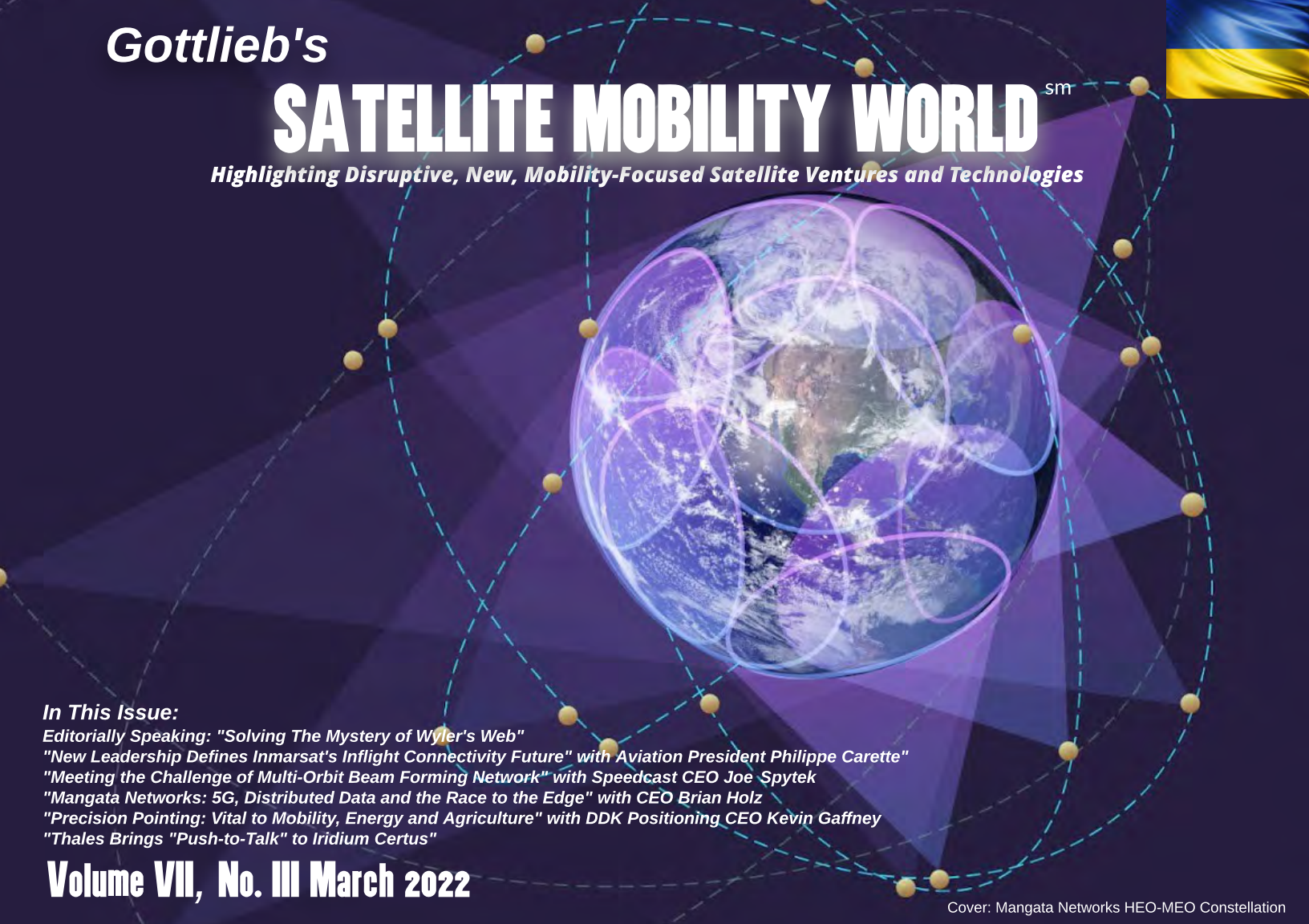
Gottlieb's

SATELLITE MOBILITY WORLD℠

Highlighting Disruptive, New, Mobility-Focused Satellite Ventures and Technologies



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Volume VII, No. III March 2022

Cover: Mangata Networks HEO-MEO Constellation

INTERVIEW: *With Speedcast CEO Joe Spytek...*

Meeting the Challenge of Multi-Orbit, Beam Forming Networks

Network management is suddenly becoming astonishingly complex. New GEO satellites equipped with on-the-fly beamforming along with the coming of LEO and MEO constellations have created the need for highly sophisticated automated network management systems.

