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Zlite telekomunikacijske in internetne storitve ter protokoli za napredno omreženje (TISPAN) - 3. stopnja protokola za krmiljenje IP-večpredstavnostnih klicev na podlagi protokola za zagon seje (SIP) in protokola za opis seje (SDP)

Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN) - IP Multimedia Call Control Protocol based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP) Stage 3

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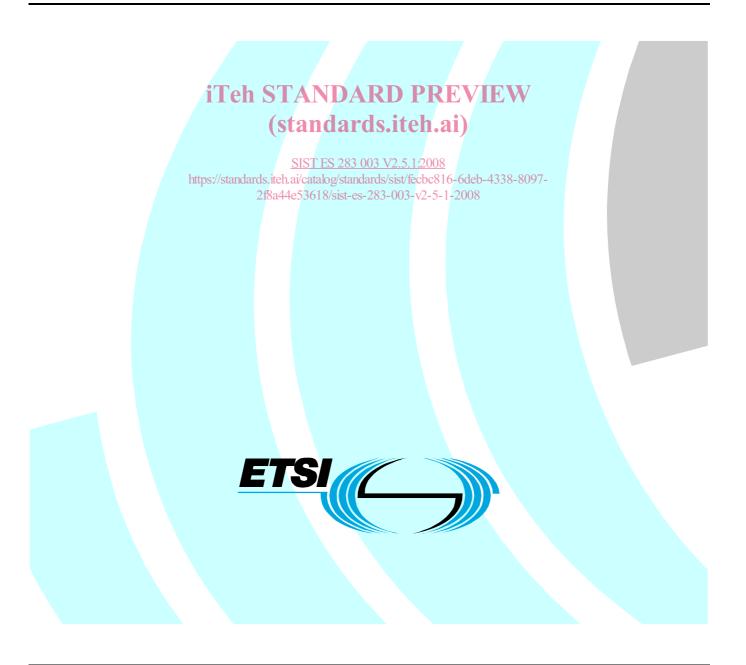**SIST ES 283 003 V2.5.1:2008** **en**

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ETSI Standard

Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); IP Multimedia Call Control Protocol based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP) Stage 3

[3GPP TS 24.229 [Release 7], modified]

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Foreword

This ETSI Standard (ES) has been produced by ETSI Technical Committee Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN).

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1   Scope

The present document provides the ETSI TISPAN endorsement of 3GPP TS 24.229 [1]: "3rd Generation Partnership Project; Technical Specification Group Core Network and Terminals; IP multimedia call control protocol based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP); Stage 3 (Release 7)" in line with the requirements of TISPAN NGN.

The present document together with the endorsed document provides the necessary SIP/SDP specifications for supporting TISPAN Release 2 requirements, with the exception of some of the features required for Business Trunking services (e.g. procedures for handling Wildcarded Public User Identities) and IPTV services (e.g. SDP extensions). Modifications required in support of these features are expected to be included as essential corrections to the present document.

2   References

References are either specific (identified by date of publication and/or edition number or version number) or non-specific.

- For a specific reference, subsequent revisions do not apply.

- Non-specific reference may be made only to a complete document or a part thereof and only in the following cases:

    - if it is accepted that it will be possible to use all future changes of the referenced document for the purposes of the referring document;

    - for informative references.

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For online referenced documents, information sufficient to identify and locate the source shall be provided. Preferably, the primary source of the referenced document should be cited, in order to ensure traceability. Furthermore, the reference should, as far as possible, remain valid for the expected life of the document. The reference shall include the method of access to the referenced document and the full network address, with the same punctuation and use of upper case and lower case letters.

NOTE: While any hyperlinks included in this clause were valid at the time of publication ETSI cannot guarantee their long term validity.

2.1   Normative references

The following referenced documents are indispensable for the application of the present document. For dated references, only the edition cited applies. For non-specific references, the latest edition of the referenced document (including any amendments) applies.

[1]   3GPP TS 24.229 (V7.9.0): "3rd Generation Partnership Project; Technical Specification Group Core Network and Terminals; IP multimedia call control protocol based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP); Stage 3".

[2]   ETSI TS 183 008: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); PSTN/ISDN simulation services; Terminating Identification Presentation (TIP) and Terminating Identification Restriction (TIR); Protocol specification".

[3]   ETSI TS 183 007: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); PSTN/ISDN simulation services; Originating Identification Presentation (OIP) and Originating Identification Restriction (OIR); Protocol specification".

