

# Products and Solutions Reference Guide





# Product and Solutions Reference Guide

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As service providers transform their operations to leverage the power of the modern IP network, they are confronted with new challenges in assuring services over an increasingly dynamic operating environment. New multimedia applications, migration from TDM/ATM transport to IP, introduction of Voice over IP (VoIP) and the transition to IP Multimedia sub-systems (IMS) require a new and innovative approach to assuring the delivery of next-generation broadband IP services.

Today's service providers are focused on creating a compelling set of services, with a high quality user experience, while also keeping an eye on reducing operational complexity and costs. The lack of unified and consistent visibility into the user experience along with network and service performance is no longer acceptable. This coupled with the complexity of IP transformation activities and emerging new technologies like LTE, IPTV and cloud services drives the need for more of an automated and unified approach to managing service delivery and the subscriber experience. Service providers must reduce the cost of service delivery, address increasing complexity, scale globally and adapt to emerging technologies such as cloud services, virtualization and unified communication services while assuring their users' experiences to retain their revenue base.

### **Mobile operators**

The fundamental transformation of the mobile network to all-IP enables mobile operators to build highly-scalable service delivery environments to offer new dynamic services to meet the growing subscriber demand for data, voice and video centric services and to consolidate and dramatically simplify network operations. However, to fully capitalize on the value of IP and the significant market opportunities, mobile operators need detailed IP packet-level insight and core-to-access visibility into the service, subscriber and network domains.

### **Fixed-line operators**

The growing demand for high-bandwidth triple-play services, broadband connectivity, IPTV, on-demand video traffic and carrier Ethernet services presents carriers with significant revenue opportunities. IP has become the de-facto convergence mechanism for access, distribution and core networks, enabling new service offerings, simplifying network operations while reducing total cost of operations. To realize these benefits, operators need comprehensive insight into IP services, service usage, service availability, application awareness, user profiles, traffic load, network availability and network performance.



## Unified Service Delivery Management

By adopting the Unified Service Delivery Management framework from NetScout® service providers can confidently create and deliver innovative, personalized and dynamic services and maximize their next generation network investments. A unified approach to managing service delivery allows service providers to:

- **Optimize** availability of the service delivery environment, better leverage existing investments, and accelerate introduction of new services, with confidence
- **Protect** service continuity, network performance, and assure the quality of subscriber experience
- **Simplify** operations, improve workflow, reduce complexity, improve efficiency and lower OpEx

As the global leader in Unified Service Delivery Management, NetScout offers service providers the way forward in an increasingly complex IP world. The nGenius® Service Assurance Solution from NetScout is a Unified Service Delivery Management solution that empowers service providers to evolve their operating model to lower network operating costs, accelerate service creation and profitably deliver services with sustained high quality levels that maximize revenue potential and assure customer satisfaction.

Deployed on more than 120 service provider networks, the nGenius Service Assurance Solution provides a unified view of the control and data traffic to provide the most comprehensive insight into user, network and service performance enabling unprecedented core-to-access visibility and efficient assurance of IP-based service delivery. With a native IP service-oriented architecture, the nGenius Service Assurance Solution enables modern workflows allowing service providers to adopt a truly unified approach to service delivery management encompassing:

- Real-time and historical service, network and subscriber IP monitoring with intuitive troubleshooting workflows
- Automated, intelligent anomaly detection to predict service degradations and quickly resolve issues
- High capacity, always-on, Deep Packet Capture enables extensive back-in-time forensic analysis
- Comprehensive service and network capacity planning with visibility into revenue generating and over-the-top services

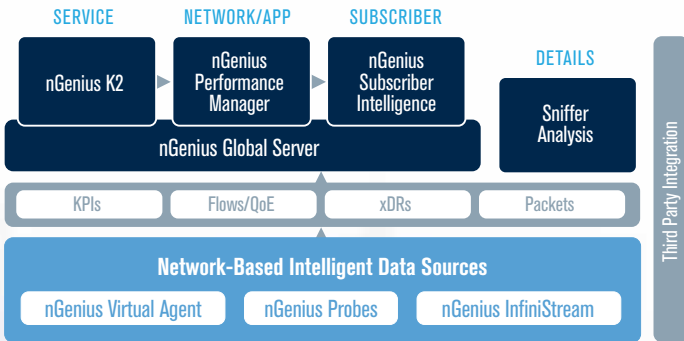


## The nGenius Service Assurance Solution

The nGenius Service Assurance Solution is a deployment-proven, real-time IP service assurance solution providing unified core-to-access visibility. The nGenius solution empowers carriers to successfully transition to an all-IP network, protect services, cost-effectively introduce new IP Multimedia Subsystem (IMS) and other services and to simplify operations. nGenius utilizes intelligent Deep Packet Capture (iDPC) and analysis technology to generate high-definition packet-based key performance indicators (KPIs) on actual customer traffic.

