

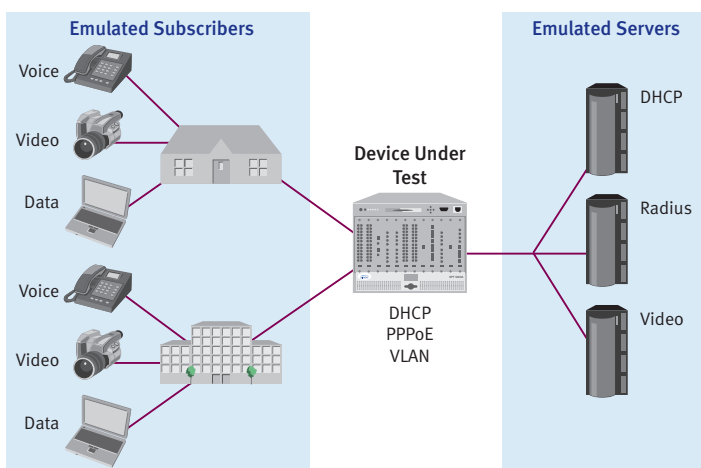
# SPIRENT TESTCENTER

## PPPOX BASE PACKAGE

Convergence is creating a new generation of integrated network devices and services that are much more complex than ever before. The resulting increased complexity, scarcity of testing skills and architectural shortcomings in current test systems are hurting the ability of manufacturers to ship products on time at escalating quality levels and slowing service providers' ability to deploy networks that get Quality of Experience (QoE) right the first time.

### INCREASE PRODUCTIVITY: GET THERE FASTER WITH SPIRENT TESTCENTER

- Create traffic patterns to test Triple Play
- Set VLAN and QoS settings for subscribers
- Simulate up to 32K subscribers per port
- Powerful command sequencer enables realistic scenarios and session flapping
- Analyze and chart detailed results in real time, or export to HTML or PDF
- PPPoX server mode to test access concentrators and relay agents
- Use IP multicast for enhanced realism
- IPCPv4 and IPCPv6 simultaneous on same port
- Auto retry failed or disconnected sessions
- Create and customize options with the PPPoX option editor



Spirent can help you address this challenge with Spirent TestCenter™ with its innovative Inspire Architecture™. 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 PPPoX Base Package enables service providers and network equipment manufacturers to quickly validate subscriber scalability. This integrated Spirent TestCenter component simplifies large-scale test configurations to identify issues involving equipment selection, setting competitive service level agreements and planning growth with confidence. Service providers use the PPPoX Base Package to determine the correct amount of equipment necessary for their customers' needs—avoiding over- and under-deployment.

PPPoX is the most widely deployed authentication protocol for broadband subscriber authentication. Stability and performance of PPPoX is critical to many service providers' IPTV and data services. The Spirent TestCenter PPPoX Base Package helps service providers and network equipment manufacturers validate performance and functionality of access servers and relay agents.

## APPLICATIONS

Spirent TestCenter customers use the PPPoX Base Package to emulate thousands of subscribers using different services across multiple ports. The package helps them to determine QoS per subscriber at different subscriber capacities and to determine capacity at a set QoS bandwidth. It can simulate typical or extreme subscriber traffic load conditions for minutes, hours or days, and evaluate key performance parameters of PPPoX aggregation devices under controlled conditions.

Customers can use the package with DHCP to simulate IP address assignment for multimedia gateways while using PPPoX for Internet. It can be used with IGMP to simulate IPTV (set-top boxes), in PPPoX server mode to test Layer 2 DSLAM type devices, or to emulate and terminate PPPoX subscribers through a DSLAM or other Layer 2 PPP device. This base package combined with the L2TPv2 base package is key to testing L2TPv2 LAC or LNS functions.

## BENEFITS

- **Increased testing capacity:** With the highest port density and subscriber per port emulation, the PPPoX base package can accomplish more in less lab space
- **Reduced test time:** The Command Sequencer sets up flapping tests quickly and easily to validate system performance in realistic unstable environments rather than an environment optimized for pure performance. Many device faults, such as memory leaks in control processors and poor login time, will only be visible under dynamic testing conditions.
- **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.

## KEY FEATURES

- 32K subscribers per port with up to 12 ports per test module
- 4.7 million subscribers per chassis
- PPPoX server and client mode
- Supports PPPoE on Ethernet modules and PPPoEoA and PPPoA on ATM modules
- Detailed analysis: upstream, downstream and peer-to-peer analysis per subscriber or port
- Interactive feature allows functional and negative testing including connecting and disconnecting groups of subscribers
- Integrated protocol counters allows user to track protocol messaging
- Real-time results and charting
- Easily create large-scale tests with features such as duplicate and copy/paste
- A command sequencer provides integrated control plane connect and disconnect and data plane events, allowing users to view the result of a control plane event graphically in real time
- Integrated capture feature allows users to capture and decode control plane and data plane traffic, enabling deep functional troubleshooting

## TEST RESULTS

The PPPoX 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 PPP session ID, VLAN and QoS value. Display real time results per port with session counters, message counters, failed sessions and rates.

