TSGS#11(01) 0051

Technical Specification Group Services and System Aspects Meeting #11, Palm Springs, CA, USA, 19-22 March 2001

Source: SA1

Title: Various CRs to 22.078

Document for: Approval

Agenda Item: 7.1.3

Spec	CR	Re	Phas	Subject	Cat	Versio	Versio
		V	е			n- Curren t	n-New
22.078	081	2	Rel-5	Clarification on Call Party Handling requirements	С	5.1.0	5.2.0
22.078	082		Rel-5	Enhancements to mobility management reporting	В	5.1.0	5.2.0
22.078	083	2	Rel-5	Corrections of Call Barring interaction for CSE created call / new party	F	5.1.0	5.2.0
22.078	084	1	Rel-5	Changing of naming for SMS-CSI	D	5.1.0	5.2.0
22.078	087	2	Rel-5	Transport of Charging Information from serving PLMN to the CSE	В	5.1.0	5.2.0
22.078	088	1	Rel-5	Enhanced CSE capability for Subscribed Dialled Services	С	5.1.0	5.2.0
22.078	090	2	Rel-5	Provide Location Information in case a terminating call is alerted	В	5.1.0	5.2.0

TSG-SA WG 1 (Services) meeting #11 Cape Town, SA 6th to 9th February 2001

TSG S1 (01) 0123 Agenda Item: 7.5

3GPP TSG-SA1 CAMEL Meeting #5 Austin, USA, 30th January – 1st February 2001

Tdoc S1C01060 (Revision of S1C01037)

	CR-Form-v.											
	CHANGE REQUEST											
	22.078 CR 081 rev 2 Current version: 5.1.0											
Proposed change affects: (U)SIM ME/UE Radio Access Network Core Network X												
Title:	Clarification on Call Party Handling requirements											
Source:	SA1											
Work item code:	CAMEL4 Date: 06/02/2001											
Category:	Release: REL-5											
	Use one of the following categories: F (essential 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)											
Dance for the series	Further desification of the ODI I acceptions in acceptant											
Reason for change Summary of chang												
Consequences if not approved:	Mis-interpretation of CPH requirements											
Clauses affected:	4.2, 8, 8.1.1, 8.1.2, 8.1.4											
Other specs affected:	Other core specifications Test specifications O&M Specifications											
Other comments:												

**** First Modified Section ****

4.2 General Procedures

Each process is made up of a series of telecommunication events, some of which are service events. At a service event, the IPLMN or VPLMN may suspend the process and make contact with a CSE to ask for instructions or to send a notification. When a service event occurs, the IPLMN or VPLMN shall send to the CSE the information listed in this specification. All information sent to the CSE relates to the served CAMEL subscriber unless otherwise stated. The initial service events, which can initiate contact with the CSE are defined in the CAMEL Subscription Information. The CSE identity which corresponds to each initial service event is also defined in the CAMEL Subscription Information.

The serving network shall accept the instruction from the CSE and continue call processing with the received information.

The CAMEL feature is applicable in a PLMN when the CAMEL subscription information is handled properly and when the communication to the CSE is compliant with the CAMEL protocol [8].

The CAMEL network capabilities are used at a PLMN when the CAMEL feature is applicable and:

- the CSI is received from the HPLMN: or
- the CSE requests congestion control in the VPLMN or IPLMN; or;

In addition dialled network-based services may be applicable in a PLMN if so administered.

The CSE shall be capable of responding to the CAMEL request with instructions on how to resume the suspended process. In the case of subscriber-based services the CSE shall be able to instruct the IPLMN or VPLMN to:

- Activate subsequent service events to be reported to the CSE. These events shall remain active only for the life-time of the telecommunication service;
- Alter information relating to the suspended process;
- Alter information relating to the parties involved in the process;
- Indicate which of the possible parts of the process should occur next (e.g. terminate the call);
- Perform Charging activities;
- Order in band user interaction:

If a control relationship exists between the CSE and the IPLMN/VPLMN of the served subscriber, then at any time during the alerting, active and clearing phases of the call the CSE can instruct the IPLMN/VPLMN of the served subscriber to perform one or more of the following Call Party Handling operations:

- Create additional parties in the call (additional parties shall be created in a held state);
- Release an individual call party:
- Release all parties in the call.

If a control relationship exists between the CSE and the IPLMN/VPLMN of the served subscriber, then at any time during the alerting and active phases of a call leg, the CSE can instruct the IPLMN/VPLMN of the served subscriber to perform the following Call Party Handling operation:

- Connect an individual call party to the group of call parties, within the same call (the call party shall be in a held state immediately before this operation).

