Ethernet/IP Test Solutions

- **Hardware Based**
  - PacketExpert™ - 4-port Ethernet, VLAN, MPLS, IP, UDP Tester
  - Multiport PacketExpert™ - 24-port, and 12-port Ethernet, IP Tester
  - PacketShark™ - Handheld GbE Packet Capture, Filter, and Aggregation tap
  - PacketProbe™ - embedded CPE based VoIP monitoring Probe
  - IPNetSim™ - Ethernet, IP Network Impairment Simulator
  - IPNetSim™ Handheld - Ethernet, IP, WAN Network Emulator
  - Media Gateway
  - SIP and RTP Core Emulation for Voice Quality Testing and Analysis (VQuad™)

- **Software Based**
  - PacketCheck™ - Software Ethernet Tester
  - PacketGen™ - SIP Bulk Call Generator
  - PacketH323™ (H.323 Single Call Simulator)
  - Traffic Simulation
  - PacketScan™ - All-IP Signaling and Traffic Analyzer
  - NetSurveyorWeb™ - Centralized Network Monitoring System
  - MAPS™ - Packet Protocol Simulator
  - Fax and Modem Decode and Analysis using GLInsight™
  - Storage and Analysis of SIP Calls using CDR

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Packet Test Platforms

**PacketExpert™ - 4-port Ethernet, VLAN, MPLS, IP, UDP Tester**

PacketExpert™ is a portable (USB based) Quad Port Ethernet, VLAN, MPLS, IP, UDP Tester with 4 Electrical Ethernet Ports (10/100/1000 Mbps) and 2 Optical Ports (1000 Mbps). Each port supports independent testing such as Wire speed BERT, Smart Loopback, and RFC 2544. BERT is supported on Layer1, Framed Ethernet (Layer2), Stacked VLAN (Q-in-Q), Stacked MPLS (Layer 2.5), IP and UDP.

With the capability to generate/receive traffic with stacked VLAN (Q-in-Q) and stacked MPLS, PacketExpert™ finds use in testing a wide range of networks – from testing individual links/switches, testing LAN, WAN, Core/MPLS networks, and much more.

For more details, refer to [http://www.gl.com/packetexpert.html](http://www.gl.com/packetexpert.html)

**Multiport PacketExpert™ - 24-port, 12-port Ethernet, IP Tester**

12 Port / 24 Port PacketExpert™ offers higher densities form factor solution for emulating GigE traffic and network conditions. Each port supports auto-negotiation and flow control. The chassis comprises of both electrical and optical (fiber) interfaces. Electrical ports can operate at 10/100/1000 Mbps line rates in Full Duplex mode, while Optical ports can operate at 1000 Mbps line rate in Full Duplex mode only.

The Multiport PacketExpert™ can be easily deployed and securely fixed to an equipment rack, and provides extraordinary scalability for testing across various environment.
Packet Test Platforms

**PacketShark™ - Handheld GbE Packet Capture, Filter, and Aggregation tap**

PacketShark™ is a handheld hardware that can tap packet networks, capture Ethernet packets at wire speed, i.e., in optical or electrical interfaces up to 1 Gb/s and selectively filter the captured traffic based on specified criteria. It supports all the features of high-end taps in a small, battery operated instrument, weighing less than 1.2kg to provide mobility and storage capacity to reach any point of the network. It is an invaluable tool for on-field packet capturing from two interfaces simultaneously, analyzing 100% streams without any delays, and filtering/aggregating required packet streams at wire speed.


**PacketProbe™ - embedded CPE based VoIP monitoring Probe**

PacketProbe™ can be integrated and embedded into intelligent third-party network devices like Routers, Bridges, WAN Terminators, or Firewalls. PacketProbe™ can be also deployed as a standalone Probe within networks at strategic locations for passive traffic monitoring using port spanning or port mirroring of Ethernet switches or using external network-taps.

In any scenario it passively monitors VoIP traffic and produces real-time per call and per-stream voice quality metrics necessary for network administrators to isolate and diagnose voice quality problems. Multiple PacketProbes™ can provide network wide voice quality visibility through GL's [PacketScanWeb™](http://www.gl.com/packetscanweb.html) or other NMS systems.

For more information, visit [http://www.gl.com/packetprobe.html](http://www.gl.com/packetprobe.html).
Packet Test Platforms

IPNetSim™ 10G – WAN IP Link Simulator

GL’s IPNetSim™ (IPN501, IPN505, IPN510) IP WAN Link Emulators help to test the performance of WAN network-dependent applications by emulating all the WAN conditions in a local setup easily and cost effectively. The IPNetSim™ 1G application has a multi-stream capability (16 bidirectional unique streams) and bidirectional aggregate traffic capacity of 1 Gbps.

