mobileMMS

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1.1 Introduction

1.1.1 What is Multimedia Messaging?

Multimedia Messaging Service (MMS) adds images, text, audio clips and ultimately, video clips to SMS (Short Message Service / text messaging).

Simon Buckingham, CEO of Mobile Streams believes that. '*The transition from Short Message Service (SMS) to Multimedia Messaging Service (MMS) is as important on mobile phones as the transition from DOS to Windows was for the PC. It represents a revolution.'*

Unlike other technologies like WAP, Bluetooth etc – MMS offers a complete development and billing environment along with a chance to create compelling applications.

Thus, MMS provides an opportunity to foster an industry where all players in the value chain may get an opportunity to avail revenue.

1.1.2 Why is MMS significant?

MMS is significant because …

- It is a natural evolution from text messaging which already has a large user base especially in Europe and Asia
- MMS functionality can be delivered now over GPRS i.e. we need not wait for 3G. (Please see glossary below for an explanation of terms).
- It has support from operators and industry players
- MMS messages can be sent to / from email which may overcome the problem of initial limited device availability.
- Richer applications can be developed using MMS than is currently possible with just the 160 text characters available with SMS.

1.1.3 Who are Mobile Streams?

Mobile Streams are renowned as experts on messaging in general and the MMS in particular. So, if you are looking for information on MMS, you have come to the right place!

1.1.4 Who are the authors of this FAQ?

This FAQ is written by Ajit Jaokar Ajit.Jaokar@futuretext.com. I describe myselves as an 'MMS evangelist'. We work closely with Mobile Streams in our development and research.

All queries related to this FAQ should be posted on the MMS forum at http://www.mobiledatashop.com/bbs.ihtml (Subject title : MMS-Multimedia Messaging System) and I shall do my best to answer them. Watch this forum about information about MMS and analysis on MMS related products.

1.1.5 What future enhancements are planned for this FAQ ?

This FAQ will be a living document. We hope to get feedback from you, which we will incorporate here. We are also going to add vendor specific questions. If you are an MMS vendor

or an MMS applications developer, please contact Ajit.Jaokar@futuretext.com on how to participate.

1.1.6 All this sounds interesting. but where can I try it ?

You can try an MMS service at www.mmsstore.com.

1.1.7 Where can I get more information?

We welcome your comments and queries. If you have any specific queries about MMS, please contact Ajit.Jaokar@futuretext.com.

1.2 MMS – The user experience

1.2.1 How would MMS look like to the end users?

In terms of usage, initial Multimedia messages can best be understood as *'choreographed PowerPoint presentations'*.

What does 'choreographed' mean? - The multimedia presentation which consists of elements such as music, voice, images, text, video, and graphics are all synchronised across a common timeline (i.e. not delivered as attachments) as in an email.

Similar to an SMS, the recipient receives a notification and when the full message is received, the presentation starts running. Visually, the presentation looks like a choreographed slide show with still images (photographic and animation) and sound.

We could also view an MMS message as a presentation layer over email since MMS uses many email technologies.

Unlike SMS communication, MMS communication will not be discreet i.e. rich media lends itself to be 'flaunted' rather than being discreetly in the background. This trend is already noticeable in ringtones. As a corollary to this observation, women rather than men, will use MMS services more especially in situations where a photograph will be taken and sent as a picture message.

1.2.2 What are some examples of MMS services?

Possible, examples of an MMS based applications are:

- Weather report with images
- Stock quotes that can be viewed as diagrams
- Football goals that can be viewed as a slide show

1.2.3 What content types does MMS support?

An MMS message can contain one or more of the following. Specific media formats are explained below.

Format	Support
Text	• Unlimited text that can be formatted. • Text can be accompanied by images, graphics, sound and in future video.
Graphics	• Support for Graphs, tables, charts, diagrams and layouts • Support for animated GIFs
Audio	• Support for music, speech • Support for streaming sound
Images	• Sending images and snapshots from

	an attached or built in digital camera • Ability to edit images and add text
Video	• The ultimate goal of MMS is the ability to send video (over a full 3G network). The ability to send a simple 30-second clip has enticing applications especially in the sports and media arena.

1.2.4 How much will each MMS message cost?

Pricing of MMS messages will be complex.
Here are some guidelines we use..

