

Digital Ship

May 2011

www.thedigitalship.com

Inmarsat buys Ship Equip and announces 55¢ voice calls

In two moves that have caused real waves in the maritime satcom community, Inmarsat has announced that it has agreed a deal to acquire VSAT company Ship Equip and has also set a \$0.55 suggested retail price for voice calling on FleetBroadband

Not content with the shake up of the maritime satcom market caused by the announcement of its \$1.2 billion investment into Ka-band VSAT, Inmarsat has surprised the industry again with the announcement that it has agreed a deal to acquire Norwegian VSAT provider Ship Equip.

The acquisition is for a total consideration of \$159.5 million, and will give Inmarsat immediate access to Ship Equip's installed base of over 900 vessels using its SEVSAT product once the deal is closed.

With additional units committed to existing orders Ship Equip's penetration in the maritime VSAT market reaches beyond 1,000 systems – a customer group that Inmarsat has targeted as early adopters of its Global Xpress Ka-band service after its launch in 2014.

Revenues for Ship Equip for 2010 were approximately \$56 million (NOK 312 million), and Inmarsat says that it expects to finance the deal from current available liquidity.

In addition to this new acquisition Inmarsat has also caused waves in the satcom distributor community after breaking from its long-standing policy of declining to comment on the particulars of service pricing to announce a Suggested Retail Price



Users of Ship Equip VSAT are being targeted as early adopters of Inmarsat's Ka-band Global Xpress service after full availability in 2014

(SRP) for voice calling over FleetBroadband.

Speaking at the *Digital Ship* Cyprus 2011 conference, Inmarsat head of maritime business James Collett introduced the new \$0.55 per minute SRP as a price that end users should be expecting to pay for voice services on its flagship satcom system.

This has certainly caused disquiet among a number of distributors of Inmarsat airtime services who may have been charging their customers

prices above this level, as shipping companies will now expect to pay no more than the rate suggested by Inmarsat for their voice calls.

In any case, with this new acquisition and change of policy with regard to pricing, Inmarsat certainly seems to be making an aggressive strategic move to gain greater control of both its existing FleetBroadband market and the VSAT market it has targeted with Global Xpress.

continued on page 2

IN THIS ISSUE

satcoms

Round Table Discussion



Satellite communications – now and into the future – 19

Broadband drives convergence of satellite services – 28

Computer viruses – a modern maritime curse? – 30



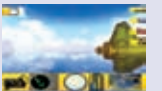
software



SCF Unicom – upgrading training with CBT – 49

3-D models and condition monitoring software for hull maintenance – 50

Game based learning and maritime education – 52



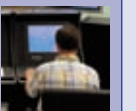
electronics and navigation

Digital Navigation

ECDIS – making the transition – 67

Managing integration with INS – 70

GNSS reliance and vulnerabilities – 72



Arctic communications and NAVAREA expansion – 74



Navigation and GIS – Dr Andy Norris – 78

inmarsat iridium THURAYA Globalstar GSM 3G EDGE WiFi WiMax VSAT E-MAIL • DATA SYNCHRONISATION • INTERNET • INTEGRATION • REMOTE CONTROL • ANALYSIS TOOLS • 24/7 SUPPORT • MAXIMISED USE OF BANDWIDTH

The Maritime Communications Experts™



"One Unique Interface"

- Pietro Amorusi, Chief Information Officer, d'Amico Società di Navigazione S.p.A.

From its headquarters in Rome, d'Amico Società di Navigazione S.p.A. operates more than 40 cargo ships in a worldwide trade. The ships are equipped with a combination of Inmarsat Fleet, FleetBroadband and VSAT systems.

"We faced numerous challenges managing our ships due to the diversified communication structure. Dialog Connection Suite is a single and unique interfacing tool," says Pietro Amorusi, CIO of d'Amico. "The new solution has directly improved our efficiency and, it saves us money."



www.dialog.com
(+47) 77 62 19 00 or sales@dialog.com

Digital Ship

Vol 11 No 8

Digital Ship Limited
2nd Floor,
8 Baltic Street East
London EC1Y 0UP, U.K.
www.thedigitalship.com

PUBLISHER
Stuart Fryer

EDITOR
Rob O'Dwyer: Tel: +44 (0)20 7017 3410
email: odwyer@thedigitalship.com

CONFERENCE PRODUCERS
Karl Jeffery: Tel: +44 (0)20 7017 3405
email: jeffery@thedigitalship.com
Cathy Hodge: Tel +44 (0) 20 7253 2700
email: cathy@thedigitalship.com

ADVERTISING
Ria Kontogeorgou: Tel: +44 (0)20 7017 3401
email: ria@thedigitalship.com

PRODUCTION
Vivian Chee: Tel: +44 (0)20 8995 5540
email: chee@thedigitalship.com

EVENTS
Diana Leahy Engelbrecht
Tel: +44 (0)118 931 3109
email: diana@thedigitalship.com

CONSULTANT WRITER
Dr Andy Norris (navigation)
apnorris@globalnet.co.uk

DIGITAL SHIP SUBSCRIPTIONS
GBP £150 per year for 10 issues
Subscribe online at
www.thedigitalship.com
or contact Stephan Venter on
venter@thedigitalship.com,
tel +44 (0)20 7017 3407

UPCOMING CONFERENCES
DIGITAL SHIP SINGAPORE
Suntec Convention Centre, Singapore
18 - 19 October 2011

DIGITAL SHIP ATHENS
Athens Metropolitan, Athens
22 - 23 November 2011

Printed by
The Manson Group Ltd
Reynolds House
8 Porters' Wood
Valley Road Industrial Estate
St Albans
Hertz AL3 6PZ
U.K.

No part of this publication may be reproduced or stored in any form by any mechanical, electronic, photocopying, recording or other means without the prior written consent of the publisher. Whilst the information and articles in Digital Ship are published in good faith and every effort is made to check accuracy, readers should verify facts and statements direct with official sources before acting on them as the publisher can accept no responsibility in this respect. Any opinions expressed in this magazine should not be construed as those of the publisher.

continued from page 1

Acquisition strategy

The strategic reasoning that Inmarsat has outlined for the Ship Equip acquisition lies in creating a 'fast start' for the Global Xpress programme, something which the company was very keen to achieve once work on the project began, as James Collett, head of maritime business at Inmarsat, explains.

"This is all about improving our return on Global Xpress. One thought was that having a ready-made maritime VSAT business would be a good way of accelerating the Global Xpress business, as we would have an immediate customer base which we could transfer onto our Ka-band capacity," he told us.

"We will have through Ship Equip about 900 customers, and increasing, who are ready-made Global Xpress early adopters."

The markets in which Ship Equip has been successful are markets which Inmarsat has identified as key prospect markets for the new Ka-band service, including sectors like North Sea fisheries, offshore and, increasingly, the tanker market.

"There are areas where Ship Equip has been successful where we see opportunities for Global Xpress, and they will bring business benefits in this respect," said Mr Collett.

"In terms of their business model, it's slightly different to some other maritime VSAT businesses, and it's a model they have been very successful at fine tuning. Their whole installation and commissioning process is certainly 'best of breed', in terms of their time taken from getting an order through to having that vessel equipped, commissioned and at sea with a revenue generating terminal on it."

"Installing VSAT antennas means that you're probably talking days rather than hours as is the case with FleetBroadband, but in terms of a speedy, customer focused service Ship Equip are probably closer to the FleetBroadband way of doing things than other VSAT providers."

Once the deal is closed Inmarsat expects to position Ship Equip as an independent business unit, which will sit alongside the Stratos business and operate with an independent management team just as Stratos does.

"We will work very closely with them, both from the perspective of the existing maritime business and from the perspective of the Global Xpress programme," said Mr Collett.

"Ship Equip will operate independently, but conversely they will, through their expertise, be able to assist us tremendously in terms of contributing market knowledge to the Global Xpress offer for the maritime market."

"Their management team has a really strong track record in opening up markets for maritime VSAT, and we want to harness that experience."

At the moment there are no definite plans for the Ship Equip business to also act as a Distribution Partner (DP) for existing Inmarsat services, though the company will be expected to contribute what it can to overall market efforts for technology like FleetBroadband.

"We can't comment at the moment about where they would fit in as a DP or otherwise, but certainly they will be coming across sales opportunities for

FleetBroadband on a daily basis and we expect that Ship Equip will look at ways they can maximise L-band opportunities with what they currently sell," said Mr Collett.

"This is an ideal opportunity to be looking at models for such combinations."

Ku- and C-band contracts

One interesting aspect of Inmarsat taking over the Ship Equip business is that it will now hold contracts for Ku-band and C-band services from other competing satellite operators.

However, Mr Collett notes that Inmarsat has no intention of continuing with Ku- or C-band services any longer than is necessary under the obligations of these contracts, and that its new VSAT



"We have an expectation that a \$0.55 retail price for FleetBroadband voice will be offered to end users" – James Collett, Inmarsat

customers through Ship Equip will move across to the Global Xpress service as soon as possible.

"This would not be the right moment to talk about the terms of those contracts, but we will be looking at opportunities for us to quickly migrate customers from Ku-band on to Ka-band," he said.

"You would imagine that you would need a bridging period where, as we make Ka-band capacity available, customers will be moving progressively off of Ku-band on to Ka-band, but we don't anticipate an extended period where we would be requiring both Ku-band and Ka-band."

Mr Collett believes that such users will derive a great deal of benefit from this kind of switch, as they will be operating on a network built to offer bandwidth speeds never before seen in the maritime market, available on a global basis.

"Rather than coming into this market with something that was taking a 'me too' approach, we've had the opportunity to design a network that will be built for serving one of our key markets – maritime – and we expect therefore to eliminate a lot of the disadvantages that sit with Ku-band VSAT today," he told us.

"There's been a gradual improvement in the coverage of Ku-band, but it's still not global in the sense of our global capabilities. However, for some users that is sufficient, and many currently take a FleetBroadband terminal to patch up the shortfall in their VSAT coverage."

Mr Collett also expects that the price points at which the new service will be offered to the market will prove to be attractive to VSAT users, both in terms of antenna pricing and monthly costs.

"From a user terminal perspective, whilst we recognise that maritime VSAT antennas have been coming down in price, we believe that Global Xpress will bring terminal prices to a new level and will certainly provide significant advantages over what is seen at Ku-band today," he said.

"And with considerably more capacity in the Inmarsat-5 constellation than what we believe is available in any other VSAT network today, in addition to no expected substantial network investments for distribution partners, our expectation is that our maritime Global Xpress service will be more competitive than what's on offer from current maritime VSAT services."

When asked if Inmarsat sees Global Xpress as leading to the death of Ku-band VSAT in maritime, Mr Collett smiled as he responded: "We'd like to think our GX (Global Xpress) service will be the solution of choice!"

\$0.55 pricing

Inmarsat's other major announcement, of its \$0.55 SRP for FleetBroadband voice calling, is part of a concerted strategic effort to stabilise and push renewed growth in the company's maritime voice business, according to Mr Collett.

"In our publicly disclosed information and what we've been talking about in analyst briefings, it's been clear that we've seen a decline in maritime voice revenues," he told us.

"This is for several reasons, not least the conversion of higher-price legacy voice services, on Inmarsat-B and mini-M in particular, on to lower priced voice service platforms like FleetBroadband."

"In addition to that, the market has become more competitive, to a certain extent from VSAT offering cheap voice services. So we've been looking at ways where we can improve our maritime voice business, and we believe that by having some aggressive marketing and strong positioning of our new services, FleetBroadband and FleetPhone, we can return the voice business to growth again."

These new voice charges are part of a service revision from 1 April 2011, and apply to both post-paid and pre-paid calling.

The company's FleetPhone service, due to be launched on 30 June 2011, will be offered with a similar price point to FleetBroadband with a pre-paid calling SRP of \$0.55 per minute.

In addition, as part of a broader guideline on pricing, Inmarsat has said that existing services such as Inmarsat-B, mini-M and Fleet will also have their Super Quiet Time (SQT) off-peak periods extended to run through the whole day 365 days a year, effective 1 May 2011.

Year-round SQT pricing was already in place for FleetBroadband, and will similarly apply to the FleetPhone.

Inmarsat says that these new guidelines should see all of its maritime pre-paid voice services available to end users around the clock at SRPs ranging from \$0.55 to \$0.95 per minute, depending on the particular maritime service used.



THOMAS GUNN navigation services Ltd.

YOUR PERFECT PARTNER FOR THE TRANSITION TO DIGITAL NAVIGATION

TOTAL ECDIS SOLUTION

NAV ECDIS

AVCS

Voyager

Fully Type Approved ECDIS

- 24" widescreen monitors
- Solid state hard drives
- Advanced route planning and passage planning
- Remote Diagnostics for rapid & low-cost support
- Option for radar video overlay
- Modular design for easy installation
- CBT (Computer based training) module



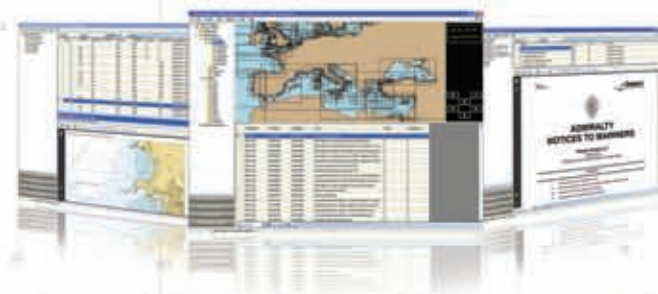
Admiralty Vector Chart Service

- The world's most comprehensive ENC service
- One single, efficient chart system
- Total flexibility to save you time and money
- Always up to date - Updates via e-mail or web service
- Admiralty Information Overlay for T & P Corrections
- Quality, Reliability and Integrity
- ECDIS Compatibility to meet latest IMO requirements

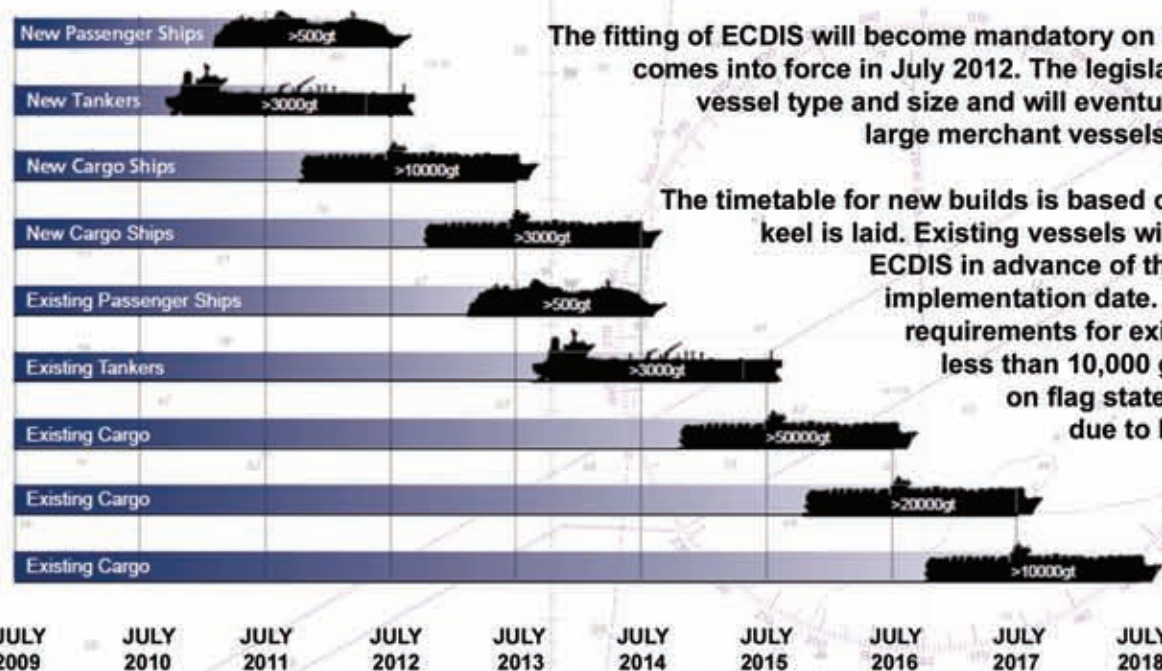


Voyager Digital Update Service

- Compression technology achieving 60% file reduction
- Product catalogue management system
- Admiralty BA NTM's and tracings service
- Admiralty AVCS/ENC cell & permit updates
- Admiralty Digital Publication updates
- Weekly UK M-Notices
- Updates via Web service or Email
- No special equipment required



ECDIS Mandation Timeline



The fitting of ECDIS will become mandatory on a rolling timetable that comes into force in July 2012. The legislation will be phased by vessel type and size and will eventually apply to almost all large merchant vessels and passenger ships.

The timetable for new builds is based on the date the vessels keel is laid. Existing vessels will be required to install ECDIS in advance of the first survey after the implementation date. There are currently no requirements for existing cargo vessels of less than 10,000 gross tons. Depending on flag state requirements vessels due to be taken out of service within 2 years of the implementation date maybe exempt.

ADMIRALTY
Digital Services

INTERNATIONAL ADMIRALTY
CHART AGENT

"We've worked with the DPs to develop new pricing, and we are keen to see those discounts passed into the market," said Mr Collett.

"We have an expectation that, with the pricing construct we've got now, a \$0.55 retail price for FleetBroadband voice is something which will be offered through our distribution channel to end users."

"A take up of such a retail price still allows our distributors to enjoy a healthy business based on our wholesale pricing, but customers can also enjoy a very attractive rate which we hope will stimulate consumption of more voice minutes."

Asked if this new policy of introducing an SRP was representative of a more aggressive marketing strategy on behalf of Inmarsat that would bring the company closer to the end user than the traditional DP route has allowed, Mr Collett suggested that such a move could potentially ben-

efit all sides if it leads to growth in the use of services.

"I think that, where we see there is business benefit for us and our channel, like in this case where we want to capture the attention of end users and stimulate them to call more, being clear about a suggested retail price is helpful," he said.

"In other areas the way the value chain that operates today works well, we maintain our position as a wholesaler providing a range of wholesale prices, and our distribution channel package those offers with their own range of value-adds."

"It's a competitive market so that usually makes sure that the end user gets the best deal."

Next steps

Having made these bold moves in areas like VSAT and end user suggested pricing, moves which are far removed from the

way Inmarsat has traditionally run its maritime business, it will be interesting to see what further changes the company may have in store over the next few years.

Global Xpress is expected to be globally available in 2014, and that year will also, coincidentally or otherwise, be the year that Inmarsat's current contracts with its Distribution Partners, in their present form, will come to an end.

As *Digital Ship* understands it, those contracts will continue to apply after that date, however they will be open for modification by Inmarsat from that time should the company wish to change the terms of its agreement with the DPs.

Given that Inmarsat already owns the largest distributor of its airtime services, Stratos, and also owns a VSAT sales division through the Ship Equip acquisition, the potential could then exist for the company to completely overhaul its distribu-

tion model and, for the first time, access the end user market directly by distributing its own satellite services.

Inmarsat is, of course, unable to comment on these issues so any such developments are a matter of speculation, and there would presumably be a variety of significant logistical challenges in managing such a radical overhaul of its business model.

However, the possibility of such a move is undoubtedly food for thought for all those working with satellite communications, and would surely mark the beginning of a new era in the way that such services are used by the shipping industry.

Until any firm decisions are made with regard to future distribution models it is an issue that is sure to keep those in the maritime IT community intrigued – and eagerly anticipating whatever developments may occur in 2014. DS

Buss Shipping to install FB fleetwide

www.telemargroup.com
www.vizada.com

Vizada and Telemar report that they have signed a 3-party deal with the German IT company Buss Data GmbH, a part of the Hermann Buss Group, to provide Inmarsat FleetBroadband 250 communications systems to the company's fleet of vessels.

The Hermann Buss Group shipping company, based in Leer, Germany, specialises in commercial shipping and runs a fleet of over 85 vessels.

Its Buss Data business unit develops customisable software systems for ship management, covering areas such as purchasing/ordering, maintenance, crew welfare and insurance, as well as offering a complete system for document filing.

The new 2-year contract is for the pro-

vision of communications systems onboard Buss vessels, with the whole Buss Shipping Company fleet to be equipped with Inmarsat FleetBroadband terminals.

Telemar will take care of the hardware and technical maintenance of the terminals, as well as airtime management and billing, while Vizada will be the provider of satellite communications and customer care.

Vizada's Terralink Data Manager and The Source applications will be deployed with the new FleetBroadband terminals in order to provide further control to the company, while SkyFile Antivirus will be used to secure the IT systems.

"We have been using the FleetBroadband technology for over a year now and experiencing the advantages it brings to our everyday communications – this helped convince us to exchange the

existing terminals for the new Thrane & Thrane FleetBroadband 250 systems," said Frank Schoone, technical engineer, nautical equipment, Buss Data.

Swen Kleinau, commercial analyst for Buss Data, also commented; "Buss Data con-

tinues to develop advanced software products for the shipping industry which require secure bandwidths for data transfers."

"Our aim is to utilise Telemar expertise and Vizada technology to minimise transfers and reduce costs."



Hermann Buss vessels will be fitted with FleetBroadband 250 terminals

mini-VSAT for 125 Vroon vessels

www.minivsat.com

Netherlands-based Vroon is to install KVH's mini-VSAT Broadband service as the new satellite communication solution for more than 125 in-house managed vessels in its fleet.

The deal follows a tender process involving 22 different satellite communication providers, which has resulted in the award of a multi-year service contract covering Vroon's vessels and its global operations.

"In today's competitive shipping market, our ships, charterers, and fleet managers require secure and reliable IT networks to support critical business processes," said Rob Frenks, Vroon's group ICT manager.

"It is also equally important to improve crew welfare in order to attract and retain skilled seafarers. However, we realised that our existing, diverse satellite communication solutions will not meet our future business requirements."

"By choosing KVH, we are gaining an

affordable, comprehensive solution that brings together proven hardware, a global network, and fully integrated network management and crew welfare solutions that will support our needs for years to come."

Vroon vessels will be equipped with a 60 cm TracPhone V7 antenna system and the KVH CommBox ship/shore network manager.

The CommBox offers a range of tools for web compression and acceleration, least cost routing among multiple communication services, and management of pre-paid internet access and remote access for Vroon's shore-based IT personnel.

Vroon crews, as well as crews from contractors and third-party companies, will also be able to use KVH's pre-paid crew calling system and, depending on the vessel's activities, a GSM picocell system that will enable those on board to make calls via their mobile phone while within KVH's coverage area.

"The changes to maritime satellite

communications over the last several years are dramatic as commercial fleets like Vroon move from basic voice and low data rate applications to more demanding business requirements that need affordable, reliable broadband solutions," said Martin Kits van Heyningen, KVH's chief executive officer.

"We designed mini-VSAT Broadband to offer a unique end-to-end solution that meets these rapidly expanding communication needs."

"Working closely with our Dutch distributor, SAM Electronics Netherlands BV, we presented this comprehensive solution to Vroon. We are proud to be Vroon's choice for its next-generation satellite communication service and look forward to a long and fruitful collaboration."

The mini-VSAT Broadband network offers 512 kbps (ship to shore) and 2 Mbps (shore to ship) bandwidth speeds, with more than 1,000 TracPhone V7 systems having now been shipped in the three years since the product's introduction.

100 VSAT for e3

www.e3s.com

e3 Systems has announced that it has completed the signing of its 100th VSAT contract.

The company, based in Spain, provides its eVSAT solution with antenna, below deck equipment, service installation, service contracts, training and support, together with 3G and Inmarsat services, all in one package.

e3 also has the distinction of having installed the first ever VSAT antenna on a super yacht in 2003.

"We are delighted to have achieved our target of 100 VSAT contracts," said Roger Horner, managing director of e3 Systems.

"We have become synonymous with VSAT communications and we are confident that our eVSAT service provides the ultimate in end to end satellite broadband solutions which is guaranteed to work, fits any vessel and will run a whole host of best of breed proven applications."

"As an integrator we operate with six different VSAT services so that coverage can be obtained in more places with eVSAT than any one satellite operator can provide."

Connecting Oceans

A world leading satellite operator with 27 satellites, Eutelsat has pioneered the development of today's maritime telecommunications and continues to build its success on the reliability of its in-orbit resources, its expertise and continuing commitment to innovation. Our VSAT technology provides corporate class networking services, interconnectivity and real-time data applications for all business, leisure and crew welfare needs.

Cr ation graphique :   2011 EZZ-TH NIC



Ku band Regional and Global coverage
Dedicated bandwidth – flat rates
VPN, VoIP and video applications

We are at Nor-Shipping (Oslo 24-27 May)- Hall D, French Pavillion, Stand D03-14A



eutelsat
communications via satellite

T l. : +33 (0)1 53 98 47 07
maritime@eutelsat.fr

100th Briese vessel installs se@COMM

www.globecommsystems.com/maritime

Telaurs Communications, a Globecommm Maritime company, has completed the installation of its 100th se@COMM system for customer Briese Schiffahrts.

se@COMM manages communication via e-mail, fax, telex and SMS, as well as permitting controlled web browsing. The application features real-time e-mail delivery capabilities and pre-pricing by the kilobit, enabling users to see how much their connectivity is costing as they work.

The se@COMM system and Satlink Inmarsat FleetBroadband 250 terminal for the 100th installation were supplied by Telaurs to the 2008-built combination carrier BBC Jade in March 2011, two years after Briese became the first company in Europe to fit FleetBroadband 150 on its coastal vessel Saxum.

The contract was managed by Telaurs' German sales and support office in Hamburg, and the achievement marked during the recent *Digital Ship* Hamburg conference by a presentation of a plaque to Holger Boerchers, Briese Schiffahrts IT manager.

The migration to FleetBroadband using the se@COMM system involved the replacement of Briese's legacy communications and e-mail messaging system, to cope with an increasing volume of data traffic and the need for transparency in managing the cost of ship-shore messaging.

"The fleetwide transition towards se@COMM and FleetBroadband has been a long process that needed great commitment and professionalism from all those involved," said Mr Boerchers.

"We are pleased to have achieved the 100th installation after working so closely with Telaurs and look forward to a continuing collaboration with them."

In other news, Globecommm Maritime has also announced that the Telaurs se@WEATHER application, part of the Telaurs se@COMM package, is now to be made available with no monthly



Malcolm McMaster, Telaurs; Holger Boerchers, Briese Schiffahrts; and Heiko Hoefer, Telaurs, mark the 100th vessel installation

subscription fee.

se@WEATHER is an icon-driven, graphical marine weather analysis system providing instant access to current global weather with sea condition data, including surface pressure, wind direction, significant wave heights, fronts, and tropical storms.

Powered by Applied Weather Technology (AWT), se@WEATHER utilises the same interface found in AWT's BonVoyage System marine voyage optimisation software.

"The introduction of Inmarsat FleetBroadband and other higher bandwidth technologies allows ship operators to make use of powerful data applications that can improve vessel safety and productivity," said Malcolm McMaster, VP Globecommm Maritime and president

Telaurs Communications.

"se@WEATHER offers the benefits of allowing the vessel's master to view high quality analyses of current global weather and sea conditions at any time. We wanted to make se@WEATHER a free of charge option to enable owners to see for themselves the increases in productivity that are possible when used with broadband."

The data is delivered in a compressed format to minimise communication costs and generates colour-enhanced graphics which allow the ship's master or navigation officer to view weather and sea conditions.

Customers who were previously paying a monthly fee will now be able to use the service free of charge, while new customers who register for a subscription will not be subject to any fees.

Orbit hits 1,000

www.orbit-cs.com

Orbit Communication Systems has announced that it has recently shipped its 1,000th OrSat maritime VSAT system.

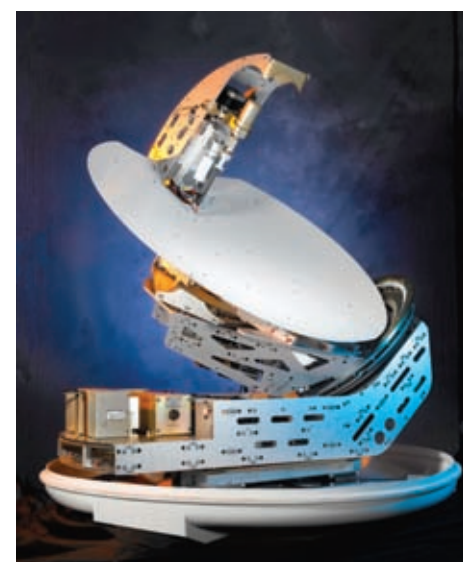
Originally introduced to the market in 2007, the OrSat system has been delivered to various segments of the maritime industry including oil and gas, navies, commercial shipping, mega yachts and fishing boats.

Speaking about reaching the milestone, Orbit CEO and president Avi Cohen said that this achievement was a testament to the quality of the satellite hardware.

"In this very competitive market, major maritime IT integrators require proven systems that mitigate project risk and reduce ongoing maintenance costs," he said.

"OrSat's unprecedented track record is a testament to its technological superiority, operational performance and reliability over time."

"Our customers expect immediate and effective support for both deployment and operations. To this end, we back up our OrSat products with a network of hundreds of trained technicians worldwide to assist customers with any support issues that may arise."



The 1,000th OrSat maritime antenna has been shipped

Free broadband from SingTel

www.singtel.com

Singapore Telecommunications (SingTel) has announced a new initiative whereby it will offer free 128 kbps satcom services to customers who purchase a C-band antenna.

This free service will last for two years, and applies to those who sign up for the system between now and 30 June 2011.

In addition to this VSAT offer SingTel is also launching a new web portal for crew members, to distribute news and help them manage their communications with friends and family ashore.

The crewXchange@singtel portal, based at the website crew.singtel.com, allows users to subscribe to news feeds, access e-mails, and chat with their friends using various messenger platforms.

This 'lightweight' portal is available free of charge to all SingTel maritime broadband customers, and has been optimised to cater for the bandwidth limita-

tions onboard vessels at sea.

"SingTel is committed to transforming and enhancing the way the maritime seafarers work, live, learn and play," said Bill Chang, executive vice president of SingTel's Business Group.

"crewXchange@singtel will provide a bandwidth-optimised networking platform where the seafarer community can communicate with their headquarters more efficiently, get connected with their loved ones, be updated with the latest knowledge through e-learning content and get access to entertainment content more cost-effectively."

"It is a service that will be very valuable for the welfare and upgrading of maritime crew members."

To facilitate better communication among their own crews, companies can also set up their own private chat rooms.

SingTel estimates that almost 10,000 crew members will benefit from this com-

munity network, which it envisages being accessed by seafarers logging onto the portal from their own laptops or devices while on the vessels.

In related news, SingTel has also announced that its new ST-2 satellite has completed assembly and integration, and successfully passed all major tests. The satellite is currently being shipped to its launch site, and is scheduled for launch in mid-May 2011.

A joint venture with Chunghwa Telecom, the satellite has been put through a series of acoustic, vibration and thermal-vacuum tests to ensure its robustness ahead of its journey into space.

"SingTel is the only home-grown company in Singapore to own commercial satellites and we are very excited about the launch of ST-2, our second satellite," said Mr Chang.

"With 20 per cent more transponder capacity and a wider coverage footprint than

ST-1, ST-2 will help increase our capacity to meet growing customer demand for fixed and mobile satellite services."

ST-2 will have a footprint of C-band and Ku-band coverage that will cover the Middle East, Central Asia, the Indian sub-continent and South East Asia, with built-in switching capabilities among different regions.

"ST-2 is almost twice as powerful as our first satellite, which means our customers' antennas don't have to work as hard to pick up signals. This translates into greater energy efficiency and cost savings for them," added Mr Chang.

SingTel says that, with its expanded footprint allowing customers in the maritime industry to access satellite communications over larger areas while out at sea, demand for ST-2 services has been strong, with over 70 per cent of capacity already signed up by customers (though this also includes land-based business).

ST-2 will be launched by an Ariane-5 rocket from the Guiana Space Centre in Kourou, French Guiana, with ST-1, launched in 1998, to go into inclined orbit.



otesat_maritel

MEMBER OF OTE GROUP



Keeping you in touch. Globally



Master Control

Take over the “master control” of your communication onboard

Upgrade your business with our FleetBroadband Packages

- ➔ Take control of your airtime. With Otesat-Maritel you can choose any of our competitive airtime and equipment packages from **25 MB** that best suit your business
- ➔ Take control of your budgetary plans. Choose your terminal equipment from one of the most reliable manufacturers and make the financial agreement that you prefer: **12, 24 or 36** months pay off plans
- ➔ With Otesat-Maritel you take the “**master control**” of your costs and of the management of your telecommunication traffic

For further information about our packages please contact your sales account manager or at:

Tel. +30210 4071123, Fax: +30210 4599600

e-mail: E.Savvinou@otesat-maritel.com

web : www.otesat-maritel.com

Satellite parks the Alphasat

www.inmarsat.com

Alphasat, the largest satellite to be built in Europe, is beginning to take shape and enter its final assembly and test phase after the Alphasat Service Module was successfully mated with the Alphasat Communications Module.

The Alphasat satellite will help to augment Inmarsat's BGAN / FleetBroadband satellite network, with capacity to handle more than 750 channels in L-band.

The telecommunications platform is being jointly developed by Astrium and Thales Alenia Space in partnership with Inmarsat, under a joint ESA and Centre National d'Etudes Spatiales (CNES) contract.

Inmarsat's investment in the project, excluding insurance, is approximately €260 million.

Alphasat is the first satellite to be launched using the new European high-power Alphasat telecommunications platform.

The Alphasat technology completed qualification at the end of 2010 and is now available to accommodate missions up to 18 kW of payload power, with ongoing developments to extend the range up to 22 kW.

"The mating successfully took place as planned (ahead of) the upcoming satellite test campaign," said Stéphane Lascar, Alphasat / Alphasat programme manager at ESA.

Weighing more than 6,000kg, Alphasat is planned for launch at the end of 2012 on the Ariane 5 launch system.

"The Alphasat/Alphasat Programme is a prime example of a public-private partnership, our new way of working that ESA is pursuing in telecoms," said Magali Vaissiere, ESA director of telecommunications and integrated applications.

"Such initiatives in partnership with satellite operators will foster the development of state-of-the-art technologies to serve the new needs of the worldwide market and Europe's citizens."



Alphasat is scheduled to be launched in 2012

SCPC and TDMA together on iDirect

www.idirect.net

VT iDirect reports that it has added SCPC Return Channel technology to its IP satellite communications system, to enable service providers to manage TDMA and SCPC networks on the same platform.

iDirect says it is the first technology manufacturer to bring TDMA and SCPC technology together in this way, with this capability available through its new iDX 3.0 software package.

Following this launch iDirect customers will be able to remotely upgrade any Evolution router to operate in TDMA or SCPC on the return channel.

For example, SCPC Return could be activated to support temporary heavy traffic conditions, or turned on permanently once traffic reaches a threshold where a dedicated SCPC connection is the most economical choice.

It also allows service providers to adjust service levels to changing bandwidth requirements and evolving traffic patterns, to potentially create premium

Service Level Agreements that allow for temporary bursts in traffic.

By integrating SCPC onto iDirect's shared TDMA platform, service providers can also pool total capacity and distribute it more cost-effectively across their customer base.

Untapped SCPC bandwidth can be re-allocated instead of being wasted, and service providers can expand the size of an SCPC link by sourcing bandwidth from the overall bandwidth pool.

"Bringing TDMA and SCPC together is an industry breakthrough that, for the first time ever, enables service providers to offer both dedicated and shared service on a single intelligent platform," said Dave Bettinger, chief technology officer and senior vice president of engineering, iDirect.

"This will improve the profitability and relevance of their offerings and enable them to optimise the efficiency of their operations. We're excited to roll out this innovation, which is much needed in the satellite industry."

Globalstar satellite launch delayed

www.globalstar.com

Globalstar has announced that the manufacturer of its second generation satellites, Thales Alenia Space, has determined during pre-launch activities that the second launch of six of its satellites will need to be delayed.

Thales explained that additional technical checks to the satellites were necessary in order to respect the quality process and secure the mission. The launch was previously scheduled for mid-May.

"Thales Alenia Space has notified us of a launch delay and we regret that Thales will not adhere to their previous schedule," said

Tony Navarra, president of global operations, Globalstar.

"We have accepted the recommendation but do not anticipate a lengthy delay. We are working closely with Thales Alenia Space to provide additional information regarding the timing of our next launch, as it becomes available."

Globalstar signed a contract with Thales Alenia Space in late 2006 for the design, manufacture and delivery of its second-generation satellites.

In 2007 Globalstar contracted with Arianespace for multiple launches of six satellites, each using the Soyuz launch vehicle.

Data services for IsatPhone Pro

www.inmarsat.com

Inmarsat has announced the availability of data services on its global handheld satellite phone, IsatPhone Pro.

The new circuit-switched data capability, offering an effective data rate of up to 20 kbps, was provided in the most recent firmware upgrade to the handset.

"IsatPhone Pro is ideally suited for use as a data service," said Drew Brandy, director of land services at Inmarsat.

"The handset design means the IsatPhone Pro can be simply placed on its side with the antenna deployed for connection to the satellite while a micro USB cable connects it to a laptop. And the Inmarsat-4 satellites on which the service runs are, of course, designed specifically to handle data communications."

"In testing we have actually exceeded 20kbps throughput with plain text e-mail on several occasions. It's ideal for those people wanting to access e-mails, jpegs, documents or PDFs."

Following the launch of the data service Global Marine Networks, Vizada and Stratos have all announced their own software enhancements to take advantage of the new capabilities.

Global Marine Networks has introduced its XGate 3.61 software application for use with the handheld satellite phone, to manage data services such as e-mail and web acceleration.

"XGate provides up to 15 times faster e-mail transfers and up to 85 per cent air-time savings compared with uncompressed IsatPhone Pro data speeds, helping users stay in touch with the people and information that matters most," said Dr Luis Soltero, founder and CTO of Global Marine Networks.

"It is the benchmark for speed that Inmarsat itself used for development and testing of data over the IsatPhone Pro."

Vizada meanwhile has reported that it has already begun the roll out of IsatPhone Pro e-mail and data transfer capabilities to its network of more than 400 service provider partners.

The company says it has adapted its SkyFile Mail messaging and compression system to optimise the phone's data capability.

The IsatPhone Pro firmware upgrade

required, v. 4.0.0, and Vizada's SkyFile Mail software v. 8.03 are downloadable via PartnerLink, Vizada's service provider portal, as well as the Vizada web site.

Stratos data services available over the IsatPhone Pro will operate over its recently released AmosConnect 8.2 communications application.

The compression capability built in to AmosConnect 8.2 will also enable the phone to reach relative transmission speeds of approximately 20 kbps for certain file types.

Stratos says it has activated more than 4,000 units of the handheld phone worldwide.

In addition to IsatPhone Pro, AmosConnect 8.2 can also be used with IP-based maritime satellite services including FleetBroadband, Iridium OpenPort and VSAT.

The application provides all ship-relevant data on one central information page, with all service settings remotely configurable from a central office.

Also new in AmosConnect 8.2 is the ability to automatically register a Basic licence, which features one free mailbox.

Stratos says that this feature is particularly useful in combination with the IsatPhone Pro data service, for the easy deployment of voice, SMS and e-mail capabilities.



The IsatPhone Pro can be connected to a PC via a USB cable, and used to transmit data

From ship to shore, **simplicity is the key to success.**



20 years experience. 1 simple solution.

- Type Approved PMS
- Minimal Training Required
- Rapid Technical Support Service
- No 'Per Seat' or any Annual License Fees
- Global Customer Base from VLCC's to Workboats
- Complete Package or Single Modular Components available
- PMS, Stock, Procurement, Dry Dock, Safety & Document Management Solutions

Visit www.marinesoftware.co.uk
or email info@marinesoftware.co.uk



Marlink agrees two 5-year VSAT deals

www.marlink.com

Marlink reports that it has signed two new VSAT contracts, with shipping companies Scorpio Ship Management and Fugro-Geoteam

Scorpio Ship Management has agreed a new 5-year deal, to install the WaveCall VSAT system on 17 vessels.

Each Scorpio vessel will be provided with 128 kbps to 1024 kbps for shore-to-vessel communications, and 128 kbps to 256 kbps for vessel-to-shore communications. Each tanker will have access to one data and two voice lines for business administration and crew use.

In addition, Marlink will also supply FleetBroadband 250 and Iridium services to Scorpio to ensure redundancy for the communications services aboard.

"Our vessels often operate in remote locations around the world so the integration of Marlink's WaveCall solution is critical to ensure the provision of reliable and high quality bandwidth aboard for continuous communication between our vessels and offices ashore," said Francesco

Bellusci, general manager, Scorpio Ship Management.

"Marlink has proven to offer exceptional flexibility, with a full portfolio of VSAT, FleetBroadband and Iridium satellite communications solutions which have been packaged together to satisfy our specific requirements."

Seismic vessel operator Fugro-Geoteam's deal with Marlink is an extension of an existing satellite communications contract, and will also last for five years.

As part of the latest agreement, Fugro seismic vessels will be supplied with Sealink VSAT services via Marlink's Eik teleport in Norway, providing 512 kbps of bandwidth and 10-15 telephone lines to each ship.

"For safe, efficient and reliable operation of our vessels worldwide, it's important to have satellite communications solutions that we can trust," said Øyvind Haddal, ICT-manager, Fugro-Geoteam AS.

"Marlink has proven to supply us with high quality services and bandwidth, reliable connectivity and great flexibility to tailor solutions to our specific needs. We

are very satisfied with the level of service provided by Marlink and are glad to be extending our agreement with the company further."

This latest contract follows a new global agreement with Fugro Marine Services BV, which has established Marlink as a preferred supplier of VSAT communications to Fugro vessels worldwide.

"Marlink has been providing services to several Fugro Group divisions for a number of years and the new global pricing agreement has enabled us to maintain a very strong relationship with the company," said Tore Morten Olsen, CEO, Marlink.

"Our latest agreement with Fugro-Geoteam proves our commitment to offering unmatched global support to our customers, as well as our capability to provide flexible and reliable satellite communication services within the demanding seismic sector."

In other news, Marlink has announced that it is to launch a new 'Local Numbers' service to VSAT customers this summer.

This new service will combine Direct Inward Dialling (DID) with the local telephone number of the vessel operator's office location to help manage costs for shore-to-vessel voice calls.

Telephone numbers from more than 50 countries and 4,000 cities worldwide are part of the programme, which features fixed monthly costs and no additional per-minute fees.

The service is fully maintained by Marlink's customer support team, so no user administration is required.

"With the introduction of this new Value Added Service, office-based staff can telephone the vessel using an allocated local number which is charged at the local tariff, no matter where in the world the vessel is operating," said Mr Olsen.

"By eliminating the often high cost of international calling, Local Numbers ensures calling from shore-to-vessel remains cost-effective."

Comtech EF Data Corporation has appointed John Baddick to the post of vice president, VSAT System Engineering. In this newly created position Mr Baddick will direct hardware design, software development and product engineering for the company's VSAT solutions. He has previously worked at **Intelsat** and **Verestar**.

Maritime GSM provider **Vobal Technologies** has appointed Walter Kane as VP of sales. Mr Kane has previously worked with GSM/satellite service providers like **Blue Ocean Wireless** and **Globe Wireless**, and also served as a Radio Electronics Officer in the US Merchant Marine and **US Coast Guard**.

TrustComm and **MVS USA** have expanded their relationship, to provide combined communication solutions for the maritime sector. An alliance will be formed between TrustComm's subsidiary SkyPort Maritime and MVS to create a unified distribution channel for the companies' range of services.

Orbit Communication Systems has appointed new regional sales directors for its satellite communications business unit, with Michel Rieken becoming director of sales and business development in Europe and Silene Alcoba taking a similar role for Latin America.

KVH has appointed Vivian Quenet as its new vice president of sales, Asia-Pacific. Mr Quenet has spent 11 years in the maritime satellite communications industry, having previously worked with **Vizada**.

www.comtechefdata.com
www.vobal.com
www.trustcomm.com
www.themvsgroup.com
www.orbit-cs.com
www.kvh.com
www.vizada.com

QoS guarantee from SeaVsat

www.seavsat.com

SeaVsat has announced that it has launched a guaranteed Quality of Service for offshore customers, for when multiple users are on a network at the same time but performing different actions.

The QoS will guarantee priorities to different applications, users, or data flows, or a certain level of performance of a data flow.

The company says this could represent, for example, a required bit rate for a certain group of users of its SatLink product line.

QoS Groups can be defined, each with their own bandwidth allocation and dynamic capacity sharing rules, to optimise bandwidth distribution according to user needs.

This new guarantee has been launched as SeaVsat opens a new head-office on the Caribbean Island of Curacao.

The new head-office at the Dutch overseas island will be used to deliver service and support to what the company says is an increasing number of offshore customers in the Caribbean.



Scorpio Ship Management will install Marlink VSAT on 17 vessels

Ship's \$436,000 satcom bill provokes warning

www.itic-insure.com

The International Transport Intermediaries Club (ITIC) has explained how a ship manager was recently asked to pay \$436,000 in communication costs as a result of an error which unwittingly allowed the crew of a ship unrestricted access to the internet over a three-month period.

In the latest issue of its Claims Review, ITIC notes that the situation came about as the particular shipping company in question was pursuing a policy of upgrading the communications packages on all its time-chartered and owned vessels.

The company had decided to move from systems which provided e-mail and satellite telephone communications only, to systems that also included limited onboard internet access at fixed monthly rate payments. These new systems were gradually being fitted

throughout the fleet.

