

Enhancing FleetBroadband with Wired Ocean

Background

FleetBroadband is Inmarsat's service to take vessels into the IP era. It has a number of advantages over Fleet including faster data speeds, lower usage costs and simultaneous voice and data usage.

But even a service as new as FleetBroadband can be significantly enhanced by Wired Ocean's service:

- Shore to ship data speed is 20% faster than FB500 and almost twice as fast as FB250.
- Prices for shore to ship data are only about 10% of FleetBroadband, so ships can greatly expand data usage for a given communications budget.
- Fixed price service plans make budgeting easier and relieve the concern that large downloads or unexpected software upgrades will lead to unacceptable costs.
- Wired Ocean's S-Box, works in conjunction with the network operations hub, using state of the art data optimisation. This minimises latency (processing lag or time delay), removes unnecessary handshaking and compresses and caches transferred data. The results are an even faster service and lower data volume.
- Buying an FB250 and a Wired Ocean S-Box is less expensive than an FB500 but with better performance for many applications.

Unlike some products, the systems that Wired Ocean uses to improve web browsing do not impair the content or quality of the web page in any way. There is no need to install software on computers, fiddle with compression settings, or wonder what you're missing – the enhancements are seamless.


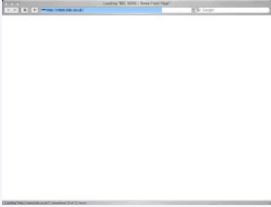





Performance Enhancement

Although FleetBroadband data rates are much higher than Fleet MPDS, the 'latency' (the delay between requesting data and getting a response) still remains high, at well over one second. Receiving a typical web page requires many individual elements to be sent and each element must be acknowledged before the next can be sent. So it can take over a minute to receive a web page.

Wired Ocean improves FleetBroadband performance in two ways:

- Wired Ocean’s shore to ship data speed is faster (20% faster than FB500 and almost twice as fast as FB250) and it has a much lower round trip delay.
- Instead of using TCP-IP, which requires each data packet sent to be acknowledged before the next can be sent, Wired Ocean uses modified UDP protocol, whereby a response is only sent if a packet is not received. This increases the speed and reduces wasteful (and costly) ‘chatter’. Lossless compression and HTTP caching further improve performance.

These systems are fundamental to improving the internet experience of FleetBroadband users. As seen in the example below, Wired Ocean reduces the download time of the BBC News ‘home’ page from well over a minute to less than 15 seconds.

Elapsed Time	FleetBroadband 500	FleetBroadband 500 + Wired Ocean
10 seconds		
15 seconds		
60 seconds		
105 seconds		


Affordable Broadband Usage

Wired Ocean keeps usage costs down so that broadband at sea becomes affordable. Costs are reduced by minimising the data volume transmitted and by reducing the cost of shore to ship data.

- Wired Ocean keeps the transmitted volume to a minimum by using lossless compression to remove unnecessary data, negative acknowledgement to avoid unnecessary handshaking and HTTP caching so that information already received can be re-used if it is still current.
- Wired Ocean's "fixed" price subscriptions are extremely economical and fix the cost of shore to ship data, irrespective of the length of time online or the volume of data received.