- Cost of each MMS message is the key driver. According to Mobile Streams, 1 MMS message should be priced three times an SMS message. This implies the price of a simple (i.e. P2P) MMS message would be 33p in the UK.

- MMS billing could also include a 'monthly subscription fee'. This is expected to include a daily download service for "wallpaper", screen savers and a limited range of other simple applications that get updated 'daily'.

- Majority of MMS traffic is expected to be P2P i.e. where a user takes a photograph and sends it as a message. In other words, content is self created.

- Pricing of non-P2P messages is more complex since there is an element of perceived value to the end customer. Mobile Streams uses a pricing model for such calculations. http://www.mobilemms.com/ provides a number of reports that give more information.

1.2.5 But, will customers pay for MMS messages?

Customers do not pay for technology – they pay for functionality and what they perceive as value. This can be illustrated by download of ringtones where customers pay as much as £2.50 per ringtone. The same phenomenon (personalization) is expected to work favour MMS.

1.2.6 I don't have an MMS phone, can I receive / send MMS messages?

Yes, in both cases.

Sending MMS messages can be done over web sites. In fact, this may be the preferred way initially.
As regards receiving MMS messages, if the device does not support MMS, the user gets an SMS message pointing to a URL where the message may be stored.

1.2.7 Can MMS messages be sent to an email id?

Yes. Initially this will be an important driver for MMS

This implies that useful applications can be created even if initial uptake of MMS devices is not large. As an example, a consumer can take a digital photo with their phone and send it as an MMS to a friend. If the friend doesn't have MMS, they can still view the message and photo on the web, next time they're online.

1.2.8 How does the user's MMS experience compare to that of SMS?

SMS messages are not delivered in real time because they follow the 'store and forward' model. All SMS messages first get sent to the SMSC (Short Message Service Centre) from where they are routed to the recipient.

MMSC (Multi Media Service Centre) performs an analogous function to the SMSC for the purposes of this discussion.

Like SMS messages, MMS messages are also not delivered in real time. However the actual interaction in the delivery of MMS messages is different from that of SMS.

SMS messages delivery is quite simple - SMS messages get sent first to the SMSC and if the SMSC can deliver the message immediately to the recipient, the message is sent to them.

However, the steps for MMS are different:

- The sender sends a message to the MMSC
- When the MMSC receives the message, the MMSC sends confirmation. The sender then gets a 'message sent'.
- MMSC sends the receiver a notification that a new message is waiting
- The receiver can then download the message immediately or download it later. Once the message is successfully downloaded, the receiver gets a 'Message Received' indication.
- Once the receiver has successfully downloaded the message, the sender gets a 'Message Delivered' message.

1.3 MMS – Positioning

1.3.1 How does MMS contrast to SMS, EMS and Smart Messaging?

There are four main messaging technologies:

- SMS
- Smart Messaging (from Nokia)
- EMS (Enhanced Messaging System) and
- MMS

SMS was the first to emerge. SMS started as a simple person-to-person text messaging over GSM. In this format, SMS was popular because it was simple and ubiquitous.

Nokia, the market leader created a proprietary extension to SMS called Smart Messaging that is available on more recent Nokia phones. Smart messaging is used for services like Over The Air (OTA) service configuration, phone updates, picture messaging, operator logos etc.

Since Nokia has a large proportion of the market, especially the youth market, an industry has been created out of content provision for the Smart Messaging phones such as picture messages and Ringtones. Smart Messaging is rendered over conventional SMS and does not need the operator to upgrade their infrastructure.

SMS is ultimately evolving towards MMS (Multimedia Messaging Service) that is accepted as a standard by the 3GPP. Multimedia Messaging enables the sending of messages with rich media such as sounds, pictures and eventually, even video.

MMS itself will emerge in two phases – the first phase being based on GPRS (2.5G) as a bearer, rather than 3G. This means that initially MMS will be very similar to a short PowerPoint presentation on your mobile phone (i.e. a series of "slides" featuring colour graphics and sound). Once 3G is deployed, more sophisticated features like streaming video will be introduced. Note that we have not covered MMS under 3G bearers in this book as 3G will not be deployed for some time yet.

Although all companies are working towards MMS as an ultimate goal, they are taking different paths to that destination. Nokia, the market leader, is moving directly to MMS. Most other players are adopting an evolutionary standard called EMS (Enhanced Messaging System). EMS is also a standard accepted by the 3GPP.

