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Technical Specification

Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); NGN Subscription Management; Part 1: Requirements

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Foreword

This Technical Specification (TS) has been produced by ETSI Technical Committee Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN).

Introduction

The focus of the present document is on Subscription Management (SuM) which is necessary to allow Service Providers and Operators to offer and deliver NGN services to their subscribers.

SuM is a key feature that allows service providers and operators to provision their TISPAN NGN network entities with the data necessary for delivering services for a specific subscriber. Moreover, it also allows subscribers to configure their services when they have these capabilities.

For the services, business aspects such as duration of a subscription, number of times accessing the service, or pricing/payment are not of concern for SuM as specified in the present document, and SuM covers management of services irrespectively of such aspects.

SuM aligns with a subset of the eTOM fulfilment process. SuM is concerned with the definition of all the mechanisms and information needed to efficiently and flexibly configure the TISPAN NGN network with the appropriate data needed for a specific subscriber.

SuM is a telecommunications management framework that allows the service providers to leverage their network resources to:

- Validate (register, authenticate and authorize) a request for service from a user.
- Collect, store, update and distribute the Service Profile information for the user.
- Select the trusted network resources to manage access, distribution and control of the profile data information for the user.
- Direct the network resources to promptly deliver the service requested to the user according to said profile information.

Subscription Management (SuM) fulfils the following essential TISPAN NGN requirements:

- The "**User equipment Diversity**" allows the users to access their TISPAN NGN services by a variety of UEs.
- The "**Service Diversity**" allows the users to access TISPAN NGN services provided by service providers or third party application server providers.
- The "**Access Diversity**" allows the users to access their TISPAN NGN services over a wide variety of network access such as xDSL, WLAN, GPRS, etc.
- **Nomadism**: allows the users to access their TISPAN NGN services in multiple nomadism scenarios.

1 Scope

The purpose of the present document is the definition of the necessary requirements for the Subscription Management (SuM) which is paramount for the NGN service delivery within TISPAN NGN.

The present document contains the specification of the requirements for the following:

- An end-to-end information model to cover all the mandatory/optional information related to Subscription Management (SuM) that shall be provisioned on the NGN Network.
- A Subscription Management (SuM) functional architecture which hides the complexity of the different functional entities to be configured including the CPE and the AS.

The requirements described in the present document including the defined information model are done according to the specifications of TISPAN R2.

2 References

References are either specific (identified by date of publication and/or edition number or version number) or non-specific.

- For a specific reference, subsequent revisions do not apply.
- Non-specific reference may be made only to a complete document or a part thereof and only in the following cases:
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2.1 Normative references

The following referenced documents are indispensable for the application of the present document. For dated references, only the edition cited applies. For non-specific references, the latest edition of the referenced document (including any amendments) applies.

- [1] ETSI TS 123 008: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); LTE; Organization of subscriber data (3GPP TS 23.008 version 8.6.0 Release 8)".
- [2] ETSI TS 129 228: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); LTE; IP Multimedia (IM) Subsystem Cx and Dx Interfaces; Signalling flows and message contents (3GPP TS 29.228 version 8.5.0 Release 8)".

2.2 Informative references

The following referenced documents are not essential to the use of the present document but they assist the user with regard to a particular subject area. For non-specific references, the latest version of the referenced document (including any amendments) applies.

- [i.1] TMF GB921: "Enhanced Telecom Operations MapTM (eTOM), The Business Process Framework for the Information and Communications Services Industry".

- [i.2] TMF GB921D: "Enhanced Telecom Operations Map™ (eTOM), The Business Process Framework for the Information and Communications Services Industry, Addendum D".
- [i.3] ETSI TS 132 172: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); LTE; Telecommunication management; Subscription Management (SuM) Network Resource Model (NRM) Integration Reference Point (IRP): Information Service (IS) (3GPP TS 32.172 version 8.0.0 Release 8)".
- [i.4] ITU-T Recommendation M.3020: "Management interface specification methodology".
- [i.5] 3GPP TR 32.803: "Telecommunication management; Process guide; Use cases in Unified Modelling Language (UML)".

3 Definitions and abbreviations

3.1 Definitions

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

offered service: service offered by the Service Provider to the market

service profile: collection of service and user related data as defined in TS 129 228 [2].

service provider: entity that offers services to subscribers

NOTE: The exact terms, their definition and use within the present document may be modified as a result of the development of the SuM information model and SuM functional architecture.

static data: data that is not modifiable during a NGN session

subscribed service: service subscribed by the subscriber

subscriber: entity (associated with one or more users) that is engaged in a subscription with a service provider

NOTE: The subscriber is allowed to subscribe and unsubscribe services, to register a user or a list of users authorized to use these services and also to set the limits relative to the use that associated users make of these services.

subscription: describes the commercial relationship between the subscriber and the service provider

NOTE: The usage of the word "subscription" in the SuM set of specifications covers traditional subscribed services but also access to services with limitations in such as duration of access, or number of times accessing the service. It includes paid services, pre-paid services and free services.

