



SUPPORTING DIGITAL TRANSFORMATIONS AT SEA

Next-generation solutions such as predictive maintenance, artificial intelligence, electronic logbooks, and blockchain are top of mind for ship owners and operators, with two-thirds of respondents in a recent survey launching their digital transformation initiatives.

New digital technologies have the potential to transform the commercial maritime market by paving the way for cost savings, process improvements, and enhanced crew safety.

This represents a major shift for the commercial maritime industry, which has long been dominated by manual systems and processes. However, market and regulatory pressures have begun to drive adoption of digital solutions and capabilities:

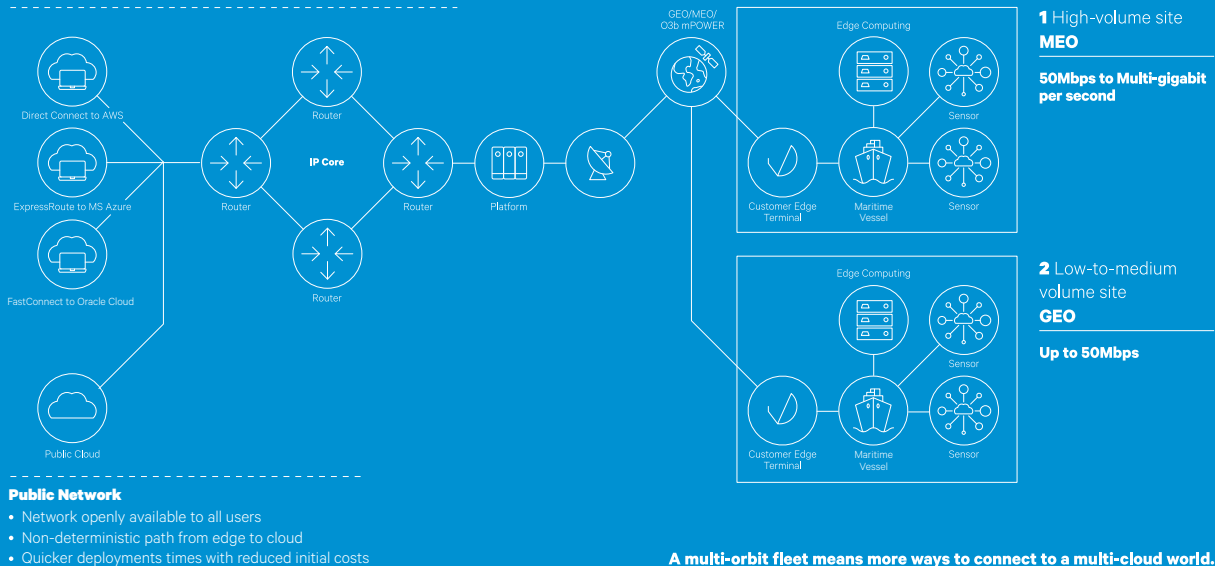
- New requirements around electronic data sharing between ships and ports are driving momentum for cloud-based platforms that can facilitate the exchange of information on cargo, crew, and passengers – reducing errors, improving tracking and traceability, and minimising freight waiting and stopover times.
- Real-time sensor data gathered from onboard equipment and systems can be leveraged to create virtual models of vessels, allowing onshore engineers to do scenario planning, schedule maintenance more efficiently, and identify potential safety concerns.
- Fuel optimisation systems combine data about engine performance with external information such as weather, draft and trim, and hull fouling to ensure the most efficient use of fuel.

- Blockchain technology has the potential to minimise the need for manual intervention or processing, saving time and transaction costs.
- Cloud-based videoconferencing systems can support learning and telehealth services developed to keep crew safe and healthy while at sea.

Leveraging the cloud can help ship owners and operators mitigate the risk and cost of deploying these innovative new digital technologies. Moving key workloads to major cloud platforms means ship owners don't need to acquire and maintain expensive on-premises systems, while also enabling them to capitalise on consumption-based pricing that lets them scale their solutions as needed. By transferring sensor data from the vessel to the cloud for processing and analysis, ship owners can gain valuable insights into the performance of onboard systems, while machine learning algorithms help guide them to decisions that will make every journey as cost-effective and safe as possible.

Private Network

- E2E private connection from edge to cloud
- Availability and performance backed by Service Level Agreements



Public Network

- Network openly available to all users
- Non-deterministic path from edge to cloud
- Quicker deployments times with reduced initial costs

A multi-orbit fleet means more ways to connect to a multi-cloud world.

As the only satellite-enabled network services provider with a commercially proven multi-orbit fleet, SES is enabling the commercial maritime industry to fully capitalise on the power of cloud and edge compute technologies, even from the middle of the ocean.

Extending the cloud to the sea

We deliver private, dedicated connectivity via our Geostationary Earth Orbit (GEO) and Medium Earth Orbit (MEO) systems, along with a suite of managed edge and managed 5G solutions developed with our partners. Our portfolio of cloud solutions connects any user to the cloud and extends the cloud to anywhere, ensuring that ship owners can access the resources they need to execute on their digital transformations.

Supporting “smart ship” data volumes

Smart vessels have thousands of sensors that generate multiple gigabits of sensor data each day — data that then needs to be transferred to cloud platforms for processing and analysis. Our satellite-enabled network has the capacity required to support smart ship data volumes, with the ability to scale as their digitalisation efforts ramp up.

Application-aware connectivity

Different maritime use cases have specific network performance requirements. Our advanced software capabilities allow us to combine multiple satellite links to create application-aware network services, ensuring that critical cloud workloads receive the right level of connectivity, backed by the appropriate service level agreements (SLAs).

Reliability with global reach

Mission-critical cloud-based maritime applications such as weather routing, engine monitoring, and telehealth rely on solid

connectivity wherever the vessel may sail. Our multi-orbit fleet of interlinked high-throughput and widebeam satellites ensures any ship can access seamless, reliable cloud-native connectivity—regardless of its location or size.

Enabling edge workloads

Use cases such as digital twins, surveillance cameras and even autonomous operations can dramatically improve ship safety and efficiency but require edge compute functionality that can process large volumes of data in real time. Additionally, that data can be sent to powerful machine learning systems in the cloud, resulting in further insights that can be delivered back to the edge for continuous performance improvements. Our secure, dedicated links from the cloud to the edge ensure these critical edge workloads receive the connectivity they need to operate effectively, while our managed edge solutions enable new revenue-generating use cases for shipping companies.

A path to the future

As the maritime industry evolves its digital transformation, our network is evolving with it. Our next-generation O3b mPOWER system builds on our market-proven MEO capabilities, delivering the flexibility, performance, and scale essential for cloud services. Dedicated, private connections from remote sites to the nearest cloud data centre ensure the performance and latency ship owners and operators need for their cloud applications.



Learn more about our full portfolio of services and solutions at ses.com