The nGenius Service Assurance Solution provides a unified, integrated approach to managing user experience based on subscriber, service and network performance. Key functionality in the nGenius Service Assurance Solution includes the following:

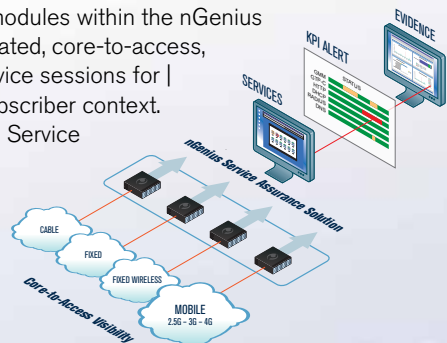
- Service, Application and Network Performance Management
- Analytics and Intelligent Early Warning
- Policy and Service Validation
- Historical and Forensic Analysis
- Optimization and Capacity Planning
- IP Session Analysis and Correlation



The nGenius Service Assurance Solution consists of:

- **nGenius K2 Service Delivery Manager**—Provides aggregate and correlated views of subscribers, services and network with proactive alarming and alerting capabilities. Automatically detects anomalous behavior to predict service faults leveraging real time and historical KPIs on control and user plane traffic to detect changes in application, service and overall network performance.
- **nGenius Performance Manager**—Provides a flow-based, core-to-access view with network, service and user correlation with insight into quality of experience. Leverages robust meta-data delivered by nGenius intelligent data sources for performance monitoring, capacity planning and trending and long-term reporting functionality enabling network-based core-to-access visibility of service delivery.
- **nGenius Subscriber Intelligence**—Comprehensive, core-to-access subscriber level IP session analysis with correlated user and control plane visibility for next generation IP multiservice networks. Provides a granular understanding of how network and application interdependencies impact overall service performance and the downstream effect on user experience
- **nGenius Intelligent Data Sources**—The foundation of the nGenius solution, nGenius intelligent data sources include: intelligent Deep Packet Capture appliances, real-time probes and software-based agents for virtual environments. These data sources utilize a common framework that enables the disparate metrics collected to be displayed in comprehensive and unified views within nGenius K2 Service Delivery Manager, nGenius Performance Manager and nGenius Subscriber Intelligence.
- **Sniffer® Analysis**—Enables unrestricted packet mining, forensic analysis and decodes across the nGenius InfiniStream appliance packet store to speed troubleshooting and to minimize the impact of service degradations.

The deployment-proven applications and modules within the nGenius solution work in concert to generate correlated, core-to-access, multi-protocol views of application and service sessions for | both control and user plane traffic with subscriber context. This tight integration between the nGenius Service Assurance Solution applications enable multiple workflows that directly benefit operations, engineering and planning organizations involved in assuring the quality of the services delivered to customers.



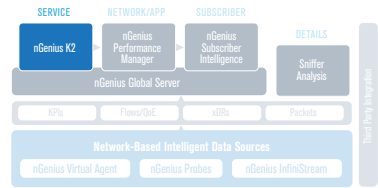
The nGenius Service Assurance Solution provides critical analytics on customers, performance, service usage and trends to help other organizations such as customer care, sales and product marketing better respond to subscriber and service issues.

The nGenius Service Assurance Solution integrates out-of-the-box with third-party software from vendors, such as Hewlett Packard or IBM® as well as internally developed systems, to allow operators to better leverage their existing OSS investments.

# nGenius K2 Service Delivery Manager

## Overview

The nGenius K2 Service Delivery Manager delivers real-time alarming, event notification and advanced analytics that address the challenges operators have in managing subscribers, services and networks in today's complex IP multi-service networks. Integral to the nGenius Service Assurance Solution, the nGenius K2 Service Delivery Manager, enables mobile and fixed-line operators to move away from an inefficient, reactive service management strategy to a proactive and predictive approach specifically designed for modern IP networks.



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nGenius K2 Service Delivery Manager has easy-to-use, comprehensive views of core-to-access service health through KPIs on individual applications or protocols and on user-defined combined KPIs that can aggregate performance on multiple applications and service enablers that make up an core-to-access service. nGenius K2 Service Delivery Manager generates, in real-time, early warning notifications of impending performance problems, automates the detection of anomalous service behavior and provides actionable context for faster, more accurate problem diagnosis and isolation.

## Capabilities

nGenius K2 Service Delivery Manager utilizes a patented, statistical behavior modeling and anomaly detection of the packet data. The advanced analytic engine automates the identification of traffic anomalies that could indicate emerging problems with user experience. The early-warning, predictive capabilities of nGenius K2 Service Delivery Manager, along with a robust set of KPIs, provide the metrics and alerts to identify problems before they escalate into large-scale issues affecting user experience.

Key capabilities of the nGenius K2 Service Delivery Manager are:

- Customizable KPIs enabling operators to combine alerting and alarming on multiple service enablers and protocols
- Automated detection of service-affecting issues
- Powerful, at-a-glance visualization and correlation of network and service health from the data center to core to access
- Proactive management of new device and new service implementation
- Proactive detection of service impact from network rearrangements and backhaul migration
- Proactive monitoring of all related service delivery elements
- Powerful early warning of performance degradation for proactive subscriber, service and network management
- Automatically identifies anomalous behavior with actionable alarms

## Benefits

- Enhances operational efficiencies and productivity
- Improves service delivery
- Optimizes user experience



The nGenius K2 Service Delivery Manager at-a-glance dashboard view provides a clear understanding of the health of the services that operators rely on to meet their business objectives.

