Viktigheten av Pålitelige, Høyhastighets Kommunikasjonsløsninger

29th of October 2025

Trygve Hagevik, Chief Commercial Officer

Tema

Dag 1:

- Hva er viktigst å få til? Hvorfor? Hvordan?

Dag 2:

- Konkretisering og eksemplifisering gjennom konkrete ‘use cases’.

«ikke bare tenk drilling rig – husk plattform drilling»

Key figures

Founded in
2001

Owners
3i & ATP

CEO
Elie Hanna

450+
Offshore installations

Local presence
7 countries

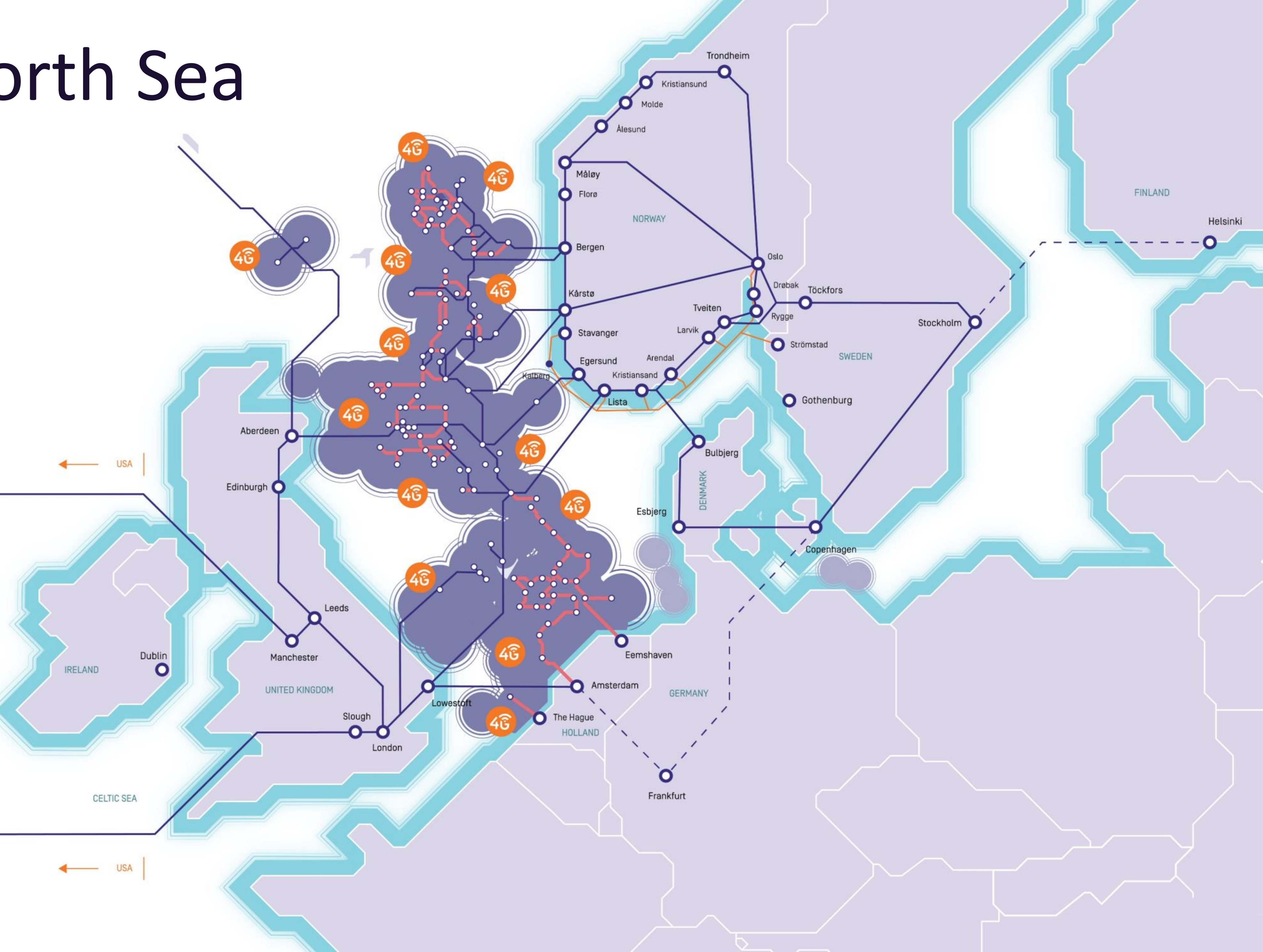
Headquarters
Stavanger

Offshore Network
600.000 km2

Fiber Optic
Network: **5400 km**

Euro Turnover
150 Million

North Sea

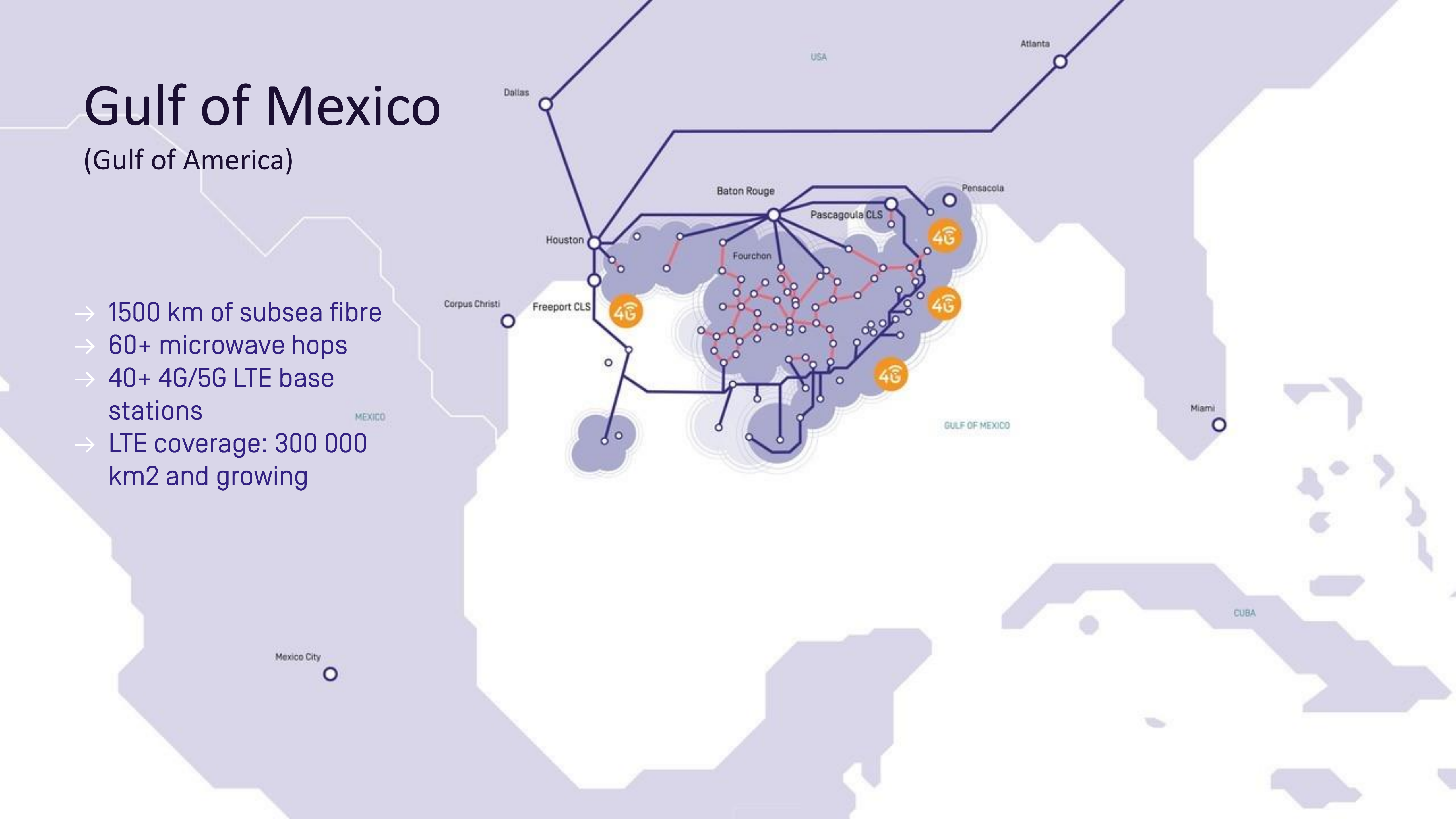


- 3500 km of subsea fibre
- 145+ microwave hops
- 50+ 4G/5G LTE base stations
- LTE coverage: 300 000 km2 and growing
- Data connectivity from site to shore

