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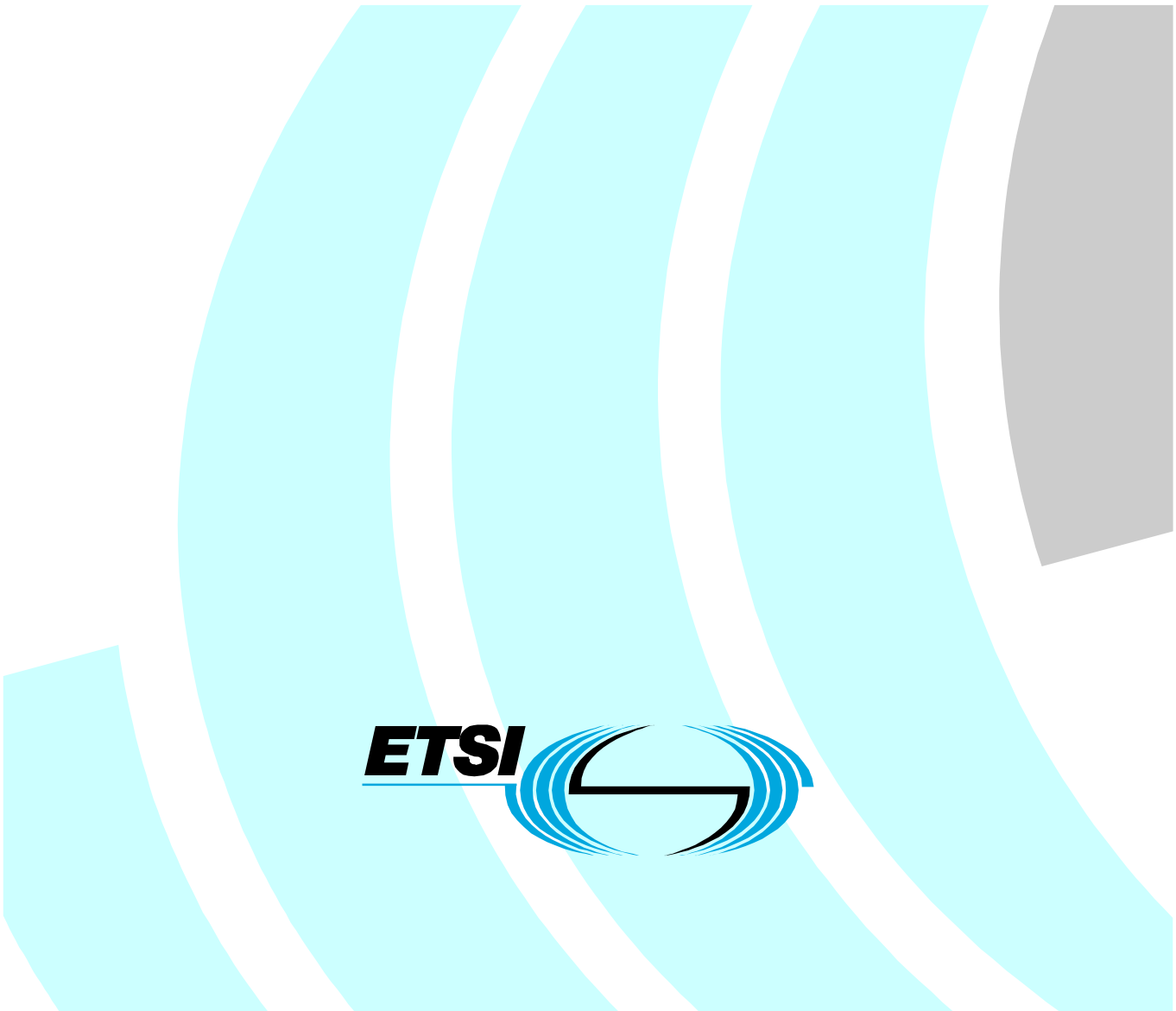
ETSI Standard

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

[Endorsement of 3GPP TS 32.240 v6.3.0, 3GPP TS 32.260 v6.3.0, 3GPP TS 32.297 v6.1.0, 3GPP TS 32.298 v6.1.0 and 3GPP TS 32.299 v6.4.0 modified]



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Contents

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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 1. It is based on the endorsements of several 3GPP charging specifications. Annex ZA contains some 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.

