NETSCOUT®

nGenius 3900 Series Packet Flow Switch & TestStream Management Software

For Test Lab Automation Infrastructure Applications
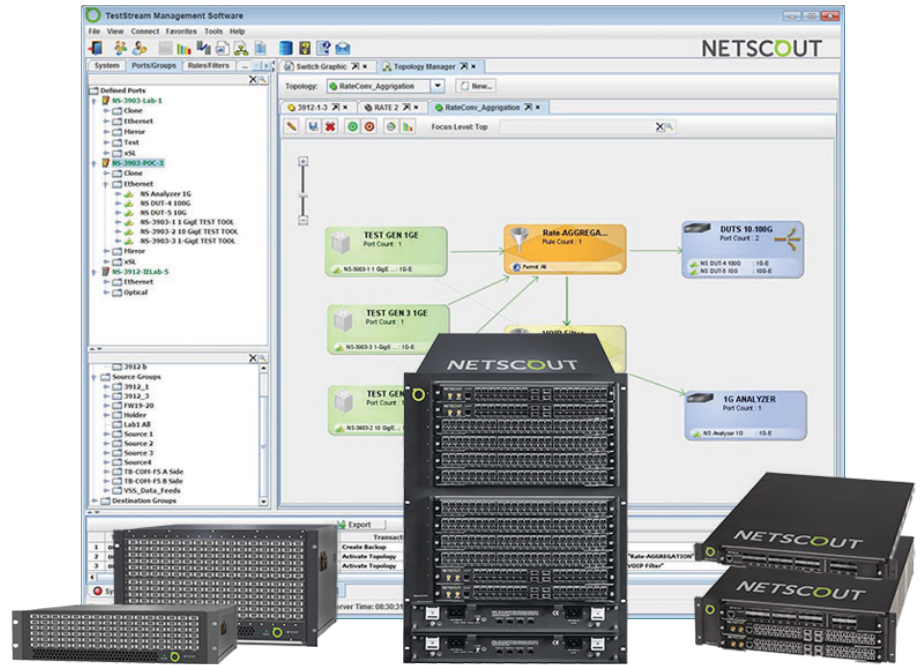
SOLUTION HIGHLIGHTS

nGenius 3900 Series PFS

- Integrated Layer 1-4 intelligence in a single hardware platform

- Scalable from 16 to 576 OEO ports per chassis

- All-optical shelf options with 96 and 192 duplex ports of single mode fiber

- Simple deployment using flexible chassis options and interoperable blades

- Hybrid electrical & all-optical switch fabric with no cross-talk

- Low latency for time sensitive applications

- Redundant, modular systems designed for high availability

TestStream Management Software

- Integrated intelligence with Layer 1-4 functions from a single user interface

- Scalable deployment options to control up to 32 switches from a single instance

- Simple drag-and-drop provisioning of layer 1 connectivity and Layer 2-4 optimization functions

- Manage topologies to share lab tools and devices under test

- Real-time and historical statistics for increased visibility

- Threshold alarming and user activity logging for rapid isolation of problems

- CLI for integrating with internal tools or 3rd party automation software

Test Lab Optimization

Today's test labs are evolving quickly. Utilizing the NETSCOUT® nGenius® 3900 Series Packet Flow Switch (PFS) and TestStream™ Management Software, lab managers can meet today's challenges while simultaneously improving resource utilization, reducing test cycle time, and saving on capital and operational expenditures. NETSCOUT nGenius 3900 Series PFS serves as the focal point for managing lab connectivity and topology. With the addition of unique Layer 2-4 functions and our TestStream Management Software, NETSCOUT provides the ideal platform for optimizing test labs in innovative ways that only NETSCOUT can offer.

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 and OPEX

nGenius 3900 Series Packet Flow Switch

The 3900 Series PFS optimizes test lab operations by combining Layer 1 matrix switching with unique Layer 2-4 intelligence, all in a single platform. Offering 1, 3, and 12 slot chassis options with a variety of interoperable optical-electrical-optical blades, or all-optical shelf alternatives, the nGenius 3900 family supports a wide range of interfaces and a combination of Layer 1 switching with higher level intelligence for managing network topologies in test labs.

