Technical Specification Group Services and System Aspects
Meeting #17, Biarritz, France, 9-12 September 2002

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Source: **SA5 (Telecom Management)**

Title: **Rel-5 CR 32.802 (User Equipment (UE) management feasibility study)**

Document for: **Approval**

Agenda Item: **7.5.3**

Doc-1st-	Spec	CR	Rev	Phase	Subject	Cat	Version-	Doc-2nd-	Workitem
SP-020451	32.802	001	-	Rel-5	**Corrections to Abbreviations, Architecuture, Proposed plan, Risks and Annex A clauses.**	F	5.0.0	S5-022248	UEM

3GPP TSG-SA5 (Telecom Management) **S5-022248**
Meeting #30, Tampere, FINLAND, 19 - 23 August 2002

CR-Form-v7

CHANGE REQUEST

⌘ **32.802** **CR** **001** ⌘ **rev** **-** ⌘ Current version: **5.0.0** ⌘

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

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

Title:	⌘	Corrections to Abbreviations, Architecuture, Proposed plan, Risks and Annex A clauses.
Source:	⌘	S5
Work item code:	⌘	UEM
Date:	⌘	23/08/2002
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

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

Reason for change:	⌘	TR 32.802 V5.0.0 has a number of comments. This CR resolves these outstanding issues.
Summary of change:	⌘	1. Missing abbreviation for IMSI added. 2. In Architecutre clause, UEM Gateway definition corrected. 3. Comment on GAP addressed and also the change from UEM feature to UEM Building Block 4. Terminal corrected to UE in in clause 9 and Annex A. 5. Requirement clarified in Annex A.
Consequences if not approved:	⌘	The mistakes and their associated embedded comments will remain in the TR.

Clauses affected:	⌘	3.2, 6.1.1.3, 7.2, 9, Annex A

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

Other comments: ⌘

3.2 Abbreviations

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

CC	Customer Care
CM	Configuration Management
CRM	Customer Relationship Management
FAQ	Frequently Asked Questions
FCAPS	Fault, Configuration, Accounting, Performance, and Security management
FM	Fault Management
GUP	Generic User Profile
IMEI	International Mobile station Equipment Identities
IMSI	International Mobile Subscriber~~Equipment~~ Identity
~~IMSI~~	
ME	Mobile Equipment
OTA	Over-The-Air
PC	Personal Computer
PM	Performance Management
SM	Service Management
SW	Software
UEM	User Equipment Management

NOTE: The other abbreviations used in the present document can be found in Reference [1].

6.1.1 Definition of entities

This subclause describes the entities listed in the architecture (Figure 4).

6.1.1.1 UEM Client

The UEM Client is the component required in the UE to collaborate with the management server to manage the ME and the USIM. Collaboration sessions may include several simultaneous management tasks as instructed by the server.

6.1.1.2 UEM Server

The UEM Server co-ordinates the various UEM functions (FCAPS) that may be performed on clients within its domain. A link from the UEM Server to billing systems would be used to transfer charging information for the UEM interactions. The UEM Server maintains the management clients' session information and forwards the results to the different UE Managers. Example UEM Server functions are:

- UE Reconfiguration;
- Application and Service Reconfiguration;
- Application Error Tracing;
- Remote UE Diagnostics;
- Remote Application Diagnostics;
- Performance Measurements; and
- Virus Detection and Prevention.

NOTE: Not all of these functions are proposed for Release 6.

It is assumed that the network operator will own the UEM Server.

6.1.1.3 UEM Gateway

UE managers use the UEM Gateway to provide ~~transparent~~ access (via the UEM server) to the UE client from various UE managers. In this example, the UEM Gateway controls the access available to the UE managers.

It is assumed that the network operator will own the UEM Gateway.

6.1.1.4 UE Managers

UE managers use the UEM Gateway to access the UEM clients. Some examples of possible UE managers are:

- Network Operator;
- Network Equipment Provider;
- Service Provider;
- Content Provider;
- User Equipment Manufacturer;
- Application Service Provider;
- Enhanced Service Provider;
- IT-Support Provider;
- Corporate Administrator;
- Customer Care Operator;
- User (via a customer self care service).

7.2 Proposed plan for post-Release 5 UEM work

The plan for UEM work should be phased. It is expected that the UE Software Update capability would be beyond Release 6. This would also imply that the remote UE Diagnostic capability utilising the UE Software Update capability would be beyond Release 6.

More details on the planning/scheduling have been requested, but are not appropriate for this feasibility study.

