3GPP TSG CN Plenary Meeting #20 **NP-(**
4th - 6th June 2003. HÄMEENLINNA, Finland.

Source:	**TSG CN WG 1**
Title:	**Presence service based on Session Initiation Protocol (SIP);Functional models, information flows and protocol details**
Agenda item:	**11**
Document for:	**INFORMATION,- Draft technical report 3GPP TS 24.841 v1.0.0**

Presentation of Technical Report to TSG or WG

Presentation to:	**TSG CN Meeting #20**
Document for presentation:	**TR, Version 1.0.0**
Presented for:	**Information**

Abstract of document:

The document is a temporary container for the functional models, flows and protocol details for the presence service within the IP Multimedia (IM) Core Network (CN) subsystem based on the Session Initiation Protocol (SIP) and SIP Events. The contents of this report when stable will be moved into the Technical Specification 3GPP TS 23.218 [3], 3GPP TS 24.228 [4] and 3GPP TS 24.229 [5] and a new Technical Specification for Presence.

Where possible the document specifies the requirements for this protocol by reference to specifications produced by the IETF within the scope of SIP and SIP Events. 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 document includes information applicable to network operators, service providers and manufacturers.

Agreed material is held in this TR for an interim period of time, and the material transferred into release 6 versions of 23.218, 24.228 and 24.229 at a later time.

This TR will not be published.

Changes since last presentation to TSG Meeting #:

First time seen in a Plenary.

Outstanding Issues:

As this document is meant to be a repository for information to create all the documentation in WG CN1 for Presence, the outstanding issues are all the remaining Presence open issues. WG CN1 has been maintaining an issues list for this work item, and the contents of this are attached.

Contentious Issues:

None of the issues identified are contentious within WG CN1.

Some of the issues identified are still undergoing resolution in WG SA2, e.g. those relating to PSI's; these are generic within the IM CN subsystem, rather than specific to Presence.

There are issues in the referenced IETF documentation where resolution is providing contentious. Fundamental discussions are still ongoing on "What is a tuple"

Presence WID open issues list

Introduction

This open item list identifies the tasks within that work item that still need to be resolved in TR 24.841 for Rel-6, and subsequently for changes made to TS 23.218, 24.228 and 24.229.

This study has been done to identify the still missing principal decisions and other major open issues in the Presence WID under CN1 control. The intention is not to take this open items list to the granularity of a individual CRs.

Because of these reasons the list is not exhaustive so it should not be considered as comprehensive list of all CRs that are needed to complete the CN1 Presence WID. It can be foreseen that not only the CRs to close the listed open items but also other CRs outside the list will be needed.

But the intention is to list all such open items which are likely to impact the scheduling and work amount estimates on the work item.

This document takes no position in how an open item is closed unless it is explicitly stated. So it may happen that an open item in the CN1 document is covered by removing the whole clause from the TR.

It is the intention of the maintainer to maintain this document until it becomes redundant at the full stabilisation of Rel-6 Presence related CN1 TSs.

The colour coding of the table is as follows:

After CN1 Meeting	27	28	29	30							
Red = not done	41	36	30	23							
Yellow = partly done	0	5	11	12							
Green = completed	0	3	10	16							
Total	41	44	51	51							

Proposal

The document should be noted.

Volunteers are requested for unassigned open issues, along with the necessary technical input in the future.

Input is requested on identifying other open issues, or missing information or incorrect status in any of the issues.

Open issues

No.	Issue	TR / TS	CRs	Comment
1	**General issues**			
2	**Issues related to dependent IETF drafts**			
2.1	The namespace in the XML schema for Instant Messaging xmlns:im="urn:ietf:params:xml:ns:cpim-pidf:im" has not been defined yet in IETF.			
2.2	It needs further investigation whether draft-roach-sip-list-template-00.txt effects the flows and changes the Event the UE is subscribing for.		N1-030525 N1-030526	
2.3	The mechanism for modifying the authorisation policy document			Need to await agreement of solution by SIMPLE working group before this can be completed
2.4	The PUBLISH method is expected to undergo major revision in the near future, e.g. to provide a dialog based mechanism, and a review of the headers.			draft-olson-simple-publish-02.txt provided which does not contain a dialog mechanism. It has now been agreed that there will be no dialog mechanism for publish. Some revisions are expected which will need to be taken into account
2.5	One solution to the requirements that are expressed in draft-kiss-simple-winfo-filter-reqs-00 is in draft-khartabil-simple-winfo-filter-00. When the SIMPLE WG agrees the way forward for solutions to the requirements in this draft, the references will require amendment to reflect the agreed solution document.			
2.6	One solution to the requirements that are expressed in draft-moran-simple-pres-filter-reqs-00 is in draft-khartabil-simple-presence-filter-00. When the SIMPLE WG agrees the way forward for solutions to the requirements in this draft, the references will require amendment to reflect the agreed solution document.			

2.7	One solution to the requirements that are expressed in draft-lonnfors-simple-presinfo-deliv-reqs-00 is in draft-lonnfors-simple-partial-notify-00. When the SIMPLE WG agrees the way forward for solutions to the requirements in this draft, the above reference will require amendment to reflect the agreed solution document.			
3	**Issues related to clause 5 (23.218)** **Note - this material could well be directed to the proposed new TS on Presence**			
3.1	Inclusion of contents for clause 5.1 (Introduction)	24.841		
3.2	Inclusion of contents for clause 5.2 (Presence Server (PS))	24.841		
3.3	Inclusion of contents for clause 5.3.1 (Network-based Presence User Agent (PUA))	24.841		
3.4	Inclusion of contents for clause 5.3.2 (Presence Network Agents (PNA))	24.841		
3.5	Inclusion of contents for clause 5.3.3 (Presence external agent)	24.841		
3.6	Inclusion of contents for clause 5.4 (Network-based watcher applications)	24.841		
3.7	Inclusion of contents for clause 5.5 (Presence List Server (PLS))	24.841		Entity is now a Resource List Server
4	**Issues related to clause 6 (24.228)** **Note that this material could be directed to the flows clause of the new TS on presence**			
4.1	**Missing general material**			
4.1.1	Material to indicate the general addresses used within the presence service flows (to go to 24.228 clause 4)	24.841		
4.2	**Missing flows**			
4.2.1	Flows relating to Pi interface	24.841		
4.2.2	The Presence User Agent in the UE is also able to publish certain tuples of the presence information. Another call flow example is needed to describe partial publishing. Controversial - some organisations think that we do not need partial publishing.	24.841		
4.3	**Missing elements within flows**			
4.3.1	Flows need updating to show charging headers	24.841		
4.3.2	Flows need updating to show P-Access-Network-Info header	24.841	N1-030237	
4.3.3	Flows need updating to show the non-stripping of headers at the P-CSCF in the direction of the UE	24.841	N1-030237	Nokia
4.3.4	Flows need updating to show the storage of information at the P-CSCF and S-CSCF to be	24.841	--	Lucent? 24.228 has

	consistent with 24.228 presentation			been aligned with 24.841, rather than the other way round, so there is now no need for this in 24.841 - see N1-030521
4.3.5	PUBLISH flows need updating to show new headers introduced in olson-publish-01	24.841	N1-030110 N1-030448	Subsequent versions may introduce further changes. Nokia, Nortel?
4.3.6	Flows relating to PNA to PS should be removed because 23.141 CR010R5 and CR026R1 specify that this interface should not be standardised	24.841	N1-030791	Requires removal of current clause 6.2.3. Nokia, Nortel?
4.3.7	Changes in 6.1.3.1, 6.1.3.2 to accommodate 23.228 6.1.0 requirements on PSI routing	24.841	N1-030901	Nokia Status partly done because stage 2 is still undergoing revision
4.3.8	Remove event header from responses http://www.ietf.org/mail-archive/working-groups/sip/current/msg07854.html	24.841, 24.228	N1-030796	Nokia
5	**Issues related to clause 7 (24.229)** **Note that some of this material could be directed to the new TS on presence**			
5.1	**Issues relating to clause 7.1 (Introduction and general principles)**			
5.2	**Issues related to clause 7.2 (Application usage of SIP)**			
5.2.1	Issues relating to clause 7.2.1 (Application usage of SIP - procedures at the UE - usage of PUBLISH)	24.841	N1-030529	
5.2.2	Issues relating to clause 7.2.1 (Application usage of SIP - procedures at the UE - the behaviour for fetching presence information; the behaviour for subscribing for presence information; providing full state or partial state notifications)	24.841	N1-030530 N1-030533	Nokia CR041 to 23.141 adds ability of watcher to indicate ability to handle partial notifications
5.2.3	Issues relating to clause 7.2.1 (Application usage of SIP - procedures at the UE - how the watchers subscribe and get notified of the presencelist event package and how the PLS collects the information)	24.841	N1-030526	Changed to resource list

5.2.4	Issues relating to clause 7.2.1 (Application usage of SIP - procedures at the UE - how the watcher information is collected by the Presence Server and provided to the presentity)	24.841	N1-030531	
5.2.5	Issues relating to clause 7.2.1 (Application usage of SIP - procedures at the UE - how the watchers can set filters in SUBSCRIBE requests)	24.841	N1-030532	Need to await agreement of solution by SIMPLE working group before this can be completed Nokia
5.2.6	Issues relating to clause 7.2.1 (Application usage of SIP - procedures at the UE - the details (syntax/semantics) of the authorization policy definitions; the usage of watcherinfo template package in IMS; the details how the authorisation policy is uploaded to Presence Server; the details how groups can be referenced; multiple value concept)	24.841	N1-030274	Authorization: Need to await agreement of solution by SIMPLE working group before this can be completed Nokia
5.2.7	Issues relating to clause 7.2.2 (Application usage of SIP - procedures at the Application Server - how the watchers applies filters in NOTIFY requests)	24.841	N1-030532	Need to await agreement of solution by SIMPLE working group before this can be completed Nokia
5.2.8	Issues relating to clause 7.2.2 (Application usage of SIP - procedures at the Application Server - the usage of PUBLISH request in IMS; when a PUA publishes; when a PNA publishes (how and what is transformed via ISC and Sh); the details of the Presence Server's composition policy (the latter may be a 23.218 issue))	24.841	N1-030529	how and what is transformed via ISC and Sh no longer an open issue
5.2.9	Issues relating to clause 7.2.2 (Application usage of SIP - procedures at the Application Server - the behaviour for fetching presence information; the behaviour for subscribing for presence information; providing full state or partial state notifications)	24.841	N1-030530 N1-030533	Nokia
5.2.10	Issues relating to clause 7.2.2 (Application usage of SIP - procedures at the Application Server - the details (syntax/semantics) of the authorisation policy definitions; the usage of watcherinfo template package in IMS; the details how the authorisation policy is uploaded to Presence Server; the details how groups can be referenced; multiple value concept)	24.841		Nokia Need to await agreement of solution by SIMPLE working group before this can be completed
5.2.11	Issues relating to clause 7.2.2 (Application usage of SIP - procedures at the Application Server - how the watchers subscribe and get notified of the presencelist event package and how the PLS collects	24.841	N1-030526	Changed to resource list

	the information)			
5.2.12	Issues relating to clause 7.2.2 (Application usage of SIP - procedures at the Application Server - this clause describes how the watcher information is collected by the Presence Server and provided to the presentity)	24.841	N1-030531	
5.2.13	Issues relating to clause 7.2.2 (Application usage of SIP - procedures at the Application Server - mechanism for the presentity to provide authorisation)	24.841		Need to await agreement of solution by SIMPLE working group before this can be completed
5.2.14	Issues relating to clause 7.2.2 (Application usage of SIP - procedures at the Application Server - mechanism to verify the identity of the user is FFS. One possible mechanism to verify the identity of the watcher is that the PS challenges the watcher by issuing a 401 (Unauthorized) response including a challenge (as per normal procedures described in RFC 3261). Later, when the PS receives a SUBSCRIBE request that contains credentials but it does not contain a P-Asserted-Identity, the PS will check the credentials to verify the identity of the watcher. Another possible mechanism is that an edge proxy, such as the I-CSCF verifies the identity of the user and inserts a P-Asserted-Identity.	24.841	N1-030273	Issues revised to: it is not clear what are the mechanisms available to transport the credentials. These mechanisms can include, among others, P-Asserted-Identity, Authorization header, digital signatures, S/MIME body, etc. It needs to be investigated whether the *maximum number of times predefined in the PS configuration data* creates a potential denial of service attack, as it requires the PS to keep states between different different authentications trials.
5.2.15	Change to S-CSCF handling to allow S-CSCF not to Record-Route for SUBSCRIBE requests/responses as a result of change in requirements in 23.141 CR025R0. It is assumed that this change will be made general for all SUBSCRIBE requests passing	24.841	N1-030460 N1-030800	Nokia

	through the S-CSCF, rather than being specific to presence related events, and will apply to both release 5 and release 6. Note that the storage of information for clearing of the dialog will need to be related to whether a dialog is now record routed or not.			
5.1.16	Incorporation of new requirement introduced by 23.141 CR023 as follows: " In case of presence information fetch or subscription from a watcher that has not been authorised by the subscription authorisation policies, the presence server shall put the fetch or subscription on hold until the watcher has been authorised, added to the subscription authorisation lists or until a preconfigured timer has expired."	24.841		Query as to whether behaviour is already described in simple-presence draft
5.2.17	Reference to RPIDS I-D Rich Presence Information Data Format for Presence Based on the Session Initiation Protocol draft-schulzrinne-simple-rpids-02.txt	24.841	N1-030793	Nokia
5.2.18	Reference to BINPIDF I-D BINPIDF - External Object Extension to Presence Information Data Format draft-lonnfors-simple-binpidf-00	24.841	N1-030902	Nokia
5.3	**Issues relating to clause 7.3 (Extensions within the present document)**			
5.3.1	new document type needed for partial notification.	24.841	N1-030533	Nortel?, Nokia
5.3.2	Changes to location information in 3gppPresence as a result of change of requirements defined in 23.141 CR017 R2	24.841	N1-030272	Nortel?
5.3.3	Add timestamp to location information in accordance with 23.141 CR040	24.841		
5.3.4	Addition of application identifiers to presence information as indicated in CR049 to 23.141	24.841		
5.4	**Issues relating to clause 7.4 (GPRS aspects when connected to the IM CN subsystem)**			
	None identified			
5.5	**Issues relating to clause 7.5 (Profiles of IETF RFCs for 3GPP usage)**			
5.5.1	Roles table needs extending to show presence entity roles	24.841		
5.5.2	PUBLISH method needs updating to show new headers introduced in olson-publish-01	24.841	N1-030110 N1-030528	Subsequent versions may introduce further changes 2hich will be dealt with in this issue. Nortel?, Nokia

5.5.3	PUBLISH method needs updating to show charging headers	24.841	N1-030764	Lucent?
5.5.4	PUBLISH method needs updating to show P-Access-Network-Info header	24.841	N1-030764	Lucent?

3GPP TR 24.841 V1.0.0 (2003-05)

Technical Report

3rd Generation Partnership Project; Technical Specification Group Core Network; Presence service based on Session Initiation Protocol (SIP); Functional models, information flows and protocol details (Release 6)

Remove GSM logo from the cover page for pure 3rd Generation documents.

Select keywords from list provided in specs database.

Keywords
<keyword[, keyword]>

3GPP

Postal address

3GPP support office address
650 Route des Lucioles - Sophia Antipolis
Valbonne - FRANCE
Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Internet
http://www.3gpp.org

Contents

Foreword

This Technical Report has been produced by the 3rd Generation Partnership Project (3GPP).

The contents of the present document are subject to continuing work within the TSG and may change following formal TSG approval. Should the TSG modify the contents of the present document, it will be re-released by the TSG with an identifying change of release date and an increase in version number as follows:

Version x.y.z

where:

- x the first digit:
  - 1 presented to TSG for information;
  - 2 presented to TSG for approval;
  - 3 or greater indicates TSG approved document under change control.
- y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.
- z the third digit is incremented when editorial only changes have been incorporated in the document.

1 Scope

The present document is a temporary container for the functional models, flows and protocol details for the presence service within the IP Multimedia (IM) Core Network (CN) subsystem based on the Session Initiation Protocol (SIP) and SIP Events. The contents of this report when stable will be moved into the Technical Specification 3GPP TS 23.218 [3], 3GPP TS 24.228 [4] and 3GPP TS 24.229 [5].

Where possible the present document specifies the requirements for this protocol by reference to specifications produced by the IETF within the scope of SIP and SIP Events. 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 includes information applicable to network operators, service providers and manufacturers.

Editor's note: Agreed material is held in this TR for an interim period of time, and the material transferred into release 6 versions of 23.218, 24.228 and 24.229 at a later time. This has the advantage that:

It creates a location where the material may stabilise outside a document under CR control, thus fulfilling the function of the original annexes in the IN CN subsystem documents.

It avoids the need to create release 6 mirror CRs for all release 5 changes to the IM CN subsystem.

This TR will not be published.

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: "3G Vocabulary".

[2] 3GPP TS 22.141: "Presence Service; Stage 1".

[3] 3GPP TS 23.218: "IP Multimedia (IM) Session Handling; IP Multimedia (IM) call model; Stage 2".

[4] 3GPP TS 24.228: "Signalling flows for the IP multimedia call control based on SIP and SDP; Stage 3".

[5] 3GPP TS 24.229: "IP Multimedia Call Control Protocol based on SIP and SDP; Stage 3".

[6] 3GPP TS 23.141: "Presence Service; Architecture and Functional Description".

The following normative references represent references that appear in material destined for 3GPP TS 23.218 [3], included normative references already included in clause 2 of 3GPP TS 23.218 [3]. Rather than modify these references, the digit 5 (representing references relating to clause 5 of this document) has been inserted.

[5.x] …

The following normative references represent references that appear in material destined for 3GPP TS 24.228 [4], included normative references already included in clause 2 of 3GPP TS 24.228 [4]. Rather than modify these references, the digit 6 (representing references relating to clause 6 of this document) has been inserted.

[6.11] 3GPP TS 29.228: "IP Multimedia (IM) Subsystem Cx Interface; Signalling flows and message contents".

[6.13] RFC 3323 (May 2002): "A Privacy Mechanism for the Session Initiation Protocol (SIP)".

[6.17] RFC 3325 (May 2002): "Extensions to the Session Initiation Protocol (SIP) for Network Asserted Identity within Trusted Networks".

[6.30] draft-ietf-impp-cpim-pidf-07 (December 2002): "Common Presence and Instant Messaging (CPIM) Presence Information Data Format".

[6.31] draft-ietf-simple-event-list-03 (March 2003): "A Session Initiation Protocol (SIP) Event Notification Extension for Collections".

[6.32] draft-olson-simple-publish-02 (February 2003): "SIMPLE Presence Publication Mechanism".

The following normative references represent references that appear in material destined for 3GPP TS 24.229 [5], included normative references already included in clause 2 of 3GPP TS 24.229 [5]. Rather than modify these references, the digit 7 (representing references relating to clause 7 of this document) has been inserted.

[7.26] RFC 3261 (March 2002): "SIP: Session Initiation Protocol".

[7.28] RFC 3265 (March 2002): "Session Initiation Protocol Specific Event Notification".

[7.33] RFC 3323 (November 2002): "A Privacy Mechanism for the Session Initiation Protocol (SIP)".

[7.34] RFC 3325 (November 2002): "Private Extensions to the Session Initiation Protocol (SIP) for Network Asserted Identity within Trusted Networks".

[7.48] RFC 3329 (January 2003): "Security Mechanism Agreement for the Session Initiation Protocol (SIP)".

[7.52] RFC 3455 (January 2003): "Private Header (P-Header) Extensions to the Session Initiation Protocol (SIP) for the 3rd-Generation Partnership Project (3GPP)".

[7.70] draft-olson-simple-publish-02 (February 2003): "SIMPLE Presence Publication Mechanism".

[7.71] RFC 2778: "A Model for Presence and Instant Messaging".

[7.72] draft-ietf-impp-cpim-pidf-07 (December 2002): "Common Presence and Instant Messaging (CPIM) Presence Information Data Format".

[7.73] 3GPP TS 22.141: "Presence Service; Stage 1".

[7.74] draft-ietf-simple-event-list-03 (March 2003): "A Session Initiation Protocol (SIP) Event Notification Extension for Collections".

[7.75] draft-ietf-simple-presence-10 (January 2003): "A Presence Event Package for the Session Initiation Protocol (SIP)".

[7.76] draft-ietf-simple-winfo-package-05 (January 2003): "A Session Initiation Protocol (SIP) Event Template-Package for Watcher Information".

[7.77] draft-ietf-simple-winfo format-04 (January 2003): "An Extensible Markup Language (XML) Based Format for Watcher Information".

[7.78] draft-khartabil-simple-filter-format-00 (May 2003): "An Extensible Markup Language (XML) Based Format for Event Notification Filtering".

[7.79] draft-khartabil-simple-filter-funct-00 (May 2003): "Functional Description of Event Notification Filtering".

[7.80] draft-lonnfors-simple-partial-notify-01 (May 2003): "Partial Notification of Presence Information".

[7.81] draft-lonnfors-simple-binpidf-01 (May 2003): "BINPIDF - External Object Extension to Presence Information Data Format".

[7.82] draft-schulzrinne-simple-rpids-01 (February 2003): "RPIDS -- Rich Presence Information Data Format for Presence Based on the Session Initiation Protocol (SIP)".

3 Definitions, symbols and abbreviations

3.1 Definitions

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

Resource List Server (RLS): a functional entity that stores grouped lists of watched presentities and enables a watcher application to subscribe to the presence of multiple presentities using a single transaction.

Presence Network Agent (PNA): a network-located element that collects and sends network-related presence information on behalf of the presentity to a PS.

Presence Server (PS): a network entity responsible for managing presence information on behalf of a presence entity.

Presence User Agent (PUA): a terminal or network located element that collects and sends user-related presence information to a PS on behalf of a principal.

Subscription authorisation policy: a policy that determines which watchers are allowed to subscribe to a presentity's presence information. The subscription authorisation policy also determines to which tuples of the presentity's presence information the watcher has access.

For the purposes of the present document, the following terms and definitions from RFC 2778 [7.71] apply:

Presentity

3.2 Abbreviations

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

CN	Core Network
CSCF	Call Session Control Function
CPIM	Common Profile for Instant Messaging
HSS	Home Subscriber Server
I-CSCF	Interrogating CSCF
IM	IP Multimedia
IP	Internet Protocol
P-CSCF	Proxy CSCF
PIDF	Presence Information Data Format
PNA	Presence Network Agent
PS	Presence Server
PSI	Public Service Identity
PUA	Presence User Agent
RLMI	Resource List Meta-Information
RLS	Resource List Server
S-CSCF	Serving CSCF
SIP	Session Initiation Protocol
UE	User Equipment
XML	eXtensible Markup Language

4 Presence service overview

The presence service provides the ability for the home network to manage presence information of a user's device, service or service media even whilst roaming. A user's presence information may be obtained through input from the user, information supplied by network entities or information supplied by elements external to the home network. Consumers of presence information, watchers, may be internal or external to the home network. The architecture for the 3GPP presence service is specified in 3GPP TS 23.141 [6].

5 Presence application server elements

Editor's note: It is intended that a new subclause is introduced into 3GPP TS 23.218 with the above title, and structured with the subclauses below. These subclauses contain material relating to the functionality of the presence server and the watcher application when provided by Application Servers attached to the ISC interface.

5.1 Introduction

5.2 Presence Server (PS)

Editor's Note: This clause will contain details of the presence server.

5.3 Network-based presence agents

5.3.1 Network-based Presence User Agent (PUA)

Editor's Note: This clause will contain details of the network-based presence user agents.

5.3.2 Presence Network Agents (PNA)

Editor's Note: This clause will contain details of the presence network agents.

5.3.3 Presence external agent

Editor's Note: This clause will contain details of the presence external agent.

5.4 Network-based watcher applications

Editor's Note: This clause will contain details of network-based watcher applications.

5.5 Resource List Server (RLS)

Editor's Note: This clause will contain details of the resouce list server ("buddylist" server).

6 Example signalling flows of presence service operation

Editor's note: It is intended that a new subclause is introduced into 3GPP TS 24.228 with the above title, and structured with the subclauses below. These subclauses contain material relating to the functionality of the presence server and the watcher application when provided by Application Servers attached to the ISC interface.

Editor's note: These flows will relate to the non-hiding operation only, as no new concepts are introduced by the hiding functionality provided by a THIG. Text will be needed at an appropriate point in 3GPP TS 24.228 to explain this.

6.1 Flows demonstrating how watchers subscribe to presence event notification

6.1.1 Introduction

The subclause covers the flows that show how watchers can request presence information about a presentity.

6.1.2 IMS watcher and IMS presentity in different networks, UE in home network

6.1.2.1 Successful subscription

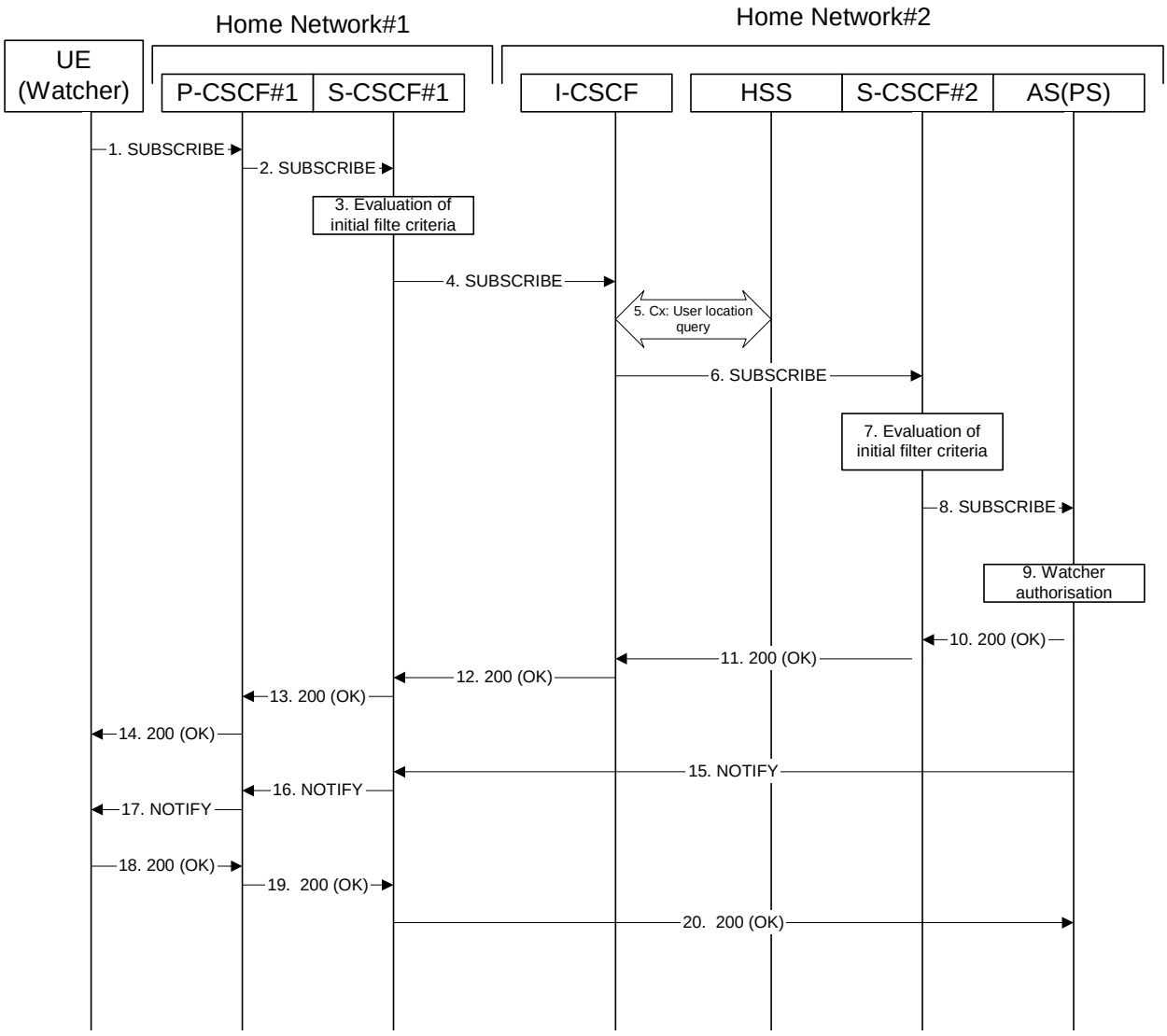

Figure 6.1.2.1-1: IMS watcher subscribing for presence information and receiving the first notification

Figure 6.1.2.1-1 shows an IMS watcher subscribing to presence event notification about an IMS based presentity. The presentity is in a different IM CN subsystem. The details of the flows are as follows:

1. **SUBSCRIBE request (UE (watcher) to P-CSCF) – see example in table 6.1.2.1-1**

   A watcher agent in a UE wishes to watch a presentity, or certain tuples of the presentity. To initiate a subscription, the UE generates a SUBSCRIBE request containing the 'presence' event that it wishes to be notified of, together with an indication of the length of time this periodic subscription should last.

Table 6.1.2.1-1: SUBSCRIBE request (UE (watcher) to P-CSCF)

```
SUBSCRIBE sip:user2_public1@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:orig@scscf1.home1.net;lr>
P-Preferred-Identity: <sip:user1_public1@home1.net>
Privacy: none
From: <sip:user1_public1@home1.net>;tag=31415
To: <sip:user2_public1@home2.net>
Call-ID: b89rjhnedlrfjflslj40a222
CSeq: 61 SUBSCRIBE
Require: sec-agree
Proxy-Require: sec-agree
Security-Verify: ipsec-3gpp; q=0.1; alg=hmac-sha-1-96; spi=87654321; port1=7531
Event: presence
Expires: 7200
Accept: application/cpim-pidf+xml
Contact: <sip:[5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp>
Content-Length: 0
```

Request-URI: Public user identity whose events the subscriber subscribes to.

