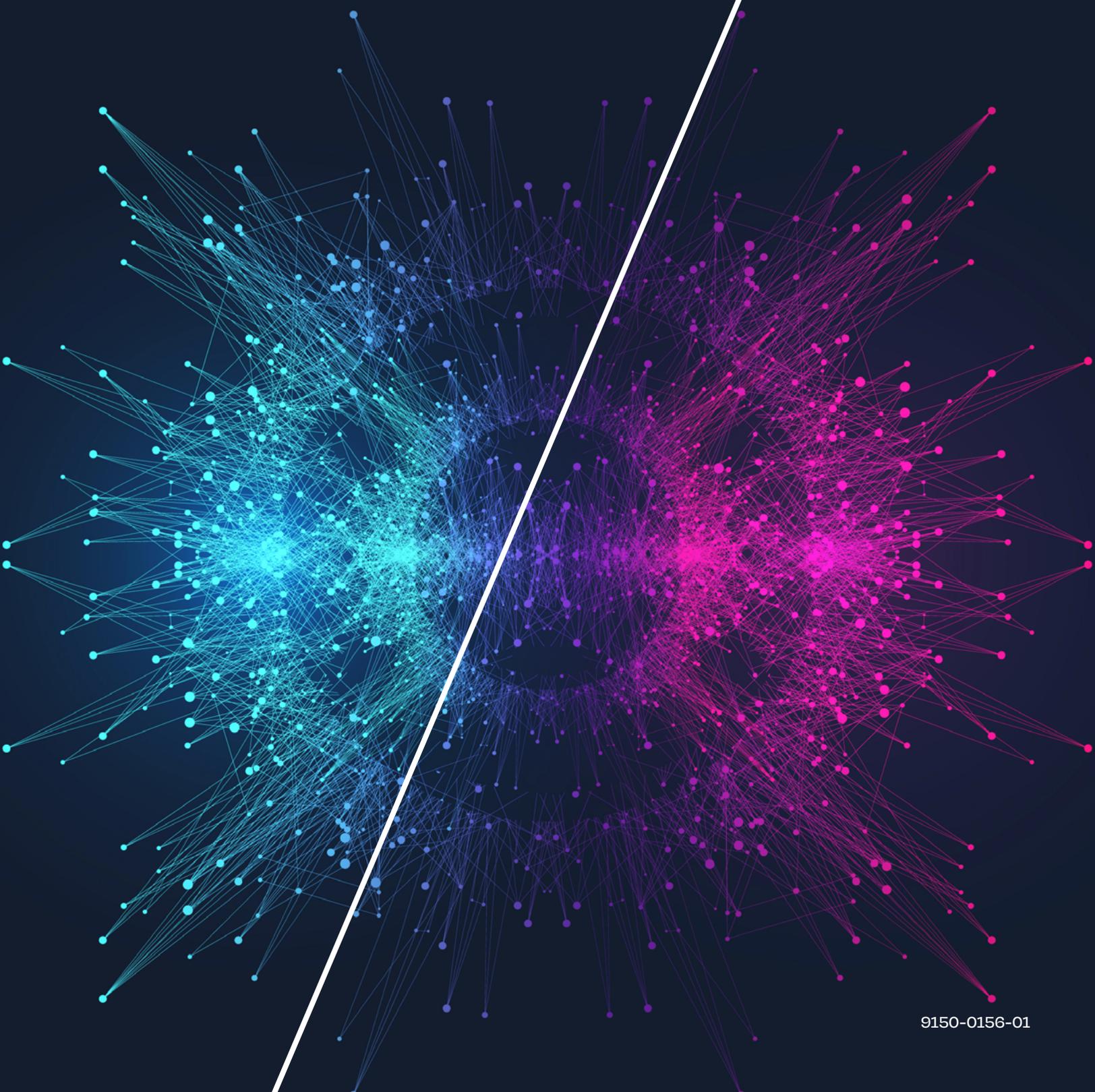


Asset tracking and telematics without limits

Realm Enablement Suite: a low-code platform offering real telematics edge computing that sets a new standard for operational intelligence, from edge to endpoint

Globalstar 



How Industrial IoT projects can escape from “proof-of-concept purgatory”

It was not so long ago that the much-hyped Industrial Internet of Things (IIoT) consisted mainly of proof-of-concept projects that struggled to achieve scale.

