Technical Specification Group Services and System Aspects   **TSGS#15(02)0012**
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Presentation of Technical Specification to TSG SA

Presentation to:	**TSG SA Meeting #15**
Document for presentation:	**TS 32.140, Version 1.0.0**
	Subscription Management Requirements
Presented for:	**Information**

Abstract of document: This Technical Specification defines the service requirements and high-level architecture for Subscription Management.

Work done against the WID initially contained in SP-000524 (Work Item ID: SM).

Outstanding Issues:
o Relationship with OSA needs to be verified. Current studies indicate that no specific relationship is required between OSA and Subscription Management.
o The document indicates that Subscription Management is closely linked to the Generic User Profile (GUP).
    An SA2 liaison (S2-020887) indicates that SA5 should remove all references to GUP from Release 5 documents. SA5 asks SA guidance on the appropriateness of moving 32.140 to Release 6.

Contentious Issues:
None

3GPP TS 32.140 V1.0.0. (2002-03)

Technical Specification

**3rd Generation Partnership Project;
Technical Specification Group Services and System
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Subscription Management Requirements
(Release 5)**

Keywords
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Contents

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

Subscription Management is a feature that permits Service Providers, Value Added Service Providers, and Mobile Operators to provision services for a specific subscriber. The feature is necessary to allow service providers and operators to provision, control, monitor and bill the configuration of services that they offer to their subscribers. Subscription Management focuses on the OAM processes to manage subscription information. These correspond to the 'Fulfilment' Process areas of the TeleManagement Forum Telecom Operations Map [3].

Subscription Management is an area of Service Operation Management that sets a complex challenge for service providers and operators in their support of new or existing subscribers during their every day network operation.

In 2G solutions the main repository of the subscription information is in the Home Locations Register (HLR). However the management and administration interfaces for controlling this information is proprietary to each vendor. The use of proprietary interfaces is inconvenient for those operators using multiple vendors' equipment since their provisioning systems have to accommodate multiple proprietary interfaces, which perform essentially identical functions. Moreover, it makes it more difficult to generate customer self care applications that allow subscribers to provision, and amend subscription data.

The 3G environment requires more complex service delivery mechanisms than in 2G and Subscription Management is no longer simply an internal matter for a single operator but a capability that is achieved by linking together features across multiple service providers and operators Operations Support Systems. Historically, the services provided by operators have been defined within standards groups such as ETSI or 3GPP . With the advent of Open Services Access (OSA) being adopted by 3GPP the User Service Definitions will be replaced by Service Capabilities traded amongst service providers and network operators. This will allow operators and Service Providers to define customised service environments that roam with users as they move amongst networks – this is the Virtual Home Environment TS 22.121 [9]. This customised service environment means that subscription information is held in a number of locations including the Home Network, the Visited Network, the User Equipment, Application VASP equipment (e.g. servers accessed by the subscriber for content and information based services) and the operations systems of the service providers, and operators supporting the subscriber's service subscription.

Service delivery and support across multiple vendors' solutions and organisations is a feature of other industries, and the solutions adopted are secure supply chain solutions based upon mainstream e-commerce principles, methods and technologies.

There is a relationship between this feature, the PS Domain, CS Domain, IP Multimedia Subsystem (IMS), Authentication Centre, Open Services Architecture (OSA) and Generic User Profile(GUP) documented in other 3GPP specifications.

Integration Reference Points are specified in separate documents.

1 Scope

This Technical specification defines the service requirements and high level architecture for Subscription Management. These are the set of requirements which shall be supported by the Subscription Management feature that allows a network operator's, service provider's or VASP's provisioning application, their staff (and possibly the subscriber via an application) to securely create, amend and delete subscriber information held in all managed locations. It also ensures that this information is consistent and accurately replicated across a number of network components and operations systems.

The objective of this document is to:

- Provide an overview of the concept of Subscription Management,

- Document the operators' requirements for Subscription Management,

- Describe the high level architecture for subscription management and the relationship amongst Subscription feature and other features (e.g. Generic User Profile).

This TS includes information applicable to network operators, content providers, and terminal and network manufacturers.

This TS contains the core requirements for Subscription Management, which are sufficient to provide management services.

The subscription of applications to OSA is not within the scope of this TS.

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*.

This specification may contain references to pre-Release-5 specifications. These references shall be taken to refer to the Release 5 version where that version exists.

[1]   3GPP TS 21.905: 3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; Vocabulary for 3GPP Specifications.

[2]   3GPP TS 23.002 : 3rd Generation Partnership Project; Technical Specification Group Services and System Aspects: Network Architecture (Release 5).

[3]   e-Business Telecommunication Operations Map v 2.5 TeleManagement Forum.

