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Test & Measurement

- sales
- rentals
- calibration
- repair
- disposal

Complimentary Reference Material

This PDF has been made available as a complimentary service for you to assist in evaluating this model for your testing requirements.

TMG offers a wide range of test equipment solutions, from renting short to long term, buying refurbished and purchasing new. Financing options, such as Financial Rental, and Leasing are also available on application.

TMG will assist if you are unsure whether this model will suit your requirements.

Call TMG if you need to organise repair and/or calibrate your unit.

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Disposal

Disposal

Level 3
Repair

Repair

Review & Renew

Level 5
Review & Renew

Level 2
Calibration

Calibration

Recycled

Level 1
Acquisition

Acquisition

Purchase
Lease
Rent

Solution Centre

Product Lifecycle Management System

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NATA

Form 080/01

Spirent Avalanche
AVALANCHE LOAD TESTING APPLIANCE

In today's digital world, it's essential that the performance of your network infrastructure, security systems, and Web applications are carefully tested to ensure that performance goals are met. Heavy demands are placed on the network by the emerging combination of voice, video and data traffic, creating new challenges for IT staff.

KEY FEATURES

Flexible Load Specifications

Avalanche provides considerable flexibility, enabling testers to specify load variables such as user sessions, new user sessions per second, transactions, transactions per second, connections or connections per second. One load profile can be specified for an entire test, or a separate load profile can be defined for each group of simulated users. This flexible approach enables different actions, network characteristics and loads to be specified for each group of simulated users. In addition, graduated load-stressing capabilities save time by allowing testers to set up user and network parameters just once and then perform tests at multiple load levels.

User Realism

Avalanche supports the configuration of extremely realistic user behaviors, so that tests accurately reflect your company's network usage patterns. The system can interact seamlessly with sites using dynamic and interactive content, HTML links and fill-in online forms. Multiple types of browsers can be emulated, providing detailed control over browser connection behavior, SSL versions, authentication and browser client headers. User behavior such as think times and "click-aways" (HTTP aborts) can be simulated, and the system also supports HTTP basic and proxy authentication.

Avalanche can send realistic requests that include dynamically filled-in fields from a list of provided values, or values captured from a previous response such as order numbers, session IDs or transaction IDs. Avalanche also supports high-performance testing of Web services to ensure that mission-critical services will perform under heavy loads. The system can also verify received content by searching for one or more strings in a response.

Avalanche can quickly identify potential points of failure by stress-testing the infrastructure. Large quantities of highly realistic simulated user and network traffic can be generated, recreating a wide range of real-world loading scenarios. This proactive approach enables you to correct trouble spots and bottlenecks before network slowdowns or costly outages occur.

Ideal for equipment manufacturers, service providers, and enterprise network operators alike, Avalanche eliminates the need to build expensive and cumbersome test infrastructures. The challenge of analyzing performance and security in today's triple play voice, video, and data networks requires the best testing equipment you can get. By accurately emulating user and network behavior, the Avalanche load testing appliances help ensure tight security and optimum application performance. Available in two form factors, the Avalanche network appliances are designed to be deployed as a fixed, rack-mounted solution or used in the field for evaluation of remote sites.

- Avalanche 2700™ is a rack-mountable test appliance capable of generating extremely high volumes of realistic network and user traffic. A scalable solution, multiple Avalanche 2700 units can be deployed to test even the largest application infrastructures.

- Avalanche 220™ is a portable test appliance designed to provide a powerful testing and troubleshooting solution that can be quickly deployed in remote locations.

Testing before.

