Changing times in the satcom sector

As maritime digital connectivity develops at high speed **Erwan Emilian**, of IEC Telecom Group, considers the direction of travel

We are witnessing a time of rapid development in the digital world which is impacting all sectors of the maritime industry.

Satellite connectivity is undergoing a big transformation. From an airtime-focused and margin-driven business, satcom is developing into an "as a service"-based industry where demand is no longer defined by bandwidth alone. Instead the focus is switching to the variety and quality of applications this traffic may support, many of which can be embedded in a portfolio of managed services – revolutionising the way maritime companies do business.

Driving this change are influential developments taking place in the satellite communications industry. First, the major players, such as Space X, OneWeb, Telesat, Inmarsat, Intelsat, SES and Yahsat/Thuraya have committed to expanding their services in the coming years. This expansion of the number of satcom operators in the market will eventually lead to an oversupply of satellite services. This will result in airtime no longer being seen as a rare resource but rather as an essential element of a much wider communication infrastructure.

Meanwhile, the development of IoT (Internet of Things), blockchain and artificial intelligence (AI) has set high expectations for future consumption resulting in the record development of the global orbital infrastructure. In 2020 alone, the industry witnessed 1,200 LEO (low earth orbit) satellite launches with a further 1,400 in 2021.

> **"The pace of corporate IT evolution is influenced by the ability of users to grasp new technology and fully understand how it benefits them – and to see these benefits in operation"**

Prices will fall. In fact, according to a recent Euroconsult forecast, the oversupply of satcom capacities will lead to a substantial fall in airtime prices, with the average revenue per user (ARPU) declining by 21 per cent between 2022 and 2028.

Secondly, the Metaverse (a virtual-reality space in which users can interact with a computer-generated environment and with other users) is no longer a futuristic concept but is fast becoming part of everyday business life. This is partly being driven by

the expectations of what can be achieved by connectivity, particularly among the workers of tomorrow – Generation Z and those to follow. They expect to be connected anytime, anywhere, and as these workers progress into managerial roles, they will require these levels of connectivity to be available and used in the workplace, not just in their leisure environment.

In this ever-evolving landscape, maritime connectivity specialists are gradually shifting focus from the material world (hardware) to a virtual space, via an innovative range of applications and digitally-driven services, to provide solutions, rather than connectivity alone.

So what does the shipping industry need to do to keep pace with all this change and to benefit from what is now possible as well as preparing for the future?

The key to successfully maximising a satcom system is to have a future-oriented philosophy. Take a leaf out of your suppliers' books – we understand that today it no longer makes sense to develop solutions solely based on current market demands. Any development we undertake today needs to target the requirements that customers will have in five to 10 years' time.

It is also important to realise that the pace of corporate IT evolution is influenced by the ability of users to grasp new technology and fully understand how it benefits them – and to see these benefits in operation. The traditional boundaries of satcom have already been expanded through the wide range of market-specific applications which enable comms systems to be customised and their use to be maximised.

With the world's focus now on decarbonisation and meeting ever more stringent environmental targets, staying connected is not only a matter of safety and efficiency, but also vital to compliance, monitoring and reporting. For example, weather forecasts and corporate communications received in time can help to optimise vessel routes and subsequently decrease fuel consumption, as well as avoid unnecessary port entries – lowering vessel pollution and potentially decreasing operational expenses by 20 per cent to 30 per cent.

Onboard connectivity as a system is becoming increasingly more complicated. A large vessel's network typically comprises of four WANs (wide area networks): VSAT, L-band, GSM and GMDSS. The possibility to monitor traffic, set consumption limits and access levels is crucial to avoid a bill shock at the end of the month or congestion at critical moments. In this context, network management systems have become central to operating onboard connectivity. This technology enables automated failover to ensure connectivity does not drop at critical moments, separates crucial vessel systems from crew communications – so often a weak link when it comes to cyber security – and enable full visibility of network use. Remote updating and problem solving via the virtual dashboard mean the vessel's connectivity can be upgraded or adapted immediately as needed. Such technology is also a powerful crew welfare enabler. The inbuilt wi-fi router allows seafarers to stay conveniently connected with family and friends using their own personal smartphones.

Videoconferencing is now commonplace onboard large vessels, yet using regular telecom applications, such as Zoom or Microsoft Teams, requires a bandwidth of at least 500 Kbps. Not only does this affect monthly expenses, but it also limits the availability of video calls to a VSAT channel only. Again the satcom industry has developed solutions, meaning that today it is now possible to run such applications in a low bandwidth environment. For instance, IEC Telecom's videoconferencing app requires as little as 40 Kbps to 80 Kbps, meaning it remains fully operational even over L-band.

> ## "Travel restrictions and social distancing presented obstacles to vessel maintenance and upgrades and crew were faced with unfamiliar technical challenges. With the help of solutions, they are able to access real-time expert advice over a digital channel"

Videoconferencing is not only a facilitator of business communication and crew welfare, it is the driving force behind a whole new range of smart services, including telemedicine, e-learning and remote maintenance. The need for remote maintenance has grown exponentially, particularly in response to the pandemic which forced the usually slow-to-change maritime industry to re-evaluate its reticent approach to technology and embrace change at a faster pace. Travel restrictions and social distancing presented obstacles to vessel maintenance and upgrades and crew were faced with unfamiliar technical challenges. With the help of solutions, they are able to access real-time expert advice over a digital channel. Using smart goggles mounted on a helmet seafarers can conduct multi-party video and audio calls for easy, hands-free collaboration, and access specialist guides and manuals without fear of the link crashing or bandwidth being exceeded. As well as benefiting operational efficiency, saving time and money, this also aids onboard safety.

Traditionally, L-band has been used as a back-up channel for emergency communications. Today, thanks to optimised applications, crew can continue to enjoy a full spectrum of telecommunication services even if the main network is down. Notably, with the expanded functionality of the back-up channel, the technical team can hold troubleshooting sessions and even fix VSAT network errors remotely. As a result, the importance of an efficient L-band network infrastructure is turning into the pivotal element of an onboard business contingency plan.

With such incredible advances in digital technologies and the immense benefits of onboard digitalisation, in both high and low bandwidth environments, that new horizon is closer than you think. **MRI**

Erwan Emilian

Erwan Emilian, partner and group CEO of IEC Telecom Group