

Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Business Trunking; NGCN-NGN Interfaces Implementation Guide

iTeh STANDARD PREVIEW
(standards.iteh.ai)

Full standard:
<https://standards.iteh.ai/catalog/standards/sist/c437fab5-aa46-49c3-9c55-9620574434a3/etsi-tr-183-069-v2.1.1-2010-04>



Reference

DTR/TISPAN-03195-NGN-R2

Keywords

interface, trunking

ETSI

650 Route des Lucioles
F-06921 Sophia Antipolis Cedex - FRANCE

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - NAF 742 C
Association à but non lucratif enregistrée à la
Sous-Préfecture de Grasse (06) N° 7803/88

Important notice

Individual copies of the present document can be downloaded from:

<http://www.etsi.org>

The present document may be made available in more than one electronic version or in print. In any case of existing or perceived difference in contents between such versions, the reference version is the Portable Document Format (PDF). In case of dispute, the reference shall be the printing on ETSI printers of the PDF version kept on a specific network drive within ETSI Secretariat.

Users of the present document should be aware that the document may be subject to revision or change of status. Information on the current status of this and other ETSI documents is available at

<http://portal.etsi.org/tb/status/status.asp>

If you find errors in the present document, please send your comment to one of the following services:

http://portal.etsi.org/chaicor/ETSI_support.asp

Copyright Notification

No part may be reproduced except as authorized by written permission.
The copyright and the foregoing restriction extend to reproduction in all media.

© European Telecommunications Standards Institute 2010.
All rights reserved.

DECT™, **PLUGTESTS™**, **UMTS™**, **TIPHON™**, the TIPHON logo and the ETSI logo are Trade Marks of ETSI registered for the benefit of its Members.

3GPP™ is a Trade Mark of ETSI registered for the benefit of its Members and of the 3GPP Organizational Partners.

LTE™ is a Trade Mark of ETSI currently being registered

for the benefit of its Members and of the 3GPP Organizational Partners.

GSM® and the GSM logo are Trade Marks registered and owned by the GSM Association.

Contents

Intellectual Property Rights	6
Foreword.....	6
1 Scope	7
2 References	7
2.1 Normative references	7
2.2 Informative references.....	7
3 Definitions and abbreviations.....	12
3.1 Definitions.....	12
3.2 Abbreviations	12
4 Overview	12
4.1 Business Trunking architecture and protocols.....	12
4.2 Roadmap to relevant specifications.....	13
4.3 Specification methodology.....	13
4.3.1 General.....	13
4.3.2 Notation for status codes.....	14
4.4 Major capabilities at the NGCN-NGN interface	15
4.4.1 Service capabilities	15
4.4.2 Protocol capabilities.....	15
4.4.2.1 General	15
4.4.2.2 Basic requirements.....	15
4.4.2.3 Extensions for session control.....	15
4.4.2.4 Extensions for registration (subscription based approach only).....	16
5 Common guidelines.....	17
5.1 Reference model for interconnection	17
5.2 Control plane interconnection	17
5.2.1 SIP procedures	17
5.2.1.1 Outgoing requests from NGCN site.....	17
5.2.1.1.1 General	17
5.2.1.1.2 Calling and connected identifiers	18
5.2.1.1.3 Privacy.....	18
5.2.1.1.4 Called identifier	18
5.2.1.2 Incoming requests to NGCN site	18
5.2.1.2.1 General	18
5.2.1.2.2 Calling identity	19
5.2.1.2.3 Called identity	19
5.2.1.2.4 Request-URI.....	19
5.2.2 SIP protocol elements	19
5.2.2.1 General	19
5.2.2.2 Methods.....	19
5.2.2.3 Responses.....	20
5.2.2.4 Header fields	22
5.2.2.4.1 General	22
5.2.2.4.2 Accept.....	22
5.2.2.4.3 Allow	22
5.2.2.4.4 Contact.....	22
5.2.2.4.5 Max-Breadth.....	23
5.2.2.4.6 Max-Forwards	23
5.2.2.4.7 P-Private-Network-Indication	23
5.2.2.4.8 Record-Route.....	23
5.2.2.4.9 Route	23
5.2.2.4.10 Via	23
5.2.2.4.11 Summary of message headers.....	23
5.2.2.5 Supported Message bodies	48