user: entity that consumes the services subscribed by the subscriber

user "activated and customized" service: service activated and customized by the user

user assigned service: service configured by the subscriber and assigned to the user

3.2 Abbreviations

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

| | |
|------|---|
| AS | Application Server |
| CLF | Connectivity session Location and repository Function |
| CPE | Customer Premises equipment |
| CRBT | Color Ring Back Tone. |
| CRM | Customer Relationship Management |
| DSL | Digital Subscriber Line |
| eTOM | enhanced Telecom Operation Map |

| | |
|--------|---|
| FE | Functional Entity |
| GPRS | General Packet Radio Service |
| HSS | Home Subscriber Server |
| IFC | Initial Filter Criteria |
| IMS | IP Multimedia Subsystem |
| IP | Internet Protocol |
| IT | Information Technology |
| NACF | Network Access Configuration Function |
| NASS | Network Attachment Subsystem |
| NGN | Next Generation Network |
| NOSI | NGN OSS Service Interface |
| NRM | Network Resource Model |
| OSS | Operation and Support System |
| P-CSCF | Proxy Call Session Control Function |
| PDBF | Profile Data Base Function |
| PSTN | Public Switched Telephony Network |
| RM&O | Resource Management and Operations |
| RP | Resource Provisioning |
| S/P | Supplier/Partner |
| SCA | Service Configuration and Activation |
| S-CSCF | Serving Call Session Control Function |
| SID | Shared Information/Data model |
| SIP | Session Initiation Protocol |
| SM&O | Service Management and Operations |
| SP | Service Provider |
| SuM | Subscription Management |
| TMF | TeleManagement Forum |
| UAAF | User Access Authorization Function |
| UE | User Equipment |
| UML | Unified Modelling Language |
| UPSF | User Profile Server Function |
| VOD | Video On Demand |
| VoIP | Voice over IP |
| WLAN | Wireless Local Area Networks |
| xDSL | all the Digital Subscribers Loop technologies |

4 Subscription Management (SuM) description

4.1 SuM overview

Allowing service providers to deliver, control, monitor and bill services to their subscribers in a timely and correct manner, require the translation of each specific subscription into necessary/optional network data and their provisioning on the appropriate network functionalities such as UPSF, AS, CPE, etc. Subscription Management (SuM) is the feature that realizes the above translation and provisioning artefacts. Moreover, Subscription Management (SuM) must provide means that allow subscribers to configure their services when they have configuration access rights.

Subscription Management (SuM) can be summarized as the framework that offer service providers means for efficient management of all the data related to a specific subscription. This framework is part of the service delivery "processes" used by the service provider to deliver services for subscribers.

The SuM framework is responsible of handling only the data related to the service delivery of a specific subscription. Moreover, as depicted in figure 1, data provisioned thanks to the Subscription Management (SuM) framework can also be used in other processes such as monitoring, billing, etc.

Subscription Management (SuM) framework, as shown in figure 1, involves the following entities:

- Service provider: offers a set of services.

- Subscriber: may subscribe to one or more services. The service provider will have then to manage the corresponding subscription by provisioning the necessary data and giving the following rights to the subscriber:
 - To become a user by using the services.
 - Give rights to its users, who will be then linked (or associated) to this subscription.
- User: use the authorized services.
- Services

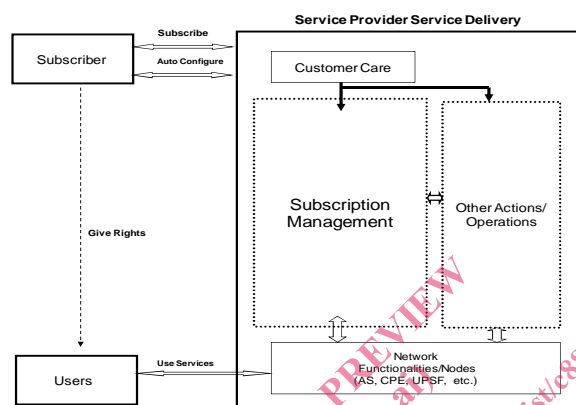


Figure 1: Subscription Management Overview

Subscription Management (SuM) aligns with subset of the eTOM fulfilment process, in particular the customer relationship management process, the service management and operations process and the resource management and operation process.

4.2 SuM and eTOM fulfilment process

Subscription Management (SuM) can be viewed as part of the eTOM fulfilment process described in TMF GB921 [i.1].

The eTOM fulfilment process is defined as a vertical end-end process grouping responsible for providing customers with their requested products in a timely and correct manner. It translates the customer's business or personal need into a solution, which can be delivered using the specific products in the enterprise's portfolio. This process informs the customers of the status of their purchase order, ensures completion on time, as well as ensuring a delighted customer.

