VSATs at sea

The VSAT sector has gone from strength to strength, delivering essential connectivity to remote, rural, and mobile destinations with unprecedented efficiency. The maritime sector has been one of the most benefited user segments, with communications capabilities greatly enhanced by VSAT technology. The segment is booming, with global satcom companies reporting excellent results.

Amy Saunders, Editor, Satellite Evolution Group

The very small aperture terminal (VSAT) sector has come a huge way in what is, really, very little time. First gaining in popularity in the 2000s and coinciding with the launch of the world’s first high throughput satellites (HTS), VSATs have opened up whole new markets for satellite connectivity, with the land, air and sea mobility segments, remote and rural connectivity, and military communications segments, in particular, feeling the benefit. Solving especially pressing connectivity needs in the maritime industry, it is this segment which is currently the main talking point for everyone in the VSAT sphere.

It’s also the most financially lucrative. Indeed, NSR’s ‘Maritime Satcom Markets, 7th Edition’ report expects VSAT-enabled maritime vessels to grow from more than 20,000 vessels in 2018 to more than 75,000 by 2028, with the maritime connectivity market forecast to generate almost US$42 billion in cumulative revenues in 2018-2028.

“Setting aside some weakness in the Offshore Oil & Gas Sector, the Maritime connectivity markets are moving in high-gear,” said Brad Grady, Principle Analyst and report author. “The right combination of price, end-user requirements, and connectivity demand is having a significant impact on the market. With new investments across the throughput spectrum, there is one clear message – a significant part of the maritime market has become unlocked for broadband satellite connectivity. Falling capacity prices in addition to lower equipment costs have opened the next tier of maritime end-users, accelerating adoption rates, and unlocking more vessels. FSS and MSS will play pivotal roles in generating retail revenues, but HTS from GEO and non-GEO is the growth story.”

According to the report, everyone across the value chain stands to gain. For satellite operators, the passenger markets will require massive amounts of connectivity – exceeding 870Gbps by 2028, while for service providers, merchant vessels are adopting VSAT connectivity at unprecedented rates, adding over 40,000 vessels between 2018 to 2028.

For equipment manufacturers, the fishing and leisure markets are expected to post some of the best growth rates for equipment revenues, at almost 8 percent and over 12 percent CAGR between 2018–2028, respectively.

However, offshore oil and gas will continue to face near-term challenges, but by 2028 should show some signs of positive revenue growth.

Ranging from shipping, passenger ferries, leisure cruises, superyachts, fishing vessels through to the offshore oil and gas vessels and maritime military vehicles, VSAT connectivity is penetrating every type of ocean-going vessel in every corner of the world. VSAT connectivity applications vary from basic connectivity for crew and passengers, e-medicine, smart vessels with the Internet of Things (IoT), communications capabilities with on-shore personnel, etc., the list is endless. It’s no wonder then, that so many satcom
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companies are getting in on the action and reporting so many new developments.

**Full steam ahead for KVH**

KVH Industries has had a busy few months since the milestone celebration of the shipment of its 10,000th VSAT system in October 2019, living up to its identity as EuroConsult’s market share leader for maritime VSAT terminals.

In October, KVH launched KVH Elite, a premium unlimited VSAT streaming service delivering HD-quality, dedicated bandwidth to yachts in selected geographic regions. Launched in November 2019 from Florida through the Caribbean, including the islands of the eastern Caribbean, with the Mediterranean expected to follow in 2020, the service, part of KVH’s fully global mini-VSAT Broadband HTS network utilising Intelsat’s FlexMaritime service, is designed for maximum coverage, maximum data speeds, and a premier user experience for simultaneous streaming. Making use of the company’s VSAT antenna systems - the 60cm diameter TracPhone V7-HTS and the 1m diameter TracPhone V11-HTS - KVH Elite enables users onboard to use their favourite apps for streaming popular HD movie and TV content, music, etc., on an unlimited basis.

Meanwhile, January 2020 saw KVH and Kongsberg Digital announce the successful installation of their first joint maritime IoT system on an active working vessel. The team installed a KVH Watch VSAT antenna for IoT connectivity and the Kognifai Vessel Insight platform on Simrad Echo, a Norwegian research vessel owned and operated by Kongsberg, which will continue normal operations during the pilot maritime IoT project. Together, KVH Watch and Kognifai Vessel Insight provide an integrated infrastructure for IoT connectivity and vessel-to-shore data. Simrad Echo will rely on Kognifai Vessel Insight to monitor main and auxiliary systems on the vessel and help ensure 100 percent availability. For example, the Kongsberg Mapping Cloud application will move high-resolution echo sounding data from vessel to shore in real time.

