Digital Ship
August 2007
www.thedigitalship.com

Inchcape buys ShipNet

As part of a grand expansion plan that could lead to $200 million in acquisitions over the next three years, Inchcape Shipping Services has purchased maritime software company ShipNet for an undisclosed fee

Norwegian maritime software company ShipNet has been acquired by marine services group Inchcape Shipping Services (ISS), for an undisclosed fee. ISS says that the deal will help it to enhance its own information technology capabilities and broaden its customer base.

"ShipNet has a well established clientele of blue chip customers, many of whom we share but many of whom are new to us," said Claus Hyldager, ISS CEO. "This will present us with exciting opportunities as we work with the industry, listening to their needs and fulfilling their expectations, just as we do with our port agency and other marine services."

This move comes at a time when ShipNet has just released the latest version of its software package. ShipNet Version 11 has been in development for 10 months, and marks what the company calls a 'return to an evolutionary approach' of its software development. Version 11 will be followed by a number of subsequent service releases over the course of 2007.

"The unique value proposition of ISS/ShipNet is our ability to catch the data at its source and process it faster and more reliably by integrating ShipNet's software with Inchcape Shipping's data collection and transaction tools," said Tormod Haavi, ShipNet CEO.

'This will present us with exciting opportunities' - Claus Hyldager, Inchcape CEO

ISS and ShipNet had been involved in informal discussions for a number of years prior to this move, with talk centring on the possibility of interfacing the systems before the idea of acquisition came to the fore.

"We've been trying for years to develop an interface with ShipNet, at the demand of our customers," said Bryan Phillips, group information director, ISS. "We started considering the acquisition very seriously from about mid-May (2007), though we'd been talking to ShipNet informally for about 4 years."

"As separate companies before it was a bit of a case of 'what's in it for us to build this interface?'. That was counter-productive to the customers' needs, but we had been talking, and because the customers pushed us this is what came out of it. Prior to Claus Hyldager becoming CEO the opportunity to convert this into an acquisition was limited."

ISS had already developed a number of IT systems to manage its business, including a management software system called YourISS which captures data about every port call that ISS is involved in, be it a hub call or a local agency.

"We do 53,000 port calls a year, all of these are done using the same global port agency system, and customers wanted these integrated into their voyage management environment," Mr Phillips explained.

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continued from page 1

"We had a decision to make - build our own or acquire. Some of the ShipNet modules we already had, but the flagship, the accounting module of ShipNet, is recognised as being the best out there. That would've been the most difficult to replicate, and by the time we were finished it would have been a case of 'after the horse has bolted'."

"Inchcape would struggle to drive the industry in our own right to building a standard interface, but ShipNet's position will facilitate that."

"The fragmented environment currently out there could be improved, and Inchcape's existing systems provide a significant platform to achieve that relatively quickly," he added. "This would then pressure the rest of the agency market to follow suit. Fragmentation is against the technological and market trends of consolidation and integration."

Acquisition benefits

The idea of an interface between the two systems may have kick-started the deal that eventually evolved, but it was just one of a number of areas where ISS felt they could benefit from this acquisition.

"There are a few reasons behind this, but one of the main ones is that, sooner or later, someone would have acquired them [ShipNet]," said Mr Phillips. "ShipNet's strategy since (CEO) Tormod Haavi returned was to find the right strategic partner, through joint ventures or acquisitions. They identified us as their perfect partner, and once we became aware of this strategy it was a no-brainer, they are a solid value proposition."

"It's no secret that they've had challenges in the past. They've had a very successful product, but they have struggled with the 'Atlas project', putting the new software together. However, in the past 18 months they have turned that around, which is evidenced by the recently released version 11 product."

"We give them the ability to do even more, we're a dynamic organisation with a solid financial base. We give them the ability to utilise our stability, to use our global footprint to develop and improve their delivery process, and also to utilise our significant IT development expertise."

'Sooner or later someone would have acquired ShipNet' - Bryan Phillips, ISS Group Information Director

"This (also) shows the market that we are very serious about technology as Inchcape," he added. "Claus Hyldager, (ISS CEO) drives us to think outside the box, and he was the person that sowed the ShipNet seed a number of years ago with the previous ShipNet CEO. Tormod realised this and reignited this with Claus."

"From a commercial angle, of course, they also have a large customer base there. Many customers are joint, but there are also many that are new to us. We want to provide both sets of customers with an added value proposition, should they want it."

With these benefits from combining the companies aside, Mr Phillips described the deal as a good strategic move purely based on consideration of ShipNet as a single business unit.

"In the worst case scenario we were buying a profitable company anyway, so it wasn't a very difficult decision," he said. "But now we're giving our customers an integration with the ShipNet system, and providing a standard interface that could maybe spread across the industry."

"In the long term ShipNet want to continue to function as an ERP provider, our systems allow them to expand this need and to achieve their goal of providing access to operational live data that enables real time business intelligence."

"ShipNet will stay as it is, they'll appear on our website as part of the group and utilise our capabilities, but it makes no sense at all to look to change who they are. It's working well as an independent company, and we want to keep it that way."

This move also marked the culmination of a busy period for ISS - the company completed the acquisition of Australian company Oceania Maritime Services from P&O Maritime Services only days before the ShipNet announcement, with that deal being worth what the company called 'double-digit millions'.

ISS CEO Claus Hyldager had previously stated that ISS could possibly invest up to $200 million in acquisitions over the next three years as part of a strategic expansion plan. Whether this will include further forays into the maritime technology market may be influenced by the success of this venture into the software sector. DS

KVH launches mini-VSAT

www.minivsat.com

KVH Industries has introduced its new mini-VSAT Broadband service, with a 24-inch (60 cm) antenna that uses spread spectrum technology to offer Ku-band services at shore-to-ship speeds up to 2 Mbps and ship-to-shore up to 512 kbps.

The system, which will use the SES AMERICOM satellite network, has been developed under a joint agreement with ViaSat, and combines ViaSat's ArcLight spread spectrum mobile broadband technology with KVH's VSAT antenna system.

A maritime version of the ArcLight technology, previously used by business jets and the military, has been produced specifically for this project, while KVH says that the TracPhone V7 antenna used by the system is approximately 65 per cent smaller (by volume) and 40 per cent lighter than an Inmarsat Fleet F77 antenna, and 85 per cent smaller and 75 per cent lighter than 1-metre maritime VSAT antennas.

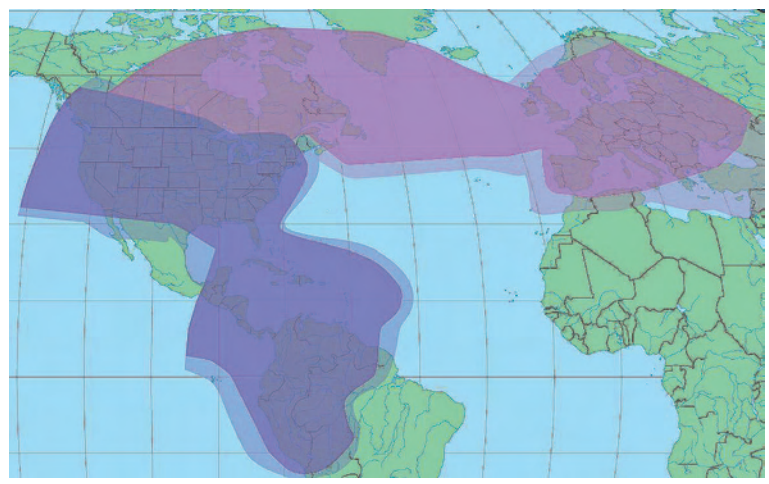
Available from September 2007, the service will initially offer coverage of North and Central America and the Caribbean, and is scheduled to expand to include the North Atlantic shipping routes and Europe later this year.

Pricing plans are offered both as an 'always-on' fixed monthly fee or as a per-megabyte usage subscription.

The company also recently released a new marine satellite TV system, the TracVision M-series, which uses KVH RingFire antenna technology.

The antennas come as a series named TracVision M3, M5, M7 and M9, with diameters of 37cm, 45cm, 60cm and 82cm respectively. The M9 includes integrated GPS functionality and automatic stabilised skew control.

The RingFire technology the company has developed increases the illumination of the antenna's reflector, which the company says will result in signal strengths that are comparable to other larger antennas, and up to 30 per cent more powerful than KVH's previous maritime TV system.



KVH's 60 cm mini-VSAT will offer Ku-band coverage across the Americas, Europe and the North Atlantic by the end of 2007

Marlink VSAT service planned for Q4 2007

www.marlink.com

Marlink is currently projecting a Q4 2007 release for its new VSAT@SEA line of global maritime broadband satellite services, which will offer 'always-on' at sea connectivity at a fixed monthly rate.

The system will feature three standard service configurations that include a minimum guaranteed committed information rate for IP-based communications, which will be aimed at users of varying amounts of data traffic.

Option 1 will provide vessels with two Voice over Internet Protocol (VoIP) phone lines, coupled with a guaranteed 32 kbps committed information rate for IP-based communications at sea. It will provide a maximum bandwidth rate of 128 kbps ship-to-shore and 256 kbps shore-to-ship capacity.

Option 2 will provide three VoIP telephone lines, along with a two-way guaranteed data rate of 64 kbps and a maximum bandwidth rate of 256 kbps ship-to-shore and 512 kbps to the ship.

Option 3 will deliver four VoIP telephone lines per vessel combined with a guaranteed rate of 128 kbps with maximum data rates of 384 kbps and 1024 kbps, respectively.

Marlink says that this development represents an expansion of its communications options, rather than a change of tack from its Inmarsat service offerings.

"It's taken 5 years of development to get here," said Søren Einshøj, managing director of Marlink. "Having more options is what brings us to this new VSAT offering. We're not abandoning Inmarsat, but we want to continue to offer many solutions."

"Ten per cent of all Inmarsat revenue comes through Marlink, and we're in the three biggest distributors of Inmarsat hardware."

"We've tried to combine the best of two worlds," he added. "We try to get the best bandwidth from shore to ship, when you're trying to get answers to your questions or a database from the office. And we have a promised minimum bandwidth, and we can guarantee a good quality voice channel."

The service will sit in behind the high-end SeaLink service offered by Marlink's parent company Telenor as another global offering.

"It won't compete with 'no promise' Ku-band on price, it's a C-band service, but it will be cheaper than a SeaLink solution," he said. "There are 3 options available, we've made it modular to be able to bring the prices down. And our support network is there, we've needed it for our 8,000 vessels that are out there."

The Marlink VSAT@SEA service will be based on the OceanRoam system currently in development by Telenor Satellite Services as a fourth VSAT product to add to its WaveCall, SeaLink Entry, and SeaLink services.

OceanRoam is also planned for launch in the final quarter of 2007, and will use a dynamically managed Single Channel Per Carrier (dSCPC) system, with automatic application switching based on technology developed by Comtech EF Data and Vipersat Products.

Inmarsat announces launch of satphones

www.inmarsat.com

Inmarsat has launched its new range of fixed line and handheld satellite phone services, with the maritime version of the product to follow in Q4 2007.

The fixed line maritime service is to be called the FleetPhone, and will be available through Stratos, SatCom Global, PT Asia Cellular Satellite, MVS, MCN, Fono, Evosat, China Spacecom, and ASIA Cellular Satellite Singapore.

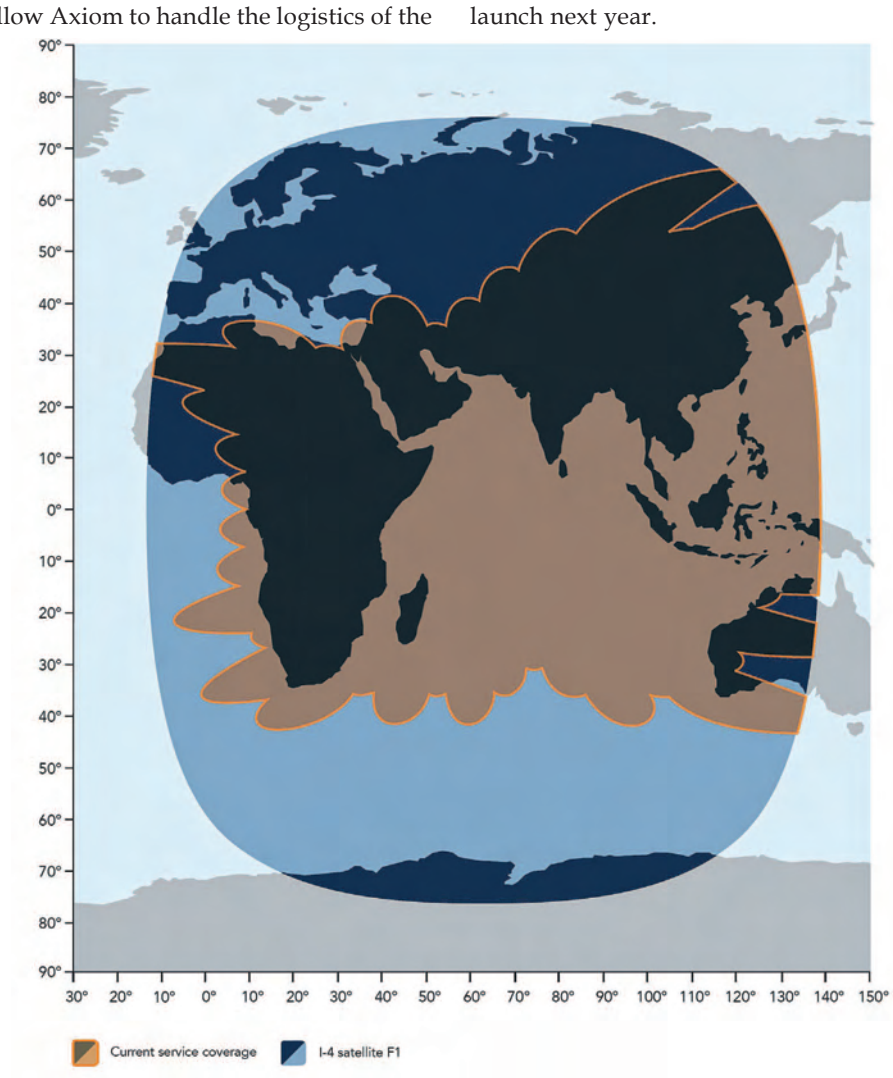
The FleetPhone service will initially be available in the South China Sea and Indian Ocean Regions on the I-4 F1 satellite, and will consist of below-deck equipment with an integrated voice handset, which is connected to an omni-directional antenna. It will be run by ACeS International, acquired by Inmarsat in 2006, and its network of service providers in 16 countries.

