

# Spirent TestCenter<sup>™</sup>

## L2TPv2 / L2TPv3 Base Packages

Convergence is creating a new generation of integrated network devices and services that are much more complex than ever before. Service Providers need the ability to deploy networks quickly that get Quality of Experience (QoE) right the first time.

### Benefits

- L2TP Tunnel capacity testing
- Session per tunnel testing
- Data forwarding across all L2TP tunnels
- L2TP Tunnel stability test
- Supported on 1G to 400G interfaces and Virtual
- Detailed analysis: Data plane analysis down to the subscriber, service and stream. This is essential in quickly identifying and resolving intermittent performance issues that occur in only a small number of subscribers when supporting thousands of subscribers.
- Real World Test Scenarios: Spirent TestCenter L2TP emulation provides the ability to test implementations for functional, performance and scalability by providing the ability to emulate multiple LACs and/or LNS.

Layer 2 Tunneling Protocol (L2TP) is used to support Virtual Private Networks (VPNs) or as part of the delivery of services by ISPs. Spirent TestCenter L2TP Base Package enables Service Providers and network equipment manufacturers to quickly validate subscriber scalability. While L2TPv2 is all about PPPoE subscriber sessions being tunneled to domains, L2TPv3 is more about multi-protocol tunneling. L2TPv3 Base Package provides additional security features, improved encapsulation, and the ability to carry data links other than simply Point-to-Point Protocol (PPP) over an IP network. L2TPv3 is emerging as a core tunneling and VPN technology for next-generation networks. L2TPv3 provides the flexibility and scalability of IP with the privacy of Frame Relay and ATM. L2TPv3 will allow network services to be delivered over routed IP networks. Stability and performance of L2TP is critical to many Service Providers and data services.

Spirent can help you address this challenge with Spirent TestCenter with its innovative design. Now you can create and execute more complex test cases in less time with the same resources—and scale tests higher while debugging problems faster. The results: lower CAPEX and OPEX, faster time to market, greater market share and higher profitability, the ability to tunnel thousands of subscribers to thousands of tunnels with authentication and verify data forwarding and receive rates per subscriber.

### Increase Productivity:

#### Get there faster with Spirent TestCenter

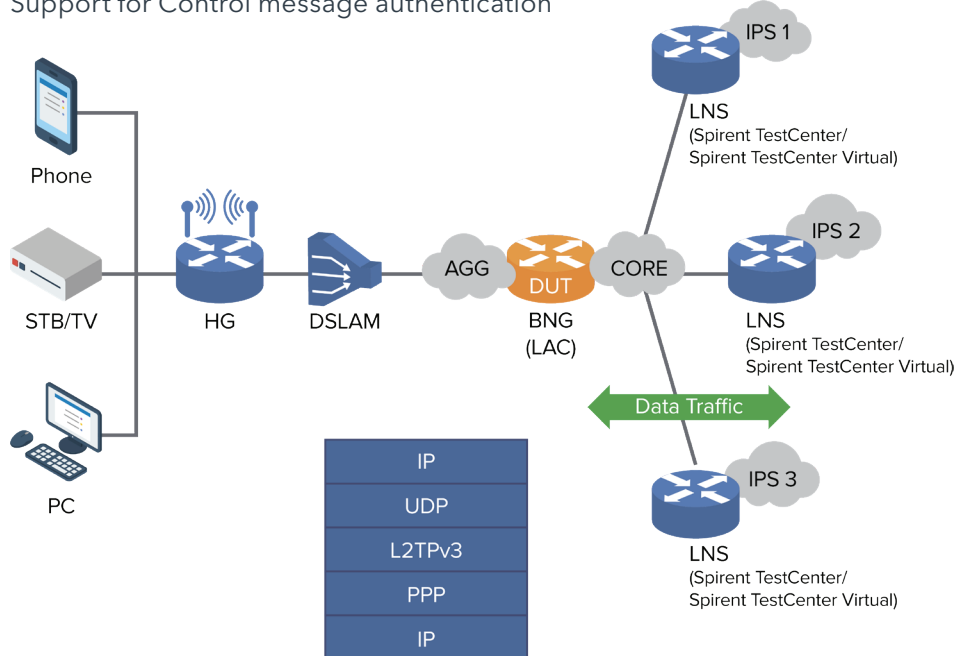
- Ability to emulate L2TPv2 and L2TPv3 test scenarios at high session scale
- Tunnel authentication done over entire message
- Create and customize options with the L2TP option editor
- L2TP Stability Wizard lets you configure session/tunnel stability tests within minutes
- Access over LDP VPLS and Access over BGP VPLS Wizards allow the user to easily configure complex scenarios such as L2TP over LDP VPLS or PPPoL2TP over LDP VPLS
- Set VLAN and QoS settings for subscribers
- Use IP multicast for enhanced realism
- Integrated protocol counters allow user to track protocol messaging
- Easily create large-scale tests with features such as duplicate and copy/paste
- Combine with other Spirent TestCenter Base Packages
- Real-time results and charting
- Powerful command sequencer enables realistic scenarios
- Analyze and chart detailed results in real time or export to HTML or PDF

