



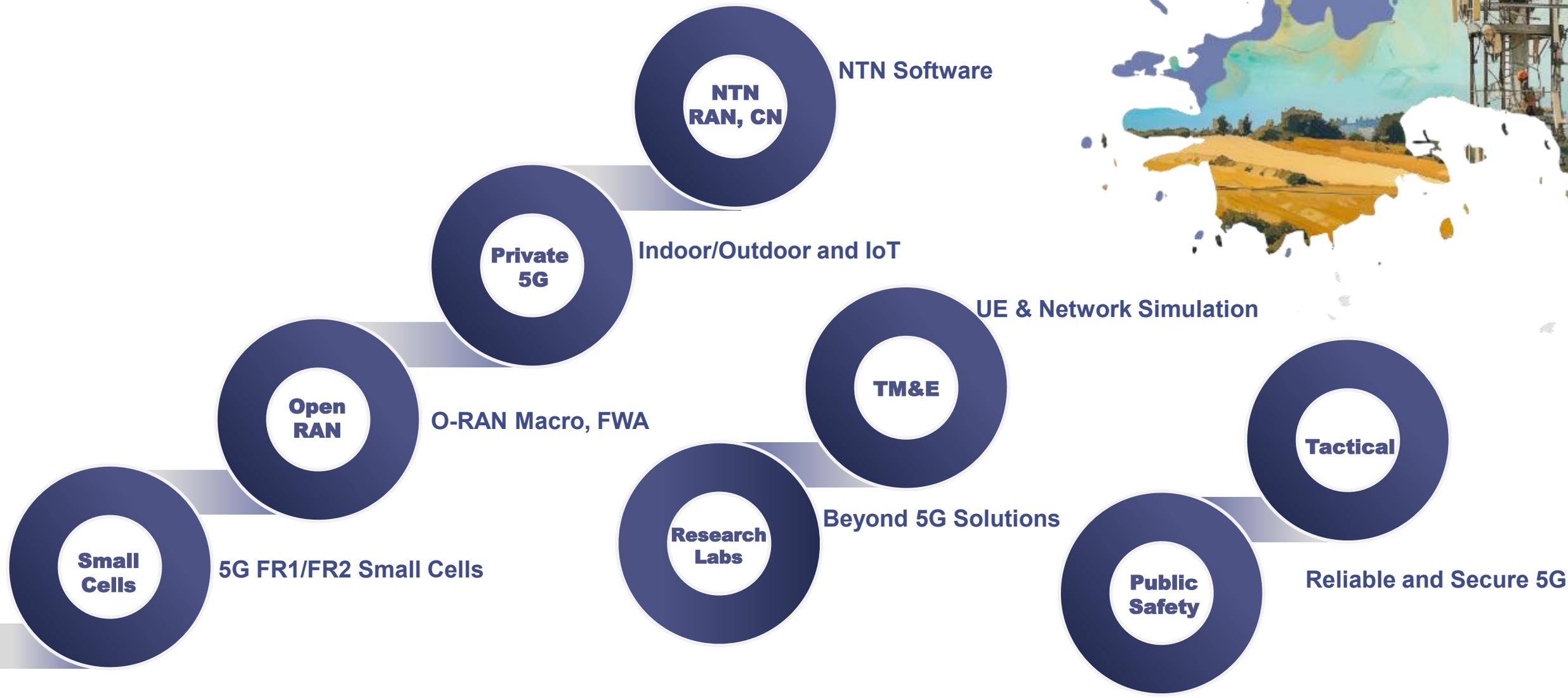
Delivering Futuristic NTN Solutions: **Leveraging standards and ecosystem partnerships**

