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Technical Specification

Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Customer Premises Networks: Protocol Specification (Stage 3)

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Foreword

This Technical Specification (TS) 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 describes the protocols used for the reference points internal to the Customer Premises Network (CPN), between the Customer Network Gateway (CNG) and the Customer Network Devices (CNDs). This description is based on the architecture and stage 2 information flows contained in TS 185 003 [1] and TS 185 006 [2].

The reference points between the IPTV CND [3] and the CNG are not covered by the present document. These reference points are detailed in TS 185 011 [12].

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.
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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] ETSI TS 185 003 (V2.y.z): "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Customer Network Gateway Architecture and Reference Points".

NOTE: The latest version in the V2.y.z series applies.

- [2] ETSI TS 185 006 (V2.y.z): "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Customer Devices architecture and Reference Points".

NOTE: The latest version in the V2.y.z series applies.

- [3] draft-saito-mmusic-sdp-ike-03 (July 27 2008): "Media Description for IKE in the Session Description Protocol (SDP)".

- [4] IETF RFC 3261: "SIP: Session Initiation Protocol".

- [5] 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]".

NOTE: The latest version in the V2.y.z series applies.

- [6] UPnP™: "UPnP™ Device Architecture 1.0 (24 April 2008)".
- NOTE: Available at <http://www.upnp.org/specs/arch/UPnP-arch-DeviceArchitecture-v1.0.pdf>.
- [7] UPnP™: "MediaServer:3 Device Template Version 1.01 (30 September 2008)".
- NOTE: Available at <http://www.upnp.org/specs/av/UPnP-av-MediaServer-v3-Device.pdf>.
- [8] ETSI TS 124 504 (V8.4.0): "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); TISPAN; PSTN/ISDN simulation services: Communication Diversion (CDIV); Protocol specification (3GPP TS 24.504 version 8.4.0 Release 8)".
- [9] ETSI TS 124 411 (V8.1.0): "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); TISPAN; PSTN/ISDN simulation services: Anonymous Communication Rejection (ACR) and Communication Barring (CB); Protocol specification (3GPP TS 24.411 version 8.1.0 Release 8)".
- [10] ETSI TS 124 529 (V8.0.0): "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); TISPAN; PSTN/ISDN simulation services: Explicit Communication Transfer (ECT); Protocol specification (3GPP TS 24.529 version 8.0.0 Release 8)".
- [11] ETSI TS 124 410 (V8.0.0): "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); TISPAN; NGN Signalling Control Protocol; Communication HOLD (HOLD) PSTN/ISDN simulation services; Protocol specification (3GPP TS 24.410 version 8.0.0 Release 8)".
- [12] ETSI TS 185 011 (V2.y.z): "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Specification of Protocols for Customer Network Devices enabling the IMS-based IPTV service usage".
- NOTE: The latest version in the V2.y.z series applies.
- [13] ETSI TS 124 406 (V8.0.0) : "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); TISPAN; PSTN/ISDN simulation services; Message Waiting Indication (MWI): Protocol specification (3GPP TS 24.406 version 8.0.0 Release 8)".
- [14] IETF RFC 4572: "Connection-Oriented Media Transport over the Transport Layer Security (TLS) Protocol in the Session Description Protocol (SDP)".
- [15] ETSI TS 183 006 (V2.y.z): "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); PSTN/ISDN simulation services; Message Waiting Indication (MWI): Protocol specification".
- NOTE: The latest version in the V2.y.z series applies.
- [16] ETSI ES 283 030 (V2.y.z): "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: The latest version in the V2.y.z series applies.
- [17] IETF RFC 2833: "RTP Payload for DTMF Digits, Telephony Tones and Telephony Signals".
- [18] IETF RFC 3840: "Indicating User Agent Capabilities in the Session Initiation Protocol (SIP)".
- [19] ETSI TS 124 508 (V8.1.0): "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); PSTN/ISDN simulation services Terminating Identification Presentation (TIP) and Terminating Identification Restriction (TIR); Protocol specification (3GPP TS 24.508 version 8.1.0 Release 8)".

[20] ETSI TS 124 229 (V7.9.0): "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 version 7.9.0 Release 7)".

[21] ETSI TS 183 065 (V2.y.z): "Telecommunications and Internet converged Services and Protocols for Advanced Networks(TISPAN); Customer Network Gateway Configuration Function; e3 Interface based upon CWMP".

