Digital Ship

Seaspan to roll out GL HullManager across fleet

Canadian shipping company Seaspan Ship Management has agreed a deal to roll out a new software system across its fleet, with the aim of improving management of the integrity of the hulls of its vessels and increasing efficiency

Seaspan Ship Management of Vancouver is to implement Germanischer Lloyd's GL HullManager system to be used as part of its in-house hull integrity management system.

The condition based monitoring software will be implemented across Seaspan's entire fleet of 76 vessels over the next several years.

"We developed our own temporary Hull Structure monitoring system at Seaspan in order to help us understand our needs and to quickly help us manage hull defects until we could assess and decided on our preferred system," explained Peter Jackson, director of the Projects and Technology Department at Seaspan Ship Management Ltd.

"Three different systems were reviewed and as a result, GL HullManager was selected as the software most closely meeting our needs."

GL HullManager is a part of GL's fleet management software portfolio, providing hull inspection and thickness measurement support. Inspection, reporting and condition assessments of tanks, cargo holds and coatings are supported, throughout the vessel's lifecycle, by means of crew inspections and thickness measurements.

A vessel-specific 3D model allows
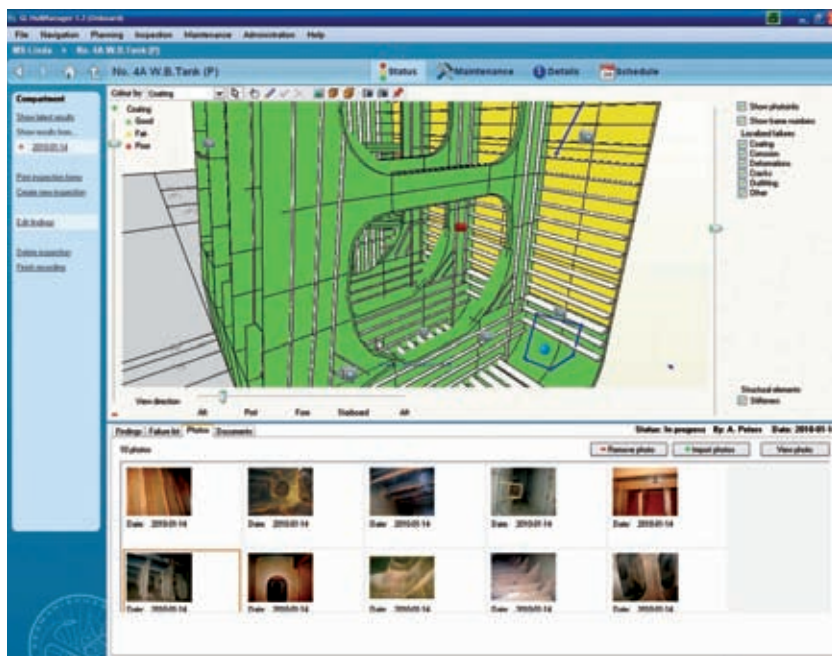
The software will be implemented on 76 vessels

for visualisation and assessment of the hull's structural condition, where the crew can mark any coating or structural failures on the 3D model, such as marking an individual finding or adding a photo and descriptions, which can then be assessed by superintendents onshore.

Ryan Bishop, GL's vice president business development for the Americas, noted: "Clients are finding

that the system is one that they can easily integrate into their existing maintenance processes, with the added benefit of on- and offshore teams having access to the same data."

"With the training we can provide from local offices, we are confident that this partnership with Seaspan will see them roll out GL HullManager without a hitch."

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GL HullManager can make information on the condition of hull structures available to any employee across the company once the inspection results have been approved and synchronised.

Stored in a lifecycle database, hull condition data for each individual vessel can be traced over time and sister vessels from the same fleet can be compared. A dashboard overview of the ship makes it easy to pinpoint any critical findings by crew or third-party inspectors.

Introduced in 2011, GL HullManager is used on 350 vessels of all kinds worldwide, and has recently been upgraded with a mobile client version for use in compartments.

Upcoming additional features in development include an automatic proposal for the amount of steel to be replaced for a dry dock tender specification, integration of hatch cover tightness measurement results and hot spot marking functionality.

KVH hits 3,000

www.kvh.com

KVH reports that it has recently shipped its 3,000th TracPhone terminal for the mini-VSAT Broadband network.

Launched in 2007, KVH's mini-VSAT Broadband network uses spread spectrum technology and a combination of 14 Ku-band transponders to provide coverage throughout the northern hemisphere and to major continents in the southern hemisphere.

In 2012, KVH completed its rollout of a major upgrade to the network, adding three global C-band transponders to deliver a global overlay to the Ku-band service.

The company's dual-mode TracPhone V11 antenna tracks both C- and Ku-band satellites, allowing users to switch to C-band when Ku-band is not available.

The company says that its maritime customer base is diverse, including the US Coast Guard, US Navy, ship management companies like Vroon and V.Ships, commercial fishing companies, offshore service vessels and yacht owners.

"We built the mini-VSAT Broadband network because we saw a huge opportunity from a potential market of 250,000 commercial, government, and leisure vessels that needed affordable offshore data connections that would allow crew members to use the internet onboard and benefit from the efficiencies of the digital world," said Martin Kits van Heyningen, KVH CEO.

"Our global network is now complete, and our TracPhone product line offers a complete end-to-end solution to quickly and easily bring the benefits of fast, affordable VSAT service to vessels."

The TracPhone V11, combining Ku-band and C-band, is the latest addition to the range

German company launches near-shore comms system

www.shipz.net

German company bobz GmbH has launched a mobile broadband system called shipznet, to provide near-shore communications to shipping vessels.

The system has been specifically developed for the marine environment and operates up to 20 miles from the coast of a number of countries across the world.

Using 3G networks, shipznet will provide internet access onboard without a satellite connection.

Data rates up to 20 Mbps are available, offering 5 GB monthly packages for a fixed monthly price worldwide, without roaming charges. There are no installation costs.

The above-deck component is a stainless steel unit, which is water resistant and uses two antennas.

The below-deck unit consists of a router, which allows each of the eight available ports to be used independently for ship communication, such as for e-mail, remote management or crew communication.

It is connected to the above deck unit using a single coax cable.

Different access rules and forwarding of network traffic can also be configured for each port.

NSSLGlobal launches C-band VSAT

www.nsslglobal.com

NSSLGlobal has announced the addition of global C-band services to its Cruise IP portfolio.

This network will initially offer users access to three global satellites – NSS9, Intelsat 902 and SES 4 – and will see the service offered alongside NSSLGlobal's existing Ku-band Cruise IP service.

The company's Service Assurance package will be included with the service, which will feature seamless failover between C- and Ku-band services alongside an additional L-band backup.

The C-band offering uses the same network, modem and hubs as NSSLGlobal's Ku-band service, providing the same web and e-mail control services, and is available immediately.

"Our customers, both at sea and on shore, increasingly depend upon their internet connection for a variety of mission-critical operational functions, as well as improving crew welfare by enabling them to keep in touch with home," says Sally-Anne Ray, COO of NSSLGlobal.

"Our ability to provide L-, Ku- and C-band solutions offers our customers a level of choice few other providers are capable of."

Astrium extends C-band deal with Intelsat

www.astriumservices.com

Astrium Services and Intelsat have signed a multi-year renewal agreement for C-band capacity to be used by Astrium Services' maritime customers in the Mediterranean, Atlantic Ocean, North Sea and Gulf of Mexico.

The agreement will enable the new Business Communications unit of Astrium Services, incorporating the former Vizada, to offer C-band customised VSAT via the capacity provided on Intelsat 907 at 332.5° East.

"With Ku-band VSAT showing considerable growth over the last few years, it's important to recognise the strong need for C-band connectivity in the specialist sectors that Astrium Services is committed to satisfying," said Tore Morten Olsen, head of maritime services at Astrium Services.

"Cruise ships and ferries require significant bandwidth to support passenger welfare and business applications, whilst offshore vessels and platforms need high levels of connectivity for critical operations and production optimisation."

"Securing improved C-band capacity on Intelsat 907 supports our customised VSAT users in enhancing operations and offering improved connectivity services for business, crew and passengers, even in the most challenging of environments."

Maritime Broadband has appointed Revmar Dynamics as the exclusive distributor of its C-Bird VSAT system in Greece and Cyprus.

www.maritimebroadband.com

OceanSat

DESIGN & IMPLEMENTATION OF MARITIME COMMUNICATIONS

OFFICE

CREW

BRIDGE

HOME

SUPPLIERS HELPDESK

ENGINE ROOM

KEEP IN TOUCH_

C-Bird survives Sandy test

www.maritimebroadband.com

Maritime Broadband has reported that its C-Bird VSAT antenna has survived an exacting trial of its ability to deal with extreme weather conditions after the company's New York headquarters experienced the full force of Hurricane Sandy.

Hurricane Sandy wreaked havoc across the Caribbean and the Mid-Atlantic and North-eastern United States towards the end of 2012, causing widespread damage.

Maritime Broadband's office in Sunset Park, Brooklyn, was among the affected areas, suffering 85 mph winds that destroyed local monuments.

The company has a C-Bird antenna located on top of the two-storey office building in which it is located, and the company notes that the unit managed to maintain tracking of its connected satellite

uninterrupted throughout the entire duration of the storm.

The C-Bird is a military-style antenna which, unusually for a commercial VSAT system, is designed to operate without the traditional radome found on most shipboard satcom installations.

The company notes that the antenna has already been installed aboard commercial tankers, containerships and bulk carriers travelling worldwide.

"I debated whether or not to secure the antenna for the storm," said Zevi Kramer, Maritime Broadband's chief innovation officer and C-Bird design engineer.

"Ultimately, we decided to take advantage of the extreme storm conditions forecasted for Hurricane Sandy to test C-Bird in a Beaufort Scale 12 environment. We observed the tracking performance throughout the height of the storm, as the

A C-Bird antenna like this one (centre of picture, without radome) survived the 90mph winds of Hurricane Sandy at Maritime Broadband's New York office

windows rattled, signs and parts of buildings flew off and trees were toppled."

"C-Bird held the signal perfectly with no indication of any stress whatsoever on the system."

The C-bird antenna is designed and manufactured to track in up to 85 knots/98 mph head winds.

With Hurricane Sandy wind speeds

reaching 90 mph, the company says that this represented a perfect opportunity to test the antenna's performance in winds near the maximum specified operating range.

Maritime Broadband notes that the antenna is non-critically balanced and the gears and motors have been specifically chosen to handle 1,500 lbs/6,700 Newtons of force on the dish.

Besiktas Shipping rolls out VSAT to tanker fleet

www.ozsaysatellite.com

Ozsay Satellite Communications, part of the Ozsay Group of Companies in Turkey, has agreed a deal to provide VSAT servic-

The package includes SAILOR 900 antennas and the Vizada XChange box

es to oil and chemical tanker company Besiktas Shipping.

Ozsay Satellite Communications, an Inmarsat and Astrium partner, will provide Ku-band communications to the company's fleet of 16 tankers under the contract.

The long term agreement includes the supply of SAILOR 900 Ku-Band VSAT antennas, with FleetBroadband and Iridium Pilot backup systems, as well as iDirect x5 modems, the Astrium Xchange box and Astrium Pharostar global connectivity services.

Ten tankers have been installed to date, with the remaining installations expected to be completed by the end of the first quarter of 2013.

Thuraya granted Taiwan licence

www.cht.com.tw
www.thuraya.com

Chunghwa Telecom's subscribers in Taiwan can now use Thuraya's voice, data and maritime services, the Dubai-based satcoms provider has announced.

The NCC, Taiwan's national telecoms regulator, has granted approval, licensing Thuraya to provide its mobile satellite services in the region.

The licensing agreement means that individual consumers and corporate users will no longer need to apply for individual

approval from the NCC to use mobile satellite services in Taiwan. Previously, only enterprise users were eligible to do so.

"We are grateful to the NCC for granting licensing approval of Thuraya's satellite services, which will enable Taiwan's citizens to stay connected across our global network on land and sea, beyond the confines of terrestrial networks," says Thuraya's CEO Samer Halawi.

Thuraya, whose products include the SF2500 and the Seagull 5000, says that it sees strong demand for voice and data services from the Taiwanese fisheries sector.

Second Selex VSAT deployment for Serco

www.selex-es.com

The UK Marine business of Selex ES, a Finmeccanica company, reports that it has completed a contract to supply a Ku-band VSAT system to Serco.

The system was installed on the Serco vessel SD Victoria, as part of a package

including a five-year airtime contract.

Engineers from Selex ES' UK office network carried out the installation and commissioning.

This is the second time Selex ES has deployed VSAT for Serco, having originally installed a system on the SD Northern River.

$1M Chinese order for Beam

www.beamcommunications.com

Beam Communications Pty Ltd, a subsidiary of World Reach Limited, has won a $1 million deal to supply Chinese company MCN (Marine Communications & Navigation Company) with Inmarsat marine satellite terminals.

Last year, MCN tested Beam's Oceana terminals on fishing vessels in China. These terminals are designed and manufactured by Beam to support the voice, data and tracking communications that take place over the Inmarsat satellite network via its FleetPhone maritime service.

MCN is the only company authorised to supply these Inmarsat services in China.

Delivery of the initial order, valued at $1 million, will commence this quarter and be completed by 31st May 2013, according to Beam. At that time MCN will be required to make further commitments to Beam in order to maintain its exclusive rights for distribution of the Beam products

in China.

Yumin Zhao, director at MCN, notes that "there are many thousands of fishing vessels in China that have a need for high-quality and reliable satellite communications along with land-based applications in smaller villages."

"MCN will be targeting these key land and maritime customers with an aggressive campaign to promote, exclusively, the Beam products and we are anticipating this to be very successful, therefore would anticipate placing additional orders with Beam in the coming months."

$1m worth of Oceana 400 and 800 terminals will be delivered

VSAT switchbox added to HubbaX

www.buzzconnect.co.uk

UK-based Buzz Marine, the suppliers of HubbaX mobile broadband for maritime, has developed a system for its mini-dome to allow automatic switching from a vessel's VSAT.

HubbaX operates using the land-based GSM mobile system in the UK. The 'switchbox' manages the changeover from the VSAT when a 3G signal is in range. When no 3G signal is available, the VSAT connection continues as normal.

Buzz says that the HubbaX is able to make 3G connections up to 20 miles offshore. The new software it has developed will enable the HubbaX to recognise when it is in range and automatically switch. No

manual intervention is required.

"There is an increasing demand from boat owners to be able to stay connected while cruising and they expect to do this with a download speed similar to that experienced at home or via their VSAT," says Steve Smith, managing director of Buzz Marine.

"For the first time this is now achievable without the need for more expensive satellite communication costs until you are up to 20 miles offshore."

The HubbaX is a stand-alone inshore communications unit with typical download speeds of 7 Mbps and uploads of 1 Mbps, for a recommended retail price of £595 plus VAT. The new VSAT switch system costs an additional £125 plus VAT.

