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3GPP TSG-T WG2#3 **TSGT2#2(99)421**
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Source: TSG-T2 SWG3

Title: Working assumptions for a Multimedia Messaging Service (Revised)

Introduction

TSG-T WG2 SWG3 is responsible for the development of specifications for a non real-time Multimedia Messaging Service (MMS). This service must be understood as a non real-time transfer of different types of information between two Multimedia Message Entities (MME) in a store-and-forward fashion [1]. These MMEs can be located in a MS or in a fixed network and thus allow interworking with other messaging services (e.g. Internet E-Mail). Figure 1 shows the MMS architecture at a very general and abstract level (Note that it is currently unclear if the connection between the MMSCs is needed). Furthermore a standardised Multimedia Message structure should provide generic mechanisms to handle different terminal capabilities and appropriate notification principles. The MMS enables a unified application which integrates the composition, access, and delivery of different kinds of media, e.g. text, voice, image or video and then provides a unique service for SMS, Fax, E-Mail, Voice-Mail, Video-Mail, etc.

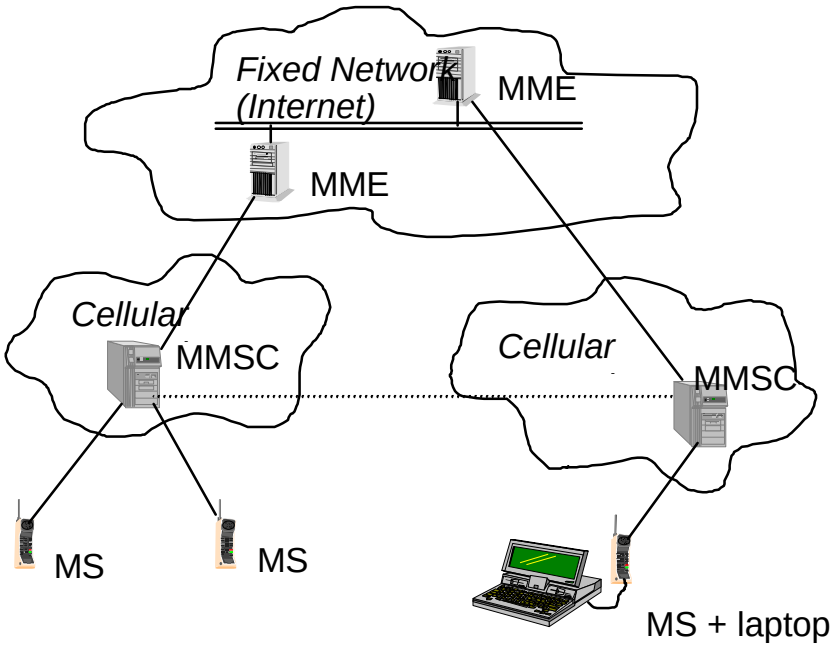

Figure 1: General view of the MMS architecture

During the first meeting of TSG-T WG2 the Terms of Reference for SWG3 Messaging [2] were agreed. The intention of this contribution is to continue the work already undertaken within ETSI and 3GPP and develop a proposal for a set of working assumptions based on Tdoc TSG-T WG2 (99)014.

Model

Editor note: abbreviations to be agreed

The MMS distinguishes between three different entities:-

- MM-Originator

- MM-Terminator
- MM-Service Centre, MM-SC

MM-Originator

This entity covers those parts necessary to compose and deliver a MM to the MM-Service Centre. It can be located either within a mobile or fixed network.

MM-Terminator

This entity is the addressee of an MM transmitted by the originator to the MM-SC. It will be either informed by an appropriate notification or the MM is directly delivered , if a new MM is available. It can be located either within a mobile or fixed network.

MM-Service Centre

This entity enables in general the store and forward principle of the MMS. It can be logically split into a message handling and a message content server part. The content of an incoming message is stored in the server while the message addressee is notified as soon as it becomes reachable to the network. The message content downloading is either initiated by the recipient or by the MM-SC. The MM-Service Centre shall be within the mobile network providers domain.

Message Structure

The MM should provide an unique outline for different media types, so that only a single composing, delivery and storage mechanism is required. Further the possibility of synchronising as well as separation and fragmentation of the media parts within an MM should be supported. Some embedded content associated information should identify e.g. type, size, capabilities, etc. of each message part.

At the end-to-end transport level, there should be a generic message structure for all messages. All information elements within a message should have the same TLV structure, allowing receiving entities to ignore unsupported information elements.

The maximum length of a multimedia message should not be limited. However, the length of a message unit needs to be defined, but multimedia messages may use several units. The length of a message unit should not be constrained by lower-level transmission units, and any concatenation of message units should be performed at a lower level. It should be possible to define longer message units in the future.