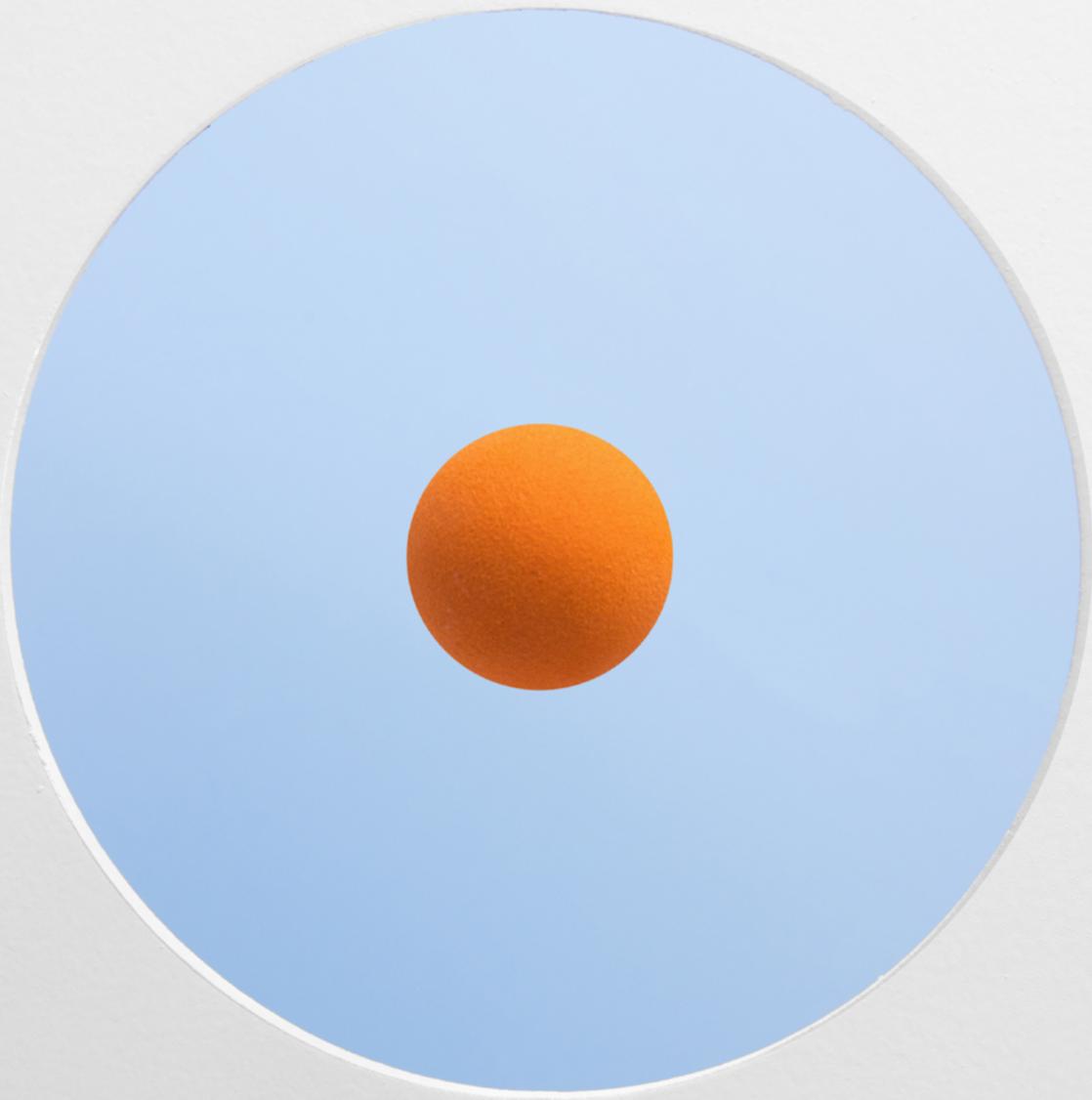
The last few years have seen big progress. The technology has matured — but more importantly, organizations have begun to understand that IoT is much more than a technology roll-out. Successful deployments become part of the fabric of operations. They are about creating tools that make work easier, so people can deliver more value. They are also about bringing reliable data together in one place, across internal boundaries, to create real operational intelligence where it can do the most good.