Your input is the most important piece of the puzzle.
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Everything drops into place.
Ask for more, get more.

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VSAT – from 'nice to have' to 'must have'

Having spent two years evaluating a variety of satcom systems, in late 2011 Odfjell Management signed a deal to roll out Ku-band VSAT across its fleet. By the second quarter of 2013, 44 vessels will have implemented the new systems – and the benefits have been significant, as Vidar Børve, Odfjell, explains

Norwegian tanker company Odfjell Management, managing a fully owned or bareboat chartered global fleet of 50 chemical tankers, has, in the last twelve months, been engaged in a satellite communications roll-out project which has seen the introduction of Ku-band VSAT services to its ships.

The company provides a whole range of core services such as fleet management, crewing, technology management, risk and QHSE management, and corporate procurement for its ships, and has seen connectivity requirements expand inexorably in recent years.

These requirements helped to drive the company's decision to review its satellite communications infrastructure and investigate how it might improve its ability to transfer data between ship and shore, and led to the initiation of an evaluation and testing project whereby Odfjell examined the merits of a number of competing systems.

The criteria used to compare the different technologies were drawn up based on the particular priorities important to the company and most relevant to its own operations, according to Vidar Børve, electrical and automation manager at Odfjell.

"When we started this we had some requirements. We wanted high quality broadband, which should be reliable as it is critical to support a variety of applications for the company, including improved operational efficiency, crew welfare and business administration," he explains.

"The first thing we started with was crew welfare. That was really important because we know that when the internet was coming onboard the crew was really happy. Crew retention is important to us, we don't want people to finish their career with Odfjell because they don't have the internet."

Beyond crew usage, there were a number of specific operational goals that the company was also looking to be able to achieve.

"We wanted to improve our operational efficiency to have remote access for third parties, for navigational equipment, engine monitoring systems, cargo monitoring systems and so on. There are a lot of systems out there that can be more easily serviced by remote support," said Mr Børve. "Then we have our own business administration tools, which we would like to adapt to use with this kind of system."

"We also set down some other criteria when we started working on this. Communication costs should be low, we should not overspend above what we were already using on the Fleet77 and the Inmarsat-B. It should provide global and secure internet, e-mail and phone services – being global was important, so we needed a backup system."

The criteria that Odfjell identified as priorities for its new services formed the backbone of its subsequent evaluation programme, to support the decision on which technology would be best suited to the company's specific needs.

"During the decision process we analysed different networks, Ku-band versus C-band, and we had a FleetBroadband as well," said Mr Børve.

Odfjell will have 44 vessels installed by the end of the second quarter of 2013

"We did some live trials with different VSAT vendors for two years, and did a cost/benefit analysis. We wanted the return on investment to be approximately two years."

"Our ICT department in Odfjell was also involved regarding the design of the infrastructure on shore. This has to be integrated with the Odfjell office in a secure way."

Choice

Having completed its evaluation project, Odfjell decided to opt for a Ku-band VSAT system from Marlink, a WaveCall product with bandwidth speeds of 512 kbps on the downlink and 256 kbps on the uplink.

"Marlink was offering us a good solution, so we went to them for a workshop at Eik (Marlink's own teleport), and then we decided to sign a contract with Marlink in September 2011," Mr Børve recalls.

"A global system was important for us. Even though Ku-band is not global, it's almost there and there are not many black spots left. To have a global and secure system we also installed a FleetBroadband bundle with the VSAT. We had one price, which included the VSAT and FleetBroadband bundled together."

This satcom system is integrated with a specially designed network infrastructure both on the vessel and on shore, with access separated by function.

"On board we have three VLANs, an administrative LAN, a public LAN for the crew, and a technical LAN for our technical system," explains Mr Børve.

"For the security, we have a VPN between Marlink and Odfjell. This is for the ICT department to make sure everything's working and that it's very secure. All the routing, from our three LANs on board, is now routed directly to the Odfjell office."

"We have four VSAT IP phone lines, and one FleetBroadband backup phone line. We have web filtering on shore, done by Marlink at Eik, and we also had web fil-tering and proxy management on board done by Odfjell ICT. We have a firewall on board and we have VPN access for third party companies to the technical LAN, through Marlink."

The company also has onboard wireless Gigaset phones, again managed by Odfjell ICT, and a CommBox (designed by Norwegian company Virtek before it was bought by KVH). The CommBox is connected to the VSAT and FleetBroadband, which is connected to the Marlink teleport at Eik, and manages the connection so that, if the VSAT is down, the FleetBroadband will be used.

Roll-out of the system has progressed at pace since the contract was signed approximately 18 months ago, with the first vessel installed late in 2011 and another two vessels done by the end of that year.

"The VPN was established in the third quarter of 2011, one for VSAT and one for the FleetBroadband. The first vessel, Bow Cecil, was installed in October 2011," said Mr Børve.

"Then we installed 28 or 29 vessels during 2012, and we plan to install another 14 by the end of the second quarter of 2013. That will give us an installed total of 44 vessels – and I think that is pretty impressive work, by us and by Marlink."

"Now we are working with the VPN for the third party access to the technical LAN. It has been tested by us in Bergen and we are able to ping our computer when it's out there, so we'll finish testing in the first quarter of 2013. We will be testing it on some engine control systems on board, for example."

Planning of the installation process was done by Odfjell in conjunction with Marlink's project engineering teams at Eik, supplemented by weekly status meetings conducted over the phone.

One aspect of the process decided upon at an early stage was that Marlink would send all of the necessary hardware for installation to the shipping company via Odfjell's logistics partner, rather than sending it directly onboard.

"We learned that this was more efficient for us, as we are good at supplying our vessels ourselves. If they send it to our own logistics partners then that works best," notes Mr Børve.

"There are three packages, from Marlink, from our own office where we do the firewall and ICT extension package, and we have another package coming from another supplier with our wireless phones, repeaters, and access points for the installation material."

"On board, we always have an on-site project manager from Odfjell. He coordinates with the crew and the Marlink technician who comes on board to do the com-

The company is providing Wi-Fi for its crews and running remote connections to onboard systems

missioning of the antenna and connecting it up to Marlink's system."

Implementation of the systems also includes on-site training of the crew in some very basic elements of its operation, a procedure which Mr Børve sees as a very important part of the process.

"That's crucial, because if you have a fault, we need to know where to turn it on or turn it off – to turn it off and turn it on again is always the first step, and it usually helps! So this training is very important," he notes.

"However, when it comes to reliability, we have not had many faults. We had three antennas that we had some small faults with, but these have been solved quickly by Marlink sending a technician on board."

"The performance is as we were told – on average, very good performance in all spots. As for the speed, we are getting the 512 kbps we were promised."

Results

Having completed implementation of its new VSAT service on dozens of vessels since this project began, Odfjell has seen a number of noticeable improvements, both to its operations and in the feedback it receives from its seafarers about their experiences on board.

"The crew are really satisfied. We installed public free Wi-Fi in the cabins, so all the crew has free Wi-Fi internet," said Mr Børve.

"This has been very important, we have a lot of Filipino crew and they are using Facebook a lot, I think they use it more than the Norwegians."

"It's also cheaper to make calls, the VSAT crew phone is cheaper than the Inmarsat crew phone, and that has been a big benefit for them."

The company has its own firewall and content filters to manage security on the Wi-Fi connection, and Marlink has its own content filters which are also applied, restricting access to undesirable traffic.

Discussions were also held between Marlink and the company to look at blocking applications like Skype, which can eat up a lot of bandwidth just while running normally. Theoretically Skype is available via the connection, but as it could harm the availability of the system to other users on the vessel various levels of traffic blocking had to be introduced.

Outside of crew access, the biggest business benefits have come through the provision of remote support and the ability to access onboard IT networks from shore, though the company is also now experimenting with new applications that it might like to add to those it typically uses.

"It's now easier to connect to the vessel for remote support, and it's much easier to manage the ICT equipment on board," said Mr Børve.

"We have been pleased with Marlink's understanding and flexibility when we have been looking at new solutions and testing things. For example, if we want to test a new medical video conferencing system, it is possible to do things like that. It is also possible to use things like MS Lync and Communicator, not with video but we are able to use it for speech."

"The remote access to the technical LAN is something we're also working a lot with. It's an area where we can save a lot of money, on the support and service we need for our systems. In many cases it can be very good if the company can go on to the remote support to do diagnostics on the system before they go on board, and maybe they can even solve the problem before they go there."

Odfjell is currently testing IPSec technology for use in this regard, to ensure external access could be provided secure-ly. Internet Protocol Security (IPsec) is used to securely manage IP communications by introducing authentication and encryption for each IP packet of a communication session.

"We're also going to test packet shaping technologies, like BlueCoat, though we are not convinced by this yet, as it will mean another 'box' on board – and we don't like too many boxes on board," notes Mr Børve.

"We like to remove boxes from the vessel, it's easier to have the boxes on shore, and have one box instead of 50 boxes on the vessels."

"We are also testing new online web applications, for shore and on board. We're going to test using Citrix, and things like this will help to make the vessel the same as any external office that we have around the world. We also hope that we'll get increased satellite link capacity from Marlink."

While these technologies may represent the future for Odfjell, for the moment the company has been satisfied by its progress to date in its satcoms upgrade project. These experiences have convinced Mr Børve that his VSAT technology is now no longer a 'nice to have' but a 'must have' in maintaining a competitive advantage.

"We've had a high delivery rate, 27 vessels in one year, which is a lot," he said.

"Our crew is really satisfied, getting more bandwidth than they expected. Operationally, our vessel is now almost like an ordinary external office. Our headquarters has direct connections to all our VSAT vessels, and overall we have lower communication costs."

"Our vessels are directly connected to the Odfjell LAN, and this has been very important for us. It's the most crucial thing that has been delivered for us." **DS**

Intellian introduces FleetBroadband range

www.intelliantech.com

Maritime satellite antenna manufacturer Intellian has introduced three new terminals for use with the Inmarsat FleetBroadband network.

The company will produce all three FleetBroadband product variants, FB150, FB250 and FB500.

All terminals will be equipped to offer simultaneous voice and data services, IP connections for e-mail, internet, fax and SMS, LAN interfacing and single-user and multi-user router features, IP handset interfacing, firewall capabilities and vessel fleet tracking.

The first 150 and 250 FleetBroadband terminals will weigh 4.4kg (9 lbs) and measure 44cm (17.3 inches) in height. The FB150 can reach data rates up to 150 kbps, while the FB250 can go to 284 kbps.

The FB500 termi-nal, with its 432 kbps capability, weighs 15.5kg (34.1 lbs) and is 71.8cm (28.3 inches) in height.

Intellian says that all three new products will complement the company's Global Xpress hardware systems, and are XpressLink capable.

Available since early March, with a three-year warranty, they will be priced at: FB150 - $7,300; FB250 - $11,000; and FB500 - $17,000.

The new Intellian FB500 will retail at $17,000

Imtech Marine extends Ku-band VSAT network

www.imtech.eu

Imtech Marine has extended its global Ku-band VSAT network to add coverage in the South Atlantic Ocean, between South America and Africa.

The network utilises the iDirect Evolution platform, supporting capabilities such as automatic beam switching.

Imtech Marine, together with its Florida-based partner ITC, has recently upgraded to the latest version of the iDirect Evolution software, version 3.1, which the company says will allow maritime terminals to switch beams faster and more easily than before.

The new software is also claimed to be able to improve IP throughput and to offer more efficient multicasting, making video applications more efficient.

Eric van den Adel, Imtech Marine managing director, thinks that "by upgrading our global VSAT network, we can offer our customers a higher throughput, better coverage and provide the most economical and effective business and crew communications."

MTN and BATS exclusive partnership

www.mtnsat.com
www.extendingbroadband.com

MTN Satellite Communications (MTN) is going to partner with Broadband Antenna Tracking and Stabilization (BATS) to deliver the BATS wireless system to cruise, ferry and large yacht markets.

Florida-based MTN has announced that both companies have entered into an exclusive partnership to offer those vessels in-port and near-port maritime wireless broadband.

BATS is a hybrid network service, leveraging both satellite and terrestrial broadband. It provides a software and hardware platform that locates, locks and tracks wireless broadband access points.

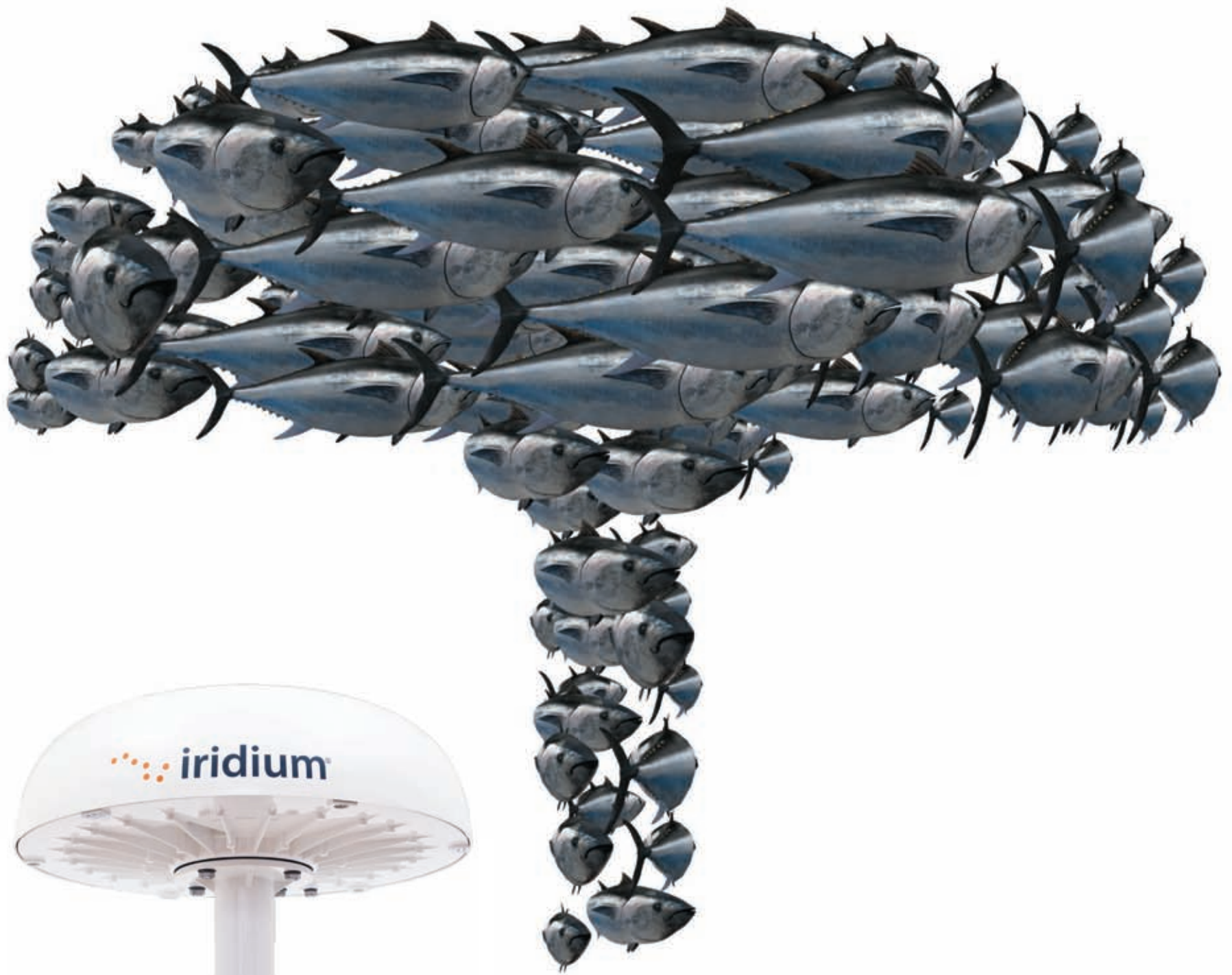The system also delivers an automated connection to communications antennas.

