

NETSCOUT Smart Edge Monitoring Visibility Ensures Quality Performance at Remote Locations Over SD-WAN

NETSCOUT's Visibility without Borders approach enables today's information technology (IT) teams to monitor their evolving service edge environments.

For the company profiled in this Use Case, NETSCOUT provided the service edge visibility required to help ensure that their Software-Defined Wide-Area Networking (SD-WAN) deployment was supporting high-quality end-user experience for thousands of employees who had moved to work-from-home (WFH) environments.

If analysis indicates the performance is poor, the proactive monitoring of the SD-WAN environment with NETSCOUT provides the intelligence necessary to troubleshoot and pinpoint the root cause of the problems.

Issue

The company's Network Operations (NetOps) team had strategically increased bandwidth at remote locations as they deployed a VMware SD-WAN solution that included an Orchestrator management environment running in the Amazon Web Service (AWS) cloud. The completion of this SD-WAN rollout was fortuitous, as the company soon thereafter moved thousands of employees to WFH environments as their organizational response to COVID-19's arrival.

As the company transitioned to this hybrid workforce model, NetOps had specific concerns that needed to be addressed, including: (1) Identifying whether SD-WAN bandwidth was handling the spikes in remote network traffic related to thousands of WFH users; and (2) Visualizing whether employees could reliably access Internet-based business services necessary for effective real-time exchanges with customers over SD-WAN.

Of added concern: some company Contact Center agents (CCAs) working in geographically diverse locations had contacted the IT Help Desk regarding performance issues occurring in their WFH environments. The regional locations of these CCAs varied, but their complaints were grouped on application latency and intermittent access issues experience with Call Center business services.

Impact

Company customers had come to rely on remote Call Center resources for successful business transaction support, so it was imperative that CCAs deliver the same high-quality exchanges that been standard practice in corporate office environments. NetOps and the broader IT team needed to resolve these SD-WAN and client edge visibility to pinpoint whether root cause related to SD-WAN capacity, performance concerns in the new WFH office set-ups, or service-level commitments not met by one or more of the company's trusted third-party service providers.

Troubleshooting

Earlier IT project successes during the company's hybrid workforce transition had benefitted from the enterprise visibility, service assurance, and infrastructure monitoring expertise provided by their contracted NETSCOUT® Professional Services Engineer (PSE) operating the NETSCOUT solutions at the company. Looking for the same results in assuring SD-WAN performance and end-user experience, the NetOps team added the PSE to the IT resources focused on addressing their remote client edge challenges.

Using NETSCOUT data sources already instrumented across the enterprise network and data center locations, the PSE collaborated with the company's NetOps team to define the VMware SD-WAN and Orchestrator environment, then captured smart data generated from the real-time network packet traffic traversing across those environments for use in nGeniusONE® performance analysis. The troubleshooting workflow began with an nGeniusONE Service Dashboard real-time snapshot into SD-WAN performance, then the contextual drill-down into server load analysis view exhibited in Figure 1, which showed degraded performance in the VMware Orchestrator environment running in AWS.

By subsequently transitioning to an nGeniusONE Service Dashboard "Over Time" view, NetOps saw the appearance of response time issues within the VMware Orchestrator environment running in AWS (involving timeouts, retransmissions, and transactions), as well as high bit rate volumes in the VMware Hubs deployed within the Orchestrator for branches to access data center resources.

The nGeniusONE workflow then transitioned into a multi-panel nGeniusONE Grid workspace view, which enabled NetOps to monitor a customized combination of elements in the SD-WAN environment to potentially narrow potential root cause. In this case, the all-in-one nGeniusONE Grid showed side-by-side analysis of Orchestrator usage volume, Orchestrator client communities, and response time distribution, as well as views into VMware Hubs usage, conversations, host volumes, and Internet link usage.

While these nGeniusONE analysis views showed there were issues in the SD-WAN environment, the NetOps team wanted their troubleshooting to also consider the problems being reported by CCAs in WFH environments.

Based on related discussions with the PSE, NetOps used the nGenius®PULSE infrastructure monitoring solution and nPoint virtual sensors to visualize end-user experience at those locations. The virtual nPoints installed on WFH user devices were used to automatically run active tests in the client edge environments to measure performance along the network path, virtual private network availability, network device health, Web interface health or performance or availability, and internet service provider (ISP) performance. In this case, NetOps accessed synthetic test results in two nGeniusPULSE Dashboard views to determine that root cause was related to multi-vendor ISP solutions running across these WFH environments. In supporting NetOps efforts to further isolate those problems, the PSS Engineer customized nGeniusPULSE to use the VMware SD-WAN application programming interface (API) to identify specific IP addresses for those WFH users reporting performance issues.

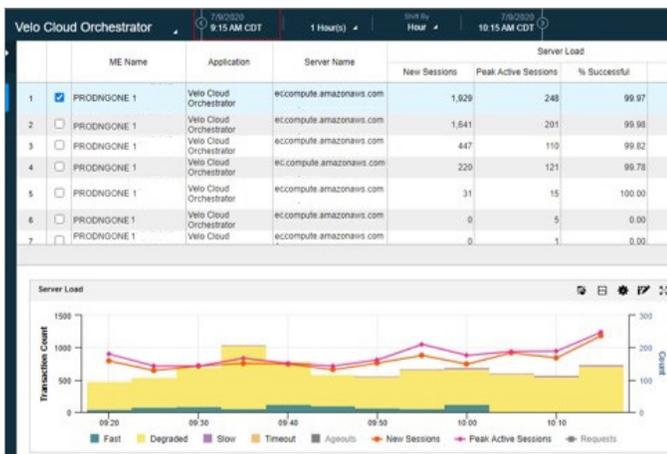


Figure 1: VMware Orchestrator performance showed high instances of degradation, prompting next-stage nGeniusONE troubleshooting.



Figure 2: Using this nGeniusONE Service Dashboard Over Time view, NetOps saw response time issues in both the VMware Orchestrator (related to application health) and Hub networks (related to network performance) environments.

Remediation

In this manner, NetOps used nGeniusPULSE to show the geographic location and the ISPs employed by affected end-users to determine whether root cause related to the regional Internet provider or in the SD-WAN network.

When nGeniusPULSE root cause analysis showed the problem related to a particular ISP, the company's NetOps staff was equipped to provide evidence to that Internet provider about necessary service adjustments that could be made to improve performance for those end users.

Summary

Regardless of a CCA's office environment, customer expectations remain unchanged – they depend on reliable access to high-quality support services, whether involving voice, video, text, Web, or any combination thereof.

In today's expanded service edge environments, the ability to visualize remote end-user experience in the context of multi-tier network and vendor environments is essential to quickly isolate problems.

That is where NETSCOUT's best-of-both-worlds performance monitoring, leveraging both smart data derived from both network packet traffic and synthetic testing, helped this company address hard-to-isolate issues across their WFH environment.



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