Endorsement notice

The present document endorses 3GPP TS 24.229 (V7.9.0): "IP Multimedia Call Control Protocol based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP) Stage 3 (Release 7)" [1].

The present document shows the modifications, additions and deletions through the use of underlined and strikethrough text.

For the purpose of the present document clause 1 of [1] applies.

For the purpose of the present document clause 3 of [1] applies except for clause 3.2, which is replaced by the appropriate clause in clause 3 of the present document.

For the purpose of the present document clause 4 of [1] applies, except for clauses 4.1 and 4.2, which are replaced by the appropriate clauses in clause 4 of the present document.

For the purpose of the present document clause 5 of [1] applies, except for clauses 5.1.1.1A, 5.1.1.2, 5.1.1.3, 5.1.1.4, 5.1.1.5.1, 5.1.1.5.2, 5.1.1.5A, 5.1.1.6, 5.1.1.7, 5.1.2A.1, 5.1.2.A2, 5.2.1, 5.2.2, 5.2.5.1, 5.2.5.2, 5.2.6.2, 5.2.6.3, 5.2.6.4, 5.2.7.2, 5.2.7.3, 5.2.8.1.1, 5.2.8.1.2, 5.2.8.1.4, 5.2.8.3, 5.2.10.1, 5.2.10.3, 5.4.1.1, 5.4.1.2, 5.4.1.2.1, 5.4.1.3, 5.4.1.4, 5.4.1.6, 5.4.1.7, 5.4.3.2, 5.4.3.3 and 5.10.6, which are replaced by the appropriate clauses in clause 5 of the present document. In addition clauses 5.1.1.1B, 5.1.1.2A, 5.1.1.4A, 5.1.1.5.1A, 5.1.1.5.1B, 5.1.1.6A, 5.2.2A and 5.4.1.2A.1 are added.

For the purpose of the present document clause 6 of [1] applies, except for clauses 6.1.1 and 6.2 , which are replaced by the appropriate clauses in clause 6 of the present document.

For the purpose of the present document clause 7 of [1] applies, except for clause 7.2A.4, which is replaced by the appropriate clause in clause 7 of the present document.

For the purpose of the present document clause 9 of [1] applies.

For the purpose of the present document annex A of [1] applies, except for clauses A.2.1.2, A.2.1.4.7, A2.1.4.12, A.2.2.4.7 and A.3.2.1 which are replaced by the appropriate clauses in annex A of the present document.

For the purpose of the present document annex F of [1] is replaced with annex F of the present document.

For the purpose of the present document annex G of [1] is replaced with annex G of the present document.

For the purpose of the present document annex I of [1] applies.

For the purpose of the present document annex J of [1] applies, except for clauses J.1 and J.2 which are replaced by the appropriate clauses in annex J of the present document. In addition clause J.9A is added.

For the purpose of the present document annex F of [1] applies, except for clauses F.4.1 and F.4.2 which are replaced as indicated in the appropriate clauses in annex F of the present document.

For the purpose of the present document annex F of [1] applies with the addition of clause F.4A.

Global modifications to 3GPP TS 24.229

The references in clause 2 of [1] should be replaced as shown in table 1.

Table 1

References in 3GPP TS 24.229 [1]	Replaced references
[2] 3GPP TS 23.002: "Network architecture".	ETSI ES 282 007: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); IP Multimedia Subsystem (IMS); Functional architecture" (note 1)
	ETSI ES 282 001: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); NGN Functional Architecture Release 2" (note 1)
[4A] 3GPP TS 23.107: "Quality of Service (QoS) concept and architecture".	(note 2)

