

ROLE OF SATELLITES IN ONE CONNECTED FUTURE

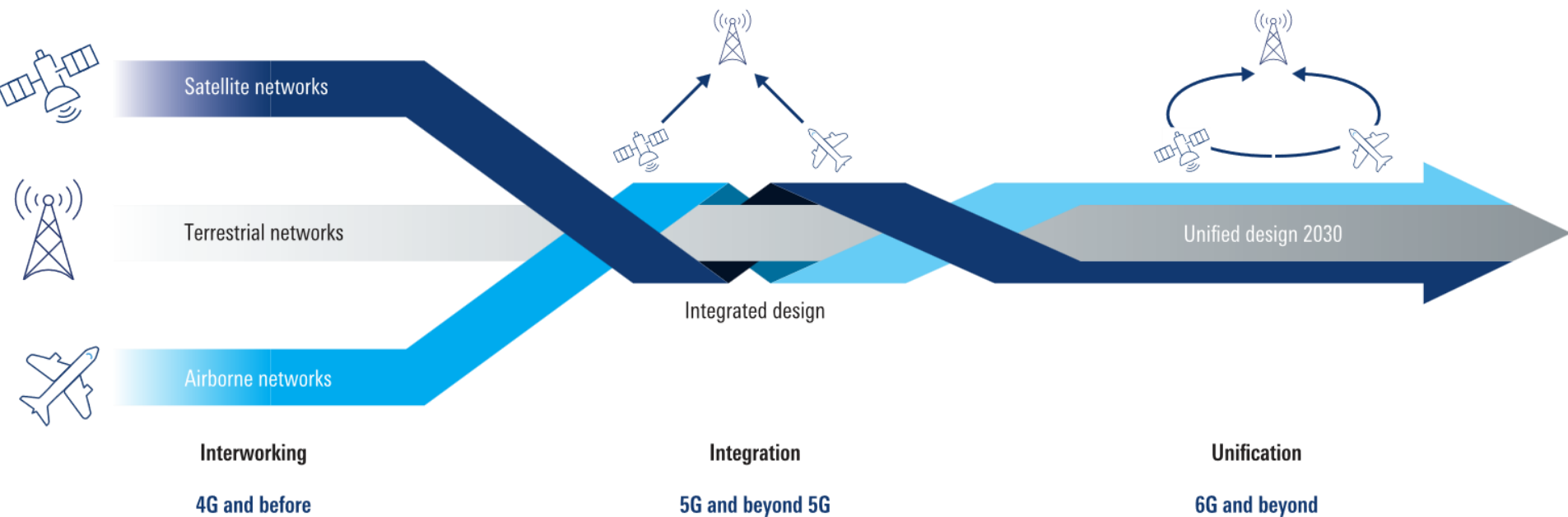
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ROHDE & SCHWARZ

