Technical Specification Group Services and System Aspects
Meeting #8, Düsseldorf, Germany, 26-28 June 2000

TSGS#8(00)0204

Source: **TSG SA1**

Title:

Document for: **Approval**

Agenda Item: **6.1.3**

Doc-1st-Level	Doc-2nd-Level	Spec	CR	Rev	Phase	Cat	Subject	Version-Current	Version-New
SP-000204	S1-000267	22.121	007		R99	C	Modification of section 10.2.6 on reducing the scope of the VHE/OSA reqirements	3.2.0	3.3.0
SP-000204	S1-000334	22.121	010		R99	F	Alignment of VHE Stage 1 top VHE/OSA Stage 2 and stage 3	3.2.0	3.3.0
SP-000204	S1-000283	22.121	008		R99	C	Removal of section 10.2.3 Address Translation SCF	3.2.0	3.3.0
SP-000204	S1-000285	22.121	009		R99	C	Modification of section 10.2.9 to reduce scope of User Profile Management service capabilities	3.2.0	3.3.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ ↑ CR number as allocated by MCC support team

CHANGE REQUEST

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3GPP TSG-SA WG1
Beijing, China,
10th – 14th April 2000

TSG S1 (00) 267
Agenda Item: 5.4

Proposed change affects: (at least one should be marked with an X)

USIM		TE		Network	X

Work item: Virtual Home Environment

Source: SA1 **Date:** 14/04/00

Subject: Modification of section 10.2.6 on reducing the scope of the VHE/OSA reqirements

Category: (one category And one release Only shall be Marked with an X)

F	Correction		**Release:**	Phase 2	
A	Corresponds to a correction in an earlier release			Release 96	
B	Addition of feature			Release 97	
C	Functional modification of feature	X		Release 98	
D	Editorial modification			UMTS 99	X

Reason for change: To provide a consistent set of documents for release 99 it is necessary to align stage 1 with stage 2 by reducing the scope of the VHE/OSA reqirements.

Clauses affected: 10.2.6

Other specs Affected:

Other releases of same spec		→ List of CRs:
Other core specifications		→ List of CRs:
MS test specifications / TBRs		→ List of CRs:
BSS test specifications		→ List of CRs:
O&M specifications		→ List of CRs:

Other comments:

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10.2.6 Terminal Capabilities service capability features

(Editor's note: this section needs to be checked against the MExE specifications *)*
The Terminal Capabilities service capability features enable the application to find out what capabilities the user's terminal supports (note: "terminal" covers both (mobile) equipment and USIM).
The following service capability features shall be provided:

- Retrieval of Terminal Capabilities
  The application shall be able to retrieve the capabilities of the terminal. This includes:
  - the media that the terminal is capable to deal with (e.g. audio, video, PC data, WAP data; this information is needed by the application e.g. when the user wants to download messages from the mailbox);
  - the number of calls that the terminal can deal with simultaneously.

Note that in Release 99 only Terminal Capabilities can be provided by the Terminal Capability SCF only if the terminal is capable to supply them.
Terminals (e.g. MEXE-, WAP clients) may provide their Terminal Capabilities to the server (e.g. MEXE service environment or WAP gateway) either spontaneously or on request.
for "active" WAP-Terminals can be retrieved from WAP-Gateway.

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22.121	CR	010	Current Version:	3.2.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to:	TSG SA#08	for approval	X	strategic		(for SMG use only)
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Proposed change affects: *(at least one should be marked with an X)* (U)SIM [ ] ME [ ] UTRAN / Radio [ ] Core Network [X]

Source: LM Ericsson AB **Date:** 10-04-2000

Subject: Alignment of VHE Stage 1 top VHE/OSA Stage 2 and stage 3

Work item: VHE, OSA

Category: *(only one category shall be marked with an X)*

F	Correction	X	**Release:**	Phase 2	
A	Corresponds to a correction in an earlier release			Release 96	
B	Addition of feature			Release 97	
C	Functional modification of feature			Release 98	
D	Editorial modification			Release 99	X
				Release 00	

Reason for change:

The TSG SA#07 Plenary approved 3G TS 23.127 and requested S1 to align their stage 1 specification to the current scope of the stage 2 document. It was understood that the current Release 99 scope should be kept as was presented by 3G TS 23.127 and any further resolution of the open issues as identified within SP-000155 should be presented as CRs to the TSG SA#08 Plenary.

