



The Future of Maritime Networks:

Exploiting *Software
Defined Networks* to
gain information
advantage



“

If I had asked people what they wanted, they would have said faster horses

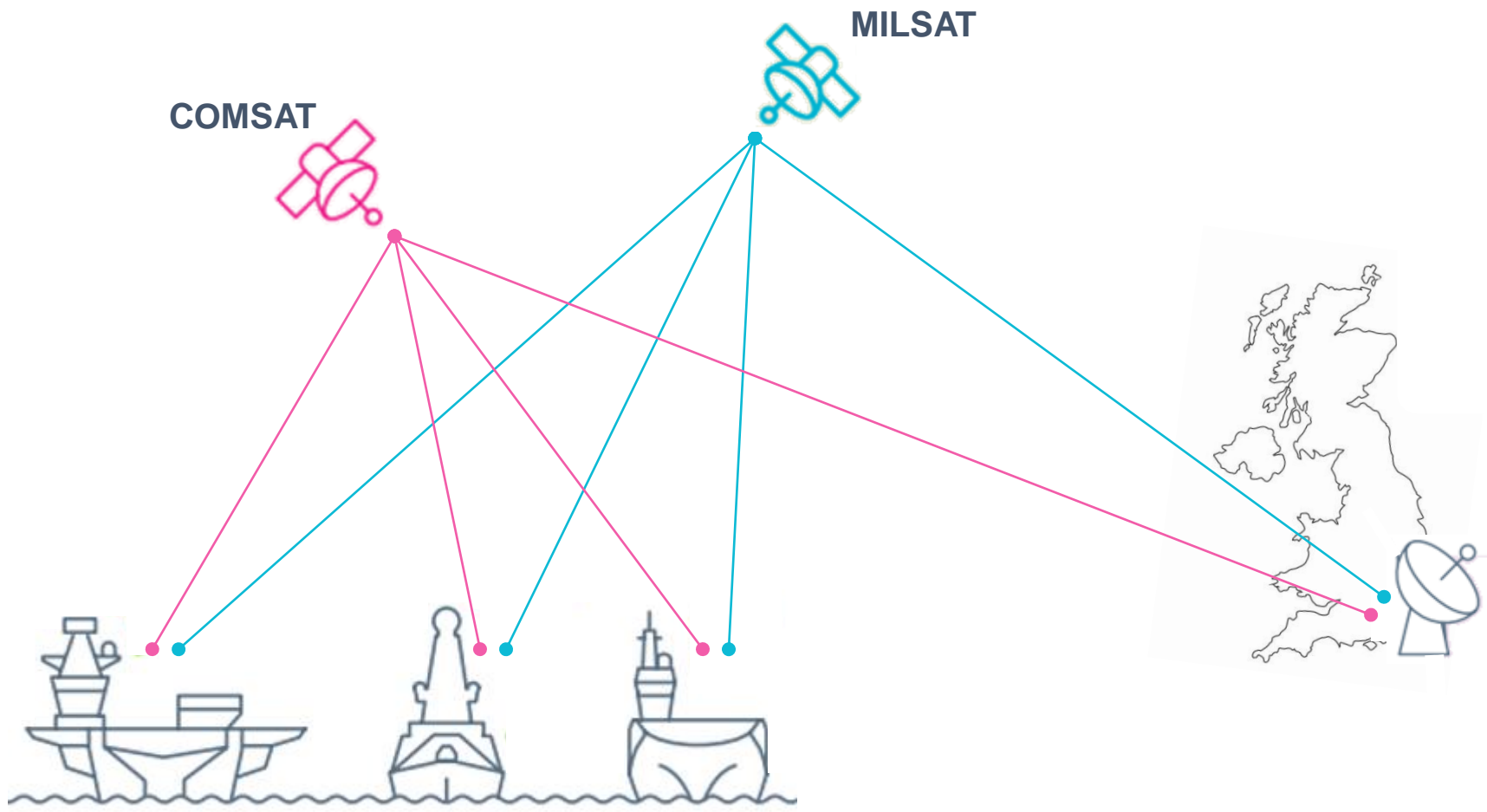
”

