# ST Engineering iDirect's New MDM5010: All Waveforms In One Modem

As the need for high-speed connectivity challenges the enterprise segment, VSAT Integrators, and Satellite Operators demand more capable hardware.

Nowhere is the need more apparent than in the Cruise Industry. As noted in our interview with Speedcast's Brent Horwitz in this issue, the company has consolidated its connectivity infrastructure into a Universal Global Platform, relying on ST Engineering Newtec Dialog platform and the new MDM 5010 Modem.

To find out more about this innovative new platform and how it meets the needs of Cruise and other industries requiring high bandwidth connectivity, we interviewed

Andrew Faiola, ST Engineering iDirect's Head of Mobility.

*SMW: The cruise industry is finally emerging from the pandemic. What is the current situation, and how soon do you expect conditions to return to normal?*

Even as cruise vessels start to sail again, there is still uncertainty around port accessibility and passenger disembarkation.

However, there is one bright spot. Bookings are recovering nicely and are even exceeding pre-pandemic levels. So, as a VSAT technology partner to the industry, we expect a return to growth and the robust demand for Internet connectivity at sea. As the Cruise recovers, we see even
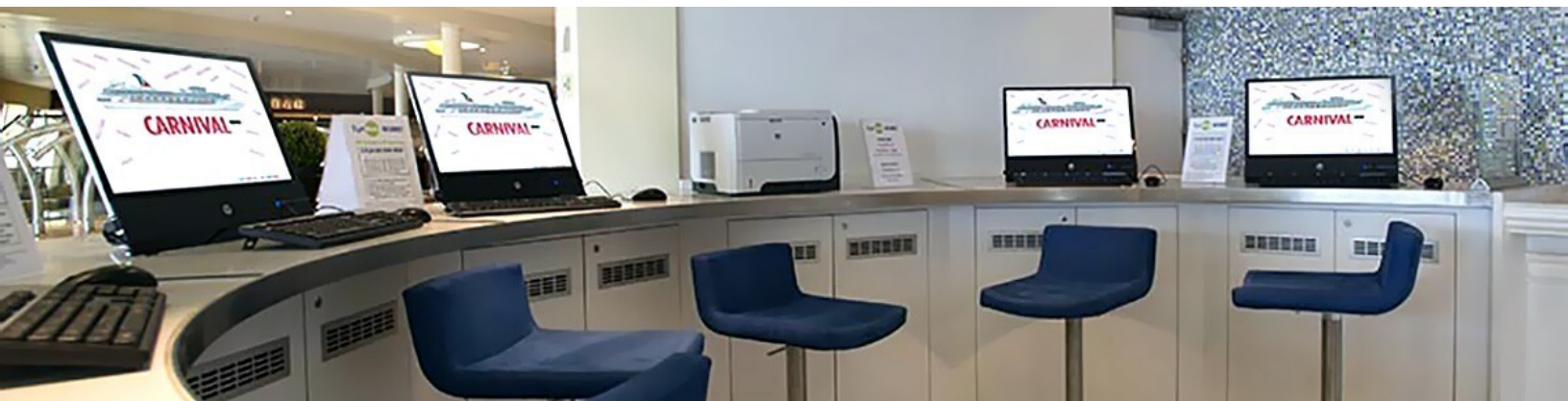
greater demand, especially from passengers who expect an at-home experience. With the assistance of ST Engineering iDirect, Service Providers have the technology to help them deliver it.

Our new MDM5010 is a part of the solution. It combines the original MDM5010 that operates in Dialog with an independent SCPC mode-all in a single, convenient, and versatile modem.

*What benefits does the Dialog® hub and modem infrastructure offer to the maritime VSAT integrators and the Cruiselines? In December, you announced that Speedcast was an early adopter of the MDM5010. Can you update us?*

There are two sides to the question, one for the Service Provider and the other for the Cruise Industry customer. The MDM5010 can address many different verticals for the Service Provider, especially segments that demand ultra-high-speed connectivity.

For example, Speedcast has deployed the platform across key sectors, including cruise vessels, megayachts, and other markets, allowing them to deliver satellite links impressive in terms of Mbps, packets per second, and simultaneous session counts.

The beauty of Dialog and the MDM5010 is in the flexibility we offer the Service Provider to adjust the level of service as their customers' requirements change.  Service Providers can cover a myriad of use cases in a single return link.

