

nGenius InfiniStream

Dedicated Deep Packet Capture and Analysis-Enabled Appliances

Highlights

- Provides comprehensive end-to-end service monitoring and Key Performance Indicators (KPIs) which simplifies complex network services
- Always-on data capture and efficient indexing enables rapid retrieval and isolation of data
- Secure and hardened appliance assures your critical network data is protected from unauthorized access, while providing vital information to administrators
- Support for multiple Ethernet network interface connections, from 10/100/1000 Mbps to 10 GBE over copper or fiber
- Flexible storage capacity, from 2TB to 96TB, provides the right sized solution for any network

The nGenius® InfiniStream® appliance utilizes intelligent deep packet capture and analysis technology with unsurpassed traffic scalability and stream-to-disk storage. It provides the real-time and historical analysis needed to support rapid problem isolation and user experience management in modern IP service delivery networks. The nGenius InfiniStream appliance is a passive device that is used to non-intrusively monitor key network links to provide greater visibility into network-based application and service traffic.

Recommended Applications:

- Rapid identification of application and network performance issues
- Analysis of applications and services in production and prior to roll out
- Continuous monitoring and analysis tool for important links throughout the network
- Proactive statistical monitoring tool for nGenius Service Assurance Solution

Leveraging more than two decades of industry innovation and technology advances, the nGenius InfiniStream appliance line exploits the most robust source of network and application performance data: the packet.

Unique product capabilities include:

- Always-on, high speed capture of rich packet details for granular post-event analysis
- Statistical analysis and performance monitoring based on the Common Data Model (CDM), an advanced, scalable framework for calculating packet/flow-based statistics
- Stateful analysis and monitoring for certain types of transactional applications using Adaptive Session Intelligence (ASI) technology
- Sniffer® Intelligence post-capture software provides critical back-in-time analysis and automatically recognizes hundreds of applications to provide critical performance data
- Scalable product line supporting multiple network configurations from core to wiring closet
- Operates standalone or as the foundational data source for the nGenius Service Assurance Solution, including nGenius Performance Manager and nGenius Service Delivery Manager

An Intelligent Data Source

The nGenius InfiniStream appliance is first and foremost an intelligent data source. The appliance collects packet-flow information that can be used for multiple purposes to meet a variety of problem solving and monitoring needs. There are two methods to access this information:

- Sniffer Analysis (Standalone Mode)
- The nGenius Service Assurance Solution

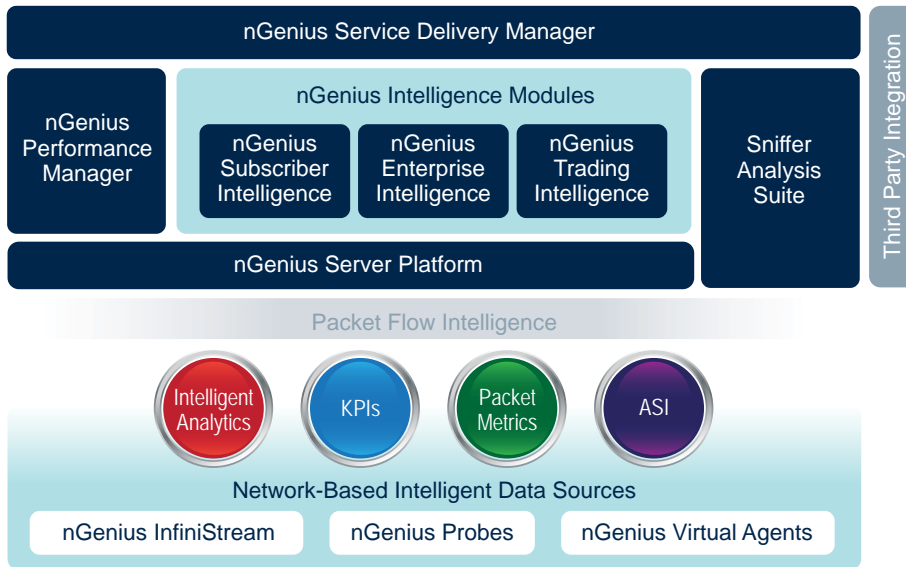


Figure 1: The nGenius InfiniStream appliances are a primary data source of the nGenius Service Assurance Solution

