

Ensure Remote User Experience via VPN with NETSCOUT nGeniusONE and nGeniusPULSE

New global conditions have contributed to an explosion in the number and types of work-from-home employees. It is no longer a few sales and service people connecting remotely. The reality is thousands, or even tens of thousands of employees, from all areas of the company, including contact center agents, are now working at home. Since access and performance of key business services via VPN, and other methods, remotely, is critical to business success, VPN access is now a concern at the executive level.

Issues

As large numbers of people, sometimes up to 80 - 90% of an organization's employees, make the shift to working from home, IT teams around the world know it is imperative they stay ahead of issues to minimize delays, slowdowns, and disruptions that might impact employee work efforts. An organization may use multiple access methods, i.e. VPN, SSL-VPN, VDI, and /or SD-WAN. When relying mainly on VPN, a common concern is that increased remote employee traffic will exceed VPN availability and capacity or issues like slowness or disconnects will occur (Figure 1).

Internet access bandwidth also needs attention, especially with heavy use of publicly accessible cloud-based applications such as Microsoft 365®, and Web-based business applications. A company may use multiple internet providers. Specifically, for contact center employees using customer facing services, call transmission must remain high-quality, and troubleshooting needs to be initiated and resolved quickly.

To manage all of the potential issues, IT needs visibility to VPN usage, capacity, and internet bandwidth. Using both real-time and pro-active data that tracks trends, highlights bottlenecks, and isolates problem domains, is critical to ensuring IT can continue to provide employees, partners and customer a positive user experience.

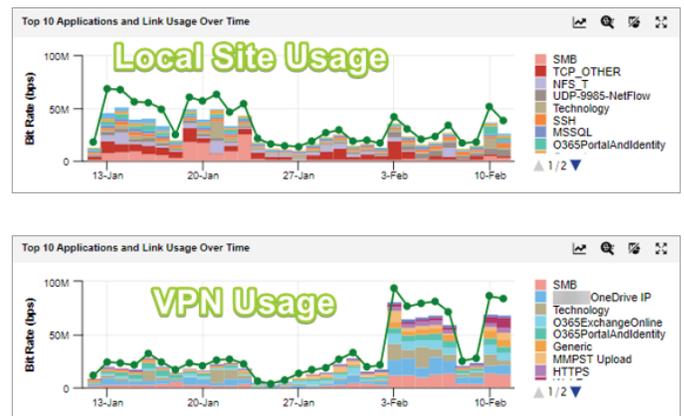


Figure 1: Example of nGeniusONE tracking increased VPN usage after work-from-home widely implemented.

