

Broadband - do we need it?

Digital Ship's one day conference at Norshipping (Oslo, June 7) about broadband satcom included fierce discussion about whether the costs of broadband maritime satcoms (such as VSAT) are worthwhile

PATRICK SLESINGER, chief information officer of Wallem Shipmanagement in Hong Kong, one of the world's largest shipmanagers, gave a strong critique of the current VSAT / broadband offerings for the maritime industry.

Mr Slesinger said that the benefits of VSAT in shipping are not yet proven, and there is a risk that it is being oversold.

"If you can answer, why do I have to have VSAT, give up your day job and work for Boeing," he said.

"There really will be one killer app that needs massive data - but I don't see that it's out there at present."

Mr Slesinger says he is keeping an open mind to VSAT, and has rounds of talks with the VSAT vendors every 3 months, but at this stage he does not believe their maritime service offering is viable for a ship manager.

"I'm not anti-VSAT - but I'm very concerned about how its being sold," he said.

"Those of you who are VSAT believers please pay attention," he

said. "VSAT can be dangerous to your wealth."

Whilst there might be a certainty that staff will find data to send between ship and shore to fill up a VSAT pipe, there is no certainty that this will lead to more value for the shipping company, he said.

Pitfalls

Mr Slesinger cited the examples of several CIOs of terrestrial companies who doubled the speed of internet access to their staff's computers, only to find that staff ended up spending more time on the web, because it was better than their internet connections at home.



Patrick Slesinger, chief information officer of Wallem Shipmanagement in Hong Kong

Mr Slesinger noted that many VSAT vendors are promoting the 'free' telephone calls as one of the benefits of having a system.

"Does anyone believe a minute over VSAT is free? Both people on each end of the line are being paid a salary. If they think they can yack away, who's paying for it."

"In the Inmarsat

world, I can just get hold of the parties and say, stop non-essential talking."

A further issue with VSAT is that shipping companies often have to make a commitment to use the service for a number of years at a fixed price, so they will be unable to take advantage of the continuing drop in telecommunications costs, thus surrendering a great deal of future flexibility.

"Communication tariffs do not go up," he said. "If you lock yourself in today - what will it look like in a year?"

Many VSAT providers are talking about systems where the ship can access data from a database on shore.

"If you're saying it's always on, it had better be always on," he said.

"Then a port state officer comes onboard and says, show me your database. You can't use VSAT in a port."

"The ISM code requires data to be on the vessel. No port state officer is going to go to your data centre ashore to look for data if your link is down."

Mr Slesinger said that shipowners should be wary of claims from VSAT companies that they will be able to run shore based applications onboard ships via CITRIX, saying that much of the systems developed for shore processes are not appropriate for use for onboard ship processes.

More with what you have

Wallem's current approach is to do the most it possibly can with the existing Inmarsat ship shore communication options.

Shipping companies need to identify which of their data they really need to send between ship and shore, and then see how much this would cost.

"Not all data is created equal," he said. "The question is, what data should be where, when and why?"

"Think business processes and value," he stressed.

"Careful and considered use of the available technology does it."

"People say - we want to have all the data on the vessel. People say, we want to get 1 second response time. Its important to look at what the data is for, where it's really required to ensure that real value from the data transfer costs is realized."

The cheapest way to send data to ships is to post it on a CD, what he calls the "747net".

Wallem's rule is that staff, on ship or shore, are not allowed to send via satellite any data larger than 100kb by e-mail.

For example, catalogues of ship stores can be sent to the ship by CD, including all photographs. Any pure textual data updates can then be sent cheaply over the satellite.

If Wallem has urgent e-mails that the ship needs to read, it sends a short message to the ship by Inmarsat C telling them to dial into their e-mail. "It's got the job done for many years, so where is the real need to always on push?" he said.

Wallem moved its whole fleet to Rydex ship shore e-mail system in 1998.

Mr Slesinger said that most shipping software applications are designed for a store and forward data architecture (ie sending e-mails to the ship).