Sniffer Analysis (Standalone Mode)

Sniffer Analysis enables the nGenius InfiniStream appliance to work in standalone mode, providing sophisticated forensic analysis without the need of additional equipment or centralized monitoring consoles. Designed for the self-reliant problem solver, all nGenius InfiniStream appliances include the direct-connect InfiniStream Console to summarize packet data and serve as a platform from which to mine data from the robust nGenius InfiniStream store. Sniffer Intelligence then simplifies troubleshooting issues and helps speed root cause, leveraging back-in-time analysis on the retrieved data. Applications such as Oracle®, SAP® R/3®, Microsoft® Exchange and VoIP-based SIP are automatically identified and understood. Optional modules are available for specific financial trading applications. If detailed packet analysis is required, Sniffer Decodes and Experts are readily available. Sniffer Analysis is perfect for intermittent or after-hours problem solving, tracking network-related security issues, or when anytime forensic analysis is required.

The nGenius Service Assurance Solution

The nGenius Service Assurance Solution is a suite of products that can leverage data from multiple nGenius InfiniStream appliances, as well as other nGenius intelligent data sources such as nGenius Probes, Agents and Collectors. The information gathered by nGenius InfiniStream appliances is leveraged by nGenius Performance Manager to present a single console view of information collected from various points across the network. This provides an end-to-end unified view of network traffic. In addition to the forensic analysis capabilities of Sniffer Analysis, the nGenius Service Assurance Solution provides real-time intelligent early warning, application and network performance management, planning and optimization, and service and policy validation. When issues are reported or deeper analysis is required, flexible drill down quickly exposes the facts using the same Sniffer Intelligence, Decodes, and Expert modules as available in Sniffer Analysis. Proactive alarming is available using nGenius Service Delivery Manager. nGenius Service Assurance Solution integrates with third-party software from

vendors such as Hewlett Packard®, ArcSight®, EMC® and IBM®. The high-value solution leverages both troubleshooting and monitoring to improve time to knowledge relating to service delivery and user experience.

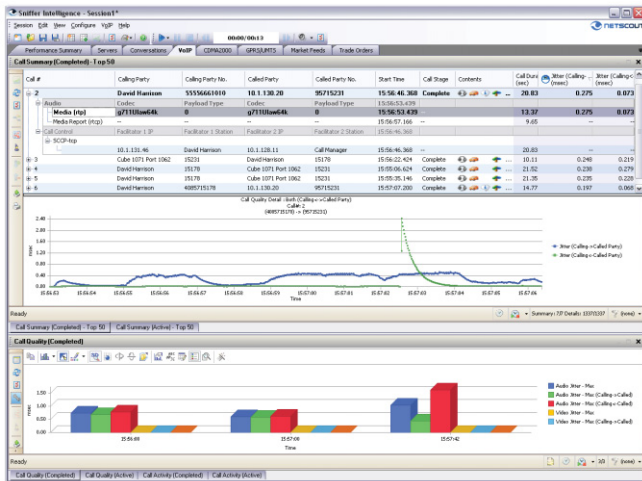


Figure 2: Sophisticated VoIP analysis is available using the Sniffer Intelligence software module

Combining Sophisticated Monitoring with Deep Packet Capture

The product combines the benefits of sophisticated statistical monitoring and packet capture technologies into a single robust database appliance. Using patented streaming methods, the nGenius InfiniStream devices capture all the packets off the wire and record them to disk for storage and future analysis. The intelligence in the product is the ability to maximize storage capabilities using algorithms that balance overall drive storage with quick retrieval and resiliency. As the packets are being stored, statistics are also gathered on individual communication flows enabled by the Common Data Module (CDM) architecture.

This CDM technology provides a consistent format for which data can be accumulated from various network types into a common repository that includes everything from response time-based statistics to policy-based configurations for VoIP, MPLS, QoS, and VPNs. Another technology currently used for service provider and capital market applications is the Adaptive Session Record (ASR). These records are aimed at the transaction level and provide stateful analysis for the conversation across the enterprise. The combination of high-level statistics with deep packet storage is a powerful solution providing statistical analysis for reporting and initial drill down while reserving the packets for in-depth problem resolution and service analysis.