Functions of an Optimized Solution

- Packet Generation
- Impairment
- Traffic Statistics
- Filtering
- Aggregation
- Rate Conversion
- Replication
- TAP
- Switch

LAYERS 2 - 4

LAYER 1

TestStream Management Software

Our TestStream Management Software provides an easy to use drag-and-drop user interface to define and manage topologies using layer 1 switching and to apply layer 2-4 functions to optimize test labs. A CLI is also available to integrate with 3rd party test lab automation software.

Integrated Intelligence

By combining a Layer 1 switching fabric with Layer 2-4 packet handling intelligence, the nGenius 3900 Series PFS opens up an entirely new way to optimize test labs. Implementing remote topology management using Layer 1 switching is a crucial first step. As you move forward toward a truly optimized lab solution, the nGenius 3900 Series PFS –with its robust set of Layer 2-4 functions– can be utilized in multiple ways to solve the complex challenges faced in today's test labs. Many operations that previously required manual intervention or physical topology changes can now be implemented remotely and in a fraction of the time.

High Scalability

NETSCOUT Test Lab Automation Infrastructure solutions provide a highly scalable architecture to meet your specific needs. Chassis options include 1, 3, and 12 slot variants available with blades that interoperate across the chassis family. The 3900 PFS family supports a pay-as-you-

grow model for the ultimate in flexibility. Deployment options range from 16 to 576 ports of 10G in a single chassis, enabling the solution to scale in order to address a wide spectrum of test lab sizes. For all-optical needs, the nGenius 3900 OS-96 and OS-192 support 96 or 192 duplex ports of single mode fiber connectivity. The OS-96 and OS-192 are both data-rate and protocol transparent, and offer near-zero latency for time-sensitive applications.

Whether you are managing dedicated high performance test labs or consolidated global test labs operating in a Lab as a Service (LaaS) model, NETSCOUT can help you deploy a Test Lab Automation Infrastructure solution that will address your immediate needs as well as your long term objectives.

Simple Operation

Our TestStream Management Software provides a drag-and-drop user interface that supports remote management, topology changes, and control of Layer 2-4 functions to enable increased efficiency, speed and performance of test labs. Additionally, the TestStream Management Software serves as a secure access portal and maintains an audit trail of user actions and alarms. This software can be deployed as an external server, controlling up to 32 nGenius 3900 switches from a single instance, or as an internal server running directly on an nGenius 3900 switch. Alternatively, nGenius 3900 switches can be controlled via a CLI using internal tools or 3rd party automation software.

nGenius 3900 Series Packet Flow Switch -
Configuration Options:

	OS-96	OS-192	3901	3903	3912
Total Port Capacity	96	192	96	288	576
Slots	n/a	n/a	1	3	12
Rack Units (RU)	3	6	1	3	16

Blade Options for nGenius 3900 Series Packet Flow Switch

NETSCOUT's specialized blades for Test Optimization provide optimal integration, scalability, and simplicity to meet various lab requirements:

Feature	S-Blade Pro	S-Blade	T-Blade	T100-Blade
Speeds Supported	1/10/40 Gbps	1/10 Gbps	1/10/40 Gbps	10/100 Gbps
Protocols Supported	Ethernet	Ethernet, Fibre Channel, SONET	Ethernet	Ethernet
# Full Duplex Ports Per Blade	Standard L1 - Up to 72x1/10G or 18x40G Smart L1 - Up to 24x10GE or 6x40GE	1-48	Up to 48 x 1/10 Gbps Up to 4 x 40 Gbps	Up to 24 x 10 Gbps Up to 2 x 100 Gbps
Copper Interface	Yes	Yes	Yes	Yes
MM Fiber Interface	Yes	Yes	Yes	Yes
SM Fiber Interface	Yes	Yes	Yes	Yes
Blade Latency	Standard L1 Ports - <10 ns Smart L1 Ports - <500 ns	<50 ns	<500 ns	<1,000 ns
Blade Height	1RU	1RU	1RU	1RU
Functions				