Privacy: the user does not require privacy, therefore the Privacy header is set to the value "none" as specified in RFC 3325 [6.17] and RFC 3323 [6.13].

P-Preferred-Identity: the user provides a hint about the identity to be used.

From: This field is populated with the SIP URI that contains the logical representation (FQDN) for the entity sending the SUBSCRIBE request.

Event: This field is populated with the value 'presence' to specify the use of the presence package.

Accept: This field is populated with the value 'application/cpim-pidf+xml'.

To: Same as the Request-URI.

Contact: The contact information of the subscribing user.

2. **SUBSCRIBE request (P-CSCF to S-CSCF) – see example in table 6.1.2.1-2**

   The P-CSCF looks up the serving network information for the public user identity that was stored during the registration procedure. The SUBSCRIBE request is forwarded to S-CSCF. A Route header is inserted into SUBSCRIBE request. The information for the Route header is taken from the service route determined during registration.

Table 6.1.2.1-2: SUBSCRIBE request (P-CSCF to S-CSCF)

```
SUBSCRIBE sip:user2_public1@home2.net SIP/2.0
Via: SIP/2.0/UDP pcscf1.home1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
      [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
P-Access-Network-Info:
Max-Forwards: 69
P-Asserted-Identity: <sip:user1_public1@home1.net>
Privacy:
Route: <sip:orig@scscf1.home1.net;lr>
Record-Route: <sip:pcscf1.home1.net;lr>
From:
To:
Call-ID:
CSeq:
Event:
Expires:
Accept:
Contact:
Content-Length:
```

P-Asserted-Identity: The P-CSCF inserts the SIP URI in the P-Asserted-Identity header field and it also removes P-Preferred-Identity header field.

Route: The Route header is populated with the the service route from registration.

3. **Evaluation of initial filter criteria**

   S-CSCF#1 validates the service profile of this subscriber and evaluates the initial filter criteria. For this example, assume no Application Server involvement.

4. **SUBSCRIBE request (S-CSCF to I-CSCF) – see example in table 6.1.2.1-4**

   S-CSCF#1 performs an analysis of the destination address, and determines the network operator to whom the destination subscriber belongs. Since the originating operator does not desire to keep their internal configuration hidden, S-CSCF#1 forwards the SUBSCRIBE request directly to the I-CSCF in the destination network.

Table 6.1.2.1-4: SUBSCRIBE (S-CSCF to I-CSCF)

```
SUBSCRIBE sip:user2_public1@home2.net SIP/2.0
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK351g45.1, SIP/2.0/UDP
      pcscf1.home1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
      [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;;branch=z9hG4bKnashds7
Max-Forwards: 68
P-Asserted-Identity: <sip:user1_public1@home1.net>, <tel:+1-212-555-1111>
Privacy:
Record-Route: <sip:scscf1.home1.net;lr>, <sip:pcscf1.home1.net;lr>
From:
To:
Call-ID:
CSeq:
Event:
Expires:
Accept:
Contact:
Content-Length:
```

P-Asserted-Identity: The S-CSCF inserts the TEL URI of the user in the P-Asserted-Identity header field.

5. **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 [6.11].

   Table 6.1.2.1-5a provides the parameters in the SIP SUBSCRIBE request (flow 4), which are sent to the HSS.

Table 6.1.2.1-5a: Cx: User registration status query procedure (I-CSCF to HSS)

Message source & destination	Cx: Information element name	Information source in SIP SUBSCRIBE	Description
I-CSCF to HSS	User Public Identity	Request-URI	This information element indicates the public user identity

Table 6.1.2.1-5b provides the parameters sent from the HSS that need to be mapped to the SIP SUBSCRIBE request (flow 6) and sent to the S-CSCF.

Table 6.1.2.1-5b: Cx: User registration status query procedure (HSS to I-CSCF)

Message source & destination	Cx: Information element name	Mapping to SIP header in SIP SUBSCRIBE	Description
HSS to I-CSCF	S-CSCF name	Route header field	This information indicates the serving CSCF's name of that user

6. **SUBSCRIBE request (I-CSCF to S-CSCF) – see example in table 6.1.2.1-6**

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

Table 6.1.2.1-6: SUBSCRIBE request (I-CSCF to S-CSCF)

```
SUBSCRIBE sip:user2_public1@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=z9hG4bK351g45.1, SIP/2.0/UDP
      pcscf1.home1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
      [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 67
P-Asserted-Identity:
Privacy:
Route: <sip:scscf2.home2.net;lr>
Record-Route:
From:
To:
Call-ID:
CSeq:
Event:
Expires:
Accept:
Contact:
Content-Length:
```

NOTE: The I-CSCF does not add itself to the Record-Route header, as it has no need to remain in the signalling path for the subsequent requests.

7. **Evaluation of initial filter criteria**

S-CSCF#2 validates the service profile of this subscriber and evaluates the initial filter criteria. For sip:user2_public1@home2.net S-CSCF#2 has termination initial filter criteria with service points of interest of Method = SUBSCRIBE and Event = 'presence' and action = 'create Record-Route entry: no' that informs the S-CSCF to route the SUBSCRIBE request to the Application Server ps.home2.net and not to create a Record-Route entry for the request.

8. **SUBSCRIBE request (S-CSCF to PS) – see example in table 6.1.2.1-8**

The S-CSCF forwards the SUBSCRIBE request to the Presence Server (PS).

Table 6.1.2.1-8: SUBSCRIBE request (S-CSCF to PS)

```
SUBSCRIBE sip:user2_public1@home2.net SIP/2.0
Via: SIP/2.0/UDP scscf2.home2.net;branch=z9hG4bK764z87.1, SIP/2.0/UDP
      icscf2_s.home2.net;branch=z9hG4bK871y12.1, SIP/2.0/UDP
      scscf1.home1.net;branch=z9hG4bK351g45.1, SIP/2.0/UDP
      pcscf1.home1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
      [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 66
P-Asserted-Identity:
Privacy:
Route: <sip:ps.home2.net;lr>, <sip:scscf2.home2.net;lr>
Record-Route: <sip:orig@scscf1.home1.net;lr>, <sip:pcscf1.home1.net;lr>
From:
To:
Call-ID:
CSeq:
Event:
Expires:
Accept:
Contact:
Content-Length:
```

9. **Authorisation of watcher**

   The PS performs the necessary authorisation checks on the originator to ensure it is allowed to watch the presentity. In this example all privacy conditions are met, so the PS sends a 200 (OK) response to the S-CSCF.

   In the case where the privacy/authorisation checks failed, then a necessary 2xx or 4xx response would be sent to the S-CSCF. The selection of the correct response code depends on the presentity's authorisation policy document.

10. **200 (OK) response (PS to S-CSCF) - see example in table 6.1.2.1-10**

    The PS sends the response to S-CSCF#2.

Table 6.1.2.1-10: 200 (OK) response (PS to S-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP scscf2.home2.net;branch=z9hG4bK764z87.1, SIP/2.0/UDP
icscf2_s.home2.net;branch=z9hG4bK871y12.1, SIP/2.0/UDP
      scscf1.home1.net;branch=z9hG4bK351g45.1, SIP/2.0/UDP
      pcscf1.home1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
      [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Record-Route:
From:
To: <sip:user2_public1@home2.net>;tag=151170
Call-ID:
CSeq:
Expires:
Contact: <sip:ps.home2.net>
Content-Length:
```

11. **200 (OK) response (S-CSCF to I-CSCF) - see example in table 6.1.2.1-11**

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

Table 6.1.2.1-11: 200 (OK) response (S-CSCF 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=z9hG4bK351g45.1, SIP/2.0/UDP
      pcscf1.home1.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:
Expires:
Contact:
Content-Length:
```

12. **200 (OK) response (I-CSCF to S-CSCF) - see example in table 6.1.2.1-12**

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

Table 6.1.2.1-12: 200 (OK) response (I-CSCF to S-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK351g45.1, SIP/2.0/UDP
      pcscf1.home1.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:
Expires:
Contact:
Content-Length:
```

13. **200 (OK) response (S-CSCF to P-CSCF) - see example in table 6.1.2.1-13**

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

Table 6.1.2.1-13: 200 (OK) response (S-CSCF to P-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP pcscf1.home1.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:
Expires:
Contact:
Content-Length:
```

14. **200 (OK) response (P-CSCF to UE) - see example in table 6.1.2.1-14**

P-CSCF#1 forwards the response to the watcher agent in the UE.

Table 6.1.2.1-14: 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:orig@scscf1.home1.net;lr>, <sip:pcscf1.home1.net:7531;lr;comp=sigcomp>
From:
To:
Call-ID:
CSeq:
Expires:
Contact:
Content-Length:
```

15. **NOTIFY request (PS to S-CSCF) - see example in table 6.1.2.1-15**

As soon as the PS sends a 200 (OK) response to accept the subscription, it sends a NOTIFY request with the current state of the presentity's tuples that the watcher has subscribed and been authorised to. The NOTIFY request is sent to S-CSCF#1. Further notification sent by the PS may either contain the complete set of presence information, or only those tuples that have changed since the last notification.

Editor's Note: The namespace in the XML schema for Instant Messaging xmlns:im="urn:ietf:params:xml:ns:cpim-pidf:im" has not been defined yet in IETF this is just a hypothetical and needs to be updated for the correct Instant Messaging definition.

Table 6.1.2.1-15: NOTIFY request (PS to S-CSCF)

```
NOTIFY sip:[5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp SIP/2.0
Via: SIP/2.0/UDP ps.home2.net;branch=z9hG4bK348923.1
Max-Forwards: 70
Route: <sip:scscf1.home1.net;lr>, <sip:pcscf1.home1.net;lr>
From: <sip:user2_public1@home2.net>;tag=151170
To: <sip:user1_public1@home1.net>;tag=31415
Call-ID: b89rjhnedlrfjflslj40a222
CSeq: 42 NOTIFY
Subscription-State: active ;expires=7200
Event: presence
Contact: <sip:ps.home2.net>
Content-Type: application/cpim-pidf+xml
Content-Length: (...)

   <?xml version="1.0" encoding="UTF-8"?>
   <presence xmlns="urn:ietf:params:xml:ns:cpim-pidf"
        xmlns:im="urn:ietf:params:xml:ns:cpim-pidf:im"
        entity="pres:user2_public1@home2.net ">
     <tuple id="a8098a.672364762364">
       <status>
         <basic>open</basic>
         <im:im>busy</im:im>
       </status>
       <contact priority="0.8">im:user2_public1@home2.net</contact>
       <note xml:lang="en">Don't Disturb Please!</note>
       <note xml:lang="fr">Ne derangez pas, s'il vous plait</note>
       <timestamp>2001-10-27T16:49:29Z</timestamp>
     </tuple>
     <tuple id="jklhgf9788934774.78">
       <status>
         <basic>open</basic>
       </status>
       <contact priority="1.0">tel:+1-212-555-2222</contact>
     </tuple>
     <note>I'll be in Tokyo next week</note>
   </presence>
```

From: The tag of this field matches that of the To field in the received 200 (OK) response for the SUBSCRIBE request.

Content-Type: Set to the value of the Accept header received in the SUBSCRIBE request or 'application/cpim-pidf+xml'.

The message body in the NOTIFY request that carries the presence information of the presentity is formed as indicated in draft-ietf-impp-cpim-pidf-07 [6.30].

16. **NOTIFY request (S-CSCF to P-CSCF) - see example in table 6.1.2.1-16**

The S-CSCF#1 forwards the NOTIFY request to P-CSCF#1.

Table 6.1.2.1-16: NOTIFY request (S-CSCF to P-CSCF)

```
NOTIFY sip:[5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp SIP/2.0
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK351g45.1, SIP/2.0/UDP
      ps.home2.net;branch=z9hG4bK348923.1
Max-Forwards: 69
Privacy:
Record-Route: <sip:scscf1.home1.net;lr>
Route: sip:<pcscf1.home1.net;lr>
From:
To:
Call-ID:
CSeq:
Subscription-State:
Event:
Contact:
Content-Type:
Content-Length:

(…)
```

17. **NOTIFY request (P-CSCF to UE) - see example in table 6.1.2.1-17**

The P-CSCF forwards the NOTIFY request to the watcher application in the UE.

Table 6.1.2.1-17: NOTIFY request (P-CSCF to UE)

```
NOTIFY sip:[5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp SIP/2.0
Via: SIP/2.0/UDP pcscf1.home1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
      scscf1.home1.net;branch=z9hG4bK351g45.1, SIP/2.0/UDP ps.home2.net;branch=z9hG4bK348923.1
Max-Forwards: 68
Record-Route: <sip:scscf1.home1.net;lr>, <sip:pcscf1.home1.net:7531;lr;comp=sigcomp>
Privacy:
From:
To:
Call-ID:
CSeq:
Subscription-State:
Event:
Contact:
Content-Type:
Content-Length:

(…)
```

18. **200 (OK) response (UE to P-CSCF) – see example in table 6.1.2.1-18**

The UE generates a 200 (OK) response to the NOTIFY request.

Table 6.1.2.1-18: 200 (OK) response (UE to P-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP pcscf1.home1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
      scscf2.home2.net;branch=z9hG4bK764z87.1, SIP/2.0/UDP ps.home2.net;branch=z9hG4bK348923.1
P-Access-Network-Info: 3GPP-UTRAN-TDD; utran-cell-id-3gpp=234151D0FCE11
From:
To:
Call-ID:
CSeq:
Content-Length: 0
```

19. **200 (OK) response (P-CSCF to S-CSCF) – see example in table 6.1.2.1-19**

The P-CSCF forwards the 200 (OK) response to S-CSCF#1.

Table 6.1.2.1-19: 200 (OK) response (P-CSCF to S-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK351g45.1, SIP/2.0/UDP
      ps.home2.net;branch=z9hG4bK348923.1
P-Access-Network-Info:
From:
To:
Call-ID:
CSeq:
Content-Length:
```

20. **200 (OK) response (S-CSCF to P-S) – see example in table 6.1.2.1-20**

S-CSCF#2 forwards the 200 (OK) response to the PS.

Table 6.1.2.1-20: 200 (OK) response (S-CSCF to PS)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP ps.home2.net;branch=z9hG4bK348923.1
From:
To:
Call-ID:
CSeq:
Content-Length:
```

6.1.3 IMS watcher subscribing to resource list, UE in visited network

6.1.3.1 IMS watcher subscribing to his own resource list, UE in visited network - Successful subscription

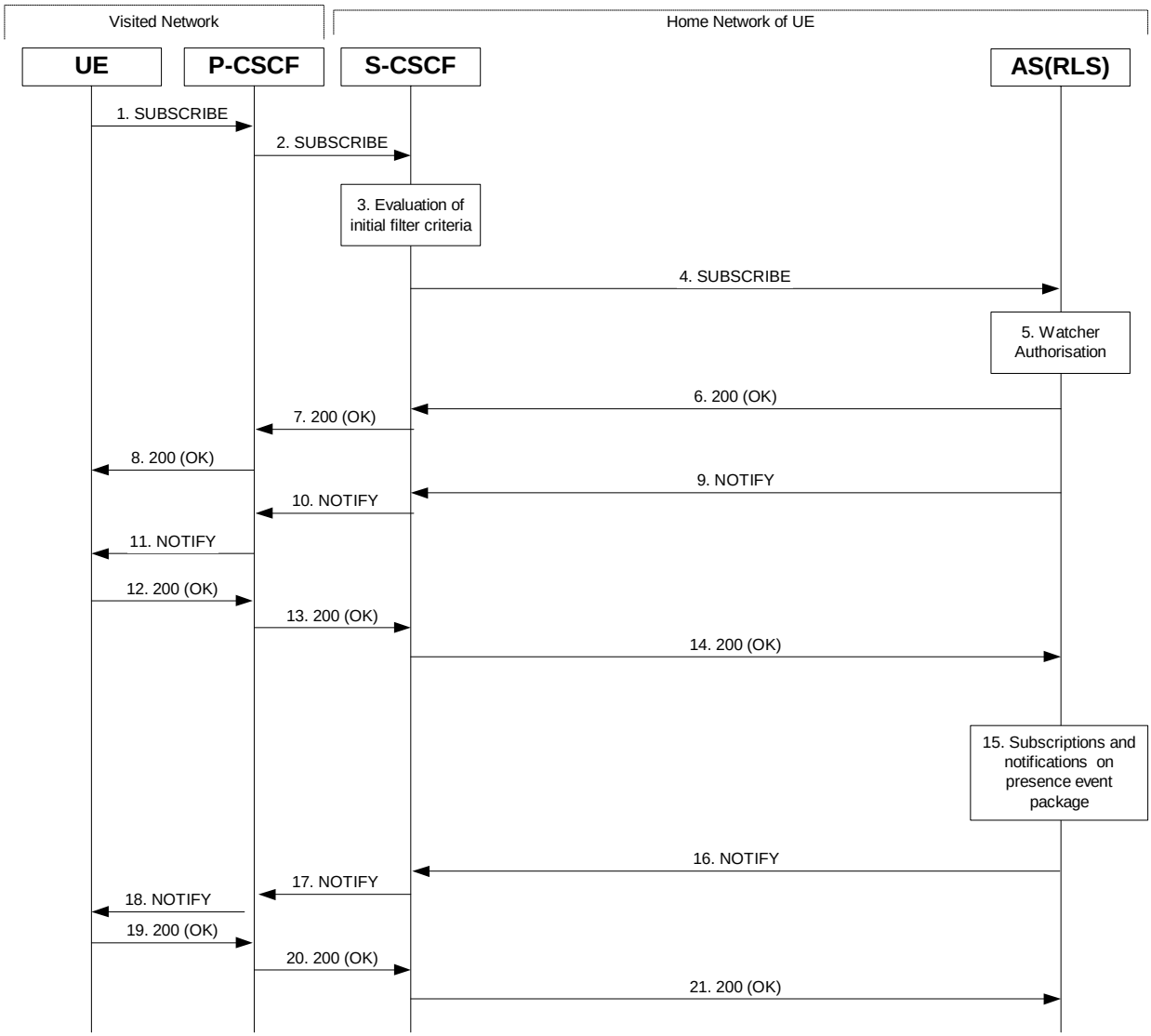

Figure 6.1.3.1-1: IMS watcher subscribing to resource list

Figure 6.1.3.1-1 shows an IMS watcher subscribing to resource list event notification. The details of the flows as follows:

1. **SUBSCRIBE request (UE to P-CSCF) – see example in table 6.1.3.1-1**

   A watcher agent in a UE wishes to watch a number of presentities, or certain tuples of these presentities. The list of presentities are identified by a SIP URI. In order to initiate a subscription to the Resource List Server (RLS),

the UE generates a SUBSCRIBE request indicating support for 'eventlist', together with an indication of the length of time this periodic subscription should last.

Table 6.1.3.1-1: SUBSCRIBE request (UE to P-CSCF)

```
SUBSCRIBE sip:user1_list1@home1.net SIP/2.0
Via: SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKehuefdam
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:orig@scscf1.home1.net;lr>
P-Preferred-Identity: <sip:user1_public1@home1.net>
Privacy: none
From: <sip:user1_public1@home1.net>;tag=31415
To: <sip:user1_list1@home1.net>
Call-ID: b89rjhnedlrfjflslj40a222
CSeq: 123 SUBSCRIBE
Require: sec-agree
Proxy-Require: sec-agree
Security-Verify: ipsec-3gpp; q=0.1; alg=hmac-sha-1-96; spi=87654321; port1=7531
Event: presence
Supported: eventlist
Expires: 7200
Accept: application/cpim-pidf+xml, application/rlmi+xml, multipart/related
Contact: <sip:[5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp>
Content-Length: 0
```

Request-URI: SIP URI of the resource list representing the collection of public user identities whose events the subscriber subscribes to.

Privacy: the user does not require privacy, therefore the Privacy header is set to the value "none" as specified in IETF RFC 3325 [6.17] and IETF RFC 3323 [6.13].

P-Preferred-Identity: the user provides a hint about the identity to be used.

From: This field is populated with the SIP URI containing the logical representation (FQDN) for the entity sending the SUBSCRIBE.

Event: This field is populated with the value 'presence' to specify the use of the presence package.

Accept: This field is populated with the value 'application/cpim-pidf+xml', 'application/rlmi+xml' and 'multipart/related' indicating that the UE supports both body types for the eventlist extension additionally to PIDF.

Supported: This field is populated with the value 'eventlist' to specify the support for the eventlist extension.

To: Same as the Request-URI.

Contact: The contact information of the subscribing user.

2. **SUBSCRIBE request (P-CSCF to S-CSCF) – see example in table 6.1.3.1-2**

The P-CSCF looks up the serving network information for the public user identity that was stored during the registration procedure. The SUBSCRIBE request is forwarded to S-CSCF#1. A Route header is inserted into SUBSCRIBE request. The information for the Route header is taken from the service route determined during registration.

Table 6.1.3.1-2: SUBSCRIBE request (P-CSCF to S-CSCF)

```
SUBSCRIBE sip:user1_list1@home1.net SIP/2.0
Via: SIP/2.0/UDP pcscf1.visited1.net;branch=z9hG4bK120f34.1, SIP/2.0/UDP
      [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKehuefdam
P-Access-Network-Info:
Route: <sip:orig@scscf1.home1.net;lr>
Max-Forwards: 69
P-Asserted-Identity: <sip:user1_public1@home1.net>
Privacy:
Record-Route: <sip:pcscf1.visited1.net;lr>
Route: <sip:scscf1.home1.net;lr>
From:
To:
Call-ID:
CSeq:
Event:
Supported:
Expires:
Accept:
Contact:
Content-Length:
```

P-Asserted-Identity: The P-CSCF inserts the SIP URI in the P-Asserted-Identity header field and it also removes P-Preferred-Identity header field.

Route: The Route header field is populated with the service route from registration.

3. **Evaluation of initial filter criteria**

   The S-CSCF validates the service profile of this subscriber and evaluates the initial filter criteria. Assuming that sip:user1_list1@home1.net is a statically created Public Service Identity (PSI), sip:user1_list1@home1.net is included in the service profile as part of an originating initial Filter Criteria with Service Trigger Point of Method = SUBSCRIBE AND Supported = 'eventlist' AND Request-URI = sip:user1_list1@home1.net that informs the S-CSCF to route the SUBSCRIBE request to the application server sip:rls.home1.net.

4. **SUBSCRIBE request (S-CSCF to RLS) – see example in table 6.1.3.1-4**

   The S-CSCF forwards the SUBSCRIBE request to the RLS.

Table 6.1.3.1-4 SUBSCRIBE request (S-CSCF to RLS)

```
SUBSCRIBE sip:user1_list1@home1.net SIP/2.0
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK344a65.1, SIP/2.0/UDP
      pcscf1.visited1.net;branch=z9hG4bK120f34.1, SIP/2.0/UDP
      [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKehuefdam
Max-Forwards: 68
P-Asserted-Identity: <sip:user1_public1@home1.net>, <tel:+1-212-555-1111>
Privacy:
Record-Route: <sip:orig@scscf1.home1.net;lr>, <sip:pcscf1.visited1.net;lr>
Route: <sip:rls.home1.net;lr>, <sip:orig@scscf1.home1.net;lr>
From:
To:
Call-ID:
CSeq:
Event:
Supported:
Expires:
Accept:
Contact:
Content-Length:
```

P-Asserted-Identity: S-CSCF inserts the TEL URI of the user in the P-Asserted-Identity header field.

5. **Authorisation of watcher**

   The RLS performs the necessary authorisation checks on the originator to ensure that he/she is authorised to use the resource list. In this example this condition has been met, so the PS sends a 200 (OK) response to the S-CSCF. If the previous condition failed, then a 403 (Forbidden) response would be sent to the S-CSCF.

6. **200 (OK) response (RLS to S-CSCF) - see example in table 6.1.3.1-6**

The RLS sends the response to the S-CSCF.

Table 6.1.3.1-6: 200 (OK) response (RLS to S-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK344a65.1, SIP/2.0/UDP
      pcscf1.visited1.net;branch=z9hG4bK120f34.1, SIP/2.0/UDP
      [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKehuefdam
Record-Route:
From:
To: <sip:user1_list1@home1.net>;tag=151170
Call-ID:
CSeq:
Require: eventlist
Expires:
Contact:
Content-Length: 0
```

7. **200 (OK) response (S-CSCF to P-CSCF) - see example in table 6.1.3.1-7**

The S-CSCF forwards the response to the P-CSCF.

Table 6.1.3.1-7: 200 (OK) response (S-CSCF to P-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP pcscf1.visited1.net;branch=z9hG4bK120f34.1, SIP/2.0/UDP
      [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKehuefdam
Record-Route:
From:
To:
Call-ID:
CSeq:
Require:
Expires:
Contact:
Content-Length:
```

8. **200 (OK) response (P-CSCF to UE) - see example in table 6.1.3.1-8**

The P-CSCF forwards the response to the watcher agent in the UE.

Table 6.1.3.1-8: 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=z9hG4bKehuefdam
Record-Route: <sip:orig@scscf1.home1.net;lr>, <sip:pcscf1.visited1.net:7531;lr;comp=sigcomp>
From:
To:
Call-ID:
CSeq:
Require:
Expires:
Contact:
Content-Length:
```

9. **NOTIFY request (RLS to S-CSCF) – see example in table 6.1.3.1-9**

The RLS generates a NOTIFY request including the RLMI document as a result of the SUBSCRIBE request.

Table 6.1.3.1-9 NOTIFY request (RLS to S-CSCF)

```
NOTIFY sip:[5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp SIP/2.0
Via: SIP/2.0/UDP rls.home1.net;branch=z9hG4bK240f34.1
Max-Forwards: 70
Route: <sip:scscf1.home1.net;lr>, <sip:pcscf1.visited1.net;lr>
From: <sip:user1_list1@home1.net>;tag=151170
To: <sip:user1_public1@home1.net>;tag=31415
Call-ID: b89rjhnedlrfjflslj40a222
CSeq: 89 NOTIFY
Subscription-State: active;expires=7200
Require: eventlist
Event: presence
Contact: <sip:rls.home1.net>
Content-Type: application/rlmi+xml
Content-Length:

   <?xml version="1.0" encoding="UTF-8"?>
  <list uri="sip:user1_list1@home1.net" version="1" fullState="full"
     <resource uri="pres:user2_public1@home2.net" name="Kovacs Janos">
       <instance id="hqzsuxtfyq" state="active" cid="ZvSvkz@rls.home1.net"/>
     </resource>
     <resource uri="pres:user3_public1@home2.net" name="Szabo Bela">
       <instance id="aakdsjklsa" state="active" cid="HJjbssk@rls.home1.net"/>
     </resource>
```

From: The tag of this field matches that of the To field in the received 200 (OK) response for the SUBSCRIBE request.

10. **NOTIFY request (S-CSCF to P-CSCF) – see example in table 6.1.3.1-10**

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

Table 6.1.3.1-10: NOTIFY request (S-CSCF to P-CSCF)

```
NOTIFY sip:[5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp SIP/2.0
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
      rls.home1.net;branch=z9hG4bK240f34.1
Max-Forwards: 69
Route: <sip:pcscf1.visited1.net;lr>
Record-Route: <sip:scscf1.home1.net;lr>
From:
To:
Call-ID:
CSeq:
Subscription-State:
Require:
Event:
Contact:
Content-Length:

(…)
```

11. **NOTIFY request (P-CSCF to UE) – see example in table 6.1.3.1-11**

The P-CSCF forwards the NOTIFY request to the watcher application in the UE.

Table 6.1.3.1-11: NOTIFY request (P-CSCF to UE)

```
NOTIFY sip:[5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp SIP/2.0
Via: SIP/2.0/UDP pcscf1.visited1.net;branch=240f34.1, SIP/2.0/UDP
      scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
      rls.home1.net;branch=z9hG4bK240f34.1
Max-Forwards: 68
Record-Route: <sip:scscf1.home1.net;lr>, <sip:pcscf1.visited1.net:7531;lr;comp=sigcomp>
From:
To:
Call-ID:
CSeq:
Subscription-State:
Require:
Event:
Contact:
Content-Length:

(…)
```

12. **200 (OK) response (UE to P-CSCF) – see example in table 6.1.3.1-12**

The UE acknowledges the NOTIFY request with a 200 (OK) response to the P-CSCF.

Table 6.1.3.1-12: 200 (OK) response (UE to P-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP pcscf1.visited1.net;branch=240f34.1, SIP/2.0/UDP
      scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
      rls.home1.net;branch=z9hG4bK240f34.1
P-Access-Network-Info: 3GPP-UTRAN-TDD; utran-cell-id-3gpp=234151D0FCE11
From:
To:
Call-ID:
CSeq:
Content-Length: 0
```

13. **200 (OK) response (P-CSCF to S-CSCF) – see example in table 6.1.3.1-13**

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

Table 6.1.3.1-13: 200 (OK) response (P-CSCF to S-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
      rls.home1.net;branch=z9hG4bK240f34.1
P-Access-Network-Info:
From:
To:
Call-ID:
CSeq:
Content-Length:
```

14. **200 (OK) response (S-CSCF to RLS) – see example in table 6.1.3.1-14**

The S-CSCF#2 forwards the response to the RLS in the home network of the UE.

Table 6.1.3.1-14: 200 (OK) response (S-CSCF to RLS)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP rls.home1.net;branch=z9hG4bK240f34.1
P-Access-Network-Info:
From:
To:
Call-ID:
CSeq:
Content-Length:
```

15. **Subscriptions and notifications on presence event package**

    After the RLS generated a NOTIFY request to inform the UE about the subscription state, the RLS generates the necessary SUBSCRIBE requests to the presentities present in the resource list as described in subclause 6.1.4.1. As soon as it receives NOTIFY request(s) about a state change in one or more presentities, it generates a NOTIFY request.

