



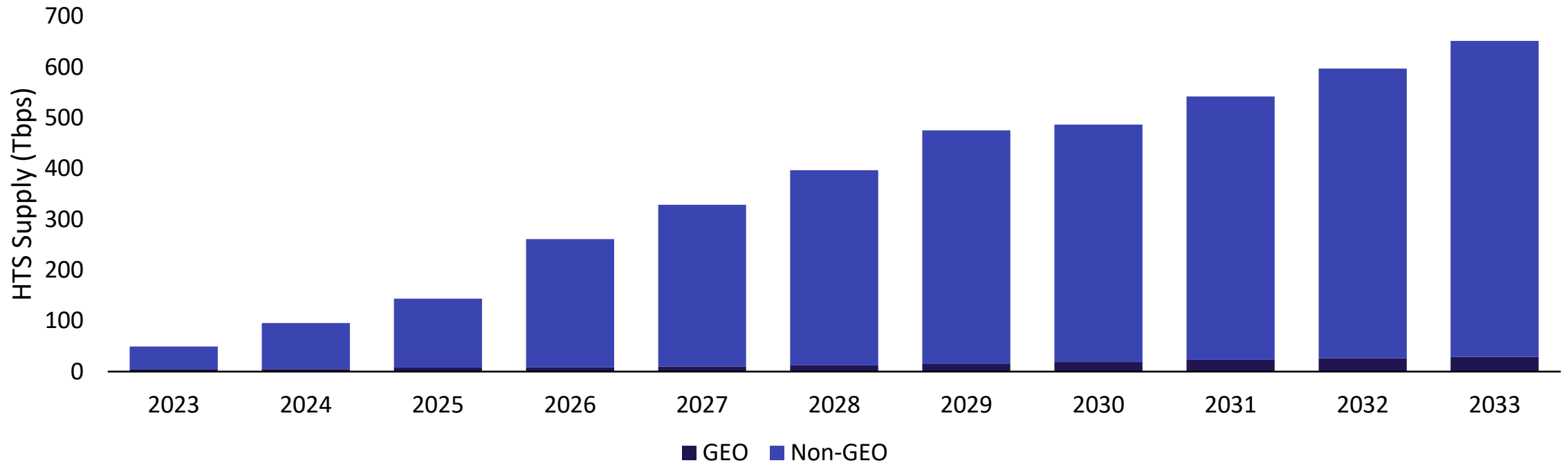
Scaling Satcom: 5G, Network Orchestration, Virtualization and AI



Luke Wyles

13th February 2025

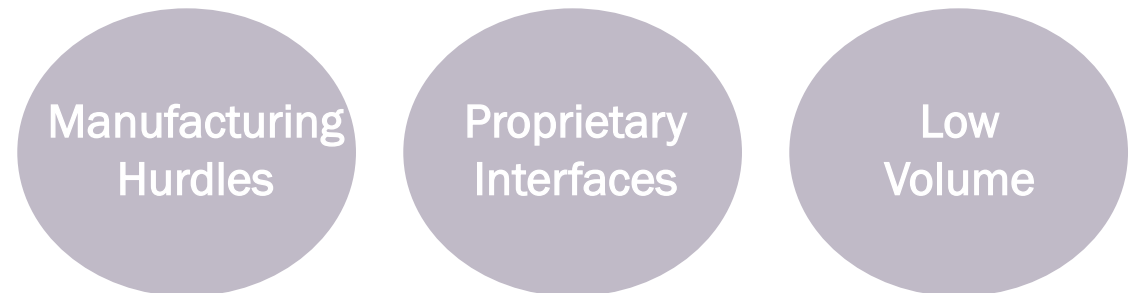
Verticalized megaconstellations bring disruptive scale to satcom



Starlink / Kuiper Advantages



Challenges for Incumbents



5G NTN offers satcom incumbents several routes towards competitive scale

Innovation

Collaborative development of a shared standard instead of siloed technology, to keep up with pace of innovation



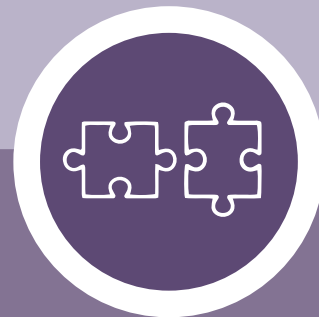
Mass Production

Adoption of COTS chipsets makes terminals more affordable, power-efficient, and quicker to market



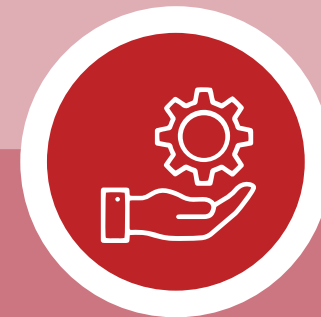
Interoperability

Removing vendor lock-in with generic 5G terminals and gateways. Will support multi-layer networks spanning several operators