A store and forward architecture is also less vulnerable to disruption than an always on system, he said, because there is no problem if there are short periods of time when the satcom system isn't working (eg due to satellite or equipment problems).

Wallem is gradually increasing its use of Inmarsat Fleet MPDS service.

"MPDS works," he said. "It's not the cheapest thing, but there's a massive value add."

MPDS counter

Wallem recently designed a packet data counter system, for monitoring data sent between ship and shore on Inmarsat Fleet MPDS.

"If you're going to start having data packets flying around. You've got to find a way to count this stuff," he said.

"It was designed as a potential toolkit for LESOs and terminal suppliers to distribute."

"I would say, wouldn't it be sensible to know, what applications are using the bandwidth."

Livewire



caprock



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There are a few potholes shipping companies can fall into when using MPDS on ships.

For example, using MSN messaging looks attractive, because shipowners can be in contact continually with their ships, and only send tiny amount of data, and so pay very little.

But MSN actually sends small amounts of data all the time between client and server, which all gets very expensive over time. This data has no value to the shipowner.

Danaos

The next speaker was Dimitris Theodossiou, IT manager of Danaos Shipping, which installed the Broadband Maritime global VSAT system.

Mr Theodossiou is also managing director of Danaos' IT supplier division Danaos Management Consultants, which subsequently decided to act as an agent for Broadband Maritime.

"Patrick's speech reminds me of the speech of my father when I wanted a motorbike," he said.

Mr Theodossiou said that eventually his father had let him have a motorbike, although he had had several accidents on it.

The principal benefit of broadband ship shore

communications is that the ship can be in much better connection with the shore, he said, which can lead to big improvements in how ships are managed. "The times that the vessel was a barren object have finished," he said.

Mr Theodossiou cited the oil companies' TMSA (tanker management self assessment) scheme, which demands that shipping companies set targets and continuously improve on them.

"When something goes wrong, they will follow how fast your captain will react," he said.

Many shipping companies are setting up a number of key performance indicators for measuring how well they are doing and telling people about it.

With an always on connection between ship and shore, it is easier for ship and shore staff to be notified if an indicator is about to slip, so they can do something about it before the world gets to hear about it.



Dimitris Theodossiou, IT manager of Danaos Shipping



Broadband Maritime's new 2.2m antenna (in foreground David Handelman of Broadband Maritime) - keep your ships working more closely with the shore office

A Broadband Maritime VSAT system has been fitted on several Danaos container ships, giving the company real experience in how to get the most benefit from it.

"You can monitor officers performance - we want to monitor how our officers are spending their time and what routes they take," he said.

The system is used for ISM forms, creating supplies requisitions, updating planned maintenance systems, looking after crew records and the payroll.

Shipping companies can use the system to train staff remotely - this can be particularly useful if one seafarer needs to be replaced and no-one else on the ship has passed the necessary course.

After fitting the VSAT system, Danaos discovered that its port captains would regularly spend 2 hours sorting out Inmarsat bills - none of which was required any more.

"If we start thinking of what additional things you can do - you can never finish," he said.

Danaos is keen to upgrade its 64 kbps connection to 2Mbps, which should "make things much easier," he said.

It would like separate phone lines for bridge and crew, less restricted internet access onboard, continuous bridge monitoring.

The company has its core database held on shore, with vessels accessing it continually over the satcom, and shipboard software kept as simple as possible.

There have been some problems with the VSAT system, Mr Theodossiou acknowledged.

Software applications developed for

instant terrestrial communications needed to be adapted to work over the satellite, where there is a delay as data goes to the satellite and back.

Data authorizations needed to be put into the software. There is information even a shipmaster can't see, for example company notes on his performance.

Another problem has been the times when the line of sight between the satellite antenna and the satellite is blocked, for example by the ship funnel (if the ship is going in a certain direction and is at a certain latitude). Because the antenna is so large (2.2m), there are not many options in where it should be fitted on the ship.

There are also complexities if any part of the antenna breaks, because spare parts are not available in every port of the world.