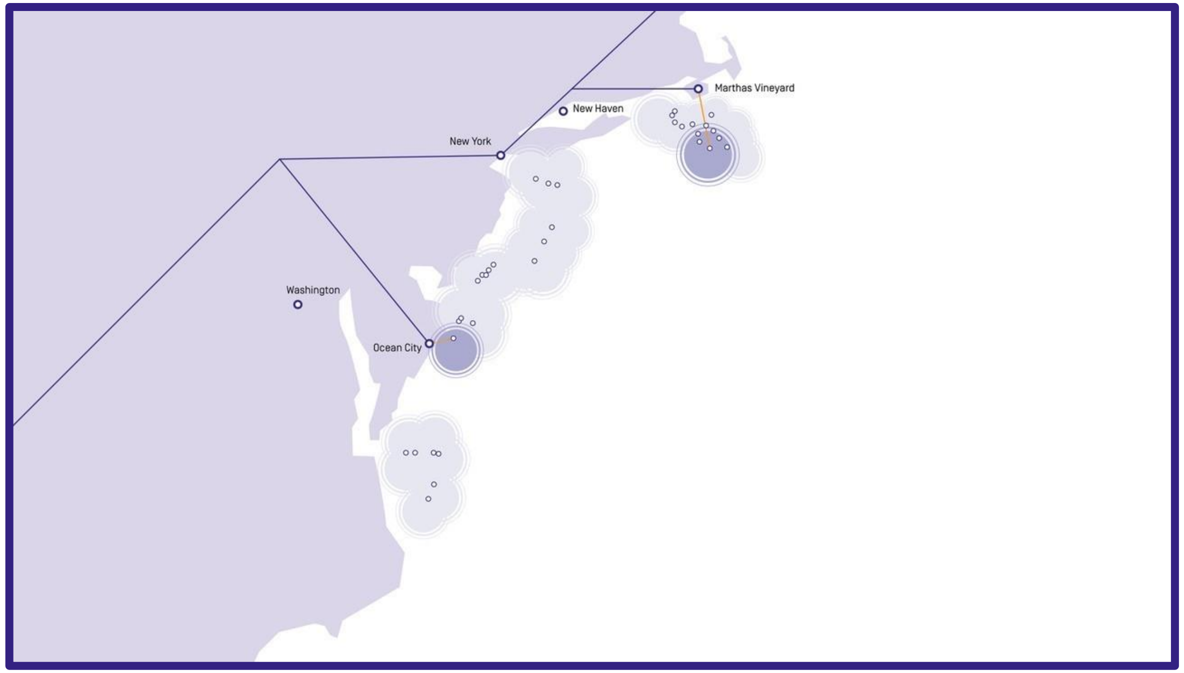
Gulf of Mexico

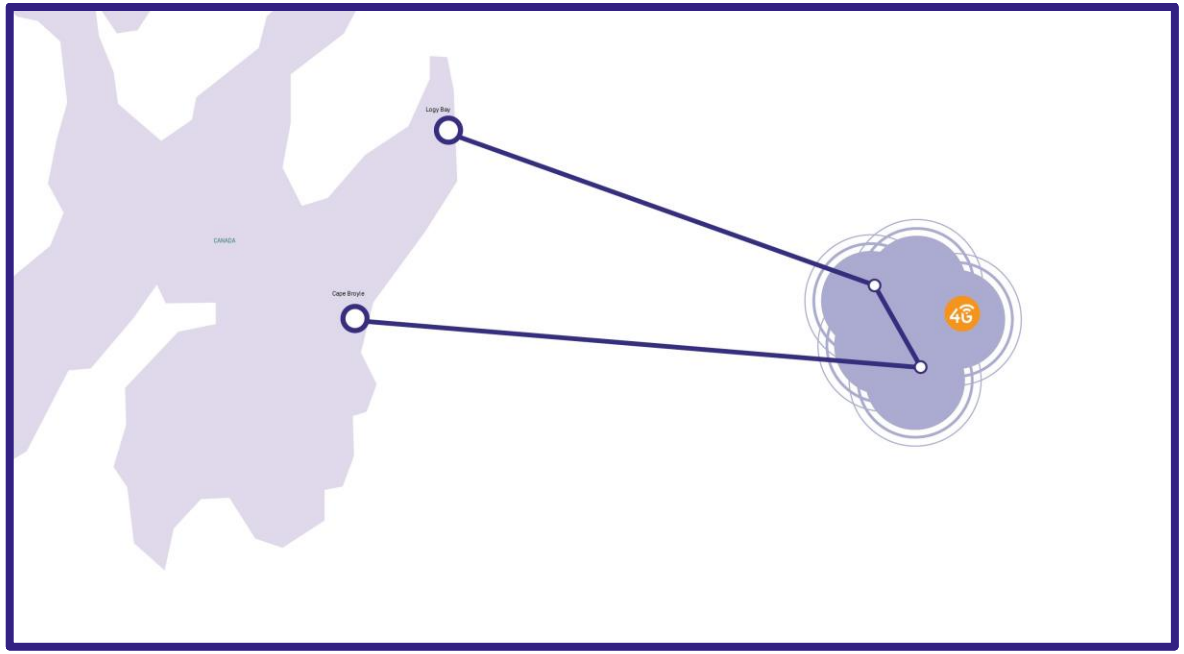
(Gulf of America)

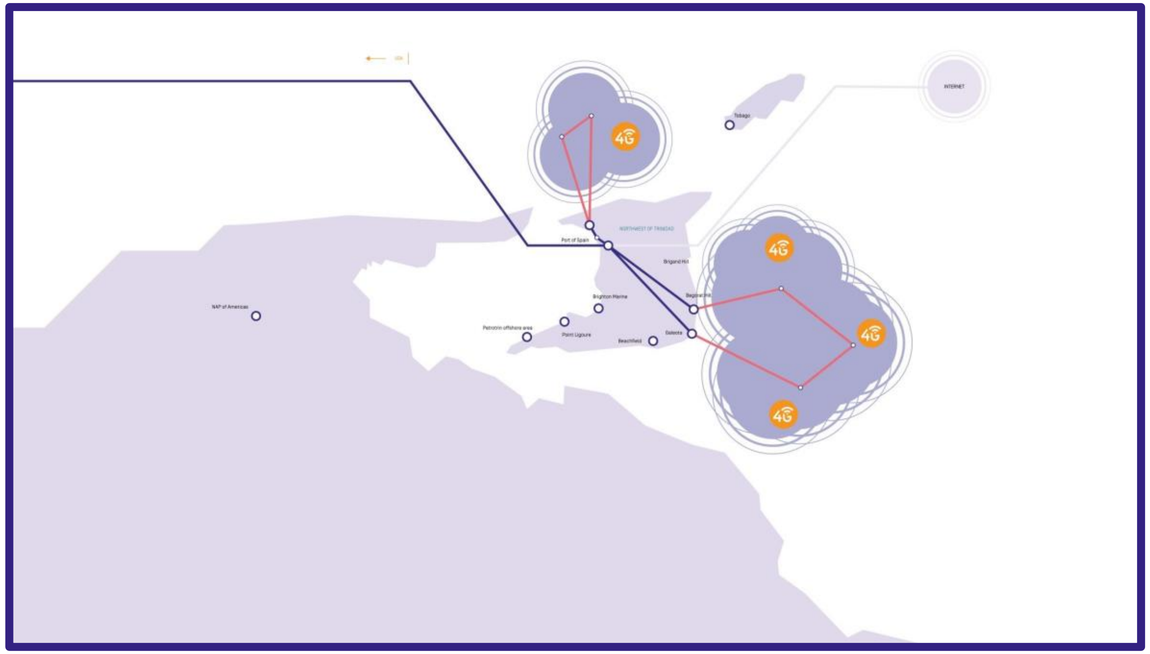
- 1500 km of subsea fibre
- 60+ microwave hops
- 40+ 4G/5G LTE base stations
- LTE coverage: 300 000 km2 and growing