16. **NOTIFY request (RLS to S-CSCF) – see example in table 6.1.3.1-16**

    The RLS copies the body of the incoming NOTIFY request(s) into the body of the outgoing NOTIFY request using MIME type multipart/related. Further notification sent by the RLS may contain either the full or the partial set of presence information (only the presence information that has changed since the last notification) as described in draft-ietf-simple-event-list-03 [6.31].

    In this example it is assumed that the RLS has received two NOTIFY requests from presentities sip:user2_public1@home2.net and sip:user3_public1@home3.net before generating the NOTIFY request in table 6.1.3.1-16 to the UE.

Table 6.1.3.1-16 NOTIFY request (RLS to S-CSCF)

```
NOTIFY sip:[5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp SIP/2.0
Via: SIP/2.0/UDP rls.home1.net;branch=z9hG4bK240f34.1
Max-Forwards: 70
Route: <sip:scscf1.home1.net;lr>, <sip:pcscf1.visited1.net;lr>
From: <sip:user1_list1@home1.net>;tag=151170
To: <sip:user1_public1.home1.net>;tag=31415
Call-ID: b89rjhnedlrfjflslj40a222
CSeq: 90 NOTIFY
Subscription-State: active;expires=5000
Require: eventlist
Event: presence
Contact: <sip:rls.home1.net>
Content-Type: multipart/related;type="application/rlmi+xml";
      start="<nXYxAE@rls.home1.net>";boundary="50UBfW7LSCVLtggUPe5z"
Content-Length: (...)

--50UBfW7LSCVLtggUPe5z
Content-Transfer-Encoding: 8bit
Content-ID: <nXYxAE@rls.home1.net>
Content-Type: application/rlmi+xml;charset="UTF-8"

   <?xml version="1.0" encoding="UTF-8"?>
  <list uri="sip:user1_list1@home1.net" version="1" fullState="full"
     <resource uri="pres:user2_public1@home2.net" name="Kovacs Janos">
       <instance id="hqzsuxtfyq" state="active" cid="ZvSvkz@rls.home1.net"/>
     </resource>
     <resource uri="pres:user3_public1@home2.net" name="Szabo Bela">
       <instance id="aakdsjklsa" state="active" cid="HJjbssk@rls.home1.net"/>
     </resource>

--50UBfW7LSCVLtggUPe5z
Content-Transfer-Encoding: 8bit
Content-ID: <ZvSvkz@rls.home1.net>
Content-Type: application/cpim-pidf+xml;charset="UTF-8"

   <?xml version="1.0" encoding="UTF-8"?>
    <impp:presence xmlns:impp="urn:ietf:params:xml:ns:cpim-pidf"
      xmlns:im="urn:ietf:params:xml:ns:cpim-pidf:im" entity="pres:user2_public1@home2.net">
     <impp:tuple id="a8098a.672364762364">
       <impp:status>
         <impp:basic>open</impp:basic>
         <im:im>busy</im:im>
       </impp:status>
       <impp:contact priority="0.8">im:user2_public1@home2.net</impp:contact>
       <impp:note xml:lang="en">Don't Disturb Please!</impp:note>
       <impp:note xml:lang="fr">Ne derangez pas, s'il vous plait</impp:note>
       <impp:timestamp>2001-10-27T16:49:29Z</impp:timestamp>
     </impp:tuple>
     <impp:tuple id="jklhgf9788934774.78">
       <impp:status>
         <impp:basic>open</impp:basic>
       </impp:status>
       <impp:contact priority="1.0">tel:+1-212-555-2222</impp:contact>
     </impp:tuple>
     <impp:note>I'll be in Tokyo next week</impp:note>
    </impp:presence>

--50UBfW7LSCVLtggUPe5z
Content-Transfer-Encoding: 8bit
Content-ID: <ZvSvkz@pres.example.com>
Content-Type: application/cpim-pidf+xml;charset="UTF-8"

   <?xml version="1.0" encoding="UTF-8"?>
   <impp:presence xmlns:impp="urn:ietf:params:xml:ns:cpim-pidf"
      xmlns:im="urn:ietf:params:xml:ns:cpim-pidf:im" entity="pres:user3_public1@home3.net ">
     <impp:tuple id="sdhfjsjkl.retr921">
       <impp:status>
         <impp:basic>open</impp:basic>
         <im:im>busy</im:im>
       </impp:status>
       <impp:contact priority="0.9">im:user3_public1@home3.net</impp:contact>
       <impp:note xml:lang="en">Don't Disturb Please!</impp:note>
       <impp:note xml:lang="hu">Ne zavarj!</impp:note>
       <impp:timestamp>2001-10-27T11:49:29Z</impp:timestamp>
     </impp:tuple>
     <impp:note>I'll be in Miami next week</impp:note>
```

```
    </impp:presence>

--50UBfW7LSCVLtggUPe5z--
```

From: The tag of this field matches that of the To: field in the received 200 (OK) response for the SUBSCRIBE request.

Content-Type: Set to the value of the Accept: header received in the SUBSCRIBE request.

The message body in the NOTIFY request that carries the presence information of the presentity is formed as indicated in draft-ietf-simple-event-list-03 [6.31].

17. **NOTIFY request (S-CSCF to P-CSCF) – see example in table 6.1.3.1-17**

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

Table 6.1.3.1-17: NOTIFY request (S-CSCF to P-CSCF)

```
NOTIFY sip:[5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp SIP/2.0
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
      rls.home1.net;branch=z9hG4bK240f34.1
Max-Forwards: 69
Route: <sip:pcscf1.visited1.net;lr>
Record-Route: <sip:scscf1.home1.net;lr>
From:
To:
Call-ID:
CSeq:
Subscription-State:
Require:
Event:
Contact:
Content Type:
Content-Length:

(…)
```

18. **NOTIFY request (P-CSCF to UE) – see example in table 6.1.3.1-18**

The P-CSCF forwards the NOTIFY request to the watcher application in the UE.

Table 6.1.3.1-18: NOTIFY request (P-CSCF to UE)

```
NOTIFY sip:[5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp SIP/2.0
Via: SIP/2.0/UDP pcscf1.visited1.net;branch=240f34.1, SIP/2.0/UDP
      scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
      rls.home1.net;branch=z9hG4bK240f34.1
Max-Forwards: 68
Record-Route: <sip:scscf1.home1.net;lr>, <sip:pcscf1.visited1.net:7531;lr;comp=sigcomp>
From:
To:
Call-ID:
CSeq:
Subscription-State:
Require:
Event:
Content-Type:
Content-Length:

(…)
```

19. **200 (OK) response (UE to P-CSCF) – see example in table 6.1.3.1-19**

The UE acknowledges the NOTIFY request with a 200 (OK) response to the P-CSCF.

Table 6.1.3.1-19: 200 (OK) response (UE to P-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP pcscf1.visited1.net;branch=240f34.1, SIP/2.0/UDP
      scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
      rls.home1.net;branch=z9hG4bK240f34.1
From:
To:
Call-ID:
CSeq:
Content-Length: 0
```

20. **200 (OK) response (P-CSCF to S-CSCF) – see example in table 6.1.3.1-20**

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

Table 6.1.3.1-20: 200 (OK) response (P-CSCF to S-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
      rls.home1.net;branch=z9hG4bK240f34.1
From:
To:
Call-ID:
CSeq:
Content-Length:
```

21. **200 (OK) response (S-CSCF to RLS) – see example in table 6.1.3.1-21**

The S-CSCF#2 forwards the response to the RLS in the home network of the UE.

Table 6.1.3.1-21: 200 (OK) response (S-CSCF to RLS)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP rls.home1.net;branch=z9hG4bK240f34.1
From:
To:
Call-ID:
CSeq:
Content-Length:
```

6.1.3.2 IMS watcher subscribing to a resource list, UE in visited network - successful subscription

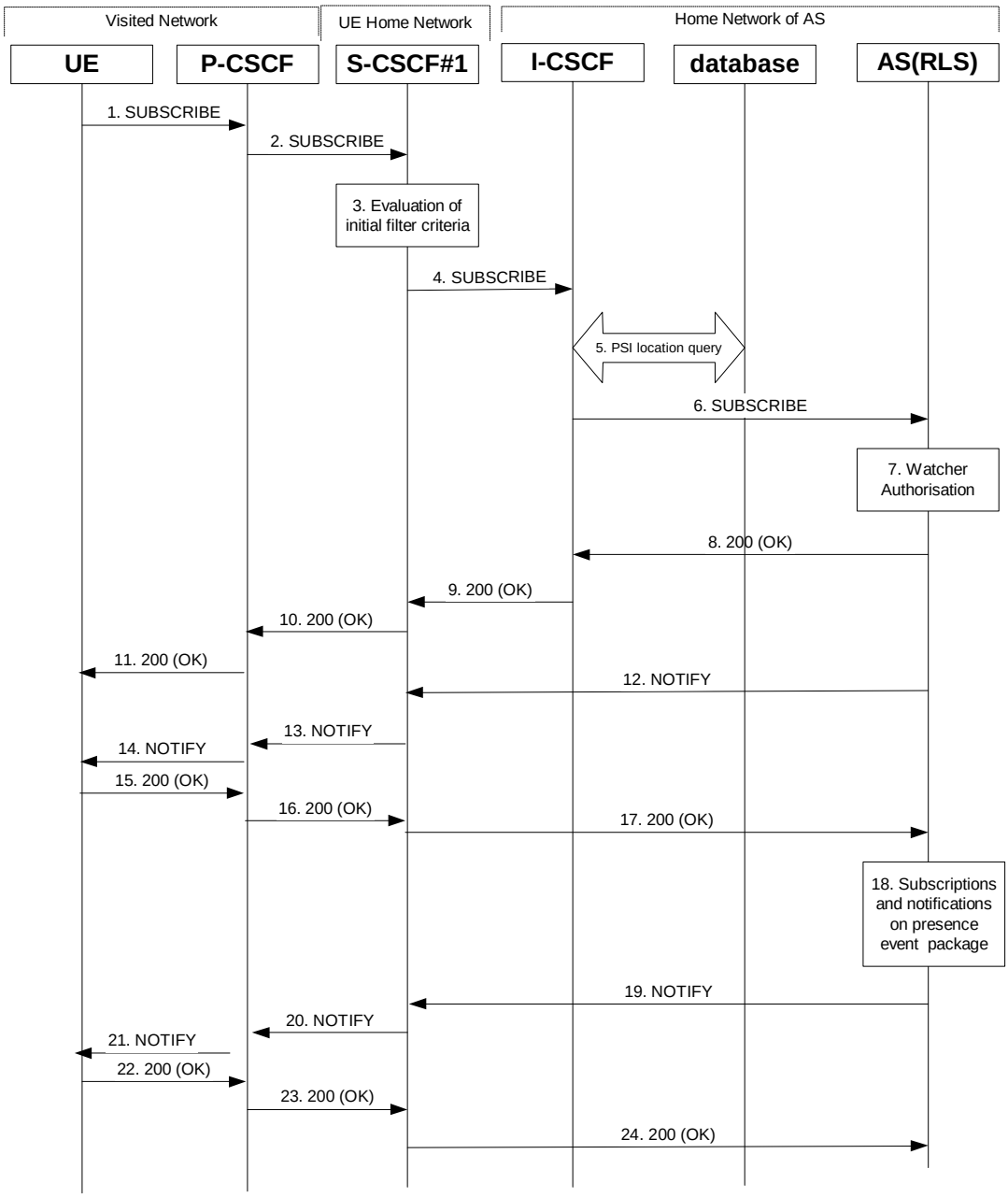

Figure 6.1.3.2-1 IMS watcher subscribing to resource list

Figure 6.1.3.2-1 shows an IMS watcher subscribing to resource list event notification. The details of the flows as follows:

1. **SUBSCRIBE request (UE to P-CSCF) – see example in table 6.1.3.2-1**

   A watcher agent in a UE wishes to watch a number of presentities, or certain tuples of these presentities. The list of presentities are identified by a SIP URI. In order to initiate a subscription to the RLS, the UE generates a SUBSCRIBE request indicating support for 'eventlist', together with an indication of the length of time this periodic subscription should last.

Table 6.1.3.2-1: SUBSCRIBE request (UE to P-CSCF)

```
SUBSCRIBE sip:user2_list1@home2.net SIP/2.0
Via: SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKehuefdam
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:orig@scscf1.home1.net;lr>
P-Preferred-Identity: <sip:user1_public1@home1.net>
Privacy: none
From: <sip:user1_public1@home1.net>;tag=31415
To: <sip:user2_list1@home1.net>
Call-ID: b89rjhnedlrfjflslj40a222
CSeq: 123 SUBSCRIBE
Require: sec-agree
Proxy-Require: sec-agree
Security-Verify: ipsec-3gpp; q=0.1; alg=hmac-sha-1-96; spi=87654321; port1=7531
Event: presence
Supported: eventlist
Expires: 7200
Accept: application/cpim-pidf+xml, application/rlmi+xml, multipart/related
Contact: <sip:[5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp>
Content-Length: 0
```

Request-URI: SIP URI of the resource list representing the collection of public user identities whose events the subscriber subscribes to.

Privacy: the user does not require privacy, therefore the Privacy header is set to the value "none" as specified in RFC 3325 [6.17] and RFC 3323 [6.13].

P-Preferred-Identity: the user provides a hint about the identity to be used.

From: This field is populated with logical representation (FQDN) for the entity sending the SUBSCRIBE.

Event: This field is populated with the value 'presence' to specify the use of the presence package.

Accept: This field is populated with the value 'application/cpim-pidf+xml', 'application/rlmi+xml' and 'multipart/related' indicating that the UE supports the eventlist extension additionally to PIDF.

Supported: This field is populated with the value 'eventlist' to specify the support for the eventlist extension.

To: Same as the Request-URI.

Contact: The contact information of the subscribing user.

2. **SUBSCRIBE request (P-CSCF to S-CSCF) – see example in table 6.1.3.2-2**

The P-CSCF looks up the serving network information for the public user identity that was stored during the registration procedure. The SUBSCRIBE request is forwarded to S-CSCF#1. A Route header is inserted into SUBSCRIBE request. The information for the Route header is taken from the service route determined during registration.

Table 6.1.3.2-2: SUBSCRIBE request (P-CSCF to S-CSCF)

```
SUBSCRIBE sip:user2_list1@home2.net SIP/2.0
Via: SIP/2.0/UDP pcscf1.visited1.net;branch=z9hG4bK120f34.1, SIP/2.0/UDP
      [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKehuefdam
P-Access-Network-Info:
Route: <sip:orig@scscf1.home1.net;lr>
Max-Forwards: 69
P-Asserted-Identity: <sip:user1_public1@home1.net>
Privacy:
Record-Route: <sip:pcscf1.visited1.net;lr>
Route: <sip:scscf1.home1.net;lr>
From:
To:
Call-ID:
CSeq:
Event:
Supported:
Expires:
Accept:
Contact:
Content-Length:
```

P-Asserted-Identity: P-CSCF inserts the SIP URI in the P-Asserted-Identity header field and it also removes the P-Preferred-Identity header field.

Route: The Route header field is populated with the service route from registration.

3. **Evaluation of initial filter criteria**

   S-CSCF#1 validates the service profile of this subscriber and evaluates the initial filter criteria. For this example, assume no application server involvement.

4. **SUBSCRIBE request (S-CSCF to I-CSCF) – see example in table 6.1.3.2-4**

   S-CSCF#1 performs an analysis of the destination address. As the destination address points to a resource that is in a different network as the S-CSCF, the S-CSCF sends the request to the I-CSCF of home2.net.

Table 6.1.3.2-4: SUBSCRIBE request (S-CSCF to I-CSCF)

```
SUBSCRIBE sip:user2_list1@home2.net SIP/2.0
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK344a65.1, SIP/2.0/UDP
      pcscf1.visited1.net;branch=z9hG4bK120f34.1, SIP/2.0/UDP
      [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKehuefdam
Max-Forwards: 68
P-Asserted-Identity: <sip:user1_public1@home1.net>, <tel:+1-212-555-1111>
Privacy:
Record-Route: <orig@sip:scscf1.home1.net;lr>, <sip:pcscf1.visited1.net;lr>
From:
To:
Call-ID:
CSeq:
Event:
Supported:
Expires:
Accept:
Contact:
Content-Length:
```

P-Asserted-Identity: The S-CSCF inserts the TEL URI of the user in the P-Asserted-Identity header field.

5. **Public service identity (PSI) location query**

   The I-CSCF sends a query to the database to find out the RLS where sip:user2_list1@home2.net is hosted. The database responds with the address of the RLS.

Editor's Note: It is still under discussion in SA2 which entity in the IMS shall act as the database. Therefore the text of the above paragraph has to be updated according to SA2 decision.

Editor's Note: More detailed information is needed here, similar to the Cx interface information given in 24.228.

6. **SUBSCRIBE request (I-CSCF to RLS) – see example in table 6.1.3.2-6**

   The I-CSCF forwards the SUBSCRIBE request to the RLS.

Table 6.1.3.2-6: SUBSCRIBE request (I-CSCF to S-CSCF)

```
SUBSCRIBE sip:user2_list1@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=z9hG4bK344a65.1, SIP/2.0/UDP
      pcscf1.visited1.net;branch=z9hG4bK120f34.1, SIP/2.0/UDP
      [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKehuefdam
Max-Forwards: 67
P-Asserted-Identity:
Privacy:
Record-Route:
Route: <sip:rls.home2.net;lr>
From:
To:
Call-ID:
CSeq:
Event:
Supported:
Expires:
Accept:
Contact:
Content-Length:
```

NOTE: The I-CSCF does not add itself to the Record-Route header, as it has no need to remain in the signalling path for the subsequent requests.

7. **Authorisation of watcher**

   The RLS performs the necessary authorisation checks on the originator to ensure that he/she is the owner of the resource list. In this example this condition has been met, so the PS sends a 200 (OK) response to the S-CSCF. If the previous condition failed, then a 403 (Forbidden) response would be sent to the S-CSCF.

8. **200 (OK) response (RLS to I-CSCF) - see example in table 6.1.3.2-8**

   The RLS sends the response to the S-CSCF.

Table 6.1.3.2-8: 200 (OK) response (RLS 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=z9hG4bK344a65.1, SIP/2.0/UDP
      pcscf1.visited1.net;branch=z9hG4bK120f34.1, SIP/2.0/UDP
      [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKehuefdam
Record-Route:
From:
To: <sip:user2_list1@home2.net>;tag=151170
Call-ID:
CSeq:
Require: eventlist
Expires:
Contact: <sip:rls.home2.net>
Content-Length: 0
```

9. **200 (OK) response (I-CSCF to S-CSCF) - see example in table 6.1.3.2-9**

   The I-CSCF forwards the response to the S-CSCF.

Table 6.1.3.2-9: 200 (OK) response (I-CSCF to S-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK344a65.1, SIP/2.0/UDP
      pcscf1.visited1.net;branch=z9hG4bK120f34.1, SIP/2.0/UDP
      [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKehuefdam
Record-Route:
From:
To:
Call-ID:
CSeq:
Require:
Expires:
Contact:
Content-Length: 0
```

10. **200 (OK) response (S-CSCF to P-CSCF) - see example in table 6.1.3.2-10**

The S-CSCF forwards the response to the P-CSCF.

Table 6.1.3.2-10: 200 (OK) response (S-CSCF to P-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP pcscf1.visited1.net;branch=z9hG4bK120f34.1, SIP/2.0/UDP
      [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKehuefdam
Record-Route:
From:
To:
Call-ID:
CSeq:
Require:
Expires:
Contact:
Content-Length:
```

11. **200 (OK) response (P-CSCF to UE) - see example in table 6.1.3.2-11**

The P-CSCF forwards the response to the watcher agent in the UE.

Table 6.1.3.2-11: 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=z9hG4bKehuefdam
Record-Route: <sip:orig@scscf1.home1.net;lr>, <sip:pcscf1.home1.net:7531;lr;comp=sigcomp>
From:
To:
Call-ID:
CSeq:
Require:
Expires:
Contact:
Content-Length:
```

12. **NOTIFY request (RLS to S-CSCF) – see example in table 6.1.3.2-12**

The RLS generates a NOTIFY request including the RLMI document as a result of the SUBSCRIBE request.

Table 6.1.3.2-12: NOTIFY request (RLS to S-CSCF)

```
NOTIFY sip:[5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp SIP/2.0
Via: SIP/2.0/UDP rls.home2.net;branch=z9hG4bK240f34.1
Max-Forwards: 70
Route: <sip:scscf1.home1.net;lr>, <sip:pcscf1.visited1.net;lr>
From: <sip:user2_list1@home1.net>;tag=151170
To: <sip:user1_public1.home1.net>;tag=31415
Call-ID: b89rjhnedlrfjflslj40a222
CSeq: 89 NOTIFY
Subscription-State: active;expires=5000
Require: eventlist
Event: presence
Contact: <sip:rls.home1.net>
Content-Type: application/rlmi+xml
Content-Length: (...)

   <?xml version="1.0" encoding="UTF-8"?>
  <list uri="sip:user1_list1@home1.net" version="1" fullState="true"
     <resource uri="pres:user2_public1@home2.net" name="Kovacs Janos">
       <instance id="hqzsuxtfyq" state="active" cid="ZvSvkz@rls.home2.net"/>
     </resource>
     <resource uri="pres:user3_public1@home2.net" name="Szabo Bela">
       <instance id="aakdsjklsa" state="active" cid="HJjbssk@rls.home2.net"/>
     </resource>
```

From: The tag of this field matches that of the To field in the received 200 (OK) for the SUBSCRIBE.

13. **NOTIFY request (S-CSCF to P-CSCF) – see example in table 6.1.3.2-13**

The S-CSCF#1 forwards the NOTIFY request to the P-CSCF.

Table 6.1.3.2-13: NOTIFY request (S-CSCF to P-CSCF)

```
NOTIFY sip:[5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp SIP/2.0
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
      rls.home2.net;branch=z9hG4bK240f34.1
Max-Forwards: 69
Record-Route: <sip:scscf1.home1.net;lr>
Route: <sip:pcscf1.visited1.net;lr>
From:
To:
Call-ID:
CSeq:
Subscription-State:
Require:
Event:
Contact:
Content-Type:
Content-Length:

(…)
```

14. **NOTIFY request (P-CSCF to UE) – see example in table 6.1.3.2-14**

The P-CSCF forwards the NOTIFY request to the watcher application in the UE.

Table 6.1.3.2-14: NOTIFY request (P-CSCF to UE)

```
NOTIFY sip:[5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp SIP/2.0
Via: SIP/2.0/UDP pcscf1.visited1.net;branch=240f34.1, SIP/2.0/UDP
      scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
      rls.home2.net;branch=z9hG4bK240f34.1
Max-Forwards: 68
Record-Route: <sip:scscf1.home1.net;lr>, <sip:pcscf1.home1.net:7531;lr;comp=sigcomp>
From:
To:
Call-ID:
CSeq:
Subscription-State:
Require:
Event: Contact:
Content-Type:
Content-Length:

(…)
```

15. **200 (OK) response (UE to P-CSCF) – see example in table 6.1.3.2-15**

The UE acknowledges the NOTIFY request with a 200 (OK) to the P-CSCF.

Table 6.1.3.2-15: 200 (OK) response (UE to P-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP pcscf1.visited1.net;branch=240f34.1, SIP/2.0/UDP
      scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
      rls.home2.net;branch=z9hG4bK240f34.1
P-Access-Network-Info: 3GPP-UTRAN-TDD; utran-cell-id-3gpp=234151D0FCE11
From:
To:
Call-ID:
CSeq:
Content-Length: 0
```

16. **200 (OK) response (P-CSCF to S-CSCF) – see example in table 6.1.3.2-16**

The P-CSCF forwards the 200 (OK) response to the S-CSCF#1.

Table 6.1.3.2-16: 200 (OK) response (P-CSCF to S-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
      rls.home2.net;branch=z9hG4bK240f34.1
P-Access-Network-Info:
From:
To:
Call-ID:
CSeq:
Content-Length:
```

17. **200 (OK) response (S-CSCF to RLS) – see example in table 6.1.3.2-17**

The S-CSCF#1 forwards the response to the RLS in the home network of the UE.

Table 6.1.3.2-17: 200 (OK) response (S-CSCF to RLS)

```
SIP/2.0 200 OK
Via: SP/2.0/UDP rls.home2.net;branch=z9hG4bK240f34.1
P-Access-Network-Info:
From:
To:
Call-ID:
CSeq:
Content-Length:
```

18. **Subscriptions and notifications on presence event package**

After the RLS generated a 200 (OK) response to the SUBSCRIBE request from the UE, it generates the necessary SUBSCRIBE requests to the presentities present in the resource list as described in subclause 6.1.4.1. As soon as it receives NOTIFY request(s) about a state change in one or more presentities, it generates a NOTIFY request.

19. **NOTIFY request (RLS to S-CSCF) – see example in table 6.1.3.2-19**

The RLS copies the body of the incoming NOTIFY request(s) into the body of the outgoing NOTIFY request using MIME type multipart/related. Further notification sent by the RLS contain may contain either the full or the partial set of presence information (only the presence information that has changed since the last notification) as described in draft-ietf-simple-event-list-03 [6.31].

In this example it is assumed that the RLS receives two NOTIFY requests from presentities sip:user2_public1@home2.net and sip:user3_public1@home3.net before generating the NOTIFY request in 6.1.3.2-23 to the UE.

Table 6.1.3.2-19: NOTIFY request (RLS to S-CSCF)

```
NOTIFY sip:[5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp SIP/2.0
Via: SIP/2.0/UDP rls.home2.net;branch=z9hG4bK240f34.1
Max-Forwards: 70
Route: <sip:scscf1.home1.net;lr>, <sip:pcscf1.visited1.net;lr>
From: <sip:user2_list1@home1.net>;tag=151170
To: <sip:user1_public1.home1.net>;tag=31415
Call-ID: b89rjhnedlrfjflslj40a222
CSeq: 89 NOTIFY
Subscription-State: active;expires=5000
Require: eventlist
Event: presence
Contact: <sip:rls.home2.net>
Content-Type: multipart/related;type="application/rlmi+xml";
       start="<nXYxAE@rls.home2.net>";boundary="50UBfW7LSCVLtggUPe5z"
Content-Length: (...)

--50UBfW7LSCVLtggUPe5z
Content-Transfer-Encoding: 8bit
Content-ID: <nXYxAE@rls.home2.net>
Content-Type: application/rlmi+xml;charset="UTF-8"

   <?xml version="1.0" encoding="UTF-8"?>
  <list uri="sip:user1_list1@home1.net" version="1" fullState="true"
     <resource uri="pres:user2_public1@home2.net" name="Kovacs Janos">
       <instance id="hqzsuxtfyq" state="active" cid="ZvSvkz@rls.home2.net"/>
     </resource>
     <resource uri="pres:user3_public1@home2.net" name="Szabo Bela">
       <instance id="aakdsjklsa" state="active" cid="HJjbssk@rls.home2.net"/>
     </resource>

--50UBfW7LSCVLtggUPe5z
Content-Transfer-Encoding: 8bit
Content-ID: <ZvSvkz@rls.home2.net>
Content-Type: application/cpim-pidf+xml;charset="UTF-8"

   <?xml version="1.0" encoding="UTF-8"?>
    <impp:presence xmlns:impp="urn:ietf:params:xml:ns:cpim-pidf"
      xmlns:im="urn:ietf:params:xml:ns:cpim-pidf:im" entity="pres:user2_public1@home2.net">
     <impp:tuple id="a8098a.672364762364">
       <impp:status>
         <impp:basic>open</impp:basic>
         <im:im>busy</im:im>
       </impp:status>
       <impp:contact priority="0.8">im:user2_public1@home2.net</impp:contact>
       <impp:note xml:lang="en">Don't Disturb Please!</impp:note>
       <impp:note xml:lang="fr">Ne derangez pas, s'il vous plait</impp:note>
       <impp:timestamp>2001-10-27T16:49:29Z</impp:timestamp>
     </impp:tuple>
     <impp:tuple id="jklhgf9788934774.78">
       <impp:status>
         <impp:basic>open</impp:basic>
       </impp:status>
       <impp:contact priority="1.0">tel:+1-212-555-2222</impp:contact>
     </impp:tuple>
     <impp:note>I'll be in Tokyo next week</impp:note>
    </impp:presence>

--50UBfW7LSCVLtggUPe5z
Content-Transfer-Encoding: 8bit
Content-ID: <ZvSvkz@pres.example.com>
Content-Type: application/cpim-pidf+xml;charset="UTF-8"

   <?xml version="1.0" encoding="UTF-8"?>
   <impp:presence xmlns:impp="urn:ietf:params:xml:ns:cpim-pidf"
      xmlns:im="urn:ietf:params:xml:ns:cpim-pidf:im" entity="pres:user3_public1@home3.net">
     <impp:tuple id="sdhfjsjkl.retr921">
       <impp:status>
         <impp:basic>open</impp:basic>
         <im:im>busy</im:im>
       </impp:status>
       <impp:contact priority="0.9">im:user3_public1@home3.net</impp:contact>
       <impp:note xml:lang="en">Don't Disturb Please!</impp:note>
       <impp:note xml:lang="hu">Ne zavarj!</impp:note>
       <impp:timestamp>2001-10-27T11:49:29Z</impp:timestamp>
     </impp:tuple>
     <impp:note>I'll be in Miami next week</impp:note>
```

```
    </impp:presence>

--50UBfW7LSCVLtggUPe5z--
```

From: The tag of this field matches that of the To field in the received 200 (OK) for the SUBSCRIBE.

Content-Type: Set to the value of the Accept: header received in the SUBSCRIBE request.

The message body in the NOTIFY request that carries the presence information of the presentity is formed as indicated in draft-ietf-simple-event-list-03 [6.31].

20. **NOTIFY request (S-CSCF to P-CSCF) – see example in table 6.1.3.2-20**

The S-CSCF#1 forwards the NOTIFY request to the P-CSCF.

Table 6.1.3.2-20: NOTIFY request (S-CSCF to P-CSCF)

```
NOTIFY sip:[5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp SIP/2.0
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
      rls.home2.net;branch=z9hG4bK240f34.1
Max-Forwards: 69
Route: <sip:pcscf1.visited1.net;lr>
Record-Route: <sip:scscf1.home1.net;lr>
From:
To:
Call-ID:
CSeq:
Subscription-State:
Require:
Event:
Contact:
Content-Type:
Content-Length:

(…)
```

21. **NOTIFY request (P-CSCF to UE) – see example in table 6.1.3.2-21**

The P-CSCF forwards the NOTIFY request to the watcher application in the UE.

Table 6.1.3.2-21: NOTIFY request (P-CSCF to UE)

```
NOTIFY sip:[5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp SIP/2.0
Via: SIP/2.0/UDP pcscf1.visited1.net;branch=240f34.1, SIP/2.0/UDP
      scscf1.home1.net;branch=z9hG4bK332b23.1SIP/2.0/UDP rls.home2.net;branch=z9hG4bK240f34.1
Max-Forwards: 68
Record-Route: <sip:scscf1.home1.net;lr>, <sip:pcscf1.home1.net:7531;lr;comp=sigcomp>
From:
To:
Call-ID:
CSeq:
Subscription-State:
Require:
Event:
Contact:
Content-Type:
Content-Length:

(…)
```

22. **200 (OK) response (UE to P-CSCF) – see example in table 6.1.3.2-22**

The UE acknowledges the NOTIFY request with a 200 (OK) to the P-CSCF.

Table 6.1.3.2-22: 200 (OK) response (UE to P-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP pcscf1.visited1.net;branch=240f34.1, SIP/2.0/UDP
      scscf1.home1.net;branch=z9hG4bK332b23.1SIP/2.0/UDP rls.home2.net;branch=z9hG4bK240f34.1
P-Access-Network-Info: 3GPP-UTRAN-TDD; utran-cell-id-3gpp=234151D0FCE11
From:
To:
Call-ID:
CSeq:
Content-Length: 0
```

23. **200 (OK) response (P-CSCF to S-CSCF) – see example in table 6.1.3.2-23**

The P-CSCF forwards the 200 (OK) response to the S-CSCF#1.