This CR aligns the stage 1, TS 22.121, to the current TS 23.127, Version 3.0.0

Furthermore this section addressed the removal of the FFS since this is not applicable to be in an stable document. The FFS items need to be worked out in further releases of the document (e.g. Release 00).

Clauses affected: Sections 2.1, 3.2 and 10

Other specs affected:

Other 3G core specifications	[ ]	→ List of CRs:
Other GSM core specifications	[ ]	→ List of CRs:
MS test specifications	[ ]	→ List of CRs:
BSS test specifications	[ ]	→ List of CRs:
O&M specifications	[ ]	→ List of CRs:

Other comments:


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2.1 Normative references

[1] GSM 01.04 (ETR 350): "Digital cellular telecommunication system (Phase 2+); Abbreviations and acronyms".

[2] GSM 02.57: "Digital cellular telecommunication system (Phase 2+); Mobile Station Application Execution Environment (MExE); Service description".

[3] GSM 02.78: "Digital cellular telecommunication system (Phase 2+); Customised Applications for Mobile network Enhanced Logic (CAMEL); Service definition - Stage 1".

[4] GSM 11.14: "Digital cellular telecommunication system (Phase 2+); Specification of the SIM Application Toolkit for the Subscriber Identity Module - Mobile Equipment; (SIM - ME) interface".

[5] UMTS TS 22.01: "Universal Mobile Telecommunications System (UMTS): Service Aspects; Service Principles".

[6] UMTS TS 22.05: "Universal Mobile Telecommunications System (UMTS); Services and Service Capabilities".

[7] ITU-T Recommendation Q.1701: "Framework for IMT-2000 networks".

[8] ITU-T Recommendation Q.1711: "Network Functional Model for IMT-2000".

[9] UMTS TS 22.00 UMTS phase 1.

[10] UMTS TS 23.127 “Virtual Home Environment/Open Service Architecture”

********** **NEXT MODIFICATION** **********

3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

API	Application Programming Interface
CAMEL	Customised Application For Mobile Network Enhanced Logic
CAP	Camel Application Part
CORBA	Common Object Request Broker Architecture
CSE	Camel Service Environment
FFS	For Further Study
GSN	GPRS Support Nodes
HE	Home Environment
HE-VASP	Home Environment Value Added Service Provider
HLR	Home Location Register
LCS	LoCation Services
MAP	Mobile Application Part
ME	Mobile Equipment
MExE	Mobile Station (Application) Execution Environment
MMI	Man Machine Interface
MS	Mobile Station
MSC	Mobile Switching Centre
OSA	Open Service Architecture
PLMN	Public Land Mobile Network
PSE	Personal Service Environment
SAT	SIM Application Tool-Kit
SIM	Subscriber Identity Module

SMS	Short Message Service
SSF	Service Switching Function
USIM	User Service Identity Module
USSD	Unstructured Supplementary Service Data
VASP	Value Added Service Provider
VHE	Virtual Home Environment

Further GSM related abbreviations are given in GSM 01.04. Further UMTS related abbreviations are given in UMTS TS 22.01.

********** NEXT MODIFICATION **********

10 Service Capability Features

Services Capability Features are open, technology independent building blocks accessible via a standardised application interface. This interface shall be applicable for a number of different business and applications domains (including besides the telecommunication network operators also service provider, third party service providers acting as HE-VASPs, etc.).

All of these businesses have different requirements, ranging from simple telephony and call routing, virtual private networks, fully interactive multimedia to using MS based applications.

The service capability features shall enable applications to make use of the service capabilities (e.g. CAMEL, MExE, etc.) of the underlying UMTS network in an open and secure way.

Application/Clients access the service capability features via the standardised application interface. This means that a single service capability feature is accessible and visible to application/clients via the method/operation invocations in the interface.

Two different types of service capability features can be distinguished:

- **Framework service capability features**: thi~~se~~s shall provide commonly used utilities, necessary for the non-framework service capability features to be accessible, secure, resilient and manageable;

- **Non-Framework service capability features**: these shall enable the applications to make use of the functionality of the underlying network capabilities (e.g. User Location service capability features).

10.1 Framework service capability features

The Framework service capability feature~~s~~ will be used e.g. for authentication~~,~~ authorization, ~~-~~registration, notification, etc. and provide functionality that is independent of any particular type of service. Other commonly used ~~service capability~~ features ~~may be added later~~are described in more detail within TS 23.127, such as:

- Trust and Security Management:
  It provides mechanisms for applications and framework to initiate communications, authenticate each other and mechanisms for applications to be authorised and access network capability features.