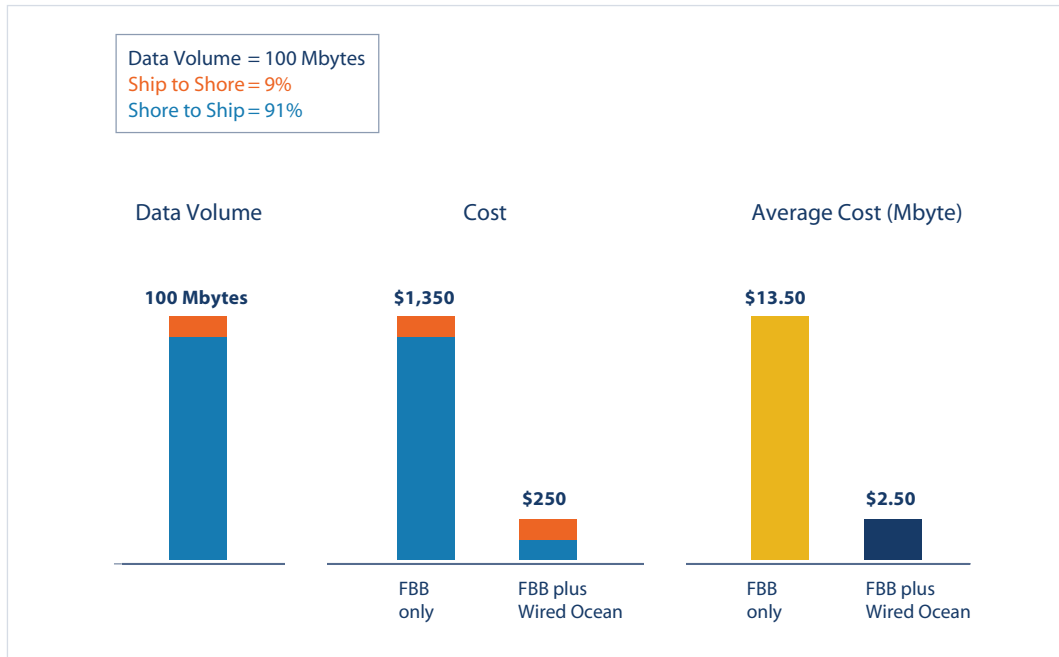
Savings on shore to ship data

The savings generated by Wired Ocean's shore to ship service depend on the ratio between shore to ship data and ship to shore data. Email has a ratio between 1:1 and 2:1 while a file download may have a ratio as high as 100:1, since one tiny request for data can result in a large volume being received. Internet users on land are generally receiving much more information than they send and the same is typical of most users of Wired Ocean's service. Information downloads can include navigation, weather, sport, pricing and other operational information as well as software upgrades, etc.

✓ ✓ ✓ ✓	Information Downloads	Higher Shore to Ship Ratio 
✓ ✓ ✓	Web Browsing	
✓ ✓ ✓	Online Database Access	
✓ ✓ ✓	Downloading Email with Attachments	
✓	Email	

How much can you save?

Wired Ocean is designed for ships who want to use broadband applications such as web browsing, accessing content and downloading emails with attachments. A vessel that receives 10 times as much data as it sends can save about \$1,000 on 100Mbytes of data by using Wired Ocean's shore to ship service.



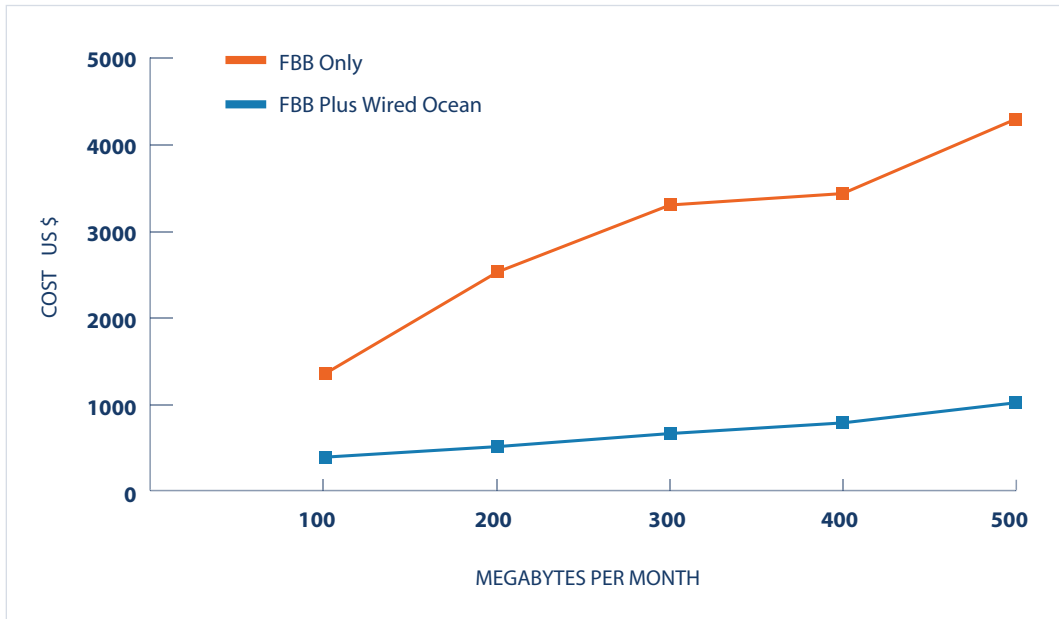
Broadband at sea within budget

Vessels can now move into the broadband era without large increases in communications budgets.

Combining Wired Ocean with FleetBroadband can deliver a six times increase in data volume for the same budget. That's an extra 400Mbytes for a \$1,000 budget. Compared to Inmarsat Fleet MPDS, the combination of FleetBroadband and Wired Ocean can deliver a 14 times data volume increase for the same cost.

Service	Volume per \$1,000
Inmarsat Fleet MPDS	35 Mbytes
FleetBroadband	74 Mbytes
FleetBroadBand Plus Wired Ocean	490 Mbytes

Making FleetBroadband affordable



Wired Ocean

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