

Gottlieb's

SATELLITE MOBILITY WORLDsm

Highlighting Disruptive, New Mobility-Focused Satellite Ventures and Technologies

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New SIGMA NMS Enhancements Bring Multi-Orbit Edge Computing to Sea

Connectivity aboard cargo and cruise ships, land and offshore energy sites and other mobility or remote segments is evolving to a multi-orbit system. Digitalization is also coming of age. Entities that once relied solely on single links, satellite or terrestrial to connect with the outside world are now facing multiple satellite connectivity options, including Low Earth Orbit (LEO), MEO, and GEO, while computing is also moving to the edge.

To prosper in this complex, rapidly evolving digital environment, users need technology to manage multi-orbit links and edge applications intelligently.

Speedcast has consistently met the connectivity challenge, and it's now moving forward to support the fully digital age. It has



recently announced innovative upgrades to its popular SIGMA network management platform.

The newest SIGMA release offers an advanced, AI-driven multi-orbit platform capable of managing multiple networks and edge devices at a considerable scale.

To learn more about the newest SIGMA release, we met with Speedcast's Executive Vice President of Global Sales, James Trevelyan.

SMW: What are the most significant enhancements introduced in the latest SIGMA platform release?

SIGMA's latest enhancements build upon the core enterprise SD-WAN capabilities already offered by our SIGMA platform. Customers have been leveraging SIGMA for its comprehensive network management, seamless integration of their WAN paths, and as a plug-and-play, future-proof solution. Our latest release features upgraded architecture and software

enhancements, enabling significantly greater scalability and flexibility.

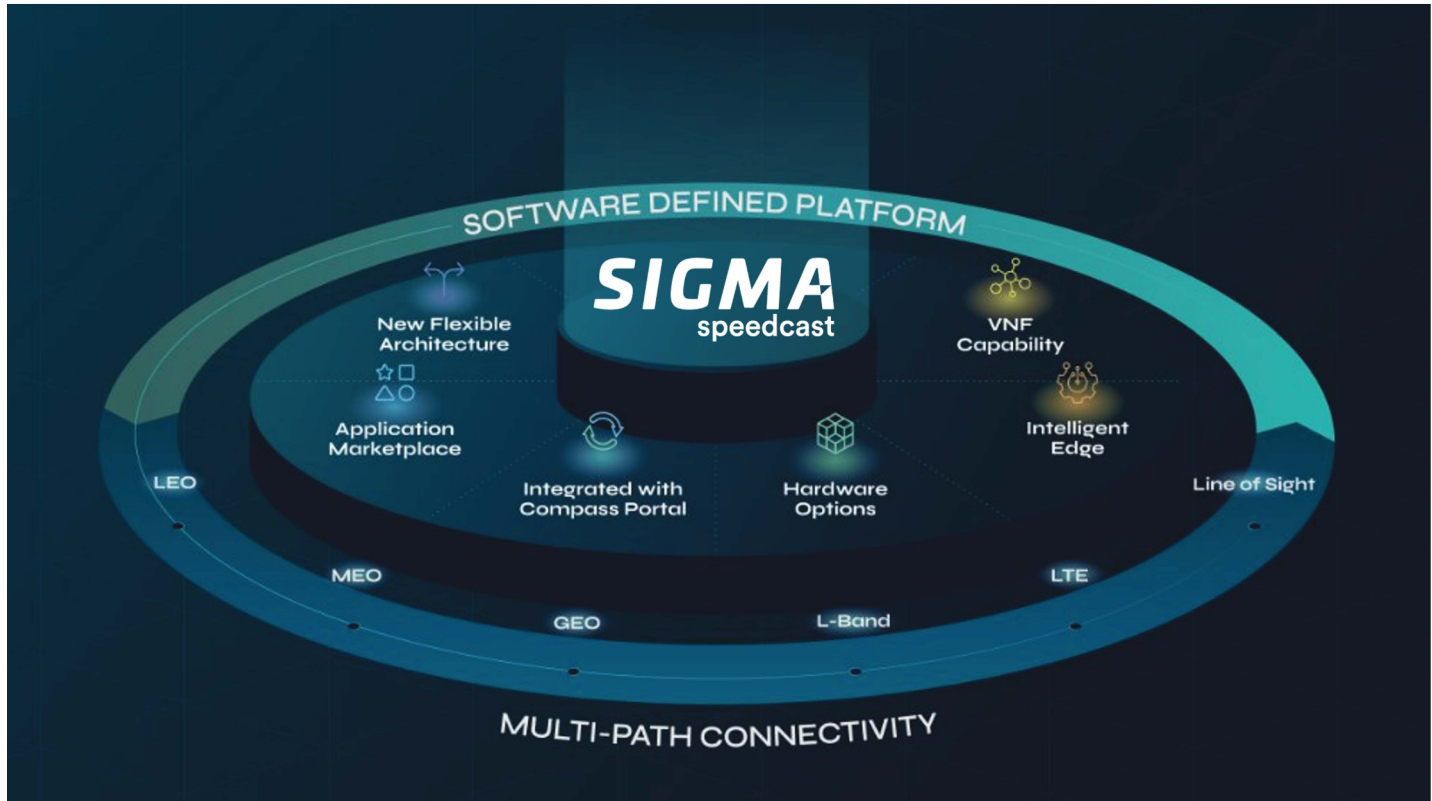
We've fully modernized and evolved the platform to extend customers' cloud experience to the edge and added a new operating system tailored for industrial edge virtualization. We can also support customers' preferred SD-WAN as well as many more virtual machines or applications, as maritime digitalization continues to gain momentum.