/ The challenge of simplicity

Good data collection depends on reliable connectivity. And reliable connectivity depends, surprisingly, on keeping things simple. Complexity in data devices and transmission makes it hard to achieve reliability and scale. The faster devices are configured, connected, and delivering data, the faster they can create value.

Keeping it simple is hardest when the assets you need to track and monitor are on the move or spend time far from electric power and cellular connection. Why? Devices are power-hungry and run through batteries fast. Most are either good asset trackers or good data transmitters, but not both. Engineered for one kind of data protocol used in one industry, most can't speak other M2M "languages."



Realm Enablement Suite

*Transmit smart data from **edge to endpoint**.*

These are big challenges — and Globalstar has brought its decades-long heritage of innovation to deliver a complete edge-to-endpoint solution. **The Realm Enablement Suite** is Globalstar's edge-to-endpoint, AI-enabled solution for IoT. For asset tracking and telematics applications that generate smart data at the edge and deliver with reliability over satellite, Realm transforms the value chain from the ground up to slash development time, get innovations to market faster, and create capabilities you never imagined were possible.

The Realm Enablement Suite empowers you to create applications and host them on the edge device, where they can drive efficiency and profitability.

*Operational intelligence starts with **smart data**.*

Realm delivers smart data — and that's where better operational intelligence gets its start.

What does *smart data* mean?

- Just the GPS and sensor data you need at an affordable cost over most of the world
- An open architecture that ensures interoperability as you add features and products
- The ability to interconnect multiple Bluetooth sensors
- The power to host applications and process data on your edge devices for faster action and enhanced performance

Whether you are creating new products, upgrading existing ones or are just in the market for a powerful, low-cost device to track assets and efficiently collect sensor data, Globalstar has removed the technology barriers between you and success.



Globalstar's *technology stack* delivers smart data.

ROCK-SOLID HARDWARE

- A set of **low-cost, high-performance edge devices** that can host a variety of AI applications and process smart data

AI-ENABLED SOFTWARE

- **Edge Application Platform:** Adds AI application development and smart data processing at the edge to our high-performance devices and modems, and features a robust device configuration app
- **MDM Cloud Platform:** Makes it easy to manage devices, data, configurations, and subscriptions

ULTRA-RELIABLE NETWORK

- Data is delivered **securely and reliably** over the Globalstar Satellite Network, then processed to integrate seamlessly with your choice of analytics and reporting platforms

Transmit smart data at the edge.

Slash hundreds of hours of development time.



The **Integrity 150** is a next generation satellite solar-powered asset tracker and data transmitter that delivers zero-maintenance ownership with the longest battery (10+ years) and shelf life available. With its low-power design built for rugged environments, the Integrity 150 delivers reliable and secure location reporting with unprecedented payload options. Users can configure AI-enabled applications and edge computing solutions that reliably transmit smart data over the Globalstar Satellite Network.



The **ST150M** satellite modem module can be quickly and effectively integrated into technology to develop unlimited applications for a range of markets. The modem leverages industry leading BLE5, Nordic C, and comprehensive unified APIs, empowering rapid development and customization of firmware for more advanced smart data applications and enabling AI at the edge. An **ST150 Dev Kit** provides an ST150M module on a dev board with satellite and GPS patch antennas, all mounted on an Arduino Shield, to develop and test technology designs before committing them to hardware.



Unlock the *potential* of the Edge Application Platform.

The low-code Applications Enablement Platform is the key to unlocking the unlimited capabilities of these rugged, reliable devices in the field and slashing hundreds of hours of development time for new products. The standards-based architecture means that new features and platform upgrades can reliably access the same hardware interfaces, APIs, and applications as previous versions with no specialized coding.