East Coast US, Trinidad & Tobago, Canada



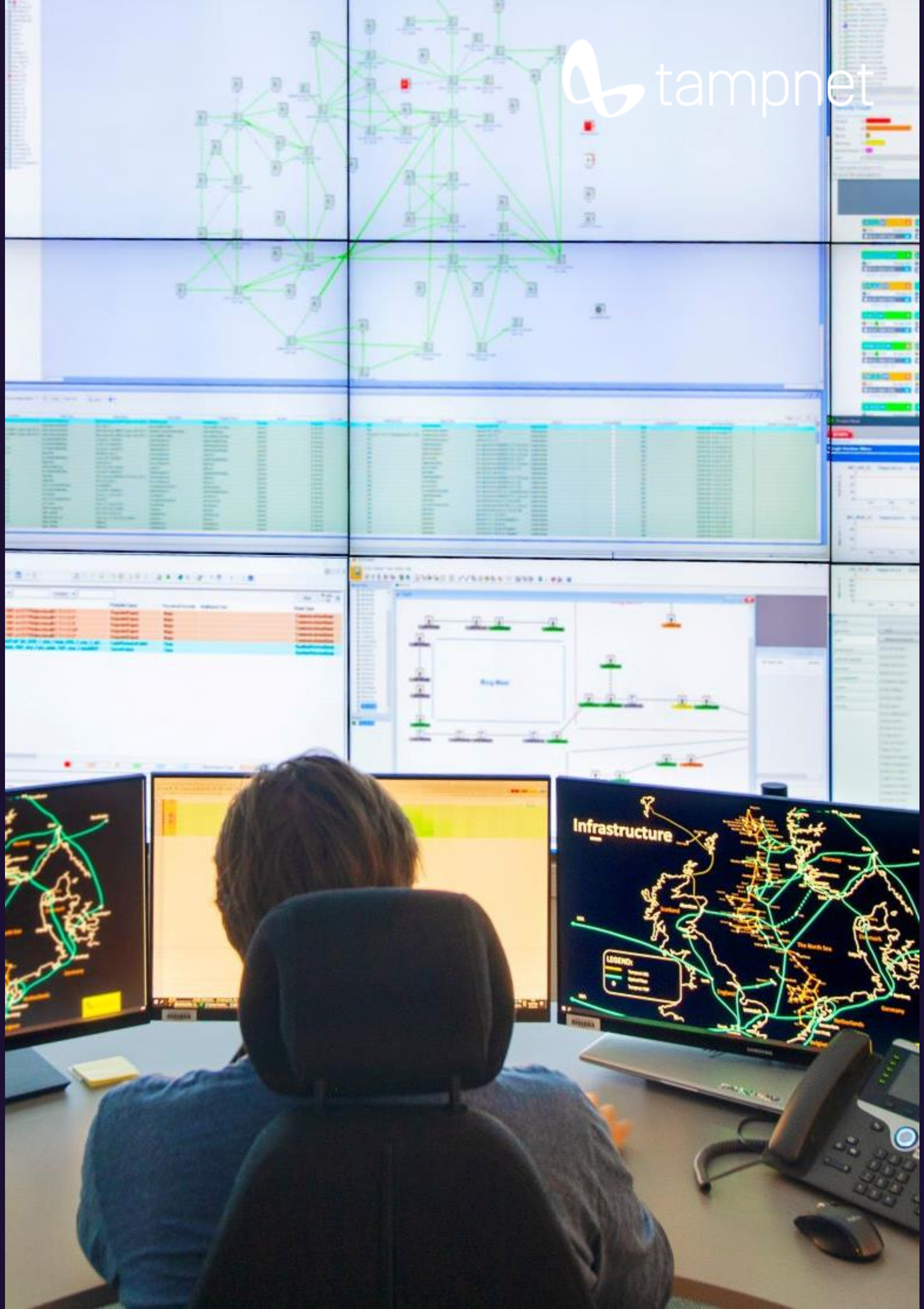




NETWORK OPERATIONS CENTRE OF EXCELLENCE

Tampnet operates two Network Operation Centers (NOC); Stavanger and Houston

- Singular mission critical service level
- First line support provided by qualified and trained network engineers
- 24/7 Network monitoring and support
- Proactive support with direct communication and immediate incident updates



Fellesnevnere fra i går:

- Wood Mackenzie's latest analysis shows how AI could help identify where operators can wring substantially more oil out of producing reservoirs, improving recovery by 6-12% and unlocking nearly a trillion additional barrels from existing fields.

Effektivisering; mindre funn, økte kostnader, volatile oljepris – do more with less

