FREEWAVE

OIL & GAS USE CASE

Leveraging satellite-connected IoT data for real-time monitoring

Optimizing data connectivity with satellite, APIs, and the FreeWave Insights® platform provides SCADA-based network gains in onshore and offshore oil production.

01 THE CHALLENGE

Transforming network data into an ally

When people speak the same language, shared conversation becomes a whole lot easier. Same with devices. That's one reason a global exporter of oil selected FreeWave to confidently monitor mission-critical data at the edge like temperature, drilling pressure, gas detection, satellite signal strength (RSSI), battery level, and other user-defined data flowing through a third-party cloud SCADA system and the customer's own SCADA system.

Herein, though, was the largest problem: the SCADA systems could not read the raw, 16-bit string of numbers consistently with 100% accuracy and in a timely manner. Different parts of the technology infrastructure were disconnected.
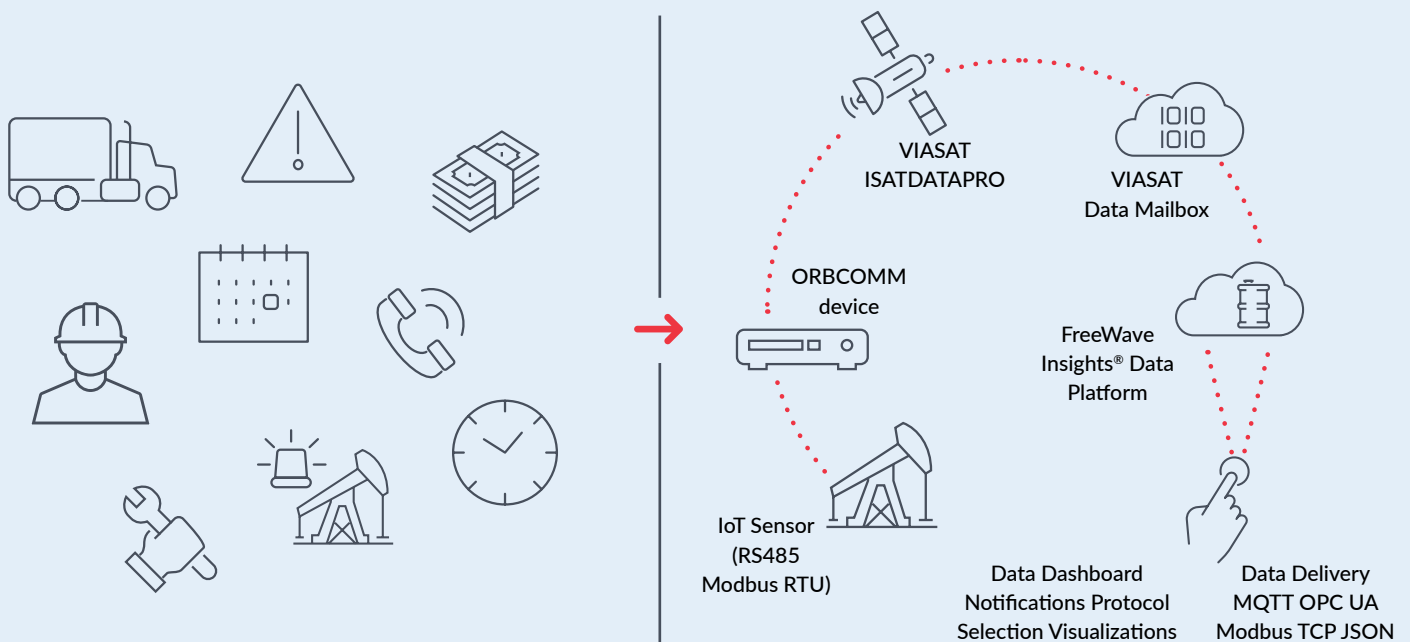
02 THE DESIRE TO CHANGE

You can't measure what you don't know

Like many remote facilities operators, production is not linear nor is it located in an easy-to-connect "straight line" from point A to point B. Production sites are located in rugged, remote terrain where landmasses, trees, extreme weather, and other environmental conditions threaten uninterrupted connectivity. Here, cellular is simply not an option. It was time to crack the code on a better solution.

