

Digital Ship

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UKHO goes digital

The United Kingdom Hydrographic Office (UKHO) is making a play to really push take-up of Electronic Navigational Charts with the launch of the Admiralty Vector Chart Service (AVCS), which it claims is the 'most comprehensive, consistent and quality ENC coverage' in the world

The United Kingdom Hydrographic Office (UKHO) has launched its new flagship digital chart product, the Admiralty Vector Chart Service (AVCS).

UKHO says that AVCS will provide the international mariner with "an integrated global set of Electronic Navigational Charts (ENCs)," sited in folios along major shipping routes and covering the world's top ports, and including improved ordering, flexible licensing and integrated updating services.

The Organisation also says that the service will provide access to carriage compliant ENCs from a single 'value added' source, to overcome the present requirement to carry, maintain and use a mix of ENC, Raster and paper charts drawn from multiple sources.

Mike Robinson, UKHO Chief Executive, commented: "AVCS provides, for the first time, truly credible worldwide ENC coverage for the international mariner, and, with the

value the UKHO can add, will become as synonymous with 'quality and safety' as the Admiralty world paper chart series is today."

While UKHO seems to be very optimistic about the potential of this new initiative, the problem of



UKHO says it is making a concerted effort to eliminate the barriers to take up of ECDIS with the launch of AVCS

incomplete ENC coverage, on a global basis, is still a major issue in the uptake of these kinds of services, and it remains likely that it will take many years before all necessary ENCs for globally trading companies will be available.

The definition of "credible worldwide coverage" that UKHO is using in this case may differ from that of some of its customers, especially considering that UKHO has been unable to reach agreement with China to include its charts in the service, despite the

wealth of shipping trade conducted through its waters. Negotiations are ongoing, so it is hoped that this matter will be resolved in the future.

Despite the gaps in ENC availability, AVCS does provide access to all previ-

ously available ENCs, and "exclusive access" to a significant number of new ENCs, produced by the UKHO in co-operation with many of the world's Hydrographic offices. The UKHO has also worked with many Hydrographic Offices to improve consistency, to ensure that newly produced coverage seamlessly sits alongside existing coverage.

With this in mind, UK National Hydrographer, Rear Admiral Ian Moncrieff, is confident in saying that AVCS represents the world's "most comprehensive, consistent and quality ENC coverage."

"This has only been possible through the co-operation and support of Hydrographic Offices around the world," he said.

AVCS comprises only of official ENCs produced by government Hydrographic Offices, so seafarers can be certain that any information contained in the folio is fully compliant with SOLAS legislation for use within Electronic Chart Display

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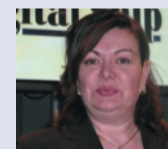
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'AVCS is the world's most comprehensive, consistent and quality ENC coverage'
- UK National Hydrographer,
Rear Admiral Ian Moncrieff

and Information Systems (ECDIS).

Maintaining up-to-date ENCs is an essential part of this compliance, so UKHO will also be launching an updating service alongside AVCS, which aims to make chart amendments more easily applied in the future.

Trials

Testing of the system has produced favourable reviews from both commercial shipping users and the UKHO's military customers.

Sea trials of AVCS were carried out on six commercial vessels, one Trinity House vessel and two UK Navy vessels - including the oil tanker *MT Supremity*; aframax oil tanker *MT Rio Genoa*; chemical tanker *Vedrey Fram*; container vessel *MV CMA CGM Rose*; P&O cruise ship *Ventura*; and Navy vessels *HMS Illustrious* and *HMS Manchester*.

Captain Constantin Zaharia, master of the 29,000 tonne container vessel *CMA*

CGM Rose, noted: "(With AVCS) you have always the vessel's position against everything around, including the targets, which is very, very important when you need to make a decision quickly in congested areas... I can tell you that I fully trust the system."

Lt. J D S Beedle, navigator of *HMS Manchester*, also said: "Transit and Regional folios provide safe navigation from port to port and when operating in a specific operational footprint... Port folios ensure that permits can be ordered once and deployed at relatively short notice."

Oliver Kautz, of Ocean Shipmanagement GmbH, commented "We are very satisfied with AVCS. The trial has shown that a full ENC coverage is possible... moreover, operational benefits have been brought to our attention by the crew. It was very convenient that the whole chart outfit has been provided in only one package, which makes it very easy to maintain on board."

UKHO is keen to see this service act as further encouragement to the maritime industry to start making the switch towards ENCs, while UKHO CEO, Mr Robinson, took a swipe at private, unofficial chart manufacturers, saying they would no longer be needed with systems such as AVCS.

"With AVCS on the bridge, not only can paper holdings be reduced significantly, but also unofficial, privately produced 'aids to navigation' can also finally be put back where they belong on a SOLAS vessel - that is, 'back in their boxes' and nowhere near an ECDIS," he said.

However, despite trumpeting its own version of "credible worldwide coverage", UKHO admits that this is only the first phase of the development of the overall service.

In addition to extending coverage to include all of the top 2,000 ports in the world later this year, from the approximately 1,000 available currently, the

UKHO says it will "enhance" the service by starting to incorporate the benefit of its global paper chart series.

"AVCS will soon provide the mariner with the 'best of both worlds' - the power and utility of digital charts, backed by the reliability, quality and integrity of Admiralty paper charts," said Mr Robinson.

Despite this intention to include paper charts in the service, UKHO says that it is a "strong supporter" of the use of ENCs, pointing to international studies that have shown that the use of ENCs in ECDIS



'Privately produced aids to navigation can be put back where they belong - back in their boxes, and nowhere near an ECDIS' -
Mike Robinson, UKHO CEO

improves the safety of mariners, helps protect the environment and delivers tangible cost savings.

"In providing a global ENC service to the international mariner, integral to which is the provision of the benefit of the UKHO's charting capability, we are making a concerted effort to overcome the barriers of cost, coverage and consistency in the 'take up' of ECDIS to drive towards digital navigation which is widely accepted offers a safer future for shipping," said Mr Robinson.

"This launch, although representing a key milestone in the evolution of digital charting, is really just the start. We now have the basis on which to develop a comprehensive set of integrated data and services that will provide the mariner with all he needs for safe navigation in the digital world." DS

For further details on the AVCS service, see Dr Andy Norris' article on page 26



The tanker *MT Rio Genoa* was one of six vessels to conduct sea trials of the AVCS service

CapRock has appointed Keith Johnson as vice president of corporate development. Mr Johnson moves into this role from his former position as the company's interim managing director of Europe, Middle East and Africa operations.

ND SatCom has appointed Roger Wieting vice president of engineering for ND SatCom Inc., the company's Texas-based subsidiary. Mr Wieting, who will

head engineering for the Americas in his new position, previously served as vice president and general manager at Vertex Communications Corp.

Vizada has been named by **Thuraya** as its '2007 Best Service Provider'. The award was presented at the annual service provider forum for Thuraya distributors held in Dubai. The two partners say they plan to further boost growth in the mar-

itime market with the launch of the Thuraya Maritime service, with voice and data services for vessels, in the second half of 2008.

www.caprock.com
www.ndsatcom.com
www.vizada.com
www.thuraya.com

Maritime broadband antenna from Thuraya

www.thuraya.com

Thuraya has introduced a new antenna for the marine environment, for use with the ThurayaDSL satellite system.

The antenna is manufactured by Spacecom, a Danish-based technology partner for Thuraya, and can be purchased as a stand-alone option, or as a fitted accessory to the ThurayaDSL terminal.

Thuraya says that the new antenna will be able to offer broadband services under any weather conditions, and is configured to always be pointing towards the satellite regardless of ship's movement and position.

The company has already been preparing for the imminent launch of an advanced marine product that offers voice, fax and SMS, and believes that an enhanced ThurayaDSL offering will help

to ensure a strong presence in the entire maritime communications market.

Thuraya's coverage area includes



Thuraya is poised to launch its new maritime broadband service, which will be available via Spacecom antennas

seaways such as the Arabian Gulf, Red Sea, Mediterranean, Arabian Sea, North Sea, and Baltic Sea, as well as substantial parts of the Atlantic and Indian Oceans and international waters in most of Asia-Pacific.

The viability of Thuraya's maritime communications system has also been strengthened by the successful launch of a new satellite, Thuraya-3, in January of this year, following delays to a planned launch at the end of 2007.

"With our maritime coverage area being so vast, and with the global stress on rich content data transmission, the new and improved antenna will facilitate communication on board ships," said Yousuf Al Sayed, Thuraya CEO.

"We are proud to provide this new service in the maritime sector permitting sustainable commercial activity at sea."

Vizada sells business unit

www.vizada.com

Vizada has announced the sale of one of its affiliates, GMPCS Personal Communications, Inc., to a private investor. Terms of the sale are not being disclosed.

Part of the Vizada group of companies since August 2004, GMPCS Personal Communications is a distributor of mobile and fixed satellite phone equipment and services using the Inmarsat, Iridium, Globalstar, and Thuraya satellite networks.

"Vizada is fully committed to selling its services through distributors and channel partners," said Bob Baker, president and COO of Vizada Americas.

"For this reason, it made sense to sell GMPCS and focus on our core business strengths and excellent channel relationships."

SingTel global broadband 'first in Asia'

www.singtel.com

Singapore Telecommunications (SingTel) has announced that it is to offer a new maritime broadband service with global coverage, claiming to be the first satellite service provider in Asia to offer this type of bandwidth on a global scale.

SingTel has already been providing Very Small Aperture Terminal (VSAT) services with regional coverage for the past two years, but is now extending its services to provide seamless, worldwide coverage over all major shipping routes.

One feature of the service that SingTel is particularly excited about is the system's ability to automatically switch between satellites as it moves between different regions.

Mr Bill Chang, SingTel's executive vice president for business, said: "In the past, VSAT deployments onboard vessels such

as container ships required time-consuming re-configurations of the satellite communications equipment when the vessels move from one ocean region to another."

"SingTel's global maritime VSAT service has advanced auto-beam switching capability which eliminates the need for manual intervention. This helps shipping owners save valuable time and resources."

The new service offers customers secure connectivity to offices on land over a private terrestrial network, and is fully integrated with SingTel's ConnectPlus Internet Protocol - Virtual Private Network (IP-VPN), which provides coverage in over 80 locations worldwide.

Mr Chang says that running a VPN allows customers the added advantage of keeping sensitive shipboard information and data applications such as e-mail safe, as they are delivered over a secure private network.

Eutelsat and SpeedCast launch new VSAT service

www.eutelsat.com

Eutelsat Communications and SpeedCast have announced that they are to jointly launch a new maritime broadband communications service for the commercial shipping sector.

The new service will offer Ku-band VSAT satellite capacity, mostly on Eutelsat and AsiaSat satellites, which the companies say will serve "key shipping routes." For a fixed flat fee per ship, irrespective of usage, the system will feature automatic switching from one satellite coverage beam to another, without manual intervention, using a one metre stabilised satellite antenna.

Eutelsat and SpeedCast, together with distribution partners, say they are principally targeting operators of merchant shipping and fishing fleets who wish to integrate enhanced on-board applications in order to optimise productivity and improve crew welfare, and that the service will enable secure offshore Virtual Private Networks to be established with land-based offices.

The Ku-band product will be provided via a Network Operations Centre operated by SpeedCast in Hong Kong connecting

with a network of teleports, including SpeedCast's Hong Kong teleport and the Turin teleport operated by Eutelsat's broadband affiliate, Skylogic.

SpeedCast CEO, Pierre-Jean Beylier said: "Eutelsat and SpeedCast's service combines internet access and VoIP for the crew, and secure VPN capabilities with guaranteed bandwidth for mission critical corporate applications. The ship really becomes a mobile office with an always-on broadband connection and unlimited usage for a monthly fixed fee, as we are used to onshore."

Arduino Patacchini, Eutelsat multimedia director added: "We are very excited to expand beyond our strong and well-established suite of D-STAR maritime services and regional footprint towards a worldwide coverage through this partnership with SpeedCast."

"This new offer enables us to respond to the maritime community and to crew who will be able to be connected to family and friends at any time. It also opens the door to new applications. Achieving these objectives with a small one metre antenna on a global basis marks a real step forward."



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Higher speed, lower cost - Iridium broadband

Iridium has released a new voice and data service that offers IP connectivity up to 128 kbps, and is currently in negotiations to build a new \$2.7 billion satellite constellation and undertake a 2009 IPO.
Digital Ship hears the story behind Iridium OpenPort

Satellite operator Iridium is breaking new ground with the release of its new higher-speed OpenPort maritime communications service, a voice and data offering that will allow users to enjoy connectivity rates up to 128 kbps anywhere in the world.

The new system marks a major leap forward in capability for users of the Iridium network, with bandwidth increasing more than tenfold over its previous products of up to 9.6 kbps, and the company is confident that its new offering will prove popular in the maritime market, said Iridium CEO Matt Desch.



"This will open up new markets in the maritime sector, with a 50 to 90 per cent cost reduction on installation"
 - Matt Desch, Iridium CEO

"This is probably the most significant thing we have done to our satellite constellation since it was launched 10 years ago, and represents a significant investment both in dollars and technology," he told us.

The technology that drives the new system has evolved from previous products in the Iridium portfolio since the company was re-launched in 2001, and features new capabilities that reflect the changes in IT and communications over that period.

"We started out as a satellite telephone service, and that business continues to grow very well," said Mr Desch.

"In 2002 we developed a product called the L-band transceiver, which essentially takes the phone but puts it in a box and uses it with other devices. If you look at something like crew calling, that is the product which is the core of it. It's still primarily voice and low-speed data."

"In 2005 we introduced a new device for short-burst data transmission, using a small modem about the size of a pack of cards. That's our fastest growing business overall, used for tracking and other machine-to-machine applications. We have over 35,000 in use today, that's

up over 200 per cent on the previous year."

"This year we're introducing a brand new product, which is our Iridium OpenPort system. It is an IP data and voice system for the maritime market at a revolutionary price point that will open up new markets in the maritime sector, with 50 to 90 per cent cost reduction on installation."

