Technical Specification Group Services and System Aspects
Meeting #20, Hämeenlinna, FINLAND, 09 - 12 June 2003

TSGS#20(03)0266

Source: **SA5 (Telecom Management)**

Title: **Rel-5 CR 32.101 (Telecommunication management; Principles and high level requirements) : Correction and update of Management System Interactions**

Document for: **Approval**

Agenda Item: **7.5.3**

Doc-1st-	Spec	CR	R	Ph	Subject	Cat	Ver	Doc-2nd-	Workite
SP-030266	32.101	022	-	Rel-5	**Correction and update of Management System Interactions**	F	5.3.0	S5-032317	OAM-AR

3GPP TSG-SA5 (Telecom Management) **S5-032317**
Meeting #34, Sophia Antipolis, France, 19-23 May 2003

CR-Form-v7

CHANGE REQUEST

⌘ **32.101** **CR** **022** ⌘ **rev** **-** ⌘ Current version: **5.3.0** ⌘

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

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

Title:	⌘	Correction and update of Management System Interactions
Source:	⌘	SA5
Work item code:	⌘	OAM-AR
Date:	⌘	23/05/2003
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:	⌘	Figure 1 (UMTS Management System Interactions) of 32.101 requires correction and update.
Summary of change:	⌘	1. The original figure 1 has been deleted and replaced with an updated figure, which identifies and labels 3G Management Interfaces in a clearer and more concise fashion. 2. Text throughout clause 5 and its subsections is adjusted to align with the new figure. 3. Figure 2 has been removed from 5.2.1 and placed in 5.1.2 4. Addition of New clause 5.1.2.1 & 5.1.5
Consequences if not approved:	⌘	Figure 1 (Management System Interactions) of 32.101 requires correction and update, as it may be confusing and open to mis-interpretation by the reader. Figure 2 is misplaced and this may also cause confusion.

Clauses affected:	⌘	5, 5.1.2, 5.1.3, 5.1.4, 5.1.5(new), 5.2.1, 5.2.2, 5.2.4.			
Other specs affected:	⌘	**Y**	**N**		
			X	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘				

How to create CRs using this form:
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Change in Clause 5.1.1

5.1.1 Overview

Figure 1 illustrates the UMTS Management Reference Model. It shows the UMTS Operation System interfacing with other systems.

The present document (and the rest of the 3GPP UMTS Management detailed specifications) addresses the UMTS Operations System (function and architecture wise) and the interfaces to the other systems (information and protocol wise).

The present document does not address the definition of any of the systems, which the UMTS Operations System may interface to. The rest of the 3GPP specifications regarding UMTS Management will not cover them either.

It is not the approach (nor it is possible) to re-define the complete management of all the technologies that might be used in the provision of UMTS. However, it is the intention to identify and define what will be needed from the perspective of UMTS management.

A number of management interfaces in a UMTS network are identified in figure 1, namely:

1) between the Network Elements (NEs) and the Element Manager(EM) ~~Operations System~~ of a single UMTS Organisation.

2) between the Element Manager(EM) and the Network Manager (NM) of a single UMTS Organisation. (Note: in certain cases the Element Manager functionality may reside in the NE in which case this interface is directly from NE to Network Manager)~~:~~. These management interfaces are given the reference name Itf-N and are the primary target for standardization.

~~a)network element to element management level;~~

~~b)element management to network management level.~~

~~2)~~3) between the Network Managers~~Operations System~~ and the Enterprise Systems of a single UMTS Organisation;

4) between the Network Managers ~~ment~~ (NMs) ~~s~~ of a single UMTS Organisation;

~~3)~~5) between Enterprise ~~Operations~~ Systems & Network Managers of different UMTS Organisations.~~;~~

~~4)within the Operations System of a single UMTS Organisation.~~

6) between Network Elements(NEs)

The present document focuses primarily on management interfaces of type 2~~1~~ and to a lesser extent on management interfaces of type 1 from the above list, while interfaces of types 3~~2~~ & 5~~3~~ will be identified in the present document. Detailed specification of these interfaces is For Further Study (FFS). Interfaces of type 4 & 6 are beyond the scope of standardisation.