KVH antenna. Photo courtesy of KVH
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time so that shore-based experts can provide analysis to optimize vessel operations. The data flow from Simrad Echo will be facilitated by KVH Watch IoT Connectivity as a Service, a VSAT solution that leverages KVH's end-to-end maritime connectivity services and HTS network. The two companies plan to utilize Simrad Echo as a platform to develop tighter integrations for remote support and smart bandwidth utilization that will benefit both new and existing customers.

Also, in January, KVH Industries and BW Group signed a new contract to continue KVH VSAT services for at least five years and is upgrading 102 vessels to utilize KVH’s mini-VSAT Broadband HTS network for advanced satellite communications. BW Group first chose KVH in 2013 to provide satellite connectivity for a portion of its fleet and since that time has rolled out KVH VSAT systems on additional vessels. The vessel migration is expected to be completed by the third quarter of this year. Under the new contract, BW Group will equip the majority of the 102 vessels with KVH’s TracPhone V11-HTS, a 1m Ku/C-band maritime VSAT antenna designed to deliver worldwide data speeds as fast as 20Mbps down/3Mbps up.

Intellian: New terminals and certifications

Another world-leader in mobile satellite communications, Intellian has launched several new products and celebrated key contract and certification wins.

In October 2019, Intellian launched a satcom package for smart ships with Hyundai Global Service (HGS), a subsidiary of Hyundai Heavy Industries (HHI). The package integrates HHI’s Integrated Smart Ship (ISS) Solution with Intellian’s satellite communications antenna systems. The new package will provide HGS with a standardized smart ship package to supply for newly built HHI ships, while Intellian will secure new customers. Moreover, as it offers Internet provision right from the sea trial, customers are freed from the inconvenience of fitting network services to the vessel. HGS will also provide customer support for any smart ship solution issues, guaranteeing faster response times and trustworthy service.

Meanwhile, last November Intellian released the latest model in its new NX Series future-proof, performance-leading and low lifecycle cost VSAT antenna portfolio. The v130NX is the world’s first Ku-Ka convertible VSAT terminal with a 1.25m reflector, making it an ideal platform for high-speed global Internet on ships, offshore vessels, and superyachts. The v130NX is a flexible system supporting Ku-band and Ka-band (2.5 GHz Wide) networks. It is also compatible with GEO, MEO and LEO constellations. With a highly efficient design and high-power BUC options up to 40W, the v130NX delivers the highest RF performance of any 1.25m system on the market today. Its smart satellite handover capability provides a seamless network service on practically any satellite, fulfilling the need for enhanced resilience, reliability, and redundancy whilst maximizing the long-term value of the investment by reducing the cost of migrating to future GEO HTS and low-latency MEO and LEO networks. Moreover, the new AptusNX interface enables the antenna to connect to any network in a matter of minutes and provides remote access for ease of operation and maintenance. The NX Series also features a cutting-edge modular design, which results in lower cost of ownership throughout the entire lifecycle. It improves reliability and can speed up maintenance and reduce costs further with a 40 percent reduction in spare parts needed.

December saw Intellian unveil yet another new product, the GX150NX, the world’s first 1.5m Global Xpress terminal. As the largest terminal which will be available for the Inmarsat Fleet Xpress service following type approval and successful sea trials in 2020, the GX150NX will unlock the full power of the Global Xpress network for users with high bandwidth demands seeking the most resilient platform for digital and cloud-based operations. In line with the future-proof ethos of Intellian’s entire NX Series antennas, the GX150NX features an optimized reflector and radome and is ready for operation on forthcoming 2.5 GHz Wideband Ka networks as well as GX5 satellites. The GX150NX also introduces a new ‘All-in-One’ GX Below Deck Terminal (BDT) which integrates an antenna control unit (ACU), a modem, a power supply, a 4-port switch, and a mediator in a single unit to further reduce the time and cost of installation in Intellian’s Fleet Xpress Rack.

In January of this year, the Intellian NX series products
were certified for use with the IntelsatOne Flex service, a customizable service with a guaranteed Service Level Agreement (SLA), offering tiered, flexible plans which prioritize bandwidth across different satellite beams to meet demand. IntelsatOne Flex avoids any requirement for customers to buy dedicated bandwidth scaled for peak usage or specific regions, thus keeping costs down, and easily adapts to serve new geographic or fleet additions, while still providing a predictable cost structure that is directly matched to revenue-generating activities.