NOTE: The latest version in the V2.y.z series applies.

[22] ETSI TS 124 503 (V8.4.0): "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); 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 version 8.4.0 Release 8)".

[23] IETF RFC 2131: "Dynamic Host Configuration Protocol".

[24] ETSI TS 183 019 (V2.y.z): "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Network Attachment; User-Network Interface Protocol Definitions".

NOTE: The latest version in the V2.y.z series applies.

[25] Broadband Forum TR-069 Amendment 2: "CPE WAN Management Protocol v1.1"; Release 3; December 2007.

[26] Broadband Forum TR-098 Amendment 2: "Internet Gateway Device Data Model for TR-069"; Release 3; September 2008.

[27] ETSI TS 124 407 (V 8.0.0): "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); TISPAN; PSTN/ISDN simulation services; Originating Identification Presentation (OIP) and Originating Identification Restriction (OIR); Protocol specification (3GPP TS 24.407 version 8.0.0 Release 8)".

[28] IEEE 802.1X: "IEEE Standard for Local and metropolitan area networks - Port-Based Network Access Control".

[29] IETF RFC 3748: "The Extensible Authentication Protocol (EAP) specification".

[30] Wi-Fi Alliance: "WPA (includes WPA2) Pointer Document, version 3.0".

NOTE: Available at <http://www.wi-fi.org>.

[31] IEEE 802.11i (2004): "Enhanced security".

[32] Wi-Fi Alliance: "Wi-Fi Protected Setup Specification, version 1.0".

NOTE: Available at <http://www.wi-fi.org>.

[33] ETSI TS 183 041 (V2.y.z): "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Messaging service using the IP Multimedia (IM) Core Network (CN) subsystem; Stage 3: Protocol specifications [Endorsement of 3GPP TS 24.247 Release 6".

NOTE: the latest version in the V2.y.z series applies.

[34] ETSI TS 183 005 (V2.y.z): "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); PSTN/ISDN simulation services: Conference (CONF); Protocol specification".

NOTE: The latest version in the V2.y.z series applies.

[35] ETSI TS 183 016 (V2.y.z): "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); PSTN/ISDN simulation services; Malicious Communication Identification (MCID); Protocol Specification".

NOTE: The latest version in the V2.y.z series applies.

[36] ETSI TS 183 008 (V2.y.z): "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".

NOTE: The latest version in the V2.y.z series applies.

[37] ETSI TS 124 238: "Universal Mobile Telecommunications System (UMTS); LTE; Session Initiation Protocol (SIP) based user configuration; Stage 3 (3GPP TS 24.238 version 8.1.0 Release 8)".

[38] IETF RFC 4244: "An extension to the Session Initiation Protocol (SIP) for Request History Information".

[39] IETF RFC 3264: "An Offer/Answer Model with the Session Description Protocol (SDP)".

[40] 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)".

NOTE: The latest version in the V2.y.z series applies.

[41] ETSI TS 183 054 (V2.y.z): "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); PSTN/ISDN simulation services; Protocol specification Closed User Group (CUG)".

NOTE: The latest version in the V2.y.z series applies.

[42] ETSI TS 183 051 (V2.y.z): "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Support of SMS and MMS over NGN IMS subsystem; Stage 3 [Endorsement of 3GPP TS 24.341 Release 7".

NOTE: The latest version in the V2.y.z series applies.

[43] ETSI TS 183 007 (V2.y.z): "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".

NOTE: The latest version in the V2.y.z series applies.

[44] IETF RFC 3428: "Session Initiation Protocol (SIP) Extension for Instant Messaging".

[45] IETF RFC 3994: "Indication of Message Composition for Instant Messaging".

[46] IETF RFC 3842: "A Message Summary and Message Waiting Indication Event Package for the Session Initiation Protocol (SIP)".

[47] IETF RFC 3265: "Session Initiation Protocol (SIP) - Specific Event Notification".

[48] IETF RFC 3515: "The Session Initiation Protocol (SIP) REFER Method".

[49] IETF RFC 3891: "The Session Initiation Protocol (SIP) Referred-By Mechanism".

[50] IETF RFC 3892: "The Session Initiation Protocol (SIP) "Replaces" Header".

[51] ETSI TS 183 028 (V2.y.z): "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Common Basic Communication procedures; Protocol specification".

NOTE: The latest version in the V2.y.z series applies.

