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Inter-IMS Network to Network Interface (NNI)  
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# Contents

Intellectual Property Rights .....	2
Legal Notice .....	2
Modal verbs terminology.....	2
Foreword.....	8
1 Scope .....	9
2 References .....	9
3 Definitions, symbols and abbreviations .....	17
3.1 Definitions .....	17
3.2 Symbols.....	18
3.3 Abbreviations .....	18
4 Overview .....	20
5 Reference model for interconnection between IM CN subsystems .....	22
5.1 General .....	22
5.2 Functionalities performed by entities at the edge of the network .....	23
5.2.1 Interconnection Border Control Function (IBCF).....	23
5.2.2 Transition Gateway (TrGW).....	23
5.3 Identifying II-NNI traversal scenario .....	24
5.3.1 General.....	24
5.3.2 Mapping of the SIP URI parameter to II-NNI traversal scenario.....	24
6 Control plane interconnection .....	25
6.1 Definition of Inter-IMS Network to Network Interconnection.....	25
6.1.1 SIP methods and header fields.....	25
6.1.1.1 General .....	25
6.1.1.2 SIP methods .....	25
6.1.1.3 SIP header fields .....	26
6.1.1.3.0 General .....	26
6.1.1.3.1 Trust and no trust relationship .....	26
6.1.1.3.2 Derivation of applicable SIP header fields from 3GPP TS 24.229 [5] .....	29
6.1.1.3.3 Applicability of SIP header fields on a roaming II-NNI.....	29
6.1.1.3.4 Applicability of SIP header fields on a non-roaming II-NNI .....	30
6.1.1.4 Notations of the codes.....	30
6.1.1.5 Modes of signalling.....	30
6.1.2 SDP protocol.....	31
6.1.2.1 General .....	31
6.1.3 Major capabilities .....	31
6.1.4 SIP message bodies.....	37
6.2 Control Plane Transport .....	40
6.2.1 General.....	40
6.3 SIP timers .....	41
7 User plane Interconnection.....	43
7.1 Media and Codec.....	43
7.2 User Plane Transport.....	43
8 Numbering, Naming and Addressing .....	44
8.1 Numbering, Naming and Addressing for SIP message .....	44
8.2 Numbering, Naming and Addressing for SDP .....	45
9 IP Version.....	45
10 Security.....	45
11 Charging .....	45
11.1 General .....	45

11.2	Inter-operator accounting .....	45
11.3	Transfer of IP multimedia service tariff information.....	46
12	Supplementary services associated with the IMS multimedia telephony communication service.....	47
12.1	General .....	47
12.2	Malicious Communication Identification (MCID).....	47
12.3	Originating Identification Presentation (OIP) and Originating Identification Restriction (OIR).....	47
12.4	Terminating Identification Presentation (TIP) and Terminating Identification Restriction (TIR) .....	48
12.5	Anonymous Communication Rejection (ACR).....	48
12.6	Communication DIVersion (CDIV).....	48
12.7	Communication Waiting (CW) .....	49
12.8	Communication HOLD (HOLD) .....	49
12.9	Message Waiting Indication (MWI).....	49
12.10	Communication Barring (CB).....	50
12.10.1	Incoming Communication Barring (ICB).....	50
12.10.2	Outgoing Communication Barring (OCB).....	50
12.11	Completion of Communications to Busy Subscriber (CCBS).....	50
12.12	Completion of Communications by No Reply (CCNR).....	51
12.13	Explicit Communication Transfer (ECT).....	51
12.13.1	Consultative and blind transfer .....	51
12.13.2	Assured transfer .....	52
12.14	Customized Alerting Tone (CAT).....	52
12.15	Customized Ringing Signal (CRS).....	52
12.16	Closed User Group (CUG).....	53
12.17	Personal Network Management (PNM) .....	53
12.18	Three-Party (3PTY).....	53
12.19	Conference (CONF).....	54
12.20	Flexible Alerting (FA).....	54
12.21	Announcements.....	54
12.21.1	General.....	54
12.21.2	Providing announcements during the establishment of a communication session.....	54
12.21.3	Providing announcements during an established communication session.....	55
12.21.4	Providing announcements when communication request is rejected.....	55
12.22	Advice Of Charge (AOC).....	55
12.23	Completion of Communications on Not Logged-in (CCNL).....	56
12.24	Unstructured Supplementary Service Data (USSD).....	56
13	Interoperability of IMS Centralized Services (ICS) over II-NNI.....	57
13.1	General .....	57
13.2	IMS Centralized Services (ICS) .....	57
14	Interoperability of IMS Service Continuity over II-NNI .....	58
14.1	General .....	58
14.2	PS to CS Single Radio Voice Call Continuity (SRVCC) and Single Radio Video Call Continuity (vSRVCC).....	58
14.2.1	Basic PS to CS SRVCC .....	58
14.2.2	PS to CS SRVCC for calls in alerting phase.....	58
14.2.3	Using the ATCF based architecture.....	59
14.2.4	PS to CS SRVCC for originating calls in pre-alerting phase.....	59
14.2.5	PS to CS SRVCC with the MSC server assisted mid-call feature .....	59
14.3	Inter UE Transfer (IUT) .....	59
14.4	MSC server assisted mid-call feature .....	59
14.5	CS to PS Single Radio Voice Call Continuity (SRVCC).....	60
14.5.1	Basic CS to PS SRVCC.....	60
14.5.2	CS to PS SRVCC for calls in alerting phase.....	61
14.5.3	CS to PS SRVCC with the assisted mid-call feature .....	61
14.6	PS to CS dual radio voice call continuity (DRVCC).....	61
14.6.1	Basic PS to CS DRVCC .....	61
14.6.2	PS to CS DRVCC with the assisted mid-call feature.....	61
14.6.3	PS to CS DRVCC for calls in alerting phase.....	62
14.6.4	PS to CS DRVCC for originating calls in pre-alerting phase .....	62
14.7	CS to PS Dual Radio Voice Call Continuity (DRVCC).....	62
14.7.1	Basic CS to PS DRVCC .....	62

