

**Setting Sail Together:
How Vodafone Voice &
Roaming Services and KVH's
partnership is providing fast
and reliable connectivity to
vessels at sea**

Step onboard and experience seamless connectivity in near-shore waters – enabled by hybrid connectivity and the power of satellite and terrestrial networks working together.

Whether you want to intelligently operate a vessel, protect the wellbeing of your crew or provide seamless connectivity to your passengers, Vodafone's Voice & Roaming Services has got you covered. With our 4G maritime coverage spanning 93%* of the world's coastlines, and a 5G footprint reaching 68 countries, we work with our partners to deliver connectivity to vessels worldwide.

But don't just take our word for it: experience the benefits for yourself through the words of one of our trusted partners.

We sat down with Chris Watson, Vice President, Marketing & Communications from US-based mobile connectivity provider KVH, to discuss how Vodafone Voice & Roaming Services Maritime solution has been helping them connect their customers globally.



Chris Watson, KVH Vice President, Marketing & Communications

What value does near-shore LTE connectivity bring in the context of your broader portfolio?

For many years, commercial ships and leisure yachts had

few options for connectivity, relying either on slow, expensive satellite connectivity or radio. Now, however, mariners enjoy an array of communications options. Near-shore 5G/LTE services are one of these exciting new and practical options for vessels of all types, offering a blazing fast and affordable solution that also serves as a fantastic bridge between shore-based Wi-Fi and blue sea satellite connections.

The blend of these and other services are revolutionising the sphere of maritime connectivity with truly integrated hybrid communications. The question mariners should be asking now is not "Which service is right for me?" but rather, "How do I take full advantage of the services available?"

How do vessel owners benefit from this offering?

With the expanding reach of 5G, mariners enjoy access to high-speed, incredibly affordable connections that support vessel operations, crew wellbeing, families and friends staying in touch with home, streaming



*based on VRS 4G footprint with coastline destinations

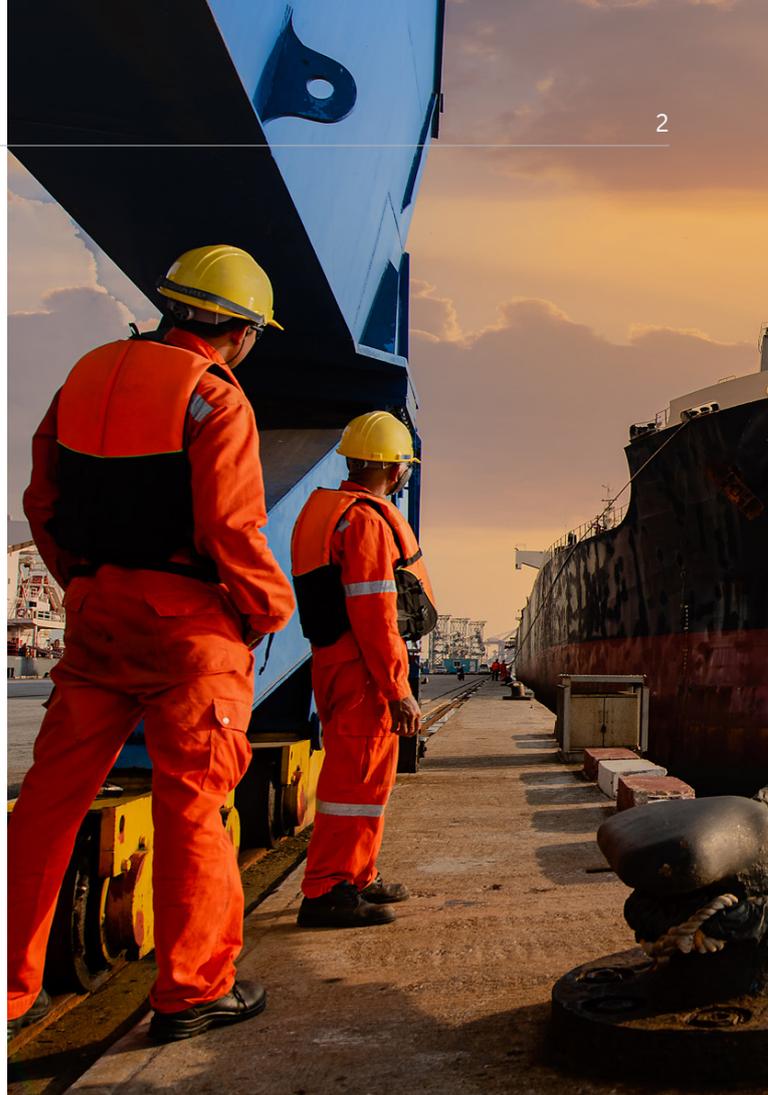
content, video calls, and so much more. Better still, these cellular connections can be as fast or faster than emerging LEO solutions while offering a lower cost of entry.