Features

Flexible Storage Capabilities

Configured in a variety of rack-mounted chassis options, storage capabilities range from 2 TB to 96 TB. Chassis options vary from 1RU appliances to larger systems.

Remote Management

Appliances are designed for distributed deployment across the service delivery environment. As such, remote management capabilities are available both in-band and out-of-band for most models.

Sophisticated Sniffer Intelligence

Problem diagnosis is simplified through the use of a logical, yet flexible workflow that seamlessly and contextually guides the user from high-level metrics into the depths of the packets. This application-aware software component is well suited for consolidated networks running a combination of traditional data and VoIP services.

Interfaces and Speeds

More than two dozen models are available to accommodate deployments across the network. Ethernet Interface speeds range from 10base-T, to Gigabit Ethernet, to high-speed 10-GbE interfaces. Port densities are available in 2-Port, 4-Port, and 8-Port configurations, with support for either copper or fiber interfaces.

Reduction and Optimization

The NetScout® Smart Recording and Data Mining (SRDM) technology enables the user to selectively record and store all or just a portion of the packets of interest, thus extending the amount of data that can be recorded and the length of time data is available for retrieval. SRDM is available on a per-application basis via nGenius Performance Manager.

Hardened and Secure

nGenius InfiniStream is a custom enterprise class appliance that runs on a hardened Linux® operating system foundation which is custom-built for secured operation. Access to stored data is controlled, password protected and privileges can be tiered to control access to sensitive data.



nGenius InfiniStream 2900



nGenius InfiniStream 6900



nGenius InfiniStream 7900

nGenius InfiniStream Appliance Family

The nGenius InfiniStream family of appliances share a common foundation of proven technology including packet flow-based CDM monitoring, continuous capture and Sniffer Intelligence analysis. However, three specific models are available to address the needs of today's Enterprises and government agencies: the 2900 Series, the 6900 Series, and the 7900 Series.

nGenius InfiniStream 2900 Series

The nGenius InfiniStream 2900 Series expands continuous capture capabilities to areas of the network closer to the user. The 2900 Series is a space-optimized, lower storage capacity appliance. At only 1RU in height, this small-footprint device is perfectly suited for access layers, wiring closets, and branch offices running business-critical applications and services. The 2900 Series appliance brings affordable deep packet capture and analysis capabilities to these important segments of the network.

Highlights of the nGenius InfiniStream 2900 Series include:

- Up to 2 TB of local packet capture storage capacity
- Complete integration with nGenius Performance Manager and the rest of the nGenius Service Assurance Solution
- A low profile footprint that can be rack mounted in either 4- or 2-post deployments
- 2 or 4 port gigabit interfaces for copper or fiber links
- Low-power consumption

nGenius InfiniStream 6900 Series

InfiniStream 6900 Series continues to lead the industry in continuous capture appliances. Enterprise and government datacenters have deployed more InfiniStream appliances globally than all competing products combined. With robust performance, storage capacity and resiliency, the 6900 Series is deployed at key service aggregation points such as the network core, datacenter server farms, high-capacity distribution points and larger regional offices.

Highlights of the nGenius InfiniStream 6900 Series include:

- Robust storage capacity options ranging from 4 - 16 TB
- High port density, with broadest range of link interfaces/ speeds
- Support for high-capacity links up to 10 GbE
- Redundant power & RAID drives for "always-on" operation
- Hot-swappable drives and power supplies

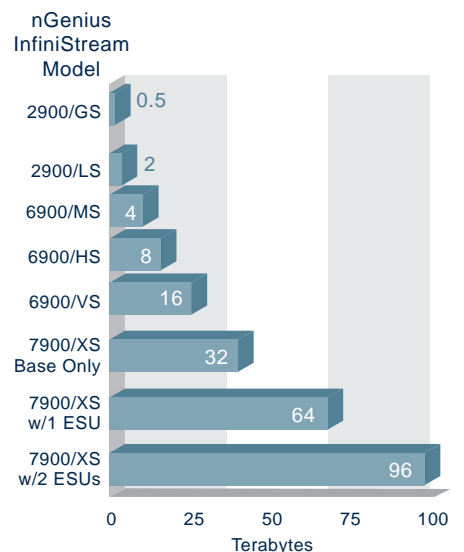
nGenius InfiniStream 7900 Series

The nGenius InfiniStream 7900 Series appliance is unique to the industry with its deep packet capture and analysis