The service is expected to become globally available by the end of 2008.

Inmarsat has also signed an exclusive agreement with Axiom Telecom, one of the world's largest retailers and distributors of mobile communications products, to manage the global distribution of its satellite phones, which will be available through Inmarsat's distribution partners.

Axiom Telecom will support the Inmarsat channel as the exclusive logistics and repair partner for the new voice services - stocking products and providing maintenance services for the handheld and maritime terminals, and related peripherals.

Michael Butler, president and COO of Inmarsat, said that the agreement to allow Axiom to handle the logistics of the service will allow Inmarsat to focus on sales, customer support and service innovation, to build a platform for the global launch next year.



Inmarsat's FleetPhone service will initially be available in the South China Sea and Indian Ocean regions, before global availability in 2008

C2SAT and **Telemar Scandinavia** have signed a Global Service Level Agreement, to include global installation, service and maintenance of C2SAT's 4 axes stabilised VSAT antenna.

Thrane & Thrane has completed the introduction of its SAILOR System 5000 series of MF/HF radios with the release of the new 500W, which follows the 150W and 250W launched at the SMM exhibition in 2006. The new radios are fully GMDSS compliant, and offer as standard features such as radio telex, 6-channel scanning, and the ability to switch off the audio-alarm with one mute-button.

Stratos Global Corporation and **Thrane & Thrane** have entered into an agreement establishing Stratos as a 'master distributor' of products manufactured by Thrane & Thrane. As part of its global distribution efforts, Stratos says it will place special emphasis on bringing Thrane & Thrane products to Latin America and Asia.

Maritime Communications Partner (MCP) has signed a contract with **Mano Maritime** to deliver GSM and SMS services onboard the passenger vessel Royal Iris, sailing in the Mediterranean and Europe. MCP's CellAtSea service enables passengers and crew to make and receive calls and SMS using their own mobile phones and phone numbers.

Satamatics has moved to new offices located in Tewkesbury, Gloucestershire, UK. The company has also hired new staff and installed a new server gateway, to allow greater capacity and flexibility for the company's system.

EMS Technologies has signed a definitive agreement to acquire Australian company **DSpace** for $5.7 million. DSpace, founded in 1995, had been previously working in the development of Inmarsat's BGAN satellite radio protocols. EMS hopes to utilise this technology to pursue new markets in the maritime sector, according to EMS Technologies' president and CEO Paul Domorski.

Recently formed VSAT and GSM company **SeaNet** has begun trading on the Nordic alternative shares market First North in Sweden, which offers smaller companies access to Nordic and global financial markets. First North comprises a total of 110 companies.

Globalstar reports that its senior vice president for strategic initiatives, Megan Fitzgerald, is leaving the company, effective August 17. Tony Navarra, who currently serves as president of global operations, will take over Ms Fitzgerald's duties on a temporary basis.

Iridium has agreed a deal with **Astrium Services**, a subsidiary of EADS Astrium, to become a value-added reseller (VAR) of Iridium satellite communication equipment and services.

United Arab Shipping Company (UASC) is to install **Iridium** satellite terminals on 29 ships, as well as at its home office in Dubai, U.A.E. The systems will be supplied by **World-Link Communications,** and serviced by **Stratos**.

Livewire Digital is to provide a new on-board High Definition (HD) broadcast system for the 2008-2009 Volvo Ocean Race. The 'Media Desk HD' system will be re-developed to relay transmissions from participating yachts' on-board HD cameras, and perform HD Store and Forward to the race office.

CapRock is to supply its SeaAccess Communications VSAT offering to three seismic vessels belonging to **SeaBird Exploration**. The vessels will be located primarily in the North Sea and the Gulf of Mexico.

CapRock has agreed a contract with NorSkan Offshore in Brazil to provide VSAT satellite communications services to the company's vessels. Under the terms of the agreement, CapRock will deliver communications services out of its Brazilian teleport while interconnecting with NorSkan's corporate headquarters.

www.c2sat.com
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www.livewire.co.uk

Stratos shareholders accept Inmarsat acquisition deal

www.stratosglobal.com

Stratos Global Corp shareholders have accepted a cash offer by CIP Canada Investment Inc for the purchase of the company, a deal which is backed by $275 million of funds being provided by Inmarsat.

CIP improved on its original offer of Canadian $6.40 a share made in March by 9.4 per cent, to Canadian $7.00, which was enough to convince shareholders that the time was right to sell. The total transaction value, including assumption of net debt, is now US$624 million, as compared to US$576 million.

"We believe the acquisition of Stratos by CIP Canada is in the best interest of our shareholders, customers, partners, and employees," said Charles Bissegger, chairman of Stratos.

Inmarsat, through its Inmarsat Finance III Ltd subsidiary, will provide a loan to finance the deal in exchange for an option to buy Stratos in April 2009, after the current distribution deals Inmarsat has with its distributors have expired.

The current deals prohibit Inmarsat from selling its services directly to the end user, but there is speculation that Inmarsat may look to change the way it brings its product to market in the future after the deals expire, and this agreement could be a major part of such a strategy.

Inmarsat expects CIP Canada's offer to close by the end of the third quarter of 2007.

SingTel to offer global IP networks via VSAT

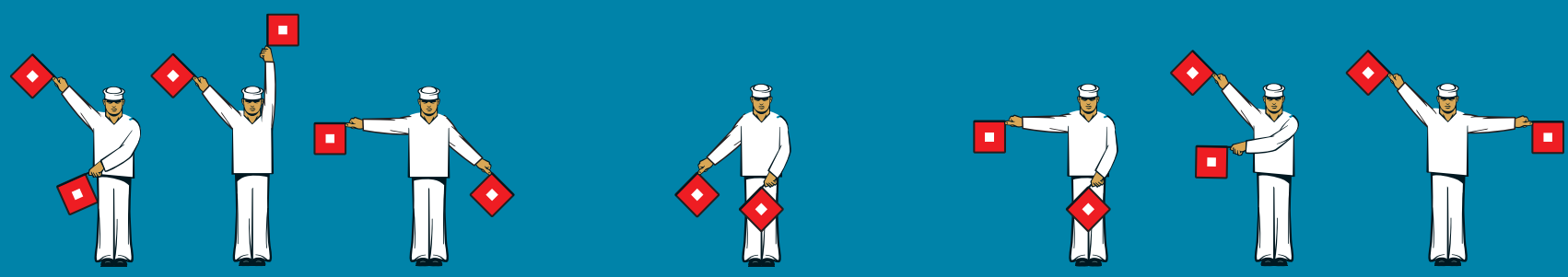
www.singtel.com

Singapore Telecommunications Limited (SingTel) has launched what it says is Asia Pacific's first and only integrated global IP Wide Area Network (WAN) solution, to provide business communications in remote areas via IP technology.

The system uses a combination of IP-VPN and satellite technologies that marries four communication services - maritime VSAT (very small aperture terminal) for maritime communications, BGAN (Broadband Global Area Network) for mobile connectivity, satellite IP for land-based remote communications, and ConnectPlus IP-VPN for other locations.

The service will allow companies to bring remote business units, such as deep sea vessels, into the corporate network and allow them to communicate with the organisation using a high speed, two-way IP broadband connection.

"Companies that conduct businesses worldwide can (now) enjoy a one-stop multi-platform service from SingTel to connect their regional offices in remote or offshore areas," said Bill Chang, SingTel's executive vice president of business.



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France Telecom MSC rebrands as Vizada

www.vizada.com

France Telecom Mobile Satellite Communications (FTMSC) has rebranded itself as Vizada, following the completion of its acquisition by investment firm Apax Partners in 2006 from the France Telecom company.

Now a wholly autonomous unit, Vizada will market and develop mobile satellite services utilising maritime and terrestrial-based services from mobile satellite operators including Inmarsat, Thuraya, and Iridium.

Apax Partners is also reaching the closing stages of the approval process for its acquisition of Telenor Satellite Services (TSS) from Norwegian telecoms operator Telenor, and it would seem a likely possibility that Vizada will act as a new brand for an amalgamation of both FTMSC and TSS once this process is completed.

Neither company has been able to comment on such a move on branding at this time, however, while the transaction is still incomplete. TSS expects a final decision on the issue from the European Union within the next few months.

Bank of Scotland buys stake in maritime GSM

www.blueoceanwireless.com

Maritime GSM company Blue Ocean Wireless (BOW) has reported that Bank of Scotland (Ireland) has acquired a 10 per cent equity interest in the company, valuing Blue Ocean Wireless at approximately $48 million.

This valuation represents a premium above the valuation of BOW when initial equity was raised at launch in early 2007.

Since that time BOW has confirmed contracts with both Stratos and JRC to act as partners in the provision of Inmarsat airtime and terminals respectively, and has released a pricing scheme for its GSM service.

Under this scheme BOW undertakes to provide all the hardware needed to run the GSM network on board, with the ship owner or operator paying a fully refundable deposit of $2000 at the commencement of contract.

The subsequent monthly subscription will depend on the contract term, but BOW says it will typically be between $350 and $495, with a 6 per cent discount when 12 months subscription is paid in advance.

Installation of the system will be charged at cost, and can usually be completed in less than 24 hours, the company says.

Stratos in Blue Ocean deal

www.stratosglobal.com
www.blueoceanwireless.com

Irish maritime GSM provider Blue Ocean Wireless has reached an agreement to partner with Stratos Global Corporation to provide Inmarsat satellite services to Blue Ocean's merchant maritime customers on a non-exclusive basis.

The agreement follows successful trials of the Blue Ocean Wireless (BOW) offering on board two container vessels conducted in late 2006 by Blue Ocean Wireless, Stratos and Inmarsat.

Under the partnership arrangement, Stratos will host BOW equipment at each of its Land Earth Stations (LES) and provide terrestrial connectivity to GSM operators for BOW via its StratosNexus network.

As well as Inmarsat and Stratos, BOW also partners with a GSM network operator to provide its merchant maritime cell phone service, though BOW has not revealed the name of this company at this time.

Telenor launches secure networking

www.telenor.com/satellite

Telenor Satellite Services has launched Terralink Secure Version 7.1, the first in a series of secure networking services designed to filter security attacks and unwanted internet content over satellite communications. The system includes automatically updated anti-virus, anti-spam, and intrusion protection (Firewall) services.

The service differs from client-installed firewalls and security programs running on the user's PC by stopping unwanted traffic and content coming from the internet to a user's satellite terminal before the content enters the satellite portion of the end-to-end connection, rather than intercepting content after it reaches the computer.

As an introductory offer Telenor Satellite Services will waive the monthly service fee for Terralink Secure for the first three months for each new Fleet service activation through to the end of 2007.

Broadband Maritime ceases operations

Broadband Maritime, the New York based high-speed satellite communications company, has announced that it is to terminate operations, effective immediately.

The company announced in a statement on June 5th that it has "ceased operations and reduced employment to a small residual force."

The statement also explained that the company will seek to maintain its assets (primarily intellectual property and technology), settle its obligations and "seek strategic alternatives to maximise shareholder value."

Exmar to install SeaWave Integrator

www.seawave.com

Exmar Shipmanagement NV is to install the SeaWave Integrator system, by SeaWave and Iridium, for operational and crew communications aboard Exmar's fleet of 25 vessels.

The SeaWave system provides integrated voice, data and e-mail services using the Iridium network of low-earth-orbiting (LEO) satellites, and comes with built-in voice and data, and GPS. The system is also able to connect to a number of different satellite and cellular communications formats.

Exmar is currently using SeaWave's Rydex software, and says it will be able to use the Integrator to complement its existing set-up.

Intelsat launches new maritime VSAT service

www.intelsat.com

Intelsat Ltd, the world's biggest provider of commercial satellite services, has launched a new Network Broadband GLOBAL Maritime service, a C-band VSAT (very small aperture terminal) offering.

The new service for the maritime community will be an addition to Intelsat's GlobalConnex offering, and the company has signed a multi-year distribution agreement with Schlumberger to bring it to the market.

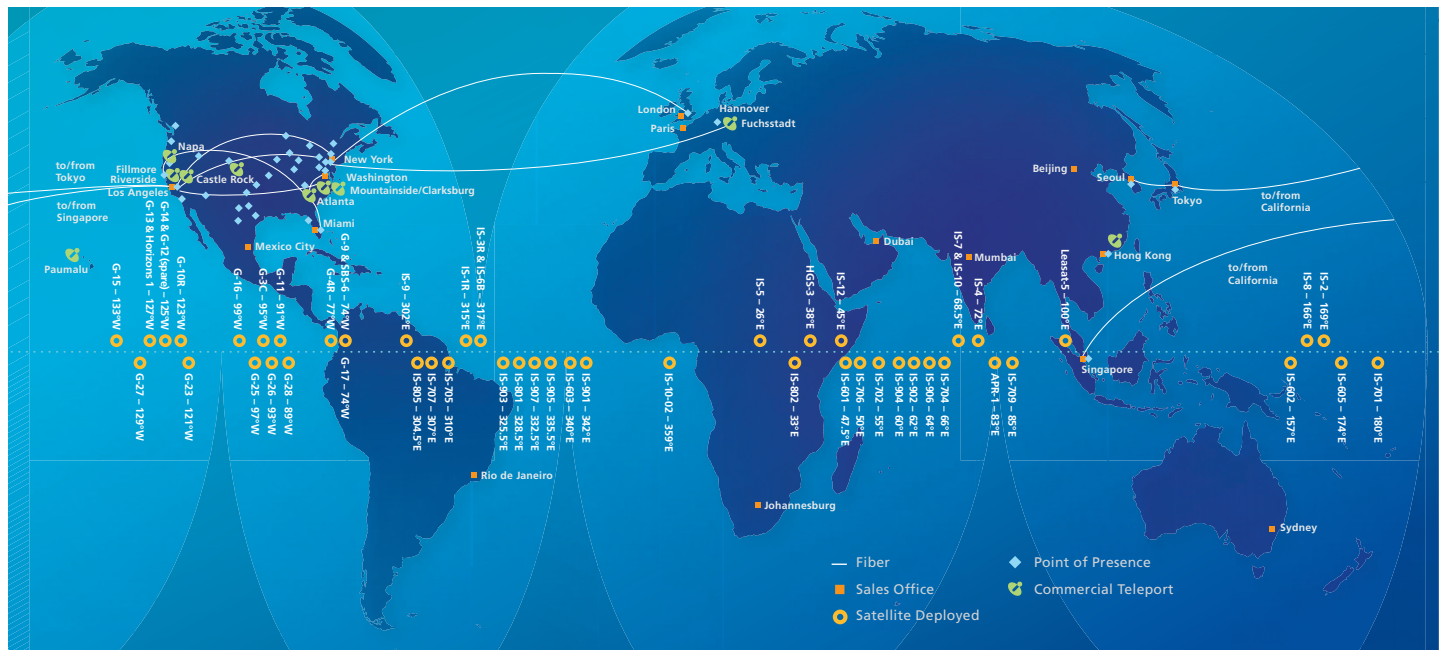
Utilising Intelsat's global satellite C-band capacity, the Network Broadband GLOBAL Maritime network can operate always-on at rates up to 2Mbps, with the initial service offering continuous communications with bandwidth rates from 128kbps to 512kbps for a fixed monthly fee.

