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// SENIOR NETWORK ENGINEER, R&D ORGANIZATION

This case study focuses on a research and development (R&D) organization that works on numerous programs that support U.S. government agencies, including the Department of Defense and others responsible for national security.

Security and Performance Requirements for Crucial Programs

With the sensitive information that the R&D organization handles and the immense amount of data that traverses its network, performance and security are of utmost importance to its technology vision. With more than 900 Virtual LANs (VLANs), 5,000 users, and 27,000 wired devices, the organization needed visibility into network traffic to help ensure that only the right people have access to the network and data center, as well as guarantee optimal performance and availability.

“We didn’t know what the network looked like and we could only see what was being sent outward, not coming in,” said a Senior Network Engineer for the organization.

“We invest heavily in information security and strive to be a leader in that area, so we started looking for a solution that would provide us with a closer look at everything.”

// Senior Network Engineer, R&D Organization

With the help of a certified Gigamon reseller BAI Federal, the organization turned to a Gigamon® Visibility Fabric™ architecture built on more than 20 GigaVUE-2404, GigaVUE-420, GigaVUE-HD4 and GigaVUE-HD8 fabric nodes, as well as the GigaVUE-TA1 traffic aggregator. The Visibility Fabric architecture intelligently filters traffic flows at full line rate from across the network and directs it to the organization’s performance monitoring and security tools.

Challenge

With the immense amount of sensitive information the R&D organization handles, it needed traffic visibility across its network in order to ensure security, as well as maintain uptime and availability

Solution

A Gigamon Visibility Fabric architecture based on more than 20 GigaVUE® G and H series fabric nodes, as well as the GigaVUE-TA1 traffic aggregator and G-TAPs

Benefits

- TAP everywhere and isolate stream-based connections to identify latency and performance issues
- Reduce CAPEX by centralizing tools to reduce the number of tools needed and reduce OPEX by simplifying management
- Share relevant traffic across multiple security, measurement and analysis tools
- Troubleshoot and identify issues quickly so problems can be solved faster to help business continuity as well as freeing up critical IT resources

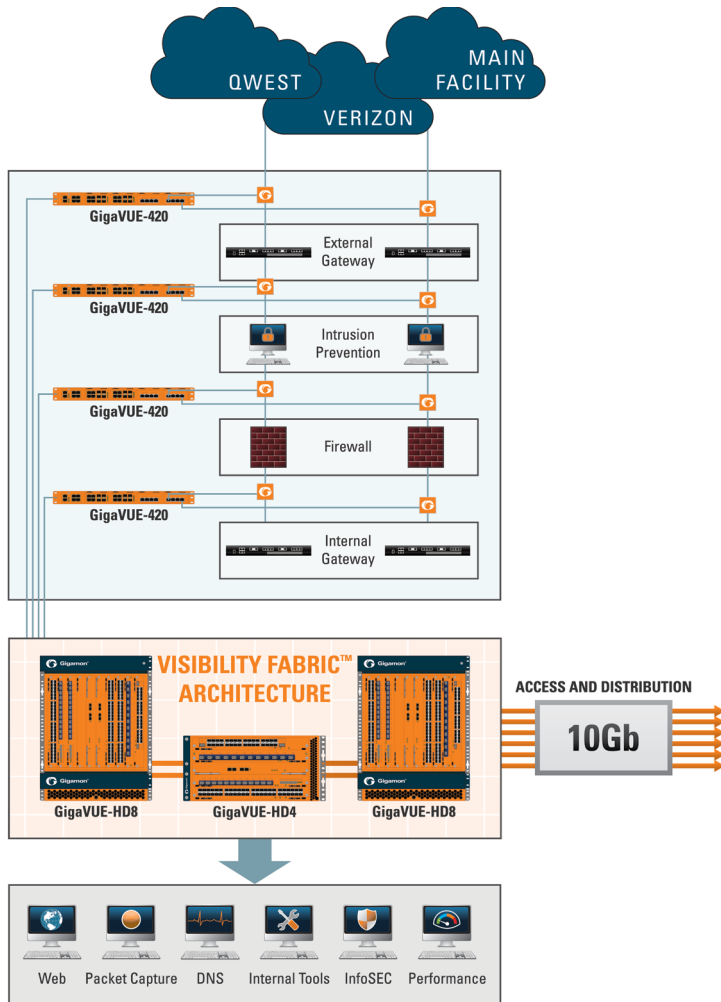


Figure 1: The TAP everywhere approach allows the R&D organization to identify performance issues and track security concerns

