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CONNECTING PEOPLE



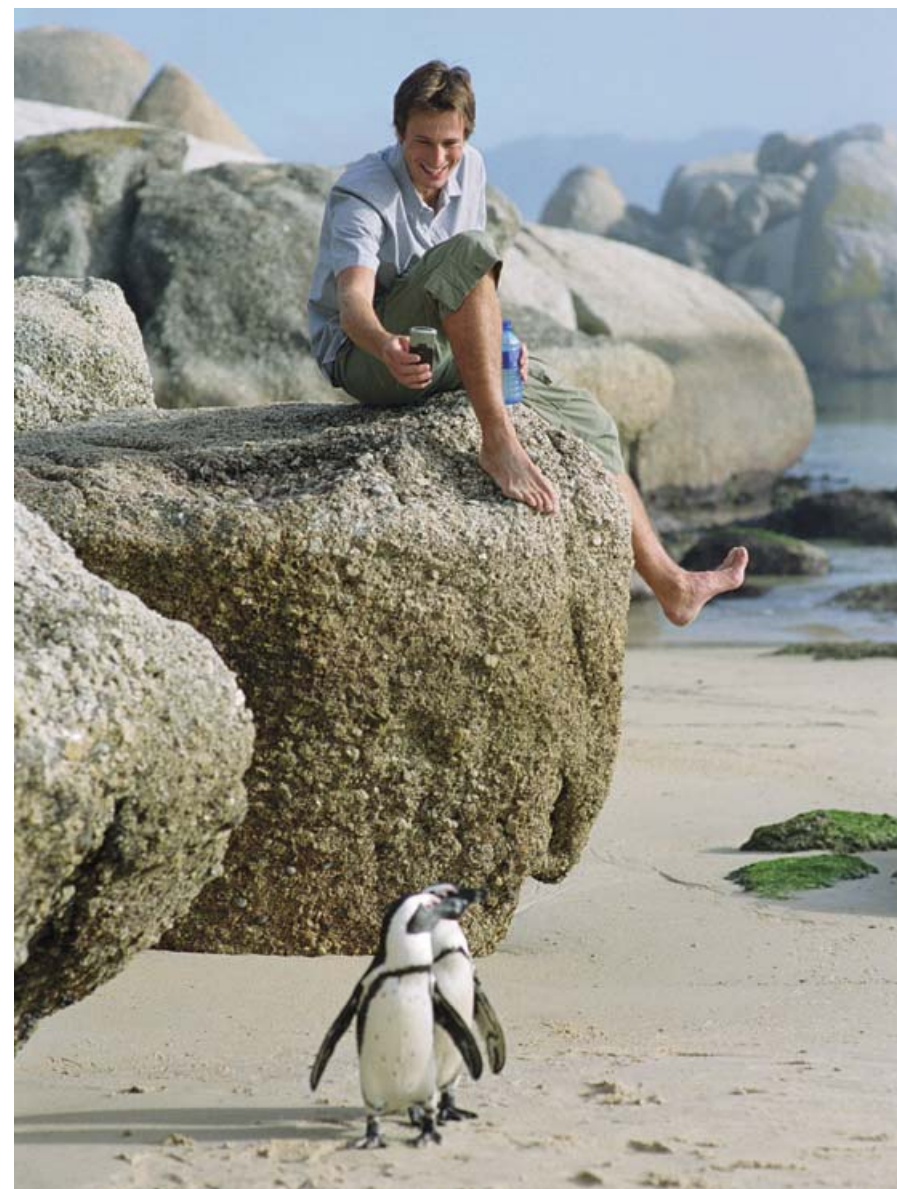
**The new era of messaging**  
**Nokia Multimedia Messaging Solution**

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# Capture the market with multimedia messaging

Multimedia Messaging Service (MMS) will be the most important service that will provide operators as well as content and services providers, a new source of revenue today and in the 3G market. MMS service take-off will be stimulated by three fundamentals: consumer acceptance, interoperable and standard-based technologies as well as a simple pricing model. The success of SMS has already demonstrated the importance of consumer acceptance by showing what happens when an application is widely available on easy-to-use terminals from different manufactures and on different interconnected networks, using a simple pricing model where consumers only pay a fixed fee per message sent.



MMS is a person-to-person and application-to-person standardised messaging service, providing the ability to send and receive messages using a combination of text, audio, graphics, image, animation and video, between mobile terminals as well as between terminals and content servers. Today SMS is the primary profit-generating mobile data service. By building on the success of the SMS business model, multimedia messaging has strong potential to become a mass-market mobile data service, appealing to all existing SMS consumer segments and expanding the limits of service.

