



ACCELERATE
AHEAD



SPEEDCAST SIGMA™

Smart Network Management



An Amazon Web Services (AWS) qualified software solution, Speedcast SIGMA™ is a smart network management platform that enables seamless integration of global VSAT, cellular 4G/5G satellite backhaul, L-band connectivity and future non-geostationary satellite (NGSO) services to deliver high capacity and reliability for even the most remote operations.



Cloud-based, integrated platform



Creates a unified and adaptive network environment



Enables multi-path, multi-orbit mobile connectivity

SIGMA on AWS unites Speedcast's fully managed, end-to-end network management solution, with the flexibility and scalability of AWS. It includes:



Advanced cybersecurity as a service



The ability to run value-added applications in virtual machines (VM)



Automated traffic prioritization and management

In its AWS implementation, SIGMA provides an even more cost-effective and secure connection to a company's cloud and on-premise applications and data without adding new hardware or deploying new resources.



Improved business continuity



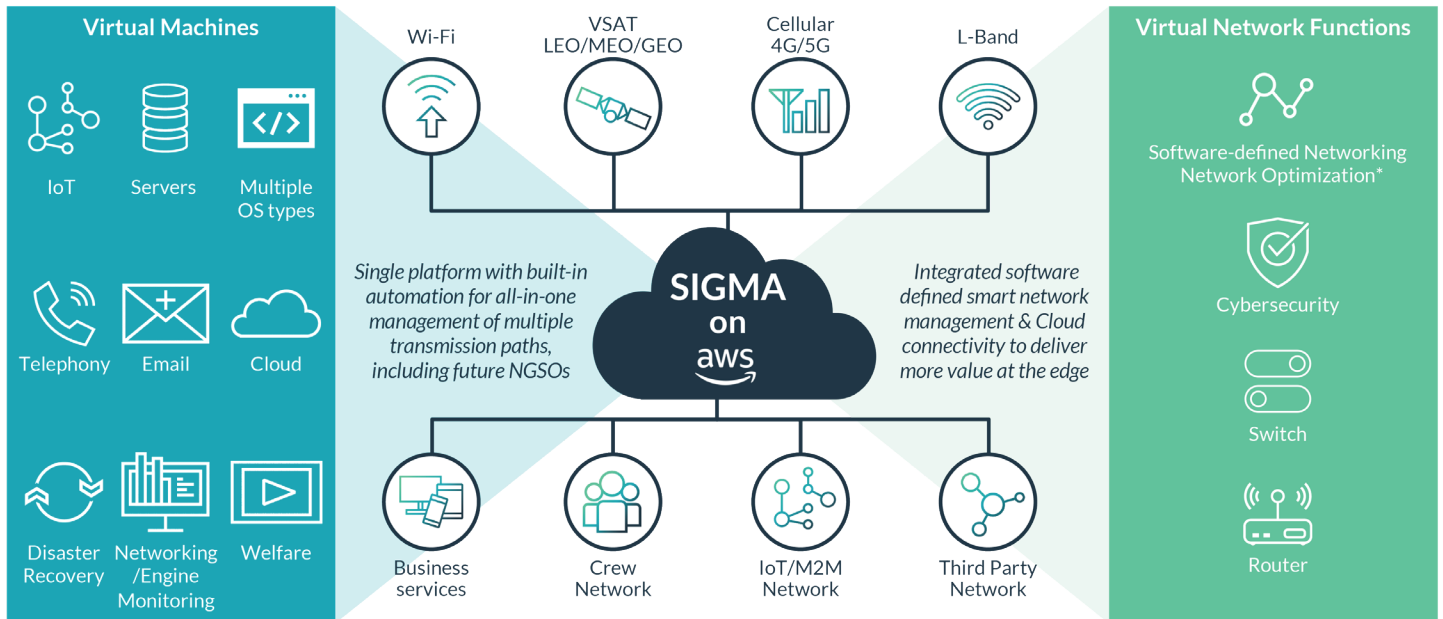
Reduced costs



Increased flexibility

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ENABLING SEAMLESS ADAPTATION FOR TODAY'S RAPIDLY CHANGING TELECOMMUNICATIONS TECHNOLOGIES