When the existing communications unit on board one ship (which did not include internet access) failed during the first few months of 2009, it was replaced by a modern broadband unit, but not by the new system being introduced generally to the company's ships.

This unit was intended to replace the existing e-mail and voice communications only, however the broadband set-up that was installed was also capable of internet access via the satellite link.

The vessel superintendent employed by the ship manager inadvertently failed to exclude internet access when he completed the activation form. During the installation and activation he also failed to notify the crew of its intended use or advise on any tariff rates, which were in his possession.

The crew, who had already been notified of the company's intentions regarding

future internet access for all its vessels, wrongly assumed that the new unit had been provided for their unlimited use, and proceeded to download at will.

The usual cost of communications under the old system was no more than \$1,800 per month. Had the intended upgraded system, including limited internet access, been in place, the monthly cost would have been \$3,800.

However, during the three-month period before the error was discovered, the crew had open access to the internet and managed to run up an enormous airtime charge of \$436,000.

The resulting claim that brought the matter to ITIC's attention came from the shipping company, which said that as it had never agreed to this free-for-all use of the internet by the crew, the ship manager was liable for the difference between what it would have paid (\$5,400) and the actual amount charged.



Natural selection

**Mobile communication at sea is a natural need.
On-Waves maritime mobile network welcomes
any phone at sea and makes it work, naturally.**

- GSM & CDMA Roaming
- SMS services
- Marketing tools
- Crew Pre-Paid solutions
- Wi-Fi Internet
- Video on Demand

Inquiries: info@on-waves.com

www.on-waves.com

on
waves
where to next?

Norwegian VSAT deals for Ship Equip

www.ship-equip.com

Ship Equip, recently acquired by Inmarsat for \$159.5 million (see front page), has announced the agreement of new VSAT deals with two Norwegian shipping companies, Ro/Ro operator Høegh Autoliners and offshore supply company Deep Sea Supply.

Høegh Autoliners has signed a contract to install the VSAT communications service on 26 of its car carriers, as well as two newbuilds, which will form part of a general fleet communications upgrade, moving away from what Ship Equip describes as 'pay by the megabyte and dial-up solutions'.

Autoliners will now pay a fixed monthly contracted rate for the VSAT broadband service, and low per-minute rates for voice calls.

One of Høegh's biggest motivations for installing the system was to provide services to crew, to help with crew retention.

"In today's competitive shipping market we wanted to make sure we retain our highly valued and competent crew," says Terje Lorentzen, senior manager fleet personnel at Høegh.

"To achieve that goal there was no way around providing state of the art communication for staying in touch."

"In addition we see it as an important advantage when recruiting, especially the younger generation of seamen look for this kind of capability to use both on and off duty. We are also positive that the

upgrade to broadband will prove beneficial to the operation of our vessels."

The contract with Deep Sea Supply will see the company extend an existing VSAT agreement covering 23 vessels, while also including the addition four new SEVSATs, meaning Ship Equip will now be providing VSAT services to the entire Deep Sea Supply fleet.

The 23 vessel contract for ships already equipped with SEVSAT has been extended for another three years, while the four new ships, all new buildings, will be installed with the satcom service as they are launched in 2011 and 2012.

"We are very satisfied with the overall performance of the SEVSAT system from Ship Equip," said Deep Sea Supply technical director, Espen Sorensen.

"We have used the system since 2006 and find it very reliable with a good uptime and otherwise performing to expectations. Ship Equip also has a network of service engineers that in our experience do a good job."

Ship Equip says that its maritime VSAT system is now currently in use on over 1,100 vessels, with each vessel passing traffic averaging at 650 MB per day.

"As more and more shipping companies introduce VSAT into their fleet it will not be long before it is established as a standard requirement, and operating without SEVSAT or a similar technology will be more and more challenging," said ShipEquip chief sales officer, Gilles Gillesen.



26 Høegh Autoliners car carriers will have VSAT services installed

Canadian Coast Guard agrees Frequentis deal

www.frequentis.com

Frequentis has announced that it has been awarded a contract by the Canadian Coast Guard for the supply of a voice and data communication system.

The contract will include 24 Command and Control Centres, 198 Coastal Stations and 100 working positions in Canada's five maritime regions: Newfoundland and Labrador, Maritimes, Quebec, Central and Arctic, and Pacific.

Maritime Communication System MCS3020 provides integrated voice communication for radio, telephone, maritime applications, and sensor information in one system. Any operator can access all communication channels, regardless of

the system load.

Frequentis notes that this new order from the Canadian Coast Guard represents the biggest system that the Frequentis Maritime Business Unit will have supplied in its history.

The company's Canadian subsidiary, Frequentis Canada Limited, will provide the main point of contact for the implementation phase.

"The key to this success comes from the solid technological base of our products and from our well established position in the global maritime market," says Jim Hall, president of Frequentis Canada.

"We are looking forward to making this large project the biggest success in the Frequentis maritime sector."

Harris Schlumberger acquisition complete

www.harris.com

Harris Corporation has completed its previously announced acquisition of the Global Connectivity Services (GCS) business from Schlumberger, which is being combined with its existing maritime communications business and other earlier acquisition CapRock Communications.

With the addition of further infrastructure assets from Core180's government business, these different units will now operate together as Harris CapRock Communications.

"Integrating these businesses into a single enterprise creates an organisation with unsurpassed satellite and terrestrial networks capabilities, end-to-end service offerings, and an experienced service team that will provide customers with unsurpassed in-the-field support on a global scale," said Howard Lance, chairman, pres-

ident and chief executive officer of Harris.

"Harris CapRock Communications will use its capabilities and expertise to offer customers the most secure, reliable and efficient communications solutions in the industry."

Harris CapRock Communications has more than 1,400 employees, a local presence in 23 countries and a self-owned and operated infrastructure that includes teleports on six continents, six Network Operation Centres and a terrestrial network.

Harris purchased the Schlumberger GCS business for \$397.5 million in cash, subject to post-closing adjustments. The purchase price was paid from cash on hand.

Harris says that the goodwill arising from the acquisition will be an allowable tax expense with an estimated net present value of \$50 million, resulting in an effective purchase price of \$347.5 million.

Service Programme begins on OpenPort

www.iridium.com

www.radioholland.nl

Iridium has announced the introduction of its Global Service Programme, first launched at the beginning of 2011, which offers support services for all customers of the Iridium OpenPort satellite communication service, in conjunction with Radio Holland.

Effective as of April 1, this programme offers shipboard technical support at more than 50 ports around the world.

Imtech Marine, parent company of Radio Holland, is the first service partner for this programme. Radio Holland will manage the programme's three regional service centres and technical support at global ports.

As of 2011 Iridium has also introduced

a five-year standard warranty for all new and existing Iridium OpenPort units.

"The establishment of the Global Service Programme is driven largely by the success of Iridium OpenPort in the maritime market," said John Roddy, executive vice president, global operations and product development, Iridium.

"This programme now ensures our growing Iridium OpenPort customer base will continue to receive maximum value from their investment. With this programme and new standard five-year warranty, Iridium customers can be confident they are receiving consistent, reliable communications."

Iridium says it has shipped more than 3,500 Iridium OpenPort terminals to a range of different vessels throughout the world.

Meeting to discuss Iridium NEXT hosted payloads

www.iridium.com

A recent GEOScan workshop in Annapolis, US, has brought together representatives from the geosciences community to form plans for a potential global Earth-observation network in space, using hosted payloads on Iridium's next-generation satellite constellation, Iridium NEXT.

Iridium has said that it expects hosted payload programmes to contribute between \$200 and \$300 million to the cost of constructing its next generation satellite network.

This GEOScan programme is examining the potential of hosting an integrated array of scientific sensor suites as small payloads (up to 4 kilograms), known as 'SensorPODs', on Iridium NEXT.

"Placing SensorPODs on Iridium NEXT is an innovative concept that would enable unparalleled visibility into Earth's atmosphere and space, providing an assessment of the impact of pressing scientific challenges, such as climate and atmospheric changes, that was never

before possible," said Dr Lars Dyrud, a senior scientist at Johns Hopkins University Applied Physics Laboratory, the hosts of the meeting.

"The Iridium NEXT satellite replenishment programme is an unprecedented opportunity to create a canopy of interconnected sensors covering the entire globe."

Dr Om Gupta, director of strategic market development for Iridium NEXT, is hopeful that the inclusion of hosted payloads on the new satellites can create a range of benefits for both Iridium and the scientific community in general.

"Iridium NEXT is not only our company's vehicle to the future, but for other organisations as well," he said.

"Reduced government funding for space programmes will create a 'data gap' in Earth-observation programmes that are critically important for the study of the Earth's atmosphere."

"Hosting scientific payloads as SensorPODs on Iridium NEXT offers a cost-effective choice for the scientific community to obtain a ride into space."

Triple Play

Three flavours,
one perfect
package

Good fleet performance comes in threes with GE Satcom's Satlynx Maritime solution. Our triple-play satellite network solution easily multiplexes internet access, TV entertainment and an integrated low-priced telephony system into any cabin, technical or recreation room. The Automated Beam Switching (ABS) feature opts for the least-cost route between three options: flat-rate Ku-band satellites, or Inmarsat or Iridium. You can control the system from land, monitoring your entire fleet worldwide - from fuel efficiency to positioning at sea - while keeping ship operations streamlined and crew morale high.

Visit us at Nor-Shipping 2011, in Oslo — Hall B, Stand B05-14

info@gesatcom.com
www.gesatcom.com



imagination at work



Fairplay to FleetBroadband

www.stratosglobal.com

Stratos has announced that it has begun the deployment of the Inmarsat FleetBroadband satellite communications service on six deep-sea tugboats in Fairplay Towage's fleet, with installations on four of the vessels already complete.

Based in Hamburg, Fairplay Towage operates a fleet of 27 vessels for harbour, coastal and deep-sea towage, and will use the new satellite system to optimise vessel performance, improve business operations and increase crew productivity.

The system will also be integrated with AmosConnect 8 – Stratos' maritime communications application – to improve management of all interoffice communications.

This will include the AmosConnect Crew CommCenter solution to assist seafarers in managing their calling, private e-

mail and SMS, with flat global rates and a separate account for each crewmember.

Fairplay Towage expects to deploy the 'internet café' functionality of the latest version of the Crew CommCenter later this year.

"FleetBroadband enables us to achieve faster data transmission and better voice quality than the legacy systems we previously used – at a lower cost," said Fairplay Towage's information technology manager Thomas Wesselski.

"The system helps us improve business management by increasing the performance of many of the IP-based applications we already deploy."

"Also, the wide range of Stratos value-added services – including onboard fire-wall and online invoicing – help ensure high security and strict cost control."

Stratos has now activated more than 6,700 FleetBroadband terminals.

60 vessel satcom deal for Station 711

www.station711.com

Station711 has signed a contract for the provision of Inmarsat FleetBroadband services to Swire Pacific Offshore (SPO), in collaboration with service provider SMTS.

Singapore-based SPO, a service provider to the offshore oil and gas industry, is set to install the new broadband satcom service on 60 vessels and intends to use it for operations, logistics, navigation and crew welfare services.

Prior to signing the agreement, RRsat, SMTS and SPO conducted over 3 months of testing of the solution on one of SPO's new vessels to verify that it would meet the company's current and future requirements.

Station 711's smart@sea gateway technology is integrated into the set-up, to manage and control the LANs used on the vessel for both operations and crew welfare.

Onboard networks will include a total

of seven PCs and three VoIP phones for pre-paid and post-paid use, and WAN support for the FleetBroadband 500.

The agreement, for a minimum of three years, comprises the smart@sea communication gateway, SAILOR FB500 terminals, a fleet-wide Shared Corporate Allowance Package (SCAP) pricing structure from Inmarsat, and ongoing maintenance and support services from SMTS and Station711.

SMTS will manage the installation of the terminals and onboard LANs on SPO's vessels, while Station711 will provide satcom management applications from its own range of communications technologies.

This includes the smart@sea gateway for UTM security, a crew welfare voice and data module, IP traffic compression, acceleration, caching and filtering, a VoIP platform, and a shore-side unified POP facility providing a centralised management interface.

"Along with daily business communications, we are also excited about smart@sea's unique features for onboard crew welfare," said Colin Payne, human resources director, Swire Pacific Offshore.

"By using the dedicated onboard internet cafe, in combination with solutions such as the VoIP scratch cards, crew members can keep in touch with loved ones at home, and enjoy the world wide web on their off-duty time."

Reederei Claus-Peter Offen moves to FB

www.eurosatlink.com

German shipping company Reederei Claus-Peter Offen is to exchange all of its existing Inmarsat-B and Fleet 77 terminals on more than 80 vessels for Thrane & Thrane SAILOR 500 FleetBroadband systems, courtesy of a deal with ESL GmbH.

Reederei Claus-Peter Offen had already begun to exchange some Inmarsat-B systems, a service which will be terminated at the end of 2014, for FleetBroadband over the course of the last year, but has now extended this to agree a fleetwide deal.

The implementation of the FleetBroadband systems on board the other vessels has already started and is expected to continue over the next 24 months, bringing the major part of the fleet online.

"It has been an extremely interesting process and project to work on," said Zbigniew Perka, director of sales with ESL, the sole supplier on the project.

"The good thing with the project is that

Reederei Claus-Peter Offen's strategy has been clear from the beginning and through close dialogue and testing we found the right solution that will meet their objectives and support their strategy today and in the future."

"We are proud to get this contract, as it is a clear evidence that the shipping company trust us to handle this important project for them and appreciate the long relationship and strong solution we have offered them."



ESL will manage the installation of FleetBroadband on more than 80 vessels for Reederei Claus-Peter Offen

Satcom terminal launched by Thuraya

www.thuraya.com

Thuraya has launched its new Seagull 5000i maritime communications system, in partnership with Addvalue Communications, a specialised marine terminal designed for small vessels and providing voice, data, SMS and fax services over Thuraya's satellite network.

The company says that the Seagull 5000i's data capabilities are well suited to the transmission of information such as ship's identity, position, and other Long Range Identification and Tracking (LRIT) requirements.

A customised FaxConnect interface device also allows the user to send G3 faxes from anywhere within the Thuraya coverage area to other G3 fax machines across the globe.

Thuraya's satellite network covers Europe, the Middle East, Asia and Australia. The company launched its third satellite in January 2008, which brought the Asia-Pacific region into its footprint.

"The Seagull 5000i terminal is an exciting addition to our maritime portfolio," said Thuraya's CEO, Samer Halawi.

"The combination of the Seagull 5000i's innovative technology and the expansion of our satellite network coverage ensure that regional operators of sea-vessels have an advanced, yet affordable communication solution."

"This new terminal further demonstrates Thuraya's commitment to provide effective satellite communications at sea."

Intellian antennas add Uplogix functionality

www.intelliantech.com
www.uplogix.com

Uplogix and Intellian have announced new compatibility between their respective products, that should help to increase uptime of the antenna manufacturer's systems while reducing service costs.

The Uplogix platform supports Intellian satellite antenna control units and arbitrators, including v-Series models, and can recognise operational states in an antenna and take pre-determined actions such as notifying service providers with status information, switching to an alternate communication method, or targeting another satellite.

Uplogix can also provide remote access to the v-Series PC Controller application

via narrowband networks, where the company suggests Iridium terminals can be particularly useful.

This allows for troubleshooting and configuration access to the Intellian VSAT antenna at a level that previously could only be attained with a site visit.

"Intellian has deployed over 15,000 marine stabilised satellite antenna systems since 2005," said Eric Sung, president and CEO of Intellian.

"We are pleased to announce our partnership with Uplogix which brings remote access and control of these systems to satellite operators for even greater service quality and lower cost of ownership."

The Uplogix platform combines localised management of the antennas and IP networking gear with onboard intelli-

gence to automate management, whether the network is up or down.

A rules-engine makes it possible to customise specialist operations, such as generating an SMS message when an antenna is in a blockage zone, or loading a satellite modem's configuration when predefined conditions exist. An out-of-band connection then allows for management control when the main system is offline.

"Uplogix has developed core functionality for the maritime VSAT industry," said James Dollar, Uplogix chief architect and founder.

"Now users of Intellian antennas can use our product to make connectivity at sea as reliable as connecting from a branch office on land."



Triple Play the perfect mix

Good fleet performance comes in threes with GE Satcom's Satlynx Maritime solution. Our triple-play satellite network solution easily multiplexes internet access, TV entertainment and an integrated low-priced telephony system into any cabin, technical or recreation room. The Automated Beam Switching (ABS) feature opts for the least-cost route between three options: flat-rate Ku-band satellites, or Inmarsat or Iridium. You can control the system from land, monitoring your entire fleet worldwide - from fuel efficiency to positioning at sea - while keeping ship operations streamlined and crew morale high.

Visit us at Nor-Shipping 2011, in Oslo — Hall B, Stand B05-14

info@gesatcom.com
www.gesatcom.com



imagination at work

Inmarsat low data rate service announced

www.inmarsat.com

Inmarsat is working with SkyWave Mobile Communications to develop a new low data rate tracking, monitoring and messaging service, planned for launch in Q3 2011.

IsatData Pro will deliver near real-time messages of up to 10,000 bytes to the device, and up to 6,400 bytes from the device, to meet what the companies see as

an increasing demand for higher data speeds in machine-to-machine (M2M) solutions.

The new service will support a range of security and location-based services, with the companies targeting regions like the US and Latin America, as well as looking at China and Russia as expanding markets for M2M services.

"This is a new service, with new hard-

ware and new infrastructure, that significantly expands the applications that the Inmarsat system supports," said Drew Brandy, director of land services at Inmarsat.

"We see lots of untapped opportunity in the M2M market for a reliable global service that can offer more: more data, more flexibility and a more reliable network. And, as people will see when we launch the service, it will be highly cost-

effective too."

IsatData Pro could be used for time-critical applications, or for receiving error logs from remote equipment or sensors, for example.

The IsatData Pro hardware portfolio manufactured by SkyWave will include complete terminals for both land and maritime environments. A modem-only version for OEMs and systems integrators will also be available.

Ocean Star agrees VSAT deal

www.mtnsat.com

MTN Satellite Communications has agreed a deal to provide VSAT services, including crew calling and internet services, aboard Ocean Star Cruises' first ship, the MV Ocean Star Pacific.

The ship started service in the Mexican Riviera, sailing itineraries from Manzanillo and Acapulco, from April 10.

"We elected to partner with MTN based on their track record of technology innovation and best-in-class support that is proven throughout the cruise industry," said Diderik Van Regemorter, COO at Ocean Star Cruises.

"Today, customers expect to have 24/7 connectivity, and through this partnership with MTN, we will be able to deliver quality services and secure communications to enhance our crew and

guest experience."

MTN will provide a range of satellite communication services for guests and crew, including an onboard cellular phone service, inbound and outbound voice dialling and internet services, as well as complete Wi-Fi coverage.

"This is the first national cruise line based in Mexico and Ocean Star Cruises understands that first impressions are everything," said Brent Horwitz, senior vice president of MTN.

"This means delivering a world-class environment, outstanding entertainment as well as state-of-the-art technology services. Passengers demand that their communications needs are as reliable and accessible at sea as they are on land. We have the technology services that will not only meet, but exceed, crew and passenger expectations."

Grieg installs SeaSecure for crews

www.seasecure.net

Grieg Shipping Group has agreed a deal to install the CrewCommCenter software system from SeaSecure on all of its vessels, to support crew welfare.

Having used a prepaid service for crew e-mail for a number of years, Grieg Shipping Group decided to implement the new system on the entire fleet after completing testing of the system during November and December 2010.

Grieg maritime ICT manager Øystein Sivertsen says that the upgrade has been highly automated and trouble free.

The CrewCommCenter solution provides a number of free services to crews, with the shipping company paying a fixed monthly fee to have the service onboard.

Free e-mail and worldwide SMS are included in all cases, both incoming and outgoing, as well as specialised 'thin' chat

clients and optimised secured web browsing depending on the satellite communications set-up onboard.

Interestingly, SeaSecure notes that in its experience when crew have access to the free SMS service and free e-mail, SMS has been the preferred messaging method to communicate with loved ones onshore.

This ratio is typically 25 per cent e-mail to 75 per cent SMS messages.

Grieg Shipping Group is also installing SeaSecure's Courier Antivirus system, having previously had mixed experiences with antivirus solutions on its vessels.

No CDs are required to provide the virus signature updates to this system on the ships, and an automatic weekly reporting feature is included which shows the status of every PC on board the fleet.

Radio Holland to introduce new VHF unit

www.imtechmarine.com

Radio Holland has announced the availability of the Thrane & Thrane Sailor 6248 VHF unit, as a successor to its Sailor RT-2048 VHF system which has been in the market since 1987.

The company says that 100,000 units of

the older system have been sold, but that it is now reaching the end of its life cycle.

The replacement Sailor RT-6248 VHF will become available in the second half of this year.

The new VHF will unit will include all of the features of the Sailor RT-2048, as well as a Sailor Replay function and a

LAN option for ThraneLINK, a uniform communication protocol that connects all Sailor equipment in a network.

Radio Holland notes that it will provide support for the original Sailor RT-2048 for another six years, which means that spare parts will be available and repairs offered until April 2017.



The Sailor RT-2048, with more than 100,000 sold, will be replaced by the new unit when it is launched



ShipSat

Accelerate, Secure, & Manage
your broadband connections



**Now with
PBX!**



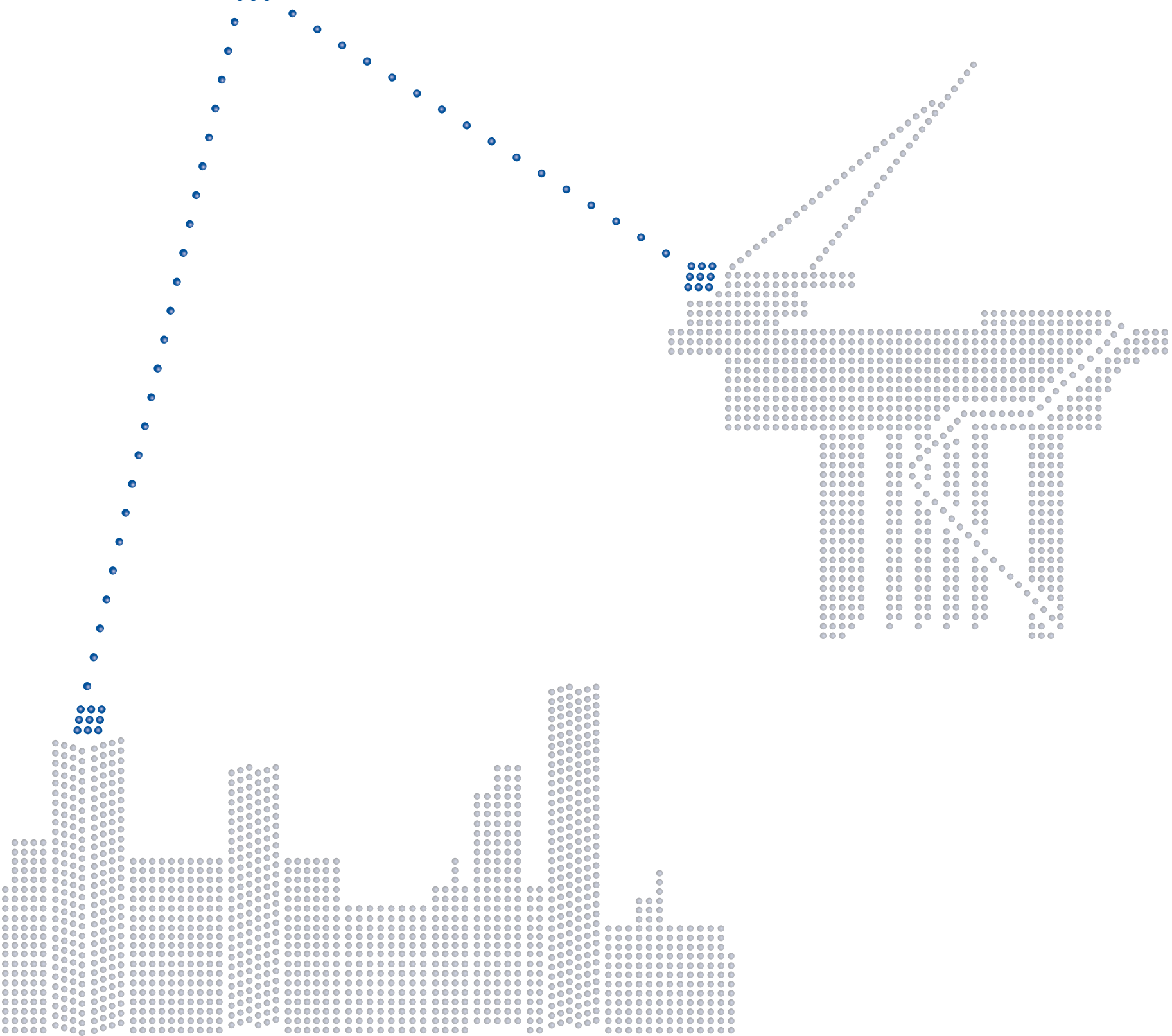
Crew Calling & Internet access
Satellite service switching
Firewall, VPN, and Router
Remote access to Ships' Network
Fleet network management



WORLDLINK
COMMUNICATIONS

info@wlnet.com | +1-508-370-7778

WE C  NNECT AT SEA



Design by superyachtart.com

FOR ALL YOUR
C  NNECTIVITY SOLUTIONS
www.imtechmarine.com



Considering FleetBroadband or VSAT?

Look at
Globe iFusion™
Maritime Communications Reinvented



Satisfying All Your Needs!

*Crew Welfare, Operations,
IT & Finance*



GLOBE WIRELESS®

www.globewireless.com
Phone: +1 (321) 308-0112
sales@globewireless.com

Satellite Communications - now and into the future

Digital Ship recently organised a round table discussion session in Sweden, bringing together a panel of five vessel operators and two communications suppliers to discuss the impact of satellite communications technology in the maritime industry, now and in the future. Amongst a wide range of subjects the debate covered VSAT, FleetBroadband – and the potential of Ka-band and Global Xpress

The *Digital Ship* round table titled 'Satellite Communications - now and into the future', hosted by Inmarsat in Gothenburg, Sweden, brought together a panel of eight experts with decades of experience in the field of vessel connectivity and managing the link between ship and shore.

The goal of the discussion was to examine some of the current, emerging and planned future technologies influencing the maritime market, and to gather opinions on how these systems might contribute to improvements in vessel operations and increased efficiency, as well as contributing to the safety and wellbeing of future generations of mariners.

Digital Ship posed a number of specific questions to the panel (identified in the table below), starting with a look at the how well the industry is taking advantage of the latest current available technology in maritime communications.

Digital Ship: Is the shipping industry fully exploiting the potential of the communications technology which is available today? Or do you think that satellite technology is not backed up by the kind of applications that might allow companies to really take advantage of what is there?

KH: The shipping industry has still not taken up a lot of the capability both in the communications side and in the applications side, but I don't believe that is a crime because I know a lot of businesses on land who have not improved their communications technology or other application technology.

So the idea that shipping may be a little bit behind is not that much outside the realm of possibility – in fact it is highly likely when you consider that corporate development of terrestrial IT capability is basically made up of the drive of manage-



Clockwise from left: Kevin Stoneman, Northern Marine Management; Martin Malmberg, DonsöData; Peter Faurhøj, Maersk Supply Service; Kyle Hurst, Inmarsat; Rob O'Dwyer, Digital Ship; Lars Brødje, Telemar Scandinavia (observed); Börje Silverfjäll, Maersk Tankers; Thomas Andersson, Rederi AB Transatlantic; Svante Johansson, MMT

ment in conjunction with the capability of the IT people.

If you transfer that over to the modern shipping industry the drive of management is one thing, but the other thing is the detachment of the IT element from the actual assets that they are working on.

If you have got a LAN onboard a vessel, the IT people won't often get a chance to get onboard that vessel and inspect everything, so it is highly probable that things are going to take a lot longer to advance in this kind of scenario. So I think it is inevitable, right now at this early stage, that there is still so much more potential.

PF: The industry has a tendency to be a little bit conservative, and the things you

have on land today, you will not normally see them on ships today. We have a tendency to be five or ten years behind a lot of the different services. They do not see the maritime industry as big enough to invest in platforms.

Today we have systems that have already been out in other industries for a long time – for instance, remote monitoring; they have used remote monitoring in the windmill industry and in power plants for years. And our suppliers say 'we have a new thing here coming up, we could remotely monitor your systems'. For everybody on the land side this was standard 15 years ago.

I believe many of the suppliers are not aware that it is possible today, if we have the internet aboard the vessel, that it is possible to do the monitoring. And I hope that the maritime suppliers will speed up a little, because it is not only the shipping owners who are causing this, it is the suppliers as well.

The mentality has been for many years that you can send a mail and you can get a mail back and that is it, but now we have the internet on many vessels and we just need the suppliers to speed up with all the nice gadgets.

BS: This is one of the questions, who is the driver of this? Should the IT department be the driver, or is it the business? Who is the driver in this?

KH: When I first started four years ago at Inmarsat, when we wanted to talk to someone about communications we were normally introduced to the superintendent. However, just in the last year I did a number of end user visits and it was more than likely, probably 50 per cent of the time, to be the chief IT guy. So the decision, to me, is now more IT-led.

TA: I think it is very important to get it business driven. You cannot let all the decisions go to the IT guy or the IT department, because it's important to your business development.

For us, for example, in the supply market we are driven by the customers, by which I mean the oil companies. We have to follow what they want to do with our vessels, and the communication they want between the vessel and the rig and the office and things like that. I think that is very important.

MM: I think the companies take all the advantage they can get from the comm systems, with the low speed that's offered along with the rather high price.

KS: I don't know what it is like with the other companies but with Northern Marine Management we have endeavoured to supply as much technology as is sensible considering functionality, business requirements and cost control focus.

We first installed VSAT onboard one of the vessels as a pilot in 2007 and today

Who's who: The Panel

The panel consisted of (abbreviations in brackets):

- (KH)** - Kyle Hurst, maritime marketing team, **Inmarsat**
- (PF)** - Peter Faurhøj, asst gen manager navigation & communication systems, **Maersk Supply Service**
- (MM)** - Martin Malmberg, MD/IT manager, **DonsöData (IT support for Furetank, Tärntank and Sirius)**
- (KS)** - Kevin Stoneman, ship support and installation team lead, **Northern Marine Management**
- (SJ)** - Svante Johansson, chief vessel strategy officer, **MMT**
- (TA)** - Thomas Andersson, VP supply management, **Rederi AB Transatlantic**
- (BS)** - Börje Silverfjäll, vessel IT manager, **Maersk Tankers**
- (LB)** - Lars Brødje, managing director, **Telemar Scandinavia**

we have VSAT onboard more than sixty per cent of our managed fleet. For the Stena vessels the project is nearly complete. This encompasses both C-band and Ku-band antennas.

During 2010 we also were able to demonstrate the additional benefits of fitting VSAT to our other clients but this was only made possible after a number of years experience. There has always been a fear that the costs could exceed projections. This we have not found.

We also develop a lot of in-house applications which are used within the office and onboard the vessels. This technology cannot always be utilised onboard the vessels because they do not have the communications capability to use certain online applications. Our in house software supports offline applications for ships not having VSAT.

There is a technology gap between what seafarers use at home and whilst at sea and as such it is difficult to manage expectations. Whilst there are ongoing projects to update vessel's IT systems they will always lag behind shore based networks.

SJ: Well, I cannot agree with the 'conservative' view, the type of business that I am in, the offshore business, we are screaming for more capacity. But of course we want it cheaper.

The bottleneck for us is that we would like to see more quality assured installations. That is the major problem we see. We can live with two (Mbps) up and two (Mbps) down, that is okay for us. But when the installation is not good enough sometimes I get very annoyed at the providers that sell us the systems.

Of course on our own vessels we have a bigger possibility to quality assure the installations, but when we are going onboard the chartered vessels I see so many bad installations. You cannot rely on the system, you cannot say that you have 100 per cent availability.

That is the key thing for us for the near future, to really put some pressure on the providers and the ship owners on that side that they do quality assured installations. We cannot live with a vessel that has a blind sector of more than 100 degrees. If we were working two weeks on DP, we have one heading all the time, if you are in a blind sector they'll kick your vessel out of their project.

Digital Ship: So what kind of uptime do you see as unacceptable? What are you looking for in terms of quality assurance?

SJ: For us it is important that if we pay for a certain speed on a VSAT system we need to have it 100 per cent. We understand that we are working with satellites and sometimes things happen, but it should not be down to physical problems, that should be obvious to everyone.

In the last year I have seen 10 vessels where the installations are not acceptable. The responsibilities are, of course, with the ship owner that buys the system but also with the provider. They should really make it clear; 'you will have blind sectors, you will not get what you pay for'.

TA: I think you have that on every vessel with VSAT, you have the VSAT antenna and try to put it in the right position on board, but then you change the radar system and have the same problem - where

shall we put the radar? You have lots of things all the time, and you want the best spot, you want the best place. Everybody wants to sit on top of the mast.

SJ: But that is the problem with some ship owners; they prioritise the TV satellite antenna. They put that on top, and that really annoys me because that is not where you make the money. That is the mindset.

Digital Ship: Lars, how do you deal with some of these problems when doing installations?

LB: Obviously we check the vessel, we check with the superintendents exactly like Thomas is saying, and we make recommendations and inform people that if they put the antennae there these are the blind sectors they would get.

BS (to SJ): Do you have big volumes (of data) that you need to work with or is it just the access that you need?

SJ: It's big volumes, we often have client reps onboard the vessel and 30/40 people onboard the vessel. If the internet starts to go down it goes very quickly, and for us, they can kick us out of the project. That is the same for our competitors in this business as well. For us it's as important as if the engine is running.

BS: For us it is totally different. We need to be always on, but we don't have the big volumes you have.

Digital Ship: So would you prefer to work with a lower bandwidth with 100 per cent reliability, or something that was very fast but not available all of the time? What would suit your business better?

SJ: We want both in fact, why should we take just one? In our business we must build in those installations so we get both. We cannot compromise on that one.

I think that ship owners in our business have had to adapt to this and do very costly rearrangements and things like that, because the company's clients will not accept that you do not have verified reliability on a VSAT.



'We did our internet project purely for crew retention, we didn't even talk about business at that time' – Peter Faurhøj, Maersk Supply Service

BS: I have always been trying to avoid the 'GMDSS' view of communications while putting IT on board, but trying to talk to people about how dependent we are on IT in our operations.

But I have never had that aspect in my work, like you said, that it is as important as the main engine to have the communications. That brings it to a new level which I personally had never considered.

LB: I was at a seminar for tanker companies five or six years ago, with the people who Martin is working with, and one of the well known owners stood up in the seminar and he said; 'you must understand, if there is a hole in the bottom of the boat, we have a problem. If the internet is down it is catastrophe'.

Digital Ship: In the last few years there has been an economic downturn globally, not just in shipping, and this obviously puts pressure on budgets. How do your companies find the balance between using technology to save costs but having to invest in it to get those cost savings in the first place? And how does crew welfare fit into this process?

PF: We did our internet project purely for crew retention, we didn't even talk about business at that time. We had the FleetBroadband installed or VSAT installed, but we still used the Fleet 77 for business traffic because we need the internet fast for the crew.

Now we are moving everything over to FleetBroadband and to VSAT, but the commercial and business side was not an issue at the time we started, it was purely for the crew. We wanted to give them internet and cheap calls.

It is a matter of keeping the crews, for sure. Before we started up our internet project I had a lot of complaints from a lot of crew members, saying 'Oh, we have heard that the Norwegians, they are installing these satellite systems, and they have 10 Megabits and they have free telephone calls'.

TA: We were more cost driven actually. When we would go out to the vessel we used to say to the crew 'we have this because of you', but that's another story.

But you can say that we increase the costs about 25 per cent maybe, something like that, but then we haven't had IT guys on the vessel, they don't have one vessel visit per year. Maybe one vessel visit per three years, something like that - mostly they can do things remotely from the office.

That is the most cost effective way of doing it actually, and even in the future you will see that you can do lots of remote monitoring of engines and all the maintenance work and all of that. That is a big, big issue.

We had quite high communications costs before the VSAT so it was quite easy for us to show the figures of how we could save to the business. And then of course you get a lot more things, you are getting a chance for the crew to stay in touch with home and have a telephone, and things like that. But that is more 'nice to have' for us than necessary.

PF: I have noticed with the broadband, before the crews made a telephone call that was two or three minutes to their wife and the cost was £5. Now they phone their wife for half an hour, or three quarters of an hour. So even though it is cheaper to make the phone calls, now the phone call

is just longer.

KS: We work for a number of different owners, and we have been having discussions with the owners for years on the benefits of VSAT and the cost savings of VSAT. Only now, where the data volumes that they want to push through the e-mail is higher, are they noting that this is actually a benefit for communication costs.

As noted earlier, crew welfare is a significant issue. With the lower prices available through using VOIP systems over VSAT, seafarers don't seem to make the same connection between the length of the call and the price now.

They stay on the phone for an hour, rather than just saying 'hi, how are you? Thanks very much, I will speak to you next week'. A telephone call home is not seen as something precious any more, it's just something to use.

PF: It seems to be that there is a tendency for the first priority to be the internet, the second priority is satellite television, then there is the food, and then you have the main engine!

People were sitting around in corners for many years, just doing the radios and GMDSS and so on. Then suddenly the focus had moved towards 'Why can't I watch the Danish television in Alaska? I am paying the licence fee'.

I remember trying to move a Canadian vessel from Canada to Aberdeen in the middle of the ice hockey season. I had to send a guy around Aberdeen trying to find a satellite television card with this special Canadian ice hockey channel on.

LB: Almost 45 years ago when I was sailing along the Australian coast, up and down between Cairns and Adelaide, we were always amazed that some of the Australian vessels had enormously tall TV antennas, it was like a base station for cellular; standing next to the funnel.

So why was this? Well, according to the unions, in the agreement between the unions and the ship owners, the vessel would never sail so far out that they wouldn't have full TV reception.

MM: Our companies are cost driven; the main focuses are about lowering the call bills and providing business.

My feeling is that crew welfare is less prioritised due to the high communication rates, but nonetheless the crew is demanding more - they need faster internet, and to always be connected to their families on shore. I guess the vessels without internet have a hard time to employ crew.

KS: I know one example we've had of a Chief Engineer who was to sign onto a ship but was not keen because it had no internet whereby his previous ship did.

Internet provision is something we advertise when recruiting seafarers. 'Internet access available' is a major point for recruitment and retention.

BS: That is happening already, whoever you are employing, whichever nationality, the first question they have for the HR department is, 'do they have internet onboard?'

KS: Having said that, I think putting these systems onboard is largely determined on the business case. This is no different than other forms of investment.

There is a lot of pressure from the personnel department, from feedback they receive from the seafarers saying that crew

welfare is such an important subject. With greater restriction on life at sea internet is seen as such an advantage.

BS: We made some calculations to see how much traffic is from the crew and how much is from business. In our case, which I'm sure might be different in other industries, but in our case business traffic is about 5 per cent of the available bandwidth.

File exchange, the e-mail system, remote support, remote connecting, remote fixing, Windows updates, antivirus updates and all those things – that is approximately 5 per cent of the available bandwidth.

times don't really see an obvious benefit of having internet access on the ship because they never had it before. This feeling can rapidly change after sailing with internet.

Digital Ship: How do you manage this mixture of business and crew traffic, by prioritising certain communications or splitting different usage into different networks?

KS: There are two separate networks; we have an admin network and a crew network, and so we can shut one or the other off and we can prioritise traffic on one or the other if we want to.

usage, if there is only one ship using the pool they will get 1 Megabit, but that won't happen that often, it's not very often that a ship gets up to 500 kbps.

KH: Something we have observed is that companies seem to be either from the 'black list' side or the 'white list' side.

Blacklisting things when you find them is probably quite onerous for the IT guys to actually crack down on, especially if they are going through the normal internet port. The white listing side is also another method of attacking the same problem, but probably not as popular with the crew because there are obvious limitations.

it cost money. But after a while, after seeing the remote access, remote control, cost control, the mix of Inmarsat communications – they saw the possibilities, and it turned into the opportunity of doing this business case that we have successfully been driving through management.

We are running a project on the remote signing of the Bills of Lading, for example. They save a couple of hours in port by just signing on the way out, using a bank security key like you use when you do banking, they can sign it remotely.

Captains are using instant messaging. Small questions that would usually generate an e-mail and need an hour or so for a reply, we can actually contact the captain on Yahoo messenger and ask him. We can have a yes or no answer immediately. Making the business case isn't easy, it is very difficult to get a price tag on all of these tools, but it does show that it is possible.

LB: I think this underlines what we talked about in the first question, that the ship owners are still generally quite conservative. The means are there but we are not using them properly and this has been a constant struggle all the time – to get people to take charge of the situation and to utilise what is available with programs, with remote monitoring.

I had one good example from a Ro-Ro vessel, the captain said 'we paid for the system a long time ago because the chief engineer and I have been provided with a company credit card, so we do all the purchasing'. They search on the internet, find what they need and they order and they pay by card and they get it delivered onboard. That is one simple application, but they use it properly.

MM: There are many areas (to add to a business case) – lowering the call bills and always being connected, being able to meet the demands from business regarding all applications that are needed to exchange information between the vessels and shore, constantly having or getting the latest information.

It can allow the crew to be able to make orders direct from suppliers, and introduces the possibility to do online drug testing, or take live photos from ship to send to shore for security reasons.

Digital Ship: Beyond the areas that we have looked at, with things like remote access and maintenance for example, are there other particular operational areas where you see communication systems possibly being used to drive efficiency?

TA: Something like CCTV can be used to offer medical assistance, you can have a remote link to a hospital. If something happens onboard you have to deal with it, but with the video if someone gets ill or something like that you can connect yourself directly to a doctor. You could do surgery onboard with the help of this guy in the hospital, having maybe four cameras onboard.

You can diagnose him for example, ask him this and that, look for that, whatever. It is very challenging, but we need to have this, actually it is a customer driven thing.

BS: The IT challenge is that business does not really know what we can offer them sometimes, I think. When I see the challenges like populating databases on the shoreside and for our operators and freight department, there is so much more



The panel discusses some of the onboard activities before the advent of maritime broadband

KS: We did calculations and we looked at the data throughput on the e-mail on one of the ships before we made the choice to put the FleetBroadband 500 on, and there was approximately 100 MB of e-mail traffic per month to and from the vessels.

Now we look at the VSAT systems we have and we can see traffic throughput of 30 GB a month, and again 100 MB of that is business traffic. So it shows you how much the crew use it, or how little, in some respects, that the business uses it!

BS: We offer the crews broadband, every brochure is saying we have 'broadband at sea'. But if the guys sit down in their cabin and they try to launch their laptop like they think they are at home, they are not going to get anywhere.

It is the same argument that you would have with the television set not working. We are getting to that point because they think they have the broadband, so they should be able to do whatever they do at home.

KS: Seafarers are used to having 50 Mb speed of connection at home and then they go onboard and they get 1 Mb. We have had complaints because it takes longer to open up a feature on a website onboard when compared to home. As previously noted, it is difficult to manage expectations.

MM: I guess when the younger crew start to be employed by the ships it is expected to have internet. I think it is the older ones who maybe don't think about it quite as much.

KS: I agree, I think it will be for the younger crew looking ahead to encourage them to come to sea. Older people some-

We may prioritise the admin network but we also prioritise the traffic that comes out of the PC we use for e-mail, it has a higher priority over everything else onboard.

The crew VoIP phones do have their own priority, but it is not as high as the business communications. The Operations Department value the business needs greater than welfare, which is understandable.

BS: We have a priority on things like Skype, it is still possible but it is at the bottom of the chain. If you got up at two o'clock in the morning you will be able to do a Skype call. But if you try it at four thirty or five o'clock in the afternoon, it is already crowded, everybody is going on the internet.

We have four audio streams available for the whole ship, for crew, but no video streaming. Additionally, for all the crew there is no Windows updates allowed, they must come with a fresh computer when they sign on onboard.

KS: We have banned things like executable files from being downloaded. We noticed a massive amount of traffic from Windows updates on personal laptops, because everybody onboard had their laptops set to auto-update. If you have a Service Pack update for Windows XP it can be a couple of hundred MB, easily.

BS: We use Vipersat technology, and we're connected to a fixed shared pool of bandwidth, which is shared between eight, nine or ten ships. A pool is typically 1 Megabit.

Depending on the availability and the

BS: I have been working the whole of my career to free the limitations. I mean all around the Inmarsat technology; it is a high cost that needs to be governed. Naturally, you need to be in control of your costs and you should be! But it feeds a whole branch of people living off controlling your bandwidth.

Digital Ship: Apart from the crew, what other areas can you base an IT investment business case on?

BS: We have put together a serious business case over the last month and it has just been approved for a project at Maersk Tankers. Nothing will ever be approved unless you have a solid business case.

Looking at the performance of the tanker industry, they are all in the red and doing poorly, but if you have a solid business case, as we have, you can do it. Moving away from dialling up the e-mail, dialling up the file transfers – the amount that can be saved relative to the investment of rolling out a new platform can let you build a solid business case. Then there are no options for management but to approve this.

But the big challenge I think is to convince the management to spend one buck to save two. That is a challenge in a poor market, but having a solid business case is the way to do this. I have learned through my short time in Maersk that we don't spend one buck if we don't need to.