In an environment with multiple network and technology options, integrators need to remain agnostic to deliver the most cost-effective and highest-quality connectivity services. That's why Speedcast developed its new unified global mobility platform, a single automated solution explicity designed to function in a multi-network environment.

To learn more about Speedcast's new platform, we met up with Joe Spytek, the company's CEO.

SMW: Speedcast recently kicked off an initiative to significantly augment your software-defined network management solution. What were the primary drivers behind this development?

It's really about helping our customers prepare for the various technology entrants coming to market, including new NGSO constellation options, and ensuring that our customers maintain the levels of control and flexibility they require through these technology shifts. We knew we had a platform in SIGMA, our intelligent network management solution, that we could augment to enable seamless adaptation for today's rapidly changing telecommunications technologies and address our customer's shifting needs.

We're expanding SIGMA's core capabilities, developing a single platform with built-in automation for all-in-one management of multiple transmission paths, including the future NGSO's. This new unified global mobility platform integrates software-defined smart network management and Cloud connectivity to deliver more value at the edge for customers.

We're layering in our TrueBeam automated network management technology to enable proactive monitoring for customers. It's live today, helping to make the right choice of network path for customers based on changes in the operating environment.

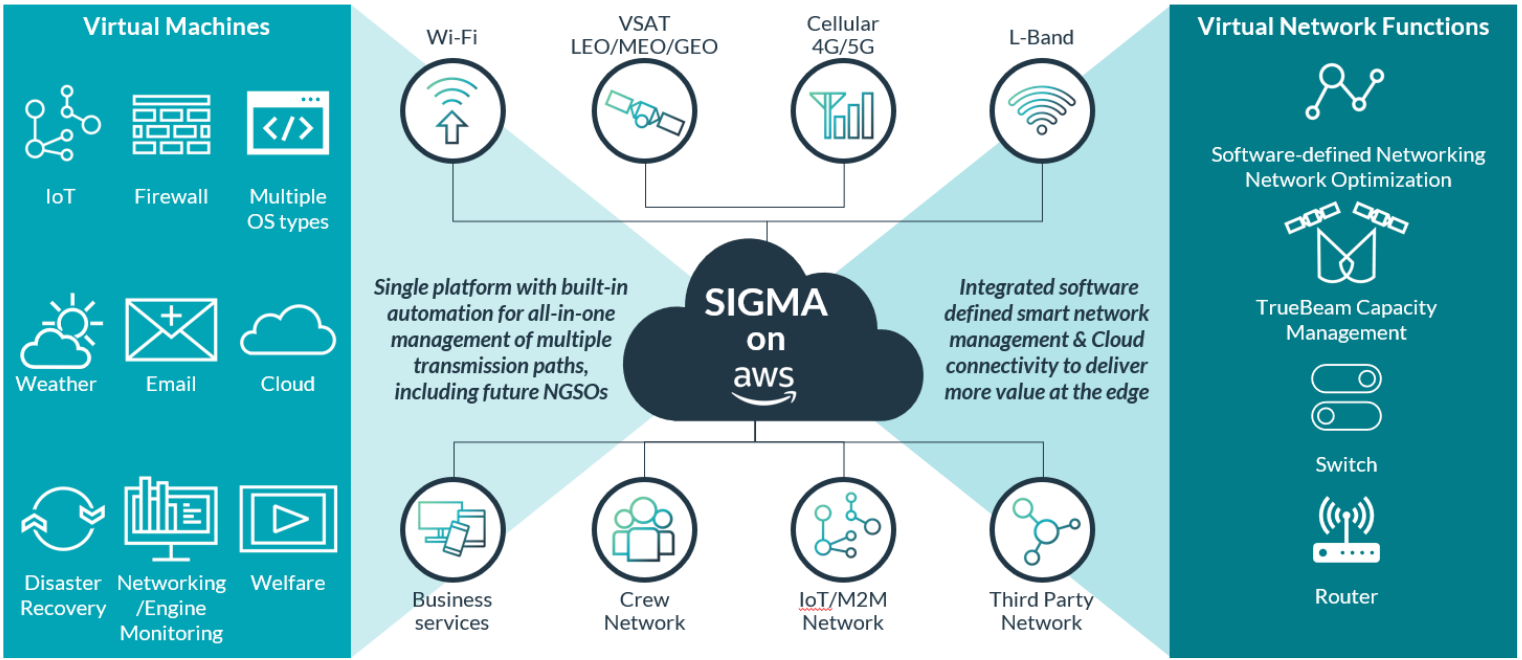
It's about delivering on the concept of ubiquitous connectivity to a remote site for the best user experience. We're working to offer the most cost-effective connectivity solutions, incorporating all available technologies and network options – multi-path and multi-orbit – for the highest levels of availability and flexibility.

