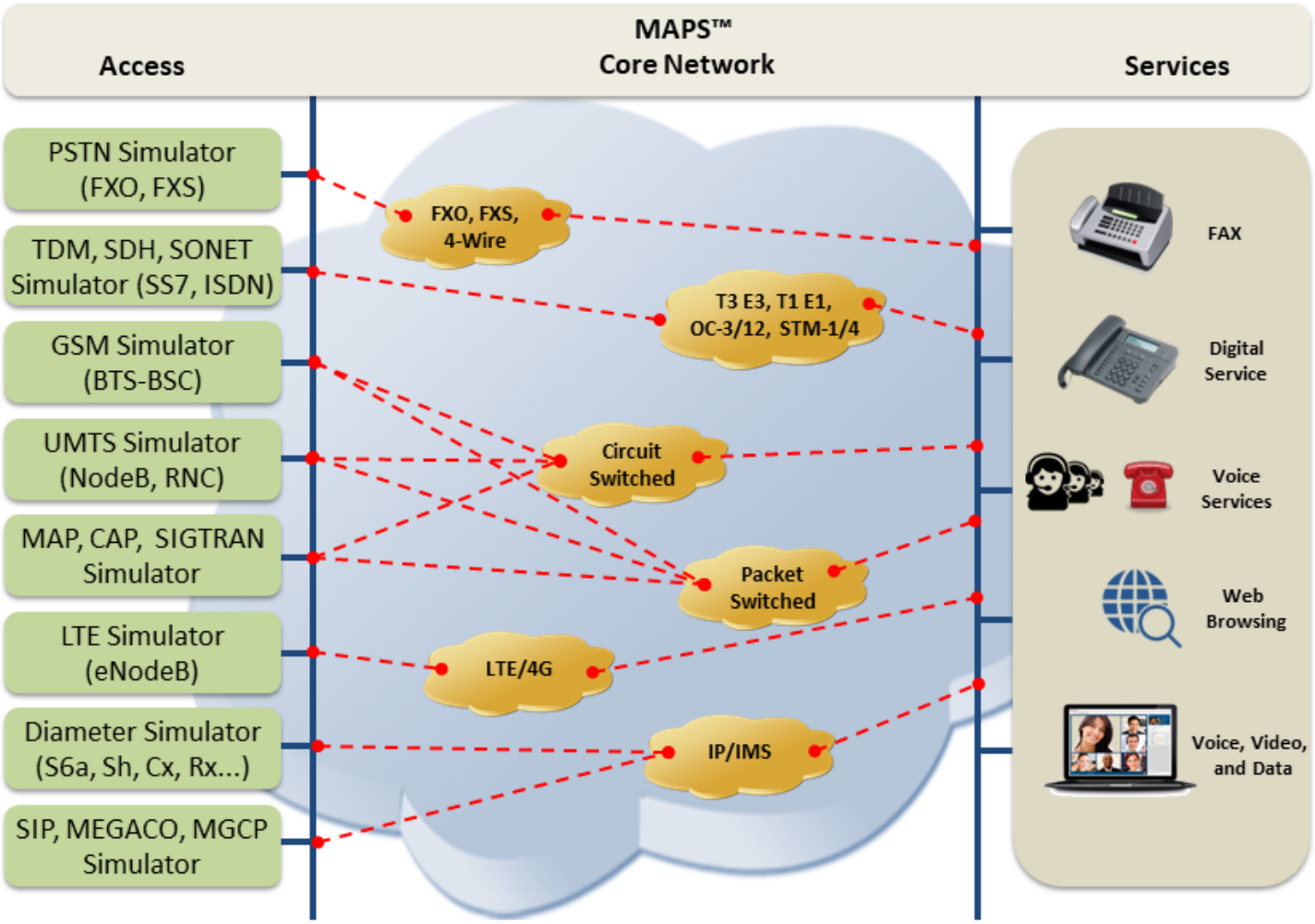
# Bulk Call Generators for TDM, VoIP and Wireless Networks




## Overview

Testing network performance with high call volume is extremely important to Wireless Carriers, Internet Service Providers, and Equipment vendors: to ensure that quality of experience does not degrade with call intensity, volume, protocol or traffic; that heavy loads, and stress do not degrade stability or scalability of the network, during pre- and post-deployment; that advanced features and services are not compromised due to call intensity or call volume.

Stress and loading processes can help test and simulate worst case scenarios and provide confidence that the network will continue to function under such conditions. Bulk Call Generators require an advanced network appliance which can generate and sustain high volume of calls with heavy traffic. If VoIP, then packets must be generated and output with high precision timing, zero packet loss and in the proper order.

