SPIRENT LANDSLIDE

MOBILE IP PERFORMANCE TEST APPLICATION

Spirent Communications' Landslide™ Mobile IP (MIP) test application is the only mobility test tool that simulates real-world traffic models for Mobility over IPv4 and Mobility over IPv6. The Landslide MIP test application is part of the Landslide family of test applications available on Spirent's proven Landslide platform.

The Landslide Mobile IP Performance Test Application provides a comprehensive end-to-end test system compliant with RFC 3775 for Mobility signaling over IPv6, as well as supporting RFCs 2002 and 3344 for Mobility signaling over IPv4.

APPLICATIONS

- Validate system scalability and identify capacity limits
- Measure call/data performance
- Characterize system before trial/delivery
- Identify performance ceilings
- Enable accurate capacity planning

FEATURES & BENEFITS

- Realistic, real-world simulations allow equipment vendors to accurately specify the performance characteristics of their equipment under real-world conditions
- Unmatched scalability supports the user in simulating subscriber loads ranging from a small rural town to the largest metropolitan city
- Standard Web browser interface means no need to load software onto user equipment
- Emulation of multiple network elements permit the user to test in a variety of network topologies, providing more effective utilization of lab equipment and reducing capital expenditure and ongoing support costs associated with a test lab
- Automation control is for the user to run many test cases simultaneously or serially on multiple Landslide test servers, creating real world scenarios for heavy load and long duration stability tests
- Simultaneous control and user plane allows service providers to measure the performance of their network and to validate new features and services in the lab
- TCL Interface allows the user to control/monitor the Landslide from a higher level management system, thus making it possible to compile specific test reports for both the emulation (Landslide) and the device under test

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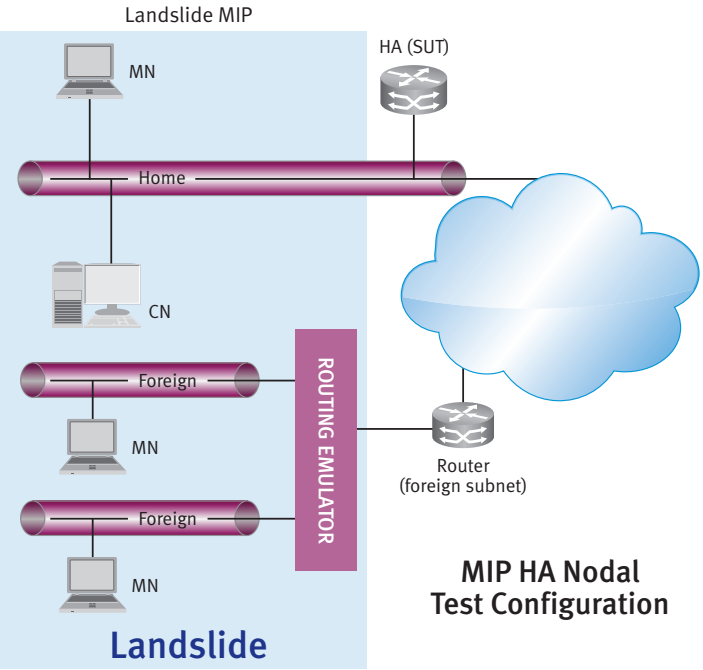
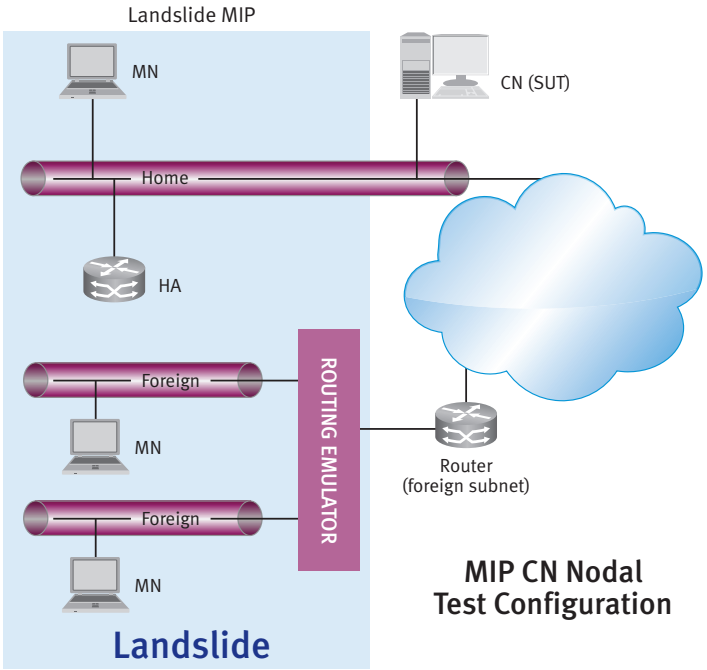


