PacketExpert™ - RFC 2544 Testing

The RFC2544 application is designed to perform a test which includes Throughput, Latency, Frame Loss, and Back-to-Back. Similar to BERT, RFC 2544 can be done over Framed Ethernet (Layer2), Stacked VLAN (Q-in-Q), Stacked MPLS, IP and UDP. The application is available as an basic software with PacketExpert™ 1G, a Quad Port Ethernet / VLAN / MPLS / IP / UDP Tester with 4 Electrical Ethernet ports. 2 of the 4 ports can be Electrical or Optical ports, enabling testing on optical fiber links as well. The electrical ports support 10/100/1000 Mbps, and optical ports support 1000 Mbps using SFP. PacketExpert™ 1G is available in portable as well as Rack mount platforms. The portable PacketExpert™ 1G platform supports all the features of high-end taps providing mobility and storage capacity to reach any point in the network.

In Single port RFC 2544 test, the PacketExpert™ allows RFC 2544 specific tests on Port #2 or Port #3. The test is setup such that the traffic is transmitted on Port #2 and the PacketExpert™ at the DUT end can be configured to loop the traffic back on the same port measuring the Tx and Rx time thus calculating the latency. The RFC 2544 test can be run on either Port #2 or Port #3 at a time.

In Dual port RFC 2544 test, the PacketExpert™ allows RFC 2544 specific tests on Port #2 and Port #3. The test is setup such that the traffic can be generated and transmitted on either of the ports (Port #2 or Port #3) and the looped back traffic from the DUT is received on the opposite port validating the test parameters.

For detailed information on PacketExpert™, visit https://www.gl.com/packetexpert-rfc-2544-ber-loopback-testing.html#rfc2544testing

Features

- Throughput, back-to-back, latency and frame loss testing supporting uni-directional and bi-directional traffic between ports
- Supports RFC 2544 on single or dual electrical / optical ports
- Includes various parameter configurations such as Test Selection, Frame Sizes selection, Unidirectional/Bidirectional, Number of trials, Trial Duration, and many more.
- User-defined options to configure various packet header parameters, like MAC addresses, IP addresses, UDP ports, VLAN ID, MPLS Labels, and more.
- Results are displayed in both tabular as well as graphical format.
- Command Line Interface for automated testing and remote accessibility using API clients TCL, C#, Python and MAPS™ Client Server architecture
Global Configuration
Global configuration includes various parameter configurations such as Test Selection, Frame Sizes, Unidirectional/Bidirectional, Number of Trials, Trial Duration, and many more. User-defined options to configure various packet header parameters like, MAC addresses, IP addresses, UDP ports, VLAN ID, MPLS Labels, and others.

Port Level Statistics
Detailed statistics per port are provided. In addition to statistics like Frame Count, Frame Rate, Link Utilization, others are provided based on various categories like Frame Type (Unicast/Broadcast/Multicast, VLAN), Frame Lengths (64, 65-127, 1024-1518, Oversized, Undersized), Protocol Type (IPv4, IPv6, UDP, TCP, ICMP, IGRP, etc). VLAN Statistics (per Stack position), MPLS Statistics (per stack position) are also displayed for the configured stacks.

Global Configuration

<table>
<thead>
<tr>
<th>Port Selection</th>
<th>Minimum Frame Length</th>
<th>64</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max Frame Length</td>
<td>2048</td>
<td></td>
</tr>
</tbody>
</table>

Frame Size

| Quantity | 7 |

Test Procedure

- Throughput
- Latency
- Frame Loss
- Back-To-Back

Figure: Global Configuration (Dual Port)

RFC 2544 Test Results
Results are displayed in both tabular as well as graph format. Supports test report generation in both PDF and CSV formats.

Status – displays test status such as In Progress, Completed, and Aborted. In addition, it displays status of learning frames and test frames for the current trial along with Bandwidth, Frame Size, and Frame Count.

Throughput – Throughput results are displayed in terms of bandwidth (both in percentage as well as Mbps) for each frame size. Graphically, it is plotted as throughput vs frame size.

Latency – Latency values are displayed in terms of microseconds for each frame size. Graphically, the latency value is plotted against frame size.

Back-to-Back – Back-to-Back values are displayed in terms of the burst size (in milliseconds) for each frame size. Graphically, the burst size is plotted against frame size.

Frame Loss – Frame Loss results are displayed in terms of the throughput (in percentage) measured over the range of input rates (in percentage) for each frame size. Graphically, for each frame size, the throughput is plotted against the test rate.

PacketExpert™ is enhanced to support Command Line Interface (CLI) requires additional license CXE100 to access all the functionalities remotely using TCL or Python clients and MAPS™ CLI Server/Client architecture.

The CLI supports all the PacketExpert™ test modules including - All Port Bert, Bert Loopback, All Port Loopback, RFC 2544, Record Playback, ExpertSAM™ and PacketBroker.

Buyer’s Guide
PXE100 – PacketExpert™ 1G
CXE100 – CLI support for PXE100
PXE104 – PacketExpert™ - SA (4 ports) 1G
PXE112 – PacketExpert™ -SA (12 Ports) 1G
PXE124 – PacketExpert™ -SA (24 Ports) 1G
PXE105 – Wire speed Record/Playback 1G
PXE106 – ExpertSAM 1G
PXE107 – PacketBroker 1G
PXE108 – Multi Stream Traffic Generator and Analyzer