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Harmonizacija telekomunikacij in internetnega protokola prek omrežij (TIPHON), 3. izdaja - Tehnologija preslikave - Tehnologija preslikave referenčne točke N pri TIPHON v protokol H.248/MEGACO

Telecommunications and Internet Protocol Harmonization Over Networks (TIPHON) Release 3; Technology Mapping; Technology Mapping of TIPHON reference point N to H.248/MEGACO protocol

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Technical Specification

Telecommunications and Internet Protocol Harmonization Over Networks (TIPHON) Release 3; Technology Mapping; Technology Mapping of TIPHON reference point N to H.248/MEGACO protocol

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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.

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

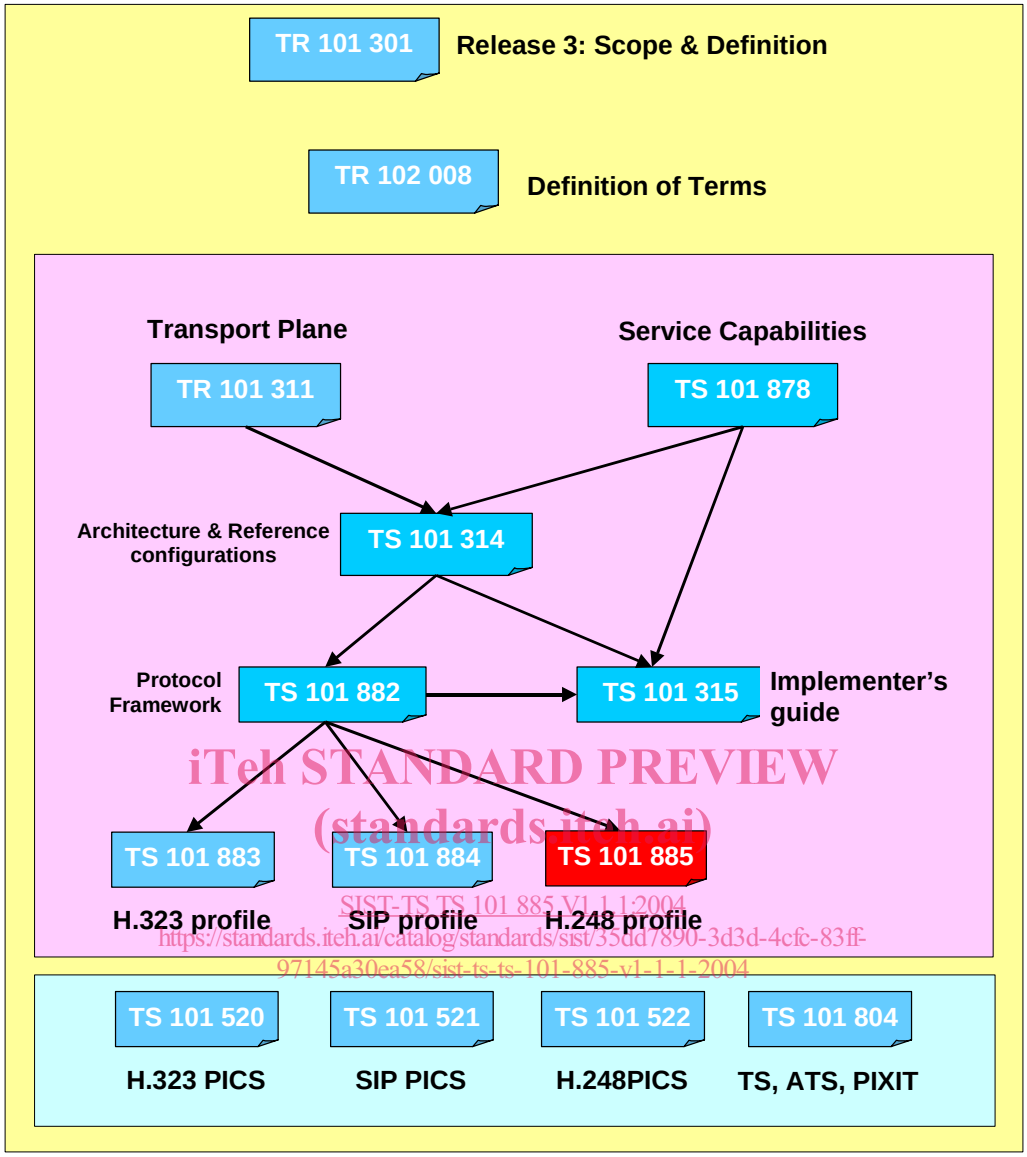

Figure 1: Relationship with other TIPHON Release 3 documents

- TR 101 311 [4] provides the requirements on the transport plane,
- TS 101 878 [5] defines service capabilities that are used in the TIPHON Release 3 for a simple call,
- TS 101 882 [2] 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 [6] is an implementer's guide that shows how to use of the meta-protocol to realize the capabilities as defined in TS 101 878 [5],
- TS 101 883 [7] provides the protocol mappings for the ITU-T H-323 profile,
- TS 101 884 (see bibliography) provides the protocol mappings for the SIP profile,
- TS 101 885 (the present document) provides the protocol mappings for the ITU-T H-248 profile,
- TS 101 314 [3] provides the architecture and reference configurations for TIPHON Release 3.