MIP HA Nodal Test Configuration



MIP CN Nodal Test Configuration

- HA Nodal Testing—In the HA nodal test configuration, the Landslide MIP emulates the Mobile Nodes and the Correspondent Nodes. This configuration is used to test the Home Agent (HA) as the system under test.

The HA Nodal test cases test an HA's ability to process MN registrations and mobility events, and to handle bearer plane traffic destined for a roaming MN. The options available in the test case allow you to configure tests that simulate various access models such as: Basic Mobile IP, Reverse Tunnel, VPN and Network-Based VPN. Both Mobility IPv4 and Mobility IPv6 are supported. For MIPv6 Prefix Solicitation, Home Agent Discovery and Route Optimization are supported.

- CN Nodal—In the CN nodal test configuration, the Landslide MIP emulates the Mobile Nodes and the Home Agent. This configuration is used to test the Correspondent Node (CN) as the system under test.

In the IPv6 CN Nodal test case, the test system simulates the MNs and simulates the routing functionality of an HA. When the MN is attached to a foreign link, the HA node relays the data traffic between the MNs and the CN SUT. Route Optimization is normally included when testing a CN, which requires that Data Traffic be included in the test.

TECHNICAL SPECIFICATIONS

- Test Activities
  - Capacity Test
  - Session Loading
  - Inter-FA Mobility (HA Nodal)
  - Session Loading with Mobility (HA Nodal)
  - MIP Revocation (HA Nodal)
  - Mobile Node Mobility (HA Nodal)
- Landslide Manager
  - Up to 125 user accounts
  - Up to 48 simultaneous users
  - Up to 32 Landslide test appliances
- Landslide Test Server (without performance accelerator)
  - 400,000 simultaneous sessions
  - Up to 4.6 Gbps of bearer traffic (HA Nodal)
  - Activate/deactivate up to 4,000 sessions per second for HA Nodal, 1,000/sec for CN Nodal
  - Up to 3 simultaneous users per test appliance
  - Emulate up 1,000 FAs (HA Nodal), up 1,000 HAs (CN Nodal)

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- Landslide Test Server Ethernet ports
  - 4-port 10/100/1000Base-T NIC (P/N L-NIC-12)
  - 4-port 1000Base-SX NIC (P/N L-NIC-11)
  - Single-port 10 Gigabit XF SR NIC (P/N L-NIC-10)
- Physical Specifications
  - 3U, 19-inch rack-mount
  - 5.25" H x 16.53" W x 19.75" D
  - 31 lb. (14kg)
  - Operating environment: 5° C to 30° C
  - 100-240 V, 50/60 Hz, 6 A
- Referenced Specifications
  - RFC 4283 Mobile Node Identifier Option for Mobile IPv6
  - RFC 4285 Authentication Protocol for Mobile IPv6
  - RFC 3775 Mobility Support in IPv6
  - RFC 2002 IP Mobility Support
  - RFC 3344 IP Mobility Support for IPv4
  - RFC 3012 Mobile IPv4 Challenge/Response Extensions
  - RFC 2460 Internet Protocol, Version 6
  - RFC 3513 IPv6 Addressing Architecture
  - RFC 2463 ICMPv6
  - RFC 2461 Neighbor Discovery for IPv6
  - RFC 2462 IPv6 Stateless Address Autoconfiguration
  - RFC 2473 Generic Packet Tunneling in IPv6
  - RFC 2526 Reserved IPv6 Subnet Anycast Addresses
  - RFC 2710 Multicast Listener Discovery for IPv6
  - RFC 3590 Source Address Selection for the Multicast Listener Discovery Protocol
  - RFC 2711 IPv6 Router Alert Option
  - RFC 2402 IP Authentication Header
  - RFC 2403 The Use of HMAC-MD-5-96 within ESP and AH
  - RFC 2404 The use of SHA-1 with ESP and AH
  - RFC 2406 IP Encapsulating Security Protocol
  - RFC 2409 The Internet Key Exchange

