



Landslide 2500 GPRS Performance Test System

Product Overview

Spirent Communications' GPRS Performance Test System (GPTS) is the only mobility test tool that simulates real-world traffic models for GPRS mobility core packet data networks. GPTS is part of the Landslide family of test applications that are available on Spirent's proven Landslide 2500 platform.

The GPRS Performance Test System is a comprehensive end-to-end test system that emulates millions of mobile data subscribers, all accessing the wireless network simultaneously via various access models. By emulating all of the key wireless core packet data network elements and combining control plane and data plane simulation, the GPRS Performance Test System provides real-world emulation of millions of mobile nodes in various stages of activation, deactivation, and "hand-off" between cells, all while transmitting and receiving real-world application data.

The GPRS Performance Test System allows GGSN equipment vendors to accurately specify the performance characteristics of their equipment under the real-world conditions experienced in their customers' networks. It also allows service providers to measure the performance

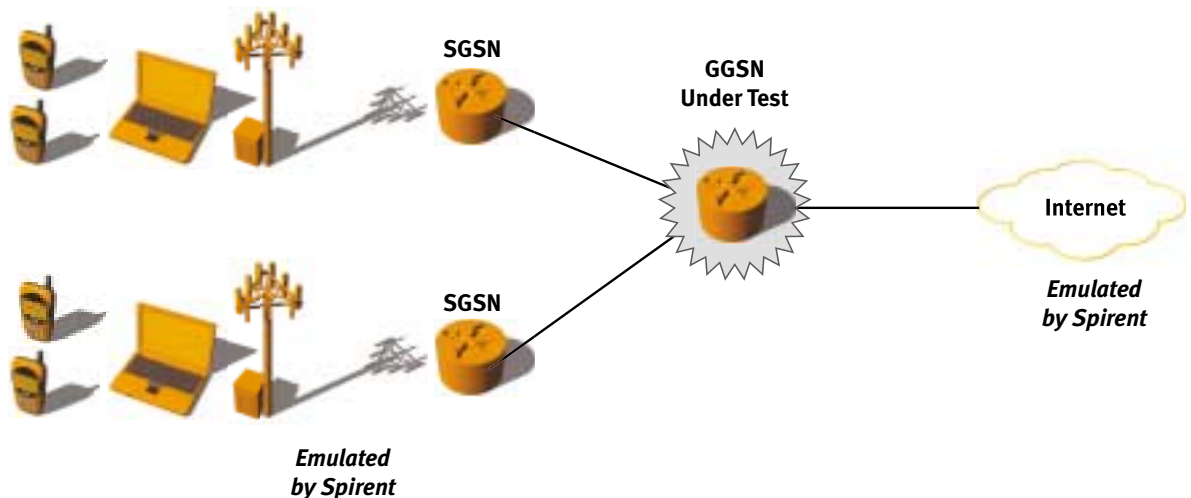
of their GPRS networks and to validate new features and services in the lab. By simulating real users with real applications, the GPRS Performance Test System gives the service provider peace of mind in knowing that the transition from the evaluation lab to the live network will be smooth and free of performance problems.

Unmatched Scalability

The flexible and powerful Spirent Landslide 2500 platform provides the foundation for the GPRS Performance Test System. Its modular high-performance architecture offers unmatched scalability and allows the user to simulate subscriber loads ranging from a small rural town to the largest metropolitan city.

The user controls the GPRS Performance Test System using a standard web browser. The browser connects to the Landslide Manager, which controls one or more Landslide 2500 appliances.

The Landslide Manager supports up to 48 simultaneous users and can control up to 32 Landslide 2500s. With a total capacity of over 12 million simultaneous GTP tunnels and a bearer traffic capability of 4 gigabits per second, the GPRS Performance Test System can scale to stress even the largest operator networks.



GGSN benchmark overview

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Ease of Use

The GPRS Performance Test System features a powerful, easy-to-use graphical user interface that allows a test operator to quickly set up complex test sessions. These sessions can be saved, modified, and reused, allowing quick and easy creation of numerous scenarios covering the various GPRS access models.