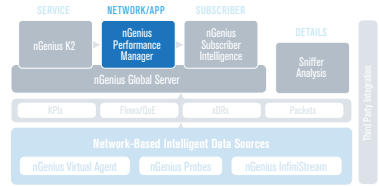


The nGenius K2 Service Delivery Manager service status view delivers an application-specific summary overview containing relevant and focused performance details essential for rapid problem diagnosis, such as response time, key performance indicators or application usage.

# nGenius Performance Manager

## Overview

nGenius Performance Manager provides mobile and fixed operators a unified view into subscriber, service and network performance for modern IP networks. nGenius Performance Manager leverages iDPC and analysis technology that enables both real time and historical traffic volume and response time information on user and control plane traffic. Using nGenius Performance Manager, it is now possible for operators to more efficiently analyze, troubleshoot and optimize the performance of their IP mobile data networks. The nGenius solution is deployed today in GPRS, UMTS and CDMA2000 and fixed-line networks across the globe helping operators manage user experience problems with IP based mobile data services.



## Capabilities

nGenius Performance Manager leverages the capabilities of the nGenius InfiniStream<sup>®</sup> appliances and nGenius Probes to deliver unmatched control and user plane visibility with both real-time and historical performance views. The nGenius Performance Manager provides visibility into network utilization by service, top users of services, as well as service failures, response times, slow response times and timeouts and congestion problems. Response time metrics are available for virtually all application and network control traffic types and can enable operators to easily identify control plane protocol and user plane application response time problems. Reports on service and application performance includes relative usage of network resources by subscribers, network utilization and application response time. Also, since the nGenius Service Assurance Solution captures and stores the traffic, intelligent directed drill-downs to Layer 2 through 7 packet decodes are available as an integrated part of the application.



**nGenius Performance Manager real-time and historical views provide high-definition visibility to virtually all applications on the network, including well-known, custom, complex and Web-based services, as well as applications within virtualized computing environments.**

nGenius Performance Manager is a comprehensive, unified performance management solution, enabling service providers with unprecedented visibility into their complex IP networks with:

- Application and network traffic recognition and monitoring
- Capture and analysis of all user and control plane traffic
- High definition packet/flow analysis for traffic volume and response time analysis and troubleshooting
- Reporting and capacity planning
- Data, voice, video and mobility convergence management
- Alarming and event identification
- Packet decode and analysis

### **Benefits**

nGenius Performance Manager delivers the critical data and visibility needed to properly plan and verify new IP network technology and next generation initiatives and recognize and resolve network problems quickly and efficiently, resulting in:

- A comprehensive, core-to-access understanding of the delivery of services and applications across the network infrastructure, enabling a high-performance service delivery environment
- An efficient core-to-access network infrastructure optimized to run at peak efficiency and deliver a consistent high quality end-user experience
- An understanding of how subscribers access key services and applications and assure that end-users have access to the service they need to meet their business objectives
- Recognition of unfavorable service delivery conditions as they occur, speeding the diagnosis of service degradation and minimizing the impact to the end user
- Future-proof performance monitoring support for 2.5G and 3G mobile networks, next-generation IP-based wireline networks, and with extensions to 4G LTE and IMS architectures
- Better customer experience through greater network visibility and faster problem detection and resolution
- Full visibility into service performance impacts as operators transform their backhaul and access to IP transport
- Improved capacity planning and resource optimization through relevant analytics on traffic and subscriber usage
- Leverages investment in existing OSS/BSS applications with seamless, out-of-box integration of performance data

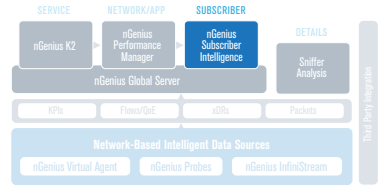


**Short-term and long-term reporting provides valuable information regarding trends in the service delivery environment and aids in understanding the impact new technology initiatives will have on existing services.**

# nGenius Subscriber Intelligence

## Overview

nGenius Subscriber Intelligence provides data center-to-core-to-access visibility for managing mobile data sessions in GPRS and UMTS networks. nGenius Subscriber Intelligence leverages NetScout xDR technology built into the InfiniStream appliances to provide unmatched, real-time correlation—with network, service and subscriber context—of related user plane and control plane sessions across both the core and access portions of the network.