The listed specifications were used as reference material in the development of this application. This does not necessarily imply full implementation of all requirements within the referenced specifications.

SPIRENT SERVICES

Spirent Global Services provides a variety of professional services, support services and education services—all focused on helping customers meet their complex testing and service assurance requirements. For more information, visit the Global Services Website at www.spirentcom.com/gs or contact your Spirent sales representative.

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ORDERING INFORMATION	
DESCRIPTION	**PART NUMBER**
DYNAMIC IPSEC EMULATION Adds IPSec emulation to an existing Landslide Test System. IPSec accelerator must be ordered separately. Serial number or MAC ID of existing Landslide Manager required.	L-FT-004
LANDSLIDE MIPV6 TEST SYSTEM Includes one LANDSLIDE Manager and one LANDSLIDE test server with Mobile IPv4/Mobile IPv6 Application and two quad copper NICs. IP Sec accelerator must be ordered separately.	L-KIT-1003
TEST SERVER W/MIPV6 Includes LS test server w/ MIPv6 application. Must be purchased as expansion to MIPv6 Test System. Requires two NICs and IPSec accelerator, sold separately. Serial number or MAC ID of existing Landslide Manager required.	L-TS-1003
LANDSLIDE MIPV6 TEST SYSTEM SOFTWARE Software only for one Landslide Manager and one test server with Mobile IP (v4 & v6) app. SVC-6064 required for installation of SW on Manager and TS. IP Sec accelerator must be ordered separately. NICs sold separately.	L-KIT-301-SW
LANDSLIDE MIPV6 TS SOFTWARE Landslide test server software for MIPv6 application. Must be purchased as an expansion to a MIPv6 Test System. Serial number or MAC ID of existing Landslide Manager required. SVC-6064 purchase required. NICs sold separately.	L-TS-MIPV6-SW
LANDSLIDE MIPV6 TEST APPLICATION Adds MIPv6 test application to an existing ASN-GW, CDMA, CSN, GPRS or UMTS Landslide Test System. IPSec accelerator must be ordered separately. Serial number or MAC ID of existing Landslide Manager required.	L-APP-003
AAA DIAMETER SERVER EMULATION Adds the AAA DIAMETER server emulation to a CDMA2000, GPRS, or MIPv6 Landslide Test System. Serial number or MAC ID of existing Landslide Manager required. NOTE: IPSec is sold as separate option.	L-FT-010
AAA RADIUS SERVER EMULATION Adds the AAA Radius server emulation to applications such as CDMA2000, GPRS or MIPv6 Landslide Test Systems. Serial number or MAC ID of existing Landslide Manager required.	L-FT-003
LANDSLIDE IP DATA APPLICATION Adds IP Data Application to an existing Landslide Test system. Serial number or MAC ID of existing Landslide Manager required.	L-APP-007
DYNAMIC IPSEC EMULATION Adds IPSec emulation to an existing Landslide Test System. IPSec accelerator must be ordered separately. Serial number or MAC ID of existing Landslide Manager required.	L-FT-004
Landslide IPSec Accelerator Cards Provide hardware accelerated IPSec processing for Landslide Test Server. Requires L-FT-004 Dynamic IPSec Emulation feature. See sales representative for more information.	L-ACC-003 L-ACC-004
DATA THROUGHPUT ACCELERATOR LICENSE Improves test server data throughput for Lanslide Test Applications. rice per test server. S/N or MAC ID required.	L-FT-032-A
PERFORMANCE ACCELERATOR LICENSE Improves test server data throughput and control plane performance for mobility test applications. Price per test server. S/N or MAC ID required.	L-FT-032-B

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