[4]   MWIF MTR-002/Annex A

[5]   ebXML Transport Routing and Packaging Overview and Requirements 26th May 2000 v0-96

[6]   3GPP TS 32.101 "3G Telecom Management: Principles and high level requirements"

[7]   3GPP TS 23.008 "Technical Specification Group Core Network: Organisation of subscriber data".

[8]   3GPP TS 23.228: " IP Multimedia (IM) Subsystem – Stage 2 ".

[9]   3GPP TS 22.121 "The Virtual Home Environment"

[10]   TS 29.198-03 "OSA API Framework"

[11]   3GPP TS 22.240 Technical Support Group Service and Systems Aspects; Service aspects; Stage 1 Service requirement for the 3GPP Generic User Profile (GUP)

[12]   3GPP 23.240 Technical Support Group Service and Systems Aspects; 3GPP Generic User Profile-Architecture; Stage2

[13]   3GPP 23.241 Technical Support Group Service and Systems Aspects; 3GPP Data Description Framework; Stage2

[14]   3GPP 24.241 Technical Support Group Service and Systems Aspects; 3GPP Generic User Profile Common Objects; Stage3

[15]   3GPP TS 22.041 Operator Determined Barring (ODB)

[16]   3GPP TS 23.015 Technical realization of Operator Determined Barring (ODB)

3   Definitions, symbols and abbreviations

3.1   Definitions

For the purposes of the present document, the following terms and definitions are used. Additional terms are taken from 3GPP TR 21.905 [1] .

Actor: An entity, party, person or organisation playing one or more Roles.

Role: An activity performed by an Actor. Each Actor can play many Roles. A Role is defined by a set of properties or attributes that describe the capabilities of an entity that can be performed on behalf of other Role(s).

Editors Note This definition needs to be reviewed

Subscriber**: A Subscriber is an entity (comprising one or more users) that is engaged in a Subscription with a service provider. The subscriber is allowed to subscribe and unsubscribe services, to register a user or a list of user authorised to enjoy these services, and also to set the limits relative to the use that users make of these services.**

Editor's Note: A liaison has been sent to SA1 proposing a correction to the definition 21.905. If accepted, the above definition will be removed and a reference to 21.905 added.

Service: See 3GPP TR 21.905 [1].

Integration Reference Point   See 3GPP TS 32.102

User: See 3GPP TR 21.905 [1].

Network Operator: See 3GPP TR 21.905 [1]

Organisation: A 'legal entity' that may perform one or more 'business roles' when interacting with other Organisations.

PLMN Operator: See 3GPP TR 21.905 [1]

Retailer An organisation that sells 3GPP User Equipment and Services to retail customers.

Reseller Service Provider: an Actor that resells Services provided and defined technically by another service provider. The reseller may re-brand the Service or offer a modified tariff package to its customers.

Service Provider (SP): See 3GPP TR 21.905 [1].**Service Integrator :** An organisation that takes a set of services from other providers and derives an end-to-end set of services. It has responsibility for the end to end service QoS to the Customer.

Subscription See 3GPP TR 21.905 [1]

Subscription Management A set of capabilities that allow operators, service providers, and indirectly subscriberss, to provision, control, monitor the Subscription Profile.

Subscription Profile The collection of data managed and stored by network domains and subsystems for the operation and execution of the services provided to subscribers.

Subscription Profile Component A discrete subset of the Subscription Profile that may be stored or managed separately from other subsets. For example components that may be stored in different domains, subsystems or replicated using different synchronisation rules.

Trusted Third Party An organisation that performs an agreed role on behalf of two or more other organisations (e.g. authentication, trust, market place services etc.).

3.2 Abbreviations

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

2G	Second Generation Mobile
3G	Third Generation Mobile
API	Application Programme Interface
ASP	Application Service Provider
AuC	Authentication Centre
B2B	Business to Business
CS	Circuit Switch
EIR	Equipment Identity Register
GTT	Global Text Telephony
GUP	Generic User Profile
HLR	Home Location Register
HSS	Home Subscriber Server
IMS	IP Multimedia Subsystem
IRP	Integration Reference Point (32.102)
ISP	Internet Service Provider
MWIF	Mobile Wireless Internet Forum
NPDB	Number Portability Data base
OAM	Operations, Administration and Maintenance
PS	Packet Switch
SLA	Service Level Agreement
SOM	Service Operation Management
SP	Service Provider
SuM	Subscription Management
TMN	Telecommunication Management Network
OSA	Open Services Access
OSS	Operations Support System
TR-IRP	Trading Partner IRP
TS	Technical Specification
UICC	Universal Integrated Circuit Card
USIM	Universal Subscriber Identity Module
VASP	Value Added Service Provider
VHE	Virtual Home Environment

4 General description

4.1 Subscription Management Concept

The 3G environment requires more complex service delivery mechanisms than in 2G. The following drivers are leading to a need to standardise Subscription Management Interfaces:

- Use of different vendor's equipment for 2G/ 2.5G and 3G.

