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TECHNICAL SPECIFICATION

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Contents

Foreword

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Introduction

The present document introduces the requirements and features of a 3GPP Generic User Profile (GUP). The GUP will help overcome some of the challenges associated with the introduction of sophisticated user terminals with widely varying capabilities, hybrid combinations of mobile network domains, the advent of downloadable applications, and the desire of users to customise potentially complex services to individual preferences and needs.

The present document for a Generic User Profile will capture requirements that will allow:

1. A way to express user preferences in a consistent manner.
2. Effective management, control ownership and protection of GUP data.
3. Extensibility to cater for future needs and the simple addition of new features.

1. Scope

The present document defines the stage one description to the 3GPP Generic User Profile (GUP). It specifies requirements to the 3GPP Generic User Profile, seen primarily from the user, home environment, serving network and value added service provider's points of view.

The present document includes information applicable to the home environment, device- and network manufacturers and value added service providers which are sufficient to provide complete support of services in 3GPP networks.

While the 3GPP Generic User Profile may contain components that are out of scope of 3GPP (e.g. for services offered by third parties) the requirements in the present document pertain only to those components that lie within the 3GPP system.

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 21.905: "Vocabulary for 3GPP Specifications".

[2] 3GPP TS 32.140: "Subscription Management Requirements".

[3] Open Mobile Alliance (OMA): OMA-RD-Parlay_Service_Access-V1_0-20100427-A.

[4] W3C Recommendation "Extensible Markup Language (XML) 1.0 (Fifth Edition)" http://www.w3.org/TR/2008/REC-xml-20081126/

[5] W3C Recommendation "XML Schemas, Part 1: Structures Second Edition" http://www.w3.org/TR/2004/REC-xmlschema-1-20041028/

[6] W3C Recommendation "XML Schemas, Part 2: Datatypes Second Edition" http://www.w3.org/TR/2004/REC-xmlschema-2-20041028/

3 Definitions and abbreviations

3.1 Definitions

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

3GPP Generic User Profile (GUP): The 3GPP Generic User Profile is the collection of user related data which affects the way in which an individual user experiences services and which may be accessed in a standardised manner as described in this specification. The Generic User Profile is defined using the W3C XML recommendation [4].

GUP Component (logical): A GUP component is logically an individual part of the Generic User Profile.

GUP Component instance (physical): a GUP component instance is a physical representation of a GUP component. To one GUP component (logical) correspond one or more component instances, i.e. physical copies. Component instances may be located in the Home Network, in the Value Added Service Provider Environment and/or the User Equipment.

GUP Data Element: the indivisible unit of Generic User Profile information.

GUP Data Model: The data model describing the data structure, the way the data elements are defined and the relationship to each other.

Data Description Method: A method describing how to define the data contained in the Generic User Profile. The description is defined using the W3C XML Schemas recommendations [5], [6].

Master component instance (aka master instance): Among the component instances (physical) associated with a GUP component (logical), one of them is tagged with the role of "master instance". The master component instance is responsible for the correct value of the corresponding GUP component.

Public User Identity: Identity which is used to communicate with other users.

User: for definition see 3GPP TR 21.905 [1]. In addition the present document assumes, that the user has a unique identity in the 3GPP system (IMSI or IMS Private ID) and is associated with one 3GPP subscriber. (Note, that a user may have many addresses though! E.g. the user can have several Public User IDs). The user is not necessarily identical to the 3GPP subscriber.

Further 3GPP system related definitions are given in 3GPP TR 21.905 [1].

3.2 Abbreviations

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

GERAN	GSM/EDGE Radio Access Network
GUP	3GPP Generic User Profile
IMS	IP Multimedia Core Network Subsystem
IMSI	International Mobile Subscriber Identity
MVNO	Mobile Virtual Network Operator
OSA	Open Service Access
PID	Private User Identity
UE	User Equipment
UTRAN	Universal Terrestrial Radio Access Network
VASP	Value Added Service Provider
VHE	Virtual Home Environment
WLAN	Wireless Local Area Network

Further 3GPP system related abbreviations are given in 3GPP TR 21.905 [1].

