OFFSHORE DIGITALISATION WITH SPACE-ENABLED CLOUD

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Edge computing capabilities at remote facilities enable oil and gas companies to unlock the potential of Industrial Internet of Things (IIoT) applications on offshore platforms.

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The cloud plays a critical role in digitalisation initiatives, providing the flexibility, agility and scale needed to deploy digital applications efficiently and effectively.

However, while over a terabyte of data is generated on a single oil rig each day, only a fraction of that data is leveraged to gain insights into operational efficiency. Part of the challenge is that it can take up to 12 days for a day's worth of data to be transmitted from these remote locations to a centralised processing centre – a problem that can be addressed by taking computing power to the edge. Inferences gained at the edge can then be aggregated at a data centre—where companies can apply advanced analytics and machine learning algorithms. By ensuring continuous synchronisation between cloud and edge compute resources, oil and gas companies can access actionable insights to bring value in every area of their business.
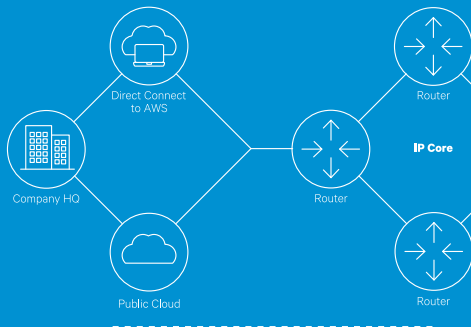
Making the journey towards cloud transformation
From identifying extraction sites to monitoring oil rig and pipeline performance, the public cloud and edge compute ecosystem unlocks opportunities for process improvement and crew welfare:

- **Drilling optimisation and automation:**
  Advanced analytics can increase drilling productivity by improving drilling speed and enable remote operations that can reduce the number of crew required on a rig.
- **Enhanced field operations and logistics:**
  Data generated by RFID sensors can be used to track assets and materials to improve end-to-end logistics.
- **Smart Maintenance:**
  Real-time sensor data can provide valuable insight into equipment status and performance, enabling proactive maintenance that can reduce equipment failures and promote more efficient system design.
- **Crew safety and welfare:**
  Systems such as crew tracking, video surveillance and entertainment ensure crew safety and satisfaction while on-site, while cloud-based telehealth systems reduce the need to evacuate personnel in the event of a medical crisis.

Private Cloud
- Private, dedicated connection
- Performance tuned to workload demand
- **E2E Managed service to the cloud**

Company HQ

Direct Connect to AWS

Public Cloud

Router

IP Core

Router

Router

Router

Platform

GEO/MEO/O3b mPOWER

1 High-volume site
MEO

50Mbps to Multi-gigabit per second

Edge Computing

Sensor

Customer Edge Terminal

Oil Platform

Sensor

2 Low-to-medium volume site
GEO

Up to 50Mbps

Edge Computing

Sensor

Customer Edge Terminal

Oil Platform

Sensor

Public Cloud
- VPN-to-cloud encrypted through Internet
- Public peering with major CSPs
- **Robust access to cloud services**

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

Our portfolio of cloud solutions connects any user or application to the cloud and extends your workloads and data to anywhere, ensuring that offshore vessels can access the resources needed for their successful digital transformations.

The cloud plays a critical role in these digitalisation initiatives, providing the flexibility, agility and scale needed to deploy digital applications efficiently and effectively. However, access to the cloud depends on the existence of robust and reliable connectivity - a challenge for deepwater facilities that are frequently out of range of terrestrial networks.

As the only satellite-enabled network services provider with a commercially proven multi-orbit fleet, SES is breaking through those limitations, bringing the power of cloud and edge technologies to even the most far-flung deepwater sites. 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.

Maximising the value of offshore data
Capitalising on smart sensor technology requires edge compute applications that gather and process the mass data produced by an offshore vessel in real time. That data can then be sent to the public cloud for storage and advanced analytics, generating further insights that are delivered back to the edge for continuous performance improvements. We enable secure, dedicated links from the edge location directly to your virtual private network in the public cloud region of your choice, backed by SLAs that guarantee the throughput, security and uptime needed to handle the terabytes of data generated by an offshore asset.

Global reach
Deepwater production is set to increase by over 60% between 2022 and 2030[1], pushing offshore facilities further and further out to sea. Our multi-orbit, global fleet of interlinked high-throughput and widebeam satellites ensure any offshore vessel can access reliable, cloud-native connectivity, regardless of location.

Support for variable bandwidth needs
Offshore players' bandwidth requirements vary by factors such as location and site specifics. We enable a consumption-based model that lets customers scale their bandwidth spending easily and cost-effectively as needed, allowing them to invest incrementally based on their specific network and edge compute requirements.

A next-generation cloud-ready network
As the offshore energy industry's digital transformation evolves, 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 service, including the ability to allocate bandwidth exactly where and when it's needed on a per-site basis. Oil and gas producers can leverage dedicated, private connections from remote sites to any public cloud region, ensuring the performance, latency and reach needed for the industry's digitalisation initiatives.

1   Wood Mackenzie Global Upstream Report

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