- Integrity Management:
  It provides the support of integrity for both the OSA APIs and the Applications (e.g. load manager, fault manager, OAM and Heartbeat manager)~~.~~.

10.1.1 Authentication service capability feature

Authentication is used to verify the identity of an entity (user, network, and application).

Three types of authentication are distinguished:

- **User-Network Authentication:** before a user can access her subscribed applications, the user has to be authenticated by the network that provides access to the application. This allows the network to check to what applications the user has subscribed to. User-network authentication *is handled within the network and therefore outside the scope of the present document.*

- **Application-Network Authentication:** before an application can use the capabilities from the network, a service agreement has to be established between the application and the network. Establishment of such a service agreement starts with the mutual authentication between application and network. If a service agreement already exists, modification might be needed or a new agreement might supersede the existing.

- **User-Application Authentication:** before a user can use an application or perform other activities (e.g. modifying profile data) the application provider must authenticate the user. When the network already authenticates the user, authentication is not needed anymore. When the network is transparent and the user accesses an application directly, authentication is needed between user and application but *this is outside the scope of the present document.*

10.1.2 Authorisation service capability feature

Authorisation is the activity of determining what an authenticated entity (user, network, and application) is allowed to do.

NOTE: Authentication must therefore precede authorisation.

Two types of authorisation are distinguished:

- **Application-Network Authorisation:** the network verifies what non-framework service capability features s (or even some framework service capability features) the application is allowed to use. Once an application has been authorised to use one, more or all (non-framework) service capability features no further authorisation is required as long as the "allowed" (non-framework) service capability features are used.

- **User-Application Authorisation:** the application verifies what actions the user is allowed to perform (e.g. deactivation of functionality, modification of application data). This is transparent to the network and therefore *outside the scope of the present document*.

10.1.3 Registration service capability feature

The Registration service capability feature enables the non-framework service capability features (e.g. User Location) to register at the Framework. Registration must take place before authorised applications can find out from the Framework which non-framework service capability features are available. This means that the non-framework service capability features must be registered before they can be discovered and used by authorised applications.

Note that only the non-framework service capability features have to be registered. The Framework service capability features (defined in subclause 10.1) are available by default since they provide basic mechanisms.

10.1.4 Discovery service capability feature

The Discovery service capability feature enables the application to identify the total collection of service capability features that it can use. Upon request of the application, the Discovery service capability feature will indicate the non-framework service capability features that are available for the application. The list of available service capability features is created through the Registration process described in subclause 10.1.3. This means that a service capability feature must be registered at the Framework before it can be discovered by the application.

10.1.5 Notification service capability feature

The Notification service capability feature allows applications to enable, disable and receive notifications of application related events that have occurred in the underlying GSM/UMTS network, e.g. indication that a new call is set-up or a message is received.

NOTE: It should be further studied if Notification is only a Framework service capability feature or also specialised as non-framework service capability features (e.g. for notifications on location update, disconnected party etc.).

10.2 Non-Framework service capability features

The Non-Framework service capability features represent the total collection of service capability features that are not included in the Framework. These non-framework service capability features enable the application to make use of the functionality provided by the network and service capabilities.

Service capability features shall be defined as much as possible in a generic way to hide the network specific implementation. To achieve this, it is necessary to identify the functionality that is provided by more than one service capabilities. For example, User Location can be produced in several underlying ways. This functionality can be captured once when defined the service capability features in a generic way. It is important that the generic part becomes as large as possible.

When applications use the generic service capability features, these applications become independent of (portable over) underlying service capabilities. Applications shall however still be able to request service capability features specific to a service capability (e.g. Call Setup from CAMEL). This will increase dependency of the used service capability.

The following subclauses define generic service capability features e.g. for Session Control and Message Transfer.

10.2.1 Session Control service capability features

This subclause details the Session Control related service capability features. Session Control service capability features shall offer the functionality to establish, maintain, modify and release bearers to/from other parties or entities.

Herein, the term "session" can mean anything from a simple voice call to a complex multimedia "call" (including exchange of non delay-sensitive data). To define the necessary service capability features it is proposed to use a generic model (including the "session party handling").

