

Agenda Item: MMS
Source: Nokia
Title: Network based message storage
Document for: Discussion

1. Introduction

During the few past meetings, 3GPP TSG-T2 SWG3 has identified a need to standardize the message storage in the network. This feature obviously is expected to add an extra value to the existing MMS functionality. However, the Stage 1 of MMS (TS 22.140) doesn't dictate what the detail requirement is in this feature, and thus, there is a risk that the T2 SWG3 delegates are specifying a functionality without knowing and sharing the requirement. In the end, it may lead to the situation where a significant requirement will not be met or excessive normative functions will be defined. In this context, this paper tries to clarify the feature requirement, and then, proposes approaches to fulfil it.

2. Working principles

Before starting any technical analysis, we would like to suggest following working principles.

2.1) Do not assume particular enabler.

We would like to remind all delegates not to start from bottom to avoid the situation where we have to give up part of requirement. Nokia recommends to start from the requirement analysis and then to get a consensus on it.

2.2) Maintain consistency and compatibility with the current and possible future model.

It is very important in the Stage 2 phase of work to maintain consistency and compatibility with the existing Release 4 (R4) model and solution when specifying a new feature. It is neither an apparent choice to come up with a new solution for this feature, nor a preferable way to put a burden to the existing solution because of this feature. Thus, this feature itself (in this R5 at least) must be completely optional for backward compatibility reason, and consistency between different combinations of the options must be considered carefully. In addition, any option must be specified in a manner where any protocol model can be selected where appropriate, i.e. the high level abstract message should be specified without creating dependent parts onto the particular protocol.

2.3) Do not limit the implementation freedom or the future enhancement.

It is also very important to keep the implementation freedom. Especially, Nokia believes that it is 3GPP's responsibility to introduce any new feature in such a way that the MMS service provider can implement it with their own planning. Thus, Nokia suggests T2 SWG3 to start from the minimum level of normative

description for this feature, so that the service provider can take a step-by-step approach if they want. In that sense, also Nokia suggests all options are classified into two categories, “Basic” and “Advanced”. As Nokia understands the Basic category means “Conditional Mandatory” class, we propose options in Basic category should be minimized in the first step.

3. Use case and requirement

Followings are the use cases that require a network based message storage no matter whether it’s persistent or temporary.

- A) A user receives an MMS notification indicating an incoming message cannot be retrieved or handled properly. Therefore the user retrieves the message later using other device.
Requirement)
- MMS Notification must include a sufficient level of indication so that a user (or user agent) can determine his/her behaviour. (*Fulfilled already*)
 - MMS Relay/Server must be able to retain a message if a recipient wants. (Note that there is an issue related to expiry and storing period. Described later)
 - MMS Terminal should be able to transfer MMS Notification data to another by using, for example, SIM/USIM persistent memory. (*Under consideration*)
 - A user must be able to obtain the information on what messages are stored in the network storage (e.g. list of headers). And then, MMS terminal must be able to retrieve a message by using the information.
- B) A user wants to increase free memory space in the terminal, but would not like to erase certain messages permanently.
Requirement)
- MMS terminal must be able to upload and save a message to the network based storage.
 - If a message is duplicated in the terminal memory and the network storage, and if the message in the one storage is deleted, the same message in another storage must not be deleted without a user’s acceptance.
- C) A user deleted a message by mistake, and thus, would like to obtain it again from the network storage.
Requirement)
- If a message is duplicated in the terminal memory and the network storage, and if the message in the one storage is deleted, the same message in another storage must not be deleted without a user’s acceptance.
 - A message must not be deleted from the network storage until an explicit deletion is requested.
 - A user must be able to obtain the information on what messages are stored in the network storage. (e.g. list of headers) And then MMS terminal must be able to retrieve a message by using the information.
- D) A user is about to start a long travel without his MMS terminal, thus would like to save all incoming messages (with or without receiving a MMS notification) to the network storage until return.
- A user must be able to configure all incoming messages to be stored automatically to the network storage.
 - A user must be able to turn-on/turn-off a MMS notification sending.

There are a lot of other good use cases but we see above items are essential and a user experiences will be improved quite a lot if those cases are realized. So, Nokia proposes T2 SWG3 should start to work on a CR towards 22.140 to consolidate and improve this analysis.

4. Requirement for technical realization

Following the previous chapter, required methods between a terminal and a server are listed below.

- Delete an MM from the network storage
 - o This requires a mechanism, by which an MMS terminal can request a particular message(s) in the network storage to be deleted permanently.
- Copy an MM to network storage
 - o This requires a mechanism, by which an MMS terminal can request a particular message(s) in the terminal to be uploaded to the network storage.
- Obtain a list of MMs in network so that a terminal can retrieve a stored message(s) again.
 - o This requires a mechanism, by which an MMS terminal can request to send a list of messages in the network storage in a similar form to MMS notification message.
- An explicit way to determine whether an MM should be retained
 - o This requires a mechanism, by which an MMS terminal can request that the message(s) should be retained in the network storage.
- Configure all incoming messages to be stored to the network storage
 - o This requires a mechanism, by which an MMS terminal can request to store all incoming messages to be saved automatically, and optionally, switch off the notification function.

Nokia thinks these methods are really essential and the bottom line. Therefore they should be classified as the ‘Conditional Mandatory’ features, i.e. they must be supported if a network storage is supported. Any other advanced features like hierarchically structured storage, detail view of message meta-information in the network storage, partial retrieval of the message contents, etc. should be classified as completely optional. By doing so, we believe we can introduce this set of new features with backward compatibility and as a seamless evolution of the R4 model.

For defining these methods, Nokia suggests the enhancement of the MM1 by creating optional abstract messages or adding new information elements in principle. Nokia has a great concern about the network storage characteristic, i.e. whether it’s temporary, persistent, or both. Nokia believes we shouldn’t (and don’t have to) switch the nature of the network storage from temporary to persistent. Instead, we should provide an optional mean to control its characteristic and the default should be still temporary. By doing this we can maintain the backward compatibility with the current model and introduce a new behaviour of the storage at the same time. But, Nokia still sees another issue, which is the conflict of expiry and storing period. In order to solve this problem, MMS Relay/Server must have an intelligent expiry tracking mechanism by monitoring the message status (e.g. “wait for delivery”, “stored persistently”) and determining if it should be removed based on that status and the expiry date field value. T2 SWG3 should discuss and agree about this priority that the recipients’ “store persistently” order priors to the originator’s expiry date value, or other way around, and then how MMS Relay/Server should control it.

5. Conclusion

As a conclusion, Nokia believes the proposed approach of the network based storage for the Stage 2 document work in the R5 should fulfil the needs of T2 SWG3 members to get a consensus. Thus, we’re happy to work with other members in the T2 SWG3 on generating a CR based on the idea mentioned in the chapter 4 of this document for further elaboration, and also happy to address the remaining issues described in this paper to be resolved as soon as possible.