

Spirent Landslide™

LTE Test Applications

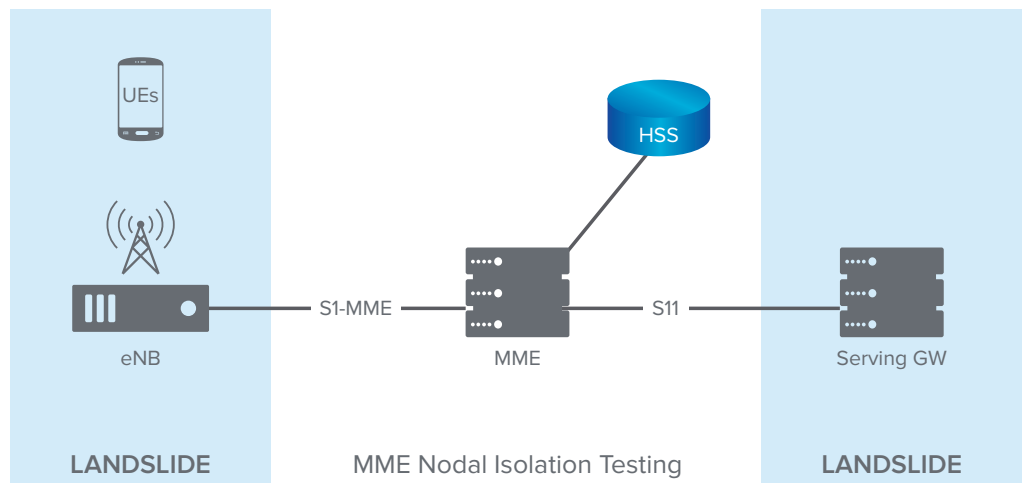
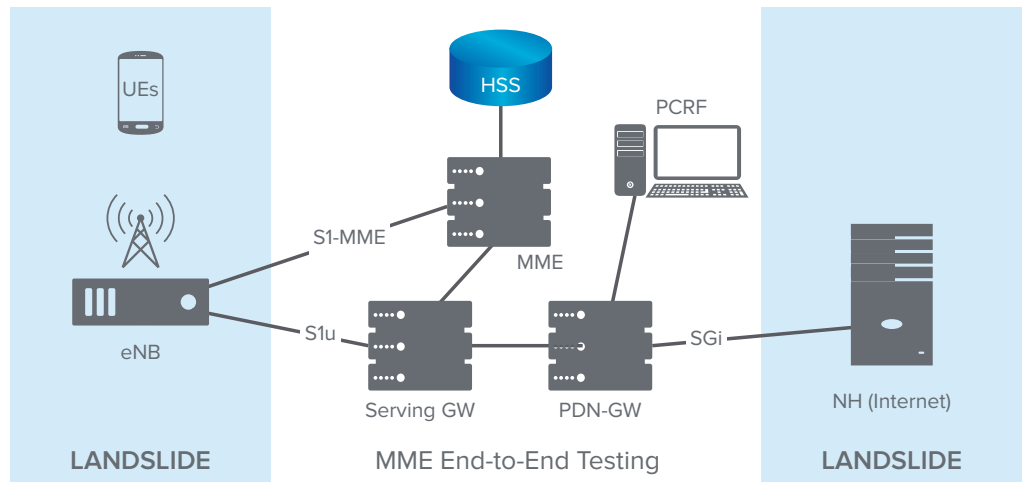
Spirent's Landslide™ LTE Test Applications enable mobile service providers and equipment vendors to test the performance of their LTE network and nodes. These highly configurable test cases emulate real-world control and data plane traffic of millions of mobile subscribers moving LTE, GSM, UMTS, eHRPD and Wi-Fi networks.