Working as the customer's systems integrator partner, more than anything, the operations team wanted data integrity to stay intact from beginning to end: from its third-party remote terminal unit (RTU) to its Modbus device to the data cloud mailbox and then onto its SCADA system.

Everything Disconnected, To Everything Connected.

Example: FreeWave takes many disconnected parts of an infrastructure and connects them, empowering industrial leaders with greater knowledge and decision-making prowess.

Real-time monitoring up, risk down

FreeWave unpacked the customer's problem in three critical ways: reliable connectivity; real-time, remote monitoring; and ongoing visibility with a managed service solution. Let's break it down.

Solution #1: Reliable Connectivity

Rising temperatures at a production site can lead to oil (or other) machinery working inefficiently. The difference between getting temperature and drilling pressure readings in real time versus a matter of hours or days translates into both time, money, and worker safety. Satellite connectivity now answers that need.

For this customer, data from the edge streams through a third-party RTU, flowing to its SCADA system in five-minute increments.

As a Global Authorized Reseller of ORBCOMM®, FreeWave chose ORBCOMM's ST 6100 satellite terminal to deliver uninterrupted connectivity and control of sensor technology and other assets as the satellite terminal captures and reads the data. Amidst 10,000-foot mountain ranges and unpredictable weather, the petroleum company's operations team has the knowledge it needs to keep production in play.

From the satellite terminal, packets of data get pushed to Viasat's cloud-based data mailbox FreeWave is a Connectivity Wholesale Partner in Viasat's ELEVATE program, allowing us to deliver robust, global connectivity using Viasat's L-band network (about a thousand miles from Earth). Designed for efficiency, its satellites are small and durable with increased data throughput – a prerequisite for oil and gas companies as the volume of data rises alongside IoT devices.

Solution #2: Real-time, Remote Monitoring of Field Data

The raw data flows outbound – like temperature and drilling pressure – and pushes through the customer's network so it lands in its SCADA system, which previously could not accurately and consistently read the data. Therein lies the heart of the FreeWave Insights data platform, an agnostic solution that connects the disconnected by translating data – regardless of where the data comes from. MQTT, the gold standard in IoT communication, is used in this instance to ensure data accuracy, which can sometimes become compromised when traveling from device to device. MQTT solves the problem by organizing data into "topics" (kind of like a table of contents in a book) so relevant information gets tagged properly (remember, raw data starts out as 0s and 1s).

Along with continuous satellite connectivity, the petroleum company can confidently translate data from the production site to its SCADA system, making the information actionable – and the people leading production efforts more knowledgeable.

Solution #3: Ongoing Visibility

As a managed service solution, FreeWave Insights gives the petroleum leader ongoing infrastructure monitoring with information presented in an easy-to-read dashboard accessible from a laptop, smartphone or device of choice.

Looking internally for production gains

Working with FreeWave gives the petroleum giant visibility into its oil production with global, reliable connectivity to monitor infrastructure and people. It now has a metrics-driven trail for compliance. Plus, alerts and alarms notify the operations team of real-time events so actions may be taken, reducing the risk of worker injury and production downtime in the future. A monthly fee for the managed service helps the customer stay on budget with a single contract for global connectivity.

While this customer's data flow is outbound, it has the capability to send command functions directing the RTU using the FreeWave Insights data platform. Looking internally for production gains, the oil and gas operations team frees its data at the edge to provide valuable knowledge, creating a more connected operation to meet demand in the days ahead

Whether your needs mirror this global oil exporter's with SCADA and MQTT as a driving force, or you utilize alternate technologies, FreeWave and its satellite-enabled IoT solutions portfolio and Insights data platform can connect you with the data your team needs to make better informed decisions, increasing productivity along the way.

CONNECT WITH US

ABOUT FREEWAVE

FreeWave® Technologies provides industrial wireless and IIoT solutions for people passionate about the beauty of a data-informed world, connecting the disconnected within a technology ecosystem.

For more than 30 years, we've empowered industrial leaders to drive operational efficiencies using data – from proprietary radio technologies to telemetry solutions to edge decision-making, artificial intelligence and now our standards-based communications, applications, and software tied together with cloud services.

FreeWave closes the coverage gap in your remote networks as a Global Authorized Reseller of ORBCOMM® satellite-connected devices and a Connectivity Wholesale Partner in Viasat's ELEVATE program, providing reliable and secure data service plans.

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