5.2.2.6	Event packages.....	49
5.2.3	SDP protocol.....	49
5.2.4	Control plane transport	51
5.3	User plane interconnection	51
5.3.1	Media and Codec	51
5.4	Numbering, naming and addressing	52
5.5	IP Version.....	52
5.6	Security	53
6	Specific guidelines for the subscription based approach.....	53
6.1	Reference model for interconnection	53
6.1.1	General.....	53
6.1.2	Functionalities performed by entities at the service layer.....	53
6.1.2.1	P-CSCF, S-CSCF.....	53
6.1.2.2	AS	53
6.1.2.3	NGCN	53
6.1.3	Functionalities performed by entities at the transport layer	53
6.1.3.1	C-BGF.....	53
6.2	Control plane interconnection	54
6.2.1	SIP procedures.....	54
6.2.1.1	Outgoing requests from NGCN site	54
6.2.1.1.1	General	54
6.2.1.1.2	Calling and connected identifiers	54
6.2.1.1.3	Privacy.....	54
6.2.1.1.4	Called identifier.....	54
6.2.1.1.5	SDP offer.....	54
6.2.1.2	Incoming requests to NGCN site	55
6.2.1.2.1	General	55
6.2.1.2.2	Calling identity	55
6.2.1.2.3	Called identity	55
6.2.1.2.4	Request-URI.....	55
6.2.1.3	Registration	55
6.2.2	SIP protocol elements.....	56
6.2.2.1	General.....	56
6.2.2.2	Methods.....	56
6.2.2.3	Responses.....	56
6.2.2.4	Header fields	56
6.2.2.5	Supported message bodies	62
6.2.2.6	Event packages.....	62
6.2.3	SDP protocol.....	62
6.2.4	Control plane transport	62
6.2.4.1	Keep alive mechanism	62
6.2.4.2	P-CSCF redundancy.....	63
6.3	User plane interconnection	63
6.3.1	Media and Codec	63
6.4	Numbering, naming and addressing	63
6.5	IP Version.....	63
6.6	Security	63
7	Specific guidelines for the peering-based approach.....	64
7.1	Reference model for interconnection	64
7.1.1	General.....	64
7.1.2	Functionalities performed by entities at the service layer.....	64
7.1.2.1	Interconnection Border Control Function (IBCF).....	64
7.1.2.2	NGCN	64
7.2	Control plane interconnection	64
7.2.1	SIP procedures.....	64
7.2.1.1	Outgoing requests from NGCN site	64
7.2.1.2	Incoming requests to NGCN site	65
7.2.1.3	Registration	65
7.2.2	SIP protocol elements.....	65
7.2.2.1	General.....	65

7.2.2.2	Methods.....	65
7.2.2.3	Responses.....	65
7.2.2.4	Header fields	65
7.2.2.5	Supported message bodies	68
7.2.2.6	Event packages.....	68
7.2.3	SDP protocol.....	68
7.3	User plane interconnection	69
7.3.1	Media and Codec	69
7.4	Numbering, naming and addressing	69
7.5	IP Version.....	69
Annex A (informative): Bibliography.....		70
History		71

iTeh STANDARD PREVIEW
(standards.iteh.ai)

Full standard:
<https://standards.iteh.ai/catalog/standards/sist/c437fab5-aa46-49e3-9c55-9620574434a3/etsi-tr-183-069-v2.1.1-2010-04>

Intellectual Property Rights

IPRs essential or potentially essential to the present document may have been declared to ETSI. The information pertaining to these essential IPRs, if any, is publicly available for **ETSI members and non-members**, and can be found in ETSI SR 000 314: "*Intellectual Property Rights (IPRs); Essential, or potentially Essential, IPRs notified to ETSI in respect of ETSI standards*", which is available from the ETSI Secretariat. Latest updates are available on the ETSI Web server (<http://webapp.etsi.org/IPR/home.asp>).

