

Observability to Assure Quality Performance and Availability of Energy Services



The energy industry is undergoing a huge digital transformation and one of the biggest drivers is the move to the smart grid. Hybrid cloud, next generation contact centers, internet of things (IoT) devices and securing them, as well as, on-line bill pay, and other web-based services are all improving business processes, customer service, and costs for energy companies.

The majority of energy company leaders believe that digital transformation is a top priority.

The goals of the smart grid include reducing costs, increasing reliability, utilizing more green energy (including that generated by customers), complying with safety and security regulations, and providing better customer service. Meeting these objectives requires high-performance communications throughout the hybrid network and the Advanced Metering Infrastructure (AMI), with the sensors distributed throughout the supply and distribution network, as well as applications used for energy management by both the utility and its customers.

In many locations, government regulations are forcing utility companies to implement the smart grid. Although the smart grid provides many benefits for utilities and consumers alike, it adds new technical challenges for the utilities and increases the criticality of their IT infrastructures. If there are communications outages or degradations with sensors in the generation and distribution system, it can lead to business impact such as inaccurate billing or worse yet, safety issues by not properly

rerouting around failures or not accurately accounting for distributed power generation, such as solar and wind farms, can result in improperly controlling the amount of power generated.

In addition to the smart grid, utilities must continue to provide service assurance for a host of other IT services, such as Supervisory Control and Data Acquisition (SCADA), Customer Relationship Management (CRM), Outage Management Software (OMS), Crew Management applications, Unified Communications & Collaboration (UC&C), and other business applications. To complicate matters, many of these systems are spread across distributed locations. SCADA is used to control power generation and distribution and any SCADA service disruptions can cause regulatory and safety issues as well as financial risk. Any degradation in CRM, OMS, Crew Management, UC&C, etc. can cause customer satisfaction issues, as these services are used to minimize impact of service outages, communicate with customers, and provide appropriate billing.

With energy businesses relying so heavily on IT service delivery, the availability and performance of these IT services is paramount. If significant inefficiencies are introduced, customer service, compliance, revenue, and profitability all suffer. NETSCOUT® provides the end-through-end performance management and user experience assurance required to drive business success in the energy sector.

Compliance violations can result in fines of up to \$1 million per day depending on risk and severity of the violation.

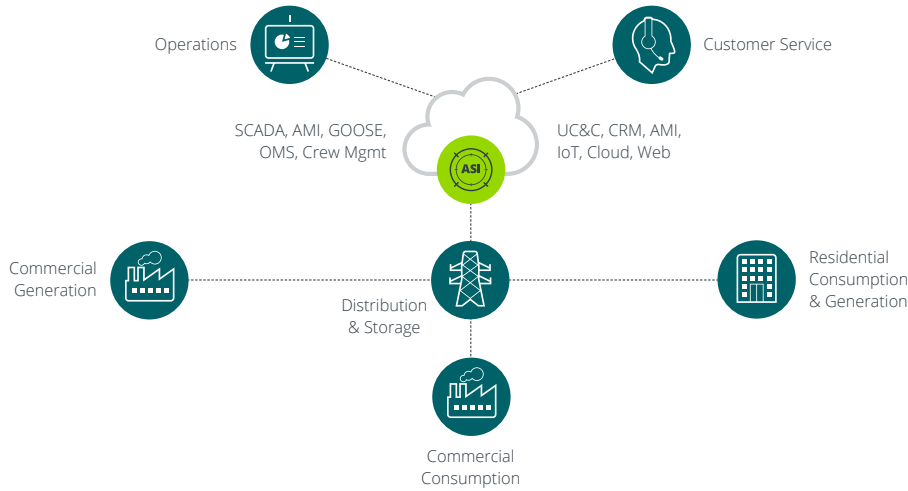


Figure 1: The applications managing power generation, distribution, and consumption require high availability and performance as well as security to maintain safety, compliance and customer demands.

Our Approach

NETSCOUT's approach to business assurance is built on a foundation of high quality data and real-time analytics. Based on network traffic, NETSCOUT's patented Adaptive Service Intelligence® (ASI) technology provides the most robust data source available to ensure services are delivered by measuring the actual transactions and dependencies of the service.

