ETSI TS 132 571 V13.0.0 (2016-02)

Universal Mobile Telecommunications System (UMTS);
LTE;
Telecommunication management;
Home Node B (HNB) and Home eNode B (HeNB) management;
Type 2 interface concepts and requirements
(3GPP TS 32.571 version 13.0.0 Release 13)

Reference
RTS/TSGS-0532571vd00

Keywords
LTE,UMTS

ETSI

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Contents

Foreword

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Version x.y.z

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  - 2 presented to TSG for approval;
  - 3 or greater indicates TSG approved document under change control.
- y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.
- z the third digit is incremented when editorial only changes have been incorporated in the document.

Introduction

The present document is part of a TS-family covering the 3rd Generation Partnership Project Technical Specification Group Services and System Aspects, Telecommunication management; as identified below:

32.571 **'Telecommunication management; Home Node B (HNB) and Home eNode B (HeNB) management; Type 2 interface concepts and requirements'**

32.572: 'Telecommunication management; Home Node B (HNB) and Home eNode B (HeNB) management; Type 2 interface models and mapping functions'

1 Scope

The present document describes requirements and concepts including architecture supporting Home Node B and Home eNode B OAM&P for interface Type 2.

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. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[2] 3GPP TS 32.101: "Telecommunication management; Principles and high level requirements".

[3] 3GPP TS 32.102: "Telecommunication management; Architecture".

[4] 3GPP TS 32.581: 'Telecommunications management; Home Node B (HNB) Operations, Administration, Maintenance and Provisioning (OAM&P); Concepts and requirements for Type 1 interface HNB to HNB Management System (HMS)".

[5] 3GPP TS 32.591: 'Telecommunications management; Home eNode B (HeNB) Operations, Administration, Maintenance and Provisioning (OAM&P); Concepts and requirements for Type 1 interface HeNB to HeNB Management System (HMS)".

[6] 3GPP TS 22.220: Service Requirements for Home NodeBs and Home eNodeBs

[7] 3GPP TS 32.111-2: 'Telecommunications management; Fault Management; Part 2: Alarm Integration Reference Point (IRP): Information Service (IS)

[8] 3GPP TS 32.583: Telecommunications management; Home Node B (HNB) Operations, Administration, Maintenance and Provisioning (OAM&P); Procedure flows for Type 1 interface HNB to HNB Management System (HMS)

3 Definitions and abbreviations

For the purposes of this document, the terms and definitions given in TS 21.905 [1], TS 32.101 [2] and TS 32.102 [3] and in the following sub-clause 3.1 apply. Same term may be defined in different documents. The precedence rule, applicable to this document, is in the order of: this document, TS 32.101 [2], TS 32.102 [3], TS 21.905 [1].

3.1 Definitions

There is no additional definition defined in this subclause.

3.2 Abbreviations

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

DM	Domain Manager
EM	Element Manager
HeNB	Home eNode B
HMS	HNB Management System
HeMS	HeNB Management System
HNB	Home Node B
NM	Network Manager
OAM	Operations, Administrator and Maintenance

4 Concepts and background

4.1 Overview

This clause lays out the logical system architecture for the support of HNB and HeNB management via Type 2 interface.

The architecture here takes into consideration of the Type 1 interface for HNB and Type 1 interface for HeNB.

4.2 Architecture

This clause describes the logical system architecture.