**Key Features:**

- Spirent TestCenter supports emulation of LAC
- Multiple LNS per port including dual-stack LNS on a single port
- Validates 32-bit session (L2TPv3) & tunnel ID and tunnel authentication over entire message
- Generates line rate data traffic
- Emulates complex subscriber & DSLAM topologies 'behind' L2TPv3 tunnels
- Supports encoded as well as hidden AVPs
- Encoding the originating number for incoming calling number
- Access Line AVP Extensions for L2TP
- Requests (Connect Speed Update Request: CSURQ) can be setup to be sent on-demand or automatically at regular intervals
- Integrated capture feature allows users to capture and decode control plane and data plane traffic, enabling deep functional troubleshooting
- Integrated protocol counters allow user to track protocol messaging
- Supports Testing multiple tunnel types: PW, L2VPN, PPP, IPv6

**Additional L2TPv3 specific features:**

- Support L2TPv3 over IP and UDP
- Support for PPP over L2TPv3 over UDP/TCP
- Support Layer 2 VPN tunneling - Ethernet, VLAN and QinQ pseudowires (PW) over L2Tpv3
- Support for IPv4 or Ipv6 over Ethernet over L2TPv3
- Support for reliable delivery of control messages
- Support for Control message authentication



L2TPv3 with LNS Emulation

**Applications:**

**Spirent TestCenter L2TP Base Package enables users to emulate thousands of L2TP sessions using different services across multiple ports:**

- Users can combine it with PPPoX base package to test DSLAM type devices initiating incoming calls to the LAC
- Service Providers can emulate multiple LNS instances, one per customer and test fast scale up for optimal utilization of hardware resources
- L2TP used along with the Topology Emulation feature (DBD) allows user to easily create test scenarios such as DHCP over PPPoL2TP or PPPoL2TP, etc.
- L2TP Stability Wizard lets you quickly set up and tear down PPPoL2TP sessions while optionally running traffic over them
- With Spirent supporting L2TP on virtual, Service Providers can test decentralized network designs offering vBNG services with vLNS and vLAC emulations

## Test Results

The L2TP Base Package provides both real-time and end-of-test results using spreadsheets and graphical formats. These results can be exported in Adobe PDF file format or HTML for spreadsheet or browser-based analysis and reporting. Select from several methods for tracking data plane traffic. Tracking options include session ID, Tunnel ID, Tunnel Count and Packet Counts.

