

Metropolitan Public School District Ensures Quality Student Learning Experience

Leverages nGeniusONE for Assuring Remote Learning Services for Students and Teachers

OVERVIEW

The Challenge

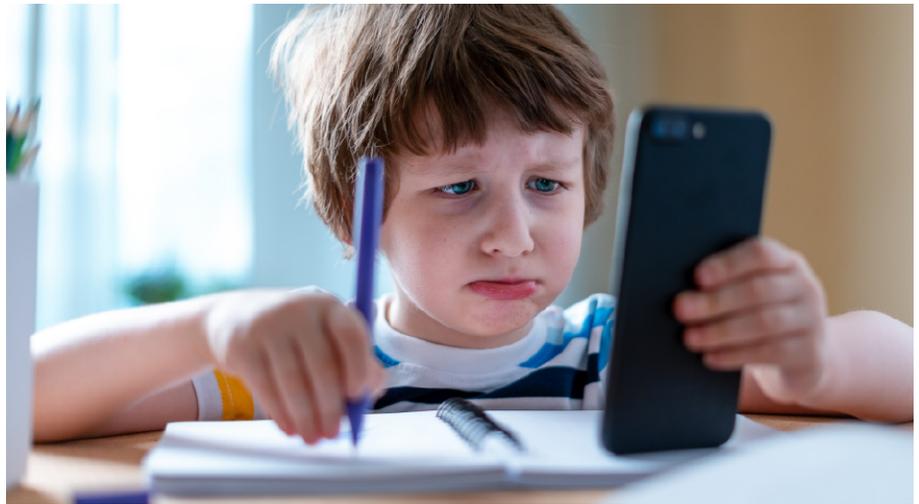
- Assuring a high-quality learning experience for students and faculty during this time of increased remote learning and as schools rebalance to on-campus instruction
- Providing troubleshooting visibility throughout the network infrastructure with excellent Mean Time to Resolution (MTTR)

The Solution

- nGeniusONE® Service Assurance platform
- nGenius®PULSE remote sensing and Active Testing for user experience modeling
- nGenius Packet Flow Switches and Fabric Manager Software

The Results

- Cost-effective monitoring of traffic firewalls, filtering, and traffic prioritization
- Reduced MTTR for student and faculty-facing issues



Customer Profile

This public school district, which encompasses one of the largest cities in North America, has over ten thousand employees and many tens of thousands of students. The broadly distributed district has years of experience providing education to their very diverse student population. The district's experienced leadership team elected to view the dramatic rise in remote learning support requirements not as a temporary crisis but as an opportunity to pivot to a hybrid learning model, implementing the infrastructure to support an engaging, instructive experience for all their students and staff, regardless of where they were located.

The Challenge

For this school district to meet their first priority, quality student experience, the IT team has structured their efforts much like a higher education institution, using a combination of industry standard and custom developed applications such as Microsoft Office 365 and Cisco Webex to communicate student information, administrative functions and so on. Combining this with state of the art learning software, including Blackboard, Microsoft Teams, Zoom, and Google Classroom, they were ready to deliver a rich educational experience remotely. More recently they have supplied students with iPads and taken other steps to assure remote internet access regardless of their economic circumstances. However, the tremendous growth in network traffic on these systems created monitoring challenges. Particularly challenging was performance and bandwidth availability in the final mile to students' homes and the Quality of Service (QoS) labels used for traffic prioritization for remote learning content within their large datacenters, and across the internet to their students' homes.

- One primary goal of this project was to implement and monitor WAN services between data centers, schools and students to ensure sufficient bandwidth was available and to verify that QoS assignments were delivering applications in the correct priority class.

- The department has installed Next Generation Fire Walls (NGFW) and a Windows Admin Center (WAC) system in several locations and used them to block non-instructional traffic from streaming services such as Hulu and Netflix.
- In addition, each school needed a WAC to fine tune approved traffic and must be provided a comprehensive dashboard for the school administrators.
- VPN troubleshooting capabilities needed to be enhanced and they needed to monitor end-user experience over VPN to ensure performance and availability.
- Both bandwidth monitoring and enhanced visibility needed to be maintained when the balance of on-campus and remote learning was adjusted in the future – in either direction.

Solution in Action

The school district was already utilizing the nGeniusONE Service Assurance solution with distributed nGeniusONE servers, and nGeniusONE Stand-by units. NETSCOUT® InfiniStreamNG® (ISNG) appliances are deployed outside and inside the datacenters and to the school edge to examine both inbound and outbound traffic.

The IT team is leveraging their service assurance visibility from NETSCOUT to monitor bandwidth, traffic prioritization and content filtering by taking these steps:

- **High Capacity links within the Datacenter are monitored** by NETSCOUT 5100 PFS including 10gigE and 40gig. The PFSs are managed with NETSCOUT's graphical interface in NS Fabric Manager in order to allow operators to bring tools to bear quickly and make changes to the monitoring network easily.
- **Application services, both remotely hosted or hosted in their Cisco ACI datacenter, are being monitored** in real time with ISNG appliances to create smart data for use by smart analytics within nGeniusONE. These applications include their Student Information System, learning

platforms such as Blackboard and Infinite Campus, and collaborative communication applications for staff such as email, Office 365, Zoom, Cisco Jabber, and Webex.

- **nGeniusPULSE is used from schools to test logins to Software-as-a-Service (SaaS) implementations at datacenters,** and to test the performance of Windows Virtual Desktop Interface (VDI) installations which are hosted on Azure.

The entire NETSCOUT solution is used to reduce the MTTR for issues impacting learning services by pinpointing the true source of degradations, outages, and errors throughout the transaction path, including the datacenter servers, the network itself and any associated VPNs. Here are some examples of how the enhanced visibility has already been used to excellent effect:

- **The IT team was able to use nGeniusONE with the ISNG appliances to uncover a DNS issue** that impacted use of all their cloud application services that are accessed via URL.
- **Special Ed and lunchroom scheduling and substitute hiring all took place on a custom application which experienced significant slowdowns and outages.** Because of NETSCOUT's Service oriented approach to troubleshooting network services, IT was able to isolate the trouble to MS SQL being overwhelmed.
- **A subset of custom web application servers were underperforming** and with NETSCOUT visibility they were able to isolate the trouble to the servers themselves and address the issue.

The Results

Insights into critical applications and services that are essential to remote learning operations are now being provided by NETSCOUT solutions. The district has added visibility into the performance of the remote learning platforms and administrative services provided from the datacenters to individual schools, satellite administrative offices, and individual users including teachers.

With this enhancement to their NETSCOUT network and application performance measuring tools, IT efficiency is increased and reference to centralized consoles and dashboards can pinpoint the source of disruptions or bottlenecks which reduces Mean-time-to-Resolution (MTTR). In many cases, they are able to stay ahead of issues by detecting trends that require attention, even before students and faculty are aware that problems are emerging. In addition, their firewall, filtering, and traffic prioritization solutions can be closely monitored to verify their performance.

Time with students is precious and providing a quality educational experience does not leave room for disruptions or degradation of applications involved in presenting the virtual classroom over their infrastructure. If there are some inevitable interruptions in remote learning, IT's capability has been improved to quickly isolate bottlenecks and address them.

The IT team is confident that as the balance between classroom-based learning and remote instruction changes again in the future this solution will continue to provide visibility into network traffic that will ensure seamless performance regardless of where the students and teachers are located. With NETSCOUT, they are assuring that performance of the entire system meets their objectives, district wide.

LEARN MORE

For more information about NETSCOUT solutions for educational organizations, please visit:

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



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