Source: **SA1**

Title: **CR to TS 22.115 on roaming awareness for charging (Rel-6)**

Document for: **Approval**

Agenda Item: **7.1.3**

SA Doc	Spec	CR	Rev	Phase	Cat	Subject	Old Vers	New Vers	SA1 Doc
SP-030023	22.115	010	1	Rel-6	B	CR to 22.115 on roaming awareness for charging	5.2.0	6.0.0	S1-030286

CR-Form-v7

CHANGE REQUEST

22.115	CR	010	rev	1	Current version:	5.2.0

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ✍ symbols.*

Proposed change affects: UICC apps ☐ ME ☐ Radio Access Network ☐ Core Network ☒

Title:	Roaming awareness for charging via HPLMN components
Source:	SA1 (T-Mobile)
Work item code:	OAM-CH
Date:	24/02/2003
Category:	**B**
Release:	Rel-6

Use one of the following categories:
- ***F*** *(correction)*
- ***A*** *(corresponds to a correction in an earlier release)*
- ***B*** *(addition of feature),*
- ***C*** *(functional modification of feature)*
- ***D*** *(editorial modification)*

Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	The mechanism to charge a subscriber based on TAP records received by the HPLMN from the VPLMN will not work anymore in case that the service logic is "owned" by the HPLMN (e.g. MMS/IMS): In these cases the service actually invoked by the subscriber will be transparent to the VPLMN and consequently TAP records created by the VPLMN cannot provide sufficient detail on the service invocation. This was stated by GSMA CPWP (see LS S1-030125)
Summary of change:	Call data records created by service nodes in the HPLMN should contain an indication of the serving network (ideally the MCC-MNC), so that the HPLMN is able to charge the subscriber accordingly. The corresponding specific requirement to TS 22.115 is added by modifying the section on "Roaming Charging Requirements"
Consequences if not approved:	Distinctive interoperator charging would not be possible.

Clauses affected:	4

	Y	N	
Other specs affected:		X	Other core specifications
		X	Test specifications
		X	O&M Specifications

Other comments:

4 Main Requirements and High Level Principles

The main new requirements for 3GPP system charging and accounting are:

- to provide a call detail record for all charges incurred and requiring settlement between the different commercial roles;
- to allow fraud control by the Home Environment and the Serving network;
- to allow cost control by the charged party;
- to provide at the beginning of a chargeable event an indication to the charged party (if involved in the chargeable event) of the charges to be levied for this event;
- to allow itemised billing for all services charged to each subscription, including voice and data calls, and services offered by home environments.
- to enable the Home environment to provide a Prepay Service and to enable the serving network to support that Prepay Service for the Home environment's subscribers.
- to allow interconnect (inter-operator) charging including mobile operator to mobile operator and mobile operator to fixed operator (circuit switched & IP) and mobile operator to IP network provider;
- to allow Network operator to 3rd party supplier (eg Value Added Service Provider) charging;
- to provide details required for Customer Care purposes

The high level principles that will guide the charging requirements are summarised as follows:

-It must be possible to charge separately for each type of medium used (eg voice, video, data) in a session and for each service used (eg voice call, streaming video, file download);

-It must be possible to charge for different levels of QoS applied for and/or allocated during a session for each type of medium or service used;

-It must be possible to charge each "leg" of a session separately. This includes the incoming and outgoing legs and any forwarded/redirected legs. (Note: The legs mentioned here are logical legs, i.e. not necessarily identical to actual signal and traffic flow. Even though tromboning may be avoided by optimal routing, the operator should still be able to charge for the 'virtual legs' of the call)

-The user can be charged according to the service used irrespective of the technology used to deliver it. (That is, the charge is not derived from whether 2G or 3G is used);

-The user can be charged according to the technology used to deliver a service. (That is, different charges can be applied on 2G and 3G);

-It must be possible to charge a user according to the network resources used. For example, if a large bandwidth is required to use high quality video, the user could be charged accordingly. This is related to charging by QoS;

-It must be possible to charge users flexibly for the use of extra resources (in at least the same network) for all legs of the call. For example, if a video component is added to a voice call the use of extra radio resource at both ends of the call could be paid for by each user in the call or totally by the initiating user.

-It must be possible to suppress charging for certain types of connection e.g. when a customer receives tones or network announcements or during sessions such as automated pre-pay top-up.

-It must be possible for the home network to charge its customers while roaming in the same ways as when they are at home. For example, if duration based charging is used for charging for streaming music in the home network, then it must be possible to apply the same principle when the user is roaming.

Modified section

-It must be possible for a network operator to charge its users for activities while roaming so that the home network will get the capability to raise service charges depending on the roamed to network, e.g. because of inter operator charges for the use of service capabilities within the visited network which will in general depend on the serving network. The ability to supply all the necessary information for all the charging options will depend on the capability of the visited network. For service capabilities which are provided by the home network, however, it is required that the call data records created ~~by the serving node~~ allow to identify the serving network of the served subscriber.

End of modified section

-It must be possible for operators to have the option to apply charging mechanisms that are used in GSM/GPRS. For example for duration of a voice call, for the amount of data transmitted (eg for streaming, file download, browsing) and for an event (one-off charge).

-It must be possible for charging to be applied based on location, presence, push services etc

-It must be possible to charge using pre-pay, post-pay, advice of charge, 3rd party charging techniques.

These new requirements and principles will allow users more freedom to obtain service when roaming, whilst providing effective cost and credit control for the Home Environment and User.

4.1 Cross Phase Compatibility

Where possible (e.g. services already defined within earlier releases), the information contained in the CDRs shall be consistent with the information already provided

It is envisaged that 3GPP system will evolve beyond this Release with the addition of a number of new requirements for charging and billing, for example with the addition of a number of new requirements for charging and billing; these are noted in the appropriate sections below. The technical standards for each release should be developed in such a way that it is possible and practical to introduce these requirements, ideally in a backward compatible manner.

NOTE: When a change is introduced which affects the 3GPP technical standards, it is said to be 'backward compatible' if existing equipment can continue to operate and perform correctly with equipment that conforms to the new implemenation.