



Leading Power and Automation Company Integrates Kepware Communications Platform for Scalability across Thousands of Well Sites



Organization:

ABB is a leader in power and automation technologies that enable utility, industry, and transport and infrastructure customers to improve their performance while lowering environmental impact. The ABB Group of companies operates in roughly 100 countries and employs about 140,000 people.

Industry:

Oil & Gas

Solution:

KEPServerEX®

- Modbus TCP/IP Ethernet Driver
- Simulator Driver
- Advanced Tags Plug-In

About ABB

With over a century of rich experience through its founding companies, ABB is a global leader in power and automation technologies. Headquartered in Zurich, Switzerland, the company employs over 140,000 people¹ and operates in approximately 100 countries around the globe. ABB's business is comprised of five divisions: Power Products, Power Systems, Low Voltage Products, Discrete Automation and Motion, and Process Automation. Each of these divisions are in turn organized into business units in relation to the customers and industries they serve.

With a heavy emphasis on the environment, ABB is widely regarded as a leading innovator of clean and efficient energy solutions. Many of the technologies taken for granted today—from ultra-efficient high-voltage direct current power transmission to a revolutionary approach to ship propulsion—were developed or commercialized by ABB.

ABB was selected as the main automation contractor for the world's first operation focused on converting gas from coal seams into liquefied natural gas. This supports ABB's environmental goals as natural gas provides about the same amount of energy as coal with over 40 percent lower carbon dioxide emissions when burnt.

The Challenge

One of the biggest technical challenges ABB faced with this project was automating the collection of well data. The project called for between 1,000 and 1,500 well sites to come online in 2014, and beyond 6,000 by 2030, over an area of more than 4,500 km². Each of these wells have between 50 and 70 data points being scanned on a 30-second cycle time.

With several new wells being introduced every day, ABB needed to be able to bring them on and off line in a highly streamlined and efficient manner; furthermore, the method of configuring them needed to be simple, fast, and very reliable. It also needed to be able to reliably retrieve vast amounts of data from distant locations. All this meant that the automation of data collection was a huge undertaking, since the project infrastructure was immense and constantly in flux.

¹As of end of 2014.

To handle these requirements, ABB needed an automated communications platform that was highly reliable and that could easily scale and communicate massive amounts of data back for visualization and long-term storage in an enterprise historian.