The GigaVUE-420 fabric nodes are deployed across the DMZ, WAN and at every ISP connection for visibility to internet traffic both inbound and outbound. The IT team is able to look at individual packets and flows at the different points to be able to verify that the session is delivered across the network past each device such as a firewall. It also allows the team to monitor the latency between hops for performance. By isolating streams as inbound or outbound, the team is able to determine the cause of performance or security problems.

Gigamon GigaStream® technology further optimizes tool performance and security with dynamic, session-aware load balancing which can ensure complete traffic flows by maintaining the integrity of sessions. Each stream can be individually sent to tools or aggregated with other streams. By ensuring that all related packets stay together, GigaStream delivers the information critical for tools to provide maximum security and performance monitoring. GigaStream is also able to throttle down traffic before sending so as to not oversubscribe the tools.

Using the Gigamon GigaTAP series, traffic flowing across the access and distribution layers can be forwarded to the GigaVUE-TA1 which can aggregate the traffic and send it to the Visibility Fabric architecture. The modular design of the fabric nodes provides the flexibility to deploy the number of ports necessary according to its current requirements. Tools can be added anytime to the fabric nodes without affecting the production network and without requiring configuration management review.

The Visibility Fabric architecture provides network traffic visibility across multiple locations, forwarding relevant information to performance monitoring tools, as well as to off-the-shelf and internally developed or customized security tools for in-depth data analysis and inspection.

Providing Complete Visibility

The organization is fully equipped and prepared with a Visibility Fabric architecture that enables monitoring for latency and performance as well as security. “The Gigamon solution is deployed everywhere, providing us total visibility,” said the Senior Network Engineer. “Using GigaStream, we have it designed so I can break down every single stream of traffic. Every physical link we’re tapping is broken out by port and outbound traffic goes through a separate monitoring device. We can determine how many packets are going in and coming out of every stream through the GigaVUE fabric node. That’s important information for us to have.”

With the Gigamon solution, the organization has on-demand visibility into its network traffic, helping to ensure that optimal performance and security thresholds are maintained.

“With the Gigamon Visibility Fabric architecture in place, our security team has the information it needs to ensure the network is secure and malware-free.”

// Senior Network Engineer, R&D Organization

“The bottom line is that we have on-demand traffic visibility into our network, which is what we absolutely need. Rapid problem resolution using packet data and statistical information has been made possible with Gigamon, as well as security monitoring and network trending.

Centralize Tools and Reduce Costs

The organization uses a Gigamon traffic aggregator with high port density to aggregate a multitude of low-bandwidth ports of data together prior to feeding the aggregated traffic into a fabric node to be directed to the appropriate tool. By consolidating traffic through a Visibility Fabric architecture, the organization was able to centralize its out-of-band monitoring, analysis, and security tools. This reduced the number of tools needed, as

well as simplified management. The team is also evaluating the GigaVUE-VM fabric node and GigaVUE-FM fabric manager.

The GigaVUE-VM provides visibility into virtual traffic and uses the same tools to monitor, analyze, and secure traffic in the physical environment. The GigaVUE-FM offers a centralized view across both physical and virtual fabric nodes—simplifying fabric management, optimizing maintenance, and addressing asset management and configuration control on the fabric nodes.

Reliability and Ease of Use

The team at the R&D organization not only appreciates that the Gigamon solution keeps the network secure and performing optimally, but that the Gigamon products themselves are reliable.