4 General description

4.1 Introduction

The fact of having several domains within the 3GPP mobile system (e.g. Circuit-Switched, Packet-Switched, IP Multimedia Subsystem) and access technologies (e.g. GERAN, UTRAN and WLAN) introduces a wide distribution of data associated with the user. Further, the new functions both in terminals and networks mean that the data related to Users, Services and User Equipment will be increased greatly. This causes difficulties for Users, Subscribers, network Operators and Value added service providers to create, access and manage the user-related data located in different entities.

The objective of specifying the 3GPP Generic User Profile is to provide a means to enable harmonised usage of the user-related information originating from different entities. The specification of the GUP shall also allow extensibility to cater for future developments.

The 3GPP Generic User Profile is the collection of User-related data which affects the way in which an individual user experiences services where a community of entities share this data. The 3GPP Generic User Profile can be stored in the home network environment and/or Value Added Service Provider equipment.

The 3GPP Generic User Profile will be accessed by different stakeholders and managed either by one (centralised) or by different stakeholders (de-centralised) such as the user, subscriber, value added service provider and network

operator by a standardised access mechanism. The 3GPP Generic User Profile allows intra-network usage (i.e. data exchange between applications within a mobile operator's network) and inter-network usage (between mobile operator's network and value added service providers) as illustrated in Figure 1.

Note: MVNOs and visited networks are treated as value added service providers in terms of GUP data exchanges with mobile operator's network.

The 3GPP Generic User Profile may be also be used by different applications in a standardised way.

The 3GPP Generic User Profile will help to create and manage the user data in each entity and on the other hand to make it easier to find all user related data as a whole in the home network environment.

Technically the 3GPP Generic User Profile provides an architecture, data description and interface with mechanisms to handle the data.

4.1.1 Intended Usage of the Generic User Profile

The intended usage of the 3GPP generic user profile is a critical factor driving its detailed specification, e.g., architecture and data model. In general, user profile data can be shared between different stakeholders to facilitate the following:

- **User preference management**: Enable applications to read and utilize a limited set of user preference information
- **User service customization**: Enable applications to read and utilize personalized service information, i.e., individual settings for a particular service
- **Terminal capability management**: Enable applications to access terminal-related capabilities
- **User Information sharing**: Enable applications to read and utilize application level information, e.g. address book information
- **Profile key access**: Enable applications to use a unique identity as a key to access profile information, .e.g. any public user identity or an alias.

It is intended that the 3GPP GUP, in particular, will address all of the above. As can be inferred, a user's identity can serve as the unique common key into the profile.

4.1.2 Benefits of the 3GPP Generic User Profile for individual stakeholders

The following chapter shows in an exemplary way how stakeholders may benefit from GUP. The examples given are neither exhaustive nor are they meant to be part of, or be implemented by GUP. On the contrary, these functions / use-cases need to be seen distinct from GUP, but capabilities offered through GUP (e.g. a common data description, data access- and synchronisation mechanisms …) may be utilised to build these functions.

- Subscription Management and Customer Care:
  Subscription Management [2] benefits from a standardised way to access subscription data of a user. Already today customer care is a noticeable part of an operator's expenses, it will grow to be even more expensive as more services and more terminal types become available for 3GPP system. Unlike the Supplementary services in GSM new services in 3GPP are not standardised. Therefore content and format of subscription data as well as the places (repositories) where subscription data are stored may be different for different new services. GUP specifies the description of- and access of data in a standardised way. This will allow:
  - **Service providers** as well as Value Added Service providers to use standardised GUP mechanisms for Subscription Management and Customer Care by the operator.
  - Reduce costs for Subscription Management and Customer Care for the **operator** and/or **service provider** and/or value added service provider since management tools may rely on this standardised mechanism.
- Subscription Check by third party provided services:
  Third party provided services may run on application servers outside the 3GPP system. However subscription information may be kept by the home operator.

To find out, whether a service is allowed to be invoked by a particular user the service needs to check its subscription. Access to this information can be controlled by means of GUP mechanisms.

- Benefit for third party **value added service providers** and for
- **Operators**, who want to keep subscription within their domain

- Services Interaction:
  If personalisation of services possibly effect other services it may be advantageous, that such personalisation is visible to these other services. If a service is designed to permit access to these data through GUP mechanisms:
  - the **user** or **operator** may choose to allow certain services to access certain user data of other services of the user.

