Messaging Center

Complete, scalable, high-performance messaging platform for MNOs

Elitnet's **Messaging Center** provides a complete, scalable, high-performance messaging platform and open interface/API for extended SMS and MMS processing implementation. It manages person-to-person (P2P), application-to-person (A2P), person-to-application (P2A), and application-to-application (A2A) messaging streams.

The product features a modular, distributed architecture, allowing the MNO to implement only the parts necessary for current operating levels and expand the platform with a selection of plug-ins depending on their growing needs.

The Messaging Center is deployed on Elitnet's Agate Telecom Application Server, designed to ensure five-nines (99.999%) availability, horizontal scalability, and zero downtime during maintenance. The Messaging Center can also be deployed in a virtual environment.

Key SMSC Functionalities

Messaging Center features all key SMSC functionalities, such as SMS submit, SMS validation, online charging, TCAP handshake, SMS delivery (first delivery attempt, version downgrade, and concatenated messages), and delivery reports.

Key MMSC Functionalities

Messaging Center features all key MMSC functionalities, such as MMS submit, charging reservation, MMS notification delivery, delivery reports, and MMS retrieval.

Account Type-based Charging

Different charging actions may be taken depending on the message sender's account type. For example, the Messaging Center generates CDRs for postpaid subscribers and sends real-time charging requests for prepaid subscribers.

Routing Rules

Various routing rules may be configured for the sender's number mask, recipient's number mask, and/or sender's VLR. Messaging Center checks these rules before message delivery and can apply a number of fully customizable actions if there is a match.

Sender, VLR, and Recipient Blacklists

Global message sender (blocks from sending messages), recipient (blocks from receiving messages), and VLR (blocks SCCP calling addresses) blacklists may be configured.

Openness to Value-added Services

Messaging Center is open to implementation of additional VAS and uses rules to route messages to respective VAS. Examples of VAS which may be implemented include SMS Archive, SMS-to-Email, and Information/Entertainment VAS.

The Messaging Center consists of the following key elements: two Messaging Application Servers (SMSC and MMSC), WAP Gateway, Database, and Provisioning Tools.

The central point of the Messaging Center are the Messaging Application Servers (Messaging AS). The solution contains two Messaging AS – SMSC and MMSC. Each of them contains a range of Resource Adapters used to connect with other network components as well as external clients.
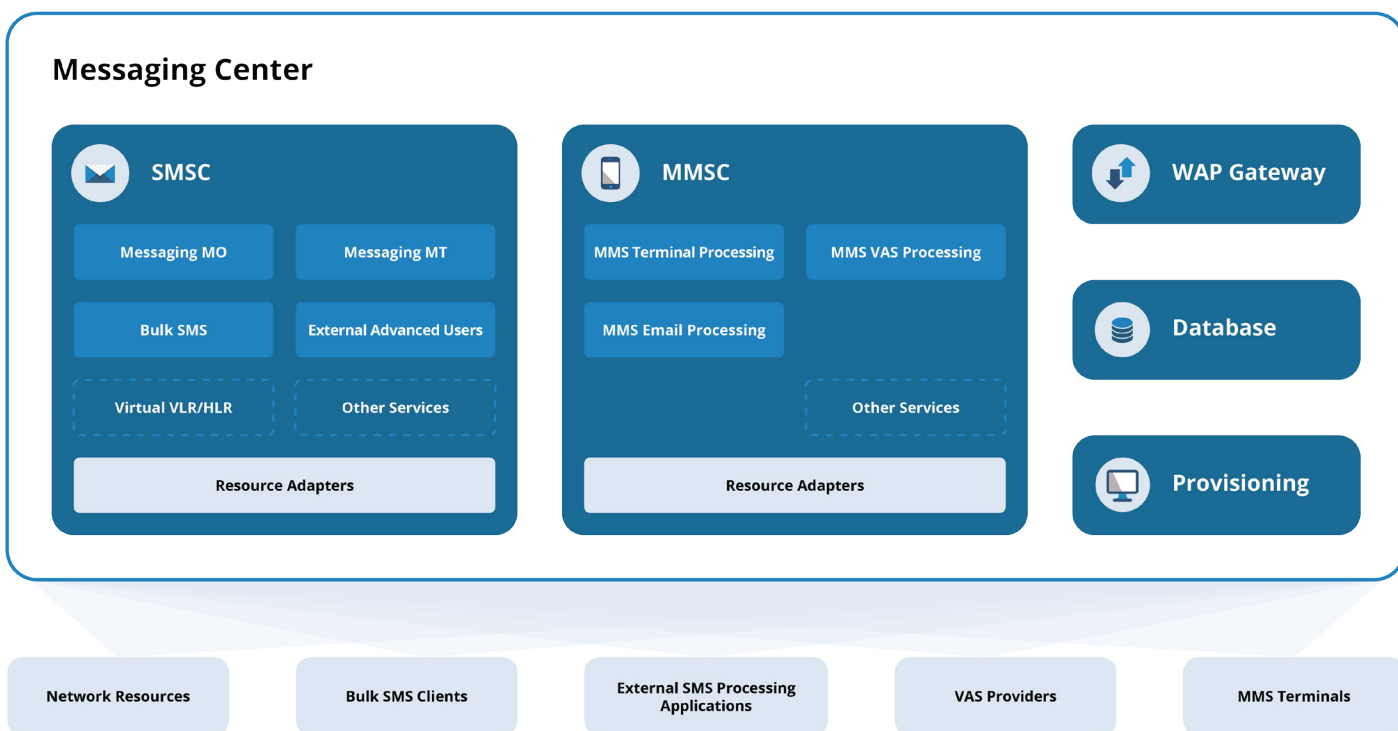
SMSC