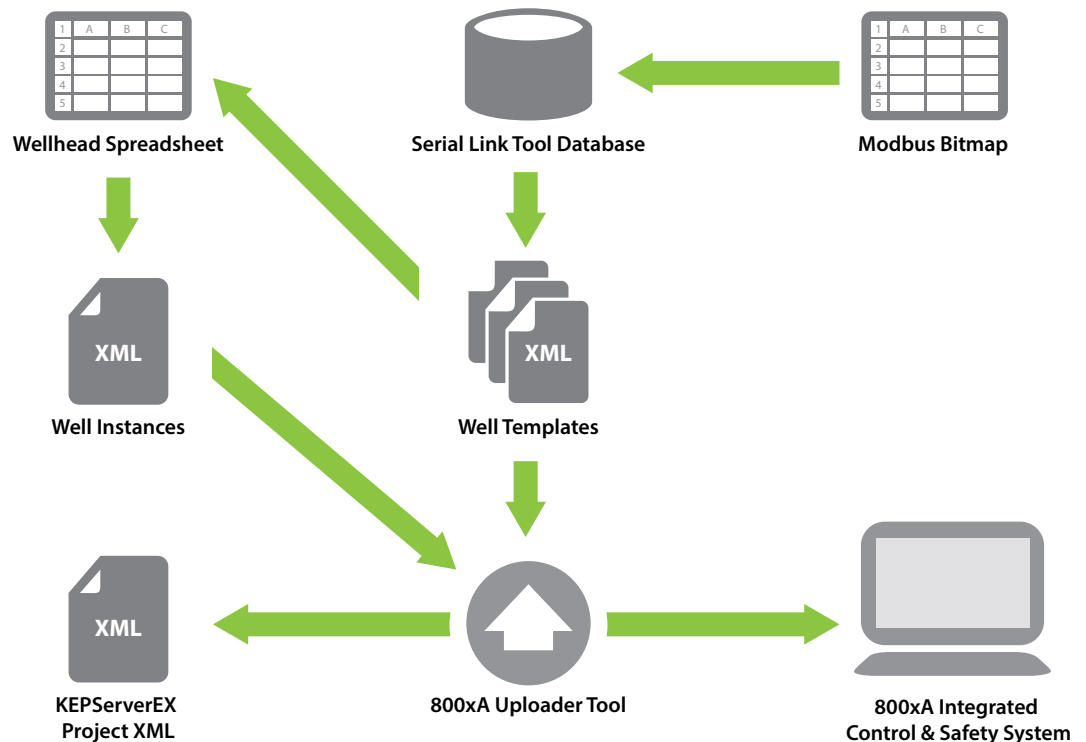
The Solution

After an exhaustive review of data communications solutions, ABB selected Kepware's KEPServerEX® as the best choice to handle the high demands of the groundbreaking project. With over 150 drivers and a single, consistent interface, KEPServerEX provides ABB with all the connectivity tools it requires in an easy-to-use package. In conjunction with ABB's flagship 800xA Integrated Control and Safety System (ICSS), KEPServerEX allows ABB to add multiple OPC drivers within a single communications platform without worrying about learning new communications protocols or spending time understanding new applications. KEPServerEX includes a library of over 150 PLC, RTU, and other device-type drivers, as well as database and application-specific drivers. Of particular value to ABB was Kepware's Modbus TCP/IP Ethernet Driver, which provides data exchange between OPC clients and Modbus protocol compliant controllers.

In order to overcome the difficulties involved in the rapidly expanding infrastructure, ABB made extensive use of the ability to import and export KEPServerEX configuration information in an easy-to-understand XML format. By developing a tool that could create a full configuration XML file to match the configuration within the ICSS, updating the KEPServerEX configuration to the current ICSS configuration took mere minutes and was completely reliable. In addition, Kepware's Advanced Tags Plug-In was essential for centralized data processing by the communications server, ensuring that all the data efficiently arrived where it should, when it should, and in the form it should.

Organization Impact & Benefits

- Advanced environmentally responsible operations
- Automated the traditionally manual process associated with bringing wells on and off line
- Provided a simple, scalable, and reliable method for configuring new wells
- Supplied a highly-effective and dependable way to efficiently poll data from distant locations
- Ensured all data efficiently arrived where it should, when it should, and in the form it should





Results

With Kepware's KEPServerEX communications platform, ABB was able to support a first-of-its-kind coal seam gas project by bolstering its flagship control system with flexible data communication. It did this by utilizing built-in KEPServerEX modules to tailor the solution to meet its unique needs. The combination of advanced features in Kepware's Modbus TCP/IP Ethernet Driver, Simulator Driver, and the Derived Tag and Link Tag features of the Advanced Tags Plug-In proved particularly valuable. Working closely with Kepware's Technical Support team, ABB took advantage of the key features of these components to supply a highly effective way of efficiently polling data.

"With KEPServerEX, we were able to automate a traditionally manual process associated with bringing wells online, and with this particular project's expansion speed, we had no time physically to provision wells," said Mike Oakley, Consultant Engineer, ABB Ltd. "KEPServerEX worked seamlessly with our flagship control system so that a single button click would have the potential to bring hundreds of wells on or off line in mere minutes."

About Kepware Technologies

Kepware Technologies is a private software development company headquartered in Portland, Maine. Kepware provides a portfolio of software solutions to help businesses connect diverse automation devices and software applications. From plant floor to wellsite to windfarm, Kepware serves a wide range of customers in a variety of international vertical markets including Manufacturing, Oil & Gas, Building Automation, Power & Utilities, and more. Established in 1995 and now distributed in more than 100 countries, Kepware's software solutions help thousands of businesses improve operations and decision making.

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