Landslide LTE Test Cases

- Validate system scalability and identify capacity limits
- Measure control plane capacity
- Stress data plane performance
- Perform Intra-LTE and I-RAT mobility testing
- Characterize system before trial/delivery
- Identify performance ceilings
- Busy hour Call Modeling

LTE Test Application

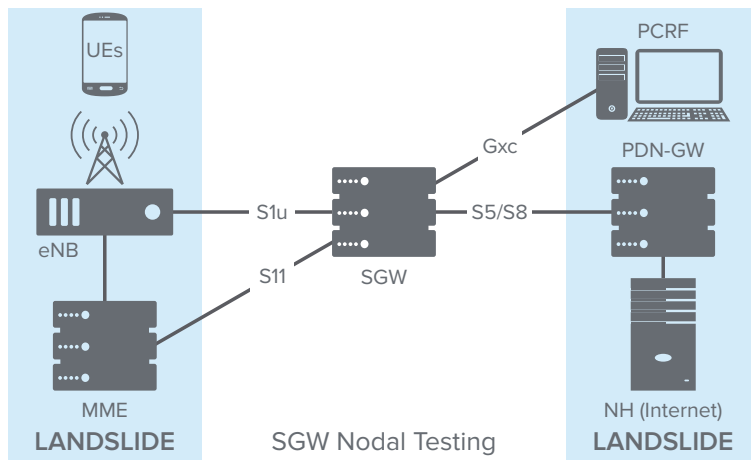
The **Landslide LTE MME Test Application** provides testing of the MME, or combined MME and SGSN, in both node isolation and end-to-end configurations. The Landslide LTE MME Nodal Test Application emulates millions of subscribers distributed among thousands of eNodeBs executing real world call models scenarios. Moreover, Landslide's LTE MME Nodal Test Application has the capability to emulate LTE Gateways, legacy core networks, Internet hosts and subscriber management nodes to cost-effectively complete any network topology for end-to-end and mobility testing.



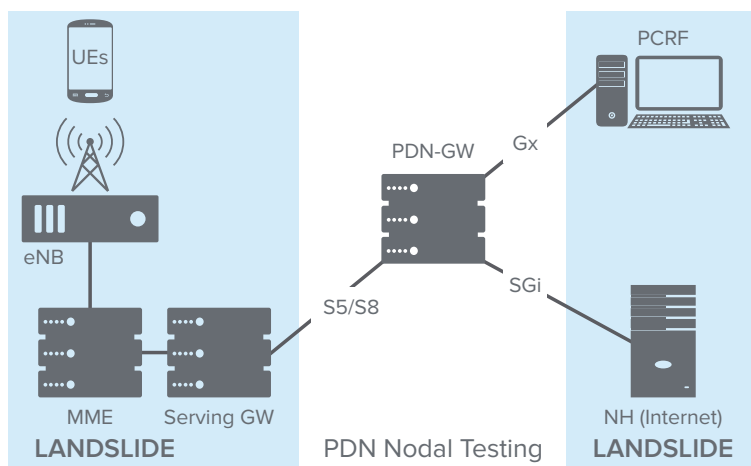
Applications

The **Landslide LTE Gateway Test Applications** provide testing of Serving Gateways and PDN Gateways in both combined and nodal configurations.

In the SGW Nodal test configuration Landslide emulates the MME, eNodeB, UEs and the PDN Gateway to isolate the Serving Gateway for control and data plane performance validation and benchmarking. Additionally in this test configuration the Landslide can emulate GSM, UMTS and eHRPD access into the LTE SGW.



In the PDN GW Nodal test configuration Landslide emulates the SGW, MME, eNodeB, and UEs to isolate the PDN Gateway for control and data plane performance validation and benchmarking. Additionally in this configuration the Landslide can emulate non-3GPP access to the PDN GW (providing the S2a/S2b interface).



