

Development underway on Inmarsat's Global Xpress

Development of the next generation Inmarsat VSAT service is underway, with three new multi-million dollar contracts signed to develop different aspects of the technology required to run the 50 Mbps Ka-band Global Xpress service, and Boeing confirming progress in its design of the spacecraft

nmarsat has given the first indications of what can be expected from its \$1.2 billion next generation Global Xpress service, with its promise of 50 Mbps bandwidth speeds to sub-metre diameter terminals, by signing multi-million dollar contracts with a range of partners in areas like network infrastructure, maritime antenna design, and satellite construction.

The first of these new contracts has been agreed with Cobham, parent company of Sea Tel, which has been announced as the initial launch partner for maritime satellite terminals for the service. Cobham has valued the new contract at approximately \$40 million over the next five years.

Sea Tel will develop, manufacture, test and distribute Global Xpress maritime satellite terminals, and is tasked with ensuring availability of the terminals when the service is introduced in 2013.

As part of this contract, Sea Tel will distribute the new terminals and provide training and support prior to the launch of the first satellite.

Inmarsat has told Digital Ship that the deal is not exclusive however, leaving the way clear for other equipment manufacturers to potentially produce antennas to operate on the Global Xpress network.

Sea Tel will develop a new termi-

nal specifically designed for operation in the Ka-band, which will utilise a new Core Module developed by VT iDirect, also recently contracted by Inmarsat to work on the Global Xpress programme.

Infrastructure

Inmarsat's contract with iDirect, valued at approximately \$60 million, is for the provision of the ground network infrastructure and core module technology that will be integrated into the satellite terminals for Global Xpress.

iDirect will design, develop, manufacture, test and commission the Global Xpress ground network infrastructure as well as supplying the core module mentioned above for integration into the Sea Tel terminals.

iDirect says that the network and core modules that it will deliver will be consistent with the Global Xpress objective of delivering up to 50Mbps downlink speeds to 60cm aperture terminals.

"(These agreements with iDirect and Sea Tel) unites the strongest suppliers in maritime VSAT with Inmarsat's high-performance Ka system architecture," said Leo Mondale, managing director of the Global Xpress programme.

"We are working together to provide maritime customers with the outstanding quality, global coverage



Three new contracts have been agreed with Global Xpress development partners

and seamless mobility they have come to expect from Inmarsat."

"This is another big step for us toward setting the new standard in VSAT. iDirect's technology base and track record for on-time performance strongly support our planned introduction of Global Xpress commercial services in 2013."

Rick Pearson, general manager of Sea Tel, noted that his company has worked closely with Inmarsat on the specifications for the new 60cm Kaband terminal. continued on page 2

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Pacific International lines signs

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"Global Xpress will use the latest technology across all components of the systems and allow Sea Tel the opportunity to build the next generation of the most rugged and reliable maritime terminals for Inmarsat's next generation Ka-band satellites," he said.

Satellite construction

The other new contract announced under the satellite development project has been awarded to Harris Corporation by Boeing Space and Intelligence Systems, to build Ka-band antennas for the three Inmarsat-5 satellites that will form the backbone of Global Xpress.

The Boeing Company is the main contractor for the delivery of the three 702HP Ka-band satellites.

Boeing has confirmed that it has now completed the Preliminary Design Review (PDR) for the satellites and hosted payloads, a process used to validate the design approach to the physical and functional requirements of the spacecraft. The review is the first step toward confirming that the Inmarsat-5s will operate effectively on orbit, before the first expected spacecraft launch in 2013.

Successful completion of the PDR allows Boeing to proceed to the Critical Design Review (CDR), the final step before the company begins to assemble the first satellite. The CDR is expected to be completed in the autumn of 2011.

"Boeing's unmatched commercial satellite heritage and Ka-band satellite communications experience allowed us to rapidly conduct a successful PDR that met Inmarsat's requirements," said Craig Cooning, vice president and general manager of Boeing Space & Intelligence Systems.

"The satellite design is sound, and the PDR demonstrates progress toward developing these high-power Ka-band satellites to deliver streaming data and communications wherever and whenever needed."

Boeing's contract with Harris will see Harris antennas used to direct the planned 95 Ka-band beams onto the Earth, enabling the constellation of three Inmarsat-5s to provide global coverage and to adapt to changing usage patterns over the projected 15-year operation of the satellites.

The Inmarsat-5 antennas will utilise Harris's Gimbal Dish Antenna (GDA) technology, which enables beams to be steered to accommodate changing or increasing user demands.

Harris says it has maintained 100-percent mission success with its GDA systems to date.

In related news, Inmarsat has also announced that Frank Coles, who recently stepped down as Globe Wireless CEO after 11 years with the company, has joined the Global Xpress team as senior director - maritime services.

"We welcome Frank Coles to Global Xpress," said Mr Mondale.

"His immense breadth of maritime knowledge is much respected within the industry. He has a reputation for innovating and for competitive product development."

Fleet wide FleetBroadband deal for Pacific International Lines

www.telemargroup.com www.vizada.com

Telemar, in partnership with Vizada, has signed a deal with Singapore-based Pacific International Lines (PIL) to provide Inmarsat FleetBroadband to its container vessel fleet.

PIL, a ship owner in Singapore, is set to install the new satcom service on 88 vessels and 27 new builds and aims to use it to assist in areas like supply chain management, consolidation and distribution facilities management, warehousing, container depot operations, marine engineering and crew communications.

The three-year deal comprises 124 Inmarsat FleetBroadband terminals, both Thrane & Thrane Sailor 250 and 150 terminals, which will be supported by services from Telemar and Vizada.

According to the project partners two Inmarsat FleetBroadband terminals will operate in parallel for certain applications on the vessels, connected to an IP networking system and LAN with 12 onboard connection points.

The Sailor 150 will be dedicated to crew communication and will serve as a backup terminal to the Sailor 250 used for ship operations.

Telemar says it will manage installation

of the terminals in the vessels' ports of call, as well as implementation of the LAN network onboard.

Vizada will provide satcoms management applications from its Vizada Solutions range, such as the Terralink Data Manager for firewall security and web compression and filtering, and the SkyFile Antivirus system.

PIL also aims to connect its BASSnet ship management software system with Vizada's SkyFile Mail application, to optimise ship-to-shore communications and remote management.

"We selected Telemar and Vizada because of their long-term expertise in customising maritime communications," said Captain Desawar, general manager of fleet management for PIL.

"Along with daily business communications, we are also interested in Telemar and Vizada's expertise for crew welfare onboard. By using the dedicated FleetBroadband terminal in combination with solutions such as the prepaid feature of SkyFile Mail, crew members keep in touch with loved ones at home."

"The Universal Card gives them the freedom to use their dedicated communications budget as they wish whether for voice calls, e-mails or text messages which helps boost crew morale."



Sailor 250 terminals (pictured) will be used for PIL ship operations, while a Sailor 150 will carry crew traffic

Hughes sold to Echostar

www.hughes.com www.echostar.com

EchoStar Corporation and Hughes Communications have announced an agreement whereby EchoStar will acquire all of the outstanding equity of Hughes and its subsidiaries (including its main operating subsidiary, Hughes Network Systems) in a deal valued at approximately \$2 billion.

The \$2 billion figure includes Hughes debt, which is expected to be refinanced in connection with the transaction.

Hughes provides VSAT systems to the maritime industry, particularly in the oil and gas sector, as part of its wide portfolio of services.

In January 2009, Hughes launched the Hughes Maritime Broadband Service, a bundled package that provides offshore broadband communications, as well as voice and fax services, to workboats and platforms.

The system utilises the Hughes HX200 broadband satellite router, and can be accessed by antennas as small as 60cm.

Following the transaction the addition of Hughes will be used to enhance EchoStar's capabilities for broadband transport of data.

Under the terms of the transaction, which has been approved by the Boards of Directors of both companies, Hughes' shareholders will receive \$60.70 per share without interest, which represents a premium of 31 per cent over Hughes' share price around the time of the deal.

"We are very pleased to announce this transaction as it brings together the two premier providers of satellite communications services and delivers substantial value to our shareholders," said Pradman Kaul, president and CEO of Hughes.

"By combining Hughes' operational strength and proven record of customer satisfaction with EchoStar's expertise in cutting edge satellite video technology, customers will benefit significantly from our shared institutional excellence."



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First Iridium hosted payload deal signed

www.iridium.com

Iridium has announced that Orbital Sciences Corporation has become the first company to sign an agreement to reserve hosted payload capacity on Iridium's nextgeneration satellite constellation, Iridium NEXT.

Under the terms of the agreement, Orbital will make several non-refundable deposits totalling \$10 million in 2011 for a right-of-first refusal on 20 per cent of the network's capacity to host third-party payloads.

The parties also have agreed to the basic terms of Orbital purchasing this hosted payload capacity on behalf of its customers.

Iridium believes the arrangement with Orbital has the potential to be worth more than \$100 million, including hosting fees and recurring data service fees once in orbit. Orbital was recently selected by Iridium's prime contractor for the system and the constellation, Thales Alenia Space, to serve as satellite integrator and test partner for Iridium NEXT.

Over the next five years, Orbital, at its facility in Arizona, US, will assemble and test 81 Iridium satellites (66 operational satellites, six in-orbit spares, and nine onthe-ground spares) being built by Thales Alenia Space.

"Orbital's far-sighted move validates the value and importance of commercially hosted payloads," said General Lance Lord, Iridium government advisory board.

"Under President Obama's National Space Policy, it is clear that our government departments and agencies are directed to take advantage of private sector investments to lower the overall cost of space missions, and this new agreement is a great step forward."

Orbital and Iridium say they will be



The hosted payloads are expected to contribute between \$200 and \$300 million to the Iridium NEXT programme

Datacom in TanMar deal

www.getdatacom.com www.tanmarcomm.com

Satcoms provider Datacom reports that it has acquired the offshore and international operations of TanMar Communications.

Telecoms company TanMar provides solutions in satellite communications, two-way radio systems, SCADA backhaul and video systems.

Included in the acquisition are key personnel and leased facilities located in Louisiana, United States.

"We're excited about what this means for the customer," said John Poindexter, CEO of Datacom.

"Now, more than ever, organisations are getting more strategic about communicating with assets in remote and harsh environments. Not only are we increasing our global capabilities, we'll be joined by the elite service team from TanMar to continue to provide unsurpassed customer support."

"Helping our customers securely connect with anything, anywhere, anytime, increases efficiency, safety, and morale. Ultimately it's a key differentiator." Maritime satellite communications company **H2OSatellite** has been confirmed as an **Inmarsat** Silver Partner. This status has been awarded following recent courses and examinations undertaken at Inmarsat headquarters in London, UK.

Telaccount Overseas has announced the signing of new agreements with **Station711** and **Otesat Maritel**, which will make Telaccount a distribution partner for its partners' satellite services. Telaccount says that these alliances will provide its customers with the option to select their own preferred satellite provider from a list that also working closely together to market this capacity to specific US government customers to ensure the programme can meet the Iridium NEXT deployment timelines and be consistent with other hosted payload programmes.

Orbital, as the satellite integrator and test sub-contractor for Iridium NEXT, will also be responsible for the integration of hosted payload platforms with the Iridium NEXT satellites.

"Commercially hosted payloads on Iridium NEXT offer a significant opportunity to government programmes," commented Iridium CEO, Matt Desch.

"To achieve the cost savings that commercial hosted payloads offer, it is imperative that companies, and government and research organisations, make plans and design systems now – in advance of our first launches, which are scheduled for 2015."

"With this agreement, Orbital has locked-in capacity today to ensure certain missions can meet our commercial timelines. While Iridium is working with a number of potential hosted payload customers, and expects to announce additional deals in the coming 12-18 months, it's wonderful to have taken this significant first step."

Iridium expects that the NEXT constellation will host a combination of payloads for different customers on the same satellite, though most likely not on all 66.

Based on current available opportunities, Iridium says that it expects hosted payloads to provide between \$200 million to \$300 million in net cash contributions, as well as additional service revenues in 2017 and beyond.

includes **Stratos** and **Vizada**.

SatCom Global has appointed Meenal Rao as its new B2B Asia sales manager. Ms Rao brings over 10 years of IT and mobile satellite experience to the role, having worked in diverse industries like e-commerce, software development and satellite communications.

Antenna manufacturer **Orbit Communication Systems** has announced that Yosi Albagli has been appointed to the position of executive VP and president, satellite communications business unit. Mr Albagli previously founded **Tdsoft Communications**, and has worked with **VocalTec** and **CTWARE**.

Auto switching option added to Access Controller

www.livewire-connections.com

Livewire Connections has added a 'VSAT Switchback' option to its Access Controller FB-10 system, used to manage switching between different satcom terminals installed on a vessel.

Should a VSAT-installed vessel, in the course of a trip, be forced to switch away from its VSAT to a pay per unit service, the VSAT Switchback upgrade allows Access Controller users to have the unit set up to automatically return to the VSAT service once it has re-established a stable connection.

Livewire says that this service, along with DNS Blocking and spend control upgrades which were added to the Access Controller in 2010, gives users much better control of their costs. Monitoring usage of all off vessel communications can be done through the software interface.

Once the Access Controller FB-10 has been set up, the user can select a backup service knowing the system will automatically switch over to the VSAT service when it is back online. The user no longer has to monitor the VSAT to see when it has a stable connection.

Using a dynamic firewall, the system restricts access to only key services when using backup connections, with full access resuming once the VSAT is back online.

The new upgrade is available free to all existing users of the Access Controller FB-10, and will come as standard on all new equipment supplied.

"Our priority continues to be providing the user ultimate control of their connections," said David Walker, sales director of Livewire Connections.

"VSAT Switchback will be rolled out quickly and efficiently through a simple software upgrade just as our 2010 developments of Spend Control and DNS Blocking were."

> www.orbit-cs.com www.h2osatellite.com www.inmarsat.com www.satcomglobal.com www.telaccountoverseas.com



Adonis Violaris, Telaccount Overseas (second from right) marks the new distribution deal with staff from Otesat-Maritel

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Globalstar plans next satellite launch

www.globalstar.com

Globalstar has announced a schedule for the launch of the next batch of spacecraft for its second-generation satellite constellation, to begin in the second quarter of 2011.

Globalstar says that it expects to conduct the next launch of six satellites in May, to be followed within 60-90 days by two additional launches of six satellites per launch.

All three launches will utilize the Soyuz launch vehicle, and each will be conducted from the Baikonur Cosmodrome in Kazakhstan. In October 2010 Globalstar successfully launched six new secondgeneration satellites using the Soyuz.

"As planned, during the orbit-raising of the first new satellites launched in October, we continue to validate our onorbit acceptance tests and operating procedures for each of the new spacecraft," said Tony Navarra, president, global operations for Globalstar.

"Our six-month validation period is



Globalstar's next round of launches will begin in May 2011. Photo: Arianespace

being used to confirm our satellite design and performance. Once complete, and barring any unforeseen issues, we will be able to confirm a more specific scheduled launch date."

Globalstar contracted with launch services provider Arianespace for a total of four launches of six satellites each using the Soyuz.

Globalstar plans to integrate the 24 new second-generation satellites with eight first-generation satellites that were launched in 2007, to form a 32 satellite constellation.

KVH introduces 37cm VSAT antenna

www.kvh.com

KVH has introduced its new TracPhone V3 system, featuring what the company claims is the world's smallest maritime VSAT antenna measuring 37 cm in diameter and weighing 11 kg.

The TracPhone V3 will offer data download speeds up to 2 Mbps via KVH's Ku-band mini-VSAT Broadband network, with pricing of \$0.99 per MB for data and \$0.49 per minute for worldwide voice calling available.

"We are excited to offer accessible, affordable broadband internet access via this ultra-compact system and our proven, global mini-VSAT Broadband network," explains Martin Kits van Heyningen, KVH's president and chief executive officer.

"For years we've heard people complain about the high prices charged for satellite communications services like Inmarsat. We set out to design a new product that was the



The 37cm antenna will offer speeds of 2 Mbps

size and cost of an Inmarsat FleetBroadband terminal with much faster data speeds and significantly lower airtime rates."

