

3GPP TSG CN Plenary Meeting #14
Kyoto, Japan, 12th – 14th December 2001

Tdoc NP-010579

Source: TSG CN WG 2
Title: LSs sent from CN2 since TSG#13 Meeting
Agenda item: 6.2.1
Document for: Information

Introduction:

This document contains 4 agreed Liaison Statements sent from TSG CN WG2, that are forwarded to TSG CN Plenary meeting #14 for information only.

Meeting	Doc-2nd-Level	Source	Tdoc Title	Comments
CN2#20	N2-010801	CN2	Handling of e-parameters provided by the SCP	To: SA5
CN2#20	N2-010850	CN2	Liaison Statement on Definition of Subscriber Status information for GPRS in CAMEL Phase 4	To: SA1
CN2#21	N2-011020	CN2	Liaison Statement on Mobility Management event reporting in the PS domain	To: SA1, CC: CN4
CN2#21	N2-011029	CN2	CAMEL Phase 4: Liaison Statement on Functional Subsets	To: SA1

Title: Handling of e-parameters provided by the SCP
Source: CN2
To: SA5
Cc: -
Response to: -

Contact Person:

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Attachments: -

1. Overall Description:

CN2 has discussed in the CN2#20 meeting the issue of "SCP-provided e-parameters" (for CAMEL control of Advice-of-Charge) and has come to the following agreement for CAMEL Phase 3.

When the SCP provides e-parameters to the MSC/gsmSSF, for a subscriber that does not have a subscription to the Advice of Charge supplementary service or the MSC/gsmSSF does not support the Advice of Charge supplementary service, then the MSC/gsmSSF shall behave as follows:

- the MSC shall not send e-parameters to the Mobile Station;
- the gsmSSF shall not send a CAP Operation error to the SCP as a result of this situation.

Whilst specifying the above behaviour for the MSC/gsmSSF, the following two questions have risen within CN2:

- What is the impact of the scenario described above on the "LevelOfCAMELService" parameter in the various Call Data Records?
More specifically, if the SCP sends e-parameters to the MSC/gsmSSF, but the MSC/gsmSSF does not send these e-parameters to the MS, due to reasons described above, shall the bit "onlineCharging" of the "LevelOfCAMELService" parameter in the CDR be set?
- May the gsmSSF in above described scenario discard the e-parameters, or is there any reason for the MSC/gsmSSF to retain these parameters?

The following sentence is copied from 3GPP TS 32.005: "**Online charging means that CAMEL supported AoC parameter were sent to the mobile station (SCI is received from the gsmSCF).**"

In above described scenario, SCI was received from the gsmSCF, but no "CAMEL supported AoC parameters" are sent to the mobile station.

2. Actions:

ACTION: CN2 asks SA5 to provide CN2 with answers on the above listed questions. CN2 would like to receive answers for both the CS case (SCP sending e-parameters to the MSC/gsmSSF) and the PS case (SCP sending e-paramaters to the SGSN/gprsSSF).

3. Date of Next CN2 Meetings:

CN2_20 15th – 19th October 2001, Brighton, U.K.
CN2_21 26th – 30th November 2001, Cancun, Mexico.

Title: Liaison Statement on Definition of Subscriber Status information
for GPRS in CAMEL Phase 4

Source: CN2

To: SA1

Response to: -

Contact Person:

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Attachments : N2-010851, CR to TS 22.078, Rel-5, Title: Introduction of subscriber status information in PS domain

1. Overall Description:

TSG CN WG2 define currently the mechanisms required for the enhancement of the CAMEL Any Time Interrogation operation to support location information for GPRS as specified in CR 22.078-102.

Together with the Any Time Interrogation operation it is not only possible for the CSE to request location information but also subscriber status information. The subscriber status information is defined in 22.078 and may have one of the following values:

- CAMEL busy
- network determined user not reachable
- assumed idle

However this definition is optimised for circuit switched domain purposes and is therefore not suitable for description of the subscriber status in the packet switched domain.

