Source: **CN3**

Title: **CR to Rel-6 on Work Item "Support of the Presence service in core networks signalling protocols"**

Agenda item: **9.2**

Document for: **APPROVAL**

Introduction:

This document contains 1 CR to Rel-6 on Work Item "PRESNC" that have been agreed by TSG CN WG3, and are forwarded to TSG CN Plenary for approval.

WG_tdoc	Spec	CR	R	Cat	Title	Rel	C_Ver	Work Item
N3-050156	29.061	157	1	B	Pk Interface	Rel-6	6.3.1	PRESNC

Tdoc ⌘*N3-050156*

CR-Form-v7.1

CHANGE REQUEST

⌘	**29.061** CR	**157**	⌘**rev**	**1**	⌘	Current version:	**6.3.1**	⌘

For **HELP** *on using this form, see bottom of this page or look at the pop-up text over the* ⌘ *symbols.*

Proposed change affects: UICC apps⌘ ☐   ME ☐ Radio Access Network ☐ Core Network **X**

Title:	⌘	Pk Interface
Source:	⌘	Siemens
Work item code:⌘	PRESNC	***Date:*** ⌘ 04/02/2005

Category: ⌘ **B**

Use <u>one</u> of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can
be found in 3GPP TR 21.900.

Use <u>one</u> of the following releases:
Ph2 *(GSM Phase 2)*
R96 *(Release 1996)*
R97 *(Release 1997)*
R98 *(Release 1998)*
R99 *(Release 1999)*
Rel-4 *(Release 4)*
Rel-5 *(Release 5)*
Rel-6 *(Release 6)*
Rel-7 *(Release 7)*

Release: ⌘ Rel-6

Reason for change:	⌘	The Pk reference point needs to be specified. Stage 2 TS 23.141 decribes this Reference Point in the following manner 4.3.11 Reference point Presence Network Agent – GGSN (Pk) This reference point shall allow the GGSN to report presence relevant events to the Presence Network Agent (such as PDP context activation/de-activation). This reference point is implemented using the mechanisms of the RADIUS interface for reporting of access requests on Gi reference point as defined in 3GPP TS 29.061 [13].
Summary of change:⌘		A profile for the Radius interface of the Gi reference point is added for the Pk reference point.
Consequences if not approved:	⌘	Missing functionality.

Clauses affected:	⌘	1, 2, 3.3, 18

		Y	**N**		
Other specs affected:	⌘		**X**	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	

Other comments:	⌘	

1 Scope

The present document defines the requirements for Packet Domain interworking between a:

a) PLMN and PDN;

b) PLMN and PLMN.

The present document is valid for a PLMN in A/Gb mode as well as for a PLMN in Iu mode. If text applies only for one of these systems it is explicitly mentioned by using the terms "A/Gb mode" and "Iu mode". Please note, that the A interface does not play any role in the scope of the present document although the term "A/Gb mode" is used.

The present document also defines, in clause 17, the protocol for the Gmb interface.

The present document also defines, in clause 18, the usage of Radius at the Pk Reference Point between the GGSN and the Presence Network Agent.

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]   Void.

[2]   3GPP TS 22.060: "General Packet Radio Service (GPRS); Service Description; Stage 1".

[3]   3GPP TS 23.060: "General Packet Radio Service (GPRS); Service Description; Stage 2".

[4]   Void.

[5]   Void.

[6]   Void.

[7]   Void.

[8]   Void.

[9]   Void.

[10]   3GPP TS 27.060: "Packet Domain; Mobile Station (MS) supporting Packet Switched services".

[11]   ITU-T Recommendation E.164: "The international public telecommunication numbering plan".

[12]   Void.

[13]   Void.

[14]   Void.

[15]   IETF RFC 768 (1980): "User Datagram Protocol" (STD 6).

[16]   IETF RFC 791 (1981): "Internet Protocol" (STD 5).

[17]   IETF RFC 792 (1981): "Internet Control Message Protocol" (STD 5).