GL offers automated, scripted, multi-user, multi-protocol, high capacity Bulk Call Generators. MAPS™ (Message Automation and Protocol Simulation) platform is the basis for all signaling protocols and for traffic generation – whether voice, tones, digits, fax, data, or video. MAPS™ covers legacy PSTN, next generation VoIP, and Wireless equipment, interfaces, and networks as depicted. Interfaces can be Analog, TDM, Ethernet 10/100/1000/10,000, or Wireless. Some of GL's Bulk Call Generators for various technologies: TDM, VoIP and Wireless

- **MAPS™ High Density (HD) for Wireless (GSM, UMTS, LTE, CDMA) Networks**
- **MAPS™ High Density (HD), RTP ToolBox™ and PacketExpert 10G™ for IP/VoIP Networks**
- **MAPS™ for CAS, FXO FXS, ISDN, SS7, MAP, CAP, INAP, BICC protocols in TDM Networks**

For more information, please visit Bulk Call Generators webpage.


GL Communications Inc.

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## Applications

- Load PBX, Switch, Gateways/Routers
- Test IVR, Voice Mail, VoIP phones
- Generate/Accept tens & thousands of calls
- Voice, Fax, Digits, Tones, Data, Video traffic generation
- Automate Regression testing
- Feature testing
- Remote operation
- Scripting: Python, TCL, CLI, TestShell, HP ALM
- Voice, Data Quality, Quality of Service

## Call Generation Capacity per Appliance

The following lists the products across TDM, IP/ VoIP, and Wireless networks and the call generation capabilities on a multicore system. These performance numbers are associated with a particular codec, while other codecs may provide higher call densities.

| Product | Call Generation Capacity/Appliance |
|---|---|
| MAPS™ FXO FXS (32-bit only) | Hundreds of FXO, FXS, Analog calls |
| MAPS™ TDM (ISDN, SS7, CAS) (32-bit only) | Hundreds of T1's and E1's support<br>Direct OC-3/STM-1 OC-12/STM-4 (10's)<br>Direct T3 E3 (10's) |
| MAPS™ SIP | 1600 (scales up to 100K to 200K simultaneous calls with multiple probes) |
| PacketGen™ - SIP (32-bit only) | 1000 (scales up to 2000 simultaneous calls) |
| MAPS™ SIP I | 1600 |
| MAPS™ GSMA | 1100 |
| MAPS™ MAP | 4400 |
| MAPS™ INAP | 2400 |
| MAPS™ ISUP SIGTRAN | 3500 |
| MAPS™ LTE S1 | 1500 |
| MAPS™ Diameter | 1000 |
| MAPS™ UMTS GnGp | 6000 |

MAPS™ High Density (HD) for Wireless can be configured to generate bulk calls over GSM, UMTS, LTE, and CDMA networks. MAPS™ High Density (HD) or MAPS™ provides a reliable integrated solutions for simulation, monitoring, troubleshooting any Wireless 2G, 3G and 4G Mobile Networks in the lab.

MAPS™ High Density (HD) for IP/VoIP Platform supports SIP, SIP-I, MEGACO, MGCP, SIGTRAN, MAP, CAP, INAP, BICC, and similarly other protocols. This network appliance provides a modular and flexible solution to generate real voice calls using industry standard voice codecs.

