CASE STUDY

KeysightTaps and Vision Edge Medical Provider Boosts Performance of Physician-Facing Applications

Critical Healthcare Is on the Edge

Like others in the industry, this healthcare provider is embracing edge computing to give physicians and technicians mobile access to powerful diagnostic and patient tracking systems. Because these applications are critical to patient outcomes, IT managers must carefully monitor performance on their network edge. They must be intentional about delivering the right data to their performance monitoring tools.

The Key Issue: Ensure Application Availability and Performance

In the healthcare sector, diagnostic applications and collaboration platforms have grown more common and critical in-patient care. The company wanted to ensure that physicians and other medical professionals have consistent and uninterrupted access to these systems from their wireless and mobile devices.

To reach this goal, the company kicked off a project to strengthen its overall network infrastructure and deliver high-quality edge performance. The project included an update to its network monitoring solutions, so operations engineers could track and manage application response time, server congestion, wireless dead zones, and failed transactions.

Keysight— a Keysight business — worked closely with the company's external IT solution provider and its preferred monitoring tool vendors to build a new system. Now the company pulls all the relevant data from its network, removes uninteresting data at line-rate speed, and delivers the right data to every monitoring tool at top speed — even as traffic volume scales.

Company:

- Medical provider operating 19 care centers in the US, serving half a million patients

Keys Issues:

- Aging network infrastructure
- Large population of mobile end users
- Intermittent disruption to mission-critical applications on the edge

Solutions:

- Keysight copper, fiber, and aggregation taps
- Keysight Vision Edge and Vision ONE NPBs managed by Keysight Fabric Controller

Results:

- Implemented total network visibility on all new and existing infrastructure
- Reduced capacity needed for new NPM and APM solutions by 30%
- Reduced effort required to configure delivery of data to monitoring tools

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The Solution: Upgrade Network Infrastructure, Visibility, and Monitoring

The company wanted to improve application performance for medical personnel providing primary care to patients in 19 distributed health centers. The problem was multifaceted. The team needed to address the capacity of its network infrastructure and the systems that monitor the network. The project included the following:

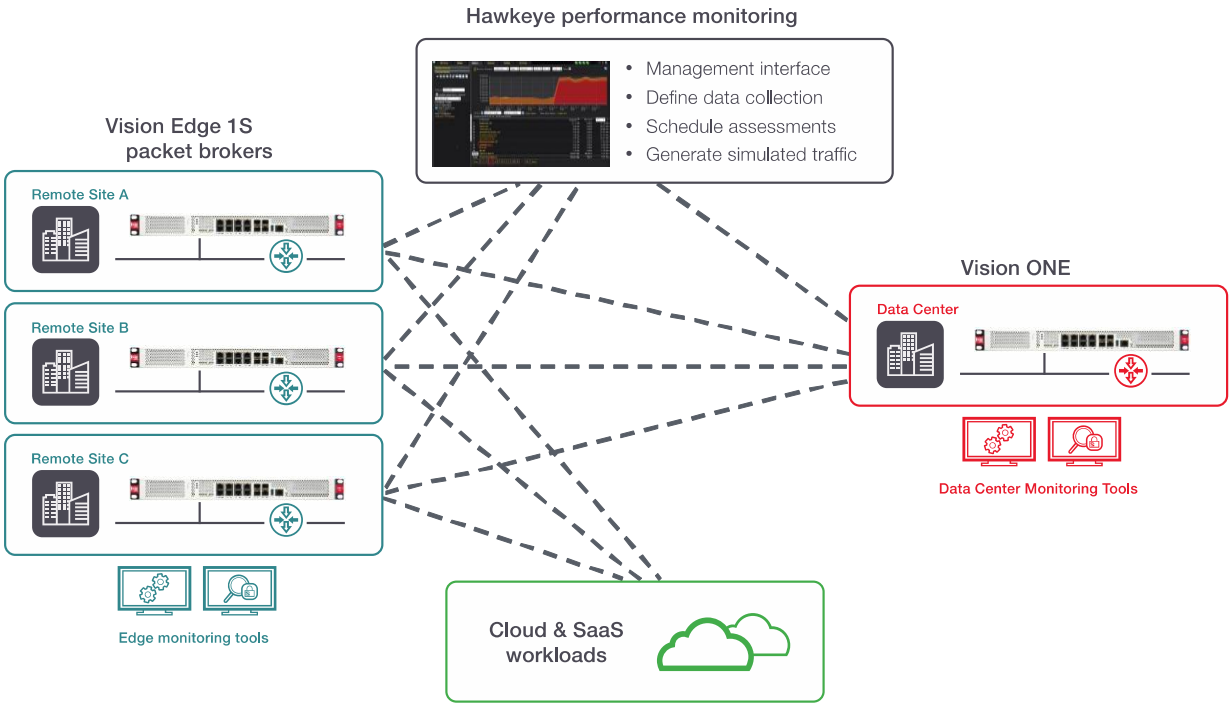
- **Upgraded network infrastructure:** The company hired Presidio, a leading IT solutions provider, for help designing and implementing its network. The team wanted hardware and software components that would cost-effectively scale to support future growth. The design combined existing lower-speed 1G and 10G network segments with new, faster 40G fiber segments. A primary consideration in vendor selection was manageability. The company needed to keep ongoing operating costs low to meet its required return on investment. The evaluation committee decided to replace the existing gear with Cisco networking infrastructure. This decision led to a cascade of new requirements. The company needed to analyze NetFlow data and easily terminate encapsulated remote switched port analyzer (ERSPAN) traffic from remote health center locations.