Ben Ash

Senior Sales Director

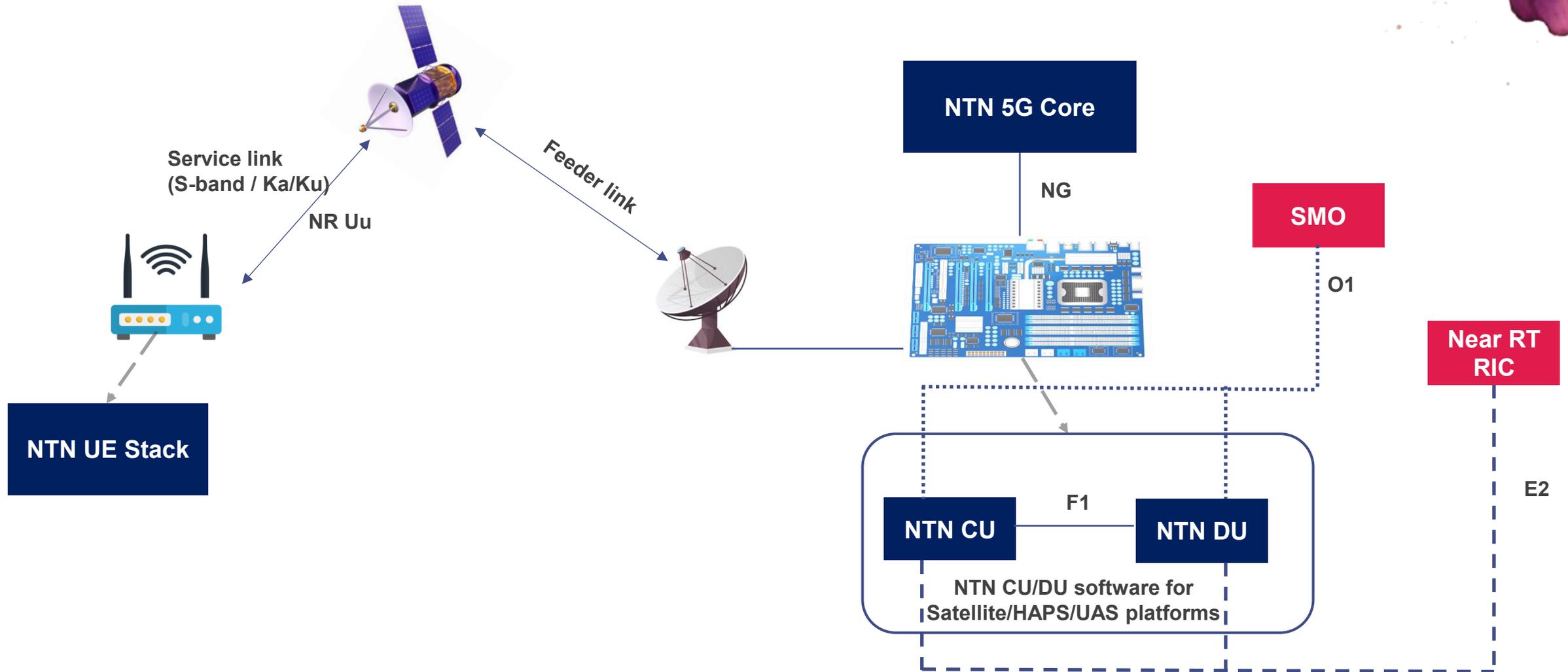
**Radisy**

Globally Trusted RAN Software for 5G and Beyond



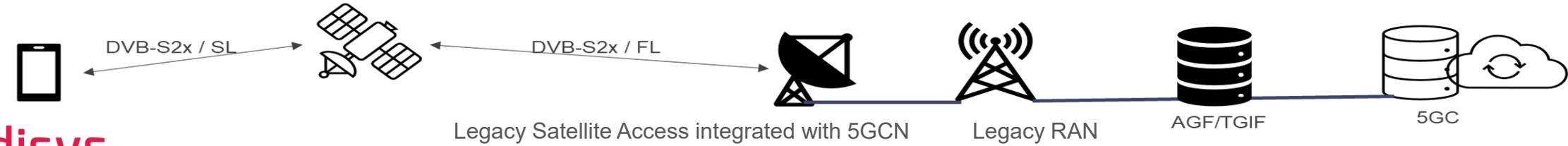
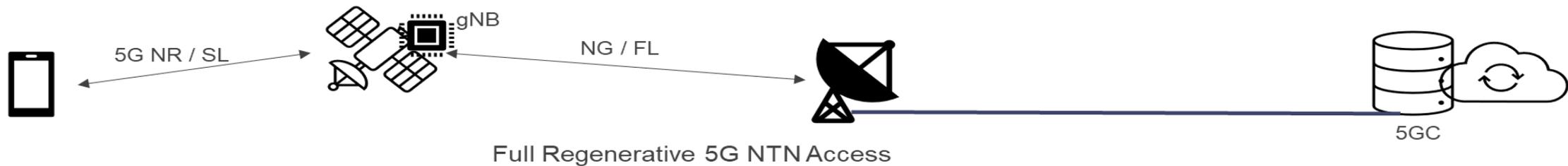
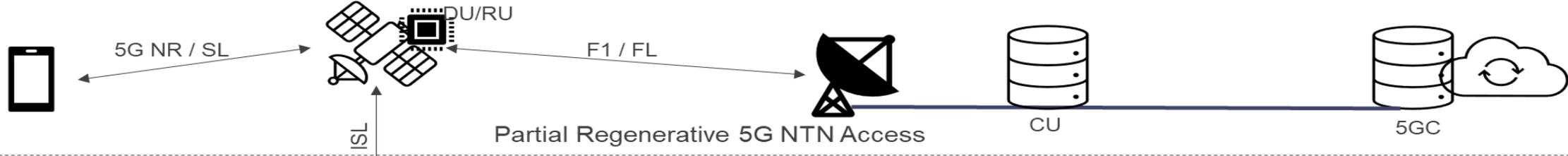
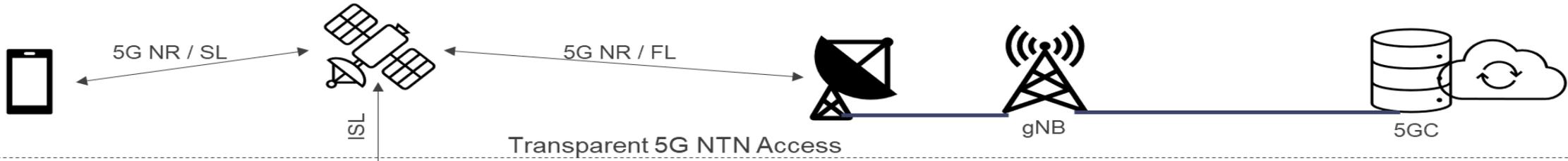
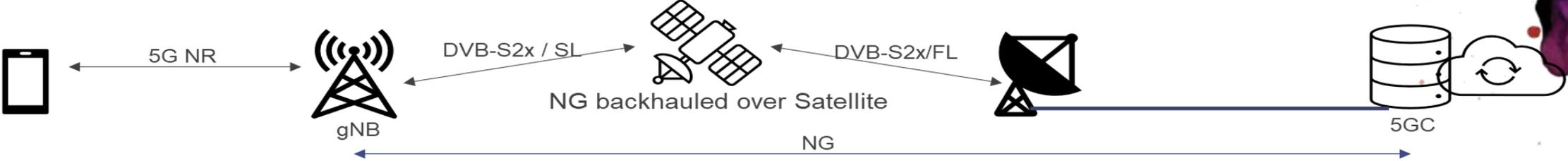
Powering 5G NTN LEO, MEO and GEO Solution Providers Globally