One of the notable technical features of the new service is an integrated Automatic Beam Switching system, which transfers service seamlessly between the satellites and maintains internet sessions while the vessel is underway, eliminating the need for manual intervention such as the re-pointing of antennas.

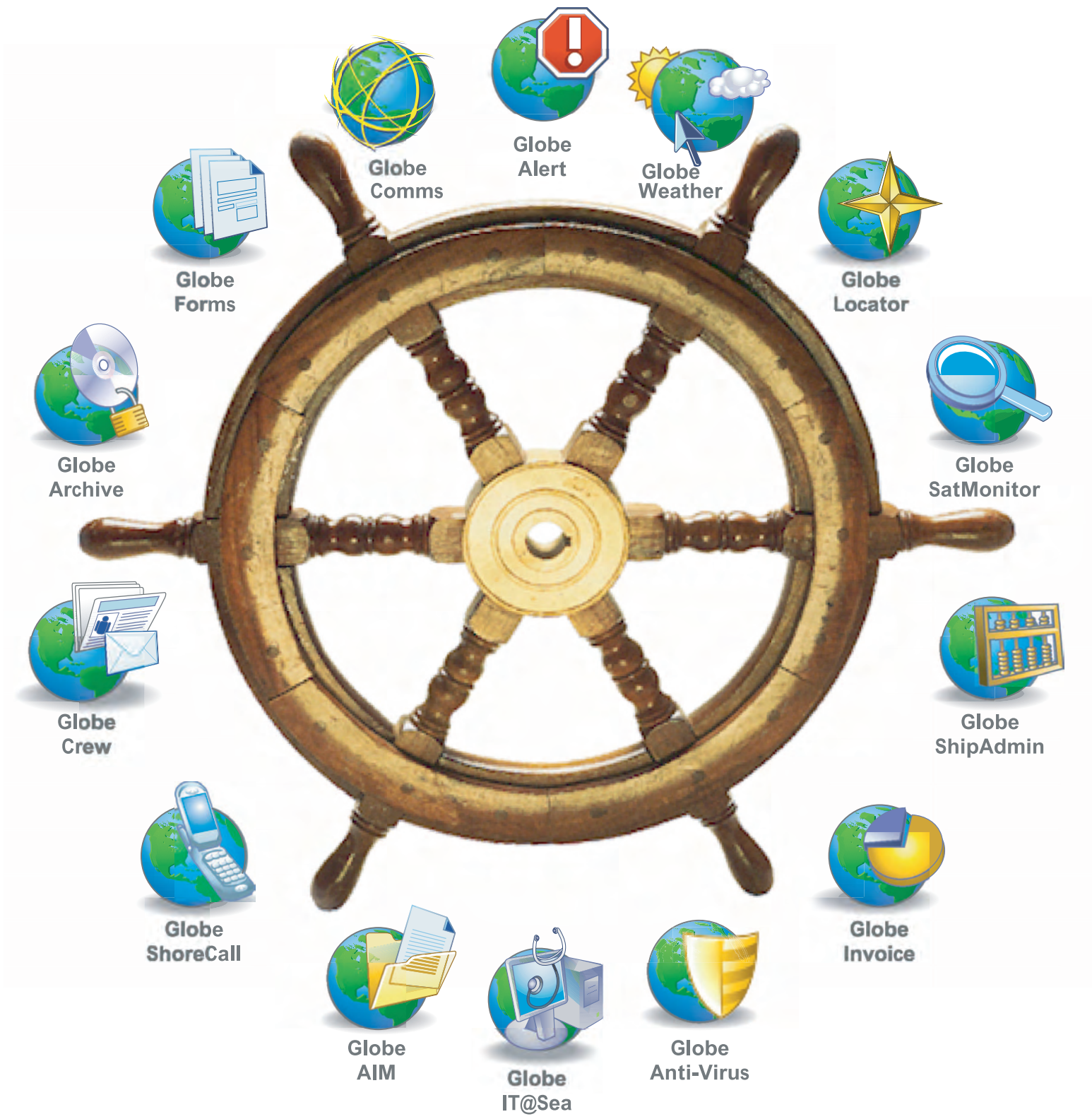
The launch of this service was immediately followed by the definitive agreement of a $4.6 billion cash deal for the purchase of a majority of the shares of Intelsat Ltd by funds advisor BC Partners.

The BC Partners group will acquire approximately 76 per cent of the primary ownership of Intelsat Holdings, in a transaction valuing the company's equity at approximately $5.03 billion. Taking into account approximately $11.4 billion of debt the enterprise valuation implied by the transaction is approximately $16.4 billion.

The current shareholders of Intelsat, including funds advised by Apax Partners (owners of Vizada and Telenor Satellite Services), Apollo Management, Madison Dearborn Partners, and Permira, are expected to receive upon closing approximately $4.6 billion in cash, and will continue to hold approximately 24 per cent of the primary ownership of Intelsat.



Intelsat's global satellite network will carry the Network Broadband GLOBAL Maritime C-band service



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FleetBroadband, VSAT, and GSM - Nor-Shipping report

The *Digital Ship* satcoms conference at Nor-Shipping 2007 featured users and providers of VSAT systems, Inmarsat's latest news on the launch of FleetBroadband, and advice on offering GSM services to crews on commercial vessels - with Finnlines, Telemar, Radio Holland Connect, Inmarsat, CapRock, Blue Ocean Wireless, and Wired Ocean

Finnish shipping company Finnlines has installed high-speed VSAT (very small aperture terminal) systems on a series of 5 new Ropax cruise vessels, with a passenger capacity of 500, to run a range of integrated IP solutions. Henrik Lindroos, project manager, Finnlines Ship Management, described some of the company's experiences so far with the technology.

"The systems are new, and we don't have much experience of them yet, but it's the start of something new," he told us.

"We have VOIP connected, CCTV is connected, and the ship property management system is connected."

The company has been using the new communications set-up to transfer masses of information from the land-based offices to the vessels, to improve its operations and to also carry voice and television services.

"We're using VSAT and DVB-IP all connected to the internal network in Helsinki, with the return signals coming by TV satellite from Stockholm," Mr Lindroos said. "This allows us to use large bandwidth for the large amounts of data coming from the shore."

"We also use wireless network connections, which connect automatically when the ship is in port."

One of the reasons for this increased level of data has been the use of IP based technology for many on-board systems.

"IP CCTV is nothing new, it's been on the market for many years," Mr Lindroos said. "But a lot of memory is needed, so you need to decide before you start how much you will record."

"Motion detection helps, our system has a very low frame rate when there's no motion, then the frame rate increases with movement."

"IP TV also allows us to put TV in cabins using a monitor, and not a regular TV," he continued. "It's a cheap solution, though it can be a little annoying as the response times for channel selection, volume, and those sorts of things, can be quite slow."

"These devices also have a tendency to freeze and need to be reset - and it happens rather often unfortunately. There's still some work to be done on the IP TV system."

Equipment

Finnlines uses VSAT Ku-band 1-metre dishes for the system, and has 128 kbps dedicated channels from ship to shore, and 512 kbps shared by 5 vessels from shore to ship.

"We put three antennas on board each of the ships, two TV ones on either side and a VSAT in the middle," said Mr Lindroos. "We also have a Fleet 77 as a back-up."

"We've been using DVB-IP (digital video broadcast - internet protocol), it's a good solution if a TV satellite antenna is directed to a satellite from which broadband data can be received. With DVB terminals the price has decreased by 25 per cent per year for the last 3 years."

'Everything you want is available, it's a matter of how much you want to pay and how much data you need' - Henrik Lindroos, Finnlines Ship Management

"It can give you data rates up to 4 Mbps ship to shore and 36 Mbps shore to ship. There are more than 20,000 of these terminals now in use worldwide."

"Near the harbour we use the wireless for data, but still use the VSAT for voice," he continued. "The wireless has an operating range up to 4 nautical miles, at 4MB per second, and has auto connect and disconnect. There's also automatic switching to the VSAT in case of failure."

"Everything you want is available, it's a matter of how much you want to pay, and how much data you need."

Mr Lindroos noted that the IT department at the company had some specific requirements of what they wanted before the company decided on its new communications system.

"For the wide nature of the network we wanted to have local support in Finland," he told us. "We also wanted to have redundant power supplies for the system, and separate VLANs (virtual local area networks) for different parts of the system."

"The telephone system was designed so that the vessels would be part of the corporate network, so when I'm in Finland I can call every vessel using a local 4 digit office number."

"The basic design was done by the supplier of the system, they integrated the system and did all of the work onboard. We have mates who have been specially trained, who were selected because they were interested in the technology. They're good, but they can't do everything of course."

"I made one big mistake thinking, with the deck telephones, that we wouldn't need walkie talkies so much," Mr Lindroos added. "It wasn't the case, people like to have the walkie talkies so we put them back on."

"We have 48 antennas for our phones now, all over except for on the cargo decks. But, even though we have 12 channels, reflections of the signals (by the structure of the ship) has been a problem we've had to work on."

Mr Lindroos also talked about some of the issues Finnlines had struggled with when deciding on whether or not to use internet protocols to carry its voice traffic.

"We were discussing using VoIP the whole way through, as you would naturally think, but with 6 lines using 20 kbps each, there would only be 10kbps left to do anything else," he explained.

"In the end we decided to use an analogue system that used less data traffic on the VSAT."

When asked if he might consider

Finnlines vessels carry two television antennas, installed on either side, with a 1 metre Ku-band VSAT in the middle and a Fleet 77 as back-up

installing GSM services on the vessels, Mr Lindroos replied: "I want to have all of this working properly before we try to introduce other systems like that, but it's something to look at."

Lars Brodje, Telemar Scandinavia

Lars Brodje, managing director of Telemar Scandinavia, spoke about some of the practical issues involved with installing VSAT systems on any fleet, and some of the options an operator might want to consider before making their choice of communications system.

He feels that the rise and fall of Connexion by Boeing and its VSAT service over the last few years has really been of benefit to the industry in creating awareness of different opportunities and capabilities in communication.

"We should all really be quite grateful to Boeing for what they did, they spent a lot of money to market these systems," he said.

"With the demise of Boeing there was a lot of capacity without a home, so now people are negotiating to use that capacity and offer more services. When I worked at Inmarsat 15 years ago I started the first study of VSAT, we saw that it was coming, and that has been the case."

Mr Brodje went on to explain about how the technology works, and why you need an expensive antenna to carry VSAT transmissions.

"There are so many satellites up there now, one of the problems now is finding space," he said. "We have to be very careful with the precision of the antennas in this kind of situation."

'We should all really be quite grateful to Boeing for what they did, they spent a lot of money to market these systems' - Lars Brodje, Telemar Scandinavia

"0.1° or 0.2°, that's the accuracy needed for VSAT. And that's the reason for the high cost of the antennas."

Coupled with the expense of the equipment is the prohibitively large size of the antennas, but this is necessary for this type of technology, Mr Brodje said.

"With C-band service, usually with a global beam you need very large antennas, and it's a big thing to build them," he told us.

"The antenna comes in 40ft containers, and have to be assembled like something from IKEA."

"There's a large number of screws, you need to use silicon to keep it watertight, and there has to be an air conditioning unit. The base must also be balanced, and it's so delicate that you could move it with just your little finger."

"They're 3.4m wide, 2m high, and about 750kg. It needs a proper foundation to distribute the load."

With a piece of equipment this size on board a vessel there are a number of practical issues to consider.

"A big issue is finding the space on the vessel, and you can have large blind sectors," said Mr Brodje. "We inform the captains, but we get calls saying 'it doesn't work' - when the engineer checks, the antenna's pointing right at the funnel."

"It's a matter of physics really, Wallenius vessels (which have recently installed VSAT systems), they're car carriers, they have big open spaces. But what do we do when that's not the case?"

"A possible solution is a networked Ku-band solution, and this is something a number of people are looking at," Mr Brodje continued.

"There is a patchwork involved, so there are many issues that have to be resolved, like automatic handover, IP address management, and so on. The advantage is the antenna, it's easy to assemble, and easy to install."

"But I don't think there can ever be full global Ku-band coverage, as you're using TV satellites and they're always going to be pointed at land. And at the moment you usually have to do something yourself to manage the change over between different satellites."

"However, if you look at the shipping lanes, you can cover the vast majority of the shipping lanes with Ku-band coverage."

Future developments

Mr Brodje believes that the use of internet protocols for voice calling is an area that will continue to grow.

"With our Seacall VSAT you can do VoIP calls for $0.03 to $0.04 per minute," he said. "But we have some major issues ahead."

"One drawback of VoIP is on the safety side, in an emergency there's no way to know where the vessel is, the communication is just coming over the internet. With GSM they can find the signal, with a fixed line they can find it, but not VoIP."

"And, of course, VSAT is not part of GMDSS, but still, do people care about that? Will they call with it when they need to?"

Mr Brodje also thinks that the idea that VSAT will open up an unlimited amount of bandwidth to do whatever you want is not practical, with the number of satellites in orbit putting a finite limit on what will be available. There are also other concerns with the market for the system that need to be addressed.

"There's not unlimited bandwidth around, we need to manage its use," he said. "And there are licensing issues in

some countries with VSAT."

"We need a code of conduct with the increased data usage - I heard of a ship where one cadet was a professional poker player, and when the whole ship started playing poker on-line they broke 2 servers."

"Finding trained service engineers for VSAT is also a very big issue, we'll need to have much more training in this area."

Mr Brodje believes that, even with issues like antenna size and crashed servers through online gaming, the demands for connectivity will continue to be driven upwards by a number of market factors.

"We've yet to see FleetBroadband, and what effect that will have, but an increasing number of people are asking for always-on at a fixed price," he said.

"And I think we are really feeling the shortage of crew members, there's lots of poaching going on in the recruitment market. That, combined with the quality demands from oil majors and so on, is causing a big headache. Things like TV, always-on internet - these are a must today."