The high level UEM plan consists of:

- Produce Work Item Descriptions (WIDs): SA5 Building Block~~Feature level~~ WI, Work Tasks-level ~~Building Block level~~ WIs for SA3, SA5, T2, T3, etc.
- Produce requirements & architecture: SA5 Work Task~~Building Block~~-level WI;
- Protocol Specification, Generic User Profile (GUP) & gap ~~GUP & GAP~~ analysis: T2 Work Task~~Building Block~~:

  A trusted relationship is needed between the UEM Client and Server. If SyncML Dev Man is selected as the protocol, the content should be specified. It is expected that much of the technology required for UEM is becoming available.
  A gap analysis ~~GAP analysis~~ Work Task needs to be performed to determine where there are mismatches ~~gaps~~ between the available technology and that required for UEM.
- UEM security: SA3 Work Task~~Building Block~~:

  A trusted relationship is needed between the UEM client and server, the requestor as well as the UE needs to be authenticated.

- Analysis of compliance to TS 23.227 [11]: T2 Work Task~~Building Block~~;
- USIM work (e.g. parameter definition) T3 Work Task~~Building Block~~.

It has been suggested that the first phase of the Remote UE Diagnostics capability should focus on the features which can be remotely fixed in the UE, for example using the UE Reconfiguration capability.

Regarding the GUP work (3GPP TSs 22.240 [2], 23.240 [3], 23.241 [4]), it is today unclear if all of the needed work, such as transport mechanisms and security, based on the GUP concept, can be completed within Release 6.

The SyncML Dev Man is an available standard. However, for maximum efficiency of the solutions, 3GPP TSG T WG2 may request some amendments. The time scales for this is dependent on both the total GUP related work plan and up to the discretion of the SyncML Initiative.

9 Risks

1 The IMEI and IMEISV returned by some UEs ~~terminals~~ may not be correct. The terminal could have been upgraded and the IMEI/IMEISV not altered to reflect the upgrade, or the terminal may have been subject to unauthorised changes. This means the IMEI and IMEISV cannot be relied on 100% and this should be taken into account.

2 An insufficient security framework may be implemented.

3 A complete risk analysis has not been done yet.

Annex A:
Additional UEM Requirements

This annex contains requirements related to UEM that are in addition to those in clause 4 and are not directly related to the UEM capabilities identified in clause 5. These requirements are included for information-only and the present document does not contain UEM capabilities for these requirements.

Table A.1: Additional possible User Equipment Management (UEM) requirements

Ref	Management Function	Requirement
2.	FM	Support the identification of faults
3.	FM	Provide support for the analysis of faults
7.	FM	Show customers the fault process from report of problem to resolution
8.	FM	Video - be able to see what the customer sees on their UE
10.	FM	Ability to "ping" UE for health check/status
12.	FM	Remote control of UE by CSA/second line support
14.	CM	Upgrades - targeted at "problem" models
15.	PM	Highlight capacity levels on the various bearer services to customers
16.	PM	Application Performance
17.	PM	Application history
18.	PM	• Which applications/products has he/she selected/downloaded (including 3rd party applications)? • Once an application has been downloaded (e.g. a K-Java game), how often is it used? How is it used, etc.? • Include 3rd party services/products
19.	PM	Customer location
20.	PM	Historical customer location
21.	PM	Coverage experience
22.	PM	Customer perceptions of new services
23.	PM	What services/products did he/she use (voice, video…)?
24.	PM	Failed calls details (# dialled, time…)
25.	PM	UE Faults to N/W Ops
27.	PM	Report failure to connect to service(s)
28.	FM	Produce fault logs
29.	FM	Retain fault logs files for fault investigation
30.	PM	Coverage problems – no signal… (location, time)
31.	PM	Return reason for dropped calls/session
32.	PM	Level of radio coverage
33.	PM	• Radio performance • Voice • Video • Data • C/S • P/S
34.	PM	Radio availability
35.	PM	Radio coverage (signal strength)
36.	PM	Data speed probability
37.	PM	Report slow 'data' speeds although signal strength OK
38.	PM	Capacity availability
39.	PM	Capacity experienced
40.	PM	Interference/noise