~~NOTE: Both TeleManagement Forum and ITU-T are carrying out work with interfaces of type 53.~~

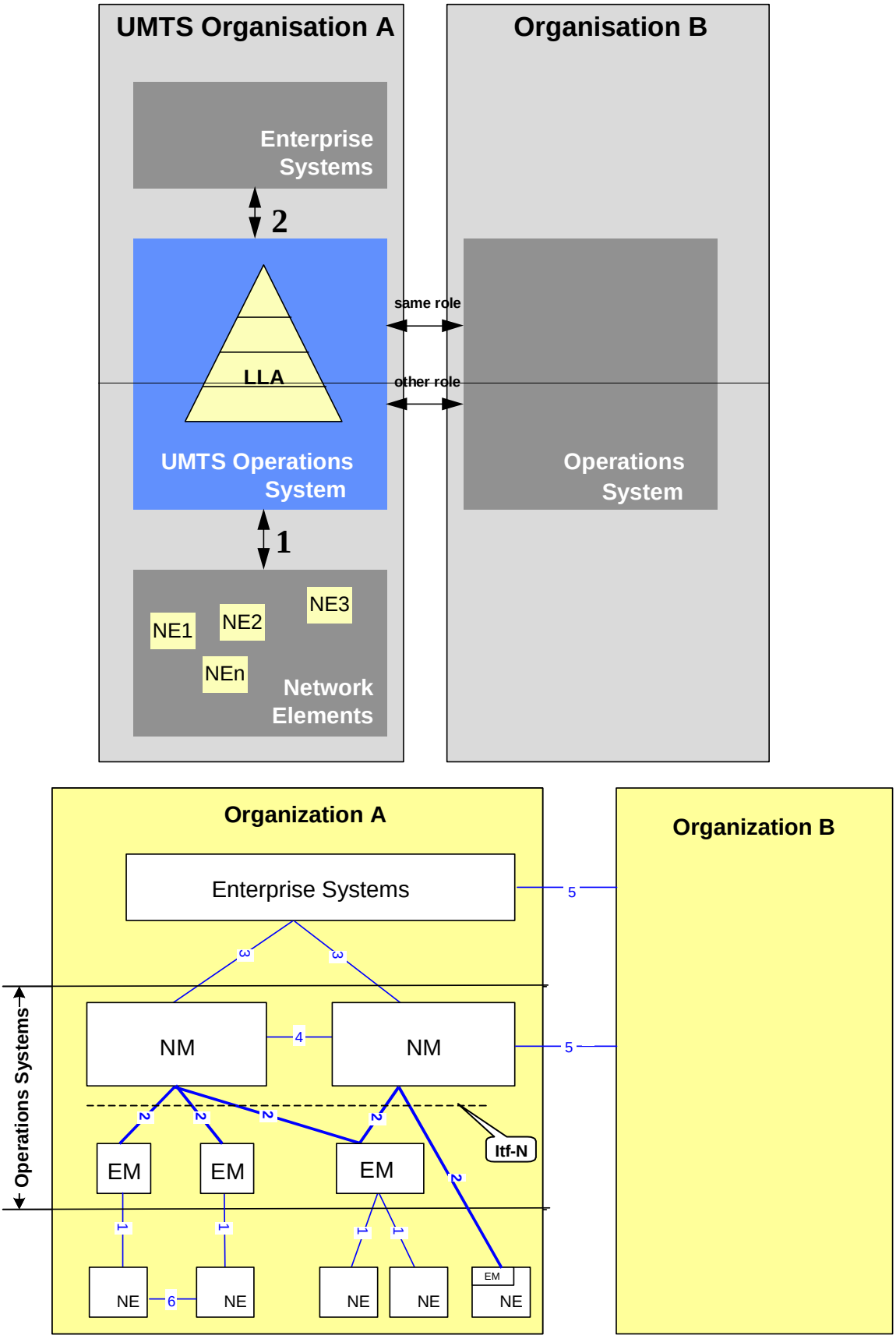

Figure 1: ~~UMTS~~ Management System Interactions

End of Change in Clause 5.1.1

Change in Clause 5.1.2

5.1.2 Interfaces from Operations Systems to NEs (Type 1 & 2)

In some cases, the management interfaces to NEs have been defined bottom-up, trying to standardise the complete O&M functionality of the various NEs.

For UMTS management, a top-down approach will be followed to streamline the requirements from the perspective of UMTS Operators top priority management processes.

It is assumed that this will not fully cover the O&M functionality of all NE types in UMTS at ~~once,~~once; therefore a part of the functionality will be phased for further work and consideration. Some proprietary solutions (local and/or remote) will be needed in the interim. The rationale of this approach is not only the best use of resources, but also to follow a pragmatic step-wise approach that takes into account the market forces (the manufacturers and operators capabilities). A further rationale is to define clear and easy ~~-~~ to ~~-~~ agree steps that allow Management functionality to be implemented in the same time frame as the telecom functionality in the network (i.e. to synchronise the management and network releases).

5.1.2.1 Interfaces from EM Operations Systems to NEs (Type 1)

The approach for NE Management Interfaces of Type 1 will be to allow the use of certain Management Application Protocol Suites (see Annex A for a list of Management Protocol Suites).

