



1200 G Street, NW
Suite 500
Washington, DC 20005
www.atis.org

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Alain Bibas and Karl-Heinz Nenner
3GPP SA5 SWG-B (Charging) Co-Chairs
alain.bibas@francetelecom.com
karl-heinz.nenner@t-mobile.net

RE: TMOC Response to 3GPP Liaison S5-054770 -- Harmonization

Dear Alain and Karl-Heinz:

Thank you for your liaison to TMOC: S5-054770, *LS response on NGN charging and billing*, Sept 12, 2005 (approval date). TMOC shares your positive assessment of the harmonization possibilities.

The attached document (entitled *Proposed ATIS-TMOC / 3GPP-SA5 Accounting Management Harmonization Roadmap*) represents TMOC's initial detailed response. It includes your input and provides a harmonization analysis and proposed harmonization roadmap. Section 3 contains the proposed roadmap and work plan.

As suggested by ITU-T SG4, TMOC would like to move beyond sending liaison letters and establish more direct means of communication between the TMOC Accounting Management Task Force and 3GPP-SA5. Therefore, TMOC suggests monthly teleconferences as well as a few face-to-face meetings (as needed) to make progress in this harmonization effort. It is proposed to kick off the harmonization work with a teleconference, proposed for the last week of November, 2005. During that call, we should agree on a harmonization work plan. **If you agree, please contact me as soon as possible so we can set the arrangements for the initial conference call**; email is preferred, but feel free to call me, my phone number is 1-303-896-3618.

With our mutual positive outlook on harmonization, and with the positive analysis to support it, TMOC has a high degree of confidence that we can achieve a harmonized solution to meet the needs of industry stakeholders.

Best regards,

Mike Fargano
TMOC Chairman

Cc:
Hannu Hietalahti, 3GPP TSG CN Chair (hannu.hietalahti@nokia.com)
Dave Sidor, ITU-T SG4 Chair
Ron Roman, TMOC Vice Chair
Kam Lam, TMOC-AIP Vice Chair
Tal Givoly, TMOC-AIP AccMgt TF Chair
Amit Kleinmann, TMOC-AIP AccMgt Tech Editor
Steve Cotton, TMOC-AIP AccMgt Tech Editor
Steve Barclay, ATIS/Secretariat
Jean-Paul Emard, ATIS/Secretariat

**Telecom Management and
Operations Committee
(TMOC)**

Michael J. Fargano
Chairman
michael.fargano@qwest.com

Ronald C. Roman
Vice Chairman
rroman@telcordia.com

Jean-Paul Emard
ATIS Director, Industry Forums
+1 202-434-8824
jpemard@atis.org

Susan Carioti
ATIS Manager
scarioti@atis.org

Steve Barclay
ATIS Manager
sbarclay@atis.org

*"Developing Standards
that Drive the Business
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Information Technology"*

TMOC-AIP-2005-065R3

CONTRIBUTION TO ATIS STANDARDS PROJECT — TMOC-AIP (T1M1.5)

TITLE: Proposed ATIS-TMOC / 3GPP-SA5 Accounting Management Harmonization Roadmap

SOURCE: ATIS-TMOC/AIP Accounting Management Task-force

DATE: November 2, 2005

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ABSTRACT: This document contains a suggested roadmap for harmonization of the Accounting Management work of TMOC AIP VoIP with the corresponding work of 3GPP on accounting management. It was written as a response to the 3GPP SA-5 liaison document [3] and the ITU-T SG4 Liaison Statements [10].

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1 INTRODUCTION

1.1 OVERVIEW

This document suggests a road map for harmonization of accounting management specifications of ATIS-TMOC-AIP with the corresponding specifications of 3GPP SA5.

Section 1 of this document primarily surveys the current situation and past liaisons and their annotated analysis. Section 3, “Harmonization Roadmap” is a response to 3GPP SA-5 liaison document [3] and also includes a timeline and method for the harmonization work in response to ITU-T SG4 liaison statements [10].