Our focus here is Cruise, but these Service Providers often also support other large enterprise customers on one end, all the way through to SCADA and broadband connectivity at the other.

With Dialog, they easily share satellite capacity more efficiently over a group of satellite terminals for the lowest TCO.  That's why Speedcast is relying on it as a core building block of their new network.

This is critical to cruise line customers who will

need to take advantage of the proliferation of innovations such as new constellations and flat-panel antennas. Speedcast, for example, will leverage Dialog with their own value adds so that it's managed and agnostic to customers to reduce technology risk. Speedcast aims to alleviate the customer burden of decision-making and engineering.

As cruise lines vie for passengers' loyalty and their influence, cruise operators are well aware of how essential a robust connectivity service is to their own longevity.

Dialog enables the superior Quality of Experience that these consumer businesses need to build and maintain customer loyalty.

*Can you clarify the modes you mention on the MDM5010?*

AF: There are two modes: the Dialog VSAT mode, which is the current functionality of our installed base of MDM5010s. It features Dialog's Mx-DMA's return waveform technology, a form of dynamic SCPC.  Our patented, efficient, and dynamic multiple-access waveform enables the sharing of satellite capacity more efficiently over a group of satellite terminals. For high rate, steady-state

traffic in the Dialog mode, the modem also supports SCPC return technology.

These different Dialog return technologies should not be confused with the added functionality on the all-new MDM5010s that offers a higher speed, 1.6 Gbps stand alone SCPC capability.  For those who require the widest bandwidth and highest throughput, namely Cruise and cellular backhaul and trunking networks, the stand alone SCPC link may be more suitable.

*SMW: Currently, in the MDM5010, SCPC is available in both Dialog or all SCPC. Why do you need these two SCPC links in a single modem?*

There are a variety of scenarios where our multi-personality modem opens more options for service.

Cruise Lines can rely on dedicated SCPC in geographical areas where Dialog infrastructure is not yet installed or where high throughput service is only required for certain periods of time, such as remote geographical regions accessible by limited satellites, beams, and teleports.

Additionally, the dedicated SCPC link also offers

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the opportunity to trial new links independent of the Dialog platform before integrating remotes into a larger network. In that case, the link serves as a test bed to monitor traffic, demand, and performance of an individual remote before bringing it online in a Dialog network.

Customization is a key advantage of the Dialog platform. It can prioritize traffic, service different types of devices, perform load balancing, adjust contention ratios, and beam switching. You no longer have to settle on a single, predetermined set of parameters.

*Service Providers are anxious to capture market share with IoT solutions, especially in Cruise. Does ST Engineering iDirect VSAT play a role?*

AF: IoT is an ever more important part of the connectivity puzzle. ST Engineering iDirect has designed its VSAT platforms to serve the needs of the crew and passengers and devices and sensors onboard.

Data from various sensors is typically aggregated on

the vessels and transmitted via the VSAT network.

IoT connectivity supports voyage optimization and predictive maintenance applications that minimize fuel consumption, lower cost, and reduce carbon footprint.

Enabling IoT plays a crucial role in decarbonization and in more efficiently running a vessel, from fuel consumption to waste management and hygiene.

*Where is ST Engineering iDirect in terms of the development of its multi-orbit and multi-frequency capabilities? Which of the two bands do you see as preferable in maritime and aviation?*

AF: We plan to support multi-orbit, multi-frequency in a single modem. The all-new MDM 5010 modem has the dual and return ports necessary to make before break in a multi-constellation environment, including NGSOs.

Similarly, we intend to remain interoperable with Ka-band, Ku, and any other bands. Some of those networks may be proprietary, and some may use homemade Mbps, but the magic comes from being able to tie them together seamlessly and transparently.

All frequencies have potential advantages and disadvantages depending on the use case, and Service Providers want the ability to combine and use them as they see fit.

To further enhance flexibility, we are developing software-defined remotes that can continually upgrade over the air to increase network capabilities and throughput levels. Ultimately, these remotes would become an integral part of the terrestrial connectivity mix.

***About Andrew Faiola:***

*Andrew is currently Head of Mobility at ST Engineering iDirect, where he leads a team responsible for the company's strategy for aviation, maritime, and land mobile.*

*Previously, Andrew spent over 15 years at Intelsat, the world's leading satellite company, in a number of different direct account management and leadership positions, most recently leading the Mobility*