Message Handling

Message Upload

Message upload covers the MM composition and delivery to the MM-SC. The MM is composed, recorded or stored within the originating terminal and delivered to the MM-SC after completion.

Message Download

Different methods for MM-Data delivery can be distinguished. Generally a data connection to the MM-Server must be established, which can be performed by setting up a circuit or packet switched connection. However, the MMS mechanisms should not be restricted to one bearer service only. To provide interoperability across different terminal classes also other principles (like USSD) should be considered.

Based upon user preferences and terminal capabilities the MM-Data is either directly delivered to the recipient or stored at the MMSC. If direct delivery is preferred and the recipient MS cannot be reached by the MMSC, the MMSC stores the multimedia message and delivers it to the recipient MS as soon as the MS becomes reachable. Further the support of message fragmentation or partial downloading, e.g. selected media part or types, should be possible.

In cases of mobile terminated delivery failure due to temporary loss of coverage, there should be a mechanism to inform the MS or MMSC when the MS becomes reachable. This is important to allow messages to be delivered without undue delay. In a situation where a number of messages are being queued from different MMSCs for a mobile which is not reachable, when the MS becomes reachable a controlled delivery mechanism is required.

Message delivery based on terminal capabilities

It should be possible to check the capabilities of the receiving MS, either by the MS itself or by the MMSC. If checking of capabilities is performed by the MS, the MMSC sends an initial message defining the content/service, and the MS responds with a request on how the message should be handled. For example, the MS can request the MMSC to reject the overall message, to deliver the message to the MS, or to forward the message to another address. If the checking of capabilities is performed by the MMSC, the information of the capabilities of the MS is stored in the MMSC and the MMSC makes the decision on how to handle the message independently. In this case a mechanism for updating the MS capability information in the MMSC is needed.

Consideration also needs to be done about the mobile originated message delivery, regarding the capabilities of the MMSC. Similar work has been done by the WAP Forum, and the applicability of that work should be checked.

Message delivery based on user profile

A user profile should be used for specifying user defined restrictions. Similarly to handling of terminal capabilities, the user profile can be stored either in the MS or in the MMSC, and the checking of user profile can be handled either by the MS or by the MMSC, respectively. The user profile is used to personalise message handling. The user profile can contain for example parameters specifying what kind of messages should be screened or forwarded.

The same mechanism should be used for both user profile and terminal capabilities handling.

CLI Suppression

It should be possible to suppress the CLI from messages. However, CLI suppression should not be done by the sending entity because the CLI should be visible in the MMSC for traceability. CLI suppression can be based on an agreement between the sending entity and the network operator. If such an agreement exists, CLI suppression is requested by the sending entity on a per message basis.

Notification

Notification of the addressee should be as well supported as acknowledgements to the sender. Both should deliver subsequent information to inform either the MM-Terminator with e.g. media types, sizes, necessary capabilities or the MM-Originator with the delivery status, respectively.
Notifications can be used for at least the following purposes:-

- inform the recipient about incoming messages, including a description of the message, e.g. content, size, type. Based upon this information the recipient (user or application) can instruct the MMSC how to handle this MM.
- inform the recipient about forwarding
- inform the originator about successful or failed message delivery

Addressing

It should be possible to use different addressing formats to identify the recipient.

Charging

Different charging methods should be considered. They could be based on message types, length, storage time at server, etc. Delivering time, upload / download method, MM-originator / -terminator could be also part of the charging model.

Roaming

ffs.

Handover

Messages of longer length are possible, and therefore it is more important for cell handover to occur during transmission of a message.

FFS.

Quality of service

The MMS is a non real-time service. However, reliable message delivery must be guaranteed. Message delay should be minimised.

Profile

The profile contains user preferences to personalise message handling. Based upon this profile filtering/forwarding/barring of mobile terminated multimedia messages could be supported by the MMS. Filtering means that the multimedia message is not automatically delivered to the MS but it is stored in MMSC from where the MS can later explicitly request the message. Forwarding means that instead of automatically delivering the multimedia message to the MS, the message is forwarded e.g. to another MS or to an internet email address. Barring means that the multimedia message is discarded.

Interface between MS and an external device (e.g. laptop)

An interface for controlling and delivering MM messages between MS and an external device such as laptop computer shall be defined. The applicability of existing AT commands as specified in ETSI 07.05 and 07.07 needs to be studied.

Summary

This paper contains the working assumptions for Multimedia Messaging Service, as agreed in the TSG-T WG2 SWG3 meeting 19th – 21th April 1999. These working assumptions are used as the basis for further work in TSG-T WG2 SWG3 until Stage 1 specification for Multimedia Messaging Service is available.

[1] TSG-S1#1 (99)023, "Need for a study on non real-time Multimedia Messaging Service in 3GPP", Nokia
[2] TSG-T2#1 (99)041, "Terms of Reference for SWG3 Messaging"