- The trend in 2/2.5G toward the support of Virtual Network Operators and Content Providers requiring standardised interfaces amongst them.

Service delivery and support across multiple vendors' solutions and organisations is a feature of other industries, and the solutions are adopted are secure supply chain solutions based upon mainstream e-commerce principles, methods and technologies.
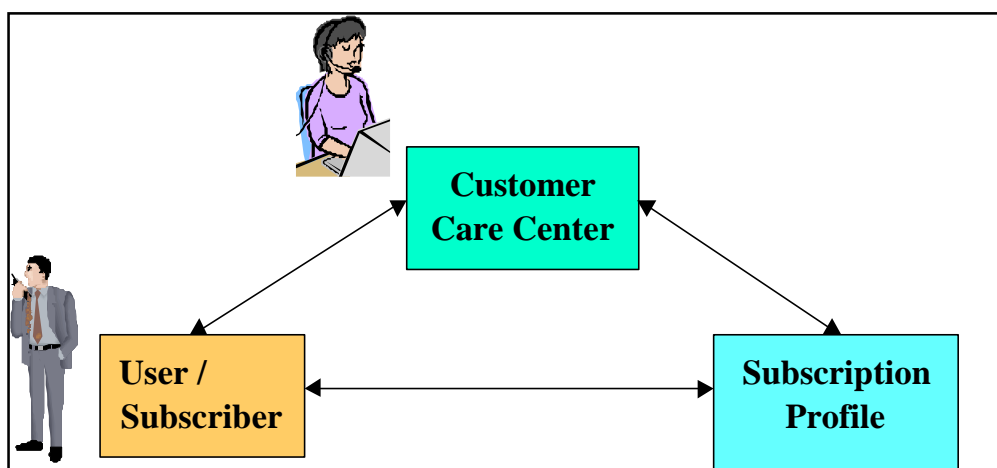
Subscription Management is an area of Service Operation Management that permits service providers and operators to provision services for a specific customer service subscription.

Specific 3G areas that Subscription Management requirements must address are:

- Subscription information is distributed across in a number of locations including the Home Network, the Visited Network, the User Equipment, Application VASP equipment (e.g. servers accessed by the subscriber for content and information based services).

- Subscription Management will allow service providers and operators to provision, control and monitor the subscription information.

- Subscription Management is not simply an internal matter for a single operator but a capability that is achieved by linking together features across multiple operators' Operations Support Systems.

- Subscription Management will need to manage subscription information in e.g. the OSSs, HSS, UEM, OSA, AuC, and IMS subsystems.

- The common components between the Generic User Profile and the Subscription Profile.

The conceptual model for Subscription Management is illustrated below:

Figure 1 High level view of Subscription Management

Subscription Management is concerned with provisioning the Subscription Profile throughout all the systems and trading partners needed to realise the customer service, Subscription Management provides specifications that define the interfaces and the procedures that interconnect the three points of the subscription management triangle: Customer Care Centre, the User and the network (s) where the Subscription Profile resides (such as HSS, USIM, etc.).

4.2   Business Model

The MWIF business model MTR-002 [4] shows an organisational model for Trading partners co-operating to provide wireless mobile services, the terms used in this example may not coincide exactly with those used in other parts of this document, e.g. Subscriber and Customer are believed to be equivalent.
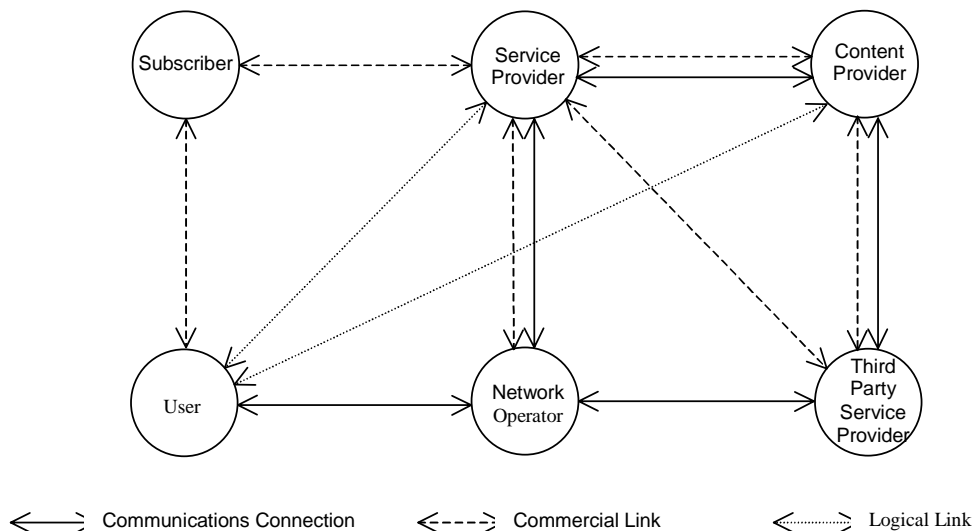
All commercial links are potential Trading Partner Interfaces.

