Technical Specification Group Services and System Aspects *TSGS#10(00)0587*
Meeting #10, Bangkok, Thailand, 11-14 December 2000

Source: **TSG SA WG2**
Title: **CRs on 23.002 v.3.3.0, v.4.0.0 and v.5.0.0**
Agenda Item: **7.2.3**

The following Change Requests (CRs) have been approved by TSG SA WG2 and are requested to be approved by TSG SA plenary #10.
Note: the source of all these CRs is now S2, even if the name of the originating company(ies) is still reflected on the cover page of all the attached CRs.

CRs on 23.002 v.3.3.0, v.4.0.0, v.5.0.0

Spec	*Rel*	*CR #*	*Cat*	*Title*	*Input*
23.002	R99	022	F	CAMEL for the PS domain	3.3.0
23.002	Rel-4	023	F	CAMEL for the PS domain	4.0.0
23.002	Rel-5	024	F	CAMEL for the PS domain	5.0.0
23.002	Rel-4	026r1	B	Introduction of Iu-CS and Iu-PS interfaces to BSS of type GERAN in the network architecture for REL-4	4.0.0

3GPP TSG-SA/WG2 Meeting #15
Makuhari, Japan, November 13-17, 2000

Tdoc S2-001804

CR-Form-v3

CHANGE REQUEST

⌘ **23.002** **CR** **022** ⌘ rev **-** ⌘ Current version: **3.3.0** ⌘

*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:	⌘	CAMEL for the PS domain 23.002
Source:	⌘	Ericsson
Work item code:	⌘	***Date:*** ⌘ 2000-11-07
Category:	⌘	**F** ***Release:*** ⌘ R99

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)*

Reason for change:	⌘	The support of CAMEL for the PS domain is not reflected in 23.002 (while the CAMEL support for the CS domain is included).
Summary of change:	⌘	CAMEL functions, architecture and interfaces for the PS domain are added
Consequences if not approved:	⌘	Inconsistent Specifications

Clauses affected:	⌘	4a.4, 5.3, 6a.4
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

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

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

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://www.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2000-09 contains the specifications resulting from the September 2000 TSG meetings.

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

4a.4 CAMEL entities

The entities of this subclause support the CAMEL feature (Customised Applications for Mobile network Enhanced Logic). This feature provides the mechanisms to support services consistently independently of the serving network, as described in 22.078 [2c]. The following definitions are extracted from 23.078 [10c], which completely specifies CAMEL stage 2.

4a.4.1 GSM Service Control Function (gsmSCF)

A functional entity that contains the CAMEL service logic to implement Operator Specific Service. It interfaces with the gsmSSF, the gsmSRF and the HLR.

4a.4.2 GSM Service Switching Function (gsmSSF)

A functional entity that interfaces the MSC/GMSC to the gsmSCF. The concept of the gsmSSF is derived from the IN SSF, but uses different triggering mechanisms because of the nature of the mobile network.

4a.4.3 GSM Specialised Resource Function (gsmSRF)

A functional entity which provides various specialized resources. It interfaces with the gsmSCF and with the MSC. This entity is defined in ITU-T Q.1214 [11] with variations defined in 23.078.

4a.4.4 GPRS Service Switching Function (gprsSSF)

A functional entity that interfaces the SGSN to the gsmSCF. The concept of the gprsSSF is derived from the IN SSF, but uses different triggering mechanisms because of the nature of the mobile network.

5.3 Configuration of CAMEL entities

The following figure shows the interconnection of the CAMEL-specific entities with the rest of the network. Only the interfaces specificly involved in CAMEL provisionning are shown, i.e. all the GMSC, MSC, SGSN and HLR interfaces depicted in figure 1 are still supported by these entities even if not shown.

NOTE: The CAMEL-specific interfaces have no particular name. They are designated by the name of the two entities they link together, e.g. "the gsmSSF-gsmSCF interface".