IPNetSim™ 10G application has a multi-stream capability (4 bidirectional unique streams) and bidirectional aggregate traffic capacity of 10 Gbps.

For more information on IPNetSim™ IPN510 Series, refer to http://www.gl.com/ipnetsim.html.

IPNetSim™ Handheld – Ethernet, IP, WAN Network Emulator

GL’s IPNetSim™ Handheld (IPN701) is a hand-held battery operated instrument that can simulate the real-time IP and Carrier Ethernet network dynamics by means of hardware controlled packet delay, loss, jitter, errors, bandwidth limitations, congestion, and duplication.

IPNetSim™ Handheld offers to manage network behaviors of up to 1 Gbps rates with accuracy always better than 1ms. IPNetSim™ Handheld is equipped with hardware based impairments generator, and dual GbE ports.

For more information, visit http://www.gl.com/ipnetsim-handheld-wan-emulator.html.
Packet Test Platforms

Media Gateway (PKS150)

GL’s **Media Gateway (MG)** supports traffic and signaling testing of VoIP and TDM networks. The Media Gateway combination provides user friendly bulk call generation, scripting, and other automated call generation and reception for various voiceband traffic types including voice, fax, and modem traffic. It can be connected to any TDM or IP Phone, softphone, VoIP or TDM PBX, or TDM or VoIP Network / Cloud. Media Gateway supports a variety of different TDM and VoIP protocols. Support for VoIP includes SIP, H.323, Megaco, MGCP, and T.38 fax. Support for TDM includes ISDN, SS7, and CAS.

For more information, visit [http://www.gl.com/dcoss_voipsolution.html](http://www.gl.com/dcoss_voipsolution.html)

Voice Quality Testing and Analysis (VQuad™ SIP)

GL’s VQuad™ with VoIP option, along with VQT, provides the ability to perform manual or automated tests on the VoIP network. The VQuad™ provides direct connection to the VoIP network with up to eight instances connected simultaneously. VQuad™ with Dual UTA / VQuad™ probe provides the ability to test ATA’s and Softphones while connected to the VoIP Network.

- Manual or Automatic call control (SIP protocol) with user-defined parameters for authentication and proxy
- Automatic send/receive voice files over already established calls

For more information, visit [http://www.gl.com/ipsoftphonetesting.html](http://www.gl.com/ipsoftphonetesting.html)
Packet Check™ - Software Ethernet Tester

GL's Packet Check™ is a comprehensive PC based Ethernet / IP test tool with BERT and Throughput testing abilities. It is very easy to use as a general purpose network performance analysis tool for 10Mbps, 100Mbps and 1Gbps LANs and WANs.

The application generates multi stream Ethernet/IP/UDP traffic with on-demand bandwidth (up to 800 Mbps) and measures end to end performance such as Byte Error Rate, Total Packets, Packet loss, Out of Sequence Packets, and Erred Packets.

It also includes a Command Line Interface (CLI) to support all the GUI functionalities of Packet Check™ through simple commands, allowing easy scripting and automation of the testing.

For more information, visit http://www.gl.com/packetcheck.html

Packet Gen™ - SIP Bulk Call Generator

Packet Gen™ is a PC-based real-time VoIP bulk call generator (including both SIP signaling and RTP generation) for stress testing and precise analysis of the VoIP network equipment.

Packet Gen™'s distributed architecture allows achieving higher call density by generating more than 1000 simultaneous calls.

For more information, visit http://www.gl.com/packetgen.html
PacketH323™
(H.323 Single Call Simulator)

PacketH323™ is a software based real-time VoIP call generator for providing voice band testing over the H.323 VoIP Protocol. PacketH323™ can generate single calls, either manually or in an automated fashion, and generate an array of traffic once the call session is established. Call Records, Call Statistics, Protocol Events are all captured and displayed to the user in real time. PacketH323™ is fully Client/Server enabled, thus, the user can control PacketH323™ from a remote location either within a Client GUI or a Client Command Line (supports scripting applications). An optional hardware RTP can support real-time voice calls from analog phones, or fax calls from fax machines.

For more information, visit http://www.gl.com/packetH323.html

Traffic Simulation

MAPS™ supports transmission, detection and capture of the following traffic types with the support of necessary hardware - over established calls in:

- Analog and TDM Traffic (digits, voice files, single tones, dual tones, Dynamic VF, FAX, and IVR)
- RTP Traffic (digits, voice files, single / dual tones, FAX, and IVR)
- Mobile Traffic (user-plane GTP and Gateway)
- Short Message Service (SMS) Test Solutions.