NOTE: Call Party Handling operations are not applicable to a call leg or group of legs which are involved in user interaction (Play Announcement or Prompt and Collect User Information)

If a control relationship exists between the CSE and the IPLMN/VPLMN of the served subscriber, then at any time during the active phase of a call leg, the CSE can instruct the IPLMN/VPLMN of the served subscriber to perform the following Call Party Handling operation:

- Place an individual call party on hold (the call party shall not be in a held state immediately before this operation).

NOTE: Call Party Handling operations are not applicable to a call leg or group of legs which are involved in user interaction (Play Announcement or Prompt and Collect User Information)

It shall be possible for the CSE to initiate a new call to the HPLMN/VPLMN of a subscriber at any time.

It shall be possible in the case of subscribed dialled services for the CSE to instruct the serving PLMN to:

- Continue the processing of the call, or;
- Continue the processing of the call with modified information, or;
- Connect the calling party to a specified called party, or;
- Release the call.

After one of the above instructions, the relation between the serving network and the CSE shall be released. Any other behaviour may cause misoperation of CAMEL based services.

Serving network-based service numbers may be treated after the above described behaviour. These services are outside the scope of the CAMEL specification.

Serving network based service numbers may be provided on the discretion of the network operator but these are outside this specification.

CAMEL features shall form an integral part of the following processes:

- Mobile Originated call (MO call);
- Mobile Terminated call in GMSC (MT call);
- Mobile Terminated call in VMSC (MT call);
- Mobile Forwarded call (MF call) early call forwarding; early forwarded calls are treated as MO calls;
- Mobile Forwarded call (MF call) late call forwarding; late forwarded calls are treated as MO calls;
- supplementary service invocation;
- USSD user interaction. The of service codes for CAMEL services can be allocated on subscriber basis or globally for all subscribers of the HPLMN;
- MO SM service; both via MSC and SGSN of GPRS;
- MT SM service; both via MSC and SGSN of GPRS \$(CAMEL4\$);
- GPRS:
- Mobility Management events;
- Control of Subscription Data.

The CSE shall be able to interrogate the HPLMN for information about a particular subscriber at any time.

**** Next Modified Section ****

8 Procedures for Call Party Handling - \$(CAMEL4\$)

Call Party Handling (CPH) procedures are not applicable to IP Multimedia sessions.

CPH procedures apply to MO, MF, MT, VT and CSE initiated calls. If the served subscriber is involved in a CPH configuration controlled by her CSE, then any further MO or MT call setup request involving the served subscriber

shall be handled by a separate relationship with the served subscriber's CSE. This new relationship may lead to the creation of a further CPH configuration for the served subscriber. The service logic for one CSE relationship is not necessarily aware of what is happening in another CSE relationship involving the same served subscriber.

It is not required to transfer a leg or a group of legs between separate CPH configurations.

Where service logic involves Call Party Handling procedures, the Service Interaction Indicators Two parameter should be used to manage interactions with GSM Supplementary Services (CF, CD and MPTY for each call leg and ECT and HOLD for the served subscriber).

The CSE shall be able to add parties to, or remove parties from, the group. Each party in this group can communicate with all other parties in the group. The IPLMN/VPLMN shall support at least 6 parties (of which one may be a Specialised Resource Function) in a group.

If a control relationship exists, the CSE may order in-band user interaction with any held call party at any point during the active phase of the call leg.

**** Next Modified Section ****

8.1.1 Creating additional parties in the call

The purpose of this procedure is to allow the CSE to create additional parties in a call at any point during that call. The CSE initiated call leg shall be created in the held state in the IPLMN/VPLMN of the served subscriber.

If a control relationship exists, it shall be possible for the CSE to instruct the IPLMN/VPLMN of the served subscriber to initiate a <u>new</u> call leg to an additional party. The new call leg shall form part of the existing CPH configuration.

The CSE shall be able to instruct the IPLMN/VPLMN to suppress the triggering of further CAMEL interactions for this call leg.

CSE initiated calls in the VPLMN shall be subject to the Outgoing Call Barring Supplementary Services and the Outgoing Operator Determined Barring <u>categories</u>; however the CSE shall be able to instruct the VPLMN to suppress the invocation of conditional barring of outgoing calls by the call barring supplementary service and operator determined barring as indicated in subclause 18.8.

The CSE shall have the possibility to send the information listed in table A-2 (CSE initiated call set-up).

If the CSE sends a request to initiate a <u>new</u> call <u>leg</u> the events relating to unsuccessful call establishment and answer should be armed by the CSE to maintain a control relationship.

**** Next Modified Section ****

8.1.2 Placing an individual call party on hold

The purpose of this procedure is to allow the CSE to instruct the IPLMN/VPLMN to place an individual call party on hold.

The CSE may instruct the IPLMN/VPLMN to put a call party on hold at any point during the active phases of the call leg if a control relationship exists.