- [52] ETSI TS 183 004 (V2.y.z): "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); PSTN/ISDN simulation services: Communication Diversion (CDIV); Protocol specification".
- NOTE: The latest version in the V2.y.z series applies.
- [53] ETSI TS 183 011 (V2.y.z): "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); PSTN/ISDN simulation services: Anonymous Communication Rejection (ACR) and Communication Barring (CB); Protocol specification".
- NOTE: The latest version in the V2.y.z series applies.
- [54] ETSI TS 183 029 (V2.y.z): "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); PSTN/ISDN simulation services: Explicit Communication Transfer (ECT); Protocol specification".
- NOTE: The latest version in the V2.y.z series applies.
- [55] ETSI TS 183 010 (V2.y.z): "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); NGN Signalling Control Protocol; Communication HOLD (HOLD) PSTN/ISDN simulation services; Protocol specification".
- NOTE: The latest version in the V2.y.z series applies.
- [56] UPnP™: "MediaRenderer:2 Device Template Version 1.01 (30 September 2008)".
- NOTE: Available at <http://www.upnp.org/specs/av/UPnP-av-MediaRenderer-v2-Device.pdf>.
- [57] UPnP™: "AVTransport:2 Service Template Version 1.01 (30 September 2008)".
- NOTE: Available at <http://www.upnp.org/specs/av/UPnP-av-AVTransport-v2-Service.pdf>.
- [58] UPnP™: "ContentDirectory:3 Service Template Version 1.01 (30 September 2008)".
- NOTE: Available at <http://www.upnp.org/specs/av/UPnP-av-ContentDirectory-v3-Service.pdf>.
- [59] UPnP™: "ScheduledRecording:2 Service Template Version 1.01 (30 September 2008)".
- NOTE: Available at <http://www.upnp.org/specs/av/UPnP-av-ScheduledRecording-v2-Service.pdf>.
- [60] ETSI ES 282 003 (V2.y.z): "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Resource and Admission Control Sub-System (RACS): Functional Architecture".
- NOTE: The latest version in the V2.y.z series applies.
- [61] ETSI TS 123 228: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); LTE; IP Multimedia Subsystem (IMS); Stage 2 (3GPP TS 23.228 version 8.8.0 Release 8)".
- [62] Broadband Forum TR-104: "DSL Home™ Provisioning Parameters for VoIP CPE"; Release 1; September 2005.
- [63] Broadband Forum TR-106 Amendment 2: "Data Model Template for TR-069 Enabled Devices"; Release 3; November 2008.
- [64] Broadband Forum TR-135: "Data Model for TR-069 Enabled STB"; Release 3; December 2007.
- [65] Broadband Forum TR-140 Issue 1.1: "TR-069 Data Model for Storage Service Enabled Devices"; Release 3; December 2007.
- [66] IETF RFC 3193: "Securing L2TP using IPsec".
- [67] ETSI TS 124 505 (V 8.0.0): "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); TISPAN; PSTN/ISDN simulation services: Conference (CONF); Protocol specification (3GPP TS 24.505 version 8.0.0 Release 8)".

