

# SHORT MESSAGE SERVICE CENTER FOR 2G/3G NETWORKS

Modulo's Short Message Service Center (SMSC) is a carrier-class high-performance SMS Center for GSM/UMTS networks with features for **MNOs**, **MVNOs**, and **Fixed Line Operators**. Our SMSC offers intelligent handling of SMS traffic in 3G GSM/UMTS networks. It is a fully scalable, software-based, cloud-ready network element, which enables simple and cost-effective deployment as well as fast and easy dynamic scaling. The Modulo SMSC supports virtualization - It can run on any standard linux system, on any standard server hardware, or on any cloud server. SIGTRAN support allows for easy deployment across the next generation mobile networks.

## SMSC For Mobile Network Operators

Due to the meteoric growth in mobile data usage, OTT communication apps have caused revenue from SMS services to significantly decline. However, it remains a basic service every MNO has to offer. Modulo's SMSC is a full-featured yet cost-effective solution for handling SMS traffic on the mobile network.

## An Ideal Choice For MVNOs

For small MVNOs who wish to have their own SMSC and not depend on backing MNOs for SMS services, Modulo's SMSC is the perfect choice. It allows virtual network operators with a relatively small subscriber base to set up their own SMSC while only incurring affordable entry-level costs.

## Fixed Line SMSC

Our SMSC includes a Gateway Home Location Register (GHLR), which provides fixed line networks the ability to send and receive SMS messages. The GHLR also includes SMS Home Routing capabilities for handling inbound SMS traffic, directing it to an SMS router that can act as a firewall and perform actions like copying and forwarding of messages, sending automatic replies, and more. This allows fixed-line operators to create revenue from SMS services!

# MAIN FEATURES

- HTTP REST API for interaction with external applications
- Store and Forward
- CDRs
- Retry Plans
- Binary SMS (e.g. for device configurations)
- Concatenated SMS
- Service Statistics Log
- Alarm Logging with SNMP support
- Multi Language Encoding for text messages (GSM 7 bit, Unicode, UTF-8, UCS2)
- Distributed scalable architecture
- Supports multiple redundancy schemes (Active/Active, Active/Standby, 1+1, n+1...) with load balancing
- Can connect using either TDM or IP (SIGTRAN)



## Extensions via an HTTP API

Our SMSC has an easy-to-use HTTP API, which provides unlimited flexibility in regards to developing additional services based on the SMSC. This enables any web developer to create specialized SMS-based services for the Mobile Operator, such as:

-  **Blacklist** - blocking SMS traffic from specified sources
-  **Web Integration** - Sending SMS messages from a website
-  **Number portability**
-  **Filter/Firewall** - Protecting subscribers from SMS spamming
-  **The Possibilities are Endless!**

## Database-Less Solution

Databases are expensive. Licenses for database software are expensive on their own, especially with the cost of support services. As opposed to many other SMSCs out there, our solution does not require a database (though it can work with databases if necessary). Modulo has created an SMSC that is not only more robust and more easily scalable than traditional database-based SMSCs, but this feature makes it even more cost-effective.

## SMSC For Business

Our SMSC provides mobile operators with the ability to offer value-added services in the field of enterprise connectivity with SMPP, such as:

- Dynamic switchover of traffic on the availability of SMPP connections to SMSC
- Routing rules management on the basis of destination address
- Delivery reports for submitted SMS
- Routing rules management per SMPP client
- Administrator controlled access for ESME to a SMSC connection
- Bulk SMS by HTTP/SMPP
- WAP Push

**Organizations can use our SMSC for SMS Marketing: to promote sales, conduct polls, advertise events, and much more.**

# FUNCTIONAL SPECIFICATIONS

## Host

General purpose server with Linux OS

## TDM Interface

PCIe E1/T1/J1 adapter with MTP2 software

## IP Interface to Local Area Network

M3UA, M2PA, M2UA over SCTP

## IP Interface to Local Area Network

HTTP RESTful API

## SS7 Links

4 to 256 LSL

## SIGTRAN Associations

Up to 1024

## E1 Interfaces

4 to 16 per machine

## MSU/s

Up to 30,000 MSU/s

## Protocols

### MAP Protocol Support

- GSM 09.02 (TS 100 974)
- GSM 29.002

### MTP Protocol Support

- ITU-T Q.700 through Q.707, Q.781, Q.782, Q.791
- ITU-T Q.703 Annex A - "Additions for a national option for high speed signaling links"
- ITU-T Q.704 - MTP Restart
- ANSI T1.111-1992 Message Transfer Part

### SCCP Protocol Support

- ITU-T Q.711 through Q.714
  - Connectionless - Class 0 and 1
  - Connection-Oriented - Class 2
- ETSI ETS 300 589
- ANSI T1.112

### TCAP Protocol Support

- ITU-T Q.771 through Q.774, X.680, X.690
- ETSI ETS 300 134, ETS 300 287
- ANSI T1.114

### SCTP Support

- RFC2960
- RFC3309

### M2PA Support

- RFC4165 (final version)
- RFC4165 (draft version 9)