"We have customers who are spending $3,000 per month on Inmarsat, some spend $1,500 - it depends on their business, their crew, those kind of things determine what they will be prepared to pay. Each business will have to make its own decision about what is the right system for them."

Floris Slikker, Radio Holland Connect

Floris Slikker, managing director of Radio Holland Connect, talked about his company's new CONNECTOR VSAT communications offerings, including what he calls an 'almost global' Ku-band VSAT network.

Mr Slikker believes that the service, that is somewhat similar to the communications system offered by Connexion by Boeing, has some distinct advantages that can help it to succeed where its American counterpart could not.

"We were asked to support Connexion by Boeing globally, so we know a bit about it," he told us. "We think that you really need a maritime background in this industry, that's the lesson we learned."

"Having offices around the world is important to service customers who travel around the world."

Like most other VSAT providers, Mr Slikker points to the issue of crew welfare as one of the crucial modern drivers of communications systems.

"Crew welfare is the big thing right now," he said. "We can't forget about operations, quality and safety management, and all of those other things, but we've noticed that the availability of the internet for ships is a big issue for crew welfare."

"Surfing the internet, downloading pictures, downloading newspapers, these are things that people want. You want to retain your crew, but you'll also need to attract new guys as well."

"So which solution do you choose? It depends on your operations, but you have to relate the satcom costs to savings elsewhere."

Mr Slikker believes that there is no single correct answer, and that the right solution will depend on each company's own operations.

"I think there is room for Inmarsat and VSAT in the market, there's no question about that," he said. "And we are a loyal Inmarsat customer ourselves."

'You have to relate the satcom costs to savings elsewhere' - Floris Slikker, Radio Holland Connect

"The hardware cost is more for VSAT, but in the right circumstances that can be repaid in about 6 to 8 months."

The 'right circumstances' will depend mainly on the data needs of the company, and how vital it is to be able to send large amounts of information to and from the vessel, though Mr Slikker believes that it is not today's operations you should focus on.

"Broadband is good for your needs now, but you also need to consider your needs in the future if you're making this kind of investment," he said.

"I think there's room for both VSAT and FleetBroadband. I think it might split 50 per cent on VSAT and 50 per cent on FleetBroadband. There are differences of course, like the antenna size, so it depends on the customer. For customers without much space on the vessels, for them FleetBroadband would be best."

With regard to Radio Holland's 'almost global' Ku-band service, Mr Slikker felt that it would be of interest to many in the market.

"C-band VSAT covers the whole world of course, but Ku-band has always been more difficult," he said. "But we've combined the footprints to offer what I think is a good offering around the world."

"We use the top 3 satellite operators, and there are 9 teleports involved."

The company is also expecting the system to be able to switch automatically between these operators' satellites in the near future.

"For the handover between the satellites, today you still have to do something on the ship for the handover, but we hope to have automated handovers up and running in 2008, or before," Mr Slikker said.

Piers Cunningham, Inmarsat

Piers Cunningham, head of maritime business with Inmarsat, explained the latest developments in the company's preparations for the launch of its next generation, high-speed FleetBroadband service.

"Life over the last few years has been very interesting," he told us. "The pace of evolution in the satcom market is increasing, and we are glad to have that push to continue to innovate."

"When we launch FleetBroadband in November this year we hope to be able to commit to a date for the launch of the last of the I-4 satellites (the new Inmarsat satellite network that will carry the service), to give full global coverage."

"We're in the design and implementation stage of the groundstation for the POR (Pacific Ocean Region) satellite, having acquired the site (on the Hawaiian island of Oahu) from Intelsat some time ago."

"We're also going to be entering into the handheld and low-speed data markets," Mr Cunningham added. "Some might say that it's a direct competitor to Iridium - and they're exactly right."

The pricing structure for the FleetBroadband service has been a matter of debate since news of the launch was first released, and Mr Cunningham revealed that Inmarsat has now finalised its wholesale prices and passed them on to its distribution partners.

"FleetBroadband pricing should be available in the coming weeks, as the information is already out with the distributors and those discussions are almost complete," he told us.

"We will be offering new shared contracts across fleets, and pricing will be more competitive than land BGAN is today. We know the pace is changing, and we are stepping up to the challenge."

"At the wholesale level, it will be priced at a background IP level, we want people to use it. When you take account of everything, the hardware and all the rest, I think FleetBroadband will be very competitive. "

'Some might say that (the new handhelds are) a direct competitor to Iridium - and they're exactly right' - Piers Cunningham, head of maritime business, Inmarsat

Enjoying the discussion on shipboard broadband (L-R) - Piers Cunningham, Inmarsat; Floris Slikker, Radio Holland Connect; Pal Jensen, CapRock; Henrik Lindroos, Finnlines Ship Management

"JRC has announced a direct upgrade path from the Fleet33 to FleetBroadband, and Thrane is working on the compatibility right now," Mr Cunningham continued.

"The new system will have state of the art capacity and codecs for better quality of service going forward into the future. The 432 kbps capacity will be a shared speed, but there are also guaranteed data rates on demand."

Mr Cunningham also pointed out that users should carefully examine the coverage capabilities of combined network Ku-band if they are considering using such a new service.

"For Ku-band networks, you need to see the spot beams behind the coverage maps, to see how the spots connect and how seamless it can be," he said. "You don't want to be the guinea pigs to see how it works."

"I've always had the attitude that these are distinct technologies. There are natural homes for VSAT, like on cruise vessels and things like that, and we can't be all things to all people."

"The technologies are converging to a degree. VSAT won't replicate Inmarsat in the near term, but coverage will improve. However, we think, dollar to dollar, FleetBroad-band will be distinctly different to what you've been used to in the past."

Pal Jensen, CapRock

Pal Jensen, vice president of sales, maritime division, CapRock, spoke about how his company is approaching the future of the VSAT market, and some of the new maritime customers that have joined the

company since the launch of its new maritime package, SeaAccess.

"In 2000 I counted around 500 or 600 vessels with VSAT systems for telephone and data, mainly focused on oil and gas, on the offshore industry, and on passenger vessels," he told us.

"Others looked at what the energy guys were doing and got interested, and then things started to move. I think that's where it really started."

"Then the shuttle tankers started to get VSAT. They started out with 19.5 kbps, and called it broadband!"

Mr Jensen feels that the path travelled by VSAT providers in the industry has been a rocky one, with casualties along the way, but that the future is starting to look brighter as the maritime market evolves.

"A lot of the VSAT companies that came up at the start are not here now, but they started to get people to talk, to ask for more from the services, wanting to pilot them and find out more," he said.

"Some of them have come and gone, unfortunately. I think it's all about service, service, service, you need to have the guys who are going to be there to help you with your system."

'From my own count there are now about 3,000 people using VSAT' - Pal Jensen, CapRock

"From my own count there are now about 3,000 people using VSAT. And these are the guys who are leading, innovating ahead of the market."

"For the energy and passenger markets broadband is mission critical. For the service and supply sectors it's a bit less mission critical, but it's starting to become more important."

"So what are the drivers for VSAT in maritime?" Mr Jensen continued. "Well, just think about how land-based communications are used."

"Predictability with fixed costs is rule number one. You don't want to be using the internet at home without that, and the shipping companies want it too."

"Then there's the systems and applications element to being online at sea, things like ship management support, technical support."

Crew welfare

Once again, Mr Jensen was another of the speakers to point to crew services as a big driver behind companies' choices of communications systems in the modern market.

"It's difficult to get crew, and the right crew," he said. "They want access to e-mail, and internet and TV. They want competitive and unified telephone tariffs everywhere."

CapRock has seen a number of new companies taking up VSAT over the last year, driven by these factors.

"Seatrans are now getting VSAT," said Mr Jensen. "Höegh had been trusting Broadband Maritime for years, and that failed as we know, and it hurt them, but we were able to help them."

"Green Reefers, they're putting VSAT on their entire fleet of 37 vessels. They used to be in the C-band category, but now they've gone for Ku-band."

Mr Jensen was asked about the coverage of the Ku-band service, and how that would affect companies trading in different regions.

"They've seen the maps, they know their routes, and they have made the choice," he replied.

"When there are gaps you have to fill them, so you need redundancy. And we've been talking to Dualog and Virtek about managing the switch between the VSAT and other systems."

Mr Jensen believes that the market for VSAT is only going to get bigger in the foreseeable future.

"We launched our specialised maritime product in January, and have 5 or 6 customers now, so we must be doing something right," he said.

"Listening to the market, for 7 years I've kept hearing about 'always-on for a fixed price'. We've seen big guys, small guys come in and go out, so you have to listen to the market."

Robert Johnson, Blue Ocean Wireless

Robert Johnson, CEO Blue Ocean Wireless, spoke about his company's new service to offer GSM calling and text messaging to crews aboard merchant vessels, over the Inmarsat network.

'Only 8 per cent of the deep-sea merchant market have a dedicated crew phone - that's disgraceful' - Robert Johnson, Blue Ocean Wireless

"The industry is not really providing a good enough service for crew welfare and crew retentions," he said. "Only 8 per cent of the deep-sea merchant market, as surveyed, have a dedicated crew phone. That's disgraceful."

Mr Johnson believes that GSM services are a way to give the crews access to private and convenient communications, without a big financial commitment on behalf of the ship operator combined network Ku-band services if they were considering using such a new technology..

"The research (Inmarsat's 2006 crew-calling study) showed that with access to communication crews would spend about $90 per month," he said. "With an average number of about 15 crew per vessel, $90 each per month is a huge market."

"Obviously the ability to receive messages quickly is a great thing, and no-one's standing over you with a stopwatch, and they have the privacy of their own cabin to make and receive calls."

"83 per cent of owners said they'd allow it. 40 per cent are saying they'll spend the money on the equipment for crew welfare."

"And we're not stealing airtime from anyone else, we're creating a new value stream. The tipping point (for Inmarsat crew calling) was getting the price for calls under $1 per minute, that was when the demand shot up. The prices for this will come down from $1.25 (per minute, the current rate), and SMS prices will come down as usage increases."

The system runs over a JRC F33 Inmarsat terminal, which connects to the shore whenever a call or message is made or received.

"In the beginning we were using the ship's terminal to run the system," said Mr Johnson. "Now it runs over a dedicated terminal."

"Qantas and Emirates are actually flying with this technology right now, so it's a proven technology, and their take up has been phenomenal. Voice isn't allowed on the planes at the moment for legislative reasons, but Blackberries and GPRS have been working."

"Shipowners don't have to dip into their pockets for a large CapEx for this," Mr Johnson continued. "Blue Ocean Wireless provides all the hardware, and the ship owner or operator pays a fully refundable deposit at commencement of contract of $2000."

"There's a monthly subscription depending on contract term, typically between $350 and $495, and there's a 6 per cent discount given on 12 months subscription paid in advance. Installation is charged at cost, and typically this can be installed in less that 24 hours."

"The minimum term at the moment is three years, but we know that we're dealing with ship operators and a changing market, so we have flexibility built in. The first shipowner with the system is now up and running."

"At the moment it only carries one call at a time - but after FleetBroadband is released it will increase to a possible 8 calls at a time. But, with 15 crew and half of them working, it's not really a big problem."

"It supports GPRS, though the price for that has not been confirmed," Mr Johnson added. "You can give a Blackberry to the captain and the chief engineer and be able

to contact them directly all the time."

"And we're also going to be doing tracking systems, you will be able to use it to track every bit of cargo on board, and you're not reliant on the ship's system. You don't need to worry about line-of-sight either."

"You can't use clipboards to track 13,000 containers. If you have a high-value cargo it's seriously worth looking at this kind of technology."

Victor Barendse, Wired Ocean

Victor Barendse, director, Wired Ocean, spoke about his company's system which uses TV satellites and antennas to send data from the shore to vessels at sea, which he believes can be of huge benefit for applications where most data is just travelling in one direction.

'You can reasonably get over 300 kbps from the shore, but you don't need a fast uplink' - Victor Barendse, Wired Ocean

"It's different to the Ku-band that you hear about from VSAT operators, this works through a TV antenna on the ship," he explained.

"You can reasonably get over 300 kbps from the shore through the system, but you don't need to have a fast uplink. The server costs around Euro 3,500 if you have the TV antennas already. With those antennas onboard it can be installed next day."

"Our downlink is always-on, so if you put that with an always-on uplink you will have an always-on system - but it's not such an issue, we've seen Inmarsat connected for up to 3 weeks at a time."

Mr Barendse points out that this system is not applicable to every type of communication, and will be useful in certain situations.

"What's it good at and not good at?" he said. "It's not good for symmetric applications that send about the same amount of data up and down the connection, so it wouldn't be much good for things like video conferencing, telemedicine, or VoIP."

"It works better in situations where you are receiving a lot of data but not sending a lot, things like information downloads, web browsing, and online database access. Chart updates are one big thing, for example, a newbuild could download the whole chart catalogue before it leaves."

"With FleetBroadband coming along it will cover the applications where this is not so good anyway."

The service consists of a server onboard the vessel that manages the connection to the TV satellites, or whatever connection you select for your usage at that time. The user has to select what type of connection they want each time they connect

"The way the service runs now, when you leave an area covered by the satellites you use the software to switch to another system, it could be Inmarsat or whatever," said Mr Barendse. DS

Dutch company **Royal Dirkzwager** has launched a new Ship2Report information tool, used to display up-to-date information on the AIS location and characteristics of all vessels in its database of over 125,000 ships. Available over the internet, it also allows users to compile a 'My Favourites' list of vessels they wish to keep track of.

A community website for those interested in **tugboats** has been launched in the USA. The site, which will include news, forums and downloads of relevant material, can be found at *www.tugboatlife.com*, where it is free to register.

Inchcape Shipping Services has re-launched its website, incorporating improved navigation, functionality and other useful information about the Group, its activities and its people. The News & Media section includes shipping and port reports from across the world, current press releases and press reports, as well as the Company's in-house journal - ISS Reporter.

DNV (Det Norske Veritas) has selected a software system for computational fluid dynamics (CFD) from **CD-adapco** to add to its own software for the estimation of slamming and sloshing loads. DNV's engineers will use CD-adapco's STAR-CCM+ to tackle problems involving sloshing resonance and vortex induced vibration, and for general six-degree-of freedom free-surface calculations.

Japan's **Sanoyas Hishino Meisho Corporation** has signed a contract with Spanish software company **SENER** for its FORAN 3D CAD shipbuilding software. The implementation plan for the system spans a period of four years, between 2007 and 2010, during which period a steadily growing number of services will be supplied. SENER's Okayama office will provide local support when the system enters into real production at Mizushima Works and Shipyard.

