McKay Brothers Microwave

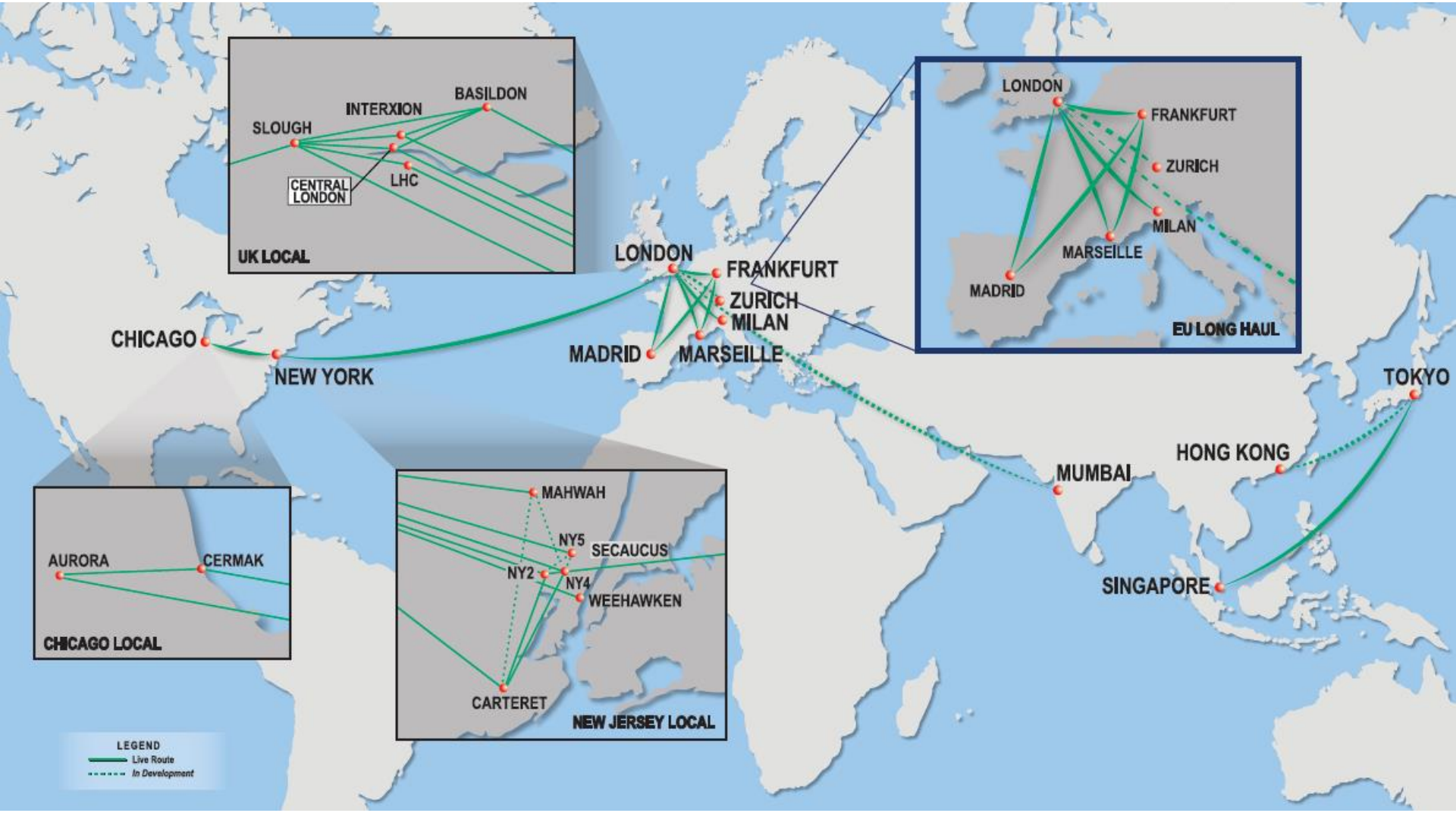
Quincy Extreme Data

The race season 5 What's in the air?

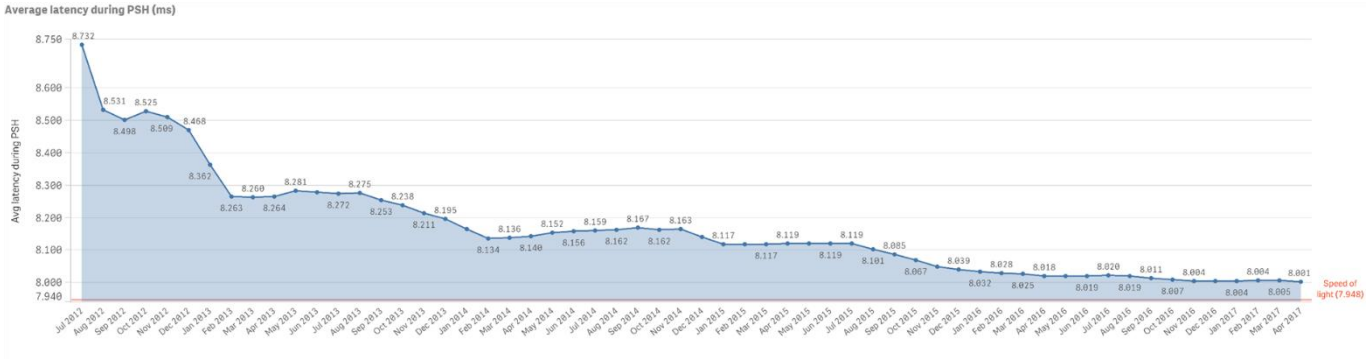
November 2017

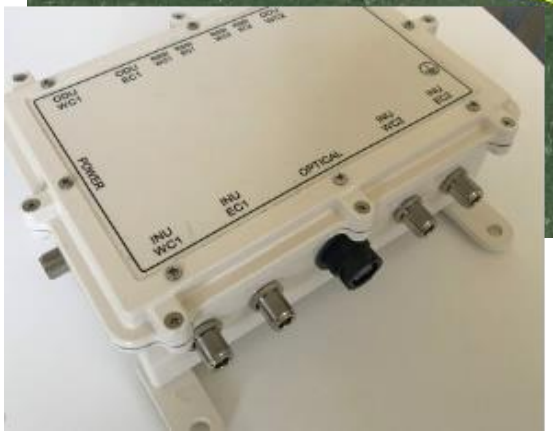
Stéphane Tyč

McKay & Quincy Footprint



The Race to Lower Latency Never Ends





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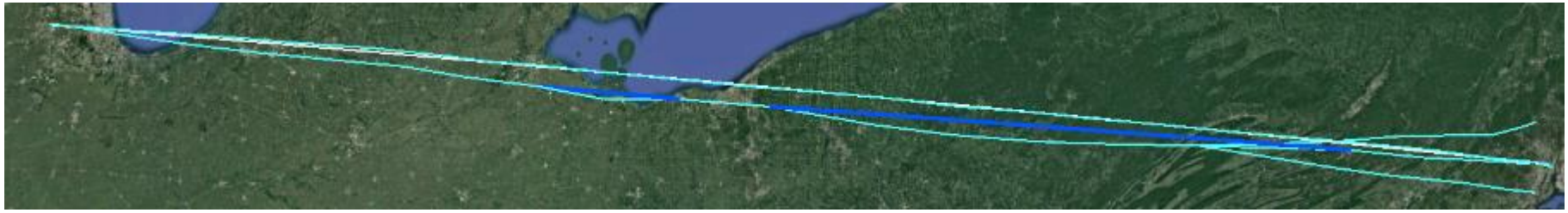


McKay's current path (below) is 1 mile off the geodesic.
McKay's new path in development (above) is 0.15 miles off the geodesic

McKay's first US tower build in Sandusky, OH

What's Next?

Satellites?
Drones?
Balloons?

