

MAXIMIZE IoT PERFORMANCE WITH RUGGEDIZED NETWORKING



THE CHALLENGE

As the Internet of Things (IoT) drives major transformation in the energy industry, keeping geographically dispersed equipment, devices and people closely and securely connected – even in the harshest, most remote environments – is increasingly essential to maximizing performance and maintaining competitiveness.

Oil and gas companies need to:

- **Eliminate network infrastructure downtime.** Low oil prices demand high efficiency and reliability in operations.
- **Increase reliance on connected sensors.** High exploration costs and limited human resources intensify the need to capture and analyze data.
- **Operate equipment maintenance-free for extended time periods.** Remote global and offshore equipment and SCADA systems frequently face punishing environmental conditions.
- **Protect at-risk networks and remote infrastructure.** Cyberthreats continue to grow in number and sophistication, and greater connectivity heightens vulnerability.

Utilities companies need to:

- **Boost performance and rein in costs.** Optimizing the smart grid plays a crucial role in increasing operational efficiency.
- **Improve their customer experience.** Customers expect fast, informed, responsive service.
- **Communicate and collaborate.** Field workers need to quickly and easily connect with the home office and customers and must stay informed about safety issues.
- **Conduct preventive maintenance and make repairs faster.** Preventing and/or minimizing outages is a top priority.
- **Protect against cyberattack.** The smart grid continues to be a prime target for foreign and domestic hackers.

THE SOLUTION

Ruggedized networking solutions, on land and offshore, play a critical role in enabling energy companies to successfully meet these challenges. At the same time, increased connectivity raises vulnerability to cyberattack, requiring an integrated, defense-in-depth approach to network security.

Deep Expertise

CDW Energy has the expertise, experience and comprehensive range of components to help determine your needs and implement the necessary bandwidth, robust remote infrastructure, dependable connectivity and multilayered security that enable you to fully capitalize on IoT.

Nearly 90% of utility executives anticipate that technological advances will rapidly and significantly change the industry over the next three years.¹

Source: ¹accenture.com, "The Accenture Technology Vision 2016 for Utilities," 2016



15% of oil and gas companies believe the Internet of Things/smart technology will have a key impact on the energy sector in 2016.²

Source: ²dnvgl.com, "A New Reality: The outlook for the oil and gas industry in 2016," 2016

KEY COMPONENTS



SCADA Networks

- Remotely monitor and control operations
- Sensors collect data from pipelines, oil rigs, substations, transformers and other industrial equipment
- Increasingly integrated with the Internet



Endpoints

- Devices such as notebook computers, tablets and other mobile devices
- Remote workers use to record information onsite
- Connected to the SCADA network and Internet



Backhaul

- Intermediate links
- Connect smaller subnetworks to the core network



Multilayered Security

- Perimeter security
- User authentication solutions
- Device/endpoint security
- Remote access security and monitoring



Storage

- Options include cloud-based or on-premises
- Connected to all networks
- Extra bandwidth may be necessary to accommodate influx of new data



Switches, Routers/Gateways, Wireless Access Points

- Network building blocks
- Direct data toward appropriate routers and destination devices
- Gateways separate the SCADA network from external networks with a firewall

CRITICAL CHARACTERISTICS

Ruggedized network components must be:

- Dustproof
- Liquid-resistant
- Able to withstand wide swings in altitude and temperature as well as intense vibration
- Engineered to operate maintenance-free for extended periods
- Feature vent-free, fanless design
- Have special enclosures that meet ruggedized use specifications, including NEMA 4, MIL-STD-810F, MIL-STD-461E, J1211 and J1455

THE BENEFITS

By taking advantage of ruggedized networking and components, energy companies can:

- **Optimize IoT.** Dependable connectivity enables data sharing between SCADA systems and IoT, driving better-informed business decisions, monitoring and controlling operations, and integrating IT with field communications.
- **Reduce costs.** Automating equipment and pipeline monitoring minimizes the need for staff travel, optimizes performance and reduces environmental impact.
- **Improve worker safety.** Companies can reliably capture and transmit data to predict and prevent events that could endanger field workers.
- **Maximize high-performance computing (HPC) capabilities.** Companies can process, analyze and visualize volumes of unstructured data to accurately identify drilling sites and optimize yield.
- **Track consumer energy use.** Sensors and automated meter reading help predict spikes in demand and efficiently manage usage.
- **Minimize downtime.** High network reliability improves performance and efficiency.
- **Boost customer satisfaction.** Access to real-time data enables timely preventive maintenance, supports faster repairs and speeds storage restoration.

Make the most of IoT with ruggedized networking solutions you can count on for uninterrupted connectivity. To learn more, contact your CDW Energy account manager or call 877.645.0685.

Despite the drop in oil prices,

80% of upstream oil and gas companies

plan to invest the same, more or significantly more in digital technologies now and in the future, including Big Data and IIoT/automation.³

Source: ³accenture.com, Digital Energy Survey 2015, April 2015

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