[18]   IETF RFC 793 (1981): "Transmission Control Protocol" (STD 7).

[19]   IETF RFC 1034 (1987): "Domain names - concepts and facilities" (STD 7).

[20]   Void.

[21a]   IETF RFC 1661 (1994): "The Point-to-Point Protocol (PPP)" (STD 51).

[21b]   IETF RFC 1662 (1994): "PPP in HDLC-like Framing".

[22]   IETF RFC 1700 (1994): "Assigned Numbers" (STD 2).

[23]   3GPP TS 44.008: "Mobile radio interface layer 3 specification; Core Network protocols; Stage 3".

[24]   3GPP TS 29.060: "General Packet Radio Service (GPRS); GPRS Tunnelling Protocol (GTP) across the Gn and Gp interface".

[25]   IETF RFC 2794 (2000): "Mobile IP Network Address Identifier Extension for IPv4", P. Calhoun, C. Perkins.

[26]   IETF RFC 2131 (1997): "Dynamic Host Configuration Protocol".

[27]   IETF RFC 1542 (1993): "Clarification and Extensions for the Bootstrap Protocol".

[28]   IETF RFC 2373 (1998): "IP Version 6 Addressing Architecture".

[29]   IETF RFC 2462 (1998): "IPv6 Stateless Address Autoconfiguration".

[30]   IETF RFC 2002 (1996): "IP Mobility Support", C. Perkins.

[31]   IETF RFC 2486 (1999): "The Network Access Identifier", B. Aboba and M. Beadles.

[32]   IETF RFC 1112 (1989): "Host extensions for IP multicasting", S.E. Deering.

[33]   IETF RFC 2236 (1997): "Internet Group Management Protocol, Version 2", W. Fenner.

[34]   IETF RFC 2362 (1998): "Protocol Independent Multicast-Sparse Mode (PIM-SM): Protocol Specification", D. Estrin, D. Farinacci, A. Helmy, D. Thaler, S. Deering, M. Handley, V. Jacobson, C. Liu, P. Sharma, L. Wei

[35]   IETF RFC 1075 (1988): "Distance Vector Multicast Routing Protocol", D. Waitzman, C. Partridge, S.E. Deering.

[36]   IETF RFC 1585 (1994): "MOSPF: Analysis and Experience", J. Moy.

[37]   IETF RFC 2290 (1998): "Mobile-IPv4 Configuration Option for PPP IPCP", J. Solomon, S. Glass.

[38]   IETF RFC 2865 (2000): "Remote Authentication Dial In User Service (RADIUS)", C. Rigney, S. Willens, A. Rubens, W. Simpson.

[39]   IETF RFC 2866 (2000): "RADIUS Accounting", C. Rigney, Livingston.

[40]   3GPP TS 23.003: "Numbering, addressing and identification".

[41]   IETF RFC 3576 (2003): "Dynamic Authorization Extensions to Remote Authentication Dial In User Service (RADIUS)", M.Chiba, M.Eklund, D.Mitton, B.Aboba.

[42]   3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[43]   Void.

[44]   IETF RFC 2461 (1998): "Neighbor Discovery for IP Version 6 (IPv6)", T. Narten, E. Nordmark, W. Simpson

[45]   IETF RFC 3118 (2001): "Authentication for DHCP Messages", R. Droms, W. Arbaugh.

[46]　　　　IETF RFC 3315 (2003) "Dynamic Host Configuration Protocol for IPv6 (DHCPv6)", R. Droms, J. Bound, B. Volz, T. Lemon, C. Perkins, M. Carney.

[47]　　　　3GPP TS 24.229: "IP Multimedia Call Control Protocol based on SIP and SDP"

[48]　　　　IETF RFC 2710 (1999): "Multicast Listener Discovery (MLD) for IPv6", S. Deering, W. Fenner, B. Haberman.

[49]　　　　IETF RFC 2460 (1998): "Internet Protocol, Version 6 (IPv6) Specification", S.Deering, R.Hinden.

