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Technical Specification

Telecommunications and Internet Protocol Harmonization Over Networks (TIPHON) Release 3; Technology Mapping; Implementation of TIPHON architecture using H.323

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Foreword

This Technical Specification (TS) has been produced by ETSI Project Telecommunications and Internet Protocol Harmonization Over Networks (TIPHON).

Introduction

The approach being taken to standardization in TIPHON represents a departure from that used in the past for PSTN, ISDN and GSM. Its aim is to allow much greater scope for competition through innovation in the design of equipment and services. Its aim is also to provide adequate standardization to facilitate the operation of services across interconnected networks, even networks that use different technologies. The present document presents the initial core set of Service Capabilities envisaged to be required to enable service providers to offer services on TIPHON networks that may safely interwork with existing PSTN services while enabling more advanced services to be subsequently developed.

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Figure 1 shows the relationship of the present document with other TIPHON Release 3 deliverables.

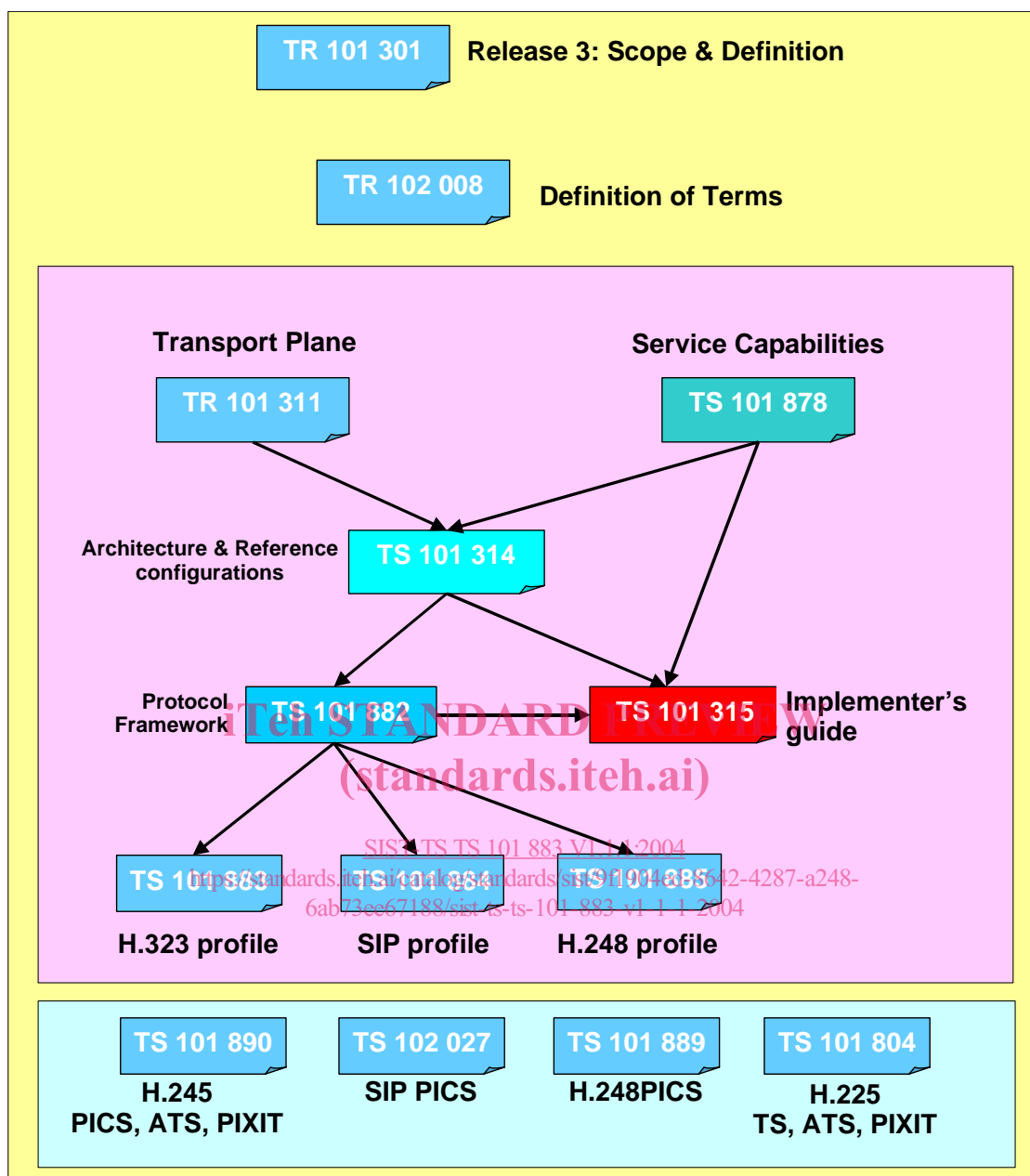


Figure 1: Relationship with other TIPHON Release 3 documents

- TR 101 311 [2] provides the requirements on the transport plane;
- TS 101 878 [6] defines service capabilities that are used in the TIPHON Release 3 for a simple call;
- TS 101 882 provides the Protocol Framework based on the TIPHON Release 3 architecture to implement the simple call service capabilities as defined in the present document;