Working with multiple providers, we shield the customer from unwarranted price increases, technology obsolescence, and loss of service that may occur when depending on a single service provider.

As the competition to provide broadband connectivity intensifies, not all networks will survive. During this era of chaos, Speedcast offers customers the ultimate in flexibility and security.

Speedcast Unified Global Mobility Platform

Enabling Seamless Adaptation for Today's Rapidly Changing Telecommunications Technologies



speedcast

ACCELERATE AHEAD

SMW: How does TrueBeam work?

TrueBeam is a centrally managed application that combines smart beam-switching and software-defined traffic-steering to maximize network performance. It takes an algorithm-based approach to optimize the Speedcast global network, giving remote sites, especially vessels, and maritime and offshore operations anywhere in the world the ability to seamlessly maintain communications, even while moving in and out of a beam's coverage area. It analyzes network availability, capacity, bands, and other key data points across networks and can make intelligent decisions without manual interaction.

This automation enables Speedcast to move from reviewing a handful of metrics manually to dozens of aspects automatically as part of the assessment for a network beam move or change. TrueBeam continuously steers traffic to optimize the network and is fully operable from a central server, with no added equipment required at the remote site level.

"Working with multiple providers, we shield the customer from unwarranted price increases, technology obsolescence, and loss of service that may occur when depending on a single service provider."

All this work we're doing is really driven by the growth and complex nature of networks and the need for automation. We're eliminating the need for human intervention in a network environment where only milliseconds are available to switch beams, and it is a leap ahead of the partially automated, map-based beam-switching technology that is widely in use today. When you combine TrueBeam with our SIGMA Gateway and AWS Cloud access application efforts, it forms our new unified global mobility platform. This solution will take satellite network management and the delivery of Cloud connectivity to a new level.

SMW: How has it been to implement these solutions for customers?

We recently implemented all the core elements of our unified global mobility platform, including TrueBeam, on the

Nuyina, the Australian Antarctic Division's new technologically advanced research and supply Icebreaker.

Our installation on the Icebreaker is the first universal global mobility platform implementation. As Nuyina traverses the remote and unfriendly seas between Australia and Antarctica, reliable communication is critical. Here, on the fringes of GEO satellite communication, we found the ideal proving ground for TrueBeam and our expanded mobility platform.

SMW: Maintaining constant broadband connectivity is highly challenging in the far southern latitudes that Nuyina operates in. How will TrueBeam improve connectivity?

