NETSCOUT®

Test Optimization Solutions

Improving Efficiency, Speed, and Performance in Network and Application Test Labs
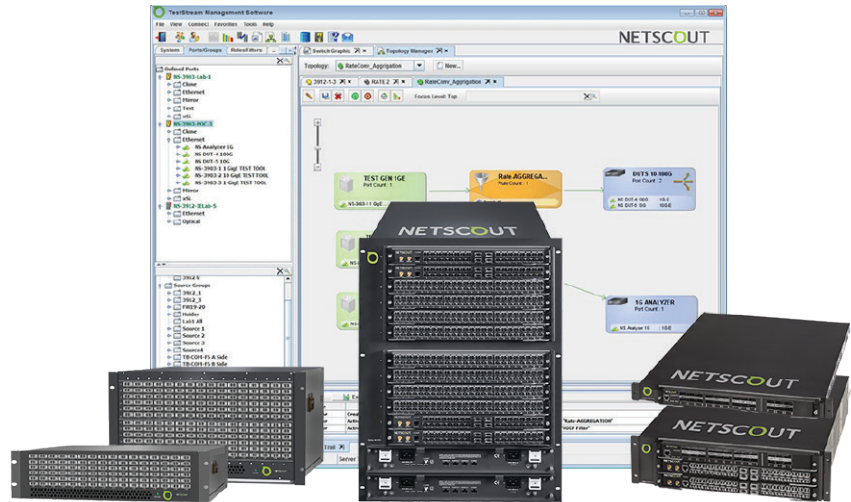

TEST OPTIMIZATION

Benefits

- Combines Layer 1 functionality and Layer 2-4 intelligence in a single platform
- Enables highly scalable configurations in a single switch fabric
- Simplifies control via easy-to-use management software

Lab Applications

- Lab as a Service (LaaS)
- Test Lab Automation
- Cyber / Security Testing
- High Performance Testing

Packet Generation

Impairment

Traffic Statistics

Filtering

Aggregation

Rate Conversion

Replication

TAP

Switch

LAYERS 2 - 4

LAYER 1

Introduction

Today's test labs are evolving quickly. The need to increase the efficiency of lab equipment is imperative in order to keep capital expenditures from sky rocketing. Yet in many cases, expensive lab equipment goes greatly underutilized. The complexity and variety of test configurations often leads to longer than necessary test cycles. All of these factors drive the need for a new approach, where global resources are consolidated and proven technology is leveraged across more high-performance and complex configurations.

An optimized test solution should:

- Increase network and application test lab efficiency
- Reduce time required to set-up and test
- Improve overall lab performance
- Provide savings in both CAPEX & OPEX

An optimized test environment enables you to test products and services faster and increase overall profitability. It also enables you to establish global 24x7 test operations, share expensive network tools, increase overall equipment utilization, and accelerate repeatable processes.

Challenges

Deploying an optimized environment, however, can pose a significant set of challenges. Because this concept of an optimized lab is relatively new, it is important to work with a trusted vendor that can provide the right combination of functions to deliver a truly optimized lab solution.

NETSCOUT Test Optimization Solutions

NETSCOUT® delivers Test Optimization solutions that help customers improve their network and application test lab efficiency, speed, and performance.

Our TestStream™ Management Software and Packet Flow Switch family deliver highly scalable and intelligent solutions offering Layer 1 functionality and Layer 2-4 intelligence in an integrated platform controlled through an easy to use software interface.

NETSCOUT Test Optimization solutions enable customers to increase the utilization of their existing tools and devices under test (DUTs), and decrease the number of new tools and DUTs required. They can quickly share tools and DUTs for faster testing cycles and increase productivity.
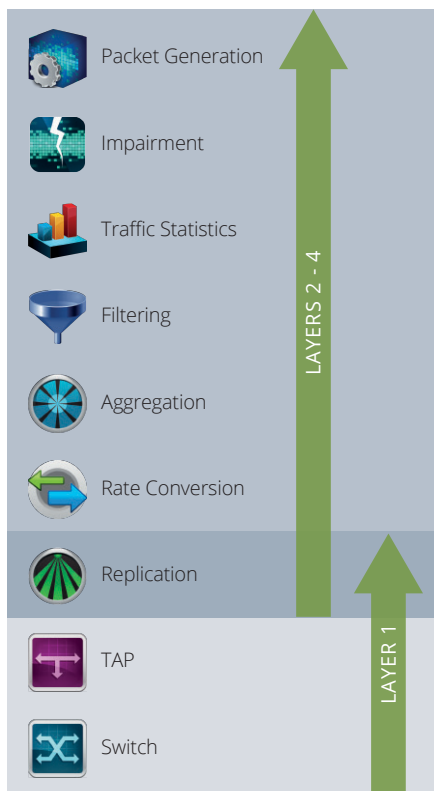
Functions of an Optimized Solution

Packet Generation - Flexible packet generation across 1/10/40/100G interfaces provides initial testing or background load for complex test scenarios.

