

# PAVING THE WAY TOWARDS AN NTN-NATIVE 6G ECOSYSTEM

NEXASPHERE

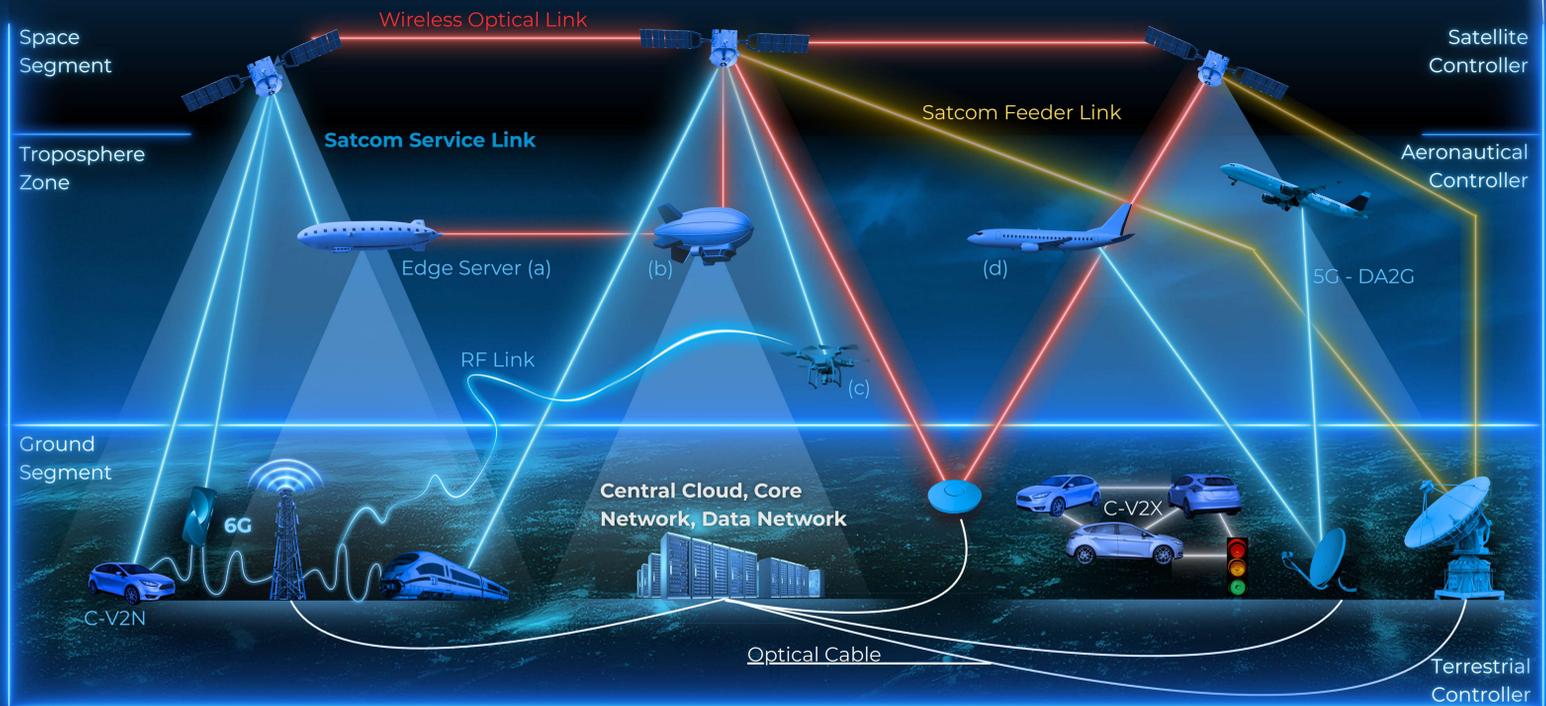
6G

## OUR VISION

To establish a 3D network of networks that natively integrates multi-path transmission for seamless multi-connectivity. This ecosystem will leverage spaceborne and airborne platforms in conjunction with terrestrial infrastructure to enhance connectivity for the future EU society. We aim for a profound impact across key sectors, including, mobile transportation (aviation, railway, and automotive), Smart cities & Smart communities of 2030 and beyond.



