TSG-SA Working Group 1 (Services) meeting #2   **TSGS1#2(99)172**
Edinburgh, Scotland 9th-12th March 1999

Agenda Item: 9.2.4
Source: TSG Terminals Vice Chairman
Title: Important decisions for SMS for the third generation system
Document for: Decision

It is important to now start to set some goals for the third generation system and in particular for T2 to start work on SMS we need a few decisions taken in the TSG-SA area.

SMS in GSM was designed to "piggy back" on the signalling which was then restricted to 272 octets at the lowest layer giving rise to 160 (Western European) characters presented to the user.

SMS in GSM has a 7-bit character set supplying 160 European characters or a 16-bit character set supplying 70 WorldWide characters.

For the third generation we should aim to improve on this and have a reasonable length available to all handsets for all languages worldwide.

Whilst T2 will take the decisions on the technical design of character sets etc. we need to have a framework, in particular:

1. What length of message would S1 like to be made available to the users, bearing in mind the interworking requirements for GSM (e.g. truncation or rejection will be necessary if the length is more than 160 characters), the GSM principle of SMS storage on the SIM, etc.

2. Previous discussions between SMG1 and SMG4 suggested that a direct handset to handset SMS mode would be useful avoiding the leg to the SMS Centre and back. Does SA1 support this idea?

3. What about the SIM? In GSM, SMS messages are "normally" stored on the SIM and of fixed length. This enables a user to know that they can store, say, 10 messages on a SIM. If we make the storage dynamic and offer unlimited message sizes then this principle goes out of the window. It seems likely that network operators would want some practical limit on SMS message sizes for the "GSM-type SMS". Of course we have Multimedia Messaging too, but this is a different service and will take more time to develop. Multimedia Messaging will be very difficult to interwork with GSM's SMS.

Further discussion in TSG-S1 could centre around the description in UMTS

21.04 which was formally handed over from SMG to 3GPP last week. The appropriate extract is attached below.

8.1 SMS Types

8.1.1 GSM SMS

This will operate in the same way as GSM phase 2+. It will be mandatory for a UMTS handset to be able to send and receive UMTS SMS and at least be able to interwork with GSM SMS using all the phase 2+ capabilities of GSM SMS. Whether this means that UMTS terminals need to directly support GSM SMS or whether an Interworking Function is required needs further study.

8.1.2 UMTS SMS BASE LEVEL

In order to "kick-start" more advanced SMS applications it will be necessary at least for UMTS to define a base level for new SMS such that UMTS to UMTS SMS always works and the recipient can always store the message on their SIM. This level of SMS is also proposed for GSM release 99.

In GSM it has been difficult to identify the capabilities of the MS with respect to SMS features and to ease this situation it is proposed that UMTS provide a mechanism to do this. The information could be held in the equivalent of the HLR to avoid enquiries to the MS for every message attempt. SMG3 should provide appropriate solutions to enable the MS capabilities to be identified.

Some additional proposed features are:

- Maximum length of message without concatenation: [1Kbyte] (note that a maximum is needed so that mobiles can be designed to store a minimum number of messages). A message could be shorter than this and the storage in the mobile could be allocated flexibly. Longer messages would be sent using concatenation of messages in a similar way to email attachments.

- Alphanumeric addressing expanded from 11 characters to 255 characters amongst other things to greatly simplify email<->SMS interworking; specifically to carry email addresses in the Originating Address and Destination Address.

- Addressing to allow IP address plus port to enable SMS to be sent/received directly to/from a machine on the Internet. [This could also be added to GSM].

- Email to SMS is defined such that all SMS fields can be controlled to and from the email side

- Header fields are restructured and made more logical and optional. The general GSM TLV format or its successor in UMTS would be a useful starting point.

- Encoded in a standard 8-bit character set or UCS/2.

- A conversion service is provided between UMTS SMS Base Level and GSM SMS. The conversion service may either concatenate the message or truncate the message. If either is necessary to complete the transaction then the sender is informed.

- Signalling connections are not used for UMTS to UMTS SMS; instead a dedicated MO or MT packet-based connection is established (note that packet and circuit is always possible; in UMTS and advanced GPRS mobiles this can be concurrent).

- Direct mobile to mobile SMS is possible without using an SMS Service Centre but using the network infrastructure in a real time end-to-end way. Implications for billing will need to be considered. If such an attempt fails then it should be possible to drop the message into a Service Centre for additional attempts.

- A real-time 2-way SMS service is possible.

- End to end error transport is provided

- Data compression is mandatory in mobiles.

8.1.3   UMTS SMS ADVANCED

Once the market is established for UMTS SMS services then application developers will start to develop more advanced services based on MEXE applets. The sender and recipient will need to download the MEXE applet which will provide a more advanced form of SMS between the two. When the recipient receives the message the source of the MEXE applet is identified so that the recipient can download the applet if it is not already in the mobile.

8.2   SMS Routing

Routing of SMS messages is left for further study. It may be that a means is provided to route SMS over the Internet, although the user should be in full control of the quality of service requested (e.g. additional delays over the Internet, lower security over the Internet).

If GPRS or the UMTS equivalent is used as the bearer for UMTS SMS then the routing issues are the same as for any GPRS packets (i.e. the network operator decides on the most appropriate routing, based on network management and user requirements)..