DATASHEET

RTI in Energy

HIGHLIGHTS

'Big Iron' reliability and performance needed to power the most demanding applications

End-to-End connectivity through seamless connections of local and wide area networks

Scales from SCADA up

The industry's most advanced distributed security architecture

The power and utility sector is witnessing significant disruption and changes in policy, technology, and customer requirements. The Industrial Internet of Things offers the energy industry an opportunity to deliver on the promise of smart energy. Industrial-strength data sharing can improve power generation and distribution and enable the efficient use of renewable energy resources at large scale. RTI Connext® DDS leads the way.

INDUSTRY TRENDS AND OPPORTUNITIES

The oil and gas industry is facing two fundamental business challenges that create a transformative opportunity for technology innovation.

The first one is related to the current reduced demand for oil resulting in lower oil price. This trends generates the need for operational expenses reductions and for increase in efficiency and profitability. Some of the current inefficiencies stem from the disconnection and isolated nature of equipment used in the oil fields and on the oil rig. The equipment used for oil explorations, drilling and pumping currently generates a lot of data, but this data is very siloes and is not leveraged to improve operational efficiency.

The second challenge, often referred to as "the great crew change," is related to the fact that much of the personnel, including engineers and technicians, currently employed in drilling and other field operations, is getting close to their retirement age. This leads to potential shortage of qualified workforce in the industry in the near future. This trend drives a need for equipments modernization and greater process automation.

THE VALUE OF INDUSTRIAL IOT

The Industrial IoT offers a unique opportunity to effectively address the business realities of shrinking oil prices and upcoming shortage of qualified technical personnel.

IoT can help gathering the data from the isolated field equipment. It also enables turning data into actionable information and using this information in intelligent systems, such as process control and to create operational optimization and improve efficiency. This will help make the field operations more streamlined, reduce costs and increase profitably. It will help mitigate the current shrinking profits and prepare the companies for the cyclical jump in oil prices in the long term. The IIoT systems also excel in industrial automation and predictive maintenance, domains, which, in addition to cost saving, can generate new revenue streams by offering innovative services.

The industry thought leaders are already funding efforts to leverage the IIoT value. One such example is a collaboration between ExxonMobil and Lockheed Martin, the next-generation open and secure automation initiative. The project will design a new architecture to control and optimize refining

and chemical manufacturing facilities, while enabling future equipment and information services such as preventative maintenance and fleet optimization.

DEVELOPING NEW SMART GRID ARCHITECTURE

Traditional central-station power grids operate on 15-minute output update cycles that result in operators over-generating power to compensate for variation in power generation or demand. To efficiently integrate distributed energy resources, the grid needs fast-reacting intelligence at the edge.

RTI is collaborating with other members of the Industrial Internet Consortium (IIC) to introduce the flexibility of real-time analytics and control into power grids and ensure that power is generated more accurately and reliably to match demand. IIC's Communication and Control Testbed for Microgrid Applications will re-architect the power grid system into a series of distributed microgrids that control smaller areas and support load, generation, and storage. These microgrids will enable efficient integration of solar and wind into the grid, creating a dynamic, open marketplace for smart grid vendors. RTI is proud to lead this effort to create power grid of the future.

ACCELERATE GRID MODERNIZATION

RTI is also a member of the Smart Grid Interoperability Panel (SGIP), whose OpenFMB™ (Open Field Message Bus™) Priority Action Plan applies Industrial Internet technologies and techniques to enable the Smart Grid. The Priority Action Plan will develop a smart-grid framework to enable combining solar, wind, and storage into an efficient, secure,

flexible architecture for Distributed Energy Resources (DERs). DDS powers the current OpenFMB information-sharing implementation.

ENSURE CRITICAL INFRASTRUCTURE AVAILABILITY

The largest power plant in North America has replaced its SCADA control system with RTI Connext DDS. The aging, monolithic SCADA system was no longer effective at meeting today's important requirements – extreme availability, fault tolerance, performance, security, and ability to implement wide-area communications.

The new, DDS-based control system is modern, distributed, secure, and very reliable. Compared to the old SCADA system, it's smarter, more efficient, and easier to evolve. Also, because it's based on modern networking protocols, the new DDS design can leverage new technology as it becomes available, such as cloud computing, connectivity, and security.

FIND AND DELIVERING THE RIGHT DATA

Siemens Wind Power, one of the world's largest wind turbine manufacturers, uses RTI Connext DDS to integrate its entire farm. Wind turbine farms can include as many as 500 turbines with 100-meter blades. Turbine control requires fast local loops and maintenance data collection. Gust control across the array necessitates fast communications with dynamic, selective filtering.

RTI Connext DDS provides fast, reliable connectivity across Siemens' many turbines. With Connext DDS, a Siemens Wind Power farm optimizes power, monitors its own health, and reacts to its environment by capitalizing on the power of the Industrial IoT.

ABOUT RTI

Real-Time Innovations (RTI) is the largest software framework provider for smart machines and real-world systems. The company's RTI Connext® product enables intelligent architecture by sharing information in real time, making large applications work together as one.

With over 1,500 deployments, RTI software runs the largest power plants in North America, connects perception to control in vehicles, coordinates combat management on US Navy ships, drives a new generation of medical robotics, controls hyperloop and flying cars, and provides 24/7 medical intelligence for hospital patients and emergency victims.

RTI is the best in the world at connecting intelligent, distributed systems. These systems improve medical care, make our roads safer, improve energy use, and protect our freedom.

RTI is the leading vendor of products compliant with the Object Management Group® (OMG) Data Distribution Service™ (DDS) standard. RTI is privately held and headquartered in Sunnyvale, California with regional headquarters in Spain and Singapore.

Download a free 30-day trial of the latest, fully-functional Connext DDS software today: https://www.rti.com/downloads.

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