## NEXASPHERE 3D-NTN EDGE/CLOUD CONTINUUM ARCHITECTURE



## TECHNOLOGY ENABLERS

### Wireless Optics

Energy-efficient LiFi & Free-space optics and satellite transceivers with on-board computing.

### Prediction Models

AI-driven models for heterogeneous 3D networks.

### Edge-to-Cloud Platform

TN/NTN platform with AI-based orchestration and resource management.

### Disaggregated RAN

NTN-capable gNodeB for LEO/GEO scenarios (RU/DU/CU).

### NTN Antenna

Low Profile, Ka-Band / Ku-Band, RX-TX integrated Avionic & Automotive Antenna

### Multi-Connectivity

Integrated wireless-radio-optical solutions.

### 3D Simulation

Large-scale models for multi-connectivity in 3D networks.

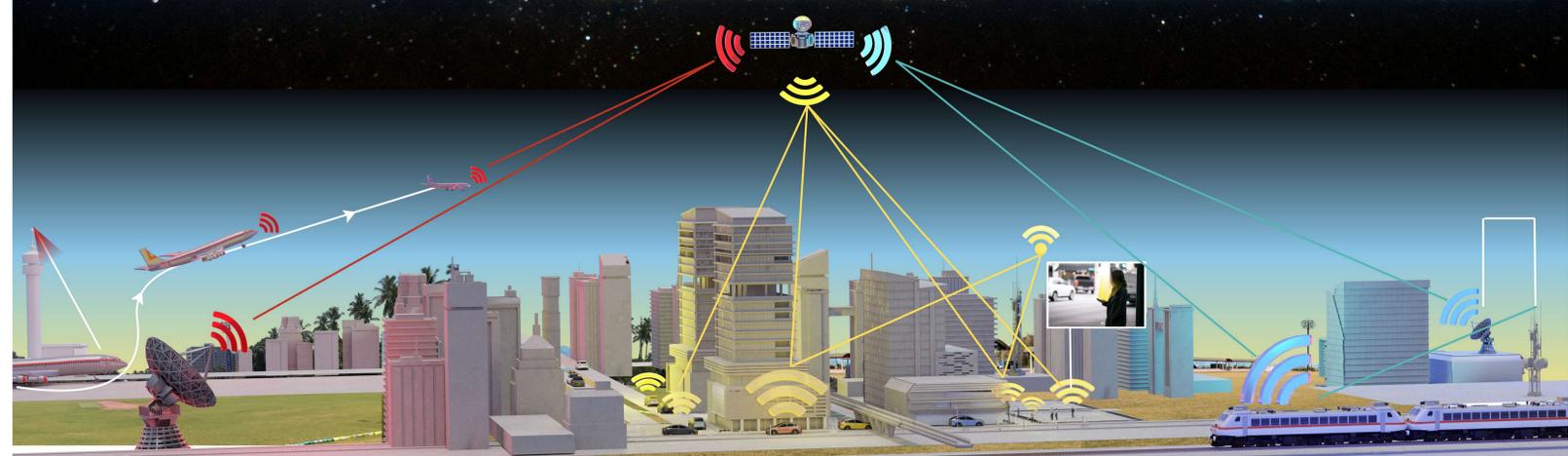
### Sustainable 3D Network

Energy and performance optimized design for hyper-distributed edge-to-cloud systems.

POC 1 : Aviation: Next-Generation In-Flight Connectivity (IFC)

POC 2 : Automotive: AI-Driven Data Optimization for Automotive Applications

POC 3 : Railways: Hybrid FRMCS connectivity; Seamless TN/NTN integration for Rail operations



### COORDINATOR

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