Automation Control

The powerful Automation Control feature allows the user to run many test cases simultaneously or serially on multiple Landslide 2500 appliances, creating real-world scenarios for heavy load and long duration stability tests. Just as in a live network, the GPRS Performance Test System can generate variable session rates, mobility events, bearer traffic with application protocols, and error scenarios. These tests can be run continuously for up to 30 days.

Unparalleled Emulation

The emulation capabilities of the GPRS Performance Test System allow the user to test in a variety of network topologies by emulating all necessary network components, including SGSNs (with downstream RNCs and/or BSSs, as well as UEs and Mobile Stations) and Internet hosts. This allows for more effective utilization of lab equipment and reduces the capital expenditure and ongoing support costs associated with a test lab.

Detailed Reporting Capability

The reporting system of the GPRS Performance Test System provides a real-time event log throughout the execution of a test session. In addition, detailed interval reports are provided for each test case that may be viewed with cumulative data or on a per interval basis. The reports include all of the test measurement data, as well as operational measurements for each protocol layer. For test sessions involving multiple test cases, separate reports are provided for each test case, with a summary report detailing the combined results for the test session.

Key Measurements

The GPRS Performance Test System provides a wide range of measurements including:

- Control Traffic Measurements
 - Maximum number of simultaneous activated sessions
 - Maximum session activation rate per second
 - Maximum session deactivation rate per second
 - Maximum Handoff rate per second
 - Maximum rates of external requests and events
 - Maximum session rates
- Data Traffic Measurements
 - Data throughput rate
 - Good packet rate
 - Lost packets
 - Bad packets

Emulation Results

In addition to test reports and protocol measurements, each emulator provides detailed measurements based on its function. For example, the SGSN emulator provides a complete set of operational statistics for its interface to the GGSN under test.

Specifications

Protocol Support

- Gn-GTP, PPPoGTP, IPv4
- Gi-IPv4, RFC 2547bis, RIP v1 and v2, BGP v4
- Stateful Data TrafficæTCP, UDP, FTP, HTTP, WAP, ICMP (PING), SMTP, Raw

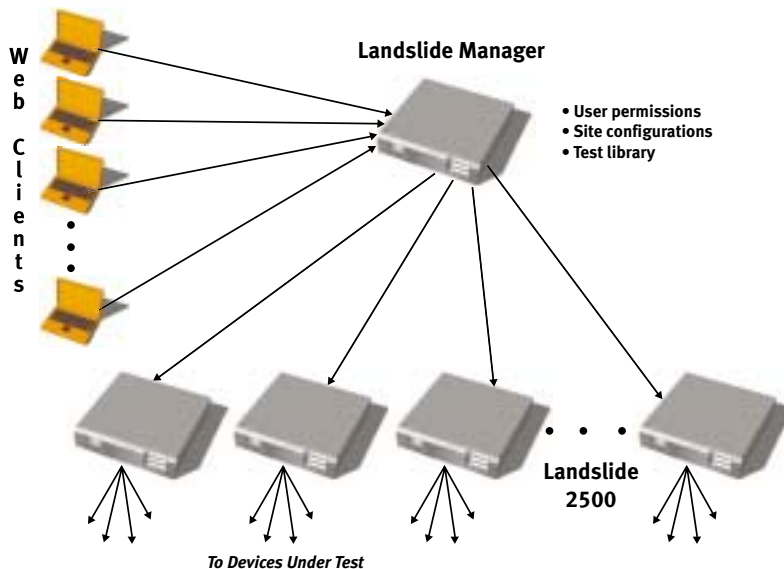
Landslide Manager

- Up to 125 user accounts
- Up to 48 simultaneous users
- Up to 255 pre-configured GGSNs under test
- Up to 32 Landslide 2500s

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Scalable, flexible software architecture

Landslide 2500

- 400,000 GTP tunnels
- 11 primary or secondary tunnels per mobile station
- 1000 SGSNs
- 125 Mbps of bearer traffic (transmit and receive, full duplex)
- 500 GTP tunnel activations and deactivations per second
- Up to 3 simultaneous users

Application

- 12,000,000 GTP tunnels
- 32,000 SGSNs
- 4 Gbps of bearer traffic (transmit and receive, full duplex)
- 16,000 GTP tunnel activations and deactivations per second

