

Infrastructure-Integrated Network Visibility

Maximizing Network Performance with an Integrated NVIDIA and cPacket Solution

Business Benefits

- Business Continuity**
 Proactive integrated network monitoring keeps mission-critical business applications up and running and prevents expensive downtime
- Operational Efficiency**
 Fewer monitoring components and tiers and single-pane-of-glass analytics, reduce IT complexity and operational costs
- Business Planning**
 High-quality network data enables capacity planning, compliance, and higher user experience which reduce business churn

Technology Benefits

- Pervasive Visibility**
 Fully integrated solution that presents the complete state of the network in single-pane-of-glass dashboards across full hybrid-IT environment
- Best-of-Breed Integration**
 cPacket's byte-exact, network monitoring, capture, and analysis for packet-level insights merged with NVIDIA "What Just Happened" network anomaly detection mechanism
- Ease of Deployment**
 Reduced number of TAP points and simplified architecture with less tiers makes network monitoring simple

The Challenge

The mandate of the IT network operations (NetOps) team is to keep the business network running reliably and securely and connecting services with the users. The only way to maintain a reliable and secure network is by ensuring comprehensive network visibility. This requires high resolution and accurate system monitoring that can inspect every single packet at any node, thus enabling network operators to quickly identify the three W's: What, Why and Where of an incident, and resolve it.

To address this challenge, NVIDIA® Mellanox® What Just Happened™ (WJH), a laser-focused network anomaly detection technology, is integrated with cPacket Networks' Network-Aware Application Performance and Security Assurance solution. The combined solution broadens the visibility footprint in the data centers and High-Performance Computing (HPC) clusters to significantly reduce the Mean-Time-to-Resolution (MTTR). This allows real-time network data to be accessible directly from the network infrastructure, such as from NVIDIA Mellanox® Spectrum® switches, via cPacket's cClear® single-pane-of-glass analytics – enabling root-cause-analysis and resolution of the most elusive problems within the network. The combined solution provides the broad network visibility and context needed to quickly identify packet retransmissions, latency and burst load issues, while simplifying monitoring and reducing the Total Cost of Ownership (TCO).

The Solution

To expand the intelligent network monitoring footprint, NVIDIA and cPacket have partnered to integrate NVIDIA WJH technology with cPacket's end-to-end hybrid-network visibility solution. WJH agents running on the switches communicate directly with cPacket cClear® analytics engine. The WJH-collected information from on-premises is either displayed independently or integrated with the information collected from the rest of the hybrid environment running cPacket cVu® Packet Broker+ and cStor® Packet Capture probe; to quickly correlate network issues. The solution enables single-pane-of-glass visibility across the entire hybrid environment with complete data center north-south, east-west and cloud traffic monitoring.



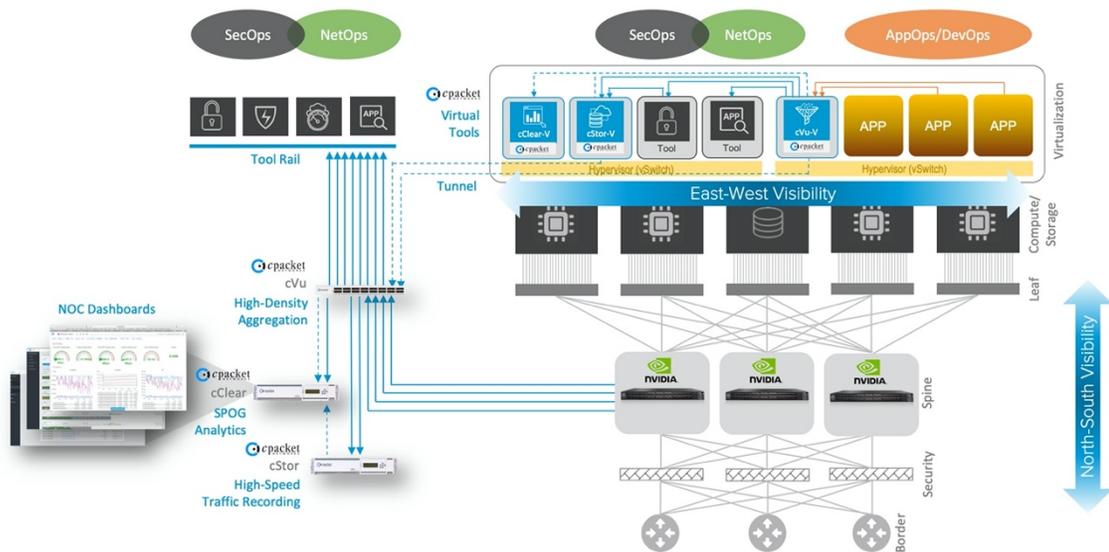
What Just Happened (WJH)