While the system has only been recently launched, and will not be fully commercially available until later in 2008, Iridium says that its consultations with customers have revealed strong demand, and expects that it may now go close to selling out of the terminals it had planned to produce this year.

"We have seen extraordinary demand for this," said Mr Desch. "We are still in the final testing phases before introduction in the summer, but had to talk about it now because there are so many people that want the product."

"We're not completely sold out this year, but I can tell you that over the next few months we're going to be ramping up to make as many as we can because we've seen the demand so high."

IP technology

The OpenPort service will feature IP connectivity services for data and three built-in voice lines, with voice and data both capable of being used simultaneously. Data services will be available in different bandwidth packages, up to a maximum of 128 kbps.

"It is truly IP, it's 'plug and play' for any IP application," Mr Desch explained.

"It has flexible bandwidth, if you want 28k, 54k, 128k, it's basically just a provi-

sioning change. It can be done online and the system can then start providing the bandwidth that you expect, there's no expensive upgrade from one to another with engineering to do."

"It offers up to 3 voice lines, which can be used interactively with the data. It also provides some new capabilities, like IP connectivity and the fact that you can do voice and data over the same unit simultaneously using the bandwidth very effectively. And it has global coverage on day one. We're not installing it region by region, it's everywhere."

Mr Desch notes that the company is keen to move slowly and seamlessly into this new market, upholding its existing products and services while supplementing them with these new capabilities, rather than aiming for a specific sea-change its approach.

"The core concept that we designed this around, where we have spent a significant amount of R&D over the last two years bringing this to reality, has been 'reliability,'" he told us.

"In the antenna, there are no moving parts, there's an array of antenna elements that are not moveable and are not going to require calibration or support or anything else."

The OpenPort terminal is available in a radome that measures 57cm in diameter and 23cm in height, weighing in at 1.35kg, making it an extremely lightweight contender when it comes to installation. Astonishingly, the terminal is approximately the same weight as the much-trumpeted Apple MacBook Air - the world's thinnest laptop computer.

"We designed it to be efficient and to be simple, 'plug and play' and easy to install

with Cat 5 cable," said Mr Desch. "It can be installed in hours, not days."

"It's a non-stabilised antenna, and is virtually maintenance-free. We believe it's going to be extremely reliable in operation and cost very little after it's installed too."

Cost

Low maintenance costs and low prices are a fundamental part of Iridium's marketing approach for this new system. While OpenPort won't compete with broadband systems like VSAT or Inmarsat's FleetBroadband on bandwidth speeds, Iridium feels that the low prices it can offer will be appealing to ship operators still not convinced that broadband is necessary for their business.

"There are a lot of vessels who maybe thought that they couldn't afford a data connectivity system that are going to find the price point for this to be something they will find extremely attractive," said Mr Desch.

"We think it will also be used in a lot of refurbishments and for upgrading. It'll be used for crew calling, it'll be used for ships' voice traffic, it'll be used for e-mail, and for all kinds of data transmission, for ships' business and for crew interaction."

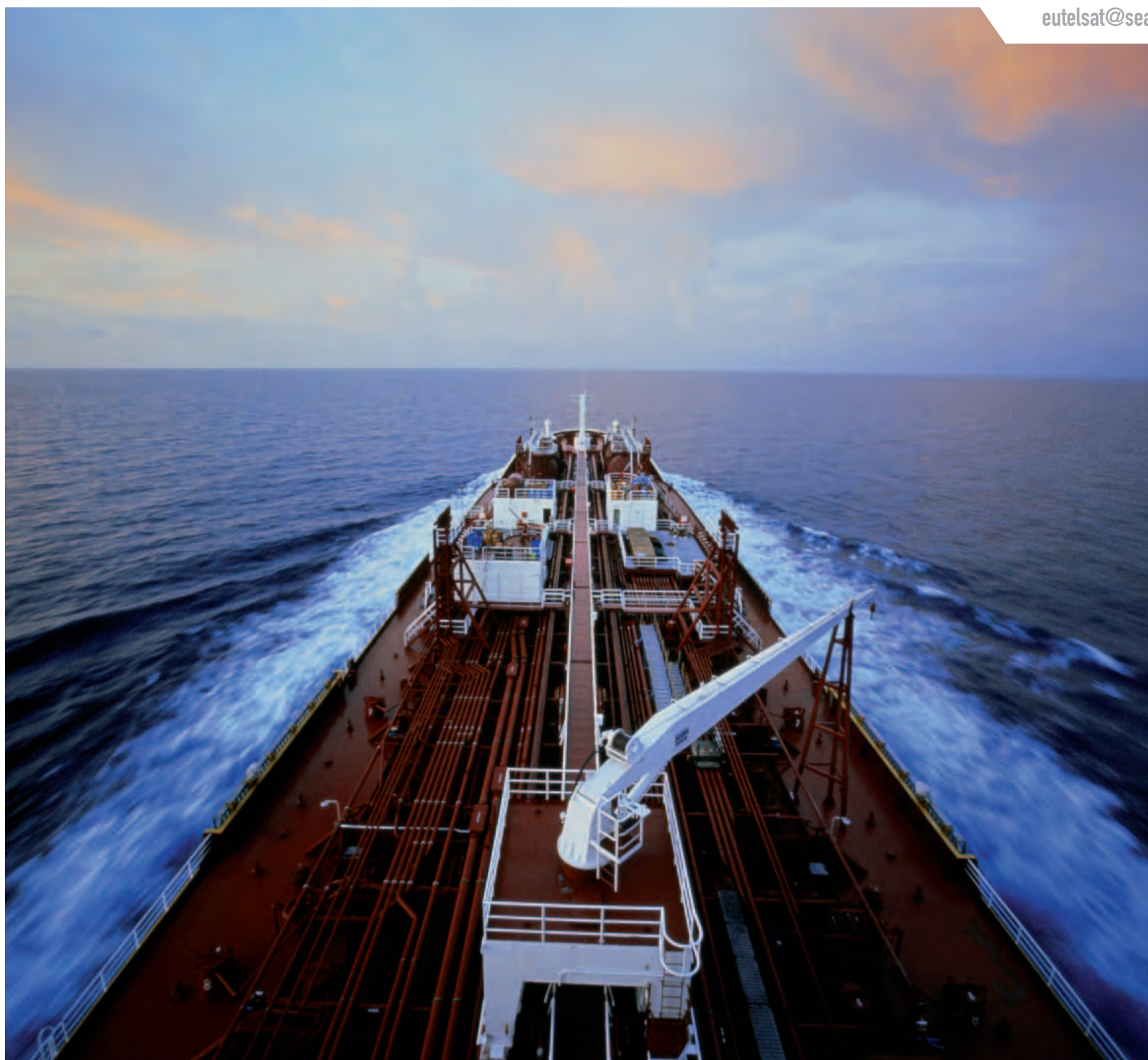
Mr Desch is confident that, when people look at the numbers, this offering will gain a strong position as a 'lesser speed but higher value' system.

"Satcoms in general is a significant cost factor in operating a ship, it's something you have to put on there and it has to work," he said. "It can't be a hassle and it has to perform cost effectively."

"We are offering the market an installed cost that is truly 50 to 90 per cent lower than the competition. With these devices



The Iridium OpenPort antenna is extremely light, weighing approximately the same as a MacBook Air laptop computer



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we're talking in terms of less than \$5,000 installed - there's nothing in the market place, even with new systems coming in, that are probably even under the \$10,000 range. It's a significant reduction."

"We're also introducing with this product 'per megabyte' pricing. Simple, not 'per-minute' or any other complicated or expensive way to use it, but truly a case of you

paying for what you use. We believe that those prices, and we are talking to our customers today about them, are at least thirty per cent lower than anything else you can get on the market in terms of usage."

The pricing is a little more complicated than you might expect from this explanation, however. The 'per-megabyte' pricing level differs depending on the bandwidth

speed contracted, and other costs are dependent on what the company calls a 'matrix', involving the speed, numbers of voice lines, and other agreed features.

"The trouble with talking about 128 kbps is that people immediately think 'I'll have 128k'," said Dan Mercer, Iridium vice president for Europe, Middle East, Africa and Russia.

"The way that we've structured it is that, for vessels for whom 32k or 64k is perfectly acceptable on an affordable piece of hardware, if you go down to the lower speeds it's incredibly good value."

"What we've done is try to keep it as simple as possible, but it's quite difficult to do that with a product like this where you have a number of parameters - the number of voice minutes you want to bundle up, the amount of megabytes you want to bundle up, and you've got the speed. You can provision any of these on the same device."

"It'll become clearer in the market where it is, but we use the broad language that it's '50 to 90 per cent cheaper' because pricing is confusing in the marketplace."

"If you take a top end VSAT terminal, \$100,000 worth of equipment, down to Fleet 77, unsubsidised, at \$25,000, if we have a recommended retail price for Iridium OpenPort we suspect it will be around \$5,000. In terms of airtime pricing we have pitched it specifically 20 to 30 per cent below other equivalent pricing."

Prices per megabyte will be higher on faster systems, while voice calls will be offered at rates similar to Iridium's current voice calling services.

"It's probably in the data where people will find the value in putting this onboard," said Mr Desch. "We're still competitive on voice, but it's really the data that's the revolutionary change here."

Trials

Trials of OpenPort have now been ongoing for a number of months, in various areas of the world, to confirm the viability of the service in different maritime conditions.

"We have a number of units out, some in US areas, some in European areas, some in Asian areas," said Mr Mercer. "Right now we're in the stage of automated over-the-air testing, across the full constellation with that particular software load. From there we step up the bandwidths, up to the full 128 kbps."

"We have six phased array antennas, with one on the top at a 20 degree angle. They each have a number of look angles which gives them a full view of the constellation. We've also got a vessel simulator, where we can simulate anything from a very large container vessel down to a fishing vessel. A lot of testing



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and simulation has gone in on land before we've even put it on the vessels."

These ongoing tests have allowed the company to get a feel for how its constellation and infrastructure would react to this new bandwidth capability.

"This is a substantial change to our satellite constellation and to our gateway infrastructure using VoIP, so we're making sure that this will be able to do what we say it's going to do," said Mr Desch.

"We have a number of customers who are waiting anxiously to get them on their vessels."

Among these customers is UK ship management company Zodiac Maritime Agencies, which has contracted with communications provider AND Group to install OpenPort on a fleet of 125 vessels. The first installations have already taken place, with the fleet to be fully fitted by the end of 2008.

"There were a number of reasons why Zodiac went for this," explained Ian Robinson, CEO of AND Group.

"The cost of the equipment is a big factor, and the simplicity of the equipment is a big factor. This is self-installing, the vessels will self-install the product."

"The airtime pricing is genuinely way below what else is on the market currently, looking at some of the competitors' prices right now. Zodiac is desperate to get the first one on board, and we hope that will be any day soon."

"Obviously with Zodiac investing in the whole fleet they'll get a discount. But I can tell you, even if they were working off the standard Iridium price list they'd still be better off today than they were. For Zodiac, they won't spend any more money than before, but what they will get is much more."

"At 128 kbps, to put that into context, of their 1,800 vessels we have under contract 800 of them are operating on 2.4 kbps right now. They're on Mini-M or standard Iridium, the connections they are used to are so slow that 32 kbps is a massive boost to them."

Technical support for this, and all other Iridium OpenPort contracts, are to be provided by US company Sperry Marine, which has agreed to act as a global support partner for the provision of the new system.

Sperry Marine will supervise, install and commission OpenPort terminals, provide onboard service and warran-

ty repairs, and develop training packages for technical staff. The company will also provide logistics, handling and distribution of equipment inventory.

Next

The introduction of this new service comes at a time when Iridium is also finalising plans to upgrade its constellation,

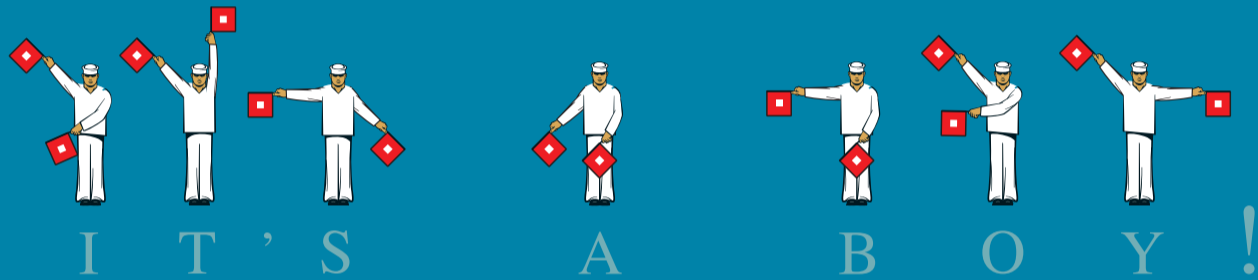
with \$2.7 billion expected to be invested in the construction and launch of 'Iridium Next', the company's second generation satellite network.

"The current network is quite healthy through until 2014, but we've been working now for over a year starting on the design of the next generation constellation, and want to get launching in 2013,"

explained Mr Desch.

"We think the satellites will be put in operation between 2013 and 2016, that's the current plan."

"This will be backward compatible, so all of the customers that install an OpenPort unit will find a seamless transition from one network to the other. But we do want to provide new capabilities, so



Isn't it time for SeaAccess?

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there'll be higher speed, 512 kbps to 1 Mbps should be possible with the new system, with more cost effective technology. We want to get the technology down to a chipset, so it can be put in more devices with even greater availability."

The company has so far reached agreement with three possible manufacturing partners to continue to the next stage of

the design process - Lockheed Martin, Loral, and Thales.

"All three of them are actively working designs with us right now," said Mr Desch. "It's a very competitive process and we need that, it's a very sophisticated system and we need it to be done at the lowest cost possible."