Important Variables to Explore

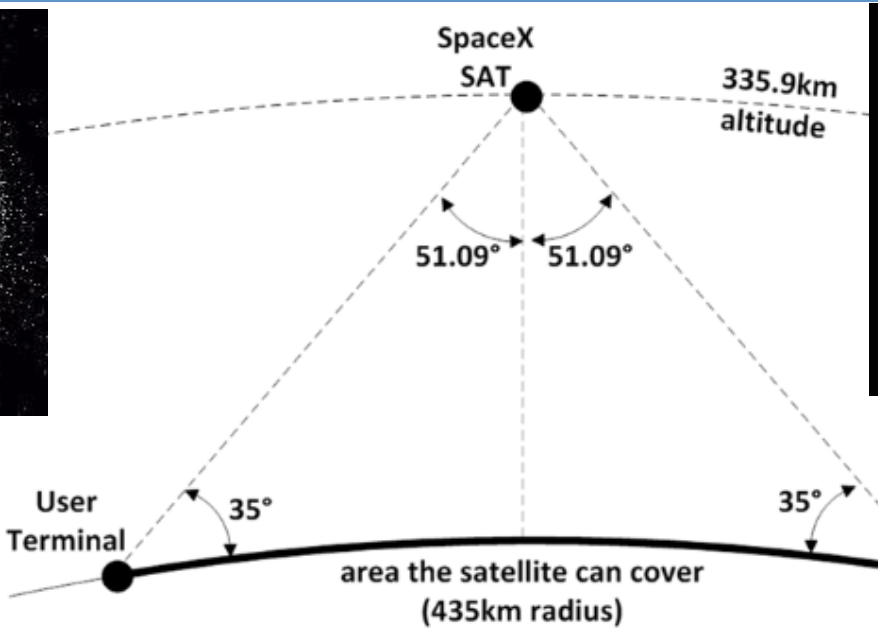
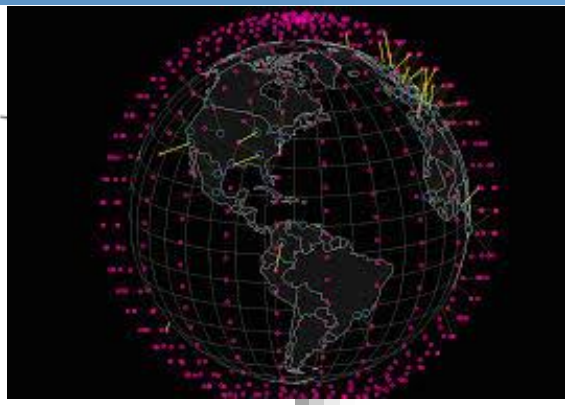
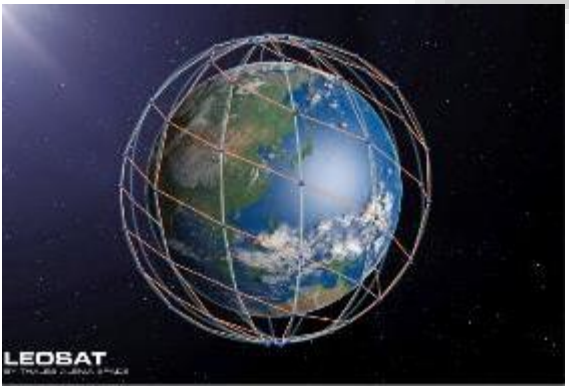
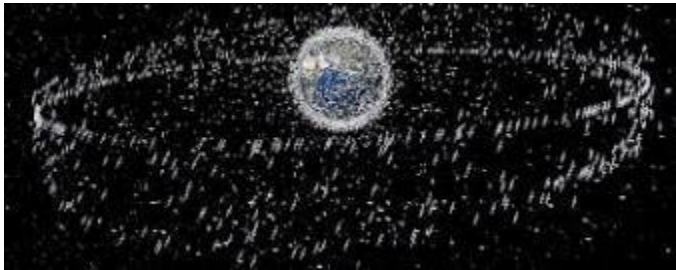


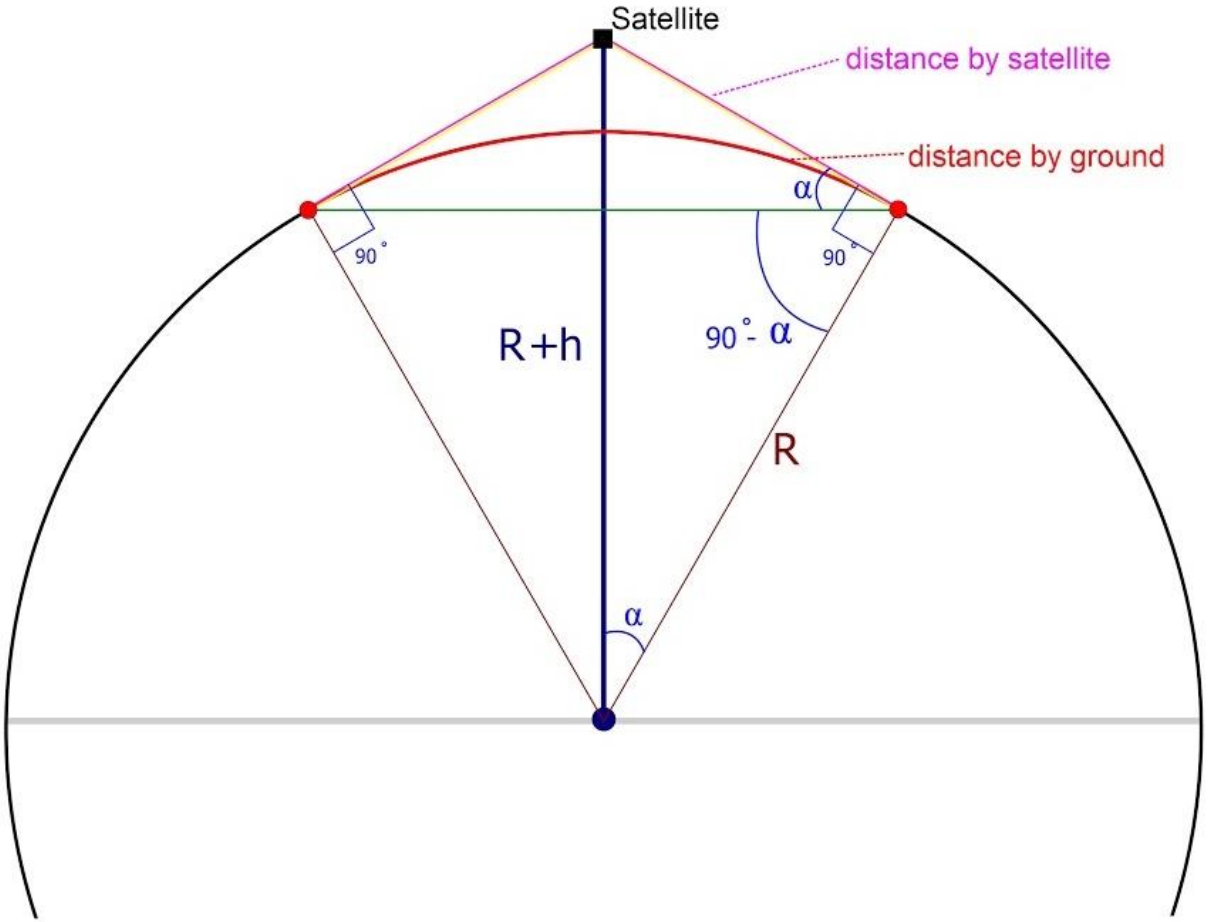
Figure A.3.1-2: Steerable Service Range of VLEO Beams (335.9 km)