**Speedcast wins key contracts**

Speedcast International, which in 2019 was named VSAT and Satellite Applications Company of the Year at the VSAT Stellar Awards, secured several key contracts towards the end of 2019, making it very much a maritime VSAT company to be reckoned with.

In September 2019, Speedcast and VSAT service provider Nelco Limited were awarded a new contract to deliver satellite communications onboard a leading Indian Cruise line catering to the Indian domestic and international cruise markets. The cruise ship will sail initially in India before proceeding to the Middle East. Throughout its journey, it will be able to enjoy seamless Ku-band connectivity in and out of Indian waters as a result of the recent partnership agreement between Speedcast and Nelco.

In October, Speedcast signed a multi-year fleet contract extension with a major Norwegian ship owner to deliver significantly increased VSAT connectivity along with the latest Iridium Certus back-up solution. In addition to the provision of global VSAT and L-band connectivity, Speedcast will install its industry-leading SIGMA Gateway network management platform across the entire fleet of over 40 vessels. SIGMA Gateway seamlessly manages Speedcast’s global VSAT, L-Band, 4G/LTE and Wi-Fi services, bringing powerful capabilities to support vessels with advanced technology requirements.

Later in November, Speedcast was awarded a new multi-year communications and value-added services contract with Aurora Expeditions for the Greg Mortimer expedition ship, including live TV, Speedcast TV on Demand with custom radio streaming and PressReader digital newspapers and magazines.

The Greg Mortimer is Aurora Expedition’s newest state-of-the-art vessel, to which Speedcast will provide VSAT connectivity with L-band backup for seamless and truly global mobile satellite service. Beyond connectivity, Speedcast has tailored a suite of value-added services for guests and crew, including live television, films and thousands of newspaper and magazine selections to support the growing demand for home-like entertainment while onboard.

**Inmarsat launches Fleet LTE**

A major player in maritime connectivity, Inmarsat offers a whole range of services, including its Fleet Xpress offering, which provides high data speeds via Inmarsat’s Global Xpress Ka-band technology combined with its reliable flagship FleetBroadband L-band connectivity.

In December 2019, Inmarsat launched Fleet LTE, a new service aimed at offshore support vessel operators, but which could also be used by fishing and ferry operators. Fleet LTE leverages low-latency, high data speed communications available via a dedicated Access Point Name (APN) on the Tampnet North Sea LTE network and could be extended to other regions such as the Gulf of Mexico if successful.

The service enables customers to access high speed 4G. Fleet Xpress maritime VSAT Ka-band and continuous L-band connectivity within a single, fully managed hybrid package. The unique ‘three-in-one’ offer delivers 4G and VSAT Ka-band and L-band without the complication of dual billing or the risk of connectivity drop-off. Fleet LTE is available in a range of service bands that deliver data speeds of up to 40Mbps with Round Trip Delay of around 35–40ms. However, when LTE is not available, services automatically switch over to Ka-band Fleet Xpress committed information rates, with continuous back-up from L-band FleetBroadband. Meanwhile, connectivity via FleetBroadband continues even outside the LTE coverage area. Service transition between LTE and VSAT is fully automated, with routing depending on data needs and network conditions, while vessels only need to add two LTE antennas and a modem on deck to enable the upgrade.

**Marlink sees business boom**

Of course, no conversation about maritime VSAT connectivity can possibly be complete without a nod to connectivity provider Marlink, which has reported an extremely busy few months.

In September 2019, ship management company Misuga Kaiun Holland B.V. selected Marlink to provision cost-effective, unlimited global Sealink VSAT connectivity for its dry bulk, multipurpose and wood chip carrier vessel fleet. Marlink will install 1m Ku-band antennas and integrate an extensive package of solutions and applications designed to provide secure connectivity for business and operations as well as crew welfare. In addition, Marlink’s XChange integrated communications management platform will be deployed on all vessels to run business operations efficiently as well as enabling crew Internet access. XChange Universal Remote Access is also an integral part of the service, helping Misuga Kaiun Holland B.V. to improve its IT resilience and compliance by providing secure, network-independent access to all devices connected to XChange, allowing technicians or administrators to manage IT equipment on board from any location worldwide.

