Navigating the Digital Seas: IEC Telecom's Role in Advancing Maritime Network Management

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As a new generation of digitally fluent seafarers joins the industry, understanding the operational implications of maritime digitalisation has never been more critical. Over the past decade, the UAE has firmly established itself as a global maritime hub through ambitious infrastructure projects and proactive digital strategies. Digitalisation at sea was one of the key topics of the first Emirates Shipping Congress held during the UAE Maritime Week. The event welcomed over 200 delegates from across the region and internationally, reflecting significant engagement from across the maritime ecosystem.

According to the organiser, Emirates Shipping Association, the role of digital technology in maritime has evolved dramatically. Once viewed as a value-added feature, digital systems are now fundamental to safe, efficient, and competitive operations. In the UAE, automation is no longer aspirational, it's operational. The port automation market alone is expected to grow at a CAGR of 18% between 2023 and 2028, reflecting the sector's accelerated shift. As global trade becomes more complex, digital adoption has become key to resilience and responsiveness, illustrating deep ties between physical infrastructure and digital transformation.

While digitalisation in ports is largely supported by terrestrial LTE infrastructure, the technological advancement of the shipping sector relies on access to high-speed satellite connectivity. New-generation Low Earth Orbit (LEO) operators deliver broadband speeds comparable to GSM networks. However, their availability depends on licensing by each seafarer nation. While operators like Starlink offer global coverage across international waters, their availability in territorial waters is subject to licensing by each seafaring nation. This is particularly true for the GCC, where many coastal countries restrict data access to regional GEO operators. In such circumstances, network management as a service comes first. This article explores the latest trends in marine connectivity and the tools needed to manage them effectively.

Network Management: New Era of Marine Operations
Maritime connectivity is evolving at an unprecedented pace, driven by the rapid expansion of LEO satellite technologies. Following the Starlink 2024 report alone, more than 75,000 vessels adopted their LEO connectivity last year, and this number continues to grow. Yet despite the rising popularity of the next-generation networks, no modern vessel operates on a single mode of communication.

This is partly due to regulatory requirements, but more critically, it's a matter of safety and operational continuity. Should a primary LEO link fail, due to signal obstruction, hardware issues, or regional coverage limitations, a secondary connection via a GEO satellite is vital to sustain mission-critical functions and maintain SOS sea-to-shore communication.

Moreover, as vessels approach coastal areas, they often transition to GSM networks. This practice not only helps reduce costs but also minimises disruptions caused by interference from terrestrial mobile signals—commonly known as "jamming"—which can affect satellite performance.

In such a complex, multi-layered environment, network management is no longer optional, it's indispensable. Digital platforms such as OptiView by IEC Telecom provide ship operators with complete visibility and control over onboard connectivity. These systems enable real-time monitoring of service availability and bandwidth usage, along with centralised access management through user profiling and access filtration. They also support dedicated voucher systems for crew and third-party users, enable flexible credit rollovers across fleets, and provide a range of low-bandwidth optimised applications to suit varying operational needs.

IEC Telecom notes that by enabling controlled traffic utilisation and delivering a streamlined user experience, intelligent network management plays a vital role in enhancing operational efficiency, improving crew welfare, and ensuring long-term cost-effectiveness on board.
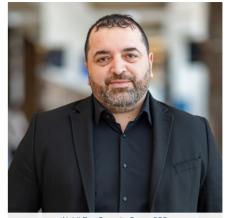
Digital Seafaring & Digital Welfare: Two sides of the same coin
Crew welfare takes centre stage in maritime operations. The Q3 2023 edition of the Seafarers Happiness Index reports that connectivity has emerged as the number one driver for seafarer retention, surpassing traditional factors such as shore leave and contract terms.

In technological terms, it means the availability of a comprehensive voucher system, enabling individual access with a centralized control of bandwidth allocation and browsing access.

In an interview with Robban Assafina, Emirates Shipping Association confirmed that crew well-being is one of the top priorities in the UAE maritime agenda. In March 2024, the UAE enacted Federal Decree Law No. 43 of 2023, establishing a comprehensive framework to regulate maritime labour. This law ensures fair wages, decent working conditions, access to medical care, and protection against abandonment for seafarers. It aligns closely with international standards, underscoring the UAE's dedication to upholding seafarers' rights.

Although the UAE has not explicitly legislated mandatory internet access for seafarers, major vessel and offshore players promptly adopt CSR programs in support of broader data access for crew and initiate training programs in support of digital seafaring. This sets expectations for highly connected vessels to navigate the GCC in the near future.

Cybersecurity: The New Standard in Digital Shipping
As maritime operations become increasingly digitised, cybersecurity has emerged as a critical priority. According to IEC Telecom, modern vessels are no longer isolated assets, they are connected, data-rich environments, reliant on integrated systems for navigation, operations, and communication. In this context, network management platforms now represent the first line of cyber defence.

A key preventative measure lies in the segregation of crew and corporate networks. By isolating personal devices from critical onboard systems, vessel operators can significantly reduce the risk of malware infiltration. Today's advanced platforms further complement onboard cybersecurity through built-in threat detection, granular content filtration, and customisable policy enforcement, enabling shipowners to identify and mitigate vulnerabilities before they escalate.

Reflecting on key insights from the Emirates Shipping Congress, IEC Telecom underscores cybersecurity as a foundational pillar of maritime digitalisation. Based on its global operational experience, the company observes that most cyber threats at sea currently originate from the misuse of personal devices.

However, this trend is rapidly evolving. As cybercrime accelerates in scale and sophistication, maritime piracy is expected to move beyond physical intrusion and increasingly target digital infrastructure, ushering in a new era of threats driven by data breaches, system manipulation, and network compromise.

Whether it's a deviation in GPS positioning, interference with surveillance systems, or the falsification of engine performance data, cyberattacks could lead vessels off course, creating serious risks ranging from operational failure to targeted assault. As such, robust cyber protection is no longer a secondary consideration, but an operational imperative.

Championing Innovation Through Collaboration
The maritime sector has faced significant challenges, from global disruptions and geopolitical tensions to shifting trade routes and port closures triggered by the pandemic.

The need for greater operational agility has never been more apparent, and digitalisation is the only way forward. Recognising this, the Association partnered with IEC Telecom to co-curate one of three panel sessions at the Emirates Shipping Congress. The session brought together leading experts to address some of the sector's most pressing questions around marine digitalisation.

Held for the first time in 2025, the Emirates Shipping Congress, led by Emirates Shipping Association under the patronage of the Ministry of Energy and Infrastructure alongside Seatrade Maritime Logistics Middle East, will continue to serve as a platform for thought leadership and knowledge exchange, designed specifically to serve the evolving needs of the UAE maritime sector.

This year's event brought together regional and international delegates, including senior officials and industry leaders such as H.E. Hessa Al Malek and DP World CEO Abdulla Bin Damithan. Given the strong engagement, Emirates Shipping Association aims to establish the Congress as a recurring fixture in the region's maritime calendar.