Intergraph has launched a new lifecycle management tool for the marine industry, called SmartPlant for Owner Operators (SPO), designed to manage the movement of data throughout all applications associated with plant and ship design and operations. The company is planning to enable integration between SPO and other operational ERP systems, such as SAP.

Finnish shipping company **Oy Langh Ship** and Danish company **Transmarine Management** have contracted with **Ms Logistik Systeme**, a Germanischer Lloyd Group company, for the implementation of the GL ShipManager software system on their fleets. Oy Langh Ship has equipped its two newbuildings 'Linda' and 'Aila' with maintenance and order management modules, while Transmarine Management will have three ships using the maintenance, administrator and documents modules.

ABS Nautical Systems has appointed Gerry Nielsen to the newly created position of vice president of operations, with responsibility for global operations and support functions for the company.

Fortune Technologies reports that it has signed an agreement with **Newfront Shipping** for the ERP implementation of its Microsoft Navision maritime software add-on.

www.dirkzwager.com
www.tugboatlife.com
www.iss-shipping.com
www.dnv.com
www.sener.es
www.intergraph.com
www.gl-group.com
www.abs-ns.com
www.frtntech.com

BASS releases new fleet management software modules

www.bassnet.no

Norwegian software company BASS has released BASSnet Document Manager and BASSnet Operations, two new software tools designed to establish common operating standards and facilitate knowledge sharing across shipping organisations. Both modules can be fully integrated into BASSnet Fleet Management Systems and are developed on the Microsoft.NET platform.

The Document Manager allows all units and vessels to have correct, up-to-date documents through distribution to single vessels, groups of vessels or the entire fleet. It also enables ships' staff and office users to submit feedback for improvement of the company's management system.

One stated aim of the Document Manager is to allow companies to establish common operating standards and procedures across their fleets, in order to ensure industry compliance and consistent performance. BASS also claims that the system is set up to make it easy for ships' staff and other users to find their way through the documentation and apply the appropriate procedure or checklist for the task at hand.

The Operations module provides an overview of certificates status for all vessels and allows for enquiries on certificate expiration, to help companies make sure that fleet certificates are kept up-to-date at all times. It allows users to keep electronic navigation and engine log books, and to track each vessel's voyage activities, location, and departure and arrival details.

From the shore office the company can monitor the daily positions of all the vessels in the fleet and track each vessel's fuel and lubricants consumption in relation to machinery running hours and supply needs.

BASS says that data entry is minimal with this module, enabling the use of formula logic and default values, and it includes 'push alerts' to get information to the right people at the right time.

"We have not only developed new features for existing modules, but are currently designing new and exciting functionalities for modules now in the pipeline," said Haakon Dalan, general manager product management with BASS.

Mr Dalan also noted that the company's Fleet Management System is now installed on more than 850 vessels.

OSG adopts Lloyd's Register service

www.lr.org

Overseas Shipholding Group has committed 47 of its tankers to Lloyd's Register's Hull Integrity service, joining other ship operators such as Unicom Ship Management and Shell Trading and Shipping Co. Lloyd's Register notes that since the launch of the service at the Posidonia exhibition, in Piraeus in 2006, some 87 ships have signed up.

Hull Integrity helps owners and operators to manage the structural integrity of their ships, and enables them to demonstrate that sound structural inspection programmes are being employed.

There are three elements to the service: training for senior ship's officers and superintendents in how to carry out inspections; ship-specific hull inspection guides; and software for recording and analysis.

The service is applicable to all ship types, although Lloyd's Register says that the advantages of the service are most immediately apparent for operators of tankers and LNG carriers. It is not a class requirement, so it can be used by owners and operators of ships not classed by Lloyd's Register.

Find vessels or containers on Google Earth - new GPS tracking software

www.trackingtheworld.com

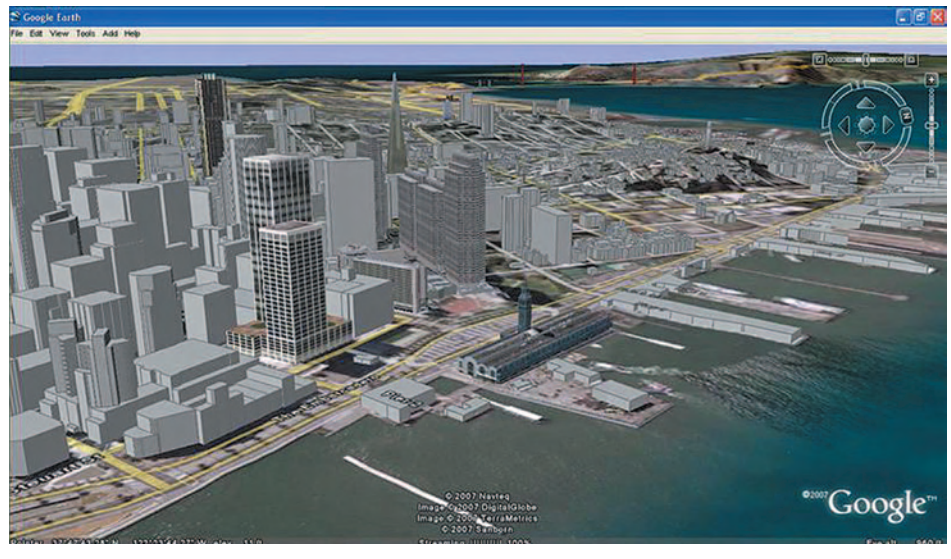
US company 'Tracking the World' has released a new Satellite Tracker software application, that enables GPS vessel tracking and management of assets (such as containers) through the use of satellite telephones, the internet, GPS, and world-wide mapping software, to create instant and remote tracking capability of assets at sea, and on to the land portion of their journey.

The software includes worldwide mapping, and is compatible with customised digital, paper and maritime maps. Multiple assets can be tracked simultaneously, and instantly displayed on maps such as Google Earth to give a precise location.

The system uses Inmarsat D+ GPS transmissions to monitor the whereabouts of whatever is being tracked.

"(The) technology sends and receives digital signals from anywhere in the world and retransmits them to ground stations which provide a direct link to the internet, and allows users to monitor multiple targets from anywhere on the planet with 3 different on-line mapping sources," said Gilbert Walz, founding partner of Tracking the World.

Initial setup and activation of the GPS Satellite Tracker software is available for $189.00, followed by $19.95 per month for unlimited software use.



Track your vessels and containers coming into San Francisco on Google Earth with Satellite Tracker

Online Engineering Officer of the Watch qualification launched

www.stc.ac.uk

South Tyneside College in the UK and Teledata have developed an e-learning course for the Engineering Officer of the Watch qualification to allow those working on ships to study over the internet while sailing, or in their leisure time at home.

Students using the program will have access to real people on shore called Subject Matter Experts (SMEs), by e-mail or specialised 'chat' forums, that will guide them through any areas where they may be experiencing difficulties.

The course includes modules in Mechanics, Applied Thermodynamics (Heat), Naval Architecture, Electrotechnology, and a support unit on mathematics.

South Tyneside College says that this is the first time that courses in this type of qualification have been made available for online distance learning.

"Although e-learning has been around for some time the programme is a brand new concept for the marine industry," said Gary Hindmarch, head of the Marine College at South Tyneside.

"Traditional courses such as the Engineering Officer of the Watch have never been designed before in a distance learning, electronic format. But clearly in an industry where people are not land based and can be anywhere in the world, e-learning is a necessary step forward."

Second Engineer and Chief Engineer courses are also currently in development.

Chevron Shipping completes SRO Solutions trial

www.srosolutions.net

Software company SRO Solutions reports that it has successfully completed trials of its SRO Data Replicator (SDR) system, released last year, for US oil giant Chevron.

"Last year we were asked by Richard Louie of Chevron Shipping to provide the SDR as part of a replication 'proof of concept' and pilot being run by his department," said Steve Driver, director of SRO Solutions.

"The trials were carried out at (Chevron's) San Ramon office and onboard a selected vessel."

"The results of the trial were successful, enabling Chevron Shipping to more clearly understand the potential benefits of using the SDR, as well as alternative methods of how best to utilise onboard database applications over Inmarsat Fleet."

SRO is hopeful that the system will be extended to cover Chevron's approximately 4,000 annual voyages, which use a combination of single-voyage charters, short- and medium-term time-charters and a company-owned or bareboat-chartered fleet.

Mr Driver believes that data replication technology is becoming a more appealing prospect for shipping companies using advanced IT systems aboard their vessels.

"With the rapid uptake of onboard VSAT, the continued growth of Inmarsat Fleet, and Fleet Broadband 'just around the corner', this (technology) is not only revolutionising theuse of existing onboard database applications but also facilitating the move to superior web based applications," he said.

UK MCA to install system management software

www.nimsoft.com

The UK Maritime and Coastguard Agency (MCA) has adopted a new system by Nimsoft to manage its IT infrastructure, including communications and search and rescue services.

The move comes as the MCA prepares to complete its implementation of an EU directive that extends the UK's vessel traffic monitoring, which covers over 10,500 miles of coastline. The MCA currently monitors over 1,000 Class A vessels at any one time, and manages approximately 16,000 Search and Rescue (SAR) incidents a year.

Following the implementation of this new maritime directive, AIS will be expected to monitor over 3,000 vessels within 30 miles of theUK coastline at any one point in time.

The new NimBUS software will be used to remotely manage more than 130 Windows servers at locations around the UK, including 19 Maritime Rescue Co-Ordination Centres (MRCC) which house systems such as the Automatic Identification System (AIS), a navigation warning system, and an Integrated Coastguard Communication System (ICCS).

The system will be deployed across the MCA over the course of 2007.

EU grants funding to shortsea logistics IT project

www.shortseaxml.org

A new IT project designed to streamline the shortsea logistics chain has won almost Euro 2 million in funding from the EU's Marco Polo programme, and says it is now 'firmly underway'.

The Shortsea XML project aims to develop a series of standardised forms to reduce the financial and administrative overhead of distributing core information. The forms will cover the mainstay processes of scheduling, booking, operations and invoicing, and it is hoped that standards will also make statutory reporting to shore authorities much easier.

Shortsea XML comprises 28 participants from seven European countries, including SMDG, Softship, Port of Rotterdam, Kingfisher, Samskip, Norwegian Coastal Directorate and the European Transport Logistics Institute. The project is being run on an operational basis by NorStella.

"There has long been an issue with the transfer of information within a shortsea-based logistics chain," said Arild Haraldsen, managing director of NorStella.

"Many parties are exchanging the same information many times, but often in different formats. Data is re-sent and re-typed wasting valuable resources, increasing errors and adding to the financial overhead."

"Shortsea XML is taking modern, but freely available technology to create a series of standard forms containing all relevant information to operate a door-to-door service. These forms can be exchanged seamlessly between parties and data can be input direct to internal systems."

Mr Haraldsen also said that a specialist translation hub will be made available to help those companies whose internal systems demand a slightly different format to take advantage of the system.

Funding from the EU covers 50 per cent of the total project costs, the remainder being contributed by the project participants. At the end of the two-year project period it is hoped that a set of standardised forms will have been created and implemented in a range of shortsea-based logistics chains and the project will have been widely promoted throughout Europe.

Standard formats for each form will be made available without charge, and discussions are underway to ensure the standard is maintained once the project is completed.

ShortSea XML is currently in the process of establishing a number of implementation cases for the system, with the intention of providing 'proof of concept' and demonstrating how the technology can reduce administrative costs and improve customer service.

The first implementation case involves Sea-Cargo, a Norwegian shipping line, which will integrate its processes with VCK, a forwarder and terminal operator in Amsterdam.

VCK will receive electronic cargo manifests from Sea-Cargo for inbound shipments and will submit bookings and booking updates to Sea-Cargo for outbound shipments. Sea-Cargo will also send and update loading and discharge lists to VCK and provide transport orders to VCK for pre-/on-carriage.

Softship will be responsible for managing the integration work within Sea-Cargo.

All those participating in the implementation case will receive guidance, assistance and financial support from the project. A number of further implementation cases are also expected to be announced over the coming months.

Norwegian shipping line Sea-Cargo was the first implementation case for the Shortsea XML project

BMT signs simulation technology agreement

www.bmt.org

BMT Group has signed an agreement to offer SimPlus simulation technology in the US and European markets. SimPlus, a Singapore-based company, specialises in operations intelligence and software for marine port operations.

The SimPLus SET4Port simulation application, used to forecast, asses and adjust scheduled plans for containers coming in and out of port, will now be available with BMT's own products, including its port security and asset tracking systems.

Existing SimPlus customers include the Maritime and Port Authority of Singapore, Jurong Port Private, Surbana International Consultants Private, and PSA international.

BMT will sell and support SimPlus products in the US and Europe for the next five years under the terms of the agreement.

This move comes just months after BMT acquired another Singaporean technology company, BrightFire Engineering Systems, and is part of a strategy BMT describes as 'a migration from being a consulting organisation to a developer of IP-based technology solutions'.

BMT says that it aims to have one third of its revenue generated in Asian markets in the next 5 years, and already has plans in place for acquisitions in China which it hopes to announce soon.

The simulation application is used to forecast and adjust scheduled plans for containers entering and leaving port

Coatings inspectors - where will they come from?

The tanker industry is about to face an enormous headache with the need for hundreds (maybe thousands) of highly trained coatings inspectors, according to Mike Kennedy, technical director of tanker operator Hellespont Steamship in Athens.

A new SOLAS regulation, II-1-3-2 of chapter XII-6 of SOLAS-1974, amended at the Istanbul Marine Safety Committee meeting by resolution MFC216 (82), will require the surface and coatings of new ballast tanks for tankers and dry bulk vessels to be measured regularly to check they are good enough ("performance standard for protective coatings").

According to Mr Kennedy, the average ship could need a total of 1 million measurements of DFT, temperature, humdity, salt, and so on during its construction.

The rule goes into effect for new ships where the contract to build them is signed after July 2008, when they are bigger than 500 gross tons.

IACS, the International Association of Class Societies, has already said that the performance standard will apply to all IACS Common Structural Rules (CSR) classed tankers 150m and bigger, or dry bulk vessels bigger than 90m and bigger, where the contract was signed after December 8 2006.

Measurements required include the number of coats of paint, chloride levels, the DFT (dry film thickness) for each coat, chloride levels, smoothness, dust, temperature, humidty, smoothness levels, and cleanliness of the surface.

"Every welding seam has to be measured every couple of metres - each face plate or bracket has to measured," says Mr Kennedy.

The measurements need to be carried out by an inspector trained and certified to NACE Level II or FROSIO Level III.