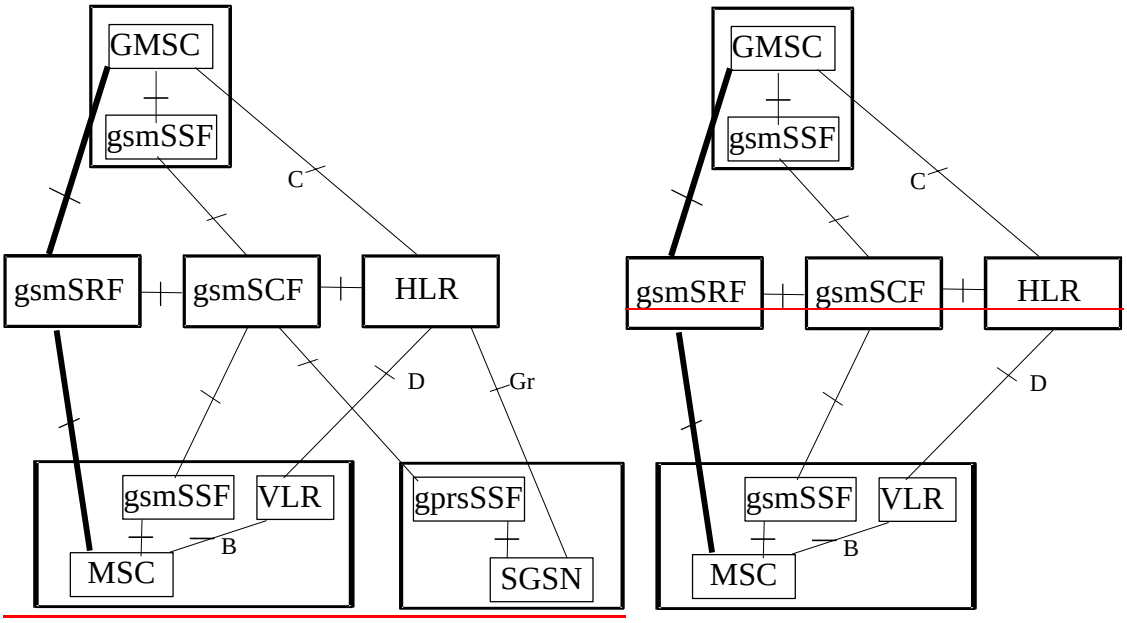

Figure 4: configuration of CAMEL entities

The bold lines are used for interfaces supporting user data only, the dashed lines are used for interfaces supporting signalling only.

6a.4 CAMEL-specific interfaces

The CAMEL-specific interfaces are detailed in 23.078 [10c]. These interfaces are.

6a.4.1 GMSC - gsmSSF interface

This is an internal interface. The interface is described in the specification to make it easier to understand the handling of Detection Points (arming/disarming of DPs, DP processing etc.).

6a.4.2 gsmSSF - gsmSCF interface

This interface is used by the gsmSCF to control a call in a certain gsmSSF and to request the gsmSSF to establish a connection with a gsmSRF. Relationships on this interface are opened as a result of the gsmSSF sending a request for instructions to the gsmSCF.

6a.4.3 MSC - gsmSSF interface

This is an internal interface. The interface is described in the specification to make it easier to understand the handling of DPs (arming/disarming of DPs, DP processing etc.).

6a.4.4 gsmSCF - HLR interface

This interface is used by the gsmSCF to request information from the HLR. As a network operator option the HLR may refuse to provide the information requested by the gsmSCF.

This interface is also used for USSD operations, both for gsmSCF-initiated dialogues and MS-initiated dialogues (relayed via HLR). It is a network operator option whether to support or not USSD operations on this interface.

6a.4.5 gsmSCF - gsmSRF interface

This interface is used by the gsmSCF to instruct the gsmSRF to play tones/announcements to the users.

6a.4.6 MSC - gsmSCF interface

This interface is used by the MSC to send supplementary service invocation notifications to the gsmSCF.

6a.4.7 SGSN - gprsSSF interface

This is an internal interface. The interface is described in the specification to make it easier to understand the handling of DPs (arming/disarming of DPs, DP processing etc.).

6a.4.8 gprsSSF - gsmSCF interface

This interface is used by the gsmSCF to control a GPRS session or individual PDP Context in a certain gprsSSF. Relationships between the gprsSSF and the gsmSCF (GPRS dialogues) on this interface are opened as a result of the gprsSSF sending a request for instructions to the gsmSCF.

3GPP TSG-SA/WG2 Meeting #15
Makuhari, Japan, November 13-17, 2000

Tdoc S2-001805

CR-Form-v3

CHANGE REQUEST

⌘ **23.002** **CR** **023** ⌘ rev **-** ⌘ Current version: **4.0.0** ⌘

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

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

Title:	⌘	CAMEL for the PS domain 23.002
Source:	⌘	Ericsson
Work item code:	⌘	***Date:*** ⌘ 2000-11-07
Category:	⌘	**F** ***Release:*** ⌘ R4

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)*

Reason for change:	⌘	The support of CAMEL for the PS domain is not reflected in 23.002 (while the CAMEL support for the CS domain is included).
Summary of change:	⌘	CAMEL functions, architecture and interfaces for the PS domain are added
Consequences if not approved:	⌘	Inconsistent Specifications

Clauses affected:	⌘	4a.4, 5.3, 6a.4
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

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

4a.4 CAMEL entities

The entities of this subclause support the CAMEL feature (Customised Applications for Mobile network Enhanced Logic). This feature provides the mechanisms to support services consistently independently of the serving network, as described in 22.078 [2c]. The following definitions are extracted from 23.078 [10c], which completely specifies CAMEL stage 2.

4a.4.1 GSM Service Control Function (gsmSCF)

A functional entity that contains the CAMEL service logic to implement Operator Specific Service. It interfaces with the gsmSSF, the gsmSRF and the HLR.

4a.4.2 GSM Service Switching Function (gsmSSF)

A functional entity that interfaces the MSC/GMSC to the gsmSCF. The concept of the gsmSSF is derived from the IN SSF, but uses different triggering mechanisms because of the nature of the mobile network.

4a.4.3 GSM Specialised Resource Function (gsmSRF)

A functional entity which provides various specialized resources. It interfaces with the gsmSCF and with the MSC. This entity is defined in ITU-T Q.1214 [11] with variations defined in 23.078.

4a.4.4 GPRS Service Switching Function (gprsSSF)

A functional entity that interfaces the SGSN to the gsmSCF. The concept of the gprsSSF is derived from the IN SSF, but uses different triggering mechanisms because of the nature of the mobile network.