The SMSC Messaging AS contains the following services required for SMS delivery, processing, validation, and other functionalities:

Messaging MO. The Messaging Mobile Originated service handles outbound messages, delivering them to on-net or off-net phones or applications.

Messaging MT. The Messaging Mobile Terminated service handles inbound messages, delivering them to the operator's subscribers.

External Advanced Users. The service allows external SMS processing applications to connect to the SMSC and send and receive messages to/from on-net and off-net subscribers.

Bulk SMS. The service allows external clients to send bulk SMS messages to on-net and off-net subscribers via SMPP and SOAP interfaces.

Virtual HLR / VLR (optional). The Virtual Home Location Register / Visitor Location Register is a reference database for subscriber parameters such as subscriber ID, MSISDN, billing details, etc. This service is required for incoming SMS support.

MMSC

The MMSC Messaging AS contains the following services used for MMS delivery, processing, validation, and other functionalities related to MMS messages:

MMS Terminal Processing, responsible for terminal-to-terminal MMS delivery.

MMS VAS Processing, responsible for terminal-to-VAS and VAS-to-terminal MMS delivery.

MMS Email Processing, responsible for terminal-to-email and email-to-terminal MMS delivery.

WAP Gateway

The WAP Gateway component of the Messaging Center serves as a gateway between the subscribers' MMS Terminals and the MMSC. It connects to the MMSC component via the MM1 interface.

The component connects to the AAA server via the RADIUS interface to retrieve the mapping of relationships between the MSISDN and the end-user's IP address. The WAP Gateway also connects to the network's GGSN to receive WAP traffic.

Features and Functionalities

Elitnet's Messaging Center encompasses the following features and functionalities:

Resource Adapters. The Messaging Application Servers contain a wide range of Resource Adapters (RAs) which are used to connect with other services within the network as well as external clients and applications. The RAs can also be used to implement additional custom value-added services.

The full list of provided RAs depends on the operator's requirements and may be customized.

The following RAs are available off-the-shelf for SMSC: MAP, Diameter, CDR, SMTP, SNMP, SIP, SOAP/REST, SMPP, and JDBC. The available RAs for MMSC include MM1, MM3, MM4, MM7, Diameter, CDR, SMTP, SNMP, SOAP/REST, SMPP, and JDBC.

Network Integration. All Messaging Center components connect to various network infrastructure components and external clients.

In addition to its main functionalities, the product is open for integration of various messaging platforms and can be easily expanded with interfaces required for support of messaging services in LTE and other networks.

Charging/Billing Integration. CDRs and the Diameter interface are used to connect to the operator's charging system. Two connections are provided between each Messaging Center node and the charging system to ensure high availability.

Monitoring Integration. Messaging Center uses the SNMP interface to connect to the operator's monitoring system.

Subscriber Profile Storage. For MSISDN lookup, the SMSC and MMSC components connect to the storage which stores the subscriber profile information via SOAP or JDBC.

Third-party Service Providers. In addition to SMPP and standard SOAP connections, a custom SOAP interface may also be used to connect to external SMS processing applications of third-party service providers.

Administration GUI. The Messaging Center contains an admin graphical user interface (GUI) with the following key functionalities:

- Subscriber Management
- Stored Message Management
- Routing Rule Management
- Account Type-based Charging Logic Configuration
- Blacklist Management
- External Client Management
- Bulk SMS User Access Management
- Charging Configuration

Statistics and Reporting. Messaging Center uses the open-source Elastic Stack (also known as the ELK Stack) for gathering of system statistics and report generation.

The Elastic Stack is a separate node which collects CDRs sent by each of the messaging application server nodes.

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