## Capabilities

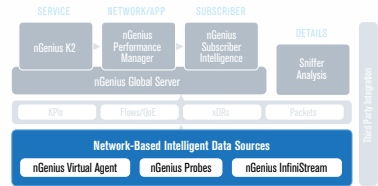
nGenius Subscriber Intelligence takes IP performance management and analysis of operator networks to the next level by seamlessly integrating user plane and control plane session visibility with deep-dive packet and protocol analysis, enabling more rapid and efficient troubleshooting and isolation of IP domain problems in today's mobile data networks. Key capabilities of the nGenius Subscriber Intelligence application include:

- Rapid analysis and isolation of subscriber, service and network problems through correlated xDR metadata analysis
- Correlated, multiprotocol session trace of user and control plane traffic from the data center, core and access portions of the network with cell site, subscriber and handset context
- Industry standard, correlated multi-protocol user and control plane ladder diagrams
- Actionable drill down to packet-level protocol analysis
- Core to access view on a hop-by-hop basis of session performance and service and application failures
- Service and application and network response times to isolate network versus application problems



## nGenius Intelligent Data Sources Overview

NetScout offers a comprehensive family of intelligent data sources to provide packet-flow based visibility for all applications and services that traverse today's global networks. NetScout intelligent data sources range from intelligent Deep Packet Capture appliances deployed in strategic, high-bandwidth locations, to real-time hardware and software probes. All NetScout intelligent data sources leverage a common metadata framework called Common Data Model (CDM).



The nGenius InfiniStream appliance provides support for new NetScout xDR technology. This technology leverages the multi-processor capabilities of the InfiniStream appliance creates a highly scalable set of metadata by monitoring and capturing all related protocols and packets as they traverse the data center, core and access networks and correlating that data based upon sessions and transactions. The xDR metadata enables highly scalable analysis of both the user plane and control plane transactions, the latter which is used to set-up sessions within the network and, most importantly, the former which constitute the applications actually consumed by customers. At the same time, the xDR processing technology streams this information to disk and stores the constituent packets for fast and easy access in the event additional deep packet analysis needs to be performed.

NetScout intelligent data sources provide:

- Industry-leading nGenius and Sniffer packet-flow technologies
- Non-invasive data collection with packet-level granularity and no impact to network, applications or services
- Comprehensive support for a broad range of network links and interfaces – from T1/E1/DS3/E3 links to 10 Gigabit Ethernet links
- Packet and xDR storage capacity ranging from 500 GB to 16 TB for back-in-time forensic analysis
- Resilient power and storage options for critical deployment environments
- AC and DC power options



Intelligent data source options for service providers include:

- **nGenius Virtual Agent** — Next generation software-based intelligent data sources that virtualize hardware probe technology for deployment within virtualized computing environment
- **nGenius Probes** — Traditional hardware-based intelligent data source that provides deep packet monitoring and analysis of packets as they traverse the network to visualize application performance and behavior for the nGenius Service Assurance Solution
- **nGenius InfiniStream Appliances** — Intelligent Deep Packet Capture-based (iDPC) appliances strategically positioned across the network to collect packet-flow statistics, generate xDRs and perform continuous packet capture for back-in-time analysis

**Quick Reference Intelligence Data Source Chart**

	nGenius InfiniStream	nGenius Probe	nGenius Virtual Agent
Continuous packet capture	●		
On-demand packet capture	●	●	
Extended Data Records (xDR)	●		
CDM metadata	●	●	●
Supports Standalone mode	●		
Enables nGenius Service Assurance Solution	●	●	●
Data Center	●	●	●
Core Network	●	●	
Access Network	●	●	●



## nGenius InfiniStream Appliances

### **Overview**

The nGenius InfiniStream appliance forms the foundation for the nGenius Service Assurance Solution. These appliances are dedicated, iDPC and analysis devices providing support for real time and historical analysis. The nGenius InfiniStream appliances are deployed at distributed points in the network to provide a complete data center core-access-subscriber view of service performance. The nGenius InfiniStream appliances capture and analyze all packets, both control and user plane, in an operator's network to provide the best insight into actual user experience.

The nGenius InfiniStream appliance is available in two versions:

### **nGenius InfiniStream 6900 Series**

Best-in-class packet-flow iDPC storage technologies. Optimized for speed, performance, and resiliency, the 6900 Series provides storage capacity up to 16 TB, AC and DC configurations, redundant power and RAID storage, hot-swappable drives and power supplies, and supports high-capacity links up to 10 GbE.

### **nGenius InfiniStream 2900 Series**

A small-footprint iDPC appliance optimized for lower-utilized links and sized to fit in space-constrained locations. These models include 500 GB of storage for lower capacity links such as in the access or where traffic volumes are lower.

### **Capabilities**

The InfiniStream appliances combine the benefits of sophisticated statistical monitoring and packet capture technologies into a single robust appliance. Using patented streaming methods, the nGenius InfiniStream appliances capture all the packets off the wire and record them to disk for storage and future analysis. The intelligence in iDPC 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 NetScout Common Data Module (CDM) architecture.



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. As the packets are being stored, statistics are also gathered on individual communication flows enabled by the CDM architecture. This CDM technology provides a consistent format through which data can be accumulated from various physical layer interfaces into a common repository that includes everything from response time-based statistics to policy-based QoS information.

This CDM technology on the nGenius InfiniStream appliances also classifies all packets and flows, generates statistical data and processes the control and user plane sessions into Extended Data Records (xDR). xDRs are used by nGenius Subscriber Intelligence for rapid analysis of service, network and subscriber performance problems within IP mobile environments.