14.7.2	CS to PS DRVCC with the assisted mid-call feature.....	62
14.7.3	CS to PS DRVCC for calls in alerting phase .....	62
14.7.4	CS to PS DRVCC for originating calls in pre-alerting phase .....	63
14.8	PS to PS access transfer.....	63
15	Presence service .....	63
15.0	General .....	63
15.1	Subscription of presence information.....	63
15.2	Watcher subscribing to Presence List.....	64
15.3	Subscription to Watcher Information .....	64
15.4	Subscription to state changes in XML documents .....	65
15.5	Presence enhancements specified in Open Mobile Alliance (OMA) Release 1.1 .....	65
15.5.1	General.....	65
15.5.2	OMA subscription of presence information.....	65
15.5.3	OMA watcher subscribing to Presence List.....	65
15.5.4	OMA subscription to Watcher Information .....	65
15.6	Presence enhancements specified in Open Mobile Alliance (OMA) Release 2.0 .....	65
15.6.1	General.....	65
15.6.2	OMA subscription of presence information.....	66
15.6.3	OMA watcher subscribing to Presence List.....	66
15.6.4	OMA subscription to Watcher Information .....	66
15.6.5	Subscription to state changes in XML documents .....	67
15.6.6	Void .....	67
15.6.7	Void .....	67
16	Messaging service .....	67
16.1	General .....	67
16.2	Page-mode messaging .....	67
16.4	Session-mode messaging.....	68
16.5	Session-mode messaging conferences.....	68
17	Optimal Media Routing .....	68
17.1	General .....	68
17.2	OMR related SDP attributes.....	68
17.3	IP realm names .....	68
18	Inter-UE transfer (IUT) .....	69
18.1	General .....	69
18.2	IUT without establishment of a collaborative session .....	69
18.3	IUT using a collaborative session.....	69
18.3.1	Collaborative session of participants of the same subscription.....	69
18.3.2	Establishment of a collaborative session during session setup .....	70
18.3.3	Assignment and transfer of control of a collaborative session.....	70
18.3.4	Collaborative session of participants of different subscriptions .....	70
18.4	Session replication / media replication.....	71
18.4.1	Pull mode.....	71
18.4.2	Push mode.....	71
19	Roaming Architecture for Voice over IMS with Local Breakout .....	71
20	Delivery of Media Resource Broker address information.....	72
21	Overload control.....	72
21.1	General .....	72
21.2	Feedback based mechanism .....	72
21.3	The load filter mechanism .....	73
22	Delivery of original destination identity .....	73
23	Telepresence using IMS .....	73
24	Barring of premium rate numbers .....	73
25	P-CSCF restoration .....	73
25.1	General .....	73
25.2	PCRF based P-CSCF restoration.....	74