How does LTE integrate with your satellite connectivity offerings?

We believe that the future of maritime connectivity is hybrid, bringing together one or more SATCOM options, access to shore Wi-Fi, and, vitally, access to 5G/LTE service. That's why we've made Vodafone's connectivity a fully integrated component in our TracNet hybrid terminals and KVH ONE global hybrid network. Every KVH TracNet system comes equipped with a Vodafone SIM, which we activate along with our global VSAT service. With TracNet's intelligent hybrid channel switching, mariners enjoy seamless switching among the VSAT, 5G/LTE, and Wi-Fi built into the antenna to ensure they have the best connections at all times.

Do you provide any particular technical solutions to improve the transition process for vessels when switching between different connectivity solutions?

The idea of hybrid connectivity isn't new. Mariners and marine electronics professionals have been creating bespoke solutions by connecting multiple individual antennas and then switching among them using what's commonly known as least-cost routing. In this configuration, the system always tries to use the lowest-cost service. If unavailable, the least-cost routing tries the next service in the cost chain. However, we've all been in situations – such as a concert or convention - when it has looked like we should have a strong signal on our Wi-Fi or phone, but no data is getting through due to network congestion.



At KVH, we've created "intelligent hybrid switching" that solves that problem efficiently and quickly. We've integrated intelligent hybrid switching within every TracNet terminal. While service affordability and availability are two factors, we also focus on the quality of the connection. Is data getting through? Is there too much jitter to support consistent connections, a common issue with low-earth orbit (LEO) satellite services? Is there data packet loss? We evaluate all of these factors and more so that even if a connection looks strong.

The TracNet terminal will recognise poor quality or congestion with Wi-Fi, for example, and immediately switch to 5G or very-small-aperture terminal (VSAT) services based on availability and service quality. Switching is fast and easy - TracNet customers don't notice the difference.

Could you share any specific use cases that demonstrate the value that LTE brings to your customers?

KVH has been delivering outstanding global VSAT service for more than 15 years. In that time, we've developed a robust understanding of how commercial and leisure mariners want to connect and where they want to connect. Many vessels we support typically



spend as much as 75 to 80% of their time within 5G/LTE coverage areas in coastal waters. By offering integrated 5G/LTE to our customers, we offer them an incredibly fast connection that will also reduce their costs by delivering their business and leisure communications over a more affordable channel during much of their time on the water.

What do you think is the importance of 4G and 5G - and how is their role evolving within the maritime industry?

Fast, affordable cellular connections will increasingly be an in-demand component within modern maritime connectivity solutions. Most commercial requests we are seeing now include a desire for 5G/LTE service as an option. At KVH, we've made it easy and intelligent for commercial vessels and leisure boats of all sizes to benefit from a true satellite/5G/Wi-Fi hybrid solution with one antenna and a seamlessly integrated, multi-channel network.

Why did you choose to partner with Vodafone Voice & Roaming Services?

We chose to partner with Vodafone because of its strong brand and global roaming service for maritime with competitive rates. Vodafone's plans for a rapid expansion of 5G service for maritime use was also tremendously exciting.

How have you found working with us?

It's been a pleasure working with Vodafone Voice & Roaming Services. We have a professional account team that looks out for the best interests of KVH and our customers. The Vodafone team has been flexible and worked together with us in a true partnership while it's been easy for us to integrate with VFR's systems. At the same time, the technical teams have worked together to craft solutions that help our customers.

Towards a more connected future

The partnership between KVH and Vodafone Voice & Roaming Services is highly valued by both organisations. As well as bringing a wealth of knowledge and expertise, Vodafone Voice & Roaming Services provides KVH with the latest connectivity solutions to deliver outstanding services to its customers globally.

Working seamlessly together, we have unlocked opportunities for growth and innovation while enabling more vessels to stay connected at sea.

Contact us to find out more about how our solutions could benefit you and your customers.

