

3GPP TSG CN Plenary Meeting #16
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Source: TSG CN WG3
Title: WID - Interworking between IM CN subsystem and CS networks
Agenda item: 9.1
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Budapest, Hungary. 13th Jan – 17th May 2002

N3-020521

Source: Vodafone
Title: WID - Interworking between IM CN subsystem and CS networks
Agenda item: 9.2
Document for: Approval

This contribution provides an updated version of the WID for interworking between IM CN subsystem and CS networks. The WID is updated to include the Worksplite between CN3 and CN4 on the IMS Mc interface, as well as the user plane framing protocol interworking between IM CN subsystem and circuit switched networks, as agreed within CN3 and CN4.

Work Item Description

Title: Interworking between IM CN subsystem and circuit switched networks.

1 3GPP Work Area

	Radio Access
X	Core Network
	Services

2 Linked work items

?? Support of IP multimedia services (S1)

?? An architecture for Call control and roaming to support IP-based multimedia services in UMTS (S2)

3 Justification

Within UMTS, the capability of IP-based multimedia (IM) services will enable the support of basic voice calls to and from circuit switched (CS) networks (i.e. PSTN, ISDN and GSM/UMTS CS networks). These voice calls will require interworking functions within the IM CN subsystem.

The UMTS architecture includes media gateway (MGW) functionality for interworking between the GGSN Gi reference point and CS networks for the user plane, and Media Gateway Control Function (MGCF) and Signalling Gateway (SGW) functionality to allow interworking between the Call Session Control Function (CSCF) and CS networks in the control plane.

This WI will outline the solutions and functionality required within the MGW to deliver the user plane aspects between IM CN subsystems and CS networks for support of basic voice calls. Also, it will outline the solutions and functionality required within the MGCF and SGW to deliver the control plane aspects between IM CN subsystems and CS networks to support basic voice calls.

The IMS Mc interface differs substantially from the CS Mc interface between the MSC server and the CS-MGW, although both interfaces use the H.248 protocol. While the CS-Mc interface mandates H.248 packages only applicable for BICC networks, these packages are not applicable for the IMS-Mc interface for the terminations on the IMS side. The IMS Mc interface must support the transport of AMR according to IETF RFC 3267, rather than within the IuFP.

4 Objective

The objective of this work item is to address the issue of interworking between the IM CN subsystem and CS networks, in order to support basic voice calls.

A significant goal is to define the functionality of the MGW, together with aspects of the MGCF and SGW for the support of voice calls to and from CS networks (i.e. PSTN, ISDN and GSM/UMTS CS networks).

The work item will address the issue of control plane interworking, for example, the mapping required between 3GPP profile of SIP and ISUP/BICC protocols, if required, to enable the IM CN subsystem to communicate with CS networks, in order to support basic voice calls.

The usage of the H.248 protocol on the Media Gateway Control Function (MGCF) – IM Media Gateway (IM-MGW) Mc Interface shall be specified. IMS-Mc signalling procedures shall be defined. The mapping of these procedures to H.248 shall be described. The required H.248 packages shall be identified. Required new H.248 packages shall be defined, if suitable packages are not provided by external standardisation bodies within the 3GPP Rel.6 time frame.

The interaction of IMS-Mc signalling procedures in relation to the SIP, and BICC/ISUP signalling at the MGCF shall be described. The interactions between IMS-Mc signalling procedures and the related user plane procedures at the IM-MGW, i.e. procedures across the Mb interface and the CS channels, shall be described.

The work item will address the issue of user plane interworking, for example, between the AMR codec used in the IM CN subsystem and possibly other codec types used with in CS networks, in order to support basic voice calls. The work item will also address interworking between these applications over IuFP/RTP/IP on the CS network side and the same applications over RTP/IP on the IMS side.

The areas addressed should encompass the transport protocol, transcoding and signalling issues for negotiation and mapping of bearer capabilities and QoS information.

5 Service Aspects

User plane interworking for basic voice calls between the IMS and circuit switched networks shall be supported. On the IMS side, AMR shall be supported as voice codec, and inband transport of DTMF shall be supported. On the circuit switched side, G.711 shall be supported as voice codec, and inband and out-of-band transport of DTMF shall be supported. Additional voice codecs may also be supported on both sides.
~~None identified.~~

6 MMI-Aspects

None identified.

7 Charging Aspects

The MGCF may take charging into account when deciding to establish or to close user plane connections using the IMS Mc interface.
~~None identified.~~

8 Security Aspects

None identified.

9 Impacts

Affects:	USIM	ME	AN	CN	Others
Yes				X	
No	X	X	X		X
Don't know					

10 Expected Output and Time scale (to be updated at each plenary)

New specifications						
Spec No.	Title	Prime rsp. WG	2ndary rsp. WG(s)	Presented for information at plenary#	Approved at plenary#	Comments
TS 29.163	Tech Specification "Interworking between the IM CN subsystem and CS networks"	CN3	CN1, SA4	CN#17 (Sep 02)	CN#18 (Dec 02)	Specifying User Plane interworking between AMR Codec and other codec types Specifying Control Plane interworking between SIP and BICC/ISUP The mapping between BICC/ISUP to SIP will be defined by ITU-T SG11. CN3 may be required to define the mapping between ISUP/BICC and 3GPP profile of SIP.
	Media Gateway Control Function (MGCF) – IM Media Gateway (IM-MGW) Interface: Stage 3	CN4		CN#18 (Dec 02)	CN#19 (Mar 03)	This specification will map the signalling procedures, as defined within TS 29.163, to H.248 messages and will define the required packages and parameters.
Affected existing specifications						
Spec No.	CR	Subject		Approved at plenary#	Comments	
24.228		Signalling flows for the IP multimedia call control based on SIP and SDP		?? When ??		

11 Work item rapporteurs

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12 Work item leadership

CN3

13 Supporting Companies

BT, Nokia, Motorola, Alcatel, Siemens, Lucent Technologies, Nortel Networks, Vodafone, Ericsson

14 Classification of the WI (if known)

	Feature (go to 14a)
	Building Block (go to 14b)
X	Work Task (go to 14c)

14a The WI is a Feature: List of building blocks under this feature

N/A

14b The WI is a Building Block: parent Feature

N/A

14c The WI is a Work Task: parent Building Block

?? Call control and roaming to support IP based multimedia services in UMTS