5.1.2.2 Interfaces from NM Operations Systems to NEs (Type 2)

The approach for NE Management Interfaces of Type 2 will be to concentrate on protocol independent information models, allowing a mapping to several protocol suites. The rational is:

- due to the convergence of Information and Telecommunication technologies in UMTS, it is required to work on a more open approach (acknowledging the market status and foreseen evolutions);
- the life cycle of information flows is 10 to 20 years, while that of protocols is 5 to 10 years;
- developments in automatic conversion from information models to various protocols/technologies will allow a more pragmatic and open approach (e.g. UML to GDMO, UML to IDL).

However, it is the intention to a least recommend one mapping for each interface.

Figure 2 shows the management interfaces of one part of the UMTS (the Radio Network), by way of illustration of interfaces of types 1 and 2.

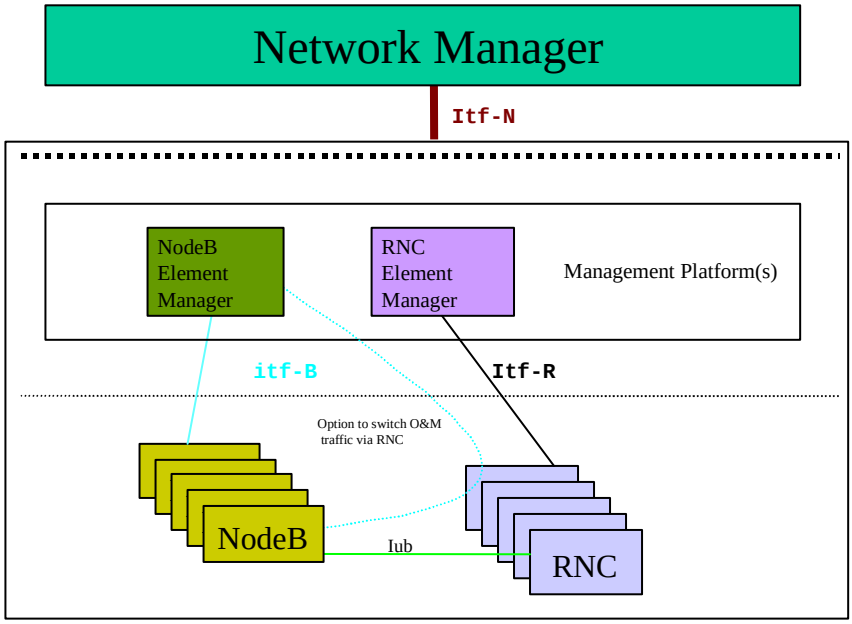

Figure 2: Radio Network Management Interfaces

Figure 2 identifies the following Management Interfaces:

- Itf-B - between Node B & its Manager (physically, this may be a direct connection or via the RNC) (type 1).
- Itf-R - between RNC & its Manager (type 1).
- Itf-N – between the Network (Element Manager or NEs with an embedded EM) & Network Manager (type 2).

End of Change in Clause 5.1.2

Change in Clause 5.1.3

5.1.3 Interfaces to Enterprise Systems (Type 3~~2~~)

It is the approach to define a UMTS Management that fully fits into the enterprise processes needs of the UMTS Organisations. One of the essential issues of today's way of running telecommunications businesses is integral operation (e.g.: customer care, from service subscription to billing, from order fulfilment to complaint management).

Enterprise Systems are those Information Systems that are used in the telecommunication organisation but are not directly or essentially related to the telecommunications aspects (Call Centres, Fraud Detection and Prevention Systems, Invoicing etc.).

Standardising Enterprise Systems is out of the scope of 3GPP work, since it involves many operator choices (organisational, etc.) and even regulatory. Also Enterprise Systems are often viewed as a competitive tool. However, it is essential that the requirements of such systems are taken into account and interfaces to the UMTS Operations Systems are defined, to allow for easy interconnection and functional support.

End of Change in Clause 5.1.3

Change in Clause 5.1.4

5.1.4 Interfaces to other Operations Systems (Type 5~~3~~)

UMTS Management considers integrally the interaction between the Operations Systems of other legal entities for the purpose of providing UMTS services.

There are two major types of interfaces to other management systems:

1) to other UMTS Operations Systems (i.e. other from other UMTS operators);

2) to other Operations Systems (i.e. to non-UMTS operators).

The first type deals with co-operation to provide UMTS services across a number of UMTS networks (e.g. roaming related interactions). The second type deals with client-server relationship to other operators (e.g. to leased lines providers, to added value service providers, etc.).

The approach that will be followed is to identify and define integral processes, not taking into account in the first step, how many operators or operations systems might be involved, but rather concentrating on the interactions between them (i.e. assuming a UMTS operator encompasses all functionalities). A further step will be to consider and define extra requirements (security, confidentiality etc.) when part of the process involves interactions with other operators Operations Systems (OSs).