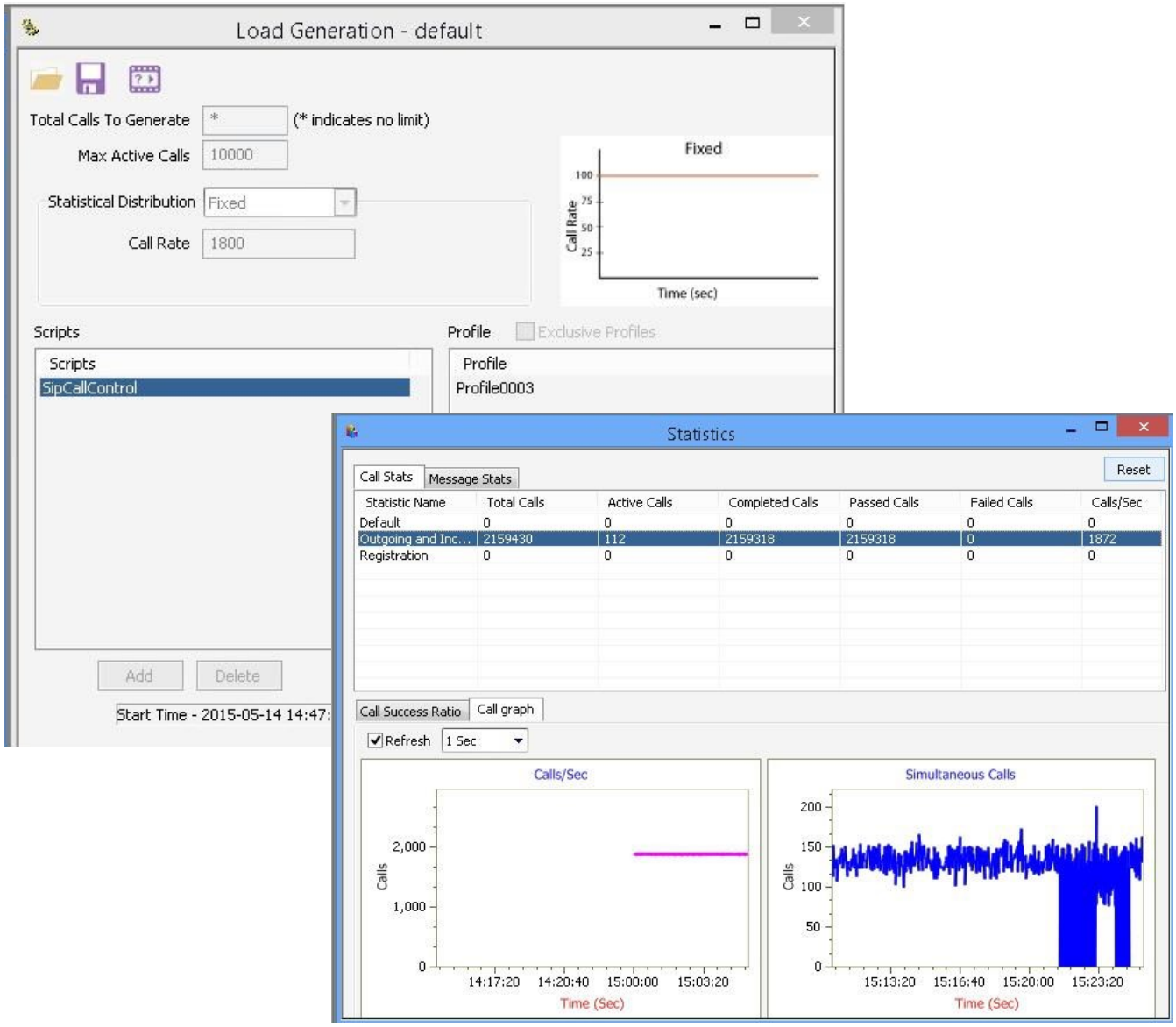
RTP ToolBox™ is another GL's testing tool for IP/VoIP Platform capable of RTP traffic simulation. Various statistical reports are provided for the packets transmitted on a session including Packet Loss, Jitter, Delay, Quality Metrics, Signal Level, Call, Echo Return Loss and others.

MAPS™ for TDM is also capable of generating high volume of calls with Octal T1E1 Cards, and establish traffic over variety of protocols CAS, ISDN, SS7, FXO FXS, MAP, CAP, BICC, INAP, GSM.

# Bulk Call Generation and Analysis Feature

Bulk Call Simulation allows quick configurations to easily create different test scenarios with scripts and profiles. These tests can be run simultaneously or sequentially (queue up tasks in succession).

MAPS™ also includes extensive statistical and graphical features to help visually analyze the bulk call generation. Graphs for Call Success Ratio, and Call Status are plotted in real-time.



# Buyer's Guide

| Item No | Product Description |
|---|---|
| PKS109 | MAPS™ SIP HD |
| PKS120 | MAPS™ SIP Emulator |
| PKS126 | MAPS™ SIP I Emulator |
| PKS101 | SIP Core (additional) |
| PKS102 | RTP Soft Core for RTP Traffic Generation |
| PKS160 | MAPS™ UMTS-IuCS/IuH |
| PKS124 | MAPS™ MGCP Protocol Emulation with Conformance Test Suite |
| PKS122 | MAPS™ MEGACO Emulator |
| PKS130 | MAPS™ SIGTRAN Emulator |
| PKS139 | MAPS™ Diameter Emulator |
| PKS140 | MAPS™ LTE S1 Emulator |
| PKS142 | MAPS™ LTE eGTP (S3, S4, S5, S8, S10, S11 & S16) Emulator |
| PKS141 | MAPS™ LTE X2 AP Emulator |
| XX648 | MAPS™ ISDN Emulator |
| XX649 | MAPS™ SS7 Emulator |
| XX651 | MAPS™ CAS Emulator |
| XX624 | MAPS™ FXO FXS Emulator (only for tProbe™) |
| XX692 | MAPS™ GSM A Emulator |
| XX693 | MAPS™ GSM Abis Emulator |
| XX694 | MAPS™ MAP Emulator |
| XX696 | MAPS™ CAP Emulator |
| PTE001 | tProbe™ Dual T1 E1 Laptop Analyzer with Basic Analyzer Software |

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