Table 6.1.3.2-23: 200 (OK) response (P-CSCF to S-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
      rls.home2.net;branch=z9hG4bK240f34.1
P-Access-Network-Info:
From:
To:
Call-ID:
CSeq:
Content-Length:
```

24. **200 (OK) response (S-CSCF to RLS) – see example in table 6.1.3.2-24**

The S-CSCF#2 forwards the response to the RLS in the home network of the UE.

Table 6.1.3.2-24: 200 (OK) response (S-CSCF to RLS)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP rls.home2.net;branch=z9hG4bK240f34.1
P-Access-Network-Info:
From:
To:
Call-ID:
CSeq:
Content-Length:
```

6.1.4 RLS subscribing to IMS presentities in different network

6.1.4.1 Successful subscription

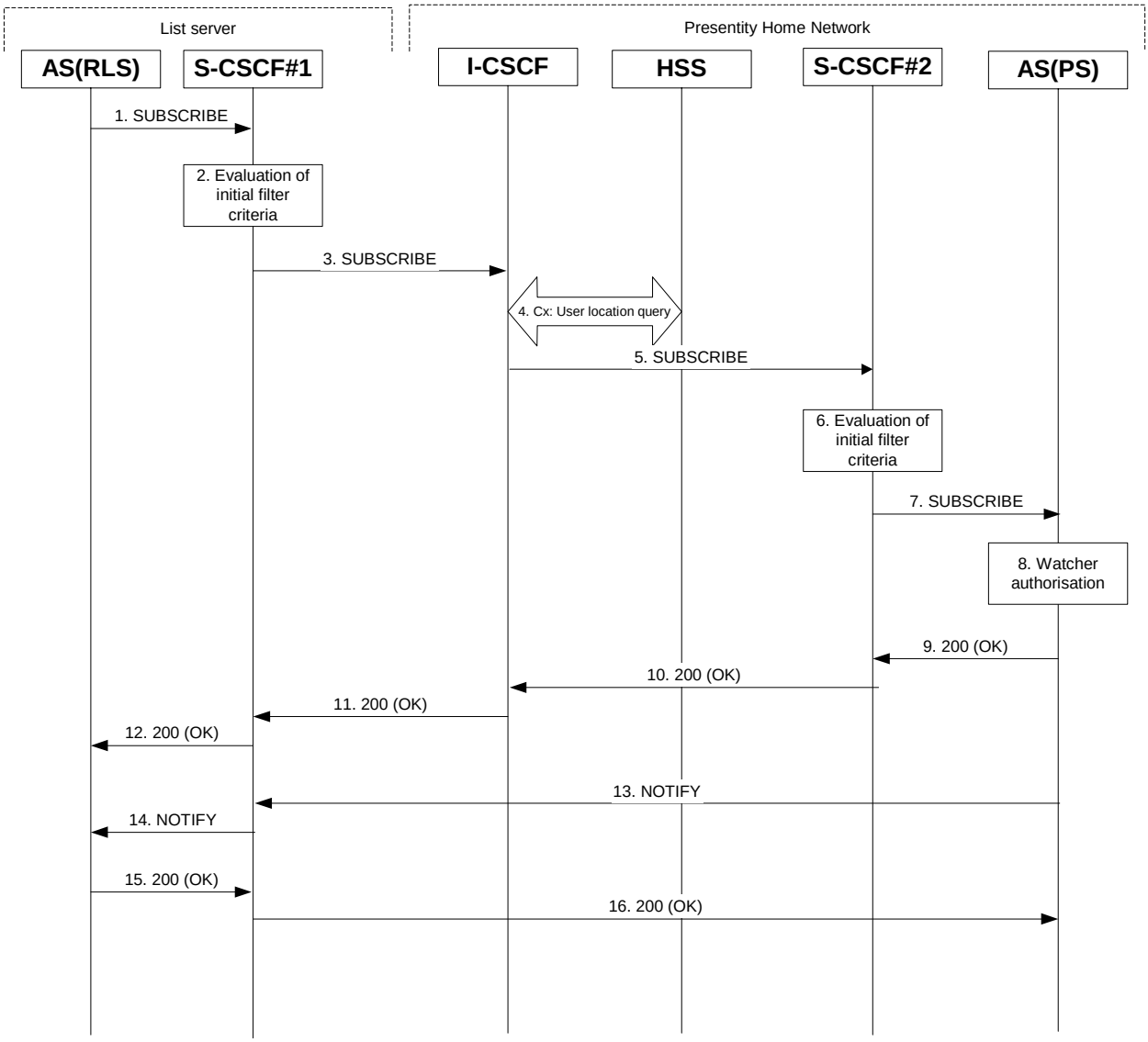

Figure 6.1.4.1-1 RLS subscribing to IMS presentities in different network

Figure 6.1.4.1-1 shows the RLS subscribing to presence event notification about an IMS-based presentity. The presentity is in a different IM CN subsystem. The details of the flows as follows:

1. **SUBSCRIBE request (RLS to S-CSCF) – see example in table 6.1.4.1-1**

   The RLS resolves the watcher's resource address (the address is received according to subclause 6.1.3) and subscribes to presence event notification at all the presentities that are represented by the resouce list SIP URI. The home network of these presentities can be different or in the same network, as the RLS. In this example only a single subscription is shown where the home network of the presentity is another network. Subscriptions to other presentities follow a similar procedure. To initiate a subscription, the RLS generates a SUBSCRIBE request containing the 'presence' event that it wishes to be notified of, together with an indication of the length of time this periodic subscription should last. The RLS sends the SUBSCRIBE request to the S-CSCF of 'sip:user1_public1@home1.net' (S-CSCF#1). The address of S-CSCF#1 is either remembered from previous transactions (when 'sip:user1_public1@home1.net' has subscribed for the resource list) or queried by the RLS using the Sh interface.

Table 6.1.4.1-1 SUBSCRIBE request (RLS to S-CSCF)

```
SUBSCRIBE sip:user2_public1@home2.net SIP/2.0
Via: SIP/2.0/UDP rls.home1.net;branch=z9hG4bKehuefdam
Max-Forwards: 70
Route: <sip:scscf1.home1.net;lr>
P-Asserted-Identity: <sip:user1_public1@home1.net>
From: <sip:user1_public1@home1.net>;tag=31415
To: <sip:rls.home2.net>
Call-ID: q987a9a87g087abgf7qyg7ag
CSeq: 123 SUBSCRIBE
Event: presence
Expires: 7200
Accept: application/cpim-pidf+xml
Contact: <sip:rls.home1.net>
Content-Length: 0
```

Request-URI: Public user identity whose events the RLS subscribes to.

From: This field is populated with the SIP URI containing the logical representation (FQDN) for the entity that has subscribed to the resource list.

Event: This field is populated with the value 'presence' to specify the use of the presence package.

Accept: This field is populated with the value 'application/cpim-pidf+xml'.

To: Same as the Request-URI.

Contact: The contact information of the RLS.

2. **Evaluation of initial filter criteria**

   S-CSCF#1 validates the service profile of this subscriber and evaluates the initial filter criteria. For this example, assume no application server involvement.

3. **SUBSCRIBE request (S-CSCF to I-CSCF) – see example in table 6.1.4.1-3**

   S-CSCF#1 performs an analysis of the destination address, and determines the network operator to whom the destination subscriber belongs. S-CSCF#1 forwards the request to the I-CSCF.

Table 6.1.4.1-3 SUBSCRIBE request (S-CSCF to I-CSCF)

```
SUBSCRIBE sip:user2_public1@home2.net SIP/2.0
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bKehuehjgt, SIP/2.0/UDP
      rls.home1.net;branch=z9hG4bKehuefdam
Max-Forwards: 69
Record-Route: <sip:orig@scscf1.home1.net;lr>
P-Asserted-Identity:
From:
To:
Call-ID:
CSeq:
Event:
Expires:
Accept:
Contact:
Content-Length:
```

4. **Cx: User Location Query procedure**

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

   For detailed message flows see 3GPP TS 29.228 [6.11].

   Table 6.1.4.1-4a provides the parameters in the SIP SUBSCRIBE request (flow 3), which are sent to the HSS.

Table 6.1.4.1-4a: Cx: User registration status query procedure (I-CSCF to HSS)

Message source & destination	Cx: Information element name	Information source in SIP SUBSCRIBE	Description
I-CSCF to HSS	User Public Identity	Request-URI	This information element indicates the public user identity

Table 6.1.4.1-4b provides the parameters sent from the HSS that need to be mapped to SIP SUBSCRIBE request (flow 5) and sent to the S-CSCF.

Table 6.1.4.1-4b: Cx: User registration status query procedure (HSS to I-CSCF)

Message source & destination	Cx: Information element name	Mapping to SIP header in SIP SUBSCRIBE	Description
HSS to I-CSCF	S-CSCF name	Route header field	This information indicates the serving CSCF's name of that user

5. **SUBSCRIBE request (I-CSCF to S-CSCF) – see example in table 6.1.4.1-5**

The I-CSCF forwards the SUBSCRIBE request to the S-CSCF#2 that will handle the termination.

Table 6.1.4.1-5: SUBSCRIBE request (I-CSCF to S-CSCF)

```
SUBSCRIBE sip:user2_public1@home2.net SIP/2.0
Via: SIP/2.0/UDP icscf2_s.home2.net;branch=z9hG4bKj5hgrt2o, SIP/2.0/UDP
      scscf1.home1.net;branch=z9hG4bKehuehjgt, SIP/2.0/UDP
      rls.home1.net;branch=z9hG4bKehuefdam
Max-Forwards: 68
P-Asserted-Identity:
Route: <sip:scscf2.home2.net;lr>
Record-Route:
From:
To:
Call-ID:
CSeq:
Event:
Expires:
Accept:
Contact:
Content-Length:
```

NOTE: The I-CSCF does not add itself to the Record-Route header, as it has no need to remain in the signalling path for the subsequent requests.

6. **Evaluation of initial filter criteria**

S-CSCF#2 validates the service profile of this subscriber and evaluates the initial filter criteria. For sip:user2_public1@home2.net the S-CSCF has Termination initial Filter Criteria with Service Points of Interest of Method = SUBSCRIBE AND Event = 'presence' and action = 'create Record-Route entry: no' that informs the S-CSCF to route the SUBSCRIBE request to the Application Server ps.home2.net and do not create a Record-Route entry for the request.

7. **SUBSCRIBE request (S-CSCF to PS) – see example in table 6.1.4.1-7**

The S-CSCF#2 forwards the SUBSCRIBE request to the PS.

Table 6.1.4.1-7 SUBSCRIBE request (S-CSCF to PS)

```
SUBSCRIBE sip:user2_public1@home2.net SIP/2.0
Via: SIP/2.0/UDP scscf2.home2.net;branch=z9hG4bK344a65.1, SIP/2.0/UDP
      icscf2_s.home2.net;branch=z9hG4bKj5hgrt2o, SIP/2.0/UDP
      scscf1.home1.net;branch=z9hG4bKehuehjgt, SIP/2.0/UDP
      rls.home1.net;branch=z9hG4bKehuefdam
Max-Forwards: 67
P-Asserted-Identity:
Route: <sip:ps.home2.net;lr>, <sip:scscf2.home2.net;lr>
Record-Route: <sip:orig@scscf1.home1.net;lr>
From:
To:
Call-ID:
CSeq:
Event:
Expires:
Accept:
Contact:
Content-Length:
```

8. **Authorisation of watcher**

   The PS performs the necessary authorisation checks on the originator to ensure it is allowed to watch the presentity. In this example all privacy conditions are met, so the PS sends a 200 (OK) response to the S-CSCF.

   In the case where the privacy/authorisation checks failed, then a necessary 2xx or 4xx response would be sent to the S-CSCF. The selection of the correct response code depends on the presentity's authorisation policy document.

9. **200 (OK) response (PS to S-CSCF) - see example in table 6.1.4.1-9**

   The PS sends the response to S-CSCF#2.

Table 6.1.4.1-9: 200 (OK) response (PS to S-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP scscf2.home2.net;branch=z9hG4bK344a65.1, SIP/2.0/UDP
      icscf2_s.home2.net;branch=z9hG4bKj5hgrt2o, SIP/2.0/UDP
      scscf1.home1.net;branch=z9hG4bKehuehjgt, SIP/2.0/UDP
      rls.home1.net;branch=z9hG4bKehuefdam
Record-Route:
From:
To: <sip:user2_public1@home2.net>;tag=151170
Call-ID:
CSeq:
Expires:
Contact: <sip:ps.home2.net;lr>
Content-Length: 0
```

10. **200 (OK) response (S-CSCF to I-CSCF) - see example in table 6.1.4.1-10**

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

Table 6.1.4.1-10: 200 (OK) response (S-CSCF to I-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP icscf2_s.home2.net;branch=z9hG4bKj5hgrt2o, SIP/2.0/UDP
      scscf1.home1.net;branch=z9hG4bKehuehjgt, SIP/2.0/UDP
      rls.home1.net;branch=z9hG4bKehuefdam
Record-Route:
From:
To:
Call-ID:
CSeq:
Expires:
Contact:
Content-Length:
```

11. **200 (OK) response (I-CSCF to S-CSCF) - see example in table 6.1.4.1-11**

The I-CSCF forwards the response to S-CSCF#1.

Table 6.1.4.1-11: 200 (OK) response (I-CSCF to S-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bKehuehjgt, SIP/2.0/UDP
      rls.home1.net;branch=z9hG4bKehuefdam
Record-Route:
From:
To:
Call-ID:
CSeq:
Expires:
Contact:
Content-Length:
```

12. **200 (OK) response (I-CSCF to RLS) - see example in table 6.1.4.1-12**

S-CSCF#1 forwards the response to the RLS.

Table 6.1.4.1-12: 200 (OK) response (S-CSCF to RLS)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP rls.home1.net;branch=z9hG4bKehuefdam
Record-Route:
From:
To:
Call-ID:
CSeq:
Expires:
Contact:
Content-Length:
```

13. **NOTIFY request (PS to S-CSCF) - see example in table 6.1.4.1-13**

As soon as the PS sends a 200 (OK) response to accept the subscription, it sends a NOTIFY request with the current state of the presentity's tuples that the watcher has subscribed and been authorised to. The NOTIFY request is sent to S-CSCF#1. Further notification sent by the PS may either contain the complete set of presence information, or only those tuples that have changed since the last notification.

Table 6.1.4.1-13: NOTIFY request (PS to S-CSCF)

```
NOTIFY sip:rls.home1.net SIP/2.0
Via: SIP/2.0/UDP ps.home2.net;branch=z9hG4bK348923.1
Max-Forwards: 70
Route: <sip:scscf1.home1.net;lr>
From: <sip:user1_public1@home2.net>;tag=151170
To: <sip:rls.home1.net>;tag=31415
Call-ID: q987a9a87g087abgf7qyg7ag
CSeq: 42 NOTIFY
Subscription-State:active;expires=7200
Event: presence
Contact: <sip:ps.home2.net>
Content-Type: application/cpim-pidf+xml
Content-Length: (...)

   <?xml version="1.0" encoding="UTF-8"?>
   <presence xmlns="urn:ietf:params:xml:ns:cpim-pidf"
        xmlns:im="urn:ietf:params:xml:ns:cpim-pidf:im"
        entity="pres:user2_public1@home2.net ">
     <tuple id="a8098a.672364762364">
       <status>
         <basic>open</basic>
         <im:im>busy</im:im>
       </status>
       <contact priority="0.8">im:user2_public1@home2.net</contact>
       <note xml:lang="en">Don't Disturb Please!</note>
       <note xml:lang="fr">Ne derangez pas, s'il vous plait</note>
       <timestamp>2001-10-27T16:49:29Z</timestamp>
     </tuple>
     <tuple id="jklhgf9788934774.78">
       <status>
         <basic>open</basic>
       </status>
       <contact priority="1.0">tel:+1-212-555-2222</contact>
     </tuple>
     <note>I'll be in Tokyo next week</note>
   </presence>
```

From: The tag of this field matches that of the To field in the received 200 (OK) response for the SUBSCRIBE request.

Content-Type: Set to the value of the Accept header received in the SUBSCRIBE request or 'application/cpim-pidf+xml'.

The message body in the NOTIFY request that carries the subscriber's registration state is formed as indicated in draft-ietf-impp-cpim-pdif-07 [6.30].

14. **NOTIFY request (S-CSCF to RLS) - see example in table 6.1.4.1-14**

The S-CSCF#1 forwards the NOTIFY request to the RLS.

Table 6.1.4.1-14: NOTIFY request (S-CSCF to RLS)

```
NOTIFY sip:rls.home1.net SIP/2.0
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bKehuehjgt, SIP/2.0/UDP
      ps.home2.net;branch=z9hG4bK348923.1
Max-Forwards: 69
Record-Route: <sip:scscf1.home1.net;lr>
From:
To:
Call-ID:
CSeq:
Subscription-State:
Event:
Contact:
Content-Type:
Content-Length:

(…)
```

15. **200 (OK) response (RLS to S-CSCF) – see example in table 6.1.4.1-15**

The RLS generates a 200 (OK) response to the NOTIFY request.

Table 6.1.4.1-15: 200 (OK) response (RLS to S-CSCF)

```
SIP/2.0 200 OK
Via:
From:
To:
Call-ID:
CSeq:
Content-Length: 0
```

16. **200 (OK) response (S-CSCF to S-CSCF) – see example in table 6.1.4.1-16**

The S-CSCF#1 forwards the 200 (OK) response to the PS.

Table 6.1.4.1-16: 200 (OK) response (S-CSCF to PS)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP ps.home2.net;branch=z9hG4bK348923.1
From:
To:
Call-ID:
CSeq:
Content-Length: 0
```

6.2 Flows demonstrating how presentities update presence information

6.2.1 Introduction

6.2.2 Updating of presence information by IMS UE

6.2.2.1 Successful update

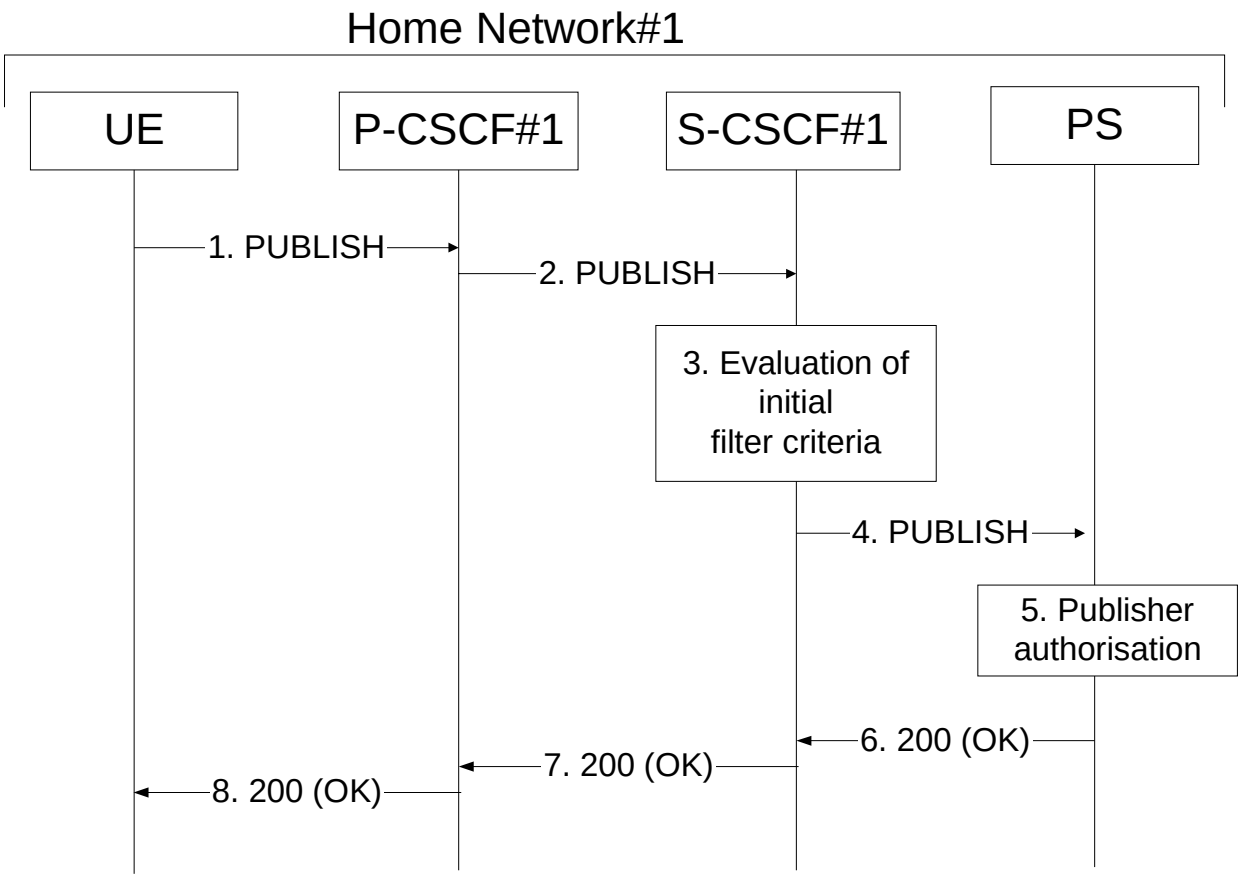

Figure 6.2.2.1-1 IMS UE updating presence information

Figure 6.2.2.1-1 shows an IMS UE publishing the presence information about an IMS based presentity. The details of the flows as follows:

1. **PUBLISH request (UE to P-CSCF) – see example in table 6.2.2.1-1**

   A Presence User Agent (PUA) in a UE wishes to publish the full state presence information. To initiate the publication, the UE generates a PUBLISH request according to draft-olson-simple-publish-01 [6.32] containing the presence information that it wishes to publish.

Editor's note: The Presence User Agent in the UE is also able to publish certain tuples of the presence information. Another call flow example is needed to describe partial publishing.

Table 6.2.2.1-1: PUBLISH request (UE to P-CSCF)

```
PUBLISH sip:user1_public1@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:pcscf1.visited1.net:7531;lr;comp=sigcomp>, <sip:orig@scscf1.home1.net;lr>
P-Preferred-Identity: <sip:user1_public1@home1.net>
Privacy: none
From: <sip:user1_public1@home1.net>;tag=31415
To: <sip:user1_public1@home1.net>
Call-ID: b89rjhnedlrfjflslj40a222
CSeq: 61 PUBLISH
Require: sec-agree
Proxy-Require: sec-agree
Security-Verify: ipsec-3gpp; q=0.1; alg=hmac-sha-1-96; spi=87654321; port1=7531
Event: presence
Expires: 7200
Content-Type: application/cpim-pidf+xml
Content-Length: (...)

<?xml version="1.0" encoding="UTF-8"?>
   <presence xmlns="urn:ietf:params:xml:ns:cpim-pidf"
        xmlns:im="urn:ietf:params:xml:ns:cpim-pidf:im"
        entity="pres:user1_public1@home1.net">
     <tuple id="asfhj67as">
       <status>
         <basic>open</basic>
         <im:im>busy</im:im>
       </status>
       <contact priority="0.8">im:user1_public1@home1.net</contact>
       <note xml:lang="en">Don't Disturb Please!</note>
       <note xml:lang="fr">Ne derangez pas, s'il vous plait</note>
       <timestamp>2001-10-27T16:49:29Z</timestamp>
     </tuple>
    <note>I'll be in Tokyo next week</note>
   </presence>
```

Request-URI: Public user identity whose presence information the PUA intends to publish.

Privacy: the user does not require privacy, therefore the Privacy header is set to the value "none" as specified in RFC 3325 [6.17] and RFC 3323 [6.13].

P-Preferred-Identity: the user provides a hint about the identity to be used.

From: This field is populated with the SIP URI that contains the logical representation (FQDN) for the entity sending the PUBLISH request.

Event: This field is populated with the value 'presence' to specify the use of the presence package.

To: Same as the Request-URI.

Content-Type: Set to the value 'application/cpim-pidf+xml'.

The message body in the PUBLISH request that carries the publisher's presence update state is formed as indicated in draft-ietf-impp-cpim-pidf-07 [6.30].

2. **PUBLISH request (P-CSCF to S-CSCF) – see example in table 6.2.2.1-2**

P-CSCF looks up the serving network information for the public user identity that was stored during the registration procedure. The PUBLISH request is forwarded to the S-CSCF. A Route header is inserted into PUBLISH request. The information for the Route header is taken from the service route determined during registration.

Table 6.2.2.1-2: PUBLISH request (P-CSCF to S-CSCF)

```
PUBLISH sip:user1_public1@home1.net SIP/2.0
Via: SIP/2.0/UDP pcscf1.home1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
      [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
P-Access-Network-Info:
Max-Forwards: 69
P-Asserted-Identity: <sip:user1_public1@home1.net>
Privacy:
Route: <sip:orig@scscf1.home1.net;lr>
From:
To:
Call-ID:
CSeq:
Event:
Expires:
Content-Type:
Content-Length:

(…)
```

P-Asserted-Identity: The P-CSCF inserts the SIP URI in the P-Asserted-Identity header field and it also removes P-Preferred-Identity header field.

Route: The Route header is populated with the service route from registration.

3. **Evaluation of initial filter criteria**

   S-CSCF#1 validates the service profile of this subscriber and evaluates the initial filter criteria. For user1_public1@home1.net S-CSCF#1 has originating initial Filter Criteria with Service Points of Interest of Method = PUBLISH AND Event = 'presence' AND To = 'sip:user1_public1@home1.net' that informs the S-CSCF to route the PUBLISH request to the Application Server ps.home1.net.

4. **PUBLISH (S-CSCF to PS) – see example in table 6.2.2.1-4**

   The S-CSCF#1 forwards the PUBLISH request to the PS.

Table 6.2.2.1-4: PUBLISH (S-CSCF to PS)

```
PUBLISH sip:user1_public1@home1.net SIP/2.0
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK351g45.1, SIP/2.0/UDP
      pcscf1.home1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
      [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 68
P-Asserted-Identity:
Privacy:
Route: <sip:ps.home1.net;lr>, <sip:scscf1.home1.net;lr>
From:
To:
Call-ID:
CSeq:
Event:
Expires:
Content-Type:
Content-Length:

(…)
```

5. **Authorisation of publisher**

   The PS performs the necessary authorisation checks on the originator to ensure it is allowed to publish the presentity's presence information. This authorisation mechanism is similar to the one utilised for authorisation of watchers. In this example all privacy conditions are met, so the PS sends a 200 (OK) response to the S-CSCF.

NOTE: In the case where the privacy/authorisation checks failed, then a necessary 2xx or 4xx response would be sent to the S-CSCF. The selection of the correct response code depends on the presentity's authorisation policy document.

6. **200 (OK) response (PS to S-CSCF) - see example in table 6.2.2.1-6**

The PS sends the response to S-CSCF#1.

Table 6.2.2.1-6: 200 (OK) response (PS to S-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK351g45.1, SIP/2.0/UDP
      pcscf1.home1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
      [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
From:
To: <sip:user1_public1@home1.net>;tag=151170
Call-ID:
CSeq:
Expires:
Content-Length: 0
```

7. **200 (OK) response (S-CSCF to P-CSCF) - see example in table 6.2.2.1-7**

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

Table 6.2.2.1-7: 200 (OK) response (S-CSCF to P-CSCF)

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

8. **200 (OK) response (P-CSCF to UE) - see example in table 6.2.2.1-6**

P-CSCF#1 forwards the response to the PUA in the UE.

