

CASE STUDY

Oil and Gas Services Company

Scales Remote Network Access to 60,000+ Employees and Maintains Business Continuity During the Global Crisis with DX NetOps

Oil and Gas Services Company

CLIENT PROFILE

Organization: Oil and Gas Services Company

Industry: Oil and Gas

Employees: 82,000

CHALLENGES

- Contending with significant increases in VPN gateway utilization.
- Avoiding VPN connection delays and disconnects.
- Limited visibility to VPN gateway performance.

SOLUTION

- Employing DX NetOps VPN Health Monitoring dashboards to monitor VPN gateway performance.

BENEFITS

- Enabled 60,000 employees to work safely from home.

Business

Offering technology and services to the energy industry, a leading enterprise grew to operate on a global scale. Today, the company has employees representing more than 140 nationalities working in more than 85 countries. This company supplies the oil industry with a comprehensive range of products and services, from exploration through production. The company offers integrated pore-to-pipeline solutions that optimize hydrocarbon recovery and deliver reservoir performance sustainably.

Challenges

Like many organizations in 2020, this major oil and gas services company made the decision to have most of its employees work from home and to restrict all non-essential business travel as a measure to keep their employees safe. The company rose to this challenge at the very outset of the pandemic.

A virtual private network (VPN) is the most popular and secure way to provide employees with access to company resources and data when they're traveling or working remotely. Like most network devices that handle traffic, there are usually limits to the number of connections that a VPN gateway can handle at any given time. However, with much of the company's employees now working remotely, the network operations team immediately picked up the effort of scaling operations to meet the vastly increased load being placed on its VPN connectivity infrastructure. Previously, the team needed to support 10,000 users. Within weeks, the team scaled up infrastructure to meet the needs of 60,000 employees.



Figure A: L1 operations dashboards provide easy and quick visibility into VPN health

Customer Environment

- Management of 4,500 devices
- Polling of 180,00 items, including interface, CPU, memory, QoS, IP SLA, VPN metrics, and satellite connectivity
- 150 users, including NOC, support, and engineering teams
- Managed WAN and SD-WAN services for satellite/remote sites and offices



Figure B: DX NetOps heat charts enable easy pinpointing of troublesome areas in VPN consumption

Before the pandemic declaration, the team saw a precursor of things to come was when users in China, who were supposed to connect to the Beijing VPN, began to hit the gateway's maximum number of connections allowed. These users then tried to connect to the Singapore VPN gateway and that too hit its capacity. This was an indicator of the potential impact to global business operations and business continuity as the work from home model spread around the world. It set the IT team on a course to better understand VPN performance and make capacity adjustments for a reliable user experience.

Following is a summary of challenges:

- Significant increases in VPN gateway utilization—connections exceeded VPN Gateway maximums
- VPN connection delays and disconnects—ISP bandwidth and internet router capacity
- Limited visibility to VPN gateway performance to identify potential issues

Customer Environment

This major oil and gas services company has a growing deployment of DX NetOps from Broadcom. The solution provides the organization with high-scale operations monitoring, helping them manage service levels for

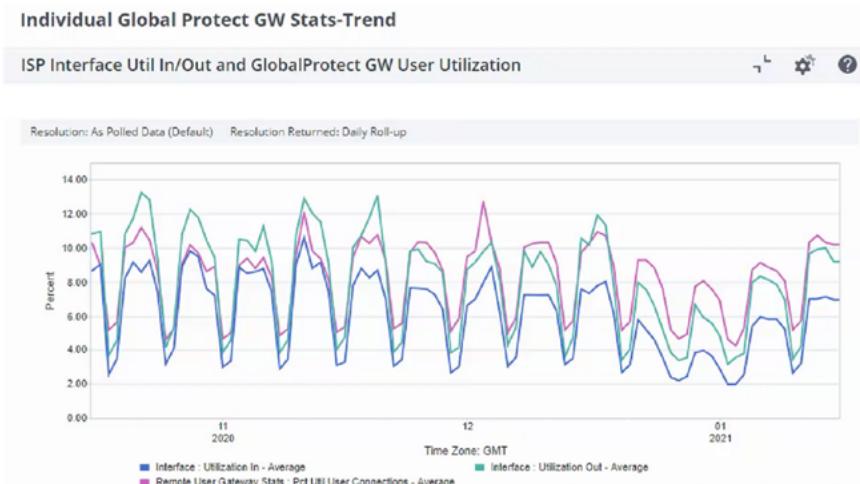


Figure C: DX NetOps delivers ISP interface utilization charts showing the impact of user demand on VPN gateways

“DX NetOps from Broadcom helps us collect and visualize data on active remote tunnels and tunnel utilization to VPN gateways. In addition, it provides custom reports to show cumulative active tunnels across all gateways.”