- Henry Ford



Nick Fuller FRAeS

*Airbus Defence and Space
Connected Intelligence*



AIR
AIR CC
MOB

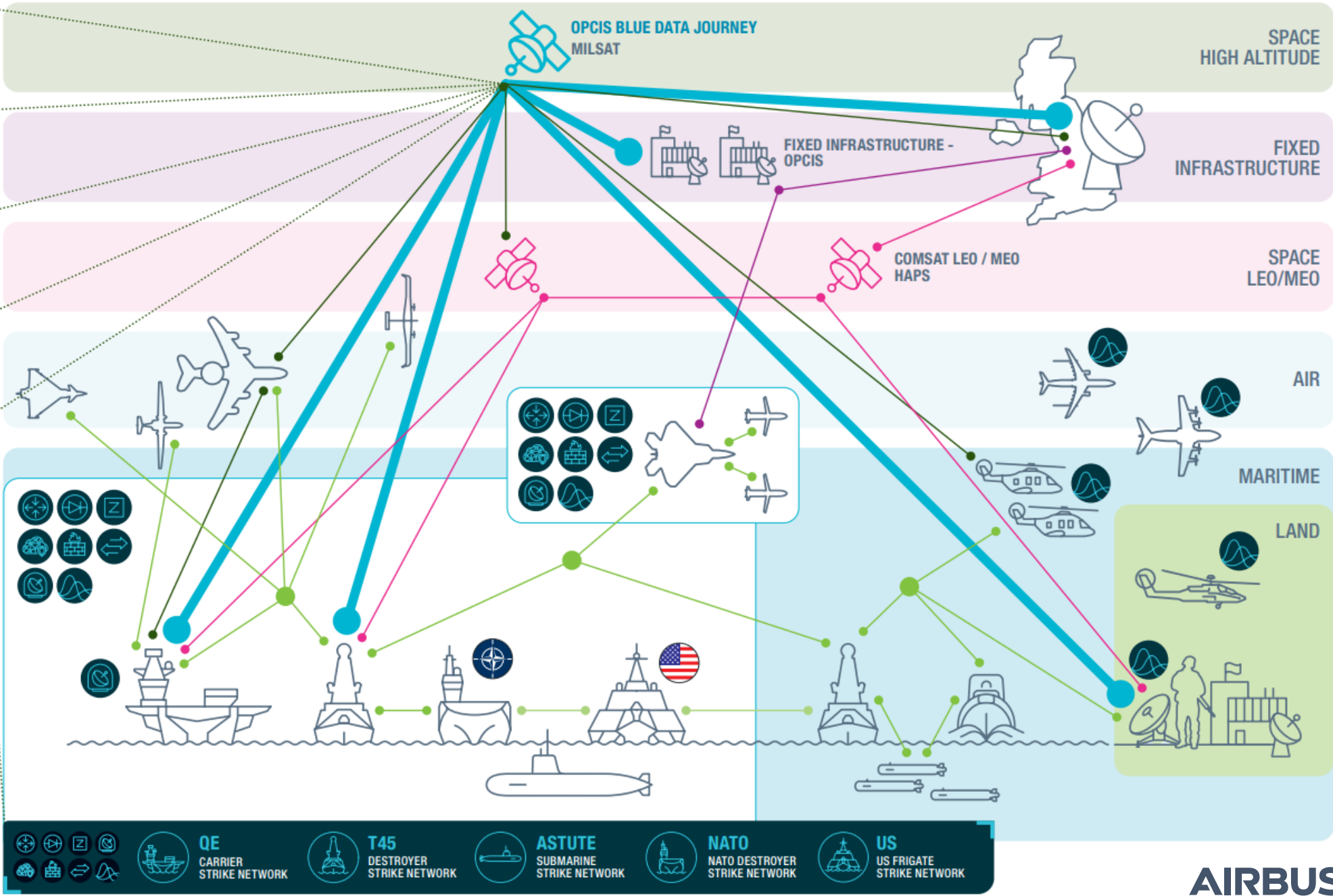
LAND
LAND CC DEPLOYED
Div, Bde, BG,
TACTICAL

