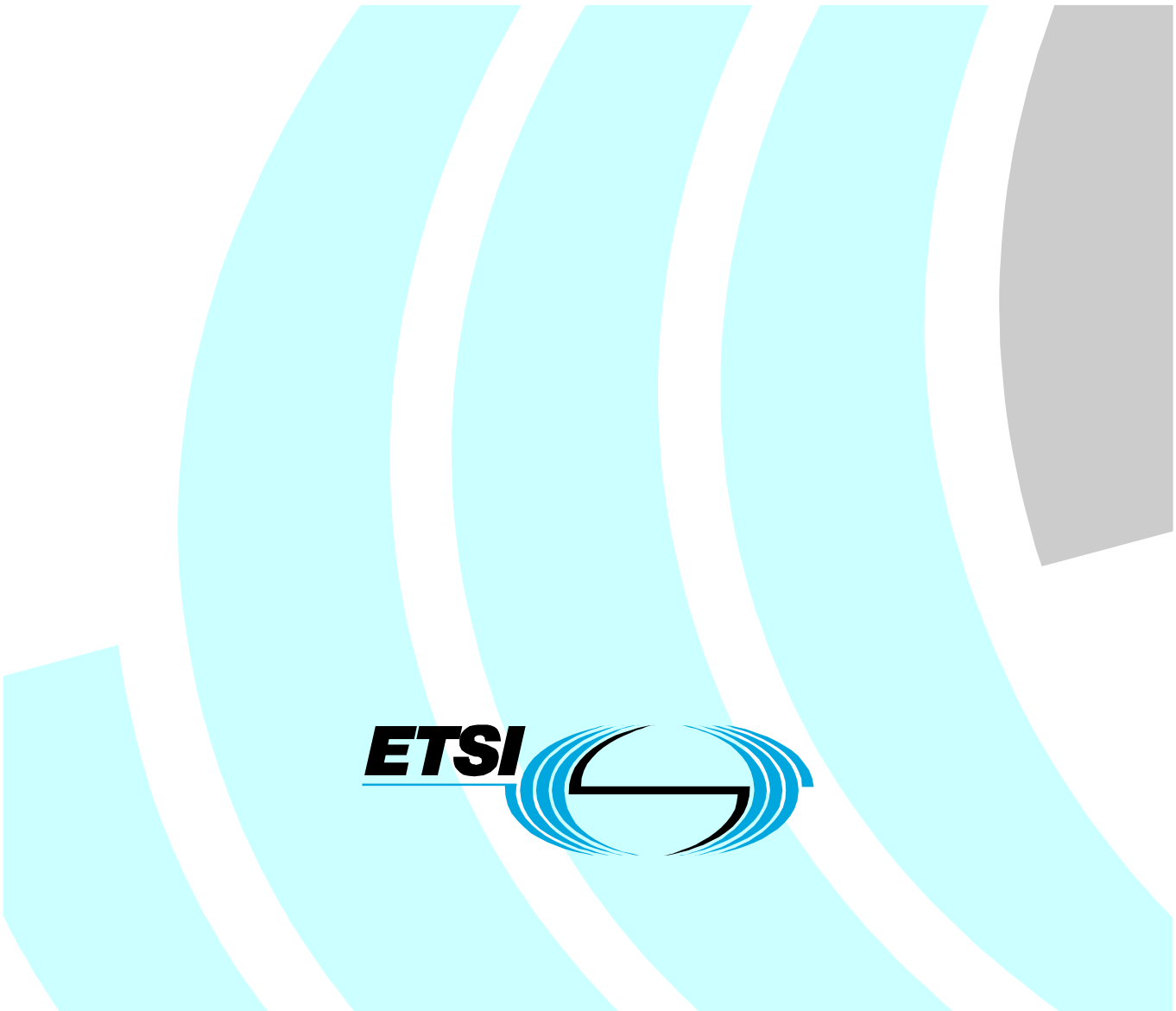
ETSI TR 182 005 V1.1.1 (2006-03)