References in 3GPP TS 24.229 [1]	Replaced references
[4B] 3GPP TS 23.167: "IP Multimedia Subsystem (IMS) emergency session; Stage 2".	ETSI TS 182 009: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); NGN Architecture to support emergency communication from citizen to authority" (note 1)
[4C] 3GPP TS 23.122: "Non-Access-Stratum (NAS) functions related to Mobile Station (MS) in idle mode".	(note 2)
[5] 3GPP TS 23.218: "IP Multimedia (IM) Session Handling; IM call model".	(note 2)
[6] 3GPP TS 23.221: "Architectural requirements".	(note 2)
[7] 3GPP TS 23.228: "IP multimedia subsystem; Stage 2".	ETSI TS 182 006: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); IP Multimedia Subsystem (IMS); Stage 2 description"
[8] 3GPP TS 24.141: "Presence service using the IP Multimedia (IM) Core Network (CN) subsystem; Stage 3".	ETSI ES 283 030: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Presence Service Capability; Protocol Specification [3GPP TS 24.141 V7.0.0, modified and OMA-TS-Presence_SIMPLE-V1_0, modified]" (note 1)
[10] 3GPP TS 26.235: "Packet switched conversational multimedia applications; Default codecs".	ETSI TS 181 005: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Services and Capabilities Requirements" (note 1)
[10A] 3GPP TS 27.060: "Mobile Station (MS) supporting Packet Switched Services".	(note 2)
[11A] 3GPP TS 29.162: "Interworking between the IM CN subsystem and IP networks".	ETSI TS 183 021: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); NGN Release 1; Endorsement of 3GPP TS 29.162 Interworking between IM CN Sub-system and IP networks" (note 1)
[11B] 3GPP TS 29.163: "Interworking between the IP Multimedia (IM) Core Network (CN) subsystem and Circuit Switched (CS) networks".	ETSI ES 283 027: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Endorsement of the SIP-ISUP Interworking between the IP Multimedia (IM) Core Network (CN) subsystem and Circuit Switched (CS) networks [3GPP TS 29.163 (Release 7), modified]" (note 1)
[14] 3GPP TS 29.228: "IP Multimedia (IM) Subsystem Cx and Dx Interfaces; Signalling flows and message contents".	ETSI TS 183 033: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); IP Multimedia; Diameter based protocol for the interfaces between the Call Session Control Function and the User Profile Server Function/Subscription Locator Function; Signalling flows and protocol details [3GPP TS 29.228 V6.8.0 and 3GPP TS 29.229 V6.6.0, modified]" (note 1)
[15] 3GPP TS 29.229: "Cx and Dx Interfaces based on the Diameter protocol, Protocol details".	ETSI TS 183 033: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); IP Multimedia; Diameter based protocol for the interfaces between the Call Session Control Function and the User Profile Server Function/Subscription Locator Function; Signalling flows and protocol details [3GPP TS 29.228 V6.8.0 and 3GPP TS 29.229 V6.6.0, modified]" (note 1)
[16] 3GPP TS 32.240: "Telecommunication management; Charging management; Charging architecture and principles".	ETSI ES 282 010: "Telecommunications and Internet Converged Services and Protocols for Advanced Networking (TISPAN); Charging (Endorsement of 3GPP TS 32.240 Release 7, 3GPP TS 32.260 Release 7, 3GPP TS 32.297 Release 7, 3GPP TS 32.298 Release 7 and 3GPP TS 32.299 Release 7 modified)" (note 1)
[17] 3GPP TS 32.260: "Telecommunication management; Charging management; IP Multimedia Subsystem (IMS) charging".	ETSI ES 282 010: "Telecommunications and Internet Converged Services and Protocols for Advanced Networking (TISPAN); Charging [Endorsement of 3GPP TS 32.240 Release 7, 3GPP TS 32.260 Release 7, 3GPP TS 32.297 Release 7, 3GPP TS 32.298 Release 7 and 3GPP TS 32.299 Release 7modified]" (note 1)
[19] 3GPP TS 33.203: "Access security for IP based services".	(note 2)
[67] draft-rosenberg-sipping-acr-code-00 (November 2005): "Rejecting Anonymous Requests in the Session Initiation Protocol (SIP)".	New reference. Editor's note: The document cannot be formally referenced until it is published as an RFC (note 1)

References in 3GPP TS 24.229 [1]	Replaced references
[68] draft-jennings-sip-voicemail-uri-05 (November 2005): "Session Initiation Protocol (SIP) URIs for Applications such as Voicemail and Interactive Voice Response (IVR)".	IETF RFC 4458: "Session Initiation Protocol (SIP) URIs for Applications such as Voicemail and Interactive Voice Response (IVR)" (note 1)
[85] 3GPP2 C.S0005-D (March 2004): "Upper Layer (Layer 3) Signalling Standard for cdma2000 Standards for Spread Spectrum Systems".	(note 2)
[86] 3GPP2 C.S0024-A v1.0 (April 2004): "cdma2000 High Rate Packet Data Air Interface Standard".	(note 2)
[87] ITU-T Recommendation J.112, "Transmission Systems for Interactive Cable Television Services"	(note 2)
[88] PacketCable Release 2 Technical Report, PacketCable™ Architecture Framework Technical Report, PKT-TR-ARCH-FRM.	(note 2)
NOTE 1: The reference in [1] is replaced by the document listed on the right column. This replacement is applicable to all occurrences of the reference throughout the present endorsement.	
NOTE 2: The reference in [1] contains 3GPP or 3GPP2 or cable specific requirements and is not generally applicable to the present endorsement.	