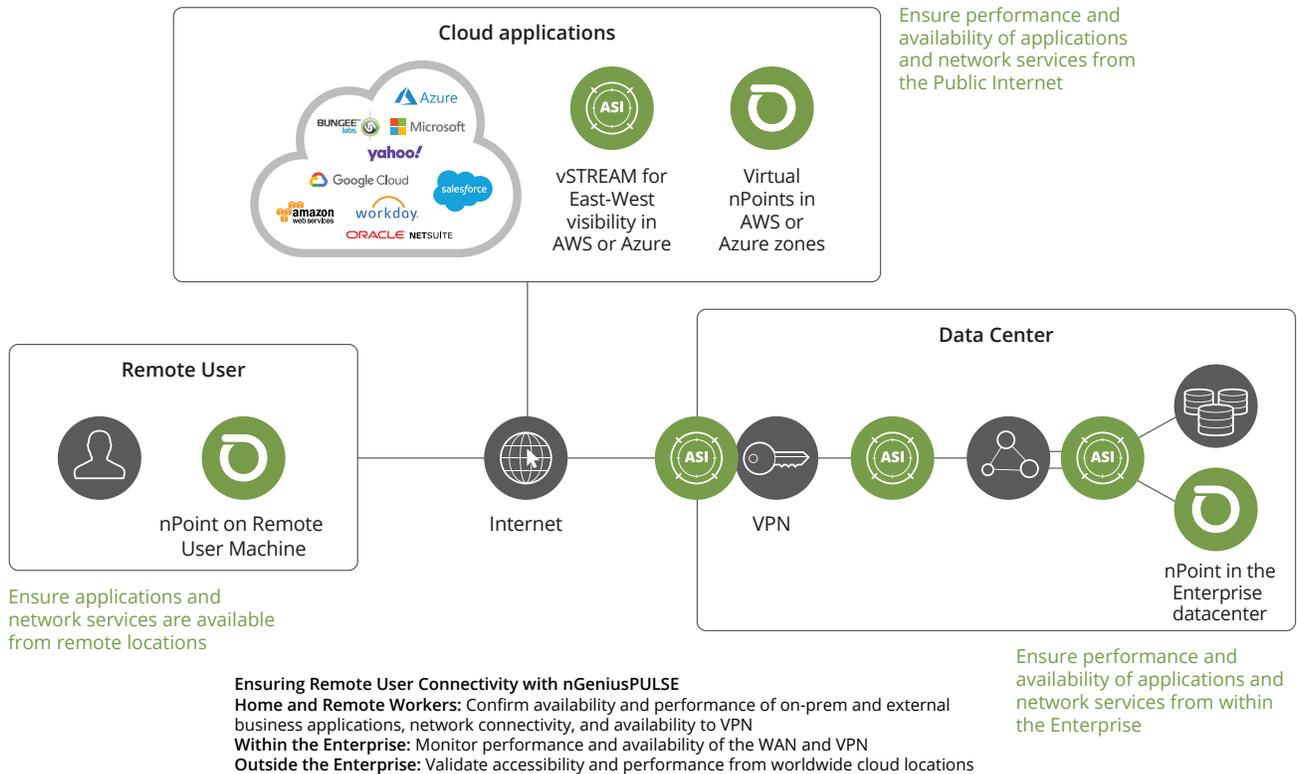


Figure 2: Strategic deployment of InfiniStreamNG appliances and nPoint sensors provides the visibility necessary to nGeniusONE and nGeniusPULSE for monitoring and analysis of end-user experience from remote branches, cafés and home offices to private and public cloud locations.

Impact

Availability and performance of key business applications is always critical for business success. Delivering this for work-from-home users, securely, is complicated by the need to use VPN connections. Delays accessing the services needed, or unusual performance delays or disruptions, can lead to user frustration. As more incidents are reported to IT, more time is spent on back-and-forth communicating and troubleshooting. Beyond frustration with a poor user experience, the problems can lead to a decreased level of employee productivity, missed deadlines, or customer service delivery, in a manner that would inconvenience customers and could even adversely impact brand reputation and revenue.

Troubleshooting and Mitigation

Current and new NETSCOUT customers benefit from the comprehensive visibility to the network and work-from-home user experience provided by nGeniusONE Service Assurance Platform and nGeniusPULSE. nGeniusONE, which leverages patented Adaptive Service Intelligence™ (ASI) technology for real-time, packet-based monitoring, is complemented by nGeniusPULSE with synthetic (or active) testing and monitoring to provide comprehensive visibility into performance and end-user experience. (Figure 2).

Voice and Video Calling

For effective voice and video collaboration between agent and customer, nGeniusONE real-time monitoring of both Signaling and Media provide visibility to assist in the troubleshooting of the call experience. For example:

- Analyzing the media (RTP) for packet loss, jitter, MOS and QoS markings identifies bad quality calls due to network capacity issues
- Isolating call transfer failures or drops by monitoring signaling (SIP) issues and errors

This real-time data is complemented by nGeniusPULSE pro-active synthetic testing from the at-home user perspective by automatically making real phone calls periodically from the user desktop via the VoIP service:

- Measure availability of the VoIP service to ensure that the VoIP service is available even when the agent is not active
- Measure Dial Delay, Ring Delay, and MOS to continuously baseline call quality metrics

VPN

Customers anticipating or experiencing VPN capacity issues use nGeniusONE to quantify increased load by analyzing usage, application distribution, saturated links, and response times. nGeniusPULSE delivers insight into the operational health of the VPN infrastructure to ensure the VPN infrastructure is working as expected.

