



>> Sapura Leverages Real-Time Data from Offshore Sites to Transform its Operations, Enhance Operator Safety, and Improve Efficiency

- Leading global integrated oil and gas services and subsea solutions provider allows 90M terabytes of data to flow from the ocean floor to the control room
- PTC's KEPServerEX provides enhanced visibility into machine operations, improving worker safety in extreme conditions
- Advanced Industrial IoT technology improves troubleshooting, reducing the high costs associated with downtime

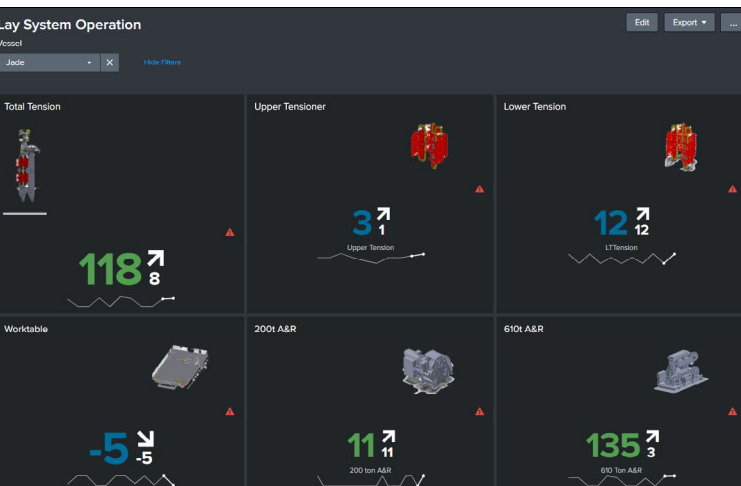
Sapura Navegação Marítima (Sapura) is a specialized subsea services organization based in Brazil that began as a joint venture between Seadrill and Sapura Energy. Leveraging the combined expertise of these two leading oil and gas industry providers, Sapura is one of the top subsea services organizations in the Brazilian market. The company has over 1,000 employees, a fleet of seven vessels, including six submarine service vessels for support, installation and flexible pipe laying and a vessel for passengers and transport of dry cargo.

The Challenge

Today's energy industry is extremely competitive with operations needing to be on-demand, across both land and sea – pushing organizations to find new and innovative ways to improve processes. Understanding the need to streamline practices and introduce new technologies, Sapura faced a handful of key areas to address:

Advancing performance & safety

Subsea oil and gas operations are done in some of the most extreme environments and as such, presents a host of complex challenges in addition to those of traditional drilling operations. These remote locations in extremely deep water require heavy machinery to operate with pin-point precision in order to yield the best possible results and ensure worker safety. Given these treacherous conditions, Sapura's paramount priority is the safety of their workers, which is continually monitored and optimized.



Keeping up with demand

Adding to the challenge is the pressure to scale operations and meet demand driven by economic growth. Asset availability is business critical as any unplanned downtime can skyrocket costs and deliver a crippling blow before operations are restored.

Drowning in data

Sapura generates roughly 90M terabytes of critical operational data per day, but a limited communications infrastructure created gaps in connectivity and made it difficult to collect and index sensor data in real-time. The lack of insight into the offshore fleets made it challenging for Sapura to act on metrics and learn from workflows, which may lead to delays in finding operational best practices.

Hyper-scale growth

In just four years, Sapura had grown from 24 employees to roughly 1,000, making streamlined communications difficult. When facing this hockey stick type growth, the organization needed to ensure proper training and career development was still a top priority, empowering all operators to succeed in their roles.

Facing these obstacles while still keeping pace with the demand of one of the global economy's most competitive industries, Sapura realized that a digital transformation journey would be the only way to compete moving forward. To support safe, intelligent, efficient and flexible operations, the company began a search for a comprehensive connectivity solution that could easily and securely collect massive amounts of offshore operational data and stream it to the cloud for analysis.

The Approach

With an IoT platform already in place, Sapura evaluated several offerings that could connect to a broad array of assets, sensors and machines, providing the operational visibility to fuel business-critical analysis. The company found an ideal solution to complement its existing investments and partnerships with Kepware KEPServerEX® – the leading industrial connectivity solution from PTC.

Supporting more than 150 proprietary communication protocols, KEPServerEX is designed to help users collect and securely access real-time operational data from thousands of sensors, devices and control systems, and transfer it into supervisory analytic software applications.

Central to Sapura's selection was KEPServerEX's advanced plug-in that enables users to seamlessly transfer data and initiate IoT processes directly in the company's existing platforms. By taking advantage of these communications drivers, Sapura is able to stream real-time industrial machine data from remote locations, providing the ability to monitor and analyze data in one simple view.

With support from the Kepware distributor in Brazil – Exata Sistemas de Automação - Sapura trialed KEPServerEX in a 2-month pilot project, and quickly realized that the solution's ease of implementation and use, making it the perfect addition to its technology stack.

“KEPServerEX is a key component to our digital transformation journey, providing us with the real-time operational data needed for improving asset availability. We've gained new levels of visibility across our offshore equipment and can make more informed business decisions that positively impact our bottom line and help keep our workers safe.”

Nelson Carmelinho

Head of IT, Sapura



The Solution

With access to operational information in real-time, Sapura has scaled their operations to meet demand, improving labor productivity, quality and safety. Data that historically took hours to receive is now flowing in real-time, providing actionable insights to identify best practices in asset utilization and performance, and crew efficiency.

Putting the data to work

With new performance metrics, the company has significantly reduced the time spent on troubleshooting equipment issues, and in turn has drastically reduced unplanned downtime. KEPServerEX is now sending real-time status updates on pressure, speed and temperature from sensors to its IoT platform, where the information is then added to a monitoring dashboard. This data is benchmarked and tracked, allowing Sapura to reference and learn from performance averages over time. If anomalies or deviations are detected, critical sequence alarms – rated high-risk to low-risk – are triggered and a notification is sent to the vessel.

Through the dashboard, the control center can observe all system variables, including how the crew is responding to the problems offsite, and provide quick feedback as needed. This conditioned-based monitoring and maintenance has strengthened asset reliability and minimized the risk of potential catastrophic events facing the offshore sites.

Safer, more efficient operations

Identifying issues faster has dramatically improved operator safety conditions and enabled more efficient machine maintenance. If a disruption occurs, remote operators receive instructions that provide access to the right data to effectively guide them through procedures that aid in that specific scenario. The system also monitors production to ensure compliance with industry regulations and will alert workers when compliance issues arise.

Next Steps

Since implementing KEPServerEX as its communications solution, Sapura has connected over 2,000 sensors across various sites. Its goal is to expand integration to all sites, adding roughly 8,000 sensors to gain a more holistic view of real-time operations. Looking to the future, the company is interested in using the data to conduct more proactive analytics on their assets and adopt a more advanced asset lifecycle management approach – enabling a fully digital twin of operating procedures that is self-learning and self-diagnosing.

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