

Viasat perspectives on O-RAN for NTN operations

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Viasat global satellite fleet

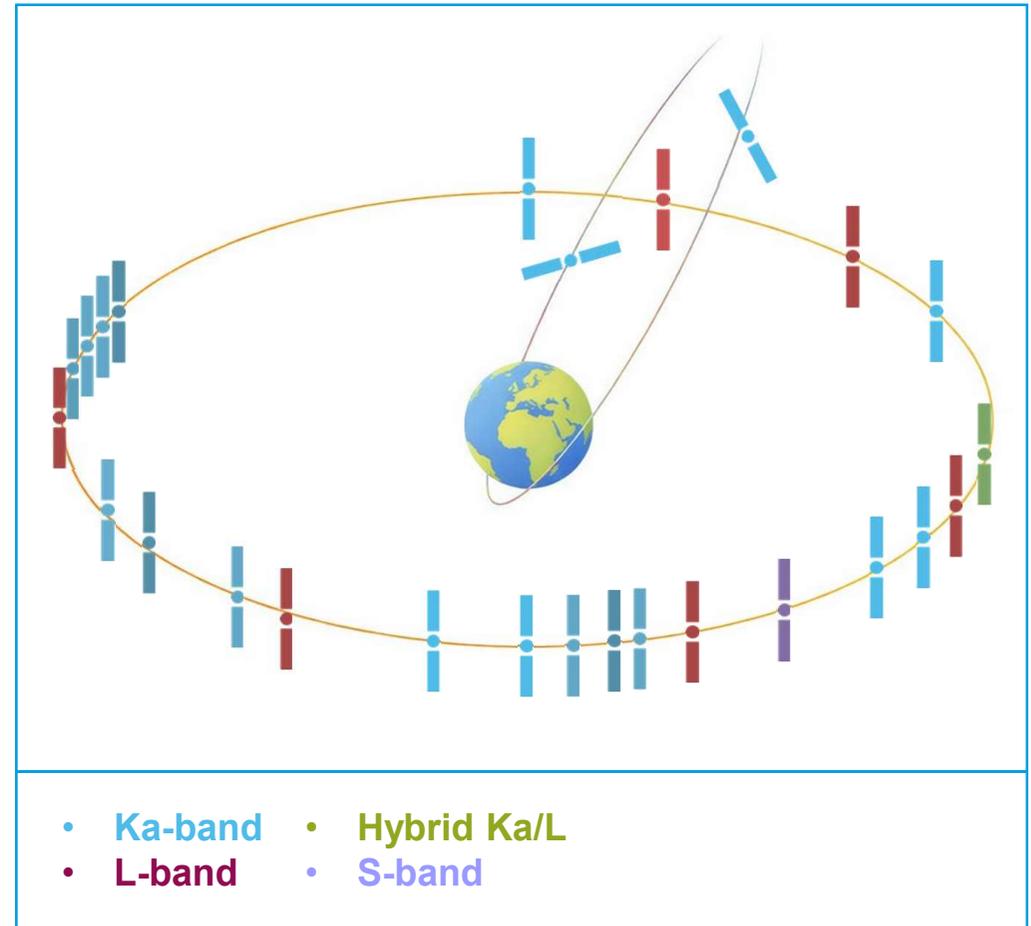
Today

Global fleet of 19 satellites

- > 11 Ka-band satellites
- > 5 L-band satellites
- > 1 Hybrid L- / Ka-band satellite
- > 1 S-band satellite
- > 2 HEO satellites

Tomorrow's multi-orbit strategy

- > + 2 GEO satellites expected to launch in coming years (Viasat-3 high throughput systems)
- > **LEO 5G NR-NTN** – Operating NTN services through multi-orbits and shared network NTN infrastructures



