Technical Specification Group Services and System Aspects
Meeting #20, Hämeenlinna, Finland, 09-12 June 2003

***TSGS#20(03)0243***

| | |
|---|---|
| **Source:** | **SA1** |
| **Title:** | **CRs to 22.115 on Charging requirements in an NMP environment (Rel-5/6)** |
| **Document for:** | **Approval** |
| **Agenda Item:** | **7.1.3** |

CR-Form-v7

# CHANGE REQUEST

⌘ **22.115** **CR** **012** ⌘**rev** **-** ⌘ 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:*** | ⌘ | Charging Requirements in an MNP environment |
| ***Source:*** | ⌘ | Siemens |
| ***Work item code:*** | ⌘ | TEI5 |
| ***Date:*** | ⌘ | 13/03/2003 |
| ***Category:*** | ⌘ | **F** |
| ***Release:*** | ⌘ | Rel-5 |

*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:*** | ⌘ | Add explicit charging requirements for MNP |
| ***Summary of change:*** | ⌘ | Operators shall be able to apply different tariffs to calls and short messages established/sent by their subscribers while roaming in their Home PLMN depending on the national called subscriber's Home PLMN rather than on the national called subscriber's MSISDN. This differentiation is needed in the case, where the called subscriber's MSISDN may have been ported by Mobile Number Portability.<br>Also a reference to TS 22.066 (MNP) is added. |
| ***Consequences if not approved:*** | ⌘ | Operators cannot apply different tariffs to calls and short messages established/sent by their subscribers depending on the called subscriber's Home PLMN. |

| | | | | | |
|---|---|---|---|---|---|
| ***Clauses affected:*** | ⌘ | 2, 4 | | | |
| | | **Y** | **N** | | |
| ***Other specs affected:*** | ⌘ | **X** | | Other core specifications | ⌘ 22.066, 23.066 |
| | | | **X** | Test specifications | |
| | | | **X** | O&M Specifications | |
| ***Other comments:*** | ⌘ | | | | |

**How to create CRs using this form:**
Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

# 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, edition number, version number, etc.) or non-specific.
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[1] 3GPP TS 22.101: "Service aspects; Service Principles".

[2] 3GPP TS 22.066: " Support of Mobile Number Portability (MNP)".

*** Next modified part ***

# 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.
- 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.
- It must be possible for the home network to apply different tariffs to national calls and short messages established/sent by their subscribers while roaming in their Home PLMN depending on the called subscriber's Home PLMN rather than on the called subscriber's MSISDN.
  Note: This distinction is necessary only in the case, where the called subscriber's MSISDN may have been ported by Mobile Number Portability.

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.

CR-Form-v7

# CHANGE REQUEST

⌘ **22.115** **CR** **013** ⌘**rev** **-** ⌘ Current version: **6.0.0** ⌘

*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 [X]

| | | |
|---|---|---|
| ***Title:*** | ⌘ | Charging Requirements in an MNP environment |
| ***Source:*** | ⌘ | Siemens |
| ***Work item code:*** | ⌘ | TEI |
| ***Date:*** | ⌘ | 13/03/2003 |
| ***Category:*** | ⌘ | **A** |
| ***Release:*** | ⌘ | Rel-6 |

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| ***Reason for change:*** | ⌘ | Add explicit charging requirements for MNP |
| ***Summary of change:*** | ⌘ | Operators shall be able to apply different tariffs to calls and short messages established/sent by their subscribers while roaming in their Home PLMN depending on the national called subscriber's Home PLMN rather than on the national called subscriber's MSISDN. This differentiation is needed in the case, where the called subscriber's MSISDN may have been ported by Mobile Number Portability.<br>Also a reference to TS 22.066 (MNP) is added. |
| ***Consequences if not approved:*** | ⌘ | Operators cannot apply different tariffs to calls and short messages established/sent by their subscribers depending on the called subscriber's Home PLMN. |

| | | | | | |
|---|---|---|---|---|---|
| ***Clauses affected:*** | ⌘ | 2, 4 | | | |
| ***Other specs affected:*** | ⌘ | **Y** | **N** | | |
| | | **X** | | Other core specifications | 22.066, 23.066 |
| | | | **X** | Test specifications | |
| | | | **X** | O&M Specifications | |
| ***Other comments:*** | ⌘ | | | | |

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# 4 Main Requirements and High Level Principles

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

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- 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; and mobile operator to I-WLAN operator.
- to allow Network operator to 3rd party supplier (eg Value Added Service Provider) charging;
- to provide details required for Customer Care purposes
- to support the shared network architecture so that end users can be appropriately charged for their usage of the shared network, and network sharing partners can be allocated their share of the costs of the shared network resources.

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)

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- 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.

- 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 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 allow to identify the serving network of the served subscriber.

- 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.

- It must be possible for the home network to apply different tariffs to national calls and short messages established/sent by their subscribers while roaming in their Home PLMN depending on the called subscriber's Home PLMN rather than on the called subscriber's MSISDN.
  Note: This distinction is necessary only in the case, where the called subscriber's MSISDN may have been ported by Mobile Number Portability.

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