SIGMA also enables the automation, deployment, configuration, and centralized management of applications across a wide range of hardware types - thousands, not dozens of applications, an increasingly important distinction for the LEO age.

SMW: Speedcast was recently granted several patents for algorithms that provide dynamic path selection and traffic shaping. How do these algorithms benefit the end user?

These patents deliver a new level of network optimization, which supports our commitment to elevating performance and user experience to the

Latest Enhancements to Speedcast's Software Defined Platform



next level. In the past, an army of engineers managed the network. That's no longer the case in today's complex, multi-link, multi-beam environment. We now rely on intelligent software.

In the new SIGMA, proprietary machine learning and automated analysis algorithms act on variables such as a ship's geographic position, heading, local weather, historical route data, to optimize performance and ensure applications can run in maritime mobility environments. These variables are usually not considered by engineers developing applications for fixed-site terrestrial communications.

SMW: Today, most multi-orbit integration involves the integration of Starlink or OneWeb with existing VSAT and wireless solutions. How adaptable is SIGMA to multiple LEO and MEO networks? For example, suppose an end user wants

"We use AI and machine learning to manage the links more automatically, considering such variables as a ship's geographic position, heading, local weather, historical route data and performance, and the cost per byte of each link."

to combine Starlink, Kuiper and Telesat Lightspeed with GEO. Are there any limitations to the number and type of constellations or links Sigma can support?

The new SIGMA is very adaptable. If a customer wants to add a new WAN, it's plug-and-play. The platform can manage up to 16 different WAN links per network, including those in various orbits with other technologies. In many cases, we need that scale.

SMW: Does SIGMA connect simultaneously to multiple networks, or does it switch all traffic from network to network? Can it do load balancing? For example, can it selectively route latency-sensitive applications over LEO and streaming applications over GEO?

SIGMA supports selective routing. It adjusts traffic flows in real time to increase access to available bandwidth and prevents congestion. We configure it based on client preferences and our in-depth knowledge of how

applications perform under specific conditions.

Load balancing ensures we use all available satellite resources efficiently, preventing idle or overloaded paths. We also steer applications to their best-suited path. For example, we send jitter-sensitive traffic over GEO and latency-sensitive applications over LEO. If traffic is critical, we can replicate packets over multiple WAN paths to guarantee delivery. Customers looking to reduce personnel on board or who control assets from onshore often use this feature.

We also bond multiple links from the same satellite network to increase speed but not links from different networks. For example, bonding LEO and GEO would degrade performance. In that case, we connect to both networks simultaneously and load balance between them.

SMW: Can end users prioritize link selection? For example, can selection criteria include price, data caps, or QoS regardless of cost?

While not typically done by the customer, we can set link selection criteria to their specifications.