*Future Capability

The SIGMA Services Suite

- **SIGMA Portal:** Delivers one-touch activation and management of SIGMA devices and services, enabling centralized fleet tracking, geofencing, monitoring, ordering and support.
- **SIGMA Net:** Powerful network management device that provides automated and efficient administration of multiple WAN links, cybersecurity and virtual private networking (VPN) between the vessel and shore, or remote site and headquarters operations.
- **SIGMA Gateway:** Delivers the remote staff and crew features of SIGMA Net while providing higher performance and an integrated switch combined with a secured virtualized environment.
- **SIGMA Gateway Xtreme:** Includes load sharing between the two active servers and provides a fully redundant and resilient, high-availability solution with automatic failover between the hardware, should the main device fail completely.
- **SIGMA Hub:** Hosted on AWS, the SIGMA Hub provides customers with high-availability, scalability, redundancy, and a wide range of interconnectivity possibilities and a modernized infrastructure.
- **SIGMA Office:** Connects to dedicated VPN hub, creating a remote site virtual office VPN environment that includes tele-phony, data and file synchronization and access to all sites on the network.
- **SIGMA Protocol:** Application layer protocol based on Java socket technology and the client-server model.
- **SIGMA Mobile:** Mobile application for an on-the-go user experience, delivering Wi-Fi, calling and point of interest information in a prepaid format for simple use by remote staff and crew.
- **Virtual SIGMA:** Delivers the same SIGMA features without the added hardware and capable of being integrated on any valid supporting platform.



Scalable

- The suite allows for easy integration with an existing site's network and ensures the business network is segmented from other lower-priority networks, such as the remote staff or crew network.
- SIGMA supports multiple business models, where crew PINs and prepaid rates can be centrally created, managed and automatically synchronized. PINs can be used for data, voice (or both) with a crew prepaid rate applied per WAN link. SIGMA also supports 'bring-your-own-device' (BYOD) for internet service and telephony.
- The suite brings secure M2M or Internet of Things (IoT) connectivity to sites and unparalleled voice services with the integrated Session Initiation Protocol server, allowing for the flexibility to set up voice routing as required.



Future-Proofed

- SIGMA is optimized for satellite and ready for both low-earth (LEO) and medium-earth orbit (MEO) constellations. The platform also manages many transmission paths, including VSAT and cellular 4G/5G satellite backhaul and L-band connectivity.



Secure

- SIGMA provides a secure virtualized environment where third-party VM can be hosted and completely managed via the SIGMA Portal, allowing for remote configuration and dedicated resource allocation.
- For added network security, Speedcast's fully integrated cybersecurity as a service provides protection from a broad array of threats and support for all security and networking services