The CSE shall be able to instruct the IPLMN/VPLMN to send Aa notification shall be sent towards the held party indicating that tshe eall has been placed on hold. The notification shall be a tone or an announcement.

NOTE: This procedure does not use the HOLD supplementary service, however the notification message sent to the MS may be the same as for the HOLD supplementary service. The CSE may use other procedures instead of, or as well as, instructing the IPLMN/VPLMN to send a tone or announcement to notify the held party that she has been placed on hold.

**** Next Modified Section ****

8.1.4 RecConnecting an individual call party to the group

The purpose of this procedure is to allow the CSE to instruct the IPLMN/VPLMN to reconnect an individual call party to the group.

The CSE may instruct the IPLMN/VPLMN to connect a held call party to the group at any point during the alerting and active phases of the call leg if a control relationship exists.

The CSE shall be able to instruct the IPLMN/VPLMN to send Aa notification shall be sent-towards the previously held party indicating that tesh eall has been reconnected to the group. The CSE shall be able to instruct the IPLMN/VPLMN to send Aa notification shall be sent-towards the other party or parties in the group indicating that an additional party has been connected to the group. The notification shall be in the form of a tone or an announcement.

NOTE: The CSE may use other procedures instead of, or as well as, instructing the IPLMN/VPLMN to send a tone or announcement to notify the previously held party that she has been connected to the group. The same principle applies to the notification towards the other party or parties in the group.

**** End of Document ****

TSG S1 (01) 0119 Agenda Item: 7.5

3GPP TSG-SA WG1 CAMEL AdHoc Austin, USA, 30 January – 1 February 2001

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12 Notifications of non-traffic events to the CSE

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 <u>one or more</u> of the following mobility events:

- <u>CS</u> Location <u>area</u> update <u>of MS for CS subscriber</u> to a different VLR service area;
- <u>CS</u> Location <u>area</u> update <u>of MS for CS subscriber</u> within the same VLR service area;
- GPRS Routeing area update of MS for GPRS subscriber to a different SGSN service area;
- GPRS Routeing area update of MS for GPRS subscriber within the same SGSN service area;
- MS-initiated <u>CS</u> detach (<u>e.g.</u>, MS switched off);
- MS-initiated GPRS detach (e.g., MS switched off);
- Network initiated CS detach (periodic location update of MS failed);
- Attach of MS for CS subscriber (e.g., MS switched on, successful location update after network initiated detach);
- Attach of MS for GPRS subscriber (e.g., MS switched on, successful location 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.

12.2 Notification to CSE of change of subscriber data

It shall be possible to mark for a subscriber that a notification shall be sent to the CSE when any of the following subscriber data are changed as a result of a request from any entity except the CSE to which the notification shall be sent:

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TSG S1 (01) 0121

Agenda Item: 7.5

3GPP TSG-SA1 Adhoc CAMEL Austin, USA 30-1st of January 2001

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Reason for change: # The description of interworking of CSE created new party with Call Barring supplementary service and ODB is misleading and not in line with chapter 18.8.

The interworking should be as follows:

1. Initiate Call Attempt creates a new party in a MOC dialogue:

All Call Barring services are applicable to the new outgoing leg as for mobile originating calls. CB invocation can however be suppressed by the CSE.

2. Initiate Call Attempt creates a new party in an MTC dialogue in the GMSC:

Call Barring services are not applicable to a new outgoing leg which is created in an MT or VT dialogue. This must also be the case if the new outgoing leg is created with the ICA operation.

3. Initiate Call Attempt creates a new party in an MTC dialogue in the VMSC:

Call Barring services are not applicable to a new outgoing leg which is created in an VT dialogue. However, they shall be applicable if the new outgoing leg is created with the ICA operation.

4. Initiate Call Attempt creates a new party in a CF dialogue:

According to 18.8, conditional call barring does not apply if CF is invoked with originating CAMEL services.

	This should also be the case if CPH configurations are crested by a CAMEL dialogue initiated for the forwarding leg.
	5. Initiate Call Attempt creates a new party in an CSE initiated dialogue:
	Call Barring services are not applicable to a new outgoing leg which is created in an CSE initiated dialogue.
Summary of change: #	Chapter 8.1.1 to be updated according to 18.8
Consequences if # not approved:	Misinterpretation of interaction with Call Barring, inconsistency between chapters 8.1.1 and 18.8
Clauses affected:	
Other specs # affected:	Other core specifications # Test specifications O&M Specifications
Other comments:	

8.1.1 Creating additional parties in the call

The purpose of this procedure is to allow the CSE to create additional parties in a call at any point during that call. The CSE initiated call leg shall be created in the held state in the IPLMN/VPLMN of the served subscriber.

If a control relationship exists, it shall be possible for the CSE to instruct the IPLMN/VPLMN of the served subscriber to initiate a call leg to an additional party. The new call leg shall form part of the existing CPH configuration.