MARITIME
DEPLOYED
RN CC RM CC

CYBER
NOC / SOC
FIXED

SPACE
SPACE COMMAND
FIXED

- ROUTER
- CLOUD NETWORK
- SCOT PATROL
- CRYPTO
- DIODE
- FIREWALL
- PROTEUS
- SWITCH





Increase in nodes

Increase in bearers

Increased volume of data

Increased complexity

AIR
AIR CC
MOB

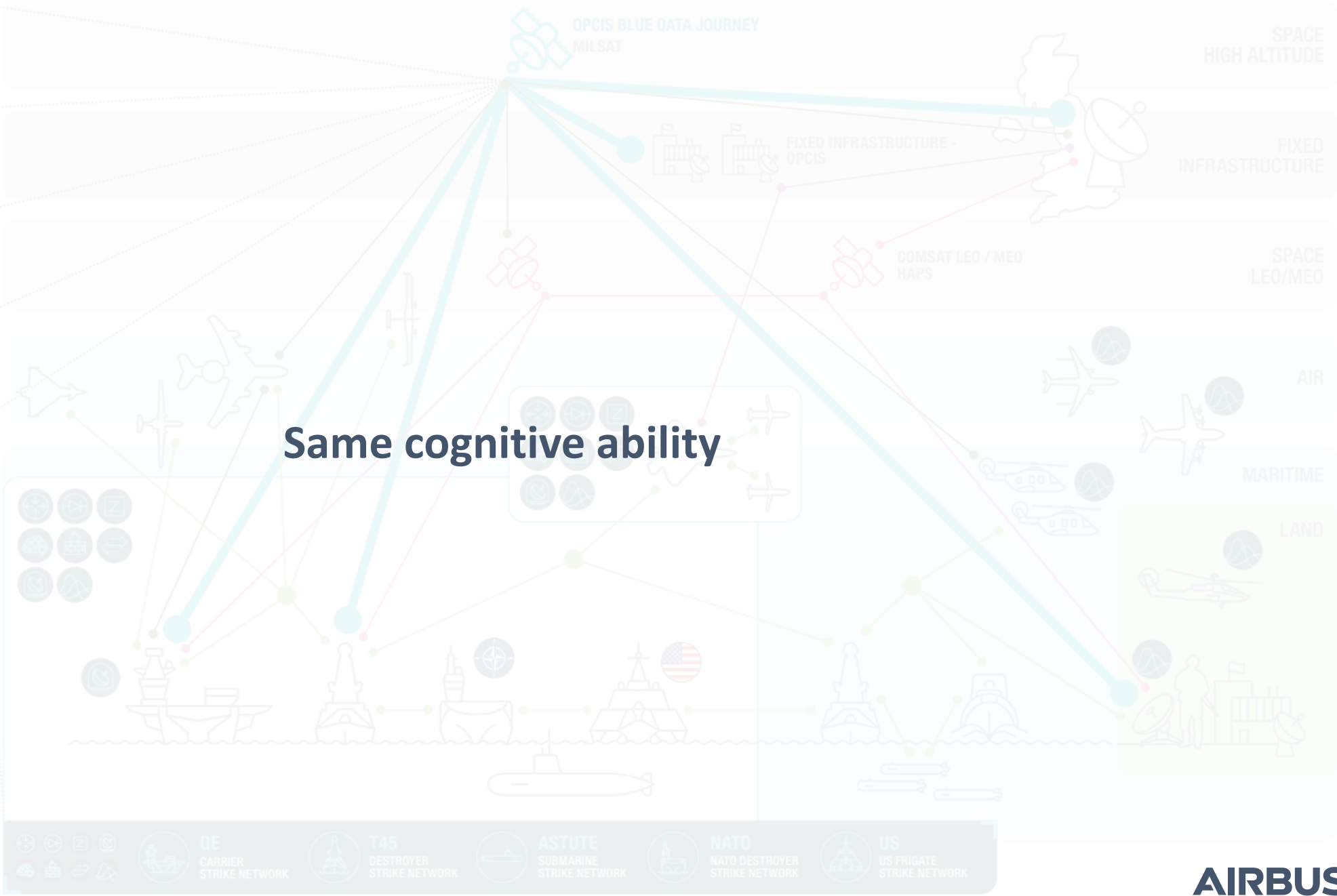
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The background is a dark, blue-toned composite image. On the left, a large satellite dish is visible, partially obscured by a network diagram of nodes and lines. On the right, a large ship, possibly a research vessel or a naval ship, is shown in profile. The overall scene is dimly lit, with a bright light source creating a glow behind the ship and the text.