MTN says this is "ideal" for vessels that are entering and leaving ports with obstructed terrain and buildings.

"It is imperative that we provide the industry's best terrestrial connectivity in and near ports," commented Bob Wise, chief innovation officer, MTN.

"The BATS solution is one that proved to not only meet, but exceed, our customer requirements, as well as address the unique make-up of each port around the world."

Ship Shape

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Iridium Pilot delivers reliable, high-performance global voice and data communications, backed by an industry leading five-year warranty for peace of mind — no matter where you are.

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Everywhere

www.iridiumpilot.com

Using VSAT – stage two

Having embarked on its first VSAT installation project as far back as 2006, Norwegian shipping company Westfal-Larsen is now involved in what it describes as 'stage two' of its use of the technology, as it upgrades to new systems on its vessels. Stig Hilland and Are Andersen, Westfal-Larsen, describe the project

In shipping since 1905, the Westfal-Larsen Group has seen many ups and downs in the maritime sector, and has had to adapt to various demands on the way it does business over the course of its history.

Currently, the company has 35 vessels currently owned or under management. Management of these vessels is split between the company's offices in Bergen, in Norway, and those of its wholly owned subsidiary Masterbulk in Singapore

17 of the ships are managed from Bergen, comprising five open hatch dry cargo vessels, 10 chemical tankers, and two product/chemical tankers. Trade for these Norwegian managed ships includes routes from the Arabian Gulf to the Far East as well as from South America to Europe and Asia.

For Westfal-Larsen, efficiency is the name of the game when it comes to stay-

Westfal-Larsen will upgrade the VSAT systems on 10 vessels during 2013

ing competitive in the maritime market and maintaining an edge over larger competitors. Communications plays a particularly important role in this, as Stig Hilland, senior vice president fleet management department, Westfal-Larsen, explains.

"We have over 1,000 seafarers in total. The largest group of employees are 950 seafarers from the Philippines, and the second largest group are 100 seafarers from Latvia and eastern Europe," he explains.

"About 120 persons are employed in the shipping offices in Bergen, Singapore, Manila, Livorno, Rio de Janeiro, Dubai and Shanghai. We have a business reaching around the world, so we require good communication."

"Our mission is to provide first class marine transportation services to our customers. But how can a small business like ours aim to do this and compete with the big companies? I think that we need an attractive fleet of vessels, that's number one, and we need good organisation, both ashore and aboard. But one of the main things for me is communication. We need good communication to be able to survive in a very tough market."

Cutting edge satellite systems have

formed a significant part of this communications strategy for a number of years, with the company having already begun using VSAT systems in 2006.

However, Westfal-Larsen has continued to look at ways to expand and improve its capabilities, and is currently involved in what Mr Hilland describes as "stage two" of its use of VSAT.

"Whatever we talk about in terms of megabytes, we know that tomorrow we will need more. So we have looked to upgrade the system further," he said.

Communications drivers

Mr Hilland believes that Westfal-Larsen's ability to remain successful in the shipping business has been built on its ability to manage and leverage its data to maximise the efficiency of its operations, and to introduce applications that assist in achieving these aims.

"As a small company we do everything in-house. We have a fleet of very modern vessels which means that in order to survive we need to stay on top of things – and that means communication," he said.

"We need good feedback from the operations and chartering departments, there's no room for any hiccups when it comes to communication between chartering and the vessels. They have to be available."

Operationally, there are a number of focus areas for the company where the application of technology is deemed particularly important.

"Technically, we want to do things like transfer of data, troubleshooting, and upgrading," said Mr Hilland.

"We think there are a lot of additional things we'll be able to add to this in the coming years too with good communication equipment onboard."

"Another thing we are focused on is safety. We are trading in some high risk areas, like the Gulf of Aden, which means that communication is very important. For medical issues it is also important to have good communication, in case something happens with the crew."

Crew safety is a key issue for Westfal-Larsen, but so too are other aspects of crew welfare – and the choice of communications systems on the ships plays a large part in the company achieving its aims in that area as well.

"Communications have to be available for the crew. As a small company we are competing in a very tough market, so we have to be attractive, and we have to have motivated crew that can communicate with their family," said Mr Hilland.

"We recruit mainly young seafarers today, and, of course, there's no way they will leave their laptop or cellphone behind. They need to have them, even if they're onboard for a couple of months."

"We are not working in offshore, we are deep sea, so this means that they are onboard for two to four months, even the top officers."

VSAT – the story so far

Having first installed VSAT systems in 2006, Westfal-Larsen has been able to make some notable advances in these areas in the intervening years, starting with crew welfare.

Using its satellite systems the company has been able to provide free internet access to its seafarers, with private e-mail and chat facilities, and most of the support that they would need.

"For us, because we are working very closely with the owners it gives us the opportunity to have a direct line to a decision, and we were able to test it out on the first vessel as early as 2006. I think we were among the first to do some of these things for deep sea vessels," explains Mr Hilland.

"When we started this in 2006, crew welfare was probably at the top of the list. That was during the 'hot' shipping market, and in order to be attractive as a small company we had to be a little bit ahead of the big ones. (The communications services) kept us attractive and we have been able to keep our crew. The officers especially have been very happy with it."

"The retention rate of our top officers and crew is very, very important to us. I'm 100 per cent sure that the VSAT systems we have today are one of the most important things we have onboard to keep to our key performance indicator (KPI) when it comes to crew retention."

From an operational standpoint there have also been a number of advances, mainly in areas where an improved flow of information can help the vessels to run at their optimal level.

"We have been able to use the VSAT and the communication we have today to do much more troubleshooting in a shorter time frame," notes Mr Hilland.

"Off hire is, of course, a big, big cost and this gives us the opportunity to do more online troubleshooting."

"We have a ship management business system with continuous replication, and

we have direct access to relevant websites and online databases. All of this is just pure benefit."

The mere fact of eliminating delays in messages being exchanged between ship and shore has also created a range of benefits, as Mr Hilland notes.

"There's very close cooperation now between the vessel and chartering department, they are online, they are available, there is no delay in the communication. We exactly know where the vessels are, what cargo they can take, if they're ready or not ready," he said.

"It also allows us to do more with documentation and larger attachments on e-mails are allowed."

"We have good communications with agents and have direct access to all sorts of websites, so it gives the crew more availability in terms of communication and they are also more motivated because they have the opportunity onboard to search for all kinds of information they need."

VSAT – stage two

The successes achieved by Westfal-Larsen in its first experiences with VSAT have emboldened the company to push its use of technology even further, and it is currently in the middle of an ongoing upgrade project – the 'stage two' that Mr Hilland described.

This will see the company roll out the XpressLink service from Inmarsat, combining Ku-band VSAT with FleetBroadband for a fixed monthly fee, as Are Andersen, Westfal-Larsen IT manager, describes.

"We have been using VSAT services from the former Ship Equip, now Inmarsat Maritime, for six or seven years already, and now we are moving forward to phase two," he said.

"The suppliers call it XpressLink, and we are expecting to deploy the basic service during the first half of 2013, though we might have to wait until the second half of

'Whatever we talk about in terms of megabytes, we know that tomorrow we will need more' – Stig Hilland, Westfal-Larsen

'All of the bandwidth given to the vessels is utilised – that's a fact' – Are Andersen, Westfal-Larsen

the year on some of the vessels."

"We will do 10 upgrades, and we have done three out of 10 so far. All of them have been quite successful."

There are a number of specific benefits to the system that the company has identified – one of which is the fact that the costs of any back up L-band usage are already included in its monthly fee.

"The combination gives us 100 per cent internet availability, and since this is a fixed costs product with those two carriers combined, we can also wave bye-bye, hopefully, to most or all of the additional communications costs that we have had," said Mr Andersen.

"As we all know, the prices (on FleetBroadband) have increased, so there would still be significant additional costs whenever we are offline from the regional VSAT services that we are using."

Another major advantage identified by Mr Andersen is the provision of a global roaming IP address for the ship with the XpressLink service.

"This means that our vessel, or the system onboard the vessel, will have the same public IP address wherever it is in the world," he said.

"That's a huge benefit for us, we don't have to maintain a complex infrastructure – it is significantly simplified."

"We are also, according to the supplier at least, very well prepared for the next generation, which is the step up to GX (Global Xpress) Ka-band. 2014 is not far away, so we are, of course, looking forward to having another step up when it comes to the bandwidth. We know for sure that all of the bandwidth given to the vessels is utilised – that's a fact."

One additional benefit that Mr Andersen is hoping for soon, though it has yet to be delivered, is an integrated overarching firewall that can assist in making management of the various ships in the fleet a simpler process.

"We are still waiting for a fleet firewall service that we have been promised," he noted.

"I'm sure it is only the quality checking that has been delaying it, from 2012 and now into 2013. It's surely just around the corner – I hope."

"That would also help for us, today we have individual firewall set-ups on each and every ship."

Having access to such a firewall will be particularly important in maintaining security now that Westfal-Larsen has used the XpressLink systems it has installed so far to provide Wi-Fi internet access to its crews.

"We have given the crew some freedom (to access the communications), we have Wi-Fi hotspots where they can come to connect, though they have to come to the Day Room to use their own personal laptop," notes Mr Andersen.

"They can't sit in their own cabins and use internet freely. When it comes to control of the rest hours, we also trust the captain in full – he is the one in charge and he should be the one to make sure that all of his crew are well rested and well prepared to do a good job."

Further opportunities

As Westfal-Larsen continues on its upgrade programme, and draws nearer to completing the installation of its 'second stage' VSAT systems on its ships, the company is looking ahead to what kind of applications it can introduce to take advantage of these capabilities, and stay ahead of the game when it comes to the competition.

"I think we have prepared well for the ever increasing bandwidth demand we see in our fleet," said Mr Andersen.

"We are preparing to go online with ECDIS and ENCs, all the structured systems that we have onboard will be continuously replicated instead of replicating once per week or once per day – now they will be on a continuous link. So all business systems are updated both shipside and shoreside – continuously."

"We are looking forward to testing video conferencing maybe. We are also looking to provide our suppliers with real time updates, or maybe even real time connections, to their own equipment onboard to do troubleshooting and proactive servicing. This is also a significant step forward."

Mr Andersen is hopeful that the maritime IT providers across the industry will add a number of new innovations to this list of potential technologies in the near future, providing the tools that will help highly-connected companies to optimise their operations.

"I hope the supplier industry will do more to explain what they can do to utilise this kind of onboard infrastructure if we have a reliable, always-on, connection," he said.

"What kind of possibilities will it provide to the suppliers of the hardware onboard the ships? I'm thinking of navigational equipment, all kinds of propulsion equipment, and so on. There's a lot of technology onboard these vessels today."

Mr Hilland also agrees that, following the completion of its 'stage two' VSAT project, the challenge will be to push the technological boundaries as far as possible.

"Developing this further is a priority for us, but the problem is finding enough time," he said.

"We can do video, we can do live upgrading – we have all these possibilities. The challenge we have in the future is how best to utilise the system." **DS**

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Sharing the broadband benefit

Greek shipping company Eletson is currently rolling out multi-gigabyte data packages to its ships, having committed to a deal that will see each vessel have access to 3GB of satcom traffic. Both the crew and the business have been able to take advantage of new applications and cheaper rates as a result, explain Manos Kothris and Michalis Kantartzoglou, Eletson

Greek shipping company Eletson Corporation is currently entering the final stages of a communications upgrade project that has seen the company exponentially expand its data usage across its fleet of vessels, moving away from legacy satcom services and into the broadband era.

'After two and a half years we have seen that probably we will need more than 3GB' – Manos Kothris, Eletson

The project stretches back more than two and a half years to the middle of 2010, when the company was approached by Inmarsat and asked to become one of the early trial customers for a new range of pricing schemes it intended to introduce to the market, branded as Large Allowance (LA) packages.

The project was managed by Inmarsat partner Navarino, which also included its Infinity communications management system as part of the installation. These systems would then be compared with another satcom product, for testing purposes, before the company would think about whether a fleet-wide communications upgrade was something it really required.

The early results of using the new systems made a big impression on Eletson, as Manos Kothris, the company's CIO, notes.

"Around the summer of 2010 we had a proposal from Inmarsat to test their new LAs before this service was available to the market. Eletson was selected along with five other companies to trial the system," he told us.

"The first system installed was a FleetBroadband 500 from JRC, and we tested it for six months. After that, because we had very good results, we decided to proceed and replace the old mini-M systems onboard with FleetBroadband 250."

"All of the vessels had at least two systems, mostly using Fleet77 and mini-M.

Now we have started replacing the mini-M with FleetBroadband 250, and there are also plans for the future to also replace the Fleet77. But for now we are very close to completing our plans to replace all of the mini-M units onboard with FleetBroadband 250."

The airtime package chosen by Eletson for its vessels was a 3GB SCAP which would see each of the company's ships installed with the system allocated a 3GB allowance per month, though Eletson has also opted to agree to have a 5GB package for one of its vessels, for further testing purposes.

"Most of the vessels have a 3GB plan, but we have one vessel on a plan up to 5GB. It is able to move from a 3GB to 5GB plan with no problem, in order to exploit the benefits of the combination of the data and voice," notes Michalis Kantartzoglou, system and network administrator at Eletson.

"We didn't know exactly how the system would operate in the beginning, so we preferred to have the two plans so we could run to 5GB if it is needed. For flexibility."

"I think that for many vessels we would be able to see usage from 3GB to 10GB at this time."

Mr Kothris agrees that maintaining flexibility in these data packages was an important aspect of the project for Eletson, given that it incorporated a new way of working with which it was unfamiliar.

"As you know, this service is a new service so there is not a lot of experience in the market and when we started this we didn't know how this service would work onboard, particularly the combination of data and voice," he told us.

"So we decided to have two different plans, one 3GB and one 5GB, to see how it works with our needs. After two and a half years we have seen that probably we will need more than 3GB."

"Now we are checking through previous months and examining the volume of data and voice to see how we will proceed in the future."

Eletson's LA (Large Allowance) was also part of a wider Shared Corporate Allowance Package, which meant that unused portions of the 3GB allowance on some ships could be reused by other ships in the fleet that were exceeding their own 3GB limit.

