**3GPP TSG-SA5 Meeting #142-e *S5-222353***

**e-meeting, 4 - 12 April** **2022**

**Source: Huawei**

**Title: pCR TR 28.925 Add issue on the applicable content from TS 32.101 section 4**

**Document for: Approval**

**Agenda Item: 6.5.8**

# 1 Decision/action requested

***Discuss and approve on the proposal.***

# 2 References

[1] 3GPP TR 28.925 enhancement of service based management architecture v0.4.0

# 3 Rationale

The general principles for PLMN Telecom management is described in TS 32.101, Some analysis needs to be done to check whether the content in section 4 of TS 32.101 could be applicable to service based archietecture. It’s useful to keep the general information also in SBMA specification to show the overall background information when the management architecture is discussed.

The following analysis indicate the information which could be applicable for SBMA (with green highlighted) and information should be improved (with yellow highlighted), and there are charging related descripitons(with blue highlighted).

It is proposed to add solutions to add an issue in TR 28.925 [1].

=====================Extract from TS 32.101 start=====================

# 4 General

## 4.1 PLMN Telecom Management

### 4.1.1 Basic objectives for PLMN management

The following basic objectives to be supported by themanagement specifications have been identified:

- to be capable of managing equipment supplied by different vendors including the management systems themselves.

- to minimise the complexity of PLMN management.

- to provide the communication betweenNetwork Elements (NEs) andOperations Systems (OS) or betweenOSs themselves via standardised interfaces (e.g. CORBA, SNMP, etc.) as appropriate and necessary.

- to minimise the costs of managing a PLMN such that it is a small component of the overall operating cost.

- to provideconfiguration capabilities that are flexible enough to allow rapid deployment of services.

- to provide integrated Fault Management capabilities.

- to simplify maintenance interventions by supporting remote maintenance operations.

- to allow interoperability between Network Operators/Service Providers for the exchange of management/charging information. This includes interoperability with other networks and services   
(e.g. ISDN/B-ISDN, PSTN and UPT) as well as other PLMNs.

- to enable the support and control of a growing number of resources. This would allow the system to start from a small and simple configuration and grow as needed, both in size and complexity.

- to re-use existing relevant standards (e.g. GSM, IN, ISDN/B-ISDN, ITU-T, TMF etc.) where applicable.

- to support the security management of PLMNs (e.g. key management, access control management, operation and administration of security mechanisms) with particular emphasis on new features such as automatic roaming and packet switched services.

- to provide and support a flexible billing and accounting administration, to support charging across PLMNs.

- to address the management and assessment of system performance and operation through the use of common measurements, etc. This would enable a Network Operator/Service Provider to assess actual performance against planned targets.

- to expose any information only once.  
(Example: In case an operator would like to change one parameter in a cell: Then all occurrences of this parameter, e.g. transceiver frequency, hand-over relationships, performance measurements, frequency hopping control, etc., should be changed by one action only.)

- to support the restoration of an Operations System (e.g. resynchronisation and atomic transactions).

- to have one (1) name convention for network resources under management in the 3GPP context. To perform network management tasks, co-operating applications require identical interpretation of names assigned to network resources under management. Such names are required to be unambiguous as well.

It is acknowledged that the introduction of new architecture to support new services or the introduction of new services themselves may impact the detailed requirements of some or all of the above.

### 4.1.2 3GPP reference model

A 3GPP System is made of the following components:

- one or more Access Networks, using different types of access techniques (GSM, UTRA, DECT, PSTN, ISDN, ...) of which at least one is UTRA;

- one or more Core Networks;

- one or more Intelligent Node Networks service logic and mobility management, (IN, GSM ...);

- one or more transmission networks (PDH, SDH etc.) in various topologies (point-to-point, ring, and  
point-to-multi-point...) and physical means (radio, fibre and copper ...).

The 3GPP system components have signalling mechanisms among them (DSS1, INAP, MAP, SS7, RSVP,...).

From the service perspective, the 3GPP system is defined to offer:

- Service support transparent to the location, access technique and core network, within the bearer capabilities available in one particular case;

- User to terminal and user to network interface (MMI) irrespective of the entities supporting the services required (VHE);

- Multimedia capabilities.

### 4.1.3 3GPP provisioning entities

TS 22.101 "Services Principles" [2] identifies two major entities, which cover the set of 3GPP functionalities involved in the provision of the 3GPP services to the user. These are:

**Home Environment:** This entity holds the functionalities that enable a user to obtain 3GPP services in a consistent manner regardless of the user's location or the terminal used;

**Serving Network:** This entity provides the user with access to the services of the Home Environment.

### 4.1.4 Management infrastructure of the PLMN

Every PLMN Organisation has its own management infrastructure. Each management infrastructure contains different functionality depending on the role-played and the equipment used by that PLMN Entity.

However, the core management architecture of the PLMN Organisation is very similar. Every PLMN Organisation:

- provides services to its customers;

- needs an infrastructure to fulfil them (advertise, ordering, creation, provisioning ...);

- assures them (Operation, Quality of Service, Trouble Reporting and Fixing ...);

- bills them (Rating, Discounting ...).

Not every PLMN Organisation will implement the complete management architecture and related processes. Some processes may be missing dependent on the role a particularorganisation is embodying. Processes not implemented by a particularorganisation are accessed via interconnections to otherorganisations, which have implemented these processes (called X-interfaces in the ITU-T TMN architecture).