For example, the following Session Control service capability features shall be provided (the list is not exhaustive):

- ~~initiate and create session (e.g. used to set up a Telephony session "out of the blue");~~
- allow the session to continue with modified information (e.g. changed destination number);
- release the session (i.e. removing all parties from the session);
- ~~add bearer to the session;~~
- ~~remove bearer from the session;~~
- ~~resume bearer to the session (i.e. move party from "on hold" into Telephony Session);~~
- ~~suspend bearer from the session (i.e. move party from Telephony Session to "on hold");~~
- request session information (i.e. information like session duration, session end time);
- supervise session (e.g. monitor for session duration or data volume, tariff switching moments and changes in QoS);
- presentation of, or restriction of, information associated with a party involved in a session (e.g. calling line ID, calling name);
- collect information from user (i.e the application shall be able to request data from the user. For example, the user might enter some code number).

For each session it shall be possible to specify:

- ~~the desired media type (e.g. video, voice, non-real time data etc.);~~
- the events on which monitoring is required ([3]).

NOTE: The mapping to service capabilities is for further study (it shall be investigated to which extend the requirements above fit to CAMEL, MEXE and other service capabilities).

10.2.2 Security/Privacy service capability features

For the Security/Privacy the following service capability features shall be supported:

- encryption of user data and signalling.

~~10.2.3 Address Translation service capability features~~

~~The Address Translation enables the application to find out from the underlying network what the user's addresses are. Based on a known user address, the application may request another address (e.g. based on the E.164 number, the user's e-mail is retrieved). The range of addressing options includes:~~

- ~~E.164 Numbering (e.g. GSM MS-ISDN);~~
- ~~ASEA Numbering (ATM);~~
- ~~IP v4 numbering;~~
- ~~IP v6 numbering;~~
- ~~X.25 Numbering;~~
- ~~Internet symbolic naming.~~

10.2.4 User Location service capability features

The User Location service capability features provide an application with information concerning the user's location.

The user location information contains the following attributes:

- **location** (e.g. in terms of universal latitude and longitude co-ordinates);
- **accuracy** (value depending on local regulatory requirements and level of support in serving/home networks; note that the accuracy of the serving network might differ from that in the home environment);
- **age** of location information (last known date/time made available in GMT).

The following service capability features shall be provided:

- **report of location information:**
  - the application shall be able to request user location information;
  - by default the location information is provided once; the application may also request periodic location reporting (i.e. multiple reports spread over a period of time).
- **notification of location update:**
  - the application shall be able to request to be notified when the user's location changes, i.e. when:
    - the user enters or leaves a specified geographic area;
    - the user's location changes more than a specified lower boundary. The lower boundary can be selected from the options provided by the network.

The application shall be able for each user to start/stop receipt of notifications and to modify the required accuracy by selecting another option from the network provided options.

- **Access control to location information:**

- the user shall be able to restrict/allow access to the location information. The restriction can be overridden by the network operator when appropriate (e.g. emergency calls).

10.2.5 User Status service capability features

The User Status service capability features enable an application to retrieve the user's status, i.e. to find out on which terminals the user is available.

The following service capability features shall be provided:

- **retrieval of User Status:**
  - the application shall be able to retrieve the status of the user.
- **notification of User Status Change:**
  - the application shall receive notifications when the user's terminal attaches or detaches:
    - detach: the user's terminal is switched on or the network initiates detach upon location update failure;
    - attach: the user's terminal is switched on or there has been a successful location update after network initiated detach.

The application shall be able for each terminal to start/stop receipt of notifications.

10.2.6 Terminal Capabilities service capability features

~~*(* Editor's note: this subclause needs to be checked against the MExE specifications *)*~~

The Terminal Capabilities service capability features enable the application to find out what capabilities the user's terminal supports (note: "terminal" covers both (mobile) equipment and USIM).

The following service capability features shall be provided:

- **retrieval of Terminal Capabilities:**
  - the application shall be able to retrieve the capabilities of the terminal. This includes:
    - the media that the terminal is capable to deal with (e.g. audio, video, PC data, WAP data; this information is needed by the application e.g. when the user wants to download messages from the mailbox);
    - the number of calls that the terminal can deal with simultaneously.

10.2.7 Information Transfer service capability features

The Information Transfer service capability feature shall enable an application to indicate to a user respectively an application in the UE or USIM about the presence of existing information for her. Physically, this indication may be sent by the underlying network e.g. as a SMS or USSD message to the terminal. The Information Transfer service capability feature provides the means to inform the underlying network that an indication shall be sent to the user.