5.3 Configuration of CAMEL entities

The following figure shows the interconnection of the CAMEL-specific entities with the rest of the network. Only the interfaces specificly involved in CAMEL provisionning are shown, i.e. all the GMSC, MSC, SGSN and HLR interfaces depicted in figure 1 are still supported by these entities even if not shown.

NOTE: The CAMEL-specific interfaces have no particular name. They are designated by the name of the two entities they link together, e.g. "the gsmSSF-gsmSCF interface".

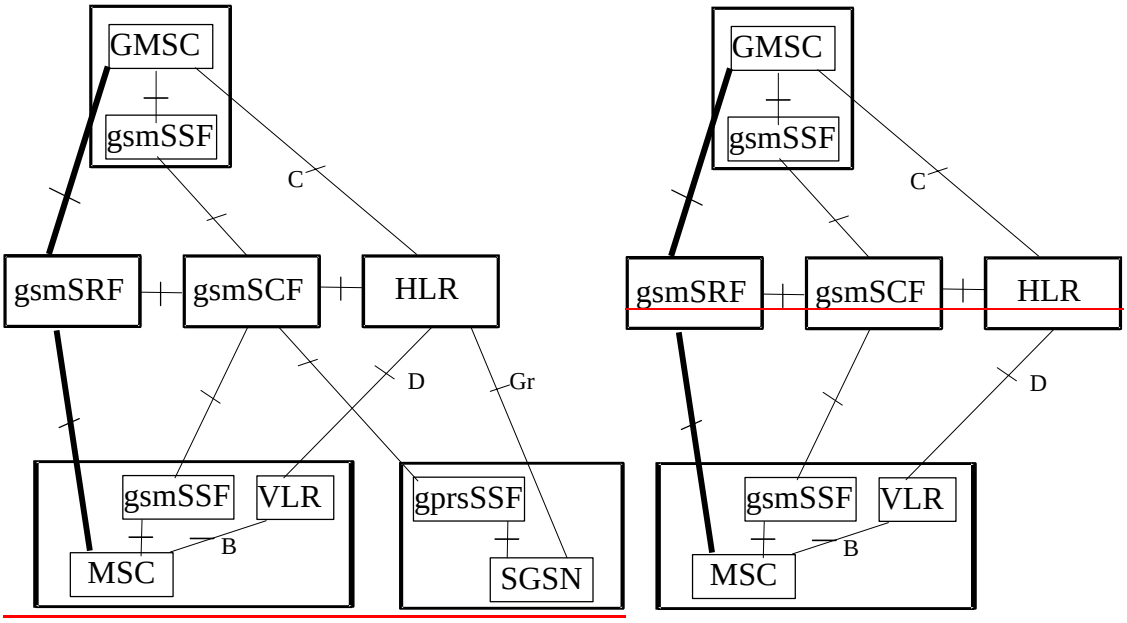

Figure 4: configuration of CAMEL entities

The bold lines are used for interfaces supporting user data only, the dashed lines are used for interfaces supporting signalling only.

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6a.4.1 GMSC - gsmSSF interface

This is an internal interface. The interface is described in the specification to make it easier to understand the handling of Detection Points (arming/disarming of DPs, DP processing etc.).

6a.4.2 gsmSSF - gsmSCF interface

This interface is used by the gsmSCF to control a call in a certain gsmSSF and to request the gsmSSF to establish a connection with a gsmSRF. Relationships on this interface are opened as a result of the gsmSSF sending a request for instructions to the gsmSCF.

6a.4.3 MSC - gsmSSF interface

This is an internal interface. The interface is described in the specification to make it easier to understand the handling of DPs (arming/disarming of DPs, DP processing etc.).

6a.4.4 gsmSCF - HLR interface

This interface is used by the gsmSCF to request information from the HLR. As a network operator option the HLR may refuse to provide the information requested by the gsmSCF.

This interface is also used for USSD operations, both for gsmSCF-initiated dialogues and MS-initiated dialogues (relayed via HLR). It is a network operator option whether to support or not USSD operations on this interface.

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This interface is used by the gsmSCF to instruct the gsmSRF to play tones/announcements to the users.

6a.4.6 MSC - gsmSCF interface

This interface is used by the MSC to send supplementary service invocation notifications to the gsmSCF.

6a.4.7 SGSN - gprsSSF interface

This is an internal interface. The interface is described in the specification to make it easier to understand the handling of DPs (arming/disarming of DPs, DP processing etc.).

6a.4.8 gprsSSF - gsmSCF interface

This interface is used by the gsmSCF to control a GPRS session or individual PDP Context in a certain gprsSSF. Relationships between the gprsSSF and the gsmSCF (GPRS dialogues) on this interface are opened as a result of the gprsSSF sending a request for instructions to the gsmSCF.

