SKYLLFUL™

NOV Harnesses the Power of Industrial IoT Data for the Oil & Gas Mobile Workforce

SKYLLFUL CUSTOMER SUCCESS STORY

Positive impact on the business:

NOV and Skyllful know that technology shouldn't be implemented for technology's sake. Instead, technology should serve defined business needs.

NOV believes in purposeful innovation because they see what others don't and then act on it. Skyllful focuses on innovating and creating value at the intersection of information technology and operational technology. Together, Skyllful and NOV created the MobileRT program to generate positive business outcomes for NOV and their customers.

THE RESULTS INCLUDED:

Better revenue maximization for customers through operational efficiency: When crucial equipment on a rig fails, the rig can no longer produce effectively; minutes and hours of downtime can equal millions of dollars of lost revenue. Minimizing downtime results in measurable cost savings for NOV customers and real-time operational data optimizes extraction and increases revenue by maximizing production. These are the most significant reasons customers choose NOV.

Worker and environmental safety: Reducing critical equipment failures significantly affects safety. Rigs operate in some of the most challenging environments, and equipment failures raise potentially hazardous conditions for production staff and the surrounding environment; monitoring conditions in real time improves both worker and environmental safety.

Growth of a new information business model and enhanced customer retention: By improving how customers access and utilize operational data, NOV has added significant value to its customers' mission-critical equipment. This value yields greater customer satisfaction, increased adoption, and better retention of its Rig Monitoring Data Solutions and will create new opportunities to grow an information-related business within NOV.

About NOV

National Oilwell Varco (NOV) is a leading worldwide provider of equipment and components used in oil and gas drilling and production operations, oilfield services, and supply chain integration services to the upstream oil and gas industry. The company provides customers with industrial equipment to extract oil and gas – including complete drilling rigs – as well as technology and services to maximize production efficiencies, putting them at the intersection where information technology (IT) meets operational technology (OT). Based in Houston, Texas, the company conducts operations globally, spanning over 1,200 locations across six continents and serving some of the world's largest oil and gas producers.

The impetus for change

Visibility into real-time operations data to monitor equipment health and rig production is crucial for NOV's customers. They often have large fleets of rigs in both on-shore and off-shore environments supported by front-line workers, including oil and gas engineers and rig foremen stationed in many locales and separated by continents and oceans. Skyllful worked closely with NOV to understand the communication challenges between front-line production staff at rig locations and engineers in remote offices and align technology to support the core business objectives and customer needs. NOV's goal is to provide mission-critical physical infrastructure, industrial equipment, services, and technologies that allow customers to keep rigs running for maximum production uptime and output.

SPECIFICALLY, THE NEW SOLUTION HAD TO:

Provide mobile access to remote industrial IoT data: NOV created WellData Real-Time (RT), a back-end system that aggregates IoT data from rig equipment. Oil drilling rigs are fitted with sensors that produce several hundred channels of real-time data for each rig; from bit rotation speed and hole depth to air temperature and gas sensors, every aspect of the rigs is monitored around the clock. NOV customers also needed a powerful mobile solution to present real-time data that petroleum engineers and other staff can use to make better operational control decisions and take timelier action.

Improve collaboration to make data actionable: Providing access to data for production staff, remote engineers, and supervisors is essential, but far more essential is knowing which information is most critical so immediate action can be taken if necessary. This often requires foremen and production workers at remote rig sites to communicate in real time with engineers and supervisors at remote locations.

"We felt our WellData RT Products were the leading products in the market for remote monitoring, but we wanted to make sure we extended that to mobile to stay abreast of the technology and where our customers were going..."

"We want to provide our customers the best possible experience... we wanted to make sure we didn't fall behind the market and our customers' expectations..."

Aaron Cooke,
NOV Managing Director
of Evolution RTTC and
Software Development

Modernize a legacy mobile application to optimize user experience: NOV's first mobile solution utilized desktop virtualization to present information to mobile client devices. While this fulfilled an immediate requirement for remote access, it wasn't optimized for the mobile devices end users were carrying (such as tablets and smartphones). NOV's customers emphasized their desire for a better mobile solution to create an optimal user experience.

Create value-added data and information services to enhance the industrial equipment business: NOV believes they're not in the business of manufacturing industrial oil and gas equipment; instead, they're in the business of helping their customers maximize production and revenue from extraction activities. Information and services are essential components of the solutions NOV provides, and they recognized the need to add value to their industrial equipment business with Rig Monitoring Data Solutions.

"

(Skyllful) knew how NOV worked. Being a big oil field services company there is a certain amount of process we have and they made us feel comfortable that they could understand our processes..."

Aaron Cooke,
NOV Managing Director
of Evolution RTTC and
Software Development

The Skyllful Solution

Skyllful worked closely with NOV to understand company and customer challenges and align technology to support the core business objectives and customer needs. The result yielded several solutions that bridged the divide between IT and OT:

User-centric mobile application: To modernize their mobile solution (MobileRT) and meet the needs of NOV's internal and external customers, native applications were developed for both iOS & Android platforms. Fundamental considerations for NOV included customizable views for tablets versus smartphones and the ability to share code between desktop clients (originally written in .NET) and mobile clients. With Microsoft's Xamarin solution, Skyllful used a single codebase to deliver a solution to multiple mobile platforms and leverage NOV's existing .NET code from the desktop application. Reusing existing code and sharing code between platforms expedited the development process.

Real-time IoT data visibility: The core of the mobile application functionality is a view of operational and equipment data in real time and the ability to scroll through historical views to compare potential anomalies. This data is also synced and presented in real time between desktop and mobile clients so multiple users can view the same data and collaborate from different locations.

Intelligent notification system: To harness the power of remote data, push notifications are a critical element of the solution. Acting on data is about getting the right information from the right rigs to the right people at the right time; the system sends push notifications to alert users about critical situations and cuts through large volumes of operational data. Skyllful utilized the Microsoft Azure push notification platform to manage these complex notifications among multiple users in far-flung geographies.

About Skyllful

At Skyllful, we believe emerging technologies will continue to change the way work gets done, and our passion is helping customers solve pressing business problems by applying technology the right way. Skyllful helps business leaders and their most critical workers use technology to make their work easier, better, and safer.

Skyllful provides the brainpower and processes to create, run, and refresh digital experiences where mobile workers connect with the physical world. By bridging the divide between IT and line-ofbusiness demands, Skyllful balances the mobile workerexperience and secure, reliable enterprise technology requirements to accomplish business goals and improve customer outcomes.

Industrial-strength messaging and collaboration: In addition to being notified about critical conditions, users needed to collaborate in real time to make decisions about those conditions. Skyllful and NOV created a solution that allowed remote engineers and supervisors to send messages to the appropriate operators across rig fleets and facilitate collaboration between staff spread across the globe.

Easy global distribution of mobile application: Since the MobileRT solution is used by NOV's customers around the world, the app needed to be distributed easily across multiple regions. The most logical choice was distributing through the Apple iOS and Google Android commercial app stores; Skyllful worked with NOV to ensure that the app store requirements for approval and distribution were met for multiple countries.

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