Table 6.2.2.1-8: 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:
Expires:
Content-Length:
```

6.3 PS notifying watcher of updates to presence information

6.3.1 Introduction

6.3.2 IMS based watcher and presentity in the different networks, UE in the home network

6.3.2.1 Successful notification

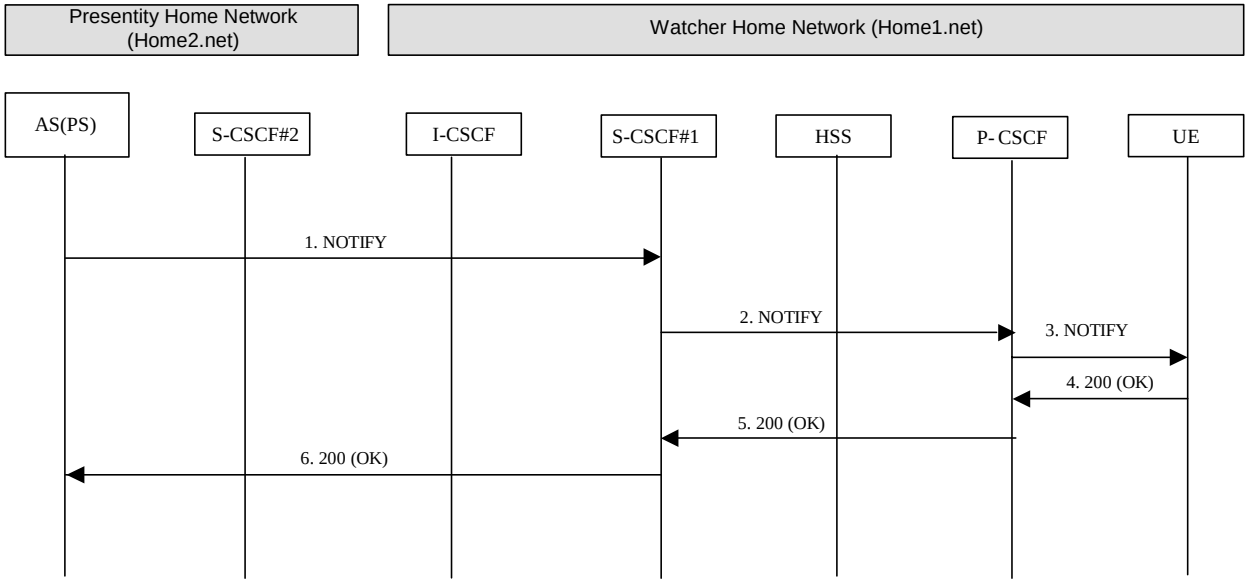

Figure 6.3.2.1-1: Notification to IMS watcher in the visited network

Figure 6.3.2.1-1 shows how a watcher is notified of updates to a presentity's presence information. The flow is applicable to the case where the watcher and presentity are in the same or in different IM CN subsystems.

1. **NOTIFY request (PS to S-CSCF) – see example in table 6.3.2.1-1**

   The PS determines which authorised watchers are entitled to receive the updates of the presence information for this presentity. For each appropriate watcher, the PS sends a NOTIFY request that contains the updates to the presence information. The NOTIFY request may either contain the complete set of presence information, or only those tuples that have changed since the last notification. For this example, the complete set of presence information is sent.

Table 6.3.2.1-1: NOTIFY request (PS to S-CSCF)

```
NOTIFY sip:[5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp SIP/2.0
Via: SIP/2.0/UDP ps.home2.net;branch=z9hG4bK240f34.1
Max-Forwards: 70
Route: <sip:scscf1.home1.net;lr>, <sip:pcscf1.home1.net;lr>
From: <sip:user2_public1@home2.net>;tag=151170
To: <sip:user1_public1@home1.net>;tag=31415
Call-ID: b89rjhnedlrfjflslj40a222
CSeq: 43 NOTIFY
Subscription-State: active;expires=5000
Event: presence
Contact: <sip:ps.home2.net>
Content-Type: application/cpim-pidf+xml
Content-Length: (...)

<?xml version="1.0" encoding="UTF-8"?>
<presence xmlns="urn:ietf:params:xml:ns:cpim-pidf"
        entity="pres:user2_public1@home2.net">
     <tuple id="a8098a.672364762364">
       <status>
         <basic>closed</basic>
       </status>
       <timestamp>2001-10-27T18:49:29Z</timestamp>
     </tuple>
     <tuple id="jklhgf9788934774.78">
       <status>
         <basic>open</basic>
       </status>
       <contact priority="1.0">tel:+1-212-555-2222</contact>
     </tuple>
   <note>Perhaps I'll be in Tokyo next week</note>
</presence>
```

2. NOTIFY request (S-CSCF to P-CSCF) – see example in table 6.3.2.1-2

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

Table 6.3.2.1-2: NOTIFY request (S-CSCF to P-CSCF)

```
NOTIFY sip:[5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp SIP/2.0
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
      scscf2.home2.net;branch=z9hG4bK764z87.1, SIP/2.0/UDP ps.home2.net;branch=z9hG4bK240f34.1
Max-Forwards: 69
Route: <sip:pcscf1.home1.net;lr>
Record-Route: <sip:scscf2.home2.net;lr>
From:
To:
Call-ID:
CSeq:
Subscription-State:
Event:
Contact:
Content-Type:
Content-Length:

(…)
```

3. NOTIFY request (P-CSCF to UE) – see example in table 6.3.2.1-3

The P-CSCF forwards the NOTIFY request to the UE.

Table 6.3.2.1-3: NOTIFY request (P-CSCF to UE)

```
NOTIFY sip:[5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp SIP/2.0
Via: SIP/2.0/UDP pcscf1.home1.net;branch=240f34.1, SIP/2.0/UDP
      scscf1.home1.net;branch=z9hG4bK351g45.1, SIP/2.0/UDP ps.home2.net;branch=z9hG4bK348923.1
Max-Forwards: 68
Record-Route: <sip:scscf1.home1.net;lr>, <sip:pcscf1.home1.net:7531;lr;comp=sigcomp>
From:
To:
Call-ID:
CSeq:
Subscription-State:
Event:
Contact:
Content-Type:
Content-Length:

(…)
```

4. 200 (OK) response (UE to P-CSCF) – see example in table 6.3.2.1-4

The UE acknowledges the NOTIFY request with a 200 (OK) response to the P-CSCF.

Table 6.3.2.1-4: 200 (OK) response (UE to P-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP pcscf1.home1.net;branch=240f34.1, SIP/2.0/UDP
      scscf2.home2.net;branch=z9hG4bK764z87.1, SIP/2.0/UDP ps.home2.net;branch=z9hG4bK348923.1
P-Access-Network-Info: 3GPP-UTRAN-TDD; utran-cell-id-3gpp=234151D0FCE11
From:
To:
Call-ID:
CSeq:
Content-Length: 0
```

5. 200 (OK) response (P-CSCF to S-CSCF) – see example in table 6.3.2.1-5

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

Table 6.3.2.1-5: 200 (OK) response (P-CSCF to S-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
      ps.home2.net;branch=z9hG4bK240f34.1
P-Access-Network-Info:
From:
To:
Call-ID:
CSeq:
Content-Length:
```

6. 200 (OK) response (S-CSCF to PS) – see example in table 6.3.2.1-6

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

Table 6.3.2.1-6: 200 (OK) response (S-CSCF to PS)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP SIP/2.0/UDP ps.home2.net;branch=z9hG4bK240f34.1
From:
To:
Call-ID:
CSeq:
Content-Length:
```

6.3.3 Notification to resource list in a different network and notification to IMS watcher in the visited network

6.3.3.1 Successful notification

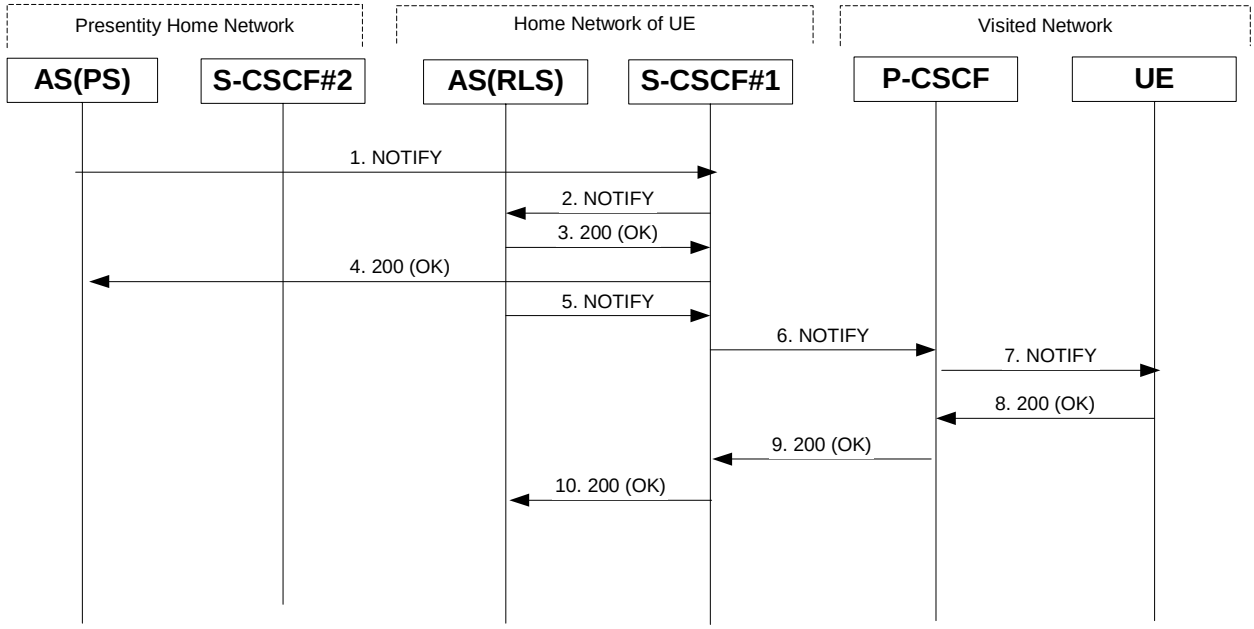

Figure 6.3.3.1-1: Notification to resource list in a different network and notification to IMS watcher in the visited network

Figure 6.3.3.1-1 shows the PS providing presence event notification about an IMS based presentity to a RLS in a different network. This notification triggers the RLS to provide presence event notification to the watcher. The details of the flows as follows:

1. **NOTIFY request (PS to S-CSCF) – see example in table 6.3.3.1-1**

   The PS determines which authorised watchers are entitled to receive the updates of the presence information. For each appropriate watcher, the PS sends a NOTIFY request that contains the updates to the presence information. In this example only the RLS is shown as the watcher of the presentity.

   The NOTIFY request may either contain the complete set of presence information, or only those tuples that have changed since the last notification. For this example, the complete set of presence information is sent.

Table 6.3.3.1-1: NOTIFY request (PS to S-CSCF)

```
NOTIFY sip:rls.home1.net SIP/2.0
Via: SIP/2.0/UDP ps.home2.net;branch=z9hG4bK240f34.1
Max-Forwards: 70
Route: <sip:scscf1.home1.net;lr>
From: <sip:user2_public1@home2.net>;tag=151170
To: <sip:user1_public1@home1.net>;tag=31415
Call-ID: gahjt393yhakfh83hfasl98a
CSeq: 43 NOTIFY
Subscription-State: active;expires=5000
Event: presence
Contact: <sip:ps.home2.net>
Content-Type: application/cpim-pidf+xml
Content-Length: (...)

   <?xml version="1.0" encoding="UTF-8"?>
   <presence xmlns="urn:ietf:params:xml:ns:cpim-pidf"
        entity="pres:user2_public1@home2.net ">
     <tuple id="a8098a.672364762364">
       <status>
         <basic>closed</basic>
       </status>
       <timestamp>2001-10-27T18:49:29Z</timestamp>
     </tuple>
     <tuple id="jklhgf9788934774.78">
       <status>
         <basic>open</basic>
       </status>
       <contact priority="1.0">tel:+1-212-555-2222</contact>
     </tuple>
     <note>Perhaps I'll be in Tokyo next week</note>
   </presence>
```

2. **NOTIFY request (S-CSCF to RLS) - see example in table 6.3.3.1-2**

   The S-CSCF#1 forwards the NOTIFY request to the RLS.

Table 6.3.3.1-2: NOTIFY request (S-CSCF to RLS)

```
NOTIFY sip:rls.home1.net SIP/2.0
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bKehuehjgt, SIP/2.0/UDP
      scscf2.home2.net;branch=z9hG4bK764z87.1, SIP/2.0/UDP ps.home2.net;branch=z9hG4bK348923.1
Max-Forwards: 69
Record-Route: <sip:scscf1.home1.net;lr>
From:
To:
Call-ID:
CSeq:
Subscription-State:
Event:
Contact:
Content-Type:
Content-Length:

(…)
```

3. **200 (OK) response (RLS to S-CSCF) – see example in table 6.3.3.1-3**

   The RLS generates a 200 (OK) response to the NOTIFY request.

Table 6.3.3.1-3: 200 (OK) response (RLS to S-CSCF)

```
SIP/2.0 200 OK
Via:
From:
To:
Call-ID:
CSeq:
Content-Length: 0
```

4. **200 (OK) response (S-CSCF to PS) – see example in table 6.3.3.1-4**

   The S-CSCF#1 forwards the 200 (OK) response to the PS.

Table 6.3.3.1-4: 200 (OK) response (S-CSCF to PS)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP ps.home2.net;branch=z9hG4bK348923.1
From:
To:
Call-ID:
CSeq:
Content-Length:
```

5. **NOTIFY request (RLS to S-CSCF#1) – see example in table 6.3.3.1-5**

   The RLS may decide to wait for other notifications and combine them in a single notification towards the UE or it sends the notification to the UE without any waiting. In this example, the RLS does not wait for other notifications.

Table 6.3.3.1-5: NOTIFY request (RLS to S-CSCF)

```
NOTIFY sip:[5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp SIP/2.0
Via: SIP/2.0/UDP rls.home1.net;branch=z9hG4bK240f34.1
Max-Forwards: 70
Route: <sip:scscf1.home1.net;lr>, <sip:pcscf1.visited1.net;lr>
From: <sip:user1_list1@home1.net>;;tag=151170
To: <sip:user1_public1@home1.net>;tag=31415
Call-ID: gahjt393yhakfh83hfasl98a
CSeq: 90 NOTIFY
Subscription-State: active;expires=4500
Require: eventlist
Event: presence
Contact: <sip:rls.home1.net>
Content-Type: multipart/related;type="application/rlmi+xml";
       start="<njhhsdhj@rls.home1.net>";boundary="70UBfW7L78hjgfgUPe5z"
Content-Length: (...)

--70UBfW7L78hjgfgUPe5z
Content-Transfer-Encoding: 8bit
Content-ID: <njhhsdhj@rls.home1.net>
Content-Type: application/rlmi+xml;charset="UTF-8"

   <?xml version="1.0" encoding="UTF-8"?>
  <list uri="sip:user1_list1@home1.net"
                  version="2"
                  fullState="false"
     <resource uri="pres:user2_public1@home2.net" name="Kovacs Janos">
       <instance id="hqzsuxtfyq" state="active" cid="uhjgfd@rls.home1.net"/>
     </resource>

--70UBfW7L78hjgfgUPe5z
Content-Transfer-Encoding: 8bit
Content-ID: <uhjgfd@rls.home1.net>
Content-Type: application/cpim-pidf+xml;charset="UTF-8"

   <?xml version="1.0" encoding="UTF-8"?>
   <presence xmlns="urn:ietf:params:xml:ns:cpim-pidf" entity="pres:user2_public1@home2.net ">
     <tuple id="a8098a.672364762364">
       <status>
         <basic>closed</basic>
       </status>
       <timestamp>2001-10-27T18:49:29Z</timestamp>
     </tuple>
     <tuple id="jklhgf9788934774.78">
       <status>
         <basic>open</basic>
       </status>
       <contact priority="1.0">tel:+1-212-555-2222</contact>
     </tuple>
     <note>Perhaps I'll be in Tokyo next week</note>
   </presence>

--70UBfW7L78hjgfgUPe5z
```

6. **NOTIFY request (S-CSCF to P-CSCF) – see example in table 6.3.3.6**

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

Table 6.3.3.1-6: NOTIFY request (S-CSCF to P-CSCF)

```
NOTIFY sip:[5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp SIP/2.0
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
      rls.home1.net;branch=z9hG4bK240f34.1
Max-Forwards: 69
Route: <sip:pcscf1.visited1.net;lr>
Record-Route: <sip:scscf1.home1.net;lr>
From:
To:
Call-ID:
CSeq:
Subscription-State:
Require:
Event:
Contact:
Content-Type:
Content-Length:

(…)
```

7. **NOTIFY request (P-CSCF to UE) – see example in table 6.3.3.1-7**

   The P-CSCF forwards the NOTIFY request to the UE.

Table 6.3.3.1-7: NOTIFY request (P-CSCF to UE)

```
NOTIFY sip:[5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp SIP/2.0
Via: SIP/2.0/UDP pcscf1.visited1.net;branch=240f34.1, SIP/2.0/UDP
      scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
      rls.home1.net;branch=z9hG4bK240f34.1
Max-Forwards: 68
Record-Route: <sip:scscf1.home1.net;lr>, <sip:pcscf1.visited1.net:7531;lr;comp=sigcomp>
From:
To:
Call-ID:
CSeq:
Subscription-State:
Require:
Event:
Contact:
Content-Type:
Content-Length:

(…)
```

8. **200 (OK) response (UE to P-CSCF) – see example in table 6.3.3.1-8**

   The UE acknowledges the NOTIFY request with a 200 (OK) response to the P-CSCF.

Table 6.3.3.1-8: 200 (OK) response (UE to P-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP pcscf1.visited1.net;branch=240f34.1, SIP/2.0/UDP
      scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
      rls.home1.net;branch=z9hG4bK240f34.1
From:
To:
Call-ID:
CSeq:
Content-Length: 0
```

9. **200 (OK) response (P-CSCF to S-CSCF) – see example in table 6.3.3.1-9**

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

Table 6.3.3.1-9: 200 (OK) response (P-CSCF to S-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
      rls.home1.net;branch=z9hG4bK240f34.1
From:
To:
Call-ID:
CSeq:
Content-Length:
```

10. **200 (OK) response (S-CSCF to RLS) – see example in table 6.3.3.1-10**

The S-CSCF forwards the response to the RLS in the home network of the presentity.

Table 6.3.3.1-10: 200 (OK) response (S-CSCF to RLS)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP rls.home1.net;branch=z9hG4bK240f34.1
From:
To:
Call-ID:
CSeq:
Content-Length:
```

6.4 PUA subscribing to his own watcher list and receiving notification of new watcher subscriptions

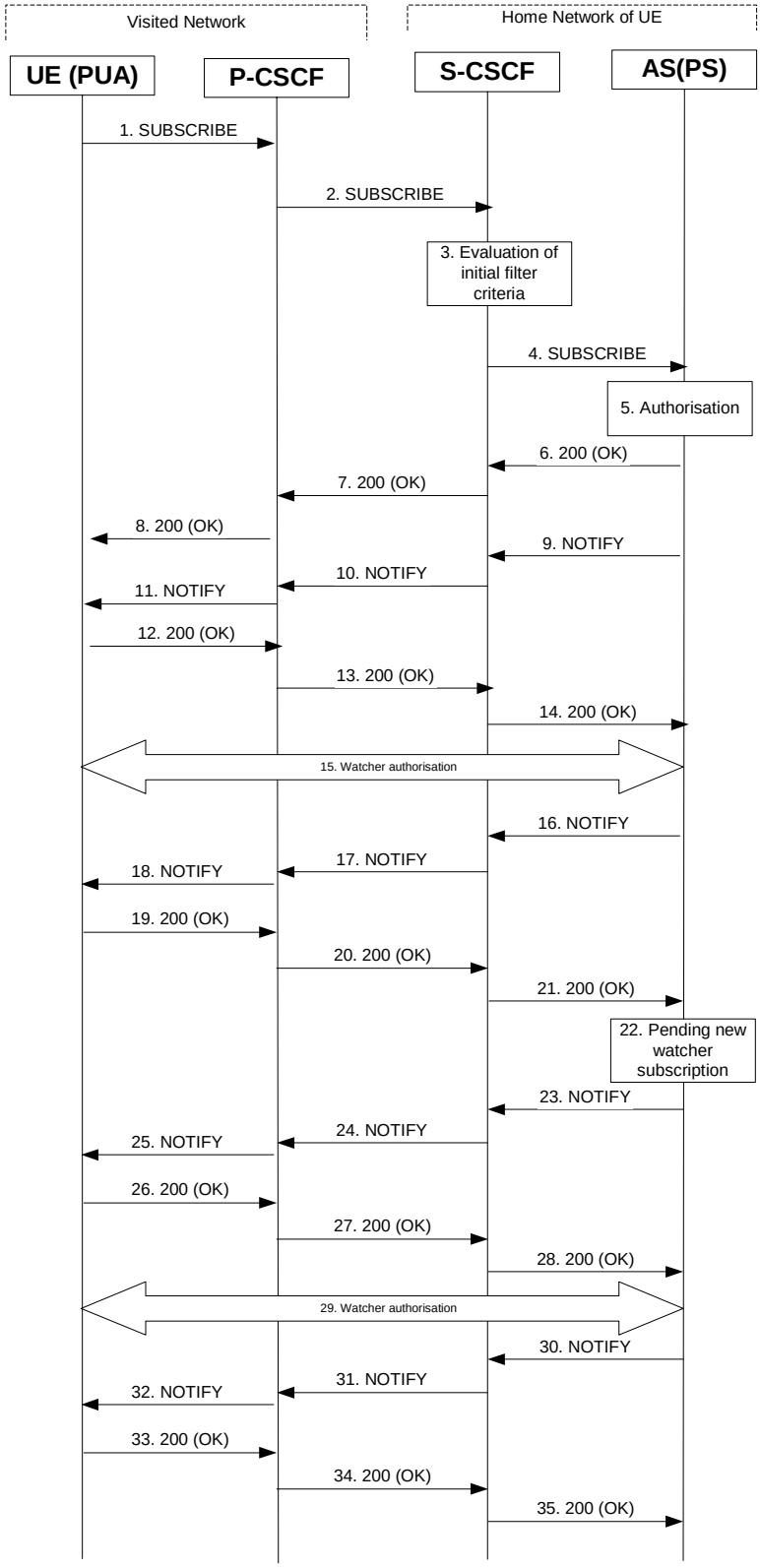

Figure 6.4-1: PUA subscribing to watcher list and receiving a notification of an already pending watcher subscription followed by a notification of a subscription from a new watcher not already in the watcher list

Figure 6.4-1 shows a PUA subscribing to watcher list and receiving a notification of an already pending watcher subscription followed by a notification of a subscription from a new watcher not already in the watcher list. In this example a partial state watcher-info document is transported in the notify for the second subscription. The details of the flows as follows:

1. **SUBSCRIBE request (UE to P-CSCF) – see example in table 6.4-1**

   The presentity wishes to watch his own watcher information, therefore he subscribes for the watcher information template-package of presence. The UE generates a SUBSCRIBE request containing the presence.winfo event, together with an indication of the length of time this periodic subscription should last.

Table 6.4-1: SUBSCRIBE request (UE to P-CSCF)

```
SUBSCRIBE sip:user1_public1@home1.net SIP/2.0
Via: SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKehuefdam
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:orig@scscf1.home1.net;lr>
P-Preferred-Identity: <sip:user1_public1@home1.net>
Privacy: none
From: <sip:user1_public1@home1.net>;tag=31415
To: <sip:user1_public1@home1.net>
Call-ID: b89rjhnedlrfjflslj40a222
CSeq: 123 SUBSCRIBE
Require: sec-agree
Proxy-Require: sec-agree
Security-Verify: ipsec-3gpp; q=0.1; alg=hmac-sha-1-96; spi=87654321; port1=7531
Event: presence.winfo
Expires: 7200
Accept: application/watcherinfo+xml
Contact: <sip:[5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp>
Content-Length: 0
```

Request URI: Public user identity whose events the subscriber subscribes to. In this case the Public User Identity of the presentity in SIP URI format.

Privacy: the user does not require privacy, therefore the Privacy header is set to the value "none" as specified in RFC 3325 [6.17] and RFC 3323 [6.13].

P-Preferred-Identity: the user provides a hint about the identity to be used.

From: This field is populated with the SIP URI that contains the logical representation (FQDN) for the entity sending the SUBSCRIBE request.

Event: This field is populated with the value 'presence.winfo' to specify the use of the watcher information template-package of presence.

Accept: This field is populated with the value 'application/watcherinfo+xml' indicating that the UE supports this body type for notification.

To: Same as the Request-URI.

Contact: The contact information of the subscribing user.

2. **SUBSCRIBE request (P-CSCF to S-CSCF) – see example in table 6.4-2**

   The P-CSCF looks up the serving network information for the public user identity that was stored during the registration procedure. The SUBSCRIBE request is forwarded to the S-CSCF. A Route header is inserted into SUBSCRIBE request.

Table 6.4-2: SUBSCRIBE request (P-CSCF to S-CSCF)

```
SUBSCRIBE sip:user1_public1@home1.net SIP/2.0
Via: SIP/2.0/UDP pcscf1.visited1.net;branch=z9hG4bK120f34.1 ,SIP/2.0/UDP
      [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKehuefdam
P-Access-Network-Info:
Max-Forwards: 69
P-Asserted-Identity: <sip:user1_public1@home1.net>
Privacy:
Route: <sip:orig@scscf1.home1.net;lr>
Record-Route: <sip:pcscf1.visited1.net;lr>
From:
To:
Call-ID:
CSeq:
Event:
Expires:
Accept:
Contact:
Content-Length:
```

P-Asserted-Identity: The P-CSCF inserts the SIP URI in the P-Asserted-Identity header field and it also removes P-Preferred-Identity header field.

Route: The Route header field is populated with the service route from registration.

3. **Evaluation of initial filter criteria**

   The S-CSCF validates the service profile of this subscriber and evaluates the initial filter criteria. For sip:user1_public1@home1.net the S-CSCF has originating initial Filter Criteria with Service Point Trigger of Method = SUBSCRIBE AND Event = 'presence.winfo' that informs the S-CSCF to route the SUBSCRIBE request to the Application Server sip:ps.home1.net.

4. **SUBSCRIBE request (S-CSCF to PS) – see example in table 6.4-4**

   The S-CSCF forwards the SUBSCRIBE request to the PS.

Table 6.4-4: SUBSCRIBE request (S-CSCF to PS)

```
SUBSCRIBE sip:user1_public1@home1.net SIP/2.0
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK344a65.1, SIP/2.0/UDP
      pcscf1.visited1.net;branch=z9hG4bK120f34.1, SIP/2.0/UDP
      [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKehuefdam
Max-Forwards: 68
P-Asserted-Identity: <sip:user1_public1@home1.net>, <tel:+1-212-555-1111>
Privacy:
Route: <sip:ps.home1.net;lr>, <sip:scscf1.home1.net;lr>
Record-Route: <sip:scscf1.home1.net;lr>, <sip:pcscf1.visited1.net;lr>
From:
To:
Call-ID:
CSeq:
Event:
Expires:
Accept:
Contact:
Content-Length:
```

P-Asserted-Identity: The S-CSCF inserts the TEL URI of the user in the P-Asserted-Identity header field.

5. **Authorisation**

   The PS performs the necessary authorisation checks on the originator. In this example, the originator is the owner of the watcher information, so he/she is authorised to see the full watcher information.

   In other examples (when the originator is not the owner of the watcher information) subscribers are only allowed to monitor the state of their own subscription, which means that they will receive notifications only containing the state of their own subscription.

6. **200 (OK) response (PS to S-CSCF) - see example in table 6.4-6**

The PS sends the response to the S-CSCF.

Table 6.4-6: 200 (OK) response (PS to S-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK344a65.1, SIP/2.0/UDP
      pcscf1.visited1.net;branch=z9hG4bK120f34.1, SIP/2.0/UDP
      [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKehuefdam
Record-Route:
From:
To: <sip:user1_public1@home1.net>;tag=151170
Call-ID:
CSeq:
Expires:
Contact: <sip:ps.home1.net>
Content-Length: 0
```

7. **200 (OK) response (S-CSCF to P-CSCF) - see example in table 6.4-7**

The S-CSCF forwards the response to the P-CSCF.

Table 6.4-7: 200 (OK) response (S-CSCF to P-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP pcscf1.visited1.net;branch=z9hG4bK120f34.1, SIP/2.0/UDP
      [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKehuefdam
Record-Route:
From:
To:
Call-ID:
CSeq:
Expires:
Contact:
Content-Length:
```

8. **200 (OK) response (P-CSCF to UE) - see example in table 6.4-8**

The P-CSCF forwards the response to the PUA in the UE.