3GPP TSG-SA/WG2 Meeting #15
Makuhari, Japan, November 13-17, 2000

Tdoc S2-001806

CR-Form-v3

CHANGE REQUEST

⌘ **23.002** **CR** **024** ⌘ 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: ⌘ (U)SIM ☐ ME/UE ☐ Radio Access Network ☐ Core Network ☒

Title:	⌘	CAMEL for the PS domain 23.002
Source:	⌘	Ericsson
Work item code:	⌘	***Date:*** ⌘ 2000-11-07
Category:	⌘	**F** ***Release:*** ⌘ R5

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)*
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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)*

Reason for change:	⌘	The support of CAMEL for the PS domain is not reflected in 23.002 (while the CAMEL support for the CS domain is included).
Summary of change:	⌘	CAMEL functions, architecture and interfaces for the PS domain are added
Consequences if not approved:	⌘	Inconsistent Specifications

Clauses affected:	⌘	4a.4, 5.3, 6a.4
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Other comments:	⌘	

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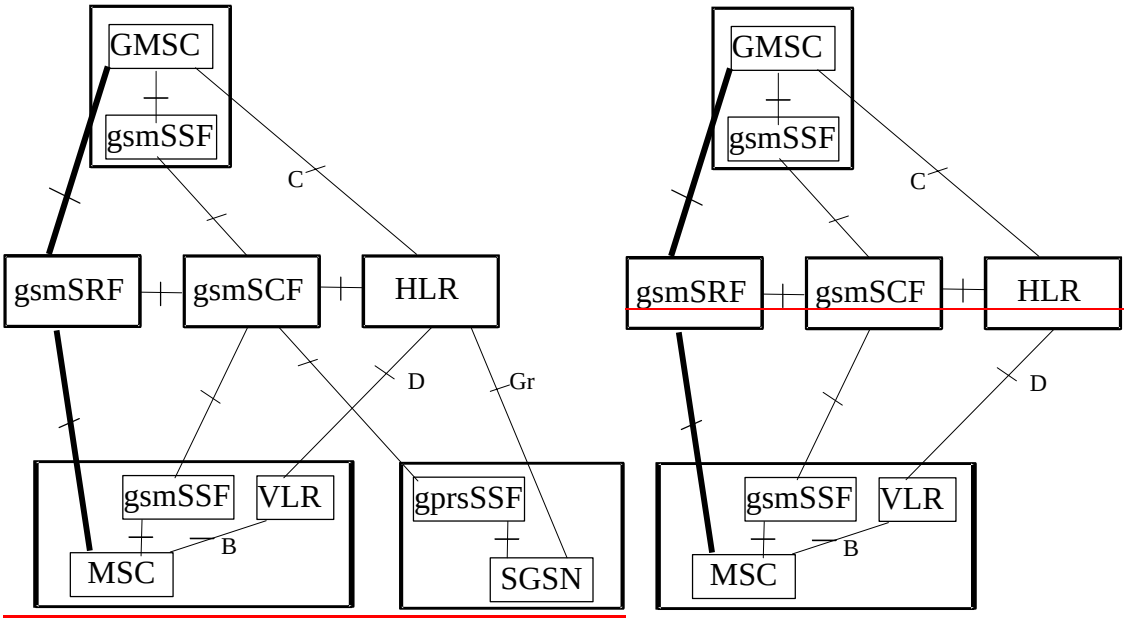

Figure 4: configuration of CAMEL entities

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6a.4 CAMEL-specific interfaces

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6a.4.3 MSC - gsmSSF interface

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This interface is used by the gsmSCF to instruct the gsmSRF to play tones/announcements to the users.

6a.4.6 MSC - gsmSCF interface

This interface is used by the MSC to send supplementary service invocation notifications to the gsmSCF.

6a.4.7 SGSN - gprsSSF interface

This is an internal interface. The interface is described in the specification to make it easier to understand the handling of DPs (arming/disarming of DPs, DP processing etc.).

6a.4.8 gprsSSF - gsmSCF interface

This interface is used by the gsmSCF to control a GPRS session or individual PDP Context in a certain gprsSSF. Relationships between the gprsSSF and the gsmSCF (GPRS dialogues) on this interface are opened as a result of the gprsSSF sending a request for instructions to the gsmSCF.

3GPP TSG-SA WG2 Meeting #15
Makuhari, Japan, 13-17 November, 2000

Tdoc S2-002084

CR-Form-v3

CHANGE REQUEST

⌘ **23.002** **CR** **CR-Num** ⌘ rev **R1** ⌘ Current version: **4.0.0** ⌘

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

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

Title:	⌘	Introduction of Iu-CS and Iu-PS interfaces to BSS of type GERAN in the network architecture for REL-4
Source:	⌘	Ericsson
Work item code:	⌘	***Date:*** ⌘ 2000-11-15
Category:	⌘ **B**	***Release:*** ⌘ REL-4

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)*
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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)*

Reason for change:	⌘	• Introduction of Iu-CS and Iu-PS connected to BSS according to ref. Tdoc GERAN GP-000930. • Editorial corrections.
Summary of change:	⌘	- Iu-CS and Iu-PS has been introduced in the description part of BSS and in the interface description between Core Network and Access Network (BSS). - The figure for “Basic Configuration of a PLMN supporting CS and PS services and interfaces” has been updated with Iu-CS and Iu-PS intefaces connected to BSS. - Editorial corrections in chapter 6.3.2, and Iubis changed to Iub.
Consequences if not approved:	⌘	Missguiding description of BSS.

Clauses affected:	⌘	2, 4.2.1, 5.1, 6.2, 6.3.2		
Other specs affected:	⌘	☐ Other core specifications ☐ Test specifications ☐ O&M Specifications	⌘	
Other comments:	⌘			

First Change

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies.

