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Technical Specification Group Core Networks
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Source: **WG CN3**

Title: **Proposed Terms of Reference and
Dependencies to Other Groups**

Document for: **Decision**

Attention: **Agenda item 7.3**

Joint 3GPP TSG-CN-WG3
and SMG3 ad hoc on Interworking
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NOTE: The comments from the SMG3/TSGN plenary meeting are incorporated in this revised document. A list of documents that should be in the prime responsibility of WG3 is added (see also Tdoc SMG3 3P99-064)

1. Terms of Reference

The TSG-N has decided to structure the work into three Working Groups:

- WG1: MM/CC/SM.
- WG2: MAP/CAMEL
- WG3: Interworking with external networks

The UMTS core network shall be based on an evolution of GSM core network for both circuit switched and packet switched services. TSG-N has assigned the following terms of reference to WG3:

- evolving GSM interworking function to UMTS interworking to external networks (assigned to WG3 only)
- evolving GPRS layer 3 protocols (SM, GMM) to UMTS packet services (assigned to WG1, WG2 and WG3).

WG3 has taken this as an input and has refined the given general terms of reference to clarify their scope of work as follows:

Generally, the assigned terms of reference imply for WG3 the specification of bearer capabilities for circuit and packet switched data services, and the necessary interworking functions towards both, the UE (user equipment) in the UMTS PLMN and the TE (terminal equipment) in the external network.

Specifically, this work includes the following responsibilities:

- circuit switched (UE <--> 3G-MSC/IWF)
 - layer 1 transport protocols (mainly rate adaptation)
 - layer 2 transport protocols
 - signalling issues (e.g., negotiation of bearer capabilities)
 - mapping and negotiation of QoS
- circuit switched (within 3G-MSC/IWF)
 - mapping of signalling information

- mapping of user data, status & control information
 - mapping of QoS
- circuit switched (3G-MSC <--> fixed network TE)
 - transport protocols
 - signalling issues (service setup, negotiation of QoS)
- packet switched
 - Gi interface
 - GTP (has to be clarified with WG2)
 - packet data protocols (PDPs)
 - services that use PDPs (; e.g., IP, PPP, X.25, OSP)
 - mapping and negotiation of QoS
- end-to-end interworking for packet and circuit switched services

Interworking with the following external networks has to be considered:

- PSTN
- N- and B-ISDN
- PDN (IP & X.25)

Interworking between the UTM core network and other core networks of the IMT-2000 family is out of the scope of WG3.

2. Dependencies with other groups

2.1 TSG internal dependencies

TSG-N WG3 sees dependencies with the following groups:

- TSG-N WG1: Whereas WG1 is responsible for the radio interface layer 3 procedures and protocols, WG3 see their responsibility in defining parameters and combinations of parameter values needed to specify services and to enable the IWF so select an appropriate service towards the fixed network.
- TSG-N WG2: Whereas WG2 is responsible for specifying MAP procedures and operations, WG3 have the responsibility for defining information elements the requires to be transferred by means of the needed MAP procedures.
- TSG-R WG3: This WG provides transmissions means via the lu reference point, TSG-N WG3 see their responsibility in providing layer 1 (rate adaptation) and layer 2 protocols for data transmission between the UE and the core network.
- TSG-SA WG2: This WG provides an overall architecture of the UMTS system. TSG-N WG3 is responsible for providing details on interworking with external networks based on the concepts provided by TSG-S WG2. TSG-S WG2 give guidance in questions related to the architecture.

- TSG-SA WG1: This WG provides requirements on services. Solutions provided by TSG-N WG3 have to fulfill these requirements. TSG-S WG1 give guidance in questions related to the service requirements.
- TSG-T WG2: This WG is responsible for the specification of terminal services and applications. The close co-operation is needed when protocols between UE and the Core Network are specified. Applications designed by TSG-T WG2 may have impact on network architecture or interworking with external networks.

2.2 External dependencies

External dependencies exist with ITU-T and IETF. TSG-N WG3 will not directly liaise with these organisations. A liaison shall only take place via the individual members.

3. Specifications

The GSM specifications that should be in the prime responsibility of WG3 are listed in order to give more precise information on the scope of work of WG3:

3.1 Packet switched

TS 09.60 GPRS Tunnelling Protocol (GTP) across Gn and Gp Interface
 TS 09.61 Interworking between the PLMN and PDNs
 TS 07.60 MS Supporting GPRS
 (Terminal related aspects such as AT commands will be moved to 07.07)

3.2 Circuit switched

TS 03.10 GSM PLMN Interconnection Types
 TR 03.43 Support of Videotex
 TR 03.44 Support of Teletex in a GSM PLMN
 TS 03.45 Transparent Fax
 TS 03.46 NonTransparent Fax
 TS 03.54 Shared Interworking Function
 TS 03.70 Routeing of calls to/from Public Data Networks
 TS 04.21 Rate Adaptation on the MS-BSS Interface
 TS 04.22 Radio Link Protocol
 TS 07.01 General Terminal Adaptation Functions
 TS 07.02 Asynchronous Terminal Adaptation Functions
 TS 07.03 Synchronous Terminal Adaptation Functions
 TS 08.20 Rate Adaptation on the BSS-MSC Interface
 TS 09.04 Interworking between the PLMN and CSPDN
 TS 09.05 Interworking between the PLMN and PSPDN (PAD Access)
 TS 09.06 Interworking between the PLMN and ISDN/PSPDN (Packet Access)
 TS 09.07 Interworking between the PLMN and ISDN/PSTN