Layer 4-7 Load Balancing Tests
SmartTCP™

Product Overview

"Layer 4-7 switching" is gaining popularity as a networking concept that brings availability, scalability, and fault tolerance to the Internet. This type of 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. This enables application prioritization for delivering different bandwidths to various traffic classes, and also accelerates the web for increased performance.

SmartTCP is an easy-to-use application used with SmartBits® equipment. It is designed to test server load balancers and web switches and consists of a set of tests that measure TCP session handling capabilities. SmartTCP benchmarks both the rate and connection capacities of the device or system under test while processing TCP sessions.

SmartTCP tests employ two or more SmartBits modules, which emulate both the client and server sides of a connection. 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 web-site infrastructures, eliminating the need to use real servers that can be difficult and time-consuming to set up.

SmartTCP Applications

SmartTCP is designed for IT managers, network vendors, service providers, and web hosting firms, allowing them to:
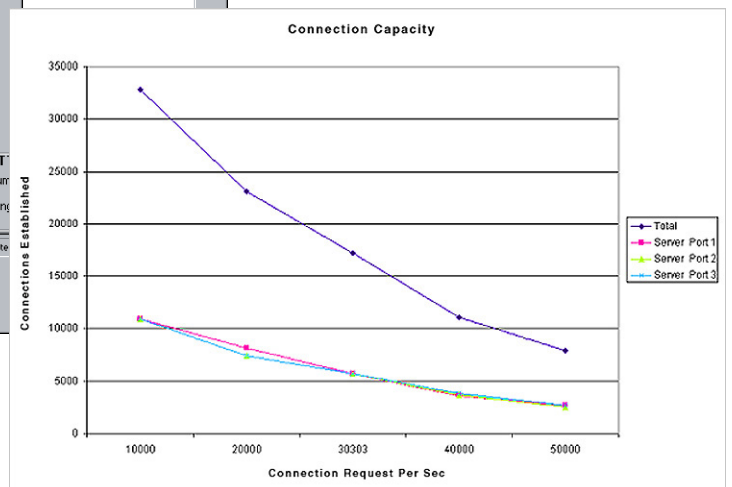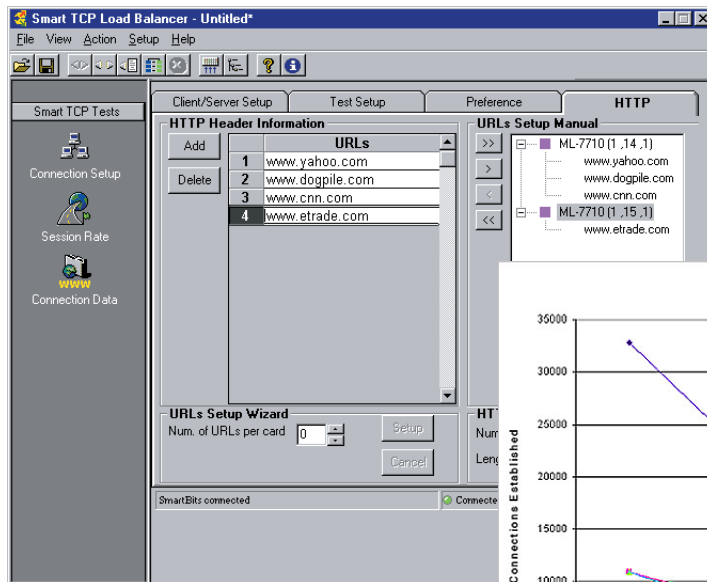
- Assess the performance benefits of using server load balancers or web switches in network architectures before deployment.
- Evaluate the functionality of content-based switching algorithms during development and quality assurance cycles.
- Perform a comparative analysis of server load balancers or web switches.

Test Descriptions

All SmartTCP tests measure the average time to establish and tear down TCP sessions. The graphical results indicate any performance degradation that may occur as the number of simultaneous open sessions increases.

Connection Setup

This test performs TCP connection setups for a configurable amount of connections at a specified rate. By varying the rate used in multiple test iterations, the test measures the peak rate at which the device or system under test can handle incoming TCP connections over time. The maximum number of concurrent TCP connections that can be sustained is also measured.

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SmartTCP setup and results windows

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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 can handle the setup and teardown of TCP connections over time.

Connection Data

This test measures peak HTTP rates and the maximum number of concurrent TCP connections 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 that allow web switches to direct traffic based on HTTP requests.

Feature Highlights

- Configure up to 20 URL's per client that will be used in HTTP GET requests for server modules.
- Configure the total HTTP response size as well as individual data segment sizes.
- IP, TCP, and HTTP counters offer a global and detailed account of transaction/connection failures and successes, allowing troubleshooting and debugging capabilities.
- Generate millions of web transactions.
- Set up thousands of connections per second, per port.
- Easy-to-use, spreadsheet-style configuration of TCP session streams.
- Results are displayed in tabular and graphical formats using Microsoft Excel. This provides user control and flexibility of data representation and charting.
- In addition to providing overall test measurements, test results are displayed on a "per-server" 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 multi-user/multi-chassis operation.
- The SmartTCP Application Programming Interface (API) supports Windows®, Linux, and UNIX platforms using Tcl, C/C++, and Visual Basic interfaces.

Supported Modules

Module	Description
ML-7710	10/100 Ethernet SmartMetrics SmartCard
LAN-3101A	10/100 Ethernet, multi-mode, SmartMetrics module
LAN-3201B	1000Base Ethernet, GBIC, multi-mode, SmartMetrics module
LAN-3111A	100Base-FX Ethernet, multi-mode, SmartMetrics module with LC connector

Requirements

- An SMB-200/SMB-2000 and/or SMB-600/6000B with the appropriate modules.
- An IBM or compatible Pentium' PC running Windows 98/NT/2000, with mouse and color monitor.
- 1 RS-232 modem cable, or for Ethernet control, 1 RJ-45 straight-through cable with a 10 Mbps Ethernet controller card.
- Microsoft Excel® application for Windows (optional, but highly recommended).

Ordering Information

SWF-1202A

SmartTCP

SUS-SMB

12-month Software Update Support Service

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