Meanwhile, October saw Marlink and Intelsat agree a multi-year renewal and expansion of their partnership to...
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provide broadband services to maritime vessels around the world. The agreement will deliver additional throughput to vessels via multiple layers of space-based coverage, ensuring that ship owners and operators have the flexibility and access to reliable, high-quality, always-on connectivity. Under the extension, Marlink’s customers will see even greater benefits on board. The flexibility, reliability and reach provided by Intelsat’s global network of wide beam and high-throughput Intelsat Epic core satellites provide unparalleled high-speed connectivity to maritime vessels, enabling the delivery of a diverse range of value-added services and applications such as asset tracking and improved cyber security that supports their current and future connectivity needs.

Later in November, OFW Ships selected Marlink to provide a multi-band connectivity solution, combining high-throughput global VSAT with an L-band back-up for connectivity redundancy. OFW, which sustainably converts saltwater into drinking water, will utilise Marlink’s multi-band connectivity to provide seamless crew connectivity including enabling crew to use their own devices onboard. Greater operational efficiency will be achieved by operating in a more satcom-enabled digital maritime environment and by adapting new applications for smarter decisions and on-board safety.

Reporting another new contract in December, ship owner and management company Leonhardt & Blumberg (L&B) renewed its long-standing partnership with Marlink for the provision of quality global VSAT connectivity. Marlink’s managed connectivity service excellence and digital solutions are recognised as a strong foundation for L&B’s on-going fleet digitalization, which will deliver more efficient and greener maritime operations. The contract scope for L&B covers 30 vessels currently using the Sealink Premium Plus solution – powered by the XChange communications management platform and accommodating value-added services including the SkyFile Mail and antivirus suite. This ensures VSAT connectivity with guaranteed backup to keep onboard applications online and crew connectivity working seamlessly.

Similarly, January 2020 saw Solstad Offshore renew its connectivity contract with Marlink, committing 65 offshore vessels to Marlink’s high-throughput Ku-band VSAT Sealink service. Solstad’s vessels will be provided with Sealink Services and L-band backup to ensure seamless global connectivity. A tailor-made setup comprising five diverse packages will allow Solstad to choose the hardware fitted to each vessel, ranging from basic 4G connectivity to a fully managed, high-throughput single or dual antenna VSAT system. Marlink’s services for Solstad Offshore are made flexible through use of an innovative Self-Service portal, on board and on shore. Without needing to pick up the phone, users will be able up- or down-grade their bandwidth allocation, activate or deactivate services such as content filters, and change their coverage area. This adaptability will allow Solstad Offshore more control, for example by increasing the bandwidth for a vessel in alignment with current on-board requirements.

In the same month, Teekay Offshore selected Marlink’s ITLink solutions portfolio with its benchmark IT operational platform, KeepUp@Sea, to streamline and improve fleet IT management. Marlink will provision ITLink solutions across Teekay Offshore’s fleet of shuttle tankers, ALP towing vessels and floating production storage and offloading (FPSO) units to ensure more availability of operational tools, resulting in more efficient and sustainable fleet operations. The implementation of standardisation, automation and remote network management generates substantial savings in time and resources while reducing the possibility of human error and the requirement for technicians to travel to a ship to fix IT issues. Marlink’s seamless VSAT connectivity is crucial to the successful running of Teekay Offshore’s operational processes, expediting everything from document/data transfer, remote diagnostics, voice communications and videoconferencing to planned maintenance system updates and morale-boosting social media browsing for crew welfare.

Hughes Communications India Ltd launches India’s first maritime VSAT services

Hughes Communications India Ltd (HCIL), majority owned by Hughes Network Systems, is currently the largest satellite service operator in India providing a comprehensive range of broadband networking technologies, solutions, and services for businesses and governments, including the maritime sector.

In September last year, HCIL announced the launch of commercial maritime mobility services in India. HCIL was the first to receive a Flight and Maritime Connectivity (FMC) license in India, which permits the company to provide mobility services within 125km of the Indian coastline. As the first to offer satellite maritime services in India, HCIL enables reliable and ubiquitous connectivity to vessels sailing in domestic waters as well as internationally, through roaming partnerships with select maritime providers. Until now, ships entering Indian waters were required to shut down their VSAT connections; now, they can connect to HCIL’s high-speed Ku-band satellite network. This connectivity ensures that ships and their crews switch seamlessly to the HCIL network, with uninterrupted data and voice applications from the port of origin to the port of destination. The HCIL maritime service offering includes the Hughes JUPITER System platform domestically and provides for roaming among international waterways with global ecosystem partners.

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