Inmarsat has generally increased its basic LA packages for FleetBroadband, with the company doubling the 3GB package to 6GB, at the same price, in late 2012.

As Eletson's contract was agreed prior to this change the company will continue with its 3GB allowance, however it will also be able to benefit from continuing to use voice minutes as part of this allowance, an option that has been removed by Inmarsat from new packages

as of May 2012 – a situation Eletson is pleased to be able to exploit.

Progress

Progress on the roll-out of these new systems over the last two and a half years has been steady, and Eletson believes that it is on track to have the updated technology on all of its ships by this summer.

"I believe that in the first half of this year we will finish the replacements. We haven't had any trouble doing the installations, for most of them the crew have undertaken to install the FleetBroadband and we even have two or three examples where the crew installed the Infinity system too," notes Mr Kantartzoglou.

"Now, we have 23 vessels installed. One of these vessels has two FleetBroadbands, a 250 and a 500, and another one has a FleetBroadband 500 and the Fleet 77. All the other vessels have Fleet77 and FleetBroadband 250."

"The fleet is 28 vessels. We have one vessel with a VSAT system, so we will install the FleetBroadband and Infinity system on 27 vessels."

While the complete list of installations is not yet finished, with the new systems up and running on 23 vessels Eletson is now beginning to appreciate some of the benefits that the improved bandwidth and additional gigabytes of data are bringing to its operations.

"The speed of data is good, it's faster than the Fleet77, the Fleet77 seems to be a very old system now," said Mr Kantartzoglou.

"I think now that data is far cheaper than it was before using Fleet77, so the cost of the communications for the company can be reduced if you have a good IT plan and you carry out a project like this well."

Crew welfare

Mr Kothris agrees that the difference in cost for data within the new arrangement does have a major impact on how the company approaches communications – and nowhere more so than in the usage of the services by the company's seafarers.

Crews are able to purchase Infinity PIN numbers to gain access to the system, for voice and data use. These PINs include 87.5 minutes of voice usage or 115 MB of data.

Wi-Fi points have been installed on accommodation decks on the Eletson vessels, allowing crew members to get online using their own devices.

"If we calculate the total cost for the business and the crew, the cost that the seafarers spent to buy scratch cards for mini-M and Fleet77, per minute, was much higher than the rate per minute with the FleetBroadband system," Mr Kothris explained.

"So, it is very important that, with this

'The cost of communications for the company can be reduced if you have a good IT plan and you carry out a project like this well' – Michalis Kantartzoglou, Eletson

system, we not only have better rates for the crew and for business usage, but also that we have additional services. The welfare of the seafarers onboard is very important, and now they have an opportunity to feel more like they're at home, because they have the opportunity to have an internet connection to get news, to get photos from their families, to use their own e-mail address that they use at home. That's very important."

"On the other hand, we all know that in the general market we have increased the data exchanges between shore and vessel for business purposes. So, if we look at all this together, we see that this step is very important."

While, as Mr Kothris has noted, operational data exchanges between ship and shore have indeed increased, the traffic involved in carrying business communications pales in comparison to the huge volumes being generated by the seafarers themselves.

"Usually the crew uses more than 2GB of the package, and we've even seen them go up to 8GB using the internet. But about 20 of the vessels have been installed in recent months, so it is still quite early to say what the average will be," said Mr Kantartzoglou.

"Every month I can see that the crew is using the internet more than before, every month it is increasing. But when a vessel sails to the US coast they prefer to use their mobile phone cards, because the mobile providers in the US offer cheaper bandwidth."

"However, the crew are the main users, the business data is a small amount of the whole package, about 300 to 400 MB. The crew is the reason that we use this system, and I think that the lower cost is a big issue."

The enthusiasm of the crew to get online is a major part of the rationale that makes an investment like the one Eletson has made on its LAs workable.

From a business point of view, crew retention is a significant driver when it comes to considering a new satcom system, but the company's ability to pay for that system can be enhanced if crew members are willing to invest a significant portion of their own earnings into buying access for personal use.

The result will be a shipping company that can commit to larger data packages and is consequently able to enjoy lower per megabyte rates, without having to significantly increase its monthly operational expenditure.

There is a chicken and egg element involved – a company needs to be sure of the level of crew usage before signing a contract, but gauging usage will be very difficult before signing the contract.

However, in the modern world it seems that in the vast majority of cases it is the crew that will consume most of the bandwidth available onboard, meaning that shipping companies can have a degree of confidence that their seafarers will support their satcom investments.

"The investment is based on many issues. The most important is that we would like to offer the best environment onboard that we can offer. This is influenced by crew availability," notes Mr Kothris.

"We would like to be able to offer internet free of charge, but unfortunately the cost of the connection from Inmarsat remains high. On the other hand, because we want to offer the best rates that we can to the crew, we offer the crew megabytes at a rate that is cheaper than our cost."

"I can say that the crew is happy – but of course they always ask for better rates!"

Operational benefits

One of the most important advances the company has made on the operational side, as opposed to crew welfare, is an increase in the remote support that it is able to offer in managing and maintaining the IT infrastructure aboard its ships.

The company has been able to gain remote access to computers on board via the new setup, using VNC (Virtual Network Computing) and remote desktop services.

"With this system we have the possibility to log in from the office to the vessel and to offer remote support, which is much better than having the captain on the phone and our office trying to explain several things to him," notes Mr Kothris.

Mr Kantartzoglou takes this point further by explaining that the direct effect of this increased level of access is a huge reduction in the travel that is required by engineers and IT personnel to fix problems that arise on the ships.

"It's really very important that we can support the vessel, we have reduced the travel about 70 per cent because we are able to protect the IT environment from viruses by updating the server on the vessel regularly and can maintain the IT environment," he said.

"So it is not often necessary to travel to the ships now, usually just for installation purposes or if there is any hardware problem."

This process is partly facilitated by the Infinity unit supplied by Navarino, which allows Eletson's ICT department on shore

Eletson provides Wi-Fi services on the vessels, managed via the Infinity box on board

to maintain a higher level of control over its connectivity systems than was previously possible, both from a usage standpoint as well as monitoring security.

"I think that Infinity operates very well. It's a robust system and offers many statistics to check and see how the data is being used," said Mr Kantartzoglou.

"It also provides very good compression, and the level of compression is visible. We can view the real amount of data that is exchanged with the vessels and the compression that has been done. It is usually about 50 to 60 per cent, so that means that the crew pays less for their usage and gets more value."

"We manage what the Infinity system is able to communicate with, the ports of the system. There is a firewall built into Infinity that gives you the ability to open or close specific ports or specific URLs. It needs management from us, but it is a strictly controlled network on the vessel. The crew LAN is also separate to the business LAN."

All of the rules governing usage of the system are configured at an Infinity hub, which is hosted on Navarino servers on shore.

"Whenever I want to change anything all I have to do is open a URL at Navarino's hosting address, and I will have access to all of the vessels through the portal," notes Mr Kantartzoglou.

"I can manage each vessel individually, or I can configure rules to the root system, that will be inherited by all the vessels below. Before Infinity, the only place we could see some of this data about the network was via the Inmarsat portal, but we could only see a few things."

"(Being able to see exact details of data traffic) provides value to the ICT department. We have an overview of the vessels so they're easier to manage."

Outside of remote support, greater access to online services and cheaper data has meant that Eletson can increase its usage of a number of other maritime applications, and improve the benefits it derives from them – including updates for anti-virus, weather and charts automated and sent through GTMail.

"Most of the maritime applications can be updated very easily, and we also have vessels navigating 'paperless'," said Mr Kantartzoglou.

"For instance, we had a problem with the navigation chart application on one vessel. It was very simple for our provider to connect to us and then for us to connect to the vessel, and the problem was resolved in a few minutes. We couldn't do this previously."

"We have other services that we use where the vessels need to be online in order to operate. We have Voyager replication,

and data replication for the maintenance and purchasing application, for example, and there is another new service of navigational warnings that needs the vessels to be online in order to be updated, and we have things like the ISM or operation system procedures files, which are exchanged between the vessel and the shore."

In general, Mr Kantartzoglou says that these capabilities just "make operations better."

"I haven't measured how much money we have saved with these new ways of working, but we are saving money by having all of our applications running better than before," he explains.

"Now, whenever a system on the vessel has a problem, it is very easy for us to act and to solve it."

Future

For now, Eletson is happy with the changes it has made to its onboard IT infrastructure.

The FleetBroadband systems it has introduced have increased the speed at which it can connect ships to shore, while its SCAP agreements have brought data costs down to a level that has so far been acceptable to both the business and the crew.

The Infinity equipment installed on the ships and the new levels of remote access it has introduced have made management of vessel IT simpler, and have introduced additional operational savings not possible using the older technology.

Eletson will look forward to completing the roll-out of this set up to the remainder of its fleet in the next few months – but after that the company says it intends to continue to look to the future and possible additional improvements for its next IT project.

"Maybe the best approach is to have the vessel as part of our domain on shore," notes Mr Kantartzoglou.

"To design this we need reliable bandwidth and a reliable network, but I think we need a faster and cheaper connection."

In that regard, Mr Kothris says he is looking forward with great anticipation to the launch of Inmarsat's Ka-band Global Xpress network, to see what the next generation of satellites may be able to offer.

"We think, and we hope, that it will be very interesting for shipping companies when the new service from Inmarsat, Global Xpress, will be available in 2014," he said.

"In that case, the combination of the two systems, FleetBroadband and Global Xpress, will offer the possibility for a real online connection. And that will give us a whole range of new opportunities to explore." **DS**

Most of Eletson's ships have been installed with a FleetBroadband 250 antenna, though a few FleetBroadband 500 systems have also been used

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As pressure on costs continues to grow, the ability to do more with less is a major objective for many companies. Technology provides important tools to help people push their resources as far as possible – and helps Tore Meum of 99X keep 15 Klaveness vessels running single-handed, as he explained to *Digital Ship*

Norwegian-headquartered Torvald Klaveness, in describing the history of the shipping company, declares with pride that 'innovation' has formed a core component of its successes in the last 65 years, which has seen the company grow since its founding in 1946 by Mr Torvald Klaveness to today operate more than 100 vessels carrying some 40 million tonnes of cargo per year.

Responsible for managing the technology requirements of a portion of this fleet is Tore Meum, senior consultant at 99X, an IT outsourcing company partnering with Klaveness in running its vessels. In this position Mr Meum acts as head of IT-ship solutions for Klaveness.

Oslo-based 99X has 200 employees, 100 in Oslo and 100 in Sri Lanka, and performs outsourcing and consulting services, service management in IT and application services (development and management).

Currently it is responsible for running the IT ship systems for Klaveness, as well as the rest of its IT systems, for operations in both Oslo and Asia, helping the vessel operator to choose the right partners and integrate the right systems.

"We are concentrating on the core systems – the office onboard the vessels," explains Mr Meum.

"We are not alone. We want good partners with us, as Klaveness want us to be a good IT partner. Even though there are quite a few suppliers for Klaveness for IT systems, we are the single point of contact for them. They call, and we put them in touch with the right people."

Mr Meum is currently coming to the end of a two-year project that the company has been working on, based around introduction of a new network and communications infrastructure on board the Klaveness fleet, as it looked to replace existing obsolete equipment.

"Like many others, Klaveness has had to deal with the challenges of old systems, and new communications solutions coming up and giving us new challenges," he explains.

"When Klaveness came to the end of life for the hardware on the old solution, we took the opportunity to prepare a new one, cleaning out our main challenges."

The top five problems with the older systems, as Mr Meum describes it, included viruses, getting patches out on an old standalone system with PCs and old servers, seeing the hardware getting old and having breakdowns, and the need for extensive administration in building images for the PCs on board and keeping all of the assets straight.

This state of affairs was unacceptable to the company – and so, Klaveness decided to begin a project to upgrade its onboard IT to a level that would remove these issues and help to drive efficiency.

"We have a pretty fixed structure. There's a ship's office with workstations, a bridge with workstations, and then an engine control room," he said.

"The previous infrastructure was made for operation with one carrier only, often Inmarsat-B. There was no internet."

"So, together with Klaveness we outlined some requirements. Of course, they have an application package that changes over time, and they have the same needs as most companies. We highlighted some key factors that would be part of us building a new solution for them."

One of the key priorities for the project was to create an infrastructure that would be easy to install and could be identical on all of the ships.

"What we wanted to do was use the 'best practice' out there in the IT market. We wanted it to be as robust and virus-free as possible, and we wanted to standardise on a good hardware package for them, so that when we need to deploy a new vessel we can click one button and have a standard package coming in," explains Mr Meum.

"We wanted it to be replicable, something that we could have 40 to 50 per cent ready once we had the hardware in-house and did the basics on the system."

"Together with that, we wanted it to be easy, with our partners, to get a new vessel up and running. In that regards there were some choices made, though nothing revolutionary – just some good standards and good routines, things that are repeatable."

Vessel set-up

The new infrastructure created during this project was based around the application of VMware server virtualisation technology and Wyse Thin Clients, with the aim of creating a simple, but robust IT environment.

"We are using virtualisation on a good hardware box, where we can add or remove services or servers in a very easy manner," notes Mr Meum.

"We have chosen to use Wyse terminals, thin clients, for the daily operation onboard and for the crew to actually do their work. We have one captain's laptop in order to get new data into the server structure, and also take things out. We have chosen HP printers, to make it easy to get drivers and supplies around the world, so we don't have to ship things out from the head office."

"We have Cisco unmanaged switches on board, so if something dies you can take another one and put it in and you're back up."

Redundancy, to make sure that an equipment failure doesn't knock out the entire network, is ensured through the use of redundant backup hardware on the server.

"This is the best practice for the virtualisation solutions we are using elsewhere, there's a multi-disk system on the server," said Mr Meum.

"It's split up into several servers with several services, so we have a main server running all the core services, like DNS, DHCP or file print, and we have a separate terminal server, of course, for the thin clients, not affecting the main server, should there be an attack or any severe issue. We have another separate maintenance server on board, with proper defences running. So we have separated the servers into several different servers."

"We have used the same solution in a non-virtualised environment for many years on Klaveness vessels, so we know the stability of the server is very good. So far, having been with Klaveness for 10 years, I've seen just one serious server crash in that period."

On the communications side, the company introduced KVH VSAT systems, delivered as a turnkey solution that is tested and then shipped out. The satcom system is linked to Dualog's Connection Suite middleware application, which is used to manage the satellite connection.

"(Dualog allows) fleetwide configuration, so that when we deploy a new vessel we just add it and add the configuration – and we're up and running," said Mr Meum.

"We are using all the bits and pieces (of the Dualog system), firewall and web compression, as well as the e-mail and file transfer system."

"We are using a self-deploying antivirus system from Dualog, so we are always up to date. We run a good patching routine to maintain security, at the OS

'When we deploy a new vessel we just add it and add the configuration – and we're up and running' – Tore Meum, 99X

level, and we have the same for the applications on the terminal servers as well. There's no such thing as a totally failsafe system out there, but you can reduce the risks and the downtime by having good routines and thinking twice before you let go and have the internet open."

