

The background features a blue-tinted view of Earth from space, with a bright light source on the left creating a lens flare. A satellite is shown in orbit on the right, and a communication tower is visible at the bottom right. The text 'sputnik24' is overlaid in a light blue font.

sputnik24[®]

Secured aggregation of different
communication networks in the
maritime environment

LTE/4G Long Range Systems

Presentation at:

Digital Ship |

Hamburg, 30th March 2023

Long Range LTE – 4G Antenna/Router product:



LONG RANGE

Enabling 4G Connectivity as far as possible from BTS

NOT: Highest possible Bandwidth @harbor

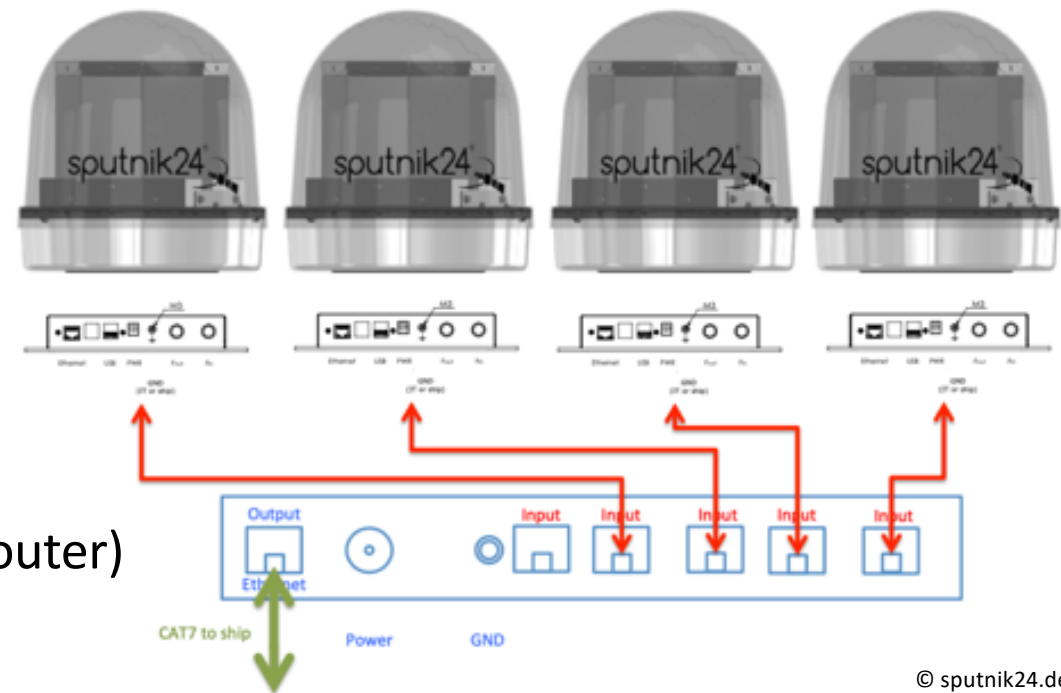
3GPP compliant MM2global / LM150global

Demand: Long Range & High Bandwidth

Possible solution: Load Balancing “Round Robin”

- Advantages:
 - Simple to integrate , easy to do fail-over
- Disadvantage:
 - No bandwidth aggregation
 - Different IP address per antenna
 - No coverage extension in 4G

Load Balancing Device (smart Router)



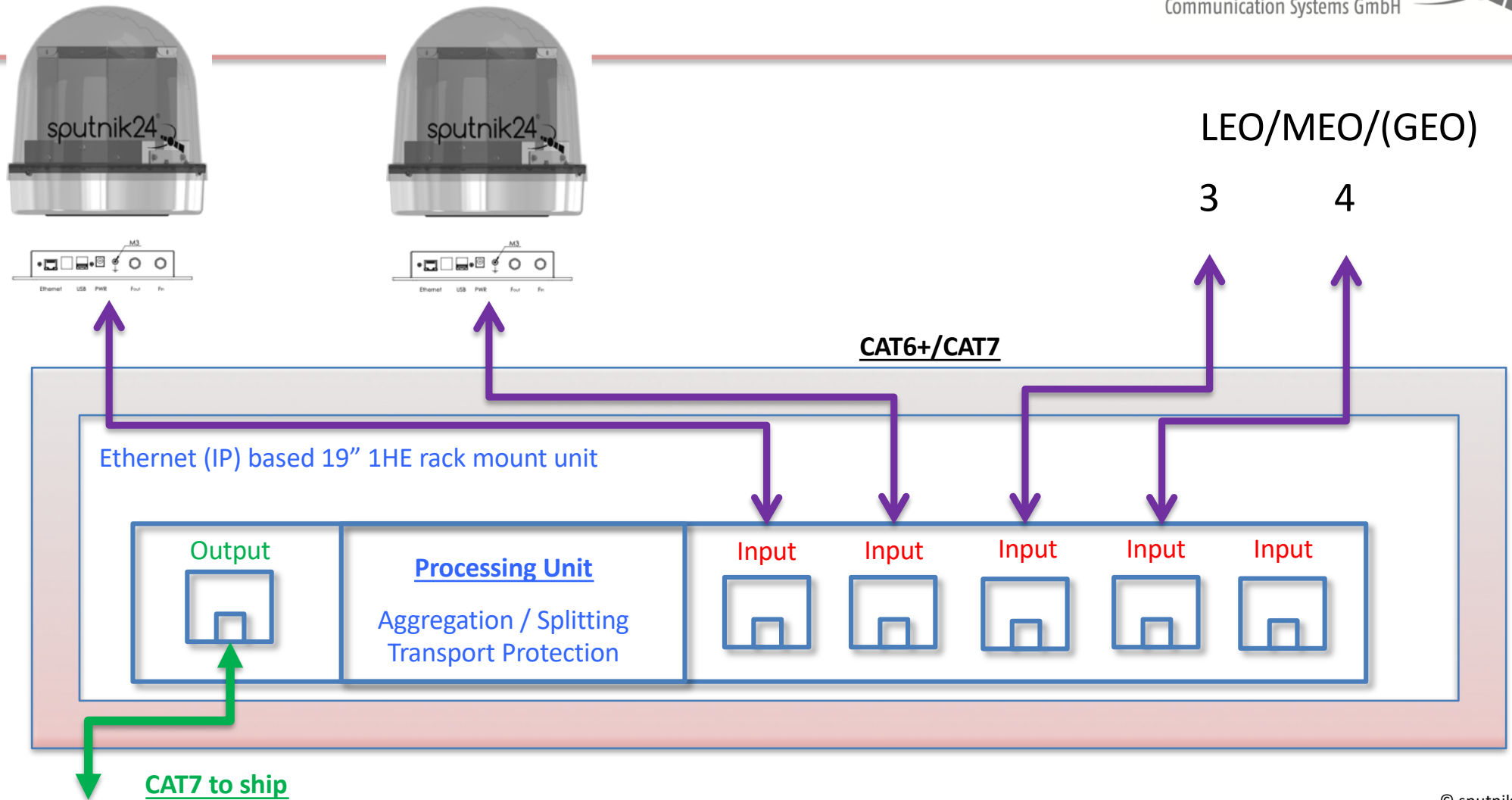
Demand: Long Range & High Bandwidth sputnik24[®] secured network aggregation



Sputnik24[®] solution: network (trunk) aggregation