For NGN Release 1, the present document is applicable to offline charging derived from the IMS and application servers only.

The Stage 1 requirements for charging are derived from TS 181 005.

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.

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

ETSI TS 132 240: "Universal Mobile Telecommunications System (UMTS); Telecommunication management; Charging management; Charging architecture and principles (3GPP TS 32.240 version 6.3.0 Release 6)".

ETSI TS 132 260: "Universal Mobile Telecommunications System (UMTS); Telecommunication management; Charging management; IP Multimedia Subsystem (IMS) charging (3GPP TS 32.260 version 6.3.0 Release 6)".

ETSI TS 132 297: "Universal Mobile Telecommunications System (UMTS); Telecommunication management; Charging management; Charging Data Record (CDR) file format and transfer (3GPP TS 32.297 version 6.1.0 Release 6)".

ETSI TS 132 298: "Universal Mobile Telecommunications System (UMTS); Telecommunication management; Charging management; Charging Data Record (CDR) parameter description (3GPP TS 32.298 version 6.1.0 Release 6)".

ETSI TS 132 299: "Universal Mobile Telecommunications System (UMTS); Telecommunication management; Charging management; Diameter charging applications (3GPP TS 32.299 version 6.4.0 Release 6)".

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

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

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

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 (Release 7), modified]".

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)".

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]".

Endorsement notice

The present document, in conjunction with 3GPP TS 32.240 version 6.3.0, 3GPP TS 32.260 version 6.3.0, 3GPP TS 32.297 version 6.1.0, 3GPP TS 32.298 version 6.1.0 and 3GPP TS 32.299 version 6.4.0 provides the specifications for NGN charging.

Throughout the text of 3GPP TS 32.240 V6.3.0

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 in the text of Online Charging (in particular clauses 4.1.2, 4.3.2, 4.4.2, 4.5.2, 5.2.2 and 5.5.2) are not included.

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 not included.

Concerning clause 5.3.4.3, only type 2 IOI is provided.

Throughout the text of 3GPP TS 32.260 V6.3.0

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
[204]	3GPP TS 24.229: " IP Multimedia Call Control based on SIP and SDP; Stage 3"	ES 283 003
[201]	3GPP TS 23.228	TS 182 006

All occurrences in the text of Online Charging (in particular clauses 4.3, 5.3 and 6.2,) are not included.

The ACID (clause 5.1.2.5 and annex A) is not provided.

Throughout the text of 3GPP TS 32.297 V6.1.0

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.

Throughout the text of 3GPP TS 32.298 V6.1.0

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: " IP Multimedia Call Control based on SIP and SDP; Stage 3"	ES 283 003

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.

Throughout the text of 3GPP TS 32.299 V6.4.0

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
[202]	3GPP TS 24.229: " IP Multimedia Call Control based on SIP and SDP; Stage 3"	ES 283 003
[204]	3GPP TS 29.229	TS 183 033

Online Charging scenarios (clauses 5.2, 5.3, 6.3 and 6.4) are not supported.

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

Annex ZA (informative): Additional information on 3GPP Charging

ZA.1 3GPP Standardization

3GPP provides technical specifications globally applicable for 3G mobile system. The technical specifications are listed in clause "reference".

But in fact, these specifications are not limited to 3G mobile communication. Since session and application layer are both bearer- and access independent, the session handling (IMS domain) works for both mobile and fixed environment.

ZA.2 Gap Analysis of 3GPP TS 32.240 and 3GPP TS 32.260

Charging in TISPAN Release 1 is limited to offline charging only. The 3GPP charging architecture and principles are appropriate to cover the charging requirements of TISPAN Release 1.

Online charging, flow-based charging, as well as other probable charging principles are not supported in TISPAN Release 1.