To ensure the smooth introduction of MMS in the market, in February 2002, leading telecommunications companies announced the foundation of an Interoperability (IOP) Group for MMS, defined and approved by the Third Generation Partnership Project (3GPP) and the WAP Forum. The MMS Interoperability Group seeks to encourage a broad and open industry adoption of MMS, thus enabling consumers to enjoy a well-defined, end-to-end service. The group has already defined a joint version of an MMS Conformance Document.

Nokia sees MMS as the key application for operators to succeed in the messaging market and thus leading to their entry into the 3G market. MMS can be used in various situations whether it is business or leisure and it meets the needs of many consumer segments. It promotes market development by introducing new consumer benefits in understandable steps. Consumers can add different elements to one message such as text with a picture and a audio clip and send it immediately to their friends. The possibility of taking a picture and immediately sending it gives the consumer an opportunity to share an important moment with friends or family. This opportunity can be extended for business use where a photograph can be annotated with text or explanations and sent instantly back to the office.

## A complete service offering

Sharing fun and entertainment is what can be expected from MMS for consumers. MMS will offer consumers a richer experience and richer content types: colour images, audio/video clips while maintaining the fundamental features that have made SMS an indisputable success. With Nokia MMS Solution an instant and "click to see" culture will be maintained with no requirement for retrieval from a network centric server. Dialing a voice mail system and navigating through a user interface will not be necessary anymore. For example, voice messages in the form of voice clips will be delivered directly to the terminal satisfying the desire for an instant messaging culture.

MMS is a bearer independent standardised service; consumers do not have to be concerned with network delivery issues or the recipient's terminal capabilities. The Nokia MMS Solution ensures delivery in adherence to the 3GPP standards. Nokia MMS Solution will provide consumers a seamless user experience by enabling new mobile services.

Succeeding in the messaging market for operators, means having a well-integrated solution that provides them with a majority of messaging channels including e-mail, call completion and MMS.

Nokia MMS Solution provides a service platform to put operators on the fast track to revenue by enabling "Ready to go" services, through instant service provisioning and activation. The Nokia MMS Solution comprises of: high capacity multimedia messaging complemented with personalised profiling options, large file transfer, multiple terminal category support and media storage which is at the heart of a rich application offering.

Additionally Nokia MMS Solution offers seamless MMS interworking with email. As a result, this makes the target market bigger than the initial MMS terminal market, thus making MMS a mass-market service. The next generation of voice messaging services will be offered in the form of multimedia call termination with voice clip messages delivered directly to the mobile phone. Operators will have the tools to provide a wide range of innovative services supported by an abundance of new charging scenarios and thus having a competitive edge in the mobile market.



## Long term storage of messages

The ability to store messages and have sufficient memory capacity in your phone is of paramount importance to most consumers, today. With Nokia MMS Solution, consumers can store their messages in the network, thus freeing up the memory on their MMS phones, and keeping their messages long-term in their Personal Album. The Personal Album may be accessed either via a web interface or a WAP interface.

Subscribers can compose and send MMS using Personal Album service, browse existing stored messages, retrieve a previously stored messages from the Personal Album onto the MMS phone and forward a retrieved message to either an email address or another phone (MSISDN address). It is also possible to delete MMS from Personal Album using either WAP or web interface.

Subscribers with non-MMS capable terminals can also subscribe to message album as a MMS subscriber and get their own personal inbox for MMS messages and be able to create and send MMS messages from the web. This possibility enables easy familiarising for the service and increases likelihood of upgrading to a MMS terminal.

For operators, the solution enables them to deliver messages to all mobile users thus fueling the growth of multimedia messaging. Operators will be able to maintain customer loyalty and increase revenue by ensuring message delivery.



## Personalisation through profiles

Being able to personalise your mobile service offerings is another feature expected by most mobile subscribers. Nokia MMS Solution enables operators and mobile users to manage as well as personalise multimedia messaging content through profiles. Operators can easily manage service packaging and access control of their multimedia messaging services and the rest of their non-voice mobile service offering.

With personal and group profiles, mobile users have the possibility of personalising individual services to better suit the way they are regularly used. In addition, mobile users get greater control and flexibility in deciding how they want to send, receive, and bar MMS messages. For example, to prevent credit losses, prepaid subscribers accessing high-value services can be barred if they have reached the limit of their prepaid account threshold, which is stored in their profile. On the other hand, subscribers may control the delivery of their identity and location information to origin servers and lock unwanted push services or MMS messages (based on the sender). Subscribers could also set their preferences, for example, for diversion of large MMS messages directly to email or another phone number.