- TS 101 315 [17] is an implementer's guide that shows how to use of the meta-protocol to realize the capabilities as defined in TS 101 878 [6];
- TS 101 883 (the present document) provides the protocol mappings for the ITU-T H-323 profile;
- TS 101 884 provides the protocol mappings for the SIP profile;
- TS 101 885 [14] provides the protocol mappings for the ITU-T H-248 profile; and
- TS 101 314 [8] provides the architecture and reference configurations for TIPHON Release 3.

1 Scope

The present document describes how the H.323 protocol suite can be used to implement the architecture, defined in TS 101 314 [8] and the primitives, information elements and behaviours, defined in TS 101 882.

The present document defines the mapping of the following meta-protocols:

- the Registration meta-protocol;
- the Bearer Control meta-protocol; and
- the Call Control meta-protocol.

The document is applicable to equipment performing the roles of terminal, gateway, gatekeeper and also to entities within the IP network that are necessary to support TIPHON Release 3.

The H.323 profile contained in the present document was derived by examination of:

- ITU-T Recommendation H.323 [10] and associated suite of protocols:
 - H.225.0 (RAS and Q.931); and
 - H.245 (Media control channel-signalling protocol);
- the capabilities required by TS 101 878 [6] for the support of TIPHON as identified in TR 101 300 [4];
- the TIPHON baseline architecture described in TS 101 314 [8]; and
- the primitives, parameters and procedures defined in TS 101 882.

Figure 1 is derived from TS 101 314 [8] and illustrates the scope of the present document.

