



European Spirit

FleetBroadband case study



Quick facts

The vessel

Name: European Spirit

Gross registered tonnage: 79,668

Length: 269 metres

Width: 46 metres

Type of vessel: Oil tanker (Suezmax)

Capacity: 1,073,031 barrels crude oil

Route: North America/Europe/Africa

Ownership: Teekay Corporation

Current satcoms: Fleet 77

MFE partners

Manufacturer: Thrane & Thrane

Distribution partner: Stratos

Service provider: NSSL

Fine control

FleetBroadband supports crew communications

➔ In 2007, Inmarsat launched FleetBroadband, the first maritime communications service to provide cost-effective broadband data and voice, simultaneously, through a compact antenna on a global basis. Fully compatible with internet protocol (IP), it also supports the core ISDN data and voice capabilities of our existing maritime services.

Meeting customer expectations

Inmarsat always works to high technical standards. Before launching FleetBroadband, we tested the service under operational conditions to ensure it fully met market expectations.

Since launch, we have been collaborating with our global partners to run a series of Maritime Field Evaluations (MFEs) on numerous vessel types from different regions, and in all the major maritime markets. These MFEs enable us to study how professional mariners use FleetBroadband in their everyday lives at sea and to gather detailed feedback from them. We also look at how the service performs with a variety of third-party applications. This case study is a summary of the MFE conducted onboard the oil tanker European Spirit, which is owned by Teekay Corporation.





A vital link in the energy chain

Teekay Corporation is one of the largest marine carriers of oil and gas in the world, linking upstream production with downstream refining and distribution facilities. Founded in 1973, it is a global operator, with 180 vessels and operational headquarters in Vancouver, Canada. It now transports more than 10 per cent of the world's seaborne oil.

With a deadweight tonnage (DWT) of 151,848 – equivalent to one million barrels of crude oil – the European Spirit is a mid-range tanker in the 'Suezmax' class, so named because it has the maximum width and draft to pass through the Suez Canal.

The European Spirit carries crude oil from loading ports in West Africa to discharge ports in North America, operating to a tight schedule and taking four weeks on average to complete each round trip. For crew members, these voyages are long and routine, and offer few distractions during leisure hours. Teekay takes crew welfare extremely seriously, and views personal communications with shore as a priority for keeping crew members happy and working productively.

→ About FleetBroadband

Inmarsat's latest maritime service offers broadband internet protocol (IP) data capability, backed by the power of the Inmarsat-4 (I-4) satellites. For the first time with FleetBroadband, users can make voice calls while simultaneously maintaining one or more data connections.



📧 Standard IP

For email, internet and intranet access via a secure VPN connection, at speeds up to 432kbps over a shared channel.

256 Streaming IP

Guaranteed data rates on demand up to 256kbps. Choose the data rate on a case by case basis, depending on your application.

📞 Voice

Make voice calls at the same time as accessing your data applications. Voicemail is also available.

📠 ISDN

Supports ISDN at 64kbps for your legacy applications. Group 3 and 4 fax supported.

✉️ SMS

Send and receive text messages – up to 160 characters.

Harnessing technology for crew welfare

Stratos service provider NSSL has provided satellite communications solutions to Teekay for four years, and was keen for a Teekay vessel to be involved in the FleetBroadband MFE. Inmarsat's main objective was to test a broadband solution that incorporated simultaneous voice and data and could provide an enhanced crew calling and crew internet facility.



Initial configuration

With the help of an engineer from the manufacturer, a Thrane & Thrane Sailor 500 FleetBroadband terminal was installed onboard the European Spirit in April 2008 for the two-month evaluation. The engineering team was able to put the antenna on a mount previously used for Inmarsat B, and to use pre-installed cabling, so the work took less than a day, with no disruption to the operation of the vessel. They were also able to install the below-deck equipment in the wheelhouse cupboard, also used for Fleet 77.

"The installation of FleetBroadband was easy and the antenna was very small, light and easy to carry onboard."

Captain Anil Singh

Remote assistance

NSSL monitored the FleetBroadband connection constantly from its centre in Redhill in the UK. "It was incredibly helpful that the system was directly on the internet," said Michael Minchin, "because we could 'ping' the terminal on a regular basis to check that it was online, and we had all the data we needed to generate availability reports."

If necessary, they could use a virtual network connection to remotely access the Captain's PC. This made it straightforward to provide remote assistance, and diagnose any technical problems the Captain might be having. They could also use it to reconfigure the FleetBroadband terminal with software upgrades and extra settings.



Independent connections

Inmarsat used the MFE to test the operational uses of FleetBroadband, including a wide range of applications such as web browsing, internet access, email and videoconferencing. Crew members were given free access to the system's voice and internet services every day during their leisure hours.

Separate call data records and billing information, for operational and crew use, were facilitated by setting up independent IP connections for the two scenarios. It was easy to configure, because FleetBroadband is designed to support multiple simultaneous IP data connections, each with its own static public IP address. The separate billing information was provided through NSSL's Split IP billing service.

Two PCs were set up onboard the European Spirit – one for use by crew members and another for the Captain to use for MFE-associated tasks, including detailed performance testing across the Inmarsat satellite footprint. NSSL engineer Michael Minchin said: "It was important to get the security settings right for the two PCs, because we wanted to lock the crew connection down to a single PC, which would be filtered through a proxy."