NOTE: For UMTS release 99 mechanisms like USSD or SMS may be employed to transfer the indication to the users terminal. ~~Appropriate mechanisms in future releases are FFS.~~

The following service capability feature shall be supported:

- **send information notification:**
  - the Send information notification service capability feature provides the means to inform the underlying network that an indication shall be sent to a user respectively an application in the UE or USIM about the presence of existing information for her;

- this indication shall contain sufficient information for the receiving entity to react in an appropriate manner, e.g. an announcement ID, URL, a string, etc. In addition the application or execution environment in the terminal (e.g. MExE SAT), that is to display this information, needs to be referenced.

- **request message receipt notification:**

  - the application can request to receive a notification every time a message is received in the mailbox for the user. This allows the application to take the appropriate action, e.g. informing the user.

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CHANGE REQUEST No : 008

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Technical Specification / Report UMTS 22.121 Version: 3.2.0

Submitted to TSG_SA 1 #8 *list TSG plenary meeting no. here ↑*

for approval X
for information

without presentation ("non-strategic")
with presentation ("strategic") X

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Proposed change affects: *(at least one should be marked with an X)*

USIM | TE | Network X

Work item: Virtual Home Environment

Source: SA1 **Date:** 14/04/00

Subject: Removal of section 10.2.3 Address Translation SCF

Category: *(one category And one release Only shall be Marked with an X)*

F	Correction	
A	Corresponds to a correction in an earlier release	
B	Addition of feature	
C	Functional modification of feature	X
D	Editorial modification	

Release:

Phase 2	
Release 96	
Release 97	
Release 98	
UMTS 99	X

Reason for change: To provide a consistent set of documents for release 99 it is necessary to align stage 1 with stage 2 by reducing the scope of the VHE/OSA reqirements. Therefor the required Address Translation SCF has to be removed in release 99 but addressed in release 00.

Clauses affected: 10.2.3

Other specs Affected:

Other releases of same spec		→ List of CRs:
Other core specifications		→ List of CRs:
MS test specifications / TBRs		→ List of CRs:
BSS test specifications		→ List of CRs:
O&M specifications		→ List of CRs:

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10.2.3 Address Translation service capability features

The Address Translation enables the application to find out from the underlying network what the user's addresses are. Based on a known user address, the application may request another address (e.g. based on the E.164 number, the user's e-mail is retrieved). The range of addressing options includes:

- E.164 Numbering (e.g. GSM MS-ISDN);
- ASEA Numbering (ATM);
- IP v4 numbering;
- IP v6 numbering;
- X.25 Numbering;
- Internet symbolic naming.

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CHANGE REQUEST No : 009 *Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.*

Technical Specification / Report UMTS 22.121 Version: 3.2.0

Submitted to TSG_SA 1 #8 *list TSG plenary meeting no. here ↑*
for approval X
for information
without presentation ("non-strategic")
with presentation ("strategic") X

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Proposed change affects: *(at least one should be marked with an X)* USIM [ ] TE [ ] Network [X]

Work item: Virtual Home Environment

Source: SA1 **Date:** 14/04/00

Subject: Modification of section 10.2.9 to reduce scope of User Profile Management service capabilities

Category: *(one category And one release Only shall be Marked with an X)*

F	Correction	
A	Corresponds to a correction in an earlier release	
B	Addition of feature	
C	Functional modification of feature	X
D	Editorial modification	

Release:

Phase 2	
Release 96	
Release 97	
Release 98	
UMTS 99	X

Reason for change: To provide a consistent set of documents for release 99 it is necessary to align stage 1 with stage 2 by reducing the scope of the VHE/OSA reqirements.

Clauses affected: 10.2.9

Other specs Affected:

Other releases of same spec	[ ]	→ List of CRs:
Other core specifications	[ ]	→ List of CRs:
MS test specifications / TBRs	[ ]	→ List of CRs:
BSS test specifications	[ ]	→ List of CRs:
O&M specifications	[ ]	→ List of CRs:

Other comments:

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10.2.9 User Profile Management service capability features

The User Profile Management service capability features allow the application to retrieve the user profile (see section 76.1 for more information on user profiles).

For release 99 the following information could be retrieved by an appllication:

- terminal capabilities, as described in the proper section,
- user information provided by and limited to CAMEL 3 R99 functionalities (ATI, ATN, ATM).