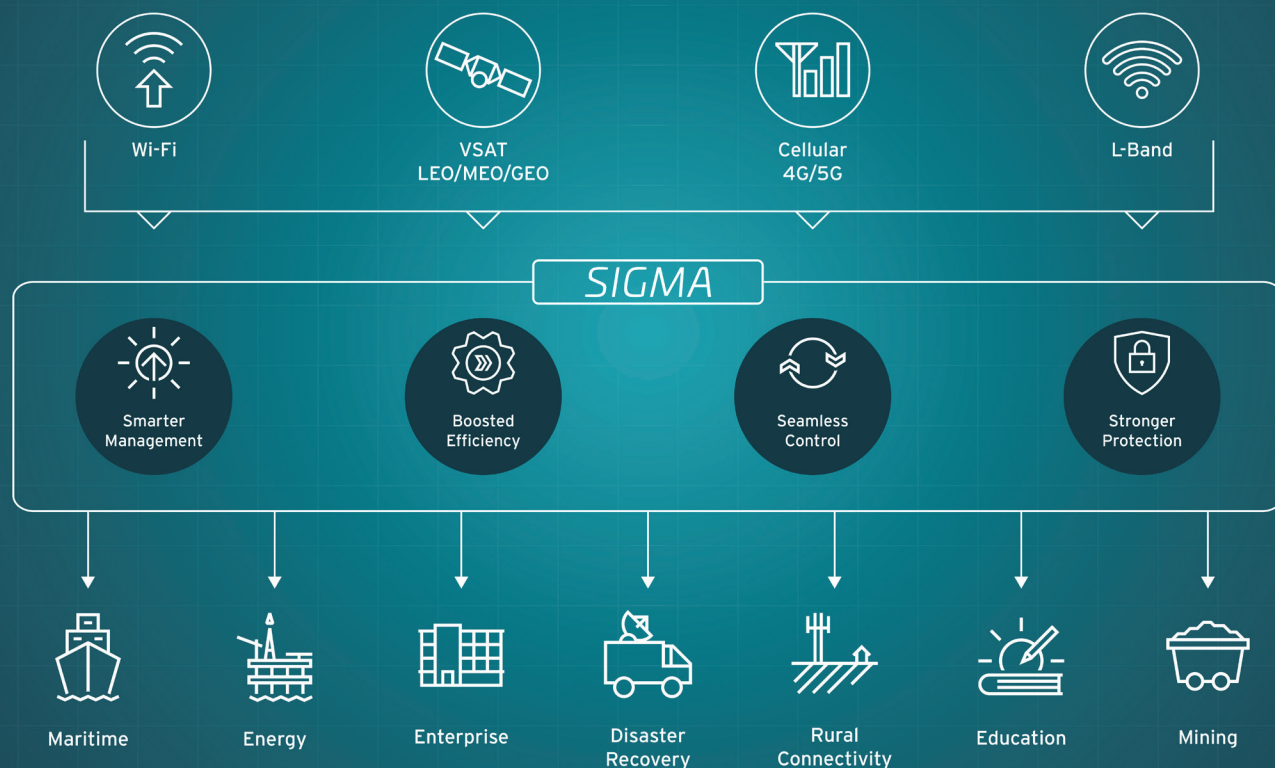
Integrated

- SIGMA can be managed from headquarters, or wherever a customer is operating, all via the integrated SIGMA Portal, which provides fully featured and interactive reporting transferred via SIGMA network devices' remote site WAN links.
- Geo-location tracking with GPS location reports extracted from existing remote site equipment.



Rugged, Redundant and Compact

- SIGMA devices consume only 1U of rack space, which means customers can save up to 5U of rack space, compared to a separate NSD, router, server and network switch appliances.
- SIGMA allows for link management, with automatic or manual failover between available WAN links to mitigate downtime and maintain operations.
- The suite's bandwidth control and optimization prioritize interactive or time-critical traffic and prevent network traffic clog.



ADDITIONAL FEATURES

- **Welfare Services:** Remote staff and crew can stay in touch with friends and family back home via SIGMA's truly flexible social connectivity options, including an innovative single voucher-based Bring Your Own Device internet and voice-calling access option. A comprehensive portal allows for simplified voucher generation and management.
- **Telephony:** The fully featured private branch exchange includes an localized billing platform and can support extremely granular rate plans.
- **Integrated Wi-Fi Management:** SIGMA can directly manage wireless access points installed on site, SSIDs and Wi-Fi zones and generate per-user usage reports.
- **Remote Access and Visibility:** The suite includes always-on VPN with SIGMA Hub, where VPN can be initiated remotely and provide transparent access for any WAN link or IP assignment type.
- **Real-Time Reporting:** SIGMA Portal provides real-time analytics with visualization on network status, latency amounts and signal strength.
- **Cybersecurity:** Use SIGMA Gateway to provide the safety of next-generation firewalls via an optional virtualized onboard system, advanced malware protection, URL filtering and next-gen intrusion prevention, reducing the risk of cybercrime affecting remote operations.
- **Partner Enablement:** SIGMA Portal Partner interfaces provide white-labeling options for service providers.

SPEEDCAST SIGMA™

Speed Up Deployment with Cloud Infrastructure



Customers can create, test and deploy new applications and codes instantly. By leveraging extensive cloud infrastructure, SIGMA provides customers a higher quality of service and accelerates the introduction of new solutions.

As an Advanced Tier Services Partner, Speedcast has demonstrated capability and success in delivering multiple cloud-based solutions to customers. Speedcast employees collectively hold more than 32 AWS certifications and 84 AWS accreditations, demonstrating the scale of their cloud expertise, capabilities, and engagement in the AWS ecosystem to deliver unsurpassed knowledge to customers in technology selection, application support, routing and acceleration, and service design. Speedcast is also designated as an AWS Public Sector Partner, validating the company's solutions for their sound architecture and adherence to AWS best practices, which translates into reduced technology risks for customers.