TSG CN WG2 will base their work on the assumption that the HLR will return, if requested, one of the following values indicating the subscriber status in the PS domain:

- Detached:
The network can determine from its internal data that the MS is not registered to the GPRS data network.
- CAMEL-attached:
The MS is registered to the GPRS data network, but there are no PDP contexts active for this MS.
- CAMEL-connected:
The MS is registered to the GPRS data network, there is at least one PDP context active for this MS

2. Actions:

TSG SA WG1 is asked to verify whether this definition will satisfy the service requirements of CAMEL service designers.

If there are any further requirements regarding the subscriber status information in the packet switched domain, those could be considered in the timeframe of CAMEL phase 4. However it is desirable that the requirements are stabilised by the next TSG CN WG2 meeting.

In any case, TSG SA WG1 is asked to update 3G TS 22.078 to cover the issue of status information for the enhanced Any Time Interrogation operation in CAMEL Phase 4. A proposed CR to 22.078 is attached to this LS.

3. Date of Next CN2 Meetings:

CN2_21 26th -30th November 2001 Mexico

CHANGE REQUEST

3GPP TSG CN WG2 Meeting #20
Brighton, 15th - 19th October 2001

N2-010851

3 Definitions and abbreviations

Operator Specific Service (OSS): Any non-standardised service offered to a mobile user.

Interrogating PLMN (IPLMN): The PLMN which interrogates the HPLMN for information to handle a mobile terminating call.

CAMEL Service Environment (CSE): A CSE is a logical entity which processes activities related to Operator Specific Services (OSS).

Route select failure: A condition when routing to the called party fails. Route Select Failure can be reported in an existing relationship or a new relationship can be initiated.

Service event: A specific event of a process which may be used as part of an operator specific service.

Initial service event: A service event which triggers the establishment of a relationship between the CSE and the controlled entity.

Subsequent service event: A service event which is reported in the context of an existing relationship between the CSE and the reporting entity.

Service procedure: A part of the CAMEL feature to be used when a specific CAMEL service event is detected.

Network CAMEL Service Information (N-CSI): Identifies services offered by the serving PLMN operator equally for all subscribers.

NOTE: These services may also be provided using a technology other than CAMEL.

CAMEL Subscription Information (CSI): Identifies that CAMEL support is required for the subscriber and the identities of the CSEs to be used for that support. The CSI also contains information related to the OSS of the subscriber, e.g. Service Key.

The OSS may include both services provisioned for individual subscribers and services provisioned equally for all users of a VPLMN.

Location Area Code: Indicates the global identity of that part of the service area of a VLR in which the subscriber is currently located, and in which the subscriber will be paged for mobile terminated traffic

Location Information: The location information shall be an identification of the location of the served subscriber.

The following location information shall be sent to the CSE (if available):

- **Geographical information** indicates the location (latitude and longitude) of the served subscriber. When Cell ID or Location Area Code is known the latitude and longitude may be calculated as the nominal central point of the cell or of the location area; alternative mechanisms for determining latitude and longitude may also be supported. The uncertainty of the indicated location is part of the geographical information.
- **Geodetic Information** provides the same functional capability as geographical information; however it is encoded differently.
- **Cell ID** indicates the global identity of the current or last cell which the subscriber is using or has used if the subscriber is using GSM radio access. The VPLMN shall update the stored Cell ID at establishment of every radio connection and whenever the subscriber is handed over between cells.
- **Routing Area ID** indicates the global identity of the current or last GPRS routing area which the subscriber is using or has used if the subscriber is using GSM radio access in a GPRS serving network.

- **Service Area ID** indicates the global identity of the current or last service area which the subscriber is using or has used if the subscriber is using UMTS radio access. The VPLMN shall update the stored Service Area ID at establishment of every radio connection and whenever the subscriber is handed over between service areas.
- **VLR number** is the number of the serving VLR stored in the HPLMN.
- **Location status** indicates whether or not the location information has been confirmed by radio contact. If the location information has not been confirmed by radio contact a time stamp is sent indicating the time elapsed since the last radio contact with the subscriber.
- **Location number** is the number received on the incoming circuit (for an incoming call) or to be sent on the outgoing circuit (for an outgoing call).

Service Key: An identifier of the OSS which shall be transparent to the IPLMN/VPLMN.