As VPN traffic increases, nGeniusONE provides visibility, analytics and metrics that assist in the assessment of impact of overall utilization, applications, and user experience that provides data to support mitigation strategies. Based on what nGeniusONE and nGeniusPULSE reveal about how the VPN is used and how it is performing, some widely used mitigation strategies include:

- Split-tunneling to access collaboration services such as Webex, Zoom, Office 365, or Microsoft Teams directly from the internet
- Policy based rules, such as not using VPN for non-business streaming apps
- Configuration changes to improve traffic distribution
- Scheduling database backups, analysis, or print jobs at non-peak hours
- Suspending non-critical software updates
- Applying learning and successful tactics from one global region to others

nGeniusONE and nGeniusPULSE are also used to capture performance data before and after mitigation strategies to analyze effectiveness (Figure 3).



Figure 3: nGeniusONE analysis, showing bandwidth improvement made by split-tunneling VPN configuration change in all-in-one before-and-after view.

Internet Bandwidth

nGeniusONE dashboards for VPN Global Protect and ISP utilization provide domain-aware capacity and performance metrics, with analysis by internet access point or ISP, by user and VPN Communities, and by core services. This allows directed remediation of performance issues, with drill down to custom service monitors, detailing response and error details, to identify the root cause of the issues, in the user domain, Internet capacity, VPN performance or backend Application Servers. Grid views are very helpful to combine data from different dashboards into one screen for easy analysis.

nGeniusPULSE can track and compare utilization, packet loss, discards and drop tests for each ISP, validating if the loss was on the corporate side or ISP. nGeniusPULSE can measure throughput and packet loss from home-user machines through the ISP to identify potential internal or external network problems. This measurement also works through SD-WAN networks in addition to traditional, physical networks. Instrumentation, called nPoints, can be deployed at the user site. Options include a small, purpose-built hardware device or virtual instrumentation that can be deployed on a remote-users' laptop (Windows or Linux), for Ethernet and/or Wi-Fi analysis – ideal for branch office and home-based users. The nPoints use Web Test and Path Analysis to monitor the availability and performance of web-based applications and services for at-home users, even when users are not active. This allows IT to identify issues and start troubleshooting earlier, understand the users or groups of users impacted, and provides the data to hold vendors responsible for meeting SLAs.

The data provided by NETSCOUT gives customers visibility to the health and performance of their ISP .links supporting at-home users. Based on the data, customers can work with ISPs to ensure they are meeting expectations and/or increase bandwidth (Figure 4).

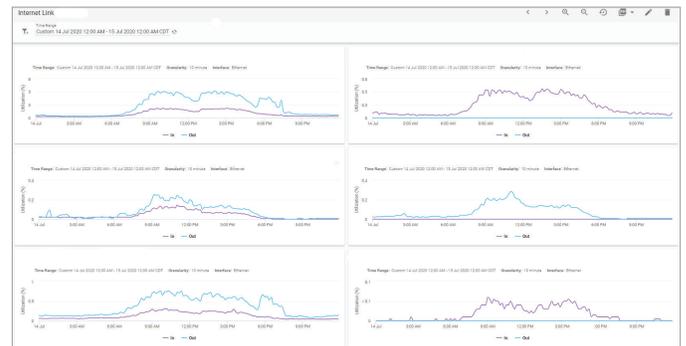


Figure 4: nGeniusPULSE monitors multiple ISP circuits utilization.

Dashboards and Reports

NETSCOUT solutions allow IT teams to analyze and share technology performance data in multiple formats across the organizations, designed to meet the needs of multiple audiences. Dashboards can be configured to provide the data needed by IT network experts, IT group managers or executives for review or analysis. Reports can also be customized and scheduled to present the most relevant data to support strategic decision making from the executive level to the architects' deployment needs.

Summary

With the huge increase in employees working from home, network and application availability and performance, from the user perspective, is more critical than ever. Successful work-from-home user experience depends on IT having visibility to ensure the VPN connection and internet access required by these employees. NETSCOUT delivers that visibility and provides the data IT needs to identify, analyze, troubleshoot and mitigate issues to keep the business communicating.



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