TELGAT

MOBILE QUALITY MONITOR

End-To-End QoS Monitoring System

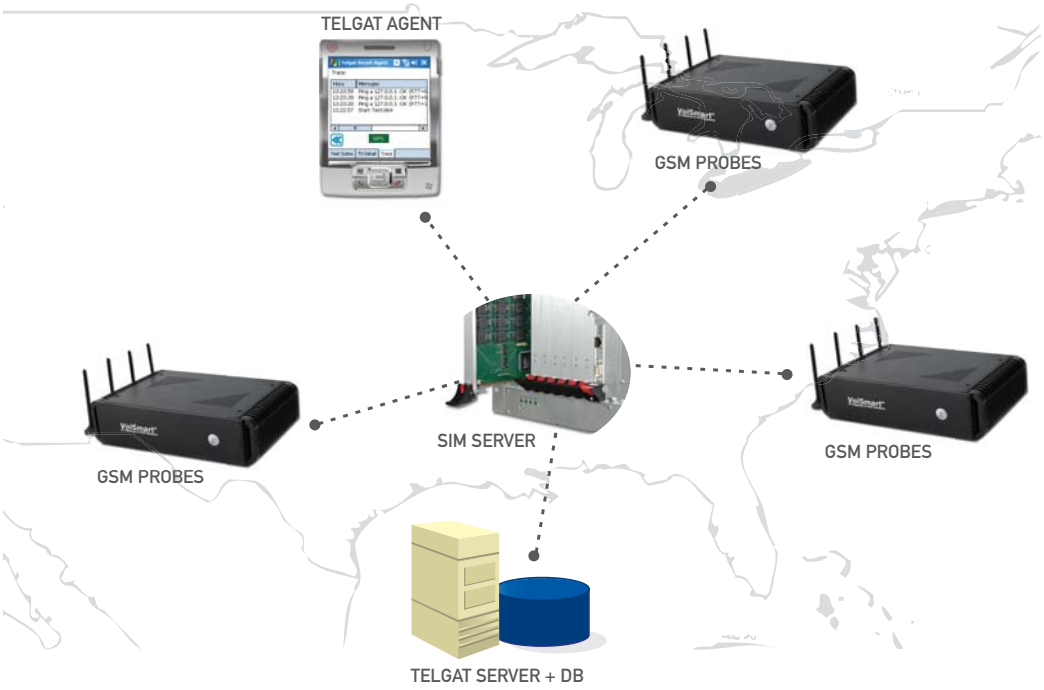
ISO 9000

ADECEF

www.telgat.com

TELGAT MOBILE QUALITY MONITOR OVERVIEW

Telgat-MQM is an End-to-End QoS monitoring system of value added services - SMS, MMS, GPRS, VIDEO -over GSM/CDMA/EDGE/UMTS networks. The system allows defining, generating and analyzing traffic, in order to obtain a configurable set of kpi's, traducing the end user experience. Time, carrier, and locations may be used freely to reproduce business cases and detect service faults. A powerful datamining module makes analysis an easy and quick task. Roaming tests (registration, location update, etc) can be executed without disturbing the QoS scheduled traffic.



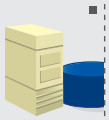
BENEFITS

- Increase customer satisfaction through a reduction in the time required to detect problems that impact the service.
- Reduce operation costs through constant monitoring of services, testing and reports.
- Increase carrier visibility, providing real time network operation notifications.
- Information about service quality for the end user in defined use cases (time frames, locations, carriers)
- Fault point detection. Interacts with other OSS systems for unified diagnostics (OSI-standard compliant)
- Reduced time and risks related to network expansion thanks to comprehensive and programmable testing capabilities

Central sim management and storage

Telgat Mobile Agent with gps capabilities

Probes are distributed to test VAS quality on different locations



Telgat Server centralized data access and management

AVAILABLE MODULES

SMS

- Simulation of real subscriber behavior
- Protocol test GSM 07.07 spec MO / MT
- Multipart SMS and EMS support
- Access delay MO
- Check SM Service functionality at peak times
- E2E transmission time measurement

MMS

- Detailed test reports incl. WAP WTP/WSP decoding
- Throughput UL/DL
- MM to legacy handset tests
- WAP 1.2 and 2.0 support
- MO/MT transmission of multipart MMs
- Segmentation and reassembly supported
- Logging of all relevant timestamps

WAP/DATA

- FTP and PING over GPRS/HSDPA
- Configurable ftp server
- PDP context and session time
- Throughput and ICMP echo reply
- Transfer time uplink
- Testing of WAP and HTTP portals
- Mobile Emulation (User Agent String Support)

CALLFLOW

- Testing of portals based on Voice and DTMF flows
- Configurable flows by means of VoiceXml scripts
- Operation validation (credit charge, etc)
- Execution of automated call lists
- Stress Tests

