PROTEI MMSC
## Multimedia Messaging Service Center

System overview

PROTEI MMSC enables GSM operators to provide their customers with a wide range of multimedia messaging services between subscriber handsets, and also between handsets and computers.

PROTEI MMSC also allows subscribers to order multimedia resources from content providers. It supports external WAP gateways and a wide range of standard interfaces, and provides an open interface to external content adaptation and profile management systems. The embedded push-proxy gateway allows easy integration with a third-party SMSC.

MMS messages sent from the mobile terminal come to the operator's MMSC through the WAP-gate. The recipient handset's capabilities are determined on the basis of information from the subscriber profile subsystem.

If the recipient's mobile phone is MMS-enabled, the MMSC sends a special short message (WAP-push) through the operator's SMSC containing a WAP-link to the address where the MMS message is stored. On receipt of the WAP-push message, the recipient's mobile handset sends a request for the message and finally the MMSC delivers the MMS message to the addressee.
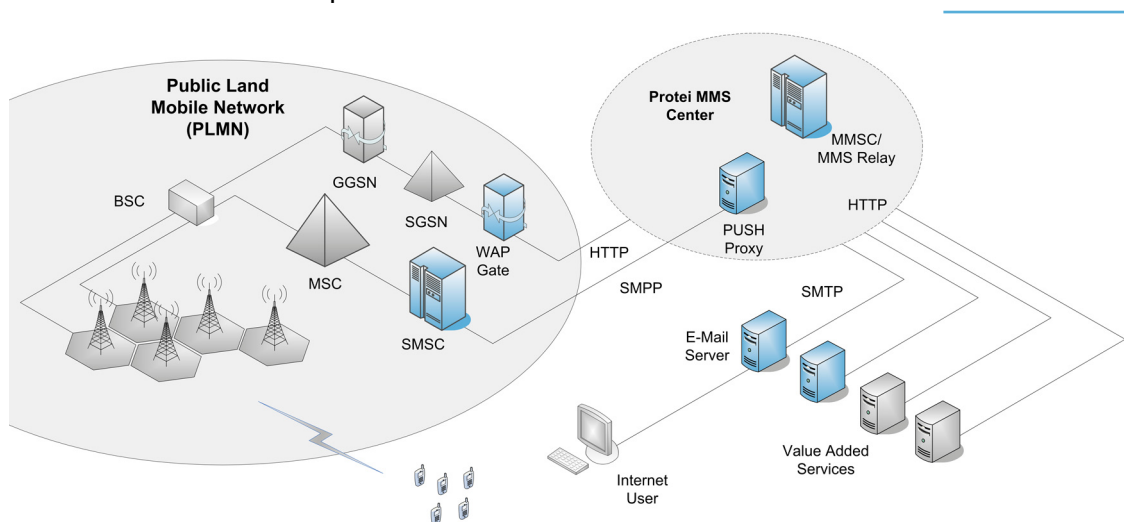
PROTEI MMSC also allows MMS messages to be sent to a recipient whose phone does not support MMS.

The MMS center saves the message as a web page and sends the recipient an SMS-message containing the URL of the page where he can view the message.

A range of additional features increase system functionality and ease of use:

• **Powerful profile management tools** automatically update subscriber profiles on the basis of information taken from MMS transfers. Profiles can include information about the subscriber's terminal features (maximum message size, MMS-capable, etc.). On the first successful attempt at sending an MMS, the user's profile is updated to 'MMS-enabled';

- **Open interface** for integration with external content adaptation system for message conversion into format suitable for recipient terminal;
- **MMS intercept function** allows MMS traffic to be distributed between several MMSCs by a number of routing criteria for load balancing without the need for subscribers to change WAP settings in their mobile handsets;
- **Message forwarding service**: the subscriber can order MMS forwarding to another mobile number or to an e-mail address;
- **External email server interface** (SMTP-gate).

Technology overview

MMS is an evolution of SMS-technology which has been a great success all over the world. It is expected that MMS will bring operators the same benefits in 2.5 and 3rd generation networks as SMS has in 2nd generation networks.

MMS technology allows not only text messages, but also graphics, facsimiles and/or audio information to be transmitted over mobile networks. MMS messages can be simply a text file with attachments, or photo, audio and text components can be synchronously replayed to form a unified multimedia presentation.

Video formats are also supported. Mobile phones, PDA and PCs can all be used in MMS exchange.

Subscribers of mobile networks supporting MMS services can order multimedia resources from content providers. To provide these services, the content provider's database requires connection to an MMSC.

