

Agenda Item: 6.6

Source: Ericsson

Title: Establishment of working relations with IETF to define standards that merge Mobile Systems with Internet

Document: Discussion/ Decision

1. Background / Rationale

The next major standardisation challenge is how to merge mobile systems with the Internet. Internet contains both the present and future base for the applications of the Information Society.

Mobile systems offer the most attractive access form for the end user. By combining mobile systems, the specification efforts of 3GPP, with IP/Multimedia, with most of the mechanisms of IETF, represents a major challenge. But it will undoubtedly result in extensive end user value.

The wireless/mobile access form also represents the largest difficulties due to the well-known physical limitations associated with wireless systems and mobile terminals. This means that the systems design necessary to standardize IP/multimedia in the mobile environment requires a major effort that must be handled with the appropriate expertise.

The aspects of mobile terminals must be catered for, i.e. the restrictions in size, weight, display, battery life etc. It can not be assumed that all clients (including mobile terminals) are fully functioning PCs.

If the IP protocols are to be used in the mobile environment, i.e. over an air interface, the classical problems of radio systems design such as dealing with a scarce spectrum resource coupled with the problems associated with terminal mobility must be carefully analysed.

The expertise for such radio adaptation of IP does reside in 3GPP. However the IP protocols are developed and maintained by IETF. Presently, the IP protocols presume a wired environment, meaning a bit error and fading free world with low cost penalty to bandwidth resources. Thus the scheme on how to adopt IP to the mobile environment clearly requires that 3GPP as a radio competent body contributes, takes the lead on such aspects, and consequently co-operates with IETF to make such radio adaptations of IP protocols. The working arrangements for this (e.g. the principles regarding work distribution between 3GPP and IETF) must be established as soon as possible.

The issue of convergence, meaning the same end user services over different access forms, is also beneficial. Presently, a lot of end user value resides in the already established wired Internet; thus it is essential that these services can be made available to the wireless user.

The further development of the Internet with new services can be expected to be very dynamic and unpredictable. It is all up to the ingenuity of thousands of application developers of global Internet. Therefore, convergence means for example that IP multimedia services, to the extent possible, shall be defined in an access independent manner.

Further, how the delivery mechanisms are catered for the service distribution over the access form with different characteristics should ideally be invisible to the end user. Convergence can be handled both from the perspective of adopting a protocol for a wireless service (e.g. WAP) into the fixed domain, as well as by making the necessary radio adaptations of services from the fixed domain in some pragmatic manner, conserving the applications from an end user perspective.

2. Objectives

The objectives of the foregoing can be summarized as follows:

- 3GPP must take the lead in defining the wireless adaptation of IP, in co-operation with IETF, as 3GPP holds the radio expertise and the systems responsibility for wireless services, including IP
- 3GPP should align with IETF to facilitate the convergence of access independent end user services, i.e. alignment with IETF mechanisms to define end user services over any access type

This requires that 3GPP establish some basic architectural principles to facilitate a functional map

where technical issues can be identified (e.g. identifying issues related to radio adaptation of IP) and establish suitable working arrangement with IETF.

3. Exemplary IETF components in 3GPP

The areas where IETF mechanisms would be required represent a very extensive list. To take a few examples,

- Robust header compression
- Integrated services over specific link layers
- Mobile IP
- SIP
- IP security
- AMR profile on RTP
- Ipv6
- AAA
- etc....

4. Procedures

To make this happen, 3GPP provides input on wireless/terminal adaptations of IP. The proposal is to follow the procedures of IETF. That is active contribution and participation directly in IETF. Thus there is a need to:

- ◆ Form a hi-level acknowledgement of working relations in the form of an agreement between IETF and 3GPP
- ◆ Identify IETF issues and influence the existing IETF working groups
- ◆ Identify BOFs and new Working Groups necessary in IETF to provide the wireless/mobile adaptations of IP protocols

5. Principles of 3GPP-IETF working relations

Proposed principles for an agreement between IETF and 3GPP based on the following:

- IETF recognises the need to support and to further develop Internet Protocols for the wireless/mobile domain
- IETF recognises 3GPP as one centre of excellence responsible for defining standards for wireless/mobile systems
- 3GPP recognises IETF as the owner of Internet protocols, and consequently the centre of excellence for its further development
- 3GPP will provide input on radio/terminal and other necessary adaptations into IETFs existing structure, by BOFs and by establishment of new IETF Working Groups, in line with existing IETF procedures.

6. Suggested 3GPP IETF function ToR

Proposal is that SA establishes an 3GPP IETF function. Suggested terms of reference is follows:

- Initiate, establish and maintain a working arrangement with IETF.
- Help Identify IETF technical issues within 3GPP
- Ensure preparation and presentation of IETF input, in a co-ordinated manner
- Identification of BOFs, new IETF WGs and other hands on arrangements
- Maintain and report progress on IETF components relevant to 3GPP

7. Recommendation

In line with what was endorsed at the 3GPP all IP workshop in Nice Feb 7-9, dedicated activities in establishing working relations between 3GPP and IETF must be initiated.

This paper suggests such working relations, and a process to move forward. The proposal is that SA endorses this and allocates actions to establish such relations by,

- Establishing a co-operation agreement with IETF
- According to the proposed terms of reference above, establishing a 3GPP IETF function to start up the necessary activities.