Technical Specification Group Services and System Aspects
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Title : **Some requirements for an « all IP» option for UMTS**

Document for : **Action**

Agenda Item :

1. General

The last 3GPP TSG SA decided to study the possibility to standardise an «all IP» option for UMTS release 2000.
This contribution intends to identify some key areas to be studied in order to allow the standardisation for the next phase of UMTS of an «all-IP» option that will fulfil the needs of all involved parties, from the customer to the operators and suppliers.

2. Requirements

2.1 Services

An «all-IP» option shall support at least all the services existing in previous releases, including UMTS R99, and previous GSM/GPRS services. Moreover, this option should offer the possibility to support new UMTS services, such as new multimedia IP services

2.2 Migration from current networks

From an operator's point of view, it would not be reasonable to throw away the investments made in current networks. In particular, backward compatibility with prior release networks (UMTS release 99, GSM/GPRS) must be ensured.

2.3 Interworking with previous UMTS releases and current network

Interworking with UMTS release 99 and prior releases of GSM/GPRS must be performed. Global roaming is a major requirement of UMTS: users should be able to roam without restrictions both in «all IP» networks and R99-based networks, and in current networks as well.

2.4 Terminal equipment

An «all-IP» network shall accommodate a terminal equipment compliant with Release 99 of UMTS. It shall provide to such a terminal equipment at least those services which can be provided to it by a network compliant with Release 99 of UMTS.
In particular this yields that an «all-IP» network shall support the GSM 04.08 Call Control procedures as defined in Release 99 of UMTS.
In addition the MMI defined in Release 99 shall be supported as well in Release 2000.

2.5 Interfaces

An «all-IP» network shall be specified with a sufficient accuracy so that it shall be possible to build multi-vendors networks. In particular this shall be the case for the Iu, Iub and Iur interfaces

2.6 Ensure a QoS compatible with UMTS requirements

Some QoS mechanisms have been studied by the IETF. Their adaptation to mobile networks must be studied in detail. In particular, the impact of roaming and handover on QoS provision should be taken into account, keeping in mind that a non negligible part of the UMTS traffic will have real time QoS constraints.

Telecom customers are also used to a total reliability of the networks. This reliability should be maintained in the IP-based UMTS networks.

2.7 Security

A great level of security has been introduced in second generation mobile networks such as GSM, in addition this level of security will be improved by Release 99 of UMTS. Studies allowing this level of security to be provided through IP-type solutions should be performed by security experts.

2.8 Charging mechanisms

The introduction of packet-switched technologies implies the definition of new mechanisms allowing the operator to charge for the use of its resources when providing IP-based services.

3. Proposed course of action

If an all IP option is to be included in Release 2000 of UMTS, the different working groups shall be instructed to specify it according to the principles outlined in paragraph 2 of this contribution.