Mr Kennedy attended the meeting of the IMO JWG/IACS group in Pusan, Korea, last May, that was tasked by IMO with developing the 'Guideline for Implementation of MSC.215(82)'.

"The shipyards are really worried and concerned about how these measurements are going to be made, reported and tracked," he says.

The shipping industry will have further challenges, in how the measurements will be audited, to check they were done properly.

Mr Kennedy believes that a large business opportunity is available for a software or automation company that can make an integrated hardware/software system to automatically take, record and/or manage the data.

"If you could put your instrument on the construction blocks, push a bunch of buttons, and everything after that was done somehow automatically that would be a very useful thing," he says. "Its a really big deal, and it really begs for automation." DS

In-line fuel monitoring - FOBAS Onboard

Danish technology company NanoNord has joined with Lloyd's Register to develop a real-time online fuel monitoring system that can automatically alert crews to potential problems, and keep the shore office up-to-date with what's happening on board

NanoNord A/S of Denmark has entered into a joint development project with Lloyd's Register to develop an online fuel and lubricant management system, based on a combination of the Danish company's recently developed real-time, fuel-testing hardware and software platform, Lab-on-a-ship, and Lloyd's Register's Fuel Oil and Bunker Analysis Service (FOBAS).

The new system, to be called FOBAS Onboard, aims to speed up the fuel inspection process by introducing in-line monitoring into the fuelling process, eliminating the need for fuel to be removed to a shore lab for testing, and the obvious time constraints that involves.

"Lloyd's Register is responding to the call from ship owners and operators for a more immediate verification of fuel quality during bunkering and in-line monitoring to reduce the operational risks associated with poor quality fuels and ineffective treatment systems," said Timothy Wilson, FOBAS product manager and principal specialist engineer at Lloyd's Register.

"Fuel quality is an issue, sulphur content, emissions, and so on, these things are becoming more important. We believe the future of effective machinery operation and environmental compliance lies with in-line monitoring, and we would expect shore-based analysis to reduce significantly over time, with the need for routine analysis as we know it possibly being eliminated."

"Knowing the sulphur content of the fuel being used is extremely important, especially now that the shipping industry finds itself in the position of having to carry up to seven different grades of fuel onboard, with the requisite change-over procedures, in order to comply with international environmental regulations," Mr Wilson continued.

"Having the sort of information that FOBAS Onboard can provide can enable crews to reduce the risk of inadvertently exceeding prescribed sulphur limits, and optimise cylinder oil consumption."

"The new system complements the Lab-on-a-ship hardware with intelligent software which provides users with an easy-to-use technology which will help to ensure that machinery remains within operational limits."

"Knowing immediately what the core quality attributes of a fuel are throughout the bunkering process and as the fuel enters the engine, and being able to act immediately upon this information, represents a significant advance in effective vessel management," added Ultan O'Raghallaigh, director of business development and sales at NanoNord.

"(This system) can take samples during bunkering, and then again during operation. You don't want to have to bottle the fuel and then send it by DHL, and then after having burned the fuel you get the results."

The onboard rack analyses the fuel, and the integrated software will automatically alert the crew if there is a problem

Fuel monitoring benefits

The system monitors vessel fuel from the point of delivery, through purification, to the point of consumption, providing a measurement of the quality of fuel that is loaded, stored, in use, and on board. This also includes tests for potentially damaging materials and abrasives.

A rack of analytical equipment is installed on the vessel, which constitutes the NanoNord Lab-on-a-ship portion of the system, connected to an onboard server hosting an interactive database. If certain database parameters are met alerts will be triggered, on board and, if necessary, on shore.

The two companies believe that the FOBAS Onboard system can create benefits for the ship operator on a number of levels.

"There are three main aspects to this - an environmental aspect, getting value for money in buying the fuel, and protecting the vessel," explained Mr O'Raghallaigh.

"The environmental aspect of this is huge, and it has a NOx sensor as part of the system, for example, to monitor emissions. We want to develop a holistic approach to monitoring the ship."

"Also, if you can get real-time information when you are purchasing the fuel, about things like air content, water content, it allows you to determine how much energy you are buying for your money."

"You can save on your use of cylinder oil too," he continued. "Cylinder oil has to be burned by the engines to reduce the sulphur emissions, and people are burning more of it than is necessary, maybe costing $2 or $3 million. We think that could be reduced by about 25 per cent."

"The cylinder oil reduces the sulphur, but at the moment the regulations have a safety buffer built in which is above what is necessary. Proper monitoring would eliminate the need for that buffer."

The FOBAS Onboard system also monitors potentially damaging particles in the fuel, such as CATFINES (silicon and aluminium), that can cause damage to engines and machinery if left unchecked, leading to the extra costs of asset downtime and increased maintenance.

Shore connection

If a problem is detected relative to any of the set parameters in the database the software system will make the information known to the engineers or any other relevant party immediately and automatically.

"There's a database of help messages that is accessed when the parameter levels are met," said Mr O'Raghallaigh. "If the engineer then wants more information after that he can go in and find it if he wishes. We can make it as simple or as complex as you want really."

"The software will show what's happening in large figures on the screen, and alerts and alarms will tell you what action is needed. It translates information into what it really means, and what they should do about it."

"If it's complicated it will tell them to contact the shore and will send an e-mail report. It's connected to the satellite communications system and generates and sends e-mails automatically."

"Lloyd's Register will provide the support on the reports to interpret the data. In a crisis Lloyd's Register can have the same data in front of them as the ship has to help them make decisions."

Plans are also in place to make the information streaming into the database available online on a central server through a secure GSM connection, to allow fleet management to access all relevant quality and consumption data concerning fuel anywhere in the world.

Development

The NanoNord part of the system has been in development since 2005, and began following discussions with one of the company's investors.

"Vesterhavet A/S, the parent company of shipping concern J Lauritzen, has a shareholding in the company," explained Carsten Tilm, managing director of NanoNord.

"We went to visit them and heard of their problem with high-sulphur fuels in SECA areas. They asked us to take a look at it. We talked to engineers and captains, and that led to the solution we've developed now."

"Shipowners want to have control of their assets, and be sure that they are being operated correctly."

The system is now in the final phases of the development process, and is awaiting type approval.

"We've had a prototype on a J Lauritzen ship since October 2006," Mr O'Raghallaigh told us. "We also did separate mechanical tests, gravity tests, and all of these things."

"In addition, to make sure the results from the equipment are the same as they would be from the shore lab, we were also doing tests where we send samples of fuels to eight labs and check their results against what we get."

"After the testing process we submitted the technology to Lloyd's Register for type approval, and we expect that to be ready for the end of September this year."

"People are burning more cylinder oil than is necessary. We think that could be reduced by about 25 per cent"

- Ultan O'Raghallaigh, NanoNord

NanoNord says that it has had a small number of unnamed companies using this system for some time now, and that the feedback has been positive.

"We've been working on this now for 18 months," said Mr Tilm. "And it's ready for release. The price will be of the order of Euro 100,000, and there will be different options that can be added to the system as customers ask."

The company has a somewhat successful background in technology outside the maritime sector - it was originally founded by entrepreneur Ole Jensen in 2003, whose previous venture, Digianswer A/S, was responsible for the development of Bluetooth technology, before it was sold to Motorola in 1999. DS

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The SR02-01 can hold up to 99 bearing observations at a time

Scandinavian Micro Systems has released a new piece of equipment in its ScanRepeater range, the SR02-01. The SR02-01 is an optical bearing device that enables the navigator to check ship position in tight waterways. The unit can hold up to 99 bearing observations that can be stored and reviewed at any time.

Scandinavian Micro Systems (SMS) has installed its ScanDisplay entertainment system on board **Hurtigruten's** newest ship, MS Fram. In September the MS Fram will embark on a 66 day cruise from Iceland to Argentina, with polar circle excursions.

Francis Udom has been appointed as the new chair of the **Institute of Marine Engineering, Science and Technology (IMarEST) Young Members' Network.** Mr Udom is a project engineer for the Integrity Service Department of Lloyd's Register EMEA in Aberdeen. He has taken over the role from Dr Paul Jukes, advanced engineering manager, JP Kenny, based in Houston.

SAM Electronics has been awarded a contract for the supply and installation of NACOS 35-5 integrated navigation command systems aboard five 39,900-gt container vessels under construction at HHIC-Phil Inc's yard in the Philippines, for delivery to NSC Schiffahrtsges in 2009. The integrated systems comprise of dual radar-controlled trackpilots, ECDIS and other sensors, while featuring a fully integrated radar and electronic chart capability.

Alphatron Marine has released its Alphaminicourse gyro, extended with new options to connect to the latest Furuno and JRC radars without the need for additional interfaces. Alphatron says it has already received orders from Stolt Nielsen and Petrobras for this system.

The Alphaminicourse gyro can connect directly to Furuno and JRC radars

Transas and the Istituto Nautico di Trieste in Italy have signed a contract for a Full Mission Simulator and Training Suite and two secondary bridges with visual screens and full sets of control panels and equipment, to be located in the 250 year-old training establishment. A Transas-sponsored PC laboratory will also provide flexible training solutions and specialist training modules.

Transas has agreed to re-fit the entire **GC Rieber Shipping** fleet with Simplified Voyage Data Recorders (S-VDR). The initial contract is for twelve S-VDR, with an option for an additional six systems. Installations began in May 2007 and will continue throughout next year.

Transas reports that BSH (Bundesamt for Seeshifffarht und Hydrographie) has finished testing the Transas AIS Base Station T214 and has issued a 'Declaration of Conformity' for the system.

Transas distributor Marix has installed an NTPRO Radar/ARPA Simulator for the Tokyo University of Marine Science and Technology (TUMST), over two campuses. Two NTPRO 4000 bridges were installed in each campus and connected to each other via a VPN (virtual private network). The training system can be used as a 4 bridge simulator.

Imtech, parent company of **Radio Holland**, has reported that maritime orders from China have grown to Euro 120 million, based on contracts for the provision of technological systems to over 240 ships. Recent orders include a Euro 15 million contract to supply 20 feeder container ships that are currently under construction, as well as orders for over 20 tugboats, 4 general cargo vessels and 4 chemical tankers.

Imtech is to supply luxury yacht and cruise ship owners and shipyards in the Netherlands, Germany, Italy and China with technological products worth over Euro 62 million. These will include interfaced and integrated ship bridges, propulsion solutions, local area networks on board, navigation, communication and entertainment equipment. The yachts are scheduled for delivery during the period 2008 - 2010 and the cruise ships in 2009.

The Hatteland Series 2 marine display, winner of a 'red dot' design award

Hatteland Display has been awarded a 'red dot' design award for its Series 2 marine monitor/computer family. The design of Series 2 was a collaborative project lead by Knut Vidar Lauritsen and Pim Leswin of Hatteland Display, and Ian Sandemal of Norwegian industrial design bureau, WORK.

Offshore Systems is to supply five S-VDR 5000 systems to the **Peter Döhle Schiffahrts - KG** shipping group. Five vessels (Alexandria, Aida, Attika, Aurelia and Ariga) will have S-VDR 5000 upgrades added to their ECPINS (ECDIS) systems. Three additional S-VDR 5000 systems are to be purchased in the near future.

Kelvin Hughes has appointed **AMI Sales** in Fremantle, Australia, as a Centre of Excellence for the installation and servicing of Kelvin Hughes equipment. AMI has the distinction of supplying equipment to every new building constructed in the country. The company also reports that it has opened a new service centre in New Orleans, USA.

Sperry Marine has been awarded two contracts from the Public Works and Government Services Canada and the Canadian Department of National Defence to upgrade the inertial navigation systems (INS) on Canadian Navy ships and submarines. They include an $11.8 million contract to supply navigation data distribution systems (NDDS) on 12 Halifax-class frigates, and a separate five-year $4.1 million contract for other installations throughout the fleet.

Sperry Marine is to supply two VisionMaster FT navigation radars for the M/V Miljødronningen, a new ship being built for the Norwegian environmental organisation Green Warriors of Norway. The 33.9 metre (108 ft) catamaran is being built at the Fjellstrand shipyard in Hardanger and is scheduled to be delivered in September 2007.

Sperry Marine completed the installation of navigation and communication systems for **Royal Caribbean's** newest passenger cruise ship, Liberty of the Seas. Liberty of the Seas is the second ship in Royal Caribbean's Freedom-class series, with the third, under construction at Aker Finyards in Turku, Finland, to be delivered in early 2008.

ChartCo reports that it now has a subscriber base of over 3,000 vessels with the signing of a new contact with **Oldendorff Carriers GmbH & Co. KG**, of Lubeck, Germany. Oldendorff will install the ChartCo broadcast system on 35 of its vessels, following other recent sign-ups Torm Ship Management and Quintana Management.

Consilium Navigation has launched its new Selesmar ECDIS for the marine market, offering the system as a stand alone or part of a combined package with its VDR and S-VDR hardware. The company has also released its Salwico Emissions Monitoring System for the measurement of NOx\SO2 and CO2, which has been type approved by Lloyd's Register.

Kelvin Hughes has opened an office in Copenhagen, Denmark. Flemming Hasse, area sales manager and Bent Mitens, business development manager, will head up the new office, supporting the Northern European, Scandinavian and Russian markets.

Lyngsø Marine, a subsidiary of **SAM Electronics**, has been awarded a contract to supply integrated automation packages for installation aboard a series of fourteen 54,000 dwt bulk carriers under construction at Hanoi-based Vinashin Group's Dung Quat and Ha Long yards, for delivery to its own shipping line between 2008 and 2010.

Victor Marine (formerly Victor Pyrate and Hodge Separators) has named a new distributor in Singapore, **VP Marine Equipment**, headed up by Ernest Mah. VP Marine Equipment will represent Victor Marine in both Singapore and Malaysia.

Turkish Transportation Minister Ismet Yilmaz has launched a new Automatic Identification System (AIS) covering all of the Turkish coast on both the Mediterranean and Black Sea, following a ceremony in Ankara.

www.scansys.no
www.imarest.org
www.sam-electronics.de
www.transas.com
www.imtech.com
www.osigeospatial.com
www.alphatronmarine.com
www.kelvinhughes.com
www.hatteland.com
www.sperrymarine.com
www.chartco.com
www.consilium.se
www.lyngsoe.com
www.victormarine.co.uk

Rutter releases new VDR after reaching 3rd in Profit 100 list

www.rutter.ca

Maritime electronics manufacturer Rutter has been revealed as the third fastest growing company in Canada in the 19th annual Profit 100 list of expanding Canadian businesses, and is hoping to continue its expansion with the launch of its latest VDR product.