"We expect by the time we launch we're

going to be a lot larger than we are today, we're going to be twice our size by that time. 'Next' will cost about \$2.7 billion, of that we are going to generate close to \$2 billion, we believe, internally from operations and from secondary payloads. We'd still have about \$700 million that is unidentified, but we're in the market right now raising some equity."

As part of this drive for capital Iridium is currently preparing to undertake an IPO in the next 12 to 18 months, with Mr Desch noting that he is particularly pleased with the financial health of the company at present.

"This isn't the best time to be raising equity (with the turmoil in the credit markets), but because of the opportunity that we represent we've had a lot of interest," he said.

"We expect to raise that equity as we move towards an IPO next year. We don't really need the money right now, because we're not spending that much on (the new satellites yet), but in anticipation of needing it over the next two or three years we're raising that equity now."

"We're not like some other satellite companies, there's new ideas out there where people want to launch a new satellite and hope to get into business for mobile video or whatever. Those are brand new ideas with untested business plans and they need money just to even get into business. We're not in that situation at all, we're a cash flow generating business, rapidly growing."

The company has decided to cap the costs for the project around this \$2.7 billion figure, and will now be waiting to see which of the three manufacturing partners will come forward with the best proposition based on that figure.

"We kind of fixed the price that the business case is best at, and then went out to the manufacturing community and said 'is this reasonable?'" Mr Desch explained.

"We got back 'yes, this is reasonable to do', and now we're going to ask them to give us the maximum amount of capability we can get in for that price. We're not saying 'here's a list of what we want, the cheque book's open', it's the reverse. It's a fixed amount and everyone in a competitive environment will have the chance to put as much as they can into that \$2.7 billion."

Future plans

With the roll-out of OpenPort underway and the possibility of increasing the capabilities of its services with its next generation of satellites, Iridium is bullish about its chances of increasing its presence in the maritime market.

"We think the maritime market is roughly a \$400 million market, that's what we're addressing with

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Iridium's \$2.7 billion next generation constellation is planned for launch in 2013

(OpenPort)," said Mr Desch. "We see ourselves quickly grabbing at least 10 per cent market share of that over the next two to three years."

"We already have a substantial position in the maritime space but this puts us in a different category, and it's one in which there has not been much competition of any sort. The prices of technology demonstrate that."

"There are products obviously at higher

speeds, but this is really optimised for those people that see 64 kbps to 128 kbps as the right kind of data range. I think it's the largest part of the market."

"We're not competing against BGAN (FleetBroadband), we're not competing against stabilised VSAT, there are vessels that need that kind of capability and this is not for them. This is for a much larger market, that's really the industrial, working-class aspect of this industry, that's a

very important part of the space and one we're proud to be supporting."

Mr Desch also notes that the organisation is also in the enviable position of having inherited a huge amount of excess capacity from the first incarnation of the Iridium company, when Motorola spent an estimated \$6 billion on its constellation before going bankrupt.

Having been re-launched in 2001, Iridium is still not yet close to filling up this allocation, and as such is confident that customers will not have to make do with 'best effort' connectivity rates if OpenPort is a success and experiences high usage volumes.

"Any network has an ultimate capacity, but our current network was designed to operate with about 1 million subscribers," said Mr Desch. "We now have about 235,000 subscribers. So we have bundles of extra capacity."

"With better technology we'll also be able to use that more efficiently, so long term we're looking at maybe 4 or 5 million subscribers that our network will be able to support. We're at a fraction of the capacity of the network, we aren't really anywhere close to using up our bandwidth."

"Ok, you can't defy the laws of physics, and if there are a large number of OpenPort 128k systems all in the same beam then it's going to be 'best effort', but we believe it's really going to be able to do what it says. This isn't something that flexes up and down and spikes up to a certain

level, it does provide you 128 kbps."

How far the company will be able to extend its capacity, and the capabilities of the Iridium Next network, is something that it hopes to explore over the next few years. Current plans suggest that 1 Mbps may be a standard future offering, though the maximum limit will be determined by the satellite manufacturers and the IT on the ground.

"In the next fifteen months we're going to find out what we can get for (\$2.7 billion)," said Mr Desch.

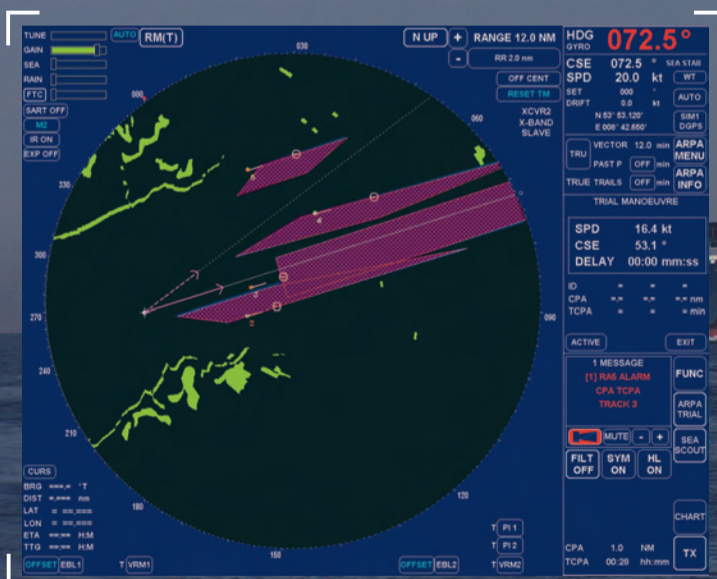
"The specifications give us up to 1Mbps per customer. We could go beyond that, but we really think that in the mobile satellite space, even going out into the future when we all have 5G telephones with holographic video, that is not what the global MSS market is about."

"We're not believers that this is ever a consumer kind of operation, we're about doing business services, having information flowing back and forth between machines and people. 512 kbps, 740 kbps, that's a lot of bandwidth for a lot of applications."

"VSAT makes a lot of sense for certain applications, if you can afford a \$100,000 system coming down, go for it if it's what you really need, but it's a way price point above us. We're not trying to compete with those guys, and I think it would be dangerous to take a network that's optimised for mobility and try and make it so it can provide that much bandwidth. We'd need a lot of spectrum that we don't want to be using for that purpose." DS

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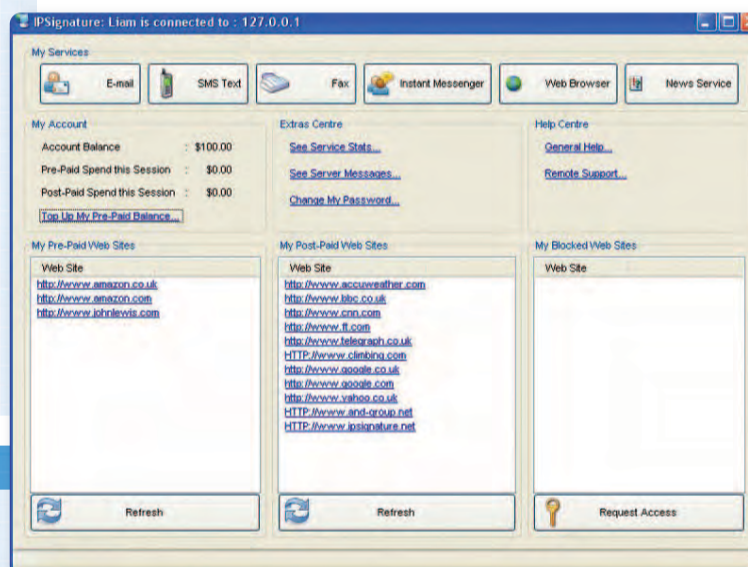
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Communications integration - bridging the gap

Rickmers Holding has recently started a project to completely overhaul its communications infrastructure, and is currently evaluating a new system that incorporates technologies like FleetBroadband, VSAT, 3GSM, and WiFi into one communications network. Lars Gerdes, CIO, Rickmers Holding, spoke to *Digital Ship* about the results so far

Many maritime IT managers must feel frustrated at times, doing their best to create efficient, sophisticated networks that can integrate shore-based organisations with their remote floating offices, despite often having to work in a connectivity environment left behind by terrestrial IT departments years ago.

Top management will insist on having the best IT network possible, but want to be convinced of its appropriateness and cost effectiveness before investing extra funds in providing the equipment necessary to reach these goals.

Lars Gerdes, CIO of German shipping company Rickmers Holding, has experienced these challenges of running shipping IT networks, and has recently embarked on a project to evaluate a new communications set-up that the company hopes will make integrating its land-based and ocean-going business units an easier task.

"When I started with Rickmers, I faced the fact that IT governance onboard vessels takes lots of effort, looking at the situation onboard," he told us.

"There's a real gap, and the question for me was whether there was a way to fill this gap - can we bring all of our vessels to a similar situation to our land based offices? What are the requirements to make this more than a dream?"

"This meant a renewal of the ship communications systems, this is the first step in this challenge. We need broadband communication for sure, and every vessel has to be reached by a global system. We have to achieve a situation where the vessel can be always on, but in a way that's global and robust."

Mr Gerdes identified a long list of particular issues that he believes makes running a vessel IT network more complicated than an onshore counterpart.

"We have continuously growing requirements onboard. More and more IT systems have to be brought in, there are more requirements we have to fulfil for documentation," he said.

"Ship to shore communication comes at a high cost, over narrow bandwidth, for an increasing number of vessels. We have limited monitoring capabilities, the ships are not always on, so everything is brought into a process at sea and then you aren't able to monitor like you can do onshore. Often you can only react when something will happen."

"We have software updates through the distribution of CDs, all over the world, to keep systems running. Local visits are necessary, which has high travel costs. If your



'There's a real gap between the ships and the shore, the question for me was whether there was a way to fill this gap'
- Lars Gerdes, Rickmers Holding

employees have to go round the world following the ships and solving their problems you'll have high costs and high demands on staff."

Beyond these specific issues with the onboard systems, the actual hardware itself must also be maintained - again a much bigger problem to deal with when the nearest technician is in a port, hundreds of miles away.

"There's high consumption of spare parts, the HDD (hard drive) of the computers will break down for sure, one day," said Mr Gerdes. "We have vessel and land based storage of spare parts, and also a small warehouse based in our headquarters just to make sure that every spare part is available, even for older PCs and equipment."

"Then there are logistical challenges in the case of distribution of spare parts and updates, you have to make sure, that the spare parts will arrive onboard the vessels on time. Normally you also have no real IT-experts onboard, extensive manuals have to be prepared and updated. You also have to give additional help."

Consequences

Mr Gerdes believes that dealing with these kinds of onboard problems can begin to deflect the attention of the IT department away from its main role in the company.

"From an IT department point of view, that means we cannot concentrate to work with our core competencies because we have to do a lot of things that have nothing to do with these core competencies," he said.

"It's often the principle of reaction instead of action. When something is broken on board you have to react and send spare parts or send someone to the vessel to do something."

Both the end users on the vessels and IT administrators on-shore can become dissatisfied with this situation, Mr Gerdes said.

"It's a long response time, from the point of view of an end user based on the vessel," he told us.

"We have a user help desk that sometimes works according to a 'black box principle' - if they have to check something on board they are not able to see the real situation. They can talk or exchange e-mails about difficulties, but it's not possible to see what's going on exactly with the systems on the vessels - this is what I mean by 'black box'."

On top of the difficulties in just keeping

the vessel network operating, Mr Gerdes also has to deal with finding ways of integrating those systems into the overall group infrastructure, with its high-speed network.

"Integration of ship-to-shore processes is restricted, this makes it very difficult and expensive to have a seamless ERP process between the vessel and the land based headquarters," he said.

"If I compare this with the situation on shore, we have world wide subsidiaries and nowadays it's no problem to manage all of these offices from our headquarters."

"On land we have a global active directory based corporate network, which means that all subsidiaries of the Rickmers Group are integrated into the directory and are managed on a central basis from the headquarters in Hamburg. Centralised software distribution means we can have

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any kind of software without sending anybody to one of the subsidiaries, we can do it remotely."

"We have automated systems for monitoring and alerting, each time when a server doesn't run well there's an alerting system to let us act in advance, we can see what's going on in the subsidiaries. They have standardised clients without administration authority, and a global user help desk with remote desktop functions. Data transfer is easy, ERP systems with integrated processes are run by all of the subsidiaries."

A culmination of all of these issues has led Mr Gerdes to re-evaluate the communications set-up at Rickmers, and try to find a new solution that would help to bridge the gap between the vessels and the office.

There were a number of different requirements that he felt needed to be incorporated into the communications infrastructure to achieve the results the company was looking for.

"It should be cost efficient and flexible, not depending on proprietary systems, something that gives you the security that you'll still be able to use this in five years time," Mr Gerdes said. "And it should be able to use VoIP, to avoid high telephone costs, we all know this."

"Another requirement should be the integration of vessels in our corporate network. I would like to have all of the users onboard also in my active directory, like I have with employees based in land offices around the world."

"I want to have remote access and remote desktop functions from headquarters. I want to be able to distribute software easily, I want to have persistent and robust ship to shore processes, not influenced by limited bandwidth."

"And it should be possible to split the network and have different networks for different requirements. As a mid-sized company we don't have a big IT department, so we have to have a one-stop solution, a reliable systems integrator."

Evaluation

With these requirements in mind, Mr Gerdes and his team began to inspect some of the different solutions available to them to carry out this sort of restructuring.

"We looked out for suitable partners that would be able to give us what we were asking for, and see what we need," he said.

"We wanted an end-to-end solution, so I could put my RJ-45 interface at the headquarters into a device, put it into another device on the vessel, and then I



Rickmers Jakarta went live with the new communications system at the end of January this year

have the connection."

"We got in touch with several suppliers and found, at this moment, that Becker Marine Systems was the best partner. It was a company that was able to offer us these kinds of services we needed."

Having agreed to pursue this partnership further to explore how this solution might benefit Rickmers in managing its IT network, the companies started the testing and evaluation of the technology to get a better idea of its potential.