Technical Report

Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Organization of user data



Reference
DTR/TISPAN-02027-NGN-R1

Keywords
architecture, data, user

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Foreword

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

1 Scope

The present document provides guidance concerning information, regarding NGN subscribers, to be stored in the Network. It considers the following "types" of user data:

- Network attachment data, to be stored in the NASS functional entities ES 282 004 [3], the Profile Database Function (PDBF) and the Connectivity Session Location and Repository Function (CLF).
- Service attachment data (for the IMS subsystem ES 282 007 [4]) to be stored in the User Profile Server Function (UPSF) in the Common components in the IMS core subsystem,. This data is described in TS 123 008, clause 3 [1].
- Data related to CAMEL support of IMS services to be stored in the User Profile Server Function (UPSF) in the Common components in the IMS core subsystem,. This data is described in TS 123 008, clause 3.8 [1].
- Data related to Generic Authentication Architecture to be stored in the User Profile Server Function (UPSF) in the Common components in the IMS core subsystem,. This data is described in TS 123 008, clause 3A [1].
- Subscriber data for I-WLAN domain to be stored in the User Profile Server Function (UPSF) in the Common components in the IMS core subsystem,. This data is described in TS 123 008, clause 3B [1].

Subscriber data related to the PSTN Emulation subsystem (PES, or IMS based PES) is not considered in the present document.

Furthermore the present document provides information whether the information is stored permanently or temporarily in the concerned functional entities.

2 References

For the purposes of this Technical Report (TR), the following references apply:

[1] ETSI TS 123 008: "Organization of subscriber data".

[2] ETSI TR 180 000: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); NGN Terminology".

[3] ETSI ES 282 004: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); NGN Functional Architecture; Network Attachment Sub-System (NASS)".

[4] ETSI ES 282 007: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); IP Multimedia Subsystem (IMS) Functional architecture".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in TR 180 000 [2] apply.

3.2 Abbreviations

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

AuC	Authentication Center
CLF	Connectivity session Location and repository Function
GGSN	Gateway GPRS Support Node

GPRS	General Packet Radio Service
HLR	Home Location Register
IMS	IP Multimedia Subsystem
IN	Intelligent Networks
ISDN	Integrated Services Digital Network
NACF	Network Access Configuration Function
NASS	Network Attachment SubSystem
NGN	Next Generation Network
P-CSCF	Proxy Call Session Control Function
PDBF	Profile Data Base Function
PSTN	Public Switched Telephony Network
S-CSCF	Serving Call Session Control Function
SGSN	Serving GPRS Support Node
UAAF	User Access Authorization Function
UE	User Equipment
UPSF	User Profile Server Function
VLR	Visitor Location Register

4 Introduction

4.1 Definition

The term subscriber data is used to designate all information associated with a subscription which is required for service provisions, identification, authentication, routing, call handling, charging, subscriber tracing, operation and maintenance purposes. Some subscriber data are referred to as permanent subscriber data, i.e. they can only be changed by administration means. Other data are temporary subscriber data which may change as a result of normal operation of the system.

Unless shown to be conditional, all data items are considered to be mandatory.

4.2 Storage facilities

4.2.1 Network Attachment Functional Units

The present document considers network attachment related user data stored in the following types of functional unit:

- The Connectivity Session Location and Repository Function (CLF) registers the association between the IP address allocated to the UE and related network location information provided by the NACF, the association between network location information received from the NACF and geographical location information, stores the identity of the user / UE to which the IP address has been allocated (information received from the UAAF), as well as the user network QoS profile and user preferences regarding the privacy of location information.

- The Profile Database Function (PDBF) is the functional entity that contains the "user network profile" consisting of user authentication data (e.g. user identity, list of supported authentication methods, key materials), and information related to the required network access configuration.

4.2.2 Common Components Functional Units

The present document considers IMS service related user data stored in the following type of common components functional unit:

- User Profile Server Function (UPSF) which contains all permanent subscriber data and all relevant temporary subscriber data to support the call control, session management entities and service execution of the different Subsystems.

NOTE: The IMS service related data is the same as the IMS service data in TS 123 008 [1].