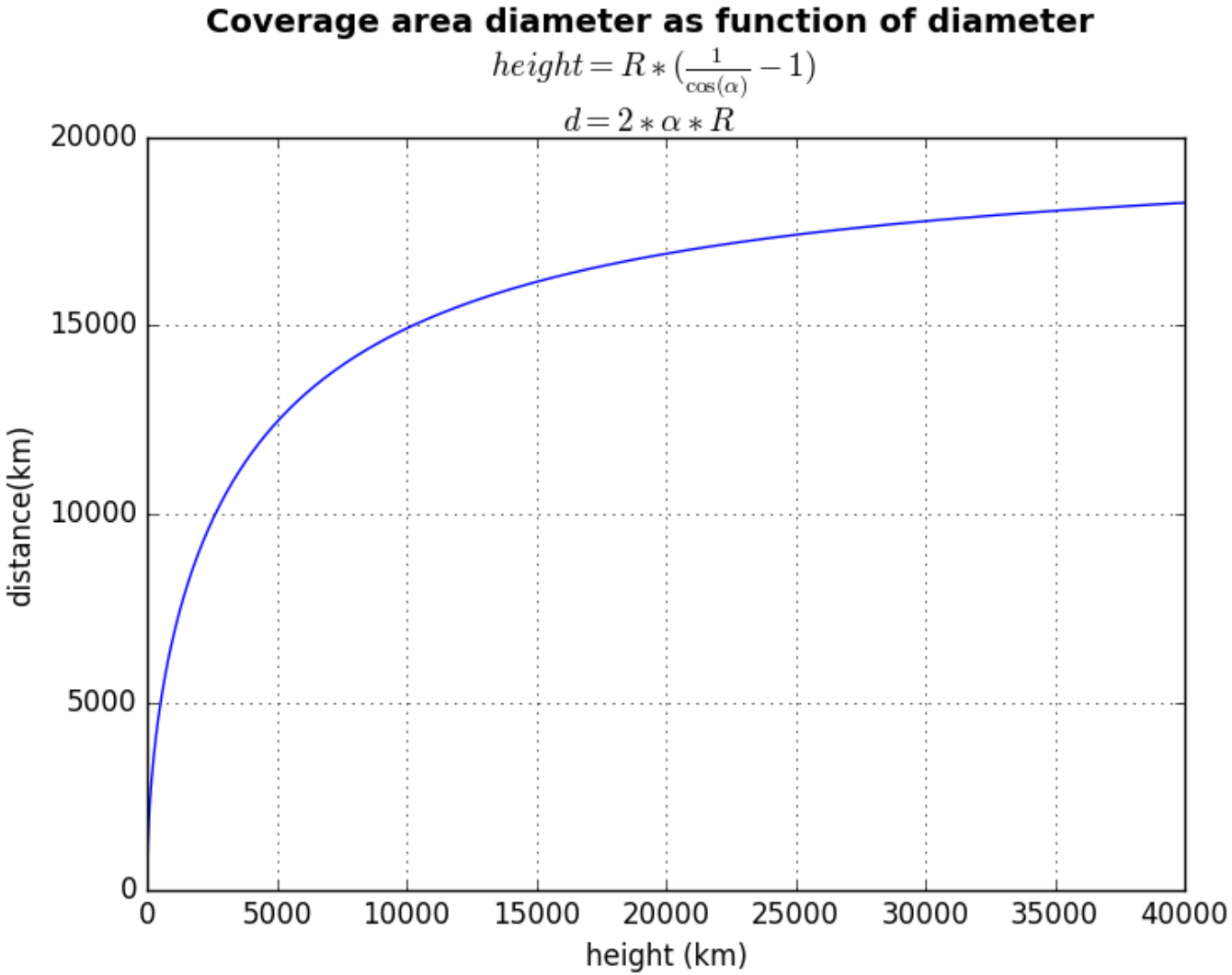




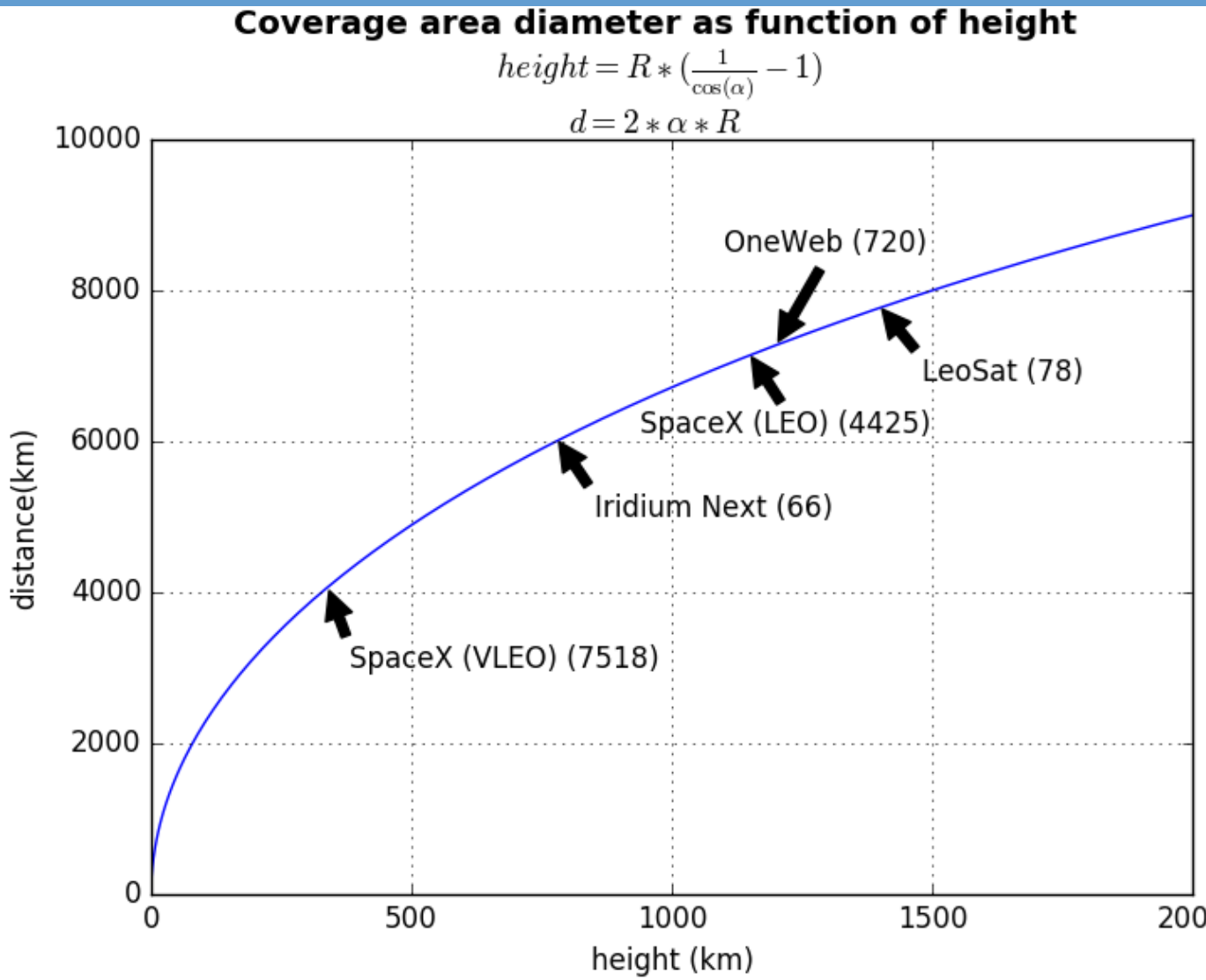
Important Variables to Explore



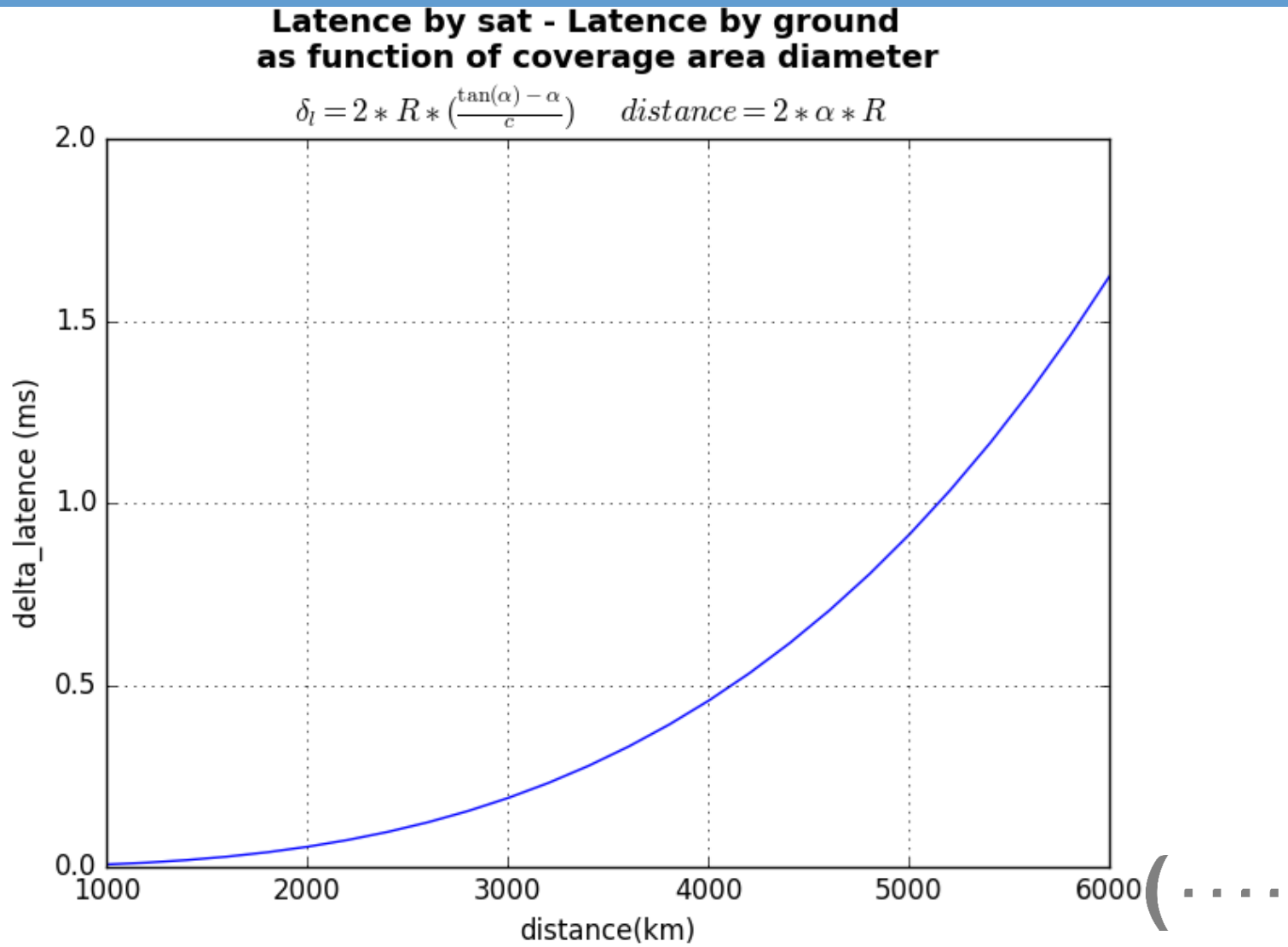
What altitude to chose?