When Maersk Tankers came into Broström and they saw our IT set-up, they wanted to close everything down because



'The IT challenge is that business does not really know what we can offer them sometimes' – Börje Silverfjall, Maersk Tankers

that we can do together. So I think we have a challenge of informing our own organisation and finding what they want to do with the IT.

Many, I am sure, do not even know that we are always on, that the vessel is a remote office, it is not a ship any longer, it is a remote office. It is a mind set, you have to accept that the ship is now connected to the office.

We were talking about conservative attitudes – this is still an important thing and we have not developed answers to all the challenges. There are so many more possibilities in assisting and using 'type once' technology that we are not using today. We still type a lot onboard and the same again in the office.

PF: There was a very interesting comment at the *Digital Ship* conference in Hamburg, from a German ship owner. They had introduced remote monitoring and the superintendent could watch everything on his screen in the office. But this only caused the superintendent to be overworked and the engineer onboard the ship, his focus on the engines was long gone – 'if something is wrong the superintendent will probably tell me'.

It is dangerous to remove too much information or responsibility away from the vessel. The superintendent was very overworked with information from this vessel, what to do with all this information.

KS: We have got a remote link with Valmarine. We set up a test VSAT vessel to alert Valmarine and give them access to their integrated management systems onboard. This allows them to look at the problem and potentially diagnose it before they spend thousands of dollars going to the ship to actually diagnose the problem.

If Valmarine can diagnose the problem remotely and provide a solution, this greatly reduces cost. Unnecessary technician travel is something we try and avoid. They can turn up on the ship knowing very little about the problem and then

thinking 'okay, I need to get this part, this part and this part, I will need to go away and come back in two weeks'.

If you have got the ability to do the kind of remote management we're talking about for those systems it allows you to potentially save a fair amount of money when they actually turn up to resolve an issue.

KH: There are the two sides, through remote management you can have a transition of responsibility, as Peter mentioned, but then on the other side if you don't have remote management you may be missing out on cost savings. If something goes wrong with the large power plants that we are talking about, for example, as a guide for cost you just write a number and keep adding zeros.

So I guess we are seeing a trade off here, you may see someone onshore inheriting more responsibility, but you might actually find a dollar value in the failsafe mechanism.

When we first started the new DTS service (Dynamic Telemetry Service) for FleetBroadband we were very encouraged that we got, from end users and application providers, a lot of ideas on the possibilities. We had thought about remote engine and systems management, but we then had people talking about remote medical and biometrics coming across this telemetry system.

We had our ideas, and obviously we see things through Inmarsat glasses, but we are just very surprised at number one; the response from the industry and number two; the diversity – people have said 'if we have got a telemetry link onboard the vessel, then we want to monitor our LAN onboard the vessel, we want to have real-time network management systems coming across the link'.

Another part that is very interesting is safety. GMDSS was created so that if there is a problem on the boat you hit the big red button and shore can be told that

there is a problem.

Now people are asking, 'how about if we could monitor all these things continually? We could have sensors onboard the vessel generating alerts so someone back on shore could go, oh that is a bit strange' before someone hits the big red button. It's not a safety service but it feeds into the general visibility of the vessel, which has safety benefits.

KS: I had a discussion with one of the Superintendents where he said that there is more IT equipment on the bridge than there is anything else onboard now. And if you look at it you have got ECDIS, you've got all the integrated management, you have got potentially the ship LAN – there is so much IT on a ship now.

If you can monitor the majority of it the cost savings that you could have in the long term could be significant.

BS: But who is the driver in this again? Is it our business, or is it MAN B&W or Wärtsilä or any other engine maker? Or is it the IT side that should be able to offer these possibilities?

I have had several calls from MAN B&W and Wärtsilä to ask to be allowed to go onboard using the IT systems to take different readings and technical data from the systems onboard.

We have two networks, a crew-net, which is wireless, and a wired business-net for the e-mail, remote support file transfer etc. I don't want them on any of those systems basically, so in a future set-up I am going to need a third net onboard.

I will need my business net, securely protected, and then the crew Wi-Fi net where the crew are running their data, and I will need a suppliers-net where I can let them do whatever they like.

SJ: When it comes to cost savings, there are some of the tasks in offshore operations where these young guys, RV operators etc, they're very well paid so sometimes you can make a very positive cost saving to keep one of the shifts ashore.

That is actually being done in the Mexican Gulf right now and is something we look very closely at. Some of the tasks, with good ship to shore communication, can be done from shore and we can actually have less people onboard. That is something that, for us, can be very cost effective.

It can generate a higher cost for communication but we can save money by having less people onboard, and that is something you will see a lot of in the future because it is expensive to keep people onboard a vessel instead of having them on the same system in your office remotely controlling the system on the ship. That is already happening but it will be developed more and more across our business.

PF: In many cases in the offshore industry, they don't even go for 2 megabit anymore. I know one ship where they have 70 people onboard and they want to be on the internet, all of them at the same time, and the challenge is that they are complaining 'it is too slow'.

Of course it is too slow – when I am at home, I have a 2 megabit line at home and when my son is playing one of these shooting games on the internet, my internet radio is dropping out all the time. When there are 70 people onboard the vessel and they are on the internet at the same time it is going to be slow.

Digital Ship: Training is one of the major issues for vessel operators in the current market, and looking ahead over the next few years – can communications technology have an impact on training provision, particularly with regard to computer based and multimedia training?

PF: It is still a matter bandwidth. Some of these applications are not made for low bandwidth, you need an awful lot of bandwidth in order to participate in any of these online education systems, or video conferences.

There is a bouquet of demands there where we could use a little bit more bandwidth, and of course education, crew retention and office training is in there. You have all these applications which have a high demand on the bandwidth.

In the beginning everyone was very happy with our bandwidth, but it was new. Then they were all using internet aboard the vessel so it got slower and slower. And now they want more bandwidth.

LB: I think that training will become more and more important. We can see around the world that all the maritime colleges are lagging behind.

The industry is moving very fast, the legislation is moving very fast, the classifications societies are demanding more and more, the vetting inspectors are coming aboard every other vessel, especially if you are onboard tankers.

And you also have a situation where the crew members are distributed virtually all over the world today; you take from Croatia, you take from Ukraine, you take from Belorussia, you take from the Philippines and so forth. So it is very difficult for all the training institutions in different ports in the world to have the standard that is required.

I think it is more a matter of time before more and more people realise that this is extremely important. And you also have the training situation where in the new STCW convention, it is not enough that you just have the certificate, you must prove to the inspection, to the surveyors, that you also have the required ability.

So when a US coastguard inspector is coming on board he is taking you up on the bridge or he is taking you down to the engine room and saying 'show me how you are doing this and this and that'. It is not just show me your certificate; show me you can do it. And that is where training and remote training is coming in so quickly now.

KH: I think we should also ask what training is best? Because you can get training systems which are very glitzy and glamorous, and they are of course going to require a lot of bandwidth. Then you have very simple systems like when I was at school which is: 'here is the book, read it, then here is your test, complete it'. That is not very intensive on bandwidth.

You could do training with video and so on, but whom among you is the one saying 'yes, we want training, and we want it in this particular format'? The cost/benefit needs to be worked out based on not only the cost of supplying it, as in buying the training materials, not only the cost of getting it communicated, as in getting the link up and pulling it across, but also the cost of the time of the seamen themselves.

You could have them sitting there watching days and days of video content, would

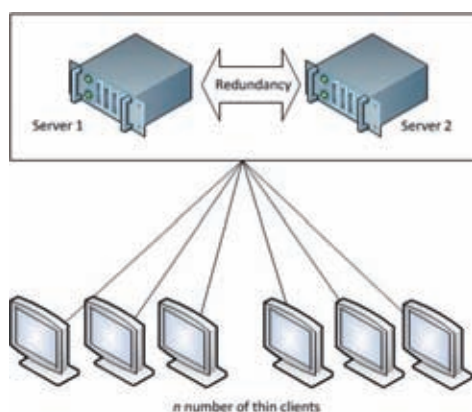
In need of improved communication?



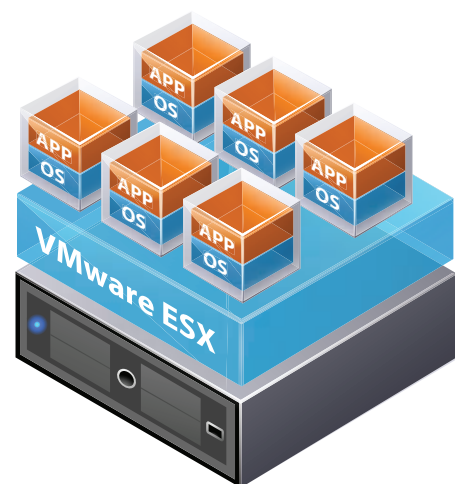
KJAER DATA offers ship-owners a cost effective solution for handling IT onboard their vessels. We have tailored a "one box" solution that gives your IT administrators the possibility to create a virtual PC in seconds, maintain all servers and clients from an easy-to-use interface and ensure a secure and smooth operation.

Standard Commercial Products

As a maritime IT provider, KJAER DATA has specialized in solutions built on commercial products from trusted suppliers such as IBM. This ensures our customers the best quality products and world wide support.



- Virtual Servers
- Virtual Win7 PC's
- Thin Clients
- Application services
- Email & Calendaring
- SAT Optimization (WAN)
- Hardware redundancy
- Full Security Features



KJAER DATA

KJAER DATA ApS.
Hvidkaervej 48
DK - 5250 Odense SV

TEL: +45 63 10 12 00
sales@kjaer-data.com
www.kjaer-data.com

they learn anymore than reading a book? They will probably learn less as they tune out. What is the best strategy for training?

KS: I think it is a combination of both. We have got about half a dozen fleet trainers who basically go around every single ship in our fleet and do safety training.

With greater focus coming for ECDIS etc, the training needs will significantly increase. Whilst we do not envisage full onboard training replacing shore training there is scope for a significant increase.

One to one training with a personal interface is very beneficial but refresher courses may not be required to be delivered in the same way.

BS: It needs to be interactive, so you could be sharing a desktop or something. We should make it happen, we should make it possible. From our point of view, all of us sitting here, we should be able to make it possible.

It is up to the business and we should be able to tell the business what we can do. What can we offer? Can we share a desktop, can we do real remote training? What can we offer our business? Then it is up to the business to do it.

KS: It goes back to the driving issue that, as the IT part of the company, we are only the facilitators. If the business end of the company doesn't want to do it all, what we can do is give them the ability to do some of it. It is their choice at the end of the day whether they want it or not.

Digital Ship: The ability to demonstrate skills and competences was mentioned as a driver of better training – are there other regulatory demands that you see as also driving the demand for vessel connectivity?

TA: Absolutely. You can see it now, when you do a rig move for an oil company for example; they are telling you to go to their home pages and download the procedures and everything and you can't find it anywhere else.

You have the Coast Guard in the States who want you to provide them with all types of papers and documentations, and they can only be submitted electronically.

BS: There have been captains in our fleet who have been threatened with a fine if they don't do it, because people think

that they are online. It is something which is unbelievable to be confronted with.

LB: And also in case of emergencies, let's say a grounding or whatever, they can also call for video footage and all that. If they know that you have the facilities onboard they will definitely require it.

Digital Ship: Could that then be used as an argument from shipping company management as a reason then to not put these technologies onboard?

LB: There are pros and cons in everything as you know. I have been discussing this with large tanker companies and they have standing orders to follow.

With one large tanker company for instance, the first thing, if they have an accident, the captain's standing order is to call the office, usually from the Inmarsat terminal, and let the line stay open because they don't want anyone else to be able to call in.

TA: You can imagine that if you have some type of accident and you need to dump all data from the VDR directly to the office and things like that, just to be sure that you are the first to get the information on what has happened.

KS: Obviously it is legislated that every ship has to have VDR or S-VDR depending on what kind of ship it is, and right now it is only microphones and data recorders. What could potentially happen in the foreseeable future is that there will be two cameras on the bridge, a camera in the engine room, and they'll need to be part of the VDR record. This would give further information for investigations.

The important point is that the responsibility and accountability for such actions remain clearly defined. It is not possible to remotely control or monitor vessel operation in such a way.

TA: Exactly, because the coastguard will pick it up immediately when they arrive, they will pick out all the data. So you need some sort of portal to dump it directly into the office.

Digital Ship: Probably the biggest satcom story in the last 12 months has been Inmarsat's announcement that it is to invest \$1.2 billion in the development of a Ka-band VSAT system called Global

Xpress – perhaps Kyle could share some of the latest details with us?

KH: The group here today has very aptly described how the demands of the maritime industry, the merchant maritime industry, are not static, they are growing – sometimes more exponentially than any of us would like, but they are growing and they are not likely to slow down. They might go through ebbs and flows as in the pitch of the rise changes, but it is still a rise.

That is what we have been looking at and I think that everyone would believe at this table that if Inmarsat is doing anything in the future we would be doing it right, and that is what our plan is with Global Xpress. We have taken the demand as we see it, we have taken the requirements of industry and we have put those things together with the technology we think is future proof.

There is a lot of capacity in the Ka-band and that combined with the platforms that we are launching, the three Boeing satellites which are tried and proven satellites, which give us a monumental capacity, combined with a global reach means GX is very much a step up in what is currently available in the maritime satellite communications network.

I will say it because it is obviously one on the main points; 60 centimetre dome with a capacity of up to 50 Megabits is an impressive capability, and also looking at the price per terminal, around about the price of FleetBroadband 500. So basically it is faster, it's smaller than what you would generally see on the VSAT market for anywhere near this capacity, although nothing really comes near it, and it's cheaper.

It's a tracking antenna, so it is basically a similar technology to what we have been talking about here today, whether it is a FleetBroadband or a VSAT, but there is a level of complexity above an L-band antenna.

But that is what the industry needs, we require something to look for in the future. So basically starting in 2013, and then with full commercial availability in 2014, Global Xpress will be a reality. It will be cheaper than any like for like Ku-proposition, and can be combined with L-band, the blue ribbon service with very reliable GMDSS – there are currently no plans to

put GMDSS on Global Xpress.

BS: Of course it doesn't have the same reliability in heavy rain as L-band, which would be needed for GMDSS.

KH: Yes, that's an issue but in saying things like that about those environmental factors; there is considerable work from both our side, from all parts of the companies involved in the delivery of this project, to combat those known factors with this kind of technology.

This technology is used by the US military; they are not going to use it if it is not up to scratch. They use this kind of technology in serious situations, as you would imagine, they use Ka-band satellites, high bandwidth, very similar to what we are using, the Boeing satellites.

So in capability, in quality and in coverage, it will be well above what you see today with VSAT and will fit very well with our existing L-band and its multiple capabilities.

FleetBroadband will continue to develop, we have just announced the DTS as I have spoken about today, and we have a commitment for non-SOLAS GMDSS by the end of this year. We have a commitment for full SOLAS GMDSS by 2014 before the Inmarsat-B service closes, and there are another number of extensions to the FleetBroadband product that we will be announcing by the end of this year.

So as we move ahead with the future of those higher bandwidth services, L-band is also definitely moving forward as well. So it is a very interesting future for Inmarsat as well as the industry.

Digital Ship: Do you see this development as a real 'game changer', and what kind of impact would you expect on the market for both L-band and Ku/C-band services between now and the 2014 commercial launch?

PF: Of course, it always has a big impact when Inmarsat throws something into the arena, there's always an impact on your decisions. The last time, with FleetBroadband, we were almost closing a deal for VSAT when Inmarsat came by with a cliff-hanger!

Every time the focus is moving away from Inmarsat they have a tendency to throw in a new offering – maybe a price plan, or something.

I think it is interesting, we have an area here with some large players and of course it is divided with Inmarsat and VSAT. Inmarsat is the only player on one part of the fence and on the other part of the fence we have a lot of players in the VSAT market, some big but a lot of smaller but very strong players also.

What I am waiting for if the next step from the VSAT suppliers, because they need to have something just as good, or even better, than what Inmarsat have thrown into the ring with the announcement of Global Xpress.

If we can have 50 Megabits for a low, low price and small antennas then it could very easily be the death of the VSAT if they don't come up with something better. I think the VSAT industry has to come up with something now or otherwise there will be very few new contracts in the coming years.

I could see at the Digital Ship conference in Hamburg there are still a lot of companies still in the test phase with VSAT. And



Lars Brødje, Telemar Scandinavia; Börje Silverfjall, Maersk Tankers; Thomas Andersson, Rederi AB Transatlantic; and Svante Johansson, MMT, discuss the merits of Ka-band

One size fits all

Iridium OpenPort®

Iridium OpenPort enables affordable, flexible, maritime communications. Anytime. Everywhere. Supported by the world's only truly global commercial communications network — it packs a whole lot of value into a small footprint.

Backed by an industry-leading 5-year warranty and Global Service Program, Iridium OpenPort is a product you can rely on.

No matter what size the vessel or operation, Iridium OpenPort is always a perfect fit.



www.iridium.com/OpenPort

that is in Germany, so there must be a big market for this in the Mediterranean or the Far East area where they have not yet decided what to do.

They will have heard about Global Xpress now, so they may even wait a couple of years more until they decide what to do with this. So I think it is now up to the VSAT companies to find some cliff-hangers.

BS (to KH): You mentioned something on the cost of the terminals, but what will be the way you go on the usage? Would it be flat rate packages or will you use straight usage on the system? What is the basic intention?

KH: Well the easiest guide, as I can't really tell you anything at this early stage, is to look at what the market is doing. We cannot spend \$1.2 billion dollars and price ourselves out of the market.

We will be setting an aggressive price, and we have to because of the competition in the market. This theory doesn't change, it is always about the price and that is what we will be looking at.

I don't see a downside for the industry in this. It is basically a recognition that this is what the industry needs and we will have the capacity to supply it.

Digital Ship: As we have a number of potential customers here, is a flat fee for this Global Xpress service something that is an absolute must for you?

BS: You want to know what your costs will be, every manager wants to know that.

KS: When it comes to budgets the personnel involved want to know exactly how much per month they are going to be paying for their communications. They want a flat fee for the rental and then they can make adjustments, but they want to be able to turn around and say 'our basic data cost will be three thousand dollars a month', then they can budget for that.

If you are saying it is potentially going to be a price per MB or whatever it is going to be, they cannot turn around and say 'we will put a budget in for this' and then two months later, the first time they use it it's twice that.

If it was the case that it was not a flat rate, would it be taken up for anything but a business tool? Would they use it for crew internet? Because if it is not – as in the example I gave earlier, 100 MB of business traffic for 100 dollars is great, but 35 GB of crew data and there goes the budget for the year.

If it's a flat fee you can have a fair usage policy of 'X', and if you go over you get charged extra for it. But to be honest, from what I have heard from our Superintendents and ship managers, they want flat fees.

PF: When you have to take the decision to go for VSAT or FleetBroadband, it is a big advantage for VSAT that you know the cost down the road, that is important.

BS: The availability is a big issue to me, Inmarsat is the peak in quality and you pay for quality. In our environment we use VSAT as a bulk carrier, and then, in order to achieve the very high uptime rates and in order to really achieve an always on solution, we are topping up with high quality bandwidth from Inmarsat.

This argument would change in the new set up perhaps, but right now to keep the vessels on, that is how we do it. We are

topping up with a dial-up function over Fleet 77 or some other back up today, but in the future, with the Sat-Bs being discontinued and off market, we would have a FleetBroadband 500 or another new terminal beside VSAT.

KS: If you turn around and put VSAT on the ship and it is not a fixed fee and expect it will only be used for business traffic, the people on board won't look at it that way, they will say 'okay, we have VSAT, where is the internet?'

Then you start to get problems with crew onboard complaining that they don't have this or that, and that could cause you more problems than the extra cost of VSAT.



The sun shines in Gothenburg as the panel members conclude the meeting

KH: We are acutely aware that it is a requirement - it is a requirement in this room let's say and pretty much a requirement throughout the industry for that cost predictability. We recognise that, and we are recognising that even with FleetBroadband, where we are creating new price plans all the time – we have to.

But one of the things that I hope people also recognise is that we offer the highest quality service. We have to have the blue ribbon service, as it also includes GMDSS. We are not making knee jerk reactions, we are doing things in a clear considered and reliable fashion, and hopefully you will see that in 2014.

Digital Ship: If all your ships had 50 Megabit lines for a flat fee tomorrow, what do you think you would start doing with it?

KS: You would see a massive increase in communication by the crew. They would want to be on iTunes all day.

There would be, as we've said, no limitations. If you have that speed there would be no limitations, you wouldn't need to care about 'this update is taking up to 60 per cent of my bandwidth today' – who cares?

BS: Sometimes when you look at how much they are downloading and how much they are sitting in front of a computer, I wonder who is washing the white paint? I mean, who is doing the work actually onboard?

KS: You have got to wonder what it does for the relationships between the crew members as well, because if they are sitting in their cabin at night on the internet, talking to whoever or playing games or whatever, how much interaction is there between the crew other than when they are working or when they are eating? That said, the life at sea continues to evolve over generations.

Citrix, and those technologies that you have in the head office.

Digital Ship: So 5, 10 or 15 years into the future, when all of these ships are floating around with 50 Megabit connections and are able to access everything you are talking about – where does this leave the industry?

PF: As I said before, the industry is a little bit conservative, so what you see today you might see on the ships in five or ten years, but like everything else if it goes up to a certain level it might not be an issue anymore.

Nobody speaks about the speed of a computer anymore, it is just there, it is just running. I don't care if it has yesterday's or tomorrow's CPU, nobody cares anymore. I remember five years or ten years ago everyone was saying; I have a 186, or 286. But I think the capacity will go up and then we will just stay up there.

We'll have the applications, we'll have the services, the ship will be part of the office and for the crew members it will almost be like sitting at home – and that's it. I don't think we would see that much in the coming years after we have the capacity that we need, it will just stay there.

BS: I think reliability is the key in this, that we are at 100 per cent or as close as we can get to 100 per cent always on. Then the ship server can be standing in the office, or in some mountain hall somewhere. All the maintenance of systems, would be done in the office.

Citrix is already working, with the latency problem of connecting a remote desktop over satellite, and I think they will solve these issues also – with them we are talking about a year ahead.

Redundancy then becomes a big issue of course. It will always require an antenna on the starboard side and on the port side.

KS: If you lose your signal, with a 50 Mbps connection, from any sort of fault like a mechanical fault, maybe a drive belt snapping; there is nothing you can do to fix that quickly unless you have a somewhat trained VSAT technician onboard, or it turns out the ETO onboard has been on training courses for all these systems.

There is always going to be downtime of some sort, and we need to have systems onboard that can cope with any eventuality. With the amount of IT onboard some ships will end up with a dedicated IT person.

KH: In previous years the buck stopped with the chief engineer; if something was broken it had got to be fixed or nothing was going to happen. He was expected to know every single thing; everything was meant to be between his two ears.

Now there is a whole heap of people back on land who are probably second guessing him to a great degree. So that guy's position as the chief engineer, or someone like him, his position is going to change from a guy who knows a lot about a lot of things, to a guy who just knows enough that he can identify one engine from another – and he may also have an IT degree or something like that.

He'll basically be an extension of the organism that starts in an office back on land. I wonder for him if that is an outcome of the kind of technology that we are looking at putting onboard vessels, and whether it is a good thing or a bad thing. I think that is for the industry to decide. **DS**

Broadband drives convergence of satellite services

The growing level of competition in the maritime satcom market over the last few years has led to an increasing convergence of technologies onboard modern ships, as traditional MSS technologies mix with VSAT to create hybrid offerings covering a wide range of needs, writes Wei Li, Euroconsult

Historically, the maritime industry has been conservative and slow to adopt new technologies. Shipping companies largely relied on proven solutions, but this situation has been changing quickly.

Over the last few years the maritime industry has been moving from fax, voice and distress communications to higher speed IP data networks.

Broadband satellite data communication services are now gaining market acceptance, with a growing number of ships adopting these new generation services to replace legacy satellite terminals. This is leading to strong growth in the maritime satellite communications market.

Mobile VSAT, especially Ku-band VSAT, has been the rising star in the maritime satellite communications market.

For a long time, the use of maritime VSAT systems was limited to high-end market segments such as oil & gas rigs, petroleum tankers and large cruise ships due to the constraints of a large antenna, high capital investment and limited coverage.

However, VSAT technology has advanced rapidly in the last several years, allowing for smaller, lighter, cheaper and easier-to-install equipment. Other issues, such as coverage, have also been largely overcome through joint efforts by VSAT service providers, equipment/antenna manufacturers and satellite operators.

Maritime VSAT system data rates are currently available up to 5 Mbps (although the majority of the offerings are at 64 to 256 kbps range), and the service is usually provided at a fixed monthly fee typically ranging from \$900 to \$5,000.

Some Ku-band terminals are now even comparable in size to L-band products, for example KVH's recently-introduced mini-VSAT service has a Ku-band antenna as small as 37cm in diameter. 60 cm VSAT is also provided by several different companies such as KVH and SpeedCast.

Overall, in the maritime VSAT market in 2010 Euroconsult has observed double digit growth in both terminals and revenues. We estimate that there are currently about 9,000 active maritime VSAT systems operating globally.

This growth is expected to continue in the next decade, and by 2020 the global maritime VSAT market will almost triple in number of active terminals.

On the MSS / L-band side, high-data-rate systems, such as FleetBroadband from Inmarsat, and OpenPort from Iridium, are



Speed of installation was a key element of AP Moller Maersk's satcom choice, as the company managed to install 100 FleetBroadband terminals in 100 days before expanding the contract

also benefiting from the trend towards higher speed data communications.

Inmarsat reported growth of 200 per cent in FleetBroadband terminals in 2010. Inmarsat's counterpart, US-based Iridium, also reported that its flagship maritime product, OpenPort, grew by over 100 per cent in active terminals in 2010.

At present, despite all the improvements from the VSAT side, L-band solutions still have some advantages compared to Ku-and C-band solutions.

Maritime VSAT still has considerable coverage gaps and issues with the handover between different satellite beams. In particular, Ku-band coverage is largely restricted to coastal waters and the northern parts of the Atlantic Ocean.

Additionally, MSS (Mobile Satellite Services) systems like those in the L-band require less maintenance and are highly resistant to environmental conditions, such as rain fade, which cause a reliability issue for Ku-band VSAT.

MSS terminals also still have significant price advantages over VSAT systems. Moreover, MSS requires much less time for installation - a critical factor for

some customers.

In September 2010, the Copenhagen-based shipping giant AP Moller-Maersk agreed to install Inmarsat FleetBroadband on 200 vessels (following 170 vessels previously installed). One of the key reasons AP Moller-Maersk chose FleetBroadband, according to the company, was the speed of installation. Prior to this deal, Maersk had successfully installed 100 FleetBroadband terminals in 100 days.

Despite success such as these, the MSS business faces increasing pressure from the Ku-band VSAT services, affecting revenue and ARPU (average revenue per user), which has declined significantly.

Indeed, a number of recently-installed MSS broadband terminals are intended as backup or gap-filler solutions to the VSAT system.

However, Euroconsult believes that there is still potential for MSS services in the lower-end maritime markets (e.g. fishing), and the maritime MSS industry will still grow in both revenue and terminals.

MSS broadband service (at least 128 kbps), in particular, is expected to grow at almost 20 per cent annually in number of

terminals through 2020. While revenue is expected to grow more slowly, MSS will still represent over 50 per cent of the total maritime satellite communication market value in 2020.

Operations and welfare

For both MSS and VSAT services, growth in the next 10 years will primarily come from crew welfare communications, and increasing data demand from ship operations.

Shipping companies have been facing increasing difficulties attracting qualified personnel due to the rough conditions at sea and the fact that crew members must live for long periods of time away from families and friends, opening market opportunities for satellite communications for crew welfare and entertainment.

Traffic for crew communications can represent as much as 80 per cent of total data traffic onboard a ship. The Norwegian VSAT service provider, Ship Equip, recently reported that its customers' daily traffic averages 650 MB per vessel with a large percentage estimated as crew-related traffic.

In this type of scenario, VSAT is definitely the most cost-effective service because with a fixed monthly fee vessel crew can have unlimited access (MSS services are still based on pay-as-you-go models, except for leasing services and some special offers designed to retain large customers).

One example of the relative expensiveness of MSS was described in the latest issue of The International Transport Intermediaries Club (ITIC)'s Claims Review.

In this example, a ship manager failed to exclude internet access when his ship was upgrading the satellite communications system. During the three-month period before the error was discovered, the crew had open access to the internet and ran up an enormous airtime charge of \$436,000 – more than 80 times the planned budget.

On the operations side, satellite solutions are being used by commercial ships for real-time meteorological information updates, route planning, engine diagnostics, and more recently electronic cargo declaration.

Smaller fishing ships also require real-time satellite communications to acquire fish pricing information to choose the best destination port while still in the middle of the ocean.

Satellite is also used for remote management of certain operations which do not require permanent personnel. Remote monitoring systems generally need only

low connection speeds (<20 kbps) but increasing automation could require higher connection speeds (i.e. 56-128 kbps).

That increasing automation may well be ahead. In one example, Hyundai Heavy Industries unveiled its remote monitoring and control 'smart ship system' in March of this year. Vessel operators can remotely control engines and controllers and manage other important on-board systems from offices on shore using satellite links.

The first ship to be equipped with the 'smart ship system' is a 4,500 TEU containership, recently delivered to AP Moller-Maersk. The Korean ship builder announced that it will also install the 'smart ship system' on an additional 21 ships ordered by AP Moller, as well as on two ships ordered by CMM Inc.

Convergence and competition

The convergence of satellite technologies and hybrid L- and Ku-band terminals currently observed may help overcome the MSS data volume and speed issues, and coverage and reliability issues, related to Ku-band maritime VSAT.

Such solutions use VSAT systems as the backbone and the MSS services as backup, with traffic and network management centralised into one interface.

One example of this is Stratos Global's early 2011 introduction of their new service called FBBPlus, which offers a combined package of FleetBroadband

500 and Ku-band VSAT for a fixed monthly fee with a monthly traffic ceiling of 25 GB.

Further up the value chain, we have seen unprecedented convergence between MSS and VSAT suppliers in the last few months, with Inmarsat preparing its proprietary Ka-band VSAT service in 2013 / 14 to win back market share lost to VSAT providers.

In February 2011, the leading maritime VSAT equipment manufacturer, iDirect, was selected to provide Inmarsat with Ka-band network infrastructure and terminal modules. In March 2011, the largest maritime VSAT antenna supplier, Sea Tel, was awarded contracts to develop, manufacture, test and distribute Inmarsat Ka-band maritime satellite terminals.

Later in March, Ship Equip, which is estimated by Euroconsult to be the second largest maritime VSAT provider in subscriber numbers, was acquired by Inmarsat to facilitate the distribution of its upcoming Ka-band maritime service.

Shipping companies, fishing vessels and other maritime customers are benefit-

ing from the competition and the convergence between MSS and VSAT.

Many ship operators have reported that the migration to new generation MSS services has helped them to reduce spending, as service prices for new MSS products are generally lower than for legacy products. Many other ship operators are enjoying the fact that with the same spending, their ships now have unlimited satellite usage once switched from MSS to VSAT.

On the supplier side, VSAT operators have experienced a period of fast growth, and are looking forward to winning more customers from MSS providers. Meanwhile MSS operators are forced to cede some margins to remain competitive in the market.

For long term perspectives, competition among different satellite technologies will endure, and the convergence of MSS and VSAT is expected to reshape the maritime satellite communication sector.

The entire industry value is expected to grow to nearly \$2 billion by 2020, compared to \$1.3 billion in 2010.

DS



About the author

Wei Li is senior consultant at Euroconsult and editor of *Maritime Telecom Solutions by Satellite - Global Market Analysis & Forecasts, and Mobile Satellite Communications Markets Survey - Prospects to 2020*. Euroconsult is a consulting and analyst firm specialising in satellite applications, communications, and digital broadcasting, providing strategic consulting and analysis, comprehensive research reports and forecasts. Mr Li can be reached at li@euroconsult-ec.com.

inmarsat iridium THURAYA Globalstar GSE0 3G EDGE WIFI WiMax VSAT
The Maritime Communications Experts™

Unlock the Potential of Internet On Board with Dualog® Connection Suite™.

Contact the Maritime Communications Experts
today about what really concerns you.
(+47) 77 62 19 00 or sales@dialog.com | www.dialog.com

Computer viruses – a modern day maritime curse?

Greater integration of shipboard computers, with the shore and with other devices onboard, is increasing the vulnerability of those machines to infection by malicious programs. However, techniques like USB port blocking and virtual computing can provide a defence against these viruses, writes Gary McDonald, IT@Sea

Most IT technicians who attend ships would agree that the unexpected presence of viruses on shipboard computers is a frustrating and often time-consuming problem. The original work schedule can be radically affected by the sudden requirement to remove viruses from infected computers and repair the damage that has been caused by them.

There are numerous ways in which viruses reach shipboard computers – e-mail, internet downloads, CDs of ‘questionable origin’ – but an increasingly common problem is the USB Flash Drive, commonly referred to as a ‘USB stick’.

While the USB stick is very convenient in terms of data portability it is also the preferred media for many modern computer viruses to propagate from one computer to another.

A lesson learned, often the hard way, is removal of the viruses from all onboard USB sticks before attempting the same on the computers – and that’s after the job of finding them onboard. Many hours can be spent ‘cleaning’ a computer only for the virus to reappear as soon as a previously infected USB stick is inserted.

It is not uncommon for a shipboard computer to be so badly affected by viruses that the only viable, long term solution is reinstallation of the operating system.

While this is normally a very effective way of eradicating viruses (and it often provides the additional benefit of restoring the computer’s performance), it is sometimes not an option because not all of the media required to re-install the software applications can be located onboard.

Updating shipboard computers

Why are shipboard computers so susceptible? The answer, in most cases, is that the anti-virus definitions are not updated beyond the initial deployment.

Anti-virus solutions are only fully effective when equipped with the latest definitions – these are the updates that the anti-virus system vendors distribute in response to new virus threats.

These updates are issued on a daily and sometimes hourly basis. Like other software vendors, many anti-virus system vendors take it for granted that a computer will be connected to the internet.

For an increasing number of shipping companies ‘fixed price’ maritime data communication solutions like VSAT are the answer – anti-virus software on shipboard computers updates itself automatically at no extra cost.

For many others however, without such ‘fixed price’ solutions, the problem continues to be the ‘pay as you go’ cost of data communication and the variable size of the update files. The size of update files

varies enormously between vendors and a single vendor’s update files can also significantly vary in size from one day to the next.

When a ship, to keep its anti-virus definitions up to date, has to download ten kilobytes one day and one megabyte the next it makes accurately predicting the cost of having the anti-virus system onboard a difficult proposition.

Many shipping companies create anti-virus update CDs for their ships – these are sent out with the ships’ mail.

A common problem with this approach is the CDs going missing or simply not being used by the ship’s staff. And, with new virus threats appearing all the time, the update CDs can be out of date before they have even been posted.

Additionally, with some anti-virus systems a missing update causes ongoing problems because subsequent sequential updates cannot be applied without the missing update. Managing such methods becomes an administrative headache for in-house IT staff.

An increasingly common method of keeping the ships up to date is incremental updates sent to ships via e-mail or automatic file transfer.

Numerous maritime solution vendors offer this tailored service using specialised knowledge of their chosen anti-virus solutions and techniques to ensure that the update files are as compact as possible.

In most cases, for ships with Local Area Networks, the anti-virus software on the computer running the maritime e-mail system is updated and other computers on the network automatically update themselves from the e-mail server.

This method is sometimes regarded as too expensive for ships running older / slower data satellite communication systems, so the ‘CD in the mail’ continues to be the only viable solution for those vessels.

Virus prevention

The USB stick is only one of the problems – viruses can, for example, also reach ships via e-mail messages or on CDs of ‘questionable origin’ taken onboard.

However, the good news is that it is less common for virus-laden e-mail messages to reach ships because the shore components of the e-mail systems check messages for viruses using definitions that are automatically and frequently updated via the internet.

The importance of having anti-virus software on all shipboard computers and keeping the anti-virus definitions up to date cannot be understated.

To deal with the ongoing threat from USB sticks there are software utilities (and often equivalent features in the anti-virus solutions) that prevent data storage

devices from being used in the computer’s USB ports – peripherals such as USB printers are permitted but USB storage devices such as USB sticks are specifically blocked.

With an increasing number of ships connected to the internet, and with the ship staff being able to browse some or all of the World Wide Web, there is, potentially, a direct threat to the onboard IT infrastructure – viruses and trojans can be inadvertently downloaded directly.



There are a number of ways in which an onboard computer can become infected

An internet connection on the vessel can be helpful in terms of keeping the anti-virus system up to date but, unfortunately, the same pipe can become the biggest threat.

There are numerous ways to prevent particular content being downloaded by ship staff, like content filtering, and numerous maritime vendors provide such services.

A highly effective solution is browsing via shore-side proxy servers with anti-virus solutions monitoring content in two places – shore and ship.

Restoration and recovery

A very effective solution for eradicating viruses and restoring full system functionality is the re-installation of a computer’s operating system and all resident applications from digital images (sometimes referred to as ‘ghosting’).

The solutions are normally simple to use so recovery is quick and uncomplicated.

A computer restored in such a way will no longer contain the user’s data (documents, spreadsheets etc.), so some prefer similar, but often less effective, solutions

that replace or repair the operating system and applications while preserving the user’s data.

A common solution enabling network workstation computers to be seamlessly rebuilt or replaced is a network storage policy where all users store their individual data on the ship’s central file server.

The benefits of thin client and virtual computing are also being realised by an increasing number of shipping companies.

In such environments the ‘computer’ used by the user is a virtual representation of a computer provided via software (the human interface components such as the keyboard, mouse and monitor are real – but the computer itself is a virtual machine provided by software running on the ship’s main server).

Such environments are beneficial in terms of virus protection because only one computer (in this case, the server) needs to be kept up to date and new virtual sessions can be effectively like having a brand new ‘virus-free’ computer each time you switch it on.

Keeping the anti-virus systems up to date is important but it can never be a guarantee that a new virus won’t find its way onto the ship, in which case it has to be dealt with.

In such cases users are commonly unaware that there is a new resident virus until the anti-virus software receives its next update and scans the computer. Anti-virus solutions are designed to detect and remove viruses but, at the same time, virus creators attempt to undermine or disable the anti-virus systems that could potentially detect them.

As a real example: A colleague was recently attempting to install an anti-virus system onto an infected computer.

The virus had disabled the network card and CD drive (and destroyed all settings that would allow them to be reinstated) so the only way to add software was via a USB stick. Each time the USB stick was put into the computer the virus put itself onto the USB stick and, from it, removed the installation image for the anti-virus software!

It’s in situations such as these that manual interaction is required. The benefits of virtual computing or options for restoration of computers from digital images are a welcome solution to a problem that might otherwise take many frustrating hours to resolve.

DS



About the author

Gary McDonald is technical director of IT@Sea UK, a company specialising in all aspects of IT and Communications for the shipping and off-shore sectors. Mr McDonald has worked with a number of major shipping companies during his 15 years in the industry, including BP Shipping, Chevron, BG Energy, Andrew Weir and Bibby Ship Management.

Mr McDonald can be reached at garymcdonald@itatsea.net, or via the website www.itatsea.net

Loud and Clear



The world's most trusted maritime antenna system

An industry leading 99.99% uptime makes Sea Tel the antenna system of choice for every type of vessel. From leisure boating and cargo shipping, to military applications and offshore communications for the oil & gas industry, Sea Tel delivers reliability under the most demanding conditions. In fact more vessels around the world rely on us for their VSAT antenna system than anyone else. Making Sea Tel not only a pioneer in satellite communications, but the world leader in the field for 33 years.



After the downturn – IT investments and returns

The global economic downturn placed a great strain on IT budgets and saw many projects scrapped or postponed. However, if ship owners and IT managers can collaborate in examining their needs, implementing a new system can help to keep satcoms costs down and crew morale high, writes Reinhold Lueppen, Vizada Solutions

The global financial crisis forced fleet managers to cut costs in all aspects of their operations. New IT ventures came under particular scrutiny as IT managers struggled to justify the return gained from investing in new systems and applications.

IT projects were cancelled or placed on hold as fleet managers channelled their shrinking budgets into areas they felt more directly affected the running of their fleet.

IT budgets are very gradually increasing as the global financial situation improves, nevertheless, both ship owners and IT managers have continued to examine the return on investment prospects with rigorous attention to detail.

Efficiency and cost reduction are still paramount, and IT managers are often under huge budget pressure to prove the value of every penny they invest in IT infrastructure for their fleets.

Today, IT managers must still perform a high-wire balancing act, with the need to procure the right products to support crews on the one hand, and the need to balance budgets on the other. Those in charge of procurement are acutely aware that inadequate IT systems will negatively affect the fleet, especially at a time when there may also be reductions in staffing levels.

A good IT system should optimise vessel operations, boost safety onboard, keep you connected to your corporate network and enhance crew welfare.

This last point is crucial; without the connection to other ships in the fleet and also to the outside world, fleets may find it difficult to recruit the best crew for the job as they increasingly demand access to high quality communications equipment.

We have seen numerous examples where the quality of the IT system has been sacrificed in order to reduce costs. Services are outsourced to companies offering a cheaper rate who are not capable of managing tailor-made, onboard systems, resulting in IT chaos for the crew.

We have also seen an alarming lack of investment in virus protection and abuse of administration rights by crew leading to brand new systems being brought down by harmful malware just after installation.

Satcom choice

Installing a broadband terminal, through FleetBroadband or VSAT for example, is one option which will ensure your crew are always connected and offers far more flexibility of usage than previous generations of technology.

A broadband terminal does require a certain initial level of investment as it must be either bought outright or leased and installed. However, it also gives you excellent value from your onboard IT operations.

For example, VSAT services charge a flat fee, rather than having to pay for the

data or airtime used, and FleetBroadband offers 'bundles' which also represent better value for money. These allow companies to control and predict their spending far more easily.

The benefits of broadband are better appreciated by the industry than they once were and it is possible to demonstrate the long-term savings that can be made by using a broadband terminal. As a result, we are seeing more and more companies opting to install broadband terminals.

If, as an IT manager, you are struggling to persuade your fleet manager that



The benefits of broadband are better appreciated than they once were

installing a broadband terminal is a worthwhile investment, speak to your network provider and ask for their advice.

For example, for FleetBroadband there is a simple formula they will be able to use to demonstrate the saving to the fleet which plots the time and data the fleet currently uses against potential long-term savings.

Do work out how much your IT systems cost in terms of the fleet's overall budget, and how much installation of a broadband terminal would increase this by.

Usually, the costs for the communications systems comprise less than 1 per cent of the cost structure for each fleet. They are comparatively minimal costs which have the ability to dramatically influence the efficiency of systems across the fleet.

In our experience, larger fleets feel they greatly benefit from the predictability which comes with opting for a monthly

flat rate for internet use.

If you want to prioritise your crew's needs and give them reasonable access to the internet, including checking e-mail and sites such as Facebook, flat rates are often the best option as they absorb peaks in usage and prevent you from facing unexpected costs at the end of the month.

Some providers also offer 'bundles' which enable you to lease equipment and purchase set amounts of airtime for voice and data along with value-added solutions, at a fixed monthly fee.

This again allows communications costs to be regulated and at the end of the lease you are able to keep the equipment. In terms of cost it may not be the cheapest option every month compared to low-use months on a dial-up service, but it will allow you to predict your cost and set a maximum limit.

Reducing costs

However, despite the benefits of broadband, the majority of fleets still only require the more basic use of telephone and e-mail onboard.

Whether or not a broadband terminal has been installed, IT managers often ask "How can we still implement the IT system we want, but with a smaller budget?"

In comparison to just one year ago, there are many more 'off-the-shelf' tailored IT solutions for maritime communications.

But in some cases these may be incompatible with one another – for example, your web compression system may not be compatible with your crew welfare system, due to data encryption. For this reason, integrated packages are worth considering, both in terms of the overall cost and the ease of which they can be used by the crew.

Integrated systems ensure that your IT programs and solutions are compatible with one another, and included all in one package. Similar interfaces mean they will also be easier to install, upgrade and easier to train staff to use.

I know of one company with more than 80 vessels in their fleet who, when setting up a new IT project, used a series of different providers for their onboard IT equipment. This was overly complicated, with every system needing completely different installation procedures, training for crew and different ways of using the systems from day-to-day.

The project took two and a half years in total to get up and running. After one year they decided to outsource the installation to a company specialising in maritime electronics – which drove up the cost further. The whole process was frustrating for both their IT department and crews.

If you need an IT project that will be up and running quickly, integrated systems can be very convenient. There is a lot of flexibility and simplicity in buying IT

solutions from one provider who assembles the different pieces, and with an integrated system you have the security of knowing that if you want to upgrade you don't have to start again from scratch.

One way of cutting costs is through airtime reduction on pay-per-use services; reducing the amount of time crew spend on the telephone, e-mail and online, and therefore the amount of data they use.

One of the most effective and consistent ways of keeping airtime to a minimum is by using web compression software. This is a tool which allows the user to compress the size of any internet files downloaded, including via e-mail, to lessen the cost, whether by restricting access to websites laden with multimedia, or by automatically reducing large file sizes.

This helps IT managers to avoid accessing unnecessary content, lessen download times and ultimately reduce their costs.

Another way of reducing costs is through requesting your network provider to use a split billing system. This enables IT managers to re-invoice any contractor, or member of crew who may be using a large slice of airtime.

Split billing can lead to huge cost reductions, so ask your existing network provider whether this is an option under your current plan.

