Gigabytes onboard with 3G at sea

In an attempt to increase its vessel data traffic while reducing its costs, shipmanagement company Norbulk Shipping has implemented a 3G-based system that allows its ships to access gigabytes of data for just a few hundred dollars a month, when within range. Denis Dorigo, Norbulk Group, told *Digital Ship* about the technology

Like tax cuts, vacation time and birthday presents, there are some things that you can never get enough of. In the maritime world 'data' has joined that list, with an insatiable demand for internet, e-mail and a growing number of 'essential' applications pushing traffic ever upwards – and that's just for the crew.

However, like tax cuts in particular, if you do get more of what you want when it comes to bandwidth on your ships, you inevitably end up paying a price for it in one form or another.

Generally ships operate far from land, and cannot take advantage to terrestrial infrastructure facilitating cheap and plentiful internet access. As a result, satcoms is the backbone of ship communications – and the laws of supply and demand will tell you that traffic on scarce and expensive orbiting satellites is not going to come cheap.

However – all ships have to come ashore sometime, and, depending on trading routes, some vessels spend a significant amount of time within a reasonable distance of land. In circumstances like these the opportunity exists to leverage the terrestrial infrastructure to boost the data capabilities of the ships' satcom systems.

This was the approach taken by Norbulk Shipping Group, a ship management company with offices in Glasgow and Riga, which has 80 vessels under full technical management including tankers, bulk carriers, Ro-Ro's and multi-purpose / reefer ships.

Like most shipping companies, Norbulk is constantly on the lookout for new technologies that will improve efficiency and reduce operational costs, and communications plays a large part in that process.

In this regard, approximately 18 months ago the company began a fleet-wide roll-out of the Iridium OpenPort system to its ships, to replace its various existing satellite terminals and derive more value from its communications spend, as Denis Dorigo, IT manager at the Norbulk Group, explains.

"The OpenPort was chosen because of cost, it was very cost effective for us. Before that we were using a whole range of systems," he told us.

"We manage many vessels on which we had no involvement in the original choice of communication equipment, so we tend to have whatever type of system is onboard. We have ships with Mini-M, with Fleet 77, with Fleet 55, so a whole range of satellite systems. OpenPort has gone on as well as those systems, we got a very good deal from Iridium and left the old systems on as a back-up."

"The OpenPort is much more effective in many ways, it has some downsides but it has a lot of upsides also. It's been a win-win situation for us."

The roll-out of the Iridium system was completed in early 2012, but this was not the end of the company's communications upgrade.

In assessing the various options available to squeeze as much data as possible from the communications budget, Mr Dorigo came across a company called Wavetec Marine that was offering 3G data communications services for ships travelling in specific areas, including travel between Canada and the US.

With four of its own vessels engaged in regular trade between Canada and the US Mr Dorigo decided to trial the service and see what kind of difference having this additional communications option onboard could make to operations.

"We're always looking to improve things in general and have many things in the pipeline to be explored, to see how they would fit IT wise, comms wise and so on. Some owners require certain data to come out from the ships, other owners need other things. We keep looking at the best deals that are out there to do this," said Mr Dorigo.

"For those four ships in particular it was very interesting that they had this mobile phone reception for a long part of their voyages, which basically made it intriguing to try and find something we could integrate with this."

"We've been looking to reduce costs for a long time, and we're also looking to give the crew a little more freedom onboard. This is something we're thinking of fleet-wide, but because those four ships are trading mainly near the coast and have 3G coverage we started to have a look at how we could exploit that situation."

The Wavetec Mobile service is a 3G/4G communication solution for vessels transiting between different countries. It has so far only been deployed on ships travelling between the US and Canada, but the company says that it is currently looking to start testing in other international locations.

Installing the system involves affixing a small antenna on the ship, with a cable to connect into the network. This allows for connections to 3G/4G mobile networks across multiple countries without any mobile roaming charges, as the user agrees a single subscription with Wavetec Marine for the service, while providing an increased reception range for the 3G/4G network.

In Norbulk's case, Wavetec Marine representatives attended the vessels to complete the installations, which are done within one day.

Once everything is set up, the amount of data that can be transferred for relatively small amounts of money is far removed from what can be done over satellite.

"We pay a monthly subscription to Wavetec of a few hundred dollars per vessel, and that covers 12 gigabytes of data transfer, independent of where they are," said Mr Dorigo.

"I would say that's pretty good when compared to a satcom contract. We usually have lots and lots (of our allocation) left over."

"Our standard Iridium contract is for 50MB and 300 voice minutes per month, and most of our fleet manages to keep within that."