25.3	HSS based P-CSCF restoration .....	74
26	Resource sharing .....	74
27	Service access number translation.....	74
28	Mission critical services .....	75
28.1	General .....	75
28.2	Interoperability of mission critical services for communication over II-NNI .....	75
28.2.1	Mission Critical services session establishment .....	75
28.2.2	MBMS transmission usage and location procedures .....	77
28.2.3	Affiliation procedure.....	77
28.2.3.1	General .....	77
28.2.3.2	Mandatory mode .....	77
28.2.3.3	Negotiated mode .....	78
28.2.4	Conference event package subscription.....	78
28.2.5	Mission critical services settings .....	79
28.2.6	Registration procedures .....	79
28.2.7	Group regrouping.....	80
28.2.8	Signalling plane messages for mission critical data.....	80
29	Calling number verification.....	80
30	IMS emergency service .....	81
30.1	IMS emergency registration .....	81
30.2	IMS emergency session.....	81
30.3	Next-Generation Pan-European eCall emergency service.....	81
31	Void.....	81
32	3GPP PS data off extension.....	81
<b>Annex A (informative):</b>	<b>Summary of SIP header fields .....</b>	<b>82</b>
<b>Annex B (informative):</b>	<b>Dynamic view of SIP header fields within SIP messages .....</b>	<b>87</b>
B.1	Scope .....	87
B.2	Methodology .....	87
B.3	ACK method .....	89
B.4	BYE method.....	90
B.5	CANCEL method.....	94
B.6	INFO method.....	95
B.7	INVITE method.....	99
B.8	MESSAGE method .....	106
B.9	NOTIFY method .....	110
B.10	OPTIONS method .....	113
B.11	PRACK method.....	117
B.12	PUBLISH method .....	120
B.13	REFER method .....	124
B.14	REGISTER method.....	128
B.15	SUBSCRIBE method .....	132
B.16	UPDATE method .....	136
<b>Annex C (informative):</b>	<b>The list of option items for II-NNI .....</b>	<b>141</b>
C.1	Scope.....	141

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C.2	Format of option item table .....	141
C.3	Option item table .....	141
C.3.0	Supported II-NNI traversal scenarios .....	141
C.3.1	Option item table common to roaming, non-roaming II-NNI and loopback traversal scenario .....	142
C.3.2	Option item table specific to roaming II-NNI .....	151
C.3.3	Option item table specific to non-roaming II-NNI and loopback traversal scenario .....	155
<b>Annex D (informative):</b>	<b>Change history .....</b>	<b>159</b>
History .....		163

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# 1 Scope

The objective of this document is to address the Inter-IMS Network to Network Interface (II-NNI) consisting of Ici and Izi reference points between IMS networks in order to support end-to-end service interoperability.

The present document addresses the issues related to control plane signalling (3GPP usage of SIP and SDP protocols, required SIP header fields) as well as other interconnecting aspects like security, numbering/naming/addressing and user plane issues as transport protocol, media and codecs actually covered in a widespread set of 3GPP specifications. A profiling of the Inter-IMS Network to Network Interface (II-NNI) is also provided.

Charging aspects are addressed as far as SIP signalling is concerned.

IMS emergency session establishment between IMS networks is addressed as far as SIP signalling is concerned.

SIP signalling traversing the NNI between a CSCF and MRB, e.g. for media control or Voice Interworking with Enterprise IP-PBX, and SIP signalling traversing the NNI on the Mr interface between the CSCF and the MRFC, or on the Mr' interface between the AS and MRFC, or on the Rc interface between AS and MRB is not considered in the present release of this specification.

SIP signalling traversing the NNI between an application server and the remaining IMS functional entities (e.g. for MCPTT interface SIP-2 in figure 7.3.1-2 in 3GPP TS 23.280 [200]) is not considered in the present release of this specification.

SIP signalling traversing the NNI between an ISC gateway and an AS in an enterprise network, e.g. for media control and voice interworking with enterprise IP-PBX, on the ISC interface between the ISC gateway and the enterprise network is not considered in the present release of this specification.

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- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document in the same Release as the present document.

- [1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".
- [2] IETF RFC 791: "Internet Protocol".
- [3] 3GPP TS 23.002: "Network architecture".
- [4] 3GPP TS 23.228: "IP Multimedia Subsystem (IMS); Stage 2".
- [5] 3GPP TS 24.229: "Internet Protocol (IP) multimedia call control protocol based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP); Stage 3".
- [6] 3GPP TR 24.930: "Signalling flows for the session setup in the IP Multimedia core network Subsystem (IMS) based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP); Stage 3".
- [7] IETF RFC 2460: "Internet Protocol, Version 6 (IPv6) Specification".
- [8] 3GPP TS 29.162: "Interworking between the IM CN subsystem and IP networks".
- [9] 3GPP TS 22.228: "Service requirements for the IP multimedia core network subsystem".
- [10] 3GPP TS 33.210: "3G security; Network Domain Security (NDS); IP network layer security".