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, clause 3.1 of [1] applies.

3.2 Abbreviations

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

1xx	A status-code in the range 101 through 199, and excluding 100
2xx	A status-code in the range 200 through 299
AAA	Authentication, Authorization and Accounting
AS	Application Server
APN	Access Point Name
AUTN	Authentication TokeN
B2BUA	Back-to-Back User Agent
BGCF	Breakout Gateway Control Function
c	conditional
BRAS	Broadband Remote Access Server
CCF	Charging Collection Function
CDF	Charging Data Function
CDR	Charging Data Record
CK	Ciphering Key
CN	Core Network
CPC	Calling Party Category
CSCF	Call Session Control Function
DHCP	Dynamic Host Configuration Protocol
DNS	Domain Name System
DOCSIS	Data Over Cable Service Interface Specification
DTD	Document Type Definition
EC	Emergency Centre
ECF	Event Charging Function
E-CSCF	Emergency CSCF
FQDN	Fully Qualified Domain Name
GCID	GPRS Charging Identifier
GGSN	Gateway GPRS Support Node
GPRS	General Packet Radio Service
GRUU	Globally Routable User agent URI

HPLMN	Home PLMN
~~HSS~~	~~Home Subscriber Server~~
i	irrelevant
IARI	IMS Application Reference Identifier
IBCF	Interconnection Border Control Function
I-CSCF	Interrogating CSCF
ICID	IM CN subsystem Charging Identifier
ICSI	IMS Communication Service Identifier
IK	Integrity Key
IM	IP Multimedia
IMS	IP Multimedia ~~core network~~ Subsystem
IMS-ALG	IMS Application Level Gateway
IMSI	International Mobile Subscriber Identity
IOI	Inter Operator Identifier
IP	Internet Protocol
IP-CAN	IP-Connectivity Access Network
IPsec	IP security
IPv4	Internet Protocol version 4
IPv6	Internet Protocol version 6
ISC	IP Multimedia Subsystem Service Control
ISIM	IM Subscriber Identity Module
IWF	Interworking Function
I-WLAN	Interworking – WLAN
LRF	Location Retrieval Function
m	mandatory
MAC	Message Authentication Code
MCC	Mobile Country Code
MGCF	Media Gateway Control Function
MGW	Media Gateway
MNC	Mobile Network Code
MRFC	Multimedia Resource Function Controller
MRFP	Multimedia Resource Function Processor
n/a	not applicable
NAI	Network Access Identifier
NA(P)T	Network Address (and Port) Translation
NASS	Network Attachement Subsystem
NAT	Network Address Translation
o	optional
OCF	Online Charging Function
PCRF	Policy and Charging Rules Function
P-CSCF	Proxy CSCF
PDG	Packet Data Gateway
PDP	Packet Data Protocol
PDU	Protocol Data Unit
PIDF-LO	Presence Information Data Format Location Object
PLMN	Public Land Mobile Network
PSAP	Public Safety Answering Point
PSI	Public Service Identity
PSTN	Public Switched Telephone Network
QoS	Quality of Service
RAND	RANDom challenge
RES	RESponse
RTCP	Real-time Transport Control Protocol
RTP	Real-time Transport Protocol
S-CCF	Serving CSCF
SCTP	Stream Control Transmission Protocol
SDP	Session Description Protocol
SIP	Session Initiation Protocol
SLF	Subscription Locator Function
SQN	SeQuence Number
UA	User Agent
UAC	User Agent Client

UAS	User Agent Server
UE	User Equipment
UICC	Universal Integrated Circuit Card
URI	Uniform Resource Identifier
URL	Uniform Resource Locator
URN	Uniform Resource Name
UDVM	Universal Decompressor Virtual Machine
UPSF	User Profile Server Function
USIM	Universal Subscriber Identity Module
VPLMN	Visited PLMN
WLAN	Wireless Local Area Network
x	prohibited
xDSL	Digital Subscriber Line (all types)
XMAC	expected MAC
XML	eXtensible Markup Language

4 General

4.1 Conformance of IM CN subsystem entities to SIP, SDP and other protocols

SIP defines a number of roles which entities can implement in order to support capabilities. These roles are defined in annex A.