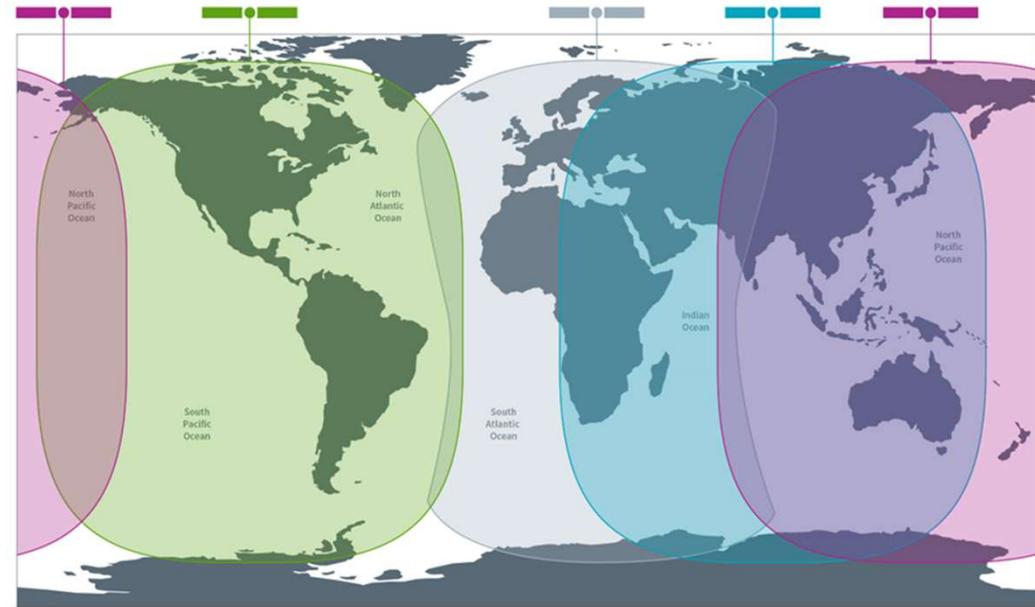
Viasat NTN strategy and O-RAN relevance

Viasat NTN focus

- > **Legacy assets:** 40 MHz of global L-Band spectrum rights + MSS GEOs lasting until 2040
- > **Service evolution:** Leveraging 5G NTN standards for handheld mass market, IoT, automotive and next-gen MSS services
- > **Multi-orbit NTN operations:** Global NB-IOT network available today + 5G NR LEO constellation launching in coming years
- > **MSSA, GSMA, 5GAA, GCF:** Driving NTN deployability and ecosystem efforts to accelerate system readiness

O-RAN relevance for Viasat plans

- > Historically vertically integrated satellite systems limit flexibility
- > Viasat is exploring O-RAN based approaches for future **LEO NTN system**
 - > **Service-driven & coordinated NTN operations**
 - > **Agile and scalable RAN sharing framework.**
 - > **Policy based convergence across domains and systems**

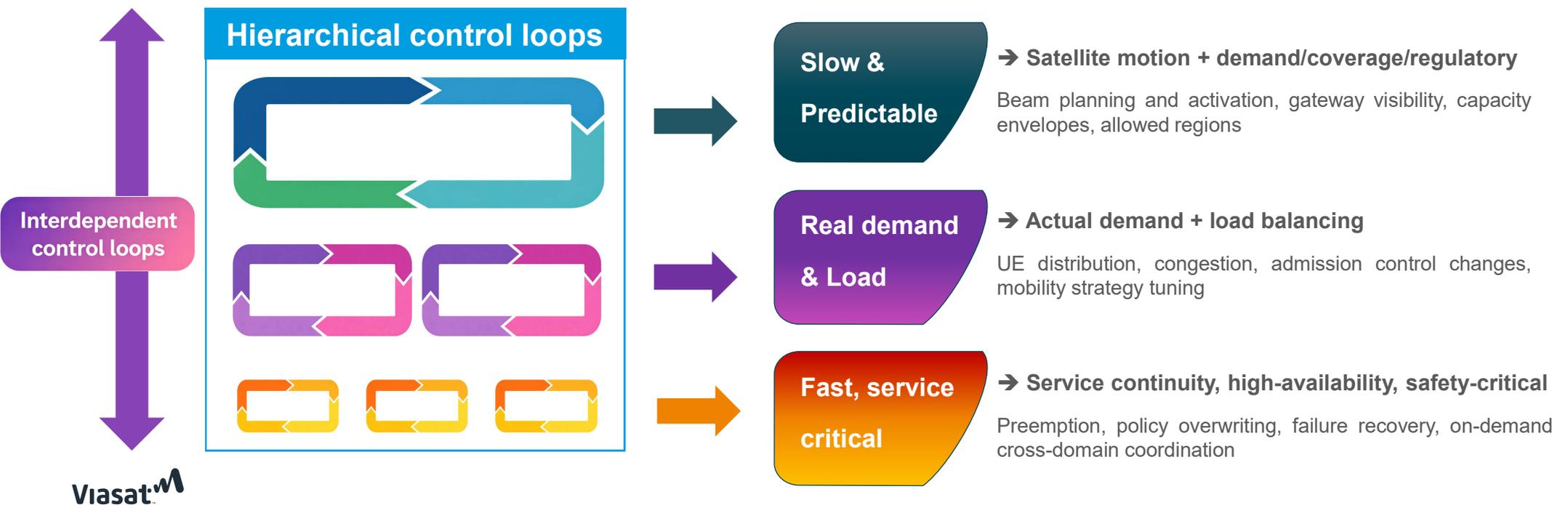


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NTN service intents vs operational reality [1/2]