"This was a partner project, we sat down and decided the things that we wanted to achieve, and what the budget would be," Mr Gerdes explained. "Then we started with an installation of the system on shore, for testing, to see if it is really suitable for what we want to have."

"The test installation included a communication server, which is the heart of the whole system, it's responsible for managing the connection between the different types of communications. It had a 'portnet', which sets up a LAN in the ports, and 3GSM. We have the different FleetBroadband antennas, and will test a Skylink VSAT antenna."

"We then selected two evaluation vessels, one of which travels worldwide, so it was a very good test for us to see if we have a really good connection in all areas.

Following the evaluations we finished the installation, and went live on the Rickmers Jakarta at the end of January this year, which provides core 3G, with UMTS, VLAN and GPRS, and a FleetBroadband 500 antenna."

If this installation continues to prove successful Rickmers intends to follow up with installation on a second ship, with a FleetBroadband 250 antenna as well as a VSAT, by the end of May.

In addition to the communications network, the company has also begun experimenting with a new network structure onboard the vessels, rebuilding the hardware using a 'thin client' approach.

The thin clients will feature workstations that incorporate a keyboard, mouse, screen and small box to connect to the server. These client stations can all be fully managed remotely, from the shore, through the system.

"Up to now we have integrated more than 25 of our running applications into this thin client system," Mr Gerdes told us. "We are still working on the integration of the rest of our applications."

"There are a number of benefits: security, as we have no danger that the 'fat clients' will break down, no HDD struggles; we have a lot of standardisation, we can take the desktop to other vessels, and

with integration of the active directory it makes it easier for our staff to change between vessels; also, having deployment, maintenance and service from one supplier makes it easier for us to use this kind of system."

Installation results

Mr Gerdes says that he has been pleased with the results of the installation on the Rickmers Jakarta to date, though he remains cautious about reading too much into the data from a project that is still relatively new.

"Due to the time that we have been running this, about 4 or 5 weeks, it's a little bit difficult to give very exact results at this point, but we have seen that we have a stable, robust operation of the system up to now," he said.

"We have had regular checks and our vessel has been always-on. It's been located in China mostly these days, and so far we have almost always had a stable connection. The vessel has always been reachable, mostly via the Thrane & Thrane FleetBroadband."

"We have had fast remote operation capabilities via WiFi with the portnet, and it's almost the same situation that you have in an office, it's a very wide bandwidth. We have sufficient speed with the UMTS and the GPRS, not the same speed we have with the WiFi but very suitable, I think."

Mr Gerdes had noted some difficulties running particular remote session applications over FleetBroadband, due to the latency involved with sending the signals to the satellite and back to Earth again. As he noted, the speed of light is not likely to change anytime soon, so changes to these applications may need to be adapted.

He also hoped that it might be possible to reduce telephone bills through the use of VoIP services, though the com-

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pany hasn't achieved this yet.

"With VoIP it should be possible to have all of the vessels essentially sitting in the local Hamburg telephone area code, so that should make it cheaper to have telephone calls," said Mr Gerdes.

"These are only our first findings, so we will have to check this further over the following months of testing."

There are a number of further issues that Mr Gerdes says he hopes to explore over the coming months of further testing and analysis, to examine exactly what extra capabilities the company might be able to squeeze from its network.

"Is it really possible and practical to have FleetBroadband and VSAT simultaneously?" he asked. "This is something we want to practise on our test ships."

"Global coverage of FleetBroadband and (Ku-band) VSAT, from what I can see so far, only exists in expectations - we have commitments, but we don't have it as reality at this moment. There is no (Ku-band) VSAT worldwide availability, and FleetBroadband has one satellite missing. Maybe we'll have coverage from August or September or something, but we don't have this coverage yet."

He continued: "Is a significant increase in WiFi and 3GSM possible? From what we have seen so far is that, in some ports, there are VLAN spots, but not many ports. Will we have, in several years, almost all ports integrated with VLAN spots?"

"How has the communications cost developed with the mix of FleetBroadband, VSAT, 3GSM and WiFi, and is it really reasonable to pay these costs? I can't give an answer so far."

The area of communications costs is one that is certainly under constant scrutiny, for Rickmers and for most other ship operators.

"The investment per vessel, if we look at this set-up, with the VSAT, FleetBroadband and the rest, to do this you would have to spend EUR 50,000, or even more, per vessel - is this realistic, or will they come down and make it more realistic?" Mr Gerdes said. "This is an essential question now."

"What I would prefer, from an IT point of view, is a system where my independence is high, because I don't want to trust just one communications system. I would like to have a situation where I can choose from time to time between

different communications."

"This is really achievable, but I don't know if this is really realistic at this time. I know that FleetBroadband prices are still very high, so we'll have to see what's going on in the future."

"We have communications costs, and I can see that they have been rising over the years. I have to find a solution that makes

it possible to have lower communications costs. That should be less cost than we have nowadays."

With this in mind, in the future Mr Gerdes feels that it will be necessary for every company to have to move towards fixed fee contracts.

"If we want to have the real benefits of strong bandwidth to the ship, that means

that the data flow between the vessel and the office will increase a lot, because then you have running ERP systems which are also running onboard the vessels," he said.

"That means the data volume you carry will go up, and if I have to pay almost EUR 10 for every Megabyte, then we can imagine what that would mean. We need to have a flat rate."

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Building communications around the crew

Rederi AB TransAtlantic of Sweden has decided that, to become more competitive in the market for qualified seafarers, it will have to improve its communications set-up - and is now looking to install broadband systems that will allow the company to offer free internet to its crews. TransAtlantic's Staffan Strive and Peter Kindbom told us about the company's IT ambitions

The issue of crew shortages is right at the forefront of many discussions about the future of the maritime industry, as a large number of companies begin to feel the full force of changes in supply and demand in the labour market, and others fret about the possible consequences in the coming years.

Swedish shipping company Rederi AB TransAtlantic is among these concerned companies, and has decided to do something about it. The company is now in the process of upgrading its entire communications set-up with one specific aim in mind - to provide communications services to crews that will make it a more attractive prospect to potential employees.

"When we say today that we are trying to get new young crew for our ships, they are asking for two things - of course, the salary, but the second one is that they are saying 'will we have internet access onboard?'" explained Staffan Strive, vice president, shipmanagement, Rederi AB TransAtlantic.

"The only thing that people are talking about today is asking if they'll have internet, they're not talking about phone connections or phone costs, they know that at Transatlantic they can call for free. So that is the only thing that we are focusing on today."

"We have said in TransAtlantic that during 2008, from the crewing side, we demand to have internet access on all of the vessels we are managing, because otherwise we can't give our customers a supply of good, skilled and motivated crew."

This issue has come to a head for TransAtlantic at a time when it is looking to expand its operations. The company has, until now, mostly been operating in the Atlantic, Baltic and Mediterranean regions, but has begun to look at new possibilities that will necessitate a new approach to its onboard technology.

"We started in the Baltic back in 1972, and nowadays we travel in the Atlantic basin and down to the Mediterranean," said Mr Strive. "But we have some projects going on which bring us to the areas of Greenland, Alaska, and even up to the North Pole. Those traffic areas give us special problems and demands for the communications."

"We in TransAtlantic are focusing nowadays on the supply ship market, with ice-going anchor handlers, we have four in service today and four more on order. The Arctic Circle is one of the main areas of trade we will be focussing on in the future."

"We spend a lot of time in the North Sea, and sometimes the weather is good and allows you to do work easily, but sometimes the weather can be rough, and the crew still has to work with the communications, talk to the office, to the purchasing department, arrange relieving plans. These things have to be done despite the weather conditions. They have

to be able to work with the computers and the communications, that has to be working all the time, it has to be standardised, and it has to be reliable for the crew."

This move into new trading areas will necessitate an upgrade to the communications systems on the vessels, so TransAtlantic has decided to use this opportunity to extend the capabilities on all of its vessels as it searches for a new satcom solution.

"We want to have a computer with internet access on the bridge where you can work, do internet browsing, and be an officer in charge of the vessel traffic," said Mr Strive.

"This is a little bit tricky because it brings up the question of safety, but we see that the crew is demanding this, the crew is working on the issues about this, and this is the only important thing for us today."

Crew requirements

One of the factors that TransAtlantic has seen influencing this request for internet access has been a desire from potential seafarers to have access to online learning resources while serving at sea.

"We are involved in a project in Sweden where we have an Atlantic going vessel, one year old now, which was launched as a school ship," Mr Strive told us.

"We have twelve students on board and one teacher taking care of them. Even they are asking if we have internet access. When we say 'no, not yet, we are working on it', they say 'oh, that's no good, what kind of company is this'. We tell them that, as a student, they need to come out and see what shipping is really like."

"We have to do something like this to be able to attract youngsters for tomorrow, otherwise we are lost, and we can't find well educated and highly motivated crews for the future. That is what we are aiming for, and want to give to our customers."

Mr Strive is also keen for online systems to be available that will reduce the need for further training in applications that are only designed for a particular environment, and with which the new generation of seafarers may take time to become familiar.

"The system that is supplied has to be safe, it has to be easy to work with and has to be the same as what the seafarer is using when on vacation," he told us.

"He shouldn't have to learn a new system when he's onboard, he can learn it at home, it should be the same system. That is the demand on our computer department, to find something like that to give the crew so they can work properly onboard and reduce the education costs internally within the company."

Mr Strive also sees future potential for the company to use internet access points as a gateway through which TransAtlantic

can connect with its seafarers, keeping them up to date with company information and making them feel like part of the team.

"In the future the seafarer, when he comes to his cabin, will have to have the internet there, and I think it should be on the TV monitor," he explained.

"This gives the seafarer options, he can look at the TV over the internet too. But first he would have to access it through the company's intranet, which has information from the company, questions or proposals from the company, whatever information you like."

"They can't access information in the internet until they have gone through the company's information. Then they can surf where they want, contact their families, from the cabin. That gives the ship a whole new dimension in the future. Then it will also give us the possibility to have good education onboard, we can use the TV set in the cabin as an education platform."

IT responsibilities

Peter Kindbom, ICT operations manager with TransAtlantic, is the man charged with making Mr Strive's internet vision a reality - maybe not the easiest of tasks!

"Steffan is my customer, I try to give him what he wants," said Mr Kindbom. "It's a tough job."

"There are a lot of clients out on the ships too, and they all have to be able to work, all of the time."

At the moment, Mr Kindbom is operating always-on VSAT systems on a number of the company's vessels.

"We have about 27 ships, 10 of which we have equipped with VSAT equipment," he told us.

"There are three different solutions right now. The Tor Viking has a big C-band antenna, with worldwide coverage as it goes on lots of different missions."

"We have a number of vessels with what we call the 'Transpaper' Ku-band solution that operate in the North Sea region, and some with the 'Obbola' Ku-band solution."

The 'Transpaper' series of vessels carry Sealink VSAT systems, with a 64 kbps up and 1024 kbps down connection. The 'Obbola' series uses Telemar Seacall Ku-band, with 512 kbps up and 2048 kbps down. With these systems already installed, Mr Kindbom is also keen to explore other possible communications options.

"We hope to equip all of our ships with VSAT equipment, so we're looking for a new solution," he told us.

"We have the problem with the huge C-band antenna, it's huge and expensive, so we're looking at smaller Ku-band solutions. The ships we have to equip now are operating in Europe, so we can use the Ku-band. The C-band is needed on the Tor

Viking because of where it goes, but we don't want to put the huge antenna on all our ships."

"With the Telemar Ku-band we also get TV over the same antenna, so it's very popular with the crew."

Mr Kindbom is currently looking at a number of 'multi-regional' Ku-band systems, that can cover the trading areas that most of the TransAtlantic vessels work in on a continuous basis.

"We've searched the market for solutions and come up with a Ku-band antenna with 3 spot satellites covering the Atlantic route, which we can switch between," he said.

"The downside with this is that the crew have to manually shift from one spot to the other, but that's the best we could find. In other parts of the world, there is no global Ku-band coverage, though it is getting close."

"We have 10 ships, and we're going to test one Ku-band over the Atlantic to see if it's working and if the crew is able to do the shifts, that we can get secure VPN traffic to the office, and that we can get sufficient bandwidth, and so on."

The results of these tests will determine whether or not the systems will be rolled out on other vessels.

"If we are happy with that and think it's worth the money we will put the same solution on a lot of our other ships, including some with Africa traffic, though we would have to go with C-band for some ships that are going all over the planet," said Mr Kindbom.

"We're doing that this year, and expect to be finished sometime in late 2008, or in the Spring of 2009, with the whole fleet."

Reducing downtime

TransAtlantic has also recently completed installation of the KeepUp@Sea system by Norwegian software company Palantir across its fleet. KeepUp@Sea allows vessels to restore and repair onboard computers when they become corrupted or infected, simply by rebooting and pressing a few buttons on the keyboard.

"To have a stable environment the computers have to be working all the time, and have to be updated with the latest software and everything," said Mr Kindbom.

"It's a tough environment to support things, if it fails you have to go to the ship and reinstall something else. We chose the KeepUp@Sea product to help us to keep the standard equipment on the ships up and running, and do easy updates. We have finished that now, having installed all the ships, and we now have this standard set-up. We installed it in 6 or 7 months, and we upgraded all the hardware."

"The principle is that you take the standard installation and put it on a server, and then when you have a crash on a PC

you can reinstall it easily. Though you do still have a PC that you can do local installations on, you still have the freedom of a standalone PC."

As well as helping to maintain onboard systems, the company has also found it useful in reducing the amount of time needed for new vessel IT infrastructure installations.

"We have prepared the standard set-up for a Transatlantic ship, so when we manage a new ship it is quite easy to install it," said Mr Kindbom.

"We can prepare the ship server at the office, prepare the clients, and then ship it down with one technician, who can be finished very fast."

"It also allows us to keep all of the ships updated with the same patches and updates. You can either send a CD out and upgrade the servers and the PCs, or if it's smaller you can mail it out to a certain e-mail address and the system takes care of the patching. Then you get a receipt back that 'this ship is done'. Then you can see when all of the ships are at the same level."

