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Fleet standards are needed for successful broadband

The trade-off between standardised and tailor-made solutions was made resoundingly clear at the first MEC roundtable debate, when industry leaders met to discuss how to make broadband a more attractive proposition to the marine sector

The uptake of maritime broadband has remained slow, despite the dramatic technological advances and steady reduction of costs witnessed in recent years. What are the reasons for this cautious attitude, and moreover, what can technology providers do to make their systems more attractive to shipowners and managers, and thus drive maritime broadband into the mainstream? These were the key questions tackled at the first MEC roundtable talk held in June at the Inmarsat headquarters in London.

One of the first issues to be raised was the trade-off between standardised and tailor-made solutions that occurs when rolling these systems out across all or part of a fleet. "Each and every ship is different and will require a slightly different installation," said Wasim Kayani, service delivery manager for BP Shipping Ltd. "Despite the extensive preparatory work that was undertaken prior to fitting our first C-Band VSAT radome, we still had to tweak installations four ships down the line," he said.

"While it is important to remember 'one size



Paul Rees: "Smaller operators often do not have the resources for an in-house shore-based IT team"

does not fit all', at the same time a degree of standardisation is required. Making too many changes, however, will create problems for ongoing support. We want to avoid situations where new crew members, or even maintenance engineers, are faced with a system they have never seen or used before."

The point was also raised that standards are vital, not just for the type of equipment installed but for how that equipment is fitted, joins together with other pieces and is configured. Internal company policies should be set so that an engineer based in, say, Singapore, will fit the same system as one in Norway. If a change becomes necessary, this should be communicated and implemented across the fleet in a consistent fashion.

Mr Kayani says that across the 55 tankers with VSAT in BP's fleet there are probably around 10 implementation models. He stresses, however, that differences are very subtle: "We try to keep everything as standardised as we can."

Inmarsat's head of maritime business, Piers Cunningham, echoes this point: "We design and build our systems to a known and type-approved standard, so, regardless of which Inmarsat terminal an operator decides to fit, the performance will be the same." He believes, however, that difficulties can arise when elements from different systems are patched together as an attempt to replicate the features available in a single integrated Inmarsat solution.

Again, this will significantly impact system maintenance. Most hardware vendors have global service teams, but how does an owner know which part of his onboard network is the root cause of any problems? Or as Paul Rees, sales director for Ships Electronic Services (SES), puts it: "Where do you point the finger? Whose knowledge base has the information to solve the problem and ensure the system is up and running again?"

One solution that may help reduce this headache is remote configuration. Stratos, for one, has already developed a number of utilities – including Stratos Dashboard – specifically for Inmarsat's FleetBroadband offering, that enable shore-based IT specialists to have a much better picture and greater degree of control over shipboard terminals.

Meanwhile, representing small to medium sized owners, Oscar Koulibaev, IT manager from Novoship (UK) Ltd, expressed the view that over and above capital investment, installation



Haydn Thompson: "The younger generation do understand the difference between good and bad software"

cost remains a major concern. "Our preference would be for a system that the crew could install themselves, rather than having to arrange and depend on a visiting service engineer," he says. While recognising that some installations on certain vessels may need special knowledge, he believes that such a DIY kit would reduce costs and thereby make broadband solutions more palatable for smaller operators.

Mr Rees points out that smaller operators often do not have the resources for an in-house shore-based IT team. "We work with companies who have between 10-20 ships, and their IT support is typically provided on an as-needed contract basis. This highlights the need for plug-and-play broadband solutions that can be sent to



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a ship and fitted by crew," he says.

Inmarsat argues that its FleetBroadband offers just that. "If a user has a legacy Inmarsat solution, in some cases existing antennae cabling and even the antennae can be utilised to upgrade seamlessly to FleetBroadband" states Mr Cunningham. "However, making individual pieces of hardware work is not really an issue today – the FleetBroadband solution could be described as simply an IP router that just happens to send data via satellite."

BP's approach is to limit the role of equipment vendors, and then the company's IT team takes over to ensure that all the configuration work is done in line with internal standards. "We only ask the suppliers to fit the hardware and check it is functioning properly. If we start expecting the provider to begin configuring routers and such like, the distinction between our role and their role becomes blurred, and that could subsequently lead to confusion if something goes wrong at a later date. The idea is to set clear lines of accountability and responsibility as to who does what," explains Mr Kayani.