Taking figures from 2001 up to 2006, the Profit 100 list shows Rutter to have had an astounding 8,114 per cent growth during the period, with revenues exceeding CAD $74 million in 2006 compared to approximately CAD $900,000 in 2001. Exports account for 81 per cent of total Rutter sales.

The workforce at the company has also grown substantiallyin that time, from a team of just four people in 2001 to the 485 workers listed for 2006.

The company's flagship products have been its range of VDR (voyage data recorder) equipment, with the latest version, the Rutter VDR-100g3/G3S, launched in Norway during the recent Nor-Shipping exhibition.

The VDR is currently in testing with the German Federal Maritime and Hydrographic Agency BSH (Bundesamt für Seeschiffahrt und Hydrographie), and is expected to begin shipping in late 2007.

The new system will be priced the same as the previous VDR-100G2S, but will store one month of VDR data, as opposed to the IMO minimum of 12 hours.

The company has also recently signed a deal to deliver 50 of the new VDRs to the Buss Shipping Group over the next two years, and has launched a new RADAR-100S6 specialty radar system, with improved radar imagery and enhanced target detection.

Rutter's new VDR will store up to one month of vessel data

ACR Electronics' new AIS class B

www.acrelectronics.com

ACR Electronics has launched Nauticast B, a Class B Automatic Identification System (AIS) transmit-and-receive transponder for small commercial craft.

USB adapters are available for laptop operators to connect the device to their computers, and it can also interface with a NMEA multiplexer so AIS targets can be displayed on various manufacturers' chart plotters.

The equipment has received approval for sale in Belgium, Estonia, Finland, France, Germany, Greece, Norway, Poland, Spain, Turkey and the United Kingdom. United States FCC approvals, as well as other international approvals, are still pending.

The device is not authorised for sale in the US or other non-approved countries until the process is finalised.

The manufacturer's suggested retail price for the AIS system is $1,180.

'Time for sea traffic control' - US judge

In a concurring opinion in the appeals court verdict on the Tricolor case, a US Circuit Court judge has called for a maritime equivalent of the air traffic control system to reduce the risk of serious collisions.

The Norwegian vessel Tricolor was involved in a collision with the Kariba, a cargo vessel, in the English Channel on December 14, 2002, spilling hundreds on tonnes of oil into the Channel. Another cargo ship, the Nicola, crashed into the wreckage two days after the Tricolor sank, while, amazingly, a fourth ship also became involved when the captain of the Vicky failed to notice broadcasts and marker buoys, and lodged his ship on top of the stricken Tricolor.

Contributing his opinion to the judgement, which attributed blame for the accident to both the Tricolor and Kariba, and a third vessel, the Clary, which was crossing between the two, Judge Jon Newman expressed his dissatisfaction that there did not exist "some form of sea traffic control system for crowded sea lanes like the English Channel or narrow portions of it like the Dover Strait."

"My additional concern is the lack of a system for effectively alerting ships in crowded waterways to appropriate steps to be taken to avoid impending perils of collision," he said.

"If air traffic controllers can monitor airplanes in crowded air spaces and require them to adjust speed, course or altitude to avoid a collision, surely some similar system for requiring adjustment of speed or course can be implemented for crowded sea lanes."

Judge Newman was also surprised with the fact that even though all of the ships involved in the initial collision were being continuously tracked by radar from Dunkirk, there was no communication from the radar station to the vessels with advice or instructions that might help to avoid an accident.

"It would seem imperative for maritime nations and vessel owners to co-operate in establishing some system to monitor ships in crowded sea lanes, especially those with ship crossing patterns, and require manoeuvres to avoid collisions," he said.

Despite the availability of radar, ARPA (Automatic Radar Plotting Aids), radio and other positioning technology on board the vessels, it was still not enough to prevent the accident. Judge Newman was critical of the use of some of the equipment, calling for better communications and radar technologies to be made a mandatory fit for ships of a certain size.

"VHF radios on board are customarily not used because they do not enable direct communication with only one vessel; the ship sending a message cannot be certain whether nearby ships are receiving the message, and, if the signal is received by nearby ships, they cannot determine from which ship it came," he said.

Judge Newman also commented that ships that did not have sufficient radar and communications technology should possibly be prevented from entering busy shipping lanes, perhaps as part of some kind of mandatory requirement.

The wrecked bow of the Tricolor being removed from the English Channel - could 'sea traffic control' reduce the risk of accidents?

VTS closes without notice

Disagreements between the UK's Maritime and Coastguard Agency (MCA) and the Harwich Havens VTS (vessel traffic system) station have led to the sudden closure of the navigational information system for a busy route into the River Thames.

Harwich Havens had been operating the VTS in the Sunk area for the previous five years, under a Memorandum of Understanding with MCA which expired on July 1st. With no further agreement reached between the parties to continue the service following this deadline the VTS was closed without notice.

Discussions between MCA and Harwich Havens had been ongoing for over a year prior to the closure, and MCA had put the VTS service for the area out to tender earlier in 2007 in an attempt to find alternative operators. However, only two interested bidders for the contract came forward, with Harwich Havens refusing to enter a bid of its own.

Discussions then moved on to the possibility of an interim agreement to keep the system operating while a long term solution was put in place, but stalled when Harwich Havens insisted on being indemnified by MCA against any possible liability claims - a condition that MCA would not accept.

MCA has said that it wants to be able to operate VTS in the area, and it has been suggested that the VTS centre at Dover may be considered as a candidate to take over the running of the service in the near future.

UK GLA signs 15-year contract for eLoran service

www.vtplc.com/communications

The UK General Lighthouse Authorities (GLAs) has agreed a fifteen-year contract with VT Communications for the provision of enhanced Loran (eLoran) radionavigation services.

The first development phase of this contract, until 2010, will build on existing successes and provide a focus for a European agreement on eLoran service provision. This would then trigger the start of the operational phase from 2010 onwards.

The UK Department for Transport is said to be sharing the costs during the development phase, having recognised the broader potential of Loran to improve the transport infrastructure.

eLoran will be expected to complement Global Navigation Satellite Systems (GNSS) such as GPS, but is entirely independent, allowing vessels to utilise electronic positioning and navigation when satellite signals are disrupted.

This contract will see VT Communications develop a new Loran station at its radio communications facility in Cumbria, UK. The first signals from the Cumbrian eLoran station will be transmitted on 1st October 2007, with a trial service launched in November 2007.

"Over the last decade we have worked hard to reduce the overall cost of service provision by 50 per cent in real terms," said Dr Sally Basker, the GLAs' director of research and radionavigation.

"e-Navigation is the maritime sector's future: berth-to-berth navigation in the digital world with its associated safety, security, environmental and economic benefits. As we press ahead with e-Navigation, eLoran provides the only way of maintaining our service levels until 2020 without undue increases in cost or risk."

"eLoran will help us to deliver a reliable, efficient and cost-effective Aids to Navigation service for the benefit and safety of all mariners."

SmartSafe discharge prevention system launched

www.rivertrace.com

Rivertrace Engineering Ltd has developed a new system for the prevention of illegal oil discharges at sea, called SmartSafe.

The company says that orders for the system have already been secured from three unnamed major shipping companies, while another major international shipping line is trialling the system.

SmartSafe works by monitoring and recording all aspects of the discharge process in real-time: separator control; oil content output; flow rate and cumulative flow through the discharge pipe. In this way it can anticipate any illegal discharge early in the process, and deal with it by shutting off the overboard discharge valve if necessary.

To assist with regulatory compliance, at the end of the discharge process a batch record is printed containing all aspects of the discharge and any errors or inconsistencies that occurred during the process. The printout can be attached to the manual Oil Record Book for presentation to Port State Control surveyors, with up to two years of discharge data able to be stored and presented in this way.

Data can also be played back graphically on the in-built screen, sent for storage to the ship's Local Area Network (LAN), printed remotely, or downloaded to a personal computer. Each start and stop of the oil discharge process creates a secure and unique file.

Status reports can also be sent to an operator's mobile phone if required, in real-time, through a communications package powered by PurpleFinder.

It seems that the system has also attracted the attention of regulators, with Rivertrace Engineering having been invited to present SmartSafe at the most recent IMO Marine Environmental Protection Committee meeting in London in July 2007.

Transas releases ECDIS upgrade

www.transas.com

Transas has released an upgraded version of its Electronic Chart Display Information System (ECDIS), with improved hardware and new options available to the user.

The ECDIS 3000-I, which runs on a Windows XP SP2 operating system, was launched in June 2007, and comes with a core duo processor, extended memory and a DVD writer.

The system can display charts in ARCS, BSB/NDI, NOS/GEO and Seafarer formats as standard, has a new docking mode (for sailing in restricted areas), and includes a weather module based on the SPOS software program.

A capability for bidirectional connection between the ECDIS and the AIS (automatic identification system) or external radar for display of external targets has also been added.

The ECDIS upgrade has already been supplied to a number of Transas' existing customers, such as the Mediterranean Shipping company, Interorient, and North Eastern Sea Fisheries.

Transas' upgraded ECDIS, with improved hardware capabilities

Kelvin Hughes' combined S-VDR/ECDIS

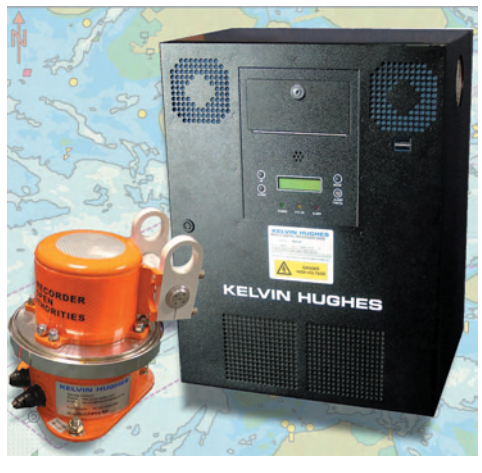
www.kelvinhughes.com

Kelvin Hughes has obtained European Type Approval for its latest combined S-VDR/ECDIS system, achieving European Wheelmark Type Approval Certification.

The company says that the new product will provide ECDIS (electronic chart display information system) functionality at around half the cost of an independent stand-alone ECDIS.

The ECDIS enhancement may be factory fitted to new systems or supplied as an upgrade for existing Kelvin Hughes MantaDigital S-VDR (simplified voyage data recorder) equipment using the company's common-core processor.

Kelvin Hughes VDRs already scheduled to be fitted this year can also be upgraded to include the newly enhanced system.



The combined S-VDR and ECDIS from Kelvin Hughes has been certified with European Wheelmark type approval, and can be supplied as an upgrade to existing VDR

Chinese multi-system GPS technology 'tested and sanctioned'

China's People's Daily has reported that the country's first self-developed core chips of a dual-system satellite navigation positioning receiver, the SR8824, have been tested and sanctioned.

Multi-system satellite positioning navigation receivers have also been put into mass production in the state.

The People's Daily suggests that this is a "clear indication that China has made a breakthrough in the technology of the multi-system global positioning system (GPS) and has mastered strategically significant core technology."

GLA releases Radio Navigation Plan

The General Lighthouse Authorities (GLAs) have launched their GLA Radio Navigation Plan (GRNP) detailing how they intend to deliver the radionavigation aspects of their '2020 The Vision' marine aids to navigation strategy, which supports developments in e-navigation.

The GRNP presents the GLAs' plans in respect of the Global Positioning System (GPS), Galileo, Radiobeacon DGNSS, Automatic Identification Systems (AIS), enhanced Loran (eLoran) and Radar Beacons (Racons).

Rear Admiral Jeremy de Halpert, executive chairman of Trinity House, said: "The GRNP is all about the GLAs taking ownership of their future in a period of great change, as radionavigation systems become much more predominant in the service mix of aids to navigation that we provide."

"The GRNP, together with the decisions we are taking today, will enable the emerging e-navigation concept that is being developed by the International Maritime Organisation (IMO) and the International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA)."

A PDF copy of the GLA's plan can be downloaded at *www.thedigitalship.com/glaplan.pdf.*

AIS and radar used to find Swedish crew

Two Swedish sailors were recently rescued from their life raft 55 miles northeast of Dover, UK, after Dover Coastguard was able to plot the position of their yacht using the radar and Automatic Identification System (AIS), and identify if there were any other vessels in the nearby area that could assist the casualties.

The ro-ro vessel Louise Russ, that operates from Tilbury to Rotterdam, was nearby, and on request from Dover Coastguard was able to locate a flare released by the sailors and pick up the two crew who had abandoned to their life raft.

Dover Coastguard paid tribute to the safety benefits of the navigational technology following the incident.

"Having the use of radar and AIS enabled us to rescue the two crew who were on the extreme limit of radio VHF coverage," said Ted Ingham, watch manager at Dover Maritime Rescue Coordination Centre.

"The search and rescue was a joint effort with Thames Coastguard as this incident was on the extreme range of communication for both Dover and us, one more mile out and the incident would have fallen into the Belgium range."

Remote engine monitoring from Wärtsilä

www.wartsila.com

Seadrill Offshore has signed up its drillship 'West Navigator' to a service offered by its engine manufacturer, Wärtsilä, to monitor its shipboard generators remotely.

Wärtsilä performs a similar service for 60 power plants used on shore, but this is the first time it has been used on a ship.

The vessel has seven Wärtsilä diesel generators, with a combined output of 37.53 megwatts of electricity.

The shipboard generators are fitted with sensors which can monitor vibration, temperature and other attributes.

The data gathered by the sensors, along with operational data (for example, data about engine load and efficiency), is sent by satellite to Wärtsilä service engineers in Finland, and also to the Seadrill office in Stavanger, Norway. The data can be sent to shore via a direct data connection or as e-mail attachments.

The engineers on shore can then assess overall status and condition, and recommend maintenance tasks or spare part replacements as necessary.

Wärtsilä can make sure everything is optimised, and to provide early alerts of anything potentially going wrong a long time before any failure occurs. It can also pinpoint the source of any fault remotely. This means that the time between engine overhauls can be increased and downtime can be decreased.

'West Navigator' is currently working in the Ormen Lange gas field, off the Norwegian coast. It was built in South Korea in 2000. It is dynamically positioned and able to drill down 9000m in 2500m of water.

As part of the service, Wärtsilä will also monitor the spare parts onboard, and arrange for the right spare parts to be delivered to the ship so they are ready for when they are needed.

Regular reports are then sent back from Finland to the ship. The customer receives at least one comprehensive report every month, made by a dedicated senior technical supervisor. This report can also include fuel and emission calculations.