Testing after.
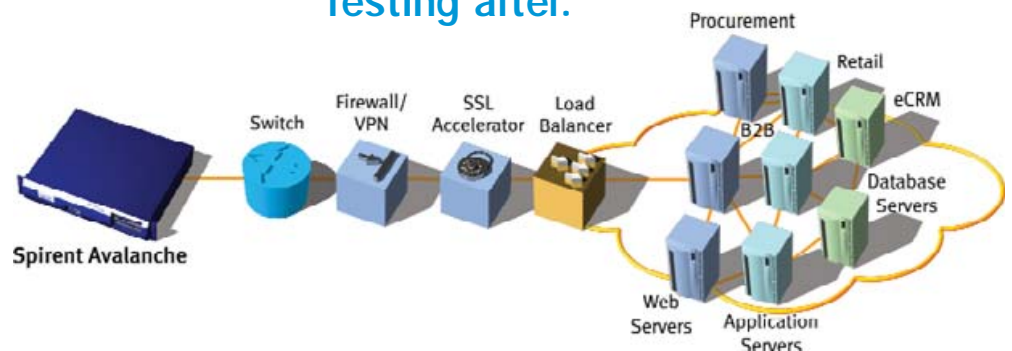
Spirent Avalanche

The Spirent Communications Reflector test appliance is a companion solution designed to simulate large Web, mail and streaming server infrastructures. When used together, Avalanche and Reflector provide an ideal testing strategy for enterprise network operators, equipment manufacturers and service providers. This two-pronged approach delivers a reliable, quantifiable way of establishing performance thresholds, and can be used to test both individual devices and networks to capacity.

APPLICATION REALISM

Multi-protocol support: Avalanche supports all major protocols, including HTTP 1.0/1.1, HTTPS, FTP, streaming media, IPv6, voice (SIP), mail (SMTP/POP3), DNS, Telnet, 802.1Q VLAN tagging, IPSec, and PPPoE. Broad-based protocol support enables you to accurately test for performance-sensitive network activities such as:

- E-commerce: Generate realistic Web traffic using browser cookies, session IDs, HTTP posts, and SSL-encrypted traffic.

- Mail: SMTP and POP3 support lets you simulate large numbers of users sending and receiving messages. The system is compatible with all major mail servers and supports simulation and analysis of email attachments, including valid documents and viruses.

- Streaming media: Generates and handles more than 10,000 concurrent streaming requests, enabling you to assess the capacity of large streaming media farms and streaming-aware devices using QuickTime, Real Networks, and Windows Media.

- Video on Demand streaming through multicast: Video on Demand infrastructures can now be fully tested before they are rolled out to production using the user-driven Video on Demand support offered by Avalanche.

- File transfer: Avalanche FTP support allows you to simulate large numbers of users fetching files ranging from 1 KB to 1 GB and beyond.

■ Next-generation IP: Avalanche IPv4 and IPv6 dual stack support delivers a wide range of testing capabilities to any IP environment.

Capture-Replay: Avalanche enables you to generate traffic using protocols that are not natively supported by Avalanche. Capture-Replay enables you to use industry-standard packet capture (PCAP) files as the source of TCP or UDP traffic that Avalanche will use to generate connections. During this process Avalanche continues to use its high-performance TCP/IP protocol engine, ensuring that the PCAP files will be able to stress-test your devices and applications to maximum performance.

Network latency, packet loss and fragmentation: Avalanche includes a high-accuracy delay factor that mimics latencies that are typical of users' connections. Asymmetric broadband connections are accurately emulated, with traffic moving at high speeds downstream and at far slower rates upstream. Simulated levels of packet loss and performance degrading fragmentation can also be specified, including simulation of in-order fragments, lost fragments and even reverse-order fragments.

TCP/IP stack characteristics: Avalanche provides control over TCP/IP stack characteristics such as maximum segment size, delayed ACKs, IP fragmentation and TCP time out behavior. These capabilities enable you to simulate different network environments and fine tune your device or infrastructure in environments displaying different types of TCP behavior.

21ST CENTURY SECURITY

Spirent Communications understands that security is one of the most serious challenges your company faces. It is a difficult task to ensure confidentiality, authentication and data integrity while extending communications across public infrastructures such as the Internet. Many organizations deploy Virtual Private Networks (VPNs) using IP Security (IPSec) to create secure tunnels across the public Internet, and require a solution for testing encryption, authentication, and data integrity capabilities.

Although IPSec helps provide tight security, it places a very real performance burden on the system. Avalanche supports a broad set of IPSec security testing capabilities designed to test the complex variations of today's security infrastructures.

Avalanche delivers realistic application simulation and high degrees of user realism, and supports a complete range of intranet, extranet and remote access VPN configurations for both IPv4- and IPv6-based networks. In addition, SSL VPN-encrypted sessions can be simulated as a part of the overall emulation, including the generation and receipt of validated certificates.

Keeping malicious traffic out of the network is equally important. Avalanche provides an additional layer of security by ensuring that the infrastructure is capable of protecting against viruses and denial of service attacks, even when the network is experiencing extreme loads.