NTN operational realities & resource coordination needs

- > **Time and location variant topology** (satellite motion-driven)
- > **Predictable, infrastructure-driven mobility events**
- > **Geography and regulation constrained availability** (Coverage, capacity allocation, routing, etc.)
- > **Tightly coupled radio, transport and payload resources**



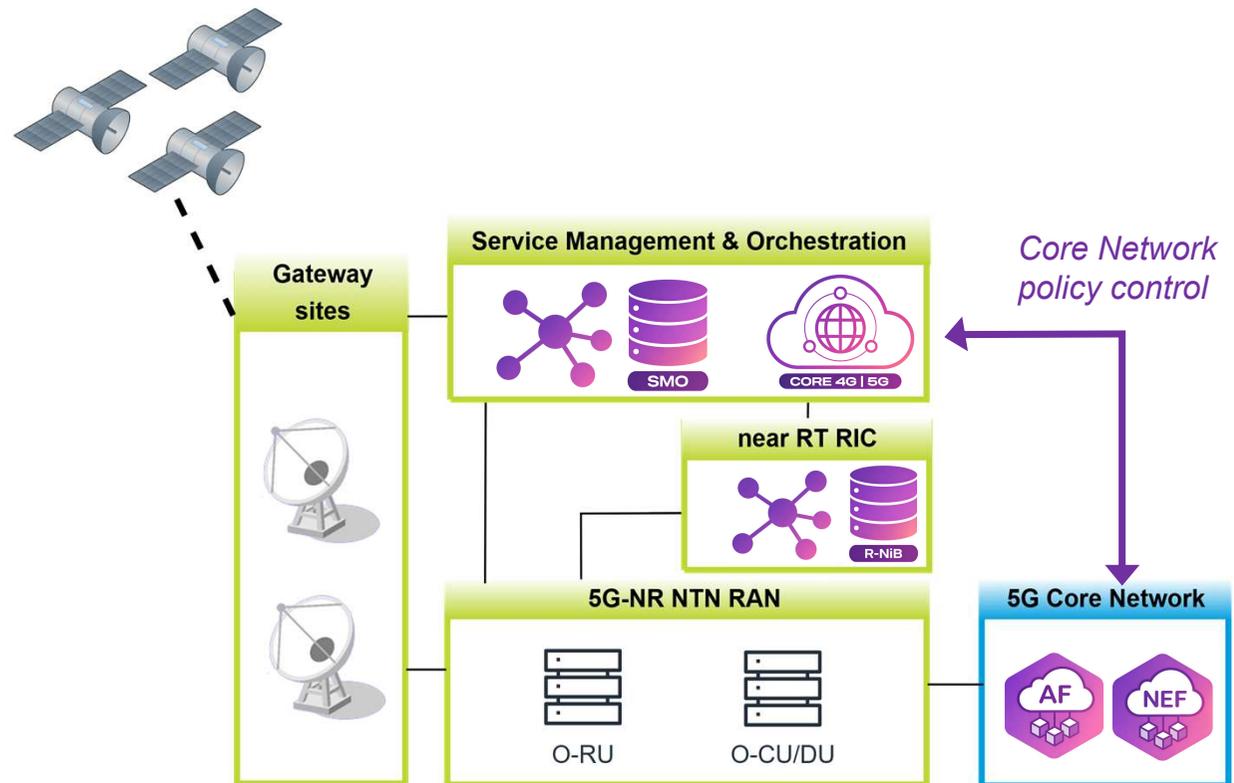
NTN service intents & operational reality [2/2]

Cross-domain control loops in NTN

- > **NTN control loops are hierarchical and interdependent** – slower deterministic plans directly constrain reactive decision taking
- > **End-to-end coordination is required vertically & horizontally** – across loops/timescale and domains