End of Change in Clause 5.1.4

NEW Clause 5.1.5

5.1.5 Inter-NE Interfaces (Type 6)

Interfaces between Network Elements are sometimes used to carry management information even though this may not be the primary purpose of the interface. An example in a 3G network is the I_{ub} interface between Node-B and RNC (see figure 2 above). This type of interface is not within the scope of this specification, though potential impacts upon it should be considered.

End of NEW Clause 5.1.5

Change in Clause 5.2.1

5.2.1 Overview

The Management interfaces are studied here from five ~~-~~different perspectives or levels:

1) ~~logical~~Logical (information model and flows used in the relationship manager-agent, or equivalent);

2) Solution Set (SS) Level

3) ~~application~~Application protocol (end-to-end, upper layers protocol running between manager-agent, or equivalent);

4) ~~networking~~Networking protocol (lower layer protocols carrying the information in/out the manager and agent, or equivalents);

5) ~~physical~~Physical (mapping of the manager and agent, or equivalents, roles into physical entities).

~~Figure 2 shows the management interfaces of one part of the UMTS (the Radio Network), by way of illustration of interfaces of types 1a and 1b).~~

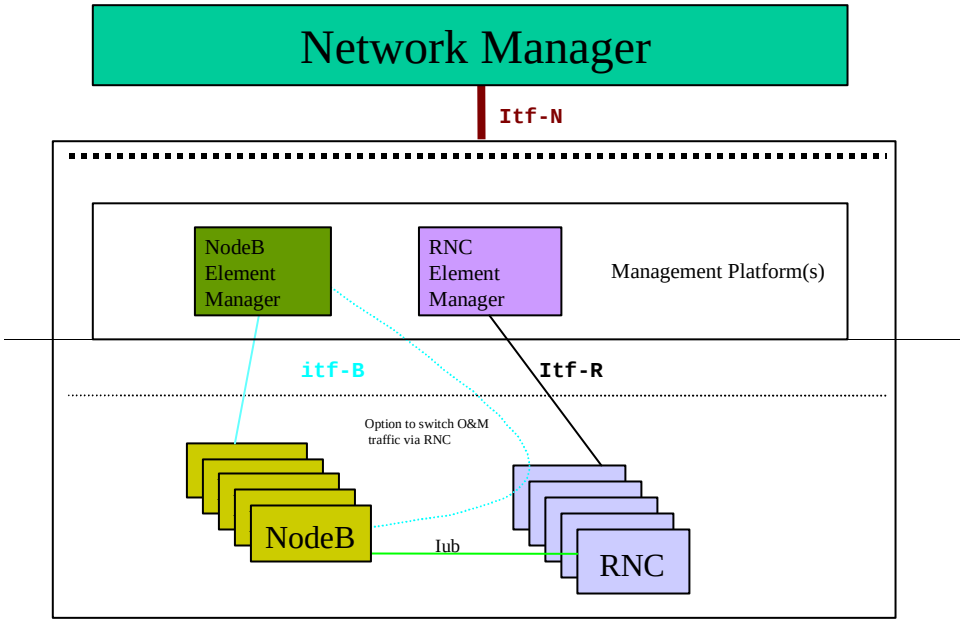

Figure 2: Radio Network Management Interfaces

~~Figure 2 identifies the following Management Interfaces:~~

- ~~Itf-B - between Node B & its Manager (physically, this may be a direct connection or via the RNC) (type 1a).~~
- ~~Itf-R - between RNC & its Manager (type 1a).~~
- ~~Itf-N – between th~~ Network & Network Manager (type 1b).

End of Change in Clause 5.2.1

Change in Clause 5.2.2

5.2.2 Logical level

This level covers the mutual and conceptual knowledge of entities being connected by a given interface.

For type 2~~1b~~ interfaces (such as Itf-N in Figure 2 above) interactions at this level are fully standardised by 3GPP in terms of protocol independent Network Resource Models (static information definition) and IRP Information Services (information flows) where available. These protocol-independent Network Resource Models and IRP Information Services are hereafter referred to as IRP Information Models (Integration Reference Point Information Models).

End of Change in Clause 5.2.2

Change in Clause 5.2.4

5.2.4 Application Protocol level

This level covers the set of primitives used to pass information across a given interface and the means to establish associations between the application entities (including the related addressing aspects) across a given interface.

Generally, the Application Protocol Suite used for the interaction between entities across a given interface is optional within the valid UMTS Management Application Protocol Suites (see Annex A for a list of UMTS Management Protocol Suites). However, in the case of interfaces of type 2~~1b~~ (such as Itf-N in figure 2 above) at least one of those protocol suites will be chosen as the standard protocol suite.

End of Change in Clause 5.2.4