This specification may contain references to pre-Release-4 GSM specifications. These references shall be taken to refer to the **Error! No text of specified style in document.** version where that version exists. Conversion from the pre-Release-4 number to the Release 4 (onwards) number is given in subclause 6.1 of 3GPP TR 41.001.

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

[1a] 3GPP TR 21.905: "3G Vocabulary".

[2] 3GPP TS 22.016: "Digital cellular telecommunications system (Phase 2+); International Mobile station Equipment Identities (IMEI)".

[2a] 3GPP TS 22.060: "Digital cellular telecommunications system (Phase 2+); General Packet radio Service (GPRS); Service Description; Stage 1".

[2b] 3GPP TS 22.071: "Digital cellular telecommunications system (Phase 2+); Location Services (LCS); Service Description; Stage 1".

[2c] 3GPP TS 22.078: "Customised Applications for Mobile network Enhanced Logic (CAMEL); Service description, Stage 1".

[3] 3GPP TS 23.003: "Digital cellular telecommunications system (Phase 2+); Numbering, addressing and identification".

[4] [void]

[5] 3GPP TS 23.008: "Digital cellular telecommunications system (Phase 2+); Organisation of subscriber data".

[6] 3GPP TS 23.009: "Digital cellular telecommunications system (Phase 2+); Handover procedures".

[7] 3GPP TS 23.012: "Digital cellular telecommunications system (Phase 2+); Location registration procedures".

[8] 3GPP TS 23.041: "Technical realization of Cell Broadcast Service (CBS)".

[9] 3GPP TS 23.054: "Digital cellular telecommunications system (Phase 2+); Description for the use of a Shared Inter Working Function (SIWF) in a GSM PLMN".

[9a] 3GPP TS 23.060: "Digital cellular telecommunication system (Phase 2+); General Packet Radio Service (GPRS); Service Description; Stage 2".

[10] 3GPP TS 23.068: "Digital cellular telecommunications system (Phase 2+); Voice Group Call Service (VGCS) stage 2".

[10a] GSM 03.64: "Digital cellular telecommunication system (Phase 2+); Overall Description of the General Packet Radio Service (GPRS) Radio Interface; Stage 2".

[10b] 3GPP TS 23.071: "Digital cellular telecommunications system (Phase 2+); Location Services (LCS); Functional Description; Stage 2".

[10c] TS 23.078: "Customised Applications for Mobile network Enhanced Logic (CAMEL) Phase 3 - Stage 2".

[11] ITU-T Recommendation Q.1214 (05/1995): "Distributed Functional Plane for Intelligent Network CS-1"

[11a] 3GPP TS 23.101: "General UMTS Architecture".

[11b] 3GPP TS 23.110: "Access Stratum (AS): Services and Functions".

[12] GSM 04.02 R98: "Digital cellular telecommunications system (Phase 2+); GSM Public Land Mobile Network (PLMN) access reference configuration".

[13] GSM 08.01: "Digital cellular telecommunications system (Phase 2+); Base Station System - Mobile-services Switching Centre (BSS - MSC) interface General aspects".

[14] GSM 08.02: "Digital cellular telecommunications system (Phase 2+); Base Station System - Mobile-services Switching Centre (BSS - MSC) interface Interface principles".

[14a] 3GPP TS 25.410: "UTRAN Iu Interface: General Aspects and Principles".

[14b] 3GPP TS 25.41x-series on definition of the Iu interface.

[15] GSM 08.04: "Digital cellular telecommunications system (Phase 1); Base Station System - Mobile-services Switching Centre (BSS - MSC) interface Layer 1 specification".

[16] GSM 08.06: "Digital cellular telecommunications system (Phase 2+); Signalling transport mechanism specification for the Base Station System - Mobile-services Switching Centre (BSS - MSC) interface".

[17] GSM 08.08: "Digital cellular telecommunications system (Phase 2+); Mobile Switching Centre - Base Station System (MSC - BSS) interface - Layer 3 specification".

[18] 3GPP TS 28.020: "Digital cellular telecommunications system (Phase 2+); Rate adaption on the Base Station System - Mobile-services Switching Centre (BSS - MSC) interface".

[19] GSM 08.51: "Digital cellular telecommunications system (Phase 2+); Base Station Controller - Base Transceiver Station (BSC - BTS) interface - General aspects".

[20] GSM 08.52: "Digital cellular telecommunications system (Phase 2+); Base Station Controller - Base Transceiver Station (BSC - BTS) interface - Interface principles".

[21] GSM 08.54: "Digital cellular telecommunications system (Phase 2+); Base Station Controller (BSC) to Base Transceiver Station (BTS) interface - Layer 1 structure of physical circuits".

[22] GSM 08.56: "Digital cellular telecommunications system (Phase 2+); Base Station Controller (BSC) to Base Transceiver Station (BTS) - Layer 2 specification".

[23] GSM 08.58: "Digital cellular telecommunications system (Phase 2+); Base Station Controller (BSC) to Base Transceiver Station (BTS) interface - Layer 3 specification".

[24] GSM 08.60: "Digital cellular telecommunications system (Phase 2+); Inband control of remote transcoders and rate adaptors".

[25] GSM 08.61: "Digital cellular telecommunications system (Phase 2+); Inband control of remote transcoders and rate adaptors (half rate)".