Figure 2: Assumed Business Model

In this business model the Subscriber is a customer of the Service Provider (SP).

Commercial agreements are set up and maintained between them for the provision of services from the SP to the User via the Network Operator.

The Subscriber may have contracts with multiple SPs and maintains these on behalf of one or more users.

Editors Note: Does this mean that the subscriber is considered as a universal entity, i.e. , is the same subscriber identity maintained for different services providers and networks?

The Subscriber informs the SP which services each user should have access to and may choose to set limits on how much a User can use a particular service. For instance the Subscriber may authorize $x a day of video calls with a high QoS and unlimited video calls with a lower QoS.

The SP must enter into contract(s) with one or more Network Operators in order to deliver services to Users. Other companies may wish to sell services without having a contract with a Network Operator. This can be achieved by adopting the role of Third Party Service Provider and selling service via the SP. Other Companies may wish to sell just content. This is made possible by developing a commercial relationship with either a SP or a Third Party Service Provider.

It is important to note that Service Use, Customer Service Negotiation, etc are roles , and that one Actor may adopt more than one role. For instance an individual may adopt the roles of both Service Use and Customer Service Negotiation. A Company may adopt the roles of Network Operator, SP and Content Provider.

A user initiates a service by requesting it from the Service Provider, not the Network Operator. On receipt of a service request the Service Provider uses Network Operators and Third Party Service Providers to service the request in the best way possible. In the example of the video call the Service Provider may choose to use different Network Operators for high and low QoS calls.

4.3 Subscription Management: Operations Viewpoint

The following diagram positions Subscription Management from the viewpoint of operations management.
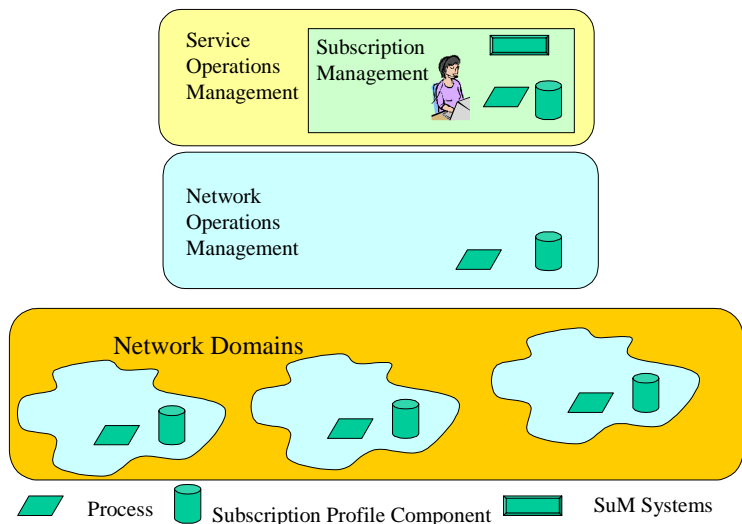
Figure 3 Subscription Management context within Operations Management

Subscription Management manages Subscriptions in the form of Subscription Profiles. The Components of the Subscription Profile may be distributed across Service Operations, Network Operations Management and Network domains.

The Subscription Management feature address the needs for managing Subscriber information that covers processes, Subscription Profile Components including contained data; and the operational requirements of operations people at the Service Operation level and their requirements on realisation of Subscription Management systems.