NETSCOUT analytics are the industry-leading standard for scalability and ease-of-use, enabling proactive service triage to keep combined aspects of the energy generation and distribution process running smoothly end-to-end. Leveraging ASI, NETSCOUT provides unmatched capabilities that ensure the reliable and uninterrupted delivery of critical application services, ensuring they do not cause transmission delays or quality issues.

The benefit of this approach is getting the right information to the right people at the right time, resulting in faster Mean Time to Resolution (MTTR). Logical, intuitive workflows have been developed with data reduction in mind to reduce the mountain of data and statistics found in high-volume, globally distributed, complex IP networks down to actionable intelligence generated

from ASI metadata. By minimizing noise and maximizing essential information, power and utility IT organizations have greater effectiveness in troubleshooting complex service-impacting issues that affect customers - both commercial and residential, power generation, transition, billing, and outage management with the NETSCOUT solutions.

Due to business loss, productivity interruptions, and troubleshooting efforts, over 90% of organizations estimate an hour of enterprise downtime that affects critical servers and applications amounts to over \$300,000.

Our Solutions

NETSCOUT solutions deliver the flexibility to support both energy specific services, such as AMI, SCADA, etc. as well as general business services, such as CRM, email, and UC&C, all over distributed networks,

including cloud and hybrid cloud. NETSCOUT provides unrivaled observability into IP-based services along with contextual workflows to speed problem resolution that is both easy for Level 1 responders to use and powerful for an expert to operate. Powered by ASI, a patented technology for deep packet inspection at scale, nGenius® Enterprise Performance Management solution delivers real-time performance metrics including Key Performance Indicators (KPIs) from analysis of traffic utilization, application and database servers, and network errors.

Rather than look at individual elements in isolation, nGeniusONE® provides an overarching view into the performance characteristics of the components associated with service delivery across the entire infrastructure. This exposes underlying service dependencies between services, such as AMI, SCADA, CRM, and UC&C, along with the individual application servers, their backend databases, and the necessary service enablers, such as DNS and DHCP, and authentication, like LDAP, Active Directory, or RADIUS. A single solution providing network, application, and user experience performance management, allows IT operations to effectively manage health and availability of critical services and proactively identify the root cause of problems.

By understanding the relationships between the various energy specific applications (for usage control, generation monitoring, outage management, billing, etc.), network, C12.22 protocol for smart meter communication, databases, and service enablers such as DNS, DHCP and LDAP/AD, InfiniStreamNG® and vSTREAM® appliances provide smart data from monitoring and analyzing the packets throughout the enterprise. Additionally, when combined with synthetic and business transaction tests for smart data related to user experience of key applications, even when users are inactive, the solution can provide early warning of emerging problems. All the smart data is consumed by nGenius Enterprise Performance Management to provide proactive notification of problems, expedite troubleshooting, and deliver factual information promoting collaboration between system/network owners.

Visibility to protect the power company from enterprise-wide network threats to the business can be accomplished with Omnis™ Cyber Intelligence. With the ability to promptly and efficiently provide advanced network threat detection and response, security teams can easily detect, validate, investigate, and respond to threats.

Our Value to Energy Companies

For energy companies, NETSCOUT solutions are designed to ensure the IT services supporting business processes from generation, distribution, customer service, and billing, run smoothly through proactive service assurance.

If problems do arise, NETSCOUT solutions ensure the proper information is available to troubleshoot them quickly to keep the business moving. With NETSCOUT, energy companies can:

- Roll out AMI and smart grid with confidence by investing a small portion of the cost in service assurance to ensure performance and availability of the application services and infrastructure for business success.
- Lower operational costs through proactive management and reduced MTTR, as well as enabling successful deployments of smart grid elements.
- Ensure efficient operation of business-critical applications, such as SCADA, OMS, Crew Management, CRM, and more, whether used locally or distributed across the infrastructure.
- Maintain both compliance and high-performance customer communications infrastructure in order to limit the impact of power outages, create high-quality customer satisfaction, and avoid costly penalties.
- Proactively triage and reduce MTTR for issues contained to a single site or across many sites, including substations.
- Reduce the time to troubleshoot and resolve user experience issues using nGenius Enterprise Performance Management. Proactive observability improves mean-time-to knowledge (MTTK) and reduces MTTR, benefiting IT and employee productivity, customer service, revenue, and reputation.
- Enhance IT, NetOps, and Multi-Vendor efficiencies and collaboration.



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