Table 6.4-8: 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=z9hG4bKehuefdam
Record-Route: <sip:orig@scscf1.home1.net;lr>, <sip:pcscf1.home1.net:7531;lr;comp=sigcomp>
From:
To:
Call-ID:
CSeq:
Expires:
Contact:
Content-Length:
```

9. **NOTIFY request (PS to S-CSCF) – see example in table 6.4-9**

After the PS generated a 200 (OK) response to the SUBSCRIBE request from the UE, it generates a NOTIFY request containing the current state of the watcher information. The watcher information contains one pending subscription.

Table 6.4-9 NOTIFY request (PS to S-CSCF)

```
NOTIFY sip:[5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp SIP/2.0
Via: SIP/2.0/UDP ps.home1.net;branch=z9hG4bK240f34.1
Max-Forwards: 70
Route: <sip:scscf1.home1.net;lr>, <sip:pcscf1.visited1.net;lr>
From: <sip:user1_public1@home1.net>;tag=151170
To: <sip:user1_public1@home1.net>;tag=31415
Call-ID: b89rjhnedlrfjflslj40a222
CSeq: 89 NOTIFY
Subscription-State: active;expires=7200
Event: presence.winfo
Contact: <sip:ps.home1.net>
Content-Type: application/watcherinfo+xml
Content-Length: (...)

<?xml version="1.0"?>
   <watcherinfo xmlns="urn:ietf:params:xml:ns:watcherinfo"
                version="0" state="full">
     <watcher-list resource="sip:user1_public1@home1.net" package="presence">
       <watcher id="77ajsyy76" event="subscribe"
                status="pending">sip:user2_public1@home2.net</watcher>
     </watcher-list>
   </watcherinfo>
```

10. **NOTIFY request (S-CSCF to P-CSCF) – see example in table 6.4-10**

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

Table 6.4-10: NOTIFY request (S-CSCF to P-CSCF)

```
NOTIFY sip:[5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp SIP/2.0
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
      ps.home1.net;branch=z9hG4bK240f34.1
Max-Forwards: 69
Route: <sip:pcscf1.visited1.net;lr>
Record-Route: <sip:scscf1.home1.net;lr>
From:
To:
Call-ID:
CSeq:
Subscription-State:
Event:
Contact:
Content-Type:
Content-Length:

(…)
```

11. **NOTIFY request (P-CSCF to UE) – see example in table 6.4-11**

The P-CSCF forwards the NOTIFY request to the PUA in the UE.

Table 6.4-11: NOTIFY request (P-CSCF to UE)

```
NOTIFY sip:[5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp SIP/2.0
Via: SIP/2.0/UDP pcscf1.visited1.net;branch=240f34.1, SIP/2.0/UDP
      scscf1.home1.net;branch=z9hG4bK351g45.1, SIP/2.0/UDP ps.home2.net;branch=z9hG4bK348923.1
Record-Route: <sip:scscf1.home1.net;lr>, <sip:pcscf1.home1.net:7531;lr;comp=sigcomp>
Max-Forwards: 68
From:
To:
Call-ID:
CSeq:
Subscription-State:
Event:
Contact:
Content-Type:
Content-Length:

(…)
```

12. **200 (OK) response (UE to P-CSCF) – see example in table 6.4-12**

The PUA on the UE determines that this is a full state watcher-info document and replaces any current watcher-info with the new document. The UE acknowledges the NOTIFY request with a 200 (OK) response to the P-CSCF.

Table 6.4-12: 200 (OK) response (UE to P-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP pcscf1.visited1.net;branch=240f34.1, SIP/2.0/UDP
      scscf2.home2.net;branch=z9hG4bK764z87.1, SIP/2.0/UDP ps.home2.net;branch=z9hG4bK348923.1
P-Access-Network-Info: 3GPP-UTRAN-TDD; utran-cell-id-3gpp=234151D0FCE11
From:
To:
Call-ID:
CSeq:
Content-Length: 0
```

13. **200 (OK) response (P-CSCF to S-CSCF) – see example in table 6.4-13**

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

Table 6.4-13: 200 (OK) response (P-CSCF to S-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
      ps.home1.net;branch=z9hG4bK240f34.1
P-Access-Network-Info:
From:
To:
Call-ID:
CSeq:
Content-Length:
```

14. **200 (OK) response (S-CSCF to PS) – see example in table 6.4-14**

The P-CSCF forwards the response to the PS in the home network of the UE.

Table 6.4-14: 200 (OK) response (S-CSCF to PS)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP ps.home1.net;branch=z9hG4bK240f34.1
From:
To:
Call-ID:
CSeq:
Content-Length:
```

15. **Authorisation of watcher**

The presentity determines to allow the watcher to access the presence information. The PUA modifies the authorisation policy document by authorising either full or partial presence information for sip:user2_public1@home2.net.

Editor's Note: The mechanism for modifying the authorisation policy document is FFS.

16. **NOTIFY request (PS to S-CSCF) – see example in table 6.4-16**

The authorisation event means changes in the watcher information, which triggers a new NOTIFY request. The watcher information included in the NOTIFY request contains the accepted subscription of sip:user2_public1@home2.net.

Table 6.4-16: NOTIFY request (PS to S-CSCF)

```
NOTIFY sip:[5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp SIP/2.0
Via: SIP/2.0/UDP ps.home1.net;branch=z9hG4bK240f34.1
Max-Forwards: 70
Route: <sip:scscf1.home1.net;lr>, <sip:pcscf1.visited1.net;lr>
From: <sip:user1_public1@home1.net>;tag=151170
To: <sip:user1_public1.home1.net>;tag=31415
Call-ID: b89rjhnedlrfjflslj40a222
CSeq: 90 NOTIFY
Subscription-State: active;expires=4900
Event: presence.winfo
Contact: <sip:ps.home1.net>
Content-Type: application/watcherinfo+xml
Content-Length: (...)

<?xml version="1.0"?>
   <watcherinfo xmlns="urn:ietf:params:xml:ns:watcherinfo"
                version="0" state="full">
     <watcher-list resource="sip:user1_public1@home1.net" package="presence">
       <watcher id="77ajsyy76" event="subscribe"
                status="active">sip:user2_public1@home2.net</watcher>
     </watcher-list>
   </watcherinfo>
```

17. **NOTIFY request (S-CSCF to P-CSCF) – see example in table 6.4-17**

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

Table 6.4-17: NOTIFY request (S-CSCF to P-CSCF)

```
NOTIFY sip:[5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp SIP/2.0
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
      ps.home1.net;branch=z9hG4bK240f34.1
Max-Forwards: 69
Route: <sip:pcscf1.visited1.net;lr>
Record-Route: <sip:scscf1.home1.net;lr>
From:
To:
Call-ID:
CSeq:
Subscription-State:
Event:
Contact:
Content-Type:
Content-Length:

(…)
```

18. **NOTIFY request (P-CSCF to UE) – see example in table 6.4-18**

The P-CSCF forwards the NOTIFY request to the PUA in the UE.

Table 6.4-18: NOTIFY request (P-CSCF to UE)

```
NOTIFY sip:[5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp SIP/2.0
Via: SIP/2.0/UDP pcscf1.visited1.net;branch=240f34.1, SIP/2.0/UDP
      scscf1.home1.net;branch=z9hG4bK351g45.1, SIP/2.0/UDP ps.home2.net;branch=z9hG4bK348923.1
Record-Route: <sip:scscf1.home1.net;lr>, <sip:pcscf1.home1.net:7531;lr;comp=sigcomp>
Max-Forwards: 68
From:
To:
Call-ID:
CSeq:
Subscription-State:
Event:
Contact:
Content-Type:
Content-Length:

(…)
```

19. **200 (OK) response (UE to P-CSCF) – see example in table 6.4-19**

The PUA determines that this is a full state watcher-info document and replaces any current watcher-info with the new document. The UE acknowledges the NOTIFY request with a 200 (OK) response to the P-CSCF.

Table 6.4-19: 200 (OK) response (UE to P-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP pcscf1.visited1.net;branch=240f34.1, SIP/2.0/UDP
      scscf2.home2.net;branch=z9hG4bK764z87.1, SIP/2.0/UDP ps.home2.net;branch=z9hG4bK348923.1
P-Access-Network-Info: 3GPP-UTRAN-TDD; utran-cell-id-3gpp=234151D0FCE11
From:
To:
Call-ID:
CSeq:
Content-Length: 0
```

20. **200 (OK) response (P-CSCF to S-CSCF) – see example in table 6.4-20**

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

Table 6.4-20: 200 (OK) response (P-CSCF to S-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
      ps.home1.net;branch=z9hG4bK240f34.1
P-Access-Network-Info:
From:
To:
Call-ID:
CSeq:
Content-Length:
```

21. **200 (OK) response (S-CSCF to PS) – see example in table 6.4-21**

The P-CSCF forwards the response to the PS in the home network of the UE.

Table 6.4-21: 200 (OK) response (S-CSCF to PS)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP ps.home1.net;branch=z9hG4bK240f34.1
From:
To:
Call-ID:
CSeq:
Content-Length:
```

22. **Pending new watcher subscription**

The PS receives a Subscribe request from a new watcher and performs the necessary authorisation checks on the originator and determines that this is a new watcher that is not in the watcher list.

23. **NOTIFY request (PS to S-CSCF) – see example in table 6.4-23**

The PS generates a NOTIFY request containing the current state of the watcher information. The watcher information contains one pending subscription. Partial state is used for the watcher-info document transported in this subsequent notification.

Table 6.4-23 NOTIFY request (PS to S-CSCF)

```
NOTIFY sip:[5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp SIP/2.0
Via: SIP/2.0/UDP ps.home1.net;branch=z9hG4bK240f34.1
Max-Forwards: 70
Route: <sip:scscf1.home1.net;lr>, <sip:pcscf1.visited1.net;lr>
From: <sip:user1_public1@home1.net>;tag=151170
To: <sip:user1_public1.home1.net>;tag=31415
Call-ID: b89rjhnedlrfjflslj40a222
CSeq: 90 NOTIFY
Subscription-State: active;expires=5000
Event: presence.winfo
Content-Type: application/watcherinfo+xml
Contact: <sip:ps.home1.net;lr>
Content-Length: (...)

<?xml version="1.0"?>
   <watcherinfo xmlns="urn:ietf:params:xml:ns:watcherinfo"
                version="0" state="partial">
     <watcher-list resource="sip:user1_public1@home1.net" package="presence">
       <watcher id="34bytzx54" event="subscribe"
                status="pending">sip:user3_public1@home3.net</watcher>
     </watcher-list>
   </watcherinfo>
```

24. **NOTIFY request (S-CSCF to P-CSCF) – see example in table 6.4-24**

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

Table 6.4-24: NOTIFY request (S-CSCF to P-CSCF)

```
NOTIFY sip:[5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp SIP/2.0
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
      ps.home1.net;branch=z9hG4bK240f34.1
Max-Forwards: 69
Route: <sip:pcscf1.visited1.net;lr>
Record-Route: <sip:scscf1.home1.net;lr>
From:
To:
Call-ID:
CSeq:
Subscription-State:
Event:
Content-Type:
Contact:
Content-Length:

(…)
```

25. **NOTIFY request (P-CSCF to UE) – see example in table 6.4-25**

The P-CSCF forwards the NOTIFY request to the PUA in the UE.

Table 6.4-25: NOTIFY request (P-CSCF to UE)

```
NOTIFY sip:[5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp SIP/2.0
Via: SIP/2.0/UDP pcscf1.visited1.net;branch=240f34.1, SIP/2.0/UDP
      scscf1.home1.net;branch=z9hG4bK351g45.1, SIP/2.0/UDP ps.home2.net;branch=z9hG4bK348923.1
Max-Forwards: 68
Record-Route: <sip:scscf1.home1.net;lr>, <sip:pcscf1.home1.net:7531;lr;comp=sigcomp>
From:
To:
Call-ID:
CSeq:
Subscription-State:
Event:
Content-Type:
Contact:
Content-Length:

(…)
```

26. **200 (OK) response (UE to P-CSCF) – see example in table 6.4-26**

The PUA determines that this is a partial state notification of watcher-info and adds the new pending subscription to its existing watcher-info document. The UE acknowledges the NOTIFY request with a 200 (OK) response to the P-CSCF.

Table 6.4-26: 200 (OK) response (UE to P-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP pcscf1.visited1.net;branch=240f34.1, SIP/2.0/UDP
      scscf2.home2.net;branch=z9hG4bK764z87.1, SIP/2.0/UDP ps.home2.net;branch=z9hG4bK348923.1
P-Access-Network-Info: 3GPP-UTRAN-TDD; utran-cell-id-3gpp=234151D0FCE11
From:
To:
Call-ID:
CSeq:
Content-Length: 0
```

27. **200 (OK) response (P-CSCF to S-CSCF) – see example in table 6.4-27**

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

Table 6.4-27: 200 (OK) response (P-CSCF to S-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
      ps.home1.net;branch=z9hG4bK240f34.1
P-Access-Network-Info:
From:
To:
Call-ID:
CSeq:
Content-Length:
```

28. **200 (OK) response (S-CSCF to PS) – see example in table 6.4-28**

The P-CSCF forwards the response to the PS in the home network of the UE.

Table 6.4-28: 200 (OK) response (S-CSCF to PS)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP ps.home1.net;branch=z9hG4bK240f34.1
From:
To:
Call-ID:
CSeq:
Content-Length:
```

29. **Authorisation of watcher**

The presentity determines to allow the watcher to access the presence information. The PUA modifies the authorisation policy document by authorising either full or partial presence information for sip:user3_public1@home3.net.

Editor's Note: The mechanism for modifying the authorisation policy document is FFS.

30. **NOTIFY request (PS to S-CSCF) – see example in table 6.4-30**

The authorisation event means changes in the watcher information, which triggers a new NOTIFY request. The watcher information included in the NOTIFY request contains the accepted subscription of sip:user3_public1@home3.net.

Table 6.4-30 NOTIFY request (PS to S-CSCF)

```
NOTIFY sip:[5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp SIP/2.0
Via: SIP/2.0/UDP ps.home1.net;branch=z9hG4bK240f34.1
Max-Forwards: 70
Route: <sip:scscf1.home1.net;lr>, <sip:pcscf1.visited1.net;lr>
From: <sip:user1_public1@home1.net>;tag=151170
To: <sip:user1_public1.home1.net>;tag=31415
Call-ID: b89rjhnedlrfjflslj40a222
CSeq: 90 NOTIFY
Subscription-State: active;expires=4900
Event: presence.winfo
Content-Type: application/watcherinfo+xml
Contact: <sip:ps.home1.net;lr>
Content-Length: (...)

<?xml version="1.0"?>
   <watcherinfo xmlns="urn:ietf:params:xml:ns:watcherinfo"
                version="0" state="partial">
     <watcher-list resource="sip:user1_public1@home1.net" package="presence">
       <watcher id="34bytzx54" event="subscribe"
                status="active">sip:user3_public1@home3.net</watcher>
     </watcher-list>
   </watcherinfo>
```

31. **NOTIFY request (S-CSCF to P-CSCF) – see example in table 6.4-31**

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

Table 6.4-31: NOTIFY request (S-CSCF to P-CSCF)

```
NOTIFY sip:[5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp SIP/2.0
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
      ps.home1.net;branch=z9hG4bK240f34.1
Max-Forwards: 69
Route: <sip:pcscf1.visited1.net;lr>
Record-Route: <sip:scscf1.home1.net;lr>
From:
To:
Call-ID:
CSeq:
Subscription-State:
Event:
Content-Type:
Contact:
Content-Length:

(…)
```

32. **NOTIFY request (P-CSCF to UE) – see example in table 6.4-32**

The P-CSCF forwards the NOTIFY request to the PUA in the UE.

Table 6.4-32: NOTIFY request (P-CSCF to UE)

```
NOTIFY sip:[5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp SIP/2.0
Via: SIP/2.0/UDP pcscf1.visited1.net;branch=240f34.1, SIP/2.0/UDP
      scscf1.home1.net;branch=z9hG4bK351g45.1, SIP/2.0/UDP ps.home2.net;branch=z9hG4bK348923.1
Max-Forwards: 68
Record-Route: <sip:scscf1.home1.net;lr>, <sip:pcscf1.home1.net:7531;lr;comp=sigcomp>
From:
To:
Call-ID:
CSeq:
Subscription-State:
Event:
Content-Type:
Contact:
Content-Length:

(…)
```

33. **200 (OK) response (UE to P-CSCF) – see example in table 6.4-33**

The PUA determines that this is a partial state notification of watcher-info and updates the active subscription to its existing watcher-info document. The UE acknowledges the NOTIFY request with a 200 (OK) response to the P-CSCF.

Table 6.4-33: 200 (OK) response (UE to P-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP pcscf1.visited1.net;branch=240f34.1, SIP/2.0/UDP
      scscf2.home2.net;branch=z9hG4bK764z87.1, SIP/2.0/UDP ps.home2.net;branch=z9hG4bK348923.1
P-Access-Network-Info: 3GPP-UTRAN-TDD; utran-cell-id-3gpp=234151D0FCE11
From:
To:
Call-ID:
CSeq:
Content-Length: 0
```

34. **200 (OK) response (P-CSCF to S-CSCF) – see example in table 6.4-34**

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

Table 6.4-34: 200 (OK) response (P-CSCF to S-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
      ps.home1.net;branch=z9hG4bK240f34.1
P-Access-Network-Info:
From:
To:
Call-ID:
CSeq:
Content-Length:
```

35. **200 (OK) response (S-CSCF to PS) – see example in table 6.4-35**

The P-CSCF forwards the response to the PS in the home network of the UE.

Table 6.4-35: 200 (OK) response (S-CSCF to PS)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP ps.home1.net;branch=z9hG4bK240f34.1
From:
To:
Call-ID:
CSeq:
Content-Length:
```

7 Presence service protocol details

Editor's Note: It is intended that the material from this clause will be moved into TS 24.229

7.1 Introduction and general principles

Editor's note: Material in this subclause will not be included in any of the 3GPP CN1 technical specifications. It describes a summary of the additions to the protocol, any necessary philosophy behind the division of the material in the following clauses, and will therefore provide material for the cover sheet of the CRs when they are generated to TS 24.229.

7.2 Application usage of SIP

Editor's note: It is intended that material from this clause will be added to clause 5 of TS 24.229. It will describe extensions to the SIP protocol itself (which are expected to be IETF based).

7.2.1 Procedures at the UE

Editor's Note: this clause describes: the details (syntax/semantics) of the authorisation policy definitions; the details how the authorisation policy is uploaded to Presence Server; the details how groups can be referenced; multiple value concept.

7.2.1.1 Subscription for presence information state changes

Editor's note: the clause describes: the behaviour for fetching presence information; the behaviour for subscribing for presence information; receiving full state or partial state notifications.

When the watcher application residing in a UE intends to subscribe for presence information state changes of a presentity, it shall generate a SUBSCRIBE request in accordance with RFC 3265 [7.28] and draft-ietf-simple-presence-10 [7.75].

The watcher application shall implement the "application/cpim-pidf+xml" content type as described in draft-ietf-impp-cpim-pidf-07 [7.72] together with the PIDF extensions defined in draft-schulzrinne-simple-rpids-01 [7.82].

The watcher application shall implement draft-lonnfors-simple-binpidf-01 [7.81] in order to be able to extract embedded external objects to presence information from the presence document.

Editor's Note: The reference above needs to be kept up-to-date based on whether the SIMPLE WG agrees the way forward for the solution of referencing external objects.

The watcher application may include filters in the body of the SUBSCRIBE request in accordance with draft-khartabil-simple-filter-format-00 [7.78].

Editor's Note: The reference above is one solution to the requirements that are expressed in draft-moran-simple-pres-filter-reqs-00. When the SIMPLE WG agrees the way forward for solutions to the requirements in this draft, the above reference will require amendment to reflect the agreed solution document.

The watcher application may indicate its support for partial notification using the Accept and Supported/Require header fields in accordance with draft-lonnfors-simple-partial-notify-01 [7.80].

Editor's Note: The reference above is one solution to the requirements that are expressed in draft-ietf-simple-presinfo-deliv-reg-00. When the SIMPLE WG agrees the way forward for solutions to the requirements in this draft, the above reference will require amendment to reflect the agreed solution document.

7.2.1.2 Subscription for presence information state changes of presentity collections

When the watcher application intends to subscribe for presence information state changes of a presentity collection, it shall generate a SUBSCRIBE request in accordance with draft-ietf-simple-event-list-03 [7.74], additionally to the procedures described in subclause 7.2.1.1.

7.2.1.3 Subscription for the watcher information event template package

Upon activation of the presence service, the PUA application residing in a UE shall subscribe for the watcher information state changes in accordance with draft-ietf-simple-winfo-package-05 [7.76] and draft-ietf-simple-winfo-format-04 [7.77].

The PUA application may include filters in the body of the SUBSCRIBE request in accordance with draft-khartabil-simple-filter-funct-00 [7.79].

Editor's Note: The reference above is one solution to the requirements that are expressed in draft-ietf-simple-winfo-filter-reqs-00. When the SIMPLE WG agrees the way forward for solutions to the requirements in this draft, the above reference will require amendment to reflect the agreed solution document.

7.2.1.4 Presence publication

When the PUA intends to publish its own view of the presentity's presence information it shall generate a PUBLISH request in accordance with draft-olson-simple-publish-02 [7.70].

The PUA shall implement the "application/cpim-pidf+xml" content type as described in draft-ietf-impp-cpim-pidf-07 [7.72] together with the PIDF extensions defined in draft-schulzrinne-simple-rpids-01 [7.82].

If the PUA intends to embed external objects to presence information, it shall utilize the "multipart/related" content type in accordance with draft-lonnfors-simple-binpidf-01 [7.81].

Editor's Note: The reference above needs to be kept up-to-date based on whether the SIMPLE WG agrees the way forward for the solution of referencing external objects.

The UE shall update the presence information 600 seconds before the publication expiration time, unless the UE has determined that an update to the presence information is not required. If the publication period indicated from the Presence Server in the response of PUBLISH request is less than 600 seconds, the UE shall update the presence information when half of the publication period has expired.

7.2.2 Procedures at the application server

Editor's Note: this clause describes: the details (syntax/semantics) of the authorisation policy definitions; the usage of watcherinfo template package in IMS; the details how the authorisation policy is uploaded to Presence Server; the details how groups can be referenced; multiple value concept.

7.2.2.1 Application Server (AS) acting as terminating UA, or redirect server

7.2.2.1.1 AS processing subscriptions for the presence information event package

Editor's note: the clause describes the behaviour for fetching presence information; the behaviour for subscribing for presence information; providing full state or partial state notifications.

When the AS acts as a PS and receives a SUBSCRIBE request for the presence information event package, the AS shall first attempt to verify the identity of the source of the SUBSCRIBE request as described in subclause 7.2.2.1.2, then perform authorization according to subclause 7.2.2.1.3. In case of successful subscription, the AS shall generate a response to the SUBSCRIBE request and notifications in accordance with RFC 3265 [7.28] and draft-ietf-simple-presence-10 [7.75].

If the watcher application residing in a UE has indicated the need for partial notification using the Accept and Require header fields, then the AS shall generate partial notifications in accordance with draft-lonnfors-simple-partial-notify-01 [7.80].

Editor's Note: The reference above is one solution to the requirements that are expressed in draft-lonnfors-simple-presinfo-deliv-reqs-00. When the SIMPLE WG agrees the way forward for solutions to the requirements in this draft, the above reference will require amendment to reflect the agreed solution document.

7.2.2.1.2 Watcher identify verification at the PS

The procedures at the PS to accomplish watcher identity verification are described with the help of figure 7.2.2.1.2-1.

When the PS receives a SUBSCRIBE request that does not contain credentials, the PS shall:

Editor's Note: it is not clear what are the mechanisms available to transport the credentials. These mechanisms can include, among others, P-Asserted-Identity, Authorization header, digital signatures, S/MIME body, etc.

a) if a Privacy header is present in the SUBSCRIBE request and the Privacy header value is set to "id" or "user", then the watcher and the subscription are considered as anonymous, and no further actions are required. The PS shall continue with the subscription authorization procedures described in subclause 7.2.2.1.4;

b) if there is no Privacy header present in the SUBSCRIBE request, or if the Privacy header contains a value other than "id" or "user", then the PS shall check for the presence of a P-Asserted-Identity header in the SUBSCRIBE request. Two cases exists:

   i) the SUBSCRIBE request contains a P-Asserted-Identity header. This is typically the case when the watcher is located inside a trusted domain as defined by 3GPP TS 24.229 [5] subclause 4.4. In this case, the PS is aware of the identity of the watcher and no extra actions are needed. The PS shall continue with the subscription authorization procedures described in subclause 7.2.2.1.4.

   ii) the SUBSCRIBE request does not contain a P-Asserted-Identity header. This is typically the case when the watcher is located outside a trusted domain as defined by 3GPP TS 24.229 [5] subclause 4.4. In this case, the PS does not have a verified identity of the watcher. The PS shall check the From header of the SUBSCRIBE request. If the From header value in the SUBSCRIBE request is set to "Anonymous", then the watcher and the subscription are considered as anonymous and no further actions are required. If the From header value does not indicate anonymity, then the PS shall challenge the watcher by issuing a 401 (Unauthorized) response including a challenge as per procedures described in RFC 3261 [7.26].

When the PS receives a SUBSCRIBE request that contains credentials but it does not contain a P-Asserted-Identity header the PS shall check the correctness of the credentials. If the credentials are correct, then the PS shall consider the identity of the watcher verified, and the PS shall continue with the subscription authorization procedures described in subclause 7.2.2.1.4. If the credentials are not correct, the PS may either rechallenge the watcher (up to a predetermined maximum number of times predefined in the PS configuration data), or consider the watcher as anonymous. If the watcher is considered anonymous, the PS shall continue with the subscription authorization procedures described in subclause 7.2.2.1.4.

Editor's Note: It needs to be investigated whether the *maximum number of times predefined in the PS configuration data* creates a potential denial of service attack, as it requires the PS to keep states between different different authentications trials.

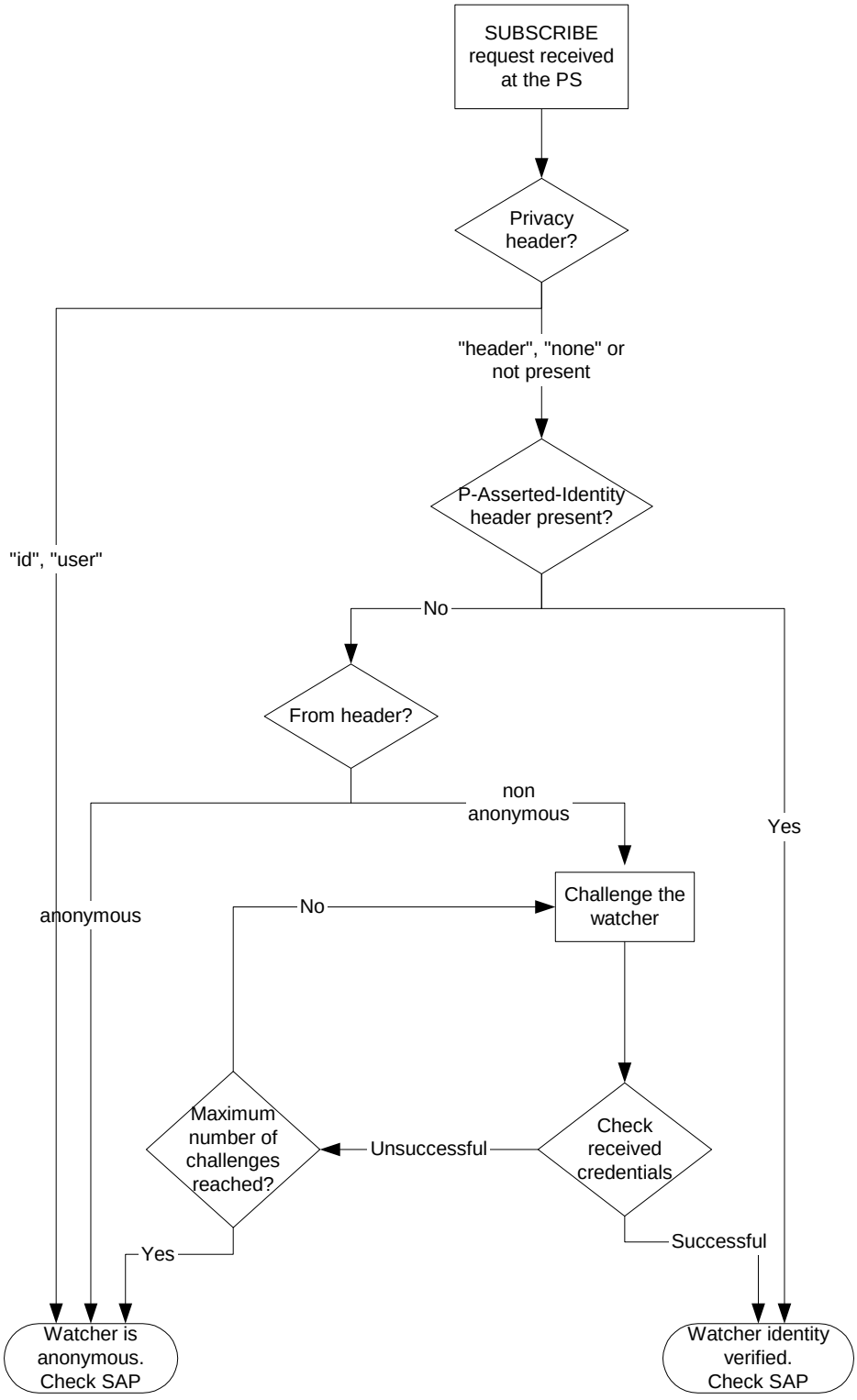

Figure 7.2.2.1.2-1: Watcher identity verification flow at the PS

7.2.2.1.3 AS processing subscriptions for the presence information event package of presentity collections

When the AS acts as RLS and receives a SUBCRIBE request for the presence information event package of a presentity collection, the AS shall first verify the identity of the source of the SUBSCRIBE request as described in subclause 7.2.2.1.2, then perform authorization according to subclause 7.2.2.1.4. In case of successful subscription, the

AS shall generate a response to the SUBSCRIBE request and notifications in accordance with draft-ietf-simple-event-list-03 [7.74] by adding a Require header field with value 'eventlist' to the request.

If the body of the SUBSCRIBE request from the watcher contains filters, the AS shall apply the requested filtering function on notifications in accordance with draft-khartabil-simple-filter-format-00 [7.78].

Editor's Note: The reference above is one solution to the requirements that are expressed in draft-moran-simple-pres-filter-reqs-00. When the SIMPLE WG agrees the way forward for solutions to the requirements in this draft, the above reference will require amendment to reflect the agreed solution document.

7.2.2.1.4 Subscription authorization

Once the PS have tried to verify the identity of the watcher, the PS either has a verified identity of the watcher or it considers the watcher as anonymous.

If the watcher is considered anonymous, the PS shall check if the subscription authorization policy of the presentity allows anonymous subscriptions. If anonymous subscriptions are allowed, then the PS shall install the subscription, otherwise, the PS shall not install the subscription.

If the watcher is identified by an identity, the PS shall apply the subscription authorization policy of the presentity to detect whether the particular watcher is allowed to subscribe to the presentity's presence information. The subscription authorization policy can include the verified identity as a possible watcher. In this case the PS shall install the subscription.

If according to the subscription authorization policy the watcher is not in the list of authorized wathcers, the PS shall inform the presentity about the watcher subscription attempt.

Editor's Note: For instance, if the presentity is online and subscribe to its own watcher info, the PS needs to inform the presentity using the watcherinfo template package to query the presentity on the authorization decision.

If the subscription is installed, the the PS shall return a 200 (OK) final response as per procedures described in RFC 3265 [7.29].

If the subscription is not installed, the PS shall either:

- reject the subscription according to the procedures of RFC 3261 [7.26] and RFC 3265 [7.28] e.g., by issuing a 403 (Forbidden) response.
- if the subscription authorization policy dictates it, do a polite blocking (as defined in 3GPP TS 22.141 [7.73]) by sending a 200 (OK) response.

7.2.2.1.5 AS processing subscriptions for the watcher information event template package

When the AS acts as a PS and receives a SUBCRIBE request for the watcher information event template package, the AS shall first verify the identity of the source of the SUBSCRIBE request as described in subclause 7.2.2.1.2, then perform authorization according to subclause 7.2.2.1.3. In case of successful subscription, the AS shall generate a response to the SUBSCRIBE request and notifications in accordance with RFC 3265 [7.28], draft-ietf-simple-winfo-package-05 [7.76] and draft-ietf-simple-winfo-format-04 [7.77].

If the body of the SUBSCRIBE request from the PUA contains filters, the AS shall apply the requested filtering function on notifications in accordance with draft-khartabil-simple-filter-funct-00 [7.79].

Editor's Note: The reference above is one solution to the requirements that are expressed in draft-kiss-simple-winfo-filter-reqs-00. When the SIMPLE WG agrees the way forward for solutions to the requirements in this draft, the above reference will require amendment to reflect the agreed solution document.

7.2.2.1.6 Processing of PUBLISH requests

Editor's Note: this clause describes: the usage of PUBLISH request in IMS; when a PUA publishes; when a PNA publishes (how and what is transformed via ISC and Sh); the details of the Presence Server's composition policy (the latter may be a 23.218 issue).

When the AS acts as a PS and receives a PUBLISH request, the AS shall first verify the identity of the source of the PUBLISH request as described in subclause 7.2.2.1.2, then perform authorization according to subclause 7.2.2.1.3. In case of successful publishing, the AS shall generate a response in accordance with draft-olson-simple-publish-02 [7.50].

7.2.2.2 Application Server (AS) acting as originating UA

7.2.2.2.1 AS generating subscriptions based on subscription for the presence information event package of presentity collections

When the AS acts as RLS and installs a SUBSCRIBE request for the presence information event package of a presentity collection, it shall resolve the list URI to individual URIs and generate subscriptions for each of the individual URIs as per the procedures in RFC 3265 [7.28], draft-ietf-simple-presence-10 [7.75] and draft-ietf-simple-event-list-03 [7.74] if the state information for the resource represented by the individual URI is otherwise not available.

7.3 Extensions within the present document

Editor's note: It is intended that material from this clause will be added to clause 7 of TS 24.229. It will describe coding extensions, if any. Note that any message body extensions should also be defined in this clause.

7.3.1 Presence information model of the 3GPP subscriber

Editor's Note: this clause describes 3GPP extensions to CPIM-PIDF defining the 3GPP subscriber presence attributes. It might also define a new document type needed for partial notification.

7.3.1.1 General

The presence information model of the 3GPP subscriber follows the model defined in RFC 2778 [7.71]. According to this, the presence information contains arbitrary number of elements, called presence tuples.

Entities implementing the 3GPP presence service shall describe a 3GPP subscriber by the following attributes: subscriber's status, one or more communication address(es) (containing communication means, status and contact address), location, priority, text. As a further categorisation, subscriber's status, location and text may appear as generic information attributes; communication means, status, contact address, priority and text may appear as communication address specific attributes.

Entities implementing the 3GPP presence service shall support the CPIM Presence Information Data Format (PIDF) defined in draft-ietf-impp-cpim-pidf-07 [7.72]. The XML Schema Definition of the "application/cpim-pidf+xml" format defined in draft-ietf-impp-cpim-pidf-07 [7.72] partly covers the definition of the 3GPP subscriber's presence attributes, if the following mapping is performed:

- the communication address (containing communication means, status and contact address) attribute and the priority attribute are represented by a <tuple> element including one or more <contact> elements containing a priority attribute; and
- the text attribute are represented by the <note> element.

NOTE: As per draft-ietf-impp-cpim-pidf-07 [7.72], the <status> element contains one optional <basic> element, which contains one of the following strings: "open" or "closed". No 3GPP specific mapping is required for the <basic> element.

The following 3GPP subscriber presence information attributes require extension for CPIM PIDF:

- subscriber's status within the <status> element with values: willing, willing with limitations, not willing, not disclosed, NULL; and
- location with value: string.

7.3.1.2 XML Schema Definitions

The XML schema definitions for the 'subscriber's status' attribute within the <status> element and 'location' attributes within <3gppAttributes> element located within the <tuple> element are shown in table 7.x.

Table 7.x: XML schema definition for CPIM PIDF extension