Summary of Interfaces Supported by nGenius 3900 Series Packet Flow Switches
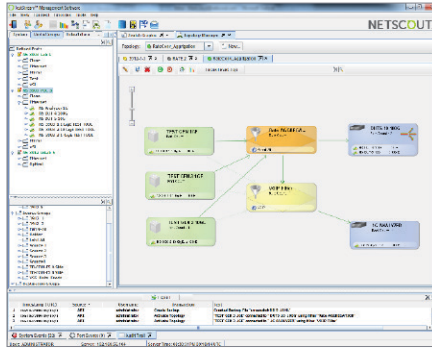
LAN Interfaces
- Ethernet Copper
- Ethernet Fiber SM/MM
- SM Optical: Any Speed

SAN Interfaces
- FICON
- Fibre Channel
- SM Optical: Any Speed
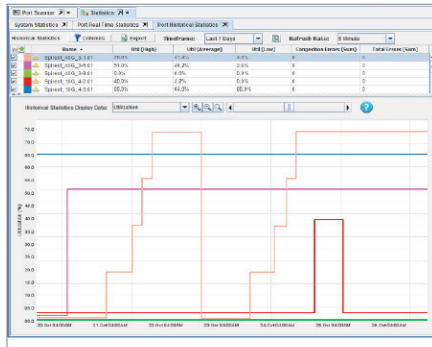
MAN/WAN Interfaces
- SONET/SDH, OTN
- CWDM/DWDM
- SM Optical: Any Speed

Intuitive Layer 1-4 Functionality – SIMPLE OPERATION

The TestStream Management Software graphical topology simplifies even the most complex test configurations with drag-and-drop execution. Topologies can be created and changed in real time, or users can create topologies in advance and apply them to a test bed as schedules dictate. In addition to topology management, higher level functions can be applied to any test stream traversing the system.
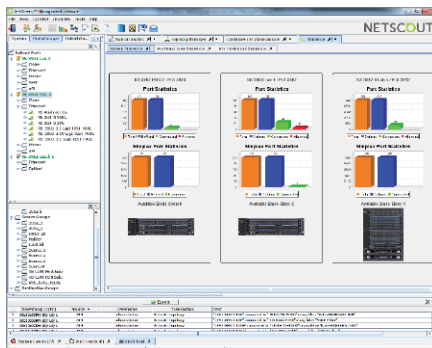
Layer 2-4 functions such as aggregation, rate conversion, filtering, tapping, and more are easily applied using our TestStream Management Software.

Utilization Statistics - INTEGRATED INTELLIGENCE

In addition to interface up/down information available from traditional layer 1 switches, our TestStream Management Software provides higher level port utilization statistics based on actual bandwidth usage. Utilization statistics are available in real-time and historical views.

This level of granularity from a central point in the test lab, coupled with our TestStream software's Layer 2-4 functions that can be applied to any stream, provide test labs with an entirely new set of optimization tools.

System Dashboard – HIGH SCALABILITY

The TestStream Management Software System Dashboard provides comprehensive system views and total access of up to 32 switches from a single pane. Users can view system configurations, packet flows, and port utilization in real time. They are also able to monitor the health and utilization of all controlled switches, and react accordingly.

Our TestStream Management Software also provides access to audit trails, port events, and system events for all connected switches.

nGenius 3900 Series Packet Flow Switch and TestStream Management Software Can Help:

Increase Utilization

- Fewer devices, higher efficiency, and optimized packet flow
- Improved access to servers, storage, and networking equipment
- Less downtime and reduced errors during testing and reconfiguration

Reduce Time

- Automates topology moves and changes instantly and reliably
- Automated activity scheduling and remote monitoring
- Increase uptime, quickly isolate and resolve problems

Save Money

- Reduce capital costs with more equipment and tool sharing
- Lower operating costs through increased performance and automation
- Increased availability and security with standardized hardware and software

NETSCOUT®

Americas East	Americas West	Asia Pacific	Europe
310 Littleton Road	178 E. Tasman Drive	17F/B	One Canada Square
Westford, MA 01886-4105	San Jose, CA 95134	No. 167 Tun Hwa N. Road	29th floor, Canary Wharf
Phone: 978-614-4000	Phone: 408-571-5000	Taipei 105, Taiwan	London E14 5DY, United Kingdom
Toll Free: 800-357-7666		Phone: +886 2 2717 1999	Phone: +44 207 712 1672

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

For more information, please visit www.netscout.com or contact NETSCOUT at 800-309-4804 or +1 978-614-4000