Fjerndrift – flytte posisjoner på land

Økt kvalitet, utnyttelse og tolkning av innsamlede data

Bruk av teknologi: Artificial Intelligence, Digital Twin

Kapasitet, skalerbarhet, pålitelighet

Plattform/produksjonsdrilling

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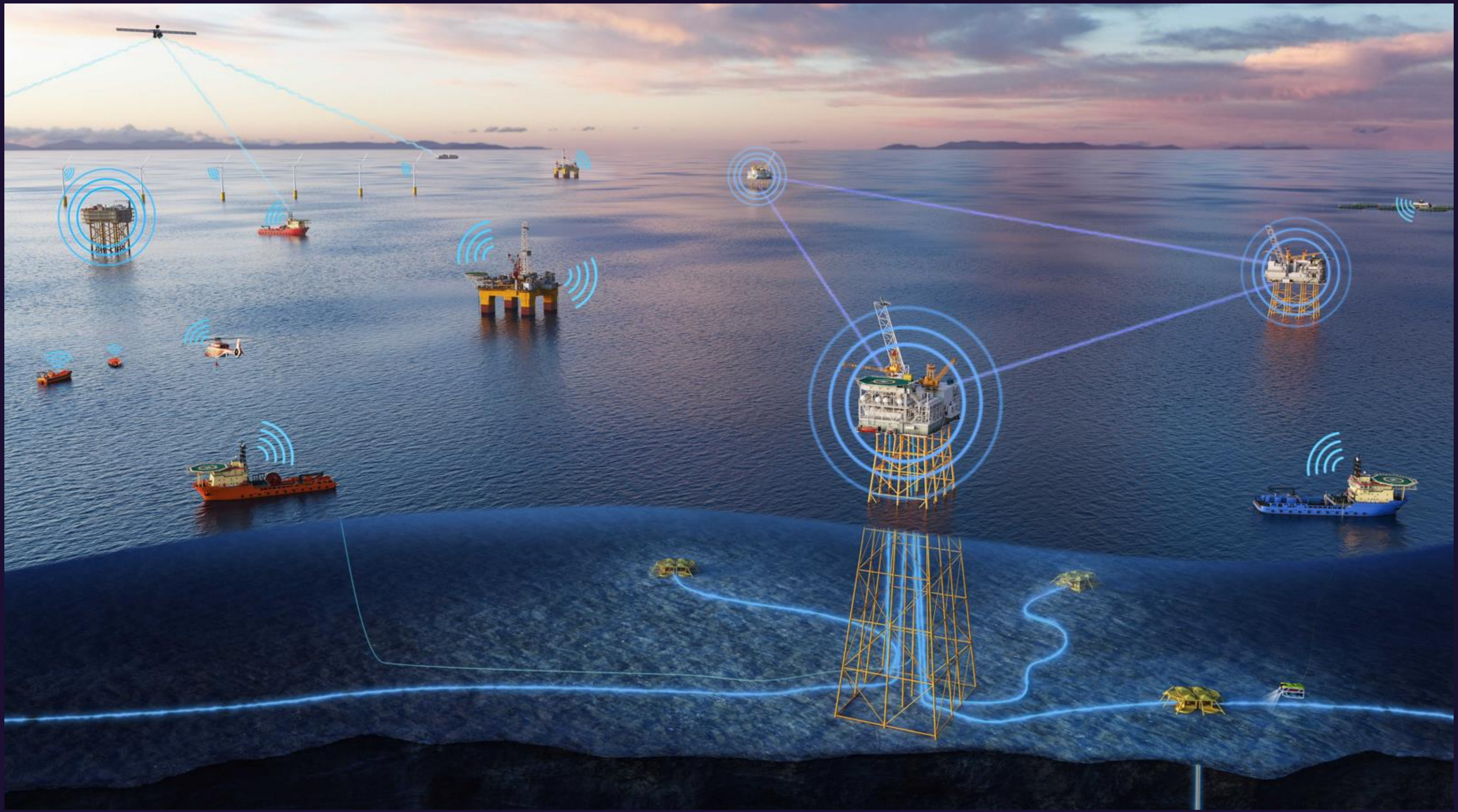
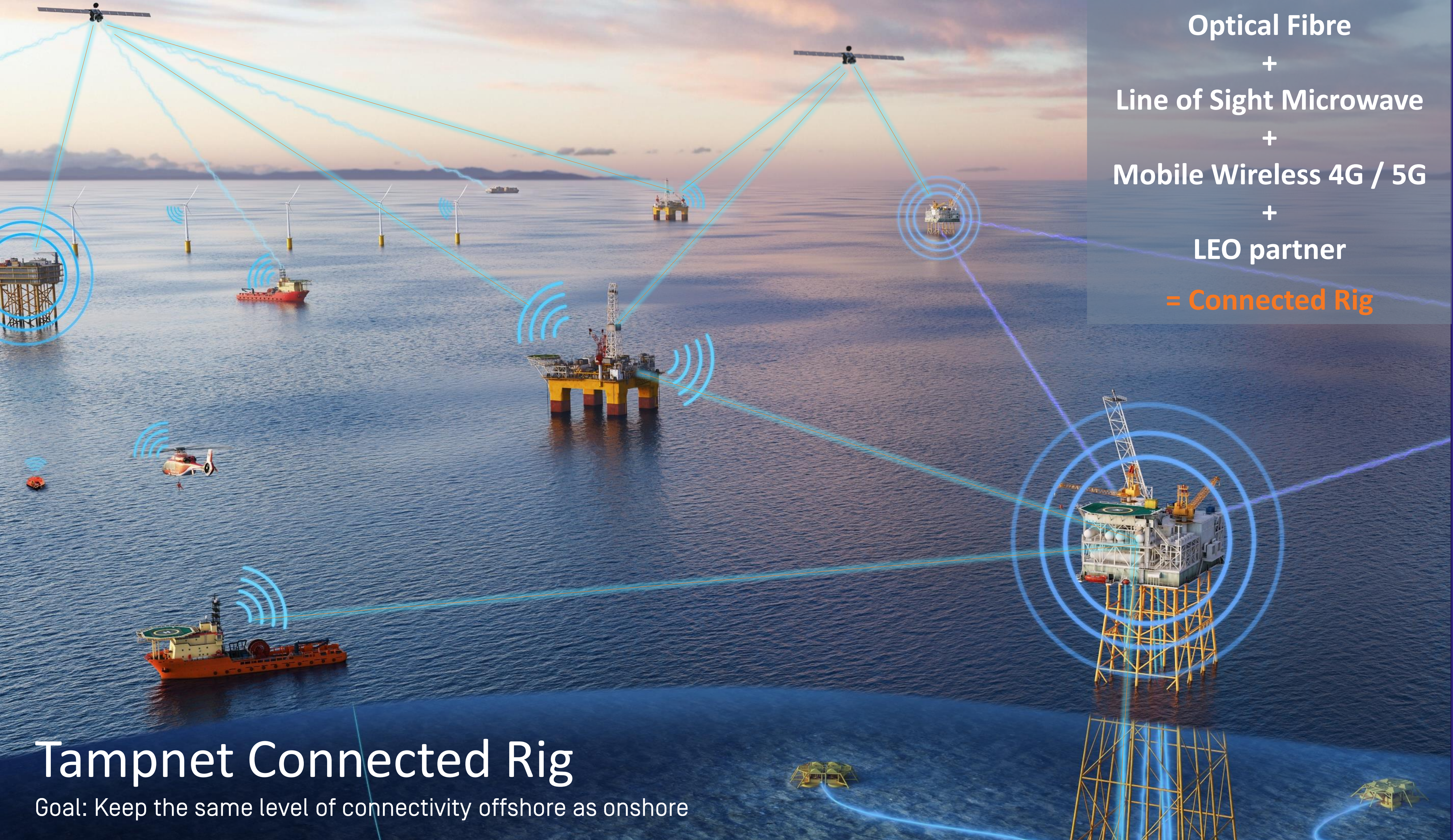
- Kontraktører – utfordringer med dataforbindelser; Prioritet, hastighet, forsinkelse og kompleksitet rundt datasikkerhet, segregering av nettverk og trafikk
- Forbindelser gjennom kundens nettverk og kundens sikkerhetsløsninger – komplekst, lite fleksibelt
- Lavest mulig forsinkelse – RTD
- Trådløs kommunikasjon
- Skalerbarhet
- Support – helpdesk lokalt i Stavanger
- Telecom «hub» på hver produksjonsplattform som er tilkoblet fibernettet
- Tilpassede og skalerbare løsninger tilgjengelig for alle som operer på plattformen – direkte med teleoperatør.



