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Technical Specification

**3rd Generation Partnership Project;
Technical Specification Group Services and System Aspects;
Telecommunication management;
Evolved Packet Core (EPC)
Network Resource Model (NRM) Integration Reference Point
(IRP); Requirements
(Release 11)**

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Foreword

This Technical Specification has been produced by the 3rd Generation Partnership Project (3GPP).

The contents of the present document are subject to continuing work within the TSG and may change following formal TSG approval. Should the TSG modify the contents of the present document, it will be re-released by the TSG with an identifying change of release date and an increase in version number as follows:

Version x.y.z

where:

x the first digit:

1 presented to TSG for information;

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:

32.751: **"Evolved Packet Core (EPC) Network Resource Model (NRM) Integration Reference Point (IRP): Requirements"**

32.752: "Evolved Packet Core (EPC) Network Resource Model (NRM) Integration Reference Point (IRP): Information Service (IS)"

32.756: "Evolved Packet Core (EPC) Network Resource Model (NRM) Integration Reference Point (IRP): Solution Set (SS) definitions"

1 Scope

The present document defines, in addition to the requirements defined in [1], [2] and [3], the Requirements for the EPC Network Resource Model (NRM) IRP.

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 TS 32.101: "Telecommunication management; Principles and high level requirements".

[2]   3GPP TS 32.102: "Telecommunication management; Architecture".

[3]   3GPP TS 32.600: "Telecommunication management; Configuration Management (CM); Concept and high-level requirements".

[4]   3GPP TS 32.150: "Telecommunication management; Integration Reference Point (IRP) Concept and definitions".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the following terms and definitions apply.

Data: is any information or set of information required to give software or equipment or combinations thereof a specific state of functionality.

Element Manager (EM): provides a package of end-user functions for management of a set of closely related types of Network Elements (NEs). These functions can be divided into two main categories:

- *Element Management Functions* for management of NEs on an individual basis. These are basically the same functions as supported by the corresponding local terminals.

- *Sub-Network Management Functions* that are related to a network model for a set of NEs constituting a clearly defined sub-network, which may include relations between the NEs. This model enables additional functions on the sub-network level (typically in the areas of network topology presentation, alarm correlation, service impact analysis and circuit provisioning).

Integration Reference Point (IRP): See 3GPP TS 32.150 [4].

Information Service (IS): See 3GPP TS 32.150 [4].

Solution Set (SS): See 3GPP TS 32.150 [4].

IRP Solution Set: See 3GPP TS 32.101 [1].

Managed Object (MO): an abstract entity, which may be accessed through an open interface between two or more systems, and representing a Network Resource (NR) for the purpose of management. The Managed Object (MO) is an instance of a Managed Object Class (MOC) as defined in a Management Information Model (MIM). The MIM does not define how the MO or NR is implemented; only what can be seen in the interface.

Managed Object Class (MOC): a description of all the common characteristics for a number of MOs, such as their attributes, operations, notifications and behaviour.

Management Information Model (MIM): also referred to as NRM – see the definition below. There is a slight difference between the meaning of MIM and NRM – the term MIM is generic and can be used to denote any type of management model, while NRM denotes the model of the actual managed telecommunications Network Resources (NRs).

Network Element (NE): is a discrete telecommunications entity, which can be, managed over a specific interface e.g. the RNC.

Network Manager (NM): provides a package of end-user functions with the responsibility for the management of a network, mainly as supported by the EM(s) but it may also involve direct access to the NEs. All communication with the network is based on open and well-standardised interfaces supporting management of multi-vendor and multi-technology NEs.

Network Resource (NR): is a component of a NE, which can be identified as a discrete separate entity and is in an object oriented environment for the purpose of management represented by an abstract entity called Managed Object (MO).

Network Resource Model (NRM): a model representing the actual managed telecommunications Network Resources (NRs) that a System is providing through the subject IRP. An NRM describes Managed Object Classes (MOC), their associations, attributes and operations. The NRM is also referred to as "MIM" (see above) which originates from the ITU-T TMN.

Object Management Group (OMG): see http://www.omg.org.

Operations System (OS): indicates a generic management system, independent of its location level within the management hierarchy.

3.2 Abbreviations

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

CM	Configuration Management
EDGE	Enhanced Data Rate for GSM Evolution
E-MBMS	Evolved Multimedia Broadcast Multicast Service
EPC	Evolved Packet Core
E-UTRAN	Evolved Universal Terrestrial Radio Access Network
GERAN	GSM/EDGE Radio Access Network
IOC	Information Object Class
IRP	Integration Reference Point
IS	Information Service (see [1])
MME	Mobility Management Entity
MOC	Managed Object Class
NE	Network Element
NRM	Network Resource Model
OS	Operations System
UTRAN	Universal Terrestrial Radio Access Network

4 Requirements

4.1 General Requirement

The following general requirements apply for the present IRP:

    A.   IRP-related requirements in 3GPP TS 32.101 [1].

    B.   IRP-related requirements in 3GPP TS 32.102 [2].

    C.   IRP-related requirements in 3GPP TS 32.600 [3].

4.2 Business Level Requirement

In addition to the general requirement, the following more specific requirements apply:

1. The Network Resource Model defined by this IRP shall contain EPC specific IOCs and related definitions, supporting EPC Network entities in the 3GPP Release.

2. The Network Resource Model defined by this IRP shall contain MME pool management specific IOCs and related definitions.

3. The Network Resource Model defined by this IRP shall contain E-MBMS specific IOCs and related definitions.

4. The Network Resource Model defined by this IRP shall contain EPC specific IOCs and related interaction relation definition, supporting the management of communication between EPC and 3GPP access, trusted non-3GPP access and untrusted non-3GPP access.

Annex A (informative):
Change history

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<tr><th colspan="9">Change history</th></tr>
<tr><th>Date</th><th>TSG #</th><th>TSG Doc.</th><th>CR</th><th>Rev</th><th>Subject/Comment</th><th>Cat</th><th>Old</th><th>New</th></tr>
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