Radisys NTN RAN, UE Stack and 5GCN Software Solution

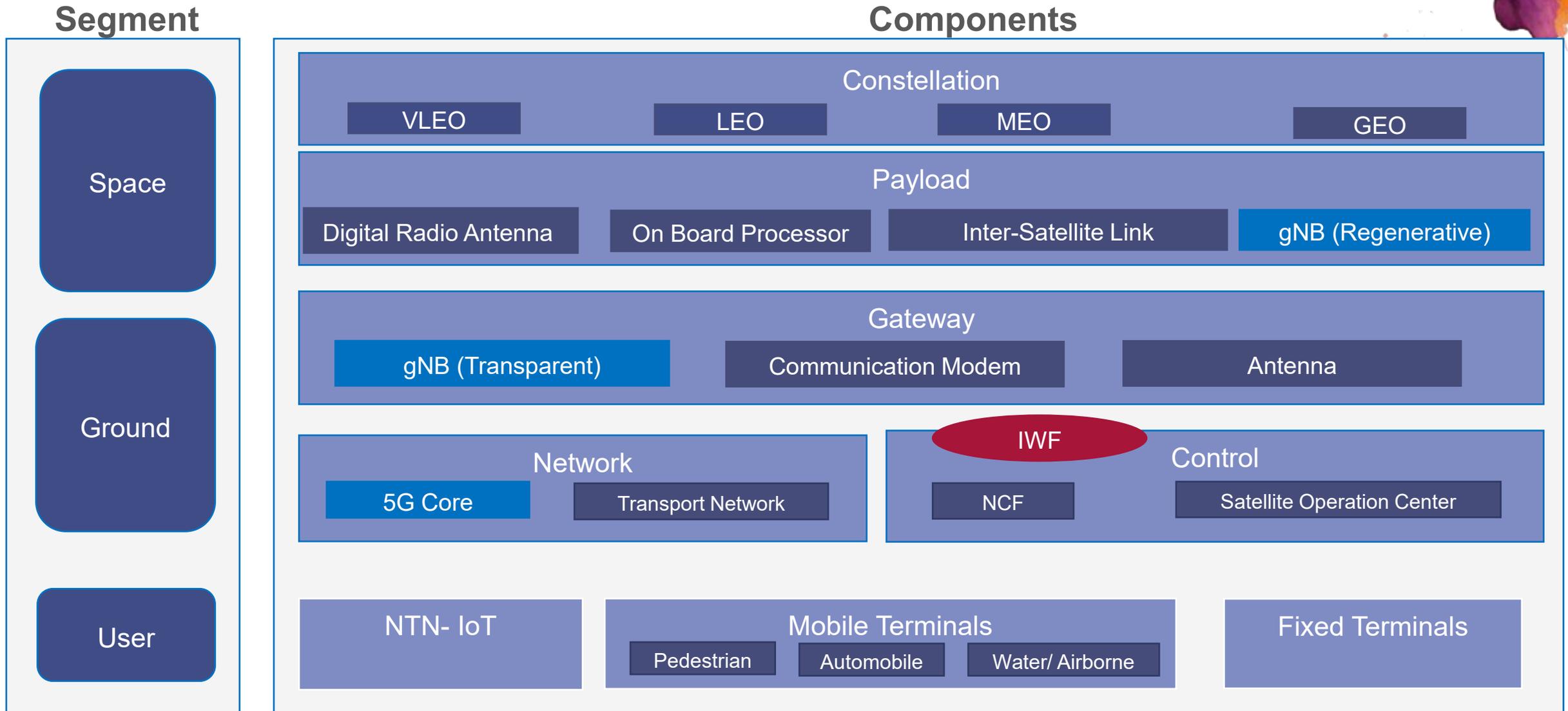


Transparent payload for GEO/MEO/LEO. Extendable to support Regenerative architecture, beyond 3GPP Rel 18.