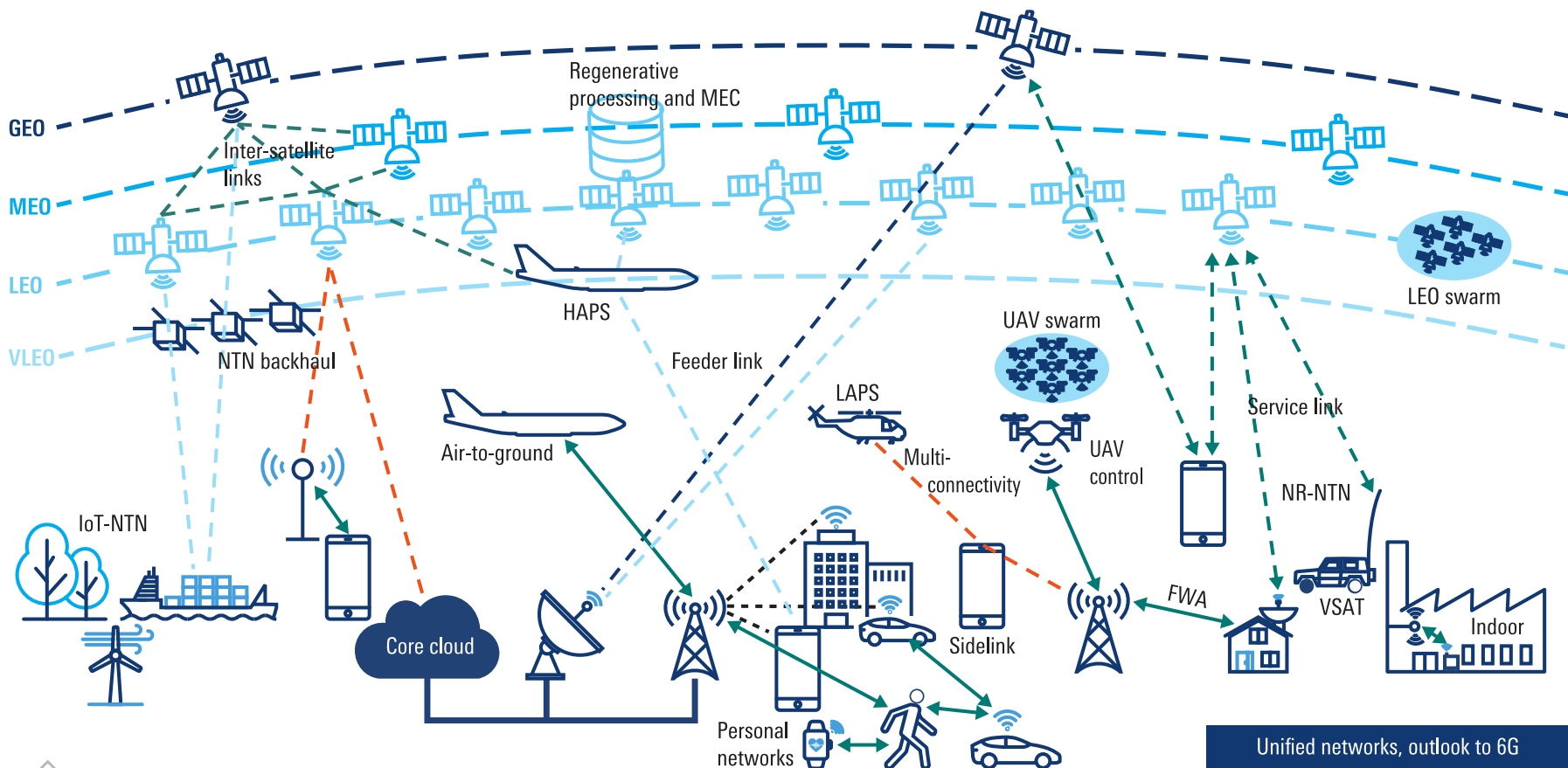
Make ideas real



6G UNIFIED NETWORK - EVOLUTION

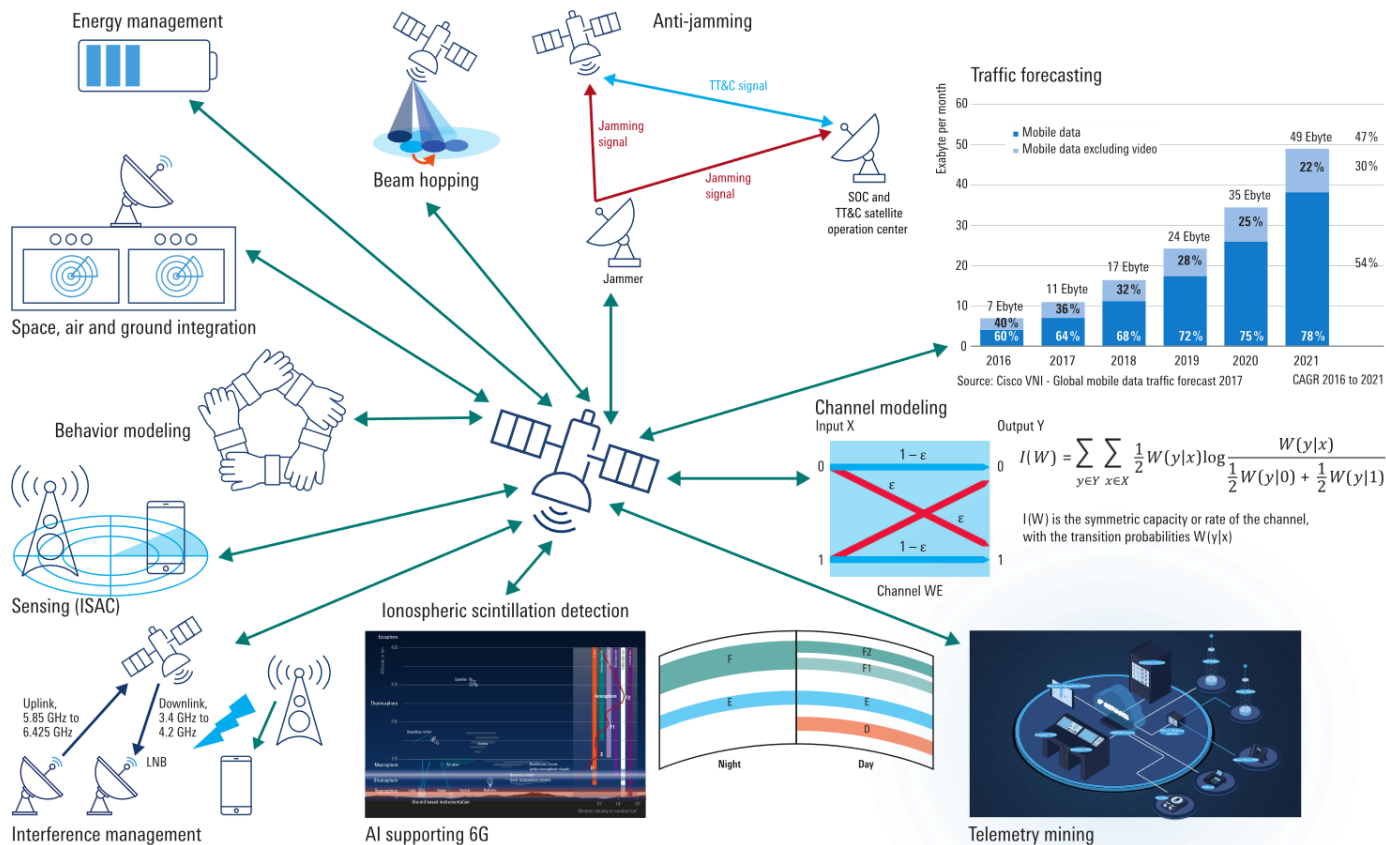


6G UNIFIED – MULTI-BAND, MULTI-LAYER, MULTI-DIMENSION NW



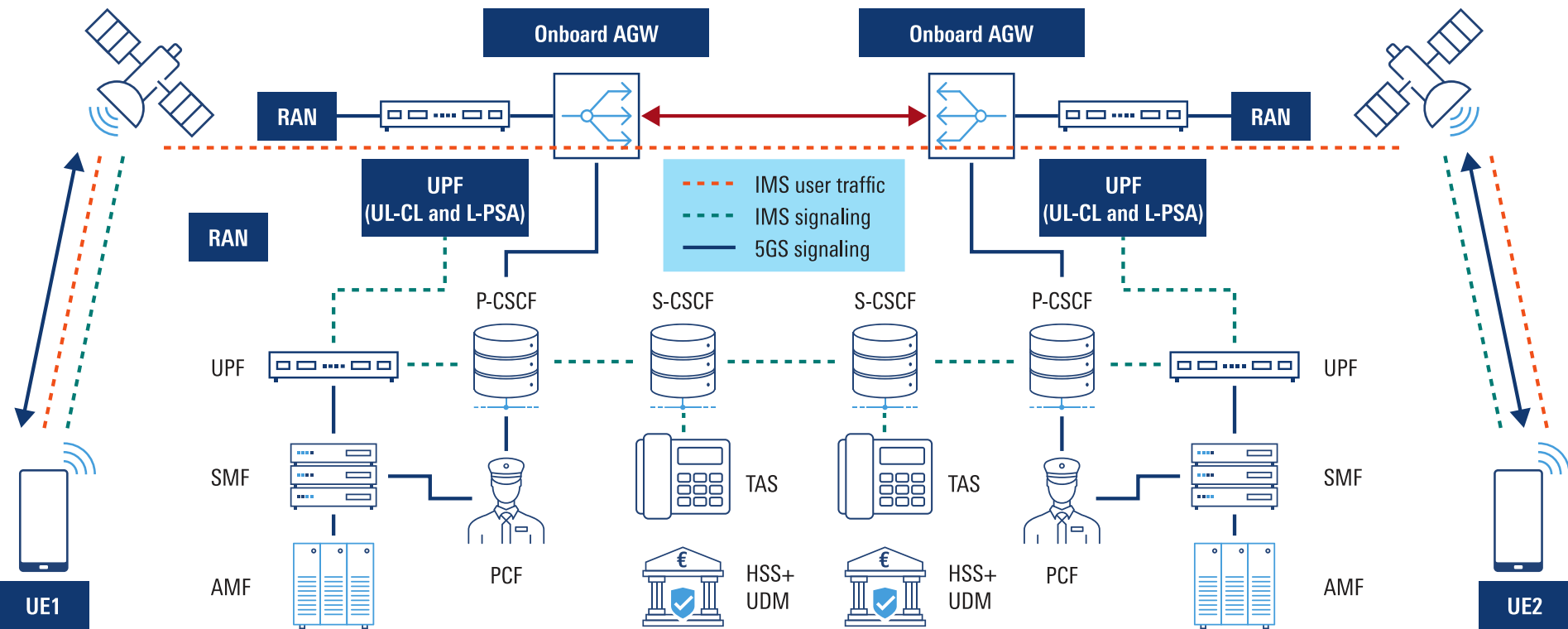
Unified networks, outlook to 6G

AI FOR NTN - EXAMPLES

