CASE STUDY

BENEFITS

- Globecomm worked in a multi-vendor partnership to deliver a bespoke IoT service to monitor refrigerated containers and manage fuel consumption efficiency on a global basis.
- With uninterrupted access to temperature data, high value perishable cargoes arrive in the optimal condition.
- By adding additional data connectivity, the vessels can manage energy consumption, routing and RPM data for additional data analysis needed to optimize speeds and adapt routes — saving tens of thousands of dollars a day.

Shipboard Internet of Things Adds to the Bottom Line by Helping Shippers Keep Their Cool and Save Fuel

Globecomm solution adds value for global monitoring of refrigerated cargo and fuel efficiency

Background

The Internet of Things (IoT) promises a world of efficiency, convenience and cost savings particularly in markets characterized by remote but critical connectivity. Shipping is a particularly demanding place to deploy machine-to-machine technology, not only because of the harsh environment in which many vessels operate, but because shipowners are highly sensitive to the cost of satellite communications. IoT makes this possible by prioritizing critical data, and only transmitting what is necessary. IoT solutions depend on real-time communications around the clock so in the shipowner's cost-benefit analysis, the value of the savings must justify the cost of constant monitoring.

CHALLENGE 1

Using IoT Data to Control Refrigeration

Refrigerated shipping containers are designed to maintain a certain temperature to protect the perishable goods inside – as long as they are supplied with power from a truck, ship or from a diesel generator. There is real value in being able to advise the cargo owner that the temperature inside the container remains within the expected parameters and IoT technology is the best way to do it. This challenge led one of the world's biggest shipping lines to engage Globecomm in development of a comprehensive IoT system for a fleet of more than 300 container ships.

SOLUTION

IoT Data Sensing Delivered by Satellite

Globecomm engineered a pioneering solution for the maritime marketplace incorporating IoT data sensing transmissions from individual containers into data notifications delivered by satellite to vessel operators. This cost-effective design was built through decades of engineering experience Globecomm has meeting the communication needs of its customers.

Each refrigerated container is equipped with temperature sensors, a processing unit and GSM mobile transmitter connected to an onboard cellular base station, linked to an onboard satellite antenna.

Each container transmits regular bursts of data to the base station, which assembles the information into a stream of temperature readings related to the identifying number of the container.

The satellite terminal streams this data to a Ku-band satellite, which delivers it to the mobile carrier's core network, from where it is transmitted to the shipping company's IT systems.

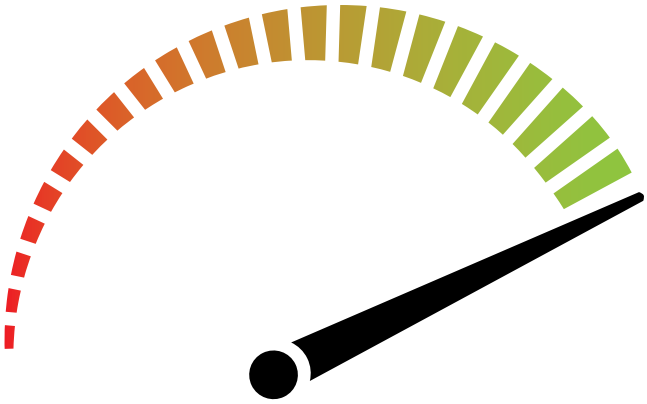
The 'killer app' is that the shipping company can ask the crew to adjust the temperature inside the container if the vessel is running ahead or behind schedule, enabling produce to hit the market in peak condition – and avoiding potential claims for damage.

To make that happen, Globecomm leverages its fully-managed global Ku Band VSAT network which roams automatically between multiple satellites to reach 95% of the world's shipping lanes and a worldwide network of fiber-optic-linked teleports to receive the data.

Managing the connections onboard ship is achieved by its Nimbus smartbox which maximizes uptime and minimizes costs, delivering a high quality of service by compressing and prioritizing enterprise traffic to keep data usage under control. The Nimbus smartbox was also used to interface with the ship data to deliver the onboard data over the satellite connection. This data was subsequently coordinated with existing shipping data to achieve the significant delivery cost reductions.

While Nimbus keeps the data flowing, shoreside managers can access the system remotely via the Cirrus portal. Vessel operators can use the Globecomm Connect application to monitor and detect VSAT availability, and in the event of a service fail-over, ensure that signal data has automatically switched over to the back-up L-band in case of interruption.

Working with its project partners to harness the Internet of Things, Globecomm was able to provide the next generation of quality assurance, helping the customer improve the efficiency and profitability of its container shipping operations.



CHALLENGE 2

Manage Fuel Costs

During the roll out of the cargo monitoring network, the customer approached Globecomm with a desire to address their largest expense: fuel costs. The goal was to maximize fuel consumption efficiency by optimizing routing and engine revolutions per minute (RPM) — directly impacting vessel operating margins.

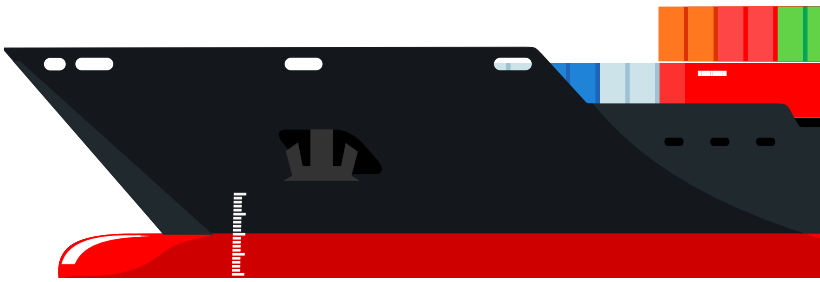
SOLUTION

Add Data Connectivity to Optimize Vessel Speeds and Routes

Globecomm provided the back-end collection of data to optimize speeds and adapt routes as needed that effected fuel cost savings.

Allowing for additional data connectivity from on board sensors to add speed, position, heading, and engine RPM to the satellite deliveries, the operator was able to coordinate this information with its route, schedule, and port availability data to manage course corrections.

By adding this value to the supply chain, the customer is realizing cost savings of tens of thousands of dollars per day.



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