Subscriber Status: An indication of the status of a subscriber, determined by the state of the subscriber's MS. The subscriber status depends on the domain it is requested for:

The Subscriber Status in the circuit switched domain can take one of three values:

- **CAMEL-busy:** The MS is engaged in a mobile-originated or mobile-terminated circuit-switched call.
- **Network determined not reachable:** The network can determine from its internal data that the MS is not reachable. This includes detached and purged mobile stations.
- **Assumed idle:** The MS is not CAMEL-busy or network determined not reachable.

The Subscriber Status in the packet switched domain can take one of three values:

- **Detached:** The network can determine from its internal data that the MS is not registered to the GPRS data network.
- **CAMEL-attached:** The MS is registered to the GPRS data network, but there are no PDP contexts active for this MS.
- **CAMEL-connected:** The MS is registered to the GPRS data network, there is at least one PDP context active for this MS

GPRS session: The period during which the GPRS subscriber is registered to the GPRS data network. A GPRS session starts when the GPRS subscriber attaches to the GPRS data network. It ends when the GPRS subscriber detaches from the GPRS data network.

PDP Context: A transaction for the exchange of data between an MS and a peer entity, which is addressed by the Access Point Name. A PDP context starts when the request from a GPRS subscriber successfully establishes the PDP context and ends when the subscriber deactivates the PDP context.

PDP: Packet Data Protocol (as defined in TS 22.060 [6])

Carrier Identification Code: Identifies uniquely the Carrier (NAEA).

Carrier Selection Information: An indication of whether the subscriber selected a carrier, or the carrier is predefined for the subscriber (NAEA).

Originating Line Identification: Identifies uniquely the subscriber to be charged for the usage of the carrier (NAEA).

Charge Number: Identifies uniquely the organisation to be charged for the usage of the carrier (NAEA).

North American Equal Access (NAEA): A service used in the North American region whereby a subscriber may select the carrier to be used for long distance calls.

Subscribed Dialed Services: Identifies a set of at most ten service numbers. The served subscriber can originate calls by entering a service number for the destination. This is in addition to the possibility to route calls by entering the destination number. Each service number is defined at the HPLMN operator's discretion. The set

of service numbers forms part of the subscriber's profile, whether she is registered in the HPLMN or another PLMN.

Call Party Handling (CPH): A method of manipulating call legs which includes creating new parties in a call, placing individual call parties on hold, reconnecting them to the group of call parties and disconnecting individual call parties.

CPH Configuration: One or more groups of call legs that share a common dialogue to the CSE.

Call Leg: The connection joining the call party to the CPH configuration.

Call Party: A party (e.g. served subscriber, called party, PSTN subscriber etc.) in the CPH configuration.

IP multimedia session (IPMM session): See [11] for definition.

IM CN subsystem (IP Multimedia Core Network subsystem): See [11] for definition.

IM application level registration: See [12] for definition.

Next modified section

13.1 Any time interrogation

It shall be possible for the CSE (as part of an OSS, including special handling of mobile terminating calls) to interrogate the HLR for information about a particular subscriber, for which it is entitled to do so (e.g. the subscriber belongs to the same HPLMN as the CSE).

This may be information from the list below:

- Subscriber status;
- Location information (see section 22);
- Call Forwarding SS data;
- Call Barring SS data;
- Operator Determined Barring data;
- CAMEL Subscription Information;
- CAMEL phases supported at the VPLMN.

[Together with the request for subscriber status or location information, the CSE shall indicate whether this information is requested from the circuit switched or packet switched domain. The HPLMN shall return this information accordingly.](#)

The HPLMN shall have the possibility to reject any interrogation from any CSE.

Title: Liaison Statement on Mobility Management event reporting in the PS domain
Source: CN2
To: SA1
Cc: CN4

Contact Person:

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Attachments: None

1. Overall Description:

CN2 have reviewed change requests against the stage 2 & stage 3 specifications for CAMEL to meet the requirements in CR 22.078-128r1 (S1-011312, which was approved by SA1 at their meeting in Kobe, Japan, 5 – 9 November 2001).