The nGenius InfiniStream appliances incorporate the following capabilities:

- Continuously captures packets to storage
- Calculates and creates robust CDM statistics
- Tracks key performance indicator (KPI) information
- Provides efficient indexing for rapid retrieval and isolation of data
- Fits in any network utilizing standard network mirror port or tap technologies
- Supports multiple Ethernet interface connections up to 10 GbE and comes in a variety of storage capacity configurations up to 16 TB
- Built on a Linux<sup>®</sup>-based, security-hardened, high-capacity appliance
- Many models include hardware-assisted time-stamping to provide millisecond granularity to better track packets and flows
- Hot-swappable drives, AC and DC configurations, redundant power sources, and RAID for locations that require options for added reliability
- Includes industry-leading Sniffer decodes for expert analysis.

### **Benefits**

Used standalone or as the foundation for the nGenius Service Assurance Solution, nGenius InfiniStream appliances provide the industry's most feature-rich and scalable source of packet-level intelligence demanded by today's service providers confronting complex IP service delivery challenges.

- Remote, real time visibility into network and application performance
- Rapid identification of application and network performance issues
- Highly scalable, distributed, redundant storage of user and control plane packets for deep dive, complex, packet-level analysis of Layer 2 through Layer 7 protocols
- Continuous monitoring and analysis solution for critical links throughout an operators network
- Integrated intelligent data collection device with the rest of the nGenius Service Assurance Solution

# nGenius Probes

## Overview

The nGenius Probes are dedicated data sources that deliver key network metrics to the nGenius Service Assurance Solution to provide a clear understanding of network performance. These monitoring devices are typically distributed at network locations that do not require continuous capture of the network packets. The nGenius Probes work with the nGenius Service Assurance Solution by generating key performance metrics, such as traffic, application and service utilization, conversations, error conditions, resource utilization, response time and many others. All data collected is controlled and monitored by nGenius Performance Manager.

## Capabilities

The nGenius Probe creates statistics based upon the CDM architecture to provide a universal format that scales across multiple topologies and interfaces. All nGenius Probes include the following capabilities:

- Creates network and application metadata,
- Utilizes standard WAN and Gigabit Ethernet interface connections
- Automatically recognizes well-known, Web-based, peer-to-peer, and custom applications
- Provides one-minute data-sampling granularity
- Tracks utilization, response times, QoS metrics, and aggregate information
- Tracks KPI information
- Provides on-demand packet capture when the actual packets are required for troubleshooting or analysis

## Benefits

The nGenius Probe provides a consistent source of data across network segments to enhance visibility by:

- Providing insight into the hosts and traffic conversations including traffic, application, and service volumes
- Leveraging packet-flow statistical technology that facilitates real-time monitoring and long-term historical analysis in cooperation with nGenius Performance Manager and nGenius K2 Service Delivery Manager
- Providing proper visibility by enabling the ability to monitor physical links and their corresponding virtual links
- Easily identifying which users and applications are consuming the most network bandwidth at various points within the network
- Small-footprint (1RU) form factor to fit into space-constrained environments



## nGenius Virtual Agent

### **Overview**

The nGenius Virtual Agent is a software-based intelligent data source that extends the visibility of the nGenius Service Assurance Solution deeper into the data center to include virtual computing environments. The nGenius Virtual Agent is a self-contained virtual appliance that is easy to deploy and manage. It is deployed within a virtual server and is contained within a protected and dedicated environment with no impact on other virtual applications. The nGenius Virtual Agent automatically discovers all applications and their interdependencies to monitor all traffic on the host hypervisor providing visibility for intra-server, inter-server and virtual server to physical server traffic

### **Capabilities**

- Virtualizes nGenius probe technology to deploy packet-flow visibility in virtual servers
- Enables unified views of applications and services across virtual and physical infrastructure
- Identifies and tracks application traffic that exits/enters virtual server and traverses to physical servers to track multi-tier applications core-to-access
- Provides short-term on-demand packet capture based upon user request or defined triggers
- Identifies application movement with dynamic change recognition to recognize application additions, relocations, and removals from the network perspective
- Virtual TAP (vTAP) mode enables forwarding of packet-flow traffic from within a virtual machine to an external InfiniStream appliance enabling intelligent Deep Packet Capture for more granular forensic analysis and application profiling
- Seamlessly deployed into existing NetScout nGenius Service Assurance deployments
- Supports VMware® virtual server environments

### **Uses**

- nGenius Virtual Agent is purpose-built for deployment within a virtual server to monitor multi-tier applications across physical and virtual servers
- Extends core-to-access service assurance, optimization and troubleshooting capabilities to inside virtualized servers

### **Benefits**

The nGenius Virtual Agent provides a cost-effective addition to the nGenius Service Assurance Solution. It extends critical visibility into service delivery traffic across the virtual switch enabling network managers to:

- Regain true core-to-access application and services view in context with service delivery environment and user experiences
- Assure operational consistency with common application performance metrics and a high level of extensibility
- Leverage existing service assurance investments to gain critical visibility into virtual computing environments