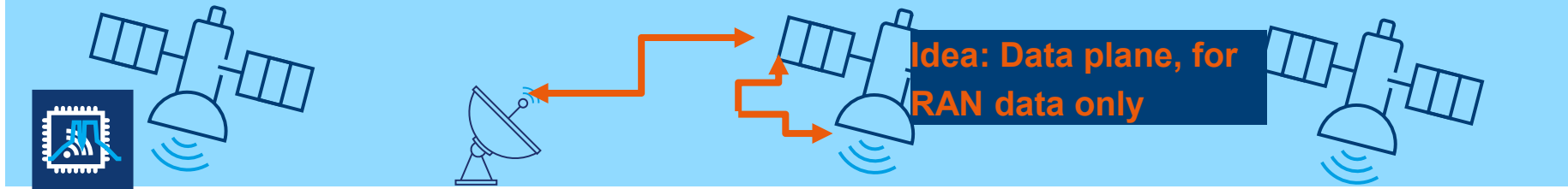


NTN COMPUTING EXAMPLES: UE-SAT-UE VOICE OVER NR

Idea: Incorporate some IMS functions (user plane, access gateway, service anchor, ...) into the satellite



MULTI-FUNCTIONAL SATELLITE SYSTEMS (MFSS)



Communication



Integrating multiple services into
the satellite
Integrating hardware accelerators

Positioning and navigation

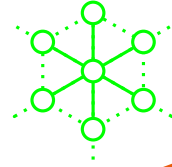


Observation and sensing



RAN EVOLUTION – HIGH LEVEL (SIMPLIFIED)

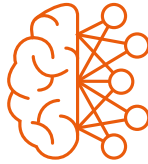
Past: communication centric network design