Even during the peak of the financial crisis, we saw a consistently high demand for broadband with remote access capability.

If you are encountering an issue onboard a vessel, you won't always have the right member of staff present to fix the problem. This is true of a number of areas, from IT equipment to engine monitoring and even HR issues.

If an expert on land can monitor the issue remotely and advise onboard crew how to fix the problem, it will save precious time, resources and is more cost-effective.

Ultimately, providing the right combination of IT and communications equipment for a fleet of any size will pose a challenge for the fleet managers, IT department and network providers.

No matter what solution is best for your fleet, all parties need to work together to reduce costs and guarantee return on investment.

If used to its full capability, the right satcoms package can optimise vessel operations, boost safety onboard, keep you connected to your corporate network and, perhaps most crucially, attract the best crew to your fleet.

DS



About the author
Reinhold Lueppen is director of value-added Vizada Solutions, for satellite communications provider Vizada

Tailor-made maritime communication



We offer several different communication carriers, such as VSAT and Inmarsat. Combined with **SmartBox from Telenor**, this results in effective compression and automatic alternation between the different carriers. For vessels, this means more secure communication and lower costs. That's what we call tailor-made maritime communication!

SMART BOX

Contact us on tel. **(+47) 800 888 77**
or send an email to
sales.mradio@telenor.com



 telenor | maritim radio

www.maritimradio.no

Storm Offshore – 50% comms cost reduction with mini-VSAT

Norwegian seismic operator Storm Offshore cut its satellite communications costs in half after installing mini-VSAT systems onboard two of its ships – a figure impressive enough to prompt a third installation in 2011

Storm Offshore, a shipping company based in Lyngdal, Norway, estimates that it has saved approximately 50 per cent on its satellite communications costs since introducing mini-VSAT services from KVH to two of its seismic support vessels at the end of 2009.

Impressed with these results the company has now added to this with the installation of the satcom service aboard a third vessel this year.

The company installed KVH's TracPhone V7 system to support crew morale and business operations aboard the seismic support vessels, which have a primary function of 'guarding' a larger 'mother' research vessel as it conducts research of the ocean floor using sound waves.

Storm Offshore's seismic support vessels are responsible for keeping up with maritime regulations in regions around the globe, and filing appropriate documents to comply with those regulations as the fleet traverses different research areas.

They are responsible for monitoring the mother vessel's operating area, bunkering fuel, and maintaining contact with local authorities as the fleet travels among harbours around the globe.

The various types of documents that

the support vessels are required to file on behalf of the 'mother' ship can be sizeable, and must often be filed electronically prior to the fleet reaching a given port or maritime region.

Failure to comply with the varying requirements of international maritime authorities can cause costly delays and significantly hinder the research mission.

As such, communications understandably forms a large part of the success of these support vessels' mission. The vessel must remain in contact with the mother vessel at all times, and it must also be able to transmit and receive the necessary forms for travel and research activities among international ports.

In addition to this, the company was anxious to make sure that its crew members aboard such vessels were as productive as possible, and it was felt that allowing access to telephone and internet services to stay in touch with loved ones would be a key element in maintaining high performance levels.

Operating a support vessel also requires several crew members to serve on the ship at any one time, seafarers whose morale, productivity, and job satisfaction can be significantly improved just by having the opportunity to call or e-mail home,

or surf the internet while off duty.

Requirements such as these are what drew Storm Offshore towards a VSAT solution, a decision which Karstein Rasmussen, general manager of Storm Offshore, says has proven to be very successful in supporting both crew communications and operational duties.

"The vessels send daily reports to the client (the charterer) as an electronic log, including details about the vessel's activities, information about the itinerary, and speed," he explains.

"Furthermore, the vessel is sending mandatory, monthly QHSE reports to the Storm Offshore office, supporting our dedication to outstanding QHSE monitoring and consistent results."

"Our crew would definitely recommend this solution to their peers! They are most happy to have free access to call and e-mail home."

However, since each seismic research operation has a specific budget which must be adhered to, Mr Rasmussen has been particularly pleased to see that increasing the vessels' communications capabilities has not led to a greater spend – with monthly costs actually falling after the introduction of the new system.

He notes that crew members can send

much larger files than they did with their previous pay-per-use system, and Storm Offshore has been able to provide crew access for the first time, all while reducing their costs significantly.

"The expensive, pay-per-Megabyte plans that we had with our old solution made it necessary to restrict crew members' use of the communications system," Mr Rasmussen explained.

"With mini-VSAT Broadband's monthly rate plan, they can make much more use of the system, even for personal activities that would not have been feasible with the old system."

"There are operational benefits to the airtime structure, as well. We can now send large files without trying to calculate how many megabytes they will use. For example, we can now send a manual that is 10 MB, which would not have been feasible with the old system because it would have cost a fortune."

Price reductions

KVH has recently announced an initiative which may allow users of its mini-VSAT service to reduce their costs even further, with the addition of a new metered pricing programme and packages for different degrees of data usage.

The pricing programme will apply to new users of the mini-VSAT service using the TracPhone V7 60cm unit or the company's latest antenna the TracPhone V3, a 37cm VSAT system weighing just 11kg.

Users of the satcom system will now be able to make voice calls at a rate of \$0.49 per minute, worldwide, and will pay \$0.99 per megabyte for data transmissions.

These data rates will apply on a 2 Mbps down / 128 kbps up satellite link on the V3 and a 2 Mbps down / 512 kbps up link on the V7, under specific packages.

50 MB, 250 MB and 500 MB monthly packages are available, costing approximately \$1 per megabyte in the package, with additional megabytes \$1.99 after that limit is reached.

With a 1 GB package additional megabytes after the first thousand will continue to be priced at \$0.99. Voice calls are \$0.49 per minute on all packages.

These new packages are in addition to KVH's existing fixed monthly airtime plans, which are available at various bandwidth speeds and pricing levels.

"Our pricing options, the fastest network speeds available, and two excellent choices for hardware, make mini-VSAT Broadband an economical option for just about any mariner seeking outstanding satellite communications for their vessel or fleet," said Brent Bruun, KVH's senior vice president for global sales and business development.

DS



Three Storm Offshore vessels are now installed with KVH's mini-VSAT system

SAILOR® BROADBAND & ENTERTAINMENT

WE HAVE YOU COVERED



VSAT - FleetBroadband - Satellite TV

Superior and proven technology

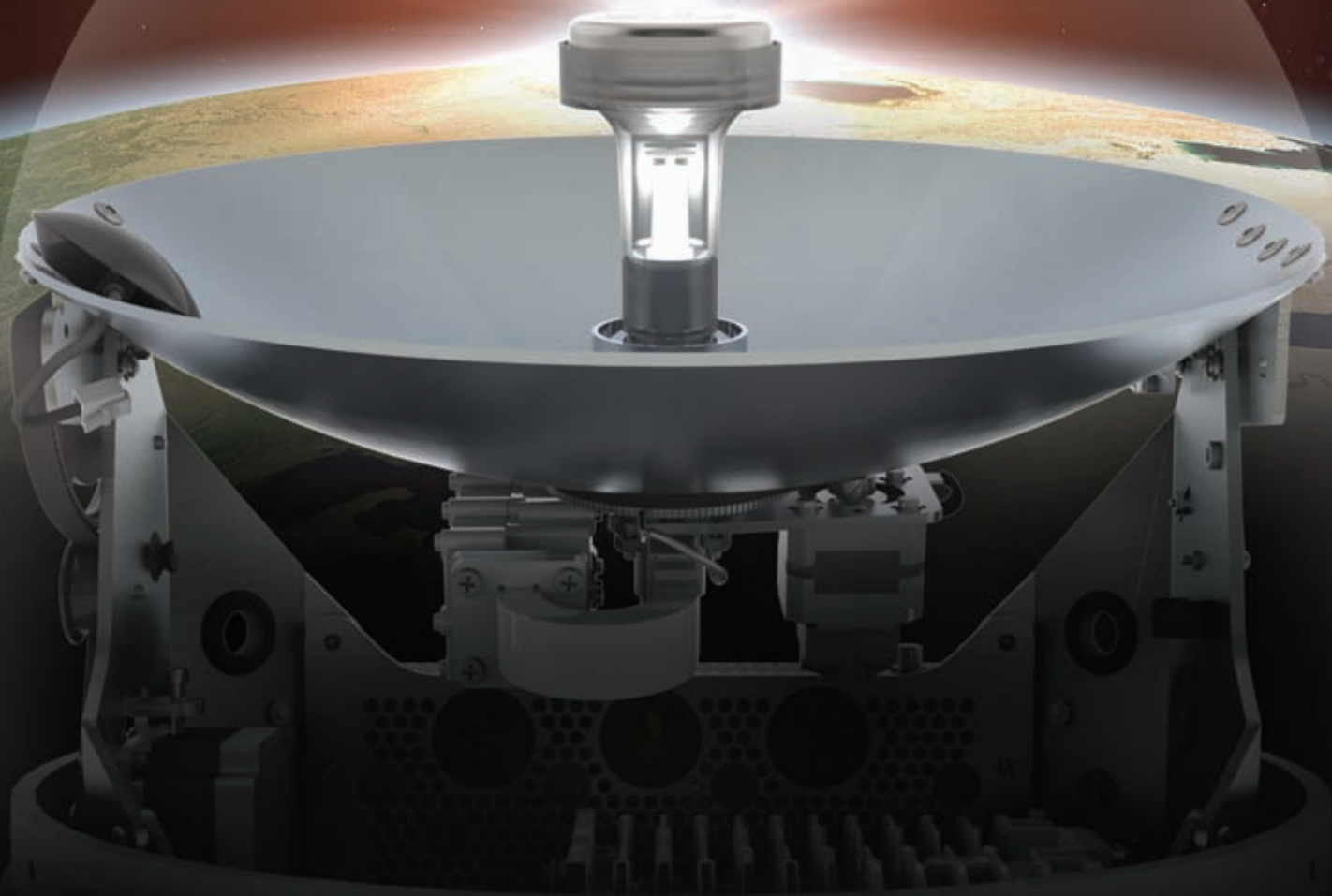
- One brand - SAILOR® covers all your maritime broadband and satellite TV needs
- Top-tier partner network - Local availability and professional installation
- Truly global service network - Unmatched global service and support

For more information on SAILOR solutions go to www.thrane.com.

Thrane & Thrane

KVH® INDUSTRIES
MINI-VSAT
BROADBAND™

**Bringing satellite communications
costs down to earth.**



Introducing the all-new TracPhone® V3.

With a breakthrough size and price, the TracPhone V3 connects you to the revolutionary mini-VSAT Broadband network.

Don't wait! The next-generation of satellite communications is here. Get all the details at:

www.kvh.com/v3

KVH®

Use your
QR reader
& scan the
QR code



KVH Europe A/S • Kokkedal Industripark 2B • 2980 Kokkedal • Denmark • Tel: +45 45 160 180 • Fax: +45 45 160 181 • E-mail: info@kvh.dk

©2011 KVH Industries, Inc. KVH, TracPhone, and the unique light-colored dome with dark contrasting baseplate are registered trademarks of KVH Industries, Inc. "mini-VSAT Broadband" is a service mark of KVH Industries, Inc. 11_KE_TPV3_Intro_DigitalShip

Broström -VSAT choice and quality of service

In a competitive market, with dozens of potential suppliers, IT managers face a difficult task in evaluating all the options and choosing a new partner. Borje Silverfjall, Broström and Maersk Tankers, told *Digital Ship* how his company made its VSAT choice

These days choosing a maritime broadband supplier is not an easy job. Every airtime supplier will be more than happy to supply a broadband terminal to shipping lines, and the variety available in the VSAT market can make this task harder.

One company that knows this all to well, and has recently navigated the satcom selection process is Swedish operator Broström.

Broström has been an important part of the Swedish maritime cluster for more than a century, and is today an integral part of Maersk Tankers and the AP Moller-Maersk Group, operating one of the largest product tanker fleets in the world.

Servicing all major regions around the globe, this young and modern fleet includes ice classed, double hulled and chemical capable vessels, all operating according to the highest international standards.

Since the AP Moller-Maersk Group took control of Broström, all tankers under 25,000 dwt, whether Broström or Maersk Tankers, now trade under the Broström brand from its headquarters in Gothenburg and a branch office in Singapore.

Following the revised management situation for this fleet of tankers, vessel IT manager Borje Silverfjall and his team developed a new vessel standard infra-

structure, including an overhaul of the IT, communications and carrier platform.

This new standard is to be rolled out to 122 vessels over a number of years, during which time the vessels will be installed with VSAT terminals, mainly during dry-docking periods.

The aim of introducing this new environment is to create more available bandwidth, for both business requirements and to allow internet access as part of the company's crew retention strategy.

The company also envisages implementing remote IT support systems onboard the VSAT-equipped vessels.

Broström vessels had already been fitted with existing systems from a number of VSAT suppliers prior to the introduction of this new infrastructure, however, in many cases, these were not entirely compatible with the proposed new standard.

And so, as part of its evaluation process for the upgrade programme Broström proceeded to conduct a test installation and evaluation of a communications package from Netherlands-based company Elektrikom, founded in 1985 as a radio communication supplier to the marine industry but now offering maritime VSAT services.

The results of this test installation

proved successful enough that the Broström team was convinced to move forward with further installations of the services as part of its vessel IT standard on Broström managed vessels.

One of the key aspects of the service which persuaded Broström to go forward with this supplier was the provision of a 'Quality of Service' agreement, a prerequisite for the company in its consideration of terminal services data traffic used on the vessels.

According to Mr Silverfjall it was also particularly important that Elektrikom manages 19 satellites providing global coverage and operates its own teleport, which means that Broström only needs to call one number if an issue arises with a terminal or a service.

A 'Satroaming' software system, developed by Elektrikom, maps the footprints of the satellites on a Google map and shows configuration details and the ships' position relative to the satellites.

Vessel support is further enhanced by globally available static IP-addresses, which allow the maintenance burden on the crew to be reduced as the complete VSAT link is monitored and managed by one provider.

Elektrikom is also providing Broström with Websense browsing filters for internet access and a firewall on the communi-

cations backbone, which prevents company IP-addresses from appearing on unwanted websites.

This was something that was not offered by other VSAT suppliers investigated under the project, with some providing raw internet access over the satellite that could create security issues and an unnecessarily high usage of the bandwidth as a result.

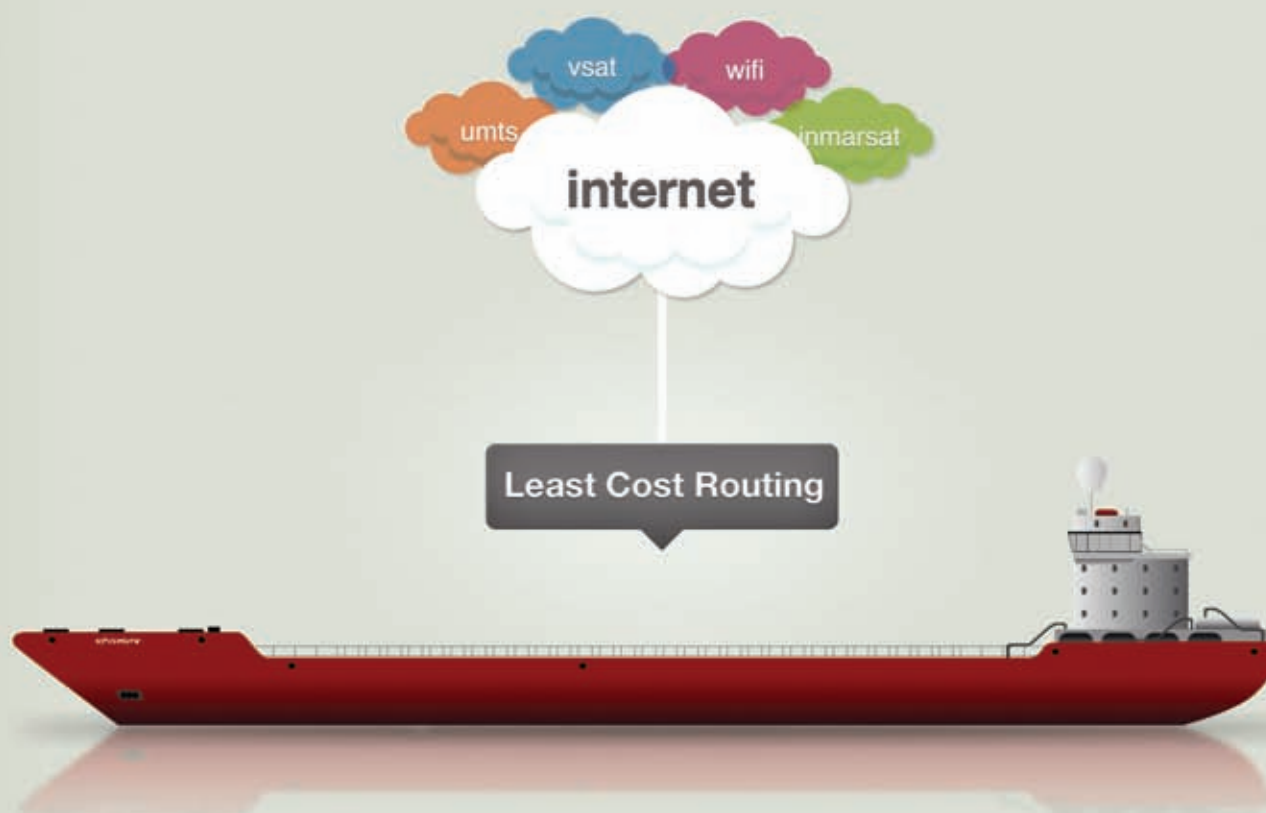
Installation of the service is now well underway. Since the beginning of this year Broström vessels sailing on European routes are operating with the satcom service bundled into pools shared among a maximum of 10 vessels, allowing the ships to share the bandwidth capacity between them.

Reports of the performance of the system in this configuration have so far been encouraging, the company says.

Vessels on other routes, mainly Transatlantic and Caribbean/Latin America routes, use dedicated spot beams in their sailing area, all with a committed rate.

Mr Silverfjall notes that he was pleasantly surprised to find that even vessels in remote locations using this VSAT service enjoy a good communications link – his team is now running 38 vessels managed through Elektrikom, providing an effective part of the Broström standardised infrastructure. **DS**

ThinkConnectivity



Your Maritime Internet Provider

For more information on what our VSAT products and services can do for your company, please contact us.
www.vsat.com • info@vsat.com • +31 10 - 426 48 46

ELEKTRIKOM
SATELLITE SERVICES

NORSHIPPING
may 24 - 27 / 2011
boothnumber: T-04b

New rules for DSC radios come into force

The first tranche of a range of new FCC rules covering the specifications required for digital selective calling (DSC) equipped marine radios have come into force as of the end of March – with the aim of eliminating potential hazards flagged by the US Coast Guard

DSC-Equipped Marine Radios must now meet more rigorous Technical Standards following the introduction of new requirements from the US Federal Communications Commission (FCC).

As of March 25th, the FCC is prohibiting the manufacture, importation, sale and installation of fixed mounted (non-portable) digital selective calling (DSC) equipped marine radios that do not meet the requirements of International Telecommunications Union (ITU-R) Recommendation M.493-11 or higher.

In the case of Class D VHF DSC equipment only, the rules state that the requirements of International Electrotechnical Commission (IEC) International Standard 62238 must be met.

With the introduction of these new rules radios built to RTCM Standard SC-101 can no longer be manufactured, imported, sold or installed; however, FCC will permit previously-installed radios meeting the older standard to continue to be used.

On March 25th 2012 another deadline will come into effect, after which the FCC will not accept new applications (but will

continue to process then-pending applications) for certification of handheld, portable DSC-equipped radios that do not meet the requirements of ITU-R Recommendation M.493-11 or higher, and IEC 62238.

This will be followed by final rules enforceable from March 25th 2015, under which the FCC will prohibit the manufacture, importation, and sale of portable DSC-equipped radios that do not comply with the above standards.

Channel switching

Compliance with these new international technical standards ensures that DSC-equipped radios will incorporate a number of new safety functions, including features that should help to eliminate dangers associated with automatic channel switching, as addressed in US Coast Guard Safety Alert 02-10 of April 13, 2010.

In this Alert the Coast Guard noted that: "an automatic channel switching feature found on certain models of Digital Selective Calling (DSC) equipped VHF marine radios may create an unintended hazard."

"(This can happen) by automatically



Adherence to the latest standards should help to ensure that operators are aware of the channel their radio is using

switching from a working channel that might be in use at the time to Channel 16 when the VHF marine radio receives a DSC distress alert, distress alert acknowledgment or other DSC call where a VHF channel number has been designated."

"This could happen without a vessel/radio operator's immediate knowledge and could initiate an unsafe condition by which the vessel/radio operators would believe they were communicating on a working channel such as Channel 13 when, in fact, they were actually on Channel 16."

"Since this unsafe condition can happen at any time, the Coast Guard strongly

recommends disabling the automatic channel switching feature when maintaining a listening watch or communicating on the designated bridge-to-bridge radiotelephone, or while monitoring the vessel traffic services (VTS) channel."

"Radios that lack the disabling feature should not be used for bridge-to-bridge or VTS communications."

"The Coast Guard strongly reminds radio operators and other users to always ensure they are on the proper operating channel when communicating or maintaining watch, particularly with DSC-equipped radios capable of channel auto-switching."

Features incorporated into the new requirements include provisions for making test calls, dual receiver functionality to improve operation, and Global Positioning System (GPS) interconnection alarms designed to ensure that distress alerts include a valid and accurate position.

The new requirements should also ensure improved detection of distress alerts, a reduction in the rate of false alarms, and reduced incessant alarming caused by DSC-equipped radios constructed to the older standards.

DS

TRUST AN ANTENNA DESIGNED TO A HIGHER STANDARD.

In designing our new VSAT antennas, Intellian engineers started with a clean sheet of paper. Components and systems were analyzed and refined. Intense vibration, shock and stress simulations eliminated potential weak spots. Rigorous quality controls were put in place during manufacture. All done so you get sea-worthy – and trustworthy – performance right out of the box.

When you're choosing an antenna for your VSAT system, specify Intellian. Get a higher standard of performance by design.

Intellian®
VSAT Performance by Design



www.intelliantech.com

NOR SHIPPING
Visit us at **Booth #A1-15**

Global Offices Seoul • Irvine • Seattle • Rotterdam
Asia +82.2.511.2244 Americas +1.888.201.9223 Europe +31.1.0820.8655

Project Manager software for Tallink-Silja Line

www.marinesoftware.co.uk

Tallink-Silja Line has installed the Marine Project Manager software system from Marine Software on the vessels Galaxy, Silja Serenade, Silja Symphony and Silja Europa.

The UK-based software company says that the application will facilitate the production of drydock specifications and tenders, assist with final contractor selection, control repair works whilst in dock and produce docking reports (both historical and financial).

An office based system was also installed for the head office in Tallinn, as well as four Superintendent laptop systems. A two day training course was provided in Tallinn by Marine Software for the ships' senior officers and technical superintendents.

The ship system enables planning specifications to be produced on board, which are then sent to the Superintendent systems to be incorporated into the final Master Specification.

The existing Marine Planned Maintenance system on board the vessel can send details of scheduled maintenance and defects to the planning specification as well as incorporating directly entered dry dock jobs requested by the crew.

During the production process the Superintendent is able to send copies of the Master Specification to both the vessel and to head office, to enable oversight as

it is compiled.

The final Master Specification is used to produce tenders and receive returns from all shipyards invited to tender.

As part of the implementation, a Master Tallink Specification was created by Marine Software for the Silja Europa from an existing Microsoft Word Specification. This will be used as a template to create future docking specifications.

A free contractor software version

download is available with the invitation to tender to enable shipyards to enter prices electronically directly into the specification which can then be imported directly back into the Master Specification for tender evaluation.

The installation of the Marine Project Manager means that the Tallink-Silja vessels have now installed the entire range of software modules currently offered by Marine Software.



Four Tallink-Silja Line vessels have implemented the application

UBL implements electronic forms

www.boatracs.com

Boatracs has completed the installation of BT Forms, its electronic forms product, on 14 vessels for United Barge Lines (UBL), the inland transportation division of United Maritime Group.

BT Forms is used to convert paper forms to electronic versions, for internal reporting and record keeping for regulatory compliance, allowing the vessel and shore to see the exact same information.

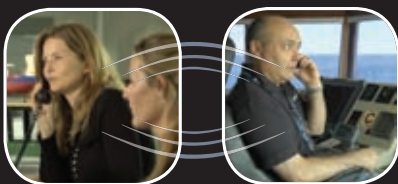
On the vessel the software uses 'smart forms' that verify and validate complete information before transmission, to reduce manual errors at the point of data collection. The hosted BT Forms web application on the shore-side can then compile the data into a variety of reports for managers.

The project for UBL included the conversion of UBL's Master's Daily Log into an electronic form that captains can complete with their on-board PC.

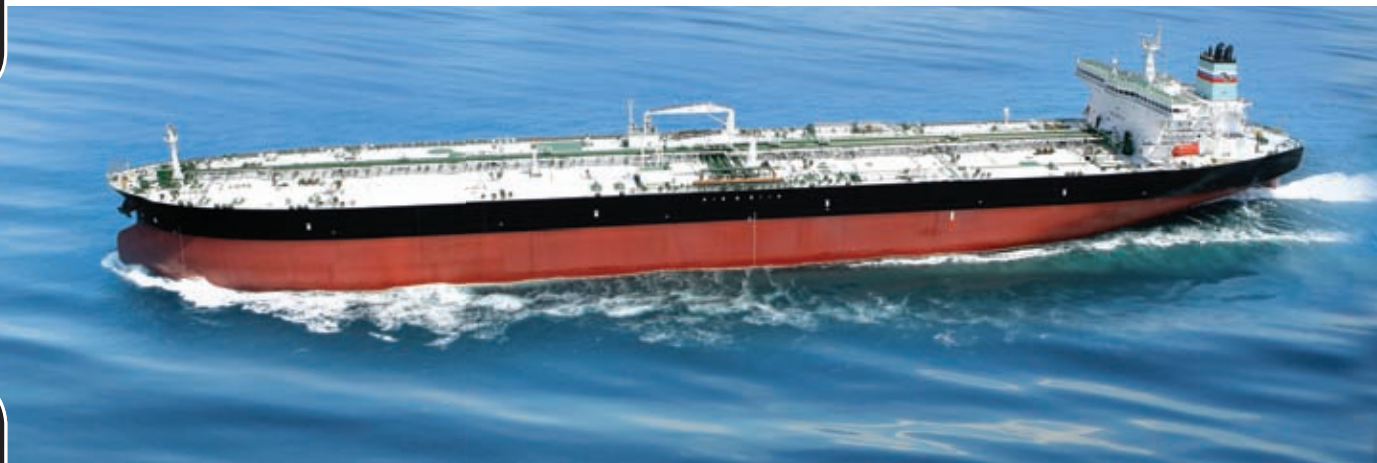
"Feedback from the captains has been excellent," said Rocky Gunter, director of profitability and financial analysis for UBL.

"We now have consistent and accurate vessel information and the ability to generate valuable shore-side reports for operational analytics. BT Forms is a big win for a maritime operation like ours – ease of use for our captains, streamlined operations for management and better customer service for our clients."

COMMBOX™



The Ultimate Ship/Shore Network Manager



KVH CommBox connects ships to fleet headquarters so they can communicate securely, efficiently, without interruption, and all with dramatic airtime savings! 900 vessels worldwide use CommBox for:

- Least-cost routing
- Remote IT management
- Web compression & acceleration
- Transmission optimisation
- Crew calling & Internet café
- Roaming crew e-mail
- Safe & secure communications
- File transfers & synchronisation

Whether you have a fleet of 5 or 500 vessels, CommBox is the solution for you!

For more information visit: www.kvh.com/commbox

POWERED BY **VIRTEK**

KVH Norway AS

Verftsbassengeget 1 • N-3188 Horten • Norway • Ph: +47 33 03 05 30 • Fax: +47 33 03 05 31

©2011 KVH Industries, Inc. KVH and CommBox are trademarks of KVH Industries, Inc. 11_KE_CommBox_1.2page_DigitalShip

KVH

SIS adds electronic purchasing

www.sismarine.com

Norwegian software provider Star Information Systems (SIS) has introduced its new Star Fleet Supply Management system (Star FSM), with new electronic purchasing functionality for the shipping industry.

Star FSM can be customised to company-specific policies using the system's business rules engine, and offers contract management capabilities to allow for the automation of standardised purchasing tasks.

For example, if the requested materials are covered by a contract and the cost is within the budget limit, the process of issuing a purchase order can be undertaken automatically.

The new system also allows for quote comparisons, so that where a contract does not exist quotes from several suppliers can be compared to find the best delivery option.

SIS notes that a number of its customers had requested functionality for tracking deliveries to agents and warehouses, in addition to receiving goods on board their vessels, and that this is being added to the software.

This will be achieved through the creation of a 'transportation module' that will

facilitate the management of receipt of goods by an agent or warehouse, the packing and re-distribution of those goods, and the return of goods from vessels.

"With automated purchasing, extensive use of e-commerce, and functionality for contract management and transportation, we believe Star FSM will revolutionise the way purchasers in the maritime sector do business," said SIS marketing manager, Pia Solheim.

"By speaking to purchasing personnel in shipping and offshore companies, we learned that with the systems available on the market today purchasers spend too much time 'moving paper' and hence lack time to negotiate good framework agreements and build strategic partnerships with suppliers and freight forwarders."

"With this in mind we found that adding new functionality to an ageing system would not be sufficient. Instead we decided to start from scratch with new technology that allows for more flexible systems and enables automation of processes in order to make purchasing more efficient."

The Star FSM system additionally provides KPIs for purchasing to the user, and can be integrated with SIS' other online tools for KPI and trend monitoring.

Maritime purchasing portal sees 3,000 vessels join trial

www.onemaritime.com

Trials of a new online catalogue for ship owners, ship managers and ship suppliers to select and order their onboard and onshore stores have seen more than 3,000 vessels taking part, according to the company.

The One Maritime system was made available to the shipping industry from January 1st 2011, and has been involved in live trials with companies from 85 countries worldwide since its launch.

Torben Brammer, One Maritime co-founder and CEO, says he is delighted that so many companies and vessels have joined the trial.

"We believe One Maritime represents the next step in the development of online platforms and we look forward to its use becoming widespread throughout the industry during the coming year," he said.

"Our technology products have allowed us to think of data sources and the use of data in a much different way than ever before. With its unique search engines and data migration technology, One Maritime has managed to build an online platform that gives its users access to a mix of data from multiple data sources at the same time."

"It changes the way that catalogues, for



"We look forward to its use becoming widespread" – Torben Brammer, One Maritime

example, will be used by suppliers, manufacturers and purchasers in the future, resulting in efficiency and time saving benefits."

The new ship stores catalogues portal can be accessed online or by CD, offering purchasing managers and shipboard personnel access to the ISSA Ship Stores Catalogue as well as a wide range of other industry purchasing information sources.

The trusted name in fleet management software for your 35,000 ton hardware.



software service training consulting integration understanding

ABS Nautical Systems

www.abs-ns.com

SEA VALUE

See us at
Norshipping,
stand
B01-27

How do you unlock the real value in FleetBroadband? At Inmarsat, we believe there's a host of benefits you may not be experiencing yet. With access to real-time weather and navigational information, you can plot the most fuel-efficient route and stay on schedule. What's more, remote diagnosis of engine faults and IT problems by shore-based experts keeps the ship running smoothly. Watch the film or talk to your service provider today to find out how you can benefit from FleetBroadband.

FleetBroadband

With terminal options for every size and type of vessel, FleetBroadband delivers cost-effective, always-available voice, email, internet and SMS on all the world's oceans.

inmarsat.com/seavalue



Complete Coverage, Total Support

VSAT and FleetBroadband in one integrated solution

SeaCall Duetto gives you global VSAT integrated with FleetBroadband in one system.

Office Connect is at the heart of SeaCall and manages marine broadband communications using a variety of smart e-mail and web applications. It gives you the opportunity to extend your company's IT system to every vessel in your fleet.

When using FleetBroadband, customer controlled restrictions apply, protecting users from excess airtime consumption.

SeaCall Duetto's standard bandwidth packages range from 512/128 up to 3072/512 Kbps, delivering a wide choice of services such as: Internet access, incl. VPN, VoIP, crew calling and more.

Every SeaCall solution from Telemar is ready to go with state-of-the-art features. No additional boxes or software are needed to achieve optimal performance.

SeaCall and SeaCall Duetto are both available at highly competitive prices, for outright purchase or a choice of rental options.

Global Support – Installation, Service and Maintenance

Telemar, a global player established in 1947, is present in all key ports and has companies in Italy, UK, Germany, USA, China, Hong Kong, Singapore, Sweden, Norway, Finland, Russia and the Caribbean.

Telemar is the world's only VSAT operator to also provide a complete range of Satcoms, GMDSS systems, Navigational equipment, IP-TV solutions and fixed price service & maintenance contracts.

Telemar gives you access to a global organisation and its partners in all key ports worldwide. Installation, service and spares are available at short notice at minimum of cost.

Telemar is the world leader in service & maintenance contracts, with over 2500 vessels with onboard, fixed price, service contracts.

Working with Telemar means integrated solutions, from pre-sales, consultancy and project planning through to installation, service and maintenance, as well as worldwide technical support.

SeaCall Duetto™ in brief:

- Global coverage* - 24/7/365 with VSAT and FleetBroadband
- Automatic switchover between the satellites, from VSAT and FleetBroadband systems
- Protection against over-usage of FleetBroadband
- VSAT standard bandwidth packages up to 3072/512 Kbps
- Fully managed installations worldwide
- Maintenance and technical support worldwide
- 24/7 global customer support and help-desk
- Fixed, competitively priced monthly fee
- Antenna and below deck equipment rental also available
- Guaranteed data volumes and additional Committed Information Rate (CIR) for voice
- Web-based access for customer management of ship's usage

* Coverage maps are available at www.telemarseacall.com



ABS and LR release joint software

www.eagle.org
www.lr.org

Class societies ABS and Lloyd's Register (LR) have announced the release of a jointly-developed software system, used to assess the compliance of bulk carrier and oil tanker designs with IACS Common Structural Rules (CSR).

A joint company with offices in Houston and London, Common Structural Rules Software LLC, has been also been formed to maintain the application and develop new common software which will assess vessels designed to comply with the harmonised CSR that will be submitted for industry review in 2012.

The release of the joint software package will be followed by the provision of training sessions in a variety of maritime locations.

"Harmonised CSR presents an ideal opportunity to establish usage of common software in support of the new Rules," said CSR Software managing director Aidan O'Donnell, who has been with this project since its inception.

"Establishing consistent application from the outset will be easier through our joint development."

The common software is now available for download at www.CommonStructuralRulesSoftware.com, and will be backed by anytime technical software support.



Lloyd's Register chief executive Richard Sadler signs the agreement with ABS chairman and CEO Robert Somerville

Digital regulations product for Panama

www.regs4ships.com

Regs4ships has announced the launch of its digital maritime regulations product for Panama flagged vessels.

This new offering, available via the internet or DVD-ROM, includes a combination of documents that must be carried for mandatory compliance with the flag of registry, as well as a number of best practice guides.

The digital regulations product covers Panama Maritime Laws, Resolutions, Marine Notices, Merchant Marine Circulars and Forms; amended digital SOLAS, MARPOL and STCW regulations; and guidance and best practice from a complete archive of UK M Notices (for merchant ships).

Subscribers receive monthly e-mail updates on changes in legislation.

The electronic format also allows for

linking between related documents, and includes a search engine and subject indexes.

"We are extremely happy to be able to offer the new Panama digital regulations to new and existing customers," said David Clayden, sales and marketing manager, Regs4ships.

"The creation of a regulatory product for vessels belonging to the Panama Flag Registry has long been an objective of Regs4ships."

"We recognised that the Panamanian Registry has consistently maintained its status as the largest flag of registration, currently possessing a massive 22.6 per cent of the world fleet by DWT, far ahead of its nearest competitors Liberia (11.1 per cent), the Marshall Islands (6.1 per cent) and Hong Kong (5.8 per cent) - all of which are already provided for with Digital Maritime Regulation products."

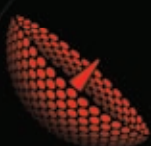
SpecTec has opened its newest office in Rio de Janeiro. AMOS Brasil Sistemas de Gestão de Recursos e Consultoria de Software Ltda, or SpecTec Brazil, will serve as headquarters for the region. A new local team has been formed to be managed by David Reyes, managing director, Latin America.

AVEVA has opened a new office in Bogotá, Colombia. The office will act as the main AVEVA hub for the Caribbean

and South American countries situated in the north of the region, and as a regional sales and support centre for the AVEVA Plant and Marine products, as well as providing a range of integration and consulting services for AVEVA's Enterprise Solutions.

www.aveva.com
www.spectec.net

- **Broadband speeds up to 4Mb and 4 x voice lines**
- **All ocean regions covered**
- **24/7 Technical support**
- **Free of charge service number**
- **Service Engineers, spares and support available globally**
- **Auto Beam Switching**
- **For 100% global availability ask for our Service Assurance Package**


NSSLGlobal
 ON LAND ■ ONBOARD ■ ONLINE

For more information:

Tel: +44 (0) 1737 648 800 Fax: +44 (0) 1737 648 888

Email: enquiries@nsslglobal.com Web: www.nsslglobal.com

Stenersen Chartering goes for Veson

www.veson.com

Oslo-based Stenersen Chartering AS, the commercial arm of Rederiet Stenersen AS of Bergen, Norway, has agreed a deal to implement Veson Nautical's IMOS (Integrated Maritime Operations System).

The IMOS6 software will now be used to manage chartering, operations, and voyage accounting related functions for Stenersen Chartering's fleet.

Stenersen Chartering's product tanker fleet numbers approximately 17 vessels,

which vary in size from 13,000-19,000 dwt and carry refined oil products such as gasoline, jet fuel, naphtha and diesel oil. Stenersen Chartering manages tanker chartering and operations.

"We selected Veson Nautical over the competition because IMOS most effectively fulfilled our requirements for a configurable, flexible commercial marine system," remarked Lars Rinde, managing director for Stenersen Chartering.

"Further, IMOS6 is designed to connect seamlessly with our existing software sys-

tems, which will dramatically improve our organisation's ability to work effectively across departments."

"With the installation of IMOS, we will increase overall efficiencies through its optimised business processes."

In addition to the announcement of this new contract Veson Nautical also reports that it has launched Phase II of its IMOS6 Bunker Management Module, to be used in the management of overall bunker operations.

The module provides workflow support for bunker estimates, bunker requests, price inquiries and purchases, increasing access to information and performance analysis to support strategic decision making.

"Bunker management professionals can work with yearly budgets in excess of \$300 million, which can represent half of the cost of all voyages, so good bunker management can make or break not only a voyage, but a company's profitability," said John Veson, president of Veson Nautical.

"We developed IMOS6 Bunker Management Phase II after collaborating directly with our customers and users, and incorporated their input into the product."

"We are pleased to offer our customers a new module that will provide bunker management professionals with the data they need to make the best possible decisions as they interact with charterers, voyage operators, and vessel crews."

IMOS6 Bunker Management Phase II

aggregates bunker data, allowing operators and charterers visibility across the entire fleet.

It supports bunker testing processes for both pre-test and post delivery tests, with a work list tracking the status of all outstanding tests. Test results are captured in the system, along with operational details for each bunker lifting.

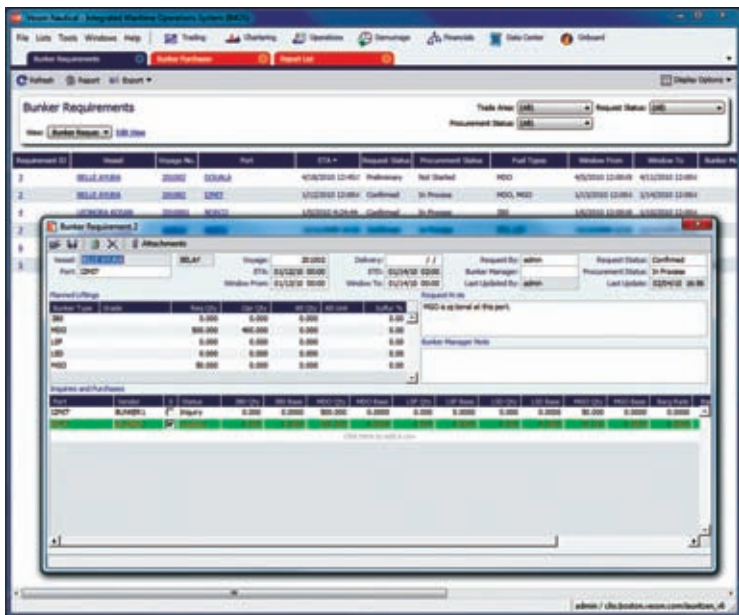
Bunker requests can be received directly from the vessel or a voyage operator, with automatic alerting of these requests built into the system and providing colour-coded notifications of approaching purchase deadlines.

An in-line purchase viewer provides access order status and all lifting details, with user-tailored views for bunker requests, alerts, purchases, and liftings.

"It is not unusual for bunker specialists to negotiate the purchase of thousands of metric tons of fuel every day, and manage monthly budgets of \$25 million or more," remarked Jamie Sheldon, IMOS product director for Veson Nautical.

"When companies monitor bunker usage by vessel, instead of at the fleet level, they risk missing valuable information. They miss the opportunity to aggregate bunker purchases and increase their purchasing leverage."

"Phase II ensures those opportunities for competitive negotiation are not lost; it also promotes better evaluation of negotiating results by allowing the specialist to capture market benchmarks along with each purchase. Purchase reporting tools compare prices paid to market benchmarks by port, vessel, operator, and fleet."



Veson Nautical has extended its software package with the addition of a new Bunker Management module

CONVERTING MULTIPLE CHALLENGES INTO A SINGLE SOLUTION

MarLiant: non-stop computing for the high seas

Cost-effective redundant client-server solution for sea-going vessels & offshore installations



netwave

www.netwavesystems.com/marliant

Donau 106-108
2491 BC The Hague
The Netherlands

T +31 (0)70 327 16 64
F +31 (0)70 301 81 48
E info@netwavesystems.com

Greek and German operators implement trim optimisation

www.eniram.fi

Greek tanker operator Maran Tankers Management and German container line Hamburg Süd have both agreed new contracts to install Eniram's Dynamic Trimming Assistant (DTA), used to optimise trim and to consequently reduce fuel and emissions.

DTA provides the bridge with a visual display of the optimum trim of the vessel, calculated in real-time and taking into account a range of affecting variables.

As affecting factors like weather, sea state, draft, speed and bunker levels change, so does the vessel's optimum trim. Using this dynamic optimum trim measurement the bridge can make adjustments to the vessel in order to stay within the optimum trim.

Staying within the optimum trim parameters can help the vessel to reduce bunker consumption for a given speed.

Maran Tankers Management began with its first installation of the DTA technology on the VLCC vessel Maran Canopus.

"With the installation of DTA onboard Maran Canopus we hope to achieve a fuel saving of between 2 and 4 per cent," said Miltiades Sfantsikopoulos, superintendent engineer at Maran Tankers.

"This could translate into US\$200-400K savings in fuel per calendar year, as well as a significant reduction in air emissions."

Maran Canopus currently operates on a

worldwide spot basis; long voyage legs typically involve loading in the Persian Gulf, discharging in the Gulf of Mexico, ballast to West Africa and then loading for discharge in India followed by ballast conditions back to the Persian Gulf.

The company has previously proven to be an early adopter of energy efficiency initiatives and allocates significant resources to the continual improvement of the environmental performance of vessel operation.

Programmes the company have been involved with include vessel performance

monitoring, training of seafarers and office personnel on best operational, environmental and energy management practices, and the deployment of other technologies and solutions on new vessels for improvement of energy efficiency and reduction of environmental impact.

"We hope that the Eniram system will prove to be a useful tool for further voyage performance optimisation," said Mr Sfantsikopoulos.

Meanwhile, Hamburg Süd, an existing user of the DTA system, has ordered 12

additional installations and will deploy the technology on all of its post-Panamax container vessels by the end of Q3 this year.

Hamburg Süd was the first container line to install the DTA system. Since late 2008, the vessel operator says it has seen an average 3 per cent reduction in the bunker consumption of vessels equipped with DTA, in comparison with non-DTA equipped sister ships.

The wider installation of DTA is also expected to save over 50,000 tons of CO₂ every year across the post-Panamax fleet.

Hamburg Süd will take delivery of five new 7,100 TEU 'Santa' Class vessels this year, and three more in 2012. All of these ships will be equipped with DTA once they are launched.

"Over the past 12 months, we have consistently seen significant fuel savings on all vessels on which we have installed DTA," said Fred Deichmann, managing director, Columbus Shipmanagement, Hamburg Süd's vessel management division.

"As we have sister vessels sailing on the same routes, it is possible to see the reduction in bunker consumption that dynamic trimming has made on those vessels equipped with the Eniram system."

"We see this system as a 'must-have' on any new vessels entering our fleet to ensure that they are as efficient and environmentally friendly as possible. As a result, all of the new 7,100 TEUs vessels, the biggest in our fleet, will be fitted with DTA as they enter service."



Hamburg Süd has seen an average 3 per cent reduction in bunker consumption through the use of the technology

BIMCO and Videotel launch e-learning system

www.bimco.org
www.videotel.co.uk

BIMCO (the Baltic and International Maritime Council) has linked up with maritime multi-media training provider Videotel Marine International to produce a new BIMCO eLearning Diploma Programme (BeDP).