"The TracPhone V3 has it all – ultracompact hardware, simple installation and operation, and true global broadband at affordable rates."

The TracPhone V3 includes a stabilised antenna, a ViaSat ArcLight spread spectrum modem, and a below-decks antenna control unit that comes fully integrated and configured for ease of installation.

The ArcLight spread spectrum technology is the same as that used on KVH's 60 cm TracPhone V7, rather than the TDMA transmission technology often employed for 1-metre VSAT antenna systems.

In 2010, KVH says that it delivered more than 60 terabytes of data and handled more than 1.5 million voice calls to and from vessels around the globe via the mini-VSAT Broadband network.

Intellian upgrades maritime TV antenna

www.intelliantech.com

Intellian has announced an upgrade to its w-Series marine satellite TV antenna range, which it says is compatible with TV programming signals in all world markets.

The antenna now features a newly



The latest Intellian antenna offers access to channels in a wider range of countries

designed multi-band WorldView Low Noise Block-Down Converter (LNB) and receiver, to offer DVB-S2 Digital TV reception at sea with what the company describes as "one hundred times better accuracy and greater signal sensitivity than other satellite antenna systems on the market."

The w-Series is comprised of i6W and i9W dual axis antennas, and t110W and t130W three-axis antennas. When moving from region to region the user can switch between circular and linear polarized services by selecting the new location.

The antenna control unit adjusts the unit's Auto-Polarizer and the new WorldView LNB module to the required frequency and polarization for satellite reception.

Intellian says that this eliminates the need to purchase multiple LNBs, reconfigure systems and manually change the LNB unit inside the antenna dome each time the vessel crosses into a different satellite service region.

"In the year and a half since we

launched our pioneering w-Series worldwide marine satellite antenna systems, hundreds of customers in both the commercial and recreational markets have experienced the joy of high-quality uninterrupted entertainment on their worldwide travels," said Eric Sung, president and CEO of Intellian.

"With the development of these newly designed models, we challenged our engineers to build upon their previously groundbreaking designs and incorporate even greater coverage and features for our customers - they succeeded!"

"We are proud to offer this new functionality and exclusive technology to provide mariners with an improved level of quality and convenience in marinised satellite entertainment."

Intellian says that antenna provides access to TV programming in North America, Latin America, Russia, Korea, China and Japan, as well as in Southeast Asia, Australia, Europe, the Middle East, Africa and some additional Asian countries.



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- →)
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Anti-piracy communications system launched

www.ase-corp.com

Applied Satellite Engineering (ASE) has introduced a new system which aims to allow crews on a vessel under attack by pirates to retreat to a safe area while still maintaining communications links with the shore.

The Citadel safe room solution incorporates Iridium satellite voice services and GPS reporting, and is kept separate from the usual vessel communications system. ASE suggests that, when a ship is boarded by pirates, the crew withdraw to a designated safe room, or citadel, and power down all systems, leaving pirates with a dark ship and no control.

The ASE phone is installed in the safe room, providing emergency and periodic GPS reports as well as voice calling services. A battery backup system can power the system for 24 hours in a powered standby mode, or for a few days in a periodic mode. The system includes an outdoor transceiver, cable, lockable cabinet, corded phone and optional battery backup. Additional phones such as a captain's phone or crew calling phone can be installed on the ship from the same system.

The transceiver and antenna are housed in the same enclosure, about the size of an American football, to reduce antenna cabling distance problems. The unit should be mounted hidden from view, with the cable routed internally within the ship.



A small, hidden communications terminal with a battery power source could allow crews to stay in contact with shore from a safe room

Flat-fee FB and VSAT package from Stratos

www.stratosglobal.com

Stratos Global has introduced a new broadband service for the maritime industry called FBBPlus, which will offer a combined package of FleetBroadband 500 and Ku-band VSAT for a fixed monthly fee.

For this fixed cost the service allows for a managed data communications capability of up to 25 GB per month. Stratos told *Digital Ship* that the standard monthly fee would be "less than US\$3,500 per month."

Stratos also notes that this new solution will serve as "a highly flexible migration path" for companies that might consider introducing Inmarsat's Global Xpress 50 Mbps service, which is expected to be commercially available in 2014.

FBBPlus has recently begun deployment on approximately 40 vessels for Hapag-Lloyd, under a five-year contract, with Hapag-Lloyd the first company to sign up for the new service.

For Hapag-Lloyd the FBBPlus connectivity will be integrated with Stratos' AmosConnect communications application, to manage all e-mail, fax, SMS and interoffice communications.

Stratos says that FBBPlus is the only service that delivers a managed MPLS (Multiprotocol Label Switching) extension network over separate L-band and Kuband networks, with redundant paths.

The MPLS network separates and logically manages business, crew and nonessential traffic, while delivering voice communications via the Inmarsat circuitswitched network.

"Hapag-Lloyd is impressed by our ability to offer a flexible, fully managed broadband service," said Stratos president and CEO Jim Parm. "Because FBBPlus is based on FleetBroadband, Hapag-Lloyd is confident that it will help them meet their business goals and provide their ships with optimal performance and reliability at all times."

"We understand the demand for higher

volumes of data to support critical applications and business communications onboard – along with the increasing need to support crew with internet-based services."

"Our creative FBBPlus solution demonstrates that we are perfectly positioned to expand our customers' communications capabilities as we prepare for the availability of Inmarsat's Global Xpress services."

Stratos is already the single biggest distributor of FleetBroadband services, having activated approximately 7,000 systems across the world.



Hapag-Lloyd has already begun deployment of the system as the first customer of FBBPlus

E.R. Schiffahrt to install Globe iFusion

www.globewireless.com

Globe Wireless has announced that German shipping company E.R. Schiffahrt of Hamburg is to install the Globe iFusion solution on approximately 90 vessels.

The iFusion system consists of a FleetBroadband terminal, a built-in onboard GSM system, as well as an integrator box used to manage the ship/shore communications.

"Our corporate IT strategy is to utilise IP satellite technologies to improve our ability to remotely support shipboard IT systems, and lowering cost for growing traffic," said Roland Felbinger, nautical senior superintendent, E.R. Schiffahrt.

"Our evaluation showed that with most stand-alone terminals it would be necessary to install several other IT components. This meant complex, high maintenance systems aboard ships, which would also be difficult to install and support."

In its early evaluation of the technology E.R. Schiffahrt installed a Globe iFusion system in its offices, and conducted a number of extensive tests of the system's capabilities.

"The Globe iFusion solution meets all of our requirements, and also provides an extremely unique crew solution based on GSM technology, superior dual level firewall controls, and the ability to use and control any other IP satellite system we may choose in the future," Mr Felbinger said.

Ken Jones, chairman of the board and recently reinstated as CEO of Globe Wireless, also commented, "The level of integration and functionality of Globe iFusion is far superior to what stand-alone terminals can offer, and is also a far simpler system to install and support."

"We are proud to have one of the leading shipping companies in the world select Globe iFusion as their primary communications system."

In other news, Globe Wireless has also announced the upcoming release of an update for its GlobeRydex software product.

GlobeRydex is used to manage ship/shore satellite communications solutions for more than 2,500 ships.

Customers use the GlobeRydex software either through a Public Hub environment (a service where ships connect to a shoreside hub managed by Globe Wireless) or a Private Hub configuration (where the shoreside server is kept and maintained at the customer's premises).

Since acquiring Seawave in August 2007, Globe Wireless says that it has released numerous updates to the Rydex software, including support for Windows Vista and V7.

This new updated release of GlobeRydex will support Windows 64-bit operating systems and include additional features and functions.

"We fully intend to support the GlobeRydex product and continue to improve and enhance it into the future," said Mr Jones

"We are committed to servicing our loyal Rydex Public and Private Hub users. Additionally, GlobeRydex is actively promoted to new customers as part of the Globe iFusion."



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From 'lightly chaotic' to strictly standardised – onboard networks

As part of a process to move to a strictly standardised vessel IT infrastructure, shipowner Seatrans has introduced a range of new communications options, remote access, and virtual machines – all with its small Norwegian IT department

he IT department at Norwegian shipowner Seatrans has, over the last few years, invested a great deal of time and effort in dealing with a challenge that will be very familiar to many of those with similar job titles across the industry – a problem that has become even more intense during the global economic downturn.

This challenge, which often comes down from on high as upper management looks to squeeze efficiency to its very limit, is to find an effective way to manage complicated technology networks in moving global remote offices, operating in different time zones, without expanding the small maritime IT department or using more than the limited resources provided.

To put it simply, what is required is to do 'more with less' – a request that is even more taxing in the shipping industry than for land based companies as the lack of terrestrial connectivity removes some of the scope for remote management and automation in systems.

So how did the Seatrans IT department deal with this difficult issue? For them, the key was to focus on one word – standardise.

Seatrans operates from five office locations (including a disaster recovery site) in four countries, with approximately 100 computers and 35 to 40 servers in use by about 80 active users.

In addition to this the company operates about 20 vessels, with all of the vessels having their own servers, and also housing another 100 computers and 80 active users.

The responsibility for keeping all of these networks running rests with an IT department of three men - Christian Mohn, Andreas Vedå, and Seatrans IT manager Stig-Erik Halvorsen.

"I think it is fair to say that an infrastructure like this requires an IT department of a decent size, maybe in combination with an uncomplicated set-up," Mr Halvorsen explained. "Well, guess what we have neither of these unfortunately!"

"Christian is responsible for network security, servers, virtualisation and all of that good stuff. Andreas is responsible for handling support, installation, roll outs and stuff like that."

"I'm responsible for the administration part of it, I take control of groupware, mail flow and basically anything that has to be on all the vessels. It would be nice to have some more people! But that's not the case."

The vessel side of the group's IT infrastructure is where the department focuses most of its attention, due to the restrictions on connectivity and remote system availability. As Mr Halvorsen notes, if they can do it on the vessel side they know for sure they can do it on the shore side.

"We don't like to look at the vessels as anything different to any other branch office, they're just the most sophisticated branch offices we have," he told us.

"They are just a little bit more complicated to get to and are basing their operations on much more complicated communications platforms than what we do on the shore side. And I should say that you also need to be ready to do it twice – usually you're more likely to get it right the second time."

"Obviously if you're going to control a set-up like this you're going to need some tools and need to have thought things through. It doesn't matter so much what the tools are you are using, but you need to have some systems and have some guidelines." it's pretty complicated to keep these bits and pieces running."

"Also, if you have a problem on the vessel side it's much more important to fix it within a short period of time than if we have it in a branch office on land, but on land we can send technicians or remote connect, there are a range of things we can do that we can't do on the vessels. So the vessel infrastructure actually needs to be much more robust than any other branch office."

Standardised

Seatrans' answer to the demands of running these systems has been to move from what Mr Halvorsen describes as a 'lightly chaotic' approach, to introducing an infrastructure that is strictly standardised.

"You try to buy the same hardware, and try to have the same applications on



Installation of Seatrans' onboard networks and communications links are now being automated and standardised – reducing the need for IT support from shore

In addition to these added difficulties in maintaining the onboard networks, Seatrans' vessels are also running a number of highly specialised software applications with heavy reporting and communications requirements, that must be met despite the fact that they are constantly on the move.

"I'm often told, often by colleagues working in other departments, that IT is not rocket science – it might not look that way, but we have some pretty sophisticated applications out there," said Mr Halvorsen.

"We have specialised chemical software running, training software, webserver based reporting tools, improvement systems, mail and communications applications – just to mention a few – that we have running on these vessels. I'd say it, the same way of implementing things, but once there is some manual operation involved you won't have a standard for very long," he said.

"You'll have a standard for a certain period of time but it takes time rolling this out – at one point the hardware will shift, at one point you'll forget how you installed that particular application, how you configured it. Then you've got no standard anymore."

"You can even create images if you want to, way back we used to do that – but at some point you will update the images as well, and then you're out of standard."

To counteract this the Seatrans IT department decided to create a new way of setting up the IT infrastructure onboard its ships that would be initiated by standardised software applications, removing the 'manual' part of the process and, hopefully, some of the problems that go with it.

"We bought 25 servers, 100 computers, all the same," said Mr Halvorsen.

"We implemented a tool for automating the set-up of the servers and the computers, and automating the installations of every application. We automated the deployment of all of the configurations. And with that, we were standardised."

"We have high 'customer satisfaction' because it's so easy when people change vessel and they know that the set-up is exactly the same on the next ship. They can expect these applications, the data is in this location – everything works the same, on every vessel, every time."

To strengthen control over these networks the IT team also added new remote management capabilities to deal with onboard problems from the shore, removing the need for the vessels' crews to get too involved with the operation of the IT infrastructure.

"We added the possibility to remote connect to the vessel to deploy new updates, do service and maintenance, and to help the guys on the ship without being on the phone asking the Captain IT questions," said Mr Halvorsen.

"When you don't have a standard you will have relatively poor stability on the systems onboard, and a lot of IT related travel to the vessels. It's difficult to provide support if something goes wrong, especially if you don't have any way of getting online with the vessel, and you have outdated software onboard."

"With our standard systems and remote access we now have approximately zero IT related travel. Every once in a while you need to go to a ship, that's true, but it's taken the load off my back, and my family's back, to not have to have a suitcase always ready to go."

Virtual machines

A major part of the standardisation approach at Seatrans relies on the use of virtual machines onboard the vessels, to separate the standard infrastructure setup from the underlying technology which it is running on.

In this sense the virtual machines on different vessels can remain standardised even when the hardware it is running on is not identical, as Christian Mohn, network manager at Seatrans, explains.

"We could use basically use any server as long as we can install VMware Hypervisor (virtualisation software) on it. For installation we use the VMware Hypervisor on Windows Server 2008 R2 and put a Virtual Machine on top of that," he told us.



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"We chose to virtualise it because it makes a lot of things much easier for us. We get to be hardware independent so we can move the virtual machine from one server to another server without downtime. We could replace the server onboard with a new model from a different vendor and just fire up the virtual machine again."

"We're trying to get rid of the hardware dependency and relying on vendors, and we use virtualised servers in our shore based offices anyway so it provides familiarity for the management."

This virtualisation method has been a key component in automating the installation process, with Seatrans creating a portable installation environment on a laptop that the IT team can carry onboard when travelling to the vessel.

"It'll set-up the entire system for you, you just connect the server to the laptop and start it up," said Mr Mohn.

"It will install the VMware Hypervisor (using a PowerShell script), it'll copy Windows 2008 R2 Server. That is pre-configured, so when you start it up all it will do is ask you a couple of questions, like the vessel name and the IP addresses we're using on the network, and then everything else goes automatically."

"Just about everything is automated, scripted and set up in the same way, so it's done the same every time. One of the best parts of this is that the deployment time per vessel is less than one hour, if we have pre-configured the network-attached storage (NAS)."

To extend this concept further Seatrans is also implementing 'application virtualisation', to gain even tighter control over the intricacies of the installation process when it comes to introducing software systems on the ships.

"This is a way of trying not to install an application in the same way as you normally do for a Windows installation, which will modify your system registry and files and so on," said Mr Mohn.

"Application virtualisation enables us to put that into a sort of 'bubble' and then just deploy the bubble to the computer. As soon as the application runs, it is located on the local computer but if you remove the access rights to the package the application disappears again with no trace of it being on the local computer."

"That makes it a lot easier for us to implement client installations, because we don't have to install all of the applications on all of the clients, we can deploy the applications centrally."

Seatrans is now also using Microsoft's Windows Deployment Services system for network-based installation of Windows operating systems to roll out Windows 7 to its vessel-based clients.

"When we go onboard a vessel and install this new system, we install it on a server. When that's done you fire up the clients and it will auto install, via the network, Windows 7," said Mr Mohn.