Pursuant to the ETSI IPR Policy, no investigation, including IPR searches, has been carried out by ETSI. No guarantee can be given as to the existence of other IPRs not referenced in ETSI SR 000 314 (or the updates on the ETSI Web server) which are, or may be, or may become, essential to the present document.

Foreword

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

ITeH STANDARD PREVIEW
(standards.iteh.ai)
Full standard:
<https://standards.iteh.ai/catalog/standards/sist/c437fab5-aa46-49e3-9c55-9620574434a3/etsi-tr-183-069-v2.1.1-2010-04>

1 Scope

The purpose of the present document is to give an implementation guide to the relevant Common IMS specifications and functions used in the interconnection of a Next Generation Corporate Network site (NGCN site) to the NGN.

The present document addresses control plane signalling (usage of SIP and SDP protocols, required SIP headers) as well as other interconnecting aspects like security, numbering/naming/addressing and user plane issues such as transport protocol, media and codecs actually covered in a widespread set of 3GPP and ETSI TISPAN specifications, as seen from the perspective of an NGCN site.

Advice-of-charge aspects are addressed as far as SIP signalling is concerned.

The present document is based on TS 124 229 Release 7 [i.12] as modified by ES 283 003 Release 2 [i.15].

NOTE: Some errors corrected in TS 124 229 Release 8 and 9 are already taken into account in 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.

Referenced documents which are not found to be publicly available in the expected location might be found at <http://docbox.etsi.org/Reference>.

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.

Not applicable.

2.2 Informative references

The following referenced documents are not essential to the use of the present document but they assist the user with regard to a particular subject area. For non-specific references, the latest version of the referenced document (including any amendments) applies.

- [i.1] IETF RFC 3261 (2002): "SIP: Session Initiation Protocol".
- [i.2] ETSI TS 181 019: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Business Communication Requirements".
- [i.3] ETSI TS 182 025: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Business trunking; Architecture and functional description".

- [i.4] ETSI TS 182 023: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Core and enterprise NGN interaction scenarios; Architecture and functional description".
- [i.5] IETF RFC 2976 (2000): "The SIP INFO Method".
- [i.6] IETF RFC 3262 (2002): "Reliability of Provisional Responses in the Session Initiation Protocol (SIP)".
- [i.7] IETF RFC 3515 (2003): "The Session Initiation Protocol (SIP) Refer Method".
- [i.8] IETF RFC 3311 (2002): "The Session Initiation Protocol (SIP) UPDATE method".
- [i.9] IETF RFC 3265 (2002): "Session Initiation Protocol (SIP) Specific Event Notification".
- [i.10] IETF RFC 3428: "Session Initiation Protocol (SIP) Extension for Instant Messaging".
- [i.11] IETF RFC 3903: "An Event State Publication Extension to the Session Initiation Protocol (SIP)".
- [i.12] ETSI TS 124 229 (Release 7): "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); Internet Protocol (IP) multimedia call control protocol based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP); Stage 3 (3GPP TS 24.229 Release 7)".
- [i.13] IETF RFC 791 (1981): "DARPA Internet Program Protocol Specification".
- [i.14] IETF RFC 2460 (1998): "Internet Protocol, Version 6 (IPv6) Specification".
- [i.15] ETSI ES 283 003 (V2.y.z): "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]".
- [i.16] ETSI ES 282 001 (V2.y.z): "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); NGN Functional Architecture".
- [i.17] ETSI TS 123 228: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); IP Multimedia Subsystem (IMS); Stage 2 (3GPP TS 23.228 Release 7)".
- [i.18] IETF RFC 3966 (2004): "The tel URI for Telephone Numbers".
- [i.19] IETF RFC 3860 (2004): "Common Profile for Instant Messaging (CPIM)".
- [i.20] IETF RFC 3859 (2004): "Common Profile for Presence (CPP)".
- [i.21] ETSI TS 183 021 (V2.y.z): "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Endorsement of 3GPP TS 29.162 Interworking between IM CN Sub-system and IP networks".
- [i.22] ECMA TR/96 "NGCN-Identity: "Next Generation Corporate Networks (NGCN) - Identification and routing".
- [i.23] IETF RFC 3841 (2004): "Caller Preferences for the Session Initiation Protocol (SIP)".
- [i.24] Draft-ietf-sip-location-conveyance-11 (2008): "Location Conveyance for the Session Initiation Protocol".
- [i.25] IETF RFC 4244 (2005): "An Extension to the Session Initiation Protocol (SIP) for Request History Information".
- [i.26] IETF RFC 3911 (2004): "The Session Initiation Protocol (SIP) "Join" Header".
- [i.27] IETF RFC 4028 (April 2005): "Session Timers in the Session Initiation Protocol (SIP)".
- [i.28] IETF RFC 3455 (2003): "Private Header (P-Header) Extensions to the Session Initiation Protocol (SIP) for the 3rd-Generation Partnership Project (3GPP)".

