



KONGSBERG

Overview

Country or Region: Norway

Industry: Process Manufacturing & Resources—Oil & Gas

Customer Profile

Based in Kongsberg, Norway, Kongsberg Maritime is a global provider of systems for dynamic positioning, navigation, and automation.

Business Situation

Kongsberg Maritime and Floatel International wanted better ways to monitor vessels from on shore.

Solution

Kongsberg and Floatel implemented a communications platform based on Windows Server for Embedded Systems, Microsoft SQL Server for Embedded Systems, and Attunity Replicate.

Benefits

- Gains new insight into existing data
- Improves safety
- Enables strategic, real-time decisions
- Supports performance analysis
- Provides new business opportunities



Maritime Firms Improve Insight and Efficiency with Microsoft Solution

"If I look at the future and the access to data we're gaining with the Kongsberg communications platform based on Microsoft technology, the only thing that limits its use is your imagination."

Alexander Östberg, Project Engineer at Floatel International

Kongsberg Maritime, a provider of dynamic positioning and automation systems for the offshore and marine industries, aimed to improve operational knowledge by sharing data with onshore analysts. In collaboration with Attunity, Kongsberg Maritime designed a new communications platform based on Windows Server for Embedded Systems, Microsoft SQL Server for Embedded Systems, and Attunity Replicate that connects existing onboard sensors and control systems with an onshore data center and 55 remote offices. As a result, customers like Floatel International gain valuable insight into data, enabling real-time decisions and improving operational performance and safety on accommodation vessels that house approximately 500 oil-rig workers at a time. Kongsberg Maritime anticipates expanding its business in the maritime industry by helping customers enhance existing infrastructure with new capabilities and connectivity between systems, devices, and data.

“Integrated with the Microsoft platform, Attunity can replicate and transfer real-time data... [It] always existed, but now it’s accessible, and we can get valuable insights from it that weren’t possible before.”

Ted Orme, Director of Business Development, Attunity

Situation

Norway’s Kongsberg Maritime provides solutions including dynamic positioning and marine automation and navigation systems for merchant vessels, offshore drilling, and production installations. Key markets are countries with large offshore, shipyard, and energy exploration and production industries. The company which has more than 7,000 employees, supplies remote support to 16,500 ships from more than 55 offices worldwide. Its solutions and services are critical for maintaining and improving efficiency and safety aboard operating vessels. To improve support, the company wanted more automated ways to share data and communications with offshore vessels and installations.

Fleet owners, having invested millions of dollars in vessels that might operate for decades, typically found themselves managing a growing array of sensors and controls for navigation, safety, and other systems. As a result, data management had become an integral part of vessel maintenance. “This is one of the big trends,” says Terje Lisether, Project Manager at Kongsberg Maritime. “It’s our vision to provide a single view of all systems, and sharing information to improve collaboration and decision-making will give our customers a great advantage”

Fleet owners such as Floatel International turned to Kongsberg to provide technological solutions and support. Floatel hoped to improve operations and safety as well as ambient conditions on accommodation vessels, which provide housing to approximately 500 oil-rig workers at a time. Floatel had maintained sophisticated onboard systems for many years. Although the infrastructure worked well, the company lacked tools for centrally managing and analyzing the data onshore.

Instead, Kongsberg engineers traveled out to the vessels to collect information for analysis, and then recommended changes for improving operational efficiency. The company wanted to provide more proactive, real-time support, but it needed a better information platform with centralized access to data. Pulling information together was only part of the challenge. The company also worked in a highly distributed environment, with unreliable weather conditions and vessels that were either traveling or stationed in remote locations. So to meet its goals, the company required a low-latency network with a satellite connection that linked onboard sensors and control systems with remote servers.

In addition, Kongsberg wanted a solution that could be easily extended and upgraded in an industry that historically makes long-term investments in equipment and technology.

Solution

Kongsberg Maritime decided to create a new communications platform for Floatel International based on the Windows Server for Embedded Systems operating system and Microsoft SQL Server for Embedded Systems software. Designed to connect existing onboard sensors and control systems with onshore data centers, the Kongsberg Information Management System (K-IMS) takes advantage of technology from Attunity, a Microsoft partner that specializes in solutions for efficiently replicating and sharing data across heterogeneous environments.

The K-IMS solution went into production on a Floatel accommodation vessel in April 2012 in less than two months. First, to simplify integration and management, as well as gain faster performance, Kongsberg

Maritime and Attunity replaced existing embedded Oracle databases and replication software with Microsoft SQL Server for Embedded Systems and Attunity Replicate. The databases integrate with all of the sensors, controls, and Kongsberg Maritime technologies that regulate everything aboard the vessel. For example, the solution works with the Kongsberg automation system, which controls everything from the ballast functions that provide stability to air conditioners and water heaters. And most importantly, the solution integrates with the Kongsberg dynamic positioning system, which monitors rig movement and is critical for safety.

Data transfer from vessel to shore typically requires using satellite connections when a fixed bridge is not available. However, satellite transmission often suffers from low throughput, high latency, and errors resulting from data loss. To solve these challenges, the solution takes advantage of Attunity database replication software that speeds performance, enables prioritization, and improves accuracy while copying database changes to remote servers. Although the underlying technology is complex, the data transfer software is easy to use. Ted Orme, Director of Business Development at Attunity, says, "By integrating Attunity Replicate with Microsoft technology, we can offer a very intuitive and GUI [graphical user interface]-driven solution that empowers a non-IT person to manage and control data replication."