Mr Meum notes that, while these technologies form part of a new standardised package, standardisation on hardware and processors was already part of the previous ship IT solution that Klaveness was using – the difference now just involves moving to a more efficient platform.

"What we have done now is just develop a good platform, taking away all the main time-consuming tasks like cleaning up viruses, or reimaging and reinstalling applications. It's all on the server now, and we can manage it from the office very easily," he explains.

"A project like this takes a lot of work and a lot of hours. We pretty much had the structure ready and knew what we wanted from the start, and very much used technologies used by the rest of our customer base. So we were on a familiar basic level when we started this project for Klaveness."

"A base set-up for a standard package like we have done for them is still between 350 and 400 hours. Nevertheless, when you've got 15 vessels to deploy, with deployment, development costs, and the reduced annual run cost, you have a return on investment within a year actually. In addition, you have a stable, modular solution ready to handle tomorrow's challenges."

The company has also introduced a defined life cycle length for the standardised network, to assist in forward planning and budgeting for vessel IT.

"Any hardware put on any ship, or in any office, has a lifecycle. For the new components we have added to the Klaveness system we have a life cycle of

A typical Klaveness bridge installation

15 vessels are currently being supported, soon to become 21

five years," said Mr Meum.

"Now that we have that in place we have a good base for the ship management to budget ahead, knowing exactly the next time they will need new hardware. The beauty of it is that we can then move the existing solution from the existing hardware over to the new hardware, without having to start from scratch, because of the virtualisation."

Comparing old and new

To really understand the particular benefits of upgrading its IT infrastructure, Mr Meum draws some parallels between the two generations of systems used onboard the Klaveness vessels.

"The old system, built from scratch on a dedicated hardware server, had PCs and drivers and things like that, images and applications. Adding new kit, even standardised things, was a 40+ hours job," he explains

"With the new system it takes 20 hours. From having the packages in-house it takes me 20 hours before I can ship it out, ready."

"Onboard, even more importantly, it used to take another 40+ hours to fit with the infrastructure that was in place. You'd have to run around, put in images to add computers to the domain, add user access and your 'locking down' policies. On the new system we are doing that in 10 to 15 hours."

On an on-going basis, one of the biggest differences is in the number of people required to keep the vessel IT systems running – which has now been reduced to a single person, Mr Meum himself.

"Even though we have had a very good remote connection system, even on the Inmarsat-B it has been working quite well, we needed many more people to create and maintain images for PCs and workstations, constantly sending out anti-virus updates, patching things – it was horrible," he notes.

"We had two or three people working on it, on the old solution. Today there's just one person – that's me."

Being the single point of contact for the vessels also allows Mr Meum to collect statistics on IT support to illustrate the extent of the changes.

"When we rolled out the new solution in 2010 we had approximately five to 20 (support) cases per month. Mainly that involved cleaning out viruses and re-imaging PCs on board. In the worst case we had to clean out a server as well. There were a lot of jobs, and it was very slow on Inmarsat-B if we wanted to do it remotely," he said.

"Today we have, from the first deployment and with two years' experience on the new solution, we have between zero and four (support) cases per month. Mainly these cases are on straight communications issues, where they've suddenly gone out of coverage or several workstations have gotten too eager on Facebook. We have nowhere near the kind of problems we had on the old solution."

"As of today we have 15 vessels, and have six new ones coming in. At the moment we don't need any additional resources to run the IT solution for the company, and I think 25 to 30 vessels will still be within the range where we can realistically support the ship IT solution with a single person."

The effect of this reduction in travel and staffing on IT costs has been significant, and Mr Meum notes that Lars Erik Luthman, VP, strategy and business development at Klaveness has stated that the company's deployment cost of IT for new vessels has been reduced by 50 per cent, and that annual operating IT expenses have been reduced by 90 per cent.

This has created an accumulated annual saving of US$500,000 for the Klaveness fleet.

"That relates to the current number of vessels, 15, so they will know exactly what to expect from the next six as well," notes Mr Meum.

With these positive cost effects, reduced complexity and better communications to and from the ships, it seems that the upgrade project has been a wide-ranging success – an encouraging result for Mr Meum as the outsourced head of IT, and beneficial for Klaveness as it looks forward to the rest of the decade and continuing its investment in innovation.

"We've got a happy customer, and we still have a happy IT outsourcing department," he said.

"We have a happy crew, they have internet suddenly, though with a bit of restriction on what sites and what services they can use. Facebook is one of the things that they can use, and we've had a very good response on that."

"The solution is working well, it's stable and needs a minimum of maintenance and manpower to run as expected. That was, and is, the main goal for introducing this new solution." DS

We keep you connected
from **up there**

to ensure smooth passage
down here

New trim optimisation module from Interschalt

ICS to publish eBooks

www.interschalt.de

Interschalt Maritime Systems has developed new software that aims to assist vessel operators in keeping trim at the optimum level, and consequently save fuel.

The TROP trim optimisation module, now integrated into Interschalt's MACS3 loading computer system, calculates how the tanks need to be filled to achieve the ideal trim.

"The user can now even automatically determine the best ballast distribution necessary to save the greatest amount of fuel," says software developer Bernhard Finke. The module also takes into account all safety regulations pertaining to stability and strength.

Interschalt claims that by using TROP, a medium-sized container ship transporting some 7,500 TEU at 20 knots could save 2 to 3 per cent on fuel, and thus save in the region of $1,500 to $2,200 a day.

During the 1990s, ship-owners were using models in towing tests designed to determine the trim that produced the lowest resistance as a ship moved through water, notes the company based near Hamburg (Germany). These tests showed that, in many cases, a slightly lower forward draft yielded the ideal trim.

Based on these findings, Interschalt added a ballast-optimisation tool to its MACS3 loading computer system. Over the next 15 years however, interest in the module declined because of the costs of conducting the associated towing tests, says the company.

"These days, towing tests can be realistically and economically simulated with special software," said Mr Finke.

"However, determining the optimum trim is one thing; being able to practically apply these findings in actual ship operation is another."

After a ship has been loaded, the crew usually has only one method left to alter its trim: using the ballast tanks. TROP calculates how to fill the tanks to achieve the ideal trim.

The International Chamber of Shipping (ICS) has announced that it will be making its publications on best practices for shipping companies available as eBooks from April 2013.

This will start with the ICS Bridge Procedures Guide (4th edition), the ICS Guide to Helicopter/Ship Operations (4th edition) and the ICS/ISF Guidelines on the Application of the ISM Code (4th Edition).

Other publications will be made available as eBooks when new or revised editions of print versions are published.

In its press release, ICS says it will be using the eReader technology developed by Witherby Seamanship Group (WPG), which is already being used by other bodies producing maritime publications, including the International Maritime Organization (IMO).

The ICS eBooks will be available as single user versions (with the same recommended retail price as the existing print editions) or as network versions whereby a customer will have access to five copies of the eBook for twice the cost of the single user version.

ICS director external relations, Simon Bennett, explained: "As well as responding to the demand from shipping companies to produce ICS publications as eBooks, we believe that by using the proven WPG system it will be helpful to ship operators for our books to sit alongside IMO regulations, as well as useful advice produced by other maritime bodies, in electronic form."

The new software includes options for ballast and trim optimisation

PortVision grant to support maritime IT development

www.portvision.com

PortVision has launched a new initiative offering $500,000 to fund the development and implementation of web-based solutions that help non-profit maritime organisations enhance port and waterway efficiency, safety and security for their stakeholders.

Eligible grant participants for the PortVision CONNECT initiative will include harbour safety committees, trade associations, marine exchanges and other industry organisations that have a primarily maritime mission.

The grant initiative will include the commitment of dedicated PortVision staff members who will collaborate with grant recipients on development and implementation.

Pending projects include gate pass portals that streamline terminal access, information portals for real-time data access, real-time resource scheduling, and waterway alert systems.

Heading up the PortVision CONNECT initiative is Jason Tieman, the company's director of maritime operations.

"As a maritime industry partner and a leader in providing vessel traffic analytics and intelligence for this domain, we know how to bridge the critical information gap between waterway stakeholders," said Mr Tieman.

"Our goal is to help grantees facilitate better coordination and awareness of waterway impacts and vessel scheduling, so they can greatly enhance safety and achieve the most efficient waterway utilisation."

"These efforts will also help improve visibility so these organisations can make more informed decisions for their stakeholders, while delivering a number of other benefits including less congestion, better traffic prioritisation, and a reduction in fuel consumption, excessive emissions and wait times."

Maritime organisations interested in participating in the grant programme can obtain more information and download an application at www.portvision.com/connect.

As part of the grant application process, organisations must demonstrate that their project will enhance efficiency, safety or security for their stakeholders, and that it can serve as a model for expansion across the industry.

PortVision says it will fund up to 100 per cent of software development and operating costs for approved projects.

New computer-based safety training modules

www.seagull.no

Norwegian company Seagull announces it has introduced two new computer based training modules (CBT) – a Seafarer Appraisal course and a Behaviour-based Safety course.

The company says that these two modules aim to help ships' officers and crew managers to raise safety awareness among the seafarers under their supervision.

CBT # 0259 Seafarer Appraisal is devised for management level officers on board ships, and human resource and crewing managers ashore involved in seafarer appraisal. The course introduces the appraisal process and explains the supporting documentation involved.

CBT # 0260 Behaviour-based Safety is aimed at shipboard deck and engine officers. Seagull says that this course uses an 'Observe, Assess, Provide Feedback and Evaluate' methodology to prompt safety behaviour modification.

Vibeke Nordahl-Paulsen, Seagull's director training content, says: "The course takes a 'hands-on/toolbox' approach because it is critical that the content is immediately applicable to daily operations."

Applied Weather Technology (AWT) has appointed Haydn Jones as the company's director of international operations, responsible for sales, marketing and business development. Mr Jones, who has worked with a number of well-known marine organisations including **Nera**, the **UKHO, ChartCo** and, most recently, **Fugro**, will become a member of the AWT parent company's board of directors.

www.awtworldwide.com

Haydn Jones, new man at AWT

PPG coatings software passes 1,000 installations

www.ppg.com

PPG Protective and Marine Coatings (PPG) has reached the milestone of installing its SIGMACARE PLUS system, used for management of ship coatings, on 1,000 vessels.

PPG claims to be the first company to have offered an online shipboard maintenance tool for its paints and coatings, and has continued to refine the product since its launch in 2011.

The latest release also features 'offline' functionality to accommodate vessels with limited internet access at sea, as well as having onboard maintenance charts available in 12 languages.

The next language set to be added is Mandarin, due for release later in 2013.

SIGMACARE PLUS aims to allow owners, vessel managers and crew members to better organise coatings management, eliminating the complications associated with onboard maintenance.

It includes inventory control and a product ordering system, allowing vessels to place stock inquiries whilst at sea, as well as the ability to create maintenance charts that can be printed out and used in the vessel's paint locker.

"Managing coatings onboard a vessel can be quite complex," said Sijmen Visser, global marketing manager M&R, PPG Protective and Marine Coatings.

"Keeping track of what coatings to use and where to apply them, of which colour and mixing ratios, means giving the crew a system that is clear, easy to understand and which will improve the overall quality of onboard maintenance. SIGMACARE PLUS is all about taking away the complexity in managing all coating-related activities for a fleet. We believe the simpler and clearer something is, the better it will work."

"Orders can be controlled more effectively and placed while at sea if required with a dynamic map showing which ports and products are available in real time. The paint inventory and the paint locker become better organised and the crew also work more safely because they can watch training videos on coatings application."
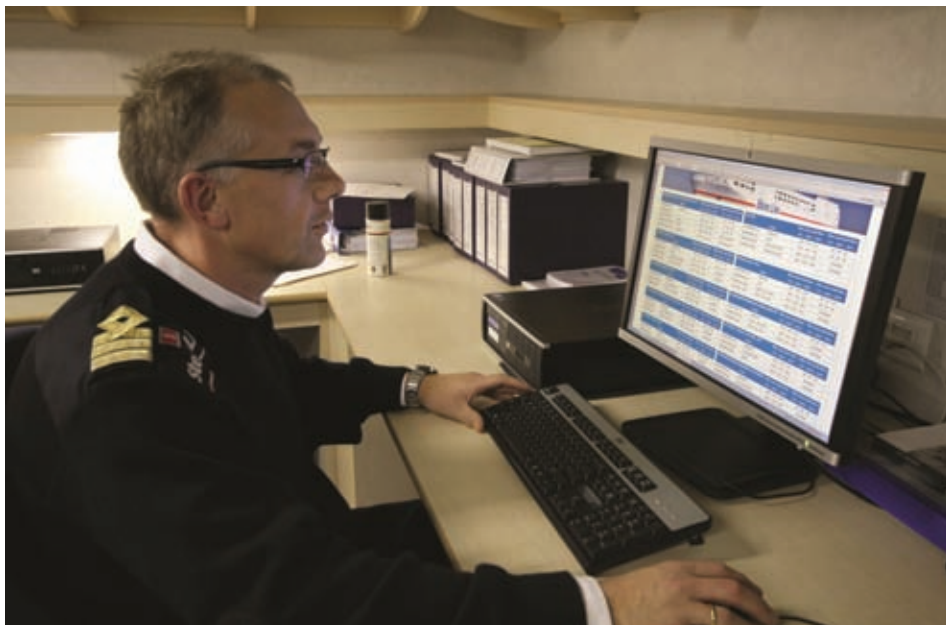
The software has been updated a number of times since its launch in 2011

Seafarers fitness website launched

www.trainingonboard.org

A new website, called Training on Board, has been launched to help ship crews to stay fit.

The www.trainingonboard.org site has been developed by the Norwegian Maritime Authority for the International Committee on Seafarers' Welfare (ICSW), and funded by the International Transport Workers Federation Seafarers Trust.

The aim of this initiative is to promote understanding of the link between physical training, nutrition, and fatigue.

Seafarers can measure their fitness through an online calculator, start on a programme of physical training and record their workout. They can also compete amongst themselves, and against other crews and companies.

"In Norway we are finding that seafarers are losing their health certificates as they have BMIs of more than 35 and are becoming vulnerable to diabetes and heart conditions because of lack of exercise and poor diet," said Torbjørn Husby of the Norwegian Maritime Authority.

The physical training programmes for seafarers on the site have been designed by a professional physiotherapist, Mona Woll Haland. The exercises can be undertaken onboard.

The programmes contained on the website have already been tested with the help of the Norwegian shipping company, Odfjell.

Roger Harris, executive director of the ICSW, commented: "With the ILO Maritime Labour Convention (MLC) coming into force later this year it is important for crews to be fit and healthy."

"The MLC emphasises the importance of health and welfare. The Training on Board site encourages seafarers and shipping companies to actively participate in the fitness programme and learn about healthy nutrition."

Videotel upgrades anti-piracy programme

www.videotel.com

Videotel reports that it has revised and updated its Piracy and Armed Robbery training programme.

