ETSI ES 282 010 V2.0.6 (2008-04)

ETSI Standard

Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Charging management

[Endorsement of 3GPP TS 32.240 Release 7, 3GPP TS 32.260 Release 7, 3GPP TS 32.297 Release 7, 3GPP TS 32.298 Release 7 and 3GPP TS 32.299 Release 7, modified]

Reference
RES/TISPAN-02037-NGN-R2

Keywords
charging, endorsement, management

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/chaircor/ETSI_support.asp

Copyright Notification

Contents

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

Introduction

The present document describes charging-related functionalities for TISPAN NGN Release 2. It is based on the endorsements of several 3GPP charging specifications. Annexes ZA and ZB contain further information.

1 Scope

The purpose of the present document is to specify charging applicable to NGN, but not to a PSTN/ISDN Emulation other than for an IMS contained within that subsystem.

The scope of the present document comprises the following functionalities:

- Offline Charging.
- Online charging.
- AoC (Advice of Charge).
- Realtime transfer of tariff information through interconnection interfaces.
- New interconnection charging capabilities.

General charging requirements for TISPAN are described in TS 181 005 [7].

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.

For online referenced documents, information sufficient to identify and locate the source shall be provided. Preferably, the primary source of the referenced document should be cited, in order to ensure traceability. Furthermore, the reference should, as far as possible, remain valid for the expected life of the document. The reference shall include the method of access to the referenced document and the full network address, with the same punctuation and use of upper case and lower case letters.

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.

[1] ETSI TS 132 240: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); Telecommunication management; Charging management; Charging architecture and principles (3GPP TS 32.240 Release 7)".

[2] ETSI TS 132 260: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); Telecommunication management; Charging management; IP Multimedia Subsystem (IMS) charging (3GPP TS 32.260)".

[3] ETSI TS 132 296: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); Telecommunication management; Charging management; Online Charging System (OCS): Applications and interfaces (3GPP TS 32.296 Release 7)".

[4] ETSI TS 132 297: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); Telecommunication management; Charging management; Charging Data Record (CDR) file format and transfer (3GPP TS 32.297 Release 7)".

[5] ETSI TS 132 298: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); Telecommunication management; Charging management; Charging Data Record (CDR) parameter description (3GPP TS 32.298 Release 7)".

[6] ETSI TS 132 299: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); Telecommunication management; Charging management; Diameter charging applications (3GPP TS 32.299)".

[7] ETSI TS 181 005 (V1.1.1): "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Services and Capabilities Requirements".

[8] ETSI ES 282 001: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); NGN Functional Architecture Release 1".

[9] IETF RFC 3455: "Private Header (P-Header) Extensions to the Session Initiation Protocol (SIP) for the 3rd-Generation Partnership Project (3GPP)".

[10] ETSI ES 283 003: "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, modified]".

[11] ETSI TS 182 006: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); IP Multimedia Subsystem (IMS); Stage 2 description (3GPP TS 23.228 v7.2.0, modified)".

[12] ETSI TS 183 033: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); IP Multimedia; Diameter based protocol for the interfaces between the Call Session Control Function and the User Profile Server Function/Subscription Locator Function; Signalling flows and protocol details [3GPP TS 29.228 V6.8.0 and 3GPP TS 29.229 V6.6.0, modified]".

[13] ETSI TS 183 047: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); NGN IMS Supplementary Services; Advice Of Charge (AOC)".

[14] ETSI ES 201 296: "Integrated Services Digital Network (ISDN); Signalling System No.7 (SS7); ISDN User Part (ISUP); Signalling aspects of charging".

[15] ITU-T Recommendation Q.736.3: "Stage 3 description for charging supplementary services using Signalling System No. 7: Reverse charging (REV)".

2.2 Informative references

[16] ETSI TS 181 005 (V2.4.1): "Telecommunications and Internet Converged Services and Protocols for Advanced Networking (TISPAN); Service and Capability Requirements".

[17] ETSI TS 183 058: "Telecommunications and Internet Converged Services and Protocols for Advanced Networking (TISPAN); SIP Transfer of IP Multimedia Service Tariff Information; Protocol specification".

[18] ETSI ES 282 007: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); IP Multimedia Subsystem (IMS); Functional architecture".

[19] ETSI TR 181 011: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Fixed Mobile Convergence; Requirements analysis".