**What is a software defined network
anyway?**

Management Plane

Control Plane

Data Plane



Node 1



Node 2



Node 3

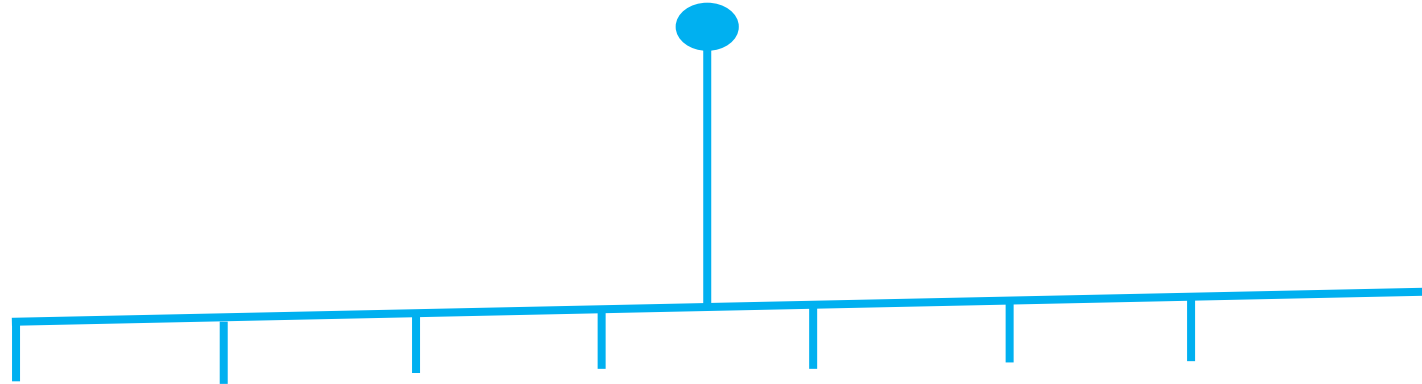
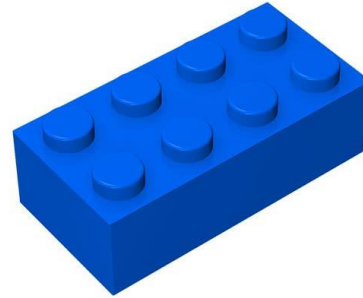