## Accessing your multimedia messages

Providing support for non-multimedia phones users to access their MMS messages is an essential service when launching MMS. Nokia supports non-MMS phone users to view multimedia messages via a web interface. The non-MMS phone user will receive SMS notification informing them about the new MMS (showing the URL, password and username).

Non-multimedia phone support will increase the number of subscribers who are able to receive multimedia messages and this will enable MMS to reach critical mass earlier. This service will enable non-MMS phone subscribers to participate in multimedia messaging from day one and decrease the barrier for purchasing MMS phones.

On the other hand, by converting message formats, Nokia MMS Solution enables mobile users with MMS phones to send messages to the Internet and receive messages sent from the Internet, instantly. The sender can be confident that the receiver will see the message sent, while with the mailbox based solutions there can be a degree of uncertainty whether the receiver has downloaded the message or not.

The MMS Solution converts the email attachment to fit the capabilities of the multimedia phones. Operators and subscribers are able to control the number and type of messages that are sent to the multimedia phones. Subscribers can communicate with their friends and family on the Internet via their multimedia terminal.

The increased number of people that a multimedia phone owner can send messages to and receive messages from will promote the usage of MMS. Consequently, the revenue stream will be positively affected, the payback time will be reduced and the Return on Investment for MMS will be increased.

## Instant delivery of voice messages

It has become evident that there are an increasing number of subscribers who do not retrieve their voicemail messages. As the rate of message retrieval decreases, so does the rate of call completion. Rather than leaving a message that may not be retrieved, callers are disconnecting and sending SMS messages, with the confidence that the instant push assures their message is received. In both instances operators lose revenue.

Nokia MMS Solution reverses this trend by offering voice messaging services in the form of multimedia call termination with voice clip messages delivered directly to the terminal. This call answering service is based on a store and forward application. Callers can now maintain the convenience of leaving voice messages with the added confidence of knowing the message will be received, increasing call completion and therefore voice minute revenue. Furthermore, storing voice messages on handsets simplifies additional actions taken on messages such as reply and forward.

## Jump start your services

Configuring your phone with new service settings can be daunting for many subscribers who do not necessarily have the time or skills to do it. This tends to result in low usage rates for new and advanced services.

Nokia MMS Solution takes into consideration the importance of convenient service activation. The MMS Solution enables operators to offer easy phone configuration for mobile phone users through various possible provisioning initiation methods. Mobile users can conveniently get the key service settings and start using the services right away.

The solution provides automatic over-the-air provisioning and management of mobile phones. In addition, it can speed up roll-out of new services and significantly reduce the costs of providing technical support for subscribers trying to configure their mobile phones. The operator and mobile user can provision single phones, however, with mass provisioning it is possible to modify the service settings of even a large number of terminals with a single request.

Service activation can also be done at the point of sale thus creating more revenue to retailers. Furthermore, it helps mobile operators and service providers increase the usage rates of multimedia messaging services, thus increasing the revenue of these services.

## Differentiate your service offering with rich content and push services

Nokia MMS Solution enables operators to offer mobile users easy access to useful services by the use of short messages or by browsing the Internet with either WAP or from a PC. The pull option enables the end user to request for information while the push option allows the operator to provide services where the information is pushed to the



end user depending on the time or the content. Interesting MMS content stored on the Internet can be accessed in seconds and can range from headline news with a picture and audio clip and cartoon-of-the-day to CD reviews and real estate pictures and floorplans. With user self-provisioning, consumers can even subscribe to personalised push services via SMS or WAP on their mobile phone or via any standard Web browser.

In addition, operators have access to a wide range of MMS content services developed by content service providers registered with Forum Nokia. Forum Nokia provides information and tools needed to develop applications using the technologies Nokia's products support, such as MMS. Nokia Tradepoint, Forum Nokia's business-to-business e-marketplace, offers new business opportunities for both buyers and suppliers of mobile services. Nokia Tradepoint makes it easy to trade mobile applications and content.





## Charging for multimedia messaging services

A well defined pricing structure for multimedia messaging services is important for operators who want to win the confidence of consumers. Consumers should feel comfortable that the costs of MMS in their phone bills are predictable. Most operators already have a customer care and billing system for managing subscribers and rating, charging and billing for circuit switching mobile services. In some cases these can be modified. However, the functionality of these systems is often limited and it is difficult to modify them according to the requirements of the new access methods and services.