4.4   Subscription Management: relationship to Network Entities and Other Subsystems

4.4.1   General

The Subscription Management Feature provides management functions for subsystems, domains and components some of which are defined in the 3GPP Network Architecture 3GPP TS 23.002 [2]. However the Network Architecture does not address the Mobile Equipment or the Open Services Architecture nor non 3GPP defined subsystems. The following diagram shows this relationship with these entities, many of which are closely related to the Home Subscriber Server (HSS).
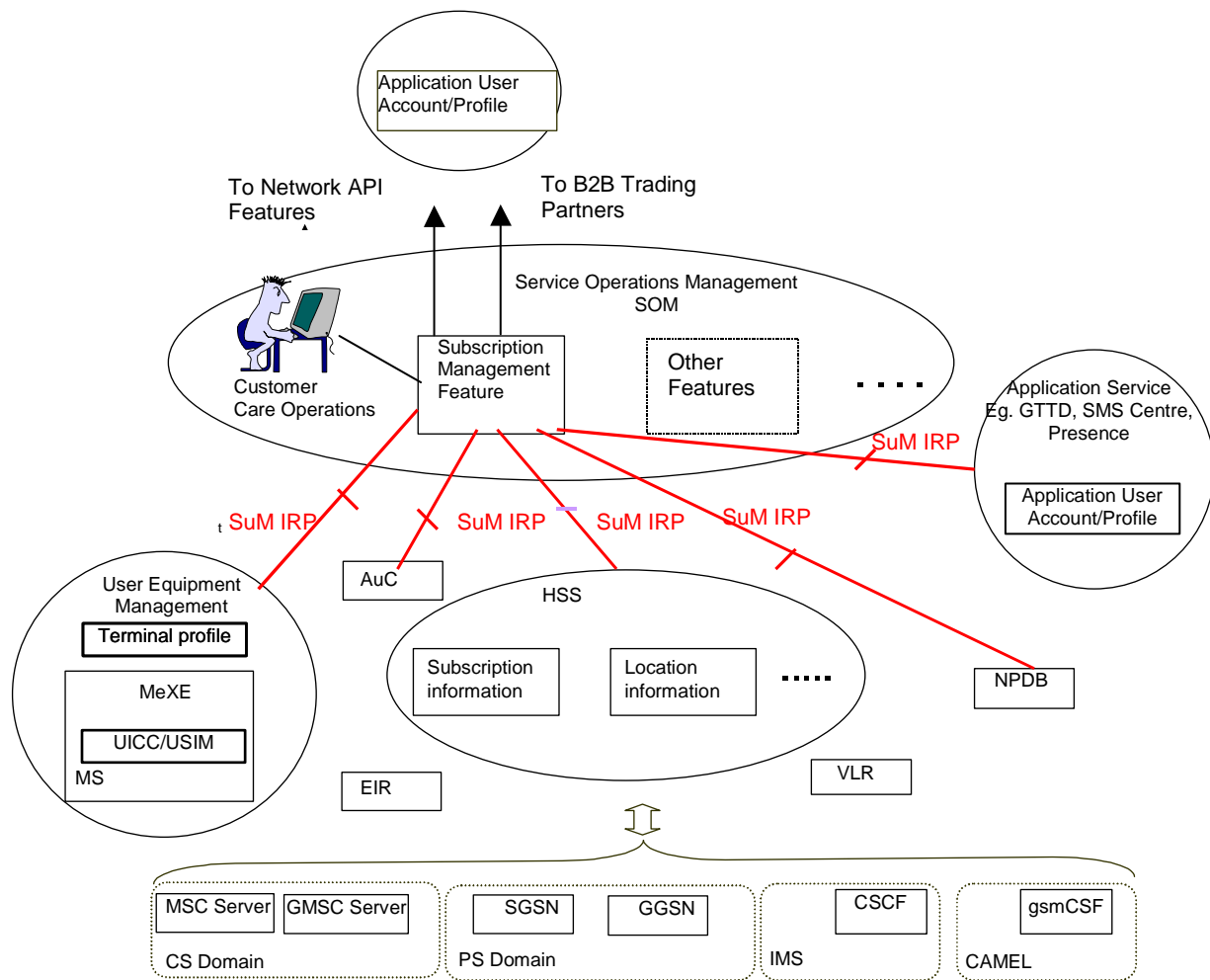
Figure 4 Examples of Subscription Management relationships with Network Architecture

Note: not all IRPs are shown in Figure 4

The diagram above is based upon entities identified in the 3GPP Network Architecture 3GPP TS 23.002 [2].
The Network Architecture identifies a number of entities that use Subscription Profile information for their operation.
The Subscription Management feature provisions and audits the Subscription Profile information (either directly, or indirectly, via the HSS):

- Core Network entities:

  - Home Subscriber Server (HSS) including HLR, and VLR;

  - Authentication Centre (AuC);

  - Equipment Identity Register (EIR);

  - SMS Centre.

- Circuit Switched Domain:

  - MSC Server;

  - Gateway MSC (GMSC).

- User Equipment/Mobile Station .

- Specific entities of the Mobile System:

- CAMEL Entities;

- Number Portability Database (NPDB);

- IP Multimedia System (IMS);

- Global Text Telephony (GTT) entities.