- [i.29] IETF RFC 3325 (2002): "Private Extensions to the Session Initiation Protocol (SIP) for Network Asserred Identity within Trusted Networks".
- [i.30] IETF RFC 3323 (2002): "A Privacy Mechanism for the Session Initiation Protocol (SIP)".
- [i.31] IETF RFC 3326 (2002): "The Reason Header Field for the Session Initiation Protocol (SIP)".
- [i.32] IETF RFC 3329 (2003): "Security Mechanism Agreement for the Session Initiation Protocol (SIP)".
- [i.33] IETF RFC 3892 (2004): "The Session Initiation Protocol (SIP) Referred-By Mechanism".
- [i.34] Draft-drage-sipping-service-identification-02 (2008): "A Session Initiation Protocol (SIP) Extension for the Identification of Services".
- [i.35] IETF RFC 5002 (2007): "The Session Initiation Protocol (SIP) P-Profile-Key Private Header (P-Header)".
- [i.36] IETF RFC 4457 (2006): "The Session Initiation Protocol (SIP) P-User-Database Private-Header (P-header)".
- [i.37] IETF RFC 3313 (2003): "Private Session Initiation Protocol (SIP) Extensions for Media Authorization".
- [i.38] IETF RFC 5009 (2007): "Private Header (P-Header) Extension to the Session Initiation Protocol (SIP) for Authorization of Early Media".
- [i.39] IETF RFC 3891 (2004): "The Session Initiation Protocol (SIP) "Replaces" Header".
- [i.40] IETF RFC 4412 (2006): "Communications Resource Priority for the Session Initiation Protocol (SIP)".
- [i.41] ISO/IEC 9646-7 (1995): "Information technology -- Open Systems Interconnection -- Conformance testing methodology and framework -- Part 7: Implementation Conformance Statements".
- [i.42] ETSI ES 282 007: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); IP Multimedia Subsystem (IMS); Functional architecture".
- [i.43] IETF RFC 3856 (2004): "A Presence Event Package for the Session Initiation Protocol (SIP)".
- [i.44] IETF RFC 4662 (2006): "A Session Initiation Protocol (SIP) Event Notification Extension for Resource Lists".
- [i.45] IETF RFC 3680 (2004): "A Session Initiation Protocol (SIP) Event Package for Registrations".
- [i.46] Draft-ietf-sipping-gruu-reg-event-09 (2007): "Reg Event Package Extension for GRUUs".
- [i.47] IETF RFC 3857 (2004): "A Watcher Information Event Template Package for the Session Initiation Protocol (SIP)".
- [i.48] Draft-ietf-sip-xcapevent-08 (2009): "A Framework for Session Initiation Protocol User Agent Profile Delivery".
- [i.49] IETF RFC 4575 (2006): "A Session Initiation Protocol (SIP) Event Package for Conference State".
- [i.50] IETF RFC 3842 (2004) "A Message Summary and Message Waiting Indication Event Package for the Session Initiation Protocol (SIP)".
- [i.51] IETF RFC 4354 (2006): "A Session Initiation Protocol (SIP) Event Package and Data Format for Various Settings in Support for the Push-to-Talk over Cellular (PoC) Service".
- [i.52] ETSI TS 133 203: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); LTE; 3G security; Access security for IP-based services (3GPP TS 33.203 Release 8)".