capabilities, modularity, extensive storage options (32 TB to 96 TB); and small form factor (3RU to 9RU max). With higher performance and greater storage capacity, the nGenius InfiniStream 7900 Series appliance is designed for service provider environments, core data centers and other sites that have high traffic volumes and vast storage needs.

Highlights of the nGenius InfiniStream 7900 Series include:

- Robust storage capacity options starting at 32 TB and modular design to enable field expansion to 96 TB in 32 TB increments
- External expansion chassis allows the greatest storage capacity in the nGenius InfiniStream family of intelligent data sources
- High performance and fast packet processing
- Optimized for 10 GbE interfaces
- Redundant power & RAID drives for "always-on" operation
- Hot-swappable drives and power supplies



High Precision Time Synchronization

Traditionally, IT shops have used Network Time Protocol (NTP) to synchronize the clocks of the computers and appliances within their network. Since nGenius InfiniStream timestamps the packets as they are captured, accurate timing is important.

Some companies, such as Financial Trading and certain Government institutions, require more accurate time stamping. For these situations, NetScout provides the following options to synchronize timing closer than that obtained by NTP alone:

The nGenius InfiniStream appliance provides support for the PTPv1 and PTPv2. These protocols are the accepted industry standards for time synchronization across devices. The nGenius InfiniStream's support of the PTP protocols allows for high precision time synchronization without requiring radio signal access or dedicated antenna connections. This makes it ideal in environments such as data centers and secure locations.

In addition to PTP, the nGenius InfiniStream appliance offers two other options for time synchronization: CDMA and GPS. The InfiniStream appliance provides a serial port that allows connection to a Code Division Multiple Access (CDMA) device to take advantage of the advanced timing methods used by mobile carriers to align with Universal Coordinated Time (UTC). The nGenius Time Synchronization Adapter leverages the precise clock times of Global Positioning Systems (GPS) and then uses satellite triangulation from multiple geosynchronous satellites to determine the accurate terrestrial location of the appliance to determine the travel signal distance.