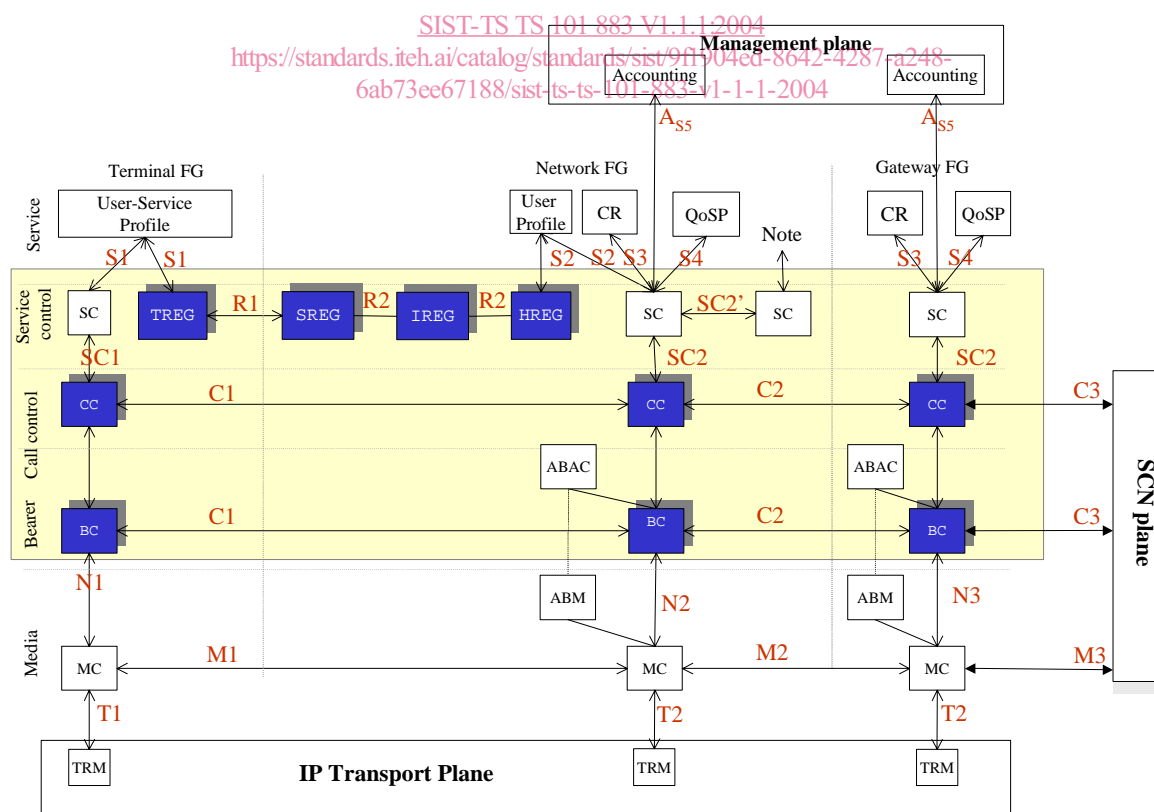


Figure 2: Scope of the present document

Where the text indicates the status of a requirement (i.e. as strict command or prohibition, as authorizations leaving freedom or as a capability or possibility), this may modify the nature of a requirement within a referenced standard used to provide the capability.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication and/or edition number or version number) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies.

- [1] ITU-T Recommendation E.164 (1997): "The international public telecommunication numbering plan".
- [2] ETSI TR 101 311: "Telecommunications and Internet Protocol Harmonization Over Networks (TIPHON) Release 3; Service Independent requirements definition; Transport Plane".
- [3] Void.
- [4] ETSI TR 101 300: "Telecommunications and Internet Protocol Harmonization Over Networks (TIPHON); Description of Technical Issues".
- [5] Void.
- [6] ETSI TS 101 878: "Telecommunications and Internet Protocol Harmonization Over Networks (TIPHON) Release 3; Service Capability Definition; Service Capabilities for a simple call".
[SIST-TS TS 101 883 V1.1.1:2004](https://standards.iteh.ai/catalog/standards/sist-ts-ts-101-883-v1-1-1-2004)
- [7] Void <https://standards.iteh.ai/catalog/standards/sist/9f1904ed-8642-4287-a248-6ab73ee67188/sist-ts-ts-101-883-v1-1-1-2004>
- [8] ETSI TS 101 314: "Telecommunications and Internet Protocol Harmonization Over Networks (TIPHON) Release 3; Abstract Architecture and Reference Points Definition; Network Architecture and Reference Points".
- [9] Void.
- [10] ITU-T Recommendation H.323 (2000): "Packet-based multimedia communications systems".
- [11] ITU-T Recommendation H.225.0 (2000): "Call signalling protocols and media stream packetization for packet-based multimedia communication systems".
- [12] ITU-T Recommendation H.245 (2000): "Control protocol for multimedia communication".
- [13] ITU-T Recommendation H.225.0 Annex G: "Communication between administrative domains".
- [14] ETSI TS 101 885: "Telecommunications and Internet Protocol Harmonization Over Networks (TIPHON) Release 3; Technology Mapping; Technology Mapping of TIPHON reference point N to H.248/MEGACO protocol".
- [15] ITU-T Recommendation Q.931: "ISDN user-network interface layer 3 specification for basic call control".
- [16] Void.
- [17] ETSI TS 101 315: "Telecommunications and Internet Protocol Harmonization Over Networks (TIPHON) Release 3; Functional Entities, Information Flow and Reference Point Definitions; Guidelines for application of TIPHON functional architecture to inter-domain services".
- [18] Void.

