

# Overview

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# GMLC

GMLC stands for Gateway Mobile Location Centre enables you to offer Location Based Services (LBS) to mobile subscribers in GSM and UMTS network.

In one PLMN (Public Land Mobile Network), there may be more than one GMLC. The GMLC is the first node an external LCS client accesses in a GSM or UMTS network. The GMLC may request routing information from the HLR (Home Location register) or HSS (Home Subscriber Server). After performing registration authorization, it sends positioning requests to either the VMSC (Visited Mobile Switching Centre), SGSN (Serving GPRS Support Node) or MSC (Mobile Switching Centre) Server and receives final location estimates from the corresponding entity.

## GMLC Session

GMLC establishes a real time session between the mobile handset and the application handling the service and the information from the mobile handset is sent directly to the service. The concept of a real time session is very useful for constructing an interactive menu driven application. Refer to the figure below depicting the working of a real time session.

A user dialing an GMLC service number (short code) initiates a dialog with the GMLC handling application deployed on the Restcomm Platform as shown in the above figure. The "Network Node" in the figure could be a MSC, HLR or VLR. The Restcomm Platform integrates with the "Network Node" using the MAP protocol.

## MAP Message Flow

The diagram below depicts a typical MAP message flow for data transfer between the "Network Node" and the Restcomm platform to implement a menu driven application. If you would like to read more about mobile-initiated (and network-initated) GMLC operations and the use of MAP GMLC services, please refer to [3GPPTS 24.090] in the references section.

GMLC service begins when the network send an HTTP (GET/POST) request tp GMLC Gateway. The message flow involves the following steps:

1. The Network sends a 'TCAP Begin' message with the Component 'ANY\_TIME\_INTERROGATION\_REQUEST' to the Restcomm platform. The Restcomm platform invokes GMLC application logic.
2. The HLR receives the mobile msisdn.
3. Based on the msisdn, the HLR performs the predefined logic and sends a response back to the GMLC Gateway by 'ANY\_TIME\_INTERROGATION\_REQSPONSE' and terminates the 'TCAP dialogue'.

## GMLC Gateway

Existing MSC, VLR, and HLR network elements are proprietary and run on non-standard operating

environments located in trusted operator's zones that make it difficult to build and deploy new applications. Also, these network elements do not provide the tools and interfaces needed to access and retrieve data from content providers over the Internet. The GMLC Gateway connects to the MSC, VLR, or HLR and enables the flow of GMLC messages to be extended to an open, standards-based application server located in the IP network. The AS also provides the tools and interfaces to enable access to the content providers through the Internet.

# Restcomm GMLC

## Major Features

Restcomm 's implementation of GMLC Gateway is the first and only open source GMLC Gateway with a host of rich features and advantages.

### *Java-based*

Restcomm GMLC is the only Java based GMLC Gateway. It is robust and reliable and can be installed on any Operating System that supports Java (JDK 7 and SCTP).

### *Open Source*

The Software is open-source, giving you the freedom to understand the code and customise it to your enterprise needs. It is supported by a vibrant Open source community.

### *Carrier Grade Performance*

Restcomm GMLC has been deployed at telecom operators around the world and is processing billions of GMLC transactions each day. A single RestComm GMLC node can process 1500's of GMLC/sec and can be adapted to the needs of telecom service providers of different sizes in any country reducing your CAPEX and OPEX costs.

### *Cloud Ready*

Restcomm GMLC is Cloud-ready. It can be deployed on dedicated hardware, private cloud infrastructure or public IaaS such as AWS.

### *Network Push*

Restcomm GMLC supports network/application/service initiated GMLC request. The request can be just HTTP PUSH.

### *SS7 Hardware Cards*

Restcomm GMLC can be used with Intel family boards (Dialogic SS7 cards) or Zaptel/Dahdi compatible TDM devices (Digium, Sangoma). For production its recommended to use Dialogic boards only.

### *SIGTRAN (M3UA)*

It also has in-built support for SIGTRAN (M3UA using SCTP).

### *HTTP interface*

HTTP interface is a common interface that can be used for connection with service applications.

### *Easy Configuration and Management*

Restcomm GMLC comes with an efficient Command Line Interface (CLI) tool allowing you to completely configure the Gateway at run-time and manage it using simple commands rather than do everything manually. Restcomm GMLC also comes with a Graphical User Interface that will allow you to configure, monitor and manage the Gateway through a convenient user-friendly interface.

## **Technical Specifications**

Restcomm GMLC is not restricted by Transaction Per Second model. The only restricting factor is memory + CPU capacity of the host servers, third-party applications or the underlying database service.

- Restcomm GMLC supports as many as 1073741823 incoming and 1073741823 outgoing concurrent sessions/dialogs.
- Restcomm GMLC supports unlimited E1 links and the only limiting factor is the underlying TDM board used.
- Restcomm GMLC SCTP supports as many associations as supported by the underlying Operating System. Can be setup in multihome.
- Restcomm GMLC M3UA can be configured to have as many ASP's / IPSP's as needed by the system.
- Restcomm GMLC SCCP can be configured to have virtually unlimited Global Title Translation rules and also supports wild characters for partial matching of Global Title digits.

## **HTTP Transfer Mechanism**

The Restcomm GMLC Gateway makes use of HTTP protocol between the gateway and the third-party applications (or Value Added Service Modules). Restcomm GMLC Gateway receives the GMLC request from the third-party applications and then translates these requests to SS7 MAP and route to a corresponding HLR. The HTTP callback mechanism allows the third-party Application to be agnostic to Operating System, Programming Language and Framework. The third-party Application can be either of the following technologies on any Operating System:

- Apache Tomcat, JBoss AS, Oracle Application Server, IBM Websphere etc for JSP/Servlet on Java
- PHP
- Microsoft IIS for ASP