The CSE shall be able to instruct the IPLMN/VPLMN to suppress the triggering of further CAMEL interactions for this call leg.

If a CSE initiated new call leg is created within a CAMEL relationship for a mobile originated call (MO case) or for a mobile terminating call in the VMSC (VT case), the CSE initiated new leg ealls in the VPLMN shall be subject to the Outgoing Call Barring Supplementary Services and the Outgoing Operator Determined Barrings; Hhowever the CSE shall be able to instruct the VPLMN to suppress the invocation for the new leg of conditional barring of outgoing calls by the call barring supplementary service and operator determined barring as indicated in subclause 18.8.

The CSE shall have the possibility to send the information listed in table A-2 (CSE initiated call set-up).

If the CSE sends a request to initiate a call the events relating to unsuccessful call establishment and answer should be armed by the CSE to maintain a control relationship.

TSG S1 (01) 0120 Agenda Item: 7.5

3GPP TSG-SA1 Adhoc CAMEL Austin, USA 30-1st of January 2001

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4.1 Provision of CAMEL

CAMEL subscribers have one or more CAMEL Subscription Information (CSI) elements. CAMEL Subscription Information is provided by the HPLMN operator by administrative means.

The following CSI's may be administered per subscriber:

O-CSI Originating CAMEL Subscription Information (O-CSI) is transferred to the VPLMN (at location

update) and IPLMN (for an incoming call in GMSC). O-CSI contains trigger information that is required to invoke a CAMEL Service Logic for Mobile Originating calls (in VMSC) and Mobile

Forwarding calls (in VMSC and GMSC). See section 5 for the usage of O-CSI.

T-CSI Terminating CAMEL Subscription Information (T-CSI) is transferred to the IPLMN for an incoming

call in GMSC. T-CSI contains trigger information that is required to invoke a CAMEL Service Logic

for Mobile Terminating calls in the GMSC. See section 6 for the usage of T-CSI.

VT-CSI VMSC Terminating CAMEL Subscription Information (VT-CSI) is transferred to the VPLMN at

location update. VT-CSI contains trigger information that is required to invoke a CAMEL Service

Logic for Mobile Terminating calls in the VMSC.

See section 6 for the usage of VT-CSI.

SS-CSI Supplementary Service Invocation Notification CAMEL Subscription Information (SS-CSI) is

transferred to the VPLMN. SS-CSI is used to notify the CSE about the invocation of certain

Supplementary Services.

See section 12.3 for the usage of SS-CSI.

TIF-CSI Translation information Flag CAMEL Subscription Information (TIF-CSI) is transferred to the

VPLMN. TIF-CSI is used in the HLR for registering short Forwarded-to-Numbers (FTN's). When

TIF-CSI is present, the subscriber is allowed to register short FTN's.

When the subscriber invokes Call Deflection, TIF-CSI in the VPLMN allows the subscriber to deflect

to short Deflected-to-Numbers.

See section 18.3 for the usage of TIF-CSI.

U-CSI USSD CAMEL Subscription Information (U-CSI) is held in the HLR; it is not sent to any other node.

U-CSI contains trigger information that is used to invoke a USSD application in the CSE for the

served subscriber.

See section 14.3 for the usage of U-CSI.

UG-CSI USSD General CAMEL Subscription Information (UG-CSI) is held in the HLR; it is not sent to any

other node. UG-CSI contains trigger information that is used to invoke a USSD application in the CSE

for all subscribers.

See section 14.3 for the usage of UG-CSI.

QMO-SMS-CSI Originating Short Message Service CAMEL Subscription Information (MO-QSMS-CSI) is transferred

to the VPLMN. MO-OSMS-CSI contains trigger information that is required to invoke a CAMEL

Service Logic for Mobile Originating Short Message submissions.

See section 9 for the usage of MO-OSMS-CSI.

<u>TMT-SMS-CSI</u> \$(CAMEL4\$) Terminating Short Message Service CAMEL Subscription Information (<u>MTT-SMS-CSI</u>)

is transferred to the VPLMN. MT-TSMS-CSI contains trigger information that is required to invoke a

CAMEL Service Logic for Mobile Terminating Short Message delivery.

See section 9 for the usage of MT-TSMS-CSI.

GPRS-CSI GPRS CAMEL Subscription Information (GPRS-CSI) is transferred to the VPLMN. GPRS-CSI

contains trigger information that is required to invoke a CAMEL Service Logic for GPRS Sessions

and PDP Contexts.

See section 10 for the usage of GPRS-CSI.

M-CSI Mobility Management CAMEL Subscription Information (M-CSI) is transferred to the VPLMN. M-

CSI is used to notify the CSE about Mobility Management events.