Services

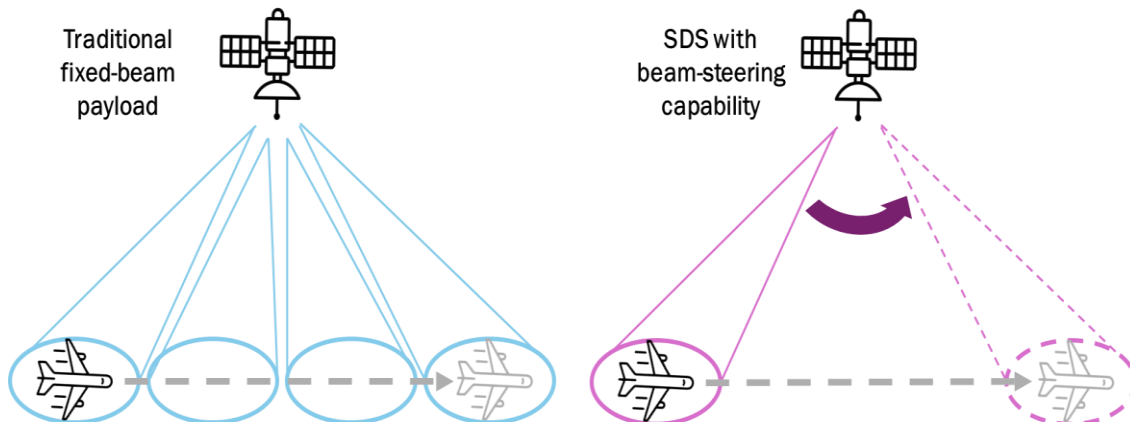
Standards allow satcom to adopt 5G Core features for service management, and orchestration software developed for telcos



End-to-end orchestration of software-enabled networks will unlock resource and service advantages

Resources

- Maximise advanced space segment (SDS, ISL mesh, VHTS) with flexible ground equipment
- Re-allocate RF resources within seconds to serve anticipated user demands
- Biggest efficiency gain for mobility
- L1-3 access for full capability (e.g. O-RAN)
- Depends on open interfaces



Services

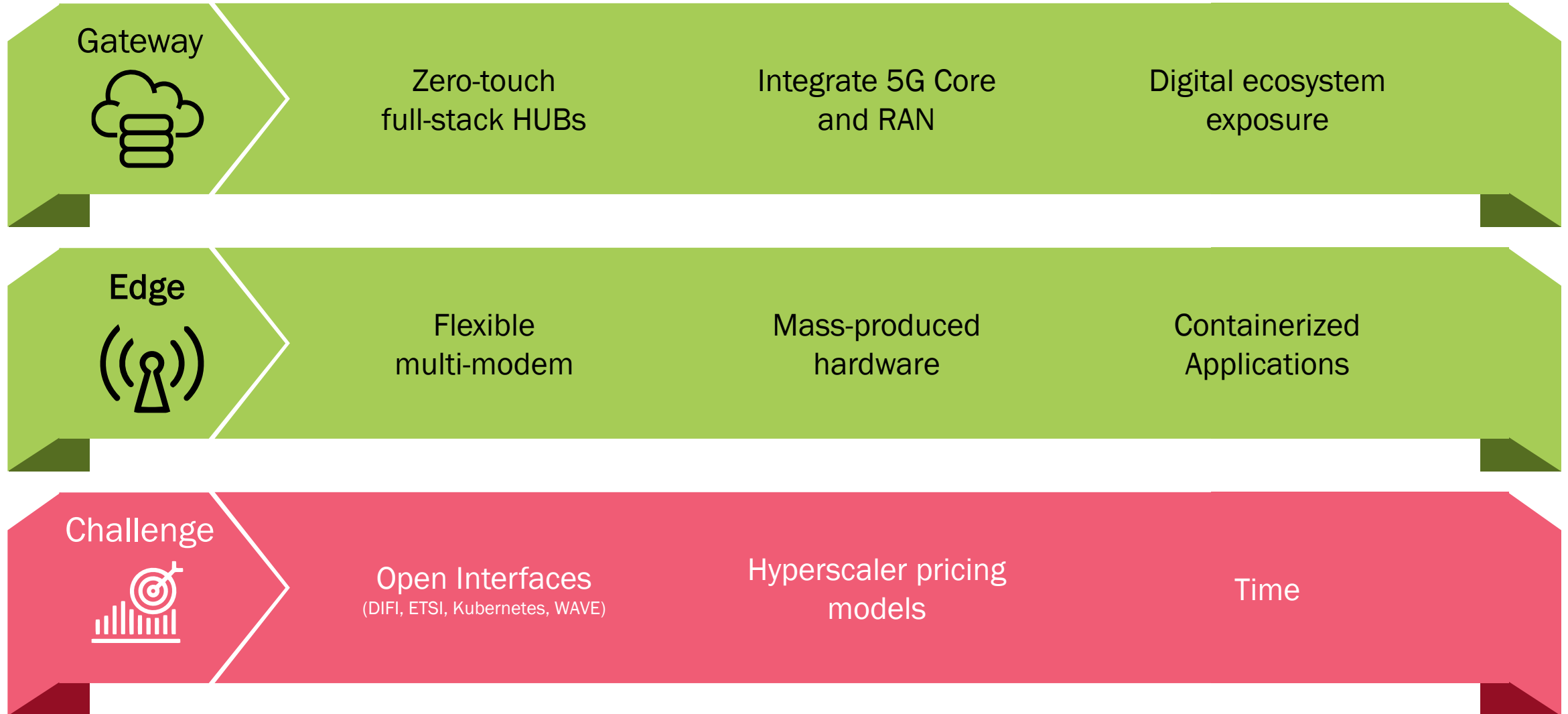
- Integrate OSS/BSS with network orchestration
 - Resource controller made aware of SLA commitments
 - Violations anticipated and resolved
 - Infrastructure-conscious CPI
- Automated service provision
- Coordinate remote updates and edge applications
- Depends on open interfaces