# Sniffer Analysis Software

Sniffer Analysis enables operations staff to perform highly granular packet analysis, mining and decode of packets captured and stored by nGenius InfiniStream appliances. Optimized for direct connection to an nGenius InfiniStream appliance the Sniffer Analysis software suite is used within the nGenius Service Assurance Solution or on a stand-alone basis to provide unprecedented granular packet forensic analysis capabilities that enhances and simplify troubleshooting. This packet-level analysis quickly pinpoints performance anomalies and isolates root cause enabling operations staff to rapidly solve the most challenging and complex application and network performance issues. A number of components of the Sniffer Analysis software suite are included with each nGenius InfiniStream appliance and provides a direct-connect interface to nGenius InfiniStream appliances including:

- **InfiniStream Console**– Direct-connect interface to the InfiniStream appliance
- **Sniffer Intelligence** (base module)– Back-in-time application-aware analysis software designed to simplify troubleshooting and forensic analysis

## InfiniStream Console

### Overview

The InfiniStream Console provides a direct-connect interface to nGenius InfiniStream appliances. Stored packet data can be directly accessed with unrestricted mining and does not require a secondary server. The InfiniStream Console provides a streamlined view to vital data that is needed when troubleshooting high-priority issues. Although often used in standalone mode, the InfiniStream Console can serve as a complementary user interface with the nGenius Service Assurance Solution enabling users to drill down to highly granular deep packet analysis from within the unified solution.

### Capabilities

Provides a direct connection to nGenius InfiniStream appliances enabling users to view and analyze native packet data for unrestricted data mining to perform detailed forensic analysis on network traffic, including:

- QuickSelect thumbnail overview of traffic over time
- Merges multiple streams to provide a consolidated view
- Visually shows which packet and statistical time slices are available for retrieval



**Sniffer Intelligence provides easy navigation using dynamic metrics and charts.**



**VoIP conversations are easily graphed to visualize voice impairments. Audio playback is also included.**

- Automatically launches Sniffer Intelligence and Decodes for detailed troubleshooting analysis
- Quickly reacts to service delivery issues using a “crash-cart” problem resolution
- Provides health statistics on the nGenius InfiniStream appliance

### **Uses**

- InfiniStream Console software is used to quickly focus, understand, troubleshoot and tune critical applications and networks; it provides unrestricted mining directly on the nGenius InfiniStream appliance when time to resolution is critical.
- Granular forensic analysis with high-level overview of individual or merged traffic streams and a wide array of analysis criteria that is vital to assess and resolve service delivery issues or security-related incidents

### **Benefits**

- Simplify troubleshooting of application issues by providing quick and unrestricted packet mining capabilities and access to Sniffer Intelligence and decodes necessary to solve the most complex service-delivery issues in order to minimize the impact on the end user

## **Sniffer Intelligence**

### **Overview**

Sniffer Intelligence is application forensic analysis software that provides a back-in-time, graphical view of the conversations traversing the network to speed troubleshooting and analysis. Service provider operations staff can mix and match multi-dimensional views of hundreds of pre-processed statistics to create customized charts that compare data, profile applications or isolated anomalies. The Sniffer Intelligence base module is provided with Sniffer Analysis at no additional cost and is deployed on the user’s desktop.

### **Capabilities**

Automatic identification of popular packaged applications and next-generation IP-based services, including:

- More than a hundred flow-based statistics and metrics including detailed server and network response times, TCP efficiencies, anomalies, and QoS levels
- Recognition of VoIP call detail records
- Patented HyperLock™ multi-dimensional filtering to speed data retrieval and expedite troubleshooting
- Comprehensive, yet flexible views of the data
- Industry-leading Sniffer decodes and expert analysis

### **Benefits**

- Simplifies troubleshooting of complex application issues using easy to understand charts and graphs
- Provides flexible filtering, allowing a troubleshooter to drill down one path, then seamlessly explore another direction
- Accelerates identification of root cause by quickly mining application and VoIP performance data

## Third-Party Management Systems Integration

NetScout collaborates with best-in-class technology partners to provide integrated solutions and extend the value of the nGenius Service Assurance Solution for application and network performance management across the organization.

By leveraging packet-flow data, KPIs and other sources of performance information derived from the nGenius Service Assurance Solution, combined solutions enhance an organization's ability to optimize, simplify and protect the service delivery environment and consequently, the business.