The new Learning Management System comprises a web-based e-learning package to deliver the new diploma programme.

Maritime students will be able to access training provided by online specialist experts and tutors selected by BIMCO, with

the diploma course being aimed at students and young people entering trainee or internship programmes and wishing to learn more about the shipping industry.

Online course meetings are held at designated times with tutors providing targeted guidance and instruction.

Each training module represents approximately three months' training – about 30-40 study hours – followed by a final, written examination leading to the award of a BIMCO Certificate. Four certificates can be combined to achieve the BIMCO Diploma.

The BeDP course work will be rolled

out to Videotel client vessels via its onboard computer training system Videotel on Demand (VOD), to prepare students for enrolment in the BDP once the seafarer disembarks his or her vessel.

The partners say that it will be offered at "competitive" prices, with discounts being applied to employees of BIMCO member companies.

The programme will be backed-up by online forums and workshops, which it is hoped will also provide networking opportunities for young shipping professionals.

"The new programme will enable students to build on their knowledge, acquire

increased professional competencies and ongoing personal development at their own time and place," said Torben Skaanild, BIMCO secretary general.

"It is a new and exciting educational tool which will deliver the best possible lectures, covering all aspects of the contemporary maritime industry."

"The BeDP marks a new and exciting development in BIMCO's training and educational mission, offering the most up-to-date technology to members' employees and facilitating the transfer of knowledge to all corners of the planet without costly and extensive travelling."

**Visit us at the
Norwegian Pavilion
during Nor-Shipping
24.-27.5.2011**

Fleet Management Solutions

- Maintenance & Inventory
- Docking Management
- Voyage E-log
- Centralised Procurement
- Crew Management
- Claims Management

Quality ~ Reliability ~ Knowledge ~ Innovation



www.teromarine.no

SINANJU to implement AMOS2

www.spectec.net

SINANJU has become the latest new SpecTec customer after agreeing a deal to implement the company's AMOS2 Enterprise Suite.

SINANJU is a provider of barging and shipping services in Singaporean waters, having expanded since starting operations in 1992 to become an owner and operator

of steel bunker tankers.

It currently operates a total of nine tankers and is now largely focused on barging and shipping services as its core business.

The AMOS2 project at the company will include the creation of an interface to SINANJU's third party accounting system, as well as database construction and training.

Aker to add 3D technology

www.intergraph.com

Aker Solutions has agreed a multi-year contract with Intergraph to implement Intergraph's Smart 3D technology, including its SmartMarine 3D system.

The first project deployment is expected during the second half of 2011.

SmartMarine 3D is used for offshore and ship design. Based on rules and automation, the system assists in optimising design and productivity while shortening project schedules.

"Intergraph's Smart 3D Technology will help Aker Solutions to continuously work to improve productivity and quality through standardization and knowledge-based engineering," said Jann Kåre Slettebakk, chief information officer in Aker Solutions' field development businesses.

"In order to be successful, we need tools that enable us to benefit from lessons learned and best practices, while increasing our overall engineering capacity through automation. The objective is to deliver better products to our customers."

Gerhard Sallinger, Intergraph Process, Power & Marine president, also commented: "Aker Solutions is among a growing number of industry leaders that are adopting Intergraph Smart 3D technology as its next-generation engineering platform, because of the unique abilities it provides."

"Intergraph is looking forward to working with Aker Solutions and their input to future product direction. Intergraph believes that Aker Solutions' industry knowledge will help to drive further productivity improvements in Smart 3D technology."

ECDIS Mandation?

Smooth Transition from Paper to ECDIS

Paperless Navigation with type approved ECDIS by **FURUNO**

HanseNautic offers professional support and smooth transition from paper to digital navigation

- customised balance between paper & digital according to your company rules
- gain maximum cost efficiency combined with high nautical expertise
- personal and individual services compatible with fast changing requirements from vessel

HanseNautic GmbH
Hamburg, Germany
Fon+49.40.3748110
info@HanseNautic.de
www.HanseNautic.de

Chart Agents since 1920.
HanseNautic
BADE & HORNIG • ECKARDT & MESSTORFF

Eidsvaag AS upgrades to TM Master V2

www.teromarine.no

Norwegian shipping company Eidsvaag AS is to upgrade its software system from Tero Marine, moving to Version 2 of the product having used TM Master Version 1 since 2005.

TM Master V2 is a fleet management solution, with two-way replication between the office and the vessels.

The system was developed on the Microsoft .Net platform, and uses a 'component organisation' structure based on the international standard SFI Group System.

"When TM Master V2 was presented to us, it opened a brand new user interface and it simplified the day to day operation and building of the databases," said Johnny Bremnes, technical manager at Eidsvaag AS.

"The decision to upgrade to TM Master V2 was therefore easy. A big advantage with TM Master V2 is that the database construction and changes can easily be done from the office and be transferred to the vessels immediately."

Mr Bremnes says that the company has particularly benefitted from the daily operational information presented by the system, arranged in areas like maintenance, certificates and history on components, or technical information.

This creates an overview, based on first-hand information, of the condition of the fleet.

"Since the system is based on the SFI structure, it will make it easier for the users to use the system across the fleet and standardise jobs and descriptions," Mr Bremnes said.

"(And) the possibility to mark class related jobs on components is highly appreciated by the class societies during surveys."

"We also use the Crew and Certificates modules, and find these very useful to keep track of expiry dates etc. The system is always under improvement and adaptation to our vessels."

Following Eidsvaag's decision to move to the new version of its software Tero Marine has also announced a further upgrade of its fleet management package, as it plans the introduction of Version 2.6.

This release introduces a number of new modules and functionalities, which Tero says makes it the most comprehensive upgrade since the launch of TM Master Version 2 in 2007.

"The new modules and improved functionalities will strengthen the first-hand information about the fleet's condition and maximise the financial results in the company," said Inghild Arnesen, marketing coordinator at Tero Marine.

To reduce time spent on manual reporting a Voyage e-log has been introduced, which manages access to updated information relating to vessel voyages.

A new module for purchasing, TM Procurement, has also been added, which integrates with other modules in the software, such as maintenance and docking.

"The module is tailored to the needs of the maritime industry, and streamlines the entire procurement process from requisition to delivery and payment. Now the entire procurement process can be managed from the vessels as well as from the office," said Ms Arnesen.

A module to manage registration of crew details such as hours of rest, work permit, safe job analysis and risk/ consequence analysis has been introduced, as has a module for measurement and analysis of trends and consumption to monitor on board equipment.

"The development towards condition based maintenance is evolving rapidly, and this module is a powerful tool to register consumption and trends and cut down on unnecessary maintenance," said Ms Arnesen.

"Tero Marine is continuously working on innovative improvements of TM Master, it's all about staying one step ahead."



Eidsvaag vessels use the software to replicate data to shore offices

Greenwave contract for Maritime Associates

www.ma.com.sg

Maritime Associates reports that it has signed a contract with Greenwave Shipping Pte Ltd, for the supply of its VMOSnet Fleet Management software package.

Greenwave Shipping is a subsidiary of Japanese shipping company m/s Koyo Kaiun, an owner and operator of chemical tankers.

The software system to be delivered to Greenwave will include modules for Document Management, HSSEQA, PMS, Requisition & Purchasing, and Crewing.

Maritime Associates says that it has also been contracted to develop an interface between the VMOSnet purchasing module and Koyo Kaiun's accounting system, to assist in integration of the software packages.

Software donated to Mercy Ships

www.spectec.net

SpecTec has donated an AMOS Shipdex Interface (ASI) software system to the Mercy Ships Organisation.

This donation is the latest development in a 15-year partnership between the software provider and the charity, which has operated hospital ships in developing nations since 1978.

The AMOS Shipdex Interface is a SpecTec module designed to leverage Shipdex Protocol datasets. Shipdex is a set

of International Business Rules developed to standardise the production and the exchange of technical and logistic data within the shipping community.

ASI is capable of reading and importing Shipdex datasets into an AMOS Business Suite Database, without the need for retyping of the manufacturer's technical information.

As such, Mercy Ships will use ASI to automatically populate its database with a Shipdex dataset for MAN Diesel & Turbo engines.

Australian customer for Shipadmin

www.shipadmin.com

Norwegian software provider Shipadmin reports that it has signed an agreement with TS Marine, its first customer in Australia.

Perth-based TS Marine was recently acquired by Fugro, and has chosen to use Shipadmin's Captains Secretary software system onboard its latest acquisition, the Southern Ocean.

Southern Ocean is a DP2 multirole construction/intervention vessel. The vessel

has 2,400 m² of deck space, two large offshore cranes (250T and 110T) and is able to accommodate 120 personnel.

"I am very honoured to welcome Fugro-TS Marine as a user of our solutions," said Per Magnus Grøsvik, general manager, Shipadmin.

"Southern Ocean is a very large vessel, able to perform a huge number of tasks, anywhere in the world. To see that it will use our program proves that Shipadmin has developed the right solutions."

Austrian shipyard goes for Paramarine

www.grc.qinetiq.com

The Öswag shipyard in Austria has agreed a deal to implement the Paramarine marine design software system, for use in the design of inland waterway ships.

The system will be used for stability calculations and damage stability on the ships, which will primarily operate on the Danube and the Rhine.

"We carried out an extensive review of marine design software tools for use in the design of passenger vessels, cargo vessels and work boats for inland waterways," said Harald Böhm, chief project engineer, Öswag.

"Based on a combination of market reputation, functionality and ease of use we selected Paramarine. In addition, its ability to integrate with our CAD/CAM tool Siemens NX, enables us to speed up the whole design process and improve accuracy."

An updated version of the Paramarine software has also recently been released, to extend the software's functionality with enhancements to its reporting, concurrent design and documentation capabilities.

The new functionality in Paramarine V7 is intended to improve and enhance the design process, with a focus on reducing cost whilst speeding up the whole design cycle.

The latest release introduces the ability for ship designers to work concurrently on the same vessel design, which QinetiQ GRC, the developer of the Paramarine range, says will reduce the length of the

ship design cycle and improve design configuration control.

Paramarine V7 also includes the ability to integrate with Siemens NX software, so ship designers can conduct naval architectural analysis quickly using the master geometry dataset as defined within NX.

The reporting functionality of the software has been overhauled, to allow users to quickly create reports on any data held within the tool. The reports can be exported to Microsoft Word, produced as PDFs or printed directly from Paramarine.

The new reporting capability will automatically update its contents - links to the data are 'live' and any changes in the underlying calculations will cause the report to automatically refresh itself.

This means that changes to the underlying vessel geometry will automatically recreate the contents of the report with the updated calculations, requiring no further user input as the design evolves.

"The selection by Öswag for use in the design of inland vessels further demonstrates the versatility and flexibility of Paramarine software underpinned by its ease of use," said Vittorio Vagliani, managing director, QinetiQ GRC.

"Additionally we have been able to rapidly respond to Öswag's specific requirements for the incorporation of the Rhine River requirements further demonstrating that when customers purchase Paramarine they not only buy a best in class solution but they also get access to a business that can support their specific requirements."

Boatrac to develop web-based software

www.boatrac.com

Boatrac reports that it has partnered with TransIT Solutions, a software provider for the transportation and logistics industry, to accelerate the development of a new web-based software solution for the maritime industry.

Boatrac will build on the core architecture of TransIT Solutions' TransFusion Network product, a web application for the shipping and logistics industry, to create a 'Software as a Service' offering that aims to help vessel operators manage their use of operational information.

TransFusion features mapping, messaging and tracking and other functionalities that are already integrated with Qualcomm's OmniTRACS and Mobile

Computing Platform (MCP) satellite solutions. Boatrac has been a strategic maritime distributor for Qualcomm since 1990.

This new product will allow access to data across multiple devices, as well as integrating other maritime information systems such as AIS (Automatic Identification System).

"These types of partnerships between best of breed companies greatly accelerate time to market," said Irwin Rodrigues, CEO of Boatrac.

"Thousands of vessels already depend on the reliability of our solution for data messaging, vessel tracking and maritime fleet management. We are committed to enhancing this value even further with this initiative."

Oceanex to implement SpecTec crewing software

www.spectec.net

SpecTec has agreed a contract with Oceanex Inc to implement the AMOS2 Staff Management software module for crewing services.

As part of this project, SpecTec will implement the AMOS2 Crewing Database and configure the system to match the existing AMOS2 Staff Management database currently being used by Oceanex, both onshore and aboard the company's three vessels, M/V Oceanex Avalon, M/V Cabot and M/V Oceanex Sanderling.

As part of another recent project Oceanex has already introduced a newly developed interface between AMOS and its CODA Financials system, which allows items like vouchers to be transferred from the AMOS system to CODA.

Oceanex is an existing user of the full AMOS2 Enterprise Management Suite having started working with the software in 2009 through the introduction of modules like AMOS2 Staff Management, AMOS2 Quality Management Systems and AMOS2 Maintenance & Purchase.

Visit us at Nor-Shipping Booth T-05

creating seaworthy software

www.autoship.com

- Stability & Strength Assessment
- Cargo Management & Load Planning
- Ship Design & Production
- World-Wide Service & Support

Catch information as it happens.

autoship

Shipping companies choose MarineLink for electronic purchasing

www.edbergogroup.com

Rederi AB Transatlantic and Imperial Ship Management AB are to use the MarineLink e-commerce service from EDB ErgoGroup for purchasing operations, after agreeing contracts covering 45 vessels, while Thome Ship Management will also use the service as its sole e-commerce system.

Rederi AB Transatlantic and Imperial Ship Management will use the purchasing package to electronically handle inquiries, quotes, orders and order confirmations, and to make use of various tools for statistics and control, and reporting of KPIs.

It is also expected that the technology will help Rederi AB Transatlantic and Imperial Ship Management improve integration with their logistics providers.

"We have chosen MarineLink as our e-commerce service, as EDB ErgoGroup is a large, independent and reputable IT company with a proven track record in e-commerce," said Thomas Andersson, vice president supply management, Rederi AB Transatlantic.

"EDB ErgoGroup is an e-commerce specialist, and is delivering professional e-commerce in many market segments. With their MarineLink platform, we reach the benefits from a large scale operation and lower cost, the maritime industry specialties, and rich functionality that meets our needs."

EDB ErgoGroup's three year contract with Thome meanwhile covers the vessel operator's entire fleet of about 150 ships.

Thome Ship Management had previously been a user of the Marine Transaction Services (MTS) purchasing system since April 2007, which was incorporated into EDB ErgoGroup's e-commerce platform as MarineLink in 2010 after it was purchased from Wilhelmsen Ships Service.

MarineLink says that it has since added new functionality for invoice processing and logistics integration to the

previous MTS system.

Thome was the first manager in the shipping community to run two concurrent e-commerce portals, having implemented both the MTS and Shipperserv platforms.

The company says it pursued this combined electronic purchasing policy for a number of reasons, firstly for commercial reasons, and then to have experience using both systems, keeping their options open.

However, early in 2011 Thome made the decision to move to the MarineLink eCommerce service as its sole e-commerce provider.

"Advanced eCommerce delivered by MarineLink is our choice for addressing the current and future needs of our purchasing operations, further improving the efficiency of our purchasing operation and making savings," said Ryan Dalgado, Thome's procurement and supply chain manager.

"We want to be the forerunner in e-commerce, with MarineLink developing advanced e-commerce solutions which help us monitor our purchasing operations through dynamic reporting tools, enabling us to deliver quality ship management."

Thome will use the system to handle inquiries, quotes, orders and order confirmations, as well as receiving and processing electronic invoices and creating reports and KPIs.

"EDB ErgoGroup MarineLink has a great and wonderful experience working with Thome although it was a very challenging encounter," said Jonny Lotten of EDB ErgoGroup. "More than 2,700 vessels are now trading through EDB ErgoGroup MarineLink, and the EDB ErgoGroup e-commerce solution is managing more than 15,000 integrated businesses performing over 250 million e-commerce transactions annually."

"(This) allows the companies to efficiently process orders, requests for quotes, invoices and logistics documents through a single, electronic connection to all of its suppliers."

On-Demand ERP comes online

www.otesat-maritel.com

Otesat-Maritel has announced the availability of its 'On-Demand ERP' software system, which can be combined with Cloud Computing services and is available for a monthly fee.

The ERP offering, first launched by Otesat in mid-2010, incorporates a Microsoft Dynamics NAV Planned Maintenance System (PMS), Procurement Process Solution (PPS) and International

Safety Management (ISM) Administrator.

All services are accessible anywhere via the internet, and Otesat says that it is offering the service under a flexible 'Pay-as-You-Go/Pay-as-You-Grow' model, where costs will be based on particular user requirements.

In this way, Otesat says that it hopes the service will allow small and medium-sized shipping companies to use modern specialised IT systems that may have previously only been accessible to larger businesses.

Digital Ship Singapore

18 - 19 October 2011, Suntec Convention Centre



For sponsorship and exhibiting opportunities, contact
Ria Kontogeorgou, tel: +44 (0)20 7017 3401,
ria@thedigitalship.com



SAFETY THROUGH KNOWLEDGE

Founded in maritime tradition
A world class training system

www.seagull.no

SCF Unicom – upgrading training with CBT

SCF Unicom has implemented a range of computer based training systems (CBT) across its fleet of more than 90 ships – training officer Captain Anatoly Trofimov told *Digital Ship* about how online training has revolutionised the education of the company's crews

Cyprus-headquartered SCF Unicom has conducted a significant upgrade of its training systems, to ensure that its standards not only meet those required by STCW but in many cases exceed them.

This has included the introduction of online training systems, to increase the training options available to vessel crews in different locations and stimulate the continued education of the company's seafarers.

The introduction of new training technologies is part of a continuous process at SCF Unicom, with the company having already completed an earlier upgrade of its training set-up last year in conjunction with Norwegian training technology supplier Seagull, supplementing its computer-based training programme with the introduction of additional training modules.

The Seagull Training System (STS) has been used to provide Computer-Based Training (CBT) packages to crews, with a full range of assessment tools and ensuring compliance with STCW and IMO standards, since it was selected for use across the entire fleet and in its recruitment offices in 2006.

SCF Unicom, part of the Sovcomflot Group has since implemented the training technology across its fleet of more than 90 ships, including gas tankers, chemical tankers, dry cargo and bulker vessels, plus all land-based offices.

This has been supplemented through the recent introduction of these new modules, now in use onboard Unicom vessels, covering areas like Inspection, Mooring, Basic Ship Handling, Hot Work, Piracy, H2S Hydrogen Sulphide Awareness, MLC 2006, Team Leadership and Crane Operator.

To add to this, another training development at SCF Unicom involves the potential use of INTERTANKO's Electronic Tanker Officer Training Standard (E-TOTS) in association with the Seagull Training System, following an agreement between Seagull and the tanker owners association.

SCF Unicom is considering using E-TOTS next year, for training of a target group that will include junior officers, those aspiring to become senior officers and officers new to the company, according to the company's training officer, Captain Anatoly Trofimov.

Using these computer-based training systems has been of particular importance to SCF Unicom, he told us.

"In the fast-changing shipping environment it is clear that a competent crew these days gives you a competitive advantage," he said.

"In this context it is of great importance to provide effective training tools and equipment for the continuous onboard training of ships' personnel."

In this respect the Seagull system used by SCF Unicom has been customised by the Norwegian company to meet the spe-

cific requirements of its seafarers and office staff, with modifications which included the assignment of training requirements to individuals as well as software features designed to help with competence management and knowledge assessment.

Company training policies

SCF Unicom's policy is that mandatory computer-based training modules must be completed with an exam score of at least 75 per cent and must be repeated every 36 months.

Recommended modules have to be completed according to specific vessel type and the seafarer's rank and position.

In addition, SCF Unicom seafarers have been given remote access to Seagull CBT Modules, through the implementation of the Seagull Training Administrator (STA Online).

"This means that seafarers can log in from home to review online their training records status and can finish their



CBT use by SCF Unicom seafarers has increased almost 100 per cent in three years

required training ashore, supplementing the training already completed onboard," said Captain Trofimov.

"Both the onboard and online training remote access results are stored in the same central database so that all training is recorded and this allows us to access a training profile for every specified crew position."

To promote the use of the online training system, presentations were made to SCF Unicom superintendents by Seagull at Unicom's head office in Cyprus explaining the different types of training courses available onboard and offering instructions as to how to review the use of training materials provided during routine shipboard inspections.

SCF Unicom says that it considers provision of highly qualified and experienced crews to its vessels as a "top priority", and sees the training provided to crewmembers at on-shore Training Centres and onboard as a key element of a crew's competency.

In pursuit of this policy the company has now completed a trial period with

STA Online from which it has seen very positive results, with a significant number of seafarers having already completed CBT modules via the internet.

"The number of seafarers passing CBT modules has considerably increased as a result," said Captain Trofimov.

"In the fast-changing shipping environment it is clear that a competent crew these days gives you a competitive advantage."

"In this context it is of great importance to provide effective training tools / equipment which can be continuously and effectively used by seafarers on board for enhancement of their knowledge and working competency."

The impact of the enthusiastic response to the on-line initiative is reflected in an impressive set of training statistics.

In the three years to January 31 2010, a total of 37,234 CBT modules were completed by SCF Unicom seafarers – by January 31, 2011 this had increased to 73,539 CBT modules.

This means that within a one-year period, 36,325 CBT modules were completed, a close to 100 per cent increase compared with the previous three years.

According to Seagull area sales manager, Dan Gunnar Hugvik, these results are a testament to how extensively SCF Unicom crews have been using the online tools available to them.

"Unicom is probably now one of the world leaders as far as the use of online training tools in shipping is concerned," he said.

"We are constantly reviewing with SCF Unicom their training needs and the result is a continual process of enhancement. We regularly sit down and review the modules they use to make sure they fully cover their training requirements."

Crew evaluation

In another joint initiative, SCF Unicom is now using another of Seagull's online systems after introducing a new version of Seagull's Crew Evaluation System (CES 5.0) at its crewing offices in St Petersburg, Novorossiysk and Vladivostok.

CES is a computer-based knowledge evaluation tool that consists of a database of several thousand questions which can be used to assess the background knowledge of crew members covering Deck, Engine and General Services.

The system can be used in any manning office without installing any software, as only an internet connection is needed. An extended report section is also included, allowing head office to easily generate reports on tests performed at all manning offices.

"The adoption of the STS training package and CES evaluation tools are significantly assisting our efforts to sustain the continuous onboard training and education of our seafarers and maintaining a consistent approach to crew assessment,"

said Captain Trofimov.

"STS is a core part of the way we approach crew evaluation and helps enhance the effectiveness of our selection process. Our masters all do their best to make sure that onboard training is well planned and arranged so that the training workload does not affect work activities."

Going forward, SCF Unicom is also considering extending its use of crew evaluation technology to include the use of an Ability Profiling programme, which acts as a support tool during recruitment of junior officers and the screening of marine cadets.

APRO is a psychometric assessment programme developed in a research and development initiative headed by the Norwegian Marine Technology Research Institute and supported by the University of Oslo, Det Norske Veritas and other key partners in the shipping industry.

APRO is suitable for shipping companies of all types, but can be especially useful for tanker operators, who have to comply with Tanker Management and Self Assessment (TMSA) requirements.

TMSA stipulates that techniques such as simulator training and computer-based or psychometric test assessment tools must be in place to confirm competence for the job before employment.

Working with Professor Roald Bjorklund, of The University of Oslo's Department of Psychology, who was part of the original research and development team, Seagull has modified the APRO test tool so that the test can be undertaken online.

"It is important to recognise that APRO is a very specific tool that allows companies to find out how people react in safety related areas, measuring the time they take to do tasks and the level of accuracy and the mistakes they might make, for instance," said Professor Bjorklund.

"Unlike some other psychometric tests, APRO is designed to help select people who are able to act in the right way when safety is critical. What Seagull has done with APRO is very impressive, using modern IT to allow the tests to be used on different types of computer screens and most importantly online."

"Results can be kept remotely, rather than on a local computer, and the results evaluated over a period of time, for instance comparing them with a candidate's real life performance onboard ship."

Adding tools such as these to the range of training systems already in use at the company will be another step in the continued evolution of SCF Unicom's training programmes.

With this and the other online training systems in use at the company, SCF Unicom is providing a fine example of how modern shipping companies can apply the latest maritime technologies to maintain and enhance the skills of the officers and crews onboard their fleets.

When the industry talks about condition monitoring today it is often aimed at the vessels' machinery items.

A well-chosen and effectively implemented hull maintenance strategy not only reduces the risk of incidents but assures integrity and safeguards the environment.

Typically, monitoring is done by appointed crew members through periodic visual inspections.

Tank structure inspections are critical work, and several operators have discovered material cracking and defective coating in their vessels that must be addressed if these units are to continue operating for the long term.

The latest hull integrity software systems use 3-D models of the vessel to show actual plates and stiffeners, or frames of each tank or other space in the ship.

example, inspection forms with images of the actual structural members of the inspected tank can be printed out to mark findings and positions on photos using a pen during the inspection.

This information can then be entered into the onboard software, allowing the user to interact directly with the 3-D model. Drawing on a model requires less skill and is less error-prone than describing locations in text form. Attaching photo images to a location in the model is a matter of a few clicks.

Software systems also create the ability to represent all of the findings visually, which is particularly helpful when shipping companies need to prove to charterers that their ships are maintained to high standards.

Another advantage of using hull integrity software is that it allows information to be shared more easily.

The application can allow information on the condition of hull structures to be made available to any employee across the company once the inspection results have been approved and synchronised. Hence, the superintendent can easily associate any photo or finding with its location on the ship.

If this data is stored in a lifecycle database the hull condition data for each individual vessel can be traced over time. Sister vessels from the same fleet can be compared easily.

A dashboard overview of the entire ship will also make it easier to pinpoint any critical findings by crew or third-party inspectors.

While these capabilities can be useful in helping to manage the performance of company fleets, for shipping companies the true value of hull inspection can be seen once you apply a uniform reporting standard.

Pre-generated inspection forms, such as



a checklist based on IACS recommendations and an accompanying guideline for rating defects, ensure that uniform reporting can be achieved even across a fleet of vessels with varying crews.

Since the images on the inspection forms are based on the 3-D model of the actual vessel, the quality of reports prepared by crew members increases significantly. As such, hull integrity software can therefore provide a major step towards implementing a truly consistent maintenance and risk management approach.

There are a number of elements that should be considered when considering the use of hull integrity software.

It is important that the package used comprises both shipboard and onshore software using the same visual 3D representation of the vessel, and that you can arrange associated training for the applications. A hull survey guideline should also be included.

The software should support the inspection, reporting, and assessment of the condition of a ship's hull with respect to a wide number of areas – things like coating condition, corrosion, structural defects and findings on out-fittings should all be included.

A comprehensive database, synchronised with the onshore office, will also be beneficial to allow staff to monitor the status of tanks, cargo holds and other spaces throughout the asset lifecycle.

A straightforward and robust user interface is similarly essential if the solution is to be accepted by users on board, and if you are to create the additional key benefit of having a comprehensive flow of information from the vessel to the onshore office.

Integration of thickness measurements into the owner's maintenance system is

another feature that should be required. Thickness measurement results should be easily transferred into the software and should also be shown on the graphical ship model.

This can be made possible by a software application created for thickness measurement companies, an application based on the same 3-D model of the ship.

Used by the thickness measurement firm contracted by the ship owner, the tool maintains historical data in standardised formats for comparison and can be used to support the requirements of any ship type.

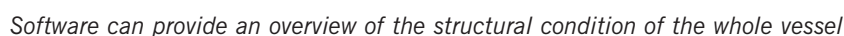
Hull maintenance software has been available for several years – yet it has not been adopted by the majority of the maritime industry to date.

However, the new capabilities that exist in these programs today, such as the ability to easily associate defects with structural members and having a platform for their visualisation, may help to change that.

Ship owners, managers and operators will benefit from having access to both an integrity tool and a communication aid. With this kind of support for the hull inspection process these systems can take hull maintenance to a new level.

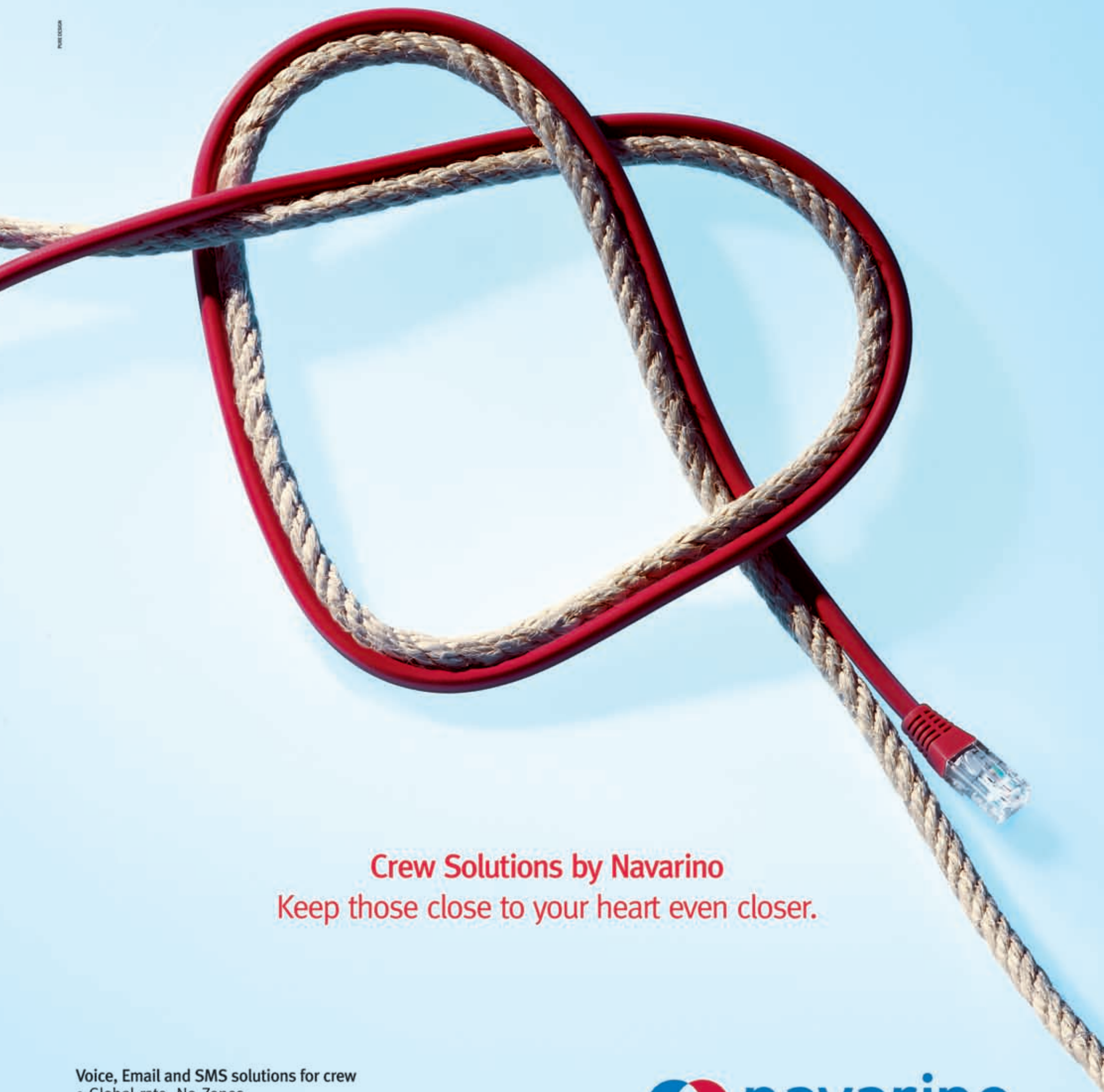
In essence, you may call it a platform for hull structure lifecycle management. **DS**

Dr Christian Cabos is deputy head of Strategic Research and Development for Germanischer Lloyd in Hamburg. His particular focus areas are the development of computer aided engineering methods and Product Lifecycle Management. Most recently he has worked on software support for hull inspection and maintenance.





PIRELLA GÖTTSCHE LOWE



Crew Solutions by Navarino
Keep those close to your heart even closer.

Voice, Email and SMS solutions for crew

- Global rate, No Zones
- No Connection costs, No Start Up Fees
- No Extra or Hidden Cost
- No charge for ringing time, holding time or time spent for unsuccessful calls



3 Akti Miaouli, Piraeus 185 35 Greece T:+30210 411 1311 www.navarinotelecom.com

Game based learning for maritime

The introduction of Game Based Learning systems may be one way in which computer based training in the maritime industry could be enhanced through the application of the latest technology. An Alpha version of a newly developed game tested on marine students has shown positive results, write *Dr Nikitas Nikitakos* and *Ioannis Sirris*, *University of the Aegean*

Game Based Learning (GBL) can be very a powerful educational model as part of non-formal or informal e-learning with supplementary and supportive scope to formal education.

The maritime industry should take full advantage of this emerging technology providing a new way for lifelong learning and distance education that supports active and critical learning.

Game based learning for seafarers is a multifactor domain combining educational psychology, learning theories, instructional design, computer game technology, and maritime studies research.

As such it demands the cooperation of three different scientific areas – education design, computer science and maritime education, having a common task of ‘proper game design’.

However, GBL also faces a lot of problems, which arise partly from the vast differences in how people think and operate in both arenas.

Instructional design that is connected to education tends to be systematic, reasoned, and grounded; and gaming experience is more likely to be idiosyncratic, intuitive, and novel.

In educational games, game design includes a major task, “embedding suitable educational approach and instructional techniques, for specific learning outcome and student profile, into the scenario and game play without losing the fun and attractive part of it.”

This means that a lot of study has to be done on the implementation of educational games for seafarers, mainly on three main domains and their intersections presented in Figure 1.

The First domain covers ‘learning and education’, focusing mainly on learning theories, learning format, teaching strategies and instructional design.

The Second domain is ‘Electronic



Figure 2: Game main conventions and ID events

Gaming main conventions

Story's Intentional Learning (Instruction, Game-world)

1. Character
2. Worlds
3. Events

Play's Incidental Learning (Practice, Game-play)

1. Stimulus
2. Response
3. Results

Game's Intrinsic Learning (Performance, Game-structure)

1. Goals
2. Tools
3. Rules

Gaming fundamental ID tasks

1. Expose
2. Inquire
3. Discover
4. Create
5. Experiment
6. Share

Game’, which covers game structure and the characteristics that make it appealing as a means of learning.

The Third domain of study is ‘Seafarers and Maritime Industry’ which describes the profession of seafarers and discusses its particularities.

These sections, and their intersections, define the scope of this article, which is an examination of how to ‘design and develop educational games for seafarers’. A framework for designing educational games is presented and applied to professional maritime education for navigational safety training.

The result of this has been the creation of a 3D real time strategy game, which is

now in alpha version. The game is designed for adult seafarers and maritime faculty students, applied in non-formal educational settings, and has been evaluated by maritime students.

Maritime education

Regulators and shipping interests aim to create a safer, more environmentally friendly and secure maritime transportation sector, and write conventions such as the STCW, which requires specific levels of knowledge, understanding and skill for all seafarers on each level of responsibility.

Despite this they have been confronted with the fact that human error is still the main cause of shipping incidents. Human error is present in 80 per cent to 90 per cent of all shipping accidents.

Det Norske Veritas has recently concluded that “human error still continues to be a serious challenge, accounting for 58 per cent of major [insurance] claims.”

A seaman officer should have many abilities in order to perform his duty, such as high professional knowledge and the technical skills necessary for ship operation management, prudence in relation to potential dangers and the ability to deal with those dangers when an accident happens, collaboration and leadership abilities, neatness, organisation skills and responsibility.

He must also be equipped with courtesy and education in human relationships, time observance, as well as having a strong mind and physical power.

In order to train marine officers with the talent and capacity required for sea service, Maritime Education and Training (MET)

assumes various courses necessary to ship operation management will be completed. These include basic science, applied science, social science and language.

Completion of such courses is necessary to obtain standard qualifications, such as the various basic education levels provided for by international conventions, and is also supported by field education through embarkation training. MET is a lifelong learning process that supports active and critical thinking.

The idea of using computer games for education is not just a concept inspired by educators and researchers, but is also found in leading game designers’ descriptions of the most basic incentives for playing computer games.

In the words of game designer Chris Crawford (1982), “The fundamental motivation for all game-playing is to learn.”

What is important is to consider how to integrate, and not just add, games to the educational tool set, blending them with learning activities.

Integration requires an understanding of the medium and its alignment with the subject, instructional strategy, student’s learning style, and intended outcomes. Integration of games into curricula is much more likely to be successful than mere game use.

Stapleton and Hughes posit a schema (Figure 2) that helps illustrate how the results of fundamental ID tasks from a game’s main conventions facilitate the design and development of instructional games.

According to Kirriemuir and McFarlane, the game environment can support both the mundane ‘acquisition of

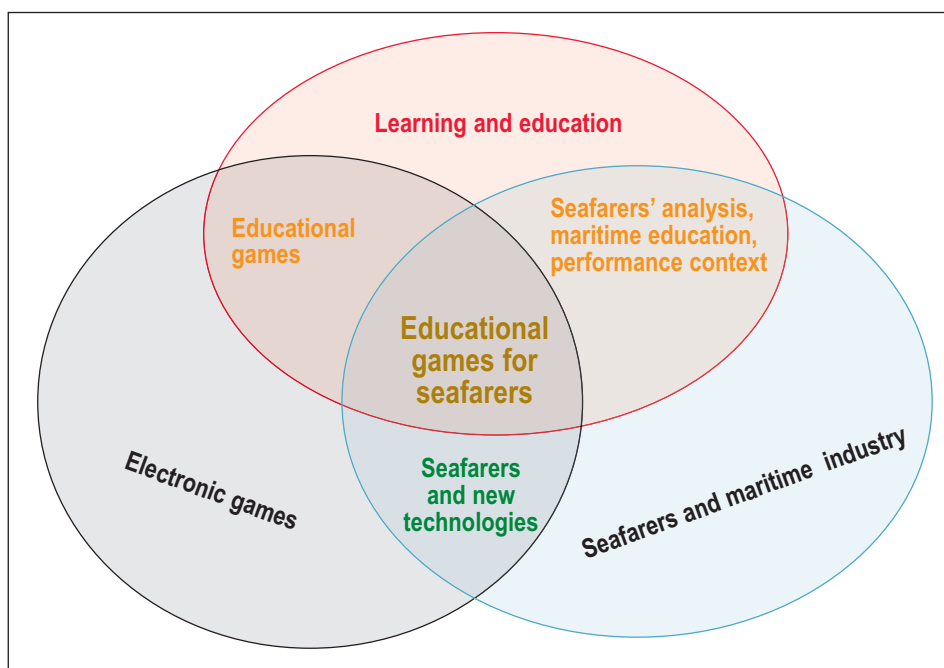


Figure 1: Domains of study



ECDIS Display by IMO Standard

WIDE Corporation, with commitment of Maximum Visual Precision introduces a new line up of ECDIS display complying to IMO Standard. The unprecedented display technologies coupled with *Color Calibration & a Green Initiative Of LED Backlight System* provide the best visualization solution in mission critical Maritime industry.



Please come visit us at Hall B01-19, Norshipping, Oslo Norway (24~27 May) or contact our regional sales representatives.



WIDE Europe BV

Hullenbergweg 413, 1101 CS Amsterdam Zuidoost, The Netherlands

TEL : +31-20-311-9797 | FAX : +31-20-311-9790 infoeu@widecorp.com www.widecorp.com

Aspect	Behaviourist	Cognitive	Constructivism
Learning process	Changes behaviour	Process entirely in the head of the learner	Discover and transform complex information
Learn what	Facts, skills, procedures	Judgment, Reasoning	Theories, Process
Game genre	Action, sports, role-play, adventure tabletop	Business, simulation adventure, strategy	Strategy, adventure, open ended simulation

Figure 3: Learning theory, object, and game genre

facts' through drill and practice, and the complex acquisition of process skills through simulation.

Defining the game genre we can target deferent educational approaches and achieve various learning objectives as presented in Figure 3.

Designing educational games

In order to equip games with learning abilities we should integrate educational theory into the game design and consider how to use Instructional Design (ID) models in the game development process.

Here we will focus on three different instruction models, each one with a different role in the game design and implementation procedure, in order to show that it is possible for games to meet the demands of these ID models, and also present how ID models influence and benefit the development of Educational Games.

A game design and implementation framework based on these three ID models provides a strong evidence that the GBL is pedagogically well grounded.

The first of these models is **Gagné's nine events** (Figure 4, top left), used to help us identify the in-game situations that must be fulfilled for successful instruction, and also associates each one of these events with its in-game event.

The second model is the **ADDIE model** (Figure 4, top right), which provides instructional designers with a solid foundation for designing instruction, and is most useful for the overall description of the product development process.

The **ADDIE model** has strong components and describes the overall procedure of instructional design and implementation. A game development process grounded in a solid Instructional model like ADDIE can help to verify the construction procedure of complete instructional products.

The last of our three models (bottom Figure 4) is **Dick and Carey's model**, which is more analytical than ADDIE and tells the designer how to break instruction down to smaller components and synthesize these components.

For this reason it is used in analytical

Support (Skills and attitudes) Behaviorist orientation	Operation (Domain Knowledge) Cognitivist orientation	Wisdom (Administration) Constructivist orientation
Calculus & Statistics	Physics	Navigation
Medical First Aid	Meteorology	Maritime Safety
Technical Drawing	Chemistry	Prevention of Marine Pollution
Electric and Electrotecnics	IT and Communication	Cargo Handling and Stowage
Fire fighting	Ship Engines techniques	Ship Structure and Stability
Lifeboat Training	Maritime English	Naval Shipping Control
Personal Safety	Law	Shipbuilding
Communications	Maritime History	Maritime Business
GMDSS	Geography	Ship Management (includes Bridge Resource Management)
Search & Rescue	Oceanography	

Figure 5: Learning theories for maritime objectives

game design, as it involves more intricate steps in order to address the total effectiveness of mastering objectives or goals.

In order to adopt game design to specific maritime education objectives, we have classified the learning objectives into 3 levels of application: 'Wisdom', 'Operation' and 'Support', that correspond to a Constructivist, Cognitivist and Behaviourist approach (see Figure 5).

These learning objectives are based on STCW'95 requirements, where features have been determined in terms of 'Administration', 'Domain knowledge', 'skills and attitudes'.

Games can support these educational levels based on different game worlds, structure and play, and under various game genres.

Nevertheless, the process and resources

that are necessary to apply pedagogy in game design and development differ significantly depending on the application level – as illustrated in Figure 6.

Collaboration of game designers and educators

In order to produce educational games beyond edutainment we need cooperation between commercial game developers/designers and instructional designers/subject matter educators.

These two groups can work together under a proper game design and development framework. The goal is to create 'stealth learning' in games that still remain amusing and fun to play.

The framework proposed here is based on the instructional design of the 'Systems Approach Model for Designing Instruction' (Dick et al. 2001), which consists of the three phases outlined in the last of our models in Figure 4 – the Analysis Phase; Design Phase; and Production Phase.

Analysis phase results (as described in Figure 7) will create the concept document that describes the high concept of the game, player motivation, game play, story, target audience/market, game genre, target platform and game goals.

The Design Phase follows the analysis phase (see Figure 8), and the results of this phase form the basis of the IMS Learning Design document.

Modern pedagogical theory insists on the importance of scenarios, i.e. storyboards that define learning activities.

The IMS Learning Design Specification (IMS-LD) provides a very thorough framework for evaluating the capabilities of software tools within the learning design space and also a platform-independent notational convention to allow sharing and re-use of these designs.

Also, it will be necessary to create game design documents (GDD), an extension of the concept document – these will have a project overview and detailed descriptions of: Game world, Game play, Game structure, Art, Audio and Technical Features, Production Details.

Added to these documents we would also have the Art Bible, the Technical Design Document, and game prototypes.

The next phase, the Production Phase, will include complete formative evaluations.

The educators / instructional designers will conduct small group evaluations to

Event	Games
1 Attention	utilize quality video and audio in the set-up
2 Expectancy	provide background and description of how to 'win' provide overview, rules, and tasks/quests
3 Retrieval to working memory	leverage the use of background information and levels
4 Pattern recognition, selective perception	Present animated material that is encouraging, chal lenging, user-controlled and easy navigable with important information
5 Chunking, rehearsal, encoding	Offer optional hints, pop-up with alternate choices, suggestions. "Help" sections, user guides and tutorials
6 Retrieval, responding	Encourage interactivity by assigning tasks, quests, challenges, problems
7 Reinforcement, error correction	Tally scores, provide corrective feedback, provide rewards for achieving each level
8 Responding, retention	Ensure achievement is assessed in a timely and meaningful way. Track scores/best scores
9 Retention, retrieval, generalization	Transfer skills and knowledge between levels and games.