4.3 Relationship with 3GPP subscriber data

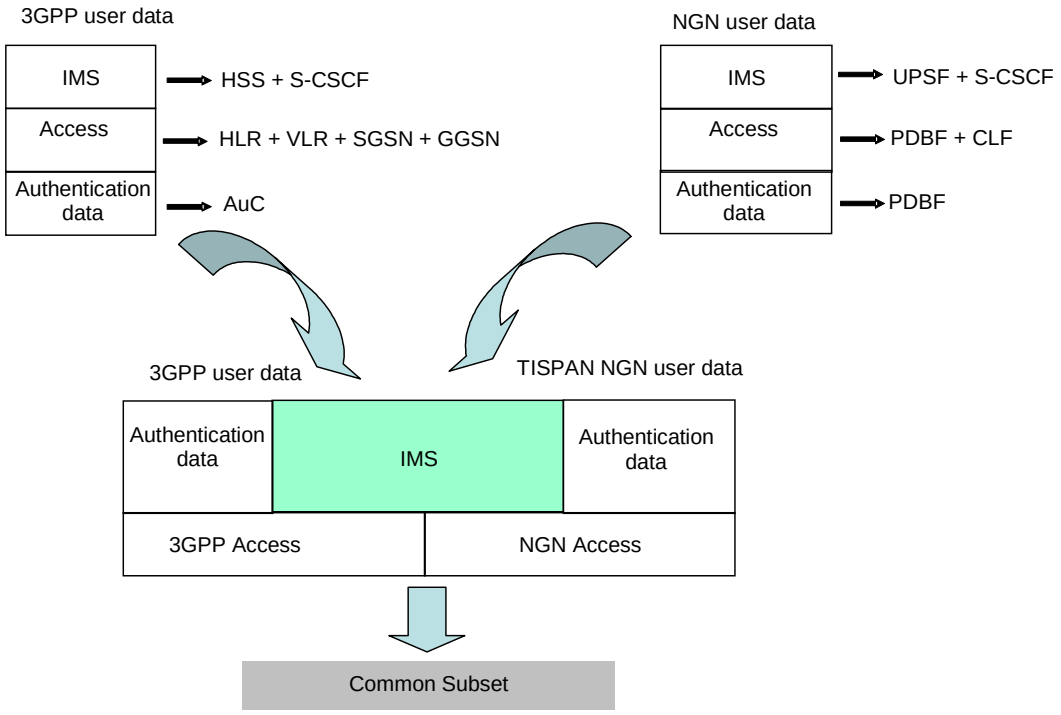

Figure 1: Relationship between 3GPP user data and NGN user data

At the 3GPP side the IMS service related user data is stored in the HSS and the S-CSCF. The same user data at the TISPAN NGN side are stored in the UPSF.

The (packet switched or GPRS) Access related user data at 3GPP side is stored in the HLR, VLR, SGSN and GGSN. The (packet switched or NASS) Access related user data at the TISPAN NGN side is stored in the PDBF and CLF.

Some authentication data at 3GPP side is stored in the AuC. Similar TISPAN NGN data is stored in the PDBF.

5 Subscriber data for IMS core subsystem

This clause gives guidance on the use in TISPAN NGN of the subscriber data related to IMS core subsystem as described in the TS 123 008 [1] in clause 3 Definition of data for IP Multimedia domain.

All subscriber data related to IMS is used in the same way as described in TS 123 008 [1].

The following general comment applies:

- Where ever HSS is mentioned replace this with UPSF.

6 Data related to CAMEL support of IMS services

Although the TISPAN NGN architecture foresees the use of IN in order to support some services, the support of IMS services based on CAMEL can not be excluded. In fact TISPAN NGN services can be accessed from a 3GPP IP-CAN.

Consequently the data related to CAMEL for the support of IMS services is relevant to be included in the UPSF.

7 Data related to Generic Authentication Architecture

Since the TISPAN NGN architecture endorses the Generic Authentication Architecture as described by 3GPP the data related to Generic Authentication Architecture is relevant to be included in the UPSF.