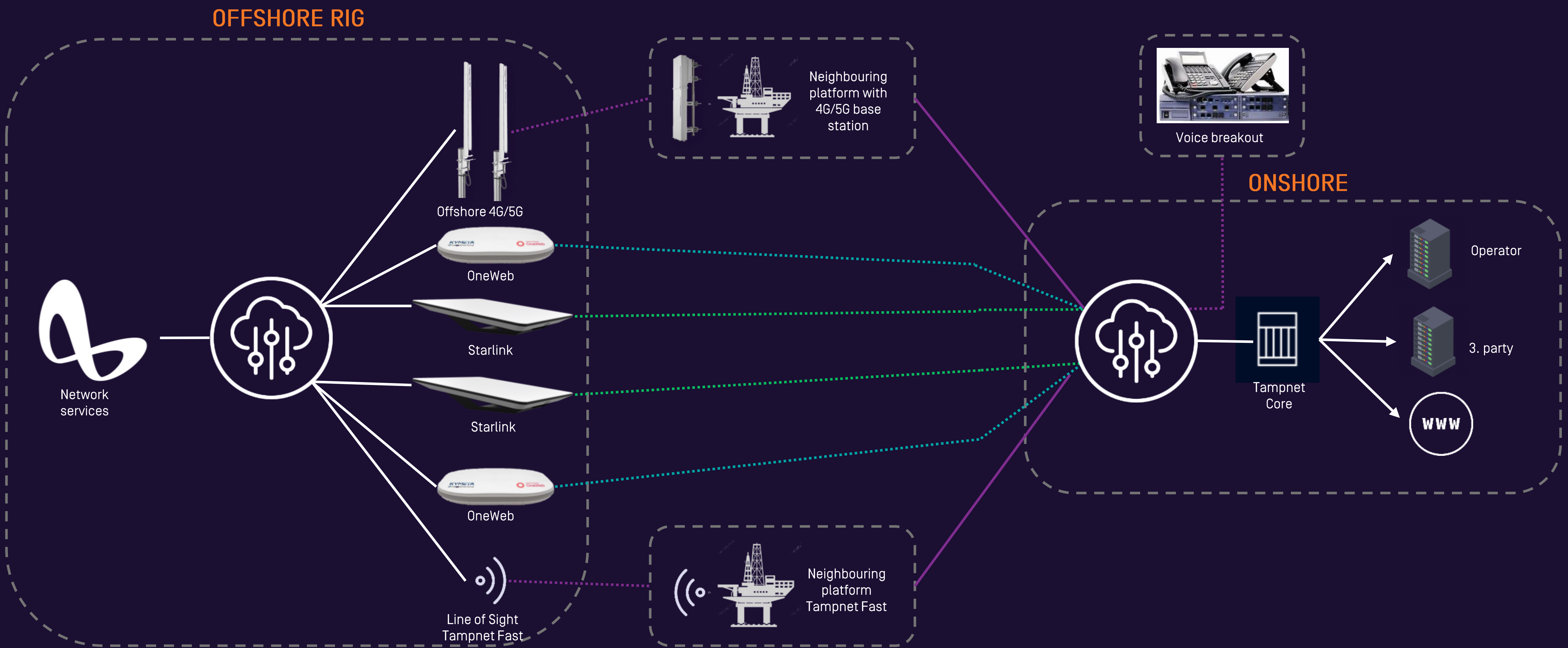


Tampnet Connected Rig

Goal: Keep the same level of connectivity offshore as onshore

Connected Rig

Fully integrated solution with AI/ML traffic orchestration, Connectivity Mix optimized based on rig's physical location.



Connected Rig services

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- Starlink
- Oneweb
- VSAT
- 4G/5G
- LOS T-FAST
- Out of band

Connectivity Mix

- SDwan
- AI Orchestration
- Firewall

Solutions on rig
- LAN
- Wifi
- Voice
- Crew
- Private 5G

Value added services
- CCTV to shore T-LOOK
- Secure remote access
- TV systems
- PABX
- ++

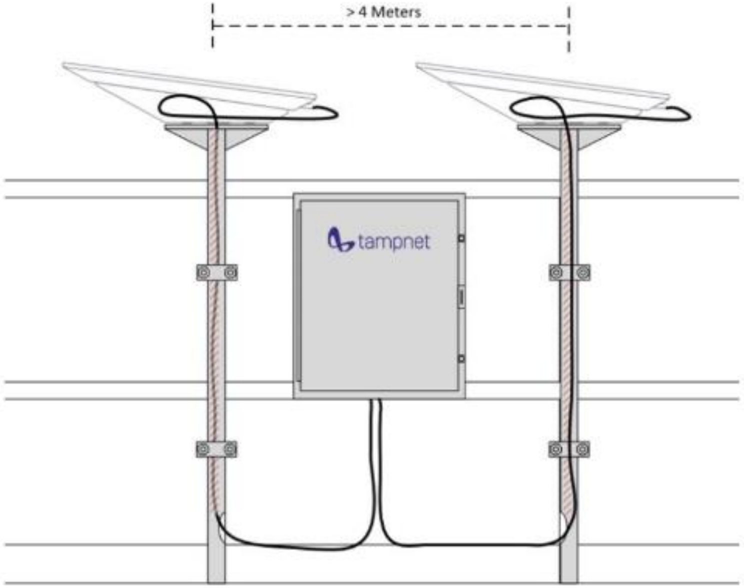
Tampnet services and value add
- Service Delivery & Service Management
- Network Operations
- Customer Portal
- 3. Party and Data Center Services

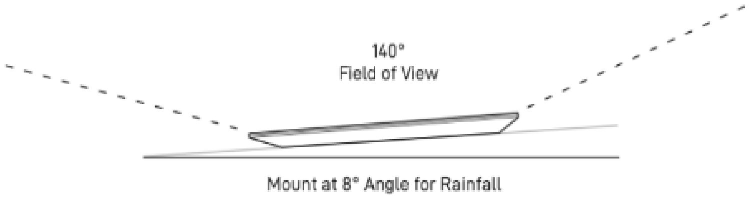
Network Services

Antennas


Intellian


Connected by
OneWeb


> 4 Meters
tampnet


140°
Field of View
Mount at 8° Angle for Rainfall

Connected Rig and private 5G with Edge Compute as ONE solution

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Connected Rig

Connectivity mix

- Network Services
- AI Traffic Orchestration
- Value added services

Private Network

On asset 4G/5G coverage

- Robotics
- Sensors
- Inspection
- OT / IT
- Digital Field Worker
- Paperless

MCX / MCPTT

Secure framework IEC 62443

Edge Compute

NOC

Private 5G / MCX

Through reliable and fast connectivity, operators can leverage the power of the latest IoT technologies to enable connected workers, digital twins, remote collaboration and improved onsite safety and efficiency. With onsite 5G, strong signal can be achieved throughout the rig or vessel, eliminating black spots often seen with WiFi.