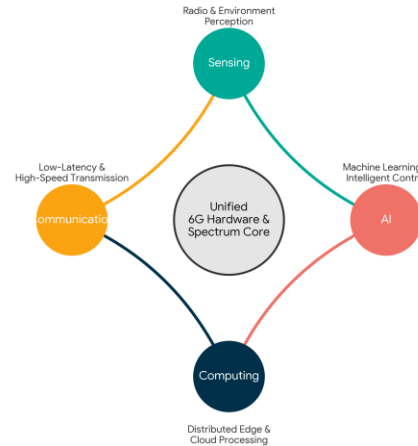
ICCAS: Integrated Communication, Computing, AI, and Sensing



Today: Integrated communications and sensing



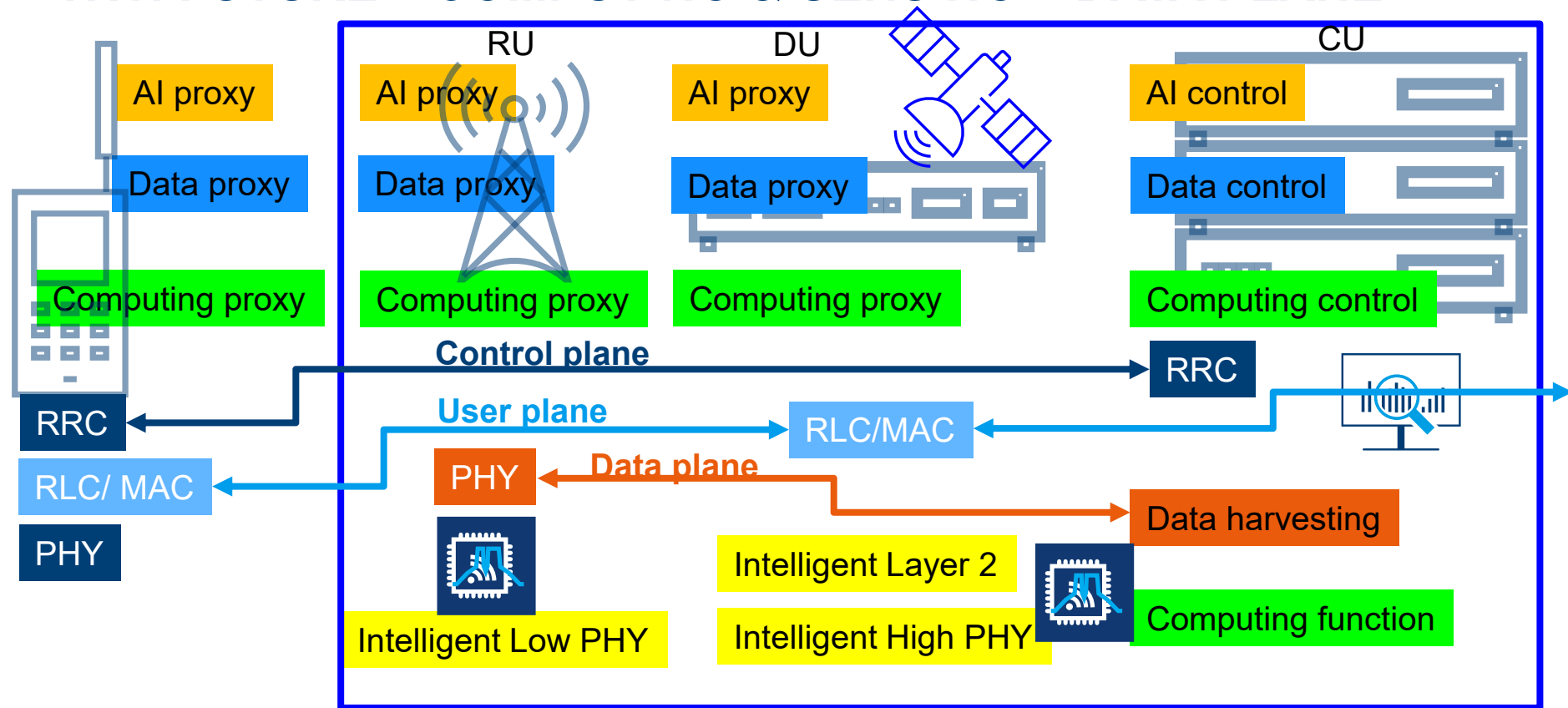
Today: Integrated communications, computing and AI