Rapid
Onboarding

SLA-
Assurance

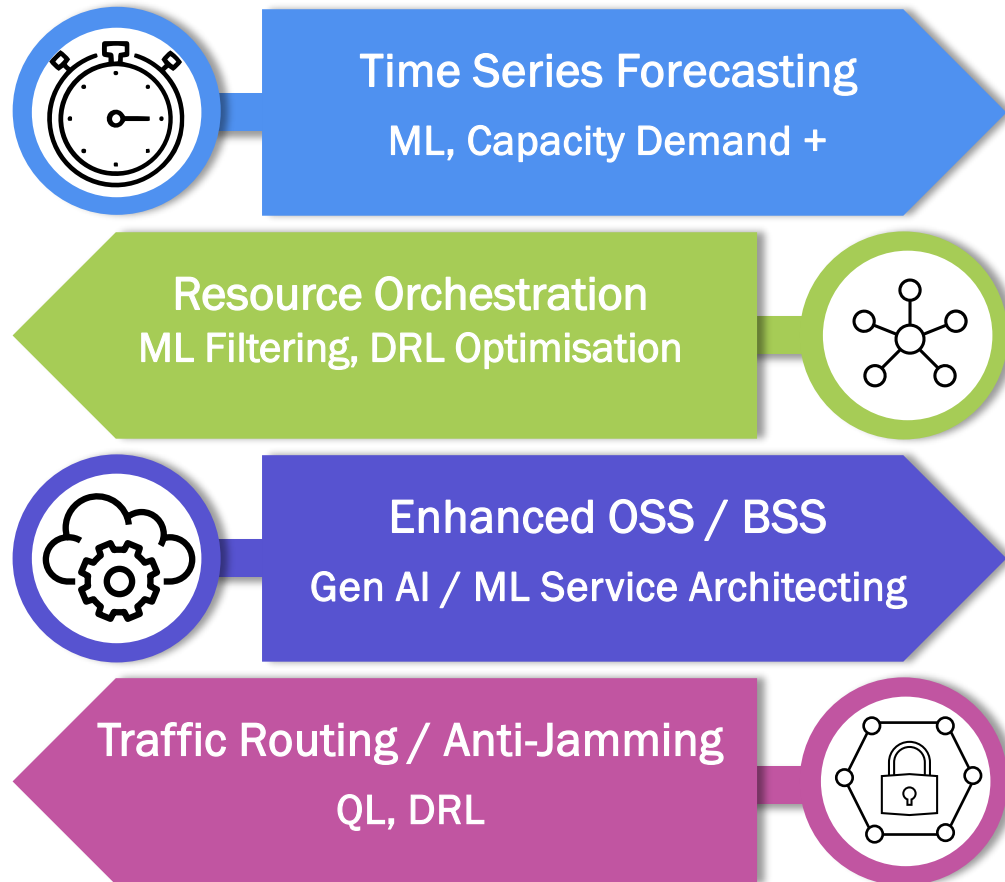
Capacity
ROI

Virtualisation will make satcom networks scalable, adaptable and resilient



AI tools will become a key performance attribute in the 2030s

Early Applications



Timeline