```
<?xml version="1.0" encoding="UTF-8"?>
   <xs:schema targetNamespace="urn:ietf:params:xml:ns:3gppPresence"
        xmlns:tns="urn:ietf:params:xml:ns:cpim-pidf"
        xmlns:3gpp=" urn:ietf:params:xml:ns:3gppPresence "
        xmlns:xs="http://www.w3.org/2001/XMLSchema"
        elementFormDefault="qualified"
        attributeFormDefault="unqualified">

     <xs:complexType name="tuple">
       <xs:sequence>
        <xs:element name="status" type="tns:status"/>
        <xs:element name="3gppAttributes"  type="3gpp:3gppAttributes"/>
        <xs:element name="contact" type="tns:contact" minOccurs="0"/>
        <xs:element name="note" type="tns:note" minOccurs="0"
            maxOccurs="unbounded"/>
         <xs:element name="timestamp" type="xs:dateTime" minOccurs="0"/>
       </xs:sequence>
       <xs:attribute name="id" type="xs:ID" use="required"/>
     </xs:complexType>

     <xs:complexType name="status">
       <xs:sequence>
         <xs:element name="basic" type="tns:basic" minOccurs="0"/>
         <xs:element name="SubsStatus" minOccurs="0"  maxOccurs="1" >
          <xs:simpleType>
            <xs:restriction base="xs:string">
              <xs:enumeration value="Willing"/>
              <xs:enumeration value="WillingWithLimitations"/>
              <xs:enumeration value="NotWilling"/>
              <xs:enumeration value="NotDisclosed"/>
              <xs:enumeration value="NULL"/>
            </xs:restriction>
          </xs:simpleType>
         </xs:element>
       </xs:sequence>
     </xs:complexType>

    <xs:complexType name="3gppAttributes">
       <xs:sequence>
           <xs:element name="Location" type=”xs:string” minOccurs="0"/>
        </xs:sequence>
     </xs:complexType>