At these extreme latitudes, all GEO satellites face one side of the ship. So, when the vessel changes course, blockages cause significant problems, requiring a solution in which we need to outfit both sides of the vessel with Certus, Fleet Broadband, C-Band and Ku-Band antennas. Here, TrueBeam manages network selection, and our SIGMA

unified global mobility platform with software-defined networking directs the packets where they need to go. It's the first time we put our entire platform into play, and it's worked. Prior to its installation, Nuyina had only intermittent connectivity.

We take our relationship with the Australian Antarctic Division very seriously. We worked to be a true technology partner to them on the launch of RSV Nuyina. As NGSOs come to market, our mobility platform will enable seamless switching between GEO, LEO, and even HEO satellites for customers looking for an all-in-one, multi-path solution to vastly improve availability. We're doing that integration development now to be ready for the new constellations.

SMW: Does TrueBeam operate across the different hub and modem infrastructures?

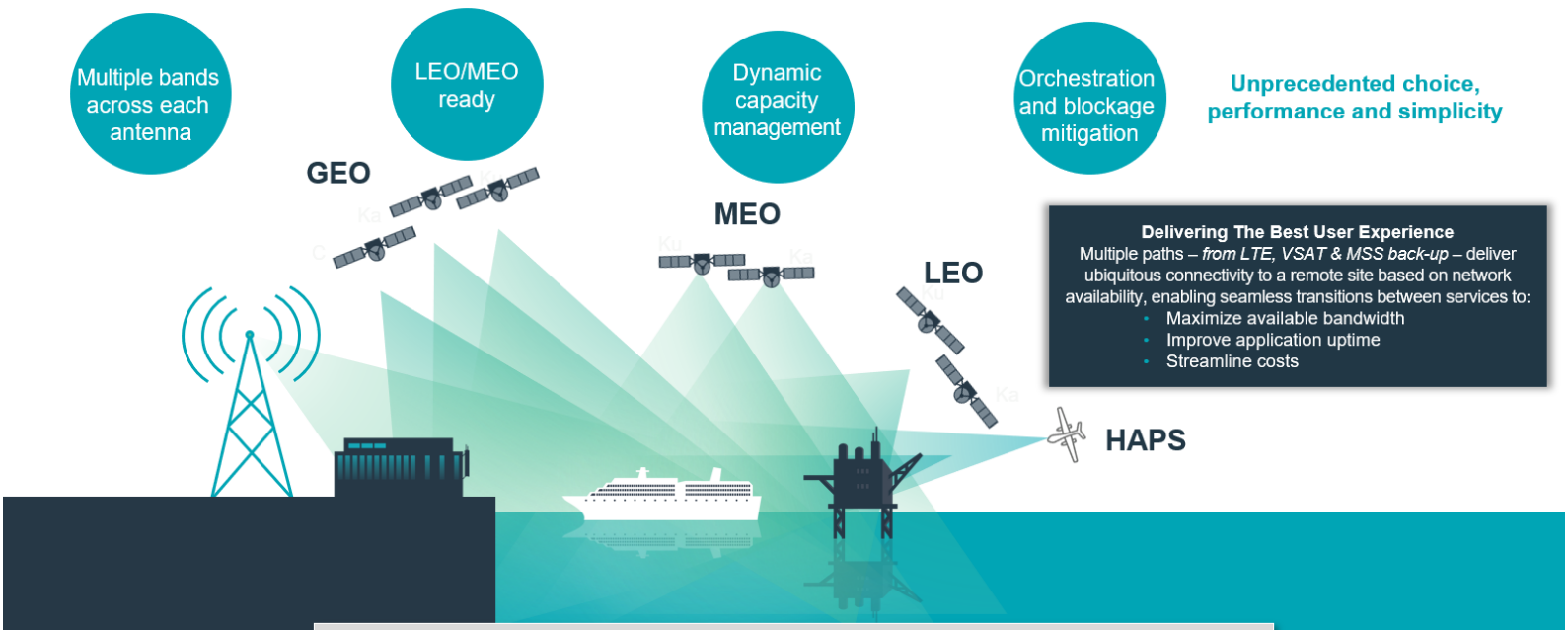
The technology is TDMA platform-agnostic and can manage the satellite beams and coverage needs on whatever platform is deployed, including leading platforms from ST Engineering iDirect and Newtec.