Subscription Management also provides capabilities to network APIs such a those being developed by OSA and also to support B2B trading interfaces to other trading partners: VASP, Virtual mobile Operators etc.

Figure 4 also implies a set of relationships from Subscription Management to:
- User Equipment Management that is assumed to configure and provision all aspects of the User Equipment and Terminals, including the possibility of configuring UICC/USIM profile information, using MeXe where appropriate.

- Application Service provided by third parties including trusted third parties that may configure some USIM via network interfaces, for example banks and other financial institutions. These services may also be provided by the Network Operator performing the role of Application Service provider.

- Network Service provided by Network Operators (e.g. SMS, presence).

The interfaces supporting these relationships may be the traditional Integration Reference Points (IRP) defined in 3GPP TS 32.101 [6] or in some cases where these interface are between different organisation they are designated Trading Partner Integration Reference Points (TP-IRP)..

4.4.2 Relationship to Generic User Profile (GUP)

- The concept of a Generic User Profile is defined in 3GPP TS 22.240 [11].
The main focus is on the definition of:
- A User profile constructed from one or more User Profiles Components
- Each User Profile Components that comprise one or more data types with formal definition
The emphasis is on defining data types especially those that have to be held or replicated in User Equipment

GUP assumes that User Profile Components may be distributed and replicated across a number of network domains and systems. Subscription Management is a feature that allows Subscription Profile Components to be distributed across Systems and Network Domains. Some Subscription Profile Components and some Generic Use Profile components are common. These common components affect the user experience and hence are part of the GUP. Subscription Management Processes are supported by processes and functions provided in ,the Service Operations, the Network Operations and Network Domains.

Subscription Management provides the management means to create, read, modify and delete data. It also provides for the management of the integrity of the Subscription Profile Components – and implicitly those common with GUP – by providing the mechanisms for the its distribution and synchronisation across Systems and Network Domains.
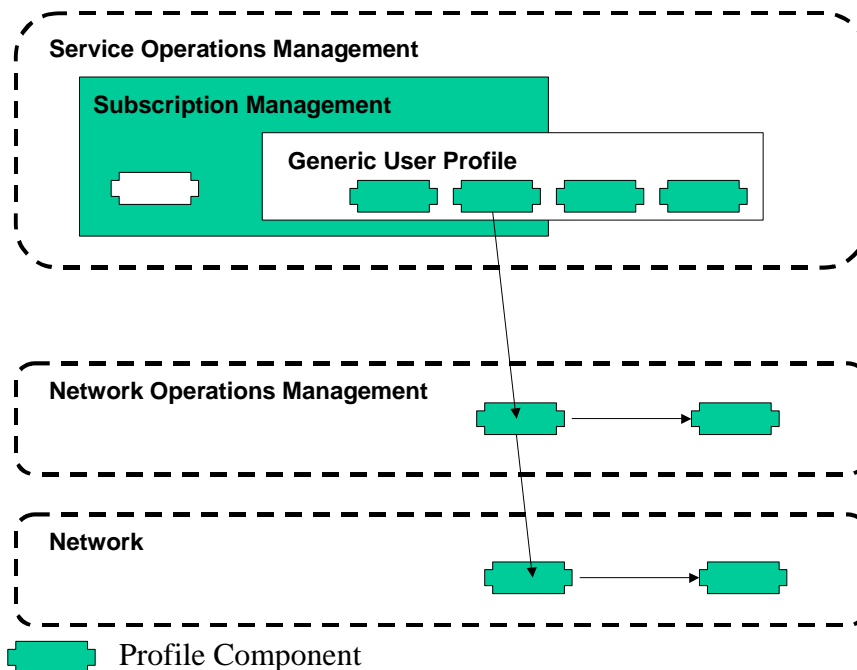
Figure 5 Relationship between Subscription Management and Generic User Profiles

4.4.3 Relationship to Open Service Access

Editors Note   Current studies indicate that no specific relationship is required between OSA and Subscription Management . This assumption needs to be verified.

5 Subscription Management Assumptions

The following assumptions are made in developing the Subscription Management requirements:

5.1 Business model assumptions

1. The provider of the service package to the subscriber may be different from either the Service Provider or the Network Operator.

2. The model shall allow for retailers, distributors and third parties that are independent of the Service Provider and the Network Operator.

5.2 Network and control assumptions

1. The invocation of a service feature in real time shall be the responsibility of the network and any associated control.

5.3 User Equipment assumptions

In the 2G and 3G Release 99 the main focus has been the provision by a single operator of a set of standardised services (mainly voice) to a subscriber. The involvement of multiple operators has been limited to subscriber roaming where the subscriber's services or some subset of them are supported.
The move to 3G has introduced a number of significant changes.