Designed to assist shipping companies and their crews to safely transit pirate zones anywhere in the world, the programme places emphasis on BMP (Best Management Practices) as the core tool helping ships avoid, deter and delay pirate attacks.

Available in multimedia formats including Videotel on Demand (VOD), it features ships making preparations prior to transiting the Indian Ocean High Risk

Area (HRA), interviews with senior shipping industry personnel and representatives from naval/military forces, as well as other organisations.

It also includes maps showing the concentration of piracy incidents and graphics illustrating how ships can make evasive manoeuvres.

Nigel Cleave, CEO of Videotel, underlines the industry's need for support and guidance: "In the last few years alone the number of alternatives available in the arsenal of anti-piracy measures has increased, but all have their benefits and drawbacks and the legal implications of many of these options to the ship owner are considerable."

Proper training can be critical in dealing with pirate attacks

E-commerce upgraded

www.evry.com/marinelink

Evry's MarineLink has announced that it has upgraded its SupplierOnline e-commerce software system for the maritime industry.

SupplierOnline is an online, web-based sales order management tool which helps suppliers to receive and process Requests For Quote (RFQs) and Purchase Orders (POs) from their customers electronically.

It provides a single common interface for all the transactions, so users don't need

to access different websites or handle a number of spreadsheets to process e-commerce transactions.

The new version offers new search features and direct access to documents through e-mail link, explains MarineLink.

"We are striving to make our free service SupplierOnline as pain-free as possible for the supplier," says departmental manager Ché Geldard.

"This is just the first version of our new generation of SupplierOnline, with more exciting developments coming later in the year."

SupplierOnline provides a single interface for electronic transactions

Online viewer for Singapore and Malacca Straits tidal models

www.tidetech.org

Tidetech has released tidal models for the Singapore and Malacca Straits in an online viewer, called OceanView, which makes it possible to access the data on the internet, including on mobile devices.

OceanView provides an atlas of tidal currents, with predictions at 1km resolution for every 30 minutes. Other features include latitude and longitude, place names, speed of current, and shipping lanes.

Users can check the data online, download it as PDF and/or print it using this entry-level version of its tidal models.

Tidetech managing director Penny Haire notes that there was a "black hole"

for detailed tidal current information in the Malacca Straits region.

"This is a region that experiences very high traffic density and is faced with complex tides that have a significant effect on passage time and fuel consumption," Ms Haire says, adding that accurate tidal current data "hasn't previously been available."

"While the online viewer is not as powerful as the fully integrated version, it does provide detailed information where there hasn't been any before."

Tidetech says that trials with both OceanView and fully integrated oceanographic data are being run with container vessels, cruise ships and ferries in various regions around the world.

OSM to equip 14 vessels with BASS modules

www.bassnet.no
www.osm.no

Software provider BASS announces it has struck a deal with OSM Ship Management to equip 14 of its vessels with the BASSnet Maintenance and Procurement modules.
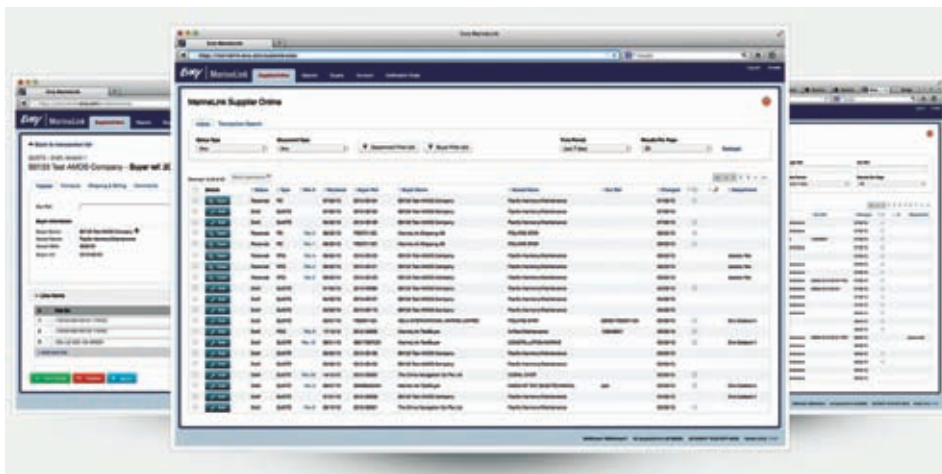
OSM manages a fleet of more than 430 vessels. It is based in Norway, where BASS is also located.

This new agreement is an extension of an existing relationship between the companies, with OSM having signed up two vessels for the Maintenance and

Procurement modules in 2011.

"The BASSnet software modules have proven their worth in terms of cost savings, higher productivity and streamlining of operations in our demanding business environment," says OSM's general manager, Captain Rajan Mathrani.

BASS' vice president of Asia, Mark Ravi, noted: "Following the switch to BASS software solutions from other marine applications, the OSM management is clearly convinced about the advantages of our state of the art systems against our competitors."

CONNECTING OCEANS

Eutelsat Maritime Solutions

With capacity commercialised on 30 satellites, Eutelsat is one of the world's leading satellite operators. Eutelsat has pioneered the development of today's maritime telecommunications and continues to build its success on the reliability of its in-orbit resources, its expertise and continuing commitment to innovation. Our VSAT technology provides corporate class networking services, interconnectivity and real-time data applications for all business, leisure and crew welfare needs.

eutelsat.com

eutelsat
communications via satellite

New XFR system to detect sulphur in diesel fuels

www.eurocontrol.ca

Canadian group Eurocontrol has announced that its subsidiary Xenemetrics has introduced an onboard X-ray Fluorescence (XRF) analysis system.

The XRF system will allow vessels to detect sulphur in diesel fuels, collecting data on these levels for management and analysis by the vessel operator.

In addition to measuring sulphur oxides in diesel fuel, Petro-Marine XRF can also monitor wear metals in engine lubricating oil, spot Cat Fines (compounds of silicon and aluminium) in fuel, and detect fraudulent mixing of bunker fuels.

The system is equipped with GPRS/Wi-Fi /satellite data transfer and GPS connection capabilities, which makes it possible to immediately upload location-based data to the shipping company for reporting and monitoring.

Tecnitas launches SEEMP software

www.bureauveritas.com

Tecnitas, the consultancy arm of Bureau Veritas, has launched a new software tool, E2, aimed at optimising energy usage for both individual ships and across fleets.

E2 aims to assist shipowners in maximising the potential gains in energy efficiency and emission reduction which can be obtained through the proper application of IMO's Ship Energy Efficiency Monitoring Plan (SEEMP).

The software includes a number of different modes. Initially it is used by ships' crews in the Acquisition mode to monitor, measure and record actual consumption on board in a variety of different cargo and navigation conditions.

The software can then calculate the corresponding fuel Key Performance Indicators (KPIs) and emissions KPIs.

Two additional modes are available for running E2 software: the Simulation mode and the Benchmark mode. In Simulation mode, E2 will give access to reference values for a given voyage and to the corresponding calculated reference fuel KPIs.

Data collected in the on-going Acquisition mode can then be compared with the Simulation to deliver the information needed to implement improvement measures and calculate the Yearly Energy Efficiency Operating Index (EEOI).

The purpose of E2's Benchmark mode is to benchmark, follow up and monitor the energy efficiency performance of different ships within the fleet, or of the same ship for different voyages.

"The SEEMP seeks to improve a ship's energy efficiency through four steps: planning, implementation, monitoring and measurements, and self-evaluation and improvement," said Claude Andreau, head of engineering, Tecnitas.

"We hear a lot about energy saving devices which can be fitted and operational savings which can be made, but in our experience shipowners do not know which measures provide the best savings simply because they don't have the right information to base decisions on."

"E2 solves that problem by collecting and evaluating all the information needed to make energy saving decisions. It then produces KPIs and benchmarks individual ships or whole fleets against them."

The currently available version of E2 software (v1.2) is based on manual acquisition of the input data, such as the fuel consumption recorded onboard.

The company says that development work is also underway on an upgrade which will acquire the inputs automatically through flow meters and GPS. These new capabilities will enhance the accuracy of the data acquisition and will give access to more advanced analyses and diagnosis.

The company says that a demo version of the current software, with limited time access to its full capabilities (acquisition, simulation and benchmark modes), is available upon request.

The use of E2 can be licensed either for Acquisition mode only, or for Acquisition, Simulation and Benchmark modes.

Tanker vetting management tool launched

www.oceanfile.com

Oceanfile has launched a software designed to help tanker operators manage vetting and inspections.

Called Oceanfile, after the company that has developed it, the system provides web-based applications, integrating the main functions associated with the major inspection programmes and managing all details of the inspections conducted on each vessel.

The Oceanfile Observation History tool lists every instance of observations associated with each Inspection Report question, which helps keep track of past observations and of the operator's responses to those observations.

The Oceanfile Chart Wizard can create user-defined charts, with filters to select date range, IMO vessel types, sister vessels, or personnel.

The software can also search and display performance results for individual vessels, sister ships, vessel type, regional managing offices and personnel responsibilities, as well as a Planner function which sends reminders when action is required.

Additional features are under development, such as an Inspection Costs Manager and Audit tools to facilitate self-inspections and navigation audits.

Oceanfile is a subscription-based program designed for oil, chemical and gas tanker operators who deal with oil company vetting programmes.

A free trial of the software is available at www.oceanfile.com.
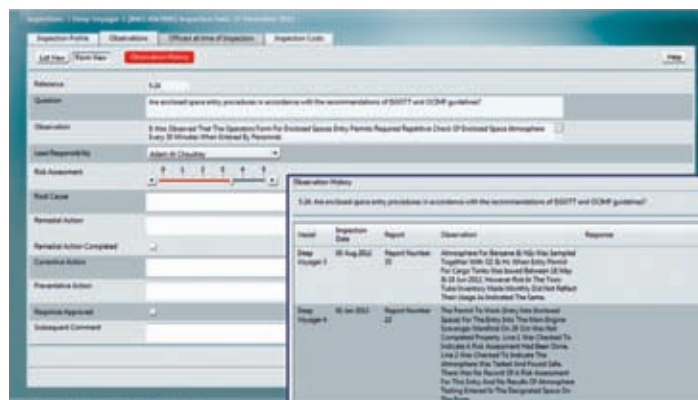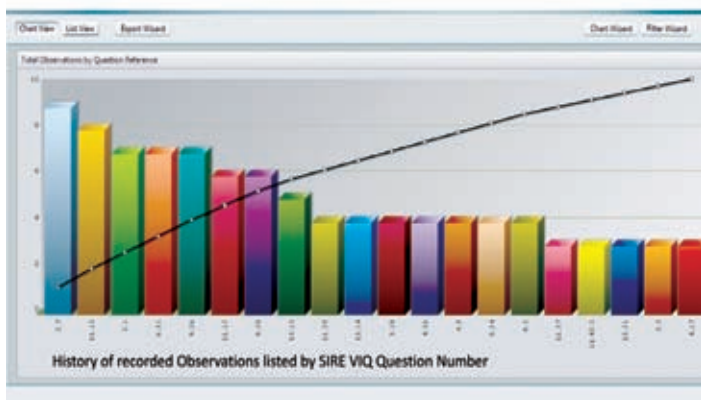
The Oceanfile Chart Wizard generates numerous user-defined charts, while the Oceanfile Observation History tool displays all observations relating to each VIQ question

CCTV requirement for Indian vessels

India's Ministry of Shipping has introduced a new amendment to the ship security plans for Indian flagged ships which will require them to be equipped with CCTV cameras as part as their anti-piracy measures.

"Fitment of CCTV on such vessels may be undertaken by 30.6.2013 or the date of the vessel's next annual ISPS (International Ship Security Certificate) audit, whichever is later," writes the Ministry of Shipping in an addendum to a security circular.

Ships operating solely on the Indian coast are exempt from this obligation, as are vessels which don't operate in the High Risk Area (HRA) defined in the Best Management Practices (BMP) guidance.

In a circular published in October 2012, owners and managers of Indian flagged ships were asked to ensure that their Ship Security Plans (SSP) include "effective use of monitoring and/or surveillance equipment."

This new addendum, published in January, clarifies what kind of equipment is expected and which ships have to install it.

The measures are a response to the acts of piracy that continue to take place in the Gulf of Aden and Western Arabian Seas.

AIS system implemented in Jordan

www.transas.com

Transas reports that it has successfully installed and commissioned a stand alone AIS solution at the Port of Aqaba, Jordan, as part of the EU-funded SafeMed II Project.

Intended to cover Aqaba Port, its inner port waters, navigational channels and fairways, the primary purpose of the project is to provide a comprehensive overview of maritime traffic to relevant parties, to help to forecast dangers and risks related to marine pollution.

Transas' stand alone AIS solution incorporates VTS technology and the Transas AIS Base station T214 system designed for coastal surveillance, vessel traffic monitoring and ports management.

In addition, an AIS VTS Server, web server and related hardware equipment were supplied to the Jordan Maritime Authority, also financed by the EU SafeMed II regional project.

This project has been implemented in the Mediterranean region by the Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea (REMPEC) on behalf of the International Maritime Organization (IMO).

REMPEC is based in Malta and assists the Mediterranean coastal States in ratifying, transposing, implementing and enforcing international maritime conventions related to the prevention of, and response to, marine pollution from ships.

Arcadia upgrades its dual ECDIS to go paperless

www.arcadiasm.gr
www.transas.com

Transas says it is to upgrade the dual ECDIS on Arcadia Shipmanagement's fleet so it can shift to paperless navigation.

Arcadia, an Athens-based company, operates 14 oil tankers, and will work with Transas Hellas to deploy official charts (from Transas Admiralty Data Service), navigation tools and a chart handling system so as to exceed the latest carriage requirement.

Arcadia's first vessel, Aegean Dignity, moved to paperless navigation at the end of February, says Transas. The companies have scheduled to proceed to install the systems on one vessel per month.

At the same time, Arcadia's training centre, which is accredited by Det Norske Veritas (DNV), will be upgraded to comply with the 2010 Manila amendments to the STCW (Standards of Training, Certification and Watchkeeping for Seafarers) convention.

Arcadia's training centre is equipped with Transas bridge, engine room, GMDSS and liquid cargo handling simulators, making it possible to conduct ECDIS type-specific training for bridge officers.