[20] ETSI TR 181 015: "Telecommunications and Internet Converged Services and Protocols for Advanced Networking (TISPAN); Requirements for Customized Originating and Terminating Multimedia Information Presentation (COMIP/CTMIP) and Customized Originating and Terminating Multimedia Information Filtering (COMIF/CTMIF) Requirements Analysis".

[21] ETSI TS 181 016: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Service Layer Requirements to integrate NGN services and IPTV".

[22] ETSI TS 181 018: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Requirements for QoS in a NGN".

[23] ETSI TS 181 002: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Multimedia Telephony with PSTN/ISDN simulation services".

[24] ETSI EG 201 988-4: "Telecommunications and Internet Converged Services and Protocols for Advanced Networking (TISPAN); Service Provider Access; Open Service Access for API requirements; Part 4: Version 4".

[25] ETSI TS 182 023: "Telecommunications and Internet Converged Services and Protocols for Advanced Networking (TISPAN); Core and Enterprise NGN Interaction Scenarios and Architectural Requirements".

[26] ETSI TS 182 024: "Telecommunications and Internet Converged Services and Protocols for Advanced Networking (TISPAN); Hosted Enterprise Services; Architecture and functional description".

[27] ETSI TS 182 007: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Voice Call Continuity (VCC); Stage 2 [3GPP TS 23.206 Release 7, modified]".

[28] ETSI TS 183 042: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); NGN IMS Supplementary Services; Call Completion on Busy Subscriber (CCBS), Call Completion No Reply (CCNR)".

[29] ETSI TS 183 029: "Telecommunications and Internet Converged Services and Protocols for Advanced Networking (TISPAN); PSTN/ISDN simulation services: Explicit Communication Transfer (ECT); Protocol specification".

[30] ETSI TS 183 036: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); ISDN- DSS1/SIP inter-working ISDN/SIP interworking".

Endorsement notice

The present document, in conjunction with 3GPP TS 32.240 Release 7, 3GPP TS 32.260 Release 7, 3GPP TS 32.297 Release 7, 3GPP TS 32.298 Release 7 and 3GPP TS 32.299 Release 7 provides the specifications for NGN charging.

Global modifications to 3GPP TS 32.240 Release 7

Throughout the text of 3GPP TS 32.240 Release 7

The references listed in the table below are replaced by references applicable to NGN.

Reference no.	Reference in 3GPP TS 32.240	Applicable reference in the present document
[50]	3GPP TS 32.299	The present document
[51]	3GPP TS 32.298	The present document
[52]	3GPP TS 32.297	The present document

All occurrences to Bearer level charging and flow-based charging (clause 5.3.1) are not included.

Advice of Charge (clause 5.5.4) is included with modifications (see separate description).

The following text needs to be added:

Realtime transfer of tariff information through interconnection interfaces

In addition to offline- and online charging, the realtime transfer of tariff information through interconnection interfaces is implemented in IMS in order to support value added services that are billed by the caller's operator, so that the caller's operator can provide AoC (Advice of Charge) to the caller for information purposes. Additionally, this tariff information may be reflected in an optional CDR parameter at the caller's operator side and/or at the service-hosting side. The transferred tariff information represents direct tariff or add-on charge, either in non-monetary units (e.g. meter-pulse) or in monetary-units (e.g. currency).

Requirements can be found in TS 181 005 [16] V2.4.1.

Examples can be found in annex ZB.

Functional enhancements of IMS functional entities

An AS providing AoC must be capable of sending AoC-information to the UE, according to TS 183 047 [13]. AoC-information consists of tariff-related information plus further AoC-related parameters.

When an AS providing AoC needs to send AoC-information to a UE of the same domain, it retrieves tariff information, adds further AoC-related information, and maps the complete AoC-information onto SIP in order to send AoC information to the UE.

When tariff information needs to be sent downstream, the AS retrieves tariff information and maps this information into SIP, which is then transferred according to TS 183 058 [17].

When tariff information is received through an interconnection interface according to ES 201 296 [14], the AS providing AoC retrieves the tariff information from SIP and transfers it into AoC information.

The **MGCF** maps tariff information from SIP into ISUP (APM) and vice versa. It can also filter tariff information.

An **IBCF** can filter tariff information exchanged between two IMS or between a TISPAN IMS and a PES.

Offline Charging modifications

For interconnection scenarios where the caller's network does not have the tariff information of a service which is located in a different network, the price that the end user has to pay for that service must be available in an appropriate optional CDR-parameter at the service-hosting side (called network or called service provider). The transferred tariff information may be also stored at the originating network side.