■ Inline Distributed Denial of Service (DDoS) attacks can be generated along with normal multiprotocol Avalanche traffic, enabling you to assess your device or infrastructure's resistance to malicious traffic

AUTOMATED TESTING SOLUTIONS

Designed to enable test engineers to choose among methodologies according to their specific needs and goals, WorkSuite Manager (WSM) is an automated testing suite that features an intuitive graphical user interface. WSM can be used in two ways: as a test harness or as an aid to goal seeking. When used as a test harness, WSM can execute a series of tests in a user-specified order while applying validation rules to each test. When used in the goal seeking mode, WSM can run a single test until a specific goal is reached.

WSM delivers custom test sequence automation, instead of simply running a sequence of tests or conducting basic iterative tests that change load values in preset increments. Need to discover the maximum number of concurrent connections supported by the infrastructure? WSM can run an automated series of test iterations that continues until the actual load stays constant or starts to fall off, signifying discovery of the maximum. This dramatically reduces the manual work involved in multiple iterations and makes testing much more efficient. In addition, Tcl-based scripting enables users to bypass the graphical user interface to develop, store and reuse test bench configurations.

TRIPLE PLAY/IP TELEPHONY (SIP) TESTING

Two factors have created a sharp demand for VoIP testing: network demands created by provisioning voice, video, and data services to a large number of customers, and revolutionary IP telephony technology that can deliver almost-free global calling. Avalanche answers this testing challenge by introducing support for the leading IP telephony protocol, SIP. Avalanche and Reflector are the only testing devices on the market that can generate VoIP (SIP), video (multicast and unicast streaming) and data (HTTP, HTTPS, FTP, etc.) traffic from the same port, from the same GUI, and from the same appliance.

Avalanche is the de facto standard for Layer 4 – 7 triple play testing, thanks to its fully-integrated traffic approach and state-of-the-art reporting capabilities. Avalanche Analyzer is the only reporting tool in the marketplace that delivers a single, integrated reporting view of triple play traffic behavior. The two combine to deliver the best triple-play testing solution available.

PERFORMANCE THAT PUTS YOUR CAPACITY TO THE TEST

Both Avalanche appliances provide powerful testing capabilities, with the Avalanche 2700 delivering high speed performance that can exceed 3.3 Gbps.

- Avalanche 2700 can generate more than 90,000 HTTP 1.0 requests per second (over 110,000 HTTP 1.0 requests per second using Streamliner). With IP and MAC masquerading, the appliance can simulate 1.7 million concurrent connections, each appearing to come from different IP addresses and/or different MAC addresses on different subnets

- Avalanche 220 can generate more than 7,000 HTTP 1.0 requests per second, and over 10,000 HTTP 1.1 requests per second with persistence. The appliance is capable of simulating up to 250,000 concurrent connections

QUICK SETUP AND INTUITIVE CONTROLS

Avalanche setup is quick and intuitive. Setup of the Avalanche appliances requires only about 15 minutes for rack mounting (if needed), powering up, and configuration. Both models can be quickly and easily configured from the Avalanche Commander GUI, which provides intuitive controls that enable you to quickly set up new tests without having to write extensive scripts.

EXTENSIVE, FLEXIBLE REPORTING

The Avalanche appliances provide real-time statistics for critical variables across all protocols, so you can determine how your equipment or infrastructure holds up while testing is in progress. SNMP statistics can also be gathered from the devices or software components being tested, providing comparisons of variables such as CPU utilization with end-user response time. Avalanche Analyzer™, the market leading reporting tool from Spirent Communications, gives you an integrated picture of all relevant statistics in a single report, and allows you to export them into JPEG, PDF, or HTML formats.

WARRANTY AND SUPPORT BACKED BY COMMITMENT

All products from Spirent Communications feature comprehensive warranty, maintenance and support packages, and we are fully committed to helping you get the most from our innovative technology.