MMS technology is independent of the data bearer type. MMS messages can be transferred over existing GSM networks (via WAP), over GPRS networks, and over 3rd generation networks (WCDMA).

There are no tight restrictions specified for data types used in MMS messages although certain formats are recommended, including: US-ASCII for text information, JPEG and GIF for graphics, MPEG 4 for video, I.C, MIDI and WAV for audio, and AMR for speech.

MMS messages can even be sent to subscribers whose mobile handsets do not support MMS. An SMS notification of MMS receipt can be sent to the handset, with a HTTP or WAP link to a page where they can view the message.
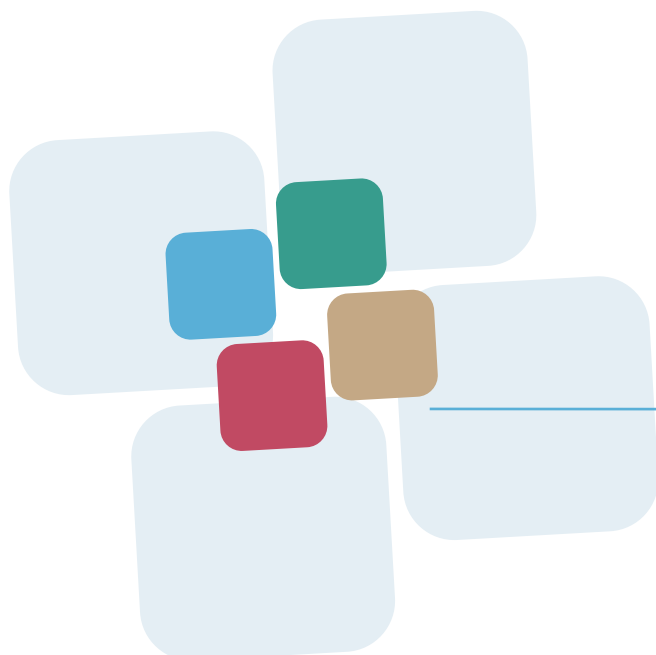
Operators who offer their subscribers MMS services can secure themselves a firm position and competitive advantage in the telecommunications market.

Operator Benefits

- Effective use of GPRS and technological capabilities of 3rd generation mobile networks;
- Increase traffic in advanced networks and provide new, profitable services;
- Provide subscribers with multimedia news on demand or by subscription;
- Offer a wide range of MMS services: interactive videogames via internet, MMS greeting cards, etc;
- MMS for advertising and marketing;
- Market multimedia information and entertainment services, data storage and other Value Added Services (VAS) related to the sale of MMS-content - both, and received from contents-providers;
- The flexibility of MMS gives freedom to create inventive marketing programs, for example subsidizing the cost of MMS services by attaching advertising information to messages.

- **Message receipt.** MMSC PROTEI can receive messages from mobile phones, by e-mail and from web pages;
- **Message delivery.** Messages can be delivered to mobile phones, e-mail addresses or to WEB-pages;
- **Message storage and deferred delivery.** The received message is stored in the system's database until it is either delivered to the recipient, removed by the System Administrator or until the delivery period expires. MMS message delivery procedures are the same as for SMS. Repeated delivery attempts are made according to a predefined delivery scheme. The delivery scheme can depend on the error which arose on the first attempt at delivery (i.e. on delivery of the WAP-push message, or in downloading the MMS-message);
- **Delivery report.** As with SMS, senders can request delivery reports. Delivery notifications can be turned on and off;
- **Message storage on web page.** If the recipient's phone is not MMS-enabled, the message will be saved as a web page and the subscriber will receive an SMS with the page URL;
- **Anonymity service.** MMS messages can be sent completely anonymously;
- **Message forwarding.** The subscriber can request MMS messages to be forwarded to another mobile handset or to an email address;
- **Alias service.** The subscriber can order an alias number (generally with fewer digits than the mobile number) or a nickname. Short numbers can be used for convenient addressing or for concealing a subscriber's phone number from other MMS users;
- **Multiple recipients.** PROTEI MMSC allows multiple recipients;
- **Distribution list.** The message is automatically delivered to all subscribers in the distribution list;
- **Numbering plans.** System supports both E.164 and email addressing plans;
- **Web administration tools.** Convenient web-based administration kit for configuration management, statistical information analysis and CDR viewing;
- **Wide range of standard interfaces:** MM1 for WAP-gate connections; SMPP v3.4 for SMSC connection; MM7 for application connection; MM4 for another MMSC connection; SMTP for connection to external Email servers.