1 Scope

The present document describes how the H.248/MEGACO [1] protocol can be used to implement the architecture, defined in TS 101 314 [3] and the primitives, information elements and behaviours, defined in TS 101 882 [2].

The present document defines the mapping of the Media 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.

NOTE: 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 H.248 (2000): "Gateway control protocol".

[2] ETSI TS 101 882: "Telecommunications and Internet protocol Harmonization Over Networks (TIPHON) Release 3; Protocol Framework Definition and Interface Requirement Definition; General (meta-protocol)".

[3] ETSI TS 101 314 (V2.1.1): "Telecommunications and Internet Protocol Harmonization Over Networks (TIPHON) Release 3; Abstract Architecture and Reference Points Definition; Network Architecture and Reference Points".

[4] ETSI TR 101 311: "Telecommunications and Internet Protocol Harmonization Over Networks (TIPHON) Release 3; Service Independent requirements definition; Transport Plane".

[5] ETSI TS 101 878: "Telecommunications and Internet Protocol Harmonization Over Networks (TIPHON) Release 3; Service Capability Definition; Service Capabilities for a simple call".

[6] 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".

[7] ETSI TS 101 883: "Telecommunications and Internet Protocol Harmonization Over Networks (TIPHON) Release 3; Technology Mapping; Implementation of TIPHON architecture using H.323".

[8] ETSI TR 101 301: "Telecommunications and Internet Protocol Harmonization Over Networks (TIPHON) Release 3; Release Definition; TIPHON Release 3 Definition".

[9] ETSI TR 102 008: "Telecommunications and Internet Protocol Harmonization Over Networks (TIPHON) Release 3; Terms and Definitions".

[10] ETSI TS 101 520: "Telecommunications and Internet Protocol Harmonization Over Networks (TIPHON); Implementation Conformance Statement (ICS) proforma for the support of packet based multimedia communications systems; Support of ITU-T Recommendation H.323".

[11] ETSI TS 101 521: "Telecommunications and Internet Protocol Harmonization Over Networks (TIPHON); Protocol Implementation Conformance Statement (PICS) proforma for the support of call signalling protocols and media stream packetization for packet-based multimedia communication systems; Support of ITU-T Recommendation H.225.0".

[12] ETSI TS 101 522: "Telecommunications and Internet Protocol Harmonization Over Networks (TIPHON); Protocol Implementation Conformance Statement (PICS) proforma for the support of control protocol for multimedia communication; Support of ITU-T Recommendation H.245".

[13] ETSI TS 101 804 (all parts): "Telecommunications and Internet Protocol Harmonization Over Networks (TIPHON) Release 3; Technology compliance specifications".

[14] IETF RFC 1890: "RTP Profile for Audio and Video Conferences with Minimal Control".

3 Definitions and abbreviations

3.1 Definitions

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

call: any connection (fixed or temporary) capable of transferring information between two or more users of a telecommunications system

NOTE: In this context a user may be a person or a machine.

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

codec: combined speech encoder and decoder

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.

IP address: each network unit connected to an IP network must have a unique Internet or IP address

NOTE: Today's IP addresses is based on IPv4 and are 32-bit numbers with its predefined structure. The IP address (IPv4) is written as four decimal numbers separated by a point.

IP endpoint: device that originates or terminates the IP based part of a call

NOTE: Endpoints include H.323 clients, and IP telephony gateways.

IP network: packet transport network comprising one or more transport domains each employing the IP protocol

network: telecommunications network that provides telecommunications services

protocol: set of semantics, syntax and procedures which govern the exchange of information across an interface

Quality of Service (QoS): quality specification of a telecommunications channel, system, virtual channel, computer-telecommunications session, etc.

NOTE: Quality of Service may be measured, for example, in terms of signal-to-noise ratio, bit error rate, message throughput rate or call blocking probability.