- [i.53] IETF RFC 5393 (2008): "Addressing an Amplification Vulnerability in Session Initiation Protocol (SIP) Forking Proxies".
- [i.54] IETF RFC 3312 (2002): "Integration of resource management and Session Initiation Protocol (SIP)".
- [i.55] IETF RFC 4032 (2005): "Update to the Session Initiation Protocol (SIP) Preconditions Framework".
- [i.56] IETF RFC 3327 (2002): "Session Initiation Protocol Extension Header Field for Registering Non-Adjacent Contacts".
- [i.57] IETF RFC 3608 (2003): "Session Initiation Protocol (SIP) Extension Header Field for Service Route Discovery During Registration".
- [i.58] IETF RFC 3581 (2003): "An Extension to the Session Initiation Protocol (SIP) for Symmetric Response Routing".
- [i.59] IETF RFC 3840 (2004): "Indicating User Agent Capabilities in the Session Initiation Protocol (SIP)".
- [i.60] IETF RFC 5079 (December 2007): "Rejecting Anonymous Requests in the Session Initiation Protocol (SIP)".
- [i.61] IETF RFC 4320 (2006): "Actions Addressing Identified Issues with the Session Initiation Protocol's (SIP) Non-INVITE Transaction".
- [i.62] IETF RFC 5031 (2008): "A Uniform Resource Name (URN) for Emergency and Other Well-Known Services".
- [i.63] IETF RFC 5627 (2009): "Obtaining and Using Globally Routable User Agent (UA) URIs (GRUU) in the Session Initiation Protocol (SIP)".
- [i.64] Draft-mahy-iptel-cpc-06 (2007): "CPC tel URI".
- [i.65] IETF RFC 5626 (2009): "Managing Client Initiated Connections in the Session Initiation Protocol (SIP)".
- [i.66] IETF RFC 4964 (2007): "The P-Answer-State Header Extension to the Session Initiation Protocol for the Open Mobile Alliance Push to Talk over Cellular".
- [i.67] IETF RFC 4733 (2006): "RTP Payload for DTMF Digits, Telephony Tones, and Telephony Signals".
- [i.68] IETF RFC 3388 (2002): "Grouping of Media Lines in the Session Description Protocol (SDP)".
- [i.69] IETF RFC 3524 (2003): "Mapping of Media Streams to Resource Reservation Flows".
- [i.70] IETF RFC 3556 (2003): "Session Description Protocol (SDP) Bandwidth Modifiers for RTP Control Protocol (RTCP) Bandwidth".
- [i.71] IETF RFC 4145 (2005): "TCP-Based Media Transport in the Session Description Protocol (SDP)".
- [i.72] Draft-ietf-mmusic-ice-19 (October 2007): "Interactive Connectivity Establishment (ICE): A Protocol for Network Address Translator (NAT) Traversal for Offer/Answer Protocols".
- [i.73] IETF RFC 4583 (2006): "Session Description Protocol (SDP) Format for Binary Floor Control Protocol (BFCP) Streams".
- [i.74] IETF RFC 4585 (2006): "Extended RTP Profile for Real-time Transport Control Protocol (RTCP)-Based Feedback (RTP/AVPF)".
- [i.75] Draft-ietf-mmusic-sdp-capability-negotiation (January 2009): "SDP Capability Negotiation".
- [i.76] IETF RFC 4566 (2006): "SDP: Session Description Protocol".