NTN Deployment Scenarios

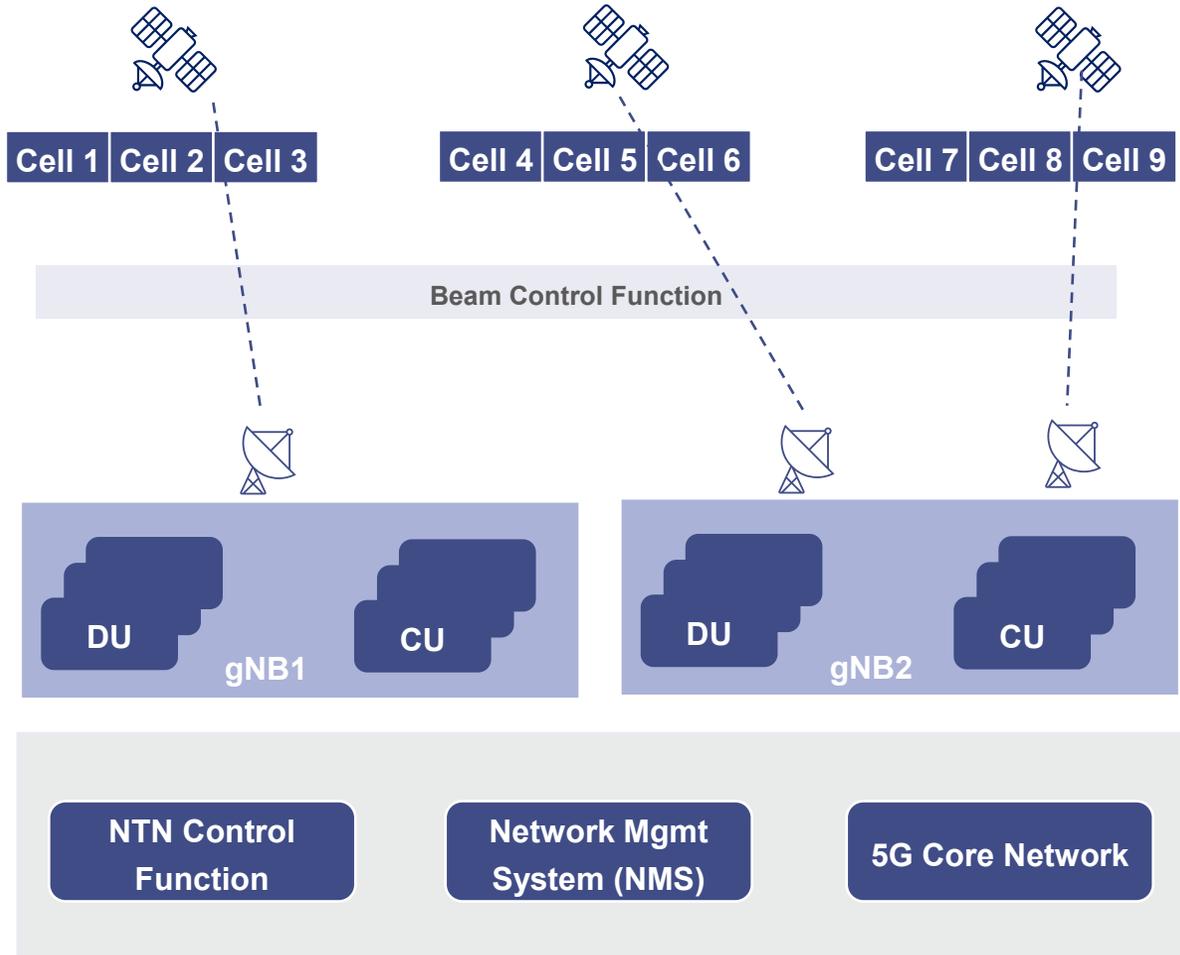


Interworking of multiple components in NTN services

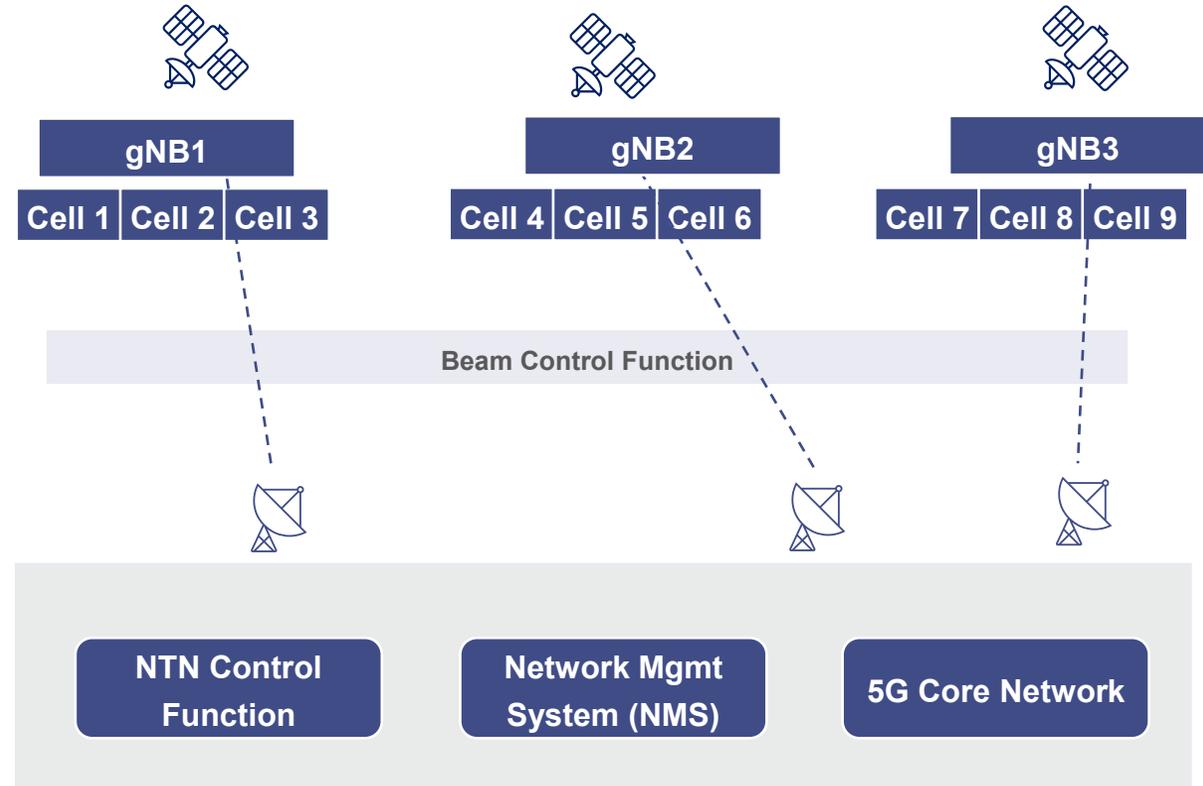


NR NTN Transparent and Regenerative Deployments: GEO/MEO/LEO

Transparent Mode NTN



Regenerative Mode NTN



Leveraging open external and internal interfaces

3GPP

- Transparent and Regenerative architecture references
- F1 based CU/DU split. Flexible CU/DU placement.
- Evolution to 6G

O-RAN

- O1 for Orchestration and management
- E2 for dynamic CU and DU control via near RT RIC

SCF

- FAPI/nFAPI for PHY integration with different vendors

Delivering Feature Rich NTN Solutions

- Flexible SW architecture with disaggregation
- Scaling of CU/DU components as per use cases
