SPIRENT LANDSLIDE

POLICY AND CHARGING RULES FUNCTION TEST APPLICATION

Next-generation networks, such as 3G, WiMax and Femtocell, combined with FMC/IMS-enabled services (PTT, VoIP, VoD and IPTV) promise a transition to a world of differentiated IP services. These IP services unite voice, video and data into a seamless offering delivered across any access medium with assured quality to an increasing mobile subscriber base.

Differentiated IP services create an enormous demand for a carrier grade, real-time service delivery architecture that can decouple the service logic from the transport network and successfully orchestrate the complex operations required to successfully fulfill application and subscriber requests.

More emphasis is being placed on bearer control and service data flows. Access gateways (containing a Bearer Binding and Event Reporting Function or a Policy Charging and Enforcement Function) and application functions (AF) now interface with a policy decision function (PCRF) that determines policy and charging rules. Policy grants or denies access to allow or discard traffic. Charging rules determine how packets or a flow should be grouped and accounted.

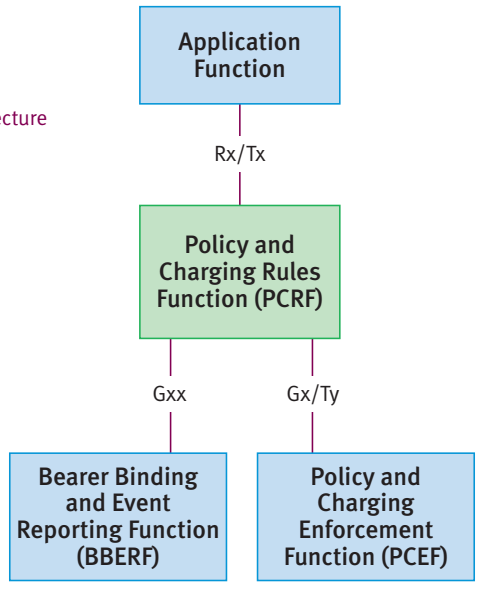
Although defined slightly differently in their associated standards, both the 3GPP and 3GPP2 organizations have implemented a policy decision function and associated reference points. 3GPP2 defines the reference points as Tx and Ty.

3GPP defines the reference points as Gx, Gxx (includes Gxa and Gxc for LTE) and Rx. The Landslide™ PCRF Test Application provides support for all four reference points in any combination. In a PCRF nodal configuration, Landslide can emulate the AGW and AF such that a PCRF can be tested in isolation. With the PCRF node emulation capability, the user can emulate the PCRF and thus provide a configuration in which an AGW and AF can be tested. Also included in the PCRF application is PDF (Packet Distribution Function) test functionality. In a WiMax network the PDF acts as a middle man between an ASN and the PCRF. Landslide provides the ability to test or emulate a PDF.

