

TestCenter

PPPoX Base Package

The TestCenter PPPoX Base Package accelerates and simplifies large-scale validation of subscriber authentication and service performance across complex broadband networks. It enables service providers and equipment manufacturers to confidently assess scalability, QoS, and device behavior under realistic traffic and control-plane conditions.

- 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

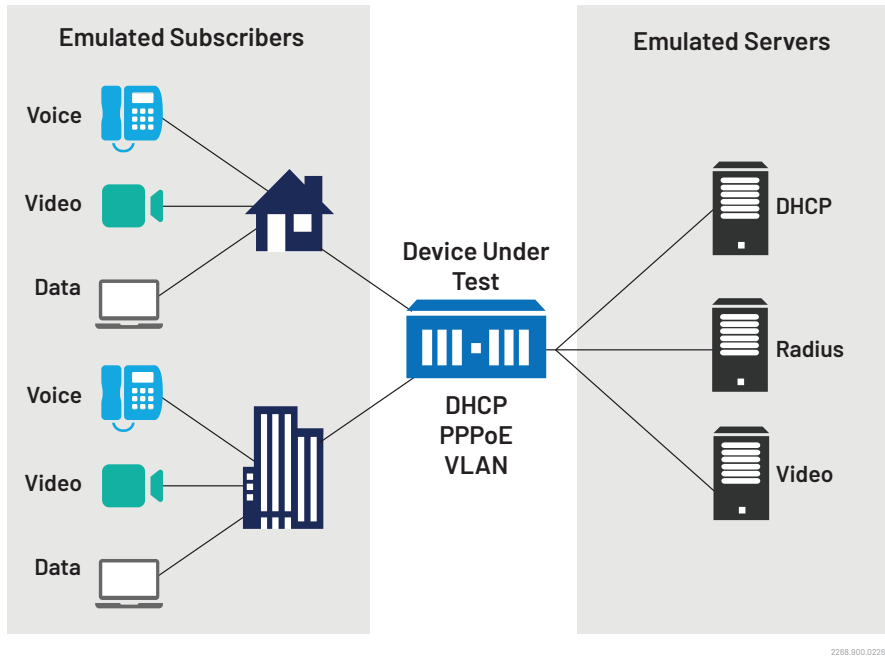
VIAVI can help you address this challenge with TestCenter. Now you can create and execute more complex test cases in less time with the same resources—and scale tests higher while debugging problems faster. The results: lower CapEx and OpEx, faster time to market, greater market share and higher profitability.

The PPPoX Base Package enables service providers and network equipment manufacturers to quickly validate subscriber scalability. This integrated 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.

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

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 TestCenter PPPoX Base Package helps service providers and network equipment manufacturers validate performance and functionality of access servers and relay agents.



PPPoX Test Topology

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.

Applications

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.

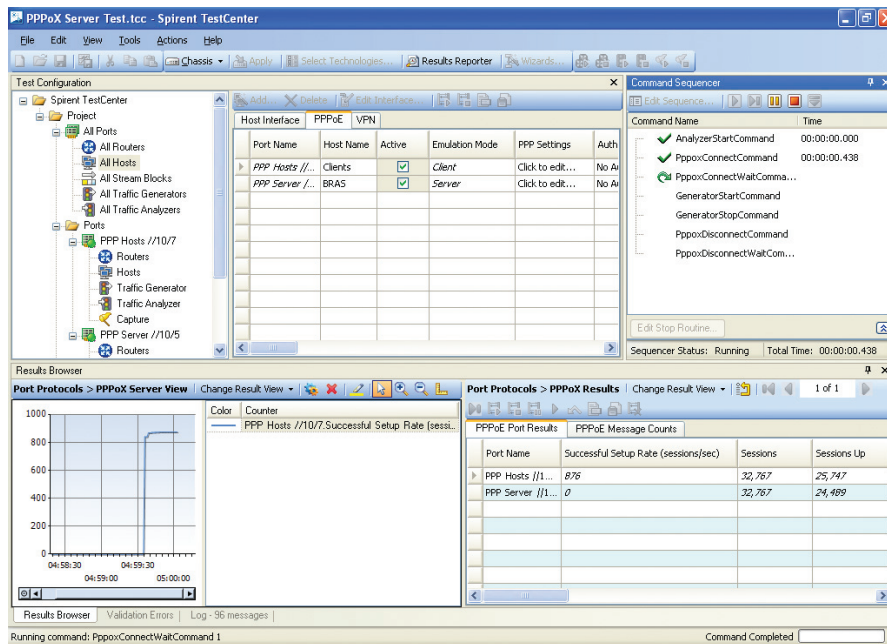
Benefits

- **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.

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.



TestCenter Results

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

Supported Modules

- Support on current TestCenter modules

Ordering information

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

Part Number	Description
BPK-1007A	PPPoX Base Package A
BPK-1007B	PPPoX Base Package B
	Related TestCenter Software
BPK-1003A	IGMP/MLD Host IP Multicast Base Package
BPK-1012B	L2TPv2 Base Package B
BPK-1077A	DHCP Base Package A
BPK-1077B	DHCP Base Package B
BPK-1078B	ANCP Base Package B
TPK-1002A	IPTV Test Package A
TPK-1002B	IPTV Test Package B
SPK-1033	BRAS Test Solution B



Contact Us: +1 844 GO VIAVI | (+1 844 468 4284). To reach the VIAVI office nearest you, visit viasolutions.com/contact

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