Additions and changes to any node in the Visibility Fabric architecture are made quickly using the Gigamon GUI or CLI console. When the organization needs to add more monitoring and security devices to its network, the engineer says, it doesn’t require any network downtime. “Adding new tools to the GigaVUE fabric nodes is easy. The whole solution is easy to use, train on and support.”

ACCESS AND DISTRIBUTION

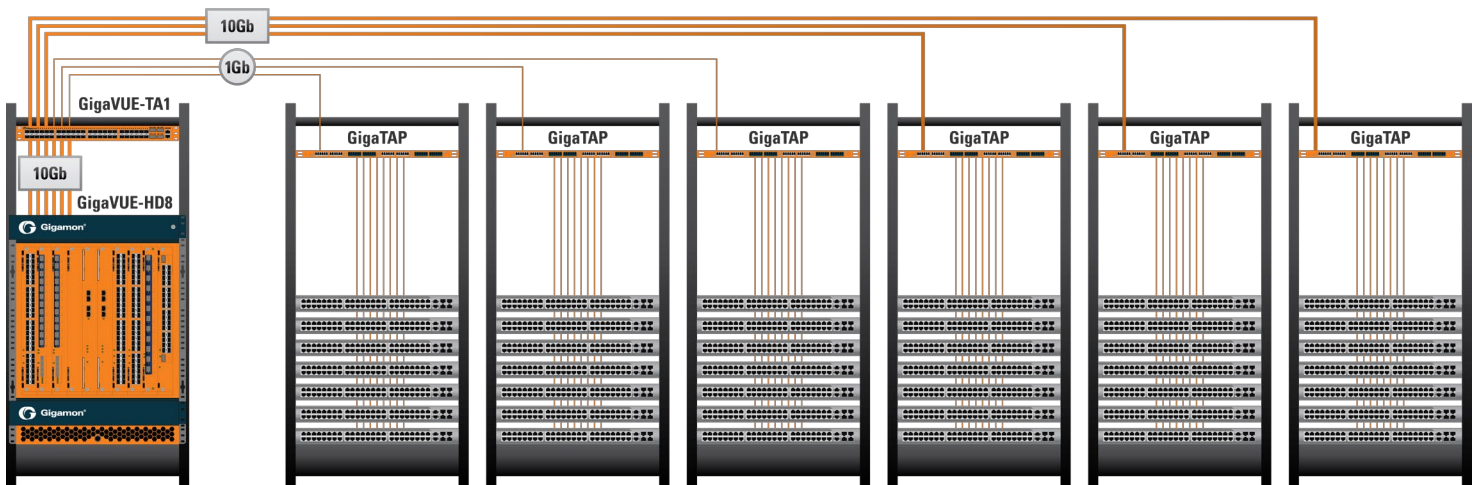


Figure 2: The GigaVUE-TA1 aggregates traffic across the access layer and delivers it to the Visibility Fabric architecture to be filtered and replicated to the tools

If he does need support, he says, he appreciates the knowledge and expertise of both Gigamon and its certified reseller BAI Federal. “I have called Gigamon for advice on something and within 2-3 rings an engineer picks up the phone. You ask an advanced question and an engineer provides the answer.”

“The fabric gives us in-depth, rich information on our traffic. My application, server and network teams, not to mention users, benefit from that.”

//Senior Network Engineer, R&D Organization

About Gigamon

Gigamon[®] provides an intelligent Visibility Fabric™ architecture to enable the management of increasingly complex networks. Gigamon technology empowers infrastructure architects, managers and operators with pervasive visibility and control of traffic across both physical and virtual environments without affecting the performance or stability of the production network. Through patented technologies, centralized management and a portfolio of high availability and high density fabric nodes, network traffic is intelligently delivered to management, monitoring and security systems. Gigamon solutions have been deployed globally across enterprise, data centers and service providers, including over half of the Fortune 100 and many government and federal agencies.

For more information about our Gigamon products visit:

www.gigamon.com