For MMS to be deployed the network operators have to upgrade their infrastructure and devices supporting MMS must be available.

Unlike MMS, EMS can be used over the existing infrastructure – although the features provided by EMS are not nearly as advanced. EMS can support relatively simple media such as melodies, simple pictures, sounds and animations.

In addition, EMS itself is 'enhanced' by technology from a UK based company called Magic4. Many of Magic4 features (but not all) may be accepted as 3GPP standards for EMS.

EMS thus has a narrow window of opportunity before MMS takes off.

1.3.2 Are there any MMS phones available?

The MMS first phones are coming out in the marketplace in Europe (as at May 2002). Ercisson T68i, Nokia 7650 and Ericsson P800 are amongst the first MMS phones expected to be available before the end of 2002.

1.3.3 Does MMS need 3G?

No.
MMS functionality will be delivered in two stages – firstly over a GPRS bearer (2.5G rather than 3G) - where it will contain a subset of the media such as still images (but not video) followed by 3G where it will contain 'full' multimedia such as video clips.

This implies, we need not wait for 3G to make use of MMS applications.

1.3.4 How does MMS compare to SMS?

- SMS uses signalling links that have limited spare capacity. MMS uses main data channels (initially GPRS) that enable multimedia messages to be sent.
- Both SMS and MMS are store and forward systems and are not real time.
- Unlike SMS, MMS can use user profiles to determine when content should be delivered – for example a user may choose to receive certain messages after working hours.
- MMS can undertake format conversion based on terminal characteristics and user profile. This does not apply to SMS.

1.3.5 How does MMS compare to email?

MMS messages can be sent to email. This is helpful for the uptake of MMS since it creates an audience for MMS messages even when the initial uptake of phones is limited.

MMS can be viewed as a presentation layer for the basic email protocol.

- **Based on SMIL:** MMS is based on SMIL. In SMIL, presentation information is coded into the presentation file. The intention is to present the Multimedia content in a specific order at a predetermined interval.

- **No attachments:** Unlike an email, an MMS message has no attachments. The whole message is one entity.

- **Inbuilt support for multimedia presentation:** MMS was built from the ground up to support a Multimedia presentation. HTML does not provide timing information for

Multimedia presentation and separate media components have to be downloaded separately

- **Support:** It is envisaged that all MMS clients will support SMIL.

- **Storage:**
  MMS messages can be potentially stored in three places:

  - At the MMSC before the message can be delivered to the recipient terminal.
  - In the memory of the terminal, after the terminal has received the MMS message
  - In a separate permanent space where the recipient has moved it for storage.

1.3.6 How is the MMS environment different from SMS?

- In the SMS environment, storage of messages is not an issue since the size of a message is small and the issue of storing a message arises only when the recipient is not available (which is the exception rather than the rule). In contrast, MMS messages can be larger. Also, they may be stored in the recipient's MMSC for longer (since they may not be downloaded immediately). This introduces a cost. Further, users may like to 'store the message' more permanently There is an opportunity for storage companies to provide such services for example photo albums.

- Digital rights management i.e. copyright protection is much more significant in the MMS world. Currently, for ringtones, the copyright owner (i.e. owner of the tune) often does not get paid the revenue owed to them.

- Addressing in the telecoms world is numeric. In the Internet world, it is alphanumeric as in *name@domain*. MMS is at the interface of these two worlds and addressing mechanisms are being finalized by the ENUM forum in the US.

- Unlike the SMSC, design of the MMSC is not monolithic. Hence, MMSC design comprises multiple elements. An operator may mix and match these elements from various vendors.

- Access to MMS messages should be independent of access points – MMS messages could be accessed through 3G, 2G networks, fixed line networks etc.

- SMS does not have a concept of a user profile whereas in MMS, the user profile is central since it determines when a message will be downloaded for example. This is because MMS messages are larger and are not delivered immediately to the recipient.

1.4 The MMS Industry

1.4.1 How can we calculate ROI for MMS based applications?

- MMS ROI models are difficult to compute since MMS is based on personalization – for example the motivation for downloading a ringtone is the desire to be 'cool' which does not have a ROI model.

- We believe that MMS usage can be compared to the Greeting card industry – even when it is not something you use every day, it is worth noting that the greetings card industry is still worth a healthy $7.5 billion USD/year.