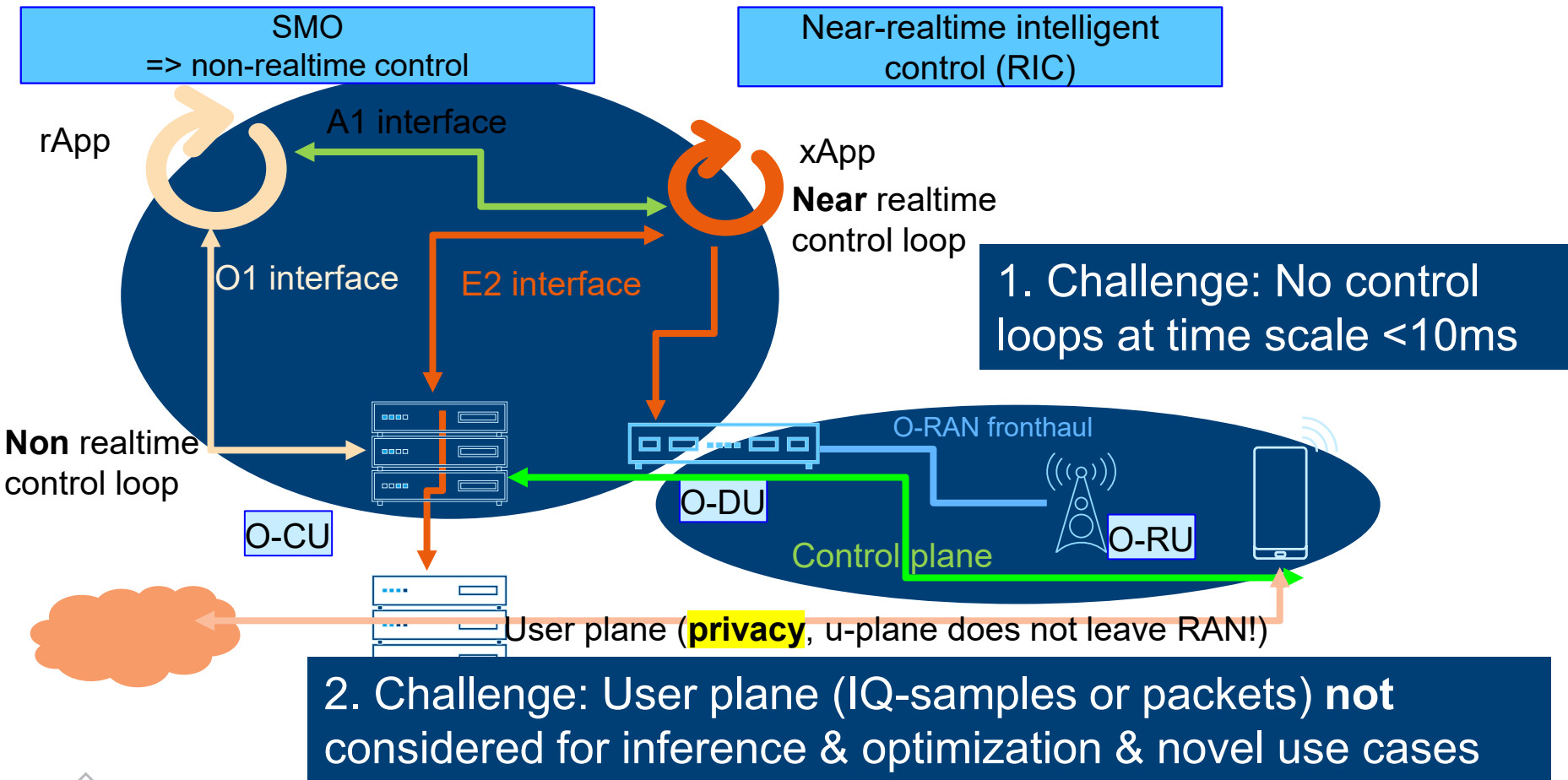
Future: Integrated communications, computing, AI and sensing (ICCAS)