- [i.77] Draft-vanelburg-sipping-private-network-indication-03 (2009): "The Session Initiation Protocol (SIP) P-Private-Network-Indication Private-Header (P-Header)".
- [i.78] IETF RFC 4119 (2005): "A Presence-based GEOPRIV Location Object Format".
- [i.79] ETSI TS 181 005 (V2.y.z): "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Service and Capability Requirements".
- [i.80] ETSI TS 183 047 (V2.y.z): "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); NGN IMS Supplementary Services; Advice Of Charge (AOC)".
- [i.81] Draft-ietf-sipcore-info-event-02 (2009): "Session Initiation Protocol (SIP) INFO Method and Package Framework".
- [i.82] IETF RFC 3324 (2002): "Short Term Requirements for Network Asserted Identity".
- [i.83] ETSI TS 124 229 (Release 8): "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); Internet Protocol (IP) multimedia call control protocol based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP); Stage 3 (3GPP TS 24.229 Release 8)".
- [i.84] ETSI TS 124 229 (Release 9): "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); LTE; Internet Protocol (IP) multimedia call control protocol based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP); Stage 3 (3GPP TS 24.229 version Release 9)".
- [i.85] ETSI TR 180 000: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); NGN Terminology".
- [i.86] IETF RFC 3263 (2002): "Session Initiation Protocol (SIP): Locating SIP Servers".
- [i.87] IETF RFC 5621 (2009): "Message Body Handling in the Session Initiation Protocol (SIP)".
- [i.88] ECMA TR/100: "Next Generation Corporate Networks (NGCN) - Security of Session-based Communications".
- [i.89] ITU-T Recommendation G.711 (1988): "Pulse code modulation (PCM) of voice frequencies".
- [i.90] ETSI TS 124 173: "Universal Mobile Telecommunications System (UMTS); LTE; IMS Multimedia telephony service and supplementary services; Stage 3 (3GPP TS 24.173 version 7.9.0 Release 7)".
- [i.91] Draft-ietf-sipping-sip-offeranswer-10 (2009): "SIP (Session Initiation Protocol) Usage of the Offer/Answer Model".
- [i.92] Draft-dawes-sipping-debug-00 (2009): "Private Extension to the Session Initiation Protocol (SIP) for Debugging".
- [i.93] ETSI TS 124 503: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); LTE; 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] (3GPP TS 24.503)".
- [i.94] 3GPP TR 23.812 (Release 9): "3rd Generation Partnership Project (3GPP), Feasibility Study on IMS Evolution".
- [i.95] TR-69: "CPE WAN Management Protocol v1.1".
- [i.96] TR-104: "DSLHomeTM Provisioning Parameters for VoIP CPE".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in TR 180 000 [i.85], TS 181 019 [i.2], TS 182 025 [i.3] and the following apply:

NGCN Attachment Point: SIP entity inside the NGCN with a direct SIP interface to the NGN

3.2 Abbreviations

For the purposes of the present document, the abbreviations given in TR 180 000 [i.85], TS 181 019 [i.2] and TS 182 025 [i.3] apply.

4 Overview

4.1 Business Trunking architecture and protocols

Business trunking refers to an architecture where corporate networks appear to the NGN as an NGCN.

TS 182 025 [i.3] and TS 181 019 [i.2] provide architecture and functional requirements for business trunking making use of IMS and foresee two main interconnection models: the subscription based approach, where the entry point to the IMS is the P-CSCF, and the peering based approach, where the entry point to the IMS is the IBCF.

In both arrangement scenarios, aiming to support business trunking, protocol interconnection has to occur between NGCN and NGN:

- at a control plane level, in order that IMS procedures can be supported;
- at a user plane level, where media streams are exchanged.