[50]　　　　IETF RFC 3162 (2001): "RADIUS and IPv6", B. Adoba, G. Zorn, D. Mitton.

[51]　　　　IETF RFC 2548 (1999): "Microsoft Vendor-specific RADIUS Attributes", G.Zorn.

[52]　　　　3GPP TS 23.228: "IP Multimedia Subsystem (IMS); Stage 2".

[53]　　　　3GPP TS 29.207: "Policy control over Go interface".

[54]　　　　3GPP TS 24.008: "Mobile radio interface layer 3 specification; Core Network protocols; Stage 3".

[55]　　　　Void.

[56]　　　　3GPP TS 29.208: "End to end Quality of Service (QoS) signalling flows".

[57]　　　　Void.

[58]　　　　IETF RFC 1035 (1987): "Domain names - implementation and specification" (STD 13).

[59]　　　　Void.

[60]　　　　IETF RFC 1771 (1995): "A Border Gateway Protocol 4 (BGP-4)".

[61]　　　　IETF RFC 1825 (1995): "Security Architecture for the Internet Protocol".

[62]　　　　IETF RFC 1826 (1995): "IP Authentication Header".

[63]　　　　IETF RFC 1827 (1995): "IP Encapsulating Security Payload (ESP)".

[64]　　　　IETF RFC 2044 (1996): "UTF-8, a transformation format of Unicode and ISO 10646".

[65]　　　　3GPP TS 23.246: "Multimedia Broadcast/Multicast Service (MBMS) Architecture and Functional Description".

[66]　　　　IETF RFC 3588 "Diameter Base Protocol".

[67]　　　　draft-ietf-aaa-diameter-nasreq-17.txt: "Diameter Network Access Server Application", work in progress.

[68]　　　　3GPP TS 23.141: "Presence Service; Architecture and functional description".

3　　Definitions, abbreviations and symbols

3.1　　Definitions

For the purposes of the present document, the terms and definitions given in 3GPP TS 22.060 [2] and 3GPP TS 23.060 [3] and the following apply:

2G- / 3G-: prefixes 2G- and 3G- refers to functionality that supports only A/Gb mode GPRS or Iu mode, respectively, e.g., 2G-SGSN refers only to the A/Gb mode GPRS functionality of an SGSN. When the prefix is omitted, reference is made independently from the A/Gb mode GPRS or Iu mode functionality.

A/Gb mode: indicates that the text applies only to a system or sub-system which operate in A/Gb mode of operation, i.e. with a functional division that is in accordance with the use of an A or a Gb interface between the radio access network and the core network.

Iu mode: indicates that the text applies only to a system or a sub-system which operates in Iu mode of operation, i.e. with a functional division that is in accordance with the use of an Iu-CS or Iu-PS interface between the radio access network and the core network.

3.2   Abbreviations

Abbreviations used in the present document are listed in 3GPP TS 21.905 [42]. For the purposes of the present document, the following additional abbreviations apply:

APN	Access Point Name
ATM	Asynchronous Transfer Mode
BG	Border Gateway
BM-SC	Broadcast/Multicast Service Centre
CHAP	Challenge Handshake Authentication Protocol
DHCP	Dynamic Host Configuration Protocol
DHCPv6	Dynamic Host Configuration Protocol version 6
DNS	Domain Name System
DVMRP	Distance Vector Multicast Routing Protocol
GGSN	Gateway GPRS Support Node
GTP-U	GPRS Tunnelling Protocol for user plane
ICMP	Internet Control Message Protocol
IETF	Internet Engineering Task Force
IGMP	Internet Group Management Protocol
IMS	IP Multimedia Core Network Subsystem
IP	Internet Protocol
IPCP	IP Control Protocol (PPP NCP for IPv4)
IPv4	Internet Protocol version 4
IPv6	Internet Protocol version 6
IPV6CP	IPv6 Control Protocol (PPP NCP for IPv6)
ISDN	Integrated Services Digital Network
ISP	Internet Service Provider
LAC	L2TP Access Concentrator
LAN	Local Area Network
LNS	L2TP Network Server
MBMS	Multimedia Broadcast/Multicast Service
MIP	Mobile IP
MLD	Multicast Listener Discovery
MOSPF	Multicast Open Shortest Path First
MS	Mobile Station
MT	Mobile Terminal
MTU	Maximum Transfer Unit
NAI	Network Access Identifier
PAP	Password Authentication Protocol
PDF	Policy Decision Function
PDCP	Packet Data Convergence Protocol
PDN	Packet Data Network
PDU	Protocol Data Unit
PEP	Policy Enforcement Point
PIM-SM	Protocol Independent Multicast – Sparse Mode
PPP	Point-to-Point Protocol
PS	Packet Switched
RADIUS	Remote Authentication Dial In User Service
SBLP	Service Based Local Policy
SGSN	Serving GPRS Support Node
SMDS	Switched Multimegabit Data Service
TCP	Transmission Control Protocol