Specifications	2900/GS	29xx/LS	690x-698x	699x	7900 Base	7900 ESU
Rack Unit	1 Server Rack Unit (1RU) – 2 Post Mounts	1 Server Rack Unit (1RU) – 4 Post Mounts	3 Server Rack Unit (3RU)			
Weight	25lbs. (11.34kg)	33.02lbs. (15kg)	77lbs. (35kg)	78.3lbs (36.7kg)	70.35lbs (31.91kg)	
Dimensions	24"D x 17"W x 1.72"H (60.96cm x 43.18cm x 4.37cm)	17"W x 24"D x 1.69"H (43.4cm x 61.26cm x 4.29cm)	Chassis 30.5"D x 19"W x 5.25" H (77.cm x 48.3cm x 13cm)		25.5"D x 17.2"W x 5.2"H (64.3cm x 43.7cm x 13.2cm)	
Side Rails	Rack mount side rails included (4 post)		Rack mount side rails included			
Capture Ports	(2) Ports 10/100/1000 BaseT	(4) Ports 10/100/1000 BaseT	691X (4) Ports 10/100/1000BaseT 698X (8) Ports 10/100/1000BaseT 6990X (2) Port XFP, 6995 (4) Port XFP		7990 (2) Port XFP 7995 4 Port XFP	N/A
Storage Capacity	Up to 500GB	Up to 2TB	Model MS 4TB Model HS 8TB Model VS 16TB		Base Unit 32TB	32TB Each ESU
Management Ports	(2) RJ45 10/100/1000BaseT		(1) RJ45 10/100/1000BaseT			N/A
Console Port	DB-9 Serial Port					
Embedded Linux Support	Separate Flash Drive Dedicated to OS	Solid State Drive (SSD) Dedicated to OS	(2) Drives Dedicated to OS		Solid State Drive (SSD) Dedicated to OS	N/A
Power Rating	100-240VAC 50/60Hz 400W Supply 6A @ 100VAC 3A @ 240VAC	(Redundant) 100-240VAC 50/60Hz Autoranging 400W Supply	1+1 Hot Swappable Redundant 100-240VAC 50/60Hz, 800W Supply 12A @ 100VAC 6A @ 240VAC	1+1 Hot Swappable Redundant 100-240VAC 50/60Hz, 750W Supply 12A @ 100VAC 6A @ 240VAC	1+1 Hot Swappable Redundant 100-240VAC 50/60Hz, 900W Supply 12A @ 100VAC 6A @ 240VAC	
Optional DC Power	N/A	N/A	48VDC, 800W 15A (x2), 1 + 1 Hot Swappable		48VDC, 1000W 24A (x2), 1 + 1 Hot Swappable	
Max Power Consumption (AC)	1.2A 130W 444 BTU/Hr	1.63A 183W 624 BTU/Hr	4.1A 448W 1529 BTU/Hr	5A 534W 1822 BTU/Hr	5.5A 620W 2116 BTU/Hr	2A 235W 602 BTU/Hr
Max Power Consumption (DC)	N/A	N/A	9A 450W 1536 BTU/Hr	10.5A 504W 1720 BTU/Hr	13A 624W 2130 BTU/Hr	5A, 240W, 819 BTU/hr (total across all power supplies)
Environmental Specifications	Operating Temperature: 41° to 104°F (10° to 40°C), Operating Humidity 5% - 80% (non-condensing) 41° to 104°F (10° to 40°C), Operating Humidity 5% - 80% (non-condensing)	Vibration (Operating) 0.25 G from 3–200 Hz for 15 min Temperature (Operating) 50° to 95°F (10° to 35°C) Humidity (Operating) 8% to 85% (non-condensing) with a maximum humidity gradation of 10% per hour Altitude (Operating) -50 to 10,000 ft (-16 to 3,048 m)	Operating Temperature: 50° to 95°F (10° to 45°C), Operating Humidity 5% - 80% (non-condensing)		Operating Temperature: 50° to 95°F (10° to 45°C), Operating Humidity 5% - 85% (non-condensing)	
Regulatory Agency Approvals	Regulatory Model Number: AQU Class A, CE Mark (EN 55022 Class A, EN 55024, EN 6100-3-2, EN 61000-3-2), VCCI (Japan) Class A, UL 60950-1 CAN/CSA 60950, CB Report UL-GS (DEMKO)	Regulatory Model Number: E07S Class A, CE Mark (EN 55022 Class A, EN 55024, EN 6100-3-2, EN 61000-3-2), VCCI (Japan) Class A, UL 60950-1 CAN/CSA C22.2 No. 60950, EN 60950, CB Report UL-GS (DEMKO)	Regulatory Model Number: AFM3U2, FCC Part 15 Class A, CE Mark (EN 55022 Class A, EN 55024, EN 61000-3-2, EN 61000-3-2), VCCI (Japan) Class A, NOM (Mexico), UL 60950-1 CAN/CSA C22.2	Regulatory Model Number: AFM3U2, FCC Part 15 Class A, CE Mark (EN 55022 Class A, EN 55024, EN 61000-3-2, EN 61000-3-2), VCCI (Japan) Class A, NOM (Mexico), UL 60950-1 CAN/CSA C22.2, EN 60950, CB Report, UL-GS (DEMKO)	Regulatory Model Number: AFM3U2, FCC Class A, CE Mark (EN 55022 Class A, EN 55024, EN 61000-3-2, EN 61000-3-2), VCCI (Japan) Class A, NOM (Mexico), UL 60950-1 CAN/CSA C22.2 No. 60950, EN 60950, CB Report, UL-GS (DEMKO)	Regulatory Model Number: V3, FCC Part 15 Class A, CE Mark (EN 55022 Class A, EN 55024, EN 61000-3-2, EN 61000-3-2), VCCI (Japan) Class A, UL 60950-1 CAN/CSA C22.2 No. 60950, IEC 60950-1, EN 60950-1, CB Report, UL-GS (DEMKO)



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