While legacy network telemetry solutions rely on counters and statistical sampling of the network data to detect anomalies, NVIDIA® WJH technology provides packet-level information of network anomalies reported by NVIDIA Spectrum switches. WJH provides the missing data needed to identify network issues happening within the network nodes: packet drops due to misconfigurations, buffer congestion due to microbursts and steady bursts, physical KPIs that are crossing a negative threshold, and security attacks on the policy engine. WJH performs full packet inspection at line rate, accelerated by the Spectrum switch ASIC. As such, there is no performance hit to the data-plane, unlike most similar solutions. In addition, WJH also provides a unique advantage in usability by eliminating the need to pre-configure tracked flows.

The WJH telemetry agent, running as a container on the switch, streams out the packet data. This data includes the packet headers and essential metadata, such as the reason for the anomaly, ingress and egress switch ports, and a hardware-generated timestamp. The telemetry data can be streamed to a database repository, to cPacket packet capture solution, or to the management/analytics engines such as cPacket cClear based TIG (Telegraf-InfluxDB-Grafana).

cPacket Network-Aware Visibility

cPacket's solution consists of full-stack visibility components. In the parts of on-premises network not running NVIDIA switches, cTap® series TAPs can be deployed to access the wire-data, consolidated and processed using cVu® series NPB before relaying to tools and analytics. cVu is built on cPacket's proprietary ASIC to provide accurate high-resolution analysis of every packet, at speeds up to 100Gbps. Fed through NVIDIA switches or cPacket cVu, the cStor® series adds the capability to record the network data with sustained capture-to-disk rate of up to 40Gbps; with its fast indexing and querying capabilities for analysis. cStor provides distributed lossless packet capture and protocol analytics, such as protocol errors and application/network latency. The cProbe® series may add the capability to convert the packet data to Netflow/IPFIX flow data to be consumed by flow collectors and monitoring tools. The cClear® series aggregates, correlates and visualizes the metadata collected from the WJH telemetry and the cPacket's devices in a simple, single-pane-of-glass fashion. Additionally, cPacket V-series and cCloud® series extend the visibility into on-premises east-west and public cloud traffic. cPacket's solution results in increased security, reduced down time, lower costs, and a faster ROI.



About cPacket Network

[cPacket](https://www.cpacket.com) enables IT through network-aware application performance and security assurance across the distributed hybrid environment. Our AIOps-ready single-pane-of-glass analytics provide the deep network visibility required for today's complex IT environments. With cPacket, you can efficiently manage, secure, and future-proof your network - enabling digital transformation. cPacket solutions are fully reliable, tightly integrated, and consistently simple. cPacket enables organizations around the world to keep their business running. Our cutting-edge technology enables network, application, and security teams to proactively identify issues before negatively impacting the business. The result: increased security, reduced complexity, and increased operational efficiency. Learn more at www.cpacket.com

About NVIDIA

[NVIDIA's](https://www.nvidia.com/) (NASDAQ: NVDA) invention of the GPU in 1999 sparked the growth of the PC gaming market, redefined modern computer graphics and revolutionized parallel computing. More recently, GPU deep learning ignited modern AI — the next era of computing — with the GPU acting as the brain of computers, robots and self-driving cars that can perceive and understand the world. More information at www.nvidia.com/