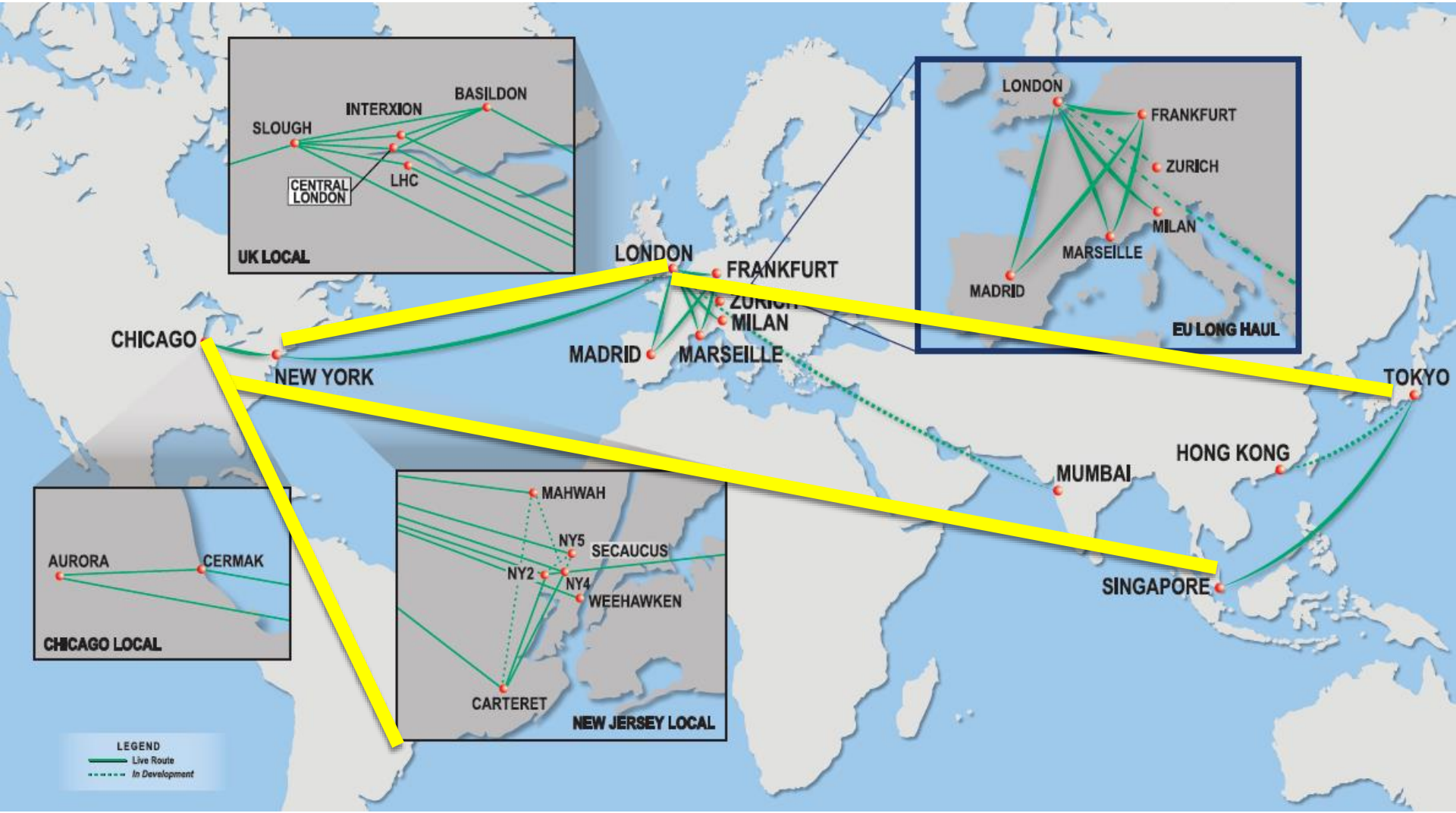
Constellations in the works



What is the extra path length?



Some relevant links



Simulations (credits to Anis Ayari)

- Leosat (18°) / SpaceX / Iridium Next (0°)
- 10 x 10 satellite constellation at 700km of altitude with grazing angle and 5000 km max communication distance between four nearest neighbours.

The assumptions are very crude and the simulation results are just a guide to the eye.

We have neglected the repeater latency in the satellites.

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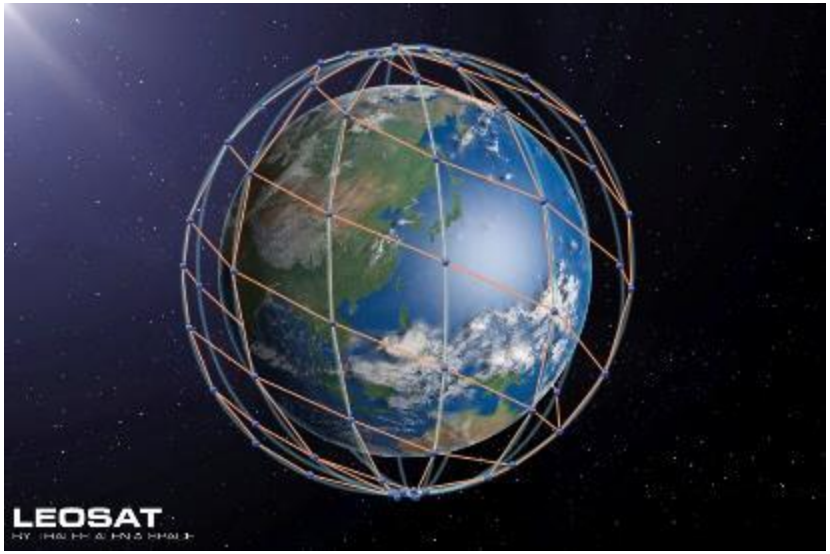
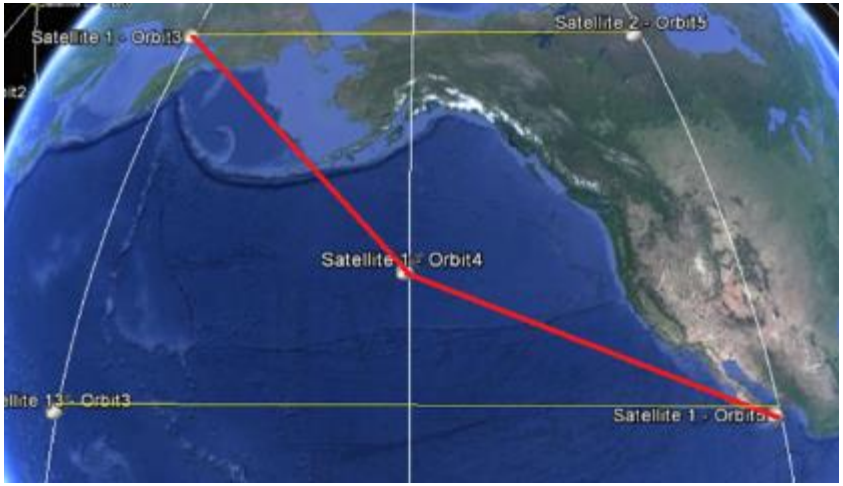
Connectivity assumptions