The management of IP multimedia sessions is achieved using SIP. The transport mechanism for both SIP session signalling and media is UDP or TCP over IPv4 (RFC 791 [i.13]) or IPv6 (RFC 2460 [i.14]); for signalling optionally also TLS over TCP.

The protocol behaviour of the NGN functional entities involved in the signalling plane interconnection (IBCF, P-CSCF) is specified in TS 124 229 [i.12], taking into account the modifications specified in ES 283 003 [i.15].

The protocol behaviour of the NGCN is also expected to follow TS 124 229 [i.12], taking into account the modifications specified in ES 283 003 [i.15], subject to the applicable interconnection scenario:

- for the subscription-based approach the behaviour is based on the rules for a UE;
- for the peering-based approach the NGCN site appears to the NGN as if it were an IBCF complying with the requirements identified in TS 124 229 [i.12], clause 4.1 for this functional entity.

The present document presents guidelines for NGCNs connecting to an NGN for the purpose of business trunking.

NOTE: A given NGCN can have multiple business trunking arrangements with the same NGN or with different NGNs, some using the subscription-based approach and others using the peering-based approach.

4.2 Roadmap to relevant specifications

The following specifications are relevant for the implementation of the NGCN-NGN interface:

- TS 181 019 [i.2] provides Business Communication Requirements.
- TS 182 023 [i.4] provides architecture and functional description of Core and enterprise NGN interaction scenarios.
- TS 182 025 [i.3] gives architecture and functional description of Business trunking.
- TS 124 229 [i.12] defines a call control protocol for use in the IP Multimedia (IM) Core Network (CN) subsystem based on the Session Initiation Protocol (SIP), and the associated Session Description Protocol (SDP).
- ES 283 003 [i.15] provides the ETSI TISPAN endorsement of TS 124 229 [i.12] in line with the requirements of TISPAN NGN.

4.3 Specification methodology

4.3.1 General

Clauses 5, 6 and 7 of the present document describe the various aspects of an NGN-NGCN interconnection, including a description of SIP and SDP procedures, and the SIP methods and header fields to be supported, in the form of a series of tables and description.

Aspects common to both the subscription-based and the peering-based scenario are described in clause 5. Considerations for a particular scenario are covered in clauses 6 and 7 respectively.

The tables summarize key aspects of IMS SIP used in business trunking and are aligned with similar tables available in Annex A of TS 124 229 [i.12] as modified by ES 283 003 [i.15]. Each of the tables in the present document include two "Status" columns, one for the sending side, one for the receiving side. The status entries represent the requirements on an NGCN acting as sender / as receiver of a SIP message. The present document is an informative document and as such does not specify any changes to SIP described in TS 124 229 [i.12] as modified by ES 283 003 [i.15].

NOTE 1: ES 283 003 [i.15] refers to TS 124 503 [i.93] which at the time of publication of the present document was still under development. The present document anticipates some changes that may be required to these baseline specifications in order to fully align with business trunking requirements and protocol impacts described in TS 182 025 [i.3]. Such anticipated changes are made clear through the use of notes.

NOTE 2: The present document in some cases selects options from the baseline specifications. As an example, if the "status" column in the baseline specification indicates a condition for supporting a particular header field and that condition is always met by the implementation of the interface to an NGCN site then the "profile status" column for this header field is marked "mandatory" rather than "optional" or "conditionally mandatory" in the present document. Similarly if the "status" column in the baseline specification indicates that support of a particular header field is optional and the implementation of the interface to an NGCN site always require it then the "profile status" column for this header field is marked "mandatory" rather than "optional".

The notation for status codes is explained in clause 4.3.2.

There are cases where the status of a method or a header field depends on capabilities supported at the NGCN-NGN interface. In such a case, the status indicated in the tables depends on the status of the respective capability, as described in clause 4.4.