The solution keeps the information synchronized between vessels and onshore infrastructure. The data is transferred from vessels to an onshore data center through a satellite connection. Then, the data is hosted in a private cloud environment running embedded versions of Windows

Server and SQL Server and made available for Kongsberg Maritime and Floatel engineers worldwide, who can access the data remotely from virtually any location. As a result, both offshore and onshore employees have real-time access to data.

Kongsberg analysts work with the information from their remote offices by using a software-as-a-service information portal, which is accessed through web browsers. The service includes dashboards that users can easily customize and share. For example, an onshore engineer might want to capture a specific subset of data on board a particular vessel. The engineer can quickly design the dashboard and share it with users on the vessel to gather and visualize the information. The dashboards connect with all of the onboard data sources and display real-time as well as historical data. The portal also provides alarm statistics and trends. Users can create and export reports for offline distribution too.

In addition to being able to analyze the information to make future improvements, Floatel and Kongsberg employees can respond faster to changes that influence factors such as vessel position and safety. For example, the K-IMS platform automatically sends an alert when a vessel deviates from the specified position. To further fine-tune operations, Kongsberg engineers use the solution to remotely diagnose individual controls and automation systems.

Floatel looks forward to implementing the new solution on more rigs in the next year and plans to use the tools to benchmark fleet performance.

“One of the main benefits of a solution based on Microsoft technology is that we can transform an environment with multiple sensors and control systems into a conventional IT system. As a result, it’s much easier to be competitive.”

Terje Lisether, Project Manager, Kongsberg Maritime, Kongsberg Maritime

Benefits

By using a Microsoft solution based on Windows Embedded to connect onboard data sources, sensors, and automation systems with remote server infrastructure, Floatel International and Kongsberg Maritime are gaining valuable new insight into data, improved operational performance, and new business opportunities.

Gains New Insights into Existing Data and Improves Safety

In the past historical data was analyzed to improve operational efficiency and safety. Now, the maritime industry can take advantage of its existing resources—including real-time and historical data as well as onboard technologies—to gain better insight faster. “It’s not always about petabytes of data,” says Orme. “It’s about a set of solutions and technologies that could not have been achieved even five years ago. Integrated with the Microsoft platform, Attunity can replicate and transfer real-time data from a rig that might be in the Gulf of Mexico or the Indian Ocean. This data always existed, but now it’s accessible and we can get valuable insights from it that weren’t possible before—that’s a good example of the Internet of Things.”

For example, by connecting its onboard systems to a remote, cloud platform through satellite transmission, Floatel is improving operations while taking advantage of its existing technology investments. “The Kongsberg K-IMS system based on Microsoft technology helps both onshore and offshore staff understand operations and make better decisions,” says Alexander Östberg, Project Engineer at Floatel International. “For instance, we are continuously working with different weather conditions, and by understanding how they affect our rigs, we can implement

better guidelines for operators that not only improve performance, but also safety.”

Enables Strategic, Real-Time Decisions and Supports Performance Analysis

The solution helps Floatel share information and communicate more easily. In the past, executives stayed in touch with fleet operations through phone calls and email exchanges and manually calculated key performance indicators (KPIs). “Based on Microsoft technology, the Kongsberg K-IMS communications platform gives us new opportunities to gain a quick overview of situations onboard rigs,” says Östberg. “We can give very rapid updates to our managers, and monitor the KPIs in different scenarios. This has never been possible before—we used to rely on telephone conferences, and now we have real-time information 24/7.”

The company can respond faster to immediate concerns and also work with historical data to improve future operations. “We can calculate KPIs in a way that wasn’t possible in the past,” says Östberg. “With the Kongsberg K-IMS system and Microsoft technology, we can look at something such as thrusters—which propel rigs or keep them in position—and analyze the data collected over the last two years. We can then use the information to make more strategic decisions about maintenance.”

Provides New Business Opportunities

Kongsberg Maritime believes that its new communications platform will strengthen its competitive edge in the conservative maritime industry, which seeks to modernize while continuing to use older equipment and technology. “One of the main benefits of a solution based on Microsoft technology is that we can transform an environment with multiple

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For more information about Attunity products and services, call (866) 288-8648 or visit the website at:

www.attunity.com

For more information about Kongsberg Maritime products and services, call 47 (32) 28 50 00 or visit the website at:

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For more information about Floatel International products and services, call 46 (31) 352 07 00 or visit the website at:

www.floatel.se

sensors and control systems and give ship owners key information and new insight in their fleet" says Lisether. "It's much easier to be competitive with rapid development and new functionality."

Floatel also anticipates that better access to data will open the door to new opportunities. "The solution gives us a good overview of one rig's performance, and we look forward to gaining insight into the whole fleet," says Östberg. "If I look at the future and the access to data we're gaining with the Kongsberg communications platform based on Microsoft technology, the only thing that limits its use is your imagination".

Create the Internet of Your Things with Intelligent Systems

The Internet of Things is not a futuristic technology; it's here today. When your enterprise puts together devices, software, cloud services and business intelligence tools from Microsoft, you create the Internet of Your Things. As a trusted technology leader, Microsoft can help you drive business value from new and existing technology assets, devices, and data to create one truly flexible, intelligent system. When you connect your people and your infrastructure, you can change the trajectory of your business in real time.

For more information, visit:

www.InternetofYourThings.com

Software and Services

- Microsoft Server Portfolio
 - Windows Server 2008 for Embedded Systems
 - Windows Server 2012 for Embedded Systems
 - Microsoft SQL Server 2012 for Embedded Systems

Partners

- Attunity