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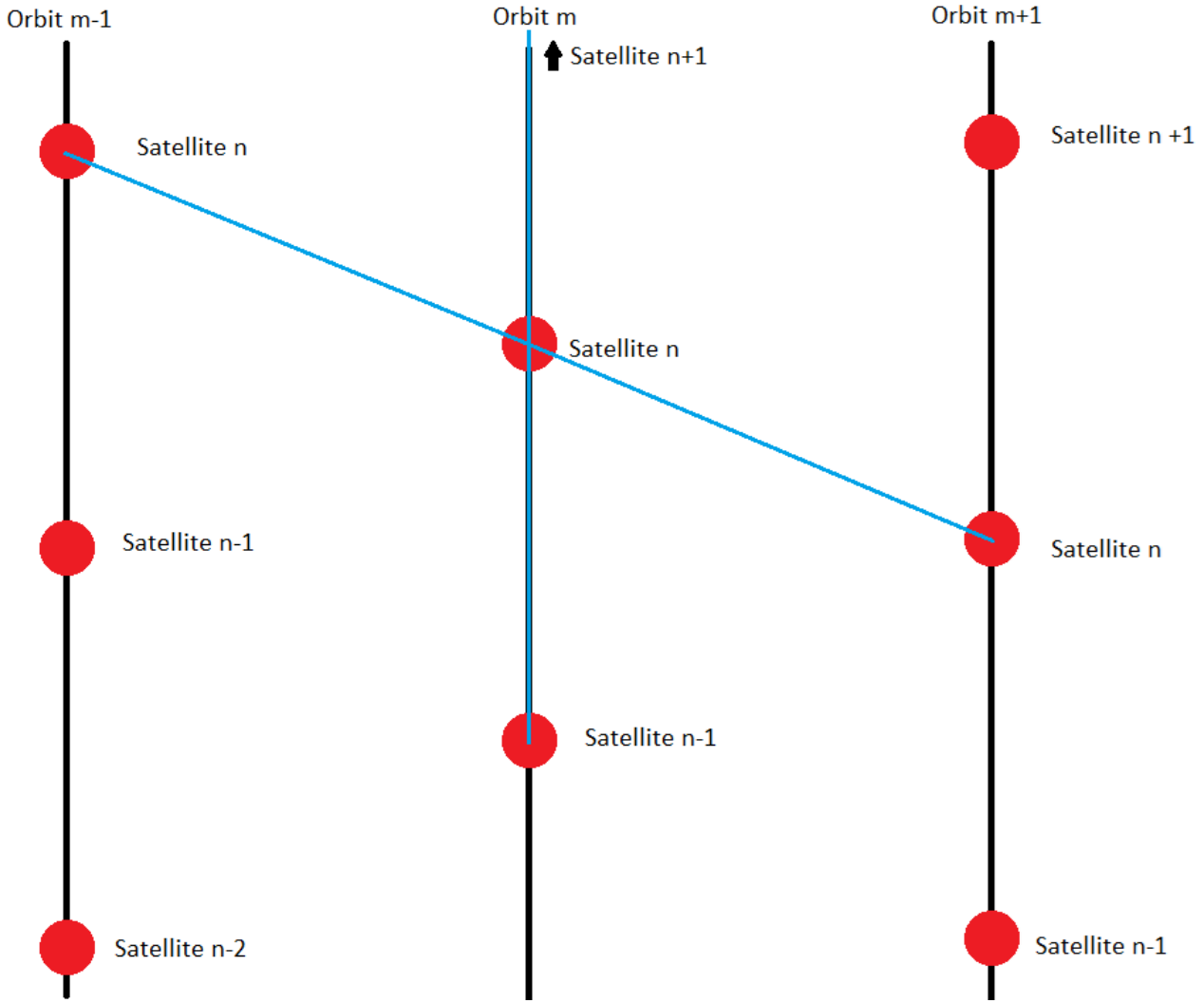
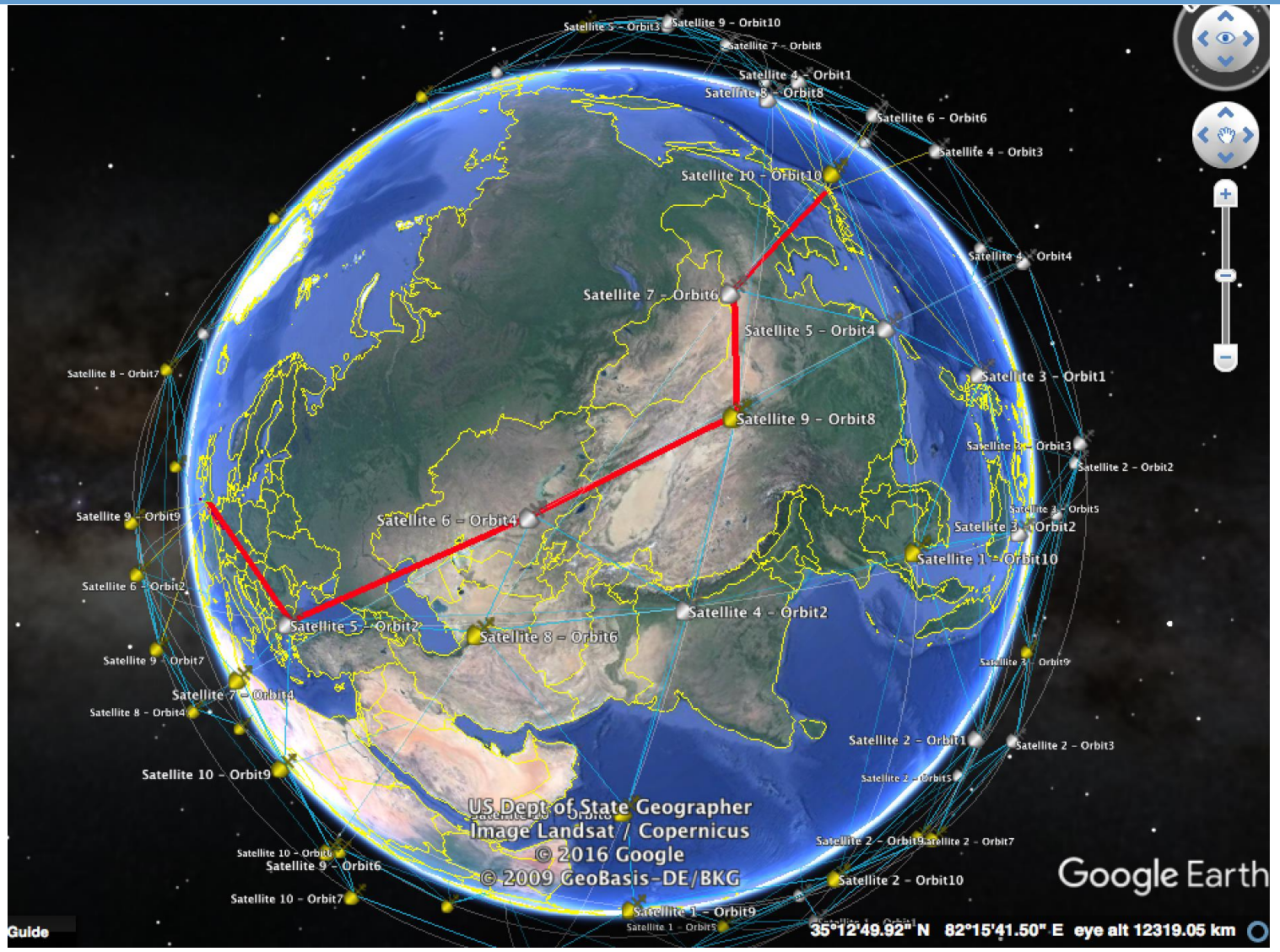
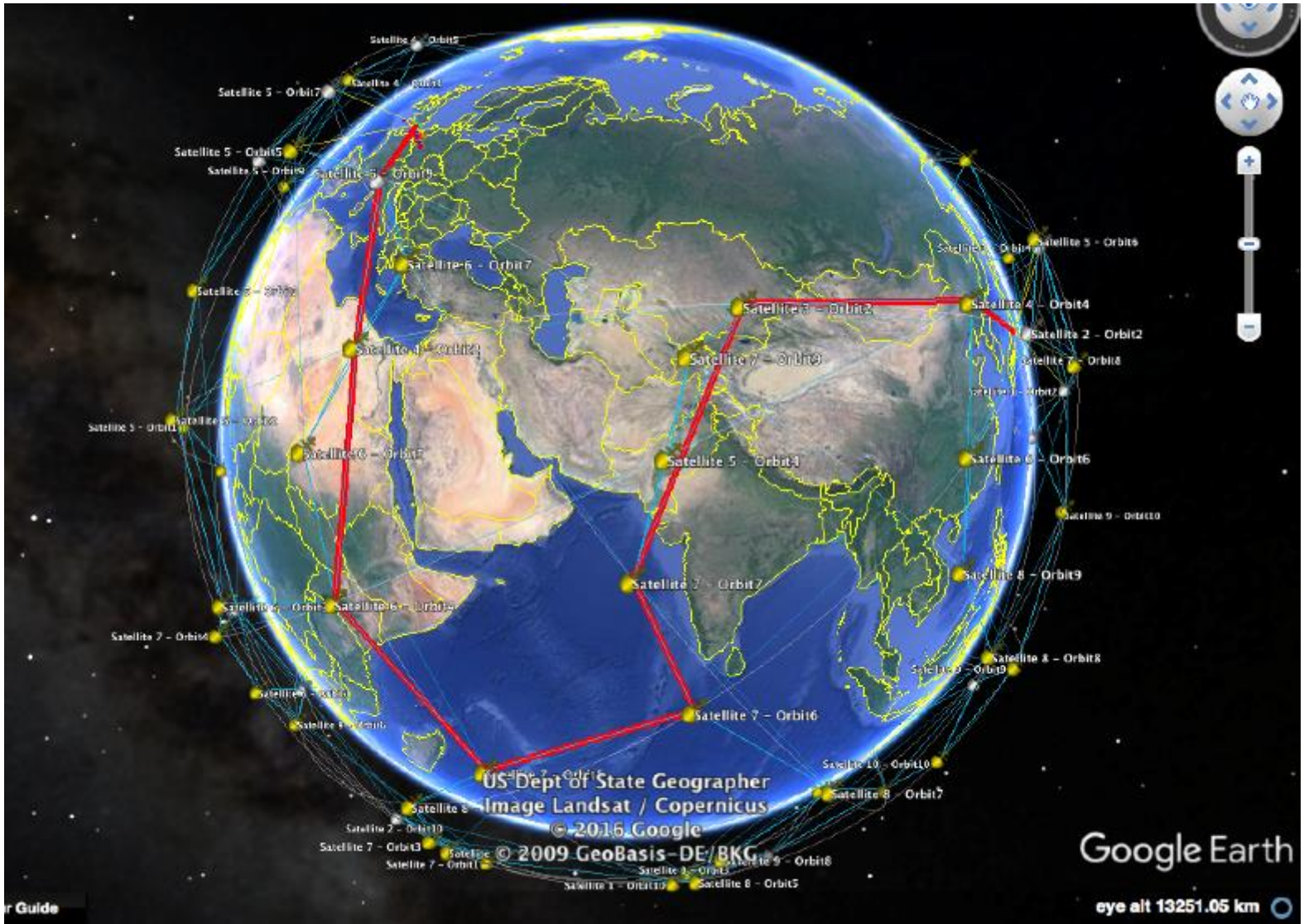
Communication Graph