Switched Circuit Network (SCN): telecommunications network, e.g. Public Switched Telephone Network (PSTN), Integrated Services Digital Network (ISDN), and General System for Mobile communications (GSM), that uses circuit-switched technologies for the support of voice calls

NOTE: The SCN may be a public network or a private network.

telephone call: two-way speech communication between two users by means of terminals connected via network infrastructure

terminal: endpoint within the user equipment on which signalling and media flows originate and/or terminate

TIPHON compliant: entity that complies with the mandatory requirements identified in the TIPHON requirements documents together with compliance to the parts of the TIPHON specifications in which these requirements are embodied

3.2 Abbreviations

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

BC	Bearer Control
CC	Call Control
IP	Internet Protocol
MC	Media Control
QoS	Quality of Service
SCN	Switched Circuit Networks
SDL	Specification and Description Language
SIP	Session Initiation Protocol
ISDN	Integrated Services Digital Network
GSM	General System for Mobile communications
PSTN	Public Switched Telephone Network

4 Introduction

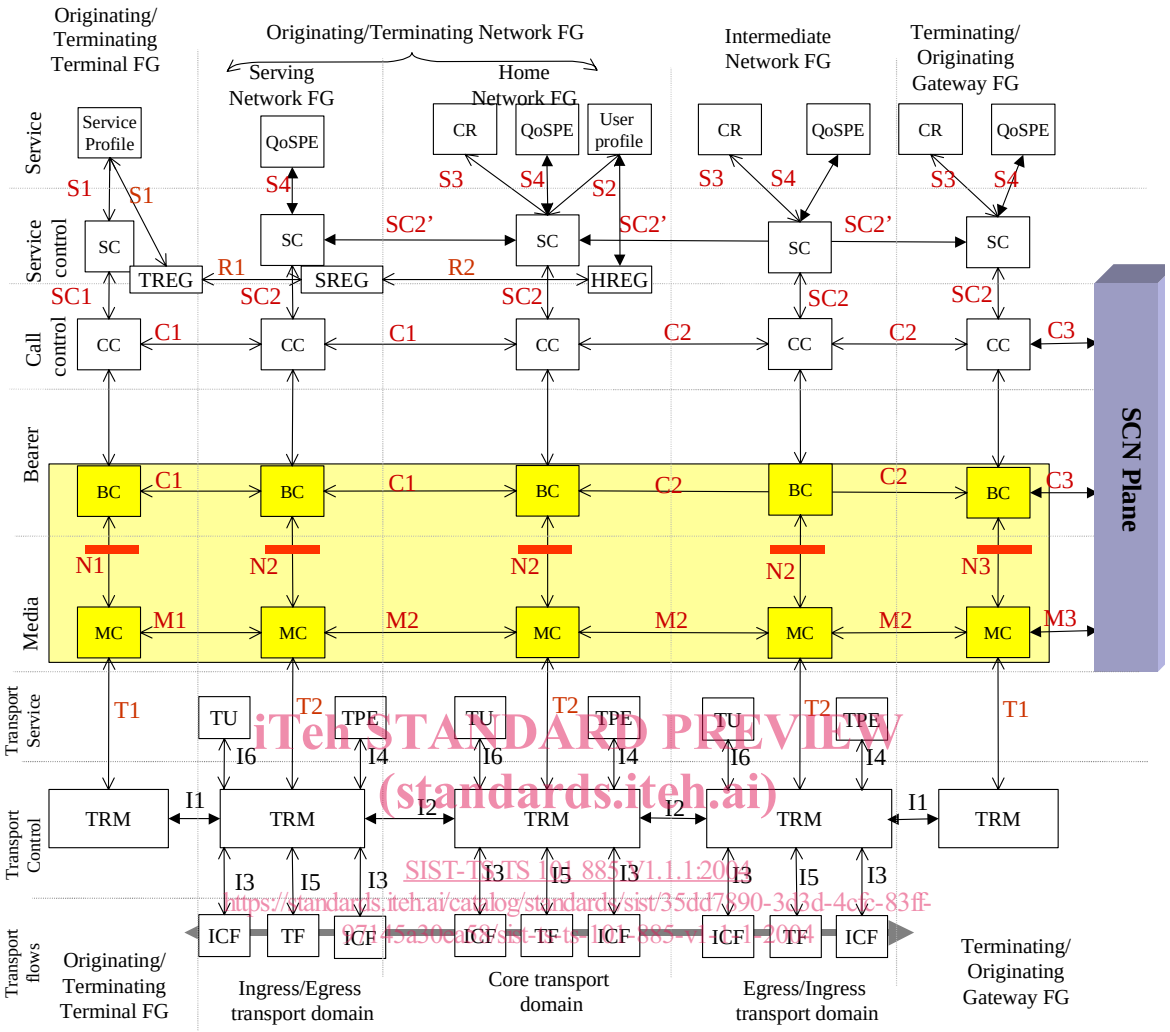

Figure 2: TIPHON architecture with reference points N highlighted

The present document describes an implementation of reference point N of the meta-protocol described in annex C of TS 101 882 [2], producing an interoperable profile of H.248/MEGACO. Figure 2 shows the TIPHON architecture copied from [3] with the reference points N highlighted.

H.248/MEGACO has been created to control a range of media devices. For the purpose of the present document we address several categories:

- Residential gateways implementing reference point N1 and a user interface. The user interface component is not addressed in this version of the present document.
- IP-IP Media devices for the control, transcoding and monitoring of media streams in TIPHON networks. These devices implement reference point N2.
- Trunk gateways, between TIPHON networks and the SCN implementing reference point N3.