We collaborate with the customer's IT team and other stakeholders to develop a set of templates that enable different configurations to operate in various scenarios or environments. We can configure them by vessel type or by end-user vessel groups. We regularly review and adapt the templates to ensure optimal application performance and customer satisfaction when necessary.

Is SIGMA programmed to switch from LEO to GEO when operating in areas where LEOs are not yet licensed?

SIGMA seamlessly switches between WAN connections regardless of whether a license restriction, exhausted data plan, blockage, or outage restricts access to a network. Typically, Starlink automatically shuts down when a vessel or site enters an unlicensed area – Chinese waters, for example, while OneWeb must be shut down manually.

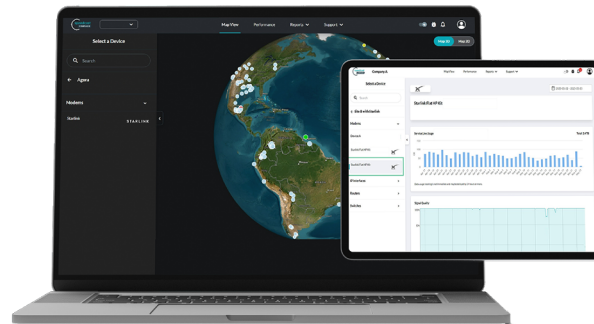
SMW: How does SIGMA's SASE implementation contribute to Zero Trust security for distributed fleets?

Ships, especially older ones, are particularly vulnerable to cybersecurity breaches because ships' networks often run on insecure legacy platforms. While the upstream oil sector's digital networks readily address security threats, commercial maritime market segments may lack similar security capabilities. That's why Speedcast has taken an aggressive approach to security and why our enhanced SIGMA platform includes SASE cloud-native technology.

One of SIGMA's many security features, SASE, Secure Access Service Edge, helps companies simplify the security of their edge IT infrastructure. It's a Zero Trust platform requiring verification and authentication of every user and device. Any unusual network login attempt automatically initiates an authentication request. SIGMA's other security features include secure network connectivity, advanced firewall protection, and strong

hardware-based security, such as measured boot, which ensures secure system start-up.

SMW: What are the platform's analytical capabilities? Can users monitor the bandwidth and uptime over various network links in a time series? Have they been improved in the latest upgrade?



Speedcast Compass Portal

We call our online Portal Compass, and with it, Speedcast customers can access a vast amount of valuable data. For example, it presents bandwidth and uptime in a single consolidated view per site, giving customers a clear understanding of system capacity and how they use it.

As we expand our data services capabilities, we're adding more relevant data, combining not only what we can collect from our services but also from third parties. We call it our Data Lakehouse initiative, and it's designed to provide customers with all the data they need to run their operations better.



While Compass is web-based, it is also available as an API. It features an API that integrates with our ServiceNow ticket management system, enabling customers to open and track tickets, incidents, and changes. Increasingly, customers also access Compass to activate or deactivate their Starlink kits or manage their usage plans.

SMW: Several third-party platforms integrate NGSOs with GEO VSAT. What are SIGMA's most compelling advantages compared to these platforms, and what type of user will most likely choose Speedcast Sigma and why?

Many solutions on the market today are incomplete, which means customers find themselves making trade-offs between security and functionality, or being forced to use multiple products to fill the gaps. The new SIGMA is a comprehensive solution that combines an edge OS and

cloud-native application orchestration, all within a platform designed to leapfrog other technologies and offer a future-proof solution.

It has everything a modern, secure, and compliant remote site needs, with the capability to expand as needed. It eliminates networking and management complexity, improving bandwidth efficiency. There is no loss of visibility or control of cloud or internet-bound traffic, and all tools are integrated.

We're not tied to a specific technology or vendor, and we offer global architecture flexibility that surpasses the static models available in the market. Who needs the headache of managing a multi-vendor environment with an inflexible legacy platform? 



About James Trevelyan:

James joined Speedcast in 2018. He currently serves as the company's Executive Vice President, Sales and Marketing, leading the company's global commercial organization.

Prior to joining Speedcast, he spent 17 years at Arqiva in various commercial and sales leadership positions, including a key role as management board director of the company's Satellite and Media division.