### Technical Specifications

<p><b>LNS Configurable Options Include</b></p> <ul style="list-style-type: none"> <li>• Tunnel Starting ID</li> <li>• Session Starting ID</li> <li>• Hostname</li> <li>• Outgoing/Incoming tunnel password</li> <li>• Hello Enable</li> <li>• Hello Interval</li> <li>• Enable Transport Retry</li> <li>• Max Times to retry failed tunnels</li> <li>• Retry timeout, Enable Calling Number</li> <li>• Calling Number</li> <li>• LCP Proxy Mode</li> </ul>	<p><b>L2TP Result Counters Include</b></p> <ul style="list-style-type: none"> <li>• L2TP Block State</li> <li>• Session State (L2TPv3 Only)</li> <li>• Sessions Up</li> <li>• Tunnel Setup Rate</li> <li>• Min Tunnel Setup Time (msec)</li> <li>• Max Tunnel Setup Time (msec)</li> <li>• Avg. Tunnel Setup Time(msec)</li> <li>• Session Setup Rate</li> <li>• Min Session Setup Time (msec)</li> <li>• Max Session Setup Time (msec)</li> <li>• Avg. Session Setup Time(msec)</li> <li>• TX/Rx Packets</li> <li>• Tx/Rx ACK Packets</li> <li>• Tx/Rx Hello Packets</li> <li>• Tx/Rx SCCRQ Packets</li> <li>• Tx/Rx SCCRP Packets</li> <li>• Tx/Rx SCCN Packets</li> <li>• Tx/Rx Stop CCN Packets</li> <li>• Tx/Rx WEN Packets</li> <li>• Tx/Rx SLI Packets</li> <li>• Tx/Rx OCRQ Packets</li> <li>• Tx/Rx OCRP Packets</li> <li>• Tx/Rx OCCN Packets</li> <li>• Tx/Rx ICRO Packets</li> <li>• Tx/Rx ICRP Packets</li> <li>• Tx/Rx ICCN Packets</li> <li>• Tx/Rx CDN Packets</li> <li>• Tx/Rx CSURQ Packets</li> <li>• Tx/Rx CSUN Packets</li> </ul>	<p><b>Interactive Actions Include</b></p> <ul style="list-style-type: none"> <li>• Connect L2TP Devices</li> <li>• Disconnect L2TP Devices</li> <li>• Retry Sessions</li> <li>• Wait for L2TP sessions to connect</li> <li>• Wait for L2TP sessions to disconnect</li> <li>• Send CSURQ</li> <li>• Save Node Info</li> <li>• Save Tunnel Info</li> <li>• Save Session Info</li> <li>• Wait for Tunnels to connect</li> <li>• Wait for Tunnels to disconnect</li> </ul>
<p><b>LNS Configurable Options Include</b></p> <ul style="list-style-type: none"> <li>• Tunnel Starting ID</li> <li>• Session Starting ID</li> <li>• Hostname</li> <li>• Outgoing/Incoming tunnel password</li> <li>• Enable Connect Speed Update</li> <li>• Enable Auto Connect Speed Update</li> </ul>		<p><b>Data Plane Configuration</b></p> <ul style="list-style-type: none"> <li>• Duration: Seconds, Packet Burst or Continuous</li> <li>• Load Options: % Bandwidth of Port, Frames Per Second, Mbps, Kbps, bps</li> <li>• Frame Size: Individually set, Fixed, Random, Step, Custom Step List</li> <li>• Load: Individually set, Fixed, Random, Step, Custom Step List</li> </ul>
<p><b>L2TPv3 Additional Options Include</b></p> <ul style="list-style-type: none"> <li>• Rx Window Size</li> <li>• Pseudowire Capabilities</li> <li>• Pseudowire Type</li> <li>• Remote End ID Start</li> <li>• Remote End ID Step</li> <li>• Remote End ID End</li> </ul>		

## About Spirent Communications

Spirent Communications (LSE: SPT) is a global leader with deep expertise and decades of experience in testing, assurance, analytics and security, serving developers, service providers, and enterprise networks.

We help bring clarity to increasingly complex technological and business challenges.

Spirent's customers have made a promise to their customers to deliver superior performance. Spirent assures that those promises are fulfilled.

For more information, visit:  
[www.spirent.com](http://www.spirent.com)

## RFCS Supported

- RFC 2661 Layer Two Tunneling Protocol - Version 2
- RFC 3931 Layer Two Tunneling Protocol - Version 3
- RFC 5515 L2TP Access Line Information Attribute Value Pair Extensions

## Ordering Information

Product Information	
Description	Part Number
L2TPv2 Base Package	BPK-1012B
L2TPv3 Base Package	BPK-1330B
C50 L2TPv2 Base Package	C50-BPK-1012
C50 L2TPv3 Base Package	C50-BPK-1330
L2TP Access Line AVP Extensions	BPK-1332A
Virtual L2TPv2	V-BPK-1012B-001
Virtual L2TPv3	V-BPK-1330B-001
Packages that include L2TP	
BRAS Test Solution	SPK-1033
Converged Access Over MPLS Test Solution	SPK-1066
Ethernet Access Concentrator Test Solution	SPK-0003
Related Spirent TestCenter Software	
IGMP/MLD Host IP Multicast Base Package	BPK-1003A
PPPoX Base Package	BPK-1007B
DHCP Base Package	BPK-1077B
ANCP Base Package	BPK-1078B
IPTV Test Package	TPK-1002B

## Contact Us

For more information, call your Spirent sales representative or visit us on the web at [www.spirent.com/ContactSpirent](http://www.spirent.com/ContactSpirent).

[www.spirent.com](http://www.spirent.com)

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