

Connecting a superyacht

Enabling marine connectivity: Extending cellular networks beyond the horizon

COBHAM

Case Study

The most important thing we build is trust

Overview

Cobham Wireless teamed-up with a marine communication system specialist to design and provision a DAS communication system on a superyacht, to increase cellular provision to crew and passengers.

Challenge

Satellite broadband coverage at sea is expensive and slow by modern standards for the majority of network traffic. Existing cellular provision on coastlines is patchy with interference also very high on vessels and in port areas. The challenge is to get 4G speeds at an affordable cost.



The Challenge

In today's 'always on' society, end users expect high-quality mobile coverage wherever they are. Providing robust capacity at sea, however, has always been one of the toughest environments to enable this service. With land-based cellular networks configured to spread their coverage no further than the coastline and satellite provision extremely expensive, for many offshore connectivity remains a real problem.

For networks where signals are available offshore, high levels of interference make quality coverage difficult to sustain, especially on constantly moving vessels.

Beyond the technological limitations, there is a further question of international telecoms agreements – at what point do you leave the home country and who owns the right to provide mobile provision over international waters? While these issues remain unresolved the options for maritime users are limited and costly.

Despite the technical and contractual difficulties, providing an alternative to expensive satellite IP coverage was a high priority for our marine communication specialist Partner. The owners and managers of a range of vessels – from commercial freight liners through to private superyachts – all want to offer seamless connectivity for passengers and crew.

In this case we were asked to help our Partner provision a superyacht with seamless cellular coverage. To make the venture commercially viable, a cost-effective solution was required that combined satellite IP provision with enhanced cellular coverage provide by operators on the shore.

With its extensive experience of providing cellular and public safety coverage enhancement solutions in some of the most challenging environments in the world, including underground metro stations and the world's largest stadia, Cobham Wireless was the obvious choice to embark on a challenging project to provide ubiquitous coverage at a competitive price-point.

The Solution

While satellite remains the only choice for instant communications while in open water, Cobham Wireless and our Partner recognised there was an opportunity to extend on-shore 3G and 4G coverage much further than it is currently provisioned within most ports and marinas.

"DAS amplification systems set the new standard in marine communications technology. No longer are voice and data services limited to patchy coastline coverage or exclusively for traffic deemed high priority.

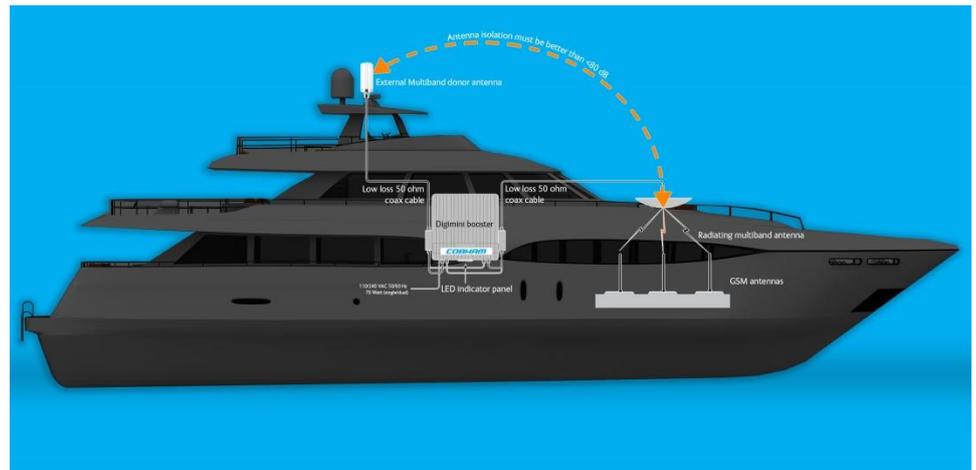
"What we have learned by creating these innovative solutions for superyachts, we can then apply to many other maritime customers' vessels around the world."

Hebert Sedas, Sales Director, Cobham Wireless

Extending 3G and 4G coverage further from the shore would give access to a more cost-effective communications infrastructure for longer periods, with satellite systems utilised when the vessel reached open waters or when the level of coverage dipped below a pre-set level.

To achieve this, Cobham Wireless combined its extensive knowledge and experience of DAS coverage systems with our Partner's marine communications expertise, to develop an ingenious, bespoke system to enable shoreline coverage to be amplified much further off the coast – enabling cellular access to be available for much longer.

The system comprised an external multiband donor antenna positioned outside of the yacht, linked to a Cobham DIGimini booster connected to an internal antenna. This captured the signal of a multi-channel aggregation device, using 3G SIM cards from 3 separate networks – enabling three potential simultaneous network connections with a single IP connection.



This allowed shoreline cellular coverage to be received up to 50km from land, which equates to several hours of high-quality coverage on the yacht before switching back to the satellite capacity for high-priority use while at sea.

Using the Cobham system, specific protocols can be set by the customer in line with their budget to define which traffic is enabled through satellite services and which can be accessed only when in range of the amplified cellular land signal.

Outside of provision of data and voice coverage for consumers, shoreline amplification means much of the critical traffic previously sent over the satellite links can now be routed through the more cost effective cellular network.

The Benefit

As a result of the bespoke system development and on-going technical support, passengers and crew on the superyacht can now access high-quality cellular coverage inside and outside of the vessel up to 50km from the coast, providing huge cost-savings and making connections available to a wider range of traffic than was previously viable.

Any vessel travelling in coastal areas anywhere in the world can benefit from the additional connectivity to add capacity, reduce cost or both.

In addition to the benefits offered by the enhanced coverage, the system was designed to be housed almost completely below deck to ensure the aesthetics of the yacht were unaffected. The only above-deck addition was a small external antenna on the top of the vessel.

This has revolutionised coverage on-board, enabling crew and passengers alike to gain a new level of connectivity while reducing or avoiding altogether the high costs associated with satellite systems.

