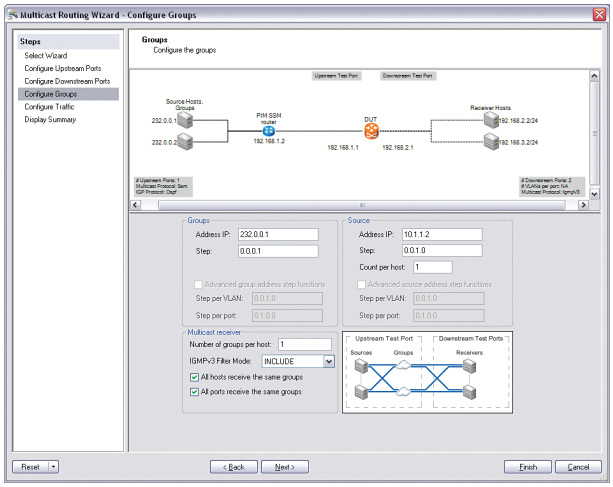
SPIRENT TESTCENTER

MULTICAST ROUTING BASE PACKAGE

As collaborative services and broadcast media become more prevalent, Multicast traffic loads increase and stress the capabilities of traditional IP networks and next generation MPLS networks. QoS technologies can help network designers to plan, design, test, and implement scalable, secure, highly available Triple Play networks. PIM-SSM filtering capabilities also aid in limiting the impact that Multicast traffic groups have on mission critical network traffic.

APPLICATIONS

- Evaluate key performance parameters of routers or networks under typical or extreme traffic load conditions for minutes, hours and days
- When integrated with the Unicast Routing Base Package, quickly set up large Multicast network topologies on all ports with Multicast traffic going to each network advertised from all transmitting ports
- Using the Command Sequencer and real-time graphs with integrated events, users can evaluate key performance parameters of routers or networks while responding to common undesirable network events on the control plane
- Combine with the Unicast and MPLS base Packages to test GRE-based Multicast VPN or Next Generation Point-to-Multipoint Traffic Engineering (P2MP-TE)
- Combined with Application Layer Protocols, Video Quality Analysis (VQA) or RFC 3918 Multicast Benchmarking to test or bench-mark Multicast networks under realistic environments



The Multicast Routing Base Package is a Spirent TestCenter™ component that helps service providers, large enterprises and network equipment manufacturers quickly evaluate and troubleshoot Multicast routing protocols, forwarding behavior, and performance in devices and networks. The Spirent base package supports emulation of the most common multicast routing protocols, PIM-SM and PIM-SSM for IPv4 and IPv6 Multicast traffic.

Proper Multicast product evaluation requires a user to consider the impact Multicast traffic will have on protocols and the entire network. Resource requirements are significant, and the impact to existing traffic can be detrimental. Spirent TestCenter's Multicast Routing Base Package helps users measure network performance by providing interactive control while displaying real-time results upon Multicast protocols and traffic. Users can also perform diagnostics associated with Multicast's integration with traditional Unicast traffic and routing protocols.

As an integrated component of Spirent TestCenter, this package works with other Spirent TestCenter components to deliver easy, consistent TCL support for all key metropolitan and enterprise protocols: spanning tree, 802.1p VLAN tagging priority, IPv4 and IPv6 DSCP QoS, Unicast IPv4 and IPv6 traffic and Unicast routing.

MULTICAST ROUTING BASE PACKAGE

FEATURES & BENEFITS

- Support for dual-stack IPv4 and IPv6 in all routing emulation and traffic generation allows users to test the migration of routed networks from IPv4 to IPv6 under realistic deployment scenarios
- PIM-SM and PIM-SSM Multicast routers supports the most common Multicast routing protocols
- Concurrent operation with Unicast routing protocols; run multiple Unicast and Multicast protocols concurrently on each port
- All common attributes are dynamically configurable to easily build complex topologies
- Multicast Routing Wizard quickly builds hundreds or thousands of emulated routers
- Interactive commands to Stop and Start individual emulated routers send diagnostic commands and start and stop sending control-plane messages; interactive control of routers allows users to simulate real network conditions and see results on demand any time during a test without starting and stopping the protocols or traffic
- Interactive commands to flap (withdraw or age-out, and readvertise) individual routes or route blocks or by route type
- Use the Command Sequencer with TCL scripts to send SNMP commands, get SNMP data, configure the device under test, run entire test and generate pass/fail results; advanced command sequencer capabilities allow users to extend Spirent TestCenter to meet their test needs
- Log the real-time exchange of control-plane messages and test over any media type or encapsulation supported by Spirent TestCenter
- Integrated data-plane traffic enables users to send, receive, inspect and accumulate any mix of Unicast or Multicast statistics at wire-rate; wire rate performance testing of mixed traffic simulates real network conditions
- Integrated with traffic wizard to quickly build traffic between traffic endpoints behind emulated routers, and integrates any type of traffic with Multicast routing
- Support for bi-directional capture and real-time decoder (BPK-1029A) while allowing users to verify the security and evaluate the performance and behavior of their routers in realistic configurations
- Log displays bi-directional exchange of protocol messaging; view protocol events as they occur
- Support for Ethernet, ATM and SONET media types and all associated encapsulations, and test over any supported media and encapsulation
- Support for L2TP and GRE tunneling on a per router basis for testing over any supported tunnel mode