"It will set up the application virtualisation software and grab the actual application packages from the storage device. A client computer on the vessel is just a client, there's no real local data on it – everything is on the server so we can reinstall as we want if anyone screws up anything, and continue working." "We also implement Windows update services with connections to our shore based set-up, so we can centrally manage the updates and patches that need to be installed on the clients and servers onboard. They are replicated one time to the vessel, and then spread out to the other components on the vessel without every client having to connect to shore."

Backing up data

One question that the use of virtual machines raises is how to manage the storage of data – in the virtual environment the company will still need to have a final destination for the generated data it wishes to hold on to, while also factoring in back-up and redundancy protocols to make sure that the potential benefits of having easily-replaceable virtual machines does not lead to the loss of important company information.

"The Windows back-up software doesn't allow you to maintain multiple renditions of back-ups, unless you do a back-up to a local drive," notes Mr Mohn.

"However, if you do a back-up to a local drive on a server you lose the back-up if you lose the server."

To deal with this issue Seatrans' IT department decided to implement backup storage devices on the vessels, and also utilise a couple of different methods for replicating data back to shore, both via Lotus Domino and replicated file sharing and application virtualisation packages.

"What we're doing is having the backup destination on the NAS, but it is connected to the virtual machine and runs incremental back-up from there," Mr Mohn explained.

"Built in to this is a back-up virtual machine that just lays there dormant, not doing anything, unless we need it. Then we can fire up the back-up virtual machine to restore the back-up the production virtual machine has taken, and it can take the production server's place."

"The worst case scenario is that the server dies. In that case we could actually take the back-up of the virtual machine from the storage device and start it on a client computer onboard, if we had to."

Vessel communications

The various initiatives that Seatrans has introduced, with their emphasis on remote support, replication and greater integration of the ship and shore, obviously requires a substantial amount of communications traffic to and from the vessels, and in this regard the company is using a mixture of systems to make sure it is always in contact.

However, even in this area the company is looking to introduce an element of standardisation, with routing systems managing communications automatically to take advantage of the best option available.

"We're implementing least cost routing so we'll have one router watching the ICE (wireless internet service along the Norwegian coast) and the VSAT, the FleetBroadband and the GSM communications methods that the ship can use," said Mr Halvorsen.

"The router itself will have settings allowing different kinds of communications to take place depending on whether you are on a fixed price communication method or on something that will make the costs go up."

Having these different communications options on board has also allowed Seatrans to offer a range of crew welfare options, with the company providing internet access to the crew, within reasonable limits, as well as voice over IP calling.

This is managed by operating two or three separate networks onboard the vessels, depending on the ship, with one for business, one for clients on the ship, and one for crew.

These networks are physically segregated, but are all terminated into the same communication line, so Seatrans notes that it is important to prioritise traffic and maintain strict policies with regard to what will and will not fall within the crew's 'reasonable limits'.

"We've done some hardware updates recently that will help in prioritising between the networks, but for the moment it's up to the captain to maintain reasonable levels – he knows which plug to pull to shut them down," said Mr Halvorsen.

"If there are PCs where the crew is doing too much traffic and he's not happy with what he's getting from the communications, he disconnects them. But we do block things like video or sharing services or that kind of thing anyway – we have a baseline of what is not allowed over the network."

"We have looked into specialised crew mail systems, though we find that everyone has a laptop and everyone has web mail, so we don't see a great demand for it. Some of the solutions provide extra things like free SMS and so on, which we're looking into."

Mr Halvorsen notes that the availability of Norway's ICE system has really made a difference to the level of communications the vessels will manage, estimating that the company's vessels connected to that service will pass traffic of between 5 and 10 GB per month.

"Some are pushing the 15 GB limit after which you pay more (for ICE) – and then we've had 30 GB above that," he said. "So it's highly vessel dependent."

"When we started rolling this out we created a set of rules so they know what they're allowed to do and not allowed do, and we can pull reports showing what they're doing. It's easy for us to just talk to the captain and tighten things up if necessary – you need to stay in control."

"We're also working together with our providers of satellite communication, and they're actually blocking certain things and stopping them from going over the line as well. We're also looking at optimisation but we're not quite there yet. We have a couple of test sites that we're due to implement a system on, but haven't gotten to it yet."

Seatrans does try to be as relaxed as possible in not blocking too many applications that its seafarers may wish to use, however there is one program that is strictly prohibited – Skype.

"Some vessels are harder to manage than others, it depends on the situation and the crew involved, but as far as Skype goes – no way," said Mr Mohn.

"There's no way we're allowing Skype

on our networks. I don't want to be responsible for 20 Skype supernodes floating around utilising bandwidth, and all the problems that may cause. We don't allow Skype in our main offices either."

"Other than that, when it comes to rules and regulations on what you're allowed to do on the local client, since we can reinstall a client pretty quickly we're not really rigid about changes – we just inform them that any changes they have done locally without permission will be lost when we reinstall anyway."

Next level

Having worked hard to achieve all of these changes and begin moving to a highly standardised vessel network infrastructure, Mr Halvorsen says that he and his team will continue to pursue the concept even further to maximise the investments it has made in the project.

"We would like to have the same standard set-up in these sophisticated branch offices and on the shore side, so we're actually adapting this back to the shore side," he said.

"If they can have it, we can have it. We believe in living in the same world as they do on the vessels, because then we can all improve and get the best out of the systems."

"There are still some standard Microsoft features that we would like to utilise better than we do at the moment, and we didn't quite get it right with back up and recovery on the vessel side, so we're working to improve that."

In addition, and despite already sending multiple gigabytes of data to and from its vessel networks, Seatrans intends to pursue further standardisation on the communications side, moving to strict IP based communication in all instances.

"All of the applications we are putting on top of this infrastructure work better with IP, so this will allow us to use modern efficient solutions providing fast and accurate data," said Mr Halvorsen.

"That will contribute to improved safety and both time and cost-savings, as well as helping us to provide our customers with required information, such as automated status reports, and so on."

The vast scale of the project that Seatrans has undertaken, and is continuing to pursue, is, in Mr Halvorsen's estimation, a great example of the level of technological sophistication that can be managed by even a small team of just three people.

"Not everything is perfect – but we are getting there!" he said. "We are pretty excited about what we have achieved – not to mention the future."

"We have managed to take control of a pretty large IT infrastructure, on the shore side and on the vessel side, with what are too few resources, if you ask me. We have become more efficient in how we are running our IT systems, cutting the need for IT travel, and run the IT systems with a minimum of man-power – thus getting more out of our investments."

"If we take a look at how we used to do things, how we changed and where we are headed, I think it's a good indication of what we have achieved – providing a better, more robust, reliable, predictable and modern IT platform to all our users."

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Choosing a VSAT vendor

What's the best way to choose a VSAT vendor? For the Møgster Group the answer was to create a new company that could manage its negotiations with suppliers and find a single vendor to meet all of its needs

aking satcom decisions within a group of companies, with a variety of vessel types and trading areas, can be an awkward process.

There are two obvious routes that can be followed - specialise or standardise. Each has its pros and cons. Specialised systems may put the most suitable system on a particular ship, but standardised purchasing can offer a stronger negotiation position and easier support.

So what's the best approach to managing this process and making the optimal choice? For the Møgster group, which is the primary owner of DOF ASA and Austevoll Seafood ASA, the solution was to create an entirely new IT company that would take responsibility for the process.

And so, Marin IT was born a little over a year ago, to provide IT services to internal customers in the Møgster group. Marin IT is majority owned by DOF, with Austevoll Seafood holding a minority shareholding.

As Tor Skeie, managing director of Marin IT, describes it, the aim of creating this independent unit was to harness skills from the group's different sectors into one place and spread the benefits as far as possible.

"Primarily it was to get control of all the IT, utilise economies of scale and use cross-knowledge of systems for the different types of vessels in different sectors. IT is IT, we just deliver the applications and solutions they need," he said.

"It's about economy of scale, but at the same time it should lead to better control of the IT in general. We did have control before but there were too many different IT departments and they were each going in their own direction. We need one way of doing this."

"In the company we have about 60 people working in IT, so it's among the bigger IT companies on the west coast of Norway."

One of the first major tasks for Marin IT after its formation was to look at the satcoms in use aboard the company's ships, and see if it would be able to broker a deal that would take advantage of the group's buying power.

"One of the processes we introduced internally when we started Marin IT was to see where it was possible to get synergies. We started this by getting RFPs (requests for proposals) with regard to satellite communications," Mr Skeie explained.

"The companies are growing quite a bit, and there are new vessels every year. They are being situated in different parts of the world."

"It's possible for us to have 100 people working onboard a vessel. For the marine part of it we had approximately 20 computers, four servers, dual antennas (VSAT and Fleet 77). More and more we're also putting in entertainment systems as well onboard the vessels."

Vendor proposals

To try and find a provider that could meet its various requirements Marin IT sent RFPs to a number of different VSAT vendors in May 2010, with the intent of receiving responses quickly from the suppliers, over the following few weeks.

By the end of June the company had received its answers on the RFP from the suppliers. These tenders were analysed during the summer, and in August a number of face to face discussions were initiated with selected suppliers.

Mr Skeie notes that, during this phase, Marin IT was very keen to try and distance itself from prior relationships that may have developed between the group's different units and their existing vendors.

"We tried to have a process where we didn't have a 'personal touch' on it, but tried to do it strictly 'by the book'," said Mr Skeie.

"I think it is very important to have good internal processes, it is important that when we are connecting three or four different companies and all of them have their own different vendors, we'd like to be able to control it and negotiate one vendor and one way of working."

"Our mantra is to standardise, and standardise, and standardise. That's the only

The schedule that Marin IT had envisioned would have seen a final commercial agreement in place at the end of September. However, as discussions continued this was delayed as the company made sure it was meeting all of its requirements, with agreements only finalised in December 2010.

"We had a process to try and do this, we tried to get it done by September and have a finalised agreement," said Mr Skeie. "To do this we had created a list of questions we wanted to ask the vendors."

"Before we got any answers we got a structure in place to decide what we needed, how we'd get it, why we'd get it. We got all the vessel managers and fleet managers around the world involved to get agreement and help the team to have the proper knowledge of the demands of our different vessels."

"We have to handle everything from a fishing boat with systems that are not that advanced, to really high-tech boats. There are different demands, but we wanted to work with one structure."

Following this strategy, and conducting a thorough investigation of internal processes, took more time than Marin IT had expected, but the results have been worth the additional time invested.

"We learnt quite a bit - we thought when we started the process that it would be easy," said Mr Skeie.

"We had some technology brands that were our favourites, but we didn't want that to influence us - we built a matrix to put all of the answers in based on the weighted groups of questions we had given."

"This way we had a structure in place before we actually talked to the vendors,

DOF is expanding the use of VSAT across its fleet





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SATCOMS



The three separate onboard networks connect to a firewall and WAN optimiser before reaching the VSAT router

and had a clear understanding of what we needed."

New networks

Following this process Marin IT agreed a deal with Marlink to install a range of IT networks across different vessels in its fleet, with a range of VSAT options depending on particular requirements.

The smaller fishing vessels, for example, are using a solution based on DVB-S2 technology using iDirect as the platform for the carrier, on Ku-band.

On some of the larger vessels the technology used to carry the traffic from the vessel side to the shore can be either Kuband, C-band or a mix of both, with some ships having dual antenna solutions onboard. These systems are deployed dependent on where the vessel is expected to be operating.

All vessels have dedicated phone lines, an administrative network, and a crew welfare network. In addition, another separate network has been introduced that is not part of the admin LAN or the crew

network, with traffic on this network shielded from what's going on on the rest of the vessel.

So, for example, if there is a problem with the crew network, where perhaps a virus has been introduced, this will not affect the other networks.

Traffic is routed via three Marlink teleports, one in Europe, one in Asia and one in the US, with a fourth available as a back up.

The teleports are connected to Marlink's own communications backbone, but are also directly connected to the Marin IT wide area network (WAN), so there are two different routes available from the vessels to the offices on shore.

The main route will be direct to the Marin IT WAN, and then distributed to the various offices, but the backup is available should there be any problem with that primary channel.

The network onboard the ship features a system to connect the vessel operator's own customers when they are on the ship, which can be kept completely separate, with separate provisioning of bandwidth and separate billing.

The parameters of what is available via this network, over the VSAT, is controlled by Marin IT - a factor which was of primary importance to the company when selecting a service.

"We are controlling everything in this, and that's important to us. We are using vendors, but we are in charge of it and we have the technology onboard - we own it and we're able to buy whatever we need," said Mr Skeie.

"What's important is to be as efficient as possible, so we use optimisers to optimise our traffic. By using this technology we get more efficient use of the capacity of the satellite communication."

All of the vessel networks route to an onboard firewall, before traffic passes to a WAN optimiser on its way to the VSAT router.

A similar firewall and optimiser set-up is also in place on the shore side, to make sure that traffic flowing to the ship is also well managed.

"As an example, on one of the vessels where we have optimised traffic well, over 6 months we measured a 50 per cent reduction in transferred traffic," notes Mr Skeie.

For this particular ship, the 14.8 GB of traffic that was required to be sent over the period was compressed down to only require 6.4 GB to be sent over the satellite connection - which Marin IT calculated as a 2.34 times increase in its WAN capacity compared with an uncompressed data flow.

The total data compression of 57.2 per

cent for the 6 months also showed a peak of 92.3 per cent compression in one instance - demonstrating the capabilities of this technology in improving the efficiency of the network.

"This is a way for us to utilise our knowledge and our network in the best way possible," said Mr Skeie.

Next stage

Following its early experiences after the introduction of this new satcom environment, Marin IT has recently extended its relationship with Marlink through a new three year contract for its DOF vessels.

As part of the new contract Marlink will supply VSAT services to an additional 20 vessels, increasing the total number of DOF vessels sailing with Marlink VSAT to 52.

This will include the delivery and installation of C-band and Ku-band services providing dedicated bandwidth onboard 29 DOF vessels, and shared bandwidth on 23 vessels.

Mr Skeie is confident that these systems will continue to deliver the benefits that Marin IT was set-up to introduce.

"Marlink's VSAT systems have proven to provide high quality bandwidth and reliable connectivity as well as flexible services, which can be customised to meet specific requirements," he said.

"I am confident that our renewed relationship with Marlink's very experienced engineering team will enable us to significantly expand our satellite communications capabilities moving forward." DS

Otesat launches vessel e-mail service

www.otesat-maritel.com

Otesat-Maritel has launched its MailOnBoard system for shore-to-ship and ship-to-shore e-mail communications.

MailOnBoard operates via Inmarsat, Iridium and VSAT satellite systems, using dial-up or broadband internet connections.

Otesat says it is capable of reducing the size of incoming or outgoing e-mails by up to 90 per cent, depending on file type, through the use of an in-built compression mechanism.

The service also provides corporate domain name hosting, and runs on a reg-

www.kt.com

www.speedcast.com

Korean telecoms provider KT has signed

an alliance agreement with satellite serv-

ices company SpeedCast, to deliver glob-

al maritime network services for its mar-

itime customers via SpeedCast's Ku-band

SpeedCast will provide access to its Ku-

band maritime network for KT's mar-

itime customers, for which KT will pro-

vide SpeedCast with access to its own

Ku-band coverage along the Korean

coastline and beyond, using KT's

As part of the alliance agreement,

network.

ular PC with support for MS Outlook, Outlook Express, Mozilla Thunderbird or other SMTP/POP3 clients.

The installation file required to install the service is 1.17 MB (in zipped format), and can be sent to the vessel by e-mail or on a CD.

Otesat says that MailOnBoard will also provide remote management and control functionalities to administer vessel e-mail communications via a web interface accessible through the public internet.

Using the web interface customers can create black and white e-mail lists, enable their own security rules and control the e-

KT and SpeedCast in Ku partnership

mails sent and received by the vessels.

There is also an option to limit the size of incoming or outgoing e-mails, keep track of all incoming or outgoing e-mails in real time, log all e-mail communications (before and after compression), and automatically forward e-mails.

A tool to identify words in the subject area, for both shore-to-ship and ship-toshore communications, is additionally built-in, to automate data extraction to Excel files.