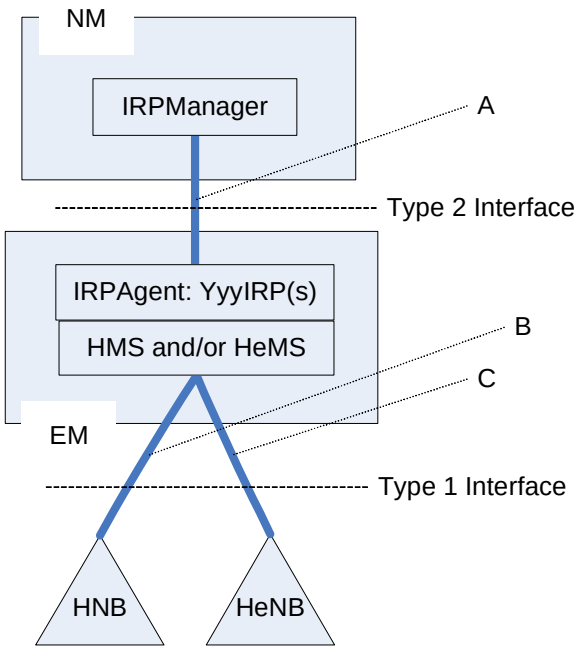

Figure 1: System context of HNB and HeNB management

The "A" denotes the network management protocols (and associated network management data) whose characteristics are to be defined by this TS series.

The "B" denotes the network management protocols (and associated network management data) whose characteristics are defined in TS series of [4].

The "C" denotes the network management protocols (and associated network management data) whose characteristics are defined in TS series of [5].

The YyyIRPs of the IRPAgent:YyyIRP(s) box denotes the various IRPs such as AlarmIRP, BasicCMIRP, PMIRP, etc.

The triangle boxes represent managed devices such as HeNB and HNB.

IRPManager uses "A" to manage all managed devices.

In this configuration, IRPAgent:YyyIRP(s) plays the role of network management service provider for IRPManager and the role of consumer for HMS and HeMS. Similarly, HMS and HeMS play the role of service provider for IRPAgent:YyyIRP(s) and the role of device management service consumer for HNB(s) and HeNB(s).

The boxes are logical functional entities. Their physical locations and their realization inphysical processors cannot be deduced or implied. For example, an implementation can have IRPAgent:YyyIRP(s) and 'HMS and/or HeMS' implemented in one physical processor.

The interaction between IRPAgent:YyyIRP(s) and 'HMS and/or HeMS' is not visible from the perspective of this specification.

4.2.1 Mapping Function

IRPManager manages HNB(s) and HNB(s) using "A". This management activities would trigger (result in) interactions between 'HMS and/or HeMS' and HNB(s) and HeNB(s), using "B" and "C". The trigger(s) that relates interactions of "A" and interactions of "B"/"C" is denoted by "F1" and "F2", the Mediation function.

Because the interaction between IRPAgent:YyyIRP(s) and 'HMS and/or HeMS' is not visible, it is of no relevance if "F" should be placed inside one box or another. This document chooses to place "F1" and "F2" arbitrary but embedded within IRPAgent:YyyIRP(s) and 'HMS and/or HeMS' boundaries.

