Technical Specification Group Services and System Aspects **TSGS#21(03)0527**

Meeting #21, Frankfurt/Main, Germany, 22-25 September 2003

Title:	**Inter-network accounting for BS30 based services such as video telephony**
Source:	**T-Mobile, Vodafone**
To:	**TSG CN, TSG SA**
Document for:	**discussion and decision**
Agenda item:	**7.12? (CN), 7.6 (SA)**

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1. Introduction

In May 2003, GSMA SerG sent out an LS on *video telephony* (SerG Doc 153/03) to SA1 (S1-030676), SA2 (S2-032338) and SA5 (S5-034414) stating that:

- most emerging Rel99 compliant networks intend to launch CS based video telephony,
- the current charging architecture wouldn't support the identification of user rate and user protocol at the interconnection point for *charging* purposes (this actually should read "... for *inter-network accounting* purposes").

The LS then requested SA1 to add some text to section 4.3.3 *Interconnect Charging Requirements* of TS 22.115 *Charging and Billing*; note that this section 4.3.3 exists only in the Rel-5 and Rel-6 versions of TS 22.115:

> "For traditional circuit switched interconnection a capability is required to charge according to user rate and user protocol so that e.g. the identification of CS video telephony at the interconnection point for charging purposes becomes possible."

Moreover, the LS asked SA5 to "assess the feasibility to implement this as soon as possible".

In SA1's response (S1-030979) to this LS, GSMA SerG is informed that SA1 has prepared a CR to TS 22.115 version 6.1.0 (S1-030976) to be tabled at SA#21 for approval, adding slightly modified text to section 4.3.3 of TS 22.115:

> "For circuit switched interconnection a capability is required to enable charging to be performed according to user rate and user protocol so that e.g. the identification of CS video telephony at the interconnection point for charging purposes becomes possible."

SA5 has also responded to GSMA SerG's LS (S5-034450) but SA5 were apparently confused by the emphasis given to *charging* (as opposed to *accounting*) in the original GSMA SerG LS:

> In conjunction with the reply to SerG from 3GPP SA1 (S1-030979), SA5 states that the serving MSC provides details of the Bearer Service, user data rate and codec in both Mobile Originated and Mobile Terminated CDRs. However, SA5 is not able to confirm whether the said details are able to fulfil the requirements of GSMA SerG as expressed in LS S5-034413/SerG Doc 153/03. SA5 invite GSMA SerG to evaluate this issue and convey to SA5 any additional requirements.

It seems that GSMA SerG has not yet responded to this LS from SA5.

Indeed, all information necessary for *individual subscriber charging* can be captured in existing CDRs at the Visited MSC; however, there is currently no way that the Gateway MSC (if not the same physical node as the VMSC) could capture video telephony specific information (and, more generally, information about BS30 based services) in interconnection CDRs for *inter-network accounting* purposes, due to lack of appropriate signalling between the VMSC and the GMSC.

Finally, SA2 has decided to wait for SA1's response to this GSMA SerG LS as this issue would be in the SA1 area at the moment. SA2 have therefore simply noted the LS from GSMA SerG.

To speed up the process and to avoid additional LSs back and forth asking for and providing clarifications on the subject, this document gives some explanations.

2. Discussion

With BS30 services, there is an obvious need to support inter-network accounting (for both cases: between mobile operators directly and between mobile operators and fixed operators) which is different from today's common GSM practice for fixed to mobile CS calls. So far, the mobile termination interconnect charges applied are effectively based on the 4 * 16 kbit/s submultiplexing scheme applied within the PLMN with appropriate transcoding/rate adaptation – no matter what is carried inside an incoming 64 kbit/s ISDN stream, be it voice, fax or data, it uses the same bandwidth on the radio interface, and as a result of this, the same mobile terminating interconnect charge for fixed→mobile CS calls can be applied. This however is no longer true for BS30 based services such as video telephony, where substantially more bandwidth is needed inside the PLMN (and in particular on the radio interface) to carry the call.

Now, fixed and mobile network operators in principle are prepared for that, but the problem is that this information is visible at the VMSC but not necessarily by the GMSC. The information available at the GMSC depends on what is signalled from the fixed network side as fixed network BC/LLC, what is possibly negotiated via inband signalling between the endpoints and where interconnection-related information is captured. Some mobile operators generate interconnection records at the GMSC, and in this case no knowledge about the BS30 specifics (as known by the VMSC) is available at the GMSC, hence the GMSC interconnection records cannot be adjusted. In addition, there is also no way to carry this information across the PLMN/ISDN interface to the connected fixed network operator to allow for autonomous interconnection record creation on the fixed network side.

The latter issue (appropriate signalling between PLMN and ISDN for that purpose) clearly has to rely on the applicable ISDN specifications and as such is definitely outside 3GPP's scope.

For the first issue however (the VMSC to GMSC leg) one potential solution which is under discussion is to make use of some unused "spare" or "national use" ISUP message fields, for instance the *Optional Backward Call Indication* contained in the ACM or ANM message. There are four unused bits, bits H-E, which of course are nowhere near enough for the full BC, but they could at least carry an appropriate indication. So one way to resolve the issue is to create an appropriate CR to TS 29.007 specifying some optional signalling to be eventually agreed between directly connected PLMNs. There may of course be other appropriate ways to accomplish this inside a PLMN. In any case, a 3GPP standardized solution which can also be used for directly interconnected PLMNs is highly desirable.

The SA1 CR to TS 22.115 (S1-030976) is a *Rel-6* Change Request. However there is a clear need to have a solution already available in earlier releases than Rel-6. It is therefore proposed, given a Rel6 solution can be provided, that the corresponding Rel-5 and Rel-4 CRs are drafted and approved.

Once an appropriate signalling solution exists SA5 could then review and amend the specifications of the Gateway MSC interconnection records defined in TS 32.205 (Rel-4 and Rel-5) and TS 32.250 (Rel-6).

3. Requested actions

To TSG CN: to discuss this topic and to instruct CN3 to develop a suitable signalling solution for Rel-4, Rel-5 and Rel-6.

To TSG SA: to support this request, to instruct SA1 to draft Rel-4 and Rel-5 versions of the CR to TS 22.115 which has already been agreed in SA1, and to instruct SA5 to draft appropriate amendments to TS 32.205 (Rel-4 and Rel-5) and TS 32.250 (Rel-6).