If an onboard computer fails anytime after the installation, due to a crash or virus or whatever else, the reinstallation procedure merely involves the crew following a simple set of key pressing instructions.

"You start the computer on the network and then press F12 to tell the computer to look for the network server," Mr Kindbom explained.

"Then you wait until you get the next screen, and on the next screen after that press Enter. Then press Enter again. And then the installation from the server will begin, with all of the applications, Windows XP, Office, your Mail program, and so on."

Following these instructions, with three keystrokes and a short wait for reloading, the computer will be up and running again, with all applications installed and even saved files rescued.

"You get the documents you had on the computer back, if you had it on the desktop or in My Documents," said Mr Kindbom.

"Last week I talked to a crew member who told me it was fantastic; they had a total crash, and when he reinstalled it he got all of his documents back on the desktop."

Vice president of ship-management Mr Strive has also been impressed with the added stability in the infra-

structure offered by this new solution.

"This brings the whole computerised system onboard to a whole new dimension, where it's going to be easy for a crew to just press a few buttons and have the computer working," he said.

"The computer is only a tool to help us bring the cargo, it's not shipping, and the cargo is what pays our salaries. The tool

has to be easy for the sailors to use, because they are not computer-skilled persons."

"They have to rely on the tools to work with, and, at least in our fleet, there is no vessel that can do much work without computers. Sure, the engineers can get the engine started, but to get access to the US today, for example, you have to send an e-mail, and to enter Northern Europe and

Sweden you have to have access to the internet, to announce you are coming, what type of cargo you have, and your crew list."

"You have to have internet onboard today, and it has to be easy to work with. A very good IT system onboard is essential for us to have good shipping in the future."

DS

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Wallem team receives IT award

The IT team at Wallem Shipmanagement has been awarded a place in the top five of CIO Asia magazine's CIO 100 Index for 2008, for its performance in what CIO Asia called 'one of the biggest enterprise resource planning (ERP) implementations' on the continent.

Patrick Slesinger, director and chief information officer, Wallem Innovative Solutions, was presented with the award for his team's project, which used Microsoft Dynamics AX to improve the efficiency of Wallem's financial reporting services, for both Wallem and its clients.

"The success of the project was due to a true partnership with our selected vendors, and the dedication and talent of Wallem staff," said Mr Slesinger.

"We look forward to leveraging the

investment made in these products to derive even greater value in the coming years. We are confident this platform will provide the flexibility and scalability required to support both our own and our clients' goals in the coming years."

The Microsoft Dynamics AX system, integrated with Wallem's Total Procurement Solution and the Microsoft BizTalk Server platform, allows Wallem to seamlessly connect with vessels, creating more efficient procurement and reporting services.

The new platform allows scope for greater analysis and reporting flexibility, and features an open-ended architecture which also provides Wallem with the potential to integrate a wide range of internal and external applications.



Patrick Slesinger, CIO of Wallem (centre), accepts the award from Anton Wiesmann (right) and Ross O'Stoery (left) of CIO Asia

AKRON (China) Group has chosen to use **FORAN** as its main ship design system, making AKRON the first commercial FORAN user in the country. The system has been installed in the AKRON design department in Shanghai, and full training has been completed. The companies are also in discussions about the possibility of introducing a FORAN-based Digital Shipbuilding system at AKRON.

SpecTec has agreed a fifteen year

contract with **Serco**, a partner of the UK Ministry of Defence in the provision of marine services, to supply AMOS Maintenance software, databases and associated consultancy services. AMOS will be used to maintain a fleet of around 110 Naval Support Vessels, including more than 30 new vessels.

Teomaki AS has won a contract to supply its Ship Management System software package to **Chemikalien**

Seetransport GmbH (CST). The contract includes installation of the Teomaki SM application, containing fleet management, technical and quality administration, on board 6 newbuildings, together with the conversion of existing systems. The project will also involve the provision of training and general consultancy to CST.

Tideworks Technology has opened a regional representative office in Singapore, with Thiagu Goundan acting

as regional director, Asia Pacific. Prior to this role, Mr Goundan spent eight years with the company as the development manager for one of Tideworks' principal product lines, Mainsail Terminal Management System.

www.foran.es
www.spectec.net
www.teomaki.com
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Panama Registry inaugurates 24/7 service

www.segumar.com

The Panama Maritime Authority is now offering access to the Bureau of Maritime Security (SEGUMAR) on a continuous basis, 24 hours a day, seven days a week, for users of the Panama Registry with technical enquiries.

Previously based in New York, SEGUMAR services and offices have been relocated to Panama, to the new headquarters of the Panama Maritime Authority. The chief of the SEGUMAR Panama Office can now be reached at any time, at: jortega@segumar.com.

SEGUMAR-New York will retain duties in the printing and delivery of Technical

Certificates issued and approved by the SEGUMAR-Panama Office, receiving payments by Recognised Organisations (ROs) related to the issuance of statutory certificates, and acting as liaison between the General Directorate of Merchant Marine and locally based customers.

The SEGUMAR Panama Office comprises of 25 technicians, fully bilingual (in English and Spanish) and available round the clock to deal with consultations about authorisations, issuances of certificates and other queries.

SEGUMAR-Panama office says that all requests will be processed immediately. The Duty Technical Supervisor can be reached at: + 507-501 53 50.

Northern Maritime installs supply chain system

www.avanquest-solutions.co.uk

Avanquest Solutions has delivered a supply chain management and Accounts Payable solution to Northern Marine Management Limited (NMM), a wholly owned subsidiary of Stena AB Gothenburg providing global ship management services.

The system is intended to speed up procurement and payment business processes and cut costs "by reducing the volume of paper we send around the world" said Dominic Fernandez, senior finance manager at NMM.

A browser based system has been

installed in the NMM Glasgow office, to help deal with the 40,000 to 50,000 invoices the company receives from suppliers each year.

Data can be accessed via a Citrix application in 'real time', allowing users instant access for look-up from anywhere in the world. Documents are held in RTF (Rich Text Format) so amendments and notes are easily added.

Future plans include the integration of the Avanquest solution with a new finance package later in 2008, as well as an integration with Microsoft Infopath to allow purchase requisitions to be made from vessels at sea.

The cost of the wrong software version

www.itic-insure.com

The International Transport Intermediaries Club's Claims Review has highlighted some of the problems that can occur when companies begin sharing data that appears in different software systems - and the possibly costly consequences.

The Claims Review reports how one of its naval architect members designed two vessels to be built to US Coastguard rules for work in the Gulf of Mexico. Shortly before completion of the first vessel, the naval architect advised the International Transport Intermediaries Club (ITIC) that it had made an error, as a result of which the vessel would not meet the strict stability criteria.

As the delivery date was fast approaching, a solution to the problem was agreed

between the naval architect and the ship-builder. This involved the fitting of two new bulkheads.

However, shortly after the rectification work started, it transpired that there was nothing wrong with the original design.

The cause of the apparent failure to meet the stability criteria was the use of different versions of software. The hull model was generated on a new version of the software, while the analysis was generated on an older edition.

Rectification work ceased immediately and the vessel was restored with some minor modifications to the original design. The shipyard made a claim of \$95,000 for the unnecessary work carried out, and was subsequently indemnified in that sum by ITIC.

Equasis expands maritime database

www.equasis.org

Equasis, the web-based maritime database, has recently been updated to include a number of new features and functions to further assist users.

The updated version includes publication of new information and aims to provide greater user accessibility.

New features include publication of inspection report data from the Indian Ocean Memorandum of Understanding on Port State Control (IOMoU); inclusion of flag state comments on detentions, provided by IMO; an FAQ page; an improved ship search function; and Condition Assessment Scheme (CAS) information from IMO.

The site also has updated hyperlinks to external data providers such as Q88, CDI and the Green Award together with

a new hyperlink to the USCG's QualShip 21 programme

Speaking about the new release, Jacques Benard, Director of Equasis said: "The latest version of Equasis marks another step forward for the database. The publication of flag state comments in addition to further high-quality inspection information from the IOMoU and IMO, will be of great benefit to key industry decision makers in the fight against sub-standard shipping."

"By listening to feedback from our users, we've been able to incorporate some of their ideas and suggestions into the program to help improve user accessibility and functionality too."

Equasis, a non-profit organisation, currently attracts more than 25,000 individual users per month. Registration is free, and completed in a simple, one-off procedure.

SIS in Norsul deal

www.sismarine.com

Software provider Star Information Systems (SIS) has announced a deal with Companhia de Navegação Norsul (NORSUL) to equip its fleet of bulk carriers and pusher tugs with SIS software.

"We have chosen SIS's fleet management solutions in an effort to improve our operations through better information management. We will be installing SIS's solutions on a pilot vessel, and then continue on a ship-by-ship basis," said NORSUL's Carlos Carloni.

"We are proud to gain NORSUL as a client. This demonstrates SIS's ability to provide both products, services and support through our network of global agents. In this case, we will work closely with our agent in Brazil, Renato Freire, to ensure successful implementation and operation," said SIS Marketing Manager Jan Helge Qvale.

Founded in 1963, NORSUL specialises in dry-bulk and neo-bulk cargoes. It owns 23 vessels, of which seven are bulk carriers sailing under the Brazilian flag, 11 are barges and five are pushers.



NORSUL's Carlos Carloni (left) and SIS' Jan Helge Qvale celebrate the signing of the deal at Digital Ship Scandinavia

NORSUL is the first private Brazilian shipping company to operate in the pusher/sea-barge system, with no restrictions for ocean-going trades.

Veson unveils Cargo Matching module

www.veson.com

Veson Nautical has unveiled its newest software solution, the Integrated Maritime Operations System (IMOS) Cargo Matching Module, designed to enable charterers to more easily manage their information and select optimal vessel and cargo transport options.

A unified graphical and grid interface enables the charterer to simultaneously see an overview of operational information and a wide array of vessel and cargo details.

Alternative scenarios can be rapidly identified, tested and tweaked, and, once the best decision-set across a population of cargoes and vessels is found, one click of a mouse will begin creating, modifying and scheduling voyages in the IMOS Operations Module.

Using the system, a charterer can also request a specific analysis, such as locating the best vessels for a cargo. The analysis is presented in a separate view so that the

user can review the data, and select a cargo/vessel match that best meets the relevant selection criteria.

Veson says that the IMOS Cargo Matching Module will be available this spring.

In other news, Veson has also recently implemented its IMOS and IMOS OnBoard systems for Thoresen Thai Agencies Public Company Limited (TTA), owner and operator of 43 general cargo vessels and bulk carriers.

To date, Thoresen has completely revamped its IT infrastructure and network, installing new hardware and software applications for the commercial, technical, and finance/accounting departments.

All the IMOS modules have been installed for the shore-based offices, including Thoresen's branch office in Singapore. The company is currently completing the process of implementing IMOS OnBoard, as well as integrating IMOS into its new SAP financials package.

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Managing IT infrastructure

How a company approaches the organisation of its company IT infrastructure will depend on a number of factors - company size, the number of different divisions, vessel trading areas, and many others. *Digital Ship* heard from Grieg Shipping Group and Neste Shipping, about the companies' different approaches to IT networks

Neste Shipping is the vessel operating arm of the Neste Oil group, carrying some 38.7 million tonnes of crude oil, petroleum products and chemicals aboard more than 30 double-hulled tankers in 2007.

With a mixture of owned and operated vessels operating in the Baltic Sea, North Sea and on intercontinental routes, the company has worked on introducing an IT infrastructure that would support the needs of both types of ships, while also fitting in with the non-shipping network in place in the rest of the Neste Group.

These varying demands have led to the installation of a range of different software, communications and support systems, says Kristiina Kannus, IT manager with Neste Shipping.

"The Neste Shipping fleet is always changing," she told us. "Internally we think about two kinds of ships."

"First are the ones we own and the ones we take care of. On these ships we have all

of the IT carried by ourselves, as well as the personnel."

"Then we also have the Time Charter vessels. On these ships we only provide one PC, mainly to take care of performance calculations and things like that."

The company also uses varying satellite communications systems to connect the vessels to the shore-based offices, dependent on the routes that they follow and their information needs.

"For connectivity, first we have Inmarsat, nowadays that is on all of our vessels," Ms Kannus explained. "We have two vessels with Inmarsat-Bs, and the other ones have Fleet 77."

"Our first e-mails were sent in 1997, through Inmarsat-A, then we changed in the year 2000 to allow people to send free e-mails by Inmarsat-B."

"We installed VSAT on all of our ships in 2005, and so allowed free internet and crew calling on all of our vessels. We have two C-band VSAT vessels, which are



'My dream is that someday soon we will have vessel databases and warehouses on every ship' - Kristiina Kannus, Neste Shipping

mainly travelling to North America, otherwise we have Ku-band systems."

Support

The shipping department in the Neste Group had to begin to change its IT approach when the overall group IT hardware and software strategy was changed. Ms Kannus has seen this new set-up creating more work for her shipping-specific IT team over time.

"Neste Shipping is a division of Neste Oil, and Neste Oil has outsourced all of the office hardware, and most of the maintenance of the software as well," she said. "The ships are the only places where we take care of the hardware."

"During the years I have been part of this process I have seen that about every year or every other year there is one more workstation sent to the vessels. Also this year we have added one server there, and the amount of software is increasing all the time. Maybe not huge systems of software, but smaller applications."

While the amount of software and number of applications has been increasing, the IT support team at Neste Shipping has remained as a group of 5 support staff, to care for all of the technology issues that arise with any of equipment.

However, improved high-speed communications over the VSAT systems has meant that the same team can have better remote access to the systems on the ships, by offering online support from the shore office.

"Their workload is to look after 140 PCs, more than 30 servers, 320 e-mail clients, the network and routers, and all of the communications over VSAT, Inmarsat,

the radio equipment, and the phones," Ms Kannus explained.