Protection is provided through antispam and anti-virus services running on Otesat-Maritel's network.

CETel buys SeaMobile Europe

www.ce-tel.com www.seamobile.com

German teleport and satellite service provider CETel (Central European Telecom Services) has entered into an agreement to acquire SeaMobile Europe.

The deal was expected to have closed by April 2011.

SeaMobile Europe is a part of SeaMobile Inc, and offers a range of VSAT, Iridium and Inmarsat satellite services.

With this imminent acquisition, CETel says it will expand its service portfolio and customer base to consolidate its market position in Africa, where SeaMobile Europe has a number of government contracts, and the Middle East.

The migration of all involved services and personnel is expected to be finished by the end of the second quarter this year.

"With CETel, we found the right partner with existing teleport infrastructure in Europe to take over our European Operations, which will allow SeaMobile Europe to expand and to improve their services with a great benefit for their existing and future customers worldwide," said Bradford Briggs, senior vice president and general manager of MTN's commercial shipping & energy services business, and president of SeaMobile Europe.

"At the same time, SeaMobile Inc and MTN can further concentrate on their core markets and services within the global maritime communications area."

Koreasat 5 satellite.

The two companies will link their teleports and satellite hubs to improve the resilience of the services, as well as delivering expanded coverage.

In addition, the two companies have agreed to closely cooperate to further develop their maritime businesses.

"This business alliance between the two companies will give great benefit to our international maritime customers, with the ability for them to roam globally along the major shipping lanes," said Kwon Yeong Mo, senior vice president of satellite business unit, KT Corporation.

"This partnership with SpeedCast rep-

resents an important step forward in expanding our maritime portfolio to include a global satellite network based on Ku-band services."

part of its global service expansion.

KT," he said.

"We are delighted to have them as part

Nick Dukakis of SpeedCast also commented that this new business alliance with KT demonstrates the importance of the Korean maritime market as a strategic

"It is another milestone in our continued pursuit to expand our global network coverage and service by partnering with 'best in class' companies such as

of our maritime alliance."

SOFTWARE NEWS

Digital Ship

Höegh Autoliners to install Softship software system

www.softship.com

Maritime software provider Softship has won a contract with Höegh Autoliners to replace the vessel operator's core business systems with a new company-wide software solution.

Höegh Autoliners operates a fleet of around 50 PCTCs (pure car and truck carriers) managed from about 30 offices world-wide.

Höegh recently invited tenders to replace its existing software systems with a new solution that would be capable of handling its full range of business processes, from scheduling to invoicing.

"Our corporate aim is to be a truly global, cost efficient operator providing portto-port transportation services that meet the requirements of our customers," said Daniel Lusby, project leader at Höegh.

"Achieving consistent quality throughout the company is a top priority. Implementing the Softship solution will take us further towards this goal as it replaces four independent software systems with a single, integrated solution."

"Many processes will be automated, data will be reused, duplication will be eliminated and efficiencies will be created throughout the company."

Mr Lusby says that the company is now in the analysis phase of the implementation process and is working with the Softship team to tailor the software to match its exact requirements, building in additional functionality as required.

The companies expect to go live with the new software in early autumn.

"We are delighted to have been selected from a competitive tender process to implement our Softship Liner Management (LIMA) solution into Höegh Autoliners," commented Thomas Wolff, Softship executive director.

"The company carries around 1.75 million car equivalent units (ceu) and makes about 3,000 port calls a year. This is exactly the operating profile that our software was designed to streamline."

"I am looking forward to demonstrating to our new client the range of efficiencies we are able to bring to their company."



Höegh Autoliners expects to go live with the new software system in early autumn

www.mirtac.nl www.sismarine.com

Seatec installs

software package

MirTac reports that it has successfully completed the implementation of the Star IPS asset management software package from Star Information Systems for maritime company Seatec.

Seatec Underwater Systems B.V. provides worldwide technical solutions and services to clients in various sectors, including offshore contractors and shipyards.

"With Star IPS, all condition based and preventive maintenance tasks are well managed, and safety procedures and documents thoroughly integrated and monitored," said Johan de Bie, general manager at Seatec, commenting on the deal.

"MirTac and our dedicated staff translated all relevant technical data into transparent procedures and instructions. Spare parts are now easily managed and can even be automatically ordered."

"Our key staff is very enthusiastic about the achieved transparency and enhanced operational efficiency. That alone already saves us time, reduces errors considerably and results in cost reduction. Moreover, we are now able to monitor our performance at different projects and customers."



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BGP Marine CNPC to install Tero Marine

www.teromarine.no

Tero Marine South East Asia has signed an agreement with geophysical service company BGP CNPC for the implementation of Tero's software system.

The agreement covers delivery of the TM Master Fleet Management Suite to BGP's offices in Singapore and its head offices in China, as well as installation of TM Master on the company's fleet of six vessels.

Modules covering planned mainte-

nance and inventory, spare parts and purchasing, consumables and catalogues, and crew management will be included.

The implementation process has already begun, with the first task being installation of TM Master in the offices and upgrading one of BGP's vessels from TM Master V1 to TM Master V2.

The project is expected to be completed during Q2 2011.

"We are very excited about this project," said

Stig Arne Nordstrand, technical manager of Tero Marine South East Asia.

"We are looking forward to having the system up and running in the offices and on the vessels, so they can start exploring the benefits which lies in the programs."

Tero Marine is also now in the process of launching a new expanded version of TM Master, containing new modules, expansions of existing modules and other new functions and features.

New modules for voyage management, trend analysis, work permits, risk/ consequence analysis and crew hours management will all now be available through the software package.

Tero's TM Procurement software system will additionally be integrated into the TM Master Fleet Management Suite, which will mean that all purchasing functionalities and data will be available in the Fleet Management system.

The softwares will share a common database and common address list, with streamlined replication to facilitate the sharing of data.

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BGP will install Tero software on six vessels, with Tero also in the process of launching an expanded version of its application package

NSCSA completes ERP implementation

The National Shipping Company of Saudi Arabia (NSCSA) has successfully completed the implementation of an Enterprise Resource Planning (ERP) system from Oracle.

The system was implemented by EJADA, an IT solutions provider in the Middle East and North Africa, and will be used to define and measure the company's Key Performance Indicators (KPIs), and provide reports for strategic decision making.

Implementation of the ERP system completes the initial stage of NSCSA's 'Manarah' IT strategy, under which the company aims to introduce the latest technologies, systems and applications to support all its business sectors, to promote growth and improved services. With the ERP in place NSCSA will now have a unified budget system based on Oracle Hyperion, which will be used to prepare and supervise the annual budget, and provide reports on overall expenses and incomes according to the approved budget.

Unified reports of the company's financial position, cash flows and income statements, including other financial reports that depend on the direct electronic link between the main corporate systems and the company business units systems, will also now be available.

"This achievement represents further advanced steps in the journey of the company and its development," said Saleh Al-Jasser, CEO of NSCSA.

"Before the implementation of these

systems [the company] had restructured the business processes for the purpose of improving them to ensure (it could bridge) the gaps between the current practice and the new system's needs, and in a way that is consistent with the nature of the company activities."

"(We will now focus on training) the users of these systems so as to ensure optimum use of this new technology applied."

The company says that it plans to expand the usage of the new systems even further over the course of this year, as part of the second phase of the project.

NSCSA will also work to establish new projects such as a backup Data Centre, to ensure the continued availability of critical systems around the clock.

MarineCFO launches version 3.0

www.marinecfo.com

MarineCFO has announced the release of Enterprise Version 3.0 of its fleet management software system for the maritime industry.

The new version provides a configurable software solution based on the MarineCFO Business Framework, a toolset used to develop and improve all of the MarineCFO products and ensuring controlled development and consistency across the interfaces and coding methodologies.

All of the products are built with mainstream Microsoft technologies, including the .NET framework, SQL Server, the Windows Communication Foundation, and Microsoft Office.

New features include an amortized pay option for employees working shifts, as well as updated scheduling for employees working partial days.

A new Batch Manager allows users to post, print, and distribute documents from a single screen, while a Business Rules function can be run to validate information.

Security has been upgraded to include access control via user permissions, while an integration manager has also been introduced to aid in connecting the system to other software packages, such as a corporate ERP system.

The on-vessel application now offers increased functionality in the areas of maintenance, purchasing and scheduling, with configurable packet sizes to reduce bandwidth costs and offer tighter integration between the vessels and the shore.

"As we have seen, the global workboat market can change in an instant and marine transportation organisations require technology that will not only improve their efficiencies and streamline their operations but are also capable of changing as their business evolves," says Joe Galatas, president of MarineCFO.

"We have worked with our customers on Version 3.0 to improve integration and flexibility, all while keeping the product highly customisable to meet the needs of different clients."

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MarLiant system ready for first deliveries

www.netwavesystems.com/marliant

NetWave Systems reports that it has begun the first deliveries of its MarLiant system, after a three year development and testing period.

The MarLiant system features a multi-user Windows environment using thin client-server technology incorporating dedicated service-processors, which the company says can be used to provide a "fully redundant" IT system specifically designed for the maritime environment.

A typical system consists of a single, fully redundant application server using

Windows Server 2008, in conjunction with a number of solid state Thin Client workstations (measuring 75 x 75 mm) mounted throughout the vessel.

The system replaces a network of shipboard PCs and laptops, which NetWave says helps to reduce vulnerability to viruses or other types of abuse, as well as simplifying repair and update procedures.

NetWave opened the order book for this system during the final quarter of 2010, and the company says it has already received orders for more than 100 shipboard systems to be delivered during the first half of 2011.

MarLiant – aiming to offer network redundancy

Online seafarer psychometric testing launched

www.seagull.no

Seagull is launching an online version of APRO, a psychometric ability test tool aimed specifically at seafarers.

The company says the system could help to address what it calls "the shipping industry's 'Achilles heel' where safe practices are concerned."

Segull believes that too little emphasis has been placed on the ability of people onboard to handle newly introduced safety systems and procedures, and hopes that this system will go some way to addressing this problem.

APRO was initially developed as a psychometric ability test in the mid-1980s as part of a project led by the Norwegian Marine Technology Research Institute and supported by the University of Oslo, DNV and the Norwegian Shipping Association.

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."

Seagull expects the online APRO test to be used as a recruitment tool, especially when recruiting cadets and junior officers, and also as part of the promotion process or to measure capabilities at set intervals to ensure there has been no deterioration in a crew member's performance.

APRO could also be employed after accidents as part of the investigation process to determine if mental ability played a part in the incident.

Seagull training content director, Captain Bjarke Jakobsen, commented, "It is fine to develop technical solutions and procedures, but what about the people who operate and implement them?"

"Shipping companies need to know if their onboard staffs are capable of absorbing information and following procedures in a way that has the desired safety outcome."

APRO is suitable for shipping companies of all types, but Seagull notes that it could 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.

DNV testing green shipping

www.dnv.com

DNV reports that it has completed the development of a supply chain performance tool, together with partners in the MARLEN project, for calculating the environmental impact and energy efficiency of maritime logistics chains.

The company says that the two case studies it used to evaluate the tool have demonstrated how increased use of shipping can achieve environmental and financial benefits for the supply chain as a whole.

The Maritime Logistics Chains and the Environment project (MARLEN), established in 2008, has developed tools to map environmental performance of a logistics chain ('As-Is') and to evaluate the potential consequences changes in parts of the chain may have for the chain as a whole ('What-If').

The tools were tested on Höegh Autoliners' multimodal distribution system for transporting new cars from the production plant to inland distribution centres.

A model was developed to optimise the total distribution system on a cost only, environmental performance only, or weighted combination basis, changing parameters such as the number and location of ports, type of ships, sailing frequency and the use of rail or road inland.

The results showed that costs and total energy consumption could be reduced when the proportion of transportation performed by ships was increased.

A second case study analysed Statoil's logistics for moving well and drilling equipment from suppliers to oil platforms, including the logistics of returning equipment for maintenance.

Among the changes tested, the effect of moving more of the transport volume from road to sea was seen to provide a number of benefits.

Line Kaldestad, logistics manager at Statoil, said that MARLEN's findings helped to expand the company's efforts in green logistics.

"The results of the project improved our understanding of the supply chain from an environmental perspective and we will use them in our efforts to achieve more environmentally friendly logistics practices in future," she said

DNV notes that the study also revealed that, in general, there are systematic flaws in charter agreements that do not encourage commercial parties to choose the most environmentally desirable transport options.

"As logistics operators face increasing pressure to improve their environmental performance, the risks of introducing suboptimal solutions rises," said Per Holmvang, DNV's environmental programme director.

"Solutions that have a positive environmental impact on one aspect of the logistics chain may adversely affect other parts, requiring the comprehensive approach achieved through MARLEN."

Other participants in the MARLEN project were MARINTEK, the Scandinavian Institute of Marine Law at the University of Oslo and the Wikborg Rein legal partnership.

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KM

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SOFTWARE NEWS

UK tanker installs planned maintenance system

www.marinesoftware.co.uk

Marine Software reports that it has supplied its MPM - Marine Planned Maintenance system to UK-based John H Whitaker Tankers, to be installed onboard the company's latest 2,779 dwt bunker barge 'Whithaven'.

Whitaker Tankers is a fuel transportation company operating a fleet of inland barges and sea going tankers in UK and European waters.

John H Whitaker's two technical offices in the UK, in Hull and Southampton, had already been equipped with the shore based version of the software, OPM -Office Planned Maintenance.

Installation of the vessel system will allow the Whithaven to be connected to both offices via an upgrade from the Marine Software website.

Once updated, regular data transfer updates from the new vessel will be emailed to the main technical office for overall management review.

This latest software delivery brings the number of Marine Planned Maintenance

systems delivered to Whitaker to ten, with Marine Software supplying the tanker fleet for the last ten years.

Whitaker Tankers said, in a statement: "The Marine Software Planned Maintenance System was an ideal choice for our tanker fleet, as it offers ease of use and simplicity for the crew." "Good quality management reporting is easily accessible from our central fleet office system, ensuring we keep up-todate with fleet PM status. The software is backed up by rapid technical support from Marine Software, so we had no hesitation equipping our latest tanker with this product."

John H Whitaker's latest tanker will run the Marine Software system

Sensor system to measure impact of anti-fouling coatings

www.jotun.com/hps

Jotun Marine Coatings has launched a Hull Performance Solutions service, which it says will offer a "money-back guarantee" if significant reductions in fuel consumption are not achieved by combining the use of software based monitoring tools with its latest antifouling coatings.

Jotun's silyl acrylate SeaQuantum range of antifouling coatings has been in use since 2000. However, the company says that it has until now been difficult to gather evidence of the coating's ability to reduce fuel consumption without measureable data for individual vessels.

Following a three-year study, Jotun

says it has now developed the monitoring tools and analysis method it required to prove its coating's ability to lower fuel costs over time.

"By using sensors to capture information from different data points, we have a basis to calculate fuel savings over time," says Geir Boe, divisional vice president, Marine Coatings.

"Based on these data, Jotun can offer HPS customers a guarantee that SeaQuantum X200 will provide a clean hull and less than 1.5 per cent speed loss or a maximum 4.5 per cent increase in fuel consumption over 60 months, compared to the condition of the vessel after dry-dock."

"Either we deliver on high perform-

ance, or we return the additional investment in SeaQuantum X200. That's how confident we are."

The measuring and analysis system developed by Jotun uses a set of sensors to measure shaft power, vessel speed, wind and draft. Once the data is collected, Jotun can plot the speed deviation relative to the vessel's speed performance after dry-dock.

Jotun says that a long trend analysis of the hull performance provides a reliable statistical foundation for the performance guarantee for SeaQuantum X200.

"Jotun is the industry's first marine coatings manufacturer to back fuel reductions claims with a guarantee, based on verifiable results," said Mr Boe.

Gunvor goes electronic on safety data sheets

www.essdocs.com

Gunvor International has signed up to use electronic Safety Data Sheet (eSDS) Services from electronic documents provider Electronic Shipping Solutions (ESS).