   </xs:schema>
```

Editor’s Note: Since the IETF XML schema is extensible there may not be any standardization needed in IETF.

7.3.1.3 XML schema description

This subclause describes the elements of the 3GPP CPIM PIDF extension as defined in table 7.x:

<SubsStatus>: this element if present, appears as a child element of the <status> element. It contains one of the following strings: 'Willing', 'WillingWithLimitations', 'NotWilling', 'NotDisclosed', or 'NULL';

<3gppAttributes>: this element, if present, appears as a child element of the <tuple> element and include:

<Location>: this element, if present, includes the 'location' attribute;.

7.4 GPRS aspects when connected to the IM CN subsystem

Editor's note: It is intended that material from this clause will be added to clause 9 of TS 24.229. Note that discussions on access independence of 24.229 may impact the future destination of this subclause.

7.5 Profiles of IETF RFCs for 3GPP usage

Editor's note: It is intended that material from this clause will be added to Annex A of TS 24.229.

Editor's Note: this clause describes the PUBLISH method.

Table A.4 of 3GPP TS 24.229 is modified with the following additional row:

	Extensions			
xx	SIMPLE Presence Publication Mechanism?	[7.70]	o	c20
c20: IF (<AS> AND <presence server>) OR (<user equipment> AND <presence user agent>) THEN m ELSE IF <user equipment> AND NOT <presence user agent> THEN o ELSE n/a				

Editor's note: The above items in <> require completion when the appropriate extensions are added to the roles table to support presence.

Table A.5 of 3GPP TS 24.229 is modified with the following additional rows:

15A	PUBLISH request	[7.70] 3	c20	c20	[7.70] 3	c20	c20
15B	PUBLISH response	[7.70] 3	c20	c20	[7.70] 3	c20	c20
c20: IF A.4/xx THEN m ELSE n/a							

A new subclause A.2.1.4.10A is added.

A.2.1.4.10A PUBLISH method

Editor's note: The base draft does not yet contain an analysis of header usage within this method, and therefore this clause will have to be reviewed and completed when such an analysis is available.

Prerequisite A.5/15A – PUBLISH request

Table A.104A: Supported headers within the PUBLISH request

Item	Header	Sending			Receiving		
		Ref.	RFC status	Profile status	Ref.	RFC status	Profile status
1	Allow	[7.26] 20.5	o	o	[7.26] 20.5	m	m
2	Allow-Events	[7.28] 8.2.2	c1	c1	[7.28] 8.2.2	c2	c2
3	Authorization	[7.26] 20.7	c3	c3	[7.26] 20.7	c3	c3
4	Call-ID	[7.26] 20.8	m	m	[7.26] 20.8	m	m
4A	Call-Info	[7.26] 24.9	o	o	[26] 24.9	o	o
4C	Content-Disposition	[7.26] 20.11	o	o	[7.26] 20.11	m	m
4D	Content-Encoding	[7.26] 20.12	o	o	[7.26] 20.12	m	m
4E	Content-Language	[7.26] 20.13	o	o	[7.26] 20.13	m	m
6	Content-Length	[7.26] 20.14	m	m	[7.26] 20.14	m	m
7	Content-Type	[7.26] 20.15	m	m	[7.26] 20.15	m	m
8	Cseq	[7.26] 20.16	m	m	[7.26] 20.16	m	m
9	Date	[7.26] 20.17	c4	c4	[7.26] 20.17	m	m
10	Event	[7.28] 8.2.1	m	m	[7.28] 8.2.1	m	m
11	Expires	[7.70] 3.6	o (note 1)	o (note 1)	[7.70] 3.6	m	m
12	From	[7.26] 20.20	m	m	[7.26] 20.20	m	m
12A	In-Reply-To	[7.26] 20.21	o	o	[7.26] 20.21	o	o
13	Max-Forwards	[7.26] 20.22	o	o	[7.26] 20.22	n/a	n/a
14	MIME-Version	[7.26] 20.24	o	o	[7.26] 20.24	m	m
15	Organization	[7.26] 20.25	o	o	[7.26] 20.25	o	o
15A	P-Access-Network-Info	[7.52] 4.4	c15	c16	[7.52] 4.4	c15	c17
15B	P-Asserted-Identity	[7.34] 9.1	n/a	n/a	[7.34] 9.1	c11	c11
15C	P-Called-Party-ID	[7.52] 4.2	x	x	[7.52] 4.2	c13	c13
15D	P-Charging-Function-Addresses	[7.52] 4.5	c20	c21	[7.52] 4.5	c20	c21
15E	P-Charging-Vector	[7.52] 4.6	c18	c19	[7.52] 4.6	c18	c19
15F	P-Preferred-Identity	[7.34] 9.2	c11	c7	[7.34] 9.2	n/a	n/a
15G	P-Visited-Network-ID	[7.52] 4.3	x (note 3)	x	[7.52] 4.3	c14	n/a
15C	Priority	[7.26] 20.26	o	o	[7.26] 20.26	o	o
15D	Privacy	[7.33] 4.2	c12	c12	[7.33] 4.2	c12	c12
16	Proxy-Authorization	[7.26] 20.28	c5	c5	[7.26] 20.28	n/a	n/a
17	Proxy-Require	[7.26] 20.29	o	n/a	[7.26] 20.29	n/a	n/a
19A	Reply-To	[7.26] 20.31	o	o	[7.26] 20.31	o	o
20	Require	[7.26] 20.32	o	o	[7.26] 20.32	m	m
21	Route	[7.26] 20.34	m	m	[7.26] 20.34	n/a	n/a
21A	Security-Client	[7.48] 2.3.1	c9	c9	[7.48] 2.3.1	n/a	n/a

21B	Security-Verify	[7.48] 2.3.1	c10	c10	[7.48] 2.3.1	n/a	n/a
21C	Subject	[7.26] 20.36	o	o	[7.26] 20.36	o	o
22	Supported	[7.26] 20.37, [7.26] 7.1	o	o	[7.26] 20.37, [7.26] 7.1	m	m
23	Timestamp	[7.26] 20.38	c6	c6	[7.26] 20.38	m	m
24	To	[7.26] 20.39	m	m	[7.26] 20.39	m	m
25	User-Agent	[7.26] 20.41	o	o	[7.26] 20.41	o	o
26	Via	[7.26] 20.42	m	m	[7.26] 20.42	m	m

c1: IF A.4/20 THEN o ELSE n/a - - SIP specific event notification extension.
c2: IF A.4/20 THEN m ELSE n/a - - SIP specific event notification extension.
c3: IF A.4/7 THEN m ELSE n/a - - authentication between UA and UA.
c4: IF A.4/11 THEN o ELSE n/a - - insertion of date in requests and responses.
c5: IF A.4/8A THEN m ELSE n/a - - authentication between UA and proxy.
c6: IF A.4/6 THEN o ELSE n/a - - timestamping of requests.
c7: IF A.3/1 AND A.4/25 THEN o ELSE n/a - - UE and private extensions to the Session Initiation Protocol (SIP) for asserted identity within trusted networks.
c9: IF A.4/30 THEN o ELSE n/a - - security mechanism agreement for the session initiation protocol (note 2).
c10: IF A.4/30 THEN m ELSE n/a - - security mechanism agreement for the session initiation protocol.
c11: IF A.4/25 THEN o ELSE n/a - - private extensions to the Session Initiation Protocol (SIP) for asserted identity within trusted networks.
c12: IF A.4/26 THEN o ELSE n/a - - a privacy mechanism for the Session Initiation Protocol (SIP).
c13: IF A.4/32 THEN o ELSE n/a - - the P-Called-Party-ID extension.
c14: IF A.4/33 THEN o ELSE n/a - - the P-Visited-Network-ID extension.
c15: IF A.4/34 THEN o ELSE n/a - - the P-Access-Network-Info header extension.
c16: IF A.4/34 AND A.3/1 THEN m ELSE n/a - - the P-Access-Network-Info header extension and UE.
c17: IF A.4/34 AND (A.3/7A OR A.3/7D) THEN m ELSE n/a - - the P-Access-Network-Info header extension and AS acting as terminating UA or AS acting as third-party call controller.
c18: IF A.4/36 THEN o ELSE n/a - - the P-Charging-Vector header extension.
c19: IF A.4/36 THEN m ELSE n/a - - the P-Charging-Vector header extension.
c20: IF A.4/35 THEN o ELSE n/a - - the P-Charging-Function-Addresses header extension.
c21: IF A.4/35 THEN m ELSE n/a - - the P-Charging-Function-Addresses header extension.

NOTE 1: The strength of this requirement is RECOMMENDED rather than OPTIONAL.
NOTE 2: Support of this header in this method is dependent on the security mechanism and the security architecture which is implemented.
NOTE 3: The strength of this requirement in RFC 3455 [52] is SHOULD NOT, rather than MUST NOT.

Prerequisite A.5/15A - - PUBLISH request

Table A.104B: Supported message bodies within the PUBLISH request

Item	Header	Sending			Receiving		
		Ref.	RFC status	Profile status	Ref.	RFC status	Profile status
1							

Prerequisite A.5/15B - - PUBLISH response

Table A.104C: Supported headers within the PUBLISH response - all remaining status-codes

Item	Header	Sending			Receiving		
		Ref.	RFC status	Profile status	Ref.	RFC status	Profile status
1	Call-ID	[7.26] 20.8	m	m	[7.26] 20.8	m	m
1A	Call-Info	[7.26] 24.9	o	o	[7.26] 24.9	m	m
1B	Content-Disposition	[7.26] 20.11	o	o	[7.26] 20.11	m	m
2	Content-Encoding	[7.26] 20.12	o	o	[7.26] 20.12	m	m
3	Content-Language	[7.26] 20.13	o	o	[7.26] 20.13	m	m
4	Content-Length	[7.26] 20.14	m	m	[7.26] 20.14	m	m
5	Content-Type	[7.26] 20.15	m	m	[7.26] 20.15	m	m
6	Cseq	[7.26] 20.16	m	m	[7.26] 20.16	m	m
7	Date	[7.26] 20.17	c1	c1	[7.26] 20.17	m	m
8	From	[7.26] 20.20	m	m	[7.26] 20.20	m	m
9	MIME-Version	[7.26] 20.24	o	o	[7.26] 20.24	m	m
10	Organization	[7.26] 20.25	o	o	[7.26] 20.25	o	o
10A	P-Access-Network-Info	[7.52] 4.4	c5	c6	[7.52] 4.4	c5	c7
10B	P-Asserted-Identity	[7.34] 9.1	n/a	n/a	[7.34] 9.1	c3	c3
10C	P-Charging-Function-Addresses	[7.52] 4.5	c10	c11	[7.52] 4.5	c10	c11
10D	P-Charging-Vector	[7.52] 4.6	c8	c9	[7.52] 4.6	c8	c9
10E	P-Preferred-Identity	[7.34] 9.2	c3	x	[7.34] 9.2	n/a	n/a
10F	Privacy	[7.33] 4.2	c4	c4	[7.33] 4.2	c4	c4
10G	Require	[7.26] 20.32	m	m	[7.26] 20.32	m	m
10H	Server	[7.26] 20.35	o	o	[7.26] 20.35	o	o
11	Timestamp	[7.26] 20.38	m	m	[7.26] 20.38	c2	c2
12	To	[7.26] 20.39	m	m	[7.26] 20.39	m	m
12A	User-Agent	[7.26] 20.41	m	m	[7.26] 20.41	i	i
13	Via	[7.26] 20.42	m	m	[7.26] 20.42	m	m
14	Warning	[7.26] 20.43	o	o	[7.26] 20.43	o	o

c1: IF A.4/11 THEN o ELSE n/a - - insertion of date in requests and responses.
c2: IF A.4/6 THEN m ELSE n/a - - timestamping of requests.
c3: IF A.4/25 THEN o ELSE n/a - - private extensions to the Session Initiation Protocol (SIP) for asserted identity within trusted networks.
c4: IF A.4/26 THEN o ELSE n/a - - a privacy mechanism for the Session Initiation Protocol (SIP).
c5: IF A.4/34 THEN o ELSE n/a - - the P-Access-Network-Info header extension.
c6: IF A.4/34 AND A.3/1 THEN m ELSE n/a - - the P-Access-Network-Info header extension and UE.
c7: IF A.4/34 AND (A.3/7A OR A.3/7D) THEN m ELSE n/a - - the P-Access-Network-Info header extension and AS acting as terminating UA or AS acting as third-party call controller.
c8: IF A.4/36 THEN o ELSE n/a - - the P-Charging-Vector header extension.
c9: IF A.4/36 THEN m ELSE n/a - - the P-Charging-Vector header extension.
c10: IF A.4/35 THEN o ELSE n/a - - the P-Charging-Function-Addresses header extension.
c11: IF A.4/35 THEN m ELSE n/a - - the P-Charging-Function-Addresses header extension.

NOTE: For a 606 (Not Acceptable Here) response, this status is RECOMMENDED rather than OPTIONAL.

Prerequisite A.5/15B - - PUBLISH response

Prerequisite: A.6/7 - - 200 (OK)

Table A.104D: Supported headers within the PUBLISH response

Item	Header	Sending			Receiving		
		Ref.	RFC status	Profile status	Ref.	RFC status	Profile status
1	Allow	[7.26] 20.5	o	o	[7.26] 20.5	m	m
2	Authentication-Info	[7.26] 20.6	c1	c1	[7.26] 20.6	c2	c2
4	Expires	[7.70] 3.5	m	m	[7.70] 3.5	m	m
8	Supported	[7.26] 20.37	m	m	[7.26] 20.37	m	m
c1:	IF A.4/7 THEN o ELSE n/a - - authentication between UA and UA.						
c2:	IF A.4/7 THEN m ELSE n/a - - authentication between UA and UA.						

Prerequisite A.5/15B - - PUBLISH response

Prerequisite: A.6/8 OR A.6/9 OR A.6/10 OR A.6/11 OR A.6/12 OR A.6/35 - - 3xx or 485 (Ambiguous)

Table A.104E: Supported headers within the PUBLISH response

Item	Header	Sending			Receiving		
		Ref.	RFC status	Profile status	Ref.	RFC status	Profile status
1	Allow	[7.26] 20.5	o	o	[7.26] 20.5	m	m
2	Contact	[7.26] 20.10	o (note)	o	[7.26] 20.10	m	m
3	Error-Info	[7.26] 20.18	o	o	[7.26] 20.18	o	o
7	Supported	[7.26] 20.37	m	m	[7.26] 20.37	m	m
NOTE:	The strength of this requirement is RECOMMENDED rather than OPTIONAL.						

Prerequisite A.5/15B - - PUBLISH response

Prerequisite: A.6/8 OR A.6/9 OR A.6/10 OR A.6/11OR A.6/12 – 401 (Unauthorized)

Table A.104F: Supported headers within the PUBLISH response

Item	Header	Sending			Receiving		
		Ref.	RFC status	Profile status	Ref.	RFC status	Profile status
1	Allow	[7.26] 20.5	o	o	[7.26] 20.5	m	m
2	Error-Info	[7.26] 20.18	o	o	[7.26] 20.18	o	o
4	Proxy-Authenticate	[7.26] 20.27	c1	c1	[7.26] 20.27	c1	c1
7	Supported	[7.26] 20.37	m	m	[7.26] 20.37	m	m
10	WWW-Authenticate	[7.26] 20.44	m	m	[7.26] 20.44	m	m
c1:	IF A.5/7 THEN m ELSE n/a - - support of authentication between UA and UA.						

Prerequisite A.5/15B - - PUBLISH response

Prerequisite: A.6/17 OR A.6/23 OR A.6/30 OR A.6/36 OR A.6/42 OR A.6/45 OR A.6/50 OR A.6/51 - - 404, 413, 480, 486, 500, 503, 600, 603

Table A.104G: Supported headers within the PUBLISH response

Item	Header	Sending			Receiving		
		Ref.	RFC status	Profile status	Ref.	RFC status	Profile status
1	Allow	[7.26] 20.5	o	o	[7.26] 20.5	m	m
3	Error-Info	[7.26] 20.18	o	o	[7.26] 20.18	o	o
6	Retry-After	[7.26] 20.33	o	o	[7.26] 20.33	o	o
8	Supported	[7.26] 20.37	m	m	[7.26] 20.37	m	m

Prerequisite A.5/15B - - PUBLISH response

Prerequisite: A.6/18 - - 405 (Method Not Allowed)

Table A.104H: Supported headers within the PUBLISH response

Item	Header	Sending			Receiving		
		Ref.	RFC status	Profile status	Ref.	RFC status	Profile status
2	Allow	[7.26] 20.5	m	m	[7.26] 20.5	m	m
6	Supported	[7.26] 20.37	m	m	[7.26] 20.37	m	m

Prerequisite A.5/15B - - PUBLISH response

Prerequisite: A.6/20 - - 407 (Proxy Authentication Required)

Table A.104I: Supported headers within the PUBLISH response

Item	Header	Sending			Receiving		
		Ref.	RFC status	Profile status	Ref.	RFC status	Profile status
1	Allow	[7.26] 20.5	o	o	[7.26] 20.5	m	m
2	Error-Info	[7.26] 20.18	o	o	[7.26] 20.18	o	o
4	Proxy-Authenticate	[7.26] 20.27	c1	c1	[7.26] 20.27	c1	c1
7	Supported	[7.26] 20.37	m	m	[7.26] 20.37	m	m
8	WWW-Authenticate	[7.26] 20.44	o	o	[7.26] 20.44	o	o
c1:	IF A.5/7 THEN m ELSE n/a - - support of authentication between UA and UA.						

Prerequisite A.5/15B - - PUBLISH response

Prerequisite: A.6/25 - - 415 (Unsupported Media Type)

Table A.104J: Supported headers within the PUBLISH response

Item	Header	Sending			Receiving		
		Ref.	RFC status	Profile status	Ref.	RFC status	Profile status
1	Accept	[7.26] 20.1	o.1	o.1	[7.26] 20.1	m	m
2	Accept-Encoding	[7.26] 20.2	o.1	o.1	[7.26] 20.2	m	m
3	Accept-Language	[7.26] 20.3	o.1	o.1	[7.26] 20.3	m	m
3A	Allow	[7.26] 20.5	o	o	[7.26] 20.5	m	m
4	Error-Info	[7.26] 20.18	o	o	[7.26] 20.18	o	o
8	Supported	[7.26] 20.37	m	m	[7.26] 20.37	m	m
o.1	At least one of these capabilities is supported.						

Prerequisite A.5/15B - - PUBLISH response

Prerequisite: A.6/27 - - 420 (Bad Extension)

Table A.104K: Supported headers within the PUBLISH response

Item	Header	Sending			Receiving		
		Ref.	RFC status	Profile status	Ref.	RFC status	Profile status
1	Allow	[7.26] 20.5	o	o	[7.26] 20.5	m	m
3	Error-Info	[7.26] 20.18	o	o	[7.26] 20.18	o	o
7	Supported	[7.26] 20.37	m	m	[7.26] 20.37	m	m
8	Unsupported	[7.26] 20.40	m	m	[7.26] 20.40	m	m

Prerequisite A.5/15B - - PUBLISH response

Prerequisite: A.6/28 OR A.6/41A - - 421 (Extension Required), 494 (Security Agreement Required)

Table A.104L: Supported headers within the PUBLISH response

Item	Header	Sending			Receiving		
		Ref.	RFC status	Profile status	Ref.	RFC status	Profile status
1	Allow	[7.26] 20.5	o	o	[7.26] 20.5	m	m
2	Error-Info	[7.26] 20.18	o	o	[7.26] 20.18	o	o
3	Security-Server	[7.48] 2	x	x	[7.48] 2	c1	c1
3	Supported	[7.26] 20.37	m	m	[7.26] 20.37	m	m
c1:	IF A.4/30 THEN m ELSE n/a - - security mechanism agreement for the session initiation protocol.						

Prerequisite A.5/15B - - PUBLISH response

Prerequisite: A.6/34 - - 484 (Address Incomplete)

Table A.104M: Supported headers within the PUBLISH response

Item	Header	Sending			Receiving		
		Ref.	RFC status	Profile status	Ref.	RFC status	Profile status
1	Allow	[7.26] 20.5	o	o	[7.26] 20.5	m	m
3	Error-Info	[7.26] 20.18	o	o	[7.26] 20.18	o	o
7	Supported	[7.26] 20.37	m	m	[7.26] 20.37	m	m

Prerequisite A.5/15B - - PUBLISH response

Prerequisite: A.6/39 - - 489 (Bad Event)

Table A.104N: Supported headers within the PUBLISH response

Item	Header	Sending			Receiving		
		Ref.	RFC status	Profile status	Ref.	RFC status	Profile status
0A	Allow	[7.26] 20.5	o	o	[7.26] 20.5	m	m
1	Allow-Events	[7.28] 8.2.2	m	m	[7.28] 8.2.2	m	m
3	Error-Info	[7.26] 20.18	o	o	[7.26] 20.18	o	o

Prerequisite A.5/15B - - PUBLISH response

Table A.104O: Supported message bodies within the PUBLISH response

Item	Header	Sending			Receiving		
		Ref.	RFC status	Profile status	Ref.	RFC status	Profile status
1							

Table A.162 of 3GPP TS 24.229 is modified with the following additional row:

	Extensions			
xx	SIMPLE Presence Publication Mechanism?	[7.70]	o	m

Table A.163 of 3GPP TS 24.229 is modified with the following additional rows:

15A	PUBLISH request	[7.70] 3	c20	c20	[7.70] 3	c20	c20
15B	PUBLISH response	[7.70] 3	c20	c20	[7.70] 3	c20	c20
c20: IF A.4/xx THEN m ELSE n/a							

A new subclause A.2.2.4.10A is added.

A.2.2.4.10A PUBLISH method

Editor's note: The base draft does not yet contain an analysis of header usage within this method, and therefore this clause will have to be reviewed and completed when such an analysis is available.

Prerequisite A.163/15A - - PUBLISH request

Table A.260A: Supported headers within the PUBLISH request

Item	Header	Sending			Receiving		
		Ref.	RFC status	Profile status	Ref.	RFC status	Profile status
1	Allow	[7.26] 20.5	m	m	[7.26] 20.5	i	i
4	Call-ID	[7.26] 20.8	m	m	[7.26] 20.8	m	m
4A	Call-Info	[7.26] 24.9	m	m	[7.26] 24.9	c4	c4
5	Content-Disposition	[7.26] 20.11	m	m	[7.26] 20.11	i	i
5A	Content-Encoding	[7.26] 20.12	m	m	[7.26] 20.12	i	i
5B	Content-Language	[7.26] 20.13	m	m	[7.26] 20.13	i	i
6	Content-Length	[7.26] 20.14	m	m	[7.26] 20.14	m	m
7	Content-Type	[7.26] 20.15	m	m	[7.26] 20.15	i	i
8	Cseq	[7.26] 20.16	m	m	[7.26] 20.16	m	m
9	Date	[7.26] 20.17	m	m	[7.26] 20.17	c2	c2
10	Event	[7.70] 3.6	m	m	[7.70] 3.6	m	m
11	Expires	[7.26] 20.19	m	m	[7.26] 20.19	i	i
12	From	[7.26] 20.20	m	m	[7.26] 20.20	m	m
12A	In-Reply-To	[7.26] 20.21	m	m	[7.26] 20.21	i	i
13	Max-Forwards	[7.26] 20.22	m	m	[7.26] 20.22	m	m
14	MIME-Version	[7.26] 20.24	m	m	[7.26] 20.24	i	i
15	Organization	[7.26] 20.25	m	m	[7.26] 20.25	c3	c3
15A	P-Access-Network-Info	[7.52] 4.4	c23	c23	[7.52] 4.4	c24	c24
15B	P-Asserted-Identity	[7.34] 9.1	c10	c10	[7.34] 9.1	c11	c11
15C	P-Called-Party-ID	[7.52] 4.2	c14	c14	[7.52] 4.2	c15	c16
15D	P-Charging-Function-Addresses	[7.52] 4.5	c21	c21	[7.52] 4.5	c22	c22
15E	P-Charging-Vector	[7.52] 4.6	c19	c19	[7.52] 4.6	c20	c20
15F	P-Preferred-Identity	[7.34] 9.2	x	x	[7.34] 9.2	c9	c9

15G	P-Visited-Network-ID	[7.52] 4.3	c17	n/a	[7.52] 4.3	c18	n/a
15H	Priority	[7.26] 20.26	m	m	[7.26] 20.26	i	i
15I	Privacy	[7.33] 4.2	c12	c12	[7.33] 4.2	c13	c13
16	Proxy-Authorization	[7.26] 20.28	m	m	[7.26] 20.28	c7	c7
17	Proxy-Require	[7.26] 20.29	m	m	[7.26] 20.29	m	m
19A	Reply-To	[7.26] 20.31	m	m	[7.26] 20.31	i	i
20	Require	[7.26] 20.32	m	m	[7.26] 20.32	c5	c5
21	Route	[7.26] 20.34	m	m	[7.26] 20.34	m	m
21A	Security-Client	[7.48] 2.3.1	x	x	[7.48] 2.3.1	c25	c25
21B	Security-Verify	[7.48] 2.3.1	x	x	[7.48] 2.3.1	c26	c26
21C	Subject	[7.26] 20.36	m	m	[7.26] 20.36	i	i
22	Supported	[7.26] 20.37	m	m	[7.26] 20.37	c6	c6
23	Timestamp	[7.26] 20.38	m	m	[7.26] 20.38	i	i
24	To	[7.26] 20.39	m	m	[7.26] 20.39	m	m
25	User-Agent	[7.26] 20.41	m	m	[7.26] 20.41	i	i
26	Via	[7.26] 20.42	m	m	[7.26] 20.42	m	m

c2:	IF A.162/9 THEN m ELSE i - - insertion of date in requests and responses.
c3:	IF A.162/19A OR A.162/19B THEN m ELSE i - - reading, adding or concatenating the Organization header.
c4:	IF A.162/19C OR A.162/19D THEN m ELSE i - - reading, adding or concatenating the Call-Info header.
c5:	IF A.162/11 OR A.162/13 THEN m ELSE i - - reading the contents of the Require header before proxying the request or response or adding or modifying the contents of the Require header before proxying the request or response for methods other than REGISTER.
c6:	IF A.162/16 THEN m ELSE i - - reading the contents of the Supported header before proxying the response.
c7:	IF A.162/8A THEN m ELSE i - - authentication between UA and proxy.
c9:	IF A.162/30A THEN m ELSE n/a - - act as first entity within the trust domain for asserted identity.
c10:	IF A.162/30 THEN m ELSE n/a - - extensions to the Session Initiation Protocol (SIP) for asserted identity within trusted networks.
c11:	IF A.162/30A or A.162/30B THEN m ELSE i - - extensions to the Session Initiation Protocol (SIP) for asserted identity within trusted networks or subsequent entity within trust network that can route outside the trust network.
c12:	IF A.162/31 THEN m ELSE n/a - - a privacy mechanism for the Session Initiation Protocol (SIP).
c13:	IF A.162/31D OR A.162/31G THEN m ELSE IF A.162/31C THEN i ELSE n/a - - application of the privacy option "header" or application of the privacy option "id" or passing on of the Privacy header transparently.
c14:	IF A.162/37 THEN m ELSE n/a - - the P-Called-Party-ID header extension.
c15:	IF A.162/37 THEN i ELSE n/a - - the P-Called-Party-ID header extension.
c16:	IF A.162/37 AND A.3/2 THEN m ELSE IF A.162/37 AND A.3/3 THEN i ELSE n/a - - the P-Called-Party-ID header extension and P-CSCF or I-CSCF.
c17:	IF A.162/38 THEN m ELSE n/a - - the P-Visited-Network-ID header extension.
c18:	IF A.162/39 THEN m ELSE i - - reading, or deleting the P-Visited-Network-ID header before proxying the request or response.
c19:	IF A.162/45 THEN m ELSE n/a - - the P-Charging-Vector header extension.
c20:	IF A.162/46 THEN m ELSE IF A.162/45 THEN i ELSE n/a - - adding, deleting, reading or modifying the P-Charging-Vector header before proxying the request or response or the P-Charging-Vector header extension.
c21:	IF A.162/44 THEN m ELSE n/a - - the P-Charging-Function-Addresses header extension.
c22:	IF A.162/44A THEN m ELSE IF A.162/44 THEN i ELSE n/a - - adding, deleting or reading the P-Charging-Function-Addresses header before proxying the request or response, or the P-Charging-Function-Addresses header extension.
c23:	IF A.162/43 THEN x ELSE IF A.162/41 THEN m ELSE n/a - - act as subsequent entity within trust network for access network information that can route outside the trust network, the P-Access-Network-Info header extension.
c24:	IF A.162/43 THEN m ELSE IF A.162/41 THEN i ELSE n/a - - act as subsequent entity within trust network for access network information that can route outside the trust network, the P-Access-Network-Info header extension.
c25:	IF A.4/30 THEN o ELSE n/a - - security mechanism agreement for the session initiation protocol (note).
c26:	IF A.4/30 THEN m ELSE n/a - - security mechanism agreement for the session initiation protocol.
NOTE:	Support of this header in this method is dependent on the security mechanism and the security architecture which is implemented.

Prerequisite A.163/15A - - PUBLISH request

Table A.260B: Supported message bodies within the PUBLISH request

Item	Header	Sending			Receiving		
		Ref.	RFC status	Profile status	Ref.	RFC status	Profile status
1							

Prerequisite A.163/15B - - PUBLISH response

Table A.260C: Supported headers within the PUBLISH response - all remaining status-codes

Item	Header	Sending			Receiving		
		Ref.	RFC status	Profile status	Ref.	RFC status	Profile status
1	Call-ID	[7.26] 20.8	m	m	[7.26] 20.8	m	m
1A	Call-Info	[7.26] 24.9	m	m	[7.26] 24.9	c3	c3
1B	Content-Disposition	[7.26] 20.11	m	m	[7.26] 20.11	i	i
2	Content-Encoding	[7.26] 20.12	m	m	[7.26] 20.12	i	i
3	Content-Language	[7.26] 20.13	m	m	[7.26] 20.13	i	i
4	Content-Length	[7.26] 20.14	m	m	[7.26] 20.14	m	m
5	Content-Type	[7.26] 20.15	m	m	[7.26] 20.15	i	i
6	Cseq	[7.26] 20.16	m	m	[7.26] 20.16	m	m
7	Date	[7.26] 20.17	m	m	[7.26] 20.17	c1	c1
8	From	[7.26] 20.20	m	m	[7.26] 20.20	m	m
9	MIME-Version	[7.26] 20.24	m	m	[7.26] 20.24	i	i
10	Organization	[7.26] 20.25	m	m	[7.26] 20.25	c2	c2
10A	P-Access-Network-Info	[7.52] 4.4	c13	c13	[7.52] 4.4	c14	c14
10B	P-Asserted-Identity	[7.34] 9.1	c5	c5	[7.34] 9.1	c6	c6
10C	P-Charging-Function-Addresses	[7.52] 4.5	c11	c11	[7.52] 4.5	c12	c12
10D	P-Charging-Vector	[7.52] 4.6	c9	n/a	[7.52] 4.6	c10	n/a
10E	P-Preferred-Identity	[7.34] 9.2	x	x	[7.34] 9.2	c4	n/a
10F	Privacy	[7.33] 4.2	c7	c7	[7.33] 4.2	c8	c8
10G	Require	[7.26] 20.32	m	m	[7.26] 20.32	c15	c15
10H	Server	[7.26] 20.35	m	m	[7.26] 20.35	i	i
11	Timestamp	[7.26] 20.38	m	m	[7.26] 20.38	i	i
12	To	[7.26] 20.39	m	m	[7.26] 20.39	m	m
12A	User-Agent	[7.26] 20.41	m	m	[7.26] 20.41	i	i
13	Via	[7.26] 20.42	m	m	[7.26] 20.42	m	m
14	Warning	[7.26] 20.43	m	m	[7.26] 20.43	i	i

c1:	IF A.162/9 THEN m ELSE i - - insertion of date in requests and responses.
c2:	IF A.162/19A OR A.162/19B THEN m ELSE i - - reading, adding or concatenating the Organization header.
c3:	IF A.162/19C OR A.162/19D THEN m ELSE i - - reading, adding or concatenating the Call-Info header.
c4:	IF A.162/30A THEN m ELSE n/a - - act as first entity within the trust domain for asserted identity.
c5:	IF A.162/30 THEN m ELSE n/a - - extensions to the Session Initiation Protocol (SIP) for asserted identity within trusted networks.
c6:	IF A.162/30A or A.162/30B THEN m ELSE i - - extensions to the Session Initiation Protocol (SIP) for asserted identity within trusted networks or subsequent entity within trust network that can route outside the trust network.
c7:	IF A.162/31 THEN m ELSE n/a - - a privacy mechanism for the Session Initiation Protocol (SIP).
c8:	IF A.162/31D OR A.162/31G THEN m ELSE IF A.162/31C THEN i ELSE n/a - - application of the privacy option "header" or application of the privacy option "id" or passing on of the Privacy header transparently.
c9:	IF A.162/45 THEN m ELSE n/a - - the P-Charging-Vector header extension.
c10:	IF A.162/46 THEN m ELSE IF A.162/45 THEN i ELSE n/a - - adding, deleting, reading or modifying the P-Charging-Vector header before proxying the request or response or the P-Charging-Vector header extension.
c11:	IF A.162/44 THEN m ELSE n/a - - the P-Charging-Function-Addresses header extension.
c12:	IF A.162/44A THEN m ELSE IF A.162/44 THEN i ELSE n/a - - adding, deleting or reading the P-Charging-Function-Addresses header before proxying the request or response, or the P-Charging-Function-Addresses header extension.
c13:	IF A.162/43 THEN x ELSE IF A.162/41 THEN m ELSE n/a - - act as subsequent entity within trust network for access network information that can route outside the trust network, the P-Access-Network-Info header extension.
c14:	IF A.162/43 THEN m ELSE IF A.162/41 THEN i ELSE n/a - - act as subsequent entity within trust network for access network information that can route outside the trust network, the P-Access-Network-Info header extension.
c15:	IF A.162/11 OR A.162/13 THEN m ELSE i - - reading the contents of the Require header before proxying the request or response or adding or modifying the contents of the Require header before proxying the request or response for methods other than REGISTER.

Prerequisite A.163/15B - - PUBLISH response

Prerequisite: A.164/7 - - 200 (OK)

Table A.260D: Supported headers within the PUBLISH response

Item	Header	Sending			Receiving		
		Ref.	RFC status	Profile status	Ref.	RFC status	Profile status
1	Allow	[7.26] 20.5	m	m	[7.26] 20.5	i	i
2	Authentication-Info	[7.26] 20.6	m	m	[7.26] 20.6	i	i
4	Expires	[7.70] 3.5	m	m	[7.70] 3.5	i	i
8	Supported	[7.26] 20.37	m	m	[7.26] 20.37	i	i
c3:	IF A.162/15 THEN m ELSE i - - the requirement to be able to use separate URIs in the upstream direction and downstream direction when record routeing.						

Prerequisite A.163/15B - - PUBLISH response

Prerequisite: A.164/8 OR A.164/9 OR A.164/10 OR A.164/11 OR A.164/12 OR A.164/35 - - 3xx or 485 (Ambiguous)

Table A.260E: Supported headers within the PUBLISH response

Item	Header	Sending			Receiving		
		Ref.	RFC status	Profile status	Ref.	RFC status	Profile status
1	Allow	[7.26] 20.5	m	m	[7.26] 20.5	i	i
2	Contact	[7.26] 20.10	m	m	[7.26] 20.10	c1	c1
3	Error-Info	[7.26] 20.18	m	m	[7.26] 20.18	i	i
7	Supported	[7.26] 20.37	m	m	[7.26] 20.37	i	i
c1:	IF A.162/19E THEN m ELSE i - - deleting Contact headers.						

Prerequisite A.163/15B - - PUBLISH response

Prerequisite: A.164/8 OR A.164/9 OR A.164/10 OR A.164/11 OR A.164/12 - - 401 (Unauthorized)

Table A.260F: Supported headers within the PUBLISH response

Item	Header	Sending			Receiving		
		Ref.	RFC status	Profile status	Ref.	RFC status	Profile status
1	Allow	[7.26] 20.5	m	m	[7.26] 20.5	i	i
2	Error-Info	[7.26] 20.18	m	m	[7.26] 20.18	i	i
4	Proxy-Authenticate	[7.26] 20.27	m	m	[7.26] 20.27	m	m
7	Supported	[7.26] 20.37	m	m	[7.26] 20.37	i	i
10	WWW-Authenticate	[7.26] 20.44	m	m	[7.26] 20.44	i	i

Prerequisite A.163/15B - - PUBLISH response

Prerequisite: A.164/17 OR A.164/23 OR A.164/30 OR A.164/36 OR A.164/42 OR A.164/45 OR A.164/50 OR A.164/51 - - 404, 413, 480, 486, 500, 503, 600, 603

Table A.260G: Supported headers within the PUBLISH response

Item	Header	Sending			Receiving		
		Ref.	RFC status	Profile status	Ref.	RFC status	Profile status
1	Allow	[7.26] 20.5	m	m	[7.26] 20.5	i	i
3	Error-Info	[7.26] 20.18	m	m	[7.26] 20.18	i	i
6	Retry-After	[7.26] 20.33	m	m	[7.26] 20.33	i	i
8	Supported	[7.26] 20.37	m	m	[7.26] 20.37	i	i

Prerequisite A.163/15B - - PUBLISH response

Prerequisite: A.164/18 -- 405 (Method Not Allowed)

Table A.260H: Supported headers within the PUBLISH response

Item	Header	Sending			Receiving		
		Ref.	RFC status	Profile status	Ref.	RFC status	Profile status
2	Allow	[7.26] 20.5	m	m	[7.26] 20.5	i	i
3	Error-Info	[7.26] 20.18	m	m	[7.26] 20.18	i	i
7	Supported	[7.26] 20.37	m	m	[7.26] 20.37	i	i

Prerequisite A.163/15B - - PUBLISH response

Prerequisite: A.164/20 - - 407 (Proxy Authentication Required)

Table A.260I: Supported headers within the PUBLISH response

Item	Header	Sending			Receiving		
		Ref.	RFC status	Profile status	Ref.	RFC status	Profile status
1	Allow	[7.26] 20.5	m	m	[7.26] 20.5	i	i
2	Error-Info	[7.26] 20.18	m	m	[7.26] 20.18	i	i
4	Proxy-Authenticate	[7.26] 20.27	m	m	[7.26] 20.27	m	m
7	Supported	[7.26] 20.37	m	m	[7.26] 20.37	i	i
10	WWW-Authenticate	[7.26] 20.44	m	m	[7.26] 20.44	i	i

Prerequisite A.163/15B - - PUBLISH response

Prerequisite: A.164/25 -- 415 (Unsupported Media Type)

Table A.260J: Supported headers within the PUBLISH response

Item	Header	Sending			Receiving		
		Ref.	RFC status	Profile status	Ref.	RFC status	Profile status
1	Accept	[7.26] 20.1	m	m	[7.26] 20.1	i	i
2	Accept-Encoding	[7.26] 20.2	m	m	[7.26] 20.2	i	i
3	Accept-Language	[7.26] 20.3	m	m	[7.26] 20.3	i	i
3A	Allow	[7.26] 20.5	m	m	[7.26] 20.5	i	i
4	Error-Info	[7.26] 20.18	m	m	[7.26] 20.18	i	i
8	Supported	[7.26] 20.37	m	m	[7.26] 20.37	i	i

Prerequisite A.163/15B - - PUBLISH response

Prerequisite: A.164/27 - - 420 (Bad Extension)

Table A.260K: Supported headers within the PUBLISH response

Item	Header	Sending			Receiving		
		Ref.	RFC status	Profile status	Ref.	RFC status	Profile status
1	Allow	[7.26] 20.5	m	m	[7.26] 20.5	i	i
3	Error-Info	[7.26] 20.18	m	m	[7.26] 20.18	i	i
7	Supported	[7.26] 20.37	m	m	[7.26] 20.37	i	i
8	Unsupported	[7.26] 20.40	m	m	[7.26] 20.40	c3	c3
c3:	IF A.162/18 THEN m ELSE i - - reading the contents of the Unsupported header before proxying the 420 response to a method other than REGISTER.						

Prerequisite A.163/15B - - PUBLISH response

Prerequisite: A.164/28 OR A.164/41A - - 421 (Extension Required), 494 (Security Agreement Required)

Table A.260L: Supported headers within the PUBLISH response

Item	Header	Sending			Receiving		
		Ref.	RFC status	Profile status	Ref.	RFC status	Profile status
1	Allow	[7.26] 20.5	o	o	[7.26] 20.5	m	m
2	Error-Info	[7.26] 20.18	o	o	[7.26] 20.18	o	o
3	Security-Server	[7.48] 2	c1	c1	[7.48] 2	n/a	n/a
3	Supported	[7.26] 20.37	m	m	[7.26] 20.37	m	m
c1:	IF A.162/35 THEN m ELSE n/a - - security mechanism agreement for the session initiation protocol.						

Prerequisite A.163/15B - - PUBLISH response

Prerequisite: A.164/34 - - 484 (Address Incomplete)

Table A.260M: Supported headers within the PUBLISH response

Item	Header	Sending			Receiving		
		Ref.	RFC status	Profile status	Ref.	RFC status	Profile status
1	Allow	[7.26] 20.5	m	m	[7.26] 20.5	i	i
3	Error-Info	[7.26] 20.18	m	m	[7.26] 20.18	i	i
7	Supported	[7.26] 20.37	m	m	[7.26] 20.37	i	i

Prerequisite A.163/15B - - PUBLISH response

Prerequisite: A.164/39 - - 489

Table A.260N: Supported headers within the PUBLISH response

Item	Header	Sending			Receiving		
		Ref.	RFC status	Profile status	Ref.	RFC status	Profile status
0A	Allow	[7.26] 20.5	m	m	[7.26] 20.5	i	i
1	Allow-Events	[7.28] 8.2.2	m	m	[7.28] 8.2.2	i	i
3	Error-Info	[7.26] 20.18	m	m	[7.26] 20.18	i	i

Prerequisite A.163/17 - - PUBLISH response

Table A.260O: Supported message bodies within the PUBLISH response

Item	Header	Sending			Receiving		
		Ref.	RFC status	Profile status	Ref.	RFC status	Profile status
1							

Annex A: Bibliography

The following documents constitute essential reading for the understanding of the presence capabilities, and their provision by SIP. Unless additionally included in clause 2 of this specification, they do not constitute provisions for the support of presence by SIP in the IM CN subsystem, or of the related technical specifications 3GPP TS 23.218, 3GPP TS 24.228 or 3GPP TS 24.229.

Editor's Note: The material in this Annex will not be included in TS 23.218, TS 24.228 or TS 24.229.

Editor's Note: IETF drafts included in this annex are not being tracked as part of the IETF 3GPP coordination process as until they appear as a normative reference in another document, 3GPP is not dependent on them.

[B1] IETF RFC 2778 (February 2000): "A Model for Presence and Instant Messaging".

[B2] IETF RFC 2779 (February 2000): "Instant Messaging / Presence Protocol Requirements".

[B3] IETF RFC 3261 (June 2002): "SIP: Session Initiation Protocol".

[B4] IETF RFC 3265 (June 2002): "Session Initiation Protocol (SIP)-Specific Event Notification".

[B5] "Requirements for Presence Service in 3GPP Wireless Systems", K. Kiss, G. Bajko, Internet-Draft in SIMPLE WG, http://www.ietf.org/internet-drafts/draft-kiss-simple-presence-wireless-reqs-02.txt, February 2003.

[B6] "CPIM Presence Information Data Format", Internet Draft in IMPP WG http://www.ietf.org/internet-drafts/draft-ietf-impp-cpim-pidf-07.txt, December 2002.

[B7] "A Session Initiation Protocol (SIP) Event Notification Extension for Collections ", Internet-Draft, http://search.ietf.org/internet-drafts/draft-ietf-simple-event-list-03.txt, March 2003.

[B8] "SIP Extensions for Presence", Rosenberg et al, Internet-Draft in SIMPLE WG, http://www.ietf.org/internet-drafts/draft-ietf-simple-presence-10.txt, January 2003.

[B9] "CPIM Mapping of SIMPLE Presence and Instant Messaging", Campbell and Rosenberg, Internet-Draft in SIMPLE WG, http://www.ietf.org/internet-drafts/draft-ietf-simple-cpim-mapping-01.txt, June 2002.

[B10] "SIMPLE Presence Publication", Olson and Campbell et al, Internet-Draft in SIMPLE WG, http://www.ietf.org/internet-drafts/draft-olson-simple-publish-02.txt, February 2003.

[B11] "SIMPLE Presence Publication Requirements ", Campbell et al., Internet-Draft in SIMPLE WG, http://www.ietf.org/internet-drafts/draft-ietf-simple-publish-reqs-00.txt, February 2003.

[B12] "Requirements for Manipulation of Data Elements in SIMPLE Systems", Rosenberg and Isomaki., Internet-Draft in SIMPLE WG, http://www.ietf.org/internet-drafts/draft-ietf-simple-data-req-02.txt, April 2003.

[B13] "A Session Initiation Protocol (SIP) Event Template-Package for Watcher Information", J. Rosenberg, Internet-Draft in SIMPLE WG, http://www.ietf.org/internet-drafts/draft-ietf-simple-winfo-package-05.txt, January 2003.

[B14] "An Extensible Markup Language (XML) Based Format for Watcher Information", J. Rosenberg, Internet-Draft in SIMPLE WG, http://www.ietf.org/internet-drafts/draft-ietf-simple-winfo-format-04.txt, January 2003.

[B15] "Requirements for Presence specific Event Notification Filters", T. Moran, S. Addagatla, Internet-Draft in SIMPLE WG, http://www.ietf.org/internet-drafts/draft-moran-simple-pres-filter-reqs-00.txt, January 2003.

[B16] "Requirements for Content Indirection in SIP Messages", S. Olson, Internet-Draft in SIPPING WG, http://www.ietf.org/internet-drafts/draft-ietf-sipping-content-indirect-03.txt, February 2003.

[B17] "A Mechanism for Content Indirection in SIP Messages", S. Olson, Internet-Draft in SIP WG, http://www.ietf.org/internet-drafts/draft-olson-sip-content-indirect-mech-02, February 2003.

[B18] "Requirements for Filtering of Watcher Information", K. Kiss et al, Internet-Draft in SIMPLE WG, http://www.ietf.org/internet-drafts/draft-ietf-simple-winfo-filter-reqs-00.txt, May 2003.

[B19] "An Extensible Markup Language (XML) Based Format for Event Notification Filtering", H. Khartabil et al, Internet-Draft in SIMPLE WG, http://www.ietf.org/internet-drafts/draft-khartabil-simple-filter-format-00.txt, May 2003.

[B20] "Functional Description of Event Notification Filtering", H. Khartabil, Internet-Draft in SIMPLE WG, http://www.ietf.org/internet-drafts/ draft-khartabil-simple-filter-funct-00.txt, May 2003.

[B21] "RPIDS -- Rich Presence Information Data Format for Presence Based on the Session Initiation Protocol (SIP)", Internet-Draft in SIMPLE WG, http://www.ietf.org/internet-drafts/draft-schulzrinne-simple-rpids-01.txt, February 2003.

[B22] "Common Profile for Presence (CPP)", D. Crocker et al., Internet-Draft in IMPP WG, http://www.ietf.org/internet-drafts/draft-ietf-impp-pres-02.txt, February 2003.

[B23] "Common Profile: Instant Messaging", D. Crocker et al., Internet-Draft in IMPP WG, http://www.ietf.org/internet-drafts/draft-ietf-impp-im-02.txt, February 2003.

[B24] "Address Resolution for Instant Messaging and Presence", D. Crocker et al., Internet-Draft in IMPP WG, http://www.ietf.org/internet-drafts/draft-ietf-impp-srv-02.txt, February 2003.

[B25] "An Application Configuration Access Protocol (ACAP) Dataset Classes for Presence List and Authorization Policy")", J. Rosenberg, Internet-Draft in SIMPLE WG, http://www.ietf.org/internet-drafts/draft-rosenberg-simple-acap-data-00.txt, February 2003.

[B26] "Requirements for Efficient Delivery of Presence Information ", M. Lonnfors et al., Internet-Draft in SIMPLE WG, http://www.ietf.org/internet-drafts/ draft-ietf-simple-presinfo-deliv-reg-00.txt, May 2003.

[B27] "Partial Notification of Presence Information", M. Lonnfors et al., Internet-Draft in SIMPLE WG, http://www.ietf.org/internet-drafts/draft-lonnfors-simple-partial-notify-01.txt, May 2003.

[B28] "Requirements for Limiting the Rate of Event Notifications", A. Niemi, Internet-Draft in SIMPLE WG, http://www.ietf.org/internet-drafts/draft-niemi-sipping-event-throttle-reqs-01.txt, February 2003.

Annex B:
Change history

Change history							
Date	**TSG #**	**TSG Doc.**	**CR**	**Rev**	**Subject/Comment**	**Old**	**New**
		N1-021189			Version 0.0.0 Editor's 1st draft to CN1		
		N1-021577			Version 0.0.1 Input version to CN1 #25, identical to previous version but with rebuilt table of contents.		
		N1-021921			Version 0.1.0 replaced by N1-021822 and N1-021823 at CN1 #26. Version incorporates contents from N1-021580 and N1-021630.		
02/10/02		N1-022195			Version 0.2.0 produced as a result of CN1 #26 and incorporating agreements from: N1-021923, N1-022130, N1-022132, N1-022133, N1-022134, N1-022135, N1-022136, N1-022139, N1-022140, N1-022141, N1-022158, N1-022161 In addition to the changes resulting from these CRs, the title was amended to accord with that in the MCC database.		
24/10/02		N1-022252			Version 0.3.0 produced as a result of CN1 #26bis and incorporating agreements from: N1-022175, N1-022178, N1-022185, N1-022193, N1-022205, N1-022207, N1-022208, N1-022209, N1-022210, N1-022211, N1-022217, N1-022218, N1-022223, N1-022225.		
16/11/02		N1-030010			Version 0.4.0 produced as a result of CN1 #27 and incorporating agreements from: N1-022283, N1-022284, N1-022285, N1-022286, N1-0222287, N1-022288, N1-022289, N1-022349, N1-022478.		
18/02/03		N1-030362			Version 0.5.0 produced as a result of CN1 #28 and incorporating agreements from: N1-030110, N1-030237, N1-030272, N1-030273, N1-030274. Revision to new document template.		
07/04/03		N1-030762			Version 0.6.0 produced as a result of CN1 #29 and incorporating agreements from: N1-030381, N1-030384, N1-030419, N1-030448, N1-030450, N1-030525, N1-030526, N1-030529, N1-030530, N1-030531, N1-030532, N1-030533.		
29/05/03		NP-03xxxx			Version 1.0.0 produced as a result of CN1#30 and incorporating agreements from: N1-030764, N1-030791, N1-030793, N1-030796, N1-030799, N1-030900, N1-030901, N1-030902, N1-030903		