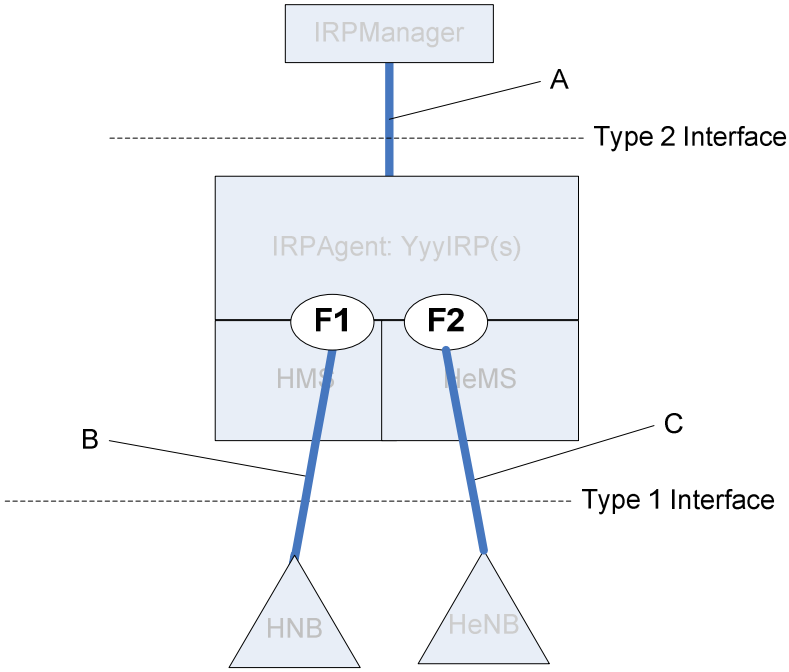

Figure 2: Mapping (or Mediation) functions

The F1 is the mapping (or mediation) function for network management data exchanged via Type 2 interface and NM data exchanged via Type 1 interface with HNB.

The F2 is the mapping (or mediation) function for network management data exchanged via Type 2 interface and NM data exchanged via Type 1 interface with HeNB.

5 Business Level Requirements

5.1 Requirements

[REQ-HBT2-FUN-1] The IRPAgent shall have the capability allowing IRPManager to manage HNB and HeNB using existing Interface IRPs.

[REQ-HBT2-FUN-2] The IRPAgent should have the capability to provide a single point of access allowing IRPManager to manage HNBs, HeNBs and other types of managed entity such as macro eNBs. For example, the IRPAgent could have a single AlarmIRP that holds active alarms from HNBs and HeNBs as well as active alarms from other managed entities such as macro eNBs, etc.

[REQ-HBT2-FUN-3] Operator shall be able to manage the following deployment scenarios in the most efficient manner:

1. Deployment of HNBs only;
2. Deployment of HeNBs only;
3. Mixed deployment of the two scenarios above.

[REQ-HBT2-FUN-4] In order to provide efficient management of mixed HNB/HeNB device deployment scenarios, management over Type-2 interface should be as integrated as possible.

[REQ-HBT2-FUN-5] For mixed deployment scenarios with a single IRPAgent, the IRPAgent shall provide a capability allowing IRPManager to issue a single network management request to manage HNB(s) and HeNB(s).

5.2 Actor roles

IRPManager plays the Actor role.

5.3 Telecommunications resources

OAM network.

5.4 High-level use cases

There is no high-level use case defined.

6 Specification level requirements

6.1 Requirements

6.1.1 Configuration management

[REQ- HBT2-FUN-100] The IRPAgent shall support a capability allowing IRPManager to create and manage profiles of HNB and HeNB configuration parameters; in order to allow HNB and HeNB to complete the registration procedure when turned on (see Registration procedure in TS 32.583 [8]).

[REQ- HBT2-FUN-101] The IRPAgent shall support a capability allowing IRPManager to install software on a large number of HNB and HeNB.

6.1.2 Fault management

[REQ- HBT2-FUN-200] The IRPAgent shall support a capability allowing IRPManager to use existing network management services provided by AlarmIRP to manage alarms categorized as 'Expedited handling' (see REQ-OAMP_FM-FUN-005 of [4]) or categorized as 'Queued handling' (see REQ-OAMP_FM-FUN-005 of [4]).

Annex A (informative): Change history

Change history							
Date	**TSG #**	**TSG Doc.**	**CR**	**Rev**	**Subject/Comment**	**Old**	**New**
Dec 2009	SA#46	SP-090731	--	--	Presentation to SA for information.	---	1.0.0
Mar 2010	SA#47	SP-100055	--	--	Presentation to SA for approval	1.0.0	2.0.0
Mar 2010	--	--	--	--	Publication of SA approved version	2.0.0	9.0.0
2011-03	-	-	-	-	Update to Rel-10 version (MCC)	9.0.0	10.0.0
2012-09	-	-	-	-	Update to Rel-11 version (MCC)	10.0.0	**11.0.0**
2014-10	-	-	-	-	Update to Rel-12 version (MCC)	11.0.0	**12.0.0**
2016-01	-	-	-	-	Update to Rel-13 version (MCC)	12.0.0	**13.0.0**

History

Document history		
V13.0.0	February 2016	Publication