Application Layer

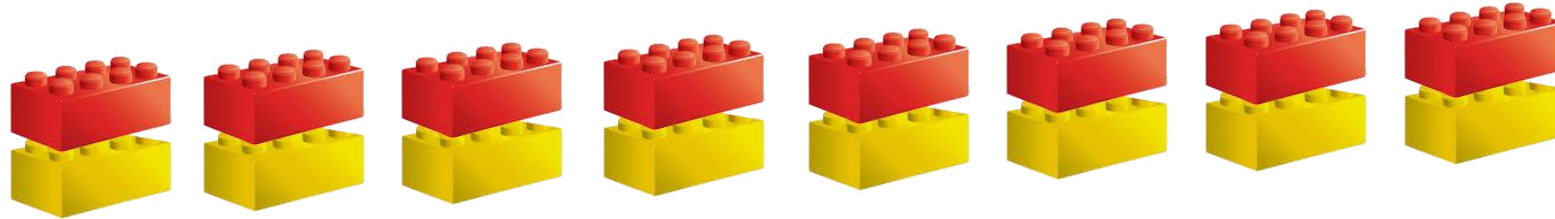


Control Plane



Management Plane

Data Plane



Elasticity

Dynamic Switching

**Optimised
routing**

Scalable

Multi-bearer satellite
architectures

Orchestration

Agility

*Resilience through
diversity*

Bearer of
Opportunity

Commercial
Sovereign
4G/5G

Adaptable

Real-time

Elasticity

Dynamic Switching

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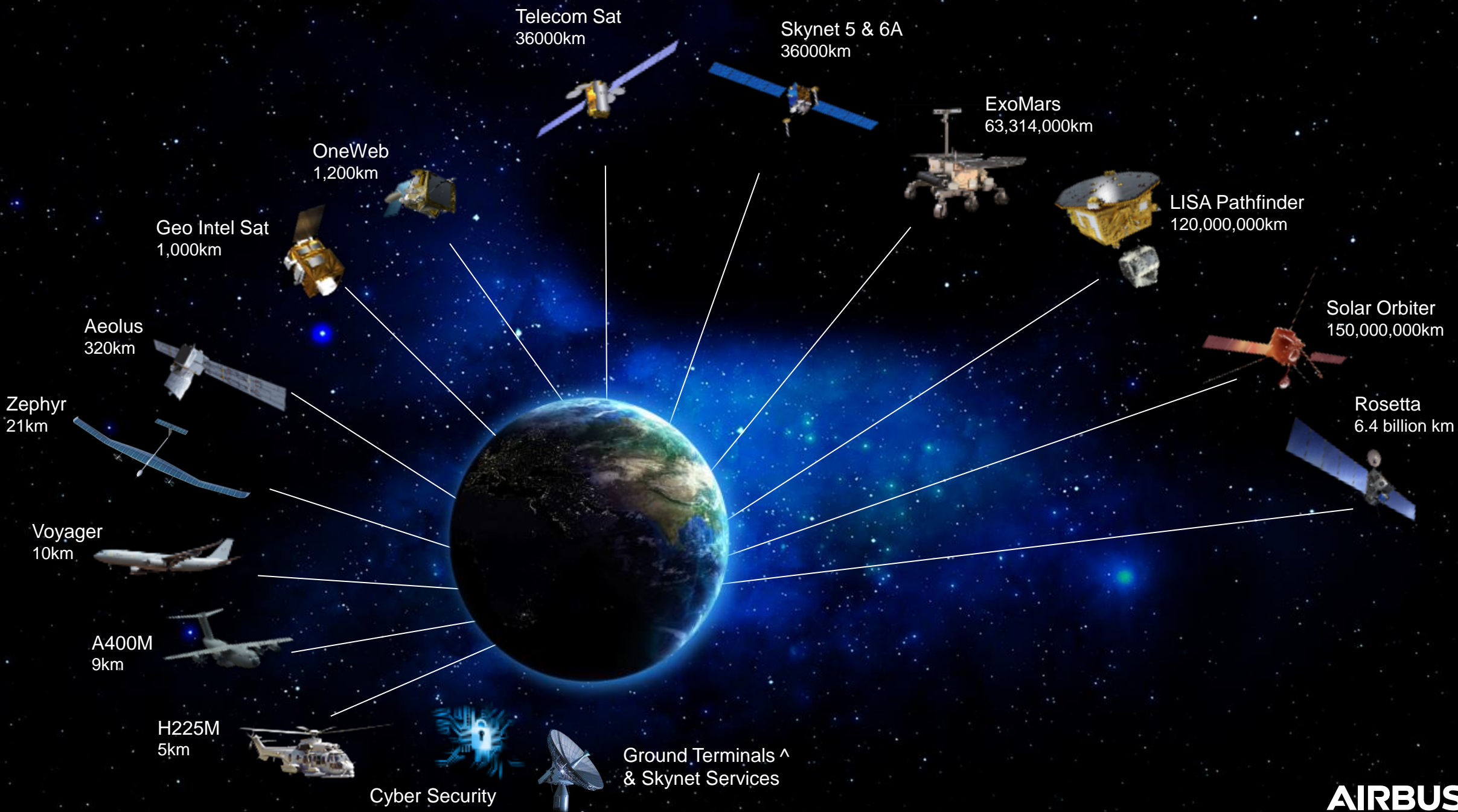
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4G/5G