- Programmability and automation via RIC and SMO
- Multi-vendor interoperability

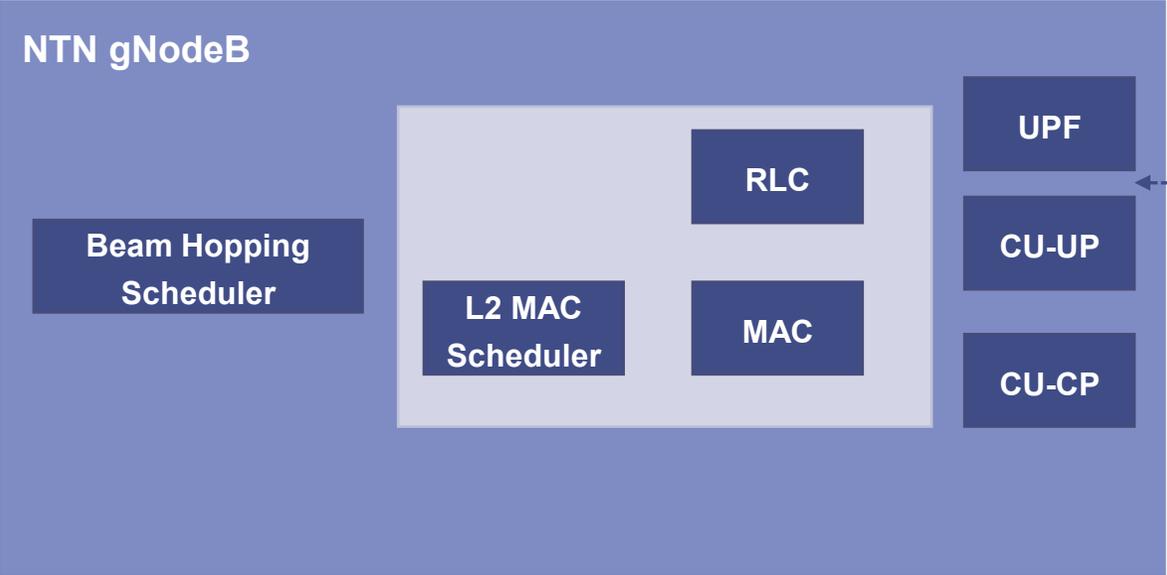
Achieving high capacity and performance on Low SWaP NTN Platforms

RAN and UPF Optimized for:

- Multi-cell/Multi-beam
- Memory
- CPU utilization
- DL/UL Throughput
- Fast data path link (ISL)

Near RT RIC

Security GW



Inter-Satellite Link

Virtualization

Space Grade Hardware/SoC



Delivering Peak performance with power efficiency with on-board gNB

Beam Hopping Considerations

- Illuminating select spot beams
- Scheduling based on traffic patterns
- Interference mitigation
- Power efficiency



L2 MAC Scheduler Considerations

- Scheduling across multi cells and beams
- Maximizing DL and UL throughput
- QoS
- Timing Sync