Each IM CN subsystem functional entity using an interface at the Gm reference point, the Ma reference point, the Mg reference point, the Mi reference point, the Mj reference point, the Mk reference point, the Mm reference point, the Mr reference point and the Mw reference point, and also using the IP multimedia Subsystem Service Control (ISC) Interface, shall implement SIP, as defined by the referenced specifications in annex A, and in accordance with the constraints and provisions specified in annex A, according to the following roles.

The Gm reference point, the Ma reference point, the Mg reference point, the Mi reference point, the Mj reference point, the Mk reference point, the Mm reference point, the Mr reference point, the Mw reference point and the ISC reference point are defined in 3GPP TS 23.002 [2].

- The User Equipment (UE) shall provide the User Agent (UA) role, with the exceptions and additional capabilities to SIP as described in subclause 5.1, with the exceptions and additional capabilities to SDP as described in subclause 6.1, and with the exceptions and additional capabilities to SigComp as described in subclause 8.1. The UE shall also provide the access dependent procedures as described in the annexes, e.g. GPRS specific procedures described in subclause B.2.2.

- The P-CSCF shall provide the proxy role, with the exceptions and additional capabilities to SIP as described in subclause 5.2, with the exceptions and additional capabilities to SDP as described in subclause 6.2, and with the exceptions and additional capabilities to SigComp as described in subclause 8.2. Under certain circumstances as described in subclause 5.2, the P-CSCF shall provide the UA role with the additional capabilities, as follows:

    a) when acting as a subscriber to or the recipient of event information; and

    b) when performing P-CSCF initiated dialog-release, even when acting as a proxy for the remainder of the dialog.

- The I-CSCF shall provide the proxy role, with the exceptions and additional capabilities as described in subclause 5.3.

- The S-CCF shall provide the proxy role, with the exceptions and additional capabilities as described in subclause 5.4, and with the exceptions and additional capabilities to SDP as described in subclause 6.3. Under certain circumstances as described in subclause 5.4, the S-CCF shall provide the UA role with the additional capabilities, as follows:

    a) the S-CCF shall also act as a registrar. When acting as a registrar, or for the purposes of executing a third-party registration, the S-CCF shall provide the UA role;

    b) as the notifier of event information the S-CCF shall provide the UA role;

c)   when providing a messaging mechanism by sending the MESSAGE method, the S-CCF shall provide the UA role; and

d)   when performing S-CCF initiated dialog release the S-CCF shall provide the UA role, even when acting as a proxy for the remainder of the dialog.

-     The MGCF shall provide the UA role, with the exceptions and additional capabilities as described in subclause 5.5, and with the exceptions and additional capabilities to SDP as described in subclause 6.4.

-     The BGCF shall provide the proxy role, with the exceptions and additional capabilities as described in subclause 5.6.

-     The AS, acting as terminating UA, or redirect server (as defined in 3GPP TS 23.218 [5] subclause 9.1.1.1), shall provide the UA role, with the exceptions and additional capabilities as described in subclause 5.7.2, and with the exceptions and additional capabilities to SDP as described in subclause 6.6.

-     The AS, acting as originating UA (as defined in 3GPP TS 23.218 [5] subclause 9.1.1.2), shall provide the UA role, with the exceptions and additional capabilities as described in subclause 5.7.3, and with the exceptions and additional capabilities to SDP as described in subclause 6.6.

-     The AS, acting as a SIP proxy (as defined in 3GPP TS 23.218 [5] subclause 9.1.1.3), shall provided the proxy role, with the exceptions and additional capabilities as described in subclause 5.7.4.

-     The AS, performing 3rd party call control (as defined in 3GPP TS 23.218 [5] subclause 9.1.1.4), shall provide the UA role, with the exceptions and additional capabilities as described in subclause 5.7.5, and with the exceptions and additional capabilities to SDP as described in subclause 6.6.

NOTE 1: Subclause 5.7 and its subclauses define only the requirements on the AS that relate to SIP. Other requirements are defined in 3GPP TS 23.218 [5].

-     The AS, receiving third-party registration requests, shall provide the UA role, with the exceptions and additional capabilities as described in subclause 5.7.