MESSAGEFLOW

- Testing of portals based on SMS flows
- Configurable flows by means of VoiceXml-like scripts
- Reading and validation of responses
- Stress Tests

VIDEO

- Comprehensive solution for video perceived quality analysis, under PEVQ algorithm
- Objective MOS Video Quality result values from 1-5 (bad, poor, fair, good, excellent).
- Additional indicators are provided for further cause analysis.
- Remote and centralized analysis software
- Telgat interface for test suite scheduling and deployment

PRODUCT DESCRIPTION

PROBES

- Industrial fan less computer rack 19" and 2U.
- Embedded Linux OS
- Up to 4 GSM interfaces with real or virtual SIMs, four analog/Voip lines and 1 UMTS.
- Technological evolution guaranteed thanks to the use of standard modems approved by regulation agencies.
- IP connectivity with Telgat Server and central SIM storage.
- Use of own proprietary and registered GSM stacks: every byte can be logged for analysis.
- Full compatibility with Voismart (R) GSM gateway.

SIM SERVER

Telgat MQM integtrates a SIM Server allowing sim's distribution to probes over IP. The SIM's storage is done by module cards which can contain up to 32 SIMs each. Different capacities available, from 1 to 7 sim boards with 32 sim slots each one. Sim-to-interface mapping is accomplished by means of a very intuitive GUI.

OSS ARCHITECTURE

Telgat MQM's system was designed following the OSI/ITU recommendations for network managers, as voiced in the TMN forum.

This concept allows easy integration with the client's OSS architecture systems, at both QoS and Fault levels. It main features are the following:

- Architecture distributed in logical layers
- Intensive use of telecommunications industry's standards protocols: xML, CMIS, GDMO, SNMP, HTTP, SQL
- X733 alarm standardization, dynamic structure of attributes, status, and correlation rules (inventory management)
- Upgradeable by adding GSM Agents or probes
- 100% web-based client, very user friendly
- Transparent use for several areas of the corporation (quality, testing, fraud prevention, roaming, etc.)

DATA MINING

Test results are fed into a data warehouse which makes it possible to obtain service quality indicators.

Thanks to the use of OLAP technologies, the system may provide different levels of analysis: time, outgoing carrier, incoming carrier, location, delays, etc.

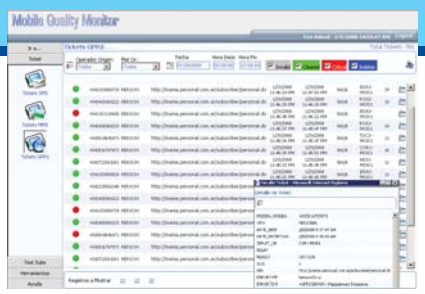
Results are analyzed through data mining technologies, which allow for a deep analysis of the information generated.

CONFIGURABLE KPI'S

A flexible data model allows building proprietary indicators, which can then be automatically be exported to centralized dashboards. Some of the standard kpi available by default with the application are: Success rate, Delivery Time, Throughput, MOS (PEVQ), DTR, ICMP echo reply and many others.

VOIP

- Interfaces: GSM/GPRS Um, UMTS Uu, VoIP, LAN/WAN
- Objective MOS Voice Quality result values from 1–5 (bad, poor, fair, good, excellent)
- Customer specific audio reference files are easy to ingrate
- PESQ algorithms are applied on each probe.



"LEADING E2E QOS TESTING"

PRODUCT HIGHLIGHTS

- E2E SMS/MMS/GPRS traffic definition, execution and validation from different points within the network. Calls to mobile/fixed telephones, roaming, home/alternative registration, location update, etc.
- Automated testing of DTMF, SMS and IVR portals availability and performance.
- Continual monitoring of service quality by cross-referencing the data from several locations and carriers. Programming flexibility for automated use cases.
- SIM central storage and distribution through IP networks to remote probes for test roaming purposes.
- Full log byte per byte analysis of any call, allowing real errors tracking and diagnosis.
- Automatic detection and notification of alarms in real time: carrier alarm, system failure, robot down, X.733 alarms correlation.
- OLAP data warehouse for further analysis of QoS obtained, making it possible to cross-check the performance results between different carriers, locations and time frames.
- Easy to implement, easy to use, easy to maintain.

SUCCESS STORIES

Telgat MQM is build around Telgat NGOSS Network Manager framework. Many important operators like Orange and Telecom Argentina deployed Telgat technology for network supervision purposes.

Telecom Personal (TIM subsidiary) deployed Telgat MQM to monitor VAS under E2E perspective. A complete set of KPI's are produced, through almost 100 interfaces running test cases for all VAS services of the company: SMS, MMS, WAP, HSDPA as well as inbound roaming tests.

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