Stage	Instructional Design (ADDIE)	Game Development
1	Analysis	Concept Development
2	Design	Pre-production
3	Development	Prototyping
4	Implementation	Production
5	Evaluation	Post-production

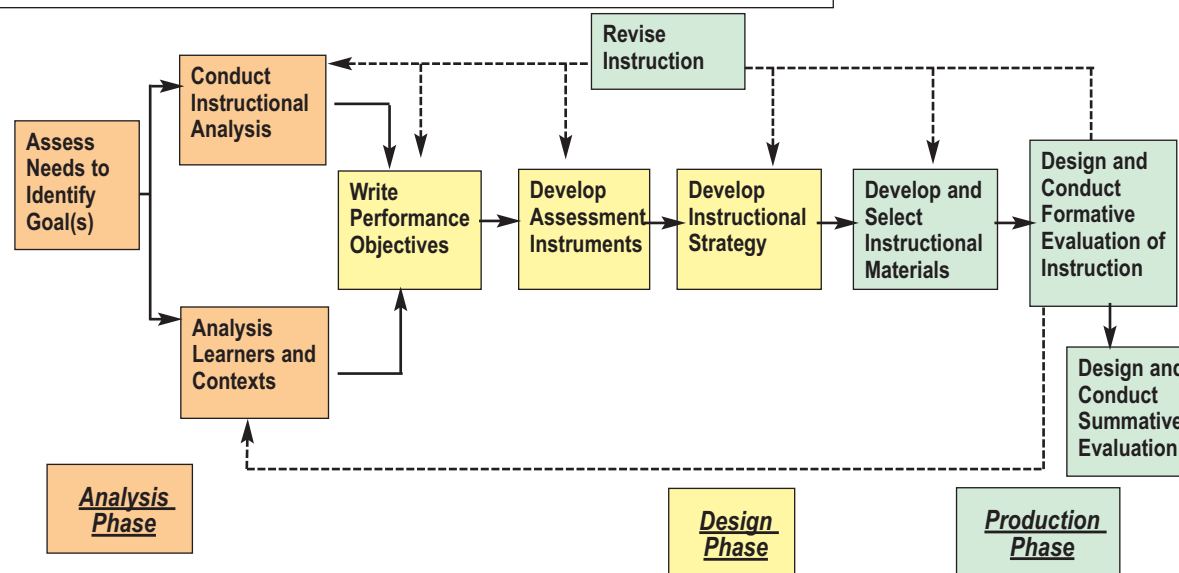


Figure 4: Instructional Design models

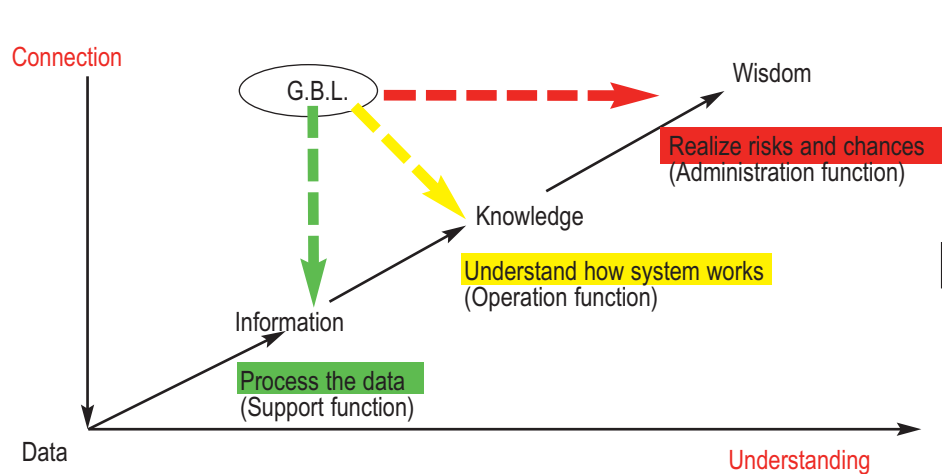


Figure 6: GBL for all educational levels

determine the effectiveness of changes made following the one-to-one evaluation, and conduct field trials of the Beta version of the games.

Complete testing is required to fix all bugs, fine tune performance, and ensure the game may be used in its intended setting.

During this phase game developers / designers will create and test prototypes during the design, as well as various versions of the games during production. Such tests tend to focus on ease of use, documenting and fixing programming bugs, and ensuring the game is (still) fun to play.

The Production Phase should result in an Alpha version, where the game is playable from start to finish, though there may be a few gaps and the art assets may not be final. However, the game engine and user interface are both complete.

Production of the Beta version focuses on fixing bugs and the integration of all assets. The objectives are to complete testing (including use on all supported platforms), bug fixing and performance tuning.

For the Gold version the product has been reviewed and finalised and is ready for production.

Alpha version

An educational game for the maritime industry, called Trader Of The World (TOTW), has actually been developed in Alpha version, according to the above framework.

Following the Analysis phase, the premise of the game was decided to be ‘an educational game with embedded instructional design and assessments that will still be fun to play, (with) an interesting and intriguing game story and game play for the target audience’.

It is a first person, business strategy, real time simulation game, in the following scenario: “You are the captain of a merchant ship. Find a cargo contract suitable for your ship, make a contract, get to the port where you will load the cargo at specific date/time, deliver it to the destination port, and then you get paid according to the contract.”

“Take care of your ship; buy food supplies, petrol, deck supplies and take care of your crew. A lot of incidents may arise during your travel, like crew diseases, navigation faults, port strikes, port traffic, bad weather, engineering problems, ship damages and much more.”

“You can predict and overcome most of these problems if you take right decisions and act consequently. Competitor captains

do their best too.”

The aim of the player is to increase their earnings, and gain the reputation of ‘best captain’, starting your career at the beginning. The player must navigate, charter and administer their crew better than competitors, with game play also including travel cost estimation and commercial

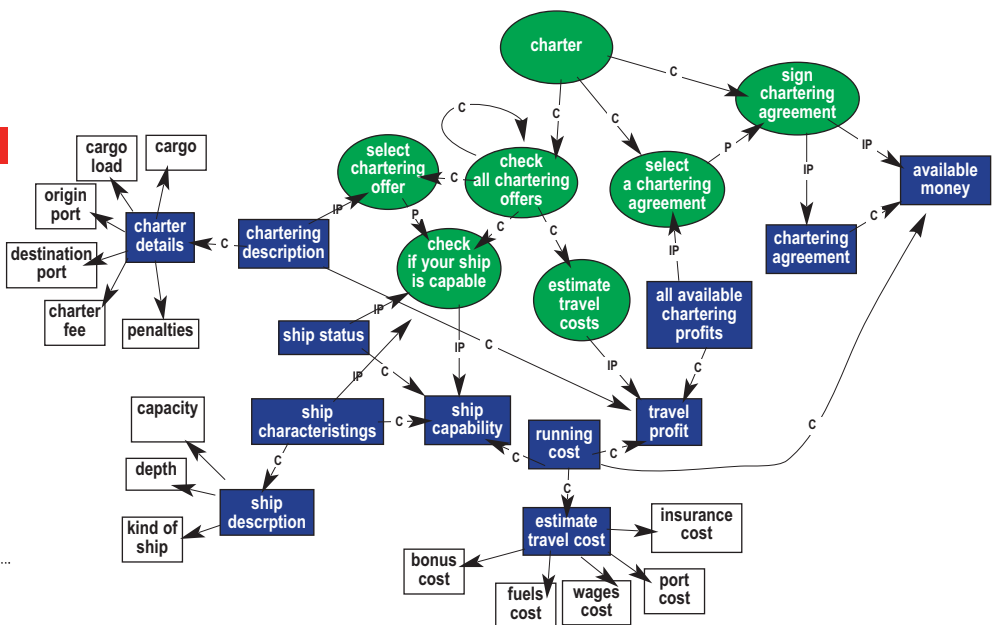


Figure 9: Chartering concepts, facts, principles and procedures

management of a cargo ship.

The game requires the Windows 7 platform, a standalone pc with high quality graphics card, 2 GB RAM and a 17-inch monitor. The target audience is seafarers

and maritime students from the merchant maritime industry.

The design phase has also been completed, resulting in the IMS – LD document illustrated in Figure 9.

Tasks	Educators / Instructional designers	Game Designers / Developers
Define learning goals, skills and knowledge	Assess needs, education scope. Reconcile formal education lesson plans. Decide prerequisites and learning outcome level. Identify suitable learning theory	Combine learning goals with entertainment goals. Identify game complexity and genre.
Create learners' profile	Make Learner analysis (Entry behaviours, needs, learning method, attitudes, demographics, and game experience)	Identify game difficulty, levels, challenges, availability and interface
Learning context and scope	Instructional design, assessments, educational and instructional resources	Decide hardware requirements, resources, networking
Performance context	Game world settings and learning activities. Check the analogies between reality and imaginary game world. Draft IMS-LD document.	Game world settings and learning. Make a draft game story. System dynamic tools may be used
Basic instructional approach	Design structure	Game genre, game play. Decide game design approach method.

Figure 7: Description of the analysis phase from Dick and Carey's model

Tasks	Educators / Instructional designers	Game Designers / Developers
Game play	Generate objectives. Associate learning activities with learning objects and objectives	Game play
Game rules	Factor analysis and system dynamics on player activities and game world events	Game structure
Game world, competition	Cluster and sequence the objectives. Communicate the organization of objectives to developers. Create the IMS-LD document.	Define game levels by considering game and instructional flow, duration, availability, relationships and difficulty.
Delineate Learner Assessment Methods	Assess <i>What</i> , Assess <i>When</i> , Assess <i>Where</i> and <i>how</i>	Determine learner assessment. Decide game rewards and penalties as assessments' results.
Apply Grounded Strategies & Events	Identify instructional events associated with the instructional approach or strategy selected during concept development.	Integrate grounded instructional strategies and events with story events to optimize GBL exploiting similarities and resolving differences in story and instruction.
Begin Formative Evaluations	Expert reviews by subject matter experts as well as media, learning and human factors specialists. One-to-one evaluations to obtain initial reactions to the content from learners.	
Revision	Re-examine the validity of the instructional analysis and the assumptions about the entry behaviours and characteristics of learners. Review the instructional strategy.	Examine game levels. Check consistency of game story and the clearness of game objectives. Examine user interface. Examine player motivation, game flow and attractiveness.

Figure 8: Description of the design phase from Dick and Carey's model



Figure 10: Game screenshots

The screenshots shown in Figure 10 demonstrate some of the different aspects of the TOTW game.

In the top left screenshot we can see indicators for, from left to right, the GMDSS device, GPS device, the compass, thrust indicators, fuel level and a mini map where the player can see his positions and port positions.

There are also four controls covering ship's overall status, engine department, deck department and food supplies. Here the ship is in the harbour, and the player sees the dock, the crane and the town.

The top right and bottom left screenshots show views of the 3D ship model, while the screenshot bottom right shows the in-game electronic map.

This screen serves two purposes – the first one is to help the player find his position in the map. The second one is to point and click on the map so that he sets the waypoints that ship must follow. The upper right of the map screen displays the waypoints that have been selected (using GPS coordinates).

Also, there is a contract screen that presents the available contracts in the market with all the details. The player has to estimate the costs of each contract in order to accept the most profitable.

Real life evaluation

The TOTW game was demonstrated to 200 male students, from 21 to 27 years old, at the Marine Engineering Academy in Chios Island, Greece.

This Academy offers courses to stu-

dents in the field of navigation, ship handling, bridge resource management, mechanics and machine construction. All of them were in the last year of their studies and had 12 months of sea working experience.

To gather the students' thoughts on the educational game they were asked to fill in a questionnaire of 16 Likert Questions (a psychometric scale commonly used in questionnaires) and personal demographic data.

The research objectives of the questionnaire were game attractiveness, business model representation in game environment, acceptance of games as an educational mean in MET and familiarization of maritime students with Computer and Computer Games.

Each question has 5 possible answers: SD represents 'Strongly disagree', D for 'Disagree', NAND for 'Neither agree nor disagree', A stands for 'Agree' and SA for 'Strongly Agree'. Results and conclusions from these questions are shown in Figure 11.

Our conclusion from this project is that Educational Games is a promising emerging technology suitable for the educational needs of maritime education and training.

GBL can be used in the MET domain and applied not only to onboard (non formal) education, but also to informal maritime education as a supplementary tool aiming to achieve active learning and critical thinking.

Educational Games can be adjusted to

almost any learning need if they are designed under a framework such as the one proposed in this paper, and developed by a team formed by instructional designers, field masters, educators, game designers and game developers.

The results of the summative evaluation of the Alpha version of the 'Trader of the World' game developed by the University of the Aegean were very satisfactory, and it seems that there is a great chance to create and introduce such games in maritime education.

The next step in the research is the development of the Beta and Gold (final) version of the game, with improvements in graphics, scenarios building, usability etc.

Then it can be fully evaluated by seafarers and maritime students in order to have the final feedback about the two major issues of the research: fun and immersiveness of playing maritime educational games, and the desired learning outcome for MET. DS

About the authors

Dr Nikitas Nikitakos is a Professor in the Department of Shipping Trade and Transport at the University of the Aegean, Greece. E-mail: nnik@aegean.gr

Ioannis Sirris is a Ph.D. student at the University of the Aegean, Greece. E-mail: stt3000012@stt.aegean.gr

This article is based on an original academic paper – the original paper, with a full list of references, is available at <http://www.thedigitalship.com/powerpoints/GBL.doc>.

Survey Issue	SD	D	NAND	A	SA	Conclusions
Game attractiveness	4%	7%	37%	34%	18%	Due the early implementation stage of the game, game attractiveness is neutral to positive. Further development of the game will make it more attractive.
Business model representation in game environment	5%	16%	18%	28%	33%	Bridge resource management and commercial ship management are ranked with high marks. Students want an environment where they will able to test and use their knowledge.
Acceptance of games as an educational mean for MET	7%	8%	14%	36%	35%	It seems that students wish games were part of their education.
Acceptance of games as knowledge assessment method	14%	19%	24%	14%	29%	It is not clear whether games are accepted as evaluation method (such as simulations). It seems games suit better to non formal learning, as it was first assumed in this paper.
Use of games on board for on going education	14%	19%	24%	14%	29%	This question needs further research. It is not sure that the question was clear to the students.
Familiarization of maritime students with Computers and Games	7%	0%	15%	20%	58%	Maritime students are getting well used to computer technology and computer games.

Figure 11: Concept document – game questionnaire

On board • On shore • Online








VIDEO | BOOK | CBT | ONLINE

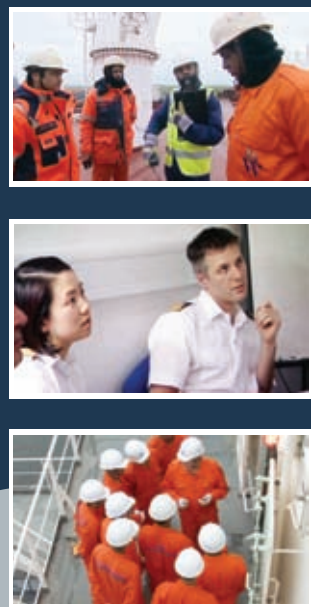
**Training solutions & services for
IMO, ISM & STCW standards**

mail@videotelmail.com | www.videotel.co.uk

www.mlc2006.com

Are you ready for MLC 2006? We can help!







FLIPPERS AND SHIPPING.

Right now fleet manager, Ian Campbell is sun-tanning after a challenging swim. The waves at China Beach, between Da Nong and Hoi An, were high and his flippers were reliable. Similar to his recent conversation with Martin Karlstad at Star Information Systems. Following a ship incident, he had some questions about the follow-up and control of a ship insurance policy. Professional answers. No delays, on time. SIS – a reliable maritime software partner.

www.sismarine.com

Onboard software: Vessel maintenance, procurement, asset management, QHSE, project management
Office software: Management of fleet maintenance, procurement, projects, QHSE and KPI's
Services: Consultancy and Training

Credible. Professional. Dynamic.



The **UKHO** is to open its first overseas office in Singapore, to provide local support for Admiralty distributors and its customer base across Asia. Registered as Admiralty Hydrographic Asia Pacific Pte, the office will be based at 1 Fullerton Road, Marina Bay.

Comark Corporation has received Type Approval from the **American Bureau of Shipping (ABS)** for its 23-inch series of MDU marine displays. The MDU23 features an LED backlit display, with all electronics coated to protect against moisture and corrosion. Touchscreen options are available, with the unit also tested to meet ECDIS requirements in IEC 61174.



Comark's 23-inch series has been approved by ABS

Ocean Signal has appointed James Hewitt as its sales and marketing manager for both the UK and overseas markets. Mr Hewitt previously worked with another UK electronics manufacturer as export sales manager before moving into his new role.

Teledyne TSS reports that it has been granted type approval by the **Russian Maritime Register of Shipping** for its Meridian Standard and Meridian Surveyor gyrocompasses. The Meridian range was already **IMO** and **Wheelmark** approved and includes versions with High Speed Craft certification.

Kelvin Hughes and **Zener Marine** have signed a new distribution agreement to include a range of paper and digital charts and publications in the Zener portfolio. Zener is an equipment distributor and service agent for Kelvin Hughes radar, ECDIS and VDR in Dubai - this agreement adds chart products to that list.

Vesper Marine has added four new partners to its international distribution network - **Marine Electronics** in Switzerland, **Pochon** in France, **Electronics Marine** in Chile and **Al Nakheel Electronics** in the UAE. All four partners will distribute Vesper



Furuno Norge has extended its deal with Hatteland Display by three years

Marine's line of AIS collision avoidance technology products to a reseller network, and provide marketing and technical support.

Thomas Gunn Navigation Services has partnered with Vancouver-based **Maritime Services** to form Thomas Gunn Maritime Services Inc. The companies will offer North America-based shipowners and managers a combined range of products and services including Thomas Gunn Maritime Services' own Outfit Management Service to manage charts and publications.

Hatteland Display has signed a three-year extension of its cooperation agreement with **Furuno Norge**. Under

the agreement, Hatteland Display will continue to supply its high-resolution colour displays for Furuno Norge's navigation, fish finding and communication systems.

www.ukho.gov.uk
www.oceansignal.com
www.vespermarine.com
www.thomasgunn.com
www.comarkcorp.com
www.eagle.org
www.kelvinhughes.co.uk
www.zener.ae
www.tss-international.com
www.hatteland-display.com
www.furuno.com

Sim success for L-3

www.mpri.com

L-3 MPRI reports that it has completed the installation of a Liquid Cargo Handling Simulator (LCHS) in the Philippines, while also gaining approval for Tanker Officer Training Standards (TOTS) training on similar simulators in Italy.

Bernhard Schulte Shipmanagement's (BSM) new Maritime Training Centre in Manila has taken delivery of the new Safe Cargo LCHS, having opened in early 2011.

The Safe Cargo system is comprised of one instructor and six student workstations, each fitted with dual monitor displays and equipped with three ship models, allowing training to be conducted in all the main liquid cargo disciplines of chemical, gas and oil operations.

It is also one of the first installations to use the new 5.0 version of the LCHS software.

To assist with system setup, L-3 MPRI is providing course materials for all three vessel types, as well as specialised training for future instructors, both in the technical operation of the simulator and the training techniques that should be used to ensure best practices.

The simulator will be used to train and enhance the skills of personnel operating BSM's fleet of owned and managed liquid cargo vessels. BSM, one of the world's largest ship management companies, currently has over 7,000 Filipino seafarers in its pool.

BSM and L-3 MPRI have a long standing relationship, with BSM having also invested in LCHS systems and bridge and engine simulators in its training centres in Cyprus, India and Poland.

In Italy, L-3 MPRI reports that its LCHS installed at the Italian Maritime Academy Philippines (IMAP) has been accredited by the Registro Italiano Navale (RINA) for use in the delivery of the Tanker Officer Training Standards (TOTS) training and assessment programmes provided by the Academy.

IMAP provides training to Filipino seafarers, and says that the simulator will be used to ensure that all personnel are trained to the highest levels.

The models and course material available with the simulator are fully compatible with TOTS.

To assist with the verification of personnel against the TOTS requirements, IMAP and L-3 MPRI will collaborate to develop the training and assessment criteria that will allow the progress of each student to be recorded and verified using the L-3 MPRI WISE Assessment System.

L-3's WISE Assessment and WISE Virtual Instructor Systems are used to ensure trainer assessments are consistent and include detailed records to support IMAP's requirements.

"The accreditation by RINA confirms that our LCHS system is fully capable of providing a platform for training and assessment courses that meets all the current international and industry standards," said Dennis Corrigan, senior vice president and general manager of L-3 MPRI's Training Systems Group.

"The Italian Maritime Academy Philippines is one of the first institutions to receive this accreditation, and we are very pleased to continue providing fully trained personnel for its clients."

Comar launches new AIS

www.comarsystems.com

Comar Systems has launched its new CSD-300 display, designed for vessels that require AIS data as primary information.

The unit can manage, sort and display all AIS targets and locate specific vessels by name, MMSI number or category.

The unit is supplied in two variants, either as a standalone display for connection to an existing AIS transponder or receiver on board, or as the CSD-300R which has an integral AIS receiver.

Up to five selected targets can be tracked, displaying track histories and live

detailed information on any one vessel.

Variable parameters for CPA and TCPA can be set and modified according to user requirements, and an internal audible alarm can warn of potential problems.

Data is displayed on a 6.5-inch high resolution display overlaid onto worldwide background cartography or as a 'radar' style display with range rings. For more detailed cartography, the unit has a slot for a Jeppesen C-MAP C card.

There is also a 'GOTO' feature included to take you directly to the vessel on the chart and to immediately access all the data related to this vessel.

Sperry agrees online training deal

www.sperrymarine.northropgrumman.com

Sperry Marine has entered a cooperation agreement with Safebridge to provide online training for users of Sperry Marine's VisionMaster FT ship navigation technology.

Safebridge software programs allow students to complete online training specific to the navigation products installed on the ships they sail.

Users can log on to the Safebridge server via the internet to access a range of e-learning modes, a guided tutorial on the live system, self testing with feedback and free play of the live system.

Upon successful completion of the course assessment, students receive a cer-

tificate of competence.

"As the new International Maritime Organization (ECDIS) carriage requirements are phased in, e-learning is a cost-effective training solution for ship owners, maritime academies, crew agencies and individuals," said J Nolasco DaCunha, vice president of Northrop Grumman Sperry Marine.

"The software allows students to train on all watch modes of Sperry Marine's VisionMaster FT system, most notably the (ECDIS). Users are taken step by step through a number of modules as if they were using the actual technology, and are shown how to use each feature in various simulated scenarios."



All about ECDIS

Our ECDIS systems are one of the world's most advanced and future proof e-charting solutions available today. But there's much more to it.



JAN-2000



JAN-701B



JAN-901B



What's ECDIS

All about ECDIS and background info.



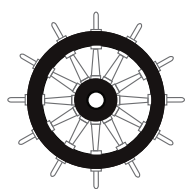
Charts

Key to using the ECDIS – learn all about charts.



Training

A total change from paper charts – training is essential.



IMO

All about rules and regulations.



Footprint

A trip down memory lane and how JRC is ready for ECDIS.



JRC ECDIS

Comparison table between the various models. And more.

New Australian college completes simulator installation

www.kongsberg.com

The installation of a new set of navigation simulators from Kongsberg Maritime has been completed at the new Great Barrier Reef International Marine College (GBRIMC) in Cairns, Australia.

The installation consisted of a 270 degree DNV Class A full mission bridge simulator, a 180 degree tug bridge, 8 desktop navlab stations with part task simulators for ECDIS training and an instructor station.

The simulator features exercise area databases of Australia's busiest ports, as well as a library of ship-models to give GBRIMC the flexibility to train different types of crew and competencies. The full mission bridge and the tug simulators are integrated, so students may operate both within the same exercise.

"The simulator is ideal for training at all levels, from coxswains to foreign going master and pilot training," said Kim Anderson, project manager, GBRIMC.

The GBRIMC simulator suite was funded by the Queensland State Government and has capacity to cater for 124 students at any one time. It is closely connected

with the local high-school through the MarineTech programme, in order to help young students forge a career path into the maritime industry.



Premier Anna Bligh (in the blue dress) and Capt Kim Andersen, project manager, GBRIMC (right), mark the new installation

Geolab extends positioning contract

www.veripos.com

Veripos has been awarded a new two year general services contract by Naples-based GeoLab Srl, extending the relationship between the two companies following an earlier three-year agreement.

Veripos will continue to supply its range of GNSS positioning solutions in support of GeoLab's fleet of dedicated multi-role survey vessels operating worldwide.

These systems cover a range of Veripos positioning capabilities, including its Apex and Ultra services using precise point positioning (PPP) methods for decimetre-level accuracies, and Verify QC, software for real-time positioning and quality control information.

"It marks a further important stage in our relationship with Veripos who continue to provide us with optimum levels of service and support together with high levels of reliability and worldwide availability," said GeoLab managing director Giovanni Ranieri.

UKHO considers selling SevenCs and ChartWorld

www.ukho.gov.uk

The UK Hydrographic Office has announced that it is considering selling the equity holding of its Admiralty Deutschland GmbH subsidiary, which includes the SevenCs and ChartWorld businesses.

SevenCs provides electronic chart software and services for civil and military applications, including a kernel for presenting electronic chart information and associated data products, as well as a range of electronic chart production tools used by hydrographic offices, port authorities and inland waterway authorities around the world.

Associated company ChartWorld provides electronic chart subscription services.

UKHO says Admiralty Holdings would like to divest Admiralty Deutschland so it can "concentrate on its core business".

It is looking for a "highly focussed, innovative organisation" to acquire the companies, which can "further develop the business and realise its exciting potential."

The combined companies have an annual turnover of over €5m, and are said to be "profitable".

UKHO acquired SevenCs and ChartWorld in January 2006, stating at the time that it was keen to reduce the business barriers between electronic charts and the software which runs and displays them.

News of this potential sale followed soon after SevenCs own announcement that its ORCA Master Electronic Chart System (ECS) is now compatible with UKHO's Admiralty Information Overlay, used to import navigational updates from Admiralty to an ECDIS or ECS.

In addition to managing navigational data the Overlay also displays updates from

the UKHO's ENC validation programme. For this programme the UKHO's cartographic teams checked over 11,000 ENCs against Admiralty's paper chart equivalent, to make sure that both paper and digital charts are completely consistent.

As new navigational or ENC updates are made available to the UKHO by foreign governments and partner hydrographic offices worldwide, the teams check them and validate required updates before the chart is corrected, or an update is added.

The Overlay is now compatible with both Transas and SevenCs systems, after Transas was the first to announce availability via the Transas Admiralty Data Service (TADS).

UKHO is also working with a number of other ECDIS manufacturers to ensure the Admiralty Information Overlay can be displayed on their systems, and that further availability will be announced in the next few months.

The new version of SevenCs ORCA Master with Admiralty Information Overlay compatibility is available for immediate download, with a free six-month trial, from the SevenCs website.

The Admiralty Information Overlay is available free of charge to all customers of the Admiralty Vector Chart Service (AVCS) and Admiralty ECDIS Service.

"The Admiralty Information Overlay marks another significant step forward in digital navigation because it delivers a vital range of data to the mariner," said Admiral Nick Lambert, chief hydrographer at the UKHO.

"It ensures they can instantly see any information which might impact their voyage planning or execution on the ECDIS, allowing them to sail with increased safety, compliance and efficiency."

New users for oil spill detection system

www.consilium.se

Consilium reports that it has supplied its Oil Spill Detection Radar to a number of users in Europe and Asia, with deals agreed in the months following the completion of testing with the Norwegian Coastal Administration and the Norwegian Clean Seas Association For Operative Companies (NOFO) in 2010.

These customers include the Finnish Icebreaker Kontio, commissioned as stand-by vessel for EMSA (European Maritime Safety Agency), as well as other companies in Norway, Italy and China.

The most recent order has been for an Oil Spill Response vessel for cleaning operations in Rotterdam.

The Oil Spill Radar integrates a complete Oil Spill Detection function into

Consilium's standard type approved IMO/Solas Navigational radar.

The radar processing unit is supported by a special Consilium radar sensor, with an increased rotation speed of the antenna - up to 44 revolutions per minute.

Ships in regular operations can use the primary radar set as a traditional instrument for navigation and the secondary radar display, interfaced to the primary radar, can be switched to the Oil Spill Detection function.

Using both radar display functions simultaneously, the vessel can act as an early warning anti-pollution unit while sailing along its route.

With real-time signal processing, the unit is also able to highlight the dampening of the reflected microwave radiation on the radar display and to overlay the same on the Consilium ECDIS.



The Consilium system can overlay oil spill information on the company's ECDIS

Thomas Gunn launches latest software version

www.thomasgunn.com

Thomas Gunn Navigation Services has launched its TGNS Voyager 3 software, used to manage onboard navigational data, which was officially unveiled at the Sea Asia event in Singapore.

Voyager is an automated onboard chart management system which provides the mariner with a personalised database of charts, publications and Notices To Mariners (NTM's), organised in a folio system.

TGNS Voyager 3 is an enhancement of the existing Voyager 2 software, introducing the ability to receive corrections for Admiralty Vector Chart Service (AVCS), Admiralty Digital Products (ADP) and Seamanship M Notices.

The new TGNS Voyager 3 software will be supplied to all Voyager 1 and 2 subscribers at no additional cost, following testing and sea trials.

Other enhancements in the new version include an improvement of the TGNS catalogue to include a map display of BA

charts and AVCS cells. Vessels will now have the ability to manage their own indexes and add charts and cells to the order basket.

The Voyager service provides weekly updates to the ship's index, which contains NTMs and tracings via internet or e-mail.

The Voyager Data Server compresses the data before sending it to the user to reduce the file sizes, with the ship only receiving files relevant to its chart outfit.

Thomas Gunn notes that there will no longer be a charge for the digital supply of NP247 and NP234, as these publications will be supplied in Voyager without any additional fee.

"We have our own IT and research and development departments and we work hard to provide solutions for our customers," said Thomas Gunn, founder and managing director of Thomas Gunn Navigation Services.

"Voyager 3 represents one such solution and we are pleased (to introduce) it to our customers throughout the world."

Transas simulators boost projects in Turkey and Australia

www.transas.com

Kimberley TAFE Broome Maritime Simulation Centre in Australia is to install a Transas Full Mission Simulator, upgrading the existing simulation centre, while Transas simulators will also be applied in the development of a new container terminal in Turkey.

The simulation package for Kimberley TAFE includes a main bridge, secondary bridges and a tug station for training of pilots and tug masters.

Within this project Transas Marine will develop rotor tug ship models and integrate real drop-in panel and steering controls from Schottel for training of masters and integration with pilots in live situations.

The simulator will have a number of replaceable panels which will allow the system to be used for simulation training on different vessel types, and a configurable main bridge console that can incorporate real steering wheels from Sperry Marine and Raytheon Anschütz.

The system is based on a Navi-Trainer



The Kimberley TAFE Centre has installed a Transas simulator

Professional 5000 ship handling simulator from Transas, featuring wind-generated sea state and variable swell models with user selected sea state spectrum, vessel and wave interaction, full scene and environment reflection, and three dimensional bow waves and propeller wash and associated floating object interference.

New grounding, synchronous rolling, broaching and other modelling features are included, as well as integrated VHF and Intercom solutions, voice communication and CCTV video recording for debrief and assessment.

The main bridge will use seven EyeVis Seamless wrap round screens to cover 280 degrees, with two rear screens for full 360 degree vision.

In Turkey, Dokuz Eylul University Maritime Faculty has conducted a study to develop a new 'East Mediterranean Container Terminal' in Mersin International Port (MIP), using the Transas Model Wizard (MW) software for creating and editing simulation areas.

During the manoeuvring studies in the simulator, numerous ship manoeuvres were performed using different ship models in five different revision plans.

After testing different scenarios, the required changes to the plans were determined with reference to the experience of the harbour pilots and international regulations.

During the study, the modelling team and authorised harbour pilots assessed approaching channel depth/width, ship manoeuvring basin, turning circle, stopping distance, and necessary bollard pull of tug boats for the new container terminal.

Raytheon Anschütz

Please visit us at

NORSHIPPING

May 24 – 27, 2011

Hall B, Booth No. B03-12



SYNOPSIS
Intelligent Bridge Control

INTEGRATED NAVIGATION SYSTEMS

for Offshore and Research Vessels



Synopsis Bridge Control combines proven reliability with most advanced and innovative technology which is needed for work within the natural forces at sea.

The new generation Integrated Navigation System stands for safe and predictable operation, highest flexibility as well as for optimized system functionality with full data access at any bridge workstation. Worldwide dedicated service support included.

simple . scalable . safe

www.raytheon-anschuetz.com

Raytheon Anschütz GmbH

D-24100 Kiel, Germany

Tel +49(0)4 31-30 19-0

Fax +49(0)4 31-30 19-291

“FACTS, FACTS, FACTS”

SpecTec has every reason to be proud as we commence our 26th years of continuous operation, not only because it is rare to see an IT company surviving such a long period, but it is much rarer to see how almost all the customers' who signed up in 1985 are still SpecTec customers today.

SpecTec software AMOS™ (Asset Management Operating System) is currently installed on over 7000 ships and oil and gas installations being supported by over 300 employees located in 27 offices worldwide.



In 2010 SpecTec sold 655 new AMOS licenses, with the new AMOS2 Enterprise Suite accounting for 22% of the total. We also upgraded to latest versions 398 AMOS Business Suite installations, and 34 AMOS2 Enterprise Suite. It was a strong achievement, which saw SpecTec performing 3 installations or upgrades per each day of the year or, if one prefers 5.2 installations or upgrades per each working day. A clear proof on what SpecTec can do.

In December SpecTec successfully completed the User Acceptance Test with Hyproc, a company of Sonatrach (the powerful Algerian Oil&Gas Group) dealing with LNG, LPG and bitumen transportation, relevant to the delivery of AMOS2 Enterprise Suite (all modules) to the company LNG fleet. In February, Hyproc validated the project go-live for the first vessels of the fleet. It gave us great satisfaction to obtain such results on this big and tough project driven by Ernst&Young of France on behalf of the customer.

Another important achievement was the Thenamaris contract, which will see AMOS installed on all ships of one of the largest Greek shipping companies.

UASC confirmed a contract for the nine 13.000 TEU vessels under construction at Samsung Yard. This contract was particularly important because it was the first one including Technical Manuals to be generated with the Shipdex protocol and Database built by utilizing Shipdex Datasets. In addition, the project includes large number of interfaces to the Automation plant, reading data such as pressure, temperature, level (tanks), running hours, etc., and thus allowing Condition Based Maintenance Planning.

Moreover, for UASC SpecTec has created a very sophisticated bunker supply analysis and procurement system, which will be directly linked with the on board tank measurements, to calculate fuel consumption and costs, comparison with other vessels of the fleet, and automated procurement functionality based on closer port and lower prices, and so on.

After the successful initial tests on ten ships, Yang Ming confirmed the order for the installation of AMOS on all their 80 ships, including the 25 new Bulk Carriers which will operate under the new subsidiary KM. On the Cruise sector SpecTec USA signed a contract with Crystal Cruises, for the delivery of a shore based Stock Control system. 2010 also saw the installation of AMOS on the astonishing Allure of the Seas, a real wonderful vessel. All Royal Caribbean Cruise Lines ships have AMOS on board.

And to close the year in a perfect way, two very important contracts with leading CT companies have also been signed at the end of 2010, for a total of 140 CT vessels.

By end 2010, SpecTec had 658 maritime and Oil&Gas customers, and counted over 7000 active licenses (calculated as single installations); of these:

- 992 Bulk Carriers
- 610 CT vessels
- 243 ferries

- 222 Cruise ships (almost 95%)
- 2300 Tankers (1500 Oil Tankers, the rest LNG and LPG or chemical tankers)
- 220 oil platforms (jack-up, drilling rigs, offshore and onshore)
- Over 100 Navy ships (on 6 different Navies)

We are proud of such numbers which are completely unrivalled in the industry. SpecTec is spending over than 4 million U\$ a year in product development and R&D. Aside the main AMS Suites, three more products are under development:

- Shipdex, the SpecTec brainchild protocol for Interactive Electronic Technical Publications, derived from the S1000d Aeronautical standard, which has reached a strong consensus amongst suppliers and shipping companies. SpecTec has invested substantial time and money in this project (which is NOT owned by SpecTec and is based on a non-profit principle), in order to solve the problem of populating Asset Management Software with technical data. When manuals are delivered in Shipdex format, all relevant data can be automatically imported in AMOS. Already several MAN engines are available in Shipdex format and it is impressive to see how the whole system works.
- AMOS-IS – Integrity Solution. This project is aimed at providing shipowners and oil companies with an ultimate control of their installations. For shipping lines, it includes hull stress, fuel consumption analysis and control, all the KPI, Inspections and Vetting and much more. For the oil companies, Risk Based Inspections, Asset integrity, Life Cycle Cost and Analysis, and so on. It is the ultimate AMOS project, the one which will propel SpecTec like a rocket into the second decade of the second millennium.
- AMOS-Mobile. This software allows stock audits and Work Orders reporting via hand-held terminals. It is already in its final testing phase and ready for delivery.

We have also completed a Citrix acceptance test, which means that we can now easily support Amos on a variety of platforms, including I-Phones and i-Pads.

2010 was just another great year of SpecTec continuous growth. 2011 is set to be even better, as within the first 2 months several million dollars' worth of new orders have been obtained. We plan to reach 330 Full Time employees, while rolling out a strong plan for further training and appraisal of our own employees, to cope with the increasing market demands and expectations.

We start our second century quarter with optimism and strength, always bearing in mind that we have to protect our customers' and shareholders investments, and our staff jobs. SpecTec is here to stay, and for a long time more.

Type-specific ECDIS training approved

www.ecdis.org

ECDIS training provider ECDIS Ltd reports that it has gained accreditation from the Nautical Institute for its Type Specific ECDIS training course.

The company says that the Type Specific accreditation is the first of its kind, and is available now on a number of different ECDIS systems including OSI, PC Maritime, Transas and Kelvin Hughes, with JRC, Simrad and Totem Plus all to follow soon.

The Type Specific course lasts for one day, comprising 8 hours, and includes presentations and practical exercises that

aim to build upon knowledge gained during the IMO 1.27 model course.

"The type specific ECDIS training offered by ECDIS Ltd has now been accredited by the Nautical Institute (NI) who are satisfied that the training meets the high standards that are set out in the NI publication 'ECDIS & Positioning'," said John Dickinson, the Nautical Institute's head of delegation at IMO.

"We acknowledge the continual research and development of ECDIS Ltd into creating robust and comprehensive ECDIS training courses. Working with the leading manufacturers allows them to provide the training solutions required."



Training on a variety of manufacturers' ECDIS systems has been accredited

Alewijnse to supply onboard systems to Jan De Nul

www.alewijnse.nl

Alewijnse Marine Systems has signed a contract for the delivery and installation of the alarm monitoring control system, integrated dredging control system and dynamic positioning system onboard two new, 14,000m³ dredgers to be constructed at Uljanik Shipyard in Pula, Croatia for the Jan De Nul Group.

The two trailing suction hopper dredgers will have an LOA of 148m and a hopper capacity of 14,000m³, and will add to the Jan De Nul Group's existing fleet of 26 hopper dredgers.

With their dynamic positioning sys-

tems linked to twin 7,200 kW main diesel engines and a 1,500 kW bow thruster, these new vessels are especially suitable for operating in shallow and restricted waters.

They have been designed for minimal environmental impact with particular attention paid to maximum efficiency of power consumption, low emissions and the onboard treatment of waste, ensuring that they qualify for a 'Clean Ship' certificate.

The Jan de Nul Group has built 27 new vessels since 2007, with these new dredgers due for delivery in the second half of 2012.

Martek launches gas and emissions systems

www.martek-marine.com

Martek Marine has launched a range of new products to monitor gas and emissions onboard, with the introduction of its MariNOx Evolution diesel engine emissions monitoring system and two new portable gas detector units.

The MariNOx Evolution diesel engine emissions monitoring system is based on existing MariNOx technology, but with a number of additional new features.

The installation and running of the new system has been refined through the incorporation of a single, daisy-chain sample line design, replacing the previous arrangement which required several separate sample lines.

Reducing the number of sample lines cuts the amount of cabling needed onboard, which Martek says will reduce the cost of the onboard installation process and the power needed to heat the sample lines.

MariNOx Evolution also comes with improved DataLINK software to offer users greater control over the emissions monitoring process through more accurate performance management of the diesel engines.

The latest software shipped with MariNOx Evolution makes use of the IMO's new Energy Efficiency Design Index (EEDI) formula and this has further enhanced the accuracy of emissions level recording and trend analysis.

The first order for MariNOx Evolution has recently been completed and other contracts have been confirmed for the new generation system, which is now Martek Marine's standard emissions monitoring offering.

"In avoiding the need for multiple, separate sample lines, MariNOx Evolution represents a significant step forward," said Steve Coulson, Martek Marine's marketing director.

"This is a much simpler arrangement that will benefit customers and shipyards alike, by virtue of its less complex installation."

As an optional extra, MariNOx Evolution can be configured to integrate opacity sensor input, measuring the density of engine smoke, directly into its control software.

"This makes MariNOx Evolution unique in the market," says Mr Coulson, "and we believe this new feature will

greatly assist shipowners in monitoring the performance of marine diesel engines in order to reduce environmental impact."

Moving from external emissions to dangerous gases onboard, Martek's new portable gas detectors have been developed specifically to address concerns over the death and serious injury suffered by seafarers from oxygen-depletion in tanks and void spaces.

The Marine Quattro and Marine Extreme products are being introduced ahead of the January 1 2012 deadline when new amendments to SOLAS 1974 are scheduled to come into force, whereby ship operators will be required to use both fixed and portable hydrocarbon gas detection systems onboard all new oil tankers of 20,000 dwt.

Martek says that it now offers both portable and fixed solutions for Volatile Organic Compounds detection, with the fixed version to be mounted in A/C inlets, accommodation areas and engine rooms - areas that are identified as having higher risks of benzene.

However, while portable systems are also to be mandatory, to meet IMO requirements, only fixed installations are explicitly required to be periodically calibrated.

The two new products from Martek include sensor diagnostics, meaning that owners can calibrate multi-gas detectors every 12 months should they choose to do so, while single gas detectors should never need calibration during their lifetime.

"Portable detectors are now as essential as their fixed counterparts and the common practice of sending units to shore for recalibration and receiving a replacement every six months is becoming less attractive as guidelines call for more regular testing and certain models of detector and training aids make onboard calibration simpler," said Mr Coulson.

"In contrast to the other portable gas detectors, a single button push design has been applied to Marine Quattro and Marine Extreme. This keeps everything simple for different crews with varying skill levels and different nationalities."

"In addition, gloved hands are able to turn on units with minimal fuss in comparison to the main rivals who need two or three buttons just to put the units into operation."

WORKING AT SEA REQUIRES CLARITY OF VISION

THE FULL PICTURE



KONGSBERG

MAXIMIZE YOUR PERFORMANCE BY UTILIZING OUR KNOWLEDGE & INSIGHT

KONGSBERG understands the challenges faced by those who operate on and beneath the waves. This knowledge is present in every solution we provide and bringing it on board gives you control. It enables you to act with certainty and reveals countless new opportunities for you to explore. And wherever you may venture on the globe, you will always have our total support. Our determination, insight and innovative proficiency will work as one for you. In all waters, in all conditions, KONGSBERG will always give you THE FULL PICTURE.

www.km.kongsberg.com

Synapsis Radar and ECDIS series from Raytheon

www.raytheon-anschuetz.com

Raytheon Anschütz has introduced a new series of radar, ECDIS and conning systems under the name 'Synapsis', built on a new system architecture and part of its Synapsis Bridge Control series.

The new generation wide-screen, task-orientated Synapsis workstations are based on a system architecture which uses standard hardware and software for scalability, incorporating a standardised PC with solid-state disk and passive cooling instead of a fan.

Possible configurations range from a stand-alone radar or ECDIS workplace to a full integrated multifunctional workstation. A newly developed Integration Platform is used to manage interfacing between the different systems and controls all configurations and tasks of the workstations.

Integrated data quality management, with a sensor status display and manual or automatic sensor selection, is used to ensure that all workstations use consistent and the best available sensor information for safe navigation.

The Synapsis ECDIS features newly integrated weather data and weather forecast symbols, that help to optimise route and voyage planning, and can be interfaced with a DP system to, for example,

share waypoints of a planned route. Features to display AIS own ship data input, NAVTEX and online chart updates are also included.

The Synapsis Radar has a radar video merging mode to improve detection capabilities when using different radar sensors on board, as well as a SeaScout collision avoidance function.

Raytheon Anschütz is also introducing a Voyage Efficiency Monitor for the joint display of navigation data with engine automa-

tion data and loadmaster computer data.

In a typical configuration the Voyage Efficiency Monitor combines basic navigation data and autopilot settings, wind and drift, steering correction angles, roll stability, draft and trim, yawing, rudder resistance, rudder action and fuel consumption.

The company says that the combined display can be used to enhance bridge operations, and improve voyage efficiency.



The Synapsis range aims to integrate workstations under a new system architecture

TORM agrees ECDIS deal

www.maris.no

TORM has signed a framework agreement with MARIS covering a range of Electronic Chart Display and Information Systems (ECDIS).

Under the terms of the deal MARIS will supply ECDIS to newbuildings and replace existing ECDIS equipment onboard a number of ships operated by the Danish owner, incorporating MARIS Solid State Drive ECDIS hardware, software, service, support and maintenance, as well as ENC services.

The initial agreement calls for the supply and installation of 120 ECDIS systems, as part of a project which will also see delivery of computer-based training modules, the Admiralty Vector Chart Service (AVCS) and Admiralty Digital Publications, and the MDS chart manager service that supports AVCS.

These chart and publication arrangements will act as an interim solution until UKHO completes the introduction of its e-Navigator service.

TORM has also committed to MARIS' 'Zero downtime ECDIS' concept, which involves the installation of three ECDIS per ship. The installation of the third unit as a 'hot spare' is to ensure ECDIS services are available at all times in the event of a failure of one of the units.