1.2 TERMINOLOGY

- BD = Billing Domain
- Bi = Charging data collection interface between a CCF and a BS
- Bp = Charging data collection interface between a CGF and a BS
- BS = Billing System
- Bx = Reference point for CDR file transfer between any (generic) 3G domain, subsystem or service CGF and a BD.
- CCF = Charging Collection Function
- CDF = Charging Data Function
- CDR = Charging Data Record
- CGF = Charging Gateway Function
- CTF = Charging Trigger Function
- FRA = Functional Requirement and Architecture
- FGNGN = Focus Group on NGN
- Ga = Charging data collection interface between a CDR transmitting unit and a CDR receiving functionality (e.g., CGF)
- NGN = Next Generation Networks
- NGNMFG = NGN Management Focus Group
- OCS = Online Charging System
- Rf = Offline charging reference point between a 3G network element and the CDF
- Ro = Online charging reference point between a 3G network element and the OCS

2 RECOUNT OF ACTIVITIES

2.1 NGNMFG RECOMMENDATION TO THE ITU-T SG-4

Several submissions to the NGNMFG proposed specific TMOC and SA5 specifications as candidates to support NGN Management. Clause 7.2.5 of the NGN FRA draft specification identifies the charging and billing functional entities that any NGN charging and billing specification is required to support. Based on a discussion of these documents the NGNMFG has come to the following conclusions:

- The identified 3GPP SA5 specifications for IMS appear to support the NGN offline and online charging and billing specifications in the FRA document.
- The identified ATIS TMOC specifications appear to support the NGN offline charging and billing specifications in the FRA document.
- Both sets of charging and billing specifications should be accepted into the NGN Management Roadmap with the understanding that they need to be "harmonized".

On July 28th 2005, the NGNMFG sent a liaison [1] to ATIS TMOC and to 3GPP SA5, asking them to consider harmonization of their specifications where “harmonization may range from ensuring their specifications do not overlap each other in an incompatible fashion, to working jointly towards one common specification”.

ITU-T SGs 4 and 13 and ETSI TISPAN WG8 (which have work items related to NGN charging and billing) were copied on this liaison as well.

On September 7th the NGNMFG populated the Release 2 NGN Management Roadmap [2] identifying the management specifications relevant to NGN management. [2] lists the existing specifications which the NGNMFG agreed to offer to the September 2005 meeting of ITU-T SG4 as candidates for a suite of management specifications.

Section 4.3 (specifications for the management of NGN functions) of this roadmap document [2] mentions the ATIS TMOC Usage Data Management specifications for Service Stratum.

In section 4.2 (generic telecommunications management specifications reused for NGN), subcategory accounting, the specific ATIS documents (ATIS-0300075-2005 Usage Data Management for Packet-Based Services - Service-Neutral Architecture and Protocol Requirements and ATIS-0300075.1-2005 Usage Data Management for Packet-Based Services - Service-Neutral Protocol Specification for Billing Applications) are mentioned.

Section 6.3 (harmonization Issues - Accounting Management - 3GPP Charging and TMOC Usage Data Management specifications) of [2] calls for harmonization of the ATIS-TMOC documents with the 3GPP work.

2.2 COMPARISON BETWEEN THE ARCHITECTURE AND TERMINOLOGY OF FRA AND TMOC

SA5 has organized its (offline and online) charging specifications such that:

- TS 32.240 [7] describes the commonly applicable charging architecture and principles
- “middle tier” specifications 32.250 to 32.273 [8] specify the mapping of the architecture and principles onto the specific bearer, service or subsystem

- the 32.29x [9] specifications describe commonly applicable protocol applications.

The middle tier specifications, of which IMS charging (TS 32.260) is considered most applicable to the subject matter of this document, are technology specific whereas all remaining specifications can be considered technology independent in terms of no existing linkage to particular systems or services.

Section 6.2.5.1 of the FGNGN FRA version 5 document [4] describes the CTF, "a necessary component in all network elements that provide offline-charging functionality."

The CTF generates charging events (based on the observation of network resource usage) and sends them towards the CCF.

Section 6.2.5.2 of the same document [4], describes how the CCF uses the information contained in the charging events it receives from the CTF to construct CDRs that are later transferred to the billing domain.

CCF can be further defined as CDF and CGF. The Interface between CDF and CGF is for CDRs sent from CDF to CGF, and for acknowledging the CDRs returned from CGF to CDF.

According to the TMOC-AIP RDC&P Reference Model described in [5] (see the charging architecture and information flows described in [7] and figures 1 & 2 below):

- the (Rf) interface between the CTF and the CCF is termed: "Interface A".
- the (Ga) interface between the CDF and the CGF is termed: "Interface B".
- the (Bx) interface between the CCF and the billing domain is termed: "Interface D".

The TMOC-AIP Protocol Specification document [6] suggests utilizing a specific streaming protocol and an information model based on XML (that is mapped to XDR for transport efficiency) for both the A interface, the D interface and optionally the B interface.