"All of the time there are more and more PCs coming onboard, and the software and programs that go with them. We have to provide full life cycle service - the purchase, licensing, updates, and corrections, as well as later hardware repair, renewing, disposal, and recycling. We have 24/7 support with this team."

"It means that there is plenty of work, but the employee count hasn't changed. The only reason it doesn't change is that the online system has allowed us to reduce the visits to the ships, which has given us more time to take care of all the vessels."

"It also helps that, with the online system, we find a lot of PEBCAK problems - where the Problem Exists Between Chair And Keyboard!"

Neste also mixes its maritime specific software with the outsourced connectivity set-up integrated throughout the group to deal with e-mail management.

"From the beginning we have had AMOS Mail, where we have an Outlook client," said Ms Kannus.

"We have a client for Payroll, where they input their basic information, then we have the AMOS business suite onboard, which was AMOS Maintenance before we upgraded a few years ago."

"The AMOS system connects our office software with our ship software, only the maintenance files are transferred with FTP, because there may be some quite big ones."

"What we have centralised in the office is virus protection and proxies to the internet, though our spam control is totally outsourced, outsourced with the whole of Neste Oil, so all our mails are checked

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before they arrive in Neste. It is very efficient and has been successful."

Future plans

Ms Kannus has ambitious plans to improve the company's IT set-up the future, hoping to build on the existing infrastructure and make the whole IT network more efficient.

"We are moving towards having an intranet on the vessels in the next year," she told us.

"A larger intranet in Neste Oil is under construction, and should be launched before the summer. After that we can move on our own. We are forecasting that every seaman is going to have their own PC or laptop very soon."

"We also believe that all of our construction drawings will be in digital form very soon. Then those files will be able to be easily transferred between the vessels and the office."

Beyond that, Ms Kannus is hoping that greater availability of communications and better connectivity will one day truly make the ship a floating office.

"My dream is that someday soon we will have vessel databases and warehouses on every ship," she said.

"This is something that has not changed in 20 years, that all of the information should be typed only once. A vessel data warehouse would give the possibility to make that reality."

"It can be the place where we automatically collect that type of information, recorded on sensors and monitored. With a data warehouse it is quite easy to do new kinds of reports and printouts, which would be easily modified to produce the reports you need for harbours and for different officials. That is my dream."

While massive data warehouses might increase the amount of work a shipping IT department would have to handle, Ms Kannus expects that it would completely change the set-up of the whole organisation, blurring the line between where the vessel's work stops and the office's begins.

"The ultimate question with all of these things is how we are going to divide the work between the ships and the office," she said.

"When all of these connections, all of this information flow, all of this clever and clever technology, we'll have to really think about it. I think that will be the question

we'll have to think about in the future."

"The right answer for that might be the next success story."

Oystein Sivertsen, Grieg Shipping Group

Norway's Grieg Shipping Group has also had to find a balance between the outsourcing requirements of its parent Grieg Group corporate organisation and the technology needs of its vessels.

Oystein Sivertsen, ICT manager for the Grieg Shipping Group, explained that the solution he decided on has been to try and standardise the vessels' IT infrastructure as far as possible, through the introduction of the VerIT4Net platform by Det Norske Veritas (DNV).

The VerIT4Net standard is used to install, configure, operate and support vessels' IT infrastructure environment, in a uniform way. Installation is automated to a large extent, to allow the IT department to do the same installation across a whole fleet quickly, and with very little interaction with the person performing the installation.

The company moved towards this solution following an extensive IT refurbishment a few years ago, as Mr Sivertsen and his department looked for a way to reduce the complexity of installing new systems across the fleet.

"The Grieg Group outsourced all of its IT systems in the office to EDB in 2003," he told us. "They are responsible for all of the IT systems in the office, as part of an all-inclusive agreement. The Grieg Shipping Group ICT department is responsible for the IT systems onboard, and the development of systems to support the business processes in the office."

"We have 23 vessels and four on order, with 6 computers in the network for the officers onboard. We have one crew mail computer and one CBT computer, and, of course, the vessel server. The system we use is mainly Lotus Notes and AMOS."

"In 2005 large parts of the equipment onboard needed to be renewed. They had been bought in 1999 due to the Y2K issue. Our computer installations were done by using standardised images, but the problem was to carry out the upgrades from there."

Mr Sivertsen found that problems were arising in the installations, as onboard personnel had their own interpretation of the



'It was difficult to roll out solutions in the whole fleet at the same time, and when we tried we often had to rely on the vessel master' - Oystein Sivertsen, Grieg Shipping Group

best method for performing the installation.

"It was difficult to roll out solutions in the whole fleet at the same time, and when we tried we often had to rely on the vessel master," he told us. "Thus the upgrades were done differently on each vessel."

"The servers were normally installed in the office by the ICT department. We tried to standardise this, but there were still variations due to human variations."

"The focus during ICT visits onboard was on software and hardware. The focus in the office was on software installations onboard, preparing instructions, and phone support for the master carrying out the instructions. Hardware was normally prepared in the office and shipped onboard for installation."

Automation

Mr Sivertsen became frustrated with the problems the Group had encountered during these installations, and in 2005 began to look for a system that might eliminate some of these issues, as far as possible, by automating the installation of servers and computers.

"We wanted to remove the possibility of human aberrations," said Mr Sivertsen. "We wanted to have the same standard system on all of our vessels, based on pure Microsoft best practice."

"We also wanted freedom to be able to develop our system ourselves, if we wanted, and didn't want to be too tight to the vendor of the system, and we wanted to be able to leave the partnership if needed."

On top of these specifications, Mr Sivertsen was also looking to create a new technology-focused culture, with an improved level of performance in key areas.

"With the outsourcing of the systems in the Grieg Group, and us looking for this new system, we wanted to change focus from the basic IT work to work more with the business processes and crew training," he said.

"We wanted to build the right internal IT competence for a ship management company. We wanted competence in our core business applications, like AMOS and Lotus Notes, and in the other specialised software we use. We also wanted competence in ship-shore communication. In short, we wanted to develop some competence in all areas in shipping ICT."

The redrawing of the shipping department's IT strategy meant outsourcing functions that were not considered as core competences, which included things like the communication hub, scripting applications, and the design of the server infrastructure.



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Mr Sivertsen then adopted the VerIT4Net standard to create a single model for vessel installations, that could be applied fleet-wide. As a result, the company has seen many of its previous installation issues improve dramatically.

"We have now upgraded two vessels to the next version of the VerIT system, during vessel visits to make sure that everything was okay," said Mr Sivertsen.

"It was a success, and we now plan to let the vessel masters do the rest of the upgrades, even though it's a big upgrade, all of the client software is upgraded on the client computers. We will also upgrade AMOS to the next version, and we plan to do that without visiting the vessels."

"Now we install our servers with a minimum of input, with a few pre-defined windows. Our client computers are fully automated, and we can send a computer and ask the crew to connect it to the LAN and boot, and all software is installed and configured as we want. No more pre-installations in the office."

Support of the systems has also become easier, as the IT department knows exactly how the set-up is configured on each vessel, and can work in a more consistent environment.

"We have 100 per cent equal installations throughout the fleet, because there's very limited user input so there's less possibility of human error," said Mr Sivertsen.

"We have a standardised infrastructure on all of the computers and servers in the whole fleet. We can also prepare CDs and send these to the vessels, and when they are received onboard the vessel master only has to run a script on the server and the software is installed on the computers onboard automatically."

"We have seen after this that our focus for ICT visits on board now is on crew training, as we had hoped. The number of vessel visits has reduced, and we have more time to focus on the business processes in the office. This new focus will, I hope, allow us time to make an ICT strategy document for the first time, where all employees have been

invited to give input."

The success of this infrastructure improvement has encouraged the company to look at further expanding its systems in the future, with new communications technology.

"We want to install at least one VSAT system this year, a C-band system," said Mr Sivertsen.

"We also want to deploy a new system for crew payroll, both in the office and on board. We are looking at a total system for reporting, both onboard and in the office. We are also looking to further develop our maintenance system, with AMOS, and are looking for a new person who will be responsible for that."

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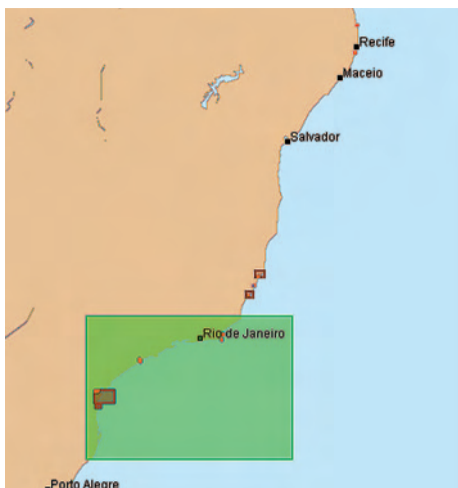
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Digital Ship Dubai - management systems and communications
Mövenpick Hotel, Bur Dubai, May 20-21, 2008
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Digital Ship America - satcoms, navigation technology and software
Italian Center of Stamford, Connecticut, September 10-11, 2008
www.thedigitalship.com/usa.htm



New Brazilian ENCs - now available from Primar

Primar reports that it has released sixteen new Brazilian ENCs. This portfolio comprises one General, six Approach and nine Harbour ENCs, all available through the Primar Chart Catalogue.

Transas has achieved **BSH** and **DNV** certification for its latest generation of navigation products, the Navi-Sailor 4000 ECDIS MFD (Multi-Function Display), Navi-Radar 4000 and Navi-Sailor 3000 TCS (Track Control System based on NS3000 ECDIS-I). The certificates were issued by DNV (Det Norske Veritas) for ECDIS and BSH (Bundesamt für Seeschifffahrt und Hydrographie) for Navi-Radar.

L-3 Communications has acquired Australian company **HSA Systems Pty Ltd**, a manufacturer of electronic systems for maritime and defence customers, for an undisclosed fee. HSA will become a business unit within the L-3 Nautronix division in Australia.

Jaakko Eskola, group vice president and head of **Wärtsilä Ship Power** has been appointed chairman of the **European Marine Equipment Council (EMEC)**. EMEC represents the European marine equipment industry, and comprises 12 European trade associations from Austria, Croatia, Denmark, Finland, France, Germany (two), Italy, Norway, Poland, the Netherlands and the United Kingdom.

Transas reports that it has opened a new Benelux office, based in Rotterdam, the Netherlands. The office will be managed by general manager, Ingrid Durge.



Transas' new Benelux office will be headed by Ingrid Durge (inset)

PortVision reports that it has implemented its next generation product, PortVision 3.0. The new version provides new options and enhancement capabilities, including vessel locating, arrival/departure alerts, and mobile access. PortVision customers will be able to gain access to the new platform from existing user accounts.

Hatteland Display has appointed Eva Svendsen Strand as its new marketing manager based at the company's Nedre Vats, Norway headquarters. Ms Svendsen Strand joins the company following the internal promotion of marketing director



Eva Svendsen Strand, newly appointed marketing manager at Hatteland Display

Goetz Vogelmann to VP of business development, working from the Hatteland Display GmbH office in Frankfurt, Germany.

Radio Holland Canada has opened two new offices in St Catharines, Ontario and Montreal, Québec. This is in addition to the already established Radio Holland offices in Vancouver, B.C. and Halifax, Nova Scotia. The company has made this move in response to what it says is growing demand in the Canadian market.

www.transas.com
www.emec-marine-equipment.org
www.primar.org
www.radiohollandgroup.com
www.portvision.com
www.l-3com.com

Space-based AIS completes final testing

www.comdevintl.com

COM DEV International has successfully completed an end-to-end ground-based test of its advanced AIS (automatic identification system) payload and nanosatellite.

The nanosatellite is an experimental vehicle intended to demonstrate key elements of COM DEV space-based AIS detection technology and enable any design changes to be incorporated prior to launching full operational systems.

Recent tests were the last in a series required to confirm that the spacecraft and AIS payload are operating correctly and responding to operational commands. The pre-shipment ground testing also confirmed the ability of the payload to receive AIS data and successfully transmit it to the ground station.

The spacecraft is now in the process of being shipped to India for final integration with the launch vehicle. COM DEV says that the launch schedule remains on track, with a launch date of late April expected at the time of writing.

Transas dual ECDIS order for newbuilds

www.transas.com

Transas has received an order from EMS Ship Management (India) for the installation of Dual ECDIS units for the Sichem Paris and the Sichem Delhi, both of which are expected to be delivered from a Korean yard by the end of 2008.

This order supplements a previous agreement between Transas and EMS, part of the Eitzen group, to install and commission Transas Dual ECDIS on a series of 5 newbuild chemical tankers from the same yard last year.

The vessels Sichem Mumbai, Sichem Manila, Sichem Hong Kong, Sichem Beijing and Sichem Edinburgh were equipped with ENCs (official electronic navigational charts) and Transas TX-97 world chart folios for use with the ECDIS (electronic chart display information systems).

Transas notes that EMS Ship Management had previously ordered a number of Dual ECDIS systems for other vessels in its fleet, operated through its Denmark office in Gentofte, north of Copenhagen.

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Vietnam yard to fit Kongsberg systems on newbuilds

www.kongsberg.com

Kongsberg Maritime has agreed a contract to supply Integrated Monitoring and Control Systems for five new 13,000 dwt product/chemical carriers being built for Greek owner IASON Hellenic Shipping Co. Ltd at the Vinashin Group owned Pha Rung Shipyard in Hai Phong City, east of the Vietnamese capital Hanoi.

The system chosen by Vinashin Group includes an integrated solution for machinery control and cargo management. The concept relies on a distributed and open system design, which employs a

fully backed-up system-wide standardised communication network.

The communication network integrates the machinery control with the level gauging and cargo control, and has common hardware components. The system also features ballast and service tank sensors and deck instrumentation.

"We are committed to building high quality, world class vessels for export from our yards in Vietnam and our co-operation with world class suppliers will help us to achieve this aim," said Mr. Nguyen Quoc Anh, chief business officer of the Vinashin Group.