ESS says that eSDS services enable users to comply with global and regional legislation requiring the production and distribution of Safety Data Sheets electronically, rather than using the more traditional paper-based method.

SDS compliance obligations require cargo owners to manage, send, track and store multi-lingual safety data sheets when hazardous cargoes are transported.

Gunvor International will use the service to comply with the requirements of the Registration, Evaluation, Authorisation and Restriction of Chemical substances (REACH) regulations, and the Globally Harmonised System (GHS).

The electronic nature of the documents allows an eSDS to be automatically re-sent should a safety data sheet change. In addition, the eSDSs are stored for 10 years with a full audit trail of all recipients and readers.

Users can build their own proprietary library of eSDS material or take advantage of a shared library maintained by SGS.

The electronic documents are generated and managed online, via the ESS Databridge- eDocs Exchange.

"We are delighted to welcome Gunvor International as the 25th customer of our eSDS Services," said Alex Goulandris, chief executive officer of ESS.

"eSDS has already been shown to provide real value to users such as Gunvor who need to be compliant with current regulation but also wish to increase their efficiency in document management processes."

Q88.com integrated with Suncor

www.heidenreich.net

Heidenreich Innovations reports that it has completed a project to integrate Suncor's vetting system with the questionnaire system offered via Heidenreich's Q88.com service.

Ship operators using the system are required to complete the Suncor questionnaire on the Suncor Marine Risk Management System prior to each fixture.

The integration of the two technologies will enable these ship operators to populate their responses to the Suncor questionnaire with the vessel data stored in their Q88.com account.

"Questionnaires are an integral part of the pre- fixture and vetting process," said Fritz Heidenreich, president of Heidenreich Innovations.

"Integrating with Suncor is an added benefit for all the parties involved and will ensure that the vessel can be vetted in a timely manner."

Fuel management system to assist in ECA compliance

based on the company's Diesel Switch

DSMK II, which it says is aimed at helping

shipping companies comply with IMO

environmental regulations.

www.jowatechnology.se

JOWA Technology reports that it has developed a new fuel management system

A computerised control system allows the switch to change fuels during a voyage

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The DSMK II is a fully-automated switch over and blending system, approved by Germanischer Lloyd. The system mixes HFO and low-sulphur MDO/MGO to achieve the correct sulphur content for traffic in Emission Control Areas (ECA).

JOWA says that this also results in lower fuel costs and increased operational reliability.

The new automated fuel management system consists of a diesel switch with sensors and intelligent computer control, which can change fuels during a voyage without any interruption to operations as well as mixing the HFO and low-sulphur fuel in the correct ratios.

The diesel switch has an integral documentation system, which logs all information about operation, fuel and times to demonstrate compliance with requirements.

The information can be presented and delivered as a printout or on data media, and may also be viewed on screen.

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ABS in software joint venture

www.abs-ns.com

Herbert Engineering Corp (HEC) and class society ABS have entered into an agreement to form a joint venture company, Herbert-ABS Software Solutions, LLC.

Herbert-ABS will offer software design tools to the maritime and offshore industries, as well as loading and salvage analysis packages, supporting Herbert's existing product range which will be owned by the new company.

Development plans for the joint venture in 2011 include an enhanced containership stowage module, performance monitoring and optimisation tools, and a load management, condition monitoring, and emergency response package for offshore vessels and structures.

The latter product will be integrated into a Rapid Response and Damage Assessment (RRDA) service to be offered by ABS to the offshore industry.

A board of directors representing both HEC and ABS will be established, including Karen Hughey, president of ABS Nautical Systems, Todd Grove, chief technology officer of ABS, Keith Michel, chairman of the HEC companies, and Robert Tagg, president of Herbert Software Solutions.

"The integration between HEC's and ABS' software programs bridges the design, classification and operational management aspects of vessels and offshore units," said Christopher Wiernicki, president and COO of ABS.

Survey hints at desire for crew management software

www.crewinspector.com

CrewInspector.com has conducted an online survey asking visitors to its corporate website to reveal how they manage their crewing, and whether they are using specific crew management software.

The survey results showed that 37 per cent of visitors are still looking for a crewing solution, while 27 per cent of visitors are installing systems on their personal computers, rather than having

Crew management software survey

The CrewInspector.com survey showed that most respondents are interested in a better crew management software system

integrated systems.

19 per cent of respondents revealed that they use systems installed on a PC combined with web based communication with other offices and vessels, and only 17 per cent of visitors are using online solutions for the crew management process.

CrewInspector.com says that the majority of those surveyed that are still looking for a crew management solution currently deploy various alternatives, such as using Excel sheets and Word documents or similar solutions to manage day-

to-day crewing operations.

Approximately 64 per cent of respondents representing ship operators and owners, ship management and crew management companies said they would potentially switch to online based crew management software, or would like to eventually replace the manual processes which are at present utilised offline in their companies.

MAN to implement Shipdex software

www.spectec.net

SpecTec and CORENA have announced that MAN Diesel & Turbo has agreed a deal to purchase the AMOS Shipdex Data Manager system, to assist in the creation of Shipdex datasets.

"More and more ship-owners require maintenance manuals for new ship acquisitions to be Shipdex compliant," said Henrik Striboldt, business development manager, MAN Diesel & Turbo.

"MAN Diesel & Turbo wishes to meet such requirements the best way possible. We have therefore ordered the AMOS Shipdex Data Manager, enabling us to validate that our maintenance manuals are in compliance with the Shipdex protocol."

The AMOS Shipdex Data Manager is a component of the AMOS Shipdex Suite, developed under a cooperation agreement between SpecTec and CORENA whereby the companies will work together in developing Shipdex compliant software applications.

"This order again proves the market acceptance of Shipdex in an industry with long product life cycles and differentiated information updates," said Toralf Johannessen, president and CEO at CORENA.

"MAN Diesel & Turbo is one of the major drivers in the Shipdex community, and we are extremely happy to welcome such an important engine manufacturer as a new Spectec/CORENA customer."

The Shipdex deal could soon see MAN equipment delivered with Shipdexcompliant documentation

Seaport agrees ShipDecision deal

www.shipdecision.com

Seaport Chartering Corporation is to install the ShipDecision software system from Stelvio at its New York brokerage.

ShipDecision is used to share information among business partners in the maritime sector, with the data, protected by encryption, accessible from anywhere an internet connection is available.

The software is used to process data, documents and communications related to each voyage.

"My team is using the technology to manage the high volume of information we receive via e-mail every day," said Seaport president Frank Messina. "The Message Watch feature is proving to be a very efficient way to ensure that we get to the most important information first."

Albert Carbone, president and CEO of Stelvio, notes that one of the main aims of the system is to be easy to use, to help users access their data in a simplified fashion.

"Information overload is one of the key business issues we tackled," he said.

"Our technology provides intelligent data triage enabling users to determine the type of information they want to be alerted to. They can even decide to have Watched List items forwarded to their Blackberries or smart phones."

Software deal for ABC

www.bassnet.no

Swiss company ABCmaritime has agreed a deal with Norwegian company BASS to install the entire BASSnet 2.7 software suite on a fleet of 40 vessels.

ABCmaritime, a family-owned company that has been in business for almost 30 years, manages ships, primarily tankers and offshore supply vessels, and is also involved in conversion and new building projects as well as shipping-related services.

"BASSnet will help us optimise our processes, strengthen our cost control, enhance and expand our activities, consolidate our company and branch offices and much more," said Daniel Tanner, coordinator and leader of the project at ABCmaritime.

The integrated software will comprise maintenance, dry dock, procurement, human resource & crew management, and document management modules.

ABCmaritime aims to use the software to assist in managing ship-shore communications, documentation and automation of various tasks, such as tracking and scheduling maintenance, managing drydock projects, enabling e-purchasing, monitoring crew scheduling and reporting key performance indicators (KPIs).

In addition, the safety management module (SAFIR) will be used to manage audit inspections and tanker vetting processes.

"The deal with ABCmaritime shows that more and more companies with a foothold in the offshore industry are realising the value of the integrated suite," said BASS CEO and managing director, Per Steinar Upsaker.

Pilot installations are expected on a number of ABCmaritime vessels by June, with full implementation on all vessels expected by the end of this year.

Jersey first for new SAR system

www.bmtargoss.com

Jersey Coastguard will be the first organisation to use version 4 of the Search and Rescue Information System (SARIS) from BMT ARGOSS, a technology designed to help pinpoint the location of persons lost at sea.

SARIS is an integrated Search and Rescue (SAR) planning tool, incorporating both Search Area Determination (SAD) and Search Area Coverage (SAC) and is used by coastguards, navies and port authorities all over the world.

A new electronic logging system has been added to the application, which will allow the Coastguard to keep track of all incidents at sea such as body recovery, vessel breakdowns and reports of pollution or flare sightings.

"This will be an incredible addition to

the tools we use when we launch a search and rescue operation in the territorial waters of Jersey," said Captain Rick Masterman, Coastguard and VTS manager in Jersey.

"Traditionally, we have used nautical charts and careful statistical calculations to help pinpoint the predicted movement of somebody or something lost overboard, which when coupled with the knowledge of the local tides is a very precise and skilled technique. This will now be supported by SARIS 4."

As well as the new electronic logging system, BMT Argoss says that enhancements have been made to the software's modelling processes, including the use of 'Monte Carlo' simulation techniques that integrate the beaching of objects, redeployable rescue units and simultaneous scenario assessment.

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Container ship study shows trim savings potential

A 136-day study by Eniram, collecting masses of sensor data aboard a globally trading container ship, has demonstrated potential savings of hundreds of thousands of dollars in fuel that could be made through the optimisation of vessel trim

Finish technology company Eniram has released the results of a study conducted on a container vessel to demonstrate the potential benefits and cost savings that can be derived from the use of trim optimisation technology.

The 5,500 TEU container vessel operated mainly between Europe and South America until it changed routes to also travel to Asia. The study lasted for 136 days across seven voyages.

The data for the study was collected using the company's Dynamic Trimming Assistant (DTA) which uses attitude sensors fixed onboard the ship, as well as information from the existing bridge and automation systems, to identify areas of energy loss relating to propulsion and examine opportunities for performance improvements.

DTA includes a software package which presents the key metrics to vessel officers on the bridge through a 'traffic light monitor' to dynamically monitor and optimise the trim (though this facility was not enabled during this project).

"A modern vessel has a lot of sensor data, good data, already being produced. But if that information is not reliable enough, not accurate enough or just not available, we complement that with our own sensors," explained Henrik Dahl, Eniram vice president of sales.

"We take all that real time data, up to 25 times per second, and process it to make it more relevant. The key thing from our side was to start with the propulsion information and isolate the detailed components of that – so we can say how much of the propulsion goes into currents, how much goes into waves, and so on."

"Naturally as we go through all of these components we will get to the trim. With the DTA we can analyse the real time status of that component, and so we can optimise the trim dynamically in every situation."

Mr Dahl notes that these effects can be more significant for a large-sized vessel that spends a lot of its time engaged in ocean voyages, where variations in trim can be quite severe.

"When it's compared to something like a Ro-Pax or a cruise vessel the draft variations are usually low and we don't see these kind of big variations, but with a container vessel, especially operating with different types of loads, full cargo or medium cargo, light loads, it means that you get much more variation," he said.

"We also have highly varying speed profiles, which means that the crew has a lot of variation to deal with."

"We could see from the data that the crew was trying to control the trim in specific areas, but it's really hard for them to figure out where the optimum is when there is this much variation."

Study results

Over the 136-day study the trim generally varied from minus 1 metre up to about 3 metres, though for the majority of the voyage the trim was recorded at somewhere between minus 0.5 metres and 1.5 metres – a 2 metre natural variation.

Similar information on the speed of the vessel showed that the speed at sea mostly ranged between 17 and 23 knots.

"We can see that the ship is not going at the speeds it used to before the fuel prices went up, not going at top speed, but we can't really say it's slow steaming either as it's in around 20 knots," notes Mr Dahl. study have shown that sailing at non-optimal trim is in fact the single highest cause of unwanted fuel use that can actually be managed, and that the average percentage of propulsion power loss due to non-optimal trimming was 5 per cent, whilst the vessel was on long, transoceanic legs.

"One thing you can control however is having the optimal trim, and we found that on the heavy legs having non-optimal trim made up 2.2 per cent of energy usage," said Mr Dahl.

"It's a small number, but for this size of vessel, when you think about the amount of fuel, then it becomes something important, it means good money and a good opportunity to save. For this type of vessel in these conditions, to save this much for a year in

Sensors around the vessel present voyage data for analysis, to calculate power consumption in various areas

Power usage varied greatly, depending on whether the vessel was engaged in heavy or medium displacement legs of its journey.

For a heavy displacement voyage of 5,333 nautical miles from South America to Europe, where the mean displacement was 76,464 tons, the trim variation was found to be 62 cm. Average fuel consumption per nautical mile was 0.23 tons.

An examination of how the propulsion energy for this voyage was used showed that 82 per cent was used for propelling the vessel. Wind and waves were also big impact factors, using up 6.6 per cent and 5 per cent of energy respectively.

"(Wind and waves) create quite a big use of energy, but these are things it is very hard to control – we are trying to but at the moment that kind of technology is not readily available!" said Mr Dahl.

Eniram says that the results of the

fuel would mean saving about \$200,000."

Given that Eniram is offering the system at a cost of about \$150,000 per ship, this saving would be enough to pay for the technology and garner additional returns. The system is a one time install, so there is no ongoing charge after this amount.

However, even more interesting results in terms of trim optimisation came on the medium displacement leg, for a voyage of 5,278 nautical miles from Europe to South America, where the mean displacement was 54,623 tons. Average consumption of fuel per nautical mile was 0.18 tons, and the trim variation during the leg was 106 cm.

In this case the vessel load was approximately 20,000 tons less than the ship was designed to carry efficiently – which had a significant impact on crew efforts to manage their power usage.

"When they go out of their comfort zone and operate in a way that the vessel was not designed for, the crew doesn't have that much accumulated information to try and deal with it," said Mr Dahl.

"In this case the amount of power lost to non-optimal trim rose to 6.8 per cent. If 2 per cent is enough to justify the investment in this technology, then at 6.8 per cent the operator really should be paying attention, this is a lot of money."

"If this was spread over even more vessels it would be really substantial."

Actual savings

Similar tests were carried out on repeated legs in different conditions over the course of the four months, resulting in a calculated average, for all of the legs, of a 4.4 per cent potential power saving from trim optimisation.

"This was just behind weather factors in power use, at 5.8 per cent, which we would also like to optimise though in some situations it's not feasible," said Mr Dahl.

"Of course there are route optimisation technologies and these things, and we are also investigating the possibilities of these technologies."

"But trim is one of the few things on the propulsion side where you can actually control it and save money. For a container vessel, particularly because it is operating with different cargos, this potential is quite high."

Of the potential 4.4 per cent improvement, Eniram says that it is not feasible to expect to optimise completely, and that the company has a normal target rate of usage of 80 per cent of the DTA suggested optimum.

In this case Eniram says that applying the DTA analysis onboard and making real time adjustments to the trim would have saved around 280 tons of fuel over the course of the study, equating to more than \$160,000 in savings for the vessel in less than 4 months.

This would also mean reduced CO2 emissions of approximately 880 tons.

Following this study the vessel in question was actually installed with the DTA system at its next drydocking, which gave Eniram the opportunity to directly compare the performance before and after implementing the technology.

With the system in full use on the vessel for over 500 days Eniram says that the vessel only had 1 per cent optimisation potential left, compared with the 4.4 per cent that was seen during the study – meaning that the actual fuel savings achieved through using the technology were confirmed as being just over 3 per cent.

"The customer themselves did their independent verification themselves too, to make sure they were taking into

Digital Ship

Analysis after installation of the trim management system at drydock showed that the vessel began to operate much closer to the optimum level

account everything to check and not just be relying on our results, and they also found they had saved 3 per cent," notes Mr Dahl.

"At today's oil prices that meant that they were getting about \$340,000 savings per year."