SMW: We see a considerable increase in the implementation of Artificial Intelligence across multiple sectors. Will you use AI to enhance your platform's capabilities?

What we now have is an algorithmic system, and we're working to partner with cloud providers to build in AI machine-learning capabilities. Although our AI efforts are nascent, we expect them to play a significant role in our ability to deliver superior service to our customers.

To drive network efficiency and optimization, many factors need to be considered in satellite network management and beam switching - for example, the customer's operating environment and intended route. We already have much of this information and integrate it into our network management system to use in the beam selection process. AI development will further advance

Multi-Path, Multi-Orbit Solution For the Highest Levels of Availability & Flexibility



TrueBeam's capabilities by integrating relevant data.

AI will allow us to consider multiple data sets, recognize trends, and make decisions in real-time. Moving forward, we'll see the emergence of NGSO and hybrid networks, which further complicates the network management process.

We'll rely on AI to effectively manage network and beam selection in this increasingly challenging environment. Our goal is to remain network and technology agnostic throughout the development process, future proofing our customers and delivering the best possible value at the lowest possible price.

"Moving forward, we'll see the emergence of NGSO and hybrid networks, which further complicates the network management process.

We'll rely on AI to effectively manage network and beam selection in this increasingly challenging environment. "

SMW: AI and machine learning are poised to keep growing. Do you see a potential for other AI opportunities?

Definitely. For example, today, we need to build in all the potential antenna blockages for a particular vessel by hand. In the future, imagine being able to fly a drone over a cruise ship and taking a photo of the superstructure and antenna positions. With AI, we could automatically integrate the blockage information into our database. Building in passenger demographics could help us determine optimal satellite capacity levels in the Cruise industry and better define the GEO-LEO capacity mix. The opportunities are endless.

SMW: Can you give us an idea of the scope of Speedcast's Unified Global Mobility Platform and TrueBeam development? Beyond Nuyina, where is the platform currently in use?

We already use the platform to manage MEO back-up on cruise vessels and oil rigs, using fiber to shore or C-band, directly impacting customer network performance. TrueBeam was launched late last year, and once implemented, the system began moving remotes away from congested networks. The added levels of proactive network planning

and mitigation that TrueBeam delivers are huge. For example, during a single one-week period, the automated system completed more than 400 remote configurations and over 100 successful beam switches, driving quality improvements across multiple coverage areas and customer sets.

SMW: What's next in terms of development?

While it is already in use, full development of our unified global mobility platform feature sets is still underway. Speedcast is an AWS Advanced Tier Services Partner, and we're working to integrate the AWS Greengrass application, which would allow customers to access the AWS Cloud and extend their network's reach.

Our global team holds nearly 60 AWS certifications and accreditations across Cloud Practitioner, Solution Architect, and Advanced Networking, Security and Database disciplines, so Cloud will be a huge part of our platform as we further augment it. SIGMA is already on the AWS platform, so this is a natural extension to bring more value to our customers.

Automation will also play a significant role in our development efforts. In any industry, automation offers increased efficiencies. It's an essential element in the race to remain competitive.

Automation will be even more critical as new NGSOs come to market. In our business, automation isn't a choice, it's a necessity. Humans can't efficiently manage a multi-orbit network with real-time beam steering capabilities from a spreadsheet. Automation will provide a seamless and consistent user experience. Combined with our use of mutiple networks and technologies, we'll offer our customers risk-free continuity of service far into the future.

About Joe Spytek:

Joe joined Speedcast in February 2020 and was appointed as Chief Executive Officer in January 2021.

He has more than 25 years of experience in leadership and international business. Prior to joining Speedcast, Joe served as the Founder and CEO of ITC Global, providing end-to-end satellite communications to energy, mining and maritime companies operating in remote and harsh environments; prior to the business being sold to Panasonic's mobility communications division.