



Reducing Costs & Fuel Use for Maritime Vessels

About Kemilinks International Pte Ltd.

Kemilinks International was established in 2001 and staffed with experienced satellite communications and software systems professionals to provide a wide range of mobile satellite products and services for maritime and land-based applications to customers in Singapore and the surrounding countries. The company is known to provide very innovative solutions that meet customers' needs. Kemilinks International's main office and development centre are based in Singapore, with presence in Malaysia, Indonesia, Thailand and China.

“Managing fuel costs has become increasingly important.”

The Customer Situation

For over a decade, Kemilinks International Pte Ltd. has worked with its international customers in developing customized mobile satellite, VSAT and wireless solutions for a wide range of land and sea applications. Industry leading designs include web-based and client server applications for asset tracking & monitoring, remote telemetry solutions and the provision of IMO V/19 LRIT services. As a leading solution provider for the maritime sector, Kemilinks is constantly looking for new and innovative ways to facilitate cost-effective tracking, monitoring and telemetry communications between a customer's onshore office and their assets at sea.

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Fuel has always been a major component of vessel operating costs. Over the past few decades, managing these fuel costs has become increasingly important due to the combination of escalating fuel prices and ship-sourced emissions regulations. This trend continues into 2012 as the newest regulations by the International Maritime Organization (IMO) go into effect, requiring vessels to switch to more expensive lower-sulfur fuel near the U.S. and on international coasts.

To become more fuel efficient, maritime businesses carry out ongoing assessments of each vessel’s fuel system to determine the steps necessary to operate according to regulations while running the ship effectively. This requires real-time monitoring of the vessel’s fuel storage, the settling and service tank arrangement, and determining how to manage fuel switching when trading in areas where strict emission limits are in effect, etc.

The Challenge

To counter the growing costs of navigating in international waters, Kemilinks developed a solution with their proprietary Fuel Monitoring System, which comes with a Microcontroller Unit fully embedded with software application to collect and analyze fuel and engine data. The Fuel Monitoring System interfaces with any flow meter model and other sensors such as engines’ control panel, anemometer, GPS, etc., to capture data regarding engine RPM, engine load, propeller pitch, propeller load and rudder angle. This data can generate graphical trending reports that can be analyzed at the vessel’s corporate headquarters to determine ways to maximize efficiency.

In the early installations, the Fuel Monitoring System would send reports to a shared folder and the ship’s captain would email them at predetermined intervals back to the onshore office using satellite equipment that supported both broadband and voice services. Due to the airtime pricing structure of these satellite terminals, it was not cost-effective to send the fuel reports in near real-time.

“Our customers wanted the fuel reports to arrive more frequently and

automatically, without human intervention,” continued S. H. Tay, “This would allow them to analyze the operational efficiency of the vessel during a passage. However, sending multiple data files from sea using the satellite broadband terminals increases their operational expenses, which is a great concern to ship owners. We needed to source an economical way to transmit data between ship and shore to deliver the best possible solution to our customers.”

“We immediately realized SkyWave’s IsatData Pro fit like the final piece of a puzzle. This technology is what we needed to maximize the value of the Fuel Monitoring System.”

The Solution

Timing worked out well for Kemilinks. Just as the technical team was searching for a cost-effective way to manage transmission from international waters, SkyWave Mobile

Communications was introducing the IsatData Pro satellite service that enables remote management of fixed and mobile assets anywhere in the world.

IsatData Pro is designed for transmitting telemetry information from oil and gas field assets and for remote management and control of various types of equipment. It offers a significant increase in payload capacity compared to other satellite-based M2M services currently in the market, delivering up to 10,000 bytes

of information to the device and up to 6,400 bytes from the device. Other global M2M satellite services currently available offer data connectivity at between 270 and 340 bytes.

By delivering large messages, IsatData Pro meets the increasing demand for more detailed information in M2M applications, and allows businesses to share more data across diverse operations via emails, electronic forms and workflow information. Applications include vehicle telemetry information, text-messaging remote workers, maintaining up-to-date driver logs, and the remote management & control of fixed assets.



The project team started by testing two IsatData Pro IDP-680 terminals, for general remote asset management and communications, and two IsatData Pro IDP-690 units, engineered for maritime and low elevation angle applications.

“We were quite pleased with the development kit,” continued Tay, “The ease of the connection and the small footprint of the terminal make it very simple to install amid the congestion within the vessel’s mast area. In a very short time we worked through the entire system, including successfully programming the terminal and integrating it into our Fuel Monitoring System platforms using a standard serial connection. We were able to complete all this without any additional resources.”

As the heart of the system, the Fuel Monitoring System continually collects data and sends the information back to the Kemilinks hub at predetermined intervals. Using IsatData Pro, the Fuel Monitoring System automatically sends reports without any human intervention. The onshore office can also perform on- demand polls to extract “at the moment” data.

Tay added, “The efficiency this design offers to onshore management is unrivalled and it comes at a very cost effective price. Benefits include always knowing the location and operational performance of the vessels and having the capability to immediately make effective directives to correct operational inefficiencies.”

The Result

With the successful integration of IsatData Pro and the Fuel Monitoring System, Kemilinks has secured numerous contracts for both retrofit and new ship building projects. They have also successfully implemented the solution on a significant number of Offshore Service Vessels (OSVs). Feedback from the implementations

has been encouraging: 100 percent positive customer feedback on both performance and cost effectiveness.

According to Tay, one of the principal competitive advantages of the IsatData Pro service is that it offers a very flexible airtime usage plan. A company can subscribe to the new low data rate service to manage and communicate with more than one remote asset around the world.

Another significant advantage of the system is that since hardware and airtime plans for IsatData Pro are significantly lower than those for satellite broadband terminals, smaller vessels that typically would not have onboard internet or voice capability can now have access to Kemilinks’ fuel monitoring service.

And finally, for owners of maritime vessel fleets, satellite airtime can be pooled between vessels to reduce overall airtime costs.

Tay concluded, “Moving forward, we believe IsatData Pro will bring significant changes to the telemetry environment. We see several innovative ways we can add value for our customers by using IsatData Pro. “



About SkyWave

SkyWave Mobile Communications is a global provider of wireless satellite and satellite-cellular data communications for the Machine- to- Machine (M2M) market. SkyWave's M2M portfolio of communication terminals and network services enable applications that provide businesses with the capability to track, monitor, and remotely manage their fixed and mobile equipment. SkyWave delivers real-time information when you need it -- to and from anywhere in the world.

Since 1997, SkyWave has designed, manufactured and shipped more than 600,000 satellite terminals to customers in the transportation, maritime, oil and gas, utilities and government sectors. For more information, please visit skywave.com.