See section 12.1 for the usage of M-CSI.

D-CSI Dialled Services CAMEL Subscription Information (D-CSI) is transferred to the VPLMN (at location

update) and IPLMN (for an incoming call in GMSC). D-CSI contains trigger information that is required to invoke a CAMEL service logic for subscribers dialled services. See section 5.3.2 for the

usage of D-CSI.

Refer to 3G TS 23.078 for detailed descriptions of the various CAMEL Subscription Informations.

The CSI may include the Default Call Handling Indicator, Default GPRS Handling or Default SMS Handling.

The Default Call Handling indicates whether the call shall be released or continued in case of the contact to the CSE is not confirmed or interrupted.

[Network -based services may be provided by the serving PLMN operator. The provisioning mechanism is out of the scope of this specification.]

TSG S1 (01) 0125 Agenda Item: 7.5

3GPP TSG-SA1 Adhoc CAMEL Austin, USA 30-1st of January 2001

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Summary of chang	ge:tac								
Consequences if not approved:	₩ Prepa	id services c	an't be give	en in larg	e netwo	orks w	rith complex c	harging struct	ure.
Clauses affected:	第 5.3 ,	5.5 , 5.8 , 5	.10 , 6.3 __ aı	nd 6.x					
Other specs Affected:	T	ther core s est specific &M Specifi	ations	ns 8	f				
Other comments:	# This r	nechanism is	s already d	efined for	Mobil	e Orig	ginated and M	obile Forward	led calls .

****First Modification ****

5.3 Call set-up request procedure

5.3.1 Procedure when dialled digits have been collected

The purpose of this procedure is to detect a call set-up request at the point where digits have been collected but not analysed, and to allow the CSE to modify the handling of the call set-up request.

If (according to the CSI):

- the subscriber is provisioned with a CAMEL based originating service; and
- the call set-up request occurs; and
- the criteria are satisfied \$(CAMEL2\$).

Then the VPLMN/IPLMN shall suspend call processing, make contact with the CSE and await further instructions.

For mobile originated calls the information listed in table: A-1 (Call set-up request procedure 1) shall be provided to the CSE if available.

For forwarded calls the information listed in table: A-1 (Call set-up request procedure 2) shall be provided to the CSE if available

When the VPLMN/IPLMN has made contact with the CSE, the CSE shall be able to instruct the VPLMN to act as described below.

- perform charging activities; \$(CAMEL2\$);
- activate other control service events for the call. The CSE shall have the possibility to send the following information:
 - The service event which shall be detected and reported:
 - Called party connection.
 - Call disconnection.
 - Calling party abandon -\$(CAMEL2\$).
 - Unsuccessful call establishment. In the case of no answer the CSE may provide a no answer timer \$(CAMEL2\$).
 - The party in the call for which the event shall be detected and reported (calling or called party).
 - The type of monitoring (control or notification).
- order in-band user interaction. \$(CAMEL2\$).
- <u>Send request</u> charging notifications. \$(CAMEL4\$).

There shall be no restriction regarding the order of the above instructions or the number of times each of the above instructions can be repeated. Once the CSE has concluded issuing the above instructions, it shall issue one and only one of the following instructions:

- bar the call (i.e. release the call prior to connection);
- allow the call processing to continue unchanged;
- allow the call processing with modified information. The CSE shall have the possibility to send the information listed in table: A-2 (Call set up request procedure 1).

****Next Modification ****

5.5 Unsuccessful call establishment \$(CAMEL2\$)

The purpose of this procedure is to manage an outgoing call set-up at the time when the call establishment is unsuccessful.

If no control relationship for the given call exists and

- the unsuccessful call establishment procedure is defined as initial service event (according to the CSI); and
- the call attempt is unsuccessful; and
- the triggering criteria are satisfied.

Then the VPLMN/IPLMN shall suspend call processing, make contact with the CSE and await further instructions.

If a relationship for the given call already exists and the CSE has activated this service event for this call and the unsuccessful call establishment event occurs the VPLMN/IPLMN shall:

- suspend call processing, notify the CSE and await further instructions, or
- notify the CSE and continue call processing.

In both cases above the following information shall be provided to the CSE:

- Event met.
- Type of monitoring.
- Cause for unsuccessful call establishment:
 - not reachable;
 - busy;
 - no answer;
 - route select failure.

If the unsuccessful call procedure is armed as a initial service event, the information listed in table: A-1 (Unsuccessful call establishment (MO)) shall be provided to the CSE additionally if available. A new relationship is opened only if triggering criteria are fulfilled and no relationship exists already for the same CSI - \$(CAMEL3\$).

