Virtual LAN Advanced Switch Tests
VAST

Product Overview

Spirent Communications' SmartBits® Virtual LAN Advanced Switch Tests (VAST) application tests and verifies the performance of next-generation Ethernet switches, routers, and VLANs. VAST provides a 10/100 Mbps, full/half duplex, stream-based set of tests. In each of these tests, you can measure the throughput and packet loss for the different traffic patterns.

PreprogrammedTests

- VLAN by Port — Layer 2 switches, VLAN by port
- VLAN by MAC Address* — Layer 2 switches, VLAN by MAC address
- VLAN by Protocol — VLAN by protocol
- VLAN by Subnet* — Layer 2 and 3 switches, routers, VLAN by subnet
- VLAN by Tag (802.3ac) — VLAN by tag
- VLAN Setup Time — VLAN by subnet
- Filter Illegal Frames — Layer 2 and 3 switches, routers, VLANs
- Broadcast Frames* — VLAN by subnet
- Fanout* — VLAN by subnet, layer 3 switches, routers
- Routing VLAN* — Layer 3 switches, routers

Advanced Tracking and Histogram Data are available in these tests.

Test Descriptions

VLAN by Port, by MAC Address, by Protocol

VAST includes a variety of tests that can be used to determine the capability of a VLAN to set up and switch packets that are based on port, MAC address, or protocol type. Protocol types include: IP, IPX, DECNET LAT, Apple Talk, BPDU, NETBEUI, IPX Server, NETBIOS IPX, and NETBIOS IP. You can also define three custom protocol headers for each test. These tests show traffic leakage across VLAN boundaries and also test how well a VLAN performs.
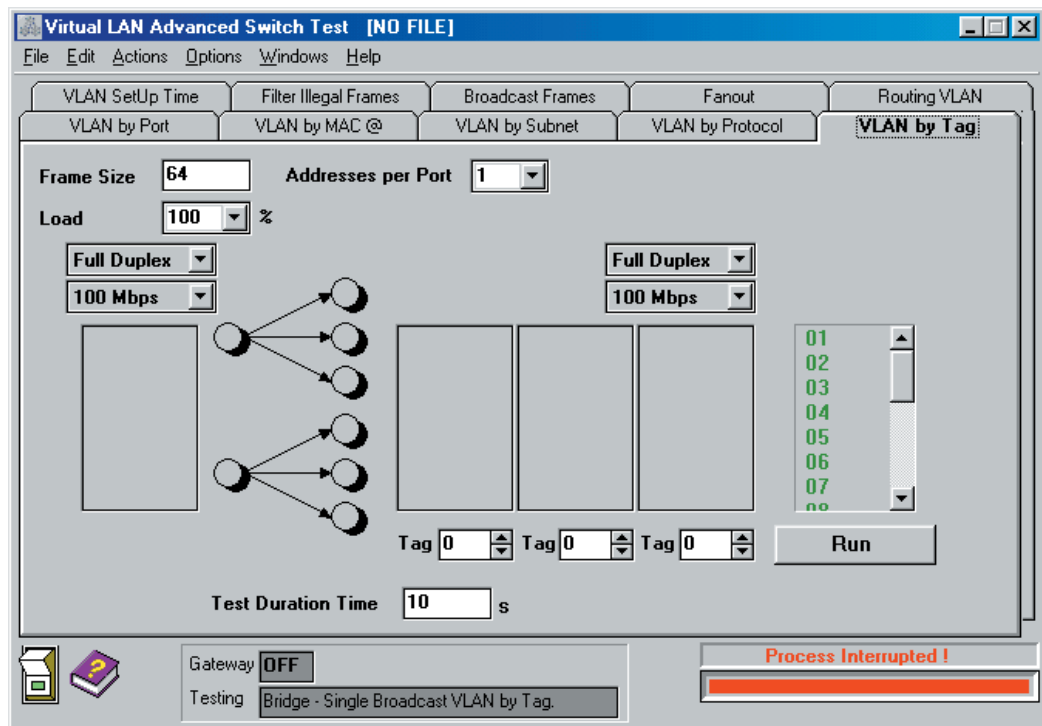
VLAN by Subnet

This test measures the ability to switch traffic at layer 3 within each subnet. The test can also run on layer 2 switches. Advanced tracking data and histogram data are available for both layer 2 and layer 3. This test can run with various loads and packet lengths, and with from 1 to 40 VLANs running class A, B, or C IP traffic.

VLAN by Tag

This test measures the ability to correctly forward frames that carry the 802.3ac VLAN tag. The test can be run with various loads, packet lengths, and burst sizes.

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VAST setup window

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VLAN Setup Time

This test measures the performance of policy-based VLANs by subnet. The test measures the total time involved for a VLAN to (a) detect that a port has switched to a different subnet and then (b) switch the port to the correct VLAN. This test can be run with various loads, packet lengths, and burst sizes, and with class A, B, or C IP traffic.

Filter Illegal Frames

This test generates various types of illegal traffic at layer 3, to see how the DUT will respond. Traffic errors include: undersize packets (as small as 24 bytes), oversize packets (as large as 1,600 bytes), CRC errors, and alignment errors, with Time to Live settable from 0 to 10 seconds. While generating this errored traffic, you can adjust the packet size and the % traffic load with class A, B, or C IP traffic.

Broadcast Frame Handling and Latency

One of the objectives of a VLAN is to reduce the amount of broadcast traffic on each VLAN. This test checks that a VLAN by subnet correctly forwards broadcast traffic to all of the members of the VLAN, and does not forward it to other VLANs. The test can be run with various loads and packet lengths, using from 1 to 40 VLANs and class A, B, or C IP traffic.

Fanout

This is a test for VLANs by subnet and by port. In this test, continuous traffic is sent from the selected transmitting ports to the selected receiving ports at up to 100% load. This tests the port's ability to accept and transmit wire-speed traffic while switching at layer 3. This test can be run with various loads and packet lengths and with class A, B, or C IP

traffic. You may also try different burst sizes to determine the maximum traffic burst size that a device can handle before being overrun.

Routing VLAN

This test is for routers or for routing between VLANs by subnet. The test simulates real-world networks with a fully-meshed IP traffic pattern through the DUT. This test can be run with various loads, packet lengths, and burst sizes and with class A, B, or C IP traffic. Each of these values is used to create the meshed traffic pattern with each port transmitting bursty traffic.

Requirements

- An SMB-200 or SMB-2000 equipped with at least two ML-7710 or ML-7711 SmartCards.
- The proper cabling for the test (for example, category 5, straight-through or cross-over, depending on the DUT).
- An IBM or compatible Pentium™ PC running Windows 98/2000/NT, with mouse and color monitor.

Ordering Information

SMB-VAST

Virtual LAN Advanced Switch Tests

SUS-SMB

12-month Software Update Support Service

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