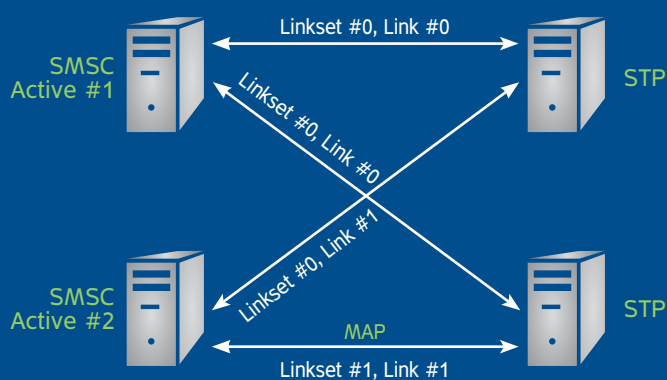
### M3UA Support

- RFC3332

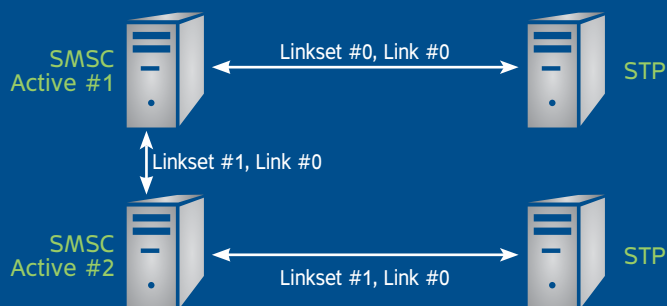


# ARCHITECTURE

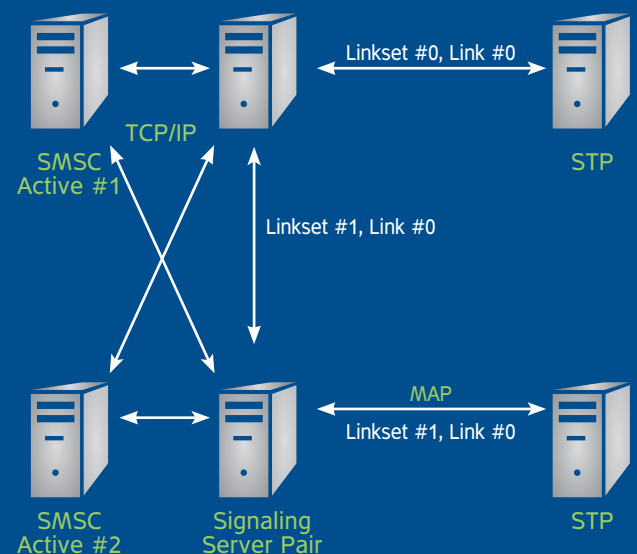
## Shared Linksets Mode



## Combind Linksets Mode



## SMSC Deployed With Signaling Servers



# APPENDIX

## Supported MAP Operations

- HLR Interface for MT SMS
- MSC interface for MT SMS
- SMSC interface for MO SMS
- MAP-ReportSMDeliveryStatus
- MAP-ReadyForSM
- MAP-AlertSC
- MAP-DeliveryReport

## Supported SMPP Operations

- BIND
- UNBIND
- GENERIC\_NACK
- SUBMIT\_SM
- SUBMIT\_MULT
- DELIVER\_SM
- DATA\_SM
- QUERY\_SM
- CANCEL\_SM
- REPLACE\_SM
- ENQUIRE\_LINK
- ALERT\_NOTIFICATION

## SMPP Interface features

- 255 Max SMSC connections over SMPP
- Message redirection to SMPP
- CDRs
- Dynamic switchover of traffic on the availability of SMPP connections to SMSC
- Administrator controlled access for ESME to a SMSC connection
- Routing rules management on the basis of destination address
- Routing rules management per SMPP client
- Delivery reports for submitted SMS.
- WAP Push
- Binary SMS (Config SMS, OTA SMS, etc.)
- Handling of SMS bulk
- Data coding schemes: GSM7BIT, UTF-8, UNICODE, UCS2

## ABOUT MODULO C.S.

Modulo Communication Systems Ltd is a Telecom Solution Center. Modulo provides customers with the best and most cost-effective modern and converged telecom solutions in the market.

Modulo specializes in mobile-network technology, including specifications such as LTE, WebRTC, IMS, and Diameter, as well as legacy protocols such as 3G/UMTS, GSM, SIP, SS7 and Analog protocols. We provide services in design, development, integration, QA, maintenance and training for standard or customized telecom solutions, based on the most competitive off-the-shelf telecom products from market-leader suppliers.


Our services vary from simple reselling to fully-customized solutions through delivery, support, solution design, integration, development, maintenance, training and more.


### For more information

For more information about the product, contact our sales team at [www.modulo.co.il/contact](http://www.modulo.co.il/contact).


### Modulo Communications Systems Ltd.

 14 Imber St. Petah Tikva  
49514, ISRAEL

 +972.72.274.4000

 +972.3.774.1114

 [sales@modulo.co.il](mailto:sales@modulo.co.il)

 [www.modulo.co.il](http://www.modulo.co.il)