Nokia Charging Solution provides an easily adaptable and flexible framework for charging mobile data services. The Charging Solution is a charging and prepaid service status management system for GPRS/3G access and content/messaging services. With pre-built functions and the ability to build additional components, it provides a standard, easily adaptable and flexible framework for MMS charging. The predefined interface from Nokia MMS Solution helps reduce the time and costs associated with the integration and maintenance of the two solutions in the operator's network.

## Launching multimedia messaging services

Hitting the ground running with MMS is the key to successfully launching MMS services today. Nokia can facilitate this by enabling operators to plan, deploy, integrate, optimise and maintain commercially successful MMS services,

thus boosting their network usage and ARPU. The Nokia MMS Planning Service ensures successful introduction of MMS into existing network infrastructure. Nokia's planning service is the necessary step before implementation as it provides the operator with the right link capacities and correct configuration and parameter sets. The MMS Planning Service consists of the following deliverables: MMS and GPRS (GSM or 3G) system architecture and rollout plan; inter-site traffic and connectivity plan; detailed site solution plans; and connectivity plans to external networks.

Nokia offers a range of consulting services related to MMS to enable operators to fully utilise the market opportunities. Through Nokia's experience in expanding and upgrading live networks and replacing network elements in multivendor environments, our project and partner management teams can orchestrate deliveries across borders and continents, thus deploying the MMS Solution quickly and easily.



On February 20th 2002, Sonera, the Finnish mobile operator, and EMT of Estonia successfully demonstrated the first ever international MMS roaming and interconnection between their respective commercial GPRS networks. The demonstration was performed end-to-end using multimedia messaging service centers (MMSCs) from Nokia, as well as latest generation GPRS handsets from Nokia and other manufacturers

The successful implementation showed that mobile subscribers can send multimedia messages and experience seamless, uninterrupted multimedia messaging service when roaming to a visited network. The achieved user experience is all the more impressive for the fact that the GPRS networks and handsets were supplied by different vendors.

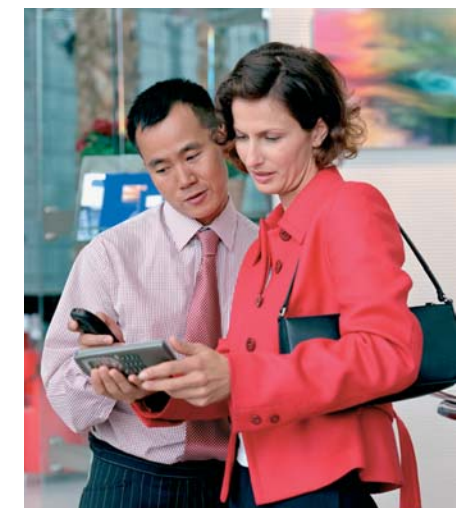
Moreover, Sonera and EMT demonstrated, also for the first time anywhere, how multimedia messages can be sent between the subscribers of different operators. This breakthrough underscores that MMS is ready for business and will be widely available across networks, thus making MMS a mass-market service.

Besides integrating the system for innovative MMS services and creating a customised solution to satisfy both your business needs and your customer's expectations, Nokia can also optimise networks for quality MMS services. Nokia GPRS Network Survey, which is a modular package of services, tools and competence development for surveying, analysing and improving the configuration and performance of a GPRS network, helps operators to evaluate the performance of their GPRS network, so they can make the most of MMS. In addition, Nokia offers maintenance services to keep the MMS Solution running at peak performance as well as training services to keep personnel competence up to date with GPRS and MMS technology.

## Now is the time for multimedia messaging!

Nokia MMS solution is now mature for implementation. Given its pivotal position in both SMS and Picture Messaging, Nokia is well positioned to offer first-mover benefits to leading operators and consumers. Already now, MMS is interoperable with current SMS devices, and there are application interfaces for content providers. Nokia MMS also has the potential to become a mass market service as Nokia expects that half of terminals shipped by Nokia at the end of 2002 to be MMS capable, and in 2003, MMS will be an integral feature in new Nokia phones.

Based on good end user understanding, extensive mobile device and infrastructure expertise, Nokia provides a complete Multimedia Messaging Solution, including MMS capable mobile phones and network infrastructure.



Along with the perpetually quickening pace of development in every technological field, the right MMS strategy should be created now. With the right strategy, operators can be first to market and start gaining valuable market experience. Nokia is ready to show you how you can make MMS a reality today.