NETSCOUT

Private University Ensures Quality Student Experience With NETSCOUT

Leverages nGeniusONE and NETSCOUT VaaS for Assuring Remote Learning Services

OVERVIEW

The Challenge

- The widely distributed campuses of this institution presented challenges even before the recent emphasis on remote learning
- Required 24/7 monitoring for visibility throughout the network infrastructure and troubleshooting ability for quick discrimination between network or application issues

The Solution

- nGeniusONE® Service Assurance platform
- NETSCOUT® Visibility-as-a-Service (VaaS)
- InfiniStreamNG® software and hardware appliances and vSTREAM® virtual appliances
- nGenius® Packet Flow Switches

The Results

- The solution is providing visibility and troubleshooting insights into the applications and services that are critical to their on campus, remote, and back end operations – without committing IT Staff to 24/7 monitoring
- By providing service assurance for the applications required, the solution optimizes the amount of instructional time actually available in remote learning scenarios
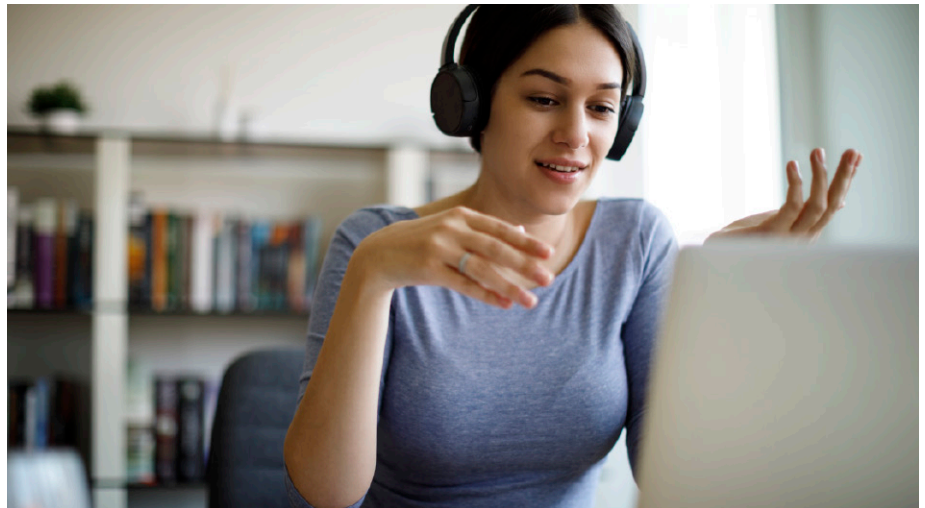
Customer Profile

This more than fifty year old, private university has over 2000 faculty educating a student body of nearly 20,000. The campuses are spread all over the world and offer both undergraduate and graduate degrees. Their tradition of providing a serious academic experience for their students, and a professional environment for their staff to instruct and to mentor those students could not be compromised by changes in public health and public health policy.

They foresaw the re-balancing to more remote learning at first, and then back to more on-campus instruction as the COVID pandemic grew and subsided in various countries. Meeting the needs of a digital learning environment was going to be critical for students to meet the requirements of their class obligations.

The Challenge

For this college maintaining the remote and local learning environment is the top priority.

A project to renew their infrastructure and their ability to monitor the network and foundation for applications at their central data center and extending to half-a-dozen other data centers was already underway when conditions changed radically in most countries.

One immediate impact of the COVID Pandemic was that not only their students and faculty were now working from home, so too was their IT staff, making remote monitoring more important than ever.

Traffic between data centers is accommodated by their Cisco software automatically generating IPsec tunnels between sites. This is known as DMVPN or Dynamic Multipoint VPNs. Simply put, when a remote school needs to connect, the Cisco software dynamically brings up a tunnel to

do the communication, and then tears it down. Their entire VPN infrastructure now needed to be more closely monitored than in the past, including the DMVPNs.

They also had other challenges to consider. As they phased out legacy technologies such as iSCSI, they still needed to monitor that traffic intelligently, along with the newer pathways for traffic. The newer infrastructure included 40G links to their firewall, 10G links between their aggregation and edge switches, and even some 1G connections between DMVPN routers.

Application monitoring was needed for staff functions such as procurement software, Microsoft Office 365, and Citrix, as well as virtual desktop, etc. which are used in providing remote connectivity.

Additional Challenges were:

- The college's inter-site and intra-site traffic which runs on DMVPN tunnels over the public Internet, which were slowing between sites.
- They had problems determining the exact cause of slowness when their application servers were accessed across data centers.
- Finally, their Unified Communications & Collaboration installation was having call setup and teardown, and quality problems.

Solution in Action

Occasionally a service outage of some kind coincidently occurs during the earliest stages of implementing the NETSCOUT® solution, and that occurred in this case - there was an access issue on an application server which resulted in users being unable to login to their virtual desktops. The college's IT Team chose to address this issue using their existing tools and procedures and was able to identify and correct the problem, however this work consumed more than a full school day. Later as they returned to normal operations, they inquired how the nGeniusONE solution might have addressed the issue. NETSCOUT personnel showed that one of the Service Monitors, which are

built-in features of nGeniusONE, would have identified and displayed this issue in minutes, only two mouse clicks from the main screen.

The complete solution consists of tapping or spanning traffic with a PFS 5100 Packet Flow Switch which is taking streams from both sides of the firewall, to the data center edge, and from remote locations. Several vSTREAM virtual appliances for collecting traffic and generating Smart Data are deployed within and among their VMware clusters and working with the VMware administrator software.

The nGeniusONE software pulls all of the Smart Data from the vSTREAMs into an easy to use, centralized reporting console to provide a service-based monitoring function, which not only alerts IT staff to problems such as the application server and virtual desktop access issues described above, but also many other specialized Service Monitors for network support services, and application performance monitoring. Of particular interest to this institution were the functions to monitor the setup and teardown of calls and the call quality over their UCC infrastructure. Other key business applications which are now monitored continuously include: "backend" functions such as database access, and procurement software, as well as collaborative communication applications for staff such as Microsoft Office 365, Cisco Webex, etc. Using the Smart Data generated by the strategically deployed InfiniStreamNG appliances, they now analyze bandwidth usage, errors, and responsiveness for all of these applications.

The Results

This NETSCOUT solution is providing visibility and troubleshooting insights into the applications and services that are critical to their back end, on campus and remote instructional operations. They have gained trusted, pervasive visibility with unified views into network, and application services including purchasing and Student Information System (SIS) applications, UCC and actual remote learning. These insights

are presented as a service – leveraging their relatively small IT staff to concentrate on improvements and innovations to the college's information systems, while continuous 24/7 monitoring of existing systems is essentially outsourced. Other results include:

- Optimizing the instructional time actually provided in modern remote learning scenarios is providing a high-quality educational experience, and this can only be achieved by absolutely maximizing up time on all the related applications and infrastructure.
- Using the NETSCOUT solution including the VaaS service, they can identify the root cause of degradations, outages, and errors throughout the traffic path, including the data center servers, the network itself, and any associated VPNs or IPSec connections.
- Network traffic aggregation and distribution with nGenius Packet Flow Switches for visibility into and delivery of packet data to monitoring tools including the InfiniStreamNG software and hardware appliances for service assurance and application performance management throughout the college's data centers and colocations.
- Accelerated troubleshooting and problem resolution to reduce the MTTR (Mean Time To Resolution).

NETSCOUT looks forward to playing our part in this institution's continuing success in providing their students around the world an outstanding educational experience.

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https://www.netscout.com/solutions/higher-education

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