Balancer Module
WebSuite™

Product Overview

"Layer 4-7 switching" is gaining popularity as a networking concept that brings availability and fault tolerance to the Internet. Web switching allows content to be segregated across multiple servers and delivered intelligently by making forwarding decisions based on application criteria such as URLs in HTTP requests, while providing load balancing for increased performance during high periods of demand.

WebSuite's Balancer module is an easy-to-use application for use with SmartBits® equipment. It is designed to test server load balancers and web switches and consists of a set of tests that measure the TCP session handling capabilities of a device. WebSuite Balancer benchmarks both the peak rate and concurrent connection capacities of the device or system under test.

The various WebSuite Balancer tests employ two or more SmartBits modules, which emulate both the client and server sides of a user transaction. Client-side modules can generate a large number of TCP connections and web transactions to fully stress the device or system under test. Server-side modules emulate server farms to simulate website infrastructures, eliminating the need to use real servers that can be difficult and time consuming to set up.

Websuite Balancer Applications

Balancer is designed to allow IT managers, network equipment vendors, service providers, and web hosting companies to:

- Assess the performance benefits of using server load balancers or web switches in network architectures before deployment.
- Evaluate the functionality of content-based switching algorithms during development and quality assurance cycles.
- Perform a comparative analysis of server load balancers or web switches.
- Validate DDoS (Distributed Denial of Service) protection mechanisms.
- Perform scalability tests to determine the maximum number of concurrent users and peak processing rates.

Key Features

- Generate thousands of HTTP transactions per second, per port.
- Set up millions of concurrent TCP connections.
- Scale the test bed to hundreds of ports, without affecting system-level performance.
- Configure up to 20 URL's and cookies per client port (used in HTTP GET requests to server ports).
- Dynamic cookie configuration to validate e-commerce cookie persistence schemes.
- HTTP user-agent configuration for browser emulation.
- Per URL/cookie statistics to validate content switching rules.
- Select between HTTP 1.0 and 1.1 with the ability to send multiple transactions over 1.1 connections to test session persistence.
- Selectable TCP connection close options.
- Configure the total HTTP response size as well as individual data segment sizes.
- Set up UDP background traffic and retrieve SmartMetrics™ test results.
- Use VLAN tags on a per client and server basis for L4-L7 traffic and for L3 UDP traffic.
- Validate concurrent connection capacities using verification option.
- Global and detailed counters for TCP connection setup/teardowns, HTTP transactions, and IP packet statistics report connection/transaction failures and successes; allow for comprehensive troubleshooting.
- Easy-to-use, spreadsheet-style configuration of TCP sessions, including a traffic wizard.
- In addition to providing overall test measurements, test results are displayed on a "per-server," "per-client" basis, allowing you to test the load-balancing functionality of the device or system under test.
- Measurements are made under user-controllable variable conditions, showing the full spectrum of performance characteristics of the device under varying loads.
- Supports SAI (Scripting Automation Interface) on Windows®, Linux™, and UNIX™ platforms using Tcl, C/C++, and Visual Basic interfaces.

Test Descriptions

Concurrent Connection Capacity

This test performs TCP connection setups for a configurable amount of connections at a fixed rate. By varying the number of connections used in multiple test iterations, the test measures the maximum number of concurrent connections that the device or system under test can sustain. A full user session can be configured, including an HTTP transfer and TCP close.

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Maximum Session Rate

This test performs TCP connection setups, followed by teardowns, for a configurable amount of connections at a specified rate. The test measures the peak rate at which a DUT/SUT (device or system under test) can handle the setup and teardown of TCP connections over time.

Maximum Connection Rate

This test measures peak connection rates that can be sustained by the device or system under test over time. After each connection is established, an HTTP transaction takes place between client and server. This allows for testing of URL-based switching techniques and cookie persistence in web switches. The average number of connections established in configurable time intervals is reported. The test also provides the average time to establish and tear down TCP sessions.

Extended Duration

This test is designed to measure the performance and stability of the DUT/SUT over a long period of time by sending L4-L7 traffic continuously for up to a week. Results are retrieved after a specified duration.

Mixed Traffic

This test combines many traffic types, enabling you to perform capacity assessment and to analyze session-based metrics in the same test. Full TCP sessions and TCP Connection/HTTP traffic can run as L4-L7 traffic in the same test. UDP and attack traffic can be included as background in the test. By combining the HTTP traffic type with either attack traffic or UDP traffic, you can determine the effect that the presence of attack traffic and UDP traffic load have on the DUT/SUT's performance.

Traffic Types

TCP Connection/HTTP

This traffic uses a partial TCP engine to set up connections at a high rate and simulate short, bursty HTTP 1.0 transactions.

UDP

UDP flows can be set up to determine the performance characteristics of a DUT/SUT when exposed to various frame sizes, or to establish a level of background traffic. Available SmartMetrics results include:

- Frame Loss
- Latency Distribution
- Latency over Time
- Jumbo

DDoS Attacks and Port-Scans

DDoS Attacks: Simulate malicious Internet attacks and evaluate the DUT/SUT's ability to filter this traffic. Supported attacks include:

- SYN Flood
- Ping of Death, Ping Sweep, Ping Flood
- Smurf
- Teardrop
- Land-Based
- ARP Attack
- Jolt2 Attack
- UDP Flood

Port-Scans: Port-scans are popular reconnaissance tools used by hackers to discover active services that can be used to gain access into a network or device. Supported port-scans include:

- UDP Scan
- TCP-SYN Scan
- TCP-ACK Scan
- TCP SYN-ACK Scan
- TCP-FIN Scan
- X-mas Tree Scan
- TCP-RST Scan

Supported Modules

Module	Description
LAN-3101A/B	10/100Base-TX Ethernet, 6-port, SmartMetrics module
LAN-3102A	10/100Base-TX 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-T Ethernet Copper, 2-port, TeraMetrics module
LAN-3310A	1000Base Ethernet, GBIC, 2-port, SmartMetrics module
LAN-3311A	1000Base Ethernet, GBIC, 2-port, TeraMetrics module

Requirements

- An SMB-600 or SMB-6000B chassis with the appropriate modules.
- An IBM or compatible Pentium™ PC running Windows® NT/2000, with mouse and color monitor.
- Microsoft Excel 97/2000® application for Windows (optional, but highly recommended).

Ordering Information

SWF-1220A

WebSuite Balancer Software Module

SUS-SMB

12-month Software Update Support Service

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