### **EMC® Ionix™ Control Center (formerly SMARTS®)**

NetScout is an EMC Velocity2 partner and provides integration between the nGenius Service Assurance Solution and the following EMC platforms:



- EMC Ionix Service Assurance Manager
- EMC Ionix IP Availability Manager
- EMC Ionix Discovery Manager

Integration between the nGenius solution and EMC Ionix provides users with complementary visibility into the packet-flow data within the service delivery environment and a bi-directional workflow between the nGenius solution and EMC Ionix. Integration between the nGenius solution and EMC Ionix enables accelerated problem resolution by leveraging the following functionality:

- Forwarding of nGenius data source and server-based alarms to deliver the packet-flow data that is critical in managing today's most complex service-delivery environments
- A centralized view of network and application performance events consolidated within the same console for real-time event notification
- Intelligent, action-oriented nGenius solution alerts that aid in the diagnosis of service- impacting problems
- Context-sensitive drill-down into nGenius K2 Service Delivery Manager and nGenius Performance Manager to accelerate problem resolution

### **Hewlett-Packard**

NetScout is a Platinum Business Partner in the HP® Enterprise Management Alliance Program, and provides integration between the nGenius Service Assurance Solution with the following HP Business Technology Optimization (BTO) Software solutions:



- HP OpenView Network Node Manager (HP NNMI)
- HP Business Availability Center
- HP Operations Manager

Together the integrated solutions provide true single-pane-of-glass troubleshooting to speed problem identification and resolution.

- Forward nGenius intelligent data source and server-based alarms to HP dashboards for consolidated viewing of fault and performance views for faster, simpler problem diagnosis
- Intelligent, action-oriented nGenius solution alerts contain descriptive information facilitates escalation of incidents
- Context-sensitive launch of the nGenius solution from the HP management environment streamlines and focuses the troubleshooting process

Integration with HP NNMi provides the following additional features:

- Display nGenius solution devices on the NNM L2 and L3 network maps with a NetScout icon for a complete view of the network environment
- Launch NNM Layer 2 (physical) and Layer 3 (topology) neighbors views for performance incidents for easy visualization of the location of trouble spots
- Launch NNM path view for performance incidents to clarify the relationships between the physical infrastructure and application performance for faster problem identification

## **IBM**

NetScout is an IBM® PartnerWorld member, and has been awarded "Ready for IBM Tivoli Software" validation status to nGenius Performance Manager and nGenius K2 for its integration with:



- IBM Tivoli® NetView®
- IBM Tivoli Enterprise Console® (TEC)
- IBM Tivoli Netcool®/OMINbus

The integration between NetScout and IBM platforms provides users with expanded reach of their Event Management Systems (EMS) by combining integrated fault management and service delivery assurance into a single integrated console view with a seamless troubleshooting workflow. The benefits of the integrated solution include:

- Generates and forwards network and application performance alarms upstream to consolidate alerts within the IBM consoles
- Enables quick drill-down to alarm details to accelerate problem resolution with rapid root cause analysis
- Lowers total cost of ownership by easing tool clutter and enhancing overall visibility
- Promotes proactive service delivery management to maximize system uptime and profitability

## NetScout Global Support and Services

NetScout offers a full range of technical support, consulting and training services to help service providers maximize their investment in the NetScout solutions.

### **MasterCare**

NetScout MasterCare™ is an industry-leading global support service. With four global technical support centers, NetScout is dedicated to providing a rich variety of award-winning services that support the business objectives of our customers, lower their total cost of ownership, and maximize the value of their investment in NetScout technology.

### *MasterCare Highlights*

Having access to the right resources at the right time is invaluable when assistance is needed. That's why the MasterCare Support program provides:

- 24x7 access to award-winning technical support staff
- One-hour priority response on technical support calls (after business hours by phone only)
- Access to software and firmware updates for covered products
- Advanced replacement or onsite repair of most hardware
- Access to technical self-help on the MasterCare Portal
- Up-to-date knowledge transfer and best practices via the Online Learning Center
- Free subscriptions to the MasterCare newsletter
- Discounts to the annual NetScout Engage user conferences

For those customers who need even more advanced support options, the NetScout support organization offers Technical Account Manager, Onsite Engineer and Remote Site Engineer programs as described below:

- **Technical Account Manager (TAM)**—The TAM is a regional NetScout engineer who is assigned to a specific customer account to shepherd incident-driven product issues or other concerns on the organization's behalf; the TAM is able to help resolve issues faster and more effectively, resulting in a better return on investment and a lower total cost of ownership
- **Remote Site Engineer (RSE)**—An RSE is a NetScout support engineer who spends 20 hours per week dedicated to monitoring and managing the customer's NetScout environment remotely from a NetScout location; in addition to acting as the customer's primary point of contact into the NetScout support organization, the RSE provides remote assistance with day-to-day, backend administration of the customer's NetScout environment
- **Onsite Engineer (OSE)**—For the most mission-critical environments, NetScout offers the OSE, a full-time Level-3 engineer hired and trained by NetScout, but who resides at the customer location to offload the planning, deployment and day-to-day maintenance of the customer's NetScout environment, freeing the network operations team to take advantage of NetScout solutions to troubleshoot problems or tackle other strategic activities

## **Consulting Services**

Many of today's network management and support organizations are operating with increased workloads and limited staffing, leaving fewer resources available for deploying new services or solutions, or for taking a more proactive approach to service assurance.

Many leading global enterprises, tier-one service providers, and government agencies around the world have turned to NetScout to optimize, protect, and simplify their network infrastructure, applications, and services. Having selected the world-class nGenius Service Assurance Solution for unified management of service delivery, the next step in the value chain is to begin using it efficiently. NetScout Consulting Services provides a robust set of services to help customers get up and running effectively and expeditiously, and to accelerate return on investment (ROI).