However the system has been available overall about 98 per cent of the time, he said.

Overall, the quality and performance of the satcom was excellent, Mr Theodossiou said. "Coverage and availability was impressive, and the crew were supportive."

"The equipment is simple and installation required less than a day."

MPDS costs

Ghani Behloul, maritime marketing manager with France Telecom, talked about how shipping companies are currently using Inmarsat Fleet MPDS and getting more value from it.

70 per cent of current MPDS traffic over France Telecom is http web browsing and 25 per cent is e-mail, he said.

MPDS users have almost 100 per cent connection success rate and an average throughput of 20 kbps.

Based on real MPDS traffic, France Telecom has observed the average data exchange during May /June this year being around 11 minutes, with the average data exchanged being 2.7 megabits (337 Kilobytes) per session.

Most of these users are doing web and intranet browsing, checking mailboxes, and doing instant messaging / chat, all applications with a lot of idle time (time connected without exchanging any data).

If these people were using ISDN, at \$8.29 per minute (public price), they would pay \$91 for 11 minutes.

However when using MPDS, they just paid \$11 (at \$4.10 per megabit).

France Telecom is developing tools to send e-mail alerts when users have used up 80 per cent of their budgeted MPDS data, to help shipping companies keep their satcom costs under control, he said.

Roger Adamson

Roger Adamson, managing director of ship-shore data communications company Rydex (owned by Inmarsat), predicted that it will take until 2017 for broadband to be dominant in ship shore communications.

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Currently, out of the 28,000 vessels over 1,600 grt, and 89,000 vessels over 100 grt, 26,000 have satellite communications equipment (other than Inmarsat -C), but only 750 have broadband, he said.

There are currently 8,000 Inmarsat -As in service and this is declining. There are 12,000 Inmarsat -Bs and this is flat lining. There are around 6,000 Inmarsat Fleet ter-

minals in service.

Typically, vessels send 7.7 megabits from the vessel per month, and 10.5 megabits per month to the vessel (total 18.2 megabits per month).

This communication can easily be handled on an Inmarsat Fleet 77 ISDN line, he said. With compression, a Fleet 77 ISDN line can carry around 597.6 mb in 24 hours.

The cost of this, using current Inmarsat services, will be \$300 to \$700 per month, and could be less with duplex communications (where data can be sent in two directions at the same time).

DVB-RCS

Ottar Bjaastad, marine vice president with Nera, talked about the DVB-RCS service,

which allows lower cost VSAT communication for ships.

DVB-RCS is a new satellite communication protocol, which allows more data to go through the satellites at less cost; it also allows better interoperability between different systems (eg different satellites, different shipboard equipment).

Shipowners need an antenna of 1m diameter, which Nera manufactures. They can typically get speeds of 512 kbps, both to and from the ship.

DVB-RCS makes it easier to allocate bandwidth on demand; so instead of ships reserving a specific amount of satellite power, the satellite power can be moved around to whichever ship is sending most of the data.

It also allows better performance in adverse weather.

Nera has been beta testing its service since mid 2004, on a yacht and commercial LNG tanker.

Malcolm Tindley, Sperry

Malcolm Tindley, manager, director, customer service programs, Europe and the Middle East, Sperry Marine, talked about Sperry's trial project to fit a broadband satcom terminal onboard a container ship "Copiapo" operated by Peter Döhle, and find out what benefit could be drawn out of it.

Shipping company employees set up a secret web page, where they could see the vessel's navigation data, voyage plan, current alarms and radar targets, from their offices. They could also see CCTV pictures, statistics and engine automation data.

The ship was connected to the office via the internet, with two firewalls, one on the ship and one in the shipping company office.

The ship was also fitted with a shipboard wi-fi system, so crew could read bridge information at any time using handheld computers, and use mobile phones onboard.

The communications system proved very useful for fixing shipboard computer problems; the ship could send log files and configuration files back to shore for analysis.

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Download original presentations from Digital Ship's conference about broadband satcoms from www.thedigitalship.com/presentations.htm

Seawave