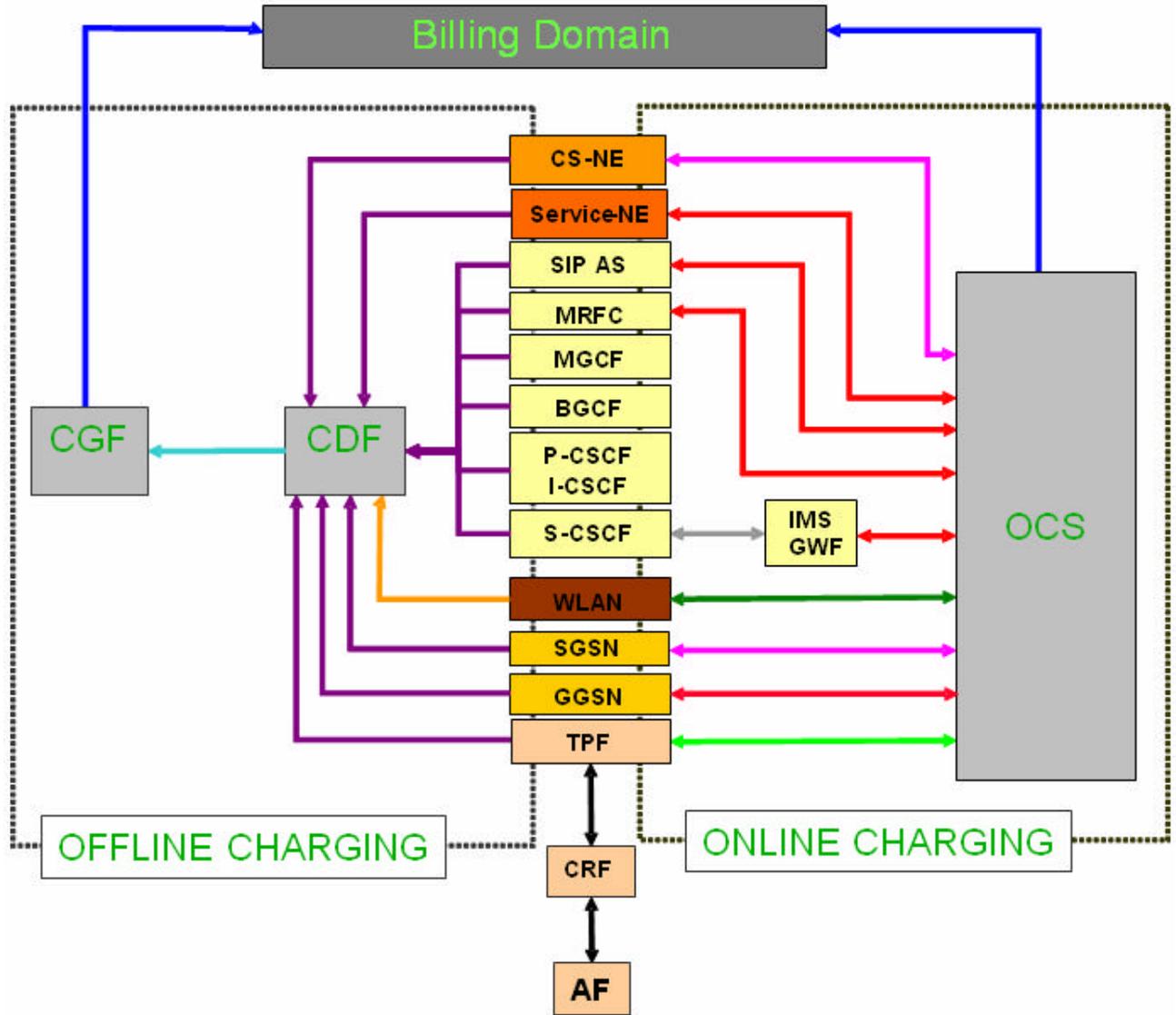


Figure 1: Logical ubiquitous charging architecture and information flows (source [7]).

2.3 3GPP TSG-SA5 LS RESPONSE ON NGN CHARGING AND BILLING

2.3.1 3GPP TSG-SA5 ANALYSIS

3GPP SA5 analyzed the specifications and liaison letters included in [1] and made the following conclusions (see [3]):

- there appears to be alignment in terms of functional charging architecture between 3GPP SA5 [8], ATIS TMOC [5] and NGNMFG [4],
- there appears to be functional equivalence between 3GPP’s interfaces Rf, Ga and Bx, and ATIS TMOC’s “A”, “B” and “D”, respectively (see figure 2).
- in terms of data definition and formats, there appears to be no overlap between SA5 Rel-6 “middle tier” charging specifications and the ATIS specifications referred to in the LS;

- the applications and protocols used on the interfaces listed in bullet item 2 are incompatible between ATIS and 3GPP;
- it is at present not clear if there is any analogy in ATIS TMOC for the common Ro interface for online charging specified in SA5, i.e. the discussion currently covers only offline charging.