—IT Operations Manager, Oil and Gas Services Company

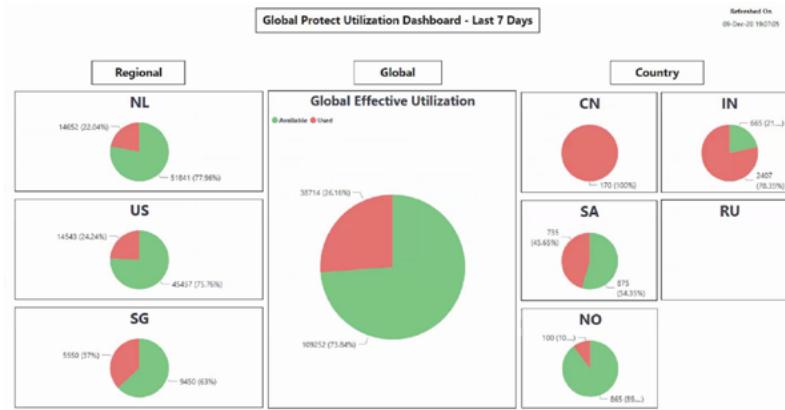


Figure D: Executive dashboards provide business continuity views for immediate insights into health and performance of the customer experience

their entire infrastructure and the customer services they offer. DX NetOps enables them to support:

- Management of 4,500 devices
- Polling of 180,000 items, including interface, CPU, memory, QoS, IPSLA, VPN metrics, and satellite connectivity
- 150 users, including NOC, support, and engineering teams
- Managed WAN and SD-WAN services for satellite/remote sites and offices

Solution

This company implemented DX NetOps VPN Health Monitoring dashboards to monitor their VPN gateway's performance. These dashboards offered administrators an easy and efficient way to gain insights into employees' work-from-home experience. Three network monitoring metrics were all that was needed to better understand current VPN performance and make capacity adjustments to deliver a more reliable user experience.

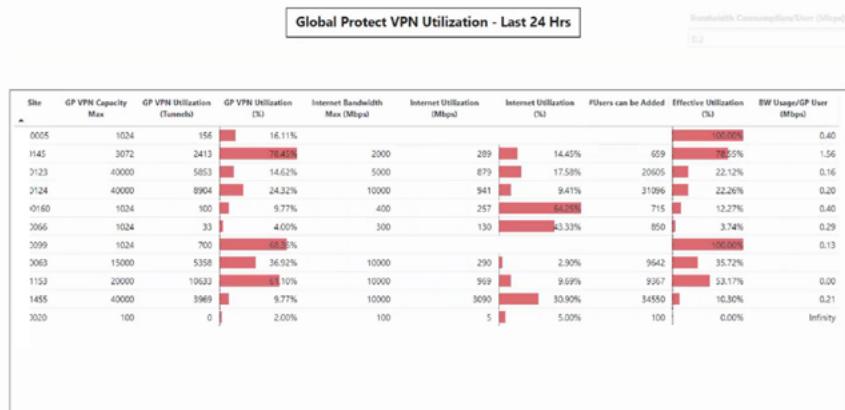


Figure E: Data easily extracted from DX NetOps can be used to build executive dashboards for bandwidth usage per VPN user

“Our move at the start of the pandemic to support large-scale, VPN-based remote working was submitted as a project in our annual CEO Award competition. It was voted as the best project in the company’s operations excellence category.”

—IT Operations Manager, Oil and Gas Services Company



The team leverages DX NetOps to gain visibility into tunnel usage with monitoring metrics related to the number of active tunnels (concurrent users), tunnel limit (max # of tunnels allowed), and percentage tunnel utilization. The team is also able to anticipate network capacity requirements by tracking an additional metric for the gateway, the internet bandwidth requirement per user. DX NetOps allowed the team to set thresholds on the percentage of tunnel utilization and receive alerts on any breaches before users started to experience issues.

DX NetOps dashboards provides these additional intelligent insights into VPN connection health:

- VPN health by location, using group scorecard views
- Cumulative user connections across all regions
- Capacity planning on current usage to plan for future demand
- Custom dashboards and views to present the data in different formats
- Engineering dashboards for troubleshooting, tracking, and monitoring
- Bandwidth utilization, discards, and errors reported for internet router interfaces

In direct response to the challenge of scaling up remote working, DX NetOps helped to answer two very important questions that are key to maintaining business continuity:

- **Can the current VPN hardware handle the expected load?** DX NetOps monitoring and reports helped the company implement plans to upgrade their VPN gateways.
- **Can the existing ISP links and internet routers handle this new expected user load?** DX NetOps was able to provide this insight, which helped the team make the additional business case to upgrade their hardware and ISP links so they could handle the expected increase in usage.

Results

An incredible combination of teamwork and innovation allows this major oil and gas services company’s employees to work safely from home, minimizing their exposure while maintaining business continuity. With the help of Broadcom, this company’s network operations team enabled new modes of remote operations and scaled remote network access to over 60,000 employees. Additionally, carbon-emissions were reduced by minimizing commuting, travel, and office infrastructure utilization. In addition, quality of life improved for employees. The resilient digital infrastructure put in place will become the sustainable basis for ongoing operations in our “new normal.”

“Our move at the start of the pandemic to support large-scale, VPN-based remote working was submitted as a project in our annual CEO Award competition. It was voted as the best project in the company’s operations excellence category. Project members are a coalition of network operations, monitoring, reporting, architecture, and perimeter security teams. DX NetOps from Broadcom helps us collect and visualize data on active remote tunnels and tunnel utilization to VPN gateways. In addition, it provides custom reports to show cumulative active tunnels across all gateways.”

—IT Operations Manager, Oil and Gas Services Company

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