Kongsberg integrated monitoring and control systems are to be fitted on five newbuilds in Vietnam

Danish vessels to go 'paperless'

www.transas.com

Danish ship owner Nørresundby Rederi is to equip a series of seven vessels with Transas Dual ECDIS systems, Navi-Sailor 3000-i.

Two sets of SVDR (simplified voyage data recorders) have been ordered for simultaneous installation. Delivery and installation are to take place during 2008 and early 2009.

The vessels will, upon installation of the ECDIS (electronic chart display information system) units, operate 'paperless' using SENC (system electronic navigational charts) supplied through Transas Scandinavia.

Nørresundby Rederi A/S operates 9 vessels ranging between 1,300 and 4,000 GRT. The vessels trade in North European

waters, including voyages to the Faroe Islands.

Transas also reports that it has agreed a contract for the design, supply, and commissioning of a full Mission Ship Handling Simulator from Precious Shipping Public Company Limited (PSL), Thailand. Training will be provided as part of the contract.

The 270 degree Full Mission Ship Handling Simulator is integrated with a GMDSS simulator, and uses evaluation and assessment systems coupled with audio and video loggers to help students learn from operational errors.

PSL has procured the simulator to train seafaring personnel at Management, Operational and Support levels through in-house courses conducted by the PSL Training Centre.

Greek hat-trick for Transas

www.transas.com

Transas has recently completed delivery of navigational systems to three major Greek ship owning companies.

The first contract includes the delivery of seven Master and Backup Navi-Sailor 3000 I ECDIS systems for Arcadia Shipmanagement Co Ltd, Athens. The newbuild vessels were delivered at the Hyundai and Samsung Shipyards, in South Korea.

Arcadia Shipmanagement has confirmed a follow-on order with Transas for Master and Backup Navi Sailor 3000 ECDIS I, to be delivered at the STX and SPP Shipyards in South Korea between 2010 and 2011.

Tsakos Shipping & Trading SA has also

taken delivery of two Master and Backup Navi-Sailor 3000 ECDIS I systems for new-build tanker vessels. The systems were delivered at Sundong Shipyard, South Korea, this month.

A further order from Tsakos for Master and Backup Navi Sailor 3000 ECDIS i systems will be delivered at Sundong Shipyard during late 2008 and through 2009, while a Master and Backup Navi Sailor 3000 I ECDIS system will be made available for a retrofitting at dry-dock in Lisbon, Portugal, scheduled for this month.

Primera Maritime Hellas Ltd completes the list, after accepting delivery of a Master and Backup Navi Sailor 3000 ECDIS i system for a chemical tanker vessel, in Ulsan, South Korea.

Fugro aims for commercial market

www.fugro.com

Norwegian navigation company Fugro Seastar AS has signalled its intention to widen its market reach into the commercial maritime market, with the appointment of Haydn Jones as business development manager.

Mr Jones' has many years experience in the commercial maritime navigation and communications arena, having previously worked for ChartCo, the UK Hydrographic Office, and Nera.

Based at Fugro's head office in Oslo, Mr Jones hopes to transfer the company's previous experience providing navigation technology to the offshore oil and gas sector into the commercial marine market.

Arne Norum, managing director of Fugro Seastar, commented, "To date we have had very little exposure outside of offshore and specialist vessels. We now want to make this technology available in useful ways to commercial ship-owners."

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Dynamic Positioning system for Pieter Schelte

www.kongsberg.com

Kongsberg Maritime is to supply an integrated Dynamic Positioning and manoeuvring system to Allsea's latest construction vessel, Pieter Schelte.

The technology relies on a distributed and open system design, which employs a fully backed-up system-wide standardised communication network, integrating the K-POS Dynamic Positioning, K-Thrust thruster control, and K-Chief machinery automation systems, into a complete solution with positioning and manoeuvring capabilities.

Pieter Schelte will be one of the most advanced construction vessels in operation, and is due to enter service in 2011. For field abandonment/lifting operations, the vessel will have a capacity to handle topsides of 48,000 metric tons and jackets up to 25,000 metric tons. In pipe laying

mode, with a tension capacity of 1,500 (upgradeable to 2,000) metric tons, Kongsberg says that the vessel will outstrip the existing global fleet.

The vessel employs two fully equipped redundant bridges; forward and aft (in separate fire zones). The equipment communicates either via the redundant LAN network or via the alternative also redundant serial network, allowing the two bridges to provide full redundancy for each other.

Birger Evensen, sales manager, Kongsberg Maritime, said: "Although every project is different, the sheer scale of Pieter Schelte represented numerous challenges as we developed this complex solution. We had to employ the total sum of our knowledge and experience to create a system capable of positioning and manoeuvring such a massive vessel, and are confident that we have achieved this aim."



The Pieter Schelte will be one of the world's most advanced construction vessels when it enters service in 2011

First private AIS network for Greece

www.imisglobal.com

IMIS Hellas reports that it has successfully completed the installation of the first private Greek AIS network with national coverage.

Over the last six months the company has installed 40 AIS stations across the country with the ability to monitor the position, speed, and course of all SOLAS vessels in Greek waters.

The AIS programme was selected by the 'Greek Information Society' to be sub-

sidised with a 50 per cent grant as part of the 'Intelligent Sea Transport' project.

Under the Euro 750,000 contract with the Information Society, IMIS Hellas will use the network to provide a public automated telephone service for ferry routes with estimated times of arrival, as well as a web service for port and shipping management.

IMIS Hellas, based in Athens, is a new affiliate of IMIS Global, with offices in the UK, South Africa and the USA.

Converteam \$15m positioning contract

www.converteam.com

Converteam reports that it has agreed a \$15 million contract, its single largest ever order, for multiple Class 3 dynamic positioning (DP) systems from the SINOPACIFIC Shipbuilding Group, for French owner BOURBON.

The systems are to feature on board ten GPA696 IMR (Inspection Maintenance Repair) vessels currently being built by Zhejiang shipyard, a subsidiary of SINOPACIFIC Shipbuilding Group Co., Ltd in Ningbo, near Shanghai.

Converteam will deliver the systems

from its UK facility, with local support and commissioning provided by the company's facility in Shanghai.

The DP configuration has separate dual controllers, with a back up system in an alternative location. In addition, an independent joystick system, manual thruster control, vessel automation system and position reference system are also supplied.

The first system is due for delivery in January 2009. Thereafter, a DP3 system will be installed every ten weeks, with commissioning to follow until the contract ends in 2011.

'Green' safety equipment from Jotron

www.jotron.com

Jotron Group has launched a new range of EPIRBs (Emergency Position Identification Radio Beacon) as well as a

new SART (Search and Rescue Transponder), with an emphasis on being 'as environmentally friendly as possible' while still meeting the required international standards.

The two new EPIRBs are called Tron 40S MkII and Tron 40GPS MkII while the new SART enters the market under the name of Tron SART20. Both the EPIRB and SART come with a 5 year warranty as standard.

The EPIRBs include an LED-module that has been developed comprising a unique reflector. The new intense LED-light will assist search and rescue teams by improving detection during difficult weather conditions.

For ease of replacement, the new series EPIRBs have also been designed to fit the current type of bracket used by its predecessors Tron 40S and Tron 40GPS.

In addition to these technical features, the new range of products has been incorporated into the Jotron AS recycle program, and contains no lead-soldering.

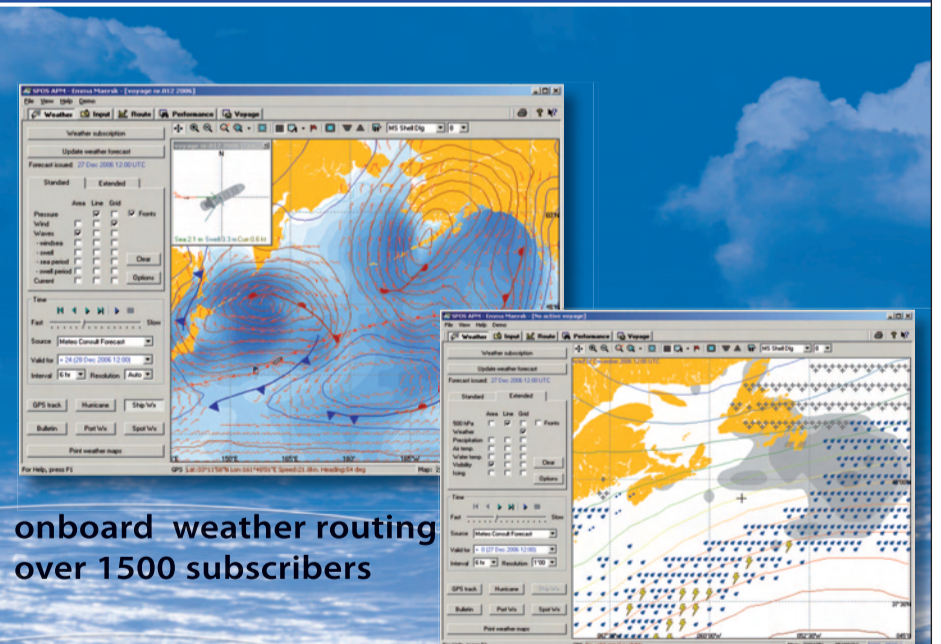
A new Non-Hazardous battery assembly has also been used, for improved environmental-friendliness, as well as easier distribution, as 'Non-Haz' products are subject to less strict regulation with regard to transportation.

Both the new EPIRBs as well as the new SART, including accessories, are available through Jotron's distribution network.



The new range of safety equipment contains non-hazardous battery assemblies, and can be recycled

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AIS - the next generation

Data communications required to implement eNavigation are likely to overwhelm the capacity of the 10 year old design of AIS. The next version of the identification system should not only address this constraint, it should also act as back-up, both for AIS and VHF, writes Fred Pot, Marine Management Consulting

AIS (automatic identification system) is gradually becoming an integral part of the aids that mariners use to con a ship.

It is not yet as important as radar and GPS, but probably about on par with VHF. Ships are already required to carry at least two radars, and it now seems likely that they will be required to carry a terrestrial system like eLoran as a back-up for GPS.

Do we need a back-up for AIS too? To the extent that mariners have started using AIS target information for collision avoidance, the answer is yes.

Mariners already rely on AIS for the name and position of a ship when hailing it via VHF, and it wouldn't be surprising if mariners are also using (T)CPA (Time of Closest Point of Approach) derived from AIS data for collision avoidance because it generally is more accurate and up-to-date than (T)CPA derived from radar.

Voice VHF, too, should have a back-up system. Inadvertent keying on an operational channel blocks all calls, and interference makes VHF calls very hard to understand in some areas.

Capacity

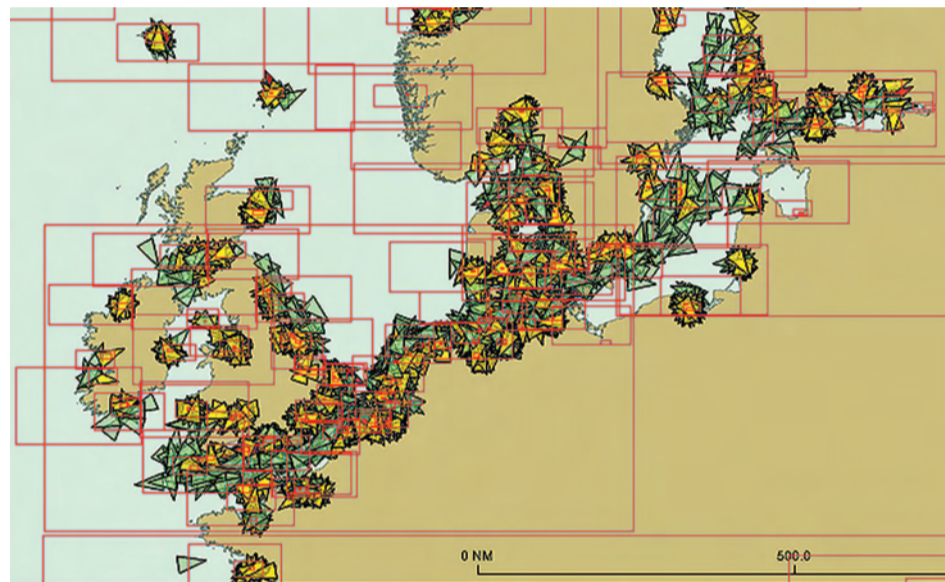
The major reason why we need AIS 2.0, however, is throughput capacity. Using AIS for messaging is still at an early stage but it is clear that it, rather than voice VHF, should be the primary method to convey important safety related information to the mariner.

This is because it is both more efficient and more effective for:

- Traffic advisory - other vessel locations
- Navigation hazards
- Hydro and meteorological info
- Traffic organisation information - lock order, procession through one-way channel
- Status of aids to navigation

There are serious efforts underway to formulate standard AIS safety related messages that will convey this information and display it in the context of the situation at hand for the mariner on an ECDIS or an enhanced radar screen.

Some of these efforts have already been



More capacity is needed to allow all of these vessels to enjoy the full safety benefits of AIS

completed, such as AtoN messages and messages to address regional safety issues in the Strait of Malacca, Great Lakes, etc.

USCG is currently in the process of formulating regional safety related AIS messages, and we can expect that eNavigation will not only require transmission of safety related messages but also transmission to government authorities of ship, voyage, cargo and passenger reports such as:

- Customs, Immigration and Cargo Clearance Reports
- Port State, Agricultural, Health and other Inspection Reports
- Hazardous Materials Reports

All will use the meagre 19.2 kbps

throughput capacity available with AIS 1.0. In some areas, however, we are already reaching the point where AIS cell size will be reduced to accommodate just the regular AIS message traffic, i.e. ships' positions and identifications.

We need more capacity to fully realise

the potentially significant benefits of safety messaging and to streamline reporting to government authorities.

We also need more throughput capacity to allow relaying of AIS messages from one station via another station. Relaying messages is not possible with AIS 1.0 because doing so would take too much of the throughput capacity, especially in dense ship traffic areas.