8 Subscriber data for I-WLAN domain

Since the TISPAN NGN architecture endorses I-WLAN IP-CAN as defined by 3GPP the data related to I-WLAN is relevant to be included in the UPSF.

9 Definition of subscriber data related to access

This clause describes the subscriber data related to the access. These data are taken from ES 282 004 [3].

This has to be intended as an informative description of access data: for every discrepancy between this text and the text in ES 282 004 [3], ES 282 004 [3] remains the normative reference.

9.1 Data related to Subscriber Identification

9.1.1 Globally Unique Address Information

9.1.1.1 Assigned IP Address

The Assigned IP Address is the IP address of the attached user equipment as allocated by the NACF. The Assigned IP Address is stored temporarily in the CLF.

9.1.1.2 Address Realm

The Address Realm is the addressing domain in which the IP address is significant The Address Realm is allocated by the NACF and stored temporarily in the CLF.

9.1.2 Subscriber ID

The Subscriber Id is the identity of the attached user. The Subscriber ID is stored permanently in the PDBF and is stored temporarily in the CLF.

9.1.3 Default Subscriber ID

The Default Subscriber ID is used to query the UAAF in case no Subscriber ID is received from the UAAF. The Default Subscriber ID is stored permanently in the CLF.

9.2 Data related to Access Identification

9.2.1 Physical Access ID

The Physical Access ID is the identity of the physical access to which the user equipment is connected. The Physical Access ID is stored temporarily in the CLF.

9.2.2 Logical Access ID

The Logical Access ID is the identity of the logical access used by the attached user equipment. In the xDSL case, the Logical Access ID may explicitly contain the identity of the port, VP and/or VC carrying the traffic. The Logical Access ID is stored temporarily in the CLF.

9.2.3 Access Network Type

The Access Network Type is the type of access network over which IP connectivity is provided to the user equipment. The Access Network Type is derived from the Logical Access ID and is stored permanently in the CLF.

9.2.4 Terminal Type

The Terminal Type is the type of user equipment to which the IP address has been allocated. The Terminal Type is stored temporarily in the CLF.

9.3 Data related to Location Management

9.3.1 Privacy Indicator

The Privacy Indicator indicates whether location information can be exported to services and applications. It provides an indication whether applications can access location information, depending on their security level. The Privacy Indicator is stored permanently in the PDBF and is stored temporarily in the CLF.

9.3.2 Location Information

The Location Information is derived from the Physical Access ID and is stored permanently in the CLF.

9.3.3 Geographic Location Information

The Geographic Location Information is stored temporarily in the CLF.

9.4 Data related to QoS and Gate Control

9.4.1 QoS Profile Information

The QoS Profile Information may contain one or more sets of information elements:

- Transport Service Class: The transport service class subscribed by the attached user.
- UL Subscribed Bandwidth: The maximum amount of bandwidth subscribed by the attached user in the uplink direction.
- DL Subscribed Bandwidth: The maximum amount of bandwidth subscribed by the attached user in the downlink direction.
- Maximum priority: The maximum priority allowed for any reservation request.
- Application Class ID: Identifies the application class(es) that are allowed for the QoS profile.

The QoS Profile information is stored permanently in the PDBF and is stored temporarily in the CLF.

9.4.2 Initial Gate Settings

The Initial Gate Settings:

- List of allowed destinations: The list of default destination IP addresses, ports, prefixes and port ranges to which traffic can be sent.
- UL Default Bandwidth: The maximum amount of bandwidth that can be used without explicit authorization in the uplink direction.
- DL Default Bandwidth: The maximum amount of bandwidth that can be used without explicit authorization in the downlink direction.

The Initial gate Settings are stored temporarily in the CLF.

9.5 Data related to Identification of other functional entities

9.5.1 RACS Point of Contact

The RACS Point of Contact is the address of the RACS element where the subscriber profile should be pushed. The RACS Point of Contact is derived from the Logical Access ID and is stored permanently in the CLF.