Ref	Management Function	Requirement
41.	PM	Get network performance data from user equipment
42.	PM	Cell performance from UE - relate to cell site software versions
43.	PM	PS v CS, different bearers, different speeds ↑ and ↓
44.	PM	Historical coverage information for user equipment over all bearers
45.	PM	Cell overlap/multiple cell profiles
46.	PM	Service performance from UE
47.	PM	Provide a regionalised view of service performance
48.	PM	Monitor service performance
49.	PM	Service availability report
50.	PM	Service outage report
51.	PM	SLA reports
52.	PM	For transactions over an earlier period transactions (48 hours?) remotely accessible
53.	PM	For previous "x" transactions
54.	PM	Battery efficiency
55.	PM	• Time of day/frequency/duration • Success rates • How is he using the service? • What key did he press when…? • Problems encountered • How often do people turn their mobile on/off? • When do they leave it on/off? • How often/when do user charge batteries, etc.? • Key sequences – Configuration (e.g. WAP) • Key sequences - Usage behaviour (e.g. using phonebook, messages, SIM – toolkit, etc.) • Key sequences – Idiosyncratic behaviour? • How does usage behaviour vary by type of User Equipment, etc.?
56.	PM	Which bearer was used?
57.	PM	Faster response to usage trends – real-time collection of usage stats via User Equipment
59.	PM	• UE performance – application • UE performance by UE type • UE performance data by customer • UE performance by geographic
61.	SM	Capacity to support volume customers
65.	SM	Maintenance schedule locally
68.	SM	Send questions on new services to UE for customer feedback
69.	SM	Support users setting-up their UE (e.g. from web interface)
70.	SM	Interactive help "don't press that key, press the one above it"
71.	SM	Applications that show what to do next
73.	SM	PC anywhere for mobiles – help customers to add complex services
75.	SM	Modify the user interface to match *__owner__*
77.	SM	Be able to manage all the elements involved in delivering an application
78.	SM	Monitor the quality of service delivered to customers (video telephony, voice etc.)
79.	SM	Monitor actual coverage as experienced by user
80.	SM	Monitor service delivered to corporates
81.	SM	Monitor service as experienced by user
82.	SM	Ability to recognise degradation of service (ideally before the customer notices and reports it~~contacts us~~)
83.	SM	UE monitoring of performance and alert the operator when the SLA is being broken
84.	SM	Based on customer priority
86.	SM	• By service • Customer specific
87.	SM	"Mr Smith, did you know that your battery is only working at 30% efficiency?…"

Ref	Management Function	Requirement
88.	SM	Offer trials of services
89.	SM	Add value through experience of 3rd party applications
91.	SM	Set performance thresholds on UE
92.	SM	Re-calibrate/re-tune UE over-the-air
93.	SM	There should be charging mechanisms for UEM.
94.		It is essential the confidentiality of customer personal information is not violated.
149	FM	If a UE ~~terminal~~ has a fault then, under the control of the network, if possible the UE ~~terminal~~ should ~~be able to~~ send information on the fault to the network UEM server.
150	CM	Be able to retrieve the following information form the UE: • Applications embedded • Applications added/downloaded • Application version
Key to Management Function column: SM: Service Management. CM: Configuration Management. FM: Fault Management. PM: Performance Management.		

100. Requirement removed.

116. Requirement removed.

117 Requirement removed.

120. Requirement removed.

Tracking Hardware

97. It should be possible for the UE manager to retrieve the user UE IMEI from at least two sources in order to confirm it:

- The User Equipment;

- A source other than the UE, e.g. subscriber profile database.

98. All existing instances of user UE information should always be up to date and consistent to each other.

Tracing Errors

106. The UE manager should be able to isolate the faulty UE from the network but still allow restricted remote access for remedial applications to be downloaded. Preventing and Detecting Viruses.

125. The UE manager should be able to verify and guarantee that a downloadable piece of software/application is virus free.

126. The UE manager should be able to remotely download the anti-virus application to the User Equipment.

127. The UE manager should be informed whether the anti-virus application has been successfully installed in the UE.

128. The UE manager should be informed whether the anti-virus application has completed its tasks successfully.

129. The anti-virus application should uninstall and delete itself after completing its tasks unless explicitly instructed not to.

130. It should be possible for an anti-virus application that has already been installed in a UE to automatically check each application and piece of software that is being downloaded to the terminal.

131. It should be possible for the UE manager to remotely trigger an anti-virus application within a UE.

132. If a UE is infected with a virus then ideally the UE would be disinfected with a minimum impact on the UE.

133. UE configuration should remain unaffected unless otherwise required by the anti-virus application.

Miscellaneous Requirements

134. UE manager position should be able to retrieve the user UE profile from the subscriber profile or customer relationship database based on IMSI or MSISDN.

140. Any collected performance data should be returned to the network UE manager for processing.

146. Execution of the application should be possible using certain triggering events.

147. It is desirable to be able to manage data on behalf of the customer. Currently SIM card crashes mean the customer has to re-enter all their data. This will be a bigger problem in the future as more data is stored on the UE.