Alternative Solutions

Additional throughput capacity, unfortunately, doesn't come easily. We will need additional radio frequency spectrum, as well as additional hardware both shore-

side and on ships.

We might be able to avoid acquiring additional spectrum and installing new hardware if we use satellite communication infrastructure, that most ships already are equipped with.

Satellite communications, however, have the disadvantage of being expensive, mostly because the cost of building and launching satellites and operating land earth stations needs to be recovered in 'per kilobytes' toll charges. Shipboard satellite equipment is also expensive to install and maintain.

These costs are serious impediments to using satellite communications for AIS 2.0 purposes. Satellite communication cost has already proven a major stumbling block in the implementation of Long Range Identification and Tracking (LRIT).

Designating more 25 KHz VHF channels to AIS might politically be easier than acquiring spectrum bandwidth in a higher frequency range, but it will not be enough to provide the required increase in throughput capacity and would still require new hardware.

Beyond using satcom and additional VHF channels for AIS, what are the options?

WiMax

One option that deserves to be considered is the more modern Worldwide Interoperability for Microwave Access (WiMax) protocol, using a higher frequency. It can achieve a range of about 15 NM (line-of-sight) and can easily achieve throughput of 1.5 megabit per second (mbps) or 80 times more than AIS.

In fact, WiMax was designed to handle up to 75 mbps for Metropolitan Wide Area Networks (MWAN). WiMax currently requires a base station, but could be adapted to operate between ships if one of

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WiMax technology could be used to run AIS networks with a capacity more than 80 times greater than today's systems

them assumes the role of a base station, as we now do with AIS 1.0.

WiMax uses spectrum bandwidth 3 times more efficiently than AIS. WiMax's spectrum efficiency in terms of bits per sec per Hertz is between 1 and 1.5. In comparison, the AIS protocol has a spectrum efficiency of only .38 bits/(sec * Hz).

This means that a throughput of 1.5 mbps could be achieved with WiMax within about 1.25 MHz of spectrum bandwidth.

Regardless of the need for AIS 2.0, ships that are in port or at anchor near shore are likely to start using WiMax to substitute for expensive satellite communications.

If WiMax is also used for AIS 2.0 then there already are well established methods to give priority to safety related messages. They will ensure that WiMax general telecommunications traffic doesn't interfere with higher priority safety-related message traffic.

While underway WiMax's throughput capacity would be used to back-up AIS 1.0, for safety related messaging and for reporting to government authorities. It could even provide back-up for VHF voice communications through Voice over IP (VoIP).

In the future, WiMax will also allow ships to automatically establish a "Mobile Ad-hoc Network" (MANet). This is a major step beyond relaying of AIS messages from one station to another.

It has the effect of increasing the range of WiMax well beyond 15 NM in areas

where there is dense ship traffic such as the English Channel and the Strait of Malacca. Dense traffic in this context means that many of the ships in the area are within WiMax range of each other.

Coincidentally, AIS safety related messaging to support eNavigation will likely be in high demand in these very same areas.

ITU recently adopted WiMax as a worldwide standard (ITU-R M.1457) and there already are a number of vendors who sell the necessary hardware, so, unlike AIS, we won't have to start from a clean sheet. Instead we will be able to take advantage of the economies of scale inherent in a well established industry standard.

WiMax also has its limitations.

Unlike AIS, and because of its higher frequency, WiMax is limited to strictly line-of-sight communications. To compensate, WiMax repeaters will need to be installed to provide coverage around capes and islands that are close to shipping channels.

Also, if we are going to rely on WiMax's much higher throughput capacity for safety messaging, then what would be its back-up? AIS 1.0 will not be able to handle safety messaging in dense ship traffic areas without significant AIS cell contractions.

Although costly, satellite communications could provide WiMax back-up for safety messaging on ships that already have this equipment on board. Voice VHF would be the back-up for WiMax AIS safety messaging for ships that do not have satellite

communications equipment on board.

WiMax technology is readily available today. Acquiring spectrum bandwidth for marine safety and for reporting to government authorities will be much harder.

Major mobile phone service companies are spending billions to acquire spectrum for their customers. The maritime industry cannot compete on that scale.

It might be possible, however, to negotiate co-existence on a spectrum band that is currently used by land earth stations for earth-to-space communications because land earth stations typically are more than 15 NM in-shore.

Next steps

AIS will grow in importance as an aid to navigation, even more so with the addition of safety messaging in the framework of eNavigation.

AIS will need more capacity to accommodate such safety messaging and it also needs a redundant system to become a truly reliable aid to navigation. Furthermore, it will not be possible to use AIS for the transmission of reports to government authorities without increasing the available throughput capacity.

The advent of WiMax creates an opportunity to achieve these goals without imposing new draconian carriage requirements but, instead, using public-private partnerships.

We can expect that ship operators will start to realize that they can significantly reduce their satellite communication cost by using WiMax when in port or at anchor near shore. This will create business opportunities for port administrations to provide ship operators with WiMax service by investing in the necessary shore-side infrastructure.

Now is the time to start spectrum negotiations and to formulate minimum WiMax equipment requirements to ensure that ship operators' investments in WiMax equipment will also increase AIS capacity and, simultaneously, provide a back-up for both AIS and voice VHF. DS

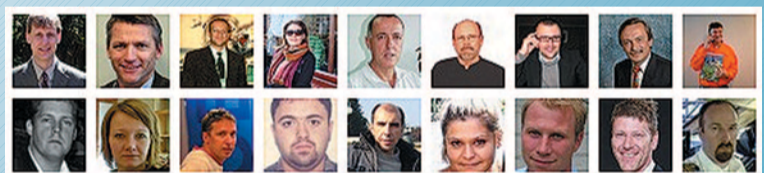


Since 1999, Fred Pot has been heavily involved in efforts to define international standards for AIS and its use in collision avoidance at sea. He is a member of two United Nations IEC workgroups, responsible for developing worldwide standards for AIS transponders, and for developing international standards for navigation displays that integrate AIS with radar, ECDIS, GPS and other sensors.

Additional contributions to this article: Robert G. Moore of Coastwatch

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ECDIS - The end of the beginning?

If the UKHO's new AVCS service is able to live up to the Hydrographic Office's claims of its potential, the market might finally see a swing in the balance of the costs and benefits of electronic charts, and really start the push towards wide-scale adoption of ENCs and ECDIS. Dr Andy Norris examines the possible effects of AVCS

The United Kingdom Hydrographic Office has recently launched the Admiralty Vector Chart Service - AVCS. Does this announce the end of the long birth of ECDIS?

It is clear that AVCS is aimed at resolving the major concerns expressed at last year's IMO NAV 53 debate on the development of carriage requirement for ECDIS - before carriage requirements can be put in place there needs to be adequate coverage of ENCs and the implementation must be cost effective.

A major aspect of the AVCS initiative is to increase the number of ENC cells that are available. Within the next year the UKHO has stated that the busiest 2,000 ports and associated shipping lanes will be covered by appropriate ENCs. In the UKHO's estimate this will enable 98 per cent of shipping operations by dead weight tonnage to be effectively covered.

Many of the presently unavailable cells are formally in the hands of national hydrographic offices that have neither the resources nor the funds to create them. As part of the AVCS initiative, the UKHO has made agreements to produce these ENCs under the 'GB' label, until they are available from the appropriate national HOs.

The important aspect is that the UKHO ENCs for these areas will be issued "by or on the authority of a Government, authorised Hydrographic Office or other relevant government institution, and conform to IHO standards." They therefore comply with the IMO definition of an ENC and can be used for primary navigation.

When these ENCs are eventually released by national HOs, the UKHO will replace the GB-labelled versions with nationally produced ENCs.

It also appears from coverage diagrams shown at the launch of AVCS that the service will include ENCs of most ocean waters, ensuring that ocean routes are effectively covered by ENC data.

Costs

The high cost of ENCs had been noted by the UKHO as a deterrent to the fitment of ECDIS, as well as an issue in the adoption of carriage requirements. AVCS is stated to address this concern, although price information was not available at the launch.

An important fact appears to be that great care has been taken in defining folios and their licensing arrangements. For instance, folios are divided into Transit, Regional and Port categories and can be licensed for 3, 6 or 12 month periods.

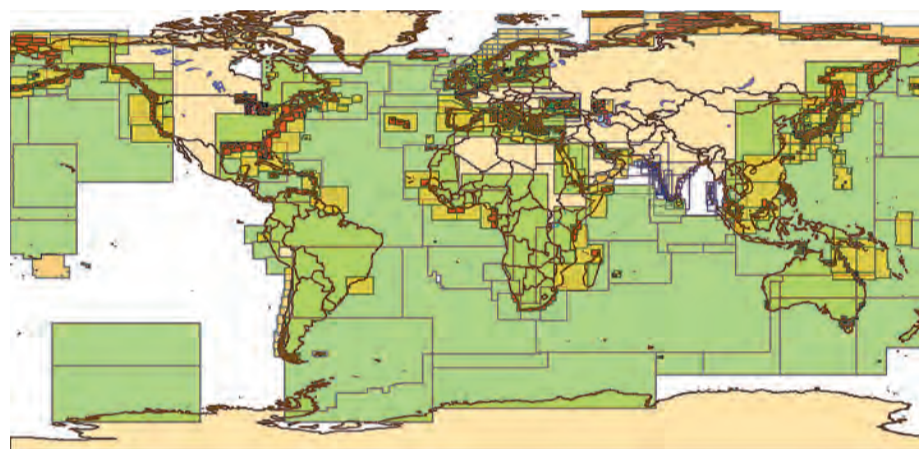
Transit Folios provide coverage along the major trade routes; Regional Folios are designed for local and coastal trade and Port Folios provide the detailed coverage necessary to enter a port.

It is clear that these folios will be indi-

vidually priced because the number of ENC cells in a folio will vary, as will the base cost of each cell.

The purchaser just has to consider the folio coverage, its category and overall price and has no decisions to make regarding the complexities in the make-up of the folio. This greatly simplifies the purchase process.

AVCS will have a weekly update service by CD and a 'remote' updating capabil-



UKHO has promised to extend ENC coverage in the next year, to cover 98 per cent of shipping operations

ity by internet and e-mail. It will also have a digital catalogue with an inbuilt ordering facility.

It has the facility to support UKHO specific 'layers' on the ENC. This will enable additional geographically-related information to be made available to the user on an ECDIS that can handle this new feature.

Potentially, this will allow AVCS to display many varieties of additional data, such as sailing directions, port information, additional chart information and more, although little has yet been released about the facility.

Growth of ECDIS

AVCS could be the catalyst that makes ECDIS viable. Extensive coverage and cost effectiveness will inevitably lead to more commercial use; the same factors will also clear the way for a phased implementation of IMO ECDIS carriage requirements.

The increase in the use of ENCs will obviously be matched by a similar decline in the use of paper charts. Lower sales are likely to increase their price, which will lead to ECDIS becoming increasingly cost effective, further reducing the use of paper charts.

Even before ECDIS carriage requirements are in place for all ships, economic considerations alone may well force the virtual elimination of paper charts. Any remaining need for such charts might well have to be satisfied by an 'official' print-out of ENC data, at a suitable scale and ENC settings, perhaps performed locally by a chart agent.

Although the virtual phase-out of

paper charts is not going to happen in the next few years, it is inevitable in the more distant future - perhaps in 10 years or so, at least for those areas covered by ENCs, which by then may be a very high percentage of navigable waters.

It appears that AVCS has the capacity to become the product that was envisaged when the ECDIS and ENC standards were being compiled during the early 1990s. When proven, the UKHO will deserve

than raster, vector was the only possible substitute for paper charts.

This was despite the fact that raster electronic charts have clear benefits compared to paper charts. The few negative aspects can be countered by appropriate design features and user training.

For instance, vector data automatically alerts users to off-screen dangers, compensating for the limited display area. On a raster chart, the safe use of a smaller display area is achieved by the ease and quickness of chart scrolling and the ability to instantaneously select raster charts of differing scale.

By 1993, good raster systems were being demonstrated and from the mid-1990s the UKHO had a formidable global folio and a weekly update service of raster charts - the Admiralty Raster Chart Service.

In 1998 IMO amended the ECDIS performance standard to include the Raster Chart Display System mode for ECDIS. However, the finally adopted wording effectively allowed many flag States to insist on a complete set of paper charts to be carried and used when in RCDS mode. Therefore the amendment had limited impact. The cost of carrying two sets of chart data was not acceptable to most ship operators.

Decline of raster

The lack of sufficient ENC data and the difficulties that the use of raster data has met in gaining global official acceptance has resulted in many ships using 'private' vector data, mainly displayed on non-type approved but affordable electronic chart systems.

With these systems, paper charts also have to be carried and used as the primary chart facility.

In the market, raster data has few advantages when running on non type-approved equipment as it is more costly than private data, has fewer features and is still only a secondary system.

With the announcement of AVCS, the beginning of the end is in sight for raster charts. The world had an opportunity to use these fully more than a decade ago while ENCs were being compiled, but the concept was effectively rejected.

The future is now with ENCs and ECDIS. Raster will sadly start its decline - but ENCs do provide a better solution and one that is far superior to that of the conventional paper chart.

DS



Dr Andy Norris has been well-known in the maritime navigation industry for a number of years. He has spent much of his time managing high-tech navigation companies but now he is working on broader issues within the navigational world, providing both technical and business consultancy to the industry, governmental bodies and maritime organizations. Email: apnorris@globalnet.co.uk

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BECKER MARINE SYSTEMS COMMUNICATION*

The image shows the deck of a ship with various pieces of equipment, including a radar scanner and a satellite dome. In the foreground, the letters 'umc' are displayed in large, green, 3D block letters. The letters are positioned on a light-colored, reflective surface, likely the ship's deck. The background shows the ship's structure and the sky.

Shooting by courtesy of Norddeutsche Reederei H. Schuldt

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