- [68] ETSI TS 124 516 (V 8.0.0): "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); TISPAN; PSTN/ISDN simulation services; Malicious Communication Identification (MCID); Protocol specification (3GPP TS 24.516 version 8.0.0 Release 8)".
- [69] ETSI TS 124 447 (V 8.0.0): "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); TISPAN; NGN IMS Supplementary Services; Advice Of Charge (AOC) (3GPP TS 24.447 version 8.0.0 Release 8)".
- [70] ETSI TS 124 454 (V 8.0.0): "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); TISPAN; PSTN/ISDN simulation services; Protocol specification Closed User Group (CUG) (3GPP TS 24.454 version 8.0.0 Release 8)".
- [71] ETSI TS 124 430 (V 8.0.0): "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); TISPAN; Presence Service Capability; Protocol Specification [3GPP TS 24.141 V7.0.0, modified and OMA-TS-Presence_SIMPLE-V1_0, modified] (3GPP TS 24.430 version 8.0.0 Release 8)".
- [72] ETSI TS 124 441: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); TISPAN; Messaging service using the IP Multimedia (IM) Core Network (CN) subsystem; Stage 3: Protocol specifications [Endorsement of 3GPP TS 24.247 Release 6] (3GPP TS 24.441 version 8.0.0 Release 8)".
- [73] ETSI TS 123 521 (V 8.0.0): "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); Telecommunications and Internet converged Services and Protocols for Advanced Networks (TISPAN); Support of Short Message Service (SMS) over NGN IMS subsystem; Stage 2; [Endorsement of 3GPP TS 23.204 Release 7] (3GPP TS 23.521 version 8.0.0 Release 8)".
- [74] ETSI TS 124 628 (V 8.2.0): "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); LTE; Common Basic Communication procedures using IP Multimedia (IM) Core Network (CN) subsystem; Protocol specification (3GPP TS 24.628 version 8.2.0 Release 8)".
- [75] ETSI TS 124 604 (V 8.3.0): "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); Communication Diversion (CDIV) using IP Multimedia (IM) Core Network (CN) subsystem; Protocol specification (3GPP TS 24.604 version 8.3.0 Release 8)".
- [76] ETSI TS 124 611 (V 8.2.0): "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); LTE; Anonymous Communication Rejection (ACR) and Communication Barring (CB) using IP Multimedia (IM) Core Network (CN) subsystem; Protocol specification (3GPP TS 24.611 version 8.2.0 Release 8)".
- [77] ETSI TS 124 629 (V 8.2.0): "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); Explicit Communication Transfer (ECT) using IP Multimedia (IM) Core Network (CN) subsystem; Protocol specification (3GPP TS 24.629 version 8.2.0 Release 8)".
- [78] ETSI TS 124 610 (V 8.3.0): "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); Communication HOLD (HOLD) using IP Multimedia (IM) Core Network (CN) subsystem; Protocol specification (3GPP TS 24.610 version 8.3.0 Release 8)".
- [79] ETSI TS 124 605 (V 8.3.0): "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); Conference (CONF) using IP Multimedia (IM) Core Network (CN) subsystem; Protocol specification (3GPP TS 24.605 version 8.3.0 Release 8)".
- [80] ETSI TS 124 606 (V 8.1.0): "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); LTE; Message Waiting Indication (MWI) using IP Multimedia (IM) Core Network (CN) subsystem; Protocol specification (3GPP TS 24.606 version 8.1.0 Release 8)".

- [81] ETSI TS 124 607 (V 8.2.0): "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); LTE; Originating Identification Presentation (OIP) and Originating Identification Restriction (OIR) using IP Multimedia (IM) Core Network (CN) subsystem; Protocol specification (3GPP TS 24.607 version 8.2.0 Release 8)".
- [82] ETSI TS 124 608 (V 8.2.0): "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); LTE; Terminating Identification Presentation (TIP) and Terminating Identification Restriction (TIR) using IP Multimedia (IM) Core Network (CN) subsystem; Protocol specification (3GPP TS 24.608 version 8.2.0 Release 8)".
- [83] ETSI TS 124 616 (V 8.3.0): "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); Malicious Communication Identification (MCID) using IP Multimedia (IM) Core Network (CN) subsystem; Protocol specification (3GPP TS 24.616 version 8.3.0 Release 8)".
- [84] ETSI TS 124 647 (V 8.1.0): "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); LTE; Advice Of Charge (AOC) using IP Multimedia (IM) Core Network (CN) subsystem; Protocol Specification (3GPP TS 24.647 version 8.1.0 Release 8)".
- [85] ETSI TS 124 141 (V 8.3.0): "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); LTE; Presence service using the IP Multimedia (IM) Core Network (CN) subsystem; Stage 3 (3GPP TS 24.141 version 8.3.0 Release 8)".
- [86] ETSI TS 124 247 (V 8.2.0): "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); LTE; Messaging service using the IP Multimedia (IM) Core Network (CN) subsystem; Stage 3 (3GPP TS 24.247 version 8.2.0 Release 8)".
- [87] ETSI TS 124 341 (V 8.1.0): "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); LTE; Support of SMS over IP networks; Stage 3 (3GPP TS 24.341 version 8.1.0 Release 8)".
- [88] ETSI TS 124 654: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); LTE; Closed User Group (CUG) using IP Multimedia (IM) Core Network (CN) subsystem; Protocol Specification (3GPP TS 24.654 version 8.2.0 Release 8)".

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] "UPnP Remote Access Transport Agent (RATA) Config:1 Service".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the following terms and definitions apply:

announcement: service related message sent to a user that can be of any type of media e.g. a voice message or a video-clip

transfer target: party which the communication is transferred to and which replaces the transferor in the communication

transferee: party which stays in the communication which is transferred