When the VPLMN/IPLMN has made contact with the CSE, the CSE shall be able to instruct the VPLMN/IPLMN to act as described below:

- perform charging activities;
- activate other control service events for the call. The CSE shall have the possibility to send the following information:
 - The service event which shall be detected and reported:
 - Called party connection.
 - Call disconnection.
 - Calling party abandon.
 - Unsuccessful call establishment. In thecase of no answer the CSE may provide a no answer timer.

- The party in the call for which the event shall be detected and reported (calling or called party).
- The type of monitoring (control or notification).
- Order in-band user interaction.
- <u>Send request</u> charging notifications. \$(CAMEL4\$).

There shall be no restriction regarding the order of the above instructions or the number of times each of the above instructions can be repeated. Once the CSE has concluded issuing the above instructions, it shall issue one and only one of the following instructions:

- allow the call processing to continue unchanged;
- allow the call processing with modified information. The CSE shall have the possibility to send the following information listed in table: A-2 (Unsuccessful call establishment (MO)).
- release call.

****Next Modification ****

5.8 Call disconnection procedure

The purpose of this procedure is to manage the actions on disconnection of an established call. This procedure is applicable to the calling party and to the called party.

If the CSE has activated this service event for this call and the call disconnection event occurs the VPLMN/IPLMN shall:

- suspend call processing, notify the CSE and await further instructions, or
- notify the CSE and continue call processing.

The following information shall be provided to the CSE:

- Event met;
- The party in the call for which the event is reported;
- Type of monitoring;
- Disconnection reason.

\$(begin\$(CAMEL2\$).

When the VPLMN/IPLMN has made contact with the CSE, the CSE shall be able to instruct the VPLMN/IPLMN to act as described below:

- perform charging activities;
- activate other control service events for the call. The CSE shall have the possibility to send the following information:
 - The service event which shall be detected and reported:
 - Called party connection.
 - Call disconnection.
 - Calling party abandon.

- Unsuccessful call establishment. In the case of no answer the CSE may provide a no answer timer.
- The party in the call for which the event shall be detected and reported (calling or called party).
- The type of monitoring (control or notification).
- Order in-band user interaction.
- <u>Send request</u>-charging notifications. \$(CAMEL4\$).

\$(end\$(CAMEL2\$).

There shall be no restriction regarding the order of the above instructions or the number of times each of the above instructions can be repeated. Once the CSE has concluded issuing the above instructions, it shall issue one and only one of the following instruction:

- allow the call processing to continue unchanged, i.e. to release the call;

\$(begin\$(CAMEL2\$).

- Allow the call processing with modified information. The CSE shall have the possibility to send the information listed in table: A-2 (Call disconnection procedure (MO)):

\$(end\$(CAMEL2\$)

****Next Modification ****

5.10 Charging Notification procedure \$(CAMEL4\$)

When charging information becomes available in the MSC, it shall be reported to the CSE. Charging information shall only be reported to the CSE only if this was requested by that CSE.

The type of charging information that shall be reported to the CSE shall be as depends on the type of information that was requested by the CSE.

****Next Modification ****

6 Procedures for Mobile Terminated Calls

NOTE: Other information elements not listed in the following subclauses may be necessary to meet some Stage 1 service requirements. Refer to the Stage 2 specification TS 23.078 for complete information element lists.

In the following subclauses VPLMN applies to CAMEL3 only.

6.1 Initial service events

It shall be possible to specify which of the following initial service events shall initiate contact with the CSE:

- Terminating Attempt Authorised
- Detection of unsuccessful call establishment.

Unsuccessful call establishment may be caused by:

- called subscriber busy;
- called subscriber not reachable;
- -no answer from called subscriber.

Upon detection of unsuccessful call establishment no new relationship is opened if there is already a dialogue opened due to same CSI.

6.2 Criteria for contact with the CSE

6.2.1 CSI criteria applicable on terminating attempt authorisation

It shall be possible for the HPLMN to specify a criterion which must be satisfied before the CSE is contacted.

The following criterion may be defined:

- A criterion on the basic service; this consists of a list up to 5 of basic service codes for individual basic services or basic service groups. The HPLMN may also choose not to define any criterion on the basic service.

The criterion on the basic service is satisfied if the basic service used for the call corresponds to any basic service code defined in the criterion or if no basic service criterion is specified.

On the incoming call request event procedure the CSE shall be contacted if the criterion on the basic service is satisfied.

6.2.2 CSI criterion applicable on detection of unsuccessful call establishment

A criterion on the failure reason may be defined. This consists of a list of up to 5 failure reasons. A failure reason can denote a release cause value or can denote that the HPLMN determined that the called subscriber was not reachable. The criterion on the failure reason is satisfied if the reason for failure of the call corresponds to any failure reason defined in the list or if no criterion is defined.

6.3 Incoming call request procedure

The purpose of this procedure is to detect an incoming call request and allow the CSE to modify the handling of the incoming call.