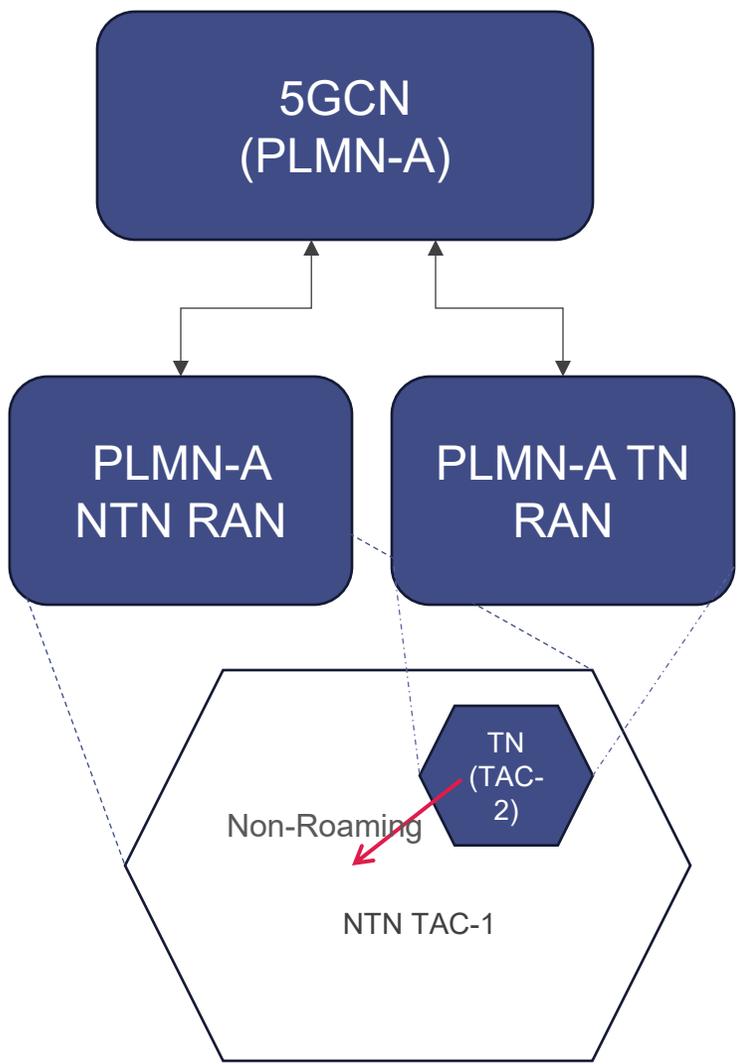
L2 MAC Scheduler Design Crucial for NTN RAN Performance

Managing mobility in NTN Solution

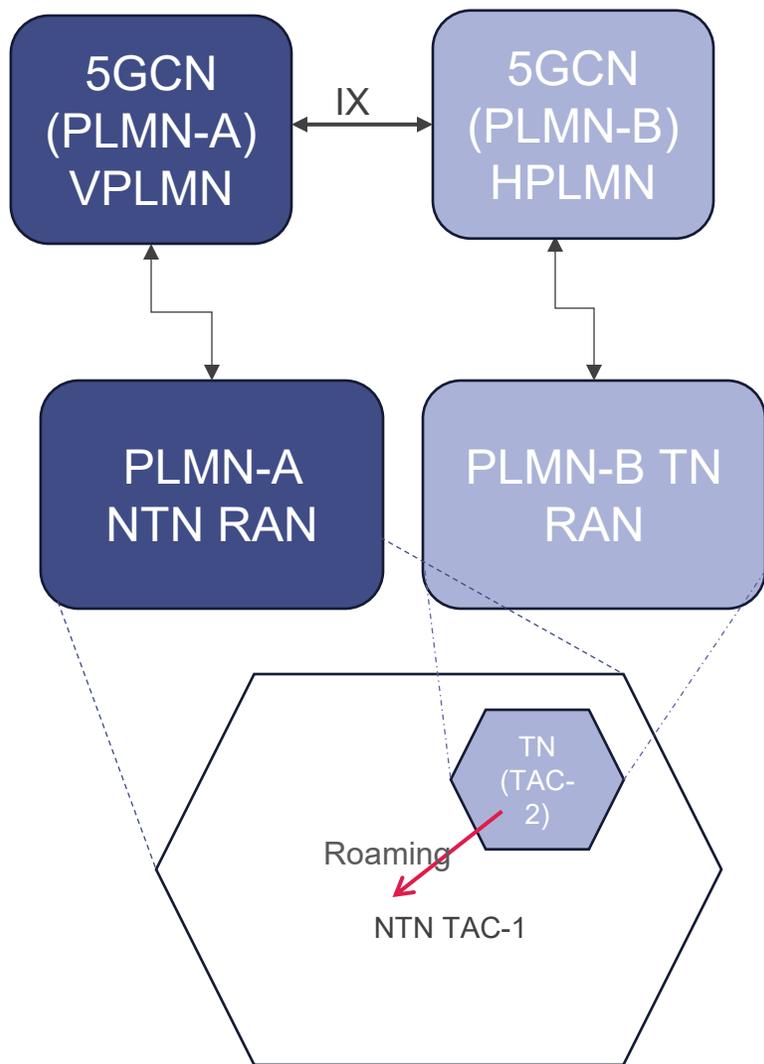
Mobility Considerations	Device/User	gNB and 5G Core	Regulatory
Challenges	<ul style="list-style-type: none">• Device Location• Received signal strength	<ul style="list-style-type: none">• Tracking area management• Handover decisions	<ul style="list-style-type: none">• Coverage/Access restrictions• Lawful intercept• Emergency calls and alerts
Solutions	<ul style="list-style-type: none">• NTN specific location and signal measurement reporting	<ul style="list-style-type: none">• Beam management• Conditional handovers• NTN specific tracking areas	<ul style="list-style-type: none">• Access restrictions via 5G core and RAN• Roaming agreements• Support for Lawful intercept and emergency calls and alerts