Fouling is, of course, another element that will have an effect on the power usage of the vessel and had to be taken into account as part of these calculations, and Eniram notes that its 136 day study also included fouling data to make sure that this was part of the power analysis.

From this study the company found that the effect of fouling for the container

vessel was relatively small, which it thinks was due to it often visiting ports in fresh water and spending most of the time at sea operating at high speed.

"Fouling does have an effect on any type of vessel, but it seems for the container ships it is not quite as much as the cruise vessels, for example," said Mr Dahl. "Certainly the effect is much less than

the effect of the trim on the performance." "The fouling will certainly, over time, reduce the performance of the vessel, but the fouling and the trim are not really related. It is important for the savings analysis though, when we compare before and after, we need to take it into account."

Into the market

Eniram says that the results of this study, and the subsequent real-life utilisation of its system, are quantifiable proof of the benefits of maintaining optimal trim and how it can not only provide the operator with key fuel and cost savings, but also significant reductions in emissions.

The company also notes that it has undertaken other similar studies following the initial container ship study, on cruise ships, RoPax vessels and a VLCC tanker, and plans to release those results in the future.

In the meantime Eniram has a 2011 target of reaching somewhere between 80 and 92 further installations of DTA by the end of the year. This would add to 43 installations last year, and bring the company close to 150 installations in total.

There are also plans in the works to introduce a 'lite' version of the technology that would come with a price tag lower than \$150,000, to cater to vessels in the merchant sector where power and fuel consumption may be lower and potential savings not of the same magnitude as its existing customers and ships like that in the study.

"This is one of the challenges when we present this to a new customer, we can't just say that 'you'll save 4 per cent' or whatever, there's always variations with different legs and voyages," said Mr Dahl. "Generally though ships using DTA

will be operating within 1 per cent of the optimal, which is pretty good."

"There is usually also a learning curve, as they start following the instructions and using the system, it won't immediately go to 100 per cent. And actually it will never really reach 100 per cent because you will have other guidelines or regulations you have to follow where you won't have optimal trim."

The company has also recently announced a deal with Norwegian shipping company Color Line AS to deploy DTA onboard the vessel Color Line M/S 'SuperSpeed 2'.

The SuperSpeed 2 has the capacity to carry over 1,900 passengers, 764 cars or 117 trucks, and sails twice a day between Larvik, Norway and Hirtshal, Denmark.

"We are excited to implement and operate Eniram's DTA on our vessel this spring," said Jan-Erik Pile, project director, Color Line AS.

"As this is a ro-pax vessel trading with high speed on exact route and timetable in 2011 as for the previous year, we will be able to compare fuel consumption improvements as a result of this installation relatively easily."

"We believe in Eniram DTA's display of actual and potential fuel saving as a result of longitudinal trim in real time directly to the navigators as an efficient way to minimise fuel and power needs for the voyage. If successful this will also be an important part of our strategy to minimise emissions to air, and could later be implemented on more of our vessels."

Eniram is hoping that this will be the first of many new installations as it looks to convince the maritime market of the savings potential of trim optimisation.

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Digital Ship

Selecting and implementing a new reporting system

As a tanker company with an expanding fleet, Jo Tankers knew that improving its management of data was a key element in maintaining the very highest quality standards – and set out to implement an integrated software system that would radically change the way it uses information

orwegian shipping company Jo Tankers operates a chemical tanker fleet with parcel tankers in worldwide trade, varying in size up to 37,000 dwt and designed to carry liquid products ranging from specialised chemicals and acids, to edible oils and potable alcohols.

As a major tanker company Jo Tankers commits itself to operating at high levels of quality and safety, subject to the demands of initiatives like TMSA (Tanker Management Self Assessment), IMO's Green Passport resolution, ISM and the Qualship 21 programme run by the US Coast Guard.

Meeting demands like these is not always a straightforward process. With offices in Bergen, Rotterdam, Houston, Singapore, Manila and Dundee, and vessels travelling around the globe, issues like reporting and documentation need to be managed with care and precision, so that the company's management can be sure that policies and regulations are being adhered to, and that its tankers are operating to the standard that is expected.

These demands are also set to increase in the last twelve months Jo Tankers has announced details of an extensive newbuilding programme that includes four 74,500 dwt panamax vessels, with two to be built in Korea and two in China, as well as a further two 30,000 dwt tankers to also be constructed in China.

With these six ships expected to come online by the middle of 2013, the reporting demands on Jo Tankers' vessels and staff is going to increase – and with it the pressure to make sure that data is handled accurately and in a timely manner.

To make sure that it would be in the best possible position to ensure its information management remained of the highest quality, Jo Tankers decided to move from its existing set-up towards a new, integrated software-based reporting system well before news of its newbuild projects was released.

"We had a paper based quality management system, on shore and on board, and this meant it was also very time consuming to keep the system updated," recalls Johan Isaksen, QA manager for Jo Tankers.

"Information flow had an unstructured format and did not allow for two way communication, that meant that if a report was made it wasn't possible to edit the report, and you had to do all the follow up by e-mail. This meant that it wasn't very easy to keep track of all the follow ups."

"In addition to that we had our audits, which are important since we're in the tanker business, which had minutes of meetings based on word and e-mail. It was definitely a challenge to keep track of all the information and to monitor vessel performance. This is all time consuming when you want to identify problem areas and see how you can do better."

Requirements

To proceed with its project Jo Tankers' first step was to gather a detailed list of the requirements of the various parts of the organisation with regard to the new system, to form the basis of its assessment of the available applications.

To do this a working group was established with representatives from departments within the company, including the operations department and the IT department.

One of the common themes that emerged from this process was that just reporting the information was no longer seen as being enough – the company wanted the reported data to be translated into trends and indicators that would drive improved processes.

"We agreed on some elements which we wanted the system to have. One of the top ones was a system for managing incidents (accidents, near misses and non-conformities) that would suggest improvements by creating statistics and trends automatically, which would also be less time consuming," said Mr Isaksen.

"In addition to that we wanted to have an audit inspection system which could also identify trends and show us where we had to improve and where we have our observation findings."

"Our risk assessment system was a template in Excel, and is an important part of TMSA, which we have to follow. This has always been time consuming, filing this and that, recording best practice and sharing it with the fleet."

The working group also wanted to expand the focus of what it could achieve with the system, to introduce new ways of reporting that would make management of operations easier.

"During this process our operations department also came up with some ideas to include a more structured way of reporting, for departure reports, noon reports, arrival reports, statements of facts, and so on," said Mr Isaksen.

"There were also meeting reports we wanted to have in the system, and we wanted to go electronic with our QA system to make it more visible. They also wanted information on port performance, port turnarounds, speed and consumption – all these things."

"An electronic archive is something we absolutely wanted. We need a system where we can focus on what we need to do rather than spending time on filing and searching through documents."

Outside of the software functionality, there were further business considerations that the working group wanted its vendors to be able to work under.

"We definitely wanted to have a system that was developed for our business, we didn't want to be a big contributor in developing a system for someone else," said Mr Isaksen.

"Giving input on improvements is one thing, that's ok, but the system needed to be well developed."

"We also didn't want to have to do an IT hardware upgrade. This started early in 2010, and 2010 was not a year to start changing IT hardware, even if the system was ready to be changed."

To improve efficiency in its management of information Jo Tankers decided to move from a paper-based to a fully electronic reporting system

In essence, the main aim was to use the new system to significantly improve work-flow between the vessels and office, allowing follow ups to be performed in each and every report within the system.

For Mr Isaksen, once this could be achieved the company would be working with a much improved structure and a significantly reduced amount of e-mail correspondence.

Application selection

With its list of requirements and conditions in place, the Jo Tankers working group went out into the market to review what was on offer. After a few months of investigation the company came upon the Vessel Information Portal (VIP) from Norwegian based COEX.

The VIP system works via a webserver locally on the vessel that operates completely within a web browser.

Once launched the user will open a page containing a 'soft news' section, that can be sent out to the vessel containing whatever kind of information the company might want. In Jo Tankers' case it displays a list of recent company news

Tabs along the top of this screen offer access to the various reports, statistics and other data generated by the software.

The tabs offer direct access to the Quality Management System, which is searchable to aid in finding particular procedures, and an improvement system covering the incidents, accidents and non-conformities – a function that was high up on Jo Tankers' list of 'must haves'.

"This includes a port register, and our improvement system covering all of the incidents and risk assessment, and all of this," Mr Isaksen explains.

"There is an Admin tab, which is helpful to have so if you see any issues, with reports for example, you could change templates, labels and validation to try and make it easier to fill in."

A Risk Assessment system automatically publishes new risk assessments conducted onboard or onshore, so the office staff can see all of the risk assessments and incorporate everything into company risk assessments – also a TMSA requirement.

"All our audits today, internal audits and external audits, are now being done in the new system," says Mr Isaksen.

"All observation and non-conformity findings are categorised so we can see where we need to focus – all the data is very easy to work with."

All operational and technical reports are now also all done within the software system, including position lists.

"The position list is based on the operational reports we are receiving from the vessels," said Mr Isaksen.

SOFTWARE

"We can see where the vessels are and the status, with an explanation of the status at the bottom of the screen."

That status is colour-coded so that vessel markers also indicate what type of message was include in the latest report from that ship - where red is a departure message, blue a noon report, white an in-port message, and green an arrival message.

"We also now have machinery reports to add to this, so it's a very useful tool," Mr Isaksen adds.

"The statistics and trends, covering all of this data, are now easily available from the system."

Audits and manuals

The layout of the improvement system is user-defined, with Jo Tankers setting up its software to display reports by vessel.

Clicking on a vessel on the screen will display details on audit inspections, incidents and non-conformities for that ship, as well as the status of these issues.

Audit inspections are set up by type, where clicking on that particular type of inspection will give you a list of colour coded recent and pending reports.

"Master reviews, CDI inspections, Internal Navigation Audits - they're all in here, and this is great to help us keep track of everything," said Mr Isaksen.

"Internal reports like superintendent visit reports, master reports, and so on, these things also have a 'story' function which lets us compare vessel to vessel and year to year. This is another tool which can

help to comply with the ISM code."

Further detail is available, with the user able to drill down to the actual report itself and see the data that was presented, and, with a non-conformity or observation for example, see what actions need to be taken to close the issue, and by whom.

"This all allows you to keep track of what you have done, and what you need to do," Mr Isaksen said.

Manuals are arranged by type, under headings like Policy Statement, Organisation, Procedures, Checklists & Forms and Circular Letters. Again, each heading can drill down for further detail.

Procedures, for example, will provide a further list of manuals for the engine room, or health and safety, or cargo handling, or whatever the area of interest is.

"There are manuals, as part of the quality management system, with a search function to help you find what you need," Mr Isaksen said.

"We had paper manuals before, but now we have a structured system with all of the policies for the company, job descriptions onboard and ashore, all of the different procedures."

"On board, the guys will only see the files that are relevant for them - this is a good way of keeping everything updated too, this is the way we are doing it and it's definitely an improvement on a paper system. If you need to have it on paper you can do a printout anyway, the vessels can select the mandatory manuals and procedures they have to print out and do that."

Installation

Having agreed a deal with COEX in February 2010 to roll out the VIP software to its tanker fleet, installation of the software proceeded at a rapid pace - to the extent that implementation was fully completed by the end of the year.

This process was assisted by the use of Norwegian based Palantir's Pandora@Sea technology, a hardware-based 'black box' which is used to manage installation and updating of software systems onboard ship.

Via the Pandora@Sea unit the software applications are available locally to the onboard computers, with one unit required per vessel.

"This 'black box' (delivered by Palantir) is a great thing, everything is inside the box so you just connect it to the server onboard," Mr Isaksen explained.

"You don't need to get the IT department involved, and don't have to worry about other IT hardware."

"It was easy to set-up, it's more or less plug and play. There was only a minor change in the computers onboard to prepare for the new system, and the vessel crews were able to do this themselves so it was an easy operation."

The only real challenge that Mr Isaksen notes during this process was in making sure there was a browser available onboard to access the portal.

"The roll-out went ok, we had to upgrade an Internet Explorer version, for example, but that didn't take much work," he said.

"Only limited IT resources were required, which was great, and the IT department really appreciated it."

"There was also a limited amount of training needed, as the user interface is easy to understand. It works with an internet browser, and everyone knows how to use the internet - hit back, forward and so on."

The final part of the process has been getting the staff and crews up to speed to take full advantage of the new software infrastructure.

"User guides are important, even though with most reports it's quite easy to understand how to fill it in and see the boxes you are required to fill in, some people are not very good with computers," said Mr Isaksen.

"So we are focusing more on this now. For all the people in the company, from the master on board down to the messman who's making the potatoes, this has to be an easy system to use - or else they will not report and use the system as they should."

With the system now fully implemented for a matter of months, Mr Isaksen says that Jo Tankers has "absolutely" seen a reduction in the amount of time required to manage its reporting.

"I've seen now that our department can now focus much more on the content of the reports themselves," he said, "and how to improve and where to improve, instead of using time for storing and filing data."

That, it could be said, is mission accomplished.

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FLAGSHIP adds to range of maritime tools

The FLAGSHIP project has added to the ship efficiency tools it introduced in early 2011 with the launch of three new technology based systems – this time focusing on the areas of safety, fuel consumption and regulatory compliance

Aving already completed a busy start to 2011 with the launch of new tools for the maritime industry in areas like engine monitoring, hull condition forecasting and terminal logistics (see *Digital Ship* March 2011), the EU-backed FLAGSHIP programme has built on these successes to introduce a range of additional new tools for the shipping industry.

The tools launched earlier in the year aimed to assist shipping companies in improving the efficiency of vessel operations, with a Technical Condition Indexing scheme to help a ship's crew monitor and improve the technical condition of vessel engines and a Hull Condition Assessment software system that can forecast the condition of a ship's hull over time.

These systems to help maritime stakeholders to reduce costs and improve vessel performance have been joined by the first of FLAGSHIP's new tools, the FLAG-SHIP-EEM (Energy Efficiency Monitoring) system, used to measure on-board power requirements and hopefully lead to a reduction in fuel consumption.

The EEM system combines data acquisition and continuous analysis to evaluate power requirements at every stage of a vessel's voyage, monitoring both main and auxiliary engines.

Comparisons of current consumption with baseline consumption and recent history can be made, to establish a database of operational data for evaluation of operational measures and changes in machinery.

The FLAGSHIP-EEM development team says that, when it started looking into how vessel efficiency could be improved, no detailed consumption data was actually available.

It says that, to date, most ships have not been equipped to measure and display actual power consumption and as a result crews tend to run vessels at too high consumption patterns.

In the development of the EEM system the project team had to undertake a

detailed analysis of on board power consumption in order to determine efficiency influencing parameters.

The team also collected operational data over time to ensure that any external influences and variations were considered to ensure modelling accuracy, especially in relation to predicting potential fuel savings.

FLAGSHIP says that the results of this work have made energy monitoring possible without the need to install highly accurate fuel flow meters, and without requiring access to proprietary engine data which manufacturers may be unwilling to disclose.

The new system has been trialled on board a multi-purpose vessel since May 2010, during which time EEM has identified a range of small, hidden energy saving opportunities.

Offline evaluation of the data also indicated significant potential savings could be made by improved machinery operation and more timely repairs.

As an example, the data indicated that a saving of some 500 running hours per year could be achieved, combined with improved fuel economy, simply by turning off diesel generators that were unnecessary to the ship's actual power requirements.

FLAGSHIP-EEM's monitoring of the air compressors also highlighted higher than expected running time, while further investigation identified leakages in the pressurised air system which, when repaired, could lead to operational savings.

Germanischer Lloyd, project leader on EEM, was apparently sufficiently impressed with the performance of EEM that it has patented the method for energy and fuel consumption evaluation and will incorporate specific lessons from this project into products for launch later this year.

Herman de Meester, coordinator of FLAGSHIP, says that this kind of application of the results of the project are exactly what FLAGSHIP has set out to achieve, and he hopes that this will contribute to continuing efforts to promote 'green' shipping. "FLAGSHIP-EEM delivers environmental and commercial advantages to the maritime transport industry delivering the FLAGSHIP mission," he said.

"(It) works in parallel with current initiatives such as the IMO's energy efficiency design index (EEDI). EEDI currently addresses new vessels only, while FLAG-SHIP-EEM is applicable to both new and existing vessels ensuring that energy efficiency can be optimised in both situations."

In addition to Germanischer Lloyd, the EEM project was supported, delivered and trialled in conjunction with Reederei NSB in Germany; MARINTEK and Teekay Shipping in Norway; Danaos Shipping Co Ltd of Greece, Rolls Royce in the UK and Wärtsilä Finland Oy of Finland.

Regulatory support

The next of FLAGSHIP's new releases follows a slightly different track to the performance optimisation systems incorporated in the other tools, by focusing on regulatory compliance in vessel operations – though with an element on increased efficiency also built in.

FLAGSHIP-RCS (Regulatory Compliance Support) is an intelligent regulatory search and automated form filling system, which the project partners claim to be the first of its kind.

The RCS system aims to provide the maritime industry with an electronic regulations database, which will incorporate a regulations search system and regulation suggestion, as well as automated compliance checking.

Additional form filling notification and assistance functionality is included, as well as a lexicon of maritime terms which the project partners hope will help to create a user-friendly system.

Using FLAGSHIP-RCS an individual vessel can drill down to only be presented with the regulations that are directly relevant to its classification and location.

Searches are based on meaning rather than on the individual word so, for exam-

ple, a search on the word 'environment' would deliver regulations relating to pollution, hydrocarbon and oil, as well as those under the generic 'environment' description.

Based on the course that has been plotted for a vessel, FLAGSHIP-RCS will also identify and flag imminent changes in regulations as a vessel approaches and enters waters under different jurisdiction – all of which should help with on board efficiency through burden reduction in ensuring compliance.

FLAGSHIP says that the system could significantly reduce the regulatory compliance and administrative burden ship owners and operators currently experience by creating time savings of as much as 50 per cent, according to project estimates, compared with conventional text based search methods.

The project calculates that if every European ship adopted the automated form filling system this could lead to a total time cost saving in the region of ϵ 8.94 million per year.

"There are currently hundreds of thousands of shipping regulations including class, territorial and local variations that ship owners and operators must comply with," said Luke Speller, senior research scientist at BMT Group Ltd and FLAG-SHIP-RCS project leader.

"Being caught in breach of these regulations can cost a ship owner tens of thousands of pounds in fines."

"The current regulatory framework makes each ship owner or operator responsible for assembling and complying with all the regulations related to the voyages and stopovers that any of its ships make. Compliance can be a very onerous and expensive process."

FLASGSHIP-RCS has been developed to provide compliance checking so it can highlight if a vessel is definitely breaking a regulation such as a speed limit and can advise against certain actions, for example: 'don't clean bilge tanks here'.

The system has also been designed to automatically complete relevant docking forms and to recognise information that is entered repeatedly over sequential voyages.

This means that, over time, it can autosuggest with increasing accuracy a partially completed form for the captain to check, amend and sign-off.

Mr de Meester, coordinator of FLAG-SHIP, says that he is delighted with the launch of this new system, which could produce industry-wide benefits on a number of fronts.

"The shipping industry always works hard to meet the twin objectives of reducing the risk and the environmental impact of the world's commercial fleet, whilst generating the opportunity for real commercial benefits," he said.

The EEM system records data from ship engines, which is analysed by the software system to identify the potential to reduce power consumption

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The RCS system provides a searchable database to allow vessel operators to easily recognise applicable regulations that require compliance

"FLAGSHIP-RCS is an excellent example of the industry collaborating to achieve just such purposes."

Led by BMT Group in the UK, FLAG-SHIP-RCS was supported, delivered and trialled in conjunction with Regs4ships in the UK, Danaos and NTUA in Greece and TEMIS in France.

Crisis management

The final new system launched by the project is described as being the first advanced emergency situation management tool for fire and flooding with integrated ship to shore real time reporting. Known as FLAGSHIP-DSS (Decision Support System), this system delivers an early prediction of how a fire or flooding may impact on a ship at any given time, to enable efficient decision-making in distress situations, reducing risk and enhanc-

ing the effectiveness of mitigating actions. The new system integrates prognosis tools for fire and flooding with an evacuation simulation process, an on-board stability calculator and an on-board emergency management system.

DSS constantly collects data from all

ship sensors to assess the vessel's vulnerability at any one time, providing the captain and crew with information upon which they can hopefully take prompt remedial action to effectively bring an unfolding crisis under control.

The system can also simultaneously provide real time data to shore based authorities to optimise communication in the event of a crisis situation occurring.

Trials of FLAGSHIP-DSS were undertaken over a four month period in conjunction with a number of vessel operators, and the project notes that during the sea trials a 45 per cent factual improvement in premeditative decision taking was recorded.

FLAGSHIP says that these high quality decisions would simply not be possible without the information provided by the system.

"The new generation probabilistic methods enhance decision making in distress conditions substantially by combining knowledge of ship's vulnerability with instantaneous ship status sensors," said Dr Andrzej Jasionowski, manager of The Ship Stability Research Centre at the University of Strathclyde, responsible for prototype developments of elements of FLAGSHIP-DSS.

"These sensors monitor doors closures, flooding and tank levels, geographical positions, ship instantaneous attitude, clock etc."

"Computer processing of such information enables consideration of many decision options often not even conceivable by highly trained crews and at fractions of time traditional manual trial-and-error methods would take. Safety to ship and persons on board can be enhanced by orders of magnitude."

Mr de Meester, FLAGSHIP coordinator, also commented: "Through FLAG-SHIP we see the maritime industry collaborating to improve safety, environmental friendliness and the competitiveness of European maritime transport."

"FLAGSHIP-DSS is an impressive development that could help to significantly reduce risk at sea – which is one of the key objectives of FLAGSHIP overall."

FLAGSHIP-DSS was led by the University of Strathclyde in the UK and was supported, delivered and trialled in conjunction with two British companies: Teekay Shipping and BMT Group.

Five Greek organisations were also involved: Altair Maritime Enterprise (subsidiary of Maran Tankers Management Inc.), Danaos Shipping Co Ltd, the National Technical University of Athens; Minoan Lines and Superfast Ferries S.A.; as well as two Norwegian businesses: MARINTEK and Lodic AS and Instituto Superior Tecnico of Portugal.

These companies are among the more than 40 partner organisations, including shipping companies, shipyards, universities and various technology providers, that make up the 53-month FLAGSHIP project, which is partially funded by European Union contributions.

This partnership is overseen by the European Community Shipowners' Associations (ECSA), and has been designed to increase the capacity and reliability of freight and passenger services and to further reduce the impact from accidents and emissions.

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To discuss available positions, rates and sponsorship opportunities on any future Digital Ship event, contact Ria Kontogeorgou: ria@thedigitalship.com Tel: +44 (0)20 7017 3401 Mob: +44 (0)7815 481036

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Power to the Port

The Port of Los Angeles has become the first port worldwide to provide Alternative Maritime Power (AMP) to three separate cruise lines.

In recent weeks, ships from Disney Cruise Line, Princess Cruises and Norwegian Cruise Line have all taken advantage of the 'AMP Mobile' technology developed specifically for the Port's World Cruise Centre.

The Port of Los Angeles has three AMP Mobiles, which were designed for the World Cruise Centre by port engineers and engineering firm Cavotec.

With 100 feet of lateral movement capability and a remote-controlled arm to adjust the cable crane arm to changing tides and the location of power connections on cruise ships, the AMP Mobile's versatility allows for a variety of cruise ship configurations.

The World Cruise Centre is also the only port where two cruise ships can be connected simultaneously. Cruise ships utilise either 6.6 kilovolts (kV) or 11 kV electrical power distribution systems to plug into shore side power; the Port of Los Angeles can now accommodate either.

Currently the power demand of the

cruise ships calling at the Port of Los Angeles is anywhere between 8 to 13 megawatts of power. A seven megawatt load is equivalent to producing enough electricity for approximately 1,000 homes.

The Port's AMP system installed at the World Cruise Centre is capable of delivering up to 40 megawatts of power, with 20 megawatts of power delivery capacity to each of the two different ships.

In 2004, the Port of Los Angeles was the first in the world to use AMP technology for in-service container ships. Three major container terminals currently have AMP capabilities and more are due to come on line later this year.

"The use of AMP at our World Cruise Centre reduces emissions not just at the Port but improves the quality of air throughout the Los Angeles region," said Mayor Antonio Villaraigosa.

"The ability to adapt this technology to multiple cruise lines eliminates significant ship exhaust when cruise ships are at berth, and the AMP Mobile is another innovation that demonstrates our commitment to developing cutting-edge technology that can benefit port communities everywhere."

The Port of LA is the first to offer shoreside power to three cruise ships at once

World's largest LRIT Data Centre opens

www.absolutesw.com

The world's largest LRIT National Data Centre has been inaugurated in Panama.

The system was designed by Absolute Maritime Tracking Services (AMTS), which will also operate the Long Range Identification and Tracking (LRIT) system.

"The implementation of LRIT presents a major challenge to coastal and flag states who attempt to apply the latest technology to the protection of life at sea and enhancing maritime security," commented Panama's Minister of Maritime Affairs and administrator of the Panama Maritime Authority, Robert Linares. "Whilst the primary purpose of LRIT is maritime security, we can expect substantial benefits to derive in the areas of port efficiency, ship operator efficiency and improved resource allocation."

Data from the LRIT system will be combined with those of other vessel monitoring systems such as AIS, SSAS, VMS and VTS, to create a comprehensive maritime surveillance network. AMTS will manage the fusion of this information by offering software based geo-spatial analysis of the different information types.

AMTS says that it is already currently processing in excess of 25,000 satellite vessel positions per day, more than any other LRIT National Data Centre.

Certification allows Ocean Signal to begin deliveries

www.oceansignal.com

Ocean Signal reports that it will commence the first deliveries of its SafeSea products, following receipt of approvals for usage in worldwide markets.

The SafeSea EPIRB and SART products have been given the Marine Equipment Directive (MED) Wheelmark certification for Europe, which applies to both leisure and commercial shipping, together with Federal Communications Commission (FCC) approval for all classes of vessels including SOLAS ships.

The company is now able to commence delivery to its customer base, with Ocean Signal confirming that manufacturing of the products will continue to be based in the UK.

"We have considered manufacturing elsewhere but we have exceptional expertise here in the UK and I am determined to deliver our promise that the SafeSea range will be built to the highest quality essential for this critical market," said managing director Alan Wrigley.

"This means we need to control that quality at every stage of production. This is not possible if we manufacture elsewhere."

"We have gone through a process of exhaustive development and testing over the past year and we are confident that we have a very special range of products. Manufacturing here also allows us to continue our programme of new product development and bring those new products to market much quicker."

The SafeSea EPIRB has received WheeImark and FCC approval

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The Only Complete ECDIS Solution

Cruise and Coast Guard take Sperry navigation systems

www.northropgrumman.com

Sperry Marine has reported that it has completed the installation of navigation, communication and safety systems for Royal Caribbean's newest cruise ship, Allure of the Seas, while also agreeing a new multi-million dollar contract with the Canadian Coast Guard.

The Allure of the Seas has completed its maiden voyage from its shipyard in Finland to its home port in Port Everglades, Florida, assisted by its new navigation technology.

The ship's integrated bridge system (IBS) is based on Sperry Marine's VisionMaster FT technology with proprietary TotalWatch multi-function workstations using WideView high-resolution screens.

Each TotalWatch station can be configured to show pictures from the ship's radars, electronic chart systems and conning information, as well as closed-circuit TV images.

The primary navigation consoles are configured in a modified U-shaped layout, with all functions incorporated in the control stations on both bridge wings.

The IBS also includes a separate wireless computer node that permits the master to view the ship's navigation status in his or her cabin or on the bridge, and has been designed with redundant network architecture providing built-in duplication for all critical components. A separate Safety Command Centre, also featuring Sperry equipment, is located directly behind the main navigation bridge, with four wide screen displays to assist in providing greater situational awareness of the entire ship.

"We have an excellent and long-standing relationship as the supplier of advanced navigation technology for Royal Caribbean," said J Nolasco DaCunha, vice president of Sperry Marine.

"We also supplied the IBS installations for Allure's sister ship, Oasis of the Seas, as well as all of the Freedom-, Voyager-, Radiance- and Vision-class ships, ensuring standardised bridge equipment and operating procedures across the entire fleet."

Mr DaCunha noted that the company also provides extensive navigation training for Royal Caribbean bridge watch officers and fleet-wide service and technical support under a service agreement.

Meanwhile, Sperry Marine's contract with the Canadian Coast Guard is for the supply of bridge navigation systems for nine newbuild mid-shore patrol vessels, a deal valued at US\$3 million.

Sperry dealer Techsol Inc, based in Quebec City, will provide technical support and system integration for the installations.

Six of the initial nine ships have been delivered, with the remaining deliveries scheduled for June 2011. The contract also includes options for up to three

The Allure of the Seas is now sailing with an integrated bridge system based on Sperry's Visionmaster FT technology

additional ships.

The scope of supply for the new ships includes Sperry Marine radars, autopilot, gyrocompass, magnetic compass, speed log, repeaters and a communications package to meet GMDSS requirements.

The mid-shore patrol vessel programme is part of the Canadian government's fleet renewal programme for the Coast Guard.

The vessels, which are being built in Halifax, Nova Scotia, will each be approximately 43 metres in length, have a top speed of 25 knots, a range of 2,000 nautical miles, and be able to stay at sea for two weeks without reprovisioning.

Five of them will be used primarily to support Department of Fisheries and Oceans conservation and protection programmes in the Maritime, Quebec and Pacific regions. The other four will be used in a programme with the Royal Canadian Mounted Police to enhance security along the Great Lakes-St. Lawrence Seaway system.

"We've maintained an outstanding working relationship with the Canadian Coast Guard and Navy as a major supplier of navigation equipment for more than 25 years," said Alan Aitken, national sales manager for Sperry Marine Canada.

"We recently completed the navigation radar upgrades on the Canadian Navy's 12 Kingston-class maritime coastal defence vessels."

"This most recent contract award is a reflection of Sperry Marine Canada's outstanding reputation for reliable state-ofthe-art navigation systems backed by an industry-leading worldwide service organisation."

Hatteland displays and computers will feature in Transas' next generation ECDIS systems

Transas Marine has agreed a deal with **Hatteland Display** whereby Hatteland will act as a supplier of hardware for the new generation of Transas ECDIS systems. * * * * * * * *

Tamot Corporation has joined the Hatteland Display worldwide service network after the two companies

signed an agreement at the end of 2010. The agreement will see Tamot performing both warranty and non-warranty service for all Hatteland Display products in Japan.

* * * * * * * *

McMurdo has appointed Survitec Survival Products Inc (SSPI) as its sole distributor in the Americas. SSPI will distribute both the McMurdo and Kannad Marine brands of marine safety products in North America, South America and Canada.

* * * * * * * *

VSTEP has announced a distribution and training partnership with Centro de Investigación y Entrenamiento Marítimo y Fluvial (CIEMF), a training business unit of Servicio **Integral de Prácticos S.A. (SIPSA)** in Argentina. CIEMF was the first VSTEP customer in Latin America to implement the NAUTIS simulation software on its Full Mission Bridge Simulator, and is VSTEP's first Latin American training partner.

* * * * * * *

NSI has introduced its new TSX50 range of industrial laser trackballs. The IP68 waterproof trackballs feature a 50 mm ball with removable top ring and are available in 9 different versions.

www.transas.com www.hatteland-display.com www.vstep.nl www.ciemf.com.ar www.nsi-be.com www.mcmurdo.co.uk

Gardline Geosurvey extends positioning contract

www.veripos.com

Veripos reports that it has agreed an extension to its contract with Gardline Geosurvey for the provision of precise satellite positioning services.

Under the general services agreement, Veripos will continue to supply its range of positioning solutions to Gardline Geosurvey's fleet of eleven multi-role survey vessels.

These vessels operate throughout the world on behalf of offshore exploration, renewables, construction and telecommunications companies, as well as government agencies and harbour authorities.

Gardline Geosurvey will continue to use the Veripos Ultra service, which uses

precise point positioning (PPP) methods to provide continuous decimetre-level accuracy.

This is supported by a Verify QC software system, to create real-time positioning and quality control information, as well as LD2-G2 integrated mobile units. A Verify-Tides functionality for real-time tide estimation is also provided. "This contract extension demonstrates that our commitment to safety, integrity and performance results in lasting customer relationships," said Walter Steedman, managing director of Veripos.

"We are delighted to be part of Gardline's global expansion and look forward to serving their needs for years to come."

'Zero downtime ECDIS' service from MARIS

www.maris.no

MARIS has launched a 'Zero downtime ECDIS' product support service, which it says will ensure that, once mandatory, Electronic Chart Display Information Systems (ECDIS) are available at all times, even in the case of a unit failure.

MARIS says that, while some ship owners intend to back up ECDIS with up-todate traditional paper charts, many have accepted that it will be necessary to install dual systems for back up, in case one ECDIS fails.

However, to be allowed to sail in the event of a failure of one of the dual ECDIS onboard, even a ship owner pursuing a policy of ECDIS redundancy will have to keep up to date paper charts in reserve.

Speedy turnaround times for modern vessels complicate matters – a vessel that has suffered an ECDIS failure at sea, but wishes to operate paperless, may not be permitted to leave port until the two ECDIS are up and running.

In this scenario the vessel is dependent on its service providers and local technicians to fix the problem as soon as possible to prepare the ship for departure.

As SOLAS V/22, 16.2 notes, while malfunctions will not necessarily make the ship unseaworthy or provide a reason for delaying the ship in ports where repair facilities are not readily available, suitable arrangements must be "made by the Master to take the inoperative equipment or unavailable information into account in planning and executing a safe voyage to a port where repairs can take place."

Another complicating factor is that the application of regulations in this area depends very much on the Flag State in question, and the circumstances under which the Flag will provide permission to sail.

The 'Zero downtime ECDIS' concept from MARIS has been devised to avoid these potential delays, by offering a 'hot or cold spare' third ECDIS delivered direct to the ship so that it can always proceed to the next port of call, even if up to date paper charts are not available.

The defective unit can then be shipped to the manufacturer at the ship owner's convenience for repair.

Available via subscription, Steinar

Gundersen, MARIS deputy chief executive (corporate), said that the new service was part of the supplier's campaign to support customers during the phase-in of mandatory ECDIS.

"The third ECDIS can either be installed as a 'hot spare' online with the dual ECDIS systems or as a 'cold spare' supplied as a plug-in unit, which the crew can install," he explained.

"In the case of a cold spare it will come complete with application software, updating all application software, settings and electronic charts and will be self-configured to the exact settings of the ship, drawing on the ship's remaining ECDIS."

Mr Gundersen said that the spare ECDIS could then be packed away and returned to MARIS before going to a warehouse as a 'reconditioned' unit to be sent to a new customer with a similar subscription and the need for a replacement unit.

MARIS sees this 'Zero downtime ECDIS' service as an initiative that should help to do away with the need for service engineers to fly all over the world to rendezvous with vessels in port.

"The potential for delays will be eradi-

'The potential for delays will be eradicated' - Steinar Gundersen, MARIS

cated, but this will also mean that our engineers minimise their carbon foot-print," said Mr Gundersen.

"MARIS places a high priority on both service and the environmental impact our services make."

NMEA2000 relay output module released

www.osukl.com

Offshore Systems UK has introduced a new Relay Output Module, which enables modules of up to eight isolated power relays to be controlled by the NMEA 2000 network.

The 3478 unit can control onboard power to applications such as remote alarm inputs, pump management, power switching contactors, lighting control and other applications where power needs to be controlled over the network. The relay can be linked to display units which can be customised to display individual information data from each operational source.

Offshore Systems says that the 8 way Module was developed in response to requests from project managers to have groups of totally isolated circuits so that information from an increasing number of applications can control them.

Each 3478 relay has a switch settable device instance which allows multiple Relay Output Modules on a single network.

The new module allows up to eight power relays to be controlled by the NMEA 2000 network.

Mobilarm to acquire Marine Rescue Technologies

www.mobilarm.com

Marine safety equipment provider Mobilarm Ltd and Personal Locator Beacon company Marine Rescue Technologies have entered into a sale and purchase agreement which covers all Marine Rescue Technologies assets, including the entire Sea Marshall product line.

The result of the acquisition will be the formation of what the companies say will be "the world's largest technology company dedicated to marine safety and man overboard technology."

The idea behind the Sea Marshall PLB comes from Marine Rescue Technologies' founder David Marshall's own experience of a man overboard (MOB) situation, with the sinking of the 'Gaul' trawler in 1974.

This was followed by a request from the UK Ministry Of Defence to develop a PLB for the Joint Services entry to the Whitbread Round the World Race in 1975, after which Sea Marshall was born. "With David Marshall at the helm, Marine Rescue Technologies and the Sea Marshall brand were the original driving force behind the introduction of PLBs into the marine market so we are delighted to count this highlyregarded organisation as part of Mobilarm," said Lindsay Lyon, CEO, Mobilarm.

"David has dedicated a lifelong career to the improvement of maritime safety relating to persons lost at sea and the company shares Mobilarm's approach to innovation and technology."

"This, combined with an experienced distribution network and portfolio of EUapproved products will help Mobilarm take the world of PLBs and man overboard safety technology to a much wider market. (We have) a stronger global presence and exciting plans in the pipeline for our own VHF DSC beacon technology and Sea Marshall's extensive product range."

The companies say that several new Sea Marshall products are scheduled for release in 2011.

HITT in IVS 3D merger discussions

www.hitt.nl

HITT NV, a supplier of traffic management, hydrographic and navigation systems, reports that it is in discussions with the owners of IVS 3D with the objective of merging their activities with the hydrographic division of HITT.

IVS 3D is a producer of marine information visualisation, processing and analysis software, with 17 employees and offices in the United States, Canada and Great Britain.

IVS 3D's Fledermaus system is its flag-

ship offering, allowing for commercial use of three-dimensional visualisation in the hydrographic market. This system has also been expanded to include new 4D applications.

HITT says that it expects to see the combination with IVS 3D create technological, organisational and market synergies specifically for QPS, HITT's subsidiary in Zeist, The Netherlands.

The companies believe that QPS and IVS 3D products are complementary and that a combined R&D team will strengthen the position of both firms.

Digital Ship

Raytheon Anschütz

Sonar upgrade from FarSounder

www.farsounder.com

FarSounder has announced the release of SonaSoft version 2.3, an upgrade to the software used to power its FS-3 series sonars.

The company says that the upgrade includes processing, user interface and display enhancements, with improvements in in-water target detection, automatic bottom detection, and shallow water/short range performance.

"Our R&D team has been striving to enhance our in-water target detection capabilities," said Matthew Zimmerman, VP of engineering at FarSounder.

"Not only is the algorithm better, but users are now offered an option for automatic in-water target squelch selection, and in most cases, the automatic setting performs even better than the manual

squelch settings."

The software will automatically switch to the appropriate transmit signal when setting the sonar's Range Mode in the Processor Settings, depending on whether the vessel is navigating in shallow or deeper waters.

FarSounder has also upgraded its chart plotting capabilities and now offers support for C-Map vector charts by Jeppesen Marine. This improved chart plotting capability removes the need for users to manually select and load charts for their specific location.

This new chart plotter capability replaces a former BSB raster chart plotter capability, though customers interested in keeping the former capability instead of upgrading can contact FarSounder for support.

Raytheon Anschütz introduces new steering control

www.raytheon-anschuetz.com

Raytheon Anschütz has introduced a new steering control system which it says should improve handling and make installation of systems at the shipyard easier.

The new systems are expected to be delivered to commercial and naval vessels by the end of the year.

NautoSteer AS is based on CAN-bus technology, where all important components such as follow-up amplifiers, autopilots, interface units and alarm monitoring units are connected via redundant CAN-bus systems. In case of failures the steering control system switches automatically to a redundant CAN- bus.

With the obvious importance of the ship's steering control to safety, Raytheon says that the new system was developed with particular attention paid to 'fail-tosafe' principles.

Integrated steering failure and wirebreak monitoring allows the steering control system to permanently monitor the actual rudder, with set rudder and wire breaks to prevent any unwanted rudder actions which may cause damage to the

ship, cargo or passengers.

In addition, an integrated data integrity monitoring system is used to ensure that inconsistencies within the steering system do not necessarily degrade performance.

A simplified steering mode selector switch separates an independent 'Main' non-follow-up steering position from a 'Secondary' steering position, with CANbus based autopilot or follow-up and nonfollow-up bustiller controls.

"Compared to other steering control systems the new Nautosteer AS prevents from switching from a defective steering control to another defective steering control position," said Olav Denker, product manager at Raytheon Anschütz.

"In case of an emergency, when time is crucial, this architecture supports the crew in their fast and safe decision making. NautoSteer AS will significantly contribute to safe and comfortable steering."

The steering controls feature central alarm reset and central dimming controls and the ability to define up to four different dimming groups in accordance with different conditions of lighting on the bridge, for example on the main bridge, port and starboard wings or aft bridge.

Raytheon's new steering system will begin deliveries by the end of 2011

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AIS proves its worth

Despite a slow start, AIS has proven to be a useful tool to modern shipping since its introduction as a mandatory requirement, as it has integrated with other onboard navigational equipment, *writes Dr Andy Norris*

he Automatic Identification System (AIS) has been a compulsory fit on most ships since 2004. It had a particularly poor reputation with seafaring users when first introduced but for an increasing number it is now seen as an invaluable tool that enhances navigational safety.

It also has a separate security use, which unfortunately contributed to the confusion of its introduction. An originally fairly relaxed installation timetable for vessels was accelerated by the events of 9/11.

Governments became anxious to get AIS installed on all vessels as soon as possible to improve coastal security.

In the rush to fit AIS, more than a few installations were performed inadequately and a surprising number of mariners appeared to receive little or no training in its use.

This led to numerous reports of AIS problems, mostly because of erroneous data being transmitted but also because some users, with the lack of training, were misinterpreting normal AIS behaviour.

Today, there are far fewer problems. Active monitoring by many coastal states quickly informs a ship with an errant AIS that things are wrong, together with a demand for corrective action.

IMO always recognised that the full benefits of AIS to the OOW would not be immediate. The initial statutory fit to a ship was for a very simple unit, fully able to transmit AIS data but with very limited display capabilities and, as such, providing only a small contribution to collision avoidance decisions.

IMO named these Minimum Keyboard and Display units, stressing the minimalist nature of the statutorily fitted equipment.

In fact, from the very start, most manufacturers sold units with display characteristics in excess of the IMO minimum but, perhaps, this may have further added to the confusion of the precise role of the technology.

AIS on radar

The real advantage comes with displaying AIS information on radar. For this reason IMO mandated that all radars fitted after 1 July 2008 had to have an approved AIS display capability, with data being able to be fed to the radar from a standard AIS MKD.

Ships with such a capability gain the full benefits of AIS, increasing the integrity of collision avoidance decisions, which are otherwise just based on visual and radar data.

AIS data always has to be used very carefully and knowledgeably when contributing to such decisions. For good reasons, it is not seen as a stand-alone collision avoidance device.

It provides additional data, for instance helping to confirm a target's position and

heading and can occasionally provide critical information by detecting targets that are currently invisible to both radar and sight.

Other data supplied by AIS can be highly useful, such as the stated destination of a vessel. This can suggest its likely intentions as it approaches possible turn points, allowing some tentative estimation of its potential effect on the passage of own ship.

However, AIS data generally remains more suspect than radar or visually derived data, simply because it lies outside the control of the observer and therefore its validity is always open to question.

However, it will generally provide a more accurate position fix – even when converted to relative coordinates – than radar or visually based techniques. In particular, turn data from AIS will have far less latency compared to radar track data. Also, AIS can often 'see' behind obstructions, such as headlands, invisible In IMO's radar performance standard there is a requirement to incorporate AIS filters as a switchable means to reduce display clutter. The filtering applies to sleeping targets, which are shown on the display as small triangles, with no associated heading lines or velocity vectors.

In a list of example filters, IMO includes filtering by the type of target, A or B, by target range and by user set distance or time to the closest point of approach. Filtered targets are entirely removed from the display.

AIS targets are activated on the display, either manually or, if automatically, according to the selected radar target acquisition zone. Activated targets show more information, such as their heading line.

Sleeping AIS targets can also be automatically activated when meeting other user defined parameters, with IMO listing the same examples as used for target fil-

AIS signals can be useful, but it is their integration with other technologies that can provide the greatest benefits

to both radar and by visual means. This can be highly useful, for instance, when approaching or leaving an estuary.

Since the earliest MKDs were installed the AIS message specification has been enhanced, in particular by including messages concerning AIS Class B, which are increasingly installed on small craft, and AIS aids-to-navigation – AIS AtoNs – fitted, for instance, to beacons and buoys.

Radars installed since July 2008 are able to display these targets, even if the AIS MKD feeding them was fitted before such messages were defined.

AIS Class B

AIS Class B provides an important additional method of detecting small craft, which are sometimes hard to see both visually and by radar.

It should be remembered that craft fitted with Class B only transmit a navigational message every 30 seconds, and so close-in fast moving craft can appear on a display with a very disjointed path. In contrast, Class A transmissions are typically every 2 or 6 seconds, depending on the immediate dynamics of the vessel. tering, including by target type, A or B.

The reasoning behind the requirement to allow the de-cluttering of the display is quite valid, and could be essential in certain circumstances when Class B usage becomes widespread.

For instance, in good visual conditions and when in waters that have a very dense small craft occupancy, such as the Solent or Long Beach, it may sometimes be beneficial to filter out Class B sleeping targets and only show raw radar returns, greatly improving the overall clarity of the situation.

However, in non-ideal sea-state and visibility conditions it will generally be entirely inappropriate to have set such a filter, especially if activation was also restricted to just Class A targets.

It is precisely under these conditions that AIS can become the best method for detecting small craft fitted with Class B systems.

Perhaps there is a case for a relook of the requirements in this area. For instance, should it be compulsory for a visual warning to be displayed if target filtering by class is activated?

AIS virtual AtoNs

It can be expected that the use of AIS AtoNs will increase in the coming years. Perhaps the most important use will be for virtual AIS AtoNs. These transmit an AIS message from, for example, a coastal station, and put symbology on a radar or ECDIS display at defined locations.

In particular, the symbology could mark the position of a very recent wreck or a no-go area that has been created as the result of an accident, such as an oil spill. In principle, the transmissions could start just minutes after a confirmed notification to the authorities of a problem – days or even weeks before any physical markers could perhaps be installed.

At present there is a just a single symbol defined for a virtual AIS AtoN but by 2013 IMO plans to issue symbology to cover various situations, as well as adding additional symbology for specific physical AIS AtoNs.

Once most vessels have proper facilities for displaying the new symbology on radar and ECDIS then virtual AIS AtoNs will become a significant and highly useful safety feature.

Once more it brings into significance the need for systems to be easily upgradeable to the latest IMO requirements, generally through software releases. This problem will become ever more important, and the shipping industry has to be able to get to grips with the issues that it presents.

IMO released MSC.1/Circ. 1389 in December 2010, highlighting the need for software and firmware updates to be available, particularly to cope with retrospective changes in regulations.

This IMO circular highlights the responsibilities of governments, equipment manufacturers and shipowners in making this happen. It is essential that its guidance is followed.

As reported in the November 2010 issue of *Digital Ship*, the old 'fit-and forget' procurement model for navigational equipment is now outdated.

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

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