Communications management

With both satcom and 3G systems installed onboard these four ships, Norbulk also required a system to manage switchover between the two, and to make sure that the ships don't transfer large amounts of data when outside the Wavetec Marine coverage area – which Mr Dorigo estimates to be 20 to 30 per cent of their time at sea.

'We pay a monthly subscription of a few hundred dollars per vessel, and that covers 12 gigabytes of data' – Denis Dorigo, Norbulk Group

This was provided by Norwegian company Dualog, which has installed its Connection Suite system across the fleet to manage business e-mail and automatic file transfers. This includes an optional CrewMail service, as well as the Dualog DuaCore Pro software firewall and router.

On the four ships using the Wavetec Mobile system DuaCore Pro handles routing of IP traffic between the Wavetec equipment and the Iridium OpenPort, which is designated as a 'backup' system within this arrangement.

"(Using 3G) makes sense, you get high speeds, you can browse the internet and have the crew happy. You just need to be careful because it's the ship's communications system, so the minute you lose the 3G reception you need to automatically switch over and lock all of that traffic," said Mr Dorigo.

"That's where the Dualog system comes in, with a firewall and their DuaCore Pro system. We have total control of what is happening onboard of the ship and outside the ship. We can control data going to certain e-mail addresses, we can quarantine it and wait for somebody to approve it. We're fairly flexible with everything, and I haven't had any complaints yet."

Mr Dorigo notes that it is vitally important to have a management system like this in place to effectively run two communications services, with widely varying costs, side-by-side on the ship without running up unexpected bills.

"They call it OpenPort because when you plug it in you have access to everything, so you need to be careful," he told us.

"We get (communications service provider) AND Group to also filter traffic on the shore side. The minute you get computers starting to talk on your net-

Norbulk Acadian is one of the vessels using the combined satcom/3G system onboard

work you're still going to have to pay for the computers trying to reach the shore. So the Dualog system will basically block all of that off and we say 'you're on Iridium, you can only connect to Dualog'. Those are the only ports that are open, and only e-mail can go through."

"When it switches over to the 3G side basically everything is open. Voice calling is always open, and we have calling cards – though those four ships never have to use them since they get 3G reception. Saying that though, Iridium is fairly cheap for making outgoing calls. Outside those four ships we give the crews calling cards, and we give them private e-mail."

The switching system is also available on the other ships in the fleet not fitted with 3G, though on those vessels switching is not particularly required as all of the onboard options are L-band satellite services.

"It doesn't really make any sense to switch over from Iridium to Mini-M, but every ship has two or three profiles, depending on how many communication systems they have, and we have full control of how it's going out," said Mr Dorigo.

"The switchover is absolutely no problem. We did have some slight problems, not with many, but some slight problems with a few of the OpenPorts and it just switched over."

"Dualog has profiles for a million things. Sometimes it can get overcomplicated, in the sense that you can say that if you're on the Mini-M you are only allowed to transmit certain file sizes and that kind of thing. But in the end it makes sense, actually."

Working with unlimited data

With the mixed 3G/satcom system up and running on its four ships Norbulk has opened the door to almost unlimited cheap data, when in range of the mobile phone service, and has the option to introduce any type of IT system it requires.

"With vessels that have high-speed data, where you don't look at the data consumption, the sky really starts to become the limit," said Mr Dorigo.

"What data do you want from the ship? You can do anything – maintenance systems, purchasing systems, forms, all those kinds of things. It just makes life much easier."

Remote access to the ships' networks for IT management is one of the applications that Mr Dorigo points to as an example of how the Wavetec communications system has made a big difference to operations.

"On the Canadian/US ships you just connect and you can hop from one PC to the other, you remotely access a master PC and that will let you in to the rest of the network," he said.

"With that we can fix problems before they happen, and of course you can see things yourself. It's difficult for people who are not really computer literate in a technical way to actually explain what's happening and the errors that they get. If you can do that you will reduce your travel a lot."

"On the rest of the fleet, I have been thinking about doing remote connections to the ship, but on satcom it can be fairly unreliable and I wouldn't like to know how much a remote connection to a ship would be if you were working on it for an hour."

With that in mind, Mr Dorigo is keen to implement similar systems on other vessels in the fleet trading in coastal areas, though he admits that he has struggled to find comparable offerings in other regions.

"We had looked at it previously and the technology was not available," he said.

"It would be something to look at for ships which have a standard trade, because you also need to look at the expense of installing the system and how long it would take to get your money back. But it's absolutely something we would like to look at – that's the way forward, I think. On the current installations payback was approximately one month".

Apart from 3G technology, Mr Dorigo is also keen to look at other new technologies coming into the market, and is hopeful that evolution in maritime communications will continue to bring faster, cheaper services to those at sea.

"There are always new technologies coming out, so you need to keep your eye open. 3G may be good today, but in a few years' time we might have even faster, more cost efficient satellite communication systems – and that's your need for 3G gone," he said.