For more information, visit http://www.gl.com/traffic-simulation.html
Packet Test Solutions

PacketScan™
All-IP Signaling and Traffic Analyzer

GL’s PacketScan™ is a powerful software tool that provides extensive real-time reporting using graphical charts and statistics of live IP, VoIP, and IP based Video traffic. Hundreds of calls can be monitored in real-time including detailed analysis of selected voice band streams. It captures, segregates, and collects statistics on VoIP calls (H323, SIP, MEGACO, MGCP, T.38, and others). PacketScan™ has the ability to collect vital statistics about calls for theoretically infinite time. The ability of PacketScan™ to capture data is limited only by the hard disk capacity of the PC. It features rich graphics, ladder diagrams and CDRs (Call Detail Records).

Supports monitoring of protocols such as SIP, MGCP, MEGACO, LTE, Diameter including other protocols transported over IP such as ISDN, GSM, UMTS, GPRS, MAP. For more information, visit [http://www.gl.com/packetscan.html](http://www.gl.com/packetscan.html).

NetSurveyorWeb™ (over IP)

NetSurveyorWeb™ (PKV170) is a simple, easy to use Web browser client, with which users can remotely monitor the status of entire IP network with the PacketScan™ probes or PacketProbes™ distributed within network. Whenever a monitored call completes, the probe calculates a variety of quality metrics (MOS, loss, delay, jitter, etc) and sends the metrics to the central Oracle database for storage. This data can then be accessed in real-time from anywhere in the world through NetSurveyorWeb™.

The PacketScan™ is a feature-robust Windows® based software probe that captures and monitors live IP traffic. In the VoIP world, it can monitor and measure SIP, H323, Megaco, MGCP, SCCP, Diameter, T.38 fax, and video calls. With additional licensing, it can monitor 2G, 3G, and 4G protocols over IP network such as GSM, GPRS and UMTS (PKV103), SIGTRAN (PKV105), and LTE (PKV107). For more information, visit [Packet and Wireless Network Monitoring and Surveillance System](http://www.gl.com).
MAPS™ - IP and Wireless Network Simulator (Message Automation and Protocol Simulation)

Message Automation & Protocol Simulation (MAPS™) is a protocol simulation and conformance test tool that supports a variety of protocols such as SIP, SIP-I, MEGACO, MGCP over IP networks and radio signaling protocols such as LTE (S1, eGTP), IMS (Mw, Mi, Mj), Diameter (S6a, S6d, S13, Cx/Dx, Gx, Rx, Sh), and UMTS (IuCS, IuPS, IuH), GSM AoIP, SS7 SIGTRAN, and ISDN SIGTRAN over IP as transport layer.

MAPS™ supports transmission and detection of various RTP traffic such as, digits, voice file, single tone, and dual tones.

GL's MAPS™ client-server application requires additional license, which can be used to perform more complex tasks remotely. Available clients are C++, TCL, Python, and other easy to use scripting languages.

For more information, visit http://www.gl.com/maps.html
Fax and Modem Decode and Analysis over IP using GLInsight™ and FaxScan™

GL Insight™ enables decoding and analysis of pre-recorded modem and fax transmissions. The transmission signals can be recorded from PSTN or IP media. GL Insight™ receives the recorded modem or fax transmissions in one of the two ways:

- As raw signal files (PCM files)
- As IP capture files

GLInsight™ demodulates the raw transmissions and presents the decoded data in an easy to understand format. For more details, refer to http://www.gl.com/glinsight.html

FaxScan™ application is used to process 2-Wire and 4-Wire voice band capture files as well as Win PCAP captures to provide analysis of the T.38 packets, T.30 frames, decode a Fax TIF image, and general call-flow indicators for detail analysis.

For more details, refer to http://www.gl.com/fax-analysis-over-ip-tdm-pstn.html

Storage and Analysis of SIP CDR

Call Data Records (CDR) is the software-based call-processing part of the GL’s Packet Call Capture and Analysis solution.

It forms a complete storage and analysis of SIP calls over packet network. Capture gets triggered when any SIP calls are placed. Called and calling number can be gathered as part of the capture process and attached to the captured file name. During call capture, the following parameters are displayed: Called and Calling User Agent Address, PD Delay, SD Delay, and others.

For more information on SIP call storage and analysis, visit http://www.gl.com/calldatarecords.html