Features & benefits

- Realistic, real-world simulations that allow equipment vendors to accurately specify the performance characteristics of their equipment under real-world conditions
- Simultaneous control and user plane that allow service providers to measure the performance of their network and to validate new features and services in the lab
- Unmatched scalability allows the user to simulate subscriber loads ranging from a small rural town to the largest metropolitan city
- MME Nodal Testing allows the user to isolate the MME in a “nodal” configuration to specifically test the performance and scalability of the MME itself
- SGW Nodal—The user can isolate the SGW in a “nodal” configuration to specifically test the performance and scalability of the SGW itself
- PDN GW Nodal—The user can isolate the PDN GW in a “nodal” configuration to specifically test the performance and scalability of the PDN GW itself
- End-to-end testing allows the user to test the entire LTE core
- Intra-LTE Mobility—Landslide provides the ability to test virtually all Inter-LTE mobility scenarios
- Inter-Technology/I-RAT Mobility—Landslide provides the ability to test virtual all handover scenarios between LTE and GSM, UMTS, and eHRPD networks. Landslide can emulate or allow a real SGSN or HSGW for this testing.
- With Landslide’s LTE Gateway Functional Test Option the user has the capability to edit message headers and add/modify/delete message IEs for GTPv2 messages. Both methods can be used to generate error conditions
- Standard Web browser interface means no need to load software onto user equipment
- Automation control allows 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
- 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
- Landslide also offers a complete set of mobile core, Wi-Fi, Diameter and IMS test cases for complete network test coverage

Technical specifications

Test Activities

- Capacity Test
- Session Loading
- Command Mode/Command Mode Sequencer
- Session Loading with Mobility (MME and SGW Nodal)
- Intra-LTE Mobility Scenarios
- Inter-Technology/I-RAT

Selected 3GPP Specifications

- Support for Release 7 through Release 12 3GPP Specifications
- 3GPP TS 23.203
 - 3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; Policy and charging control architecture
- 3GPP TS 23.401
 - 3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; General Packet Radio Service (GPRS) enhancements for Evolved Universal Terrestrial Radio Access Network (E-UTRAN) access
- 3GPP TS 23.402
 - 3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; Architecture enhancements for non-3GPP accesses
- 3GPP TS 24.301
 - 3rd Generation Partnership Project; Technical Specification Group Core Network and Terminals; Non-Access-Stratum (NAS) protocol for Evolved Packet System (EPS); Stage 3
- 3GPP TS 29.230
 - 3rd Generation Partnership Project; Technical Specification Group Core Network and Terminals; Diameter applications; 3GPP specific codes and identifiers
- 3GPP TS 29.273
 - 3rd Generation Partnership Project; Technical Specification Group Core Network and Terminals; Evolved Packet System (EPS); 3GPP EPS AAA interfaces
- 3GPP TS 29.274
 - 3rd Generation Partnership Project; Technical Specification Group Core Network and Terminals; 3GPP Evolved Packet System (EPS); Evolved General Packet Radio Service (GPRS) Tunnelling Protocol for Control plane (GTPv2-C); Stage 3
- 3GPP TS 29.281
 - 3rd Generation Partnership Project; Technical Specification Group Core Network and Terminals; General Packet Radio System (GPRS) Tunnelling Protocol User Plane (GTPv1-U)
- 3GPP TS 32.240
 - 3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; Telecommunication management; Charging management; Charging architecture and principles
- 3GPP TS 36.413
 - 3rd Generation Partnership Project; Technical Specification Group Radio Access Network; Evolved Universal Terrestrial Radio Access Network (E-UTRAN); S1 Application Protocol (S1AP)

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.spirent.com or contact your Spirent sales representative.

Ordering Information	
Description	Part Number
Landslide LTE Gateway Test System Landslide Manager, Test Server and LTE Gateway Test Application. Allows testing of LTE Serving Gateway, PDN Gateway and combined (S-GW and PDN-GW) Gateway testing.	L-KIT-6020
Landslide LTE MME Test System Landslide Manager, Test Server and LTE MME Test Application. Allows testing of MME.	L-KIT-6021
Landslide GPRS Test Application Adds GPRS Test Application to an existing Landslide Test System.	L-APP-001
Landslide UMTS Application Adds UMTS Test Application to an existing Landslide Test System.	L-APP-005
Landslide IP Data Application Adds IP Data Test Application to an existing Test System.	L-APP-007
Landslide PCRF Application Adds PCRF Test Application to an existing Landslide Test System.	L-APP-012
Landslide EHRPD Application Adds EHRPD Test Application to an existing Landslide Test System.	L-APP-025
Landslide HNB-GW Application Adds HNB-GW Test Application to an existing Landslide Test System.	L-APP-037
Dynamic IPSec Emulation Adds IPSec emulation to an existing Test System. Requires L-ACC-004 per Test Server.	L-FT-004

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