ZA.3 TISPAN Release 1 Charging

Unless stated explicitly, the functional entities and interfaces identified in this clause are identical to those defined in 3GPP TS 32.240, 3GPP TS 32.260, 3GPP TS 32.298 and 3GPP TS 32.299. Except when highlighting explicitly a difference, the descriptions provided in the present document are intended to provide tutorial information only and in case of discrepancy with the definitions in 3GPP TS 32.240, 3GPP TS 32.260, 3GPP TS 32.298 and 3GPP TS 32.299 the definitions in 3GPP TS 32.240 and 3GPP TS 32.260, 3GPP TS 32.298 and 3GPP TS 32.299 shall take precedence.

ZA.4 IMS Offline Charging architecture (overview)

The offline charging functionality is based on the IMS network nodes reporting accounting information upon reception of various SIP methods or ISUP messages, as most of the accounting relevant information is contained in these messages.

The following figure shows the nodes that are involved in the off-line charging chain and an example offline charging scenario. For the information on other supported offline charging scenarios refer to 3GPP TS 32.240 and 3GPP TS 32.260.

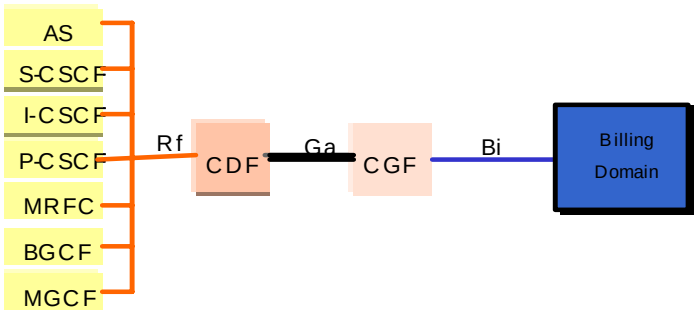

Figure 1: Overall offline charging architecture

The IMS charging architecture specifies that for offline charging all communications between the network entities and the CDF are carried out on the **Rf** interface. The Rf-interface is the reference point between the CTFs of the IMS nodes and the CDF, where Diameter Accounting Messages are conveyed to the CDF (see 3GPP TS 32.260 and 3GPP TS 32.299). The CTF of an IMS node is the client of the Diameter Accounting Application, as defined in 3GPP TS 32.299.

The CDF receives the accounting messages and creates Charging Data Records (CDR) for each source within the IMS (i.e. S/P/I-CSCF, MRFC, AS etc.). CDRs are transmitted to the Billing Domain via the Bi Interface. For further information see 3GPP TS 32.298.

The correlation of charging information for an IMS session can be based on the use of IMS Charging Identifiers (ICID). The ICID is conveyed by the SIP P-charging vector header, as described in RFC 3455.

ZA.5 Service Charging

Services which are in the scope of TISPAN Release 1 can be charged by using the IMS charging architecture and the existing CDR layouts as described in 3GPP TS 32.240, 3GPP TS 32.260, 3GPP TS 32.298 and 3GPP TS 32.299.

Service charging can be based on the AS-CDR, as described in 3GPP TS 32.260 and 3GPP TS 32.298. This CDR contains (among others) service-specific parameters, for example the 'Service Specific Data', as well as SDP-based media descriptions and the addresses of both calling party and called party.

ZA.6 Inter Operator charging

Various interconnection scenarios can occur in TISPAN Release 1. These scenarios are described within ES 282 007. This means that there is a need to have inter operator charging. To support inter operator charging the inter network correlation and Inter Operator Identifier (IOI) concepts of 3GPP TS 32.240 can be used.

For inter operator charging it is important to be able to identify the operators involved into the charging. Within legacy networks, the trunk-group IDs can be used to identify the respective operators. In order to identify operators with interconnection between two IMS-networks, between IMS and PES, or between an IMS and a legacy system, the values of IOI (Inter Operator Identifier) can be used for this purpose.

The existing CDRs of S-CSCF and P-CSCF can be used as a base for inter operator charging. In case the Trunc-Group-IDs are needed, their values can be retrieved from the MGCF CDR.

Limitations: For the Interconnection Border Control Function (IBCF) no CDR has been defined in Release 1.

History

Document history		
V1.1.1	March 2006	Membership Approval Procedure MV 20060526: 2006-03-28 to 2006-05-26
V1.1.1	June 2006	Publication