NTN FUTURE – COMPUTING & SENSING + DATA PLANE

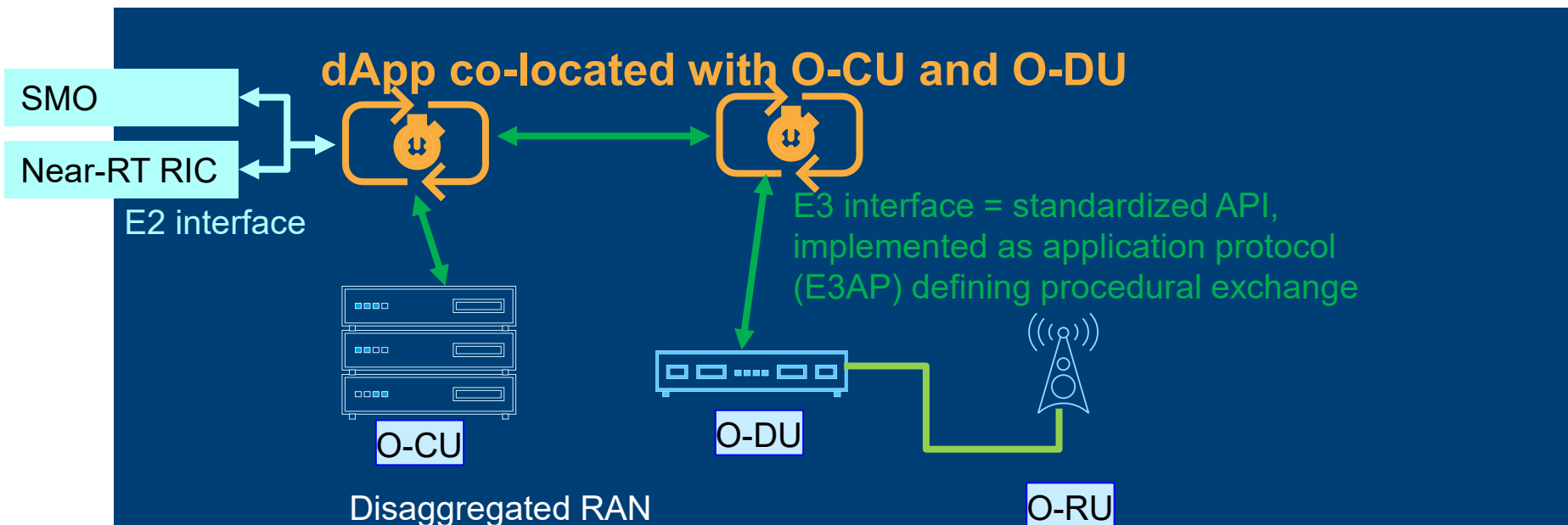


OPEN RAN – rAPP AND xAPP CHALLENGES

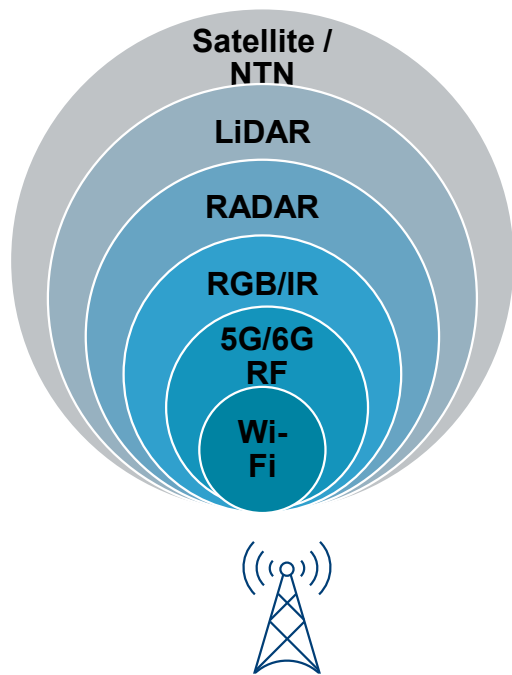


OPEN RAN AND CONCEPT OF dAPPS (=DISTRIBUTED APPS)