TECHNICAL SPECIFICATIONS FOR PIM

- Emulate hundreds of PIM routers per port
- Emulate First Hop Routers (FHRs), Rendezvous Points (RPs), and simulate Last Hop
- Full Bootstrap Router (BSR) emulation
- Join (*, G), (S, G) or (*, *, RP) Multicast groups
- Activate, deactivate, and reactivate PIM routers and groups to build scalability tests that add objects over time
- Configurable router options: PIM Mode (PIM-SM or PIM-SSM), DR Priority, IP version (IPv4 or IPv6), Generation ID Mode (Fixed, Incremental, or Random), Hello Interval, Hold Interval, Hello Hold Time, Join/Prune Interval, Join/Prune Hold Time timers, enable BiDir Hello, Enable BSR and configure Bootstrap Message Interval, and upstream IP neighbor address
- Configure global PIM options: Enable Prune delay and set LAN prune delay and override timers, and pack group records and set triggered hello delay, message rate, and message interval
- Configurable Multicast group options: Group Address, Group Count, RP Address, Join Source, Join Prefix, Enable Pruning, Prune Source, Prune Prefix,
- Generation ID modes include: fixed, increment or random
- Interactive and Command Sequencer PIM events: Start or Stop PIM, Stop or Resume Hellos, Stop or Resume Joins, Send Joins or Prunes, Increment Generation ID, and Stop, Resume, or Send Boot Strap Messages (BSMs)
- Detailed per-router PIM protocol and state counters including: Router State (Not Started, Started, Stopped, Hello, or Neighbor), TX/RX Hellos, TX/RX Join/Prunes, TX/RX Registers, TX/RX Register Stops, TX/RX Asserts, TX/RX Candidate RP Advertisements, TX/RX Bootstraps, TX/RX (*,G) Groups, TX/RX (S,G) Groups, TX/RX (*,*,RP) Groups, TX/RX (S,G,rpt) Groups, Number of Neighbors
- Integrated support for PIM-SM and PIM BSR protocols for IPv4 and IPv6 conformance testing with the BPK-1024A Conformance Application Base Package and the TPK-1021 for IPv6 and TPK-0022 for IPv4 PIM-SM testing, and TPK-1023 for PIM BSR for IPv4 and TPK-1024 for PIM BSR for IPv4 protocol testing

SUPPORTED MODULES/PLATFORMS

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

BPK-1005A/B supports all Spirent TestCenter test modules and personality cards. BPK-1005B should be used with Series 2000 test modules.

SYSTEM REQUIREMENTS

Minimum PC, UNIX, or Linux Requirements by System Size

- For Small Port System (2-25 ports) Minimum Requirement—2.4 GHz Intel Pentium 4 processor (or equivalent), 512 MB RAM and 10 GB of free disk space
  - Recommended System—Intel Core™ 2 Duo E6300 processor (or equivalent), 2 GB of free RAM, and 10 GB of free disk space
- For Medium Port System (26-75 ports) Minimum Requirement—3 GHz Intel Pentium 4 processor (or equivalent), 2 GB of free RAM, 15 GB of free disk space
  - Recommended System—Intel Core 2 Duo E6400 processor (or equivalent), 4 GB free RAM, 100 GB of free disk space
- For Large System (76 ports and above) Minimum Requirement—Intel Core 2 Duo E6400 processor (or equivalent), 3 GB free RAM, 100 GB free space on hard drive
  - Recommended System—Intel Core 2 Duo E6600 processor (or equivalent), 4 GB of RAM, 100 GB of free disk space

Spirent TestCenter Hardware Requirements

- One Ethernet cable and one 10/100/1000Mbps 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)
- Operating systems supported: Windows XP SP2, Windows 2003 Server (32 bit), RedHat EL3 and EL5, Solaris 8.0 and 10.0
- Pentium® or greater PC running Windows® XP Professional SP2 with mouse/color monitor required for GUI operation (See Minimum PC Requirements section)
- BPK-1001A/B required for packet generator/analyzer features
- BPK-1003A/B required for IGMP/MLD host and router query testing
- BPK-1004A/B required for Unicast Routing Testing
- BPK-1024A required for Conformance Testing
- BPK-1029A required for real-time capture/decode feature
- BPK-1090A VQA & MDI Base Package A
- SPK-1065 Multiplay Test Solution—Video, SIP, HTTP, and FTP protocol emulation
- TPK-1022 required for PIM-SM IPv6 protocol conformance testing
- TPK-1023 required for PIM BSR IPv4 protocol conformance testing
- TPK-1023 required for PIM-SM IPv4 protocol conformance testing
- TPK-1024 required for PIM BSR IPv6 protocol conformance testing
- WAN-2003A and SFP-4002A personality module required for ATM testing

ORDERING INFORMATION

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

Multicast Routing Base Package A BPK-1005A—Supports up to 10 emulated PIM routers per port

Multicast Routing Base Package B BPK-1005B—Supports up to the maximum emulated PIM routers per port

RELATED STANDARDS

- RFC 2362—Protocol Independent Multicast-Sparse Mode
- Draft-ietf-pim-sm-v2-new-11—PIM-SM
- Draft-rosen-vpn-mcast-06,07 and 08.txt - Multicast VPN RFC 4875 - Extensions to RSVP-TE for P2MP LSPs

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.spirent.com/gs or contact your Spirent sales representative.

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