-     The MRFC shall provide the UA role, with the exceptions and additional capabilities as described in subclause 5.8, and with the exceptions and additional capabilities to SDP as described in subclause 6.5.

-     The IBCF shall provide the proxy role, with the exceptions and additional capabilities to SIP as described in subclause 5.10, and with the exceptions and additional capabilities to SDP as described in subclause 6.6. If the IBCF provides an application level gateway functionality, then the IBCF shall provide the UA role, with the exceptions and additional capabilities to SIP as described in subclause 5.10, and with the exceptions and additional capabilities to SDP as described in subclause 6.6. If the IBCF provides screening functionality, then the IBCF may provide the UA role, with the exceptions and additional capabilities to SIP as described in subclause 5.10.

-     The E-CSCF shall provide the proxy role, with the exceptions and additional capabilities as described in subclause 5.11.

In addition to the roles specified above, the P-CSCF, the I-CSCF, the S-CCF, the BGCF and the E-CSCF can act as a UA when providing server functionality to return a final response for any of the reasons specified in RFC 3261 [26].

NOTE 2: Annex A can change the status of requirements in referenced specifications. Particular attention is drawn to table A.4 and table A.162 for capabilities within referenced SIP specifications, and to table A.317 and table A.328 for capabilities within referenced SDP specifications. The remaining tables build on these initial tables.

NOTE 3: The allocated roles defined in this clause are the starting point of the requirements from the IETF SIP specifications, and are then the basis for the description of further requirements. Some of these extra requirements formally change the proxy role into a B2BUA. In all other respects other than those more completely described in subclause 5.2 the P-CSCF implements proxy requirements. Despite being a B2BUA a P-CSCF does not implement UA requirements from the IETF RFCs, except as indicated in this specification, e.g., relating to registration event subscription.

NOTE 4: Except as specified in clause 5 or otherwise permitted in RFC 3261, the functional entities providing the proxy role are intended to be transparent to data within received requests and responses. Therefore these entities do not modify message bodies. If local policy applies to restrict such data being passed on, the functional entity has to assume the UA role and reject a request, or if in a response and where such procedures apply, to pass the response on and then clear the session using the BYE method.

All the above entities are functional entities that could be implemented in a number of different physical platforms coexisting with a number of other functional entities. The implementation shall give priority to transactions at one functional entity, e.g. that of the E-CSCF, over non-emergency transactions at other entities on the same physical implementation. Such priority is similar to the priority within the functional entities themselves specified elsewhere in this document.

Additional routeing functionality can be provided to support the ability for the IM CN subsystem to provide transit functionality as specified in annex I. The additional routeing functionality shall assume the proxy role.

4.2   URI and address assignments

In order for SIP and SDP to operate, the following prerequisite conditions apply:

1)   I-CSCFs used in registration are allocated SIP URIs. Other IM CN subsystem entities may be allocated SIP URIs. For example sip:pcscf.home1.net and sip:<impl-specific-info>@pcscf.home1.net are valid SIP URIs. If the user part exists, it is an essential part of the address and shall not be omitted when copying or moving the address. How these addresses are assigned to the logical entities is up to the network operator. For example, a single SIP URI may be assigned to all I-CSCFs, and the load shared between various physical boxes by underlying IP capabilities, or separate SIP URIs may be assigned to each I-CSCF, and the load shared between various physical boxes using DNS SRV capabilities.

2)   All IM CN subsystem entities are allocated IP addresses. For systems providing access to IMS using a fixed broadband network, any IM CN Subsystem entities can be allocated IPv4 only, IPv6 only or both IPv4 and IPv6 addresses. Otherwise, systems shall support IP addresses as specified in 3GPP TS 23.221 [6] subclause 5.1.

3)   The subscriber is allocated a private user identity by the home network operator, and this is contained within the ISIM application, if present. Where no ISIM application is present but USIM is present, the private user identity is derived (see subclause 5.1.1.1A). This private user identity is available to the SIP application within the UE. For UEs, where neither ISIM application nor USIM are present, the private user identity is available to the UE via other means (see subclause 5.1.1.1B).

NOTE 1: The SIP URIs can be resolved by using any of public DNSs, private DNSs, or peer-to-peer agreements.