- Like in O-RAN, dApps are SW components to execute microservices + offer functions.
- Lifecycle management (LCM): Instantiated and deleted seamlessly, function as-a-service
- Colocated with O-CU and O-DU to execute realtime operation and access to user plane
- Novel standardized E3 interface to allow **realtime** dApp interaction with O-CU and O-DU

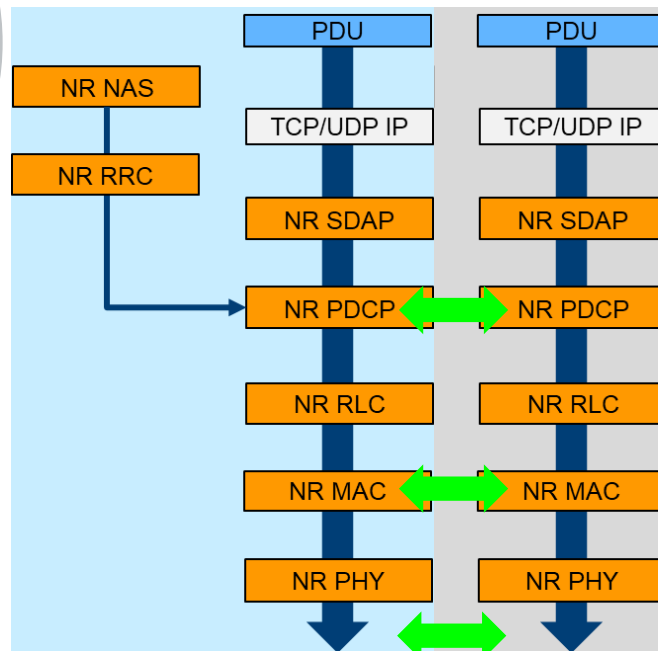


ISAC – SENSING CAPABLE NETWORKS - OUTLOOK

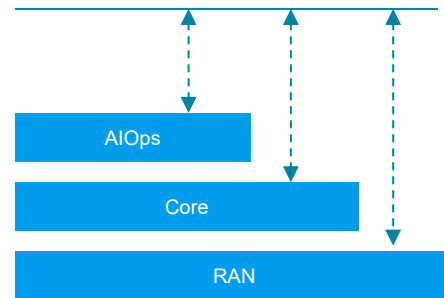


► Multi-modal sensing (ISAC), multi-technologies

- Digital twin testing concept => virtual stack testing
- SW cloud testing => new interfaces between system simulator and DUT



5G NTN and computing aspects



- Integration of external apps
- Network exposure, real-time L1 integration and AI-related computing, agent protocols

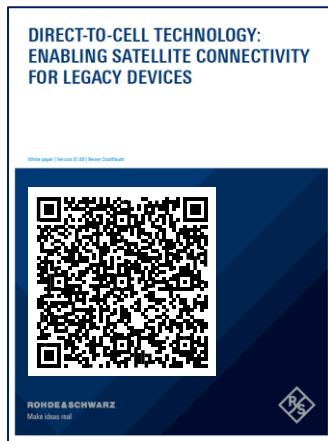
ROHDE & SCHWARZ RESOURCES FOR NTN

► White papers – NTN technology deep dives

NTN fundamentals



DTC



NR-NTN

New



5G technology fundamentals,
procedures and testing aspects
online ebook



www.rohde-schwarz.com/5G-ebook

► For many more NTN resources visit www.rohde-schwarz.com/ntn



THANK YOU



Future networks: Fiber to the space (FTTS)