As shown in figure 2, eTOM fulfilment process is composed of the following process:

- **Selling, marketing fulfilment response and order handling:** these processes are located within the customer relationship management process grouping which is responsible of functionalities necessary for the acquisition, enhancement and retention of a relationship with a customer. The order handling process is responsible for accepting and issuing orders.
- **Service configuration and activation:** this process is part of the service management and operations processes grouping which provide all the functionalities necessary for the management and operations of communications and information services required by or proposed to customer. The focus of the service management and operations is on service delivery and management as opposed to the management of the underlying network information technology. The service configuration and activation process encompasses the installation and configuration of the service for customers, and support the reconfiguration of the service (either due to customer demand or problem resolution).

- **Resource Provisioning:** this process is part of the resource management and operations process grouping which is responsible of managing all the resources (networks, IT systems, servers, routers, etc.) and delivering services required by or proposed to customers. The focus of the resource management and operations is to ensure that the network and information technologies infrastructure supports the end to end delivery of the required services. The Resource Provisioning process encompasses allocation and configuration of resources to individual customer service instances in order to meet the service requirements.
- **S/P requisition management:** this process is part of the Supplier/Partner (S/P) relationship management process grouping which enable the direct interface with the appropriate lifecycle, end-to-end customer operations or functional processes with supplier and/or partners. The S/P requisition management process manage requisitions with partners/suppliers to ensure on-time and correct delivery of the S/P product or service requested by the enterprise.

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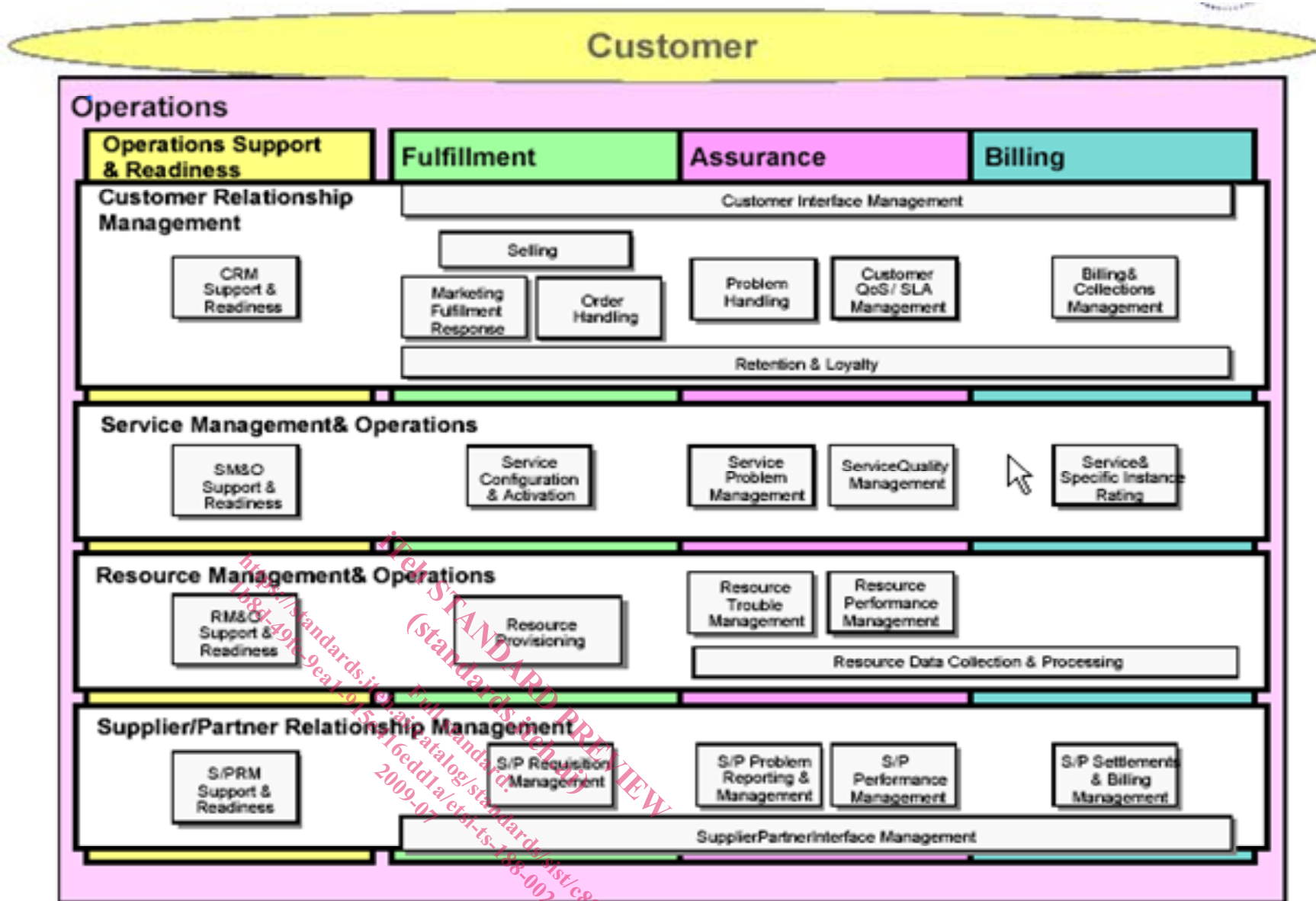


Figure 2: eTOM Operations Processes