

Multimedia Messaging Services – The Big Picture

a report by

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Graham Trickey is the Director of the End-to-End Features & Services Task Force within the Technology Group of the GSM Association (GSMA). The task force has recently completed the definition of a road-map of operator requirements for 2.5G and 3G services and is now working on managing the definition and resolution of all issues on location-based services and multimedia messaging services (MMS). Mr Trickey also leads the GSMA focus on service definition and usability within the SerG Working Group and is helping to drive a focus on resolving the remaining open issues with regard to easy implementation of MMS.

It is safe to assume that almost everyone reading this article will have sent or received a text message on their mobile phone via short messaging service (SMS). Although limited to words and simple text graphics, the service became, and continues to be, a worldwide phenomenon. The GSM Association (GSMA) estimates that some 400 billion text messages will have been sent during 2002.

With the advent of the new high-bandwidth packet data networks – GPRS or 2.5G – and the development of far more sophisticated interactive handsets featuring larger, high-resolution colour screens and built-in cameras, the foundations are in place to take mobile messaging to the next level – the multimedia level. Multimedia messaging service (MMS) allows personalised multimedia messages containing content such as images, audio, text and video to be created and communicated via worldwide wireless GSM™ networks.

MMS is based on common Internet technologies. Currently supported are a number of content types including plain text and HTML, audio in a variety of formats including an efficient new standard adaptive multi-rate and MP3, and pictures as Graphics Interchange Format (GIF) and Joint Photographic Experts Group (JPEG), etc. In the future, video using Moving Picture Experts Group 4 (MPEG4) will be accessible over the higher bandwidth third-generation, or 3GSM, networks.

Each multimedia message contains a number of pages, much like a PowerPoint slide show. On each page, there can be one image and one set of text and an audio file can also be attached. The amount of time that each 'page' is displayed can be specified, so that the user experience is similar to viewing a slide show.

MMS offers the potential of substantial revenue opportunities for network operators, manufacturers, application developers, content providers and investors, and will underpin the expansion of mobile data. The successful introduction of MMS will be a key factor in the continuing success of the mobile communications market.

Behind the Scenes

Given the importance of MMS, the GSMA has committed significant resources and efforts to addressing the considerable challenges presented by the international implementation of mobile data services. The GSMA Working Groups and Task Forces are targeting and resolving the issues that could inhibit the launch of MMS, or its mass take-up by consumers. Today's mobile subscribers have high expectations and are understandably impatient with services that do not live up to the advertising promises.

Text messaging burgeoned due to its simplicity, low cost and the fact that the GSM circuit-switched networks were already in place and their interworking and interoperability issues largely resolved. The introduction of MMS requires more careful orchestration and the GSMA is co-ordinating the agenda to enable the worldwide adoption of MMS with the maximum of speed and the minimum of delay, but it is inevitably a more complex issue.

As multimedia messages are comprised of data, the optimum transport medium is the packet data network – GPRS – and, later, 3G (or wideband Code Division Multiple Access (w-CDMA)). With GSM operators steadily rolling out GPRS networks (some 200 networks have been launched or are in the late stages of implementation), the global infrastructure to enable efficient delivery of MMS is becoming a technological reality. In addition, each GSM/GPRS network operator has to implement a commercial 'roaming' agreement with other operators so that customers can utilise the service outside their home network.

Voice and SMS roaming agreements have been in place for some time, giving GSM its reputation as the international communications medium and producing consistent subscriber growth – there are currently some 750 million GSM users worldwide. To catalyse the launch of MMS services, two dedicated roaming events have been held at which operators could meet and sign the bilateral agreements required for GPRS network operability, plus the additional agreements

required to enable MMS roaming. The first event alone produced some 1,500 separate roaming GPRS agreements between the GPRS networks that are already in commercial service.

The GSMA International Roaming Expert Group (IREG) monitors the 'front line' of roaming between the GSM family of networks, working to facilitate seamless roaming activity to increase the potential of the technology. A current focus of IREG is MMS interworking, providing guidelines on how multimedia messages can best be addressed and transmitted between operators' networks.

The main options for MMS roaming and interworking are for networks to link across the GPRS roaming exchanges (GRXs), the public Internet with virtual private network solution or dedicated leased lines. GRX constitutes a private Internet network for GPRS roaming and may also become the preferred choice for MMS. The GRX route re-utilises the existing GPRS Internet Protocol exchange network and also provides the required quality of service, privacy and security issues that would provide a considerable challenge on a public network.

Once interworking has been established between operators, the messages need to be routed to their destination. A multimedia message can be addressed to the recipient either by using the mobile destination number (as in SMS) or via the recipient's e-mail address.

Currently there are a number of ways in which an operator can decide how to route a multimedia message to its destination. These have all been documented in an IREG Permanent Reference Document (IR.52), though none provide the perfect solution. The future will also see the introduction of the electronic numbering system (ENUM), specified and standardised by the Internet Engineering Task Force (IETF). ENUM is a protocol based on domain name server architecture that maps a telephone number to a uniform resource identifier that can be used to contact a resource associated with that number. IREG is working on the adoption of the ENUM protocol for MMS addressing and, once in place, ENUM will also provide the addressing resource for 3G networks when they come into commercial service.

Bringing the Industry Together

Roaming and addressing issues are part of the big picture, but underneath the surface are myriad components that also have to be compatible. There are already many MMS clients and many MMS servers from many different vendors. It now needs to

be ensured that they all work together.