End-to-end coordination across domains

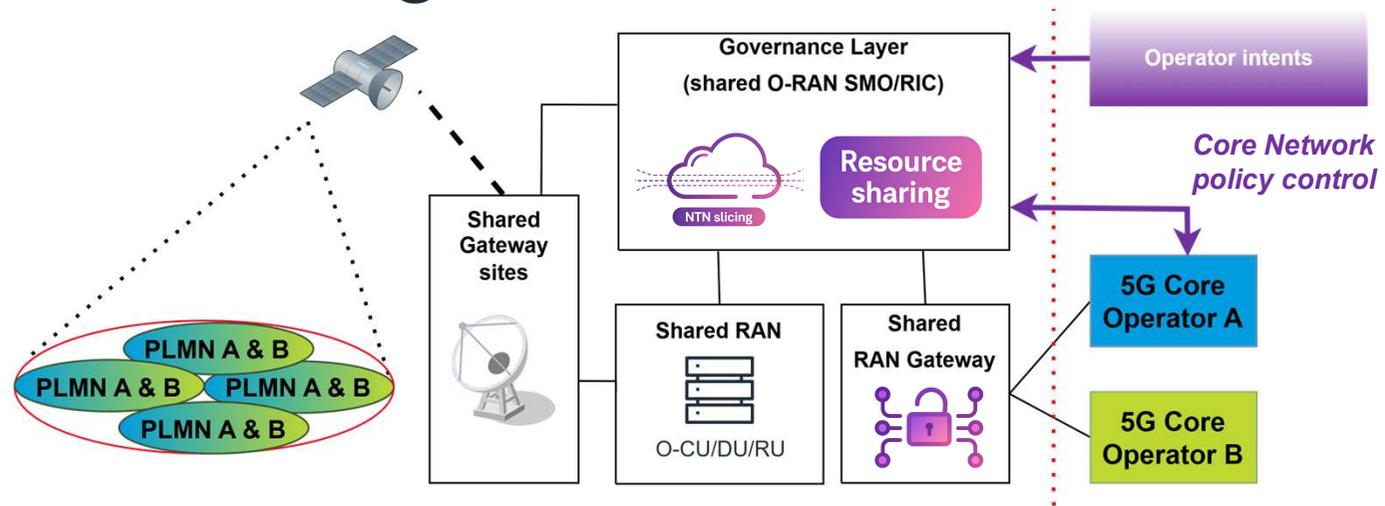
- > **Critical resources extend beyond the 3GPP RAN elements** (satellite payload, ISL, gateways, etc.)
- > **Topology models and states must include non-3GPP satellite elements**
At service and near real-time level
- > **Satellite intelligence split between ground and space** – decision taking requires coordination
- > **Core Network policy control** becomes operationally relevant