We noted that the changes in S1-011312 included the addition of the event 'Network initiated transfer to "MS not reachable for paging"', but did **not** include the addition of the event 'Network initiated GPRS detach'. It was reported that the inclusion of the former event but not the latter was probably due to a misunderstanding of the distinction between the two events. Network initiated transfer to "MS not reachable for paging" happens when a supervision timer in the SGSN runs down without the MS having performed a routing area update or established radio contact for any other reason; in this it is similar to implicit IMSI detach in an MSC/VLR. However Network initiated transfer to "MS not reachable for paging" differs from implicit IMSI detach in that it **does not** cause the release of any active PDP contexts for the MS. Network initiated GPRS detach is most probably the result of administrative action in the HPLMN, and it **does** cause the release of any active PDP contexts for the MS.

CN2 believe that there is merit in allowing the CSE to request reporting of both 'Network initiated transfer to "MS not reachable for paging" and Network initiated GPRS detach, because the two events are distinct. We have therefore taken a working assumption in preparing the stage 2 & stage 3 CRs that the CSE should be able to request reporting of the event 'Network initiated GPRS detach'.

We recognise that the next SA1 meeting is after the SA #14 in December, to which CR 22.078-128r1 will be presented for approval, so it will not be possible for SA1 to consider this liaison before CR 22.078-128r1 is presented for approval. We have therefore drafted a supplementary CR to TS 22.078 version 5.5.0, which we assume will be published after SA #14. This supplementary CR introduces the possibility for the CSE to request reporting of the event 'Network initiated GPRS detach'.

CN2 request SA1 to review the attached CR to 22.078, and approve it at their earliest convenience. CN2 also request SA1 to confirm the working assumption that the CSE should be able to request reporting of the event 'Network initiated GPRS detach'.

2. Actions:

To SA1 group.

ACTION 1: CN2 request SA1 group to review the attached CR to 22.078, and approve it at their earliest convenience.

3. Dates of Next CN2 Meetings:

CN2 #22 28th January – 1st February 2002, France
CN2 #23 8th – 12th April 2001, USA

CHANGE REQUEST

⌘ **22.078 CR** ⌘ rev **-** ⌘ Current version: **5.5.0** ⌘

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

Proposed change affects: ⌘ (U)SIM ME/UE Radio Access Network Core Network

Title:	⌘ Reporting of the "Network initiated GPRS detach" event to the CSE
Source:	⌘ CN2
Work item code:	⌘ CAMEL4 Date: ⌘ 28th Nov 2001
Category:	⌘ C Release: ⌘ Rel-5
<p style="text-align: center;"><i>Use <u>one</u> of the following categories:</i></p> <p style="text-align: center;">F (correction) A (corresponds to a correction in an earlier release) B (Addition of feature), C (Functional modification of feature) D (Editorial modification)</p> <p style="text-align: center;"><i>Use <u>one</u> of the following releases:</i></p> <p style="text-align: center;">2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) REL-4 (Release 4) REL-5 (Release 5)</p> <p style="text-align: center;">Detailed explanations of the above categories can be found in 3GPP TR 21.900.</p>	

Reason for change:	⌘ Because of a misunderstanding, the "Network initiated GPRS detach" event was not included in CR 22-078-128r1.
Summary of change:	⌘ Add the "Network initiated GPRS detach" event to those for which the CSE can request reporting.
Consequences if not approved:	⌘ The set of PS domain mobility events to be reported to the CSE will be incomplete

Clauses affected:	⌘ 12.1						
Other specs affected:	<table style="width: 100%;"> <tr> <td style="width: 40%;"><input type="checkbox"/> Other core specifications</td> <td style="width: 60%;">⌘ 23.078; 29.002</td> </tr> <tr> <td><input type="checkbox"/> Test specifications</td> <td></td> </tr> <tr> <td><input type="checkbox"/> O&M Specifications</td> <td></td> </tr> </table>	<input type="checkbox"/> Other core specifications	⌘ 23.078; 29.002	<input type="checkbox"/> Test specifications		<input type="checkbox"/> O&M Specifications	
<input type="checkbox"/> Other core specifications	⌘ 23.078; 29.002						
<input type="checkbox"/> Test specifications							
<input type="checkbox"/> O&M Specifications							
Other comments:	⌘ The corresponding stage 2 & stage 3 CRs have already been conditionally approved by CN2 and CN4 respectively.						