Intelligent RRM in gNB and 5G core enhancements key to NTN mobility

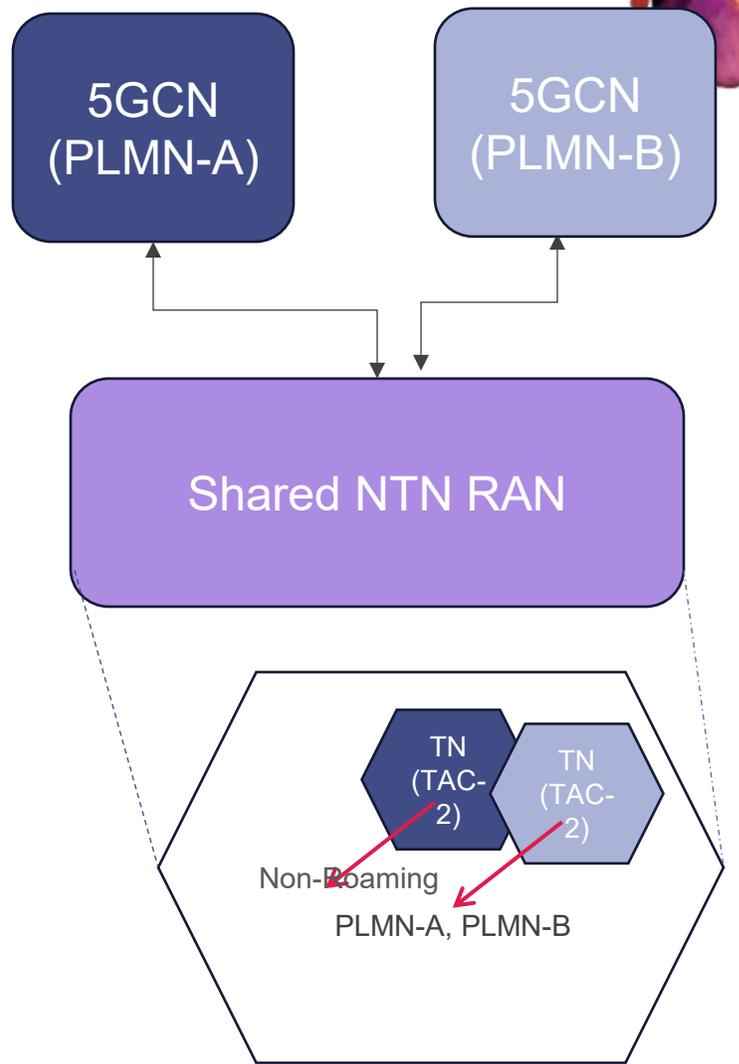
TN-NTN Integration Scenarios



NTN Access within same PLMN Network

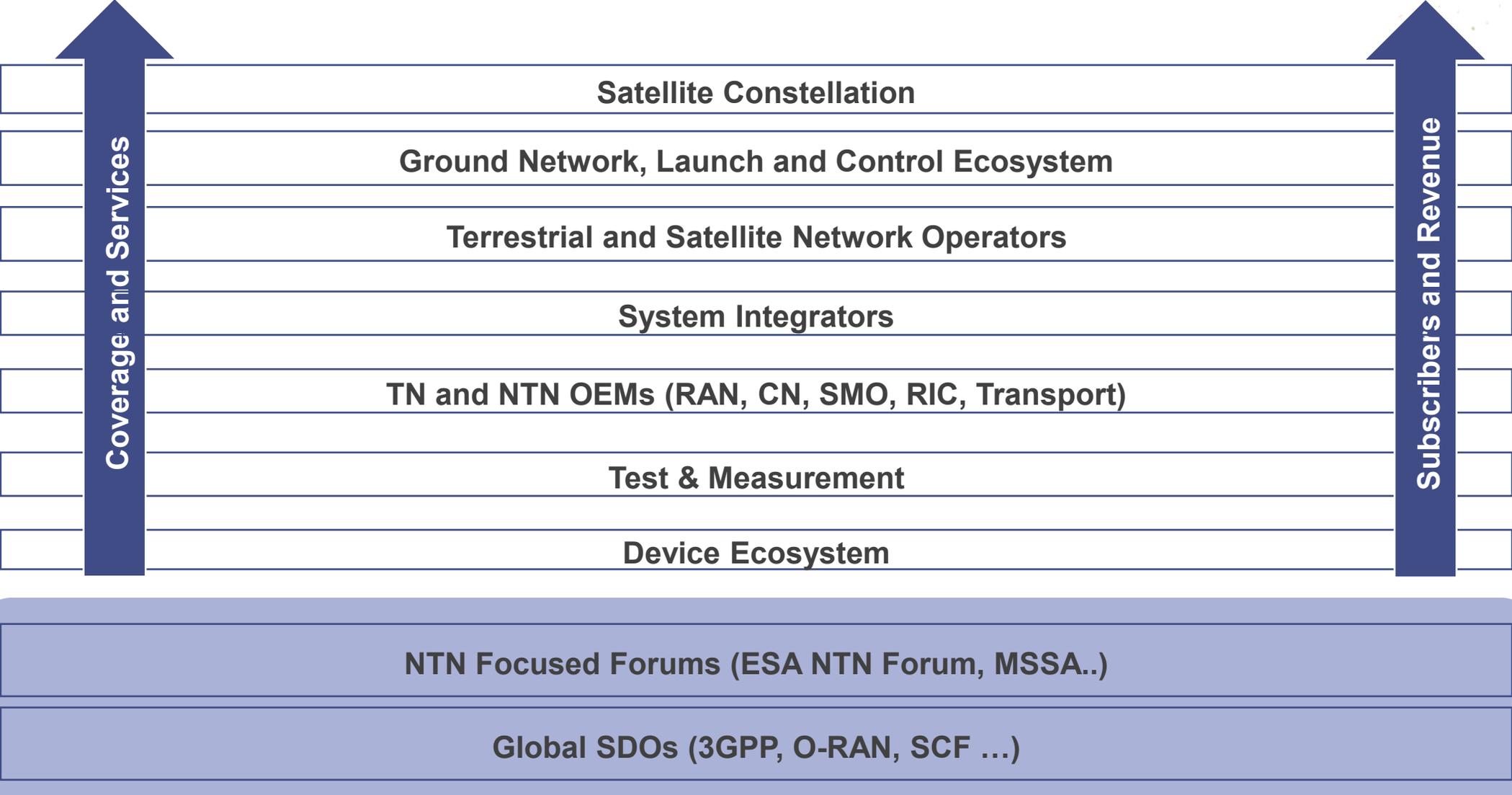


TN to NTN Roaming Scenario



Multi-PLMN Shared NTN Access

Synergistic future of SDOs and the larger Satellite Ecosystem



Evolution to 6G NTN

Connecting the Unconnected

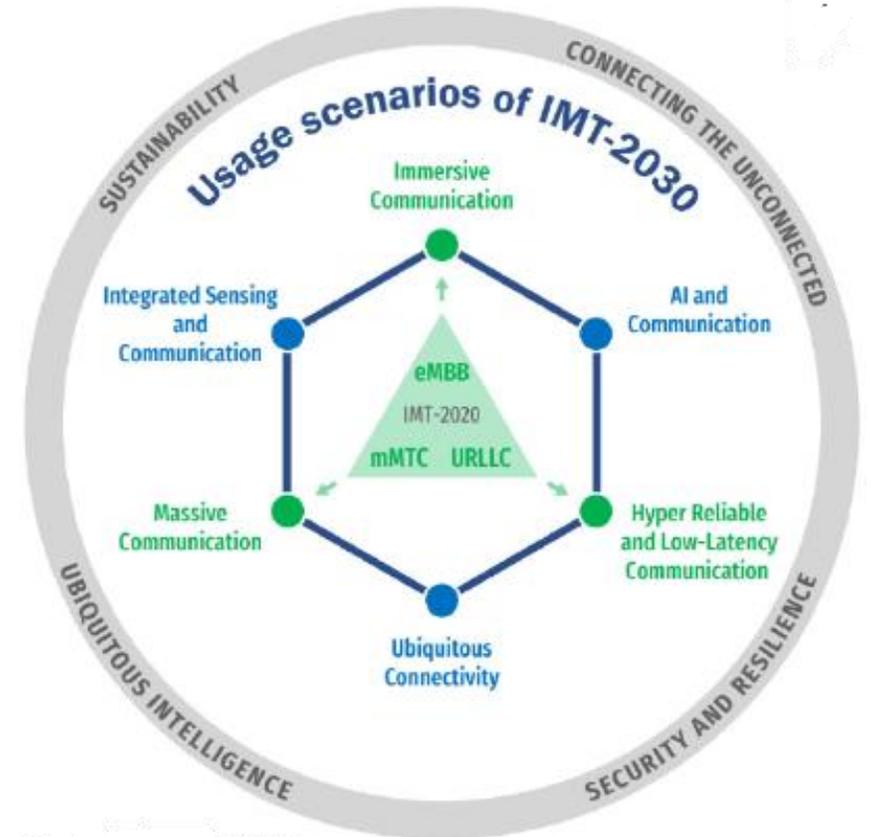
- Coverage everywhere
- NTN capabilities in all devices
- Seamless TN-NTN interworking

Security and Resilience

- Service continuity in case of failures
- Disaggregation and redundancy
- Fallback mechanisms

Sustainability

- Energy efficient hardware
- Traffic based Network Energy Savings



<https://www.itu.int/en/ITU-R/study-groups/rsg5/rwp5d/imt-2030/Pages/default.aspx>



Thank You

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