If (according to the CSI):

- the subscriber is provisioned with a CAMEL based terminating service; and
- the incoming call request event occurs

Then the IPLMN/VPLMN shall suspend call processing, make contact with the CSE and await further instructions.

For mobile terminated calls the following information listed in table: A-1 (Incoming call request procedure) shall be provided to the CSE if available.

When the IPLMN/VPLMN has made contact with the CSE, the CSE shall be able to instruct the IPLMN to act as described below.

- perform charging activities;
- activate subsequent control service events for the call. The CSE shall have the possibility to send the following information:
 - The subsequent service event which shall be detected and reported:
 - Called party alert;
 - Called party connection;

- Call disconnection:
- Calling party abandon;
- Unsuccessful call establishment. In case of no answer the CSE may provide a no answer timer.
- Mid call event (DTMF or out of band information). The CSE shall specify the digit string(s) or the out of band information for which the instruction is valid.
- The party in the call for which the event shall be detected and reported (calling or called party);
- The type of monitoring (control or notification).
- suppress tones and announcements which may be played to the calling party, if an unsuccessful call establishment occurs.
- order in-band user interaction;
- Send charging notifications.

There shall be no restriction regarding the order of the above instructions or the number of times each of the above instructions can be repeated. Once the CSE has concluded issuing the above instructions, it shall issue one and only one of the following instructions:

- bar the call (i.e. release the call prior to connection);
- allow the call processing to continue unchanged;
- allow the call processing with modified information. The CSE shall have the possibility to send the information listed in table: A-2 (Incoming call request procedure).

In the case the CSE instructs the IPLMN/VPLMN to allow the call processing with a changed called party number, the CSE shall indicate whether the resulting call shall be treated by the IPLMN/VPLMN as a forwarded call or not. Any forwarded call resulting from a CSE Call Forwarding service may cause an invocation of any mobile originated CAMEL based service in the IPLMN/VPLMN.

In the case the CSE instructs the IPLMN to allow the call processing with modified information, the CSE may send to the IPLMN an alerting pattern in order to alert the called subscriber in a specific manner. This alerting pattern shall be transferred to the VPLMN.

****Next Modification ****

6.x Charging Notification procedure

When charging information becomes available in the MSC, it shall be reported to the CSE. Charging information shall be reported to the CSE only if this was requested by that CSE.

The type of charging information reported to the CSE shall be as requested by the CSE.

TSG S1 (01) 0122 Agenda Item: 7.5

3GPP TSG-SA1 Adhoc CAMEL Austin, USA 30-1st of January 2001

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*** First Modified Section***

1 Scope

This standard specifies the stage 1 description for CAMEL feature (Customised Applications for Mobile network Enhanced Logic) which provides the mechanisms to support services consistently independently of the serving network. The CAMEL features shall facilitate service control of operator specific services external from the serving PLMN. The CAMEL feature is a network feature and not a supplementary service. It is a tool to help the network operator to provide the subscribers with the operator specific services even when roaming outside the HPLMN.

The CAMEL feature is applicable

- to mobile originated and mobile terminated call related activities;
- to supplementary service invocations;
- to SMS MO, to GPRS sessions and PDP contexts, to the control of HLR subscriber data, to the control of network signalling load.

The mechanism described addresses especially the need for information exchange among the VPLMN, HPLMN and the CAMEL Service Environment (CSE) for support of such operator specific services. Any user procedures for operator specific services are outside the scope of this standard.

This specification describes the interactions between the functions of the VPLMN, HPLMN, IPLMN and the CSE.

The second phase of CAMEL enhances the capabilities of phase 1 where the following capabilities have been added:

- Additional event detection points.
- Interaction between a user and service using announcements, voice prompting and information collection via in band interaction or USSD interaction.
- Control of call duration and transfer of Advice of Charge Information to the mobile station.
- The CSE can be informed about the invocation of supplementary services (e.g ECT, CD, MPTY).
- For easy postprocessing, charging information from a serving node can be integrated in normal call records.

The third phase of CAMEL enhances the capabilities of phase 2. Following capabilities are added:

- Support of facilities to avoid overload situations.
- Capabilities to support Dialled Services.
- Capabilities to handle mobility events, such as (Not-)reachability and roaming.
- Control of GPRS sessions and PDP contexts.
- Control of circuit switched mobile originating SMS and packet switched mobile originating SMS.
- Support of SoLSA. Support of Localised Service Area interworking is an optional feature.
- The CSE can be informed about the invocation of GSM supplementary services (CCBS)

Detailed information can be found in the respective sections.

The fourth phase of CAMEL enhances the capabilities of phase 3. The following capabilities are added:

- CAMEL support for Optimal Routeing of circuit-switched mobile-to-mobile calls;
- The capability for the CSE to create additional parties in an existing call;

- The capability for the CSE to create a new call unrelated to any other existing call;
- Enhanced CSE capability for Subscribed Dialled Services.