The industry generates more than $7.5 billion in retail sales from consumer purchases of more than 7 billion cards. Cards range in price from $0.38 to $10.00, with the average counter card retailing for around $2.00 - $4.00.

1.4.2 What standards govern MMS?

MMS standards are created 3GPP and the WAP forum as open standards.

The 3GPP specification defines the network architecture and general functions. The WAP Forum MMS specification defines message encapsulation and application protocols.

Standard	Function
3GPP	
TS 22.140	Requirements
TS 23.140	Architecture and functionality
WAP Forum	
WAP-205-MMSArchOverview-20010425-a	Multimedia Messaging Service Architecture Overview
WAP-206-MMSCTR-20010612-a	Multimedia Messaging Service Client Transaction Specification
WAP-209-MMSEncapsulation-20010601-a	Multimedia Messaging Service Encapsulation Specification

1.5 Development

1.5.1 What are examples of MMS Applications / services which a developer may build?

There are two areas where MMS applications could be developed:

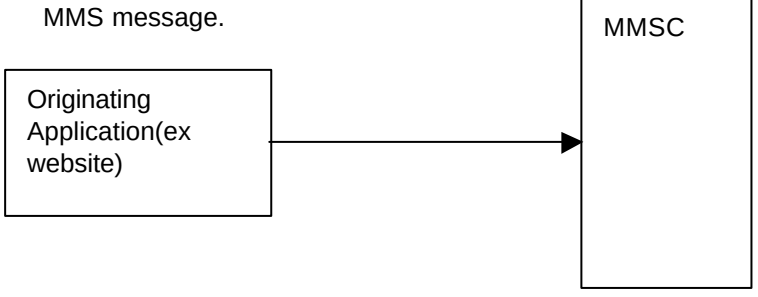
a) On the client side i.e. for the MS (MobileStation) or
b) As external applications to the MMSC.

Client side applications depend on the capabilities of the device. We do not discuss these applications in detail here since they require knowledge of MMS handlers on the specific device.

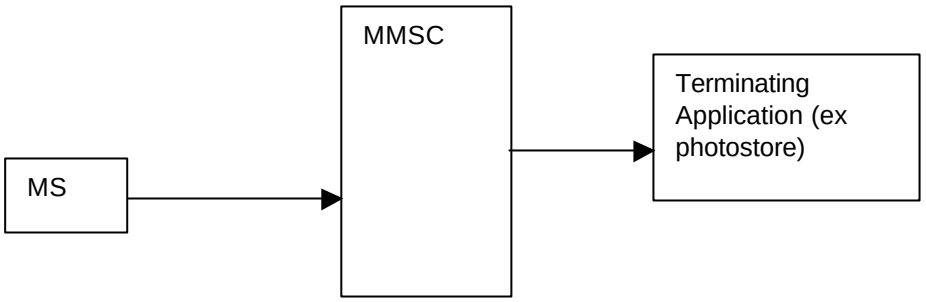
An external application is an application that interfaces to the MMSC. An MMSC treats messages received from such applications as similar to messages sent by an end user.

From the perspective of the MMSC, MMS applications can be originating, terminating or processing.

- **Originating applications** sends an MMS message to the MMSC. The MMSC treats the message same as it would have received from a terminal. Examples of such applications are - A web based MMS creation service that can compose an MMS message.



- **Terminating applications** – is the final destination of the MMS message. An example is a photo store application. An MMS user has taken a photograph and sends it to the MMSC, which redirects the MMS to the photo store application.

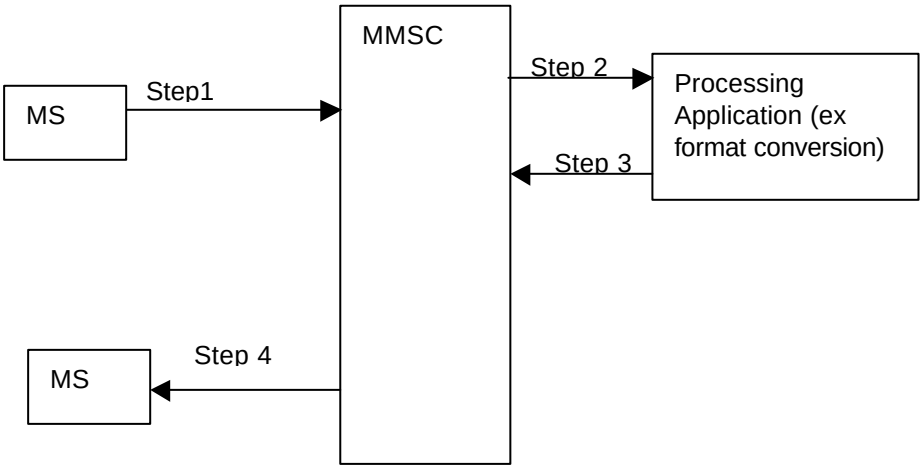


- **Processing applications** receive an MMS message, perform some processing and send the message to the MMSC for further processing