1. The User Equipment (UE) may contain one or more UICCs.

2. Each UICC (Universal Integrated Circuit Card) may host one or more USIM applications and may also contain other applications owned by 3rd party service providers as part of an authentication process (PKI, digital signature processing etc).

3. Subscriber secure information may be held on the UICC as opposed to the ME.

4. UICC may be issued by an organisation other than the Service Provider.

5. UICC may contain applications owned by third party Service Providers.

6 High level requirements

6.1 General

Subscription Management shall provide:
1. The management of the Subscription Profile Components in the PLMN and VASP systems.
2. Support for the replication and distribution of Subscription Profile Components across administrative, network and systems domains.
3. Control of the synchronisation and distribution of Subscription Profile Components across administrative, network and systems domains
4. The capabilities required by the Customer Care Operations for the control and modification of Subscription Profile information;

5. The capabilities that need to be offered to Business to Business (B2B) Trading Partners, such as Virtual Mobile Operators;

6.2 Business Model requirements

1. Subscription Management feature shall support the distribution of Subscription Management components across several organisations and administrative domains to support industry business model comprising, VASP, SP , NO, Retailers, Reseller, Service Integrator, etc. For example, the business models being defined by Raddichio and MWIF MTR-002[4].
2. Subscription Management shall allow for the optional use of third parties to facilitate trading relationship between organisations. This requirement is needed for trusted third parties but not limited to trusted third parties.

6.3 Requirements on Subscription Management Profile Components

6.3.1 Requirements on HSS/HLR

The primary area where Subscription Profile Components are stored is in the HSS/HLR, which is used by the network for distribution and replication of this data in other subsystems such as the PS Domain, CAMEL, …

1. Subscription Management shall allow for the creating, reading, updating and deleting of Subscription Profile data in the HSS /HLR.

2. Subscription Management shall support the data structures and organisation described in TS 23.008 [7].

6.3.2 Requirements for support of Generic User Profile (GUP)

NOTE: Some components of the Subscription Profile and the GUP are common, TS 22.240 [11], TS 23.240 [12], TS 23.241 [13], TS 24.241 [14].

1. The interaction between the Subscription Management processes and other process acting on common Components of the GUP and the Subscription Profile shall be defined.

2. Subscription Management shall support GUP requirements, including GUP constraints on the common Components. E.g. a single logical User Profile per user.

3. Subscription Management shall not place restrictions on the allocation of ownership /stewardship of Components of the GUP that are not common with the Subscription Profile.

4. Subscription Management shall be able to control the ownership of Components common to the GUP and the Subscription Profile.

6.3.3 Requirements on Packet Domain

1. Subscription Management shall manage Subscription Profile Components within the PS Domain.

2. Subscription Management may manage this data via the HSS/HLR.

6.3.4 Requirements on Circuit Switch Domain

1. Subscription Management shall manage Subscription Profile Components within the CS Domain.

2. Subscription Management may mange this data via the HSS/HLR.

6.3.5 Requirements on User Equipment

1. Subscription Management shall support multiple UICC/USIM subscriptions present within a single Mobile Equipment.

2. Subscription Management shall support UICC/USIM issued by parties other than the Mobile Service Provider.

Editors Note: Further study is required to determine if Subscription Management has requirements with UEM to support recovery of UE based services. E.g. download of service/subscription data on replacement of a lost/damaged terminal.

6.3.6 Requirements on IMS

Editor's Note: Need to identify if there are Subscription Profile Components in the IMS that are not handled in the HSS

1. Subscription Management shall manage Subscription Profile Components within the IMS defined in reference 3GPP TS 23.228 [8].

2. Subscription Profile Components will be needed for:

   a) Data related to subscription identification and numbering. E.g. Private Identity, Public Identity, Registration Status, s-SCCF name.

   b) Data related to Roaming

   c) Data related to Authentication and ciphering

   d) Data related to S-CSCF selection information

   e) Data related to Applications and Service Triggers

6.3.7 Requirements on Authentication Centre (AuC)

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1. Subscription Management shall be able to create, read, modify and delete User Profile Data about a User in the Authentication Centre.

6.3.8 Requirements on Equipment Identity Register (EIR)

1. Subscription Management shall be able to create, delete and interrogate entries about IMEI in the white, black and grey list within in the EIR.

2. Subscription Management shall support a bulk Transfer mechanism to the black white and grey lists in the EIR.

3. Subscription management shall support Subscription Data defined in reference 3GPP TS 22.041 [15], 3GPP TS 23.015 [16].

6.4 Process requirements

1 Modifications by the Subscription Management to Subscription Profile Components shall be recorded in an historical log.