Application Layer / The base applications that run the Integrity 150 and ST150M, as well as Bluetooth services, are open to developers for integration with their software, including theft alert, messaging, tracking, SOS, and BLE.

Unified API Layer / Application program interfaces (APIs) enable your custom applications to immediately access the full capabilities of devices, including sensor support, without additional coding.

Library Layer / An extensive and growing library of applications can be uploaded to devices in their current form or modified to interface with sensors measuring temperature, humidity, magnetic fields, angular position, motion, proximity, and other metrics. No more writing custom code to control every aspect of hardware operation. We invite all integrators to share their successful modifications or new applications with other Realm integrators in the GitHub project library.

Hardware Application Layer / Hardware interfaces allow full driver/hardware abstraction within Realm devices to simplify and speed development.

Rule your data with Globalstar MDM Platform and enhanced data delivery.

The Mobile Device Management (MDM) Cloud Platform gives you everything you need to manage devices, configurations, and subscriptions easily. A rich User Interface provides a single platform for setting up a fleet of devices in bulk, tracking, performance monitoring, and options for IoT device management.

The Globalstar Data Center prepares data for secure delivery to the endpoint. It may be Globalstar's Industrial IoT platform, your own custom IoT SaaS platform, or one of the many third-party IoT platforms that provides edge and cloud analysis and dashboard visualization. If your company operates in the cloud, it can even be your compute capacity on AWS, Azure, or other cloud platform.



Why **satellite** for asset tracking and IIoT?

Satellite tracking and monitoring is simple, reliable, and affordable. Our devices have small, internal antennas just like a mobile phone. Instead of gulping power, their low energy design sips it slowly, and our solar models generate their own. They connect to a satellite network orbiting at 1,400 kilometers above the Earth that provides coverage in over 120 countries. Satellite can provide primary coverage, as well as redundant coverage, to cellular and private networks, guaranteeing reliable service no matter the location. And for a low monthly fee it transmits small bursts of data at intervals you choose: more than 1.3 billion of them every year.



What can **you** do with the Realm Enablement Suite?

Create new products and features in a fraction of normal development time and cost. Instead of custom-coding for specific device hardware and painstakingly integrating it into your product, use Realm's low-code platform, hardware abstraction, and unified APIs to seamlessly interface between your application and all the capabilities of our edge devices.



Turn your installed base into your best source of new revenues. With Realm as your device and enablement platform, adding sensors that deliver valuable new capabilities to customers has never been faster or easier, using Bluetooth connectivity and our library of sensor applications.



Push the processing envelope. Can machine learning and executable files improve the performance of systems in the field? Realm devices provide plenty of storage and processing power to run applications at the edge, and the Enablement Platform and Data Center simplify configuration and management of software installation.