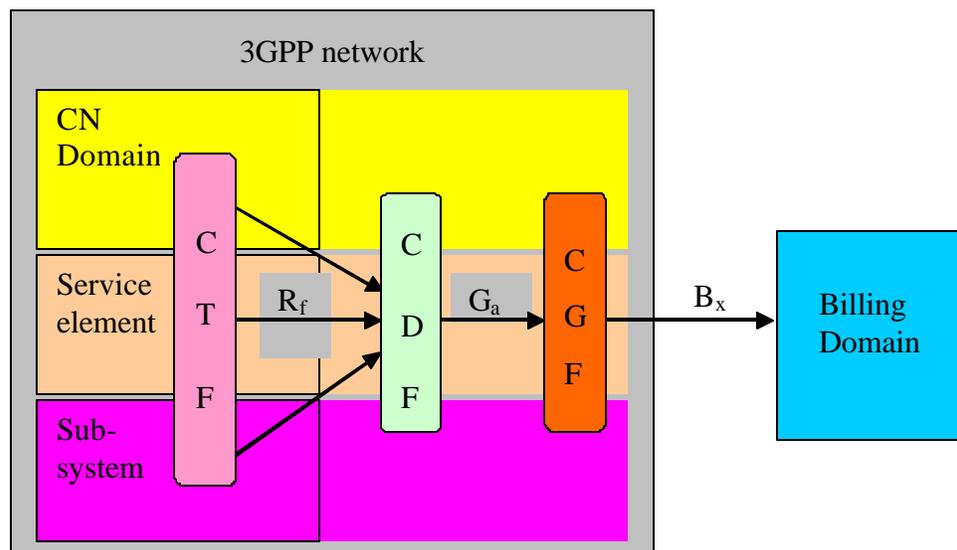


Figure 2: Logical ubiquitous offline charging architecture (source [7])

2.3.2 3GPP SA5 PROPOSAL

3GPP SA5 proposes the following steps:

- SA5 to consider the use of TMOC’s solutions for “B” interface in the Rel-7 work plan for 3GPP charging, as Ga (“B”) is currently GPRS specific and a generic solution for Rel-7 is under discussion;
- SA5 to consider for its Bx interface the use of TMOC’s solutions for “D” interface for the Rel-7 work plan for 3GPP charging, as Bx (“D”) is under discussion for an extension towards XML after Rel-6;
- Concerning Rf, SA5 has no plans for any changes from the current Diameter based solution, so it would be left to ATIS TMOC’s discretion to investigate the use of Diameter base for “A”, in line with Rf if alignment is sought in that area;
- the situation for online charging should be clarified, where SA5 suggest the use of DCCA for TMOC if alignment is sought in that area.

Concerning the data definitions and formats, there are considerations in SA5 to describe the use of the generic IMS CDRs for specific IMS based services such as VoIP. If this item is added to the Rel-7 work plan, then ATIS TMOC specifications would be considered if possible / agreed by ATIS in areas where such additional SA5 work would create overlap with ATIS TMOC specifications.

2.4 THE OUTCOME OF THE ITU-T SG-4 DISCUSSION IN GENEVA ON SEP 2005

Following the ITU-T SG4 meeting in Geneva, 20-30 September 2005, ITU-T SG4 sent Liaison Statements [10] to TMOC-AIP-AccMgt TF and to 3GPP (ITU-T SG 13 was CCed as well) This [10] LS:

1. Requested ATIS TMOC to
 - Coordinate with 3GPP, the Harmonization of Accounting, Charging and Billing
 - Provide a Status Response to SG4 at a later date. May first 2006 was specified as a deadline.
2. Encouraged ATIS TMOC and 3GPP SA5 to move beyond the sending liaisons type of relationship and consider using other means such as teleconferences or face-to-face meetings to make progress.
3. Guided ATIS TMOC and 3GPP SA5 to:
 - Decompose the area into its components pieces:
 - Requirements
 - Architecture
 - Protocol-neutral information models
 - Protocol and protocol-specific information models
 - Compare the two solutions for each of the components.
4. Suggested to consider two levels of harmonization:
 - **Conceptual harmonization:** the minimum level of harmonization where there are no points of contradiction between the two specifications and there is general alignment.
 - **Shared text harmonization:** the ultimate goal of harmonization where either two documents share the exact same text or both organizations use the same document.
5. Asked ATIS TMOC and 3GPP SA5 to:
 - Reach agreement on what the end goal of this harmonization is.
 - Set a timeline for this harmonization work accordance with the NGN Release 1 (which requires a harmonized accounting, charging and billing solution).