9.5.2 CNGCF Address

The CNGCF address is the address of the CNGCF entity from which configuration data may be retrieved by the terminal equipment. The CNGCF Address is stored permanently in the PDBF.

9.5.3 P-CSCF Identity

The P-CSCF Identity is the identity of the P-CSCF for accessing IMS services. The P-CSCF Address is stored permanently in the PDBF.

9.5.4 AF Identity

The AF Identity is the identity of the requesting application function. The AF Identity is stored temporarily in the CLF.

10 Summary of data stored in location registers

For the IMS core subscriber data table 5.3 of TS 123 008 [1] gives an overview of data stored for IP Multimedia services. In the table the type indication indicates whether the subscriber data is temporarily (T) or permanent (P) data.

For the Generic Authentication Architecture data table 5.4 of TS 123 008 [1] gives an overview. In the table the type indication indicates whether the subscriber data is temporary (T) or permanent (P) data.

For the I-WLAN data table 5.5 of TS 123 008 [1] gives an overview. In the table the type indication indicates whether the subscriber data is temporary (T) or permanent (P) data.

Table 10.1: Overview of subscriber data related to access

PARAMETER	Clause	CLF	PDBF
Assigned IP Address	9.1.1.1	T	
Address Realm	9.1.1.2	T	
Subscriber Id	9.1.2	T	P
Default Subscriber ID	9.1.3	P	
Physical Access ID	9.2.1	T	
Logical Access ID	9.2.2	T	
Access Network Type	9.2.3	P	
Terminal Type	9.2.4	T	
Privacy Indicator	9.3.1	T	P
Location Information	9.3.2	P	
Geographic Location Information	9.3.3	T	
QoS Profile Information	9.4.1	T	P
Initial Gate Settings	9.4.2	T	
RACS Point of Contact	9.5.1	P	
CNCGF address	9.5.2		P
P-CSCF Identity	9.5.3		P
AF Identity	9.5.4	T	

Annex A (informative): Additional Information

A.1 Data related to subscription, identification and numbering

A.1.1 User type

The User Type indicates whether the subscriber is a PES subscriber or an IMS subscriber. This indication allows for a flexible handling of communication scenarios between IMS and PES users.

NOTE: The exact format of this data is for further study. A CR towards the TS 123 008 [1] is needed after the format has been agreed.

A.1.2 User Identifier

At least: tel URI, SIP URI.

NOTE: The exact format of this data is for further study. A CR towards the TS 123 008 [1] is needed after the format has been agreed.

A.2 Data related to registration

A.2.1 Registration Timestamp

NOTE: The exact format of this data is for further study. A CR towards the TS 123 008 [1] is needed after the format has been agreed.

A.2.2 Application Server Identifier

NOTE: The exact format of this data is for further study. A CR towards the TS 123 008 [1] is needed after the format has been agreed.

A.2.3 Event Name

NOTE: The exact format of this data is for further study. A CR towards the TS 123 008 [1] is needed after the format has been agreed.

A.2.4 Event Subscription Expire Date

NOTE: The exact format of this data is for further study. A CR towards the TS 123 008 [1] is needed after the format has been agreed.

A.2.5 Event Subscription Timestamp

NOTE: The exact format of this data is for further study. A CR towards the TS 123 008 [1] is needed after the format has been agreed.

A.3 Data related S-CSCF selection information

A.3.1 Dynamic Service Activation Info

This data enables the possibility to trigger to an Application Server only when there are active services associated to the users. This should allow for a more flexible handling of the NGN services.

NOTE: The exact format of this data is for further study. A CR towards the TS 123 008 [1] is needed after the format has been agreed.

A.4 Definition of subscriber data related to Basic services

A.4.1 Accounting Type

Indicates which calls have to be accounted (all, only successful calls, etc.).

A.4.2 Arrearage

Indicates whether the user is being overdue in payment.

A.4.3 Lawful Interception

All the information related to the lawful interception.

A.4.4 Number portability

All the information related to the number portability.

A.4.5 Carrier pre-selection

The information related to the carrier pre-selection.

History

Document history		
V1.1.1	March 2006	Publication