CASE STUDY: SMARTER NETWORK & OPERATIONS

As Taiwan's largest telecom, Chunghwa Telecom (CHT) provides satellite services to the government and enterprise market. With a growing number of organizations relying on the company's satellite communication service over the years, CHT needed a network management solution that could meet its customers' needs to support smart operations while delivering a high quality of service.

SOLUTION

Speedcast SIGMA harnesses the power of diverse communications technologies and integrates these into a fully functional network management solution.



Cloud-based real-time dashboard, offering end-to-end visibility into all remote sites and applications



Automated and efficient management of multiple WAN links



Cybersecurity



VPN between the remote site and headquarters



Manages many transmission paths, including VSAT, 4G/5G and L-band connectivity



Support crew welfare services and BYOD boosts operational efficiency and flexibility



Prioritize interactive and time-critical traffic and define Quality of Service (QoS) directly on the platform

30+ AWS
CERTIFICATIONS

80+ AWS
ACCREDITATIONS

"Speedcast's SIGMA solution is a key component in our satellite communications offerings. SIGMA's cloud capabilities will accelerate our customers' digital transformation journey and open doors to greater business opportunities."

- Deputy Director, Satellite Department
Chunghwa Telecom's International Business Group (CHT-I)

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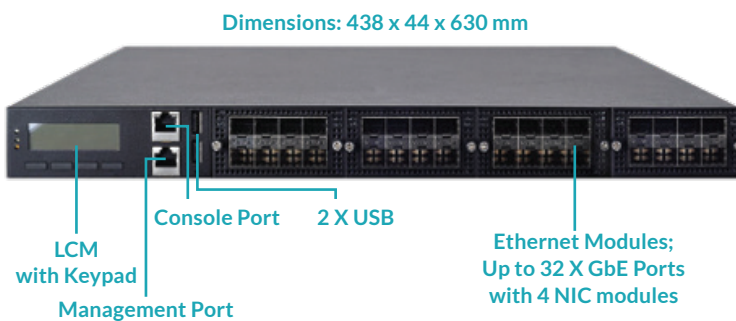
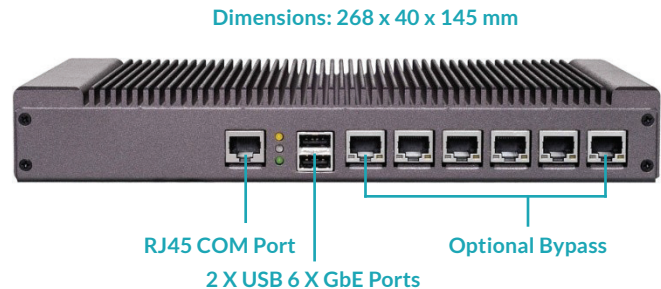


THE SUITE OFFERS THREE PLATFORM TIERS

SIGMA NET

Built with RoHS-compliant parts and production processes with an embedded ultra-low voltage ATOM. Its 1.8GHz CPU delivers power-efficient processing, while the Intel ICH8M system logic provides PCI-E bus network bandwidth.

- Three WAN ports (integrated switch)
- VSAT (LEO and MEO-ready)
- Iridium backup
- Cellular 3G/4G/5G, Wi-Fi
- Three LAN ports (integrated switch)
- Business LAN: Corporate services (email, PMS, etc.)
- Crew LAN: Crew welfare prepaid services (voice and data)
- Custom LAN: M2M services (ECDIS, VDR, etc.)



SIGMA GATEWAY

Features built-in dual Intel “Haswell-EP” processors, with a total of 16 cores. It also includes internal 2.5” HDD, CF socket USB 2.0 ports, mini PCIe and console connection options.

- Built-in network switches
- From 8 to 32 LAN
- Three WAN ports
- Software

SIGMA GATEWAY XTREME

Fully supports failover and redundancy with four swappable fans and redundant PSU, and virtually eliminates planned and unplanned downtime by maintaining a 24/7, real-time operation.

- Implements “active-active” cluster for load sharing
- Provides high availability with full redundancy
- Provides resources distribution
- Includes managed PDU that powerful remote management
- Offers up to 32 ports for switching, all managed by SIGMA Portal and an onboard user interface