"While IMO rules are clear, it remains to be seen how individual Flag States and Port State Controllers will interpret them," said Steinar Gundersen, MARIS deputy chief executive (Corporate).

"The Zero downtime ECDIS concept has been devised to avoid potential delays, so that a ship can always proceed to the next convenient port of call, where repairs can be undertaken. Any defective unit can then be shipped to the manufacturer at the ship owner's convenience for repair."

New radar from Navico

www.navico.com

Navico has launched its new Simrad ARGUS Radar System, an IMO Radar incorporating solid state FMCW (Frequency Modulated/Continuous Wave) Broadband Radars for use on commercial vessels.

The radar system can detect targets as close as 6 feet from the antenna on the shortest scale and can separate targets that are 30 feet apart in range on the scales used for navigation.

Navico says that this also makes the system particularly useful for anti-collision and precision docking.

The introduction of the ARGUS system marks a new strategic focus for Navico on the SOLAS vessel segment, where it sees a prospective ship protection market value of up to GBP£12 billion.

"With Simrad Broadband Radar, shipowners finally have the ability to monitor the entire surroundings of a vessel, significantly reducing blind zones," said Leif Ottosson, CEO of Navico.

Two year licensing discussion on ENTrack reaches conclusion

www.datema.nl

Dutch chart distributor Datema reports that it has finally managed to secure the necessary permissions to proceed with the roll-out of its ENTrack distribution system for Electronic Navigational Charts (ENCs), which was the cause of some controversy in the electronic chart world when it was originally launched in 2009.

At that time questions were raised about the validity of ENC licensing under the ENTrack 'pay-as-you-sail' model. The debate centred on the use of charts in the planning stage of voyage preparation and was first raised by the UKHO immediately after the launch.

In the preparation phase for that initial launch of the service Primar Stavanger, as Datema's supplier of ENCs, had studied its contracts with other nations and fellow

RENC (regional ENC Co-ordination Centre) IC-ENC, and concluded that the intended mode of operation of ENTrack would be possible under the existing terms and conditions.

However, immediately after the launch the UKHO took issue with the service and sought clarification with IC-ENC (of which it is itself a member) as to whether such an arrangement should be permitted.

This led to an extended period of uncertainty for the product as Primar and IC-ENC tried to align their business terms, and the postponement of the full roll-out of ENTrack.

Finally, after lengthy discussions, the member countries of IC-ENC did approve such licensing in 2010, under strict conditions. Datema says that it has since performed a number of tests and trials to meet those conditions, and final approval

for the system was granted in March 2011.

With the approval of IC-ENC, the coverage of the service has now been significantly increased. Primar's approval of the service at the time of the original launch had meant that the ENTrack service had been permitted within particular ENC coverage areas, but this was specifically confined to the Baltic area.

The ENTrack service provides all available ENCs to mariners onboard for viewing before licensing is required, with a tracking system used as a method of 'post payment' to charge for licences once the vessel has travelled into the charted area.

With the new approvals of the system having come into effect on April 1, 2011, Datema will now re-launch the service at this year's Nor-Shipping, the second anniversary of the original introduction of the system.

Norwegian contracts for Veripos

www.veripos.com

Veripos has been awarded a three-year extension to its general services contract with Siem Offshore, and a two-year services contract extension by Simon Møkster Shipping, both Norwegian shipping companies.

Siem Offshore operates a fleet of specialist support vessels operating globally, with Veripos to initially provide ten Siem Offshore vessels operating in European, Brazilian, Asian and African waters with

its dual-beam standard service under the deal.

This service will also be provided aboard another new-build vessel due for commissioning shortly, the Siem Amethyst.

Siem Offshore says it has retained an option to further extend the service to its other fleet vessels as and when necessary.

The deal with Simon Møkster Shipping is for the provision of standard positioning services to two of the Stavanger-based company's offshore support vessels.

Both vessels are already equipped with dual Veripos LD2 integrated mobile receivers for deriving position used for their DP systems.

"We are delighted to be awarded these contract extensions which demonstrate the confidence gained by our valued Norwegian clients in the quality of our services and support," said Walter Steedman, managing director of Veripos.

"These awards follow on from a series of recent fleet awards for Norwegian vessel owners and operators."

Space-based AIS developments continue

Space-based Automatic Identification System (AIS) company exactEarth has announced that a satellite containing its AIS payload has been successfully launched from Sriharikota, India.

The AIS payload, which was designed and built by COM DEV International in Canada and its European subsidiary COM DEV Europe, is integrated onto the Indian Space Research Organisation's (ISRO) ResourceSat-2 earth observation satellite.

"Today's launch is an important milestone for us as we establish our full operational capability," said Peter Mabson, president of exactEarth.

"This is the most advanced satellite-based AIS payload ever launched. We expect it to generate more than 1 million AIS messages per day, utilising our ground-based message processing technology, as it orbits the globe every 90 minutes."

exactEarth has targeted June 1 as the date for the AIS payload to enter service, at the end of an anticipated six-week commissioning period for the satellite since its launch on April 20.

As part of its further expansion plans exactEarth has recently reached an agreement with SpaceQuest Ltd to purchase two new satellites equipped with advanced AIS payloads.

exactEarth has had access to AIS message data and real-time spectrum feeds from two in-orbit SpaceQuest satellites since the middle of last year, processing

the spectrum data using its de-collision technology to generate AIS messages for its exactAIS service.

The two new satellites will add to this capability, and will also incorporate SpaceQuest's next generation on-board AIS message processing technology to further improve AIS message detection from space.

The launch of the satellites is expected to occur by the middle of 2011 on a Russian Dnepr rocket, with exactEarth assuming ownership of the new spacecraft following successful in-orbit commissioning.

"We are pleased to expand our relationship with SpaceQuest. Their satellites have proven to be a reliable source of AIS signals that meet our needs for a high-performance, global data feed," said Mr Mabson.

"With this purchase, and the anticipated deployment of two more exactEarth advanced AIS satellites in the next few months, we will have access to a constellation of six spacecraft in orbit by this summer that is expected to produce in excess of six million AIS vessel reports per day."

Canadian deal

News of the most recent launch followed soon after exactEarth had released details of a Standing Offer it had been awarded to provide exactAIS data services to the Government of Canada, with a total order value of up to CDN\$4.7 million.

Under this agreement, the Canadian

Space Agency may purchase exactAIS data for use across all Canadian Government departments to support a broad range of applications including maritime domain awareness, search and rescue, environmental and fisheries protection, Arctic monitoring and marine security.

The Standing Offer provides for the purchase of either historical or operational AIS data services through the placement of specific purchase orders under the agreement.

The first such purchase order received for the supply of exactAIS historical data, valued at CDN\$1.57 million, was set to be completed by March 31, 2011.

Further orders under the agreement may be placed through until March 2013, however, the company expects that the bulk of the orders under this current agreement will be received within the next 12 months.

"This award further demonstrates our ability to meet our customers' requirements with a robust and reliable data service," said Mr Mabson.

"Our unique AIS message de-collision technology provides the highest quality global vessel monitoring and detection capability which is critical for our customers' success."

ORBCOMM

Space-based AIS competitor ORBCOMM has meanwhile announced its own plans

to expand its network after agreeing a satellite launch deal with Space Exploration Technologies (SpaceX).

The two companies have announced plans for SpaceX to carry the first two ORBCOMM next-generation OG2 satellites, incorporating space-based AIS detection technologies, into orbit on the next Falcon 9 launch this year.

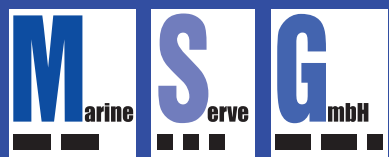
The ORBCOMM OG2 satellites are being manufactured by an industry team led by Sierra Nevada Corp and Boeing's Argon ST subsidiary. A total of 18 ORBCOMM next-generation OG2 satellites are currently in production.

ORBCOMM OG2 satellites will offer enhanced ORBCOMM messaging capabilities, increased capacity, and the automatic identification system (AIS) service.

The planned Falcon 9 launch will place ORBCOMM's first two OG2 satellites into a 52° inclined 350 by 750 km insertion orbit. The satellites' onboard propulsion systems will then be used to stabilise the orbit at 750 km.

Falcon 9 is designed for the transport of satellites to low Earth orbit and GTO (geostationary transfer orbit) as well as for sending SpaceX's Dragon spacecraft to orbiting destinations such as the International Space Station.

SpaceX's Falcon 9 launch site is located at Launch Complex 40 at the Cape Canaveral Air Force Station in Florida. **DS**



Located in Hamburg, Germany, with ECDIS training offices in St. Petersburg, Riga and Odessa (and Manila opening soon).

Competent & flexible maritime training – ECDIS, UKLAP, German Shipping Law...

www.marineserve.de

Maritime training reaches a new dimension

Intensive and type-specific online training with real-world scenarios on exactly that bridge equipment installed on board your ship. Online training on ECDIS, Radar and other maritime software for various manufacturers.

Safebridge

www.safebridge.net



Digital Navigation – making the transition

The transition to digital navigation and ECDIS can be a daunting one, as it requires a comprehensive change in the way that seafarers may have been used to operating with paper. However, following a few straightforward steps and giving due care and attention to the process can make all the difference, writes Malcolm Instone, ECDIS Ltd

The emergence of new technology in the field of maritime operations has seen most facets of fleet operations computerised or digitised in the quest to build, display and manipulate technology to our advantage.

It is therefore surprising that many fleets are still navigating using paper charts, as the advantages and efficiencies available if ECDIS systems are used properly for navigation are significant.

Following a number of high profile groundings and the perception that ECDIS systems can save money, many fleets have made the bold decision to embark on a fleet wide ECDIS fit.

As the first to do so, they are pioneering the use of ECDIS at sea. In short, these pioneers are showing that it is feasible to trust this new technology and make it work.

However, for those that wish to follow their example the task can seem more than a little daunting. Faced with a blank piece of paper you now need to formulate a plan to 'go digital'.

The transition to digital is not a case of simply buying any ECDIS system and hoping for the best. This may seem the easiest option, but I can assure you that what looks like the light at the end of the tunnel is the headlight of an oncoming train.

Instead, this should be viewed as a major project that requires significant thought and planning. The process can be simplified if we break it down one step at a time to ensure that all data is captured:

- Step 1: Capability Requirement (establish what you need)
- Step 2: Additional Requirement (consider the wider implications)
- Step 3: Consolidation (have we missed anything?)
- Step 4: Equipment Purchase decision and Fit programme
- Step 5: Training
- Step 6: Digital Transition – Go paperless.

Step 1 – Capability Requirement

First, it is necessary to establish exactly what you need with regard to the ECDIS, both in terms of navigation and operations.

The point is that making the digital transition is more complicated than just choosing a system to plan a route from port to port - the equipment must be suited to the nature of your operations.

Therefore, due consideration must be given to thinking through all the evolutions that were conducted using paper charts to ensure that they can be achieved on ECDIS with suitable back up, redundancy and the robustness that is required



The importance of training cannot be overstated

in your fleet.

A list needs to be made of what your expectations are from ECDIS. If they cannot be met, will you ever truly be able to 'go digital'?

In terms of navigation, essentially what you must consider is whether or not you wish to transfer your existing paper navigational methods and procedures to ECDIS. If so, with regard to the equipment, ask yourself the 'Navigational Issues' and 'Operational Issues' questions in Table 1 (not exhaustive and in no particular order).

Of course, not all of the considerations in that list of questions will be relevant to you, but care must be taken to ensure that the requirement is captured as not all systems can achieve all of the capabilities.

ECDIS equipment capability has advanced considerably over the years and varies from system to system. Not all systems will be able to achieve the capabilities listed, but some can.

At this stage please consider taking independent advice as to the most appropriate system for your needs. However, to reiterate, first and foremost the system will be utilised as a navigation aid. Therefore, it is vital to ensure that the system can reflect your standards of chart work and navigation.

If it cannot, then you may have to change your tried and tested methods. Consider that if the chosen system cannot achieve your requirement, does that mean you will be forced to make some paper charts available from time to time? If so, this would clearly defeat the aim, which is after all, to go fully digital.

It is at this early stage that a decision needs to be made as to whether the plan is to equip the fleet with a single equipment solution, or whether different types of equipment spread amongst the fleet will be considered.

Clearly, the ramifications of fitting your fleet with varying types of equipment will be enormous, from different levels of

capability and an inability to transfer data between systems to the need to produce multiple training streams for crews, technical training for engineers and so on.

Step 2 – Additional Requirement

Experience has shown me that the cheapest option on paper may end up being the most expensive overall when you add in the other elements beyond the initial hardware tender.

Training, for example is a significant factor, as is integration of existing sensors and hardware. It may be too late to change once you have bought a system for the fleet so this is where you must ensure the longevity of your system and do as much as possible to future proof it.

Ask yourself again, what do you want the ECDIS to do? Consider the bigger picture, and think about the hardware and integration questions listed in Table 2 (on the following page and again, not exhaustive and in no particular order).

Remember that the Performance Standards for ECDIS (IMO A.817(19), revised by MSC 232(82)) state that as a minimum, ECDIS should be connected to the ship's position fixing system, to the gyro compass and to the speed and distance measuring device.

Note that for ships not fitted with a gyro compass, ECDIS should be connected to a marine transmitting heading device.

When connecting to additional sensors, ECDIS should not degrade the performance of any equipment providing sensor inputs, and the connection of optional equipment should not degrade the performance of ECDIS below the set standard.

In addition to these hardware considerations, it is also important to recognise the choices that need to be made in relation to the additional software you will need to run the systems, as well as the electronic chart requirements you will have – Table 2 also mentions a number of the questions

NAVIGATIONAL ISSUES

- Can we plan berth to berth?
- Can we utilise headmarks, sternmarks and beam marks in our planning?
- Can we utilise wheel over bearings?
- Can the system construct accurate turns utilising Advance and Transfer?
- Can the system calculate turns when a tidal stream is present?
- Will it accept tidal and environmental information such as Admiralty Total Tide?
- Can it utilise our shape, characteristics and hydrodynamic data for precise navigation?
- Who will produce and input ship specific (perhaps confidential) information into the system?
- How will the navigator brief the port entry and exit if there is no paper chart to display?
- Can we network a printer to print out screenshots (for the navigator's notebook, for example)?
- Can we print out passage plans and related information?
- How are we going to operate in areas of GPS denial?
- Does it work well without GPS?
- Can we manually fix position with visual bearings?
- Can we manually fix position with radar ranges?
- Can we plot a position using transferred position lines?
- Can we plot horizontal and vertical sextant angles?
- Can we accurately define safe water in confined waters?
- Can we construct Limiting Danger Lines?
- Can we construct Clearing Bearings?
- How will navigation be conducted in emergency for example, when operating from the emergency conning position without paper charts?

OPERATIONAL ISSUES

- How are we going to plot our helicopter position?
- How are we going to plot the location of our tenders?
- Can we use the system for management of assets?
- Can we display weapon arcs and effective ranges for onboard security teams (anti-piracy)?
- Can we display overlays to aid counter piracy?
- Can it display bespoke chart products that may be available for your operations?
- Does it offer greater security with regard to login?
- Can I plot different grids for us on operations?
- Can it help with vessel protection with the growing aspiration to use ECDIS for anti-piracy?
- Can it make areas alarmable?
- Can we feed data from onboard command systems in order to improve spatial awareness?
- Can it be utilised for bespoke tasks such as for oil slick plotting, for example?
- Can it be used in conjunction with optimum route planning software?
- Can it be used in conjunction with shipping databases such as Lloyd's Register Fairplay?
- Can the system predict a MOB position using set and drift or is it just a reference point?

Table 1 – Navigational and Operational issues to consider under Step 1

HARDWARE

- Is there an ECDIS system that best suits your class of ship?
- How many vessels require fitting with ECDIS?
- What is the cost of fitting?
- Where are the vessels going to be fitted? (fit cost may vary with location)
- How many systems do you need – two per ship?
- What screen size do you require for the display?
- What are the requirements for display power, housings and brackets?
- What is the support package available?
- How long does the warranty last?
- Will the systems be networked on a LAN?
- Do you want an additional remote terminal for planning or emergencies?
- Do you need repeats in the Captain's cabin, charthouse or operations room?
- Do you need a repeat in the machinery control room for MARPOL purposes?
- Do you want to store spare parts to support your fleet?
- How much are spare parts?
- What is the availability of spare parts?

INTEGRATION

- Do you require integration with a bridge Alarm Management System?
- Can it integrate with existing sensors such as GNSS, Log, Gyro and Echosounder?
- Can it integrate with existing Radar and provide Radar Image Overlay (RIO)?
- Can it integrate with NAVTEX?
- Can it integrate with the existing autopilot or Track Control device?

SOFTWARE

- Do you need specific planning software?
- Do you require Conning and Docking functionality?
- Do you require navigation tools such as Predictor and Trial Manoeuvring?
- Do you require an electronic Logbook function?
- How much are additional software licenses?
- How much are the inevitable upgrades to the software and presentation library?

CHARTS & MISCELLANEOUS

- Can the manufacturer provide equipment procedures and check-off cards?
- Can the system utilise the charts that you are used to?
- Do you require ENC's and RNC's?
- Do you require DNC's?
- Do you require Ice charts?
- Can it display the Admiralty Information Overlay?
- Will you require an additional (appropriate) folio of paper charts?
- How will folios be updated?
- Will it be linked to the internet for updating? (firewall and antivirus protector required)

TRAINING

- Is there training available with the manufacturer?
- Is there Flag state approved training on this equipment in accordance with STCW?
- Is there equipment specific training available on this equipment?
- Purchase an approved training course or produce one 'in house'?
- Do you require technical training for your engineers and maintainers?

Table 2 – Going paperless can have wide ranging implications, which must be looked at as part of the fitting programme

you will need to look at in the area of software, charts and training.

Training is integral to a successful transition from paper charts to ECDIS. Crews need to be properly trained in the use of their system in order to navigate safely. This is not something that can be taken lightly as training cannot be conducted in a few hours.

ECDIS presents a step change in the way we conduct navigation at sea, and as a critical system this needs great care and consideration in order to get the most out of the equipment whilst maintaining safety.

A Flag State approved IMO 1.27 Model ECDIS Course (40 hrs or 5 days) will be required, as well as an Equipment Specific training course if different manufacturers' equipment has been fitted (recommended duration 8 hrs or 1 day).

It is essential that training is considered well in advance of the ECDIS fit to reduce the period of time between training and onboard use to avoid skill fade.

Note that some Flag states such as the MCA now require equipment specific training in addition to the 5 day generic ECDIS training course.

This ECDIS 'ship specific equipment training' should relate to the make and model of the equipment fitted on the ship on which they are currently serving. That is to say, it will be necessary to attend a training course for each different system a

Master or Navigation Officer is expected to operate.

Although this has been part of ISM for some time, the MCA specifically states that 'trickle down training' (i.e. one officer training another) is not acceptable as, inevitably, it leads to incomplete knowledge of the equipment's capabilities, and especially the lesser used functions, being passed on.

It can be seen therefore that the training burden is significant if multiple systems are in use throughout the fleet and where Flag State approved generic training is not available on your chosen system.

Due consideration must also be given to the fact that the above courses are not necessarily for life as they may need to be undertaken at stated intervals or if the equipment significantly changes.

The training element is going to take a lot of time, particularly with a large fleet. However, you do not need to wait for the fit programme to start before embarking on the training programme. By doing so you will alleviate pressure and have trained personnel ready to begin the next phase of the project.

Step 3 – Consolidation

Now take a step back and make sure that you are not missing anything before purchasing the equipment.

What are the key elements that must be satisfied when choosing your ECDIS?

You must be able to place a tick in the box next to all of the questions in the checklist in Table 3 (left) at the beginning of this adventure, or you are slowly heading towards an inevitable disaster!

Step 4 – Equipment Purchase and Fit

All the work conducted producing the requirement is now complete and the effort expended will hopefully be rewarded.

The next stage is to make a decision on which equipment is the most appropriate for your needs, based upon the work conducted in the earlier steps.

If you are intending to conduct training 'in house', then consider Step 5 prior to purchasing equipment as there are additional purchases and considerations to make. Once the decision is made the equipment can be purchased.

When constructing the fit programme consider what ships will be fitted first and last. Of course, this may ultimately depend on the fleet operations, maintenance and refit schedule.

It is worthwhile documenting lessons learnt from the first fit so that mistakes are not duplicated throughout the fit. Furthermore, if possible, maintain some form of continuity of fit personnel to ensure that standards are maintained with as few irregularities between ships as possible.

Once equipment is fitted it is essential that the equipment is properly integrated with sensors, aligned with Radar Image Overlay (RIO) if applicable, and tested with a set to work package to ensure that what you have fitted meets with expectations.

Step 5 – 'In House' Training

If you are considering conducting training yourself, or 'in house' training, then you must consider the time and manpower cost of producing a stand alone ECDIS course, bespoke for the equipment purchased, and also gaining Flag State course approval.

On top of this will be the investment in classroom equipment and training consoles, training licences for software, provision of a bridge simulator, integration of ECDIS into the bridge simulator, and the cost of ECDIS instructors.

All the above takes considerable time, money and most importantly, expertise. I cannot emphasise enough the importance of considering training at the very beginning of the process.

Step 6 – Digital Transition

The final phase of the process is to conduct the transition from navigating with paper charts to being accredited to navigate paperless using ECDIS. Note that this depends upon your Flag State and it is therefore crucial that you seek advice from Flag, who may have to be involved in this process to ensure that you meet their standards.

It is recommended that a lead ECDIS inspector be nominated to manage this process and to act as liaison between the Flag authority and the fleet as required.

It may also be prudent to construct a

short 'in-house' accreditation process to risk assess the ship's ability to 'go digital'.

This would ultimately ensure that the crew are confident and competent enough to operate as safely using ECDIS as they could on paper. This is the most enjoyable part of the process as you see the results of good training and planning come to fruition.

Examples of assessed serials that could be included as part of any risk assessment process include: System set-up; Safety settings; Administration; Documentation; Procedures; Berth to berth planning; Pilotage; Blind Pilotage; Coastal Navigation; Anchoring; Fixing; Operating without GPS; and Loss of sensors.

The risk assessment serials could be conducted in a simulated environment, although the preferred option should always be to conduct them at sea.

It is a recommendation that only when you are content that this has been achieved should you authorise the reduction of paper folios down to that required for RCDS (Raster Chart Display System) mode or in accordance with your company policy.

Summary

ECDIS is coming and it cannot be stopped.

Inevitably every fleet will make the transition from paper charts to ECDIS in due course. This is not only due to the advantages and efficiencies that can be recognised by using such equipment, but also that new build ships are now being fitted with them.

Going digital need not be a headache if properly thought out, planned and resourced. Take heart in that it is achievable and has been achieved by many fleets already.

What invariably seems an expensive and lengthy process can actually end up being cheaper and quicker than perhaps was first thought.

DS

- ☑ Is it ready now?
- ☑ Is it type approved ECDIS?
- ☑ Can it integrate with existing sensors?
- ☑ Can it employ my navigation techniques?
- ☑ Does it come with a full training solution?
- ☑ Does it offer proven pedigree and global support?
- ☑ Have I balanced the best product with the overall price?
- ☑ Is it 'future proof' and easily upgradable for new techniques?
- ☑ Will the whole package allow my fleet to 'go digital' with minimum fuss?

Table 3 – Essential checklist



About the author
Malcolm Instone is director of operations and standards with ECDIS Ltd, a company offering advice on various aspects of the transition to ECDIS, as well as a range of accredited training courses (www.ecdis.org).



SHIPBUILDING, MARINE, PLANT, OFFSHORE
해양 종합 산업 전시회 “KORMARINE”

2011

International Shipbuilding & Marine Exhibition

KORMARINE

국제 조선 및 해양 산업전

October, 26(Wed)~29(Sat), 2011

BEXCO, BUSAN, KOREA

Digital Navigation – managing integration with INS

Integrated Navigation Systems offer a number of advantages to vessel navigators, helping to manage the range of available data to increase situational awareness. However, standardisation in development of these systems is key in realising these benefits, writes Anders Rydlinger, Transas

Typically a bridge is manned by a single individual, who in recent years has witnessed a significant increase in the types of navigational equipment available.

Until now bridge equipment innovation was developing under the concept of 'boxes' – different devices required to perform a particular function. The watchkeeper received information from a variety of stand-alone systems, with different user interfaces.

One problem with this is the potential for confusion and information overload, particularly if the watchkeeper is not properly acquainted with the operational parameters of any one of those systems.

However, developing technology has revolutionised the way in which the bridge watchkeeper can maintain a safe navigation watch. The idea of an Integrated Navigation System (INS) shifts the focus from the traditional 'boxes' concept to a task-oriented concept.

In other words, instead of a number of boxes giving the navigator a portion of the required information, each integrated system collects all the necessary information from sensors ('boxes') and presents this necessary information adapted for the particular navigation task at that moment, in order to support the decision making process.

The development of INS is in line with the IMO's 'e-Navigation strategy', the aim of which is to integrate new and existing navigational tools, in particular electronic tools, into an all-embracing system that will contribute to enhanced navigational safety.

Every shore-based industry has already been able to appreciate the benefits of the latest IT and communications technology. The shipping industry was a bit slow and conservative to accept the changes offered, and now it needs to catch up.

However, we should not forget that any newly available technology is just a tool, which will only be beneficial when implemented under a clear operational and functional design concept, and followed by adopted regulations, as is traditional in shipping, to ensure the safety of new equipment.

The introduction of new technology must demonstrate operational improvements for shipping and not just showcase 'new technology for new technology's sake'.

Navigation system design

Today most manufacturers have moved to computer based design. Such an approach allows substantial changes to be made in the human machine interface (HMI) and functionality without an extensive hardware redesign.

It also allows for a very efficient division of navigational bridge components into 3 groups: sensors; controllers; processing and HMI.

The sensor group is quite likely to

remain unchanged in the foreseeable future as many navigational techniques, for example in measuring depth, will remain the same for the time being.

Even if there are changes, improving reliability, accuracy etc, the output of this sensor will remain the same, as it will still be the 'depth measured under transducer'. Controllers, for example steering gear, are also quite 'stable' components for the time being.

In contrast to this, the signal processing, display and other functions available to the user are based on software and computers, which allows for a variety of new functions to be introduced in integrated systems.

The 'human factor' is another element that must be carefully considered in the design phase.

It's fully understood that manning is a costly resource, so there is a need for 'intelligent' systems that would proactively tell a watchkeeper that he is running into danger, give warnings at various levels and provide informed advice to reduce human related errors.

The aim of an integrated system is to enable one person to gain a full overview of the navigational and ship-keeping functions so that he can exercise better and more reliable control, and be primarily responsible for the visual lookout and vessel seamanship, assessing the safety of navigation and routines.

Even on a modern ship the most important resource is the human. System designers have to build their systems around the capabilities of the human interface, such that it is able to provide intelligent options to the operator.

Standardisation is the key to better adaptability and performance by the watchkeeper onboard. Information overload is dangerous in a risky business such as marine navigation.

One possible way forward is to combine data sources to provide data and information fusion, reducing the information in the presented picture under the 'need-to-know' principle. The real test of performance comes from the ability of a system to carry out its functions accurately, with reliability and integrity.

Integration benefits

An Integrated Navigation System has a number of benefits compared with a stand-alone system.

First of all it gives the user better situation awareness. A new level of reliability is achieved by means of several operational levels. The display of an integrated system combines numerous layers of the information from different sources into one situation display.

The navigational chart is presented together with radar overlay, route information, targets, and own ship position, with information on ships' manoeuvrabil-



Integrated Navigation Systems offer better situational awareness

ity etc providing a real time picture for grounding and collision avoidance as well as decision making support.

From January 2011 systems installed on board should comply with the 2007 IMO revised performance standard for INS, which incorporates SOLAS Chapter V/15 guideline requirements to deliver safe operations, free from the dangers of undetected human error and system or sensor failure, supported by fail-to-safe principles.

Today we are waiting for the IEC test standard allowing the industry to certify products. The question is, in which direction will this standard go?

There are two possibilities, with the more rigid alternative being that INS will need to be sold as a product which must comply 100 per cent with the IEC test standard. In this case INS will only be applicable for new buildings, and I doubt we will see many systems introduced in the near future as sensors and subsystems will not comply with the requirements for INS.

The alternative is to use the INS standard more as a guide with rules covering how integration should be done. This will improve the situation on vessels sailing today, as there is no clear rule on how integration shall be done during retrofit.

Today there is a mess on many vessels where different GNSS systems or heading devices are connected to the Radar and ECDIS in a haphazard manner. Integration of these systems into Multifunctional Displays, that will enhance navigation safety and provide redundancy, must be considered for such retrofit vessels. If not there is a risk that INS will never happen.

One of key tasks of a bridge system is to enhance safety and reduce workload for officers on watch, and alarm management is a key element here.

Distracting and confusing secondary alarms can only cause complaints, which

was the reasoning behind the 2007 performance standard that introduced a new system known as 'alert management'.

This standard builds a hierarchy of alarms, warnings and cautions, and harmonises the handling, distribution and presentation of alerts within an INS. This allows the system to actually identify abnormal situations which require action, and allows the bridge team to devote its attention to the primary task of safe navigation.

The INS is flexible, and can be adapted to bridge arrangements according to a particular operational scenario – open sea, mooring etc – by selecting the required tasks in a particular workstation.

So, among other benefits of INS some of the most important are: having consistent HMI for all primary navigational functions; consistent data distribution; redundancy of functions; and shared digital data with timely updates etc (for example ENC data, used in ECDIS and chart radar, need to be up-to-date).

With these benefits the installation of the INS can allow for a reduction in the number of crew, the amount of electronics on the bridge and the number of suppliers, while at the same time the ship's handling reliability can be dramatically improved and the ship's cost recouped faster.

Integration is no longer about interconnection, nor simply the writing of software, but it is about integrating the whole system of work, including the crew and the equipment, for effective bridge resource management.

Once the INS system is approved the situation will become much more straightforward for all concerned. It is important to ensure that everything is right with INS, because such systems will be necessary to provide the kind of platform required for the eventual implementation of e-Navigation.

DS



About the author

Anders Rydlinger is product manager navigation with Transas Marine International, having previously served in the Swedish Amphibious Forces and Coast Artillery for 20 years.

From 1992-1997 Mr Rydlinger was responsible for trials and development of an Integrated Navigation System for Combat Boat 90, and was involved in the development of Navi-Sailor ECDIS from the customer side before joining Transas in 1997.

Digital Navigation – GNSS reliance and vulnerabilities

With the influence of satellite based positioning, particularly GPS, growing ever stronger in the maritime world as a fundamental part of digital navigation, the potential vulnerabilities of these services must be understood.

A study by the UK's Royal Academy of Engineering has highlighted some of these issues, and issued a number of recommendations for improvement

In an ever more connected world, society's reliance on high integrity positional, navigational and timing (PNT) data is growing.

The easy and cheap availability of Global Positioning System (GPS) and other global navigation satellite systems (GNSS) has meant that their use as primary sources of this data can be found in an increasing number of products and services.

In the great majority of cases, the loss of these services in an individual application will cause only local or isolated inconvenience, but the possibility exists for wider, single mode or common mode failures with more serious consequences.

The use of GNSS for a variety of purposes has become so convenient and ubiquitous that there is a strong tendency among users to treat it as a given. The range of applications stretch from highly accurate surveying to in-car navigation, and from network synchronisation to climate research.

Maritime applications include ocean and inshore navigation, dredging, port approaches, harbour entrance and docking, vessel traffic services (VTS), Automatic Identification System (AIS), hydrography, and cargo handling.

Safety of Life maritime applications include search and rescue, synchronisation of flashing navigational aids, and navigation in crowded waterways under low visibility conditions.

Dependence on GNSS connects many otherwise independent services to form an accidental system with a single point of failure.

For example, at sea in fog or at night, jamming could cause collisions between ships or with obstructions whilst causing emergency beacons to broadcast false positions, delaying search and rescue.

No-one has oversight of the increasing range of services that are dependent on GNSS or the complex ways in which they interact, and therefore no-one can reliably predict the consequences of a significant disruption of GNSS signals.

This is an unsatisfactory situation for important services that are dependent on GNSS.

A Royal Academy of Engineering study (*Global Navigation Space Systems: reliance and vulnerabilities*) has identified an increasing number of applications where PNT signals from GNSS are used with little, or no, non-GNSS based back-ups available.

At every level, examples of reliance on GPS for positional, navigational and timing uses without fully tested and exercised non-GPS back-ups have been observed.

The trend is for GNSS to be used in a growing number of safety of life critical systems. Unfortunately, the integrity of GNSS is insufficient for these applications without augmentation.

Non-GNSS based back-ups are often absent, inadequately exercised or inadequately maintained.

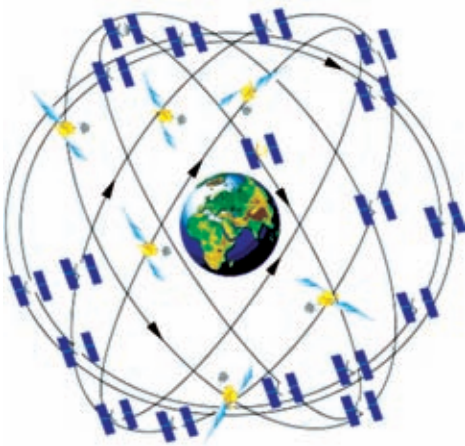
Although it is currently rare for safety critical systems to be wholly reliant on GNSS, related services that are otherwise independent may have GNSS as a common point of failure, with consequences for the performance of safety critical tasks.

Such conditions occur where, for example in the emergency services, navigation and positional data is required to help perform safety critical tasks efficiently, even though its absence would not interfere with the actual emergency response task once the location of the emergency had been reached.

Potential failure

The original implementation of GNSS, the US operated GPS, comprises ground based, space based and receiver segments, all of which are susceptible to failures of various types.

There are also some common mode failure mechanisms which can affect whole classes of receiver or even the entire satellite constellation. The risk of a common mode failure affecting an entire GNSS constellation or even multiple constellations cannot be ruled out.



The availability of GPS positioning is often taken as a given

The Earth is subject to extreme solar events from time to time and these have the potential to disrupt the GNSS signals, and the satellites themselves. The disruption may be temporary or may cause complete satellite failure.

Such super-storm events are not predictable, but studies estimate that these so-called 'Carrington events' will occur with a probability in the order of once in every 100-200 years.

Space Weather events of lesser magnitude will occur more frequently. More than once per decade, at UK latitudes, there may be an interruption to high accuracy GNSS services.

There should be no direct safety of life issues if the integrity subsystem informs the users that the navigation solution is

degraded, but the absence of the service will have varying levels of impact, which could be mitigated if an alternative navigation system is available.

Risk from jamming is growing. As GNSS becomes more widely used for revenue generation or protection, the rewards from criminal activity aimed at disrupting the system grow.

Already it is known that criminals have used GPS jamming in connection with theft of high value vehicles and the avoidance of road user charges.

The cost of jamming equipment is low and while users of such equipment are concerned only with the jamming of devices on a single vehicle, the area affected by that jamming signal can be large.

It is expected that the introduction of Galileo, with its additional frequency bands and compatibility with GPS will make jamming more difficult, but not significantly so for the determined criminal.

The risk from spoofing is also emerging and may become serious.

Consequences of signal loss

A failure, or loss of signal due to some outside influence, can result in a range of consequences depending on the application.

In a telecommunications network, a small loss in the efficiency of data handling may occur while the system 'free-wheels' until a signal is restored; in a surveying application where timing is not critical, some delays may occur before the survey can be properly completed.

In such applications, a temporary loss of GNSS signals might be considered an inconvenience. However, where systems are used in safety of life critical applications, the consequences can be more severe.

In some situations, even if operators are well versed in procedures for a loss of GNSS signals, the number of interlinked systems simultaneously activating alarms can lead to eroded situational awareness of operators in what could well be an emergency situation.

Some systems which rely on PNT signals from GNSS are robust in themselves and procedures are in place to deal adequately with any GNSS based system faults that occur.

However, disruptive interference can occur unintentionally and, worse still, deliberate interference is a real and growing possibility. As opportunities arise for criminals to make money, avoid costs or avoid detection, it is known that significant effort will be directed towards attacking GNSS based systems.

Potential and already known mechanisms for deliberate interference include:

- Rebroadcasting ('meaconing') a GNSS signal maliciously, accidentally or to improve reception but causing misreporting of a position.

- Spoofing GNSS signals to create a controllable misreporting of position, for example to deceive tracking devices.

System vulnerabilities

All GNSS are vulnerable to failure, disruption and interference, and much work has been done to assess the possible failure modes and their effects on services, and to develop strategies to detect failures and correct them.

The vulnerabilities of GNSS can broadly be classified into three different categories:

1. System related (including signals and receivers).
2. Propagation channel related (atmospheric and multipath).
3. Interference related (accidental or intentional).

GNSS have system-level vulnerabilities: GPS satellites have on rare occasion broadcast dangerously incorrect signals, a reduced number of satellites visible could prevent availability of a position fix, and GNSS receivers can incorrectly process valid signals to give unpredictable results.

GNSS signals are very weak: typically less than 100 watts transmitted from a distance of 20,000 km to 25,000 km.

When received at the surface of the earth, the signal strength may be as low as -160 dBW (1×10^{-16}) watts, with a spectrum spread out effectively below the noise floor in the receivers.

Deliberate or unintentional interference with this signal can easily defeat the signal recovery or overload the receiver circuitry.

Furthermore, signals are vulnerable to disruptions in the atmospheric medium they pass through, and receivers can also unintentionally lock onto reflections of the signals, known as multipath, giving unexpectedly large errors.

These causes can have quite different effects on users, such as partial or complete loss of the positioning and timing service, poorer accuracy, very large jumps in position, velocity or time, and 'hazardously misleading information' (HMI) that is to say, believable data that is dangerously wrong in safety critical applications.

Segment-specific issues

As previously mentioned, each GNSS has three segments: ground, space and user, and each of these segments have vulnerabilities to problems or failures.

The ground segment is responsible for maintaining the system time, controlling the satellites, uploading navigation data (Clock prediction data and Almanac and Ephemeris orbit prediction data) that will be broadcast to users from the satellites, and monitoring the signals broadcast across the globe.

The satellites carry clocks, signal generation units and amplifiers and antennas to

broadcast the signals, modulated with the navigation data.

These systems are designed with high reliability in mind, and in the case of GPS, the ground segment and satellites are designed to be resistant to military attack, but nevertheless there are vulnerabilities – for example if bad navigation data is uploaded to the satellite, or if unpredictable errors appear in the clock mechanism.

Unlike the ground and space segment, the GNSS user segment is extremely diverse and uncoordinated, comprising all GPS receivers.

Different manufacturers design GNSS receivers to different levels of quality, but even the simplest GNSS receiver is a highly complex mixture of radio and digital hardware and software.

The common thread is that all receivers are designed to interface with the broadcast GNSS signals, as documented in the 'Signal-in-Space Interface Control Document' (ICD) definition.

This diversity means that systematic vulnerabilities in GNSS receivers will not affect all users, but still could affect one particular user sector badly, possibly globally, where receivers from one manufacturer with a latent software bug are used widely.

In time, users will also become increasingly dependent on the various overlay systems that are required to enhance the performance of GNSS, which potentially introduces more vulnerability into the system.

For ground (or sea) based users the GNSS signals must pass through the atmosphere, and this too causes a variety



A GPS jamming unit used in trials by the General Lighthouse Authorities, which caused GPS receivers to report position errors of more than 20km. Photo: GLA

of generally deleterious effects.

If the atmosphere were invariant in time and space due allowance could be made, but unfortunately the atmosphere is highly variable over many temporal and spatial scales.

The lowest and densest region of our atmosphere, containing our weather systems, is called the troposphere. Here weather systems can affect GNSS signals causing modest variations in signal delay

which can be largely mitigated using a model. Hence the troposphere introduces an error term, rather than a threat.

The ionized upper region of the atmosphere known as the ionosphere can also cause disruptions to GNSS signals and if uncorrected introduce the largest errors in GNSS.

The variability of the ionosphere, especially at high and low latitudes and at times close to the peak of the sunspot cycle can be highly problematical. This variability of the ionosphere is one manifestation of space weather.

Multipath vulnerabilities can lead to errors. Multipath describes the situation when a receiver picks up reflected signals as well the normal signals direct from the satellite.

GNSS signals can reflect off relatively distant objects, e.g. buildings, and cause gross errors in position accuracy if the receiver falsely locks onto this reflected signal instead of the direct signal.

More subtle errors are caused when the reflective objects are closer and direct and reflected signals merge together, causing lower precision code and carrier phase measurements.

Multipath is ubiquitous and a very well known phenomenon to scientists and receiver manufacturers who have introduced all kinds of measures in receivers to mitigate the effects, such as multipath rejecting antennas, receiver filtering and processing techniques.

However, multipath can still sometimes cause surprising errors of tens to

hundreds of metres to unprepared users, and it is also one of the most significant barriers to future adoption of autonomous car navigation using GNSS.

Deliberate interference

There are three distinct forms of deliberate interference with GNSS signals: jamming, spoofing, and meaconing.

Jamming is the most likely activity which will impact a conventional industrial use GPS system.

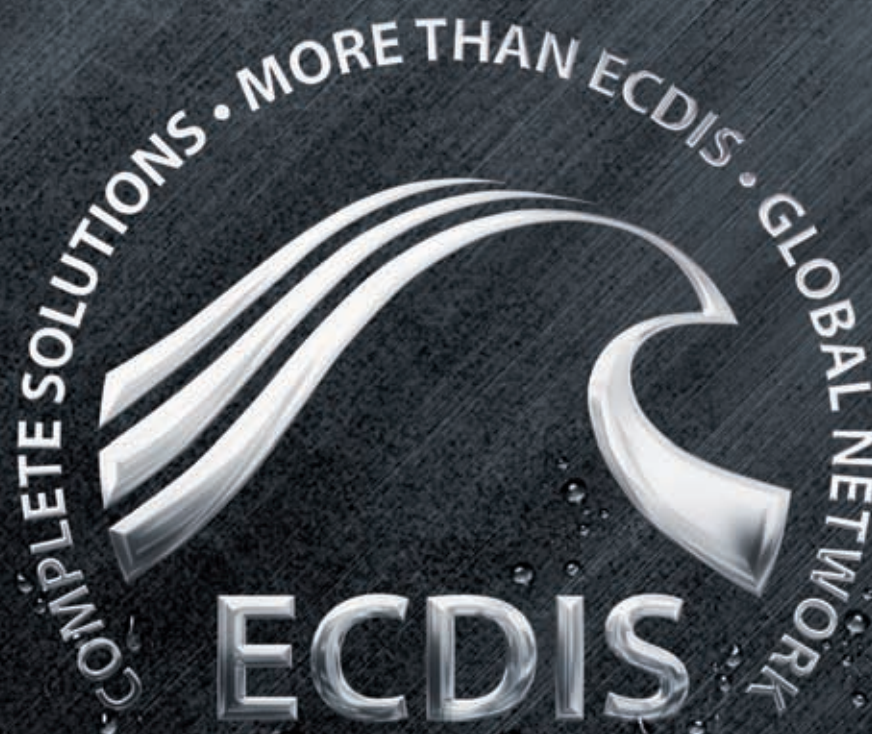
Meaconing (delaying and rebroadcasting) and spoofing (false signal) which effectively rebroadcasts erroneous satellite ephemeris are currently less common than jamming.

The crudest form of jamming simply transmits a noise signal across one or more of the GNSS frequencies, to raise the noise level or overload the receiver circuitry and cause loss of lock. Circuits and assembly instructions for GPS jammers are widely available on the internet, and commercial jammers can be bought for less than £20.

Commercial jammers are increasingly sophisticated: some are designed to fit into a pocket, some into car lighter sockets; most jammers are designed to block GPS, GLONASS and GALILEO (even before GALILEO is operational), others incorporate jamming of all cellphone frequencies as well, using multiple antennas.

Noise jamming can be overcome to some degree by adaptive antennas and noise filtering in well-designed receivers, but some jammers are now transmitting GNSS codes rather than noise, to bypass the filters.

Trust in experience



Visit us at Nor-Shipping 2011. May 24-27. Booth B02-22

Phone +46 31 769 56 00 • ecdis@transas.com • www.ecdisft.com

TRANSAS
SETS THE STANDARD

Commercial receivers behave unpredictably in areas where there is noise jamming. Trials by DSTL and Trinity House have shown receivers giving false information rather than reporting an error (see article *Digital Ship* June/July 2009 issue, page 50).

Sometimes the errors are too large to be misleading (ships' positions shown to be many miles inland, with speeds approaching Mach 1, for example) but there have also been many instances of hazardously misleading information (HMI) where vehicles' positions are offset by a few tens or hundreds of meters, and courses and speeds are incorrect by a few degrees and a few knots.

The consequences of HMI could be serious if, for example, ships are navigating in low visibility and broadcasting their (GNSS derived) position to other vessels.

In the United States, monitoring for GPS signal anomalies is routine and the occurrence of jamming incidents, both deliberate and accidental is growing. In the UK, the Technology Strategy Board is supporting a project to establish a service to verify the extent to which GNSS signals can be trusted by users.

Recommendations

Based on the results of the study the report's authors have made a number of recommendations with the aims of (a) raising awareness of the nature and magnitude of the issues; (b) proposing some policy interventions that could reduce the risks; and (c) increasing the resilience of

services that rely on GNSS.