Primary challenges

IoT and digitalisation initiatives are often stunted by connectivity issues caused by complex structure geometries and thick steel walls resulting in WiFi black spots or the need to install expensive cabling.

Ideal solution

Secure, reliable and fast wireless connectivity solutions, particularly for older facilities predating the IoT revolution. Tampnet's Offshore 5G Network streamlines and enhances offshore operations.

Desired outcome

Complete on-site connectivity providing secure access to all modern operational IoT sensors, crew welfare and safety systems, and environmental monitoring.

IMPLEMENTAION SUCCESS:
MISSION CRITICAL COMMUNICATION

Fine-tuned radio design ensures that the On-Asset antenna and Leaky Feeder radios continue to operate until APS+t (Abandon Platform Shutdown + timer). All PMEC* equipment is powered by the Telecom UPS, providing 6-hour backup. Solution remains operational even if communication with land is lost or after APS, ensuring 5G can be used for safety-critical communication.

MCX

- Utilize low band radios for area coverage/mission-critical communication.
- Mid-band/High-band for higher capacity.

5G COVERAGE TEST

- Confirmed 100% coverage on Edvard Grieg, ensuring critical communication is available everywhere.
- Sea coverage studies show the system can be used by MOB boats and supply vessels.

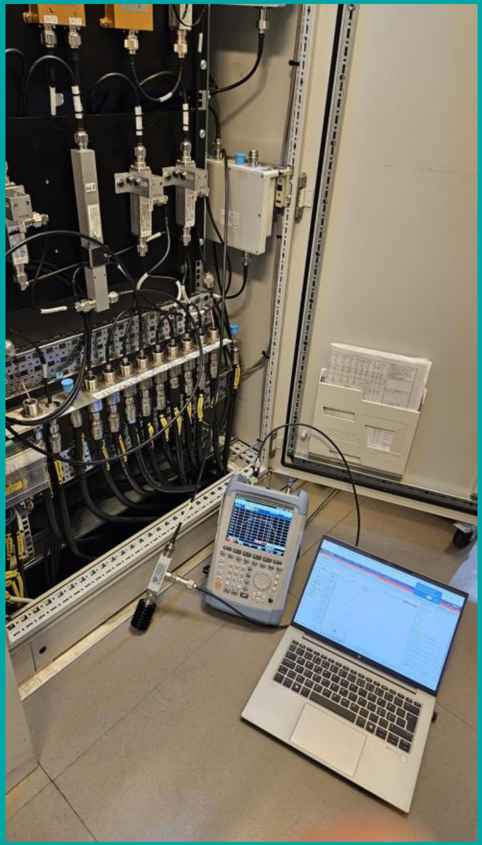
PMEC

- MCX (Mission Critical Push to Talk) tested as running service on PMEC solution.

