3GPP TSG-T #16
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Title:	**Problems Identified in 23.140 Release 5** **Document for Discussion and Decision**
Source:	Teleca, SchlumbergerSema, ATTWA
To:	3GPP T

Contact Person:
Name: Ian Harris
Tel. Number: +44 7785 360000
E-mail Address: Ian.Harris@TELECA.COM

Attachments: -

Introduction

Some TSG T2 delegates have identified a number of problems in MMS 23.140 REL-5 that have the potential to cause difficulties for some customers, network operators and for some applications. This belief is made with 12 years hindsight of the design and use of the Short Message Service.

It has not been possible to correct these MMS problems for REL-5 because of the following reasons:

- There is disagreement in TSG T2 SWG3 whether the CR categories are Corrections or New features and so they have been referred to consideration for Release 6
- There is a reluctance to modify the MMS Stage 3 (WAP) so that it satisfies 23.140 revised proposed Stage 2 requirements that are necessary to correct these problems
- There is an assumption that MMS Stage 3 will resolve these problems. Whilst that may be the case for WAP it may not necessarily be the case for other implementations

This paper proposes that essential corrections are necessary to 23.140 REL-5. If these corrections are not made to REL-5 quickly then it is likely that when they are made, serious incompatibility problems will arise. If these corrections are not made at all, then the consequences given below for each problem will arise and it is feared that 3GPP may well come under criticism from application developers, manufacturers, and network operators. Customers may also have an unsatisfactory experience of MMS

NOTE. This paper is not to be taken as a criticism of the work of T2 SWG3. On the contrary, SWG3 has produced excellent results that are a credit to the SWG3 chairman and SWG3 delegates. SWG3 has however been under considerable pressure with their extremely high work-load. It is therefore not surprising that problems such as those identified in this paper have not surfaced until fairly late in the preparation of REL-5. What is important now is to ensure that 3GPP does not come under criticism for failing to address some fundamental issues.

Summary of Problems

Problem 1: UA setting the time-stamp

Problem: It is currently possible for the UA to set a time-stamp for submitted MM's. This time-stamp is sent to the MMS Relay/Server. The MMS Relay/Server ***may*** overwrite this time-stamp but the UA will be unaware of this.
For example, in the 23.140 v 5.2.0 Release 5 it is currently stated:

- Submission of a Multimedia Message in the originator MMSE:
  - "If a MMS User Agent supports submission of MMs the MMS User Agent may be able to:"……..."Provide a time-stamp for the time of submission of the message;"
  - "Upon reception of an MM from an originator MMS User Agent the originator MMS Relay/Server" shall provide the peer entity with a time-stamp if not provided by the

originator MMS User Agent. The originator MMS Relay/Server may also override the MMS User Agent's time-stamp;

The MM1_submit.REQ abstract message has an optional Date and Time Information Element ("The Date and Time of the submission of the MM (time-stamp).").
The corresponding response MM1_submit.RES does not contain a Date and Time Information Element..

- Forwarding of a Multimedia Message:
  - "Upon requesting an MM to be forwarded the MMS User Agent:….. may provide a time-stamp for the time of submission of the request to forward the MM;"
  - "Upon reception of a request from a forwarding MMS User Agent to forward an MM, the forwarding MMS Relay/Server… may provide a time-stamp of the MM submission;"

The MM1_forward.REQ abstract message has an optional Information Element Date and Time ("The Date and Time of the forwarding of the MM"). The corresponding MM1_forward.RES message does not have any information elements to carry Date and Time in the response.
Consequences: The UA user, applications and network operators will have problems when trying to align timestamps between the Sender and Recipient MM's. The UA user will be unaware whether the Relay/Server has over written the UA timestamp and if it has then the MMS UA will be unaware of what the Relay / Server has set it to. SMS has proven the need for accurate and meaningful time-stamps.
Additionally, it will not be possible for Retention time, Earliest Delivery time and Reply Deadline and any other time duration to be calculated so that they reflect the requirements of the UA.

Solution:

- **a)** The MMS UA should not set the time-stamp for submitted MM's. The MMS Relay/Server should set the time-stamp when the MM is accepted by the MMS Relay/Server and send that time-stamp back to the Originating UA in the corresponding response. Additionally, Retention time, Earliest Delivery time, Reply Deadline and any other timers should be sent to back in the response from the Relay/ Server to the UA originating the MM if they have not been set by the UA

or

- **b)** The MMS Relay/Server should set the time-stamp when the MM is accepted, if the Originating MMS UA did not provide the time-stamp. The Relay/Server should send that time-stamp back to the Originating UA in the corresponding response. The MMS Relay/Server should also send the time-stamp back to the Originating MMS User Agent if MMS Relay/Server overrides the time-stamp sent by the Originating MMS UA in the corresponding request.

Recommendation: Solution 1 is recommended and is based on the successful model of SMS in this respect

Problem 2: Time and Date definition

Problem: Date and Time are not defined by Stage 2 to have any requirement to relate them to values that allow unambiguous calculation irrespective of time-zone.
Consequences: Date and Time are meaningless without information, which allows the receiving entity to identify an exact time. E.g relationship with UTC/GMT or time-zone.
Solution: MMS Stage 2 must state an exact Date and Time definition that allows the receiving entity to make an unambiguous Date and Time calculation.
Additionally, MMS Stage 2 has to recommend that Stage 3 will be responsible for this particular realization.

Problem 3: Missing additional Information Elements

Problem: For a Retrieve Request and Result, i.e MM1_retrieve.REQ, MM1_retreve.RES and MM1_acknowledgement.REQ, there is no Transaction ID, Message Type or MMS Version information elements.
Consequences: Applications are totally reliant on the Stage 3 of MM1 implementation , e.g. WAP, to provide this functionality for the application to tie up Requests to Responses. There is no guarantee that this will be possible in future transport implementations. It is also not possible for the application layer to have visibility of its peer entity and so errors may go undetected.
Solution: These information elements should be added to the Stage 2

The meaning of the Transaction ID must be unambiguous, i.e. it has to provide a unique link for all three abstract messages.

Note: At the TSG T2#17 meeting in Vancouver, the Transaction ID, MMS Version , and Message Type Information Elements have been added to all requests and responses, except the retrieve transactions including MM1_retrieve.REQ, MM1_retrieve.RES, and MM1_acknowledgment.REQ. The reason given by a few delegates in T2 SWG3 for not including these Information Elements to the other three abstract messages, specified above, is that the Stage 3 definition of the MM1 interface cannot convey these Information Elements. Other SWG T2 delegates having experience of WAP and its progress disagree.

Problem 4: Missing acknowledgements for Delivery Reports and Read Reply Reports

Problem: Delivery Reports and Read Reply Reports do not have any acknowledgments. The radio path is a hostile environment. The probability of loss of Reports sent between the UA and the Relay/Server is high as SMS as shown for Short Messages sent between the mobile and the SMSC. In SMS, Network Operator statistics have shown that typically, 38% of Mobile Terminated Messages fail to reach the mobile on the first attempt due to 'absent subscriber' which encompasses temporary transmission failures and mobile detached.
Consequences: It will not be possible for a retransmission mechanism to be implemented for lost Reports and customers will query why they have not received Reports they have requested.
Solution: Acknowledgements should be added to Delivery Reports and Read Reply Reports.

Note: The reason given by one delegate in T2 SWG3 for not adding acknowledgements to the above Reports is that it will increase the traffic at the air interface. Whilst this is true, without a means of trying to ensure that a Delivery Report or Read Reply Report is delivered raises questions of confidence and the 'value' of such Reports.