

Large Western U.S. Electric Utility Relies on NETSCOUT Solution to Assure Safety, Reliability and Compliance

nGeniusONE Service Assurance Platform Enables IT to Meet Service Performance and Monitoring Requirements on Transmission and Enterprise Networks

OVERVIEW

Business Challenge

- Difficulty in ensuring service performance with GOOSE protocol, used for power switching, between data centers and substations
- Pressure to meet NERC-CIP compliance for safety and security with audit trails of servers and ports
- NERC-CIP compliance failures could result in fines up to a million dollars per day
- Inability to provide service assurance on both the transmission network and enterprise network

NETSCOUT Solution

- InfiniStream® appliances at the data centers and substations track packet flows to accurately measure latency in order to maintain safety in the electric distribution network
- nGeniusONE® provides dashboard views and reports for services, applications, and GOOSE protocol metrics to proactively find problems and enable troubleshooting and compliance
- nGeniusONE reports show servers and ports communicating on the network on a daily basis

Business Value

- Maintains safety and compliance on electric distribution network with service assurance
- Provides audit trails for NERC-CIP compliance to avoid costly penalties
- Quickly detects issues with GOOSE and EMS and provides in-depth analytics to significantly reduce MTTR
- Monitors the utility's many custom applications and provides assurance for these mission-critical services, along with off-the-shelf business applications



Customer Profile

This large Western U.S. electric utility provides power to millions of customers. The organization takes advantage of smart grid technology to offer various power rate options, such as smart thermostat discounts and time-of-use rate plans. As a forward-thinking business, the utility encourages customer power generation and uses smart meters to ensure proper billing credits as customers put excess power back onto the grid. The company is firmly committed to safety, sustainability, upgrading the grid for the future, and serving the community.

Business Challenge

When it comes to the utility industry, “always-on” is an absolute imperative. For this major energy company, managing application traffic and assuring service performance between redundant data centers and multiple substations with Generic Object Oriented Substation Events (GOOSE) protocol and the Energy Management System (EMS), used for power switching, was needed to ensure safety in power transmission. GOOSE was developed to provide fast transmission of messages to communicate with substations as latency higher than 19 milliseconds in transmitting commands and responses to control electric loads across the distribution network would threaten to overload the power system, causing severe safety risk. IT needed to ensure message transmissions remained within the acceptable latency range.

IT was also under tremendous pressure to maintain North American Electric Reliability Corporation – Critical Infrastructure Protection (NERC-CIP) security compliance, providing audit trails of servers and ports on the network in addition to ensuring GOOSE performance. Failure to assure NERC-CIP compliance could result in fines up to a million dollars per day per violation. Overall, IT faced the critical challenge of ensuring the performance of its EMS on the transmission network, as well the performance of general business applications on its enterprise network.

NETSCOUT Solution

To address these service performance and monitoring challenges, the utility's IT team turned to NETSCOUT®. The nGeniusONE Service Assurance platform with Adaptive Service Intelligence™ (ASI) technology, along with InfiniStream appliances and Fiber TAPs were employed to enable IT to identify, isolate and mitigate issues quickly.

NETSCOUT Solution in Action

By installing InfiniStream appliances at the data centers and substations, IT is now able to track packet flows to accurately measure latency, even with the uni-directional GOOSE traffic. The NETSCOUT solution allows these latencies to be closely monitored, which is critical for maintaining safety across the utility's electric distribution network.

nGeniusONE provides dashboard views and reports for services, applications, and GOOSE protocol metrics to proactively find problems and enable troubleshooting and compliance. Standard reports are used on the enterprise network for real-time bandwidth monitoring, capacity planning, quality-of-service (QoS) analysis, and unified communication and collaboration (UC&C) activity. Automated usage reports show servers and ports communicating on the network on a daily basis. Dependency mapping for EMS uncovers load balancing and other issues, allowing IT to respond quickly. The utility is able to use these reports to ensure NERC-CIP compliance.

Business Value

The NETSCOUT solution has proven to make a real difference for the utility's IT team. IT is now able to assure the service performance and security of its transmission network and the general business applications on its enterprise network. NETSCOUT's end-to-end solution offers critical insights that allow IT to troubleshoot issues before they impact the business or customers.

The NETSCOUT solution delivers benefits including:

- Ability to maintain safety and compliance on electric distribution network with service assurance
- Providing audit trails for NERC-CIP compliance to avoid costly penalties which can amount to \$1 million per day, per violation
- Quickly detecting issues related to latency in GOOSE messages and providing in-depth analytics to significantly reduce mean-time-to-repair (MTTR) when issues occur
- Monitoring the many custom applications found in energy company environments and providing assurance for these mission-critical services, along with off-the shelf business applications



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