

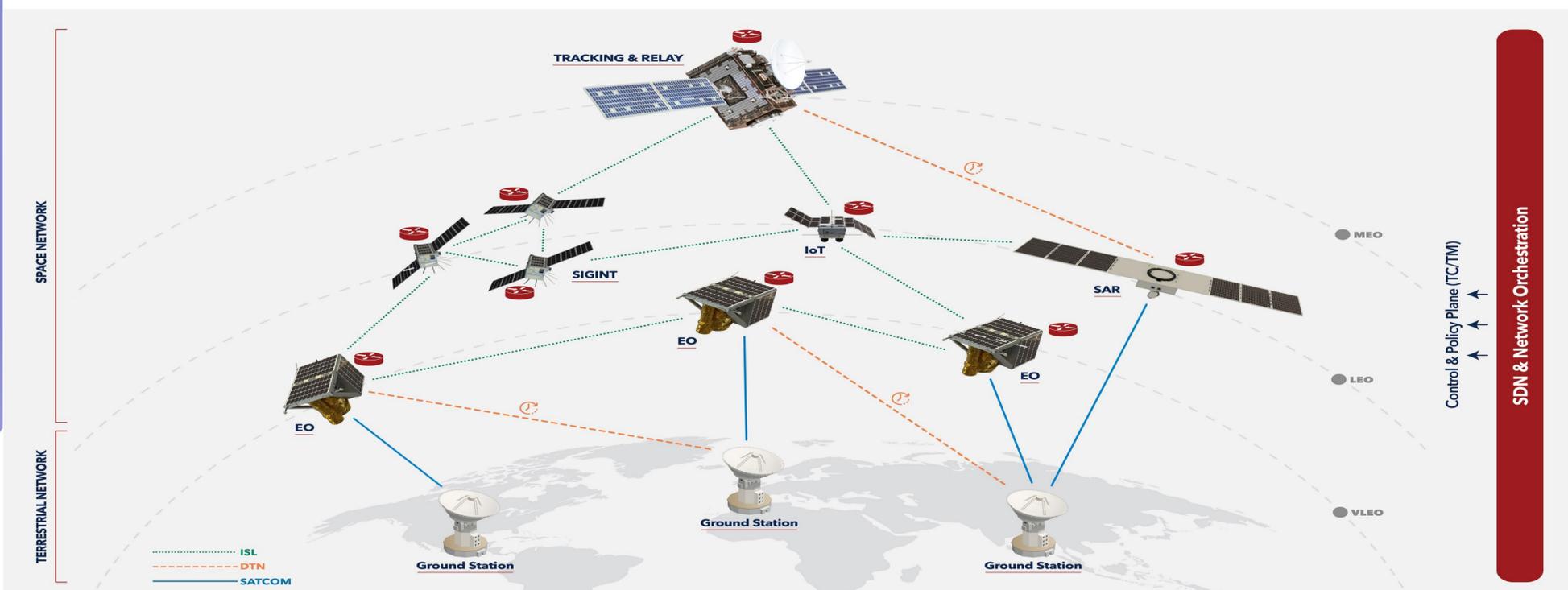
orchAstra

AI-Orchestrated Programmable Multi-Orbit Space-Terrestrial Networks

Core Concepts

- OrchAstra introduces a mission-agnostic space-terrestrial networking architecture in which satellites are treated not only as mission platforms, but as **programmable network nodes**.
- Satellites across multiple orbits can temporarily cooperate at the network level, under strict operational policies to form a **shared, system-level communication fabric** spanning space and ground.

Mission-specific and non-cooperative communication architectures limit system-level efficiency, scalability, and evolvability in future integrated terrestrial and non-terrestrial (TN/NTN) and 6G architectures.



Architectural Approach

- System-level orchestration** of routing, resources and policies across space and ground
- Coordinated multi-orbit routing** (VLEO-LEO-MEO) using ISLs and ground links
- DTN as a first-class capability** for intermittent and time-varying connectivity
- Strict control/data plane separation** for spacecraft safety and observability
- Security-tiered communication** across planes and satellite sensitivity levels

Let's build cooperative space networks together!

We are seeking industrial and research partners with expertise in;

- Multi-orbit satellite systems** and inter-satellite links (ISLs)
- Software-defined and programmable networking**, routing, and DTN mechanisms
- Ground systems, cloud integration**, and operational validation
- 6G terrestrial/non-terrestrial networking research**, complementary to access and RAN work



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