12.1 Mobility management

It shall be possible to mark for a subscriber that a notification shall be sent to the CSE when the VPLMN has completed the processing of any one or more of the following mobility events:

- For a CS subscriber:
 - Location area update of MS to a different VLR service area;
 - Location area update of MS within the same VLR service area;
 - MS-initiated detach (e.g. MS switched off);
 - Network initiated detach (periodic location update of MS failed);
 - Attach of MS (e.g. MS switched on, successful location update after network initiated detach);
- For a GPRS subscriber:
 - Routeing area update of MS to a different SGSN service area;
 - Routeing area update of MS within the same SGSN service area;
 - MS-initiated detach (e.g. MS switched off);
 - [Network initiated detach](#);
 - Network initiated transfer to "MS not reachable for paging" (periodic routeing area update of MS failed);
 - Attach of MS (e.g. MS switched on, successful routeing area update after network initiated detach).

The notification shall contain the following information if available:

- Event met;
- Service Key;
- IMSI;
- Basic MSISDN;
- Location information;
- LSA identity;
- CAMEL phases supported at the VPLMN.

Title: CAMEL Phase 4: Liaison Statement on Functional Subsets
Source: CN2
To: SA1
Cc:
Response to:

Contact Person:

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Attachments:

1. Overall Description:

CN2 has discussed the introduction of functional subsets in CAMEL Phase 4 for the CAMEL phase negotiation.

The reason for this is as follows:

Some vendors have indicated, that the new functionalities introduced in CAMEL Phase 4 will be introduced stepwise, spread over several system releases. Since only the support of a full CAMEL phase is negotiated between a VPLMN and the HPLMN, the functional subsets offered in the earlier system releases cannot be used for roaming purposes.

In order to make these functional subsets of CAMEL Phase 4 available for roaming, the functional subsets should be negotiated between the HLR and network elements in the VPLMN in the context of the CAMEL phase negotiation.

All subsets of CAMEL Phase 4 considered in this context have to be functionally independent. For example, the split into the following 3 subsets for the CAMEL phase negotiation seems to be technically possible from CN2 point of view:

- functions for CS Call Handling
- functions for SMS-handling
- functions for GPRS

As an example, new CAMEL Phase 4 functions for GPRS are the MG-CSI, the SMS-MT handling by the SGSN, and the ATI enhancements for GPRS.

In the course of the CAMEL phase negotiation, a network element (VLR, GMSC, SGSN) shall indicate, in addition to the general CAMEL Phase 4 support indication, which functional subset is supported. On the basis of that indication, the HLR has to decide, whether a specific CSI is sent to the network element. The HLR has to keep information on the required CAMEL Phase 4 subset for each CAMEL service. If the required CAMEL Phase 4 subset is not supported in a network element, the appropriate fallback action has to be taken.

A split into a large number of functional subsets cannot be approved by a majority of CN2. Especially, a split of Call Handling into further subsets shall not be considered (with one possible exception, see remark 1, below).

If there are new functionalities in CAMEL Phase 4, that cannot be clearly appointed to a subset, then these functionalities shall be regarded as a general CAMEL Phase 4 requirement. A minimum CAMEL Phase 4 implementation must at least comprise all these general requirements.

Remark 1: The CAMEL Phase 4 feature "Charging Notification" has been considered as being optional. The mechanism proposed here could be used to handle this as well. However, this would require the Call Handling in CAMEL Phase 4 to be split into two functional subsets, "Charging Notification" and "everything else".

Remark 2: The CAMEL Phase 4 feature "CAMEL support of IP-based multimedia services" could be considered as a further functional subset.

2. Actions:

To SA1.

ACTION: CN2 asks SA1 to consider the proposal in principal and to give advice on how a division into subsets shall be made. Furthermore, SA1 is asked for advice on the two topics mentioned in the above remarks.

3. Date of Next CN2 Meetings:

CN2_22 28th January - 2nd February 2002, France

CN2_23 8th - 12th April 2002, USA