Traffic Load

- Control traffic distribution: periodic, random, fixed, burst
- Data traffic distribution: periodic, random, fixed, burst
- Parallel test scheduling for complex traffic profiling

Physical Specifications

- 2U, 19-inch rack-mountable
- 3.485" H x 16.53" W x 19.75" D
- 22 lbs. (10 kg)
- Operating Environment: 5°C to 40°C
- Non-Operating Environment: 0°C to 50°C
- 115-230 V, 50/60 Hz, 460 W
- Regulatory Approvals: FCC Class A, CE, UL-1950, GS Mark

Referenced Specifications

- 3GPP TS 09.060 V7.10.0, GPRS Tunneling Protocol (GTP) across the Gn and Gp (Release 1997)
- 3GPP TS 29.060 V4.6.0, GPRS Tunneling Protocol (GTP) across the Gn and Gp (Rel-4)
- 3GPP TS 03.060 V7.9.0, GPRS Service Description; Stage 2 (Release 1997)
- 3GPP TS 23.060 V4.7.0, GPRS Service Description; Stage 2 (Rel-4)

Ordering Information

L-KIT-2

Landslide GPRS Test System - ES Version

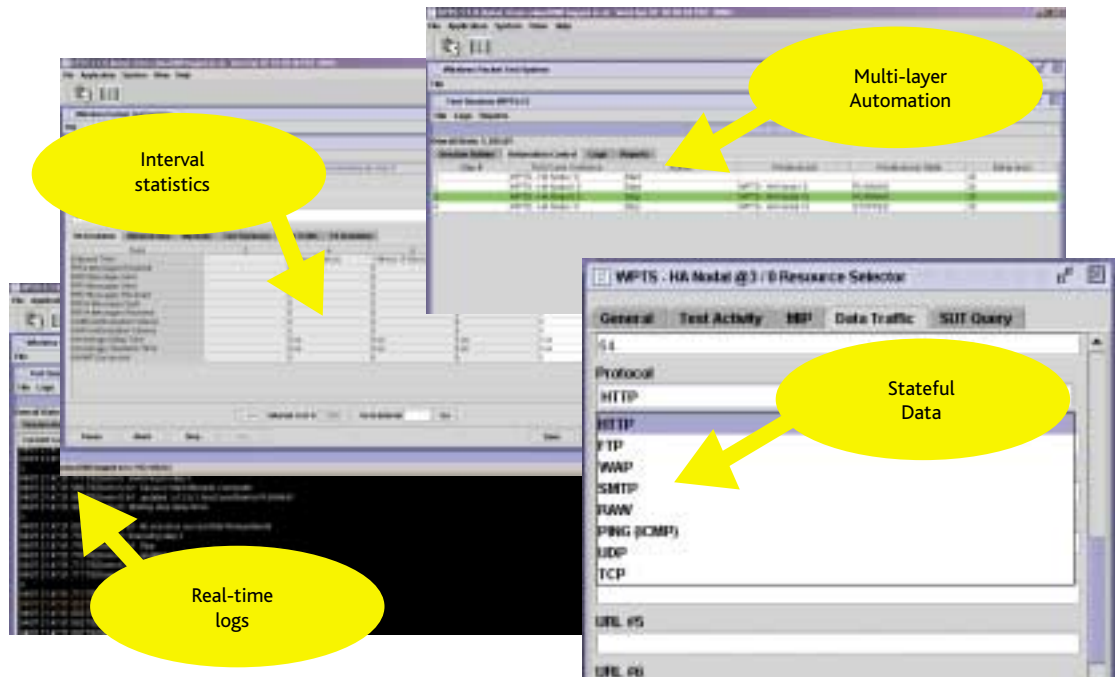
L-KIT-5

Landslide GPRS Test System - Single Unit

L-TEST-MOBILITY

Landslide 2500 Test Server

Spirent Communications offers a variety of ServiceEdge™ maintenance and support packages. For more information, visit the Spirent website at www.spirentcom.com or contact your Spirent sales representative.



Comprehensive configuration and reporting

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