Therefore, a new parameter which reflects the tariff (for example "Cost information") has to be added to offline charging AVPs and CDRs created by AS, IBCF, S-CSCF, MGCF as an optional parameter.

A new IBCF CDR needs to be defined, in order to collect charging and accounting information as closest as possible to the interconnection point.

Clause 3.1

3.1 Definitions

Add the following text:

add-on charge: single additional charge which does not change the current tariff. An add-on charge can either be metered in non-monetary units (e.g. meter pulse) or in monetary-units (e.g. currency).

Charge Determination Point (CDP): determines which tariff/add-on charge should be applied, and that inserts the tariff information to the appropriate SIP requests or responses. Example of a CDP is a SIP AS at the visited network providing the premium rate service.

Charge Generation Point (CGP): receives the tariff information that was added by a CDP and transferred in the appropriate SIP requests or responses. Example of a CGP is an originating SIP AS at the home network for advice of charge purposes.

Charging Trigger Function (CTF): generates charging events based on the observation of network resource usage. CTF is the focal point for collecting the information pertaining to chargeable events within the network element, assembling this information into matching charging events, and sending these charging events towards the Charging Data Function (offline charging) or Online Charging Function (online charging).

Charging Data Function (CDF): receives charging events from the Charging Trigger Function. It then uses the information contained in the charging events to construct CDRs.

Online Charging Function (OCF): receives charging events from the Charging Trigger Function. It then uses the information contained in the charging events for online charging purposes.

Tariff: set of parameters defining the network utilization charges for the use of a particular bearer / session / service. A tariff can either be metered in non-monetary units (e.g. meter pulse) or in monetary units (e.g. currency).

Global modifications to 3GPP TS 32.260 Release 7

Throughout the text of 3GPP TS 32.260 Release 7

The references listed in the table below are replaced by references applicable to NGN.

Reference no.	Reference in 3GPP TS 32.260	Applicable reference in the present document
[1]	3GPP TS 32.240	The present document
[50]	3GPP TS 32.299	The present document
[51]	3GPP TS 32.298	The present document
[52]	3GPP TS 32.297	The present document
[103]	3GPP TS 23.002	ES 282 007 [18]
[204]	3GPP TS 24.229	ES 283 003 [10]
[201]	3GPP TS 23.228	TS 182 006 [11]

Global modifications to 3GPP TS 32.297 Release 7

Throughout the text of 3GPP TS 32.297 Release 7

The references listed in the table below are replaced by references applicable to NGN.

Reference no.	Reference in 3GPP TS 32.297	Applicable reference in the present document
[1]	3GPP TS 32.240	The present document
[50]	3GPP TS 32.299	The present document
[51]	3GPP TS 32.298	The present document

The specifications described here are completely applicable.

Global modifications to 3GPP TS 32.298 Release 7

Throughout the text of 3GPP TS 32.298 Release 7

The references listed in the table below are replaced by references applicable to NGN.

Reference no.	Reference in 3GPP TS 32.298	Applicable reference in the present document
[1]	3GPP TS 32.240	The present document
[20]	3GPP TS 32.260	The present document
[40]	3GPP TS 32.299	The present document
[42]	3GPP TS 32.297	The present document
[79]	3GPP TS 24.229	ES 283 003 [10]

Bearer Level CDRs are not supported (clauses 5.1.2 and 5.2.2).

Service Level CDR parameters (clauses 5.1.4 and 5.2.4) are not supported.

Global modifications to 3GPP TS 32.299 Release 7

Throughout the text of 3GPP TS 32.299 Release 7

The references listed in the table below are replaced by references applicable to NGN.

Reference no.	Reference in 3GPP TS 32.299	Applicable reference in the present document
[1]	3GPP TS 32.240	The present document
[201]	3GPP TS 23.228	TS 182 006 [11]
[202]	3GPP TS 24.229	ES 283 003 [10]
[204]	3GPP TS 29.229	TS 183 033 [12]

AVPs belonging to the excluded CDR-parameters from 3GPP TS 32.298 are not used.

Global modifications to 3GPP TS 32.260, 3GPP TS 32.298, 3GPP TS 32.299

The 3GPP specifications TS 32.260, TS 32.298 and TS 32.299 have to be modified according to the global modifications of TS 32.240 described above.