The management architecture itself does not distinguish between external and internal interfaces.

=====================Extract from TS 32.101 end=====================

# 4 Detailed proposal

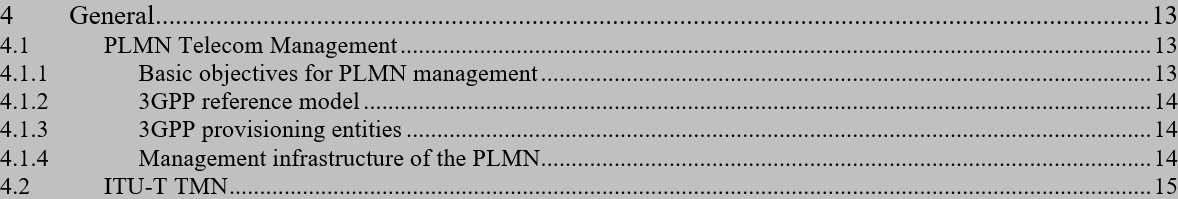
This document proposes the following changes in TR 28.925 [1].

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| **1st Change** |

## 4.x Issue #X: Analysis on General Concept in TS 32.101 section 4

### 4.x.1 Description

**The following general information is documented in TS 32.101.**



Analysis:

TS 32.101 defines the management principles and high-level requirements for the management of PLMNs. The descriptions in clause 4 of this TS which can be improved and applies for SBMA.

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| Sections | Analysis |
| 4.1.1 Basic objectives for PLMN management | The concept of “basic objectives for PLMN management” is generally applicable for SBMA, but some improvement on the text is needed. |
| 4.1.2 3GPP reference model | The concept is generally applicable with some improvement on the text. |
| 4.1.3 3GPP provisioning entities | The concept is generally applicable with some addition of “Serving Environment / Mobile Virtual Network Identification” on the provioning entities corresponding to the latest TS 22.101. |
| 4.1.4 Management infrastructure of the PLMN | The concept is generally applicable with some improvement on the text. |

### 4.x.2 Potential solutions

Introduce the following information in 3GPP TS 28.533 [2] to specify concept and general principle of management of PLMN with improvement of the content in TS 32.101 section 4.1 PLMN Telecom Management

### X PLMN Telecom Management

### X.1 Basic objectives for PLMN management

The following basic objectives to be supported by themanagement specifications have been identified:

- to minimise the complexity of PLMN management and minimise the costs of managing a PLMN.

- to provide the interoperability betweenthe roles communication service provider, communication service consumer**,** network operator and network equipment provider via standardised management services as appropriate and necessary. T

- to provideconfiguration capabilities that are flexible enough to allow rapid deployment of services.

- to provide integrated Fault Management capabilities.

- to simplify maintenance interventions by supporting remote maintenance operations.

- to enable the support and control of a growing number of resources. This would allow the system to start from a small and simple configuration and grow as needed, both in size and complexity.

- to support the security management of PLMNs (e.g. key management, access control management, operation and administration of security mechanisms).

- to address the management and assessment of system performance and operation through the use of standardized measurements, etc. This would enable different roles to assess actual performance against planned targets.

- to have one (1) name convention for network resources under management in the 3GPP context. To perform network management tasks, co-operating applications require identical interpretation of names assigned to network resources under management. Such names are required to be unambiguous as well.

### It is acknowledged that the introduction of new architecture to support new services or the introduction of new services themselves may impact the detailed requirements of some or all of the above.

### X.2 3GPP reference model

A 3GPP System is made of the following components:

- one or more Access Networks, using different types of access techniques;

- one or more Core Networks;

- one or more Intelligent Node Networks;

- one or more transmission networks (PDH, SDH etc.) in various topologies (point-to-point, ring, and  
point-to-multi-point...) and physical means (radio, fibre and copper ...).

The 3GPP system components have signalling mechanisms among them.

From the service perspective, the 3GPP system is defined to offer:

- Service support transparent to the location, access technique and core network, within the bearer capabilities available in one particular case;

- User to terminal and user to network interface (MMI) irrespective of the entities supporting the services required (VHE);

- Multimedia capabilities.

### X.3 3GPP provisioning entities

TS 22.101 "Services Principles" [2] identifies two major entities, which cover the set of 3GPP functionalities involved in the provision of the 3GPP services to the user. These are:

**Home Environment:** This entity holds the functionalities that enable a user to obtain 3GPP services in a consistent manner regardless of the user's location or the terminal used;

**Serving Network:** This entity provides the user with access to the services of the Home Environment.

### X.4 Management infrastructure of the PLMN

Every PLMN Organisation has its own management infrastructure. Each management infrastructure contains different functionality depending on the role-played and the equipment used by that PLMN Entity.

However, the core management architecture of the PLMN Organisation is very similar. Every PLMN Organisation:

- provides services to its customers;

- needs an infrastructure to fulfil them (advertise, ordering, creation, provisioning ...);

- assures them (Operation, Quality of Service, Trouble Reporting and Fixing ...);

- bills them (Rating, Discounting ...).

Not every PLMN Organisation will implement the complete management architecture and related processes. Some processes may be missing dependent on the role a particularorganisation is embodying. Processes not implemented by a particularorganisation are accessed via interconnections to otherorganisations, which have implemented these processes (called X-interfaces in the ITU-T TMN architecture).

The management architecture itself does not distinguish between external and internal interfaces.

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| **End of change** |