2 Subscription Management shall provide a process to support a subscriber wishing to check their Subscription Configuration.

3 Authentication of a subscriber shall be provided to prevent anyone other than the subscriber or an authorised person from gaining access to their Subscription Profile.

4 It shall be possible to replicate and distribute the Subscription Profile Components following rules established and defined by Subscription Management Feature.

Editor's Note: May want to consolidate these into section 6.1

6.6 Technology requirements

Editor's Note: Remove this text once it has been moved 32.101 and 32.102

6.6.1 Interfaces

1. Interfaces supporting Interface Reference Points between organisations – TP-IRP- shall use mainstream e-commerce technology methods.

2. For TP-IRP interfaces preference shall be given to the use of ebXML based e-commerce solutions.

6.7 Business Aspects and Integration

Editor's Note: Remove this text once it has been moved 32.101 and 32.102

1. Interfaces between trading partners shall meet the commercial and legal standards required for the business to business transactions.

2. Interfaces between Subscription Management components within an organisation shall not exclude the use of OSS though Java solutions.

3. It shall be possible to use syncML as a solution for the synchronisation of distributed Subscription and User Profile Components.

6.8 Security

1. Secure mechanisms shall be available for the transfer of Subscription Profile Components to, from or between authorised entities.

2. Access to Subscription Profile Component shall only be permitted in an authorised and secure manner.

3. The secure mechanisms to be applied shall be appropriate to the level of confidentiality of the data, the endpoints of the transfer and the routes that are available for the transfer of the data. The owner of the data, normally the body storing the master copy of the data, shall be responsible for applying the appropriate level of security to the transfer of the data.

4. The secure mechanisms available to Subscription Management shall include the following:

   a) Before any transfer takes place, it shall be possible for the sender of the data to verify the identity of the recipient.

   b) It shall be possible for the recipient of data to identify the sender.

   c) It is permissible for either the sender or recipient of data to employ the services of a third party, known to, and trusted by, both in order to provide authentication of identity.

   d) The validity of an authentication of identity shall, if required, be subject to a maximum time limit.

   e) It shall be possible for the sender of data to render the data to be unreadable by any party not authorised to receive it.

   f) It shall be possible for the recipient of data to detect whether the sender has made any change to the data subsequent to its transmission.

   g) The security mechanisms shall provide verification that the data has been sent by the sender and received by the recipient (non-repudiation).

   h) It shall be possible for the sender and/or the recipient to create an audit log of all data transfer transactions of a specified type, provided that this requirement is made known before any transfer takes place.

   i) Transaction security for the change of data should be available in order to ensure the consistent change of data at different locations.

5. Subscription management shall support the situation where the UICC/USIM may be issued by parties other than a Mobile Service Provider, and the issuer may wish to control access to the information contained within the UICC/USIM and impose access control constraints. It may also require that information is transfer securely.

Subscription management feature will need to bridge between the 3GPP network security functions and the security used in mainstream e-commerce solutions such as those in ebXML [5].

6.9 Privacy

Subscription Management shall fulfill local privacy regulations.

Annex A (informative):
Change history

Change history							
Date	**TSG #**	**TSG Doc.**	**CR**	**Rev**	**Subject/Comment**	**Old**	**New**
Mar 2002	SA_15	SP-020012			Submitted to SA#15 as v1.0.0 for Information	1.0.0	

SA5-internal Change history						
TSG SA#	**SA Doc.**	**SA5 Doc**	**Subject/Comment**	**Old**	**New**	**WI**
			Creation of TS		0.0.0	SUM
			Updated with additional text supporting Business models and UML relationship models	0.0.0	0.1.0	SUM
			Output of SA5 #21	0.1.0	0.2.1	SUM
			Updated to remove Service Operations management text tutorial – input to SA5 #22	0.2.1	0.2.2	SUM
			Output of SA5 #22	0.2.2	0.3.0	SUM
			Input to SA5 #23	0.3.0	0.3.1	SUM
			Output from SA5 #23	0.3.1	0.4.0	SUM
			Input to SA5 #24	0.4.0	0.5.0	SUM
			Restructured to be focussed solely on Stage 1 requirements	0.5.0	0.5.1	SUM
			Restructured to be focussed solely on Stage 1 requirements	0.5.1	0.5.2	SUM
			Updates from drafting session at SA5#25	0.5.2	0.5.3	SUM
			MCC editorial clean-up	0.5.3	0.5.4	SUM
			Output of Email review	0.5.4	0.5.5	SUM
		S5-020141	Updated at SA5#26	0.5.5	0.6.1	SUM
SA_15	SP-020012		Submitted to SA#15 as v1.0.0 for Information	1.0.0		SUM