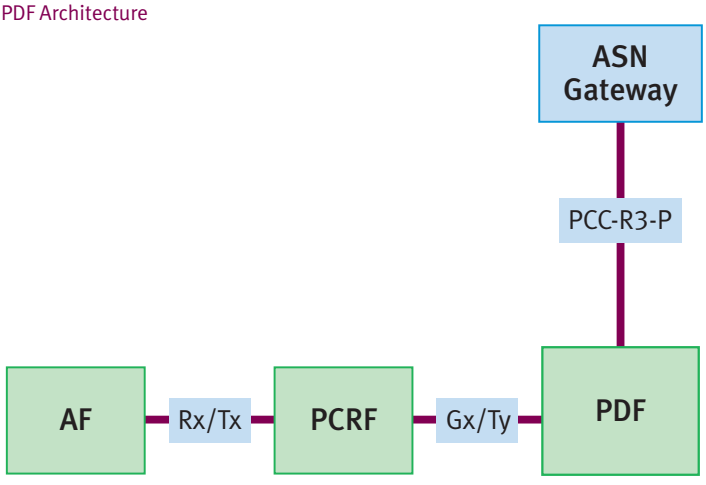
APPLICATIONS

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

PCRF Architecture



PDF Architecture



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FEATURES & BENEFITS

- Realistic, real-world simulations allow equipment vendors to accurately specify the performance characteristics of their equipment under real-world conditions
- 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
- Unmatched scalability for the user to simulate subscriber loads ranging from a small rural town to the largest metropolitan city
- Standard Web browser interface means there is no need to load software onto user equipment
- Emulation of multiple network elements for 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 so the user can 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 for the user to control/monitor the Landslide from a higher level management system, making it possible to compile specific test reports for both the emulation (Landslide) and the device under test
- Nodal Testing—AGW and AF emulated for testing a PCRF
- Node Emulation—Node emulation for testing AGWs and AFs
- PDF-ability to test or emulate a WiMax PDF
- Multiple Interfaces—3GPP, 3GPP2, and WiMax interfaces supported: Tx, Ty, Rx, Gx, Gxa, Gxc, and PCC-R3-P. RADIUS or DIAMETER for Ty; DIAMETER for all others; can be combined (i.e. Tx and Gx in same test case)
- Customization—User can add/define custom parameters to DIAMETER and RADIUS messages through easy to use GUI

TECHNICAL SPECIFICATIONS

- Test Activities
  - Capacity Test
  - Session Loading
- Landslide Manager
  - Up to 125 user accounts
  - Up to 48 simultaneous users
  - Up to 32 Landslide test appliances
- Landslide Test Server (without performance accelerator)
  - 200,000 simultaneous sessions
  - Activate/deactivate up to 1,000 sessions per second
  - Up to 3 simultaneous users per test appliance
  - Emulate up to 1,000 Application Function nodes and up to 1,000 Access Gateways
- 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
- Protocol Support
  - 3GPP TS 29.210 Charging rule provisioning over Gx interface
  - 3GPP TS 29.211 Rx Interface and Rx/Gx signaling flows
  - 3GPP2 X.P0013-013 Tx Stage 3
  - 3GPP2 X.P0013-014 Ty Stage 3
  - 3GPP 29.212 Policy and Charging Control over Gx reference point
  - 3GPP 29.213 Policy and Charging Control signaling flows and QoS parameter mapping
  - 3GPP 29.214 Policy and Charging Control over Rx reference point
  - 3GPP2 x.S0057 E-UTRAN-eHRPD Connectivity and Interworking: Core Network Aspects
  - DIAMETER (Rx, Gx, Tx, Ty)
  - RADIUS (Ty)
  - PCC-R3-P

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.

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ORDERING INFORMATION	
DESCRIPTION	**PART NUMBER**
LANDSLIDE PCRF TEST SYSTEM Includes one LANDSLIDE Manager and one LANDSLIDE test server w/PCRF application and two quad copper NICs. Allows users to test PCRF server.	**L-KIT-1012**
TEST SERVER W/PCRF Includes LS test server w/PCRF application. Must be purchased as an expansion to PCRF System. Requires two NICs, sold separately. S/N or MAC ID of existing LANDSLIDE Manager required.	**L-TS-1012**
LANDSLIDE PCRF TEST SYSTEM SOFTWARE Includes software only for one Landslide Manager and one Landslide test server w/ PCRF application. SVC-6064 purchase required for installation of software on Manager and TS. NICs sold separately.	**L-KIT-012-SW**
LANDSLIDE PCRF TS SOFTWARE Includes Landslide test server sw for PCRF application. Must be purchased as an expansion to a PCRF Test System. S/N or MAC ID of existing Landslide Manager required. SVC-6064 purchase required. NICs sold separately.	**L-TS-PCRF-SW**
LANDSLIDE PCRF TEST APPLICATION Adds PCRF test application to an existing high-end Landslide System. S/N or MAC ID of existing Landslide Manager required.	**L-APP-012**
LANDSLIDE PCRF NODE EMULATION Allows Landslide to emulate a standalone PCRF. Used for testing Access Gateways that communicate with a PCRF. S/N or MAC ID of existing Landslide Manager required.	L-FT-026
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

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' Web site at www.spirentcom.com/gs or contact your Spirent sales representative.

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