Adaptable

Real-time





Maritime SatCom Terminals



Satcom Networking



Proteus Modem



Maritime Satcom Terminals

- Fully **hardened**
- WGS and Skynet **certified**
- High RF power
- **Light weight**
- X/Ka system updated

AIRBUS

Satcom Networking

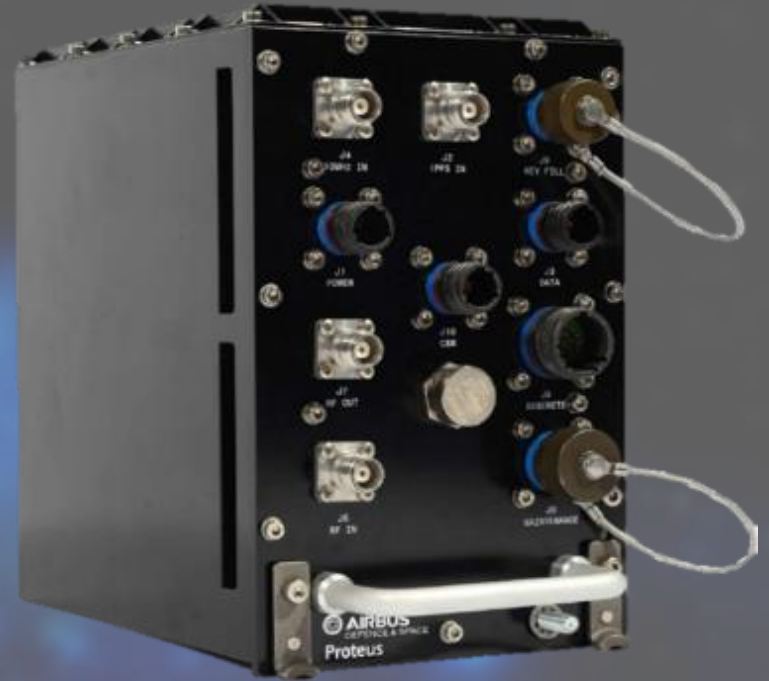
- MNE, RIFAN, SD-WAN
- **Agile**, multi security domain
- **Adaptive** to EM environment
- **Integrated** with LEO Satcom



Modems

Proteus Modem

- **Secure by design** (Freq hop, TRANSEC, NETSEC)
- **Resilient** to interference
- **Adaptive** wave form
- **Through-rotor** transmission



Key Points

- We are **bandwidth poor!**
- More **complexity** means we need to **automate where possible.**
- Airbus are **developing SD-WAN**, next gen terminals and modems to **meet digital needs of today and tomorrow.**
- We **cannot** do this in isolation.

Questions



Booth #E24

Maritime Connectivity Whitepaper