## TECHNICAL SPECIFICATIONS

### Configurable Options Include

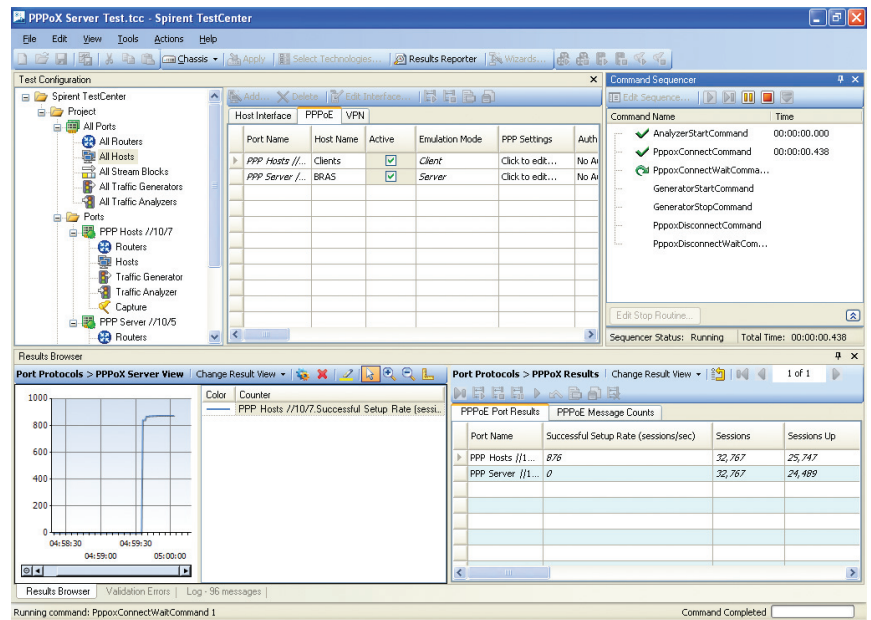
- Session quantity
- Mode: server/client
- Session attempt rate
- Session disconnect rate
- Outstanding Sessions
- Sessions per VLAN/VCC
- Start and step MAC address
- Authentication—auto, CHAP, PAP or none
- Unique login, domain and passwords
- Wild cards for login and password
- Service name
- Relay agent (RFC 2516 or DSL Forum)
- Wild cards for remote/session IDs
- Magic number
- MRU size
- ACCM value
- Configure request and timeout
- Terminate request and timeout
- Sends and Responds to keep-alives
- IPv4-CP or IPv6 CP

### Command Sequencer PPPoX Events Include

- Abort
- Clear Stats
- Connect
- Disconnect
- Pause
- Retry
- Session Info

### Interactive actions include

- Connect
- Disconnect
- Pause
- Resume
- Retry
- Abort
- Start server mode



### Data Plane Configuration

- Duration: seconds, packet burst, or continuous
- Load options: % bandwidth of port, frames per second, Mbps, Kbps, bps
- Frame size: individually set, fixed, random, step, custom step list
- Load: individually set, fixed, random, step, custom step list

### Related Standards and Drafts

- RFC 1332 IP CP
- RFC 1334 PAP Authentication
- RFC 1570 LCP Extensions
- RFC 1661 PPP
- RFC 1662 PPP in HDLC (information on ACCM)
- RFC 1994 CHAP
- RFC 2472 IPv6 over PPP
- RFC 2516 PPP over Ethernet
- RFC 2364 PPP Over AAL5
- IEEE 802.1 (.p/.q) VLAN tagging
- DSL Forum TR-101

## SPIRENT TESTCENTER PPPOX BASE PACKAGE

### SUPPORTED MODULES

2000 series modules provide higher performance than 1000 series modules; contact your Spirent representative for details.

BPK-1007A/B supports all Spirent TestCenter test modules and personality cards.

BPK-1007B should be used with Series 2000 test modules.

### REQUIREMENTS

- Pentium® or greater PC running Windows® XP Professional SP2 with mouse/color monitor required for GUI operation. See Minimum PC Requirements section.
- One Ethernet cable and one 10/100/1000 Mbps Ethernet card installed in the PC
- A SPT-2000A Spirent 2U Chassis and Controller, SPT-5000A Spirent 5U Chassis and Controller or SPT-9000A Spirent 9U Chassis and Controller
- Operating system languages supported: English, French, German, Italian, Japanese, Korean, and Chinese (traditional and simplified)

### MINIMUM PC REQUIREMENTS

- Small Port System: 1-25 ports
  - 2.4GHz Pentium 4 or equivalent with 512MB of free RAM and 10GB of free disk
- Medium Port System: 26-75 ports
  - 3GHz Pentium 4 or equivalent with 2GB of RAM and 15GB of free disk space
- Large Port (75+ ports)
  - E6400 Intel® Core™ 2 Duo or equivalent with 3GB of RAM and 100GB of free disk space

ORDERING INFORMATION	
Product	Part Number
PPPoX Base Package A	BPK-1007A
PPPoX Base Package B	BPK-1007B
Related Spirent TestCenter Software	
IGMP/MLD Host IP Multicast Base Package	BPK-1003A
L2TPv2 Base Package B	BPK-1012B
DHCP Base Package A	BPK-1077A
DHCP Base Package B	BPK-1077B
ANCP Base Package B	BPK-1078B
IPTV Test Package A	TPK-1002A
IPTV Test Package B	TPK-1002B
Ethernet Access Concentrator Test Solution B	SPK-0003
BRAS Test Solution B	SPK-1033

### ORDERING INFORMATION

Part numbers ending in “A” indicate the standard performance version; those ending in “B” indicate the high performance version.

### SPIRENT GLOBAL SERVICES

Spirent Global Services optimizes your productivity with Spirent TestCenter over a broad range of technologies:

#### Professional Services

- Test lab optimization: Test automation engineering services
- Service deployment and service-level optimization: Vendor acceptance testing, SLA benchmarking, infrastructure and security validation
- Device scalability optimization: POC highscalability validation testing

#### Education Services

- Web-based training: 24 x 7 hardware and software training
- Instructor-led training: Hands-on methodology and product training
- Certifications: SCPA and SCPE certifications

#### Implementation Services

- Optimized new customer productivity with up to three days of on-site assistance

Visit [www.spirent.com/gs](http://www.spirent.com/gs) or contact your Spirent sales representative.

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