NETSCOUT Visibility at Remote Clinic Helps Diagnose Application Latency

Accelerates Access to Patient Records, Improves Staff Productivity, Speeds Patient Care

OVERVIEW

The Challenge

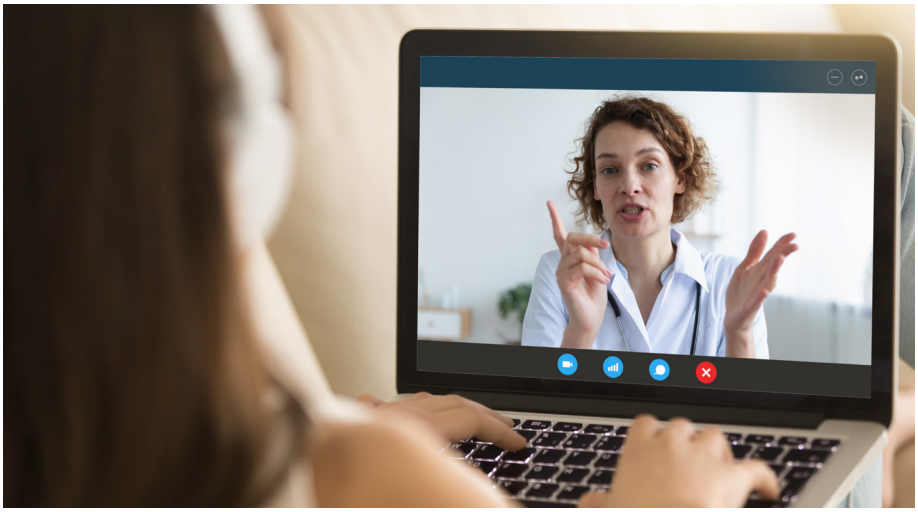
- Reports of intermittent performance slowdowns using the healthcare's EHR application from doctors in medical offices.
- IT teams lacked visibility at remote medical buildings to troubleshoot the source of the problem.

The Solution

- nGeniusONE® solution
- InfiniStreamNG® and Remote ISNG appliances
- vSTREAM® virtual appliances
- nGenius® Packet Flow Switches

The Results

- Pinpointed source of latency issues impacting the healthcare's EHR application reported by doctors in medical buildings.
- Improved doctors' and staff productivity resulting in additional revenue with ability to support for more patient visits every day.



Customer Profile

This leading U.S. healthcare network has a 75-year history of supporting millions of patients across more than a half dozen states with lifesaving health-related services. They are well-respected for their expertise in family care, cancer and cardiac care, emergency services, maternity services, mental health care-in addition to several other specialty services. It takes thousands of dedicated physicians, nurses, and staff throughout their network of hospitals, clinics, and outpatient offices to provide fast, safe, and secure diagnoses, as well as patient care. Vitally important to these healthcare professionals is prompt, efficient, high-quality application performance throughout their multi-state digital network to help them deliver an exceptional patient experience.

The Challenge

This healthcare has been recognized as an early adopter of advanced digital technology for many years in all areas of its hospitals, from imaging and hands-free voice technologies to telehealth, remote patient monitoring, and patient portals. All of these advancements, combined with such well-known services as electronic health records (EHR), diagnostic imaging, and e-prescription services are all mission-critical applications that operate throughout the healthcare's hospitals, medical buildings, data centers, carrier neutral facilities, and the cloud.

Long recognizing the importance of exceptional performance of these clinical applications, this healthcare selected NETSCOUT® as its network and application performance management partner. nGenius® Enterprise Performance Management is providing critical observability in strategic areas of their environment, enabling them to quickly resolve degradations, slowdowns, and disruptions affecting their patient-impacting applications.

Recently, a few doctors in one of their remote medical buildings reported a problem to the help desk about intermittent slowdowns with the healthcare's EHR application that was causing delays in accessing patient records. The delays were frustrating, impacting office productivity, and delaying patient care. Initial attempts to find the source of the problem, using existing visibility with their InfiniStreamNG appliances in their data centers and Equinix colocation sites were inconclusive. The problem had been escalated in IT as it had persisted for several weeks. This led to the rare spin up of a War Room to troubleshoot the problem.

Solution in Action

The War Room participants comprised members of the healthcare organization's Network Operations and Applications teams, as well as several third-party vendors, including contributors from NETSCOUT, the EHR application developer, WAN provider, and their colocation vendor. The first step was reviewing the information from the initial troubleshooting with the nGenius solution, which made it clear that implementing visibility with a remote ISNG appliance at the clinic was necessary for an end-through-end analysis of the EHR application. NETSCOUT's deep packet analysis (DPI) at scale with workflows and views of the EHR application from the medical building, across the WAN, through the Equinix co-lo, and across their private data centers would show the response times between the client and server and back to the doctors' office.

With the ISNG in place, monitoring all the application services from the clinic, the NETSCOUT premium services engineer (PSE) focused on the EHR and other service dependencies including DNS, LDAP, databases, etc. As they walked through the problem, the doctor explained to the PSE that when he was using the application's dashboard, responses were quick and efficient—no slowdowns. However, when he was using the application's toolbar, it would take "10 seconds" to respond. The PSE could see the intermittent slowdowns in nGeniusONE.

When using the app's dashboard, nGeniusONE DPI analysis showed a simple path from the doctor's office, over the WAN link, to the private data center, to the EHR application servers and back, with response times averaging around a couple hundred milliseconds. However, when using the toolbar, it showed excessive response times around 10 seconds or more. There was a clear correlation between the slow response times and the doctor using the toolbar to request patient information.

nGeniusONE revealed additional hops in the communications path for requests when using the toolbar approach. The transaction was leaving the medical building on the WAN link, connecting through the closest Equinix co-lo, continuing to the public cloud, and then to the EHR app in the private data center and back the same way to the doctor's offices. This explained the lengthy 10-second delay. Once the NETSCOUT PSE and IT team confirmed that this was not an equipment misconfiguration, they shared the results of the analysis with the EHR vendor to identify and correct an application coding error that was sending traffic to the application servers two different ways, one of which added excessive latency.

The Results

Swift, quality patient care is the charter for this healthcare organization. When performance issues for doctors using their mission-critical EHR application was impacting their productivity and patient care, the IT team added visibility at the distant medical building with a remote ISNG appliance. The slowdown, which had persisted for more than six weeks, required establishing an expensive and time-consuming War Room. NETSCOUT helped pinpoint the problem to an application coding error in less than an hour. Further, it was soon learned that more doctors were experiencing similar issues; however, they had not reported the problems to IT, thinking the poor performance, though frustrating, was the norm.

DPI, at the remote medical building proved to be the key to isolating the source of the problem and took less than an hour following the strategic deployment of the ISNG. The IT team at the healthcare immediately saw the value of visibility in their remote medical buildings, clinics, and member hospitals to ensure staff productivity and patient experience. Pinpointing the source of the poor performance also resulted in faster patient engagements which is enabling doctors to see more patients every day which helps the hospital with increased revenue opportunities. Reducing the mean time to knowledge (MTTK) and mean time to restore (MTTR) also resulted in better productivity in the IT organization, hopefully helping them eliminate the need for time-consuming War Rooms.

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