- Provision of Terminal Capability information:
  Services (from the home- or visited network operator or provided by third parties) may need to know what capabilities the terminal, that is currently used by the user, supports. Multiple provisioning protocols are a problem for terminal vendors since the UE has to support all of them. The GUP data will be described in the same way and can therefore be used in different protocols without having to change. GUP mechanisms could provide the basis for retrieval of a user's terminal capabilities.
  - Benefit for the **value added service provider**, who can rely on a GUP mechanism to obtain this information.

4.2 Conceptual view of the GUP

For each user (characterised by an IMSI or IMS PID) one User Profile exists, which may consist of several 'components'. These components may be distributed in the home network and value added service provider's environment. Within the home network, the components may be distributed in various network nodes. Figure 1 below provides a conceptual overview of GUP and is as such for informative purposes only. Only one master of the component exists, but one or more copies of the master component may exist. The home operator shall be able to copy master components, which are located outside the home network to the home network. Within the home network, functionality exists that is able to locate GUP components, thereby making applications unaware of the actual location of the components. The administration and management of the data associated with this functionality is under the control of the home network. Although GUP does not attempt to provide an actual classification of the data it may contain, one may consider categorisations such as general user information, terminal related information, service specific information, etc. as indicated in clause 4.4.

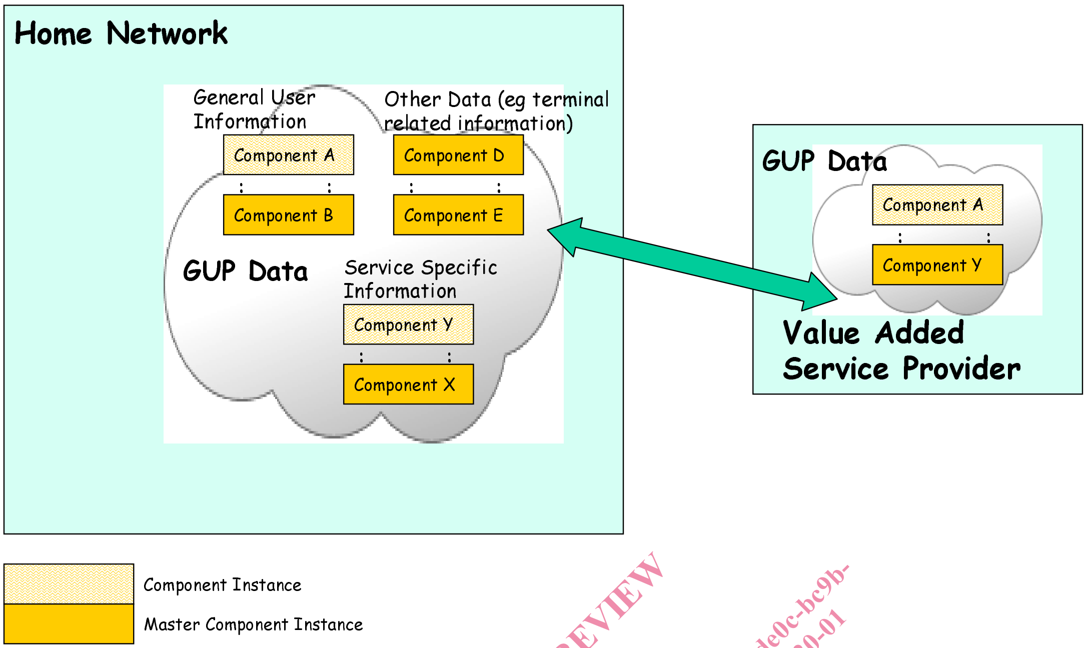

Figure 1: Conceptual view of GUP

4.3 GUP Data Stores and GUP data Users

This clause describes in general terms where the generic user profile data resides and which entities use that information. A general feature of the user profile is that the different entities are data consumers for a certain subset of the generic user profile and are data suppliers for another part. The 3GPP GUP data are distributed by nature and consequently stored in home network and Value Added Service Provider Equipment.