4)   The subscriber is allocated one or more public user identities by the home network operator. The public user identity shall take the form of SIP URI as specified in RFC 3261 [26] or tel URI as specified in RFC 3966 [22]. At least one of the public user identities is a SIP URI and it is stored within the ISIM application, if ISIM application is present. Where no ISIM application is present but USIM is present, the UE derives a temporary public user identity (see subclause 5.1.1.1A). All registered public user identities are available to the SIP application within the UE, after registration.

5)   If the UE supports GRUU (see table A.4, item A.4/53), then it shall have an Instance ID, in conformance with the mandatory requirements for Instance IDs specified in draft-ietf-sip-gruu [93] and draft-ietf-sip-outbound [92].

6)   For each tel URI, there is at least one alias SIP URI in the set of implicitly registered public user identities that is used to implicitly register the associated tel URI.

7)   The public user identities may be shared across multiple UEs. A particular public user identity may be simultaneously registered from multiple UEs that use different private user identities and different contact addresses. When reregistering and deregistering a given public user identity and associated contact address, the UE will use the same private user identity that it had used during the initial registration of the respective public user identity and associated contact address. If the tel URI is a shared public user identity, then the associated alias SIP URI is also a shared public user identity. Likewise, if the alias SIP URI is a shared public user identity, then the associated tel URI is also a shared public user identity.

8)   For the purpose of access to the IM CN subsystem, UEs are assigned IPv6 prefixes in accordance with the constraints specified in 3GPP TS 23.221 [6] subclause 5.1 (see subclause 9.2.1 for the assignment procedures). In the particular case of UEs accessing the IMS using a fixed broadband interconnection, UEs can be allocated IPv4 only, IPv6 only or both IPv4 and IPv6 addresses.

9)   For the purpose of emergency service, the UE shall use at least an emergency public user identity, which is a SIP URI derived as specified in 3GPP TS 23.003 [3] and an associated tel URI.

10)   An ICSI value coded as a URN (as specified in subclause 7.2A.8.2), may be included in a P-Preferred-Service header field by the UE as specified in draft-drage-sipping-service-identification [121]. The S-CCF and third party AS need to have a means for the purposes of authorization to obtain and understand the media and service characteristic related to the subscribed service as identified by the ICSI value.

4.2A   Transport mechanisms

This document makes no requirement on the transport protocol used to transfer signalling information over and above that specified in RFC 3261 [26] clause 18. However, the UE and IM CN subsystem entities shall transport SIP messages longer than 1300 bytes according to the procedures of RFC 3261 [26] subclause 18.1.1, even if a mechanism exists of discovering a maximum transmission unit size longer than 1500 bytes.

NOTE 1: Support of SCTP as specified in RFC 4168 [96] is optional for IM CN subsystem entities implementing the role of a UA or proxy. SCTP transport between the UE and P-CSCF is not supported in the present document. Support of the SCTP transport is currently not described in 3GPP TS 33.203 [19].

For initial REGISTER requests, the UE and the P-CSCF shall apply port handling according to subclause 5.1.1.2 (or subclause 5.1.1.2A) and subclause 5.2.2 (or subclause 5.2.2A).

When a security association is used to access the IM CN subsystem, the UE and the P-CSCF shall send and receive request and responses other than initial REGISTER requests on the protected ports as described in 3GPP TS 33.203 [19]. For UEs loaded with a ISIM or USIM, the security association shall always be used to access the IM CN subsystem as described in 3GPP TS 33.203 [19].

NOTE 2: The usage of NASS-bundled authentication, which provides for the user authentication without creation of a security association, still requires convergence with equivalent 3GPP documents, along with ensuring interoperability and coexistence with other security mechanisms. This will be addressed in a future version of this document, and may introduce some revision of the procedures.

In case of an emergency session if the UE does not have sufficient credentials to authenticate with the IM CN subsystem and regulations allow, the UE and P-CSCF shall send request and responses other than initial REGISTER requests on non protected ports.

5   Application usage of SIP

5.1.1.1A   Parameters contained in the ISIM

This subclause applies when a UE contains either an ISIM or a USIM.

The ISIM application shall always be used for IMS authentication, if it is present, as described in 3GPP TS 33.203 [19].

The ISIM is preconfigured with all the necessary parameters to initiate the registration to the IM CN subsystem. These parameters include:

-     the private user identity;

-     one or more public user identities; and

-     the home network domain name used to address the SIP REGISTER request

In case the UE is loaded with a UICC that does not contain the ISIM application, the UE shall:

-     generate a private user identity;

-     generate a temporary public user identity; and