- [11] 3GPP TS 26.114: "IP Multimedia Subsystem (IMS); Multimedia Telephony; Media handling and interaction".
- [12] ETSI TS 181 005 V1.1.1: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Services and Capabilities Requirements".
- [13] IETF RFC 3261: "SIP: Session Initiation Protocol".
- [14] IETF RFC 3966: "The tel URI for Telephone Numbers".
- [15] IETF RFC 3860: "Common Profile for Instant Messaging (CPIM)".
- [16] IETF RFC 3859: "Common Profile for Presence (CPP)".
- [17] IETF RFC 4975: "The Message Session Relay Protocol (MSRP)".
- [18] IETF RFC 3262: "Reliability of provisional responses in Session Initiation Protocol (SIP)".
- [19] IETF RFC 3428: "Session Initiation Protocol (SIP) Extension for Instant Messaging".
- [20] IETF RFC 6665: "SIP-Specific Event Notification".

NOTE: In earlier releases of this document the predecessor IETF RFC 3265 is used.

- [21] IETF RFC 3903: "An Event State Publication Extension to the Session Initiation Protocol (SIP)".
- [22] IETF RFC 3515: "The Session Initiation Protocol (SIP) REFER method".
- [23] IETF RFC 3311: "The Session Initiation Protocol (SIP) UPDATE method".
- [24] IETF RFC 7315: "Private Header (P-Header) Extensions to the Session Initiation Protocol (SIP) for the 3GPP".
- [24A] IETF RFC 7976: "Updates to Private Header (P-Header) Extension Usage in Session Initiation Protocol (SIP) Requests and Responses".
- [24B] IETF RFC 7913: "P-Access-Network-Info ABNF Update".
- [25] IETF RFC 7044: "An Extension to the Session Initiation Protocol (SIP) for Request History Information".
- [26] IETF RFC 6050: "A Session Initiation Protocol (SIP) Extension for the Identification of Services".
- [27] IETF RFC 4168: "The Stream Control Transmission Protocol (SCTP) as a Transport for the Session Initiation Protocol (SIP)".
- [28] Void.
- [29] 3GPP TS 32.260: "Telecommunication management; Charging management; IP Multimedia Subsystem (IMS) charging".
- [30] 3GPP TS 22.173: "IP Multimedia Core Network Subsystem (IMS); Multimedia Telephony Service and supplementary services; Stage 1".
- [31] 3GPP TS 24.173: "IMS multimedia telephony communication service and supplementary services; Stage 3".
- [32] 3GPP TS 24.607: "Originating Identification Presentation (OIP) and Originating Identification Restriction (OIR) using IP Multimedia (IM); Core Network (CN) subsystem".
- [33] 3GPP TS 24.616: "Malicious Communication Identification (MCID) using IP Multimedia (IM) Core Network (CN) subsystem".
- [34] IETF RFC 3323: "A Privacy Mechanism for the Session Initiation Protocol (SIP)".
- [35] 3GPP TS 23.003: "Numbering, addressing and identification".

- [36] 3GPP TS 24.610: "Communication HOLD (HOLD) using IP Multimedia (IM) Core Network (CN) subsystem".
- [37] 3GPP TS 24.615: "Communication Waiting (CW) using IP Multimedia (IM) Core Network (CN) subsystem".
- [38] 3GPP TS 24.628: "Common Basic Communication procedures using IP Multimedia (IM) Core Network (CN) subsystem".
- [39] IETF RFC 6086: "Session Initiation Protocol (SIP) INFO Method and Package Framework".
- [40] IETF RFC 3312: "Integration of resource management and Session Initiation Protocol (SIP)".
- [41] IETF RFC 4032: "Update to the Session Initiation Protocol (SIP) Preconditions Framework".
- [42] IETF RFC 3313: "Private Session Initiation Protocol (SIP) Extensions for Media Authorization".
- [43] IETF RFC 3327: "Session Initiation Protocol Extension Header Field for Registering Non-Adjacent Contacts".
- [44] IETF RFC 3325: "Private Extensions to the Session Initiation Protocol (SIP) for Network Asserted Identity within Trusted Networks".
- [45] IETF RFC 3608: "Session Initiation Protocol (SIP) Extension Header Field for Service Route Discovery During Registration".
- [46] IETF RFC 3486: "Compressing the Session Initiation Protocol (SIP)".
- [47] IETF RFC 3329: "Security Mechanism Agreement for the Session Initiation Protocol (SIP)".
- [48] IETF RFC 3326: "The Reason Header Field for the Session Initiation Protocol (SIP)".
- [49] IETF RFC 6432: "Carrying Q.850 Codes in Reason Header Fields in SIP (Session Initiation Protocol) Responses".
- [50] IETF RFC 3581: "An Extension to the Session Initiation Protocol (SIP) for Symmetric Response Routing".
- [51] IETF RFC 3841: "Caller Preferences for the Session Initiation Protocol (SIP)".
- [52] IETF RFC 4028: "Session Timers in the Session Initiation Protocol (SIP)".
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