all conference participants from the conference and delete the conference. An example signalling flow for the MRFC/AS dropping a user from a conference can be found in subclause A.6.4.