Raising awareness and analysing impact – Critical services should ensure that GNSS vulnerabilities are included in their risk registers and that the risks are reviewed regularly and mitigated effectively.

National and regional emergency management and response teams should review the dependencies (direct and indirect) on GNSS and mitigate the risks appropriately.

Services that depend on GNSS for PNT, directly or indirectly, should document this as part of their service descriptions, and explain their contingency plans for GNSS outages (say, of duration 10 minutes, 2 hours, 5 days, 1 month).

Policy responses – It is already illegal to place GNSS jamming equipment on the market in the EU, as it cannot be made compliant with the EMC Directive. The Directive is transposed into UK national legislation.

The use of jammers is also a serious offence under the UK Wireless Telegraphy Act 2006. Ofcom also has the ability to close remaining loopholes by putting in place a banning order under the 2006 Act which would prohibit import, advertisement and mere possession of jammers.

The case for this is easily justified given the clear danger to safety of life services, which present a clear priority for Ofcom. The report's authors recommend that Ofcom should introduce such a banning order, ideally in cooperation with other European legislators.

The Cabinet Office Civil Contingencies

Secretariat should commission a review of the benefits and cost-effectiveness of establishing a monitoring network to alert users to disruption of GNSS services, building on the results of the GAARDIAN and similar projects and the US experience with JLOC.

The Cabinet Office should consider whether official jamming trials of GNSS services for a few hours should be carried out, with suitable warnings, so that users can evaluate the impact of the loss of GNSS and the effectiveness of their contingency plans.

Widely deployed systems such as Stolen Vehicle Tracking or Road User Charging should favour designs where the user gains little or no advantage from the jamming of signals that are so important to other services.

The availability of high quality PNT sources is becoming a matter of national security with financial transactions, data communication and the effective operation of the emergency services relying on it to a greater or lesser extent.

Greater cross-government coordination of science and technology issues related to national security should explicitly recognise the importance of PNT, treating it as an integral part of the operation of national infrastructure.

Increasing resilience – The provision of a widely available PNT service as an alternative to GNSS is an essential part of the national infrastructure. It should be cost effective to incorporate in civil GNSS receivers and free to use.

Ideally it should provide additional benefits, such as availability inside buildings and in GNSS blindspots. The report's authors are encouraged by progress with eLORAN in this context.

The Technology Strategy Board (TSB) and the Engineering and Physical Sciences Research Council (EPSRC) are encouraged to consider the merits of creating an R&D programme focused on antenna and receiver improvements that would enhance the resilience of systems dependent on GNSS.

DS

This article has been adapted from the 2011 Royal Academy of Engineering study Global Navigation Space Systems: reliance and vulnerabilities, prepared by a working group consisting of the following group of Academy Fellows and other experts:

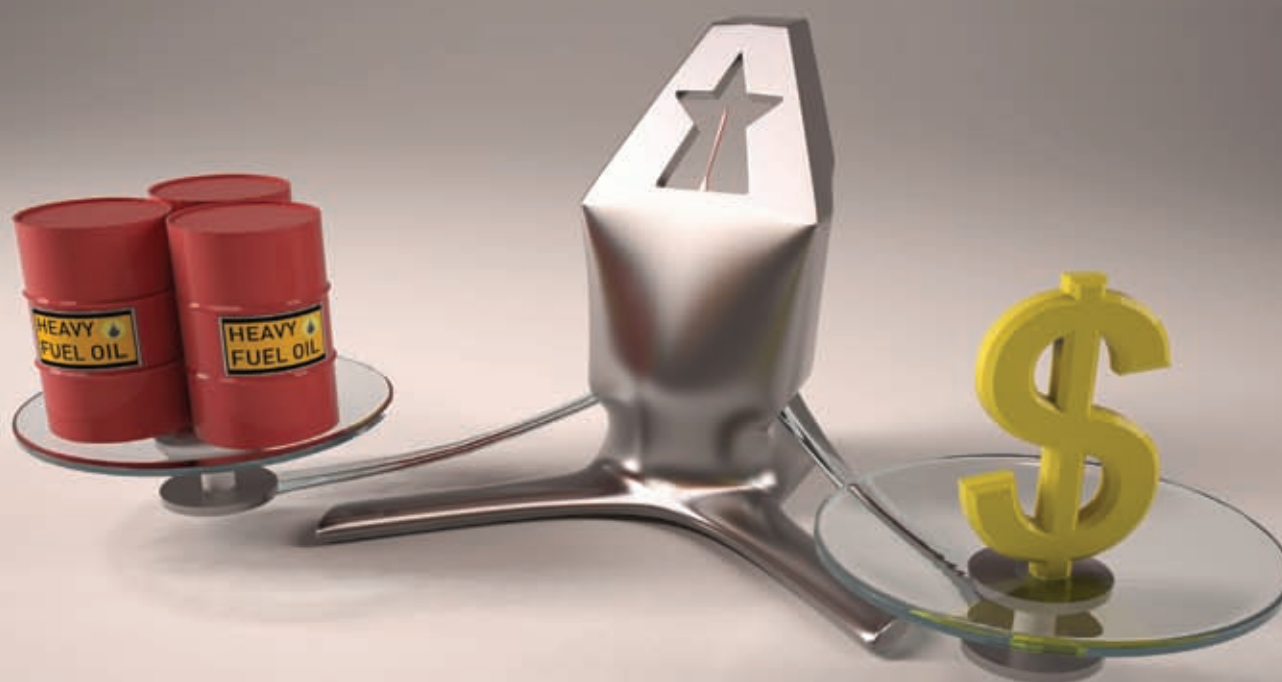
Dr Martyn Thomas CBE FREng (Chairman), Martyn Thomas Associates Ltd; **Professor Jim Norton**, Independent Director; **Alan Jones**, Cotares Ltd; **Professor Andy Hopper FREng**, University of Cambridge; **Nick Ward**, General Lighthouse

*Authorities of the UK & Ireland; **Professor Paul Cannon FREng**, Qinetiq; **Neil Ackroyd**, Ordnance Survey; **Paul Cruddace**, Ordnance Survey; **Martin Unwin**, Surrey Satellite Technology Ltd*

*Further contributions also came from **Charles Curry**, Chronos Technology Ltd, and **Professor Washington Ochieng**, Imperial College, London.*

The full report is available online at www.raeng.org/gnss or copies are available on request from the Academy.

MarineSTAR®



Keep Trim

Dynamic fore and aft trim measurement by MarineSTAR can lead to more economical use of bunker fuel.

Safety communications and Arctic expansion

Distress and safety communications in extreme Northern regions will be enhanced by recent expansion of the World-Wide Navigational Warning Service into the Arctic – providing a greater range of options to seafarers travelling routes in these areas, writes Peter Blackhurst, Inmarsat

On the first day of the 15th session of the IMO Sub-Committee on Radiocommunications, Search and Rescue (COMSAR), a ceremony took place to celebrate the expansion of the World-Wide Navigational Warning Service (WWNWS) into Arctic waters.

It was attended by the Secretary-General of the World Meteorological Organization (WMO), Michel Jarraud, the President of the International Hydrographic Organization (IHO), Admiral Alexandros Maratos, and IMO Secretary-General, Efthimios E. Mitropoulos, as well as delegates to the sub-committee.

Following the introduction of the GMDSS there was a requirement to promulgate navigational and meteorological Maritime Safety Information (MSI) and 16 NAVAREAs/METAREAs were approved under the auspices of IMO.

Taking into consideration the effect of increased global warming and the changes in accessibility of the Arctic together with the greater use of the North West and North East passages by international shipping, five more areas were approved in 2010.

Over the past year MSI has been promulgated as part of the 'Initial Operational Capability', and the service will be in the 'Full Operational Capability' from 1st June this year.

Responsibility for Arctic NAVAREA Coordination and the METAREA Issuing Services has been assumed by Canada, Norway and the Russian Federation.

Each NAVAREA/METAREA has its own national coordinator of navigational and meteorological information (NAVAREA/METAREA XVII – Canada; NAVAREA/METAREA XVIII – Canada; NAVAREA/METAREA XIX – Norway; NAVAREA/METAREA XX – Russian Federation; NAVAREA/METAREA XXI – Russian Federation).

To receive MSI automatically, ships, in accordance with the SOLAS Convention, must be fitted with the relevant communications equipment - Navtex receivers for short to medium range, and Inmarsat-C or mini-C terminals using Enhanced Group Call (EGC) system for transocean and when outside medium frequency (MF) Navtex range, or in areas where Navtex is not available.

Inmarsat-C and mini-C use the same Inmarsat-C communication system, with the only differences between the two variants being in the design and technical characteristics of the mobile terminals. Mini-C terminals are smaller in size, have less transmitting power and therefore consume less supply power.

Some models have integrated antenna and transceiver allowing for simpler installation and greater flexibility with cable routing, but they support the same communication functions as Inmarsat-C terminals.

Furthermore some models are approved for GMDSS use, and all modern Inmarsat-C and mini-C models have integrated

(GNSS) satellite navigational receivers.

EGC reception is part of the Inmarsat-C system and used for broadcast of information to vessels. To promulgate MSI an international SafetyNET service is used that is a mandatory part of communication equipment on certain type of ships operating outside Navtex areas.

To enable the EGC SafetyNET services and develop them, develop documentation in its support, further develop operational criteria and establish means of

other sections have guaranteed coverage.

So, while there are some limitations in the Arctic, ships in the area will still need to use Inmarsat-C and mini-C terminals to automatically receive MSI, as the availability of the satellite terminals on ships is mandatory.

For the areas that have marginal satellite coverage or are outside the footprint, Norway and the Russian Federation are utilising existing Navtex stations or installing new transmitters thereby ensuring that there is full coverage for transmis-

matrix. Hence many models could not be used to receive new MSI addressed to the Arctic areas.

The SafetyNET Coordinating Panel made a decision to address NAVAREA/METAREA warnings to rectangular areas around the new defined areas, so that all ships with the existing equipment and without the new matrix encoded would be able to receive the required MSI.

There are now a few models on the market with the new areas encoded and, generally speaking, new equipment will have been upgraded before delivery.

Some models may be upgraded with software or firmware upgrades, but some legacy or older models that are not supported by manufacturers anymore may require replacement. Equipment suppliers should be consulted with regard to the availability of these new areas on specific equipment.

MSI via EGC SafetyNET can be addressed in four different ways: to NAVAREA/METAREA number (there are 21 areas); to rectangular area; to circular area; and to coastal areas as Navtex messages.

Each type of MSI has its priority, address and repetition, and all these operational issues are coordinated by the international SafetyNET Panel.

MSI, depending on its type, is broadcast using three priorities: Safety, Urgency and Distress. All SOLAS compliant ships in all areas, including Arctic areas within Inmarsat coverage, receive MSI via EGC SafetyNET automatically for the area where the ship is located. Ships are also able to set up additional areas to receive MSI ahead of their intended voyage.

It is very important to note that scheduled MSI, mainly with Safety priority, is broadcast via a single or nominated Inmarsat satellite only if the addressed area is within coverage of two or three satellites. MSI with higher Urgency and Distress priority is broadcast via all satellites serving the area.

This means that it is very important to keep the terminal logged in to the nominated satellite if the area is served by more than one satellite at the time of broadcast, so as not to miss required information.

In addition to reception of MSI, which is a mandatory service under IMO regulation, Inmarsat-C is also used for SSAS (Ship Security Alerting System) and LRIT (Long Range Information and Tracking). In case of distress or emergency the system can be used to transmit distress alert (by using dedicated distress button) and distress priority messages with automatic delivery to the Maritime Rescue Coordination Centre (MRCC).

DS



The new WWNWS Arctic NAVAREAS have come into effect

approval and registration of MSI providers, an International Coordinating Panel was adopted by IMO.

Arctic communications

Navtex receivers operate on the international frequency of 518 KHz and have a coverage area of about 250-300 miles. The Inmarsat satellite system operates within the physical coverage area of geostationary satellites with a guaranteed reception area that is between 76 degrees North and South (subject to antenna position and lack of obstruction).

In the Arctic there are two traditional passages from Atlantic Ocean to Pacific Ocean – the North-West passage along the coast of the USA and Canada, and the North-East passage along the coast of Norway and the Russian Federation.

Not all the parts of the both passages are within the coverage of Inmarsat's geostationary footprint, with the relatively small areas of passage outside coverage lying mainly between the boundaries of adjacent satellites.

Some areas with low degree antenna elevation angle (less than 5 degrees) have limited or non-guaranteed coverage.

To determine what the practical coverage in the Arctic is, Inmarsat performed a few trials with ships operating in the area. These trial results showed that practical coverage in some areas may be extended to 80 degrees North.

Calculations have also shown that about 10 per cent of both passages are beyond Inmarsat coverage. About 16 per cent of the NE route and 30 per cent of the NW route have limited coverage, and all

sion of this important safety information.

Inmarsat is now working on development of a new generation of maritime safety services on the BGAN FleetBroadband platform, operating via the Inmarsat-4 satellites. The additional coverage of these satellites will effectively reduce the existing service gaps left by Inmarsat-3 satellites and increase the Arctic areas where Inmarsat service is made available.

Receiving safety messages

MSI providers address NAVAREA/METAREA warnings to the relevant number of the area using a special syntax that include ocean area code, message priority, service code, address and repetition code.

All existing maritime Inmarsat-C and mini-C terminals used to receive MSI, before the new Arctic areas were approved, have an encoded matrix of all NAVAREAs/METAREAs or an ability to set up the area's number where the ship is navigating.

This allows mobile terminals to 'recognise' which area the ship is in and automatically receive the required MSI.

When IMO adopted new Arctic areas a temporary solution was implemented to change the addressing of NAVAREA/METAREA warnings, since no equipment was available encoded with the new



About the author

Peter Blackhurst is head of Maritime Safety Services, Inmarsat, responsible for Inmarsat's provision of GMDSS and its public service commitment. He is also a governor of the World Maritime University based in Sweden, a director of CIRM, and a member of the Royal Institute of Navigation and of the Honourable Company of Master Mariners. Prior to joining Inmarsat, Mr Blackhurst worked with the UK's Maritime and Coastguard Agency.

Maritime IT at Nor-Shipping – Preview

When the summer comes, the great and the good of the shipping industry gather together in some of the world's major maritime centres to catch up with old friends and see who's doing what and with whom. This year Norway is the host for the biennial Nor-Shipping event - for those looking to catch up on the latest in technology, *Digital Ship* has a guide to some of the maritime IT exhibits on show

Amarcon

Amarcon is a provider of solutions to optimise routing and decision support for all types of sea-going vessels.

At Nor-Shipping this year the company will be showcasing its OCTOPUS system, a package of hardware and software products to improve the safety and efficiency of ships operating at sea, while reducing costs.

Available off-the-shelf or tailor-designed, the system includes fuel and performance monitoring, dynamic positioning and ship motion forecasts, weather services, hydrodynamic analysis, and online information about vessel status and location.

Visit Amarcon in Hall C at Stand 01-18c, in the Maritime by Holland pavilion.

Autronica Fire and Security

Autronica's latest generation of its flagship fire detection system, AutoSafe 4, will be on display during Nor-Shipping. The system was designed to meet the new SOLAS Safe Return to Port guidelines, and features a number of enhancements to both networking and redundancy.

Recent developments with Autronica's safety management system, Autromaster with ISEMS, including the ability to link the onboard system to a shore system, will also be on show from the Norwegian company.

Autronica has developed this new functionality through co-operation with the EU's FLAGSHIP research project, which it hopes will improve safety management during emergencies and drills by enabling shore staff to better support safety officers.

With further integration of Omicron products into its offering, Autronica says it is also expecting strong interest in its gas detection systems during Nor-Shipping. The company acquired Omicron in 2009.

Visit Autronica in Hall C, at Stand 03-30a.

AVEVA

AVEVA, a provider of engineering design and information management systems, will be showcasing its marine solutions at this year's Nor-Shipping.

AVEVA staff will be on hand to discuss the company's range of marine integrated engineering and design technology, as well as the company's information management services and recently launched Integrated Shipbuilding Strategy.

The Integrated Shipbuilding Strategy focuses on the business lifecycle of an entire shipyard, exploring how shipyards can optimise the design, procurement and production process through improved information management.

Demonstrations at the stand will also include AVEVA MARS, a purpose-built shipyard process management system, AVEVA NET, a digital asset management solution and AVEVA Review, a 3-D visualisation tool.

Visit AVEVA in Hall C, at Stand 03-02a.

Beijer Electronics

At Nor-Shipping 2011 Beijer Electronics will present its selection of marine industrial PCs and monitors, and also plans to introduce its graphic HMI (human machine interface) solution 'iX' at the show.

In comparison with previous product generations 'iX' features upgraded software and redesigned hardware, with the new design and functionality incorporating a widescreen format and improved connectivity.

Visit Beijer Electronics in Hall B, at Stand 04-18.

Comtech

At Nor-Shipping 2011 Comtech will showcase its Comtech MarineNet Pro system, for voice and data communications in the maritime sector.

This new satellite broadband system operates over Thuraya's satellite network and provides vessels with broadband communications capabilities.

Comtech MarineNet Pro will be available with a range of different airtime packages. Nor-Shipping visitors can have a preview of the service at the exhibition.

Visit Comtech in Hall D, at Stand 01-01c, in the USA Pavilion.

Datema

Dutch navigational chart and publications supplier Datema, founded in 1955 as part of the Nautical Safety Group, will re-launch its ENCtrack service at this year's Nor-Shipping.

First introduced at Nor-Shipping 2009, the roll out of the ENCtrack service was delayed by disagreements on the terms of licensing, centring on its 'pay-as-you sail' concept.

After two years of lobbying and debate, Datema has now finally managed to secure the necessary IC-ENC permissions to re-launch ENCtrack, with official approval having come into effect on April 1, 2011.

Visit Datema in Hall B, at Stand 01-17.

Docmap

Docmap will showcase the new version of its software system, Docmap 7.0, at this year's Nor-Shipping.

This new software version is designed specifically for handling the documentation required by safety management systems and incident reporting.

The Marine Suite version of the system is pre-configured for the shipping industry with an additional module, Docmap Sync, for off-line synchronisation of remote databases (via e-mail, FTP or CD).

The integrated system can be used to control documents integrated with reporting and investigation of HSEQ occurrences across the fleet, and includes functionalities for process control, KPI data harvesting and reporting, and managing TMSA2 or OVMSA business processes.

With previous versions of the software

available in English and Norwegian, Docmap 7.0 is also available in Portuguese with the aim of catering to offshore companies establishing themselves in the Brazilian oil sector.

Visit Docmap in Hall B, at Stand 05-12.

Dualog

Independent data communication provider Dualog, established in 1994, will exhibit its range of software-based services for the maritime industry, including its flagship Dualog Connection Suite, at Nor-Shipping 2011.

The company will display its data communication systems for ship-shore e-mail, data synchronisation, crew mail, anti virus, remote access, web optimisation and onboard IP security at the event.

Dualog's software can be used to optimise available bandwidth and manage costs irrespective of communication equipment type, and is currently used on 1,700 vessels worldwide, backed by 24/7 technical support.

The company has 40 employees, working at its headquarters in Tromsø, Norway and in additional offices in Oslo, Liverpool,

Malta, Vigo, Dubai and Singapore.

Visit Dualog in Hall B, at Stand 05-16.

EMS Konsult

EMS Konsult is a provider of software systems based on the Sharepoint platform (2007 and 2010) and related consultancy services, which the company says can be used to improve efficiency and document control related to the ISO 9001, ISO 14001 and OHSAS 18001 standards, as well as the ISM code.

Its software systems include a tqmPortal (Total Quality Management), with features covering process approach, document management, risk management, requirements management, and competence evaluation.

An fPortal (Improvement handling) is also available covering non conformity reporting, management of improvements and actions, and administration and analysis, while the company's rPortal (Environmental reporting) can be used for climate reporting and data on HSEQ/GRI performance.

Visit EMS Konsult in Hall A, at Stand 01-17.



fastcalgas.com

Online to onboard.

Online to onboard.

Calibration gas just became a whole lot simpler.

www.fastcalgas.com

Fastcalgas is a new service from Martek Marine that allows you to quickly and easily order calibration gas 24 hours a day, 7 days a week; pay online to speed up your order; and have it shipped to meet your ships anywhere in the world.

- Buy calibration gas online – anytime day or night
- All hazardous paperwork completed for you
- One clear price – including delivery
- Stock held in hubs around the world
- UK / Dubai / Singapore / Shanghai / USA

Click. Dispatched. Calibrate.

Part of Martek Marine Ltd. www.martek-marine.com

info@fastcalgas.com

Eniram

Eniram will be demonstrating its recently launched FLEET system at this year's Nor-Shipping, an onshore business intelligence tool that aims to help ship operators optimise the operational performance of their vessels.

The system allows for comparative energy consumption within a fleet across a set time period and the setting of KPIs, to create a consistent view of performance and improve fuel efficiency and emissions reduction.

Eniram will also be showcasing its Dynamic Trimming Assistant (DTA) which provides a ship's officers with dynamic monitoring and optimisation of a ship's trim.

Visitors to Nor-Shipping are invited to come by the company's stand and pick up a complimentary copy of its guide to dynamic trim optimisation, and see some of the trim related savings potential seen on board a VLCC carrier using its technology.

Visit Eniram in Hall D, at Stand 05-22.

GL Maritime Software

GL Maritime Software will demonstrate the capabilities of its range of maritime software solutions at this year's Nor-Shipping exhibition.

This portfolio of systems focuses on condition monitoring and operations support, with the company's software packages including the GL ShipManager, GL HullManager, GL MachineryManager, GL FleetAnalyzer, and GL SeaScout.

GL says that its software systems are designed to be flexible to user requirements, allowing them to be either integrated as a single package or run as stand-alone solutions upon request.

Visit GL Maritime Software in Hall D, at Stand 03-21.

Intellian

Korean maritime satellite communication antenna system manufacturer Intellian will exhibit its line of VSAT communications and satellite TVRO antennas at Nor-Shipping 2011.

This will include its latest t110W 3-axis satellite TV antenna, offering greater coverage, programming and functionality than previous versions, and incorporating a newly designed, multi-band WorldView LNB (Low Noise Block-Down Converter) and a decoder for DVB-S2 digital TV reception.

Information will also be available on the recently launched v240c, a 2.4 metre antenna developed in-house by Intellian engineers, the 60cm v60G with gyro free operation, and the v110, with a wide elevation angle of -15 degrees to -120 degrees, for connectivity in high or low latitude regions.

Intellian says its VSAT antennas are developed on an open platform design, to work with 'always on' high speed broadband connections. The antennas work in conjunction with any CDMA or TDMA network, worldwide.

Visit Intellian in Hall A, at Stand 01-15.

Kelvin Hughes

Marine data supplier and equipment manufacturer Kelvin Hughes will be demonstrating its flagship ECDISPlus system at Nor-Shipping, a new ECDIS package developed to provide a single solution for those looking to introduce ECDIS to their vessels.

ECDISPlus enables customers to put together a bespoke package of charts, publications and equipment, backed up by Kelvin Hughes' support and training.

Visitors to the company's stand can take part in practical ECDIS demonstrations and also visit an 'ECDIS Clinic' where the Kelvin Hughes ECDIS 'Doctor' will aim to solve their ECDIS problems.

The company will also be launching a new three year extended warranty across its commercial product range, demonstrating its latest radar technology and processing capability (including the solid-state SharpEye radar), as well as its latest display technology aimed at the ice navigation market.

Visit Kelvin Hughes in Hall B, at Stand 01-26.

KNS

KNS is a designer, manufacturer, and integrator of systems for the marine communications industry, based in Korea, and at Nor-Shipping 2011 the company will be showcasing its VSAT antennas, equipment and parts for the shipping sector.

Originally starting as a venture of KT (Korea Telecom), KNS obtained its first contract with the South Korean Coast Guard before moving into the private commercial sector.

As it expanded, KNS opened a larger R&D facility in the Daeduk Techno Valley, a hub of research and development activity in South Korea.

Currently KNS provides maritime antenna systems for satellite communications and satellite television to companies in approximately thirty countries worldwide.

Visit KNS in Hall A, at Stand 01-29.

Kongsberg Maritime

Kongsberg Maritime's exhibit at Nor-Shipping 2011 will feature its new K-Chief automation system, which utilises Kongsberg's new multifunction graphical user interface to provide uniform control, using the same design language, across the majority of Kongsberg Maritime systems.

K-Chief may also be integrated with the Kongsberg Maritime Vessel Performance System, which integrates several separate systems designed to reduce fuel consumption and emissions in areas like fuel performance monitoring, engine performance monitoring and energy management.

The company's new cargo monitoring and control system, K-Gauge, will also be present at the show. K-Gauge can be integrated with the company's integrated automation and control systems (such as K-Chief) and incorporates level gauging, temperature and pressure monitoring, valve and pump control.



Kongsberg's K-Chief 600 – Stand C02-28

Kongsberg Maritime says it will additionally present its latest bridge concept K-Master during Nor-Shipping, in addition to a range of position reference systems from Kongsberg Seatex.

Visit Kongsberg Maritime in Hall C, at Stand 02-28.

MARIS

MARIS will present its ECDIS equipment, radar data processing and display systems and Voyage Data Recorders at this year's Nor-Shipping.

Having introduced the world's first LCD based ECDIS systems and the world's first fully approved S-VDR with optional ECDIS, most recently MARIS has introduced its Voyage Decision System (VDS), an electronic information tool based on MARIS ECDIS.

This system is used to plan, execute, document and analyse a ship's voyage, with the aim of reducing fuel consumption. MARIS says that VDS has documented fuel saving potential of up to 5 per cent of annual fuel costs in certain cases.

MARIS now has more than 2,500 ECDIS systems installed and in operation world-wide, and offers update services for ENC and ARCS via e-mail, with the approval of the UKHO and Primar.

Visit MARIS in Hall B, at Stand 05-17.

Maritime Associates

Maritime Associates, a provider of consulting services in naval architecture/offshore engineering, and software development /ICT services, will present the VMOSnet software system at Nor-Shipping.

Created by the company's own software development wing, VMOSnet is an integrated web-based fleet management system, covering a range of ship management functions like voyage planning, daily reporting, maintenance, purchasing, HSSE-QA, document management and crewing.

The VMOSnet office system is a web-based application, with the onboard version able to be configured as either a web-based system or to work on the vessel's intranet.

The software package is already currently in use on-board vessels and in offices in Australia, Japan, Singapore, India and Finland.

Visit Maritime Associates in Hall C, at Stand 02-08, in the Singapore Pavilion.

Marlink

Marlink will launch its new 'Local Numbers' service at this year's Nor-Shipping.

Available to all customers of Marlink's Sealink and WaveCall VSAT systems, the new service combines Direct Inward Dialling (DID) with the local telephone number of the vessel operator's office

location to provide cost-effective calling for shore-to-vessel voice calls.

Local Numbers covers telephone numbers from more than 50 countries and 4,000 cities worldwide, with fixed monthly costs and no additional per-minute fees.

There is no limit on the amount or length of calls, and users can reach the vessel directly with no requirement to call via an operator.

The service is maintained by Marlink's customer support team, with no user administration required.

Visit Marlink in Hall B, at Stand 02-12.

McMurdo

McMurdo's Smartfind Global Maritime Distress and Safety System (GMDSS) NAVTEX receiver, used to provide commercial vessels with NAVTEX maritime safety information, will be on display at the Nor-Shipping exhibition.

The Smartfind GMDSS NAVTEX has a 4-colour LCD screen, with different NAVTEX message categories colour-keyed according to the message type, navigation warning, meteorological forecast or urgent search and rescue message.

ESM (Enhanced Signal Monitoring) is used to assist in message recovery and reduce text errors, while an automatic sorting feature and index message listing page can help in locating new or previously unread NAVTEX messages.

The Smartfind system interfaces with GPS and ECDIS, and has an optional hard copy printer capability. A range of antenna options are available, including an optimised professional two-band active antenna.

Visit McMurdo in Hall C, at Stand 03-02c.

MNC Marine

MNC Marine will be at Nor-Shipping 2011 to showcase its IT management services for maritime companies.

The company's technicians and engineers assist customers with installation and maintenance of maritime applications, as well as providing complete hardware environments.

MNC Marine offers a specialised software service providing maintenance, monitoring and reporting functionality.

Visit MNC Marine in Hall T, at Stand 12.

MTN

At Nor-Shipping 2011, MTN and Norwegian partner GIS will introduce MTN's range of communications solutions for the shipping industry, including VSAT systems and onboard tools to help captains and crew to communicate and work at sea.

The company says that its range of value-add services will now be directly included in its offering, including StreamXcel Plus, a bandwidth analyzer, worldwide TV and a number of crew morale services.

MTN's VSAT products are powered by the company's global satellite network, providing guaranteed bandwidth for a fixed monthly fee.

Visit MTN in Hall B, at Stand 02-11.

NEK Kabel

NEK Kabel, founded in 1913 and based in Norway, designs and manufactures cables for maritime applications.

At Nor-Shipping 2011 the company will showcase its cables for ROV, umbili-

cals, subsea, pipeline control, petrochemical, crane and lifting plants, floating, as well as communication cables. These systems come with DNV approvals.

A cabling system for ship installations will also be on show at the event.

Visit NEK Kabel in Hall B, at Stand 05-22.

Ocean Signal

Ocean Signal, a provider of communications and safety at sea equipment, will present its SafeSea GMDSS product range for the first time at this year's Nor-Shipping.



Safety equipment from Ocean Signal – Stand C03-02b

Researched and developed by the company's own designers and engineers, the product line includes the SafeSea E100/E100G series of Emergency Position Indicating Radio Beacons (EPIRBs), the SafeSea S100 Search and Rescue Transponder (SART) and the SafeSea V100 survival craft VHF hand portable radiotelephone.

Each product has an extended battery life and uses non-hazardous batteries which can be easily replaced by the user as required.

Visit Ocean Signal in Hall C, at Stand 03-02b.

OCS

Onsoft Computer Systems AS (OCS) will present its software systems for the shipping and offshore industry at Nor-Shipping 2011.

The company's software packages cover business areas such as HR, payroll, asset integrity management, maintenance and ship management.

OCS invites attendees at the exhibition to come to its stand for more information on the software systems and their features, and a short presentation of those capabilities.

Visit OCS in Hall B, at Stand 03-11.

Raytheon Anschütz

German navigation system supplier Raytheon Anschütz will exhibit its new series of Radar, ECDIS and Conning systems at Nor-Shipping, together with the recently launched Nautosteer Advanced Steering control with the graphical NautoPilot 5000.

The company's latest generation of Synapsis (Chart-) Radar, Synapsis ECDIS and Synapsis Conning workstations are based on a newly developed system archi-

ture, which uses standard hardware and software for scalability including a standardised PC with solid-state disk and passive cooling instead of a fan.

The Synapsis (Chart-) Radar and Synapsis ECDIS also feature a range of new functions to enhance safety and efficiency.

Visit Raytheon in Hall B, at Stand 03-12.

SAM Electronics

SAM Electronics and its associate L-3 companies, L-3 Valmarine, Lyngsø Marine and APSS, will feature their latest system developments at this year's exhibition.

Key exhibits include a new-generation NACOS and Valmatic Platinum vessel control system for combined navigation and automation applications, and a LAN-based network assembly with standardised components to increase scalability and simplify installation and operation.

A stand-alone ECDIS specifically designed for retrofit and fully compatible with existing installed sensors is among the new products on show, as well as diesel electric propulsion units, an Electro-Clean System (ECS), and an IMO-approved ballast water treatment assembly developed by marine environment company Techcross.

Visit SAM in Hall C, at Stand 04-32a.

ShipNet

ShipNet will exhibit its maritime ERP software, in use by over 300 clients around the globe, at Nor-Shipping 2011.

The company's technology includes software to manage tasks ranging from long term operational planning to individual maintenance jobs aboard ship.

All four of ShipNet's product families will be showcased at the stand, covering Chartering and Operations, Accounting and Financial Management, Technical Management and Procurement, as well as information solutions covering Terminal and Berth information.

Nor-Shipping will be the first opportunity many will have to see ShipNet's new Chartering and Operations solution, released in May, which now includes Task Management to allow for the allocation and tracking of particular functions.

A Voyage Estimation module is also included, that allows calculation and comparison of different time and spot charter scenarios. Product manager Frank Otterstad will be on hand throughout the week to deliver demonstrations of these new systems.

Visit ShipNet in Hall D, at Stand 04-31.

SpecTec

SpecTec Group will showcase its offering of software and services in the field of Asset Management at this year's exhibition.

The company's flagship AMOS (Asset Management Operating System) product is used to manage operation and control of all Technical and Documentation aspects of areas like maintenance, spare parts and stock control, purchasing and procurement, Quality and Safety documentation management, voyage management and personnel management.

Having now been working in the maritime market for more than 25 years, SpecTec says that it is continuing to invest heavily in research and development and is developing new software functionality

in close cooperation with many of its customers and partners.

The company is inviting exhibition attendees to come to its stand and ask for a software demonstration.

Visit SpecTec in Hall B, at Stand 01-20.

Star Information Systems

At Nor-Shipping 2011 Star Information Systems (SIS) will display its integrated software systems for onboard operations of all types of vessels, office based systems for fleet management and centralised purchasing, and web based systems for e-commerce and KPI and trend monitoring.

Since the company was founded in 1997, SIS has provided software systems to all types of vessels; from FPSOs and various types of offshore and land based rigs, to cruise ships, liners, chemical and gas carriers, offshore support vessels, seismic vessels, dredging and fishing vessels.

During the exhibition SIS will also introduce a brand new purchasing system for the maritime and offshore industries, Star Fleet Supply Management (Star FSM), aimed at assisting in maritime procurement.

Visit SIS in Hall C, at Stand 04-32b, in the Norwegian Pavilion.

Telenor Maritime Radio

Telenor Maritime Radio will showcase its range of maritime communications offerings at Nor-Shipping, with services including radio inspection, radio certificates, a training centre, a maritime radio license department, and Inmarsat point of service activation.

The company also operates a coastal radio service, consisting of five stations which are manned round the clock.

Telenor offers communication packages that incorporate terrestrial radio data services and mobile broadband and satellite services, including Inmarsat Fleet Broadband, Iridium and VSAT.

It will also exhibit its 'SmartBox', a network management tool developed in cooperation with Virtek Communication (part of KVH).

Visit Telenor Maritime Radio in Hall B, at Stand 05-24.

Tero Marine

Tero Marine will demonstrate its range of information systems for the maritime industry at Nor-Shipping.

The company's flagship product will be the TM Master Fleet Management Suite, an integrated marine information system comprised of a number of modules designed to assist in the fleet management process.

These include a planned maintenance system with functions such as trend analysis, risk analysis and work permit management, as well as modules for inventory and spare part control, dry docking, purchasing & ordering, crew management, handling of claims and voyage e-log.

Visit Tero Marine in Hall C, at Stand 03-30g, in the Norwegian Pavilion.

Thrane & Thrane

Thrane & Thrane's new generation SAILOR 6000 GMDSS Series will be displayed on the Telemar Norway and Radio Holland Norway stands at Nor-Shipping.

The company says that the system is now fully approved and started shipping in April, and features new VHF, MF/HF, mini-C and touch screen message terminal technologies.

The company will also be showcasing its ThraneLINK network protocol, which was introduced as part of the SAILOR 6000 Series at SMM. ThraneLINK is expected to soon be introduced to other SAILOR products, including FleetBroadband, and Thrane & Thrane says it has already started work with third parties to develop a wider range of applications for it.

As part of the SAILOR 6000 Series, ThraneLINK enables a single point of entry to the various sub-systems, which should open up new possibilities in networking of the various systems across a vessel bridge.

Visit Thrane & Thrane in Hall B, at Telemar Norway's Stand 02-15 or Radio Holland's Stand 01-22.

Transas

At Nor-Shipping 2011 ECDIS will be the main highlight at the Transas stand.

The company will present its solutions covering all aspects of the upcoming ECDIS carriage requirement, with its offerings for type-approved ECDIS, official charts and chart updates, weather services, port documents and voyage planning tools.

On the training side Transas will introduce its newly launched Global ECDIS Training Network (GET-Net) and ECDIS CBT programs, while also emphasising its service support capabilities including a new remote-service concept, with fleet tracking and other features.

Visit Transas in Hall B, at Stand 02-22.

Uni-Safe Electronics

Uni-Safe Electronics will be displaying its BNWAS BW-800 system at Nor-Shipping 2011.

New regulations from IMO will require carriage of a Bridge Navigational Watch Alarm System (BNWAS) from 1 July 2011 for new ships over 150 GT and all new passenger ships. A phased schedule of installation deadlines from this date should see all relevant ships installed in 2014.

Uni-Safe's BNWAS BW-800 is DNV Type Approved and complies with these new regulations, and the new IEC 62616 performance standard.

The unit is small in size, to assist in installation, and Uni-Safe says that it has successfully delivered more than 1,000 BNWAS systems to date.

Visit Uni-Safe Electronics in Hall B, at Stand 01-28c.

Vizada

Vizada will showcase its range of mobile and fixed satellite services from multiple satellite network operators at this year's event.

Through a network of 400 service provider partners Vizada offers products and solutions that aim to optimise vessel operations, enhance crew welfare and boost safety onboard.

In particular the company will highlight its new Pharostar maritime VSAT service, its Vizada Solutions communications software systems, and its FleetBroadband packages.

Visit Vizada in Hall B, at Stand 02-12.

Navigation and GIS

The range of information available for display on a Geographical Information System (GIS) such as ECDIS can pose a technological dilemma, with the need to balance standards and regulation against user wants and needs. Dr Andy Norris looks at some of the ways that GIS technology might be applied in the near future

A Geographical Information System analyses and presents position related data. ECDIS is an example of a GIS, bringing such technology to the mainstream of maritime use.

In its basic form, ECDIS is a particularly specialised GIS, giving information on charted features that are relevant to maritime navigation, together with items such as own-ship data and route plans.

However, IMO's ECDIS Performance Standards allow other navigational information to be added to the display.

The standards specifically mention the options of providing radar and AIS data but also mean that information such as meteorological data, tidal streams and Maritime Safety Information can be displayed.

We commonly refer to the additional displayed data as overlays, although this implies that the added information overwrites that originally on the screen. However IMO sets a major proviso to the display of additional data – it must not degrade the display of ENC information.

This immediately highlights a fundamental problem. If standard ENC data takes priority of display, then parts of the overlay, even if vitally important, could be obscured. But if the overlaid data takes priority, vital ENC data may be obscured – contrary to IMO requirements.

In practice, even some overlays on type approved ECDIS equipment can make the viewing of ENC information difficult. For instance, in some areas the denseness of overlaid Class B targets, even when displayed as 'sleeping', can degrade the visibility of charted data.

It is probably possible to dream up sophisticated data integration processes that could alleviate the display problem but these are unlikely to be adopted in the foreseeable future.

It therefore means that ECDIS does have inbuilt limitations when displaying additional information, which need to be taken fully into account by users.

Towards a solution

An approach that partially alleviates the limitations is to have at least two ECDIS displays. Of course, for many ships, this will be the usual method of fulfilling back-up requirements.

It means that at any one time, whether in route monitoring or route planning mode, one of the displays can be identified as the primary system and can generally be restricted to showing basic ECDIS data, without additional overlays.

Displays not being used as the primary ECDIS can then be used to show any combination of ENC and other data, with full awareness by the user that that the ENC data may not always be appropriately visible.

Unfortunately, because of the require-

ments of the ECDIS Performance Standards, the necessary precedence of ENC data will continue to compromise the visibility of overlaid data.

Maybe what is really required is a display that acts much more as a generic GIS, using ENC data as its background.

This could be an additional display, perhaps based around a conventional PC or potentially a second ECDIS that is able to be set to a non-compliant mode allowing overlaid data to take precedence.

The latter would necessarily need a clear indication on the display that it was not set as a compliant ECDIS.

A common approach taken by today's navigation data providers is simply to provide bespoke software to run on a bridge-based PC. Typical examples include the processing and display of meteorological and passage planning data.

The display background used by such software is not necessarily ENC data but, depending on the application, this need not be an issue.

However, if the resultant data needs to be transferred into ECDIS, such as a draft route plan, the use of a PC can create interface and related safety issues, especially if non-type approved equipment is being connected directly to an ECDIS.

Provided these issues are not applicable or can be satisfactorily resolved such systems can provide very useful solutions.

Unfortunately, they remain bespoke applications and are far from being a generic navigation-related GIS. This is fundamentally because there are no international standards for navigation-related data to be displayed over ENC data, except for tracked radar and AIS targets.

E-navigation GIS

Perhaps the best solution for the future is to include the definition of a generic GIS 'additional navigational data display' as part of IMO's e-navigation programme.

Such a definition would ensure some uniformity in design and, in particular, safe interconnection with other equipment, but the details of the functionality of most GIS applications could be left to the supplier.

The applications would mandatorily use the data structure for e-navigation, which is currently envisaged to be based upon IHO's generic S-100 standard. Whenever possible, it would use standardised e-navigation symbology to ensure ease of use across all applications.

Any special display symbols that are not defined within e-navigation would be supplied as part of the GIS software application or embedded within the data used by the application.

The transmission of the data would also necessarily meet generic e-navigation standards, ensuring data integrity.

In general, the GIS display background

would use conventional ENC data. However, the GIS display would not be an ECDIS substitute, which would need to be emphasised in the e-navigation training of users.



If additional GIS information obscures ENC data on the display then the system can no longer operate as a compliant ECDIS

An important GIS application would be for the display of officially supplied digital Maritime Safety Information, which will eventually replace conventional MSI, typically received today via NAVTEX.

It is difficult to envisage displaying digital MSI on ECDIS, such that it does not obscure ENC data and so the use of the proposed e-navigation GIS display may be particularly relevant for such an essential purpose.

The GIS application for the display of MSI may need to be defined in detail by IMO because of its particular significance.

Today's ECDIS allows the insertion of Mariners' Notes, with their presence being identified by '!' or 'i' symbols on the display, depending on their nature – cautionary or informational. The information in the note is accessed by clicking on the symbol.

The GIS application would need to be able to send compiled Mariners' Notes directly to the ECDIS. This would necessitate a small change to the ECDIS standards as it is currently not a requirement for equipment to be able to receive such data.

Depending on content, the Mariners' Note would either include the detail or indicate that full information was available on the GIS display.

Importantly, the primary e-navigation

ECDIS display would remain uncluttered, except when temporarily displaying a particular Mariners' Note.

Advantages

The proposed e-navigation based system has several significant advantages. In particular, it can allow a future e-navigation directed ECDIS to become a much more standardised tool.

Such an ECDIS would always allow safe voyage planning and monitoring but would have few inbuilt frills. In particular, the approach would considerably simplify the familiarisation training of users when changing ship.

In general, innovation and change in voyage planning tools will lie outside the standard ECDIS and become centred on the e-navigation GIS display. For instance, specific applications could include the latest ideas on fuel saving, emissions reduction, time optimisation and risk reduction.

Any use of applications on the e-navigation GIS would require appropriate user training. However, most of the applications would not be subject to carriage requirements and therefore their use would not be mandatory.

Final checking of the voyage should always be carried out on a standard ECDIS. Any apparent inconsistencies should be investigated as they could possibly be due to issues with using the GIS applications.

In particular, these final checks will be made without the possibility of confusion from the extensive overlays that may have been used during the initial planning process on the GIS display.

Nevertheless, certain basic standards applied to the GIS will ensure its intrinsic safety and its compatibility with other e-navigation systems.

At present, enhancing individual ECDIS equipment to provide improved facilities, such as an additional overlay, requires an update to the ECDIS software.

Because of type approval issues on such a vital piece of equipment this is a difficult and expensive route and so limits what can be done, severely restricting the implementation of improved solutions.

The proposed GIS display would not have the update expenses and difficulties of an ECDIS, simply because of its reduced approval requirements.

The ECDIS could then become a standardised tool that would ensure overall safety, with few changes needed in its lifetime, perhaps eventually giving a sense of familiarity and confidence approaching that of the present-day 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

INTRODUCING A NEW WAY TO NAVIGATE EUROPE KNS SUPERTRACK A-SERIES



Supertrack A-Series

The SuperTrack A-Series is a cost efficient antenna series that enables maritime customers to not only benefit from an "always on" internet connection and VoIP services but also to cut down on the high cost of equipment. The SuperTrack A-Series supports various applications including internet access, email, data transfer capabilities, web surfing, VoIP, VPN security, etc. The A-Series is suitable for merchant vessels, fishing and offshore vessels, luxury yachts, leisure boats and more. To learn more about the A-Series, call us at **+82-42-932-0351** or visit us at **www.kns-kr.com** *Note: Only available in Europe

KNS

1314, Gwanpyeong-dong, Yuseong-gu,
Daejeon, South Korea, 305-509
T +82 42.932.0351 F +82 42.932.0353

NOR SHIPPING

*** See us at Nor-Shipping booth #A1-29**

The world's most powerful alliance for FleetBroadband



*At the forefront of
Mobile Satellite
Services for 30 years*



*Innovative solutions to
enhance standard
satellite communications*



*Offering customers the most
comprehensive product
portfolio on the market*

- On-demand solutions for any size or type of maritime operation, anywhere in the world
- 24/7 global customer support
- World-leading suppliers through one of the most trusted and experienced providers

See how we can enhance your maritime satellite
communications experience – contact Marlink

Tel (24/7) +32 70 233 220

Fax +32 2 332 33 2

information@marlink.com

www.marlink.com