Arcadia's 14 oil tankers are set to sail paperless
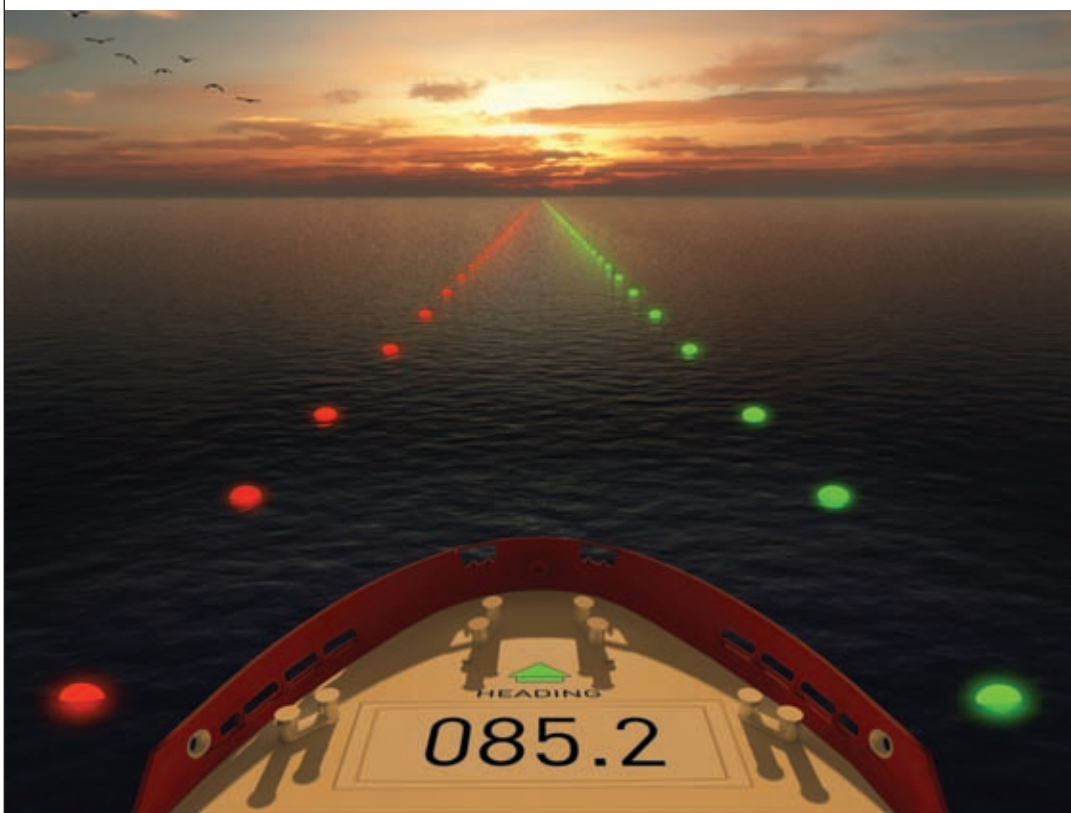
Guide to Numerical Weather Prediction published

www.nautinst.org/pubs

The Nautical Institute has published a practical guide for mariners which explains the benefits and limitations of Numerical Weather Prediction (NWP).

The book "cuts through the jargon and complexity to provide mariners with the confidence and knowledge to exploit all of the advantages of modern meteorology and to avoid the pitfalls," says author Huw Davies, a former Commander in the Royal Navy.

Entitled 'Numerical Weather Prediction – a practical guide for mariners', it explains the NWP production process and examines the accuracy and characteristics of the main meteorological and wave models.

It demonstrates how seafarers can evaluate the many digital weather products on offer and also create their own forecasts using freely available NWP sources.

The Nautical Institute notes that, while NWP has made forecasts more accurate and helped develop services such as routeing advice, weather still accounts for a significant share of total losses of shipping (45 per cent between 2006 and 2010, according to the International Union of Marine Insurance).

Mariners need to be able to recognise when they are being presented with NWP, establish its source and the characteristics and performance of the particular NWP model and make informed judgements on suitability and use, the Institute notes.

"Information should be reliable and in a format that supports decision-making," sums up David Patraiko, director of projects at the Institute.

"This guide should help mariners to make the best use of the technology in a practical and professional way."

'Numerical Weather Prediction – a practical guide for mariners' is available from The Nautical Institute at the price of £30.

NUMERICAL WEATHER PREDICTION

A practical guide for mariners

Huw Davies MSc MA MBA FInstLM
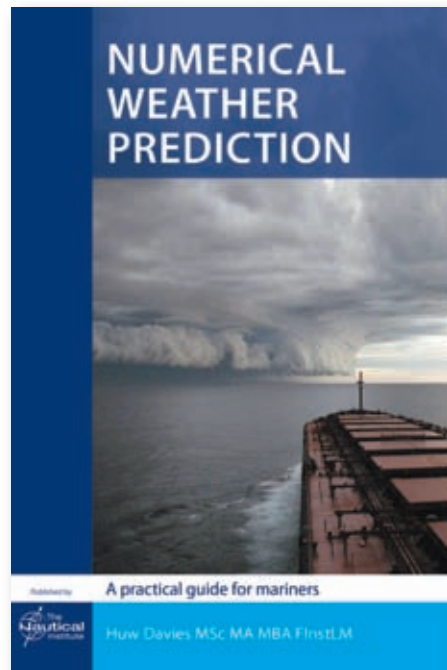
MSG to provide Simrad ECDIS training

www.marineserve.de
www.navico.com

Maritime training company MSG MarineServe GmbH has reached an agreement to act as the official worldwide ECDIS training agent for Navico Simrad ECDIS systems.

The ECDIS training will be provided by MSG and its ECDIS Training Consortium (ETC), or by sister company Safebridge using its online simulation and e-learning courses.

The courses will provide trainees with all required instruction, leading to full certification upon completion, and also allows third party authorities and customers, such as Port State Control, to reference trainee database services.

The course content will be delivered over original Simrad ECDIS software running either on dedicated MSG-controlled local servers at each ETC partner's classroom facilities, under MSG's remote control and management system, or on the Safebridge server within its e-learning programme for delivery online via the web.

"We are very pleased to offer our customers online training for Simrad ECDIS systems, this training enables operators across the globe to achieve the required type-specific training in a very flexible and cost efficient manner," said president and CEO of Navico, Leif Ottosson.

"The Simrad CS68 ECDIS was designed with input from experienced operators, with ease of use as one of our highest priorities. The service and experience that MSG provides is completely in line with our mission to provide the very best products for safe navigation."

Night vision TugCam

www.tugcam.com

GM Engineering Services has released a new TugCam which can help tugboat captains to see in complete darkness.

The Virginia-based company is adding to its range of wireless CCTV cameras for vessels with the TC115 / TC116 range, which features infrared illuminators designed specifically for use on the water.

The camera can be tilted in any direction and the zoom and focus are easier to adjust than in previous versions, according to GM Engineering Services.

Like the rest of the TugCam range, TC115 / TC116 contain a wireless transmitter with rechargeable battery.

SAM systems for world's largest container vessel

www.sam-electronics.de

SAM Electronics, an L-3 company, reports that it has supplied a range of technology systems for installation on the world's largest container vessel.

Via its associate L-3 Marine Systems Korea subsidiary in Busan, the company has provided a combined NACOS Platinum integrated navigation command system and MCS Platinum automated monitoring and control assembly for the CMA CGM Marco Polo, which recently began service between Europe and Asia.

The 396-metre-long vessel was built by Daewoo Shipbuilding & Marine Engineering (DMSE) in South Korea for CMA CGM of France.

The CMA CGM Marco Polo has been equipped with a navigation control system comprising X- and S-band radars linked to three multifunction Multipilot workstations and an ECDISpilot for centralised control of all main radar, ECDIS and conning operations, in addition to those for automatic steering, track control and voyage planning.

Supplementary sensors for the integrated bridge configuration include AIS, VDR, GPS, doppler log and echosounder navaids, as well as SAM Electronics' new Bridge Navigational Watch Alarm System (BNWAS).

"This order confirms the continued high-level acceptance of SAM's latest series of advanced, ergonomically-designed Platinum systems now in widespread use aboard all classes of commercial shipping, as well as luxury yachts and many of the world's leading cruise liners," said Holger Mahnke, senior vice-president of SAM Electronics.

The NACOS assembly is complemented by an integrated MCS Platinum monitoring and control system governing all main ship operating components, including 4,500 I/Os on a redundant LAN network.

It incorporates a series of seven high-resolution multifunction display consoles variously sited on the vessel bridge and in central and engine control rooms.

The Marco Polo is the first of a series of three 16,000 teu vessels ordered from DMSE by Marseille-based CMA CGM, the world's third-largest container shipping group.

Delivery of the next two vessels, which are also being equipped with similar systems, is expected later this year.

Two-in-one ECDIS training

www.ecdis.org

ECDIS Ltd reports that it is now offering a course that combines generic and type-specific training on ECDIS.

On completion of the Generic module, based on the IMO 1.27 model course, students proceed to the short Type Specific course - and can thus receive two approved certificates.

"The combined Generic and Type Specific ECDIS course is a cost effective and productive way to ensure mariners are trained to an excellent standard in the use of their ECDIS equipment," says Joe Sloly, customer development manager at ECDIS Ltd.

The IMO 1.27 ECDIS course lasts 40 hours over four or five days and is accredited by the Maritime and Coastguard Agency (MCA) and Det Norske Veritas (DNV).

The Type Specific course, which was accredited by the Nautical Institute in April 2011, normally takes one day (eight hours).

It includes presentations and practical exercises on the actual ECDIS equipment, which can be chosen from OSI, Kelvin Hughes, JRC, Transas, PC Maritime, Simrad and Totem.

ECDIS Ltd also delivers on-board familiarisation courses, brought to the mariners on their vessel. The one-day training, which hasn't received accreditation to date, uses the vessel's installed ECDIS. It is available for all the previously mentioned brands, as well as Furuno and Maris.

ECDIS Ltd is offering courses combining generic and type-specific training

e-navigation for North Sea safety

www.accseas.eu

ACCSEAS, a project funded in part by the European Union, is developing e-navigation tools to help mariners navigate safely in the North Sea region, particularly in relation to the expected growth in wind farms in the sea area in the coming years.

ACCSEAS (Accessibility for Shipping, Efficiency Advantages and Sustainability) tested a prototype resilient PNT system (Positioning, Navigation and Timing) integrated into the bridge of a vessel at the end of February, in Harwich, UK.

The demonstration aimed at highlighting GPS vulnerability to jamming and showing the benefits of having a resilient PNT solution.

In research published on February 26th, ACCSEAS calculated that navigable space in the North Sea region could decrease by 5.5 per cent as the surface allocated to wind farms could go from roughly 440km2 to about 23,500km2 "within just a few years".

This would occur at a time when ship-

ping traffic and vessel sizes are expected to rise, in a region that already hosts some of the busiest shipping lanes in the world.

Renewable energy deployments could "pose a significant threat to maritime safety as shipping traffic continues to grow," warns Alwyn Williams, ACCSEAS project manager.

"We believe that e-navigation technologies have the potential to reduce these risks through safer, more accurate navigation in order for turbines, other offshore obstacles, and ships to co-exist safely in the North Sea Region."

"Greater navigational accuracy from e-navigation technologies will help lead to safer seas," adds David Balston, director of safety and environment at the UK Chamber of Shipping.

The ACCSEAS partnership consists of eleven organisations in seven countries: General Lighthouse Authorities (UK), Chalmers University of Technology (Sweden), Danish Maritime Authority, Federal Waterways & Shipping Administration (Germany), Rijkwaterstaat,
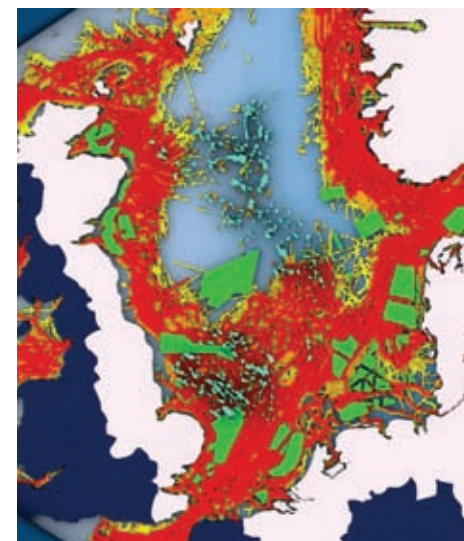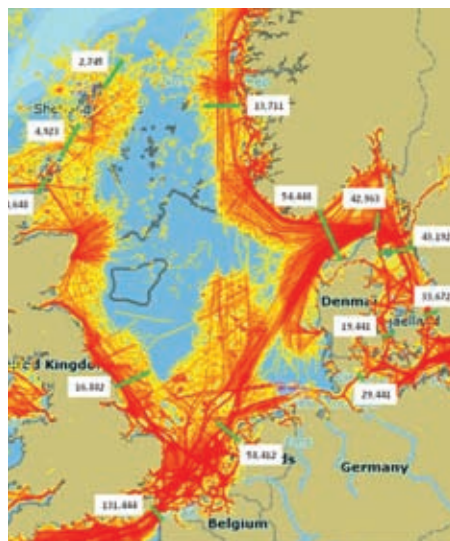
ACCSEAS is studying shipping density and the affect of wind farms on shipping lanes in the North Sea

Minesterie Infrastructuur en Milieu (Netherlands), Swedish Maritime Administration, Norwegian Coastal Administration, SSPA Sweden AB, Flensburg University of Applied Science (Germany), NHL Hogeschool,

Leeuwarden, Maritiem Instituut Willem Barentsz (Netherlands), World Maritime University (Sweden).

The initiative held its first annual conference at the Flensburg University of Applied Sciences in Germany, March 5-7th.

Guide to counterfeit nautical charts released

http://bit.ly/admiralty-genuine

The UK Hydrographic Office (UKHO) has issued a short guide to help users distinguish between its genuine Admiralty nautical charts and counterfeit products.

UKHO notes that the use of counterfeit charts can seriously endanger the safety of vessels, crews and cargoes, as well as leading to potentially significant legal consequences.

"Because counterfeit versions have not been through the same rigorous checking procedures as official Admiralty charts and publications, they cannot be trusted for voyage planning or navigational purposes," warns John Dawson, head of marketing at the UKHO.

"As well as failing to comply with SOLAS (International Convention on the Safety of Life at Sea) carriage regulations and possibly also Flag State and Port State Control regulations, the use of counterfeit charts and publications poses a serious risk to vessel safety."

After noticing an increase in the number of counterfeit versions of its Admiralty charts in circulation, the UK

Hydrographic Office has produced a guide to help users and inspectors to distinguish official Admiralty charts and publications from counterfeit versions.

The two-page document can be downloaded online. It explains that genuine charts bear the Admiralty 'Flying A' watermark within the paper, which can be seen by holding the chart up to the light, and that they all carry on the reverse a 'thumb label' strip that contains the Admiralty logo, chart number, geographic area, barcode and date.

The UKHO says suspect publications can be identified by comparing them against official Admiralty versions, where variations may be spotted in the height, look, feel and weight of the product, the colour tone and strength of the ink, or the quality of the binding.

Anyone with suspicions over the authenticity of their Admiralty charts and publications is asked to contact the UKHO by e-mailing customerservices@ukho.gov.uk.

Copies of the UKHO's guide to identifying genuine Admiralty products can be downloaded from http://bit.ly/admiralty-genuine.

The use of counterfeit publications, such as the one shown here (left), could lead to significant consequences

PPU systems supplied to Great Barrier Reef

www.sevencs.com

SevenCs has partnered with Australian software company VoyageBank to deliver Portable Pilot Unit (PPU) technology to 50 marine pilots at the Great Barrier Reef.