SUMMARY

User Realism
- Provides flexible load specifications that can be applied globally or per user profile: user sessions, new sessions per second, transactions, transactions per second, connections, or new connections per second
- Supports Web Services testing
- Allows interaction with dynamic content sites
- Emulates multiple browser types
- Supports cookies, session IDs, HTML forms, HTTP posts, and HTTP basic and proxy authentication
- Simulates user click patterns with configurable "think times"
- Simulates user click-aways (HTTP aborts)

Network Realism
- Generates HTTP/1.0, HTTP/1.1 and HTTPS (including persistence and simultaneous connection settings), RTSP/RTP (QuickTime and Real Networks), Windows Media (MMS and RTSP), Video on Demand/Multicast, FTP, SMTP (including attachments) and POP3, DNS, Telnet, and PPPoE traffic
- Supports SSL versions v2, v3, and TLS v1, and SSL protocol parameters (version selection, cipher suites and session ID re-use)
- Emulates the process of clients visiting SSL-secured Web sites, receiving CA certificates, and validating them against CRL lists to simulate SSL-secured transactions
- IPSec support
- SIP VoIP support
- Supports simulation of Distributed Denial of Service (DDoS) attacks
- Handles multi-level HTTP redirects
- Supports HTTP proxies and proxy caches
- Enables network delay settings
- Packet loss simulation
- Dual Stack support of IPv4 and IPv6 environments
- Allows simulation of TCP/IP stack characteristics and control over:
- Maximum segment size
- Slow start/congestion avoidance
- VLAN tagging
- IP fragmentation
- TCP time out behavior
- Link-speed emulation (from 9600 bps to gigabit LAN speeds)

Flexible Reporting
- Real-time statistics provide instant feedback during infrastructure performance tests
- SNMP monitoring and reporting
- Avalanche Analyzer generates reports and graphs that can be exported in JPG, PDF, and HTML formats

Intuitive Operation

- Fast set-up; typically requires 15 minutes for rack mounting, power-up and browser configuration
- The easy-to-use Avalanche Commander GUI delivers quick system configuration, including clustering support for very large test bench setups using multiple appliances
- Test new functionality without writing extensive scripts

TCL-based Scripting Support

- Provides the option of bypassing the Commander interface and using TCL-based scripting, enhancing productivity by enabling users to develop, store, and reuse test bench configurations

ORDERING INFORMATION

Avalanche 2700 Model B (P/N CEE-A-2700B)

Avalanche 2700 Model C (P/N CEE-A-2700C)

Reflector 2700 Model B (P/N CEE-R-2700B)

Reflector 2700 Model C (P/N CEE-R-2700C)

SPIRENT GLOBAL 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 website at www.spirent.com/gs or contact your Spirent sales representative

	Avalanche 2700	Avalanche 220
High Performance		
Simultaneously Connected Simulated Users with Unique IP Addresses	1.7 million	over 250,000
Requests per Second	over 90,000 (HTTP 1.0 with no persistence), over 100,000 (HTTP 1.1 with persistence), and in excess of 110,000 using Streamliner; Sustains over 9,500 HTTPS connections per second with no SSL session ID re-use	over 7,000 (HTTP 1.0 with no persistence), and over 10,000 (HTTP 1.1 with persistence), Sustains over 600 HTTPS with no SSL session ID re-use
Streaming Requests	over 10,000	over 3,000
Integrated Hardware and Software	3U, 19-inch rack-mountable infrastructure stressing appliance	Portable, compact load-testing appliance
Physical Specifications		
Dimensions	5.25" H x 16.53" W x 19.75" D Fits standard 19" rack, 3U high	1.6_ H x 6.3_ W x 5.75_ D (4.1 cm H x 16 cm W x 14.6 cm D)
Weight	31 lbs. (14 kg)	3.5 lbs. (1.6 kg)
Operating Environment	5°C–35°C	0°C–45°C
Non-Operating Environment	0°C–50°C	20°C–80°C
Relative Humidity	10%–90% (non-condensing)	10%–90% (non-condensing)
Power Requirements	115-230V, 50/60 Hz	115-230 V, 50/60 Hz Input rating 100-240 VAC, 2A, 50/60W Output rating 24 VDC, 2.5 A, 60 W (max) External power adapter
Maximum Power Consumption	460 watts	2A, 110V
Network Interfaces	10/100Base-T admin interface with choice of test interfaces: ■ Copper: four 10/100/1000 (FastE/GigE) ports ■ Fiber: four 1000Base-SX (GigE) ports ■ Mixed: two 10/100/1000 (FastE/GigE) and two 1000Base-SX (GigE) ports	Two 10/100Base-T test interfaces One management 10/100Base-T port FCC Class A, CE, cTUVus
Regulatory Approvals	FCC Class A, EN 55022 Class A, EN 55024	FCC Class A, CE, cTUVus

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