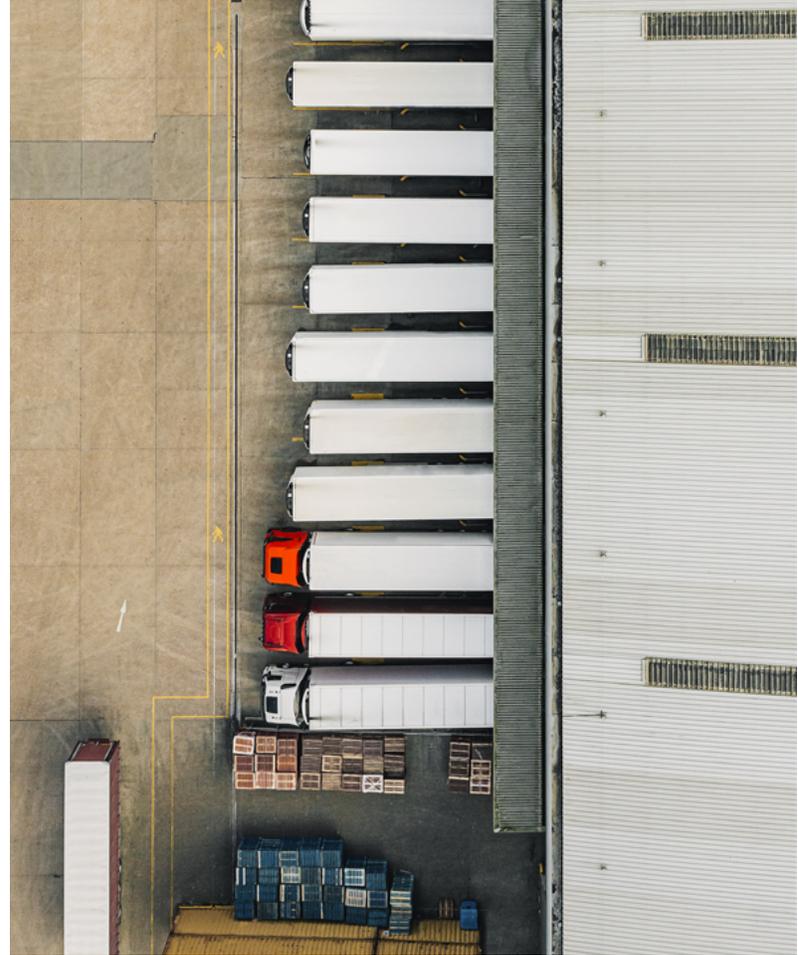
Best quality out of the box. The Realm-enabled Integrity 150 solar-powered device is immensely capable right out of the box, and provides the reliability, low-maintenance and low-cost operation that opens up a range of new uses.



Applications without limit

Remote Trailer Monitoring

More than 16 million trucks drive American roads each day, including nearly 4 million Class 8 big rigs. There is an average of 2 to 3 trailers for every tractor, and those trailers are a source of profit, but also cost and risk for logistics companies. Companies waste hours manually checking their yards for available trailers. Many are stuck at customer locations, where customers are supposed to pay a detention fee — but frequently don't. Others have been stolen and recovering them is a long-odds proposition. Because locating and keeping their trailers can be so hard, companies buy or rent more than they need. An asset tracking and IoT solution for trailers based on the Realm Enablement Suite can make a major difference to profit, cost, and risk. With trailers pinging their location, manual yard checks become obsolete, and customers can be charged accurately for the trailers they detain. Trailer thieves find themselves leaving a digital trail as geofencing technology triggers alerts to a trailer going where it is not expected. Sensors can report utilization to predict when maintenance is needed and monitor conditions from temperature and open doors to the presence of cargo. In addition to greater productivity, lower risk, and higher revenues, avoiding purchase or rental of additional trailers can save literally millions each year.



Managing Construction Assets

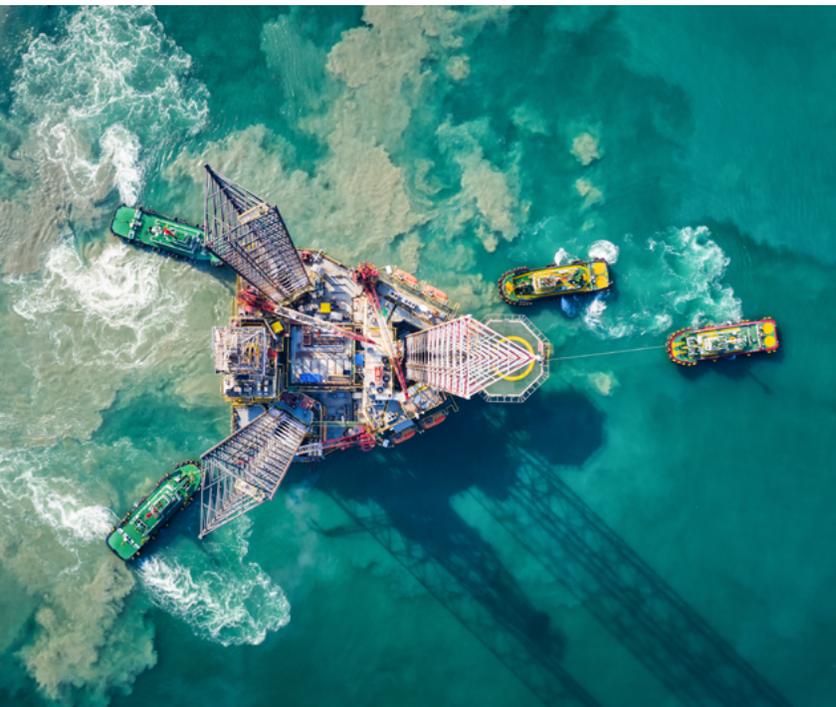
Many construction companies and equipment vendors still rely on phone calls and written logs to track equipment transported to and from job sites as well as its actual use. Satellite asset tracking with the Realm Enablement Suite lets companies check the location and status of equipment in near real-time, export data into their applications and accurately track data for billing the time each piece of equipment is used on a project. Onboard power and movement sensors can gather and report engine runtime accumulation and validate equipment operation to enable more cost-effective maintenance and greater uptime. Gains in productivity, additional revenue, maintenance costs, and uptime can be transformative.