- [19] ETSI TR 101 301: "Telecommunications and Internet Protocol Harmonization Over Networks (TIPHON) Release 3; Release Definition; TIPHON Release 3 Definition".
- [20] ETSI TR 102 008: "Telecommunications and Internet Protocol Harmonization Over Networks (TIPHON) Release 3; Terms and Definitions".
- [21] ETSI TS 101 890 (all parts): "Telecommunications and Internet Protocol Harmonization Over Networks (TIPHON) Release 3; Technology Compliance Specifications; TIPHON profile for ITU-T H.245".
- [22] Void.
- [23] Void.
- [24] ETSI TS 101 804 (all parts): "Telecommunications and Internet Protocol Harmonization Over Networks (TIPHON) Release 3; Technology compliance specifications; H.225 conformance test specification".
- [25] ITU-T Recommendation I.112: "Vocabulary of terms for ISDNs".
- [26] ITU-T Recommendation H.235: "Security and encryption for H-Series (H.323 and other H.245-based) multimedia terminals".

3 Definitions and abbreviations

3.1 Definitions

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

access provider: access provider provides a user of some network with access from the user's terminal to that network

accounting: process of collecting the call information data for purposes of attributing costs between service providers or network operators

address: string or combination of digits and symbols which identifies the specific termination points of a connection/session and is used for routing

administrative domain: collection of physical or functional entities under the control of a single administration

aggregate bearer: logical association of functional entities in an IP Telephony application and Transport Network which creates one or more concurrent end to end media flows and which is not limited to the duration of a single call

aggregate bearer admission control: functional entity that determines whether or not a flow is to be admitted as part of an established aggregate bearer

aggregate bearer admission control function: functional entity that determines whether or not a flow is to be admitted as part of an established aggregate bearer

aggregate bearer measurement function: functional entity that determines the capacity used and remaining in an aggregate bearer as a result of measuring the actual media flows after taking into account what flows were requested

application data: media or signalling information content

authentication: process of proving identity within its context

NOTE: This normally entails proving the possession of a secret (uniquely associated with the identification) to the authenticator.

authorization: process of granting permission on the basis of identity, to access or use a service, or to access information

NOTE: Authorization is performed by the entity that controls the resource, and, if payment is required, that same entity is responsible for accounting to the customer or other party.

backward call clearing: ability for the called party to release a call during the call

basic call control: signalling protocol associated with the DSS1 - ISDN Basic Call control procedures of ITU-T Recommendation Q.931

bearer: logical association of functional entities in an IP Telephony application and Transport Network that creates an end to end media flow for no longer than the duration of a call

bearer service: type of telecommunication service that provides the capability for the transmission of signals between user-network interfaces

billing: process of presenting the user with a request for payment e.g. based on network usage; possibly including supporting information such as call records

broker: provider of a business service to facilitate the interworking between multiple IP service providers and SCN operators involved in the delivery of a telephony service

NOTE: This may be restricted to accounting settlements, but can also include routing assistance, authorization of use of resources, price information exchange.

call: any connection (fixed or temporary) capable of transferring information between two or more users of a telecommunications system. In this context a user may be a person or a machine

called number: normally a name written as a numerical string identifying the called party or called terminal

carrier: provider of a transit network or services

channel: *channel* is often used in the literature to describe a single data stream and will therefore be treated synonymously to *flow* through TS 101 883

charging: process of determining the amount of money a user shall pay for usage of a certain service

codec: combined speech encoder and decoder

dialling plan: string or combination of decimal digits, symbols, and additional information that defines the method by which the numbering plan is used

NOTE: A dialling plan includes the use of prefixes, suffixes, and additional information, supplemental to the numbering plan, required to complete the call (e.g. ITU-T Recommendation E.164 [1]).

directory service provider: provider of directory information, e.g. providing an E.164 number from an email address

domain: collection of physical or functional entities within an administrative domain which share a consistent set of policies and common technologies

E.164 number: number conforming to the numbering plan and structure specified in ITU-T Recommendation E.164

endpoint: entity that can originate and terminate both signalling and media streams

NOTE 1: An endpoint can both call and be called.

NOTE 2: Examples of endpoints include H.323 terminals, SIP User Agents, gateways, or Multi-party Conference Units.

firewall: device (computer or software or both), used to restrict and monitor usage of computer(s) or the network

flow: single data stream, identified by a tuple of characteristic values (source address, source port, destination address, destination port, protocol number)

functional entity: entity in a system that performs a specific set of functions

functional group: collection of Functional Entities within a domain

NOTE: In TIPHON systems functional groups are used to structure the necessary functionality to offer IP telephony services across domains.