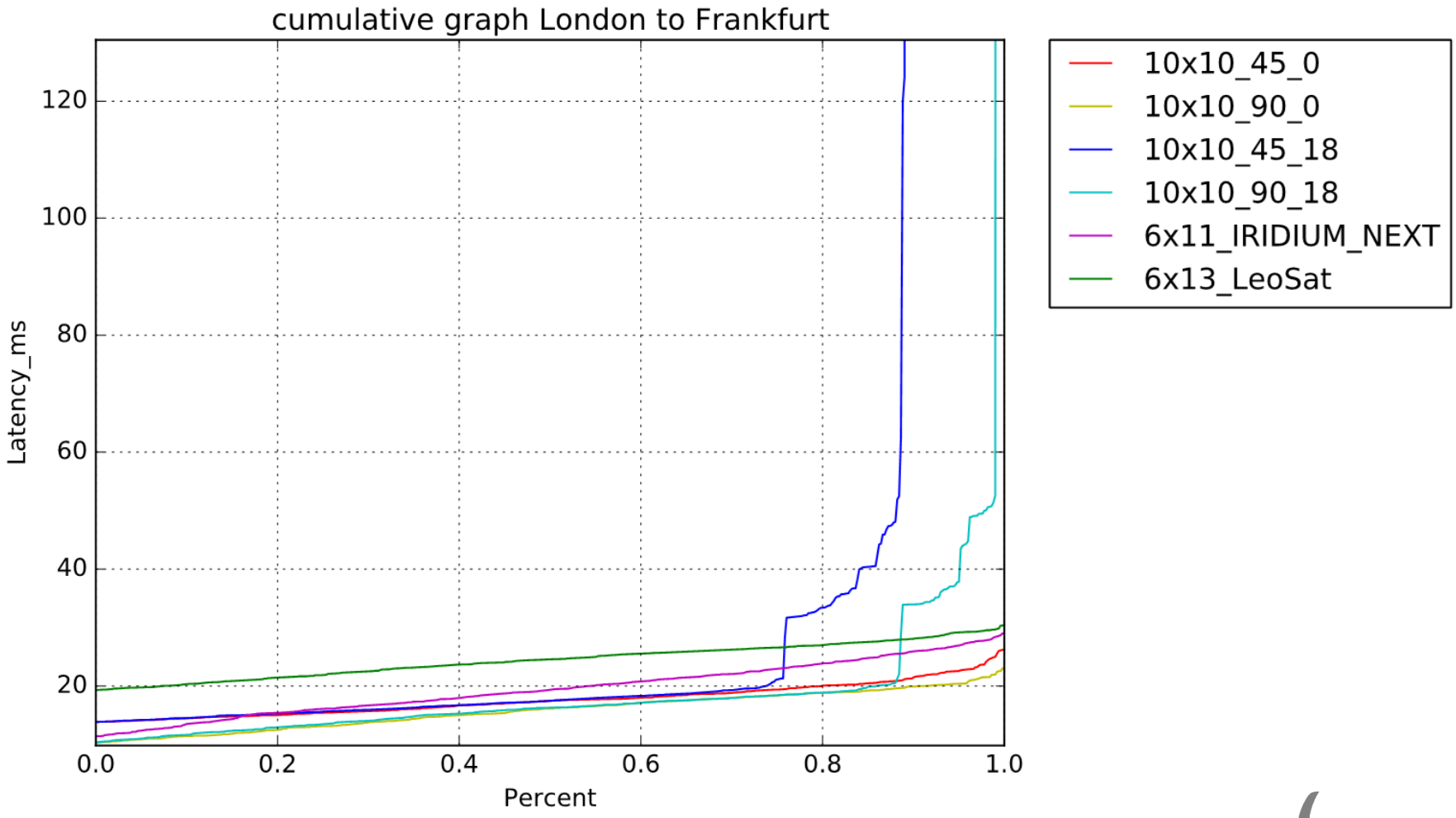
Simulation results: good path



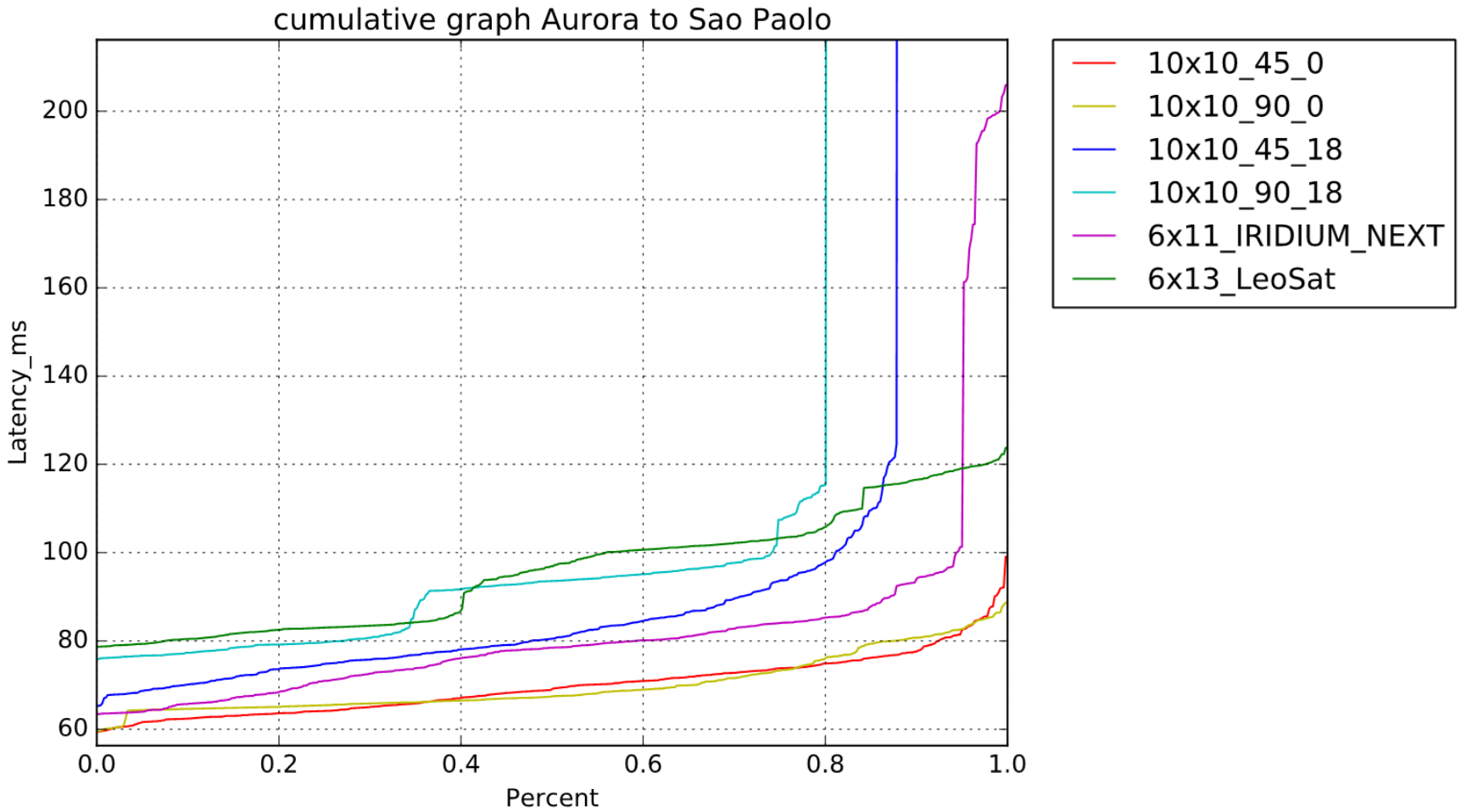
Simulation results: not so good path



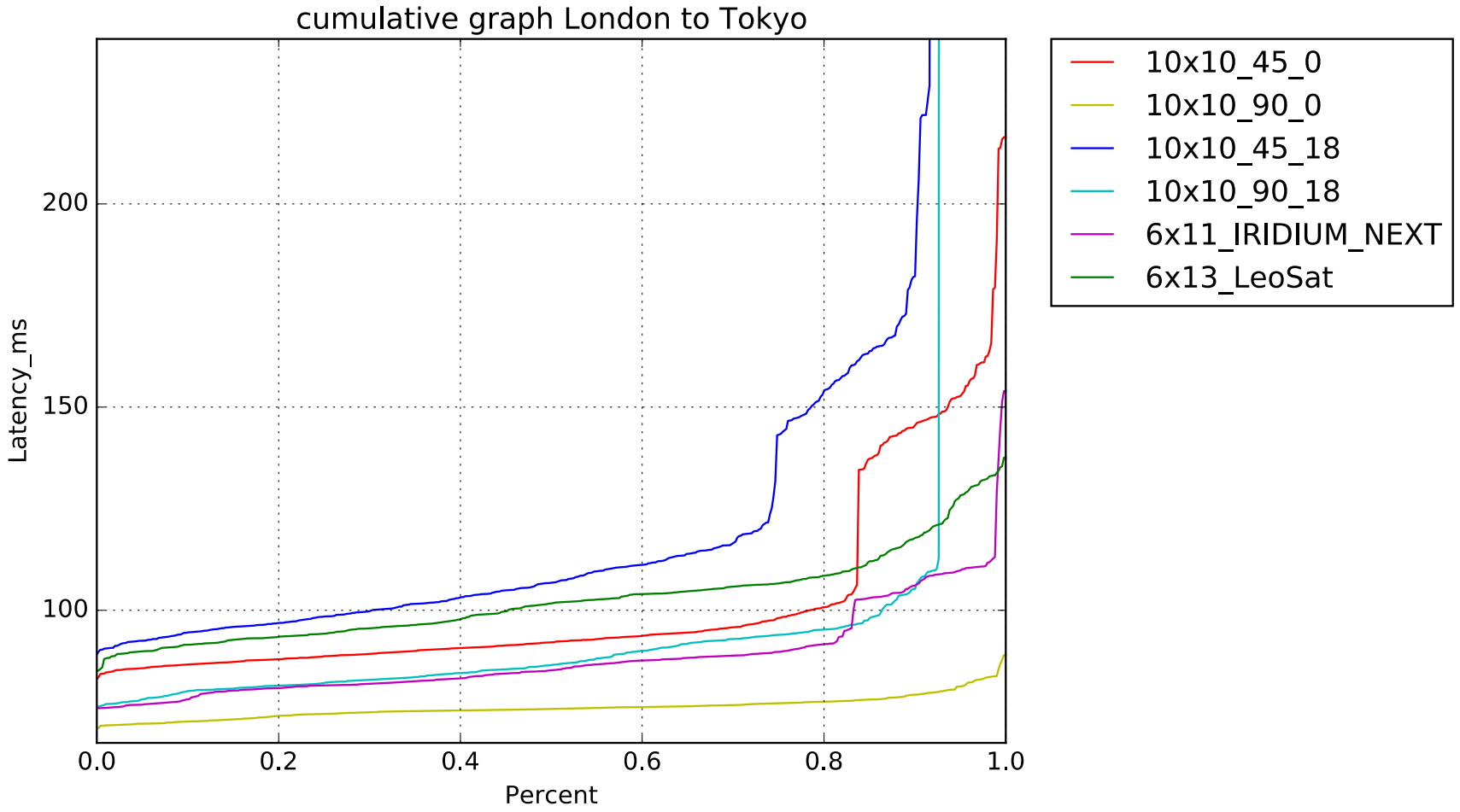
Simulation London to Frankfurt



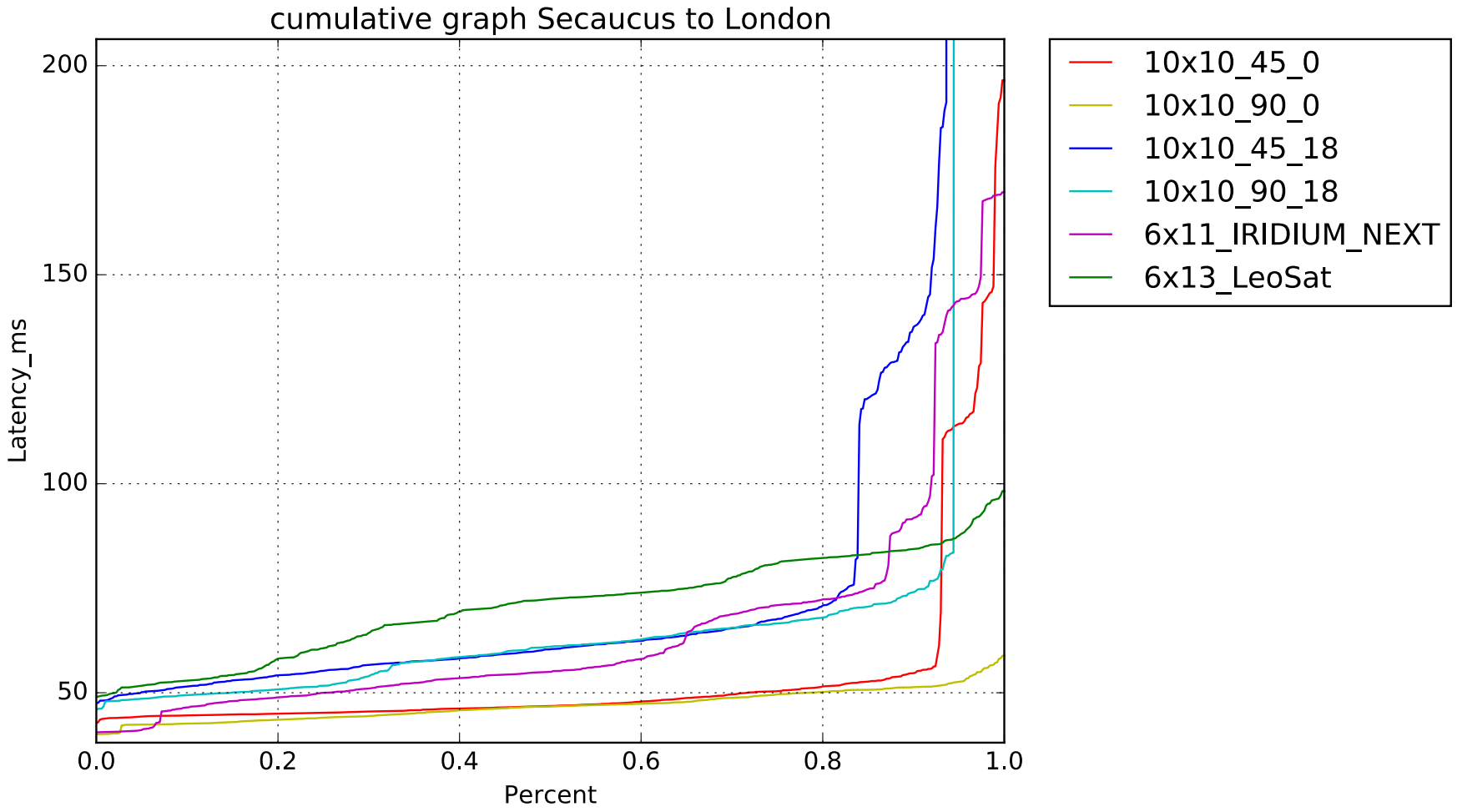