A typical VSAT installation from zero to being fully operational takes BP around 10-12 days, which includes the time needed to build a pedestal and lift and weld into place a 4m radome, as well as cabling and network configuration. The operator always makes sure there is a member of its in-house IT team on site during the installation process. Timing is crucial as ships are only in dock for an average of 10 days and there is little margin for error. "This is one reason why we do not want the ship's master trying to configure a box," says Mr Kayani.

Mr Cunningham sees this as a key differentiator for Inmarsat services. "You can install a FleetBroadband in matter of hours, and crucially, while a vessel is in service. The 10-12 days needed for VSAT C-Band installation can only viably take place at a repair yard."

This leads to a separate debate on whether or not there is a need – given the growing complexity of IT systems found on board ship today – for an IT officer. Stratos believes the industry should be aiming in the opposite direction. "Many operators envision a situation where broadband connectivity allows the ship to act as a floating office. If this is the case, one has to ask: would a manager be supplied for 15 person regional office? In all likelihood the answer is 'no'," reasons Ronald Spithout, senior vice president of mobile satellite services marketing and sales worldwide for Stratos Global Corp.

"Nevertheless, operational efficiency is improved if someone is knowledgeable about IT matters, since they can be a first line of defence or provide an on-site set of hands for a remote IT support department."

Professor Haydn Thompson, programme manager at the Rolls-Royce Control & Systems Technology Centre at the University of Sheffield,



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argues that most people – especially the younger generation for whom the Internet and related technologies are second nature – are capable of dealing with IT issues, provided they have the right user interface to achieve the outcomes they want to reach. "They may not understand how the technology actually works underneath, but they do understand the difference between good and bad software."

In the past, recalls Mr Cunningham, one of the common problems was failure caused by people attempting to fix problems without the required expertise, experience or training. He notes that, while most electronic systems today are considerably more intuitive, a new breed of officer may emerge who has an extra qualification on his ticket to ensure a higher level of IT competence.

"You might not need a dedicated officer, but there will be someone on board who knows enough to restart the ship in 'limp-home' mode," says Mr Cunningham. However, he suggests also that the advances in remote access diagnostics will lead to shore-based experts having to play a bigger and more important role than they do at present.

BP's experience is that most crew members have some understanding of IT systems, even if this familiarity is gained from using front-end user applications, such as browsing the Internet or office productivity tools. "Our philosophy is that we do not want crew being continuously side-tracked by IT maintenance," say Mr Kayani.

"Because we now have a growing ability to perform IT maintenance remotely, this is a perfectly reasonable approach. We may require some extra staff in the shore-based IT support team who know shipboard systems inside out, but because that knowledge is centralised, it means that, ultimately, less people can manage more ships."

That said, remote diagnostics is only possible if a ship has an outgoing connection. "We do require some first level expertise on board if

the satellite modem were to go down," says Mr Kayani. "In many cases, the radio officer becomes our VSAT expert, while the chief engineer might be called upon to reboot servers or fit a new hard disc into a bay. After that, the rebuilding process can normally be accomplished remotely."

An often overlooked aspect of IT maintenance aboard ships is what happens to equipment that has outlived its useful life and has to be upgraded or, in the opposite scenario, when a ship fitted with advanced communications technology is sold on. Is it possible to prevent that investment from being lost?

The answer normally depends on a combination of factors, most important of which are size and cost of the equipment involved. Compared to a few years ago, costs have fallen considerably, especially in the case of non-VSAT systems. As this happens, the inclination to remove equipment physically becomes less.

In fact, it can be more expensive to dismantle the kit and send it back to the owner's headquarters than it is to purchase a brand new replacement. Moreover, it is becoming easier to transfer user licences from one box to another. With Inmarsat's FleetBroadband system, for instance, licencing is managed with SIM cards, similar to those found in normal mobile phones.

It is a similar story for onboard PCs and servers. The hardware costs so little that it makes more economic sense to leave the physical infrastructure in place and just transfer software licences from one machine to another.

The situation posed by VSAT systems, however, is less straightforward. The capital outlay – typically in the region of US\$100,000 – is too high to for owners simply write off. At the same time, removing the equipment would also incur considerable expense. At present, the only way out is to ensure that the system is used for as long as possible (ie, not on ships due to be sold-on or otherwise taken out of service) and then simply switch them off. **MEC**



Oscar Koulibaev: "We would like a system that the crew could install themselves, rather than waiting for a service engineer"