TE   Terminal Equipment
TEID   Tunnel End-point Identifier
UDP   User Datagram Protocol

3.3   Symbols

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

Gb   Interface between an SGSN and a BSC.
Gi   Reference point between Packet Domain and an external packet data network.
Gmb   Reference point between GGSN and BM-SC.
Gn   Interface between two GSNs within the same PLMN.
Go   Interface between a GGSN and a PDF.
Gp   Interface between two GSNs in different PLMNs. The Gp interface allows support of Packet
                          Domain network services across areas served by the co-operating PLMNs.
Gs   Interface between an SGSN and MSC.
Iu   Interface between the RNS and the core network. It is also considered as a reference point.
Pk   Reference Point between GGSN and Presence Network Agent
R   The reference point between a non-ISDN compatible TE and MT. Typically this reference point
                          supports a standard serial interface.
Um   The interface between the MS and the fixed network part in A/Gb mode. The Um interface is the
                          A/Gb mode network interface for providing packet data services over the radio to the MS. The MT
                          part of the MS is used to access the GSM services through this interface.
Uu   Interface between the mobile station (MS) and the fixed network part in Iu mode. The Uu interface
                          is the Iu mode network interface for providing packet data services over the radio to the MS. The
                          MT part of the MS is used to access the UMTS services through this interface.

Next modified Clause

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18   Usage of RADIUS at the Pk Reference Point

18.1   General

The Pk Reference Point is defined in 3GPP TS 23.141 [68] and allows the GGSN to report presence relevant events to
the Presence Network Agent (such as PDP context activation/de-activation). This reference point is implemented using
the mechanisms for Accounting of the RADIUS interface on the Gi reference point as defined in Clause 16.

18.2   Radius Profile for Pk Reference Point

The RADIUS interface on Gi reference point as defined in Clause 16 is used for the Pk Reference Point as clarified in
the Profile in this Clause.

Only the following messages are required for the Radius Profile for the Pk reference Point:

-    Accounting-Request START

-    Accounting-Response START

-    Accounting-Request STOP

-    Accounting-Response STOP

For the Radius Profile for the Pk Reference Point, only the mandatory Parameters within the Accounting-Request
START and Accounting-Request STOP messages according to Clauses 16.4.3 and 16.4.4, respectively, and the

Parameter "Calling-Station-Id" need to be supported. The usage of other parameters is optional. They may be ignored by the Presence Network Agent.

18.3 Interconnecting the Presence Network Agent and the GGSN

The Presence Network Agent may be directly attached to the GGSN or via a Radius Proxy.

If the GGSN needs to connect both to an AAA server and a Presence Network Agent for the same APN, but supports only a single RADIUS interface, the GGSN can be directly attached to the AAA server. The Presence Network Agent can in turn be attached to the AAA server, which acts as a RADIUS proxy. If the AAA server is configured as a RADIUS Proxy between the Presence Network Agent and the GGSN, the Radius Profile for the Pk Reference Point shall be applicable on the interface between the Presence Network Agent and the AAA server.