Impairment - Simulate real world network conditions in a test lab environment. Test streams can be manipulated to introduce realistic network anomolies that are not otherwise available without additional tools.

Traffic Statistics - Collecting statistics on individual interfaces provides a 3rd party view to corroborate metrics shown by test tools and DUTs. Statistics are real-time and collected for post-test analysis.

Filtering - Based on user selectable criteria, test streams are routed at a packet level based on L2-4 header fields. Packets can be routed to specific interfaces or dropped to simulate error conditions.

Aggregation - Aggregation creates a single test stream by combining multiple input sources. Combining test streams from application-specific test tolls presents a more realistic scenario to the DUT.

Rate Conversion - Rate conversion enables you to connect test tools to DUTs regardless of the interface speed. This functionality increases interoperability and greatly extends the lifespan and utilization of 1/10/40/100G test tools.

Replication - Replication allows users to create multiple test streams from a single input source. These replicated streams can be directed to multiple interfaces to in crease load on one or more DUTs.

TAP - Passive tapping helps test engineers diagnose problems that occur during test execution. By delivering real-time packet streams to analysis tools, users can analyze and identify problem conditions without disrupting the test traffic flow.

Switch - Physical layer switching automates network topology moves, adds, and changes. Connected ports pass unaltered traffic at line rate with no protocol dependencies, optimizing lab operation in a number of ways, including the test tool sharing and remote control.

Unique Layer 1-4 Functionality in a Single Platform

With NETSCOUT Test Optimization solution positioned between test tools and devices under test, customers can use the above functions in powerful combinations to maximize test tool usage and increase test efficiency. Figure 1 shows an example using 1G and 10G test tools to test 10G and 100G DUTs using NETSCOUT Rate Conversion and Aggregation functionality. This can dramatically increase the utilization and extend the life cycle of your existing 1G and 10G tools. This example also employs user-selectable filters on L2-4 packet headers as well as Tap functionality, enabling users to direct filtered test streams to specialized tools for in-depth analysis. Additionally, Traffic Statistics functions allow for real-time and historical statistical analysis on all interfaces.

This unique ability to combine multiple Layer 2-4 functions in a single Layer 1 switch platform delivers a new class of end-to-end solutions for true test optimization.
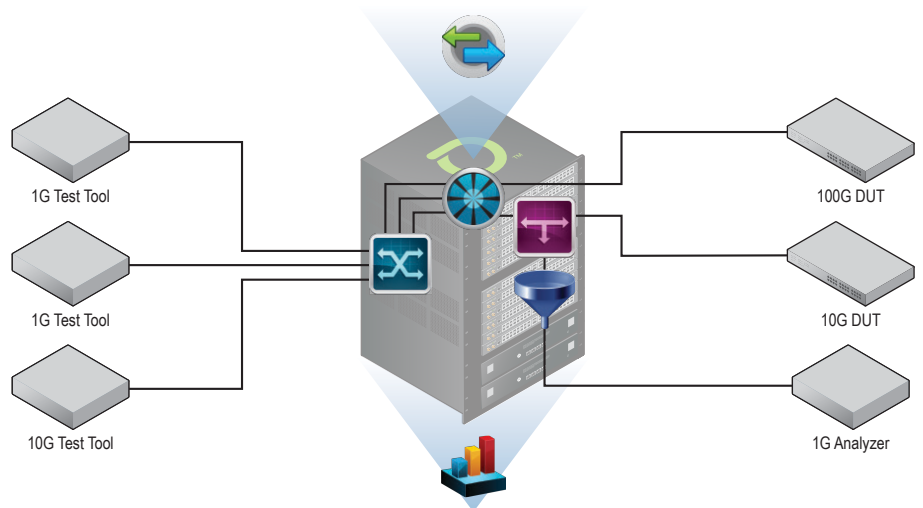
Figure 1: A NETSCOUT solution for testing 10G and 100G DUTs using 1G and 10G tools; combines Rate Conversion and Aggregation along with Filtering and Tapping.

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NETSCOUT offers sales, support, and services in over 32 countries.

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