****Next Modified Section ****

5.3.2 Procedure for subscribed dialled services

The purpose of this procedure is to detect a call set-up request at the point where the called party number has been compared with the dialled services information, and allow the CSE to modify the handling of the call set-up request. Triggering of this procedure shall happen immediately after the procedure when dialled digits have been collected.

5.3.2.1 Initiation of contact with the CSE

If (according to the CSI):

- the subscriber is provisioned with a CAMEL based originating service; and
- the call set-up request occurs; and
- the criteria are satisfied

Then the VPLMN/IPLMN shall suspend call processing, make contact with the CSE and await further instructions.

Contact to the CSE shall (if necessary) be made in this manner before network dialled services are invoked;

For mobile originated calls the information listed in table: A-1 (Call set-up request procedure 3) shall be provided to the CSE if available.

For forwarded calls the information listed in table: A-1 (Call set-up request procedure 4) shall be provided to the CSE if available.

5.3.2.2 Further processing of the call

<u>If a relationship exists with a CSE, then \www.</u>hen the VPLMN/IPLMN has made contact with the CSE, the CSE shall be able to instruct the VPLMN/IPLMN to act as described below:

- perform charging activities The CSE is only allowed to send e-parameters (refer to sect. 15.1, 'CSE controlled e-values') and include free format data in Call Data Records (refer to sect. 15.2, 'Inclusion in charging records of information received from the CSE');
- order in-band user interaction. (Interaction between the service triggered from previous triggering may be needed to avoid duplicated guidance etc.).

Once the CSE has concluded issuing the above instructions, it shall issue one and only one of the following instructions:

- allow the call processing to continue unchanged;
- allow the call processing with modified information. The CSE shall have the possibility to send the information listed in table: A-2 (Call set up request procedure 2);
- release the call.

If no relationship exists with a CSE for the call, then when the VPLMN/IPLMN has made contact with the CSE, the CSE shall be able to instruct the VPLMN/IPLMN to act as described below:

- Perform charging activities;
- Activate subsequent control service events for the call. The CSE shall have the possibility to send the following information:
 - The subsequent service event which shall be detected and reported:
 - Called party alert;
 - Called party connection;
 - Call disconnection;
 - Calling party abandon;
 - Unsuccessful call establishment. In the case of no answer the CSE may provide a no answer timer;
 - Mid call event (DTMF or out of band information). The CSE shall specify the digit string(s) or the out of band information for which the instruction is valid. Out-band information may be detected during alerting phase of the call.
 - The party in the call for which the event shall be detected and reported (calling or called party);
 - The type of monitoring (control or notification).
- Order in-band user interaction;
- Send charging notifications.

There shall be no restriction regarding the order of the above instructions or the number of times each of the above instructions can be repeated. Once the CSE has concluded issuing the above instructions, it shall issue one and only one of the following instructions:

- Allow the call processing to continue unchanged;
- Allow the call processing with modified information. The CSE shall have the possibility to send the information listed in table: A-2 (Call set up request procedure 2);
- Release the call.

TSG S1 (01) 0124 Agenda Item: 7.5

3GPP TSG-SA WG1 CAMEL AdHoc Austin, USA, 30 January – 1 February 2001

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6.10 Called party alert reporting procedure

The purpose of this procedure is to manage an outgoing call set-up at the time when the called party is alerted.

If the CSE has activated this service event for this call and the called party alert event occurs the IPLMN/VPLMN shall:

- Suspend call processing, notify the CSE and await further instructions, or
- Notify the CSE and continue call processing.

The following information shall be provided to the CSE:

- Event met;
- The party in the call for which the event is reported (only called party applicable);
- Type of monitoring.

If it is the VPLMN that contacts with reportsed the alerting event to the CSE, the location information of the MS which was obtained by the paging shall be provided to the CSE.

When the IPLMN/VPLMN has made contact with the CSE, the CSE shall be able to instruct the IPLMN/VPLMN to act as described below:

- Perform charging activities;
- Activate subsequent control service events for the call. The CSE shall have the possibility to send the following information:
 - The service event which shall be detected and reported:
 - Calling party abandon;
 - Unsuccessful call establishment. In the case of no answer the CSE may provide a no answer timer;
 - Call disconnection;
 - Mid call event (DTMF);
 - Called party connection.
 - The party in the call for which the event shall be detected and reported;
 - The type of monitoring (control or notification).
- Order in-band user interaction with the calling party.

There shall be no restriction regarding the order of the above instructions or the number of times each of the above instructions can be repeated. Once the CSE has concluded issuing the above instructions, it shall issue the following instruction:

- Allow the call processing to continue unchanged.