nGenius Packet Flow Switch Family for Interface Conversion

The rapid growth of media-rich application services, the increased use of virtual servers, new dependencies on cloud-based services and other advances in next generation technologies within data center environments have led to the need for improved packet flow control and visibility. As a highly reliable source of traffic metrics to use for in-depth analysis by various monitoring and security solutions, packet flows can be leveraged by various monitoring tools for targeted, focused analysis. The goal is to increase the visibility footprint and gain insight into these valuable packet flows from the network layer to where they are consumed and analyzed in the monitoring layer.

Interface conversion is one of several deployment scenarios for the nGenius® packet flow switch family, specifically architected for today's high-performance, low-latency networks. Delivering a high degree of interface flexibility, the nGenius packet flow switch mediates access to network traffic, overcoming interface mismatch impediments, and enabling the attachment of diverse monitoring tools across the different network and server tiers and across physical locations. This enables the flexible expansion of monitoring strategies for increased operational intelligence.

Further, the nGenius packet flow switch intelligently filters, replicates, load-balances and distributes network traffic to simultaneously deliver specific traffic flows to a diverse range of performance and compliance and security tools, including the InfiniStream® appliance. The flexible, any-to-any distribution and aggregation of traffic from disparate interfaces and the powerful filtering capabilities of the nGenius switch enables system architects to get the right information to the right tool in a timely manner. The nGenius switch family optimizes monitoring system performance and extends the useful life span of monitoring tools.

Challenges Addressed by the nGenius Packet Flow Switch Family

The challenge facing many IT staff is simply interface mismatches – the network interface that has critical packet-flow data to monitor is not the same as the monitoring tool interface. Infrastructure equipment, network segments, as well as management and analysis tools have evolved over time and may now each have a different speed and/ or network interface. Thus, it is common to find network connections and the target monitoring tool interfaces out of alignment. For example, the network may be 10 Gbps, but the monitoring device only 1 Gbps and/ or the network may have fiber connections but a target security tool has copper interfaces.

Deploying an nGenius packet flow switch enables IT organizations to efficiently share access to critical network links and associated packet flow data between the network and monitoring layers in a connection-agnostic manner. With this approach, monitoring tools can scale more efficiently as well as extend their value by avoiding early obsolescence.

nGenius Packet Flow Switch Family

The nGenius packet flow switch family provides intelligent control and distribution of IP traffic from the network layer to the monitoring layer in a way that removes issues caused by connectivity mismatches. IT organizations will improve their pervasive visibility throughout the environment and achieve the efficiencies and cost-effectiveness associated with sharing real-time packet flow data among a full complement of performance management, compliance and security tools.

Deployed in some of the world's most demanding data centers, the switches in the nGenius family offer a variety of features to deliver the unique requirements of a range of environments and purposes. Whether demands are for high performance, line-rate packet de-duplication, high density scalability, choices of time-stamping protocols, header stripping, load balancing, or intelligent traffic processing, there is an nGenius switch to meet the needs.

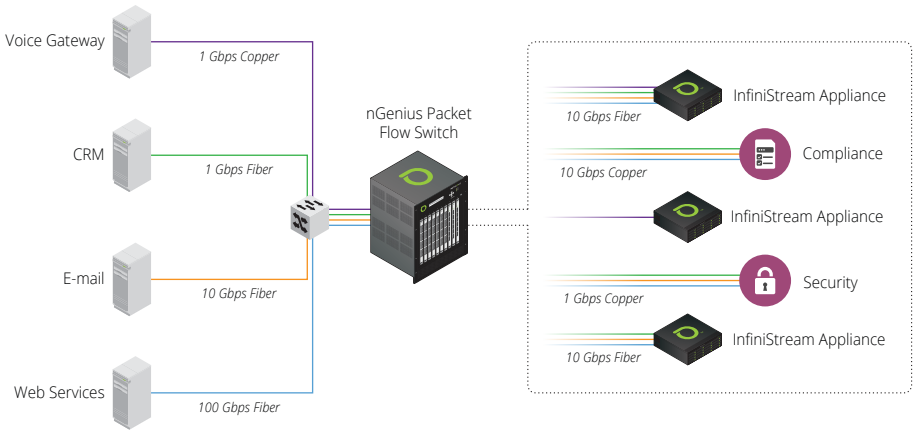

Figure 1: The nGenius packet flow switch family resolves interface mismatch issues enabling any-to-any connectivity to share valuable packet flow monitoring traffic with the nGeniusONE platform and other monitoring systems.

Key features of nGenius packet flow switch family that aid in interface conversion scenarios:

- **Media flexibility** with pluggable SFP, SFP+, QSFP+ transceivers and SFP+ and QSPF+ direct-attach cables to enable connectivity to diverse 1, 10, 40 GbE fiber and copper media.
- **Intelligent control and replication** included as standard capabilities that leverage advanced, layer 2/3/4 traffic filtering and packet conditioning to optimize end-device performance.
- **Versatile FlexPort design** in some models that deliver dual-speed 1/10 GbE ports and tri-speed 1/10/40 GbE ports to enable alignment with a wide range of network and monitoring tool connections.

Interface Conversion Use Cases and Deployment Scenarios

There are a variety of different deployment scenarios where packet flow data is leveraged by a wide range of management tools and devices. Interface conversion is an any-to-any type of deployment scenario. In case of disparity between network connections and monitoring tool interfaces, IT architects can use an nGenius packet flow switch to forward traffic from any point in the network layer to any device in the monitoring layer.

Leveraging the nGenius packet flow switch family for interface conversion scenarios extends the useful life of management devices in the monitoring layer which in turn results in extending the value of the investment in those tools by avoiding early obsolescence. In the final analysis, getting more useful life out of infrastructure and monitoring tools improves both return on investment (ROI) and lowers the total cost of ownership of the overall monitoring architecture.

The different deployment scenarios that may exist which the nGenius switch can address include:

- 100GbE infrastructure with 40GbE/10GbE monitoring devices
- 10 GbE segments (or mirror/SPAN ports) that are monitored by 1 GbE monitoring devices
- 10/40 GbE traffic that needs to be filtered and intelligently split among multiple 1/10 GbE monitoring devices
- Multiple 1 GbE links that need to feed to a single 1 GbE or 10 GbE device
- Either a copper interface type is on the network side that needs to feed a monitoring device with a fiber interface or vice versa

Use Cases Examples

Example 1: An organization is undertaking a network upgrade from Gigabit Ethernet to 10 Gigabit Ethernet, the nGenius packet flow switch family can overcome a mismatch between the new 10 Gigabit Ethernet network interface and the Gigabit Ethernet interface on an existing monitoring or security device.

Example 2: IT staff is attempting to maximize the ROI for a particular monitoring tool in one part of their environment requiring them to control the traffic volume or traffic type sent to that tool on an ongoing basis, e.g. two or more 10GbE interfaces into one 10GbE security device. The nGenius packet flow switch family can broaden visibility, optimize capital costs and extend the useful life of strategic tools by tightly controlling and filtering the packet flows from the network layer to the target monitoring tool.

Benefits to Using the nGenius Packet Flow Switch Family

- Improves IT operational efficiency by cost-effectively aggregating and distributing packet-flow data, regardless of the interface or connection type, for a broad range of monitoring uses
- Facilitates any-to-any connectivity from a single network connection point, enabling network staff to direct the right information to the right tools at the right time
- Extends the value of existing investments and avoids early obsolescence
- Different configuration options preserve capital and lowers the cost of deployment
- Broadens and enhances the pervasive visibility capabilities of the nGeniusONE™ Service Assurance platform

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