[26] 3GPP TS 29.002: "Digital cellular telecommunications system (Phase 2+); Mobile Application Part (MAP) specification".

[27] GSM 09.03 R98: "Digital cellular telecommunications system (Phase 2+); Signalling requirements on interworking between the Integrated Services Digital Network (ISDN) or Public Switched Telephone Network (PSTN) and the Public Land Mobile Network (PLMN)".

[28] 3GPP TS 29.004: "Digital cellular telecommunications system (Phase 2+); Interworking between the Public Land Mobile Network (PLMN) and the Circuit Switched Public Data Network (CSPDN)".

[29] 3GPP TS 29.005: "Digital cellular telecommunications system (Phase 2+); Interworking between the Public Land Mobile Network (PLMN) and the Packet Switched Public Data Network (PSPDN) for Packet Assembly/Disassembly facility (PAD) access".

[30] 3GPP TS 29.006: "Digital cellular telecommunications system (Phase 2+); Interworking between a Public Land Mobile Network (PLMN) and a Packet Switched Public Data Network/Integrated Services Digital Network (PSPDN/ISDN) for the support of packet switched data transmission services".

[31] 3GPP TS 29.007: "Digital cellular telecommunications system (Phase 2+); General requirements on interworking between the Public Land Mobile Network (PLMN) and the Integrated Services Digital Network (ISDN) or Public Switched Telephone Network (PSTN)".

[32] 3GPP TS 29.010: "Digital cellular telecommunications system (Phase 2+); Information element mapping between Mobile Station - Base Station System and BSS - Mobile-services Switching Centre (MS - BSS - MSC) - Signalling procedures and the Mobile Application Part (MAP)".

[33] 3GPP TS 29.011: "Digital cellular telecommunications system (Phase 2+); Signalling interworking for supplementary services".

[34] 3GPP TR 41.001: "GSM Release specifications".

[35] 3GPP TS 43.051: "GERAN Overall Description, Stage 2".

Next Change

4.2.1 The Base Station System (BSS)

The Base Station System (BSS) is the system of base station equipments (transceivers, controllers, etc...) which is viewed by the MSC through a single A or Iu-CS -interface as being the entity responsible for communicating with Mobile Stations in a certain area. Similarly, in PLMNs supporting GPRS, the BSS is viewed by the SGSN through a single Gb or Iu-PS interface. The functionality for the A interface is described in GSM 08.02 and for the Gb interface in TS 23.060. The functionality for the Iu-CS interface is described in TS 25.410 and for the Iu-PS interface in TS 23.060.

The radio equipment of a BSS may support one or more cells. A BSS may consist of one or more base stations. Where an Abis-interface is implemented, the BSS consists of one Base Station Controller (BSC) and one or more Base Transceiver Station (BTS).

The split of functions between BSS and CN for a A/Gb interface is described in the 08-series of GSM Technical Specifications. The split of functions between BSS and CN for a Iu interface is desribed in the 25-series of UMTS Technical Specifications.

NOTE: The mobile station shall operate using **only the following modes:**

a. **A / G_b mode**, e.g. for pre-Release 4 terminals, for Release 4 terminals when connected to a BSS with no Iu interface towards the Core Network.
b. **Iu mode** (i.e. Iu-CS and Iu-PS), e.g. for Release 4 terminals when connected to a BSS with Iu interfaces towards the Core Network

No other modes (e.g. A/Iu-PS or Iu-CS/Gb) shall be allowed.

See also TS 43.051.

4.2.1.1 Base Station Controller (BSC)

A Base Station Controller (BSC) is a network component in the PLMN with the functions for control of one or more BTS.

4.2.1.2 Base Transceiver Station (BTS)

A Base Transceiver Station (BTS) is a network component which serves one cell.