West Navigator - the first vessel to be connected to the Wärtsilä remote engine monitoring system

Norway explores AIS detection via satellite

The Norwegian government has been exploring the possibility of building a satellite that would be able to pick up AIS (automatic identification system) signals far out from shore, well beyond the 40 nautical mile limit of Norway's current coastal AIS coverage.

The project has been underway for the last year, with the Norwegian Space Centre studying the feasibility of such a system. Trondheim-based company Kongsberg Seatex has now been asked by the authorities develop a prototype of the AIS receiver for such a satellite, with the design phase of the project scheduled to be finished by the end of 2007.

Norwegian authorities will by then have to decide whether or not to proceed with the manufacturing and launch of the first Norwegian maritime observation satellite.

A Canadian satellite platform design will be adjusted to carry the Norwegian AIS receiver if the plan goes ahead, which will be manufactured and tested by the University of Toronto Space Flight Laboratory. The satellite dimensions will 20 x 20 x 20 cm.

All going well, a launch will be expected between 2009 and 2010. It is expected that the commissioning and early test and experimentation phase will take about 6 months, after which the Coastal Administration, the Directorate of Fisheries, the Coast Guard and other Norwegian authorities will start their evaluation of this new wide area supplement to the coastal AIS network.

"Norway was one of the first countries to establish a full shore-based AIS network," says Terje Wahl, chief scientist at the Norwegian Space Centre. "It is therefore a natural development to also study the prospects for broadening the AIS coverage through a space-based AIS."

"Modern technology has made it possible to build very small and capable satellites, which reduces the launch cost considerably."

Honeywell acquires tank measurement company

www.honeywell.com

Technology giant Honeywell has signed a definitive agreement valued at approximately $260 million to acquire Enraf Holding B.V., a division of privately held Delft Instruments based in Delft, Netherlands.

The transaction is subject to regulatory approvals. Enraf is involved in the production of precision measurement equipment used for vessel tank storage, as well as other shore-based technology.

When asked about how the move will influence the company's approach to the maritime market, Honeywell replied: "Since Enraf works in bulk storage then, yes, we will be concentrating on shipboard storage systems but we also have capabilities (with regards to) shore tankers."

"This acquisition will strengthen our position in bulk storage as it allows us to provide our LNG customers, (for example), an end to end solution including storage and distribution capabilities."

The six groups within Enraf are: Enraf Terminal Automation (precision measurement systems and software for tank storage companies), Enraf Calibron Systems (small volume provers and liquid density meters), Enraf Contrec Ltd. (fuel Management Systems used by the petrochemical industry at bulk tank storage sites), Enraf Fluid Technology (custom-engineered explosion-proof precision blending and additive metering equipment), Enraf Marine Systems (level measurement systems for marine applications) and Enraf Tanksystem SA (mobile precision level measurement systems used on board ships).

Following regulatory approvals, Enraf will become part of the Honeywell Process Solutions (HPS) business unit. In 2006 Enraf had sales of approximately $130 million.

Time for a watershed in e-navigation - IMO Secretary-General

At an e-navigation seminar in London, organised by the IALA (International Association of Marine Aids to Navigation and Lighthouse Authorities) as part of its 50th anniversary celebrations, IMO secretary general Efthimios Mitropoulos described some of the ways he thinks this technology can benefit the shipping industry

IMO secretary general Efthimios Mitropoulos reiterated his belief in the benefits that can accrue from the use of the latest technology in vessel navigation during a recent speech at an IALA (International Association of Marine Aids to Navigation and Lighthouse Authorities) e-navigation seminar in London.

"We are fast approaching a watershed in this respect," he said. "The imperative to evolve a radical new approach to the traditional art and science of navigation is growing."

"Personally, I am an enthusiast for the concept of e-navigation. I have no doubt that, if properly realised, it can have an extremely beneficial effect on maritime safety and security, on the safety of life at sea and, as a result, help protect the marine environment by reducing accidents and the consequent risk of spills and other environmental damage."

"Most of the fundamental elements for such a change exist. The challenge now is how we combine and integrate them into systems that will have a significant beneficial effect far into the future."

Mr Mitropoulos believes that integrated systems are the only way forward to improve efficiency and safety.

"The overall aim is to develop a strategic vision for e-navigation, to integrate existing and new navigational tools, in particular electronic tools, in an all-embracing system that will contribute to enhanced navigational safety, while simultaneously reducing the burden on the navigator," he said.

"E-navigation, as currently envisaged, would incorporate new technologies in a structured way and ensure that their use is compliant with the various navigational and communication technologies and services that are already available, providing an overarching, accurate, secure and cost-effective system with the potential to ensure global coverage for ships of all sizes."

Defining e-navigation

The IMO's NAV Sub-Committee meeting that was scheduled for the end of July was tasked with creating an outline for this e-navigation strategy, and Mr Mitropoulos pointed to some of the decisions taken by the group in preparation for the meeting.

One of these was a decision on a firm definition of e-navigation: "E-navigation is the harmonised creation, collection, integration, exchange and presentation of maritime information on board and ashore by electronic means to enhance berth-to-berth navigation and related services, for safety and security at sea and protection of the marine environment."

Another was the identification of a list of core objectives for an e-navigation strategy, which included the facilitation of vessel traffic management, facilitating communication and data exchange, integrating information ashore and aboard, facilitating global coverage, and the interoperability of equipment.

However, while praising the potential of technological aids, Mr Mitropoulos remarked that the issue must be approached in a sensible manner, and that the role of the user needs to be carefully considered during the design of vessel systems.

"It is all too easy to fall into the trap of assuming that e-navigation will be a panacea," he said. "It will not."

"Nor should e-navigation ever be viewed as an end in itself. Its role should be as part of a process that supplements and supports other critical elements of safe navigation. We will do a disservice to the cause of safety if we perceive e-navigation as a substitute for all these contributors to safe passage."

'The imperative to evolve a radical new approach to navigation is growing' - IMO secretary general Efthimios Mitropoulos. Photo: IMO

"For the foreseeable future, the human element, with all its frailties, will remain the key component in any integrated and coordinated electronic navigation concept," Mr Mitropoulos continued.

"The utmost care must be taken to avoid any kind of development that, on one hand, promises and delivers much that, without doubt, will be of great benefit but, on the other, actually harbours the hidden potential for confusion and complacency."

"The spectre of 'technology-assisted collisions', or even 'technology overload', looms over any advances in this field and all concerned are well advised to heed its presence."

"To be properly effective, any integrated navigation system must be a decision-support-system. Yes, it should be able to relieve the officer of the watch from some of the burdens of watchkeeping while also being 'intelligent' enough to filter out some of the less crucial information; but, under no circumstances, should it ever draw the navigator into a false sense of security or induce over-reliance on the information presented."

"The system should never reduce the navigator to the role of mindless 'equipment monitor'. Instead, it should be designed to provide optimum support and information to enable appropriate and timely navigational and anti-collision decision-making, in accordance with good seamanship."

Data management

Another major area that needs to be monitored, Mr Mitropoulos believes, is the flow of data from the shore office to the vessel, where the industry must make sure that information is provided in a way that is useful rather than potentially burdensome.

"As the concept of e-navigation takes shape, using it to simplify the display of the local navigational environment to the mariner, with the addition of any relevant shore-derived navigational advice and assistance, becomes the paramount challenge," he said.

"Integration, coordination and harmonisation of bridge systems and other navigational tools in a way that genuinely assists the navigator is, and should remain, the prime objective."

"While (e-navigation systems) do, indeed, have the potential to offer assistance not just in the collection, integration, presentation and analysis of information, I think the time is not yet ripe for final responsibility to be vested anywhere other than in the human element."

"I would certainly argue against any move to use e-navigation to pare down crew sizes still further," Mr Mitropoulos continued. "E-navigation should, therefore, be seen as an opportunity to achieve genuine improvement, rather than a chance to retain the status quo but with less human resource input."

"We have seen over many years how various ships' routeing systems, including mandatory ship reporting systems and vessel traffic services, have served to shift the balance of navigational decision-making towards the shoreside."

"There is, so to speak, less room for manoeuvre, and the advent of e-navigation will undoubtedly offer the technical potential for this trend to continue. Will shipping ever have the equivalent of air traffic controllers? I am not sure, although time will tell." DS

Improved coverage and lower prices - the rise of ENCs

With IMO set to consider the question of a mandatory carriage requirement for ECDIS (electronic chart display information systems), and DNV studies revealing a reduction in accidents of one-third through the use of ECDIS and ENCs, Dr Andy Norris looks at a bright future for electronic charts and e-navigation

Last month IALA held a seminar on e-Navigation at Trinity House in London to celebrate their 50th anniversary. The keynote address was given by Efthimios Mitropoulos, Secretary General of IMO, where he spoke about the imperative to evolve a radical new approach to the traditional art and science of navigation (see page 25).

The follow-on presentation was by Brian Wadsworth, a Director of the UK Department for Transport and Chair of the European Maritime Agency. He was influential in introducing e-Navigation into IMO and his presentation detailed the origins and subsequent progress of the concept.

As part of his presentation he expressed concern at the delay in the provision of ENCs (electronic navigational charts). What intrigued everybody was his mention of a new UK Hydrographic Office (UKHO) initiative to speed up their production.

This was interesting news, which hadn't previously been announced. This prompted me to contact Rear Admiral Ian Moncrieff, National Hydrographer at the UKHO.

New initiative

The Hydrographer explained that the UKHO was wishing to address the understandable concerns of the mariner that ENCs did not yet form "the integrated seamless vector coverage" that was promised when the IHO WEND principles were drawn up 15 years ago.

"The UKHO wish to provide the first comprehensive world-wide, inter-continental port-to-port ENC service available to the international mariner," he said.

"The UK is in discussion with the IHB, and with many sister national hydrographic offices, to deliver a comprehensive service that will provide seamless official vector coverage of the world's major shipping routes and the top ports."

"Research, and listening carefully to the concerns of the core user community of international shipping, have revealed that we also need to simultaneously address their long-standing push for lower prices that are competitive with unofficial products."

"We must also offer more responsive licensing arrangements. Such a response must match an on-demand call to deliver services for the routes they want, as and when they need them, and if necessary while on the move."

"The service will be achieved by using existing ENCs where available; producing, with coastal state approval, new ENCs where there are gaps for major routes or ports; and through collaboration with other HOs (hydrographic offices) ensuring consistency of ENCs (in line with IHO guidelines) to provide seamless coverage at a reasonable cost to the mariner."

To provide the service the UKHO will be working in conjunction with the nations with whom they have bilateral agreements.

"Part of the UKHO approach is to gain permissions to produce ENCs where they don't exist," said Rear Admiral Moncrieff.

The strategy of the UKHO is clearly aimed at being supportive of the IMO initiative that is considering the development of mandatory carriage requirements for ECDIS (electronic chart display information systems). A problem is that not all coastal states have the resources to be able to produce ENCs of their own waters. The UKHO is stepping in to help these charts be produced.

Mandatory ECDIS

At the recent IMO NAV53 meeting the Safety of Navigation Subcommittee further discussed the possible mandatory carriage of ECDIS.

In particular, there was great interest in determining the growth of coverage that can be expected over the next few years. A study by Det Norske Veritas made available to NAV53, has shown that in coastal areas with good ENC coverage it can be expected that up to 38 per cent of groundings can be avoided by the mandatory use of ECDIS (see Digital Ship June / July '07).

Formal Safety Assessments (FSA) performed by DNV show that this reduction will give net economic benefits for many combinations of ship type, size and age. The UKHO initiative is aimed at increasing the number of areas that have full ENC coverage, thereby minimising the possibility of groundings.

Unfortunately, these economic savings are unlikely to be seen by the ship operator as an immediate bottom line improvement. Over time, insurance premiums will presumably reflect the reduction in accidents as the situation is proven. This does not help today's profitability and so the FSAs are of more interest to governments than ship operators.

The suggested benefits arising from the FSAs are likely to influence IMO members to agree mandatory carriage of ECDIS on a reasonably wide range of vessel types and sizes. This will mean that ship operators will have to bear the additional costs. It is therefore particularly interesting to note that the UKHO wish to address the price of ENCs.

ECDIS costs

At present, ENCs from most sources are broadly comparable in cost of use to that of paper charts. Direct comparison is difficult because paper charts are bought outright and ENCs are licensed.

An overall reduction in ENC prices, to make them obviously less expensive than paper, would be market influential and therefore lessen any cost-based opposition from ship operators to making the carriage of ECDIS mandatory.

The present price of paper charts is greatly affected by the costs associated with their printing, storage and distribution. The associated costs of getting digital charts to users are considerably less.

As the paper chart market declines the unit costs to print and distribute them will dramatically increase. This will contribute to the eventual demise of paper charts for purely commercial reasons, at least for the shipping sector.

Of course, ENC data costs are not the only expense. ECDIS hardware has to be fitted and bridge officers need to be trained. There are also costs associated with maintenance.

Not only can equipment fail but also it is anticipated that ECDIS equipment will occasionally need upgrades to the software to take into account evolving requirements from IMO and IHO.

The DNV study, after consultation with ECDIS suppliers, assumed that the cost of fitting a dual ECDIS system was about $40K. Although this is perhaps a little optimistic for 2007 it can be expected that this price will be substantially bettered once sales increase to meet a mandatory fitting schedule.

Training

Very few bridge officers have completed approved ECDIS training following IMO's Model Course 1.27. DNV has calculated that the training cost per person is about $3,500 when course fees, hotel bills and overtime pay have been included. Of course, future bridge officers will receive this training as part of their regular professional courses and the incremental cost will be much lower.

A college-based course on ECDIS must necessarily be followed up with familiarisation training on the actual equipment installed on the ship before being used at sea. The use of ECDIS equipment from different suppliers can differ greatly, even more than a modern radar.

Bridge procedures on how ECDIS is to be used and setup are essential. The back-up arrangements should be fully understood by all users, including what should happen in the unlikely event of a failure in both ECDIS units.

It should be understood that no ship should leave port with a failed ECDIS, unless there is an up-to-date paper chart back-up.

If ECDIS becomes mandatory, shipping companies will necessarily have to fund the fitting of hardware and the training of bridge staff. The potential lower data costs will help but are unlikely to fully offset the initial investment.

However, there are many benefits in using ECDIS, such as the automatic display of position, the ease and accuracy of correcting ENCs, improved route planning facilities and an excellent route monitoring capability - particularly providing warnings about a potential grounding. It also matches the expectations and innate skills of younger but highly technology-literate bridge staff.

All this will help reduce accidents - the one-off investment is really very small compared to the annual operating costs of a ship, and it looks as though savings will be made thereafter. 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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