RFC 2889 and RFC 2544 Test Suites

Performance, scalability, extended test durations

Product Overview

The RFC-2889 and RFC-2544 test suites are Tcl-based scripting tools for SmartBits used to measure the performance of Ethernet-based networks that forward data at Layers 2 and 3 of the OSI stack.

One of the first steps of quantifying the performance of an Ethernet switch is verify its conformance with industry standards. RFC-2889 defines reliable, repeatable methods for evaluation of switch performance at Layer 2, while RFC-2544 prescribes test methodology for benchmarking network interconnect devices that operate at either Layer 2 or Layer 3.

These test suites provide network equipment manufacturers the in-house tools needed for development testing and quality assurance. These test tools provide unbiased, hard results of switch performance. In turn, the test suites give service providers and enterprise users the information they need to choose specific equipment and deploy network switches. Regression testing, which is used to compare baselines with new revisions of switch firmware, can also easily be accomplished using these test suites.

The RFC-2889 and RFC-2544 test suites provide a straightforward yet powerful means of verifying networking performance per RFC-based standards. Port and traffic-flow scalability, combined with ease of use on a proven platform, make these test suites some of the industry's most reliable test solutions.

SmartBits RFC-2889 Test Suite – Supported Tests

- Full mesh throughput, frame loss and forwarding rate
- Partially meshed one-to-many/many-to-one
- Partially meshed multiple devices
- Partially meshed unidirectional traffic
- Congestion control
- Maximum forwarding rate
- Forward pressure
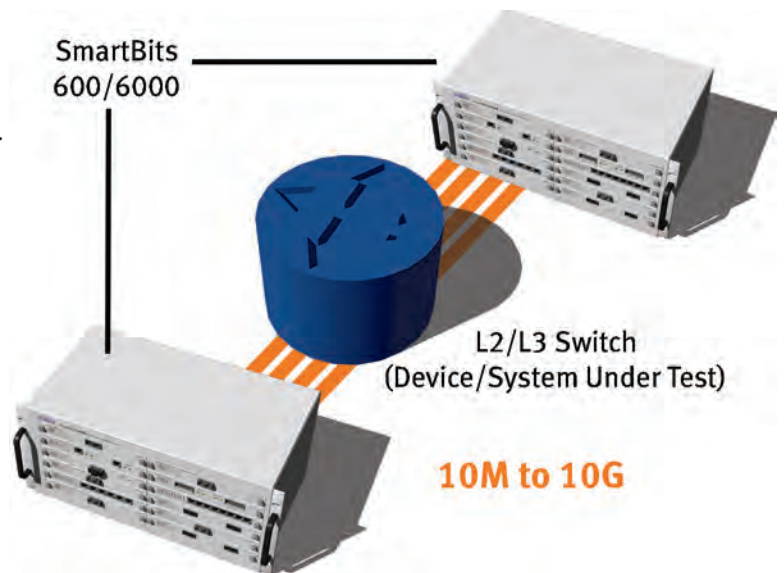- Address caching capacity
- Address learning rate
- Errored frames filtering
- Broadcast frame forwarding and latency

SmartBits RFC-2544 Test Suite – Supported Tests

- Throughput
- Frame loss
- Latency
- Back-to-back
- Reset

Key Features

- Pre-programmed customizable Tcl scripts; no scripting from scratch required

- Transmits IP, TCP, UDP flows using RFC-2544
- OSPF routing support with RFC-2544
- Uses SmartBits Automation, but with the ability to make direct calls using the SmartLibrary
- User-defined pass/fail criteria enable easy threshold analysis
- Stop-on-error logic decreases overall test time
- Allows one or more tests to be run automatically
- 10Gig module support with WAN and LAN modes

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- Enhanced results provide:
  - Per stream statistics, as well as per port analysis as specified in the RFCs
  - Histogram statistics that contain multiple metrics beyond those required per the RFC
- A Spirent test methodology explains each test, including overview, test objectives, input, outputs and expected results