3 HARMONIZATION ROADMAP

3.1 ISSUES IN AGREEMENT

1. ATIS TMOC agrees with the 3GPP SA5 analysis of the specifications and liaison letters included in [1] as described in section 2.3.1 above.
2. ATIS TMOC wishes to clarify that at present there is no analogy in ATIS TMOC for the common Ro interface for online charging specified by SA5. ATIS TMOC has not had requirements and, hence, has not specified accounting management functions for online charging. Should ATIS TMOC consider such requirements, it will strongly consider using 3GPP SA5 DCCA.
3. ATIS TMOC welcomes 3GPP SA5 willingness to consider:
 - a. the use of TMOC's solutions for:
 - i. "B" interface for its Ga interface in the Rel-7 work plan for 3GPP charging
 - ii. "D" interface for its Bx interface in the Rel-7 work plan for 3GPP charging
 - b. the description of the data definitions and formats according to ATIS TMOC service specifications (in areas where the 3GPP SA5 work would create overlap with ATIS TMOC specifications) e.g., the use of the generic IMS CDRs for specific IMS based services such as VoIP (if this item is added to the Rel-7 work plan for 3GPP charging).

3.2 HARMONIZATION REGARDING THE "A" (RF) INTERFACE

As mentioned in section 2.3.2 concerning the "A" ("Rf") interface, SA5 indicated it "has no plans for any changes from the current Diameter based solution". Therefore, it is suggested that a dialog about how to harmonize this remaining issue be conducted as part of this harmonization effort with a timeline and structure suggested below.

3.3 TIMELINE & STRUCTURE

As suggested by ITU-T SG4 in [10], ATIS-TMOC would like to move beyond sending liaison letters, and establish more direct means of communication between the ATIS-TMOC Accounting Management Task-force and 3GPP-SA5. Therefore, ATIS-TMOC suggests a monthly teleconferences as well as few face-to-face meetings (as needed) to make progress in this harmonization effort.

It is hereby proposed to kick off the harmonization work with a teleconference, proposed for the last week of November, 2005. During that call, we should agree on a harmonization work plan, which might include, pending further discussion:

1. Establish monthly conference calls (by November 30, 2005).
2. Determine end goal of harmonization effort (by December 31, 2005).
3. Face-to-face kick-off meeting at a location and time to be determined (perhaps during January, 2006).
4. Agree on decomposition of the area into its components pieces (February, 2005).
5. Complete "conceptual harmonization" (as suggested in [10]) – March, 2005.
6. Determine if "shared text harmonization (as suggested in [10]) is feasible – April, 2005.

7. Complete harmonization work – May, 2005.

4 REFERENCES

- [1] Liaison Statement to ATIS TMOC and 3GPP SA5 (copy to SG 4, SG 13, and TISPAN WG8) on NGN charging and billing, from NGNMFG, NGNMFG-OD-008 / S5-050424r1
- [2] NGN Management Specification Roadmap, NGNMFG-OD-013-R2, 7 September 2005
- [3] LS response on NGN charging and billing, NGNMFG-ID-101, Virtual meeting, 7 September 2005, 3GPP TSG-SA5 (Telecom Management) S5-054770, Meeting #43, Bordeaux, FRANCE, 29 Aug - 2 Sep 2005
- [4] FGNGN FRA version 5, FGNGN-OD-00146
- [5] Usage Data Management for Packet-Based Services - Service-Neutral Architecture and Protocol Requirements TMOC-AIP-2005-024R10 (ATIS-0300075)
- [6] Usage Data Management for Packet-Based Services - Service-Neutral Protocol Specification for Billing Applications, TMOC-AIP-2005-046R6 (ATIS-0300075.1-2005)
- [7] 3GPP SA5 TS 32.240 V6.0.0 (2004-09)
- [8] 3GPP “middle tier” specifications 32.250 to 32.273
- [9] 3GPP commonly applicable protocol applications 32.29x
- [10] Liaison Statement to ATIS TMOC and 3GPP SA5 (copy to SG 13) Accounting, Charging and Billing Harmonization, from ITU-T SG4, number COM 4-LS 040, 20-30 September 2005.