RTI in Oil and Gas

Delivering Security, Interoperability and Safety

Operating modern oil and gas reservoirs requires superior monitoring and control, connectivity and process automation. Previously deployed technology limits the ability to quickly and reliably integrate and robustly operate field-to-cloud systems across large installations. The Industrial Internet of Things (IoT) offers industry leaders an opportunity to transform their infrastructures to take advantage of open, high-bandwidth protocols and low-cost intelligent networks.

Industry Challenges and Opportunities

The Oil and Gas industry is currently experiencing unprecedented technology challenges, including massive data flow from new sensor technology, new analysis techniques, complex drilling processes and rapidly changing requirements and regulations for well monitoring and reservoir management. Concurrently, the number of field experts is plummeting; approximately 60 percent of the current technical field experts are expected to retire over the next decade. This shortage of a qualified workforce results in an urgent need for equipment modernization and greater process automation.

To address the industry changes, companies are embracing more intelligent systems and processes. In addition, with the current cyclic reduction in oil prices, technological advancements must be cost effective, labor effective and minimally disruptive. They need to leverage existing infrastructure and preserve prior investments in equipment and personnel training.

The Industrial IoT helps address the business realities of shrinking oil prices and the upcoming shortage of qualified technical personnel. The intelligent data-connectivity technology running at the core of smart distributed systems enables safer operations with more automated oversight. It also helps companies gain a competitive advantage by accelerating development of new value-added applications and services in the future.

Industrial IoT Platform for Oil and Gas

Industry leaders are already funding efforts to get ahead of the competition through technology differentiation. One such example is the next-generation open and secure automation initiative, funded by a large national oil distributor. The strategic investment will result in 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.

The open data connectivity standard of the Industrial IoT, Data Distribution Service (DDS), provides an ideal foundation for control and process automation frameworks, as well as future revenue-generating information services. Replacing low-level communications programming with a data-centric publish/subscribe model saves tens of thousands of lines of application code, avoiding years of effort and millions of dollars in cost.
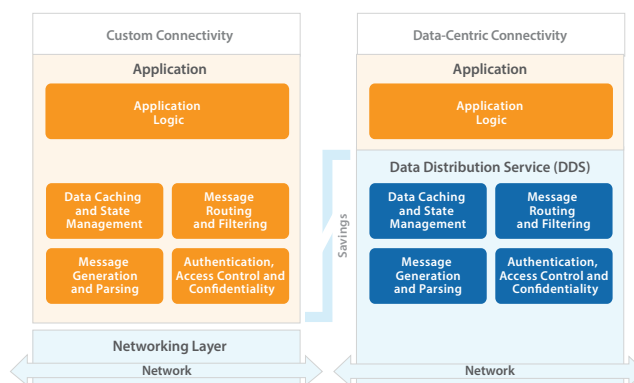
How Companies Use Connext DDS

RTI Connext® DDS, the leading DDS implementation, provides the connectivity platform for the Industrial IoT. Connext DDS has already been widely adopted by the world's largest companies in the oil and gas, automotive, robotics, underground mining, medical systems, military systems, air traffic control and other industrial sectors. Connext DDS is the only middleware technology to deliver microsecond latency, safety certification, fine-grained security and proven operational readiness.


Enable Intelligent Well Drilling and Completion Automation

A leading global provider of oil and gas drilling and production equipment and services uses Connext DDS as a high-speed databus to connect sensors and actuators at the wells with a process controller. In addition to automating drilling and completion, Connext DDS is used for equipment health monitoring, activity analysis and log status readings. It also integrates the well domain with a remote control center. A wireless link or fiber network allows well information to be automatically sampled, with readings downloaded and stored in the control center. The gathered data helps remote technical experts intelligently analyze well operations and send corrective feedback to the well systems. When local automation fails to handle errors, the system alerts engineers in the control center to debug or restart remote processes.

Ensure Critical Infrastructure Availability

The largest power plant in North America has replaced its SCADA control system with a new distributed control system based on Connext DDS. The aging, monolithic SCADA system was not scaling to meet today's important requirements – extreme availability, fault tolerance, performance, security and ability to implement wide-area communications. The new, DDS standard-based control system is modern, distributed, secure and very reliable. Compared to the old system, it is smarter, more efficient and easier to evolve. Also, because it is based on modern networking protocols, the new design can leverage new technology as it becomes available, such as cloud computing, connectivity and security.
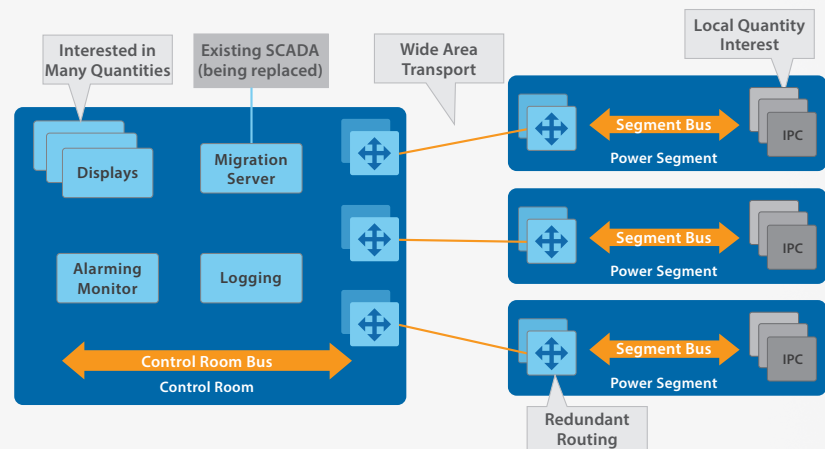
About RTI

Real-Time Innovations (RTI) is the Industrial Internet of Things (IIoT) connectivity company. The RTI Connext® databus is a software framework that shares information in real time, making applications work together as one, integrated system. It connects across field, fog and cloud. Its reliability, security, performance and scalability are proven in the most demanding industrial systems. Deployed systems include medical devices and imaging; wind, hydro and solar power; autonomous planes, trains and cars; traffic control; Oil and Gas; robotics, ships and defense.

RTI is the largest vendor of products based on the Object Management Group (OMG) Data Distribution Service™ (DDS) standard. RTI is privately held and headquartered in Sunnyvale, California.

rti
Your systems. Working as one.

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