The NetScout Consulting Services team offers a broad portfolio of deployment, specialized and industry-focused consulting services, including:

### *Deployment Services*

- **nGenius Implementation**—Focuses on installing and configuring the nGenius Service Assurance Solution to optimize and accelerate the Service Provider's ability to quickly resolve service delivery issues
- **Knowledge Transfer**—Employs mentoring and hands-on learning within an organization's network environment to increase staff proficiency with NetScout solutions and technologies
- **nGenius K2 Quick Start**—Provides deployment assistance to enable network management staff to quickly start reaping the benefits of the nGenius K2 Service Delivery Manager services-aware dashboard and early warning system

### *Specialized Services*

- **nGenius K2 Optimization**—Defines, tunes and configures an organization's most critical services and applications in order to provide maximum value from nGenius K2 Service Delivery Manager
- **Health Check**—A quarterly review of the nGenius Solution environment to assure that changing business objectives and performance management needs are being optimally met
- **Virtualization Services**—Services designed to facilitate the successful adoption and management of virtualized environments with the nGenius Service Assurance Solution

## Sniffer University

Sniffer University™ provides a wide variety of comprehensive training programs designed to educate network professionals on NetScout technologies in order to effectively analyze, troubleshoot, and mitigate performance issues. Sniffer University utilizes a variety of educational approaches, allowing students to choose the option that best meets their needs and individual learning style, including:

- **Face-to-face classroom instruction**—Instructor-led training classes or onsite at customer locations
- **Subscription-based training programs**—Long-term or company-wide training plans to maximize the benefits of NetScout solutions
- **On-demand training**—Self-paced tutorials of Sniffer University's most popular courses and technical documentation
- **Community peer training**—NetScout users contribute best practice advice in the online NetScout User Forum (NUF)
- **Online learning portals**—Customized micro sites created on a per-organization basis to allow students to access training information remotely regardless of their location, and to gain valuable instruction through self-paced training courses, related documentation and online interaction with Sniffer University instructors

### ***Sniffer University Courses***

Sniffer University offers intensive two, three, or five-day classes on how to more effectively use and solve problems with the NetScout Service Assurance Solution and specific products. Detailed technology courses on everything from TCP/IP, to Windows troubleshooting, to IPv6 technology are also available. The curriculum is 50 percent lecture, 50 percent labs for a “learn by doing, try it now” experience that facilitates the rapid transfer of knowledge so that students gain skills they can use the first day back on the job. These courses are designed and led by highly experienced instructors who have trained more than 100,000 students since 1990.

### ***Multi-Level Certification Programs***

Sniffer University offers a range of certification programs that enable students to build their level of expertise with the nGenius Service Assurance Solution and use that expertise to help their organization meet operational and business goals. There are three levels of certification:

- **nGenius Certified Professional (nCP)** —Designates broad understanding in the use of nGenius Performance Manager to monitor and troubleshoot network and application performance
- **nGenius Certified Expert (nCE)** —Indicates advanced knowledge of the Internet Protocol (IP) suite, network troubleshooting and how to optimize application performance
- **nGenius Certified Master (nCM)** —Demonstrates an advanced understanding of network and application troubleshooting techniques, networking technology and application principles, and the use of NetScout software and instrumentation

## NetScout User Forum (NUF)

A customer-driven user group, NetScout User Forum is dedicated to providing the NetScout user community with a network of peers for collaboration and information sharing. The group's mission is to "share practical experience, promote technical understanding, and provide expert insight into deploying NetScout products for maximum business value."

Membership is open to all NetScout customers and entitles users to:

- Join the online blog and forum discussions
- Participate in private podcasts, webinars and other special events
- Share tips and ask technical questions on the message board
- Gain exclusive access to product news, downloadable files, and much more
- Provide product feedback and ideas to the product development process

Visit [www.netscoutuserforum.com](http://www.netscoutuserforum.com) for details about how to join the NUF community.

### ***Engage User Summit***

The NetScout Engage User Summit brings together NetScout customers from around the globe for advanced learning, networking, and sharing of ideas. The conference features presentations from NetScout executives and customers, individualized training labs, roundtable and panel discussions, demonstrations of new products, and interactive discussions on future product direction.



## About NetScout Systems

NetScout Systems, Inc. (NASDAQ: NTCT) is the market leader in Unified Service Delivery Management enabling comprehensive core-to-access network and application assurance. For 25 years, NetScout has delivered breakthrough packet-flow technology that provides trusted and comprehensive real-time network and application performance intelligence for unified assurance of the network, applications and users. These solutions allow service providers to predict, preempt and resolve network and service delivery problems while facilitating the optimization and capacity planning of the network infrastructure. NetScout nGenius and Sniffer solutions are deployed at more than 20,000 of the world's largest enterprises, government agencies, and service providers, on more than 740,000 network segments to assure the network, applications, and service delivery to their users and customers.

## For More Information

**For more information please visit [www.netscout.com](http://www.netscout.com) or contact NetScout sales at 800-309-4804 or +1 978-614-4000**



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