Next Change

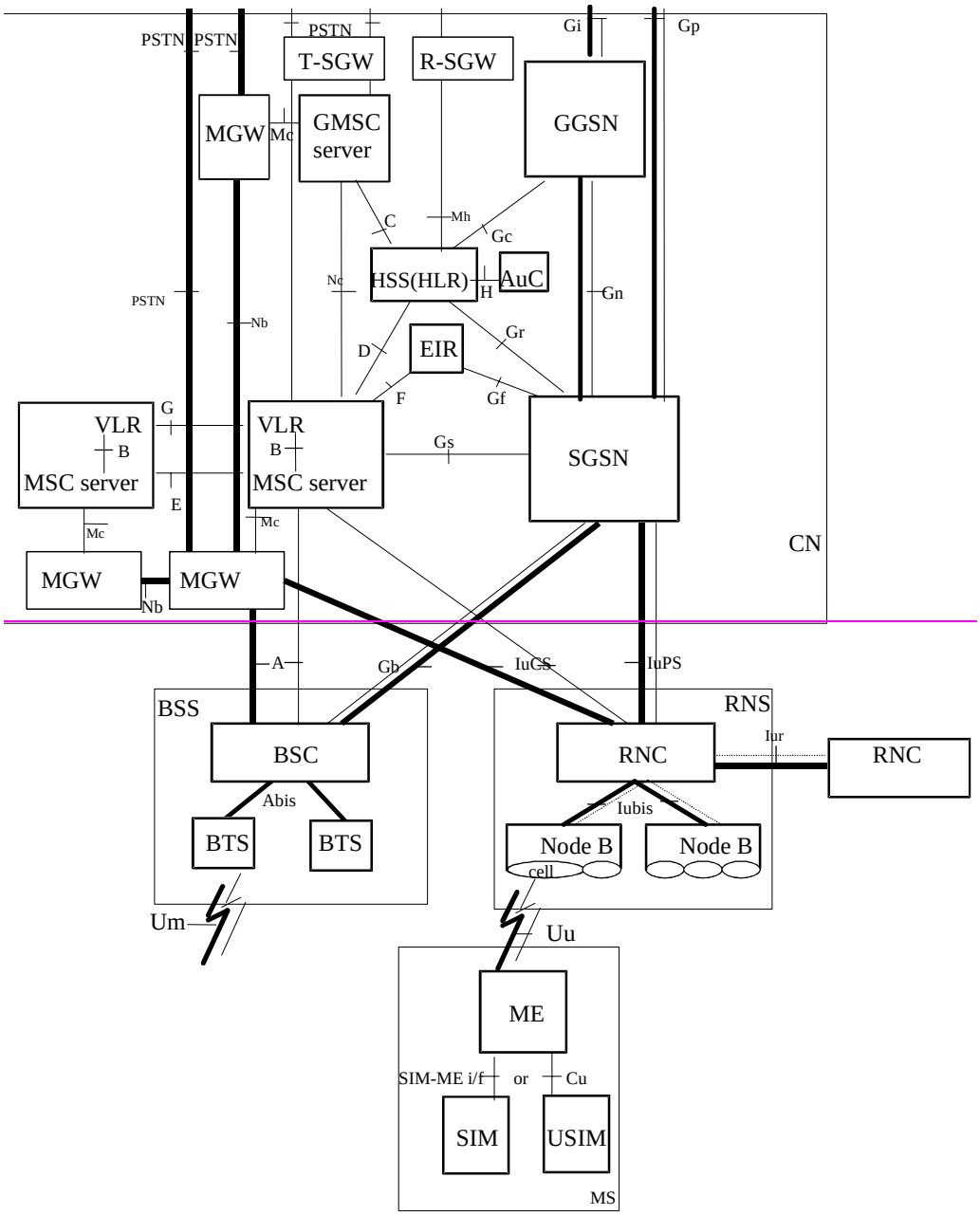
5.1 Basic configuration

The basic configuration of a Public Land Mobile Network (PLMN) supporting GPRS and the interconnection to the PSTN/ISDN and PDN is presented in figure 1. This configuration presents signalling interfaces which can be found in a PLMN. Implementations may be different: some particular functions may be gathered in the same equipment and then some interfaces may become internal interfaces.

In the basic configuration presented in figure 1, all the functions are considered implemented in different equipments. Therefore, all the interfaces within PLMN are external. Interfaces A and Abis are defined in the GSM 08-series of Technical Specifications. Interfaces Iu, Iur and Iub~~is~~ are defined in the UMTS 25.4xx-series of Technical Specifications. Interfaces B, C, D, E, F and G need the support of the Mobile Application Part of the signalling system No. 7 to exchange the data necessary to provide the mobile service. No protocols for the H-interface and for the I-interface are standardized. All the GPRS-specific interfaces (G- series) are defined in the UMTS 23-series and 24-series of Technical Specifications.

[editor's note: the Technical Specifications defining Interfaces Nb, Mc and Nc have not been started yet.]