- **Upgraded network visibility:** To go along with its new network architecture, the company needed to upgrade its network visibility solutions as well. It needed access to traffic from 1G, 10G, and 40G network segments; aggregation of tap, SPAN, and ERSPAN packet traffic; and fast distribution of packet data to its security and performance monitoring tools. Presidio invited Keysight to present its portfolio of copper and fiber network taps and its Vision network packet brokers (NPBs), all managed using the single-pane Keysight Fabric Controller.

Keysight Flex Taps are chosen by many enterprises because they are completely passive and deliver 100% visibility to traffic at line-rate speed without packet loss. Flex Taps support real-time monitoring without degrading or disrupting traffic flow. The team appreciated the breadth of Keysight's product line and its ability to scale cost-effectively as the company expands.

Keysight Vision NPBs are the intelligent processing engine of the visibility platform. They aggregate traffic from multiple taps, remove duplicate packets, identify the application associated with each packet, and deliver relevant packet data to each monitoring tool at line-rate speed. Vision complements the company's Cisco infrastructure by stripping VXLAN headers from packets, generating IPFIX / NetFlow data, and efficiently preparing ERSPAN data for delivery to tools.

A key concern of the evaluation team was the manageability of every new product. The complexity of managing existing solutions was driving up the cost of network operations and making it hard to implement changes. With budgets unlikely to increase anytime soon, IT managers wanted solutions they could manage without extensive training or programming skills. The Keysight Fabric Controller met their needs. It offers a highly visual drag-and-drop interface. An automated discovery feature quickly identifies all the connected Keysight taps, bypass switches, and NPB products, as well as some third-party devices. A dynamic network topology map instantly displays the status of all connected devices. Engineers just need to click on a device icon to drill down and see detailed status and configuration information.



- **Upgraded network monitoring:** The next step was to ensure that the network security and network operations teams had robust and sophisticated monitoring tools. The company had been using NetScout's VSS Monitoring solution. It decided that the network upgrade was a good time to see what new features other solutions offered.

  As networks have grown more complex, tool vendors have introduced advanced features and capabilities to find the root cause of problems more quickly and accurately. The additional power comes at a price, however. Monitoring tools can be expensive and complex to use. Keysight showed the company how to maximize return on its new tool investments using an NPB to identify and groom network packets before tool processing. The Keysight NPB's PacketStack feature is key to performing line-rate packet deduplication, which reduces the data flow to monitoring tools, eases tool congestion, and prevents packet loss. The Keysight NPB also decodes SSL-encrypted packets, strips off unnecessary packet headers, and filters packets based on the needs of each tool. The evaluation team saw that Keysight NPBs not only provide network visibility but increase tool efficiency as well.

The Results: Faster, More Consistent Network Performance

Keysight's proof of concept was a success, validating the speed at which Vision NPBs can simultaneously dedupe and manipulate traffic. As a result of eliminating half the data it needed to monitor, the company was able to reduce the tool capacity it needed by 30%, saving money. Vision is also throttling down traffic from its higher-speed network segments, so the company can still use lower-speed tools and stretch their useful life.

Operations engineers now use Keysight's solution to easily add monitoring tools and configure packet brokers without CLI programming, saving time and effort. Pre-integration of the Vision NPB with ExtraHop application and network performance monitoring (APM / NPM) tools will make the upcoming deployment faster and trouble free.

This healthcare provider has taken the necessary steps to improve application performance and user experience at its network edge. Its upgraded network infrastructure supplies the bandwidth and speed. Its network visibility solution gathers and prepares the appropriate network data for monitoring. And its APM / NPM tools receive the data they need to expedite troubleshooting and optimize performance.

Related Information

- White paper: Edge Computing - Four Smart Strategies for Safeguarding Security and User Performance
- Webinar: How to Respond to the Shift from Cloud Computing to Edge Computing
- Analyst report: EMA - Managing Service Quality on the Network Edge
- Solution brief: Keysight Vision Edge OS Enables Pervasive Visibility for Web-Scale Data Centers

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