This was done by locking the FleetBroadband crew connection to the MAC (media access control) address of the crew PC, which prevented access from other computers, such as crew members' personal laptops. The crew connection was limited to the Standard IP service, to prevent crew members selecting premium rate streaming IP services. The connection to the Captain's PC was locked down to the computer's MAC address, but it allowed access to Streaming IP as well as Standard IP, to enable him to run the widest possible range of tasks and applications for the MFE, including videoconferencing.

To help Teekay further control FleetBroadband usage, a Virtek 'CommBox' was connected to the crew connection to optimise its efficiency, and to filter out bandwidth-hungry activities such as uploading and downloading video and audio content from social networking, internet radio and video websites. The CommBox can also be configured to prevent misuse of the connection by accessing inappropriate websites and applications. It also worked as a firewall to stop unauthorised access. The technicians were able to modify these and other network and security settings at any time by accessing the FleetBroadband system remotely through a virtual network connection (see box). They were also able to create a detailed audit trail of the websites visited.

Monitoring airtime and costs

NSSL provided its Insight Airtime Manager as part of the FleetBroadband package onboard European Spirit. Optimised to work with Inmarsat services, Insight is a web-based business intelligence tool that can be accessed from anywhere in the world and from any web browser. It gives customers direct access to:

- Billing and account information, including invoices and payments
- Daily costed airtime usage
- Reports for specific groups or individual users
- Service messages
- Service, billing and account management contacts.

Insight allows customers to monitor all traffic over their terminals in near real time, and how much the calls are costing. It also allows them to set limits and alerts so they can understand unusual call activity, unusually high bills or strange call patterns.

The system can be fine-tuned to provide a high degree of detail about how terminals are being used. For instance, reports can be grouped by cost centre, department or user group.

"Customers like to know that control of the terminal is completely in their hands, and not outsourced to a third party. Insight allows customers to go directly into the system themselves and allocate groups, reporting and budget lines to specific terminals, rather than logging a request and having to wait for us to make the change on their behalf."

Danielle Edwards,
NSSL product marketing manager

Summary of how FleetBroadband was used on the European Spirit

Control and visibility of costs

The MFE demonstrated how the control of usage and costs of FleetBroadband could be achieved by configuring two separate IP connections for the vessel, and providing independent call data records and billing for each one. Furthermore, using NSSL's Insight Airtime Manager allowed Teekay to monitor its FleetBroadband traffic with a high degree of precision. The addition of a third-party filtering device (Virtek CommBox) to the crew PC added another layer of control to the type and volume of data passing over the connection.

Emails in real time

FleetBroadband's always-on connection allowed the European Spirit to send emails at any time, and to receive them automatically in real time. As part of the FleetBroadband MFE, the European Spirit was equipped with AmosConnect from Stratos, which integrated email, fax, telex and text into a single messaging system. This provided a highly convenient platform for all operational messaging from the Captain's PC. It could also be accessed by crew members for social messaging.



Excellent voice quality

Captain Singh said the voice quality of calls over FleetBroadband was flawless.

"We are constantly talking to people, such as agents, chartering companies and cargo owners, in several different countries and in different languages and dialects, so if the sound is not clear then it can be very hard to understand what is being said or to get your own message across. But with FleetBroadband the voice quality is crystal clear."

Captain Anil Singh

Videoconferencing

As one of the scheduled system tests for the MFE, Captain Singh took part in several videoconferences with Inmarsat engineers in London over FleetBroadband.

"It was a great experience, and I wouldn't have thought it was possible to do it from onboard ship. The quality of picture and sound was very good."

Captain Anil Singh

Maintaining crew morale

As part of its commitment to crew welfare, Teekay ensures that mariners can communicate with family and friends on shore regularly while at sea. It has long recognised that when crew members are happy, and morale is high, they work more efficiently. During the MFE onboard the European Spirit, FleetBroadband demonstrated that it is a flexible and effective tool for crew communications, supporting voice calls, a range of messaging options and access to websites such as news and social networking sites.

About AmosConnect

AmosConnect is recognised as the maritime email standard, seamlessly integrating vessel applications with on-shore office systems, deployed on more than 10,000 vessels worldwide. It is optimised for ship-to-shore communications over FleetBroadband, so messages are sent in the fastest and most cost-effective format, using specialised satellite protocols and compression to make the most efficient use of bandwidth.

A perfect fit for oil tankers

FleetBroadband provided a powerful and flexible communications solution for the European Spirit, demonstrating that it can ably support the operational requirements of a modern oil tanker. The ability to fine-tune the configuration of the system for different user groups ensures that FleetBroadband is as cost-effective as it is versatile. When FleetBroadband is used with a business intelligence tool such as Insight Airtime Manager, visibility of usage and billing is possible in near real time.

"The clarity of voice is like using a landline – it is so clear."

Captain Anil Singh

"I used FleetBroadband after my watch to call my family and my girlfriend. The reception was very good, even from the middle of the Atlantic, so it felt as if I was never far from my family and friends. I also used AmosConnect for emails and to receive photos from my girlfriend, and went online to check the results of my favourite basketball team."

Marclan Denaro,
Third mate

"FleetBroadband was remarkably easy to use and set up. The functionality it gave us in terms of security and diagnostics was incredibly useful, and very easy to convey to the crew and captain."

Michael Minchin,
NSSL



How to buy FleetBroadband

FleetBroadband is available through Inmarsat's worldwide network of partners. Contact your existing Inmarsat service provider or visit our website to find the right partner for your company.

inmarsat.com/merchant

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