  As outlined below –
  Step 1 Sender sends message to MMSC
  Step 2 MMSC sends message to processing application
  Step 3 Processing application sends message back to MMSC after processing
  Step 4 MMSC sends processed message to receiver

  For example a company could subsidise an MMS message by adding a logo to the message.
  In this case, the MS sends a message to the MMSC and the MMSC redirects the message to the application, which adds the content and the logo and then sends it back to the MMSC to be forwarded to the receiver. Other examples are address verification applications or content conversion applications.

  Other examples of processing applications are:
  - Attachment of a small 'sponsor' logo to the message
  - Address verification
  - Content conversion.



1.5.2 What is SMIL?

MMS applications are based on SMIL (Synchronized Multimedia Integration Language) – pronounced 'smile'.

SMIL is similar to HTML in its syntax and constructs and is essentially a way of choreographing rich, interactive multimedia content for real-time delivery over the web and also over low bandwidth connections.

SMIL delivers multimedia presentations consisting of elements such as music, voice, images, text, video, and graphics all synchronised across a common timeline (i.e. not delivered as attachments).

An example of an SMIL multimedia layout file consists of a news video, emphasizing specific news stories with text headlines, and displaying, for example, a stock ticker at the bottom of the screen.

SMIL can be viewed as a 'PowerPoint-style' presentation on the mobile device. Using a simple media editor, users can incorporate audio and video along with still images, Animations and text to assemble full multimedia presentations.

1.5.3 How do SMIL based MMS presentations work?

Early MMS applications based on SMIL will be 'slide shows'. They will be characterized by:

- Having one or more slides
- Each slide should be thought of as a frame that holds the content. The content itself will be kept separate
- Initially, each slide will have two sections – one for text and the other for image. Slides may have only image or only text.
- SMIL specifies the layout, ordering and the display time of each slide.
- Contents of the slide must be created in an approved format.
- The slides and the files are packaged into one message. The maximum size of the entire packaged message for first generation devices is 50Kb.

1.5.4 What is the connection between MMS and WAP?

The Wireless Application Protocol (WAP) – although not popular with consumers as a customer facing mechanism is used with MMS as an underlying protocol.

It is envisaged that later versions of MMS will be based on the standard Internet protocols such as HTTP over TCP/IP. However, currently WAP is the only effective mechanism to terminate a message using WAP push. Also, the IP protocols will possibly not be standardised before Ipv6.

WAP is used in MMS in a number of ways:

WAP as a transport protocol

The WAP Wireless Service Protocol WSP is used as a transport mechanism in MMS. It should be noted that the use of WAP WSP for transport does not mandate the use of a WAP browser. In fact, SMIL is widely promoted as a method of choice for the presentation layer of MMS.

By using WAP transport any bearer with WAP capabilities can be used making MMS bearer independent e.g. MMS is not limited to only GSM or WCDMA.

WAP Push

MMS can be offered over GPRS providing that the recipient phone supports WAP version 1.2. MMS uses the WAP push functionality to notify and deliver multimedia messages to the target device.

WAP as a User Agent Profile mechanism

MMS also uses WAP as a mechanism to inform the server about the capabilities of the MMS user agent. This is known as the User agent profile.

1.5.5 How interoperable are MMS messages across manufacturers?

To support interoperability between MMS messages, Nokia, Ericsson and others have jointly created an MMS Conformance document, which can be accessed from Forum Nokia http://forum.nokia.com/ or from Ericsson Mobility world http://www.ericsson.com/mobilityworld/

Initially, at the least, we expect that interaction between the subscriber and their operator will be guaranteed. Even at this level(non peer to peer applications), it is possible to create useful services such as weather reports, news feeds etc.

2 Glossary

Try our online glossary at http://www.mobilejargonbuster.com