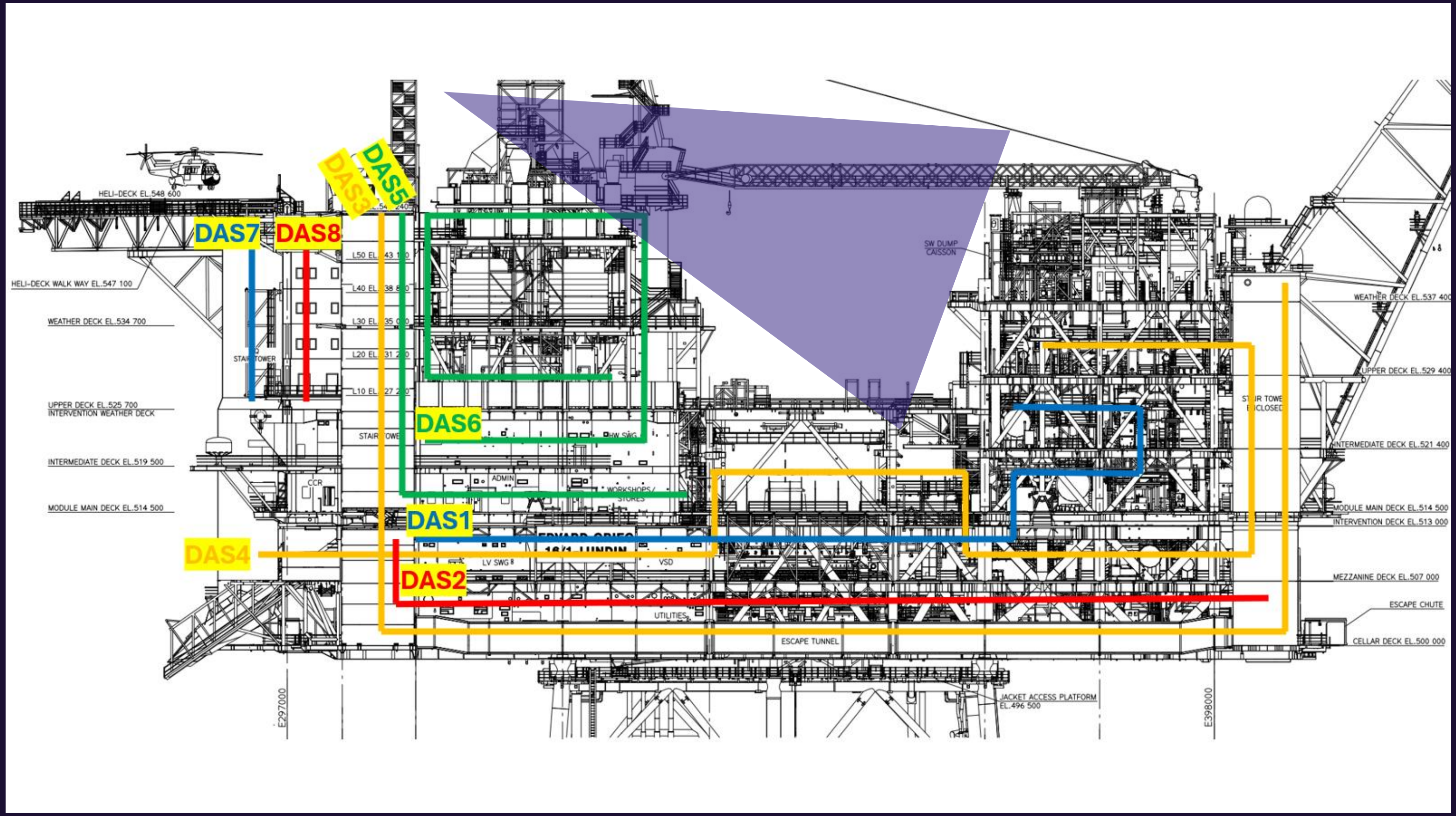
The Road Ahead

- Finalize IT/OT design
- MCX Use case development
- Testing of new functionalities and applications: WiFi replacements, drones, robotics, sensors etc.

*PMEC = Private Mission Edge Compute



Coverage and Mission Critical design is key



Mission Critical Infrastructure:
A+B 48v DC, Telecom UPS, APS+t

- Low Band RRU connected to Leaky Feeder runs
- Low Band RRU connected to On-asset antenna
- PMEC, BBU + misc.

Additional Infrastructure:
A+B 230v AC, No UPS, ESD-2

- 2x Low Band RRUs connected to Maritime antennas
- 2x Mid Band RRUs connected to Maritime antennas
- MassiveMIMO antenna for onboard coverage

FPSO Private 5G Network coverage example

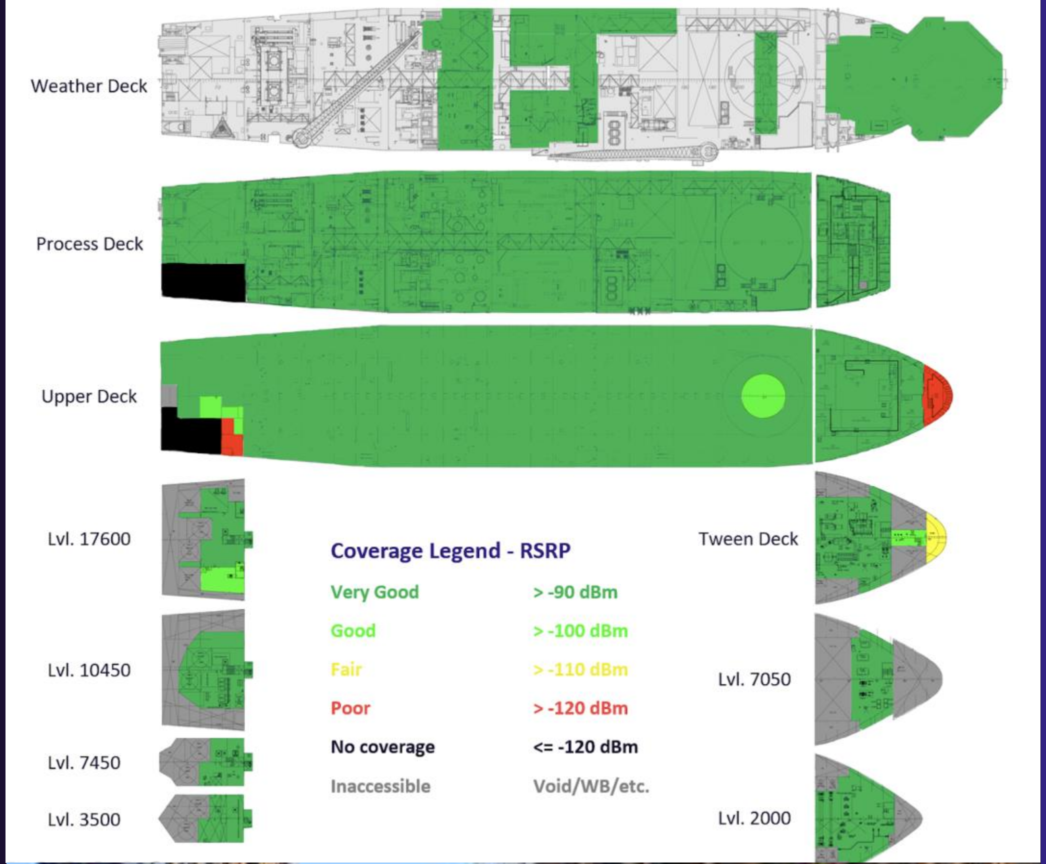
Jotun FPSO Coverage map

The coverage map reflets the combined coverage of:

- Low-band On-Asset antenna mounted in the antenna mast
- Low-and-Mid-band leaky feeder distributions outdoor
- Distributed Antenna System in Fore and Aft
- UHF-integration indoors on Process- and Upper deck

Note:

- L1 level 1-5 was out of scope for this project
- Certain rooms in the Starboard Aft were intentionally planned without coverage to minimize the initial installation scope
- The Distributed Antenna System in the Aft section has been designed to allow for future expansion into these areas as needed



Noble Stanley Lafosse

Challenge: Private LTE with the best possible indoor coverage for Stanley Lafosse drilling ship, without interfering with existing UHF analogue mission-critical system

Solution: Design and solution from scratch, with deployment of 3 outdoor antennas and 13 new omni indoor antennas

Result: 93% PLTE coverage, surpassing client expectations

The first Noble installation of a total of 19, featuring new Nokia RAN and PMEC HPE, sets a new standard for future Noble projects opening the door for MCX and other advanced indoor solutions

- Internal hardware splitting
- Dual A+B power supply for geo-redundancy
- A significantly reduced physical footprint

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Private 5G enables value-adding use cases

Aerial drone inspection for e.g. falling objects

Unmanned, remote inspections, intended for predicitive maintenance

Mission-Critical communications to radically improve safety concerning crane lifts

Aker BP will utilize Edvard Grieg's private 5G network to verify digital use cases