Problem Statement 05

LEO Satellite Network Topology & Latency Optimization

References: https://datatracker.ietf.org/meeting/122/materials/agenda-122-maprg-11
Working Group: MAPRG

Problem Statement

Simulate Low Earth Orbit (LEO) satellite constellations to optimize **topology design** for latency performance using inter-satellite links (ISLs).

Focus Areas

- **Topology Parameters:** Vary orbit count, inclination, and satellite density per orbit.
- **Performance Modeling:** Assess end-to-end latency as a function of alignment with ground endpoint distribution.
- **Threshold Analysis:** Identify minimum viable parameters for low-latency paths.
- **Visualization:** Provide geospatial maps showing optimal configurations and performance metrics.