"I'm pretty sure that if we give it a few years we'll have huge speeds out in the middle of nowhere, I think we're edging that way. Of course they have to recoup some money – but something like Iridium OpenPort, just a few years ago getting 64 kbps or 128 kbps for the money that we're paying now wouldn't have been thought about."

Installation involves this simple antenna, and can be completed in one day

"I've been with Norbulk for 15 years, and when I joined we had a few Linux terminals, and I recall that we started to install the first Windows 3.0 system – that's ancient. Our whole e-mail system could only hold 200 MB, then the server would be full and would crash. At last count of our e-mails I think we now had something like 600 GB. It's just amazing how everything has evolved – and it's a pleasure to be part of it." DS

Boatracs and KVH join forces to serve smaller vessels

www.boatracs.com
www.kvh.com

Boatracs and KVH report that they are to work together to deliver a communications service for small to medium sized businesses in the commercial workboat and fishing markets.

Sold through Boatracs, the Boatracs mini-VSAT Fleet Management Solution includes a TracPhone V3 (to be called the Boatracs mini-VSAT V3), as well as Boatracs' fleet management platform, Boatracs BTConnect.

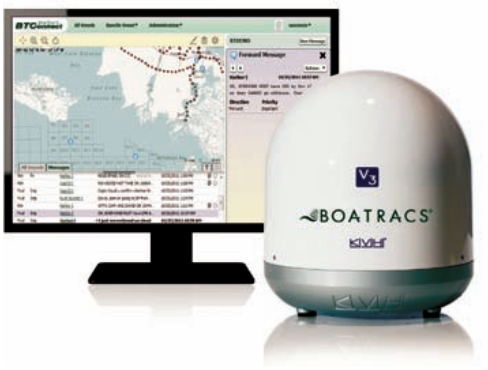
BTConnect is a web-based solution that integrates message and mapping functionality, and includes features such as route planning.

Other software products like BTForms, an electronic forms system that automates vessel data collection, can also be included. The new service will be made available and supported through KVH and Boatracs' dealer network.

"We are very excited to partner with an innovative top-tier company like KVH to integrate the award winning TracPhone mini-VSAT Broadband system with Boatracs' software solutions for the commercial maritime market," said Irwin Rodrigues, president and CEO of Boatracs.

"With increased regulatory compliance reporting and heightened competition, the needs of our customers have evolved dramatically over the past few years. We're seeing a growing need for simple yet highly effective integrated solutions that drive operational efficiencies, vessel productivity and compliance."

"The Boatracs mini-VSAT Fleet Management Solution meets these requirements in an affordable package through a single provider known in the industry for reliable service and a dedication to customer support."



The package will include a KVH mini-VSAT and Boatracs software

Satcube announces satcom antenna development

www.satcube.com

Gothenburg-based Satcube AB reports that it is in the process of developing a new range of maritime satcom antennas, which it says will be aimed at "the next generation of satellite capacity."

The platform features an active dampening system, to eliminate shocks and vibrations and reduce the number of system failures.

"These satellite terminals need to be more accurate and demonstrate greater efficiency than the old L-band system terminals they replace," said Jakob Kallmér, Satcube CEO.

"Availability and robustness requirements continue to be extensive. However, customers aren't prepared to pay much more for the hardware. That's why you need to take a new approach when developing this type of terminal."

"We drew inspiration from the automotive industry, incorporating simple, inexpensive components without stretching the limits of function or quality. This approach has resulted in a number of innovations for which we have submitted patent applications."

Satcube says it plans to release a beta version of the system this winter to test the concept in the North Sea. It is expected that a fully industrialised product will be available by mid-2013.

Jotron Group merges Norwegian operations

www.jotron.com

The Jotron Group has announced that it will merge its remaining Norwegian companies (Jotron AS, Jotron Phontech AS and Jotron SatCom AS), following the sale of its Jotron Consultas AS software division.

100 per cent of the shares in Jotron Consultas AS were recently acquired by Kongsberg Maritime as part of a deal announced in March 2012.

The name of the new combined company will be Jotron AS, with an annual turnover of 305 million NOK (approximately US$53 million) and 150 employees.

"This merger and the sales of Jotron Consultas AS will allow Jotron to fully focus on our core businesses: communication products and systems for maritime, land and air applications," says Magnus Vold, managing director of the 'new' Jotron AS.

"It will allow us to consolidate our sales, R&D and production resources to expand the business and better serve our customers worldwide."

Jotron AS will be organised into divisions covering separate market segments, with a Maritime & Energy division responsible for all business with maritime customers worldwide.

The new organisation of the company will officially come into effect on July 1st 2012.