From this configuration, all the possible PLMN organisations can be deduced. In the case when some functions are contained in the same equipment, the relevant interfaces become internal to that equipment.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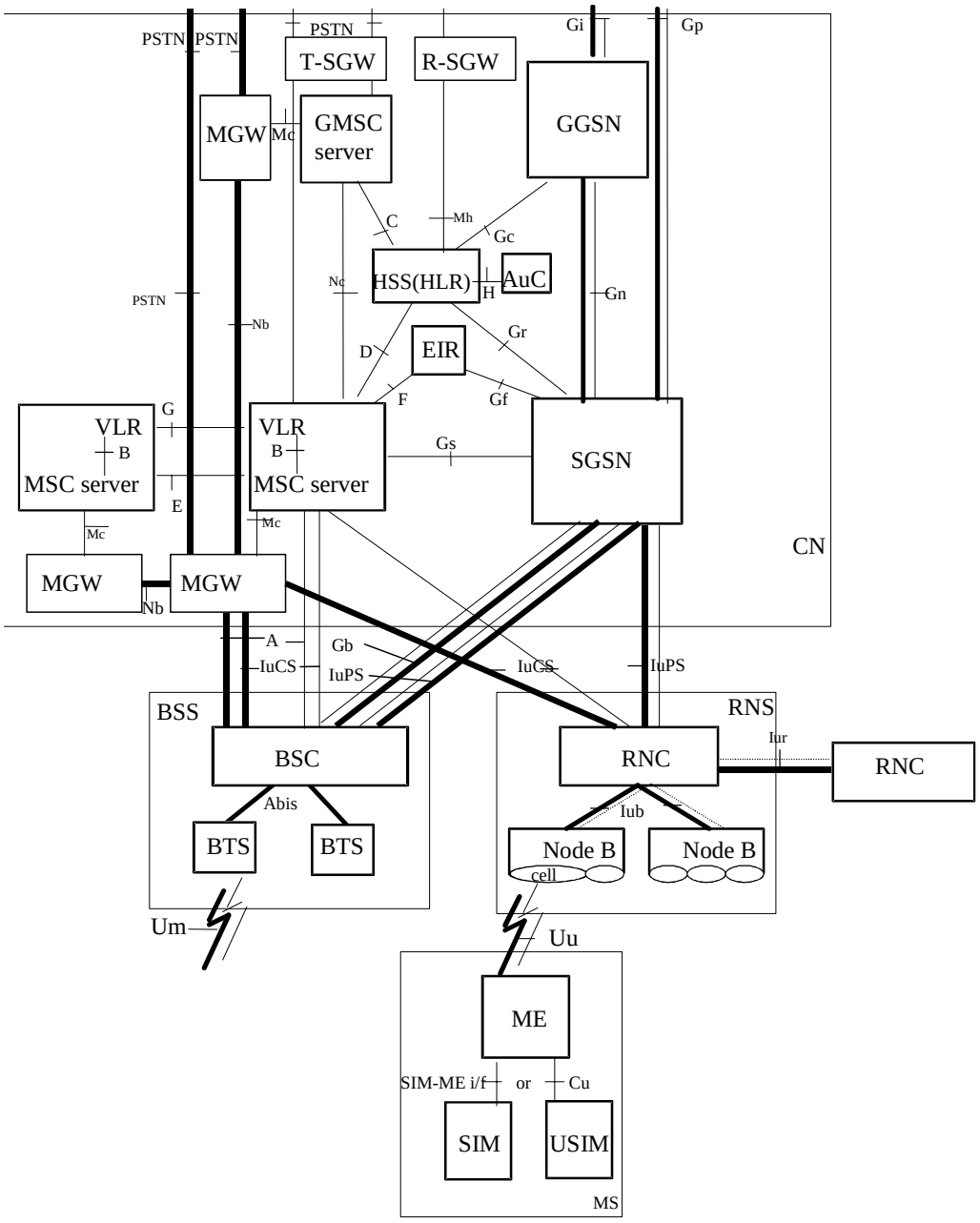

Legend:
Bold lines: interfaces supporting user traffic;
Dashed lines: interfaces supporting signalling.

NOTE 1: The figure shows direct interconnections between the entities. The actual links may be provided by an underlying network (e.g. SS7 or IP): this needs further studies.

NOTE 2: When the MSC and the SGSN are integrated in a single physical entity, this entity is called UMTS MSC (UMSC).

NOTE 3: A (G)MSC sever and associated MGW can be implemented as a single node: the (G)MSC.

NOTE 4: The Gn interface (between two SGSNs) is also part of the reference architecture, but is not shown for layout purposes only.

Figure 1: Basic Configuration of a PLMN supporting CS and PS services and interfaces

Next Change

6.2 Interface between the Core Network and the Access Network

6.2.1 Interfaces between the CS domain and the Access Network

6.2.1.1 Interface between the MSC and Base Station System (A-interface)

The interface between the MSC and its BSS is specified in the 08-series of GSM Technical Specifications.

The BSS-MSC interface is used to carry information concerning:

- BSS management;
- call handling;
- mobility management.

6.2.1.2 Interface between the MSC and Base Station System (Iu_CS interface)

The interface between the MSC and its BSS is specified in the 25.41x-series of UMTS Technical Specifications.

The BSS-MSC interface is used to carry information concerning:

- BSS management;
- call handling;
- mobility management;

6.2.1.~~2~~3 Interface between the MSC and RNS (Iu_CS interface)

The interface between the MSC and its RNS is specified in the 25.41x-series of UMTS Technical Specifications.

The RNS-MSC interface is used to carry information concerning:

- RNS management;
- call handling;
- mobility management.

6.2.2 Interfaces between the PS domain and the Access Network

6.2.2.1 Interface between SGSN and BSS (Gb-interface)

The BSS-SGSN interface is used to carry information concerning:

- packet data transmission;
- mobility management.

The Gb interface is defined in GSM 08.14, 08.16 and 08.18.

6.2.2.2 Interface between SGSN and BSS (Iu_PS-interface)

The BSS-SGSN interface is used to carry information concerning:

- packet data transmission;
- mobility management.

The Iu_PS interface is defined in the 25.41x-series of UMTS Technical Specifications.

6.2.2.~~3~~2 Interface between SGSN and RNS (Iu_PS-interface)

The RNS~~-3G~~-SGSN interface is used to carry information concerning:

- packet data transmission;
- mobility management.

The Iu_PS interface is defined in the 25.41x-series of UMTS Technical Specifications.

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6.3.2 Interface between RNC and Node B (Iub~~is~~-interface)

When the RNS consists of a Radio Netwok~~Base Station~~ Controller (RNC) and one or more Node B~~Base Transceiver Stations (BTS)~~, this interface is used between the RNC and Node B~~BTS~~ to support the services offered to the UMTS~~GSM~~ users and subscribers.

The interface also allows control of the radio equipment and radio frequency allocation in the Node B~~BTS~~.

The interface is specified in the 28.5x-series of UMTS~~GSM~~ Technical Specifications.