In early 2002, a group of MMS vendors created the MMS Interoperability Group (MMS IOP) in order to resolve this problem. Although they had little or no input from operators, they realised that neither the 3G Partnership Project (3GPP)TM nor the then WAP Forum (now the Open Mobile Alliance (OMA)) specifications completely defined practical implementation of an MMS service. The result of their work is the MMS IOP Conformance Document, which has become the de facto standard for real implemented MMS networks.

The GSMA's End-to-End MMS Task Force was asked to help drive the development of a relationship between MMS IOP and the GSMA, and to push for more transparency and greater operator involvement. The GSMA conducted monthly joint meetings with MMS IOP, culminating in a meeting at the GSMA Plenary in Rome, when MMS IOP agreed to be consolidated into the OMA. This development will ensure openness to both operators and vendors. At the request of operators, it has been agreed to prioritise the agreement of a new version of the MMS Conformance Document by the end of 2002, with all successful certifications published on a publicly accessible website.

Managing Expectations

The GSMA has taken a leadership role in the development of a minimum service definition for MMS. The advantage of this approach is that it will help introduce consistency of service delivery across networks – critical if operators are to build a significant user base. Another key objective is to promote device conformance for this important new market. Handset design is being driven by the GSMA's M-Services initiative – a set of operator-defined requirements that provide guidance to manufacturers on design, functionality and user interface for a universally recognised, open and non-proprietary set of principles. In short, subscribers can access data services in a consistent and user-friendly way, regardless of which handset they were using.

It is worth highlighting that a minimum service definition should not be prescriptive about the type of services on offer but must focus on how such services are delivered across networks and to devices. This definition relates to delivery mechanisms and minimum standards of usability, not to the content of individual service portfolios. WAP has demonstrated the importance of managing user expectations. The success of MMS will depend on the ability to learn from the past and work together to build a clear vision of the service environment that the industry will develop and market.

Moving MMS into the Commercial World

Image-based services are already dominating the first wave of MMS offerings, which is inevitable. MMS is almost universally marketed as enhanced or next-generation SMS and the graphics factor is clearly an important differentiator.

A number of operators have launched MMS in conjunction with services that support camera-enabled devices. This approach has already met with success in Japan, and German operator T-Mobile has adopted the same strategy in Europe. T-Mobile goes to market with a transparent two-tier price structure and its service allows an audio message to accompany the visuals. The company also offers an M-Card service that enables personalised, animated messages to be delivered either to MMS-enabled handsets or via the Internet.

In the UK, Orange's early MMS offerings are also heavily graphics-orientated. Their photo messaging service will allow combinations of photographs, text and audio to be dispatched to either MMS terminals or e-mail addresses. Intended recipients without MMS handsets will receive a text message inviting them to view their photo message on the operator's website. Orange has also adopted a profile-driven approach to MMS, allowing users to select a topic (e.g. sport, news, gossip) and receive picture-content messages about their chosen subjects.

It is probably too soon to talk about trends. Nevertheless, early indications suggest that many operators believe that photographs alone do not make up a compelling MMS offering. Value-added components from Italy's Telecom Italia Mobile (TIM) combine photo messaging with a successful dating service, while Sunrise in Switzerland is offering a subscription service for prospective homebuyers.

Sunrise has also created an innovative offering in association with a party and events magazine. MMS users can visit a WAP site where pictures of events have been posted. Users can download selected photographs onto their handsets. This is part of a package of MMS services that also includes a daily cartoon delivery and a weather service. Whatever the service offering, usability and easy-to-communicate price structures will be key drivers for success.

Advancing Application Development

Development of compelling applications is crucial to success in today's dynamic marketplace, and the

GSMA has recognised the need for all operators to have access to independent development and simulation tools to facilitate and catalyse the applications marketplace.

To provide that service, a simulator has been developed for use by all GSMA members and associate members. It is the user who creates the revenue for the operator, and it is the user experience that dictates whether an application has appeal, or not. The simulator has been designed to meet the standards of the GSMA M-Services initiative and can be utilised by developers to test ideas and user interfaces for new services, even before specific handsets are available.

Operators looking for rapid return on network investment face the issue that new-generation service platforms and terminal devices are rarely available sufficiently in advance for extensive applications development before commercial introduction. The simulator breaks this bottle-neck and reduces time to market by enabling an earlier start to applications development. Windows®-based, the simulator provides operators and application developers with the means to develop and test applications in a low-cost environment with support for new features such as colour screens and MMS. It can be customised to mirror specific operator environments and can significantly cut application time to market, thereby accelerating revenue streams.

The Future

MMS is a new service being introduced over the new data networks. It has all the ingredients for success and the GSMA will continue to co-ordinate the industry to ensure the implementation is as seamless as possible.

Predictions are encouraging. It is estimated that, in 2007, SMS revenues will represent 47% of total mobile message revenues, with MMS bringing in 32%.¹ The balance will comprise mobile instant messaging, mobile e-mail and enhanced messaging service.

Further estimates predict MMS handset penetration to reach 50% by the end of 2005, with MMS accounting for up to 30% of all person-to-person messaging.² Orange predicts that MMS-capable devices will be used by 40% of its customers by the same date.

It is likely that MMS will build on its initial success and provide the foundation for revenue from GPRS and 3G networks just as SMS has done for 2G GSM. As an industry, and as a market, we must continue to work together to achieve the true mobile information age. ■

1. Forrester Research.

2. Ovum.