



Managing Healthcare IT with the Observer[®] Performance Management Platform

Northern Devon Healthcare NHS Trust minimizes downtime and speeds recovery with the Observer GigaStor[™] retrospective network analyzer

Covering an area of 1,300 square miles in South West England, Northern Devon Healthcare NHS Trust operates 17 community hospitals, nine health and social care teams, and acute care services. To support a large service area and a population hovering at nearly half a million, the organization employs over 4,000 staff members.

These doctors and nurses, as well as myriad support and administrative personnel, rely on the services and applications that its IT team delivers and supports. To keep up with the diverse needs of its many end users, as well as ensure optimal network performance to support life-saving services and applications, the IT team depends on the Observer platform.

No Room for Error

Many applications used by Northern Devon Healthcare are mission-critical and highly complex. Like electronic medical records (EMR), they contain proprietary information essential to the people and operations of the healthcare system.

Based out of the North Devon District Hospital, Network Technology Specialist Peter Lee is responsible for supporting the Cisco[®] VSS-enabled core network.

"We've got 10 G on the main campus between cores," says Lee. "Outside of here it can go down as low as 2 Mbps to the very small satellite sites that have been in existence for a long time and have only a couple of users. Most are 10 Mbps connections that we run over VPN through an agreement with the National Health Service (NHS) in the UK, through British Telecom, called N3. The network is governed by the users you have on each site. If there are 100 users on the site, then you're guaranteed a 40 Mbps link. If there are just 10 users, you'll have a 20 Mbps link, and so on."

Before purchasing the Observer platform, Lee was concerned about the functionality of certain legacy devices on the network.

"One day we came in and lost the whole network. It was completely gone."

Peter Lee

Northern Devon Healthcare
Network Technology Specialist

"About 6 years ago, there were a number of legacy Cisco 3500XL series switches in existence on the campus," says Lee. "I suspected as soon as I started working here that they could be a potential source of problems. We started monitoring this, but nothing really happened. Then one day, we came in and lost the whole network. It was completely gone."

For a major medical center, any amount of network downtime can impact quality of care. But as minutes turn to hours, delays in communication, receipt of medical imagery, or patient records can also postpone lifesaving diagnoses or treatments. In the case of the Northern Devon outage, a highly-distributed network with legacy devices, identifying the root cause was difficult and time-intensive.

"I sent my team around the node room to manually plug up the console of every switch and show me the logs on them," says Lee. "One of the 3500 switches went completely mad. The ASIC on the motherboard was sending out millions and millions of packets and maxing out the core. If we turned the core off and brought all the links up gradually, everything was fine—until it started reoccurring. Then, it was 100% CPU again. We couldn't troubleshoot anything because we couldn't get any response."

The log files eventually revealed a MAC error on one of the switches. "We shut that switch down, rebooted the core, and everything was fine. We dropped that switch out and the problem went away," says Lee.

Although it was an easy fix, finding the source of the problem was time-consuming and costly. Since issues can often happen hours or even days before network teams are alerted, being able to go back in time and establish root cause is essential. As a result, hospital administrators tasked Lee with purchasing a more robust performance management solution.

"Without the GigaStor, I would have never known about the problem. It's simple, it's easy, and it's fantastic."

Peter Lee

Ready for Anything

Lee contacted Paul Wilson at Open Reality, a distributor of network analysis, test, and infrastructure management solutions based in Oxfordshire. To ensure better visibility and faster troubleshooting, Wilson recommended the Observer platform, powered by GigaStor. Ranked as a Leader in the Gartner Network Performance Monitoring and Diagnostics (NPMD) Magic Quadrant, the Observer platform was the clear choice.

"There wasn't much out there in comparison," Lee says of the GigaStor appliance. "I asked what the alternative was and there really wasn't one. Not like this. Not if you want to be able to use these certain types of filters and be able to rewind to capture the network traffic. That's why we purchased. GigaStor is the leader in the market."

With the high-quality onsite installation and training provided by Open Reality, Lee and his team were ready to fully leverage the Observer platform the next time the network experienced problems.

Is it the Network or an Application?

After receiving a barrage of complaints about "slow internet" throughout the hospital, Lee tested it out for himself, soon experiencing a series of timed-out sessions.

"I used GigaStor to rewind the data, putting a filter on the machine. All that was coming back was SOPHOS," says Lee, regarding the popular security software. "I widened the search to the subnet. It was an 11 minute capture with 25,000 hits on SOPHOSXL.net."

Lee and his team had a hunch that the traffic from the SOPHOS application was abnormally high and hogging valuable network resources. But how could they prove it?

"I went back to a previous capture that I had run last February," says Lee, referring to an ad hoc baseline established months before. "In some 20 minutes, the average was only 3,000 hits."

With the previous network snapshot from GigaStor, the team was able to prove that the application traffic had drastically increased and was undoubtedly the cause of the slow network.

"We've got a call open with the SOPHOS senior team looking into this," says Lee. "It works out to between 33 to 50 percent of all our DNS traffic is going out to SOPHOS. Without the GigaStor, I would have never known about the problem. It's simple, it's easy, and it's fantastic."

Working with Wireshark

The IT team also uses Wireshark to perform daily captures, but before they purchased GigaStor, Lee would often find himself going the extra mile—literally.

"I'd have to travel the length of the problem," he says. "If the problem was in Exeter, on the other side of Devon, troubleshooting would start between here and the core, and then between the core and the external WAN routes. Then you would check between the routes and the firewall, and then the firewall and the NHS N3 network."

Some days, Lee would travel over a hundred miles to find the problem.

"Before GigaStor, I'd have to hit every leg of that journey. Now I just set up a SPAN session on the core that goes out in outbound legs, inbound legs, then it's done. You've got all your data being pumped in. You've just got to set your filter and drill in to what you need. It has really sped up what we do."

Wireshark is also used to capture data on remote sites where it can be sent back to Lee for the GigaStor's featured Expert Analysis. "If there is an issue on a remote site, then they can do a Wireshark capture and send it over to me," Lee says. "I import it into GigaStor and look at it that way."

"Wireshark is a very useful tool," says Lee, considering how the team uses both products differently. "But it only provides the basic raw packet data. GigaStor highlights and color codes points of interest as part of its process. With Wireshark, you are required to do a time in tool analysis using a graph to establish these same factors. It is a longer process and not as accurate."

Faster Troubleshooting with GigaStor

Since purchasing the Observer platform products and benefiting from the expert skills and knowledge of Open Reality throughout the installation stage, the IT team is able to ensure access to critical applications and services. In the event of an issue, they are able to isolate root causes and solve problems fast. "You can certainly drill down a lot easier in GigaStor and it's a lot quicker," Lee says.

About Northern Devon Healthcare NHS Trust

Northern Devon Healthcare NHS Trust operates across 1,300 square miles, providing care for people from Axminster to Bude and from Exmouth to Lynton. The Trust offers both acute services, centered on North Devon District Hospital, and integrated health and social care community services, which encompass a network of 17 community hospitals and nine health and social care teams across Torridge, North Devon, East Devon, Exeter, Mid Devon, Teignbridge and West Devon. At any one time, the Trust supports 6,000 patients in their own homes and 600 people in hospital beds. It employs more than 4,300 staff and serves a population of around 484,000, with a budget of £226 million.

About Observer GigaStor

GigaStor plays a significant role for transaction-heavy organizations in data mining, network forensics, and data-retention compliance. The undisputed leader in retrospective network analysis (RNA), the GigaStor appliance eliminates the time-consuming task of recreating problems for troubleshooting, showing detailed packet-level views before, during, and after an issue occurrence.



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