Viasat views on RAN sharing in MSS NTN

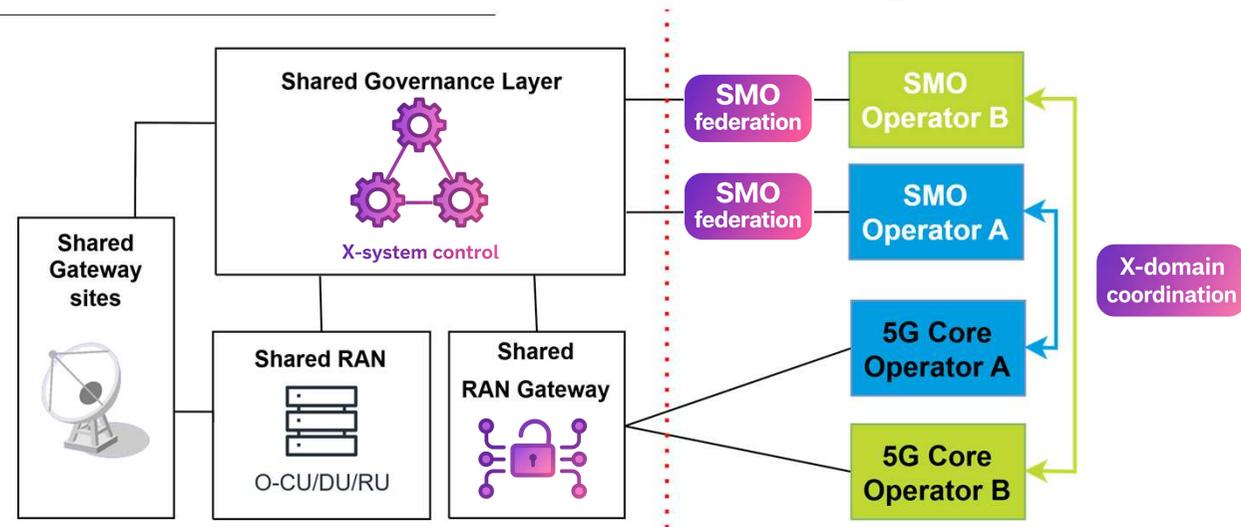
Today: A governance layer model

- > A single shared SMO/RIC governance layer
- > Shared RAN & RUs, shared satellites, gateway functions control
- > Service-aware sharing including **Network Slicing policies**
- > A lightweight SMO-Core integration



Tomorrow: A federated model

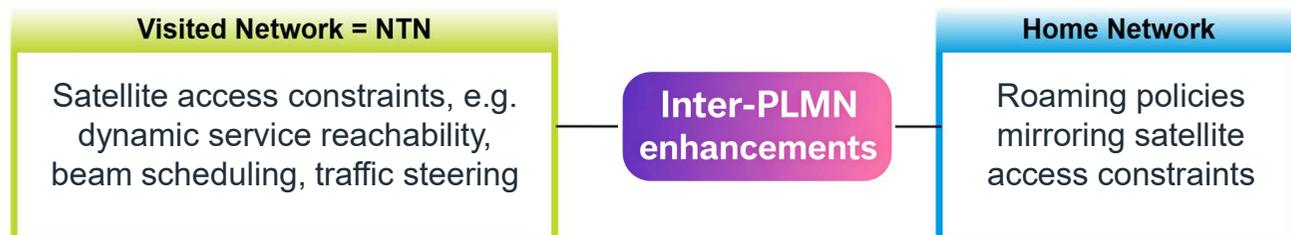
- > Operator-specific SMO/RICs instances federated with a neutral-host shared governance layer
- > Enabling more dynamic X-system operations and service intents propagation
- > X-domain interactions via federated APIs



Viasat, ORAN and TN-NTN convergence

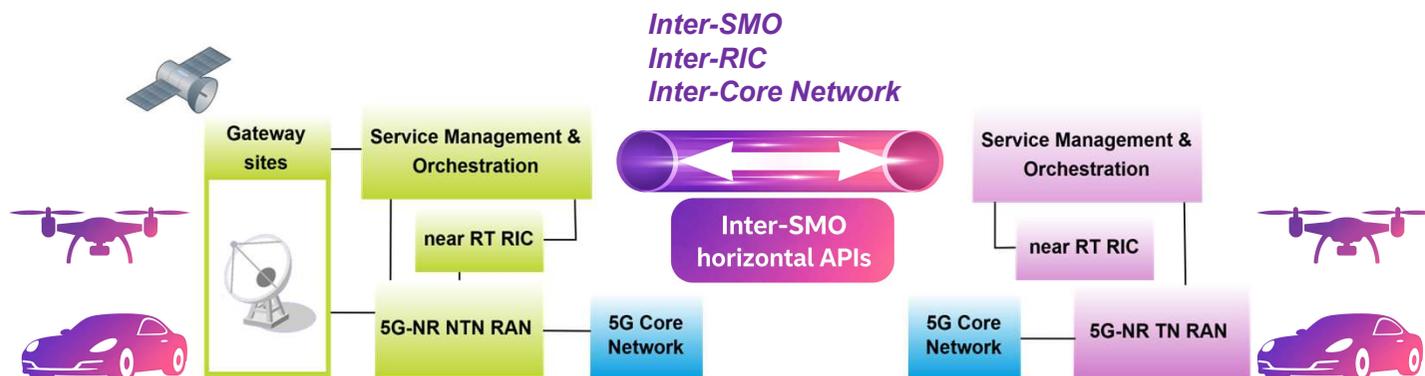
From roaming service intents...

- > **GSMA Work Item on NTN roaming**
- > Addressing **MNO's (TN) operational autonomy** when the VPLMN is NTN
- > Covering the notion of **HPLMN roaming services intents**



To resource-aware NTN-TN control

- > **Mission-critical, high-availability & large data volume-oriented services**
- > **Federation API inter-SMO**, e.g. MEF Interlude
- > **Cross-system resource coordination to transfer lower-loop resource control intents**



Questions & Discussion