Hardware Requirements

SmartBits SMB-600B or SMB-6000C chassis with one or more supported modules:
- LAN-3101B 10/100Base-T Ethernet, 6-port, SmartMetrics module
- LAN-3102A 10/100Base-T Ethernet, 2-port, SmartMetrics module
- LAN-3111A 100Base-FX Ethernet, 6-port, multi-mode, 1300nm, SmartMetrics module
- LAN-3111As 100Base-FX Ethernet, 6-port, single mode, 1310nm, SmartMetrics module
- LAN-3300A 10/100/1000Base-T Ethernet, Copper, 2-port, SmartMetrics module
- LAN-3301A 10/100/1000Base-T Ethernet, Copper, 2-port, TeraMetrics module
- LAN-3302A 10/100Base-TX Ethernet, Copper, 2-port, TeraMetrics module
- LAN-3306A 10/100Base-TX Ethernet, Copper, 4-port, TeraMetrics XD module
- LAN-3310A 1000Base-X Ethernet, GBIC, 2-port, SmartMetrics module
- LAN-3311A 1000Base-X Ethernet, GBIC, 2-port, TeraMetrics module
- LAN-3320A 10/100/1000 Mbps and Gigabit Ethernet Fiber, 2-port, SmartMetrics XD module
- LAN-3321A 10/100/1000 Mbps and Gigabit Ethernet Fiber, 2-port, TeraMetrics XD module
- LAN-3324A 10/100/1000 Mbps and Gigabit Ethernet Fiber, 4-port, SmartMetrics XD module
- LAN-3325A 10/100/1000 Mbps and Gigabit Ethernet Fiber, 4-port, TeraMetrics XD module
- LAN-3327A 10/100/1000 Mbps and Gigabit Ethernet Fiber, 1-port, TeraMetrics XD module
- XLW-3720A 10GBase Ethernet, XENPAK MSA, 1-port, 2-slot, SmartMetrics module
- XLW-3721A 10GBase Ethernet, XENPAK MSA, 1-port, 2-slot, TeraMetrics module
- XFP-3730A 10GBase Ethernet, XFP MSA, 1-port, 1-slot, SmartMetrics module
- XFP-3731A 10GBase Ethernet, XFP MSA, 1-port, 1-slot, TeraMetrics module

IBM or compatible Pentium^{tm} PC, minimally with Pentium III 500 Mhz processor, 256 MB of RAM, SVGA - 1024 X 768, 70 MB of available hard drive space and one of the following operating systems:
- Windows NT 4.0 Service Pack 6
- Windows 2000 - Professional Edition Service Pack 4
- Windows XP Service Pack 1, 1a, 2
- Unix Sun Solaris 7.0, 8.0
- RedHat Linux 7.3, Enterprise WS 3.0

Software Requirements

- SmartBits Automation 3.00 or higher
- SmartBits Automation license key per chassis
- TRT 5.00 or higher with OSPF (if OSPF routing support is needed with RFC-2544)
- A spreadsheet application, such as Microsoft Excel

Ordering Information

RFC-2889 Test Suite
- **SCR-2889A** — RFC 2889 Test Suite
- **SWF-1255A** — SmartBits Automation

RFC-2544 Test Suite
- **SCR-2544A** — RFC 2544 Test Suite For Non-Routing And Routing
- **SWF-1255A** — SmartBits Automation
- **SWF-1230A** — TeraRouting Tester (TRT) (if OSPF routing support is needed with RFC-2544)
- **SWF-1231A** — OSPF Software Module for TRT (if OSPF routing support is needed with RFC-2544)

Software Bundles
- **STK-2889A** — RFC 2889 Test Suite Automation Bundle with SMB Automation
- **STK-2544A** — RFC 2544 Test Suite Automation Bundle for Non-Routing
- **STK-1295A** — TeraRouting Tester with RIP and OSPF Software Bundle (if OSPF routing support is needed with RFC-2544)

Contact a Spirent Communications sales representative regarding bundling options and for the most current hardware support information.

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