Simulation Aurora to Sao Paolo



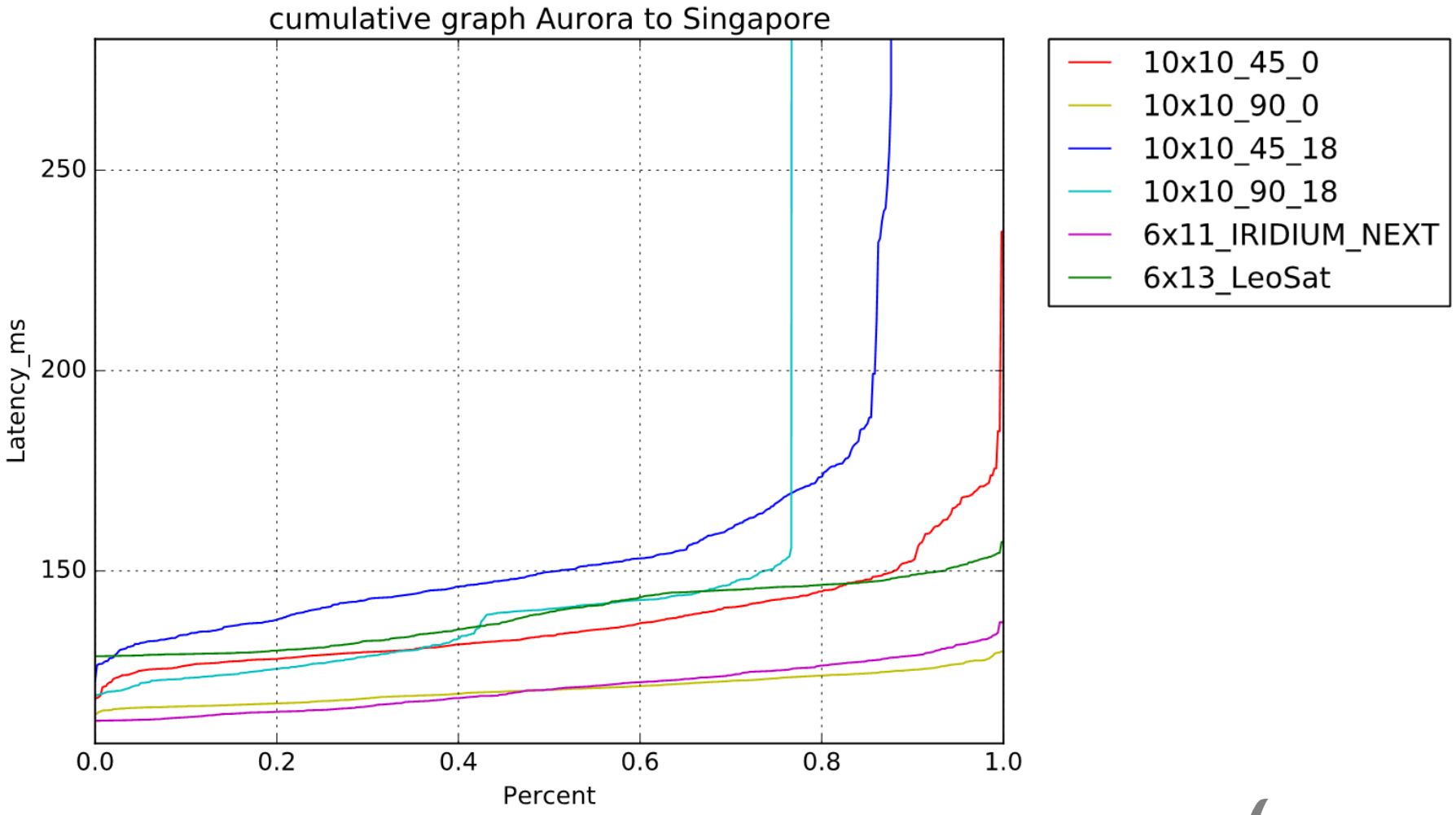
Simulation London to Tokyo



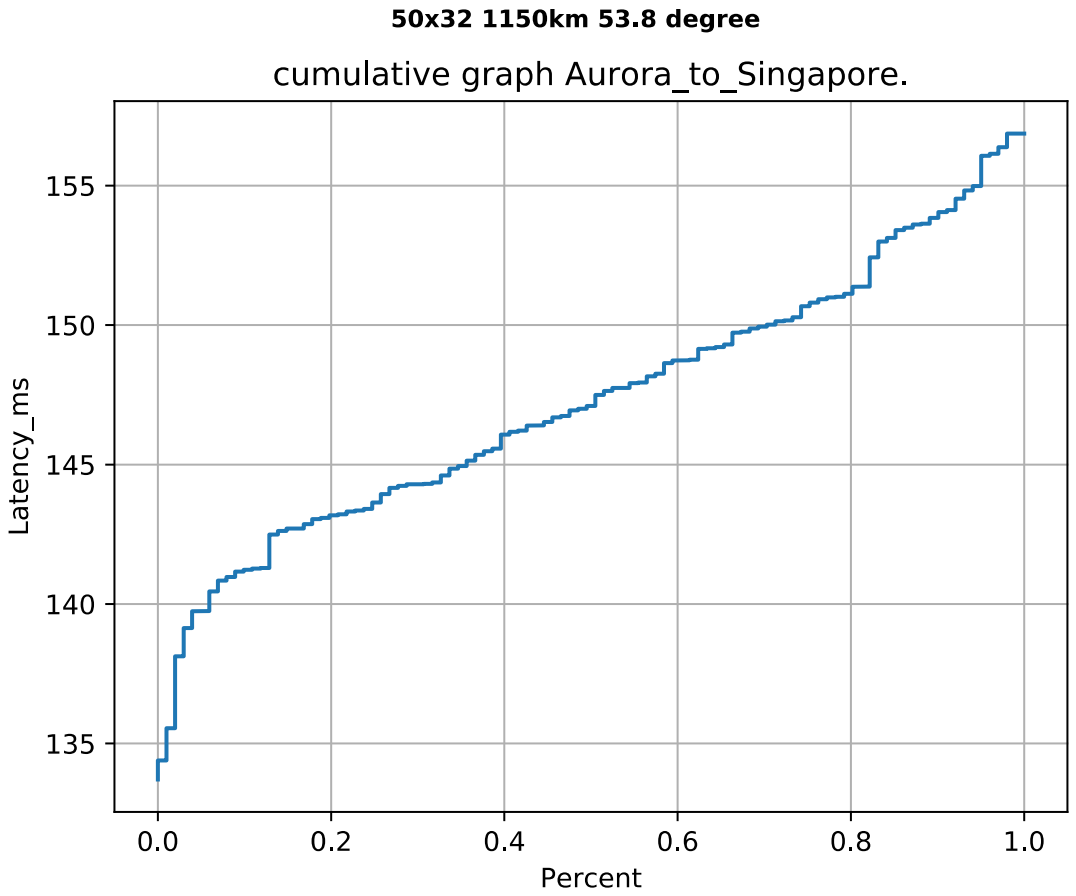
Simulation London to Secaucus



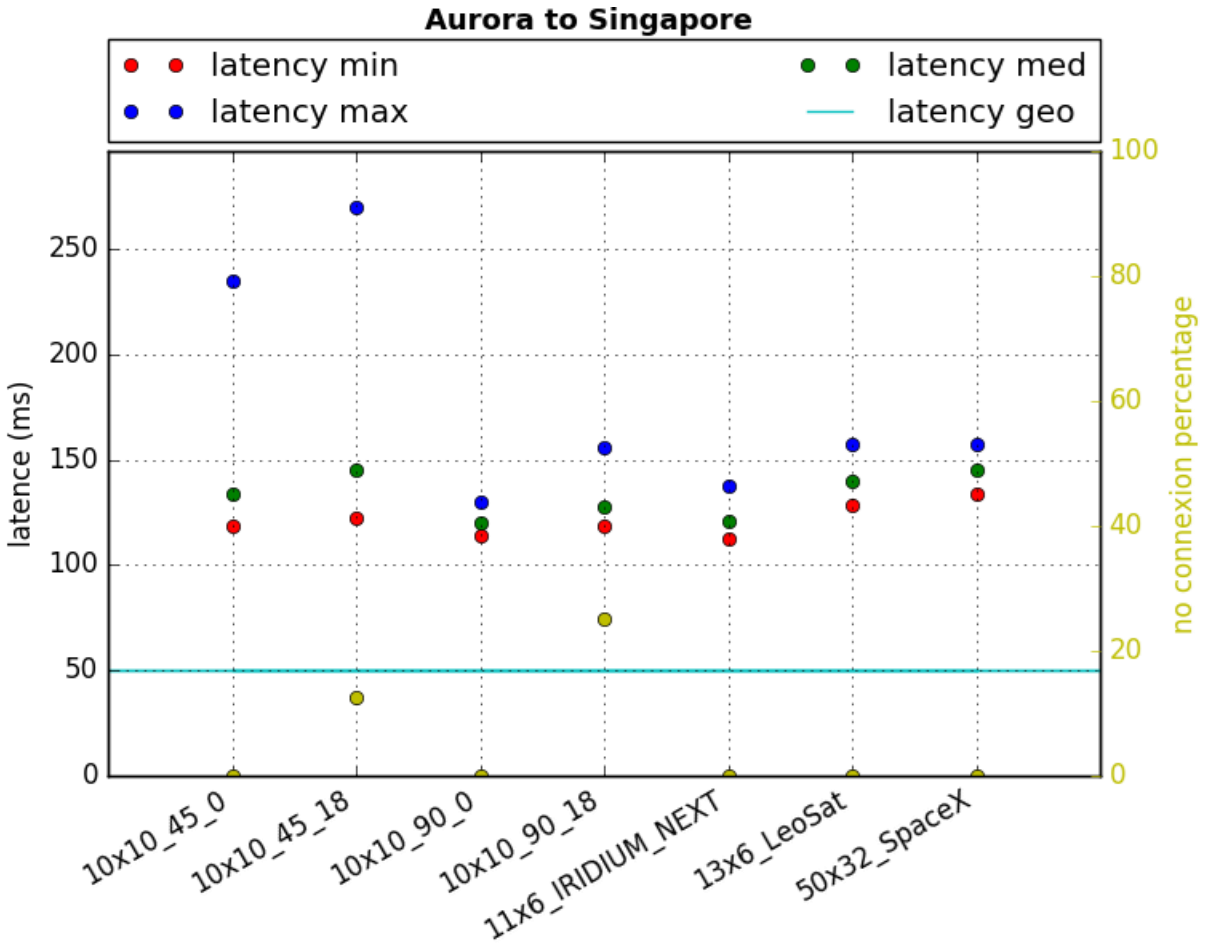
Simulation Aurora to Singapore



Space X


50x32 1150km 53.8 degree
cumulative graph Aurora_to_Singapore.
Latency_ms
155
150
145
140
135
0.0
0.2
0.4
0.6
0.8
1.0
Percent

Comparing different constellations



McKay Brothers
Microwave

Quincy
Extreme Data

The race season 6 Satellites will play a role Hard to tell exactly which

Stéphane Tyč