Drill Rig Tank Monitoring

Fluid-filled tanks are basic equipment at every oil or gas drill site, holding everything from fuel and water to drilling fluids. Monitoring and maintaining the level in those tanks has long been a manual task that requires a worker to check exterior gauges and log the results. But remote monitoring is becoming increasingly common. The Realm Enablement Suite enables fast product development of new monitoring systems for fluid levels. Data on tank levels including GPS coordinates allows drilling companies and their vendors to see all tanks, establish automatic alerts to low level and even automate dispatch of supply trucks to refill the tanks. Data processing on edge devices allows them to limit data transmission when tanks require no action and condense measurement data into short messages, saving on transmission costs. Drilling companies save thousands of unnecessary hours and ensure that fluids are always available to support uninterrupted operation.



Coordinating Support Vessels

Offshore energy platforms are served by fleets of support vessels delivering supplies, materials, and people, supporting construction, towing platforms, and operating remote-controlled underwater vehicles. While many fleet operators still rely on pen-and-paper for tracking their assets, the Realm Enablement Suite can generate accurate tracking data on vessel location and provide flexible geofencing around platforms, docks, and maintenance facilities to send alerts to key vessel movements. Displayed on the SPOT My Globalstar advanced mapping application, the data reduces idle time for vessels and quickly lets fleet managers identify the most efficient way to route vessels to platforms, which can make the difference between profit and loss.



/ Transforming your business with smart data

The end-to-end design of the new Globalstar Realm Enablement Suite removes the technology barriers to profitable innovation in the tracking and industrial IoT space. What does that mean for your operation?

It means connecting reliable devices faster and with less development time. Gaining the flexibility to innovate, knowing that Realm devices and our network can support new features and products with minimum hassle. Thinking differently about what you can accomplish and how easily it can be enabled. And forging a true partnership with your satellite connectivity provider based on the unique challenges and opportunities of your operation.



Why Globalstar?

Globalstar helps people connect, communicate, and transmit data in smarter ways.

As a telecom infrastructure provider, we offer reliable satellite and terrestrial connectivity that's simple, fast, secure, and affordable. With our low-earth orbit (LEO) satellite network, we connect and protect assets, transmit key operational data, and save lives — from any location — for consumers, businesses, and government agencies in over 120 countries.

Globalstar's terrestrial spectrum, Band 53, offers carriers, cable companies, and system integrators a "borderless" fully-licensed channel with a growing ecosystem to help our partners improve wireless connectivity. We also leverage our excess satellite capacity to develop IoT and other deployments for wholesale customers.

In addition to our SPOT GPS messengers that connect people in remote environments, Globalstar offers next-generation IoT hardware and software products that efficiently track and monitor assets, process smart data at the edge with AI-enabled applications, and manage analytics with cloud-based telematics solutions — all of which drive safety, productivity, and profitability.

We transform smart ideas into smarter solutions.

*To learn more about how
Globalstar can benefit
your business, contact us at
salesinfo@globalstar.com.*



Connect smarter