The three year deal, signed recently with Australian Reef Pilots (ARP), will add to the region's centralised management of pilotage activities via its Pilotage Safety Management System (PSMS), used to manage navigation and real-time monitoring.

"We are excited to have chosen SevenCs and VoyageBank to help us raise pilotage safety to a new level within the reef," said Simon Meyjes, CEO of Australian Reef Pilots.

"Our new PPUs are tablet devices that connect our pilots to ship systems, business systems and each other in ways that were impossible only a year ago."

"This investment in new technology will make a profound and immediate impact on shipping safety within the reef and further strengthen the quality of service ARP provides to its customers."

The new PPUs are touchscreen devices that run SevenCs Orca Pilot G2 pilotage software, and have been customised by SevenCs for the requirements of pilotage within the reef.

"Bringing together the knowledge of Voyagebank and SevenCs allows our customers to utilise modern technology at a whole new level," said Bjoern Roehlich, sales director of SevenCs.
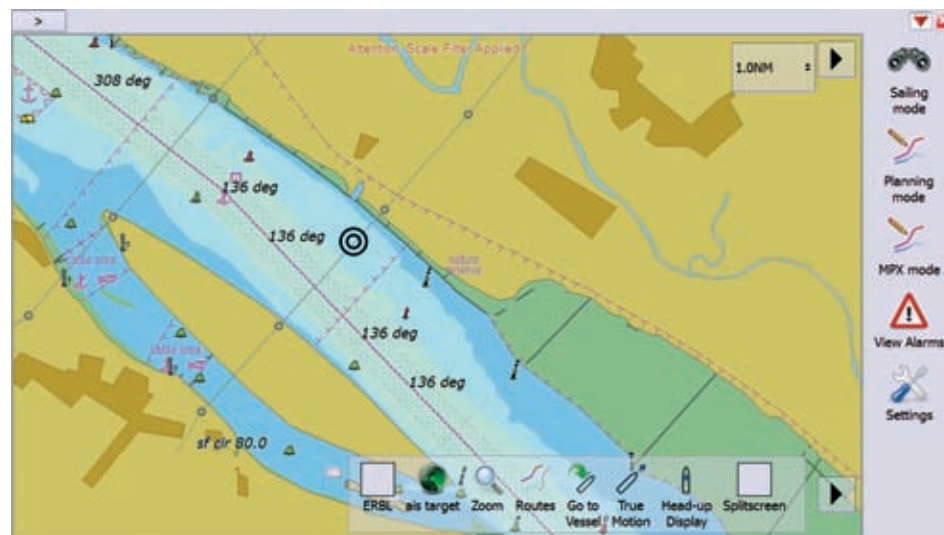
50 marine pilots will be supplied with the technology

Furuno has established a subsidiary in Cyprus. The new office, based in Limassol, started operations in November 2012.

http://furuno.com.cy

Kongsberg to develop Norwegian VTS

www.km.kongsberg.com

Kongsberg Norcontrol IT (KNC) has been chosen by the Norwegian Coastal Administration (NCA) to develop a new national Vessel Traffic Service (VTS), which will use its C-Scope maritime surveillance system.

Norway has five VTS centres covering ship traffic along its coast; they are located in Horten, Brevik, Kvitsøy, Fedje and Vardø. Under the five-year contract, which started this February, Kongsberg will replace the VTS systems currently in use at all five centres.

The company says it will implement its C-Scope system at the centres, which first entered service for the Maritime and Port Authority of Singapore (MPA) in 2011.

"The C-Scope system for NCA will build upon the VTS system in Singapore, so it will be based on a proven installation in one of the world's busiest waterways," says Fred Fredriksen, senior project manager, KNC.

Headquartered in Kongsberg (Norway), the company explains that its system provides satellite-based earth observation data integrated with terrestrial RADAR, AIS, and electro-optic sensors in addition to Radar Data Processing and automatic de-clutter technology.

The Norwegian VTS will include a number of additional new features, such as remote traffic display for mobile devices, 3D traffic visualisation and an integrated chat client.

Under the contract, Kongsberg will also deliver a VTS simulation system, to be located at the NCA office in Haugesund, which is the national centre for VTS competence. The simulator will be able to display both a simulated and live VTS traffic image.

In addition to the installation in Haugesund, smaller VTS simulators will be set up at the other VTS centres to conduct local training.

"With simulators based on and integrated with the real systems, Kongsberg can provide the 'Full Picture', supporting the strict training requirements for VTS operators and helping to ensure high competence throughout the organisation," says Tone-Merete Hansen, sales manager Norway, Kongsberg Maritime, simulation.

By 2018, the regional VTS centres of Horten, Kvitsøy, Brevik, Fedje, and Vardø will be completed and online with the new Norwegian VTS, says Kongsberg.

Kongsberg will replace the VTS systems in use at five Norwegian coastal centres

Type-specific ECDIS training in Manila

www.furuno.com

Furuno has announced that it has accredited the Veritas Maritime Training Centre in Manila to provide Furuno type-specific ECDIS training.

Under the 'NavSkills' agreement, Veritas MTC will accommodate six training workstations (four FEA-2107 workstations and two next-generation FMD-3200 workstations) and have three of its instructors trained by Furuno.

Veritas MTC, formerly known as Epsilon Maritime Training Center, was established in January 2012.

The 'NavSkills' programme ensures that the course in an accredited facility is conducted in the same way, with the same content and duration and using the same teaching methods, as employed by Furuno in its own training centres in Denmark and Singapore.

The Japan-based company says it is now able to provide type-specific ECDIS training in Germany, Turkey, Greece, Singapore, India, The Philippines, China and Denmark.

It also wants to expand its the training network by establishing similar co-operations with training centres in the USA, Europe, Africa and Asia.

The Veritas MTC will provide accredited Furuno ECDIS training

New marine certified computers

www.captec-group.com

Captec reports that it has introduced two new marine certified computers, available now.

The equipment is designed for critical ship systems, such as navigation, propulsion control, machinery control and monitoring, cargo management and safety systems.

The computers, featuring Intel Core i processors, are approved for use with a range of graphics and I/O extension cards and operate without fans.

Mounting kits are available for installation on desks, walls, or in 19-inch racks.

Satellite AIS data deals

www.orbcomm.com
www.terramarnetworks.com

Two new developments involving satellite AIS data providers ORBCOMM and exactEarth have been announced, which should see the companies' data more widely available to the maritime market,

TerraMar Networks has reached an agreement with ORBCOMM to incorporate its satellite AIS data into a fleet management portal called tracpoint.

ORBCOMM provides satellite-based AIS services, providing a ship's identification, position and other critical data. This data will now be integrated into TerraMar's tracpoint portal for a range of applications.

Some of the applications will include fleet monitoring (ability to filter on defined vessels only to create a fleet-specific view), trading pattern analysis (visibility of the movements of all vessels of a certain type, such as tankers, worldwide), and logistics scheduling and optimisation (visibility of progress of ships compared with the schedule).

Anti-piracy and other maritime safety security applications, using the ability to monitor vessels when in high-risk or high-traffic areas, are also planned.

The tracpoint portal already supports applications delivered over GSM and satellite networks, as well as displaying data from private terrestrial AIS receivers. They include 'track and trace' on a mapping interface, a database for centrally recording details of all assets in the fleet, and a reporting module for analytical support.

Gwyn Roberts, managing director at TerraMar Networks, says: "The addition of ORBCOMM's satellite AIS data reinforces our commitment to providing flexible, customisable solutions to the maritime and energy sectors."

"We offer the most complete situational picture of logistics activity in a given geographical area – onshore, offshore and in deep oceans, on one convenient platform."

Meanwhile, satellite AIS data provider exactEarth has announced the release of its new Geospatial Web Services (GWS) product, allowing users to access satellite AIS data on request.

Data can now be integrated with other geospatial datasets dynamically, and can be immediately consumed and displayed in any Open Geospatial Consortium (OGC) compliant geospatial system such as the Esri or Google Earth platforms.

This new capability gives users access to daily live tracking of over 90,000 ships globally. Customised ship data can be displayed, allowing for current ship information to be available on request with no new platform purchases required.

"We are extremely proud and excited to announce this addition to our service offering," said Graham Stickler, senior director of global marketing for exactEarth.

"exactAIS is already the leading source of global AIS data, providing the most complete and comprehensive picture for global maritime domain awareness."

"GWS now opens this powerful information source to a much broader audience without the need for sophisticated databases and maritime analytical systems. We are very eager to make these data more widely available than has ever been possible before."

The unmanned vessel

Automated transport is now a feature of urban travel in many cities around the world – the technology behind these systems could drive renewed interest in similar initiatives for the maritime industry,
writes Dr Andy Norris

Ever increasing attention is being given to unmanned transport systems.

In fact, fully automated rail transport has been common for a number of years, especially on shorter distance networks such as the London Docklands Light Railway and many other metro systems throughout the world.

The present growth in interest is driven by what has now become truly feasible for more complex transport systems, particularly in the air and on the road.

At the heart of this is the affordable technology now available – including immense processing power, advanced sensors and sophisticated digital communications.

It is not surprising that all this activity is causing a growth of interest in the maritime sector.

Particular attention is being given to smaller craft but many of the issues are directly related to vessels of any size. Also, some of the areas of interest, such as automatic collision avoidance systems, also potentially provide highly useful decision support on manned vessels.

Particular examples of unmanned craft being considered and trialled include those for hydrographic survey and for the inspection of marine structures, such as oil rigs and wind farms.

These tasks can typically be performed by quite small vessels – somewhat less than 10 metres in length. However, current military interests include much larger vessels, with applications for surveillance and the safe handling of dangerous situations at the forefront.

Right now it does not appear that any current IMO regulations or guidelines explicitly mention unmanned vessels but it is difficult to argue that existing regulations for manned vessels do not generally apply.

Even so, military vessels are normally considered exempt from IMO requirements, whether manned or unmanned.

The COLREGs

Compliance to the COLREGs appears to be a particularly clear requirement for unmanned commercial or private vessels, not least because Rule 1(a) states that "These rules shall apply to all vessels upon the high seas and in all waters connected therewith navigable by seagoing vessels".

This is amplified in Rule 3(a) where it states that "The word 'vessel' includes every description of water craft ... used or capable of being used as a means of transportation on the water".

In territorial waters, restricted areas could presumably be nationally defined that allow 'COLREG-ignorant' unmanned vessels to operate – such as close to wind farms – but generally prohibiting entry of those areas to other vessels.

In fact, automatic collision avoidance conforming to the requirements of the COLREGs is far from being an insurmountable obstacle.

Since the late 1990s, experimental collision avoidance advice systems have been demonstrated on simulators and at sea, apparently with good success – at least as an advisory system to an onboard human navigator.

An important missing factor with such systems has been that they generally only take inputs from the radar, AIS and charted data. The COLREGs have words such as "when the vessel sees the other ahead" and "sees the masthead lights".

London's Dockland's Light Railway is one of a number of examples of driverless transport around the world

This wording implies that an automated system must also use optical techniques to corroborate the direction and aspect of surrounding vessels. In addition, 'hearing' is used within the COLREGs, implying that effective acoustic detection techniques must also be employed on an unmanned vessel.

The regulations do not assume that vessels necessarily have radar to help anticollision decisions but they particularly emphasise the appropriate use of sight and sound.

They do require radar to be additionally used where fitted – together with all available means appropriate to the prevailing circumstances and conditions.

There is no implication that radar can be used in place of sight and hearing on any vessel, effectively underlining that use of the bridge windows on manned vessels remains highly important to navigation.

It would be interesting to hear how a legal system would actually interpret the words 'sees' and' hearing' when applied to an unmanned vessel.

Keep out of the way

Some have been wondering whether Rules 18 and 27 of the COLREGs can be applied to unmanned vessels, effectively implying that other vessels should keep out of their way.

But just because a vessel is unmanned is there any justification for it to be considered to be grouped under vessels "not under command or restricted in their ability to manoeuvre"?

Unmanned vessels today and into the future should surely be designed specifically to behave like their ideal manned counterparts. Nevertheless, it would perhaps make sense that that they were obliged to carried distinctive lights as well as a special daylight-visible indicator.

The broadcast of a unique AIS identifier should perhaps also be compulsory. In addition, maybe smaller unmanned vessels should be obliged to carry a passive or active radar reflector to aid their fundamental detection by other vessels.

On the other hand, it could be argued that none of these are necessary. If an unmanned vessel could be designed that behaved identically to a manned equivalent, would it really need to stand out, either visually or electronically?

Indeed, this should be the immediate goal of the emerging technology – to make the vessel's behaviour replicate the actions of one that is being handled by a competent onboard human navigator in any situation, either under full automation or by remote control.

The safe conduct of a vessel basically requires good and continuous situational awareness, together with the knowledge and ability to fulfil the vessel's mission within the legal framework applying to the areas within which the vessel operates.

For unmanned vessels, whether fully automatic or remotely controlled, the maintenance of high integrity situational awareness is perhaps the most difficult to achieve.

If the surrounding situation can be properly captured then an expert system with appropriate database access can then determine the safe actions of the vessel – whether the expert is a remotely situated human operator or an on- or off-board processor-based system.

Automatic or remote control?

Manned small vessels, even in close proximity to shipping traffic, are considered able to be safely navigated just by human sight and hearing, aided by standard navigational sensors and information sources, not necessarily including radar.

Especially on smaller vessels, the inbuilt ability of humans to sense motion and touch also contributes to their awareness of the situation, such as the responsiveness of the vessel and the immediate effects of waves and wind.

On a remotely controlled vessel, do we just need to collect and transmit suitable images of the visual situation, together with real-time information from navigational and motion sensors?

Then the vessel could surely be safely navigated from an onshore simulator-like environment. Even VHF voice traffic could be accommodated via the digital link from the unmanned vessel to the remote operating location.

A number of practical issues, such as the costs and integrity of current communications, immediately step in the way of making such a simple concept actually viable. However, maybe it just needs some clever ideas in bandwidth reduction and integrity enhancement.

Perhaps because of such difficulties most business interest appears to be concentrated towards totally automatic unmanned systems – although the perceived cost savings in reducing the human element is likely to be the main driver.

It is not difficult to imagine the image from a sophisticated camera system being digitally analysed onboard to ascertain the presence and aspect of surrounding vessels and/or their lights, together with other navigationally significant features.

Especially if correlated with radar and AIS, such data could prove to be at least as reliable as that determined by an experienced human navigator, and thus be able to form the input to a totally automatic system.

Of course, the unmanned vessel must be conventionally visible to other seafarers, by sight, radar and also by AIS. In addition, for the foreseeable future, the vessel needs also to be able to appropriately react on VHF voice channels, perhaps via a digital link to its onshore management centre.

IMO certainly needs to look at the issues that will arise with automated vessels. In fact, they are already in use – with no international guidelines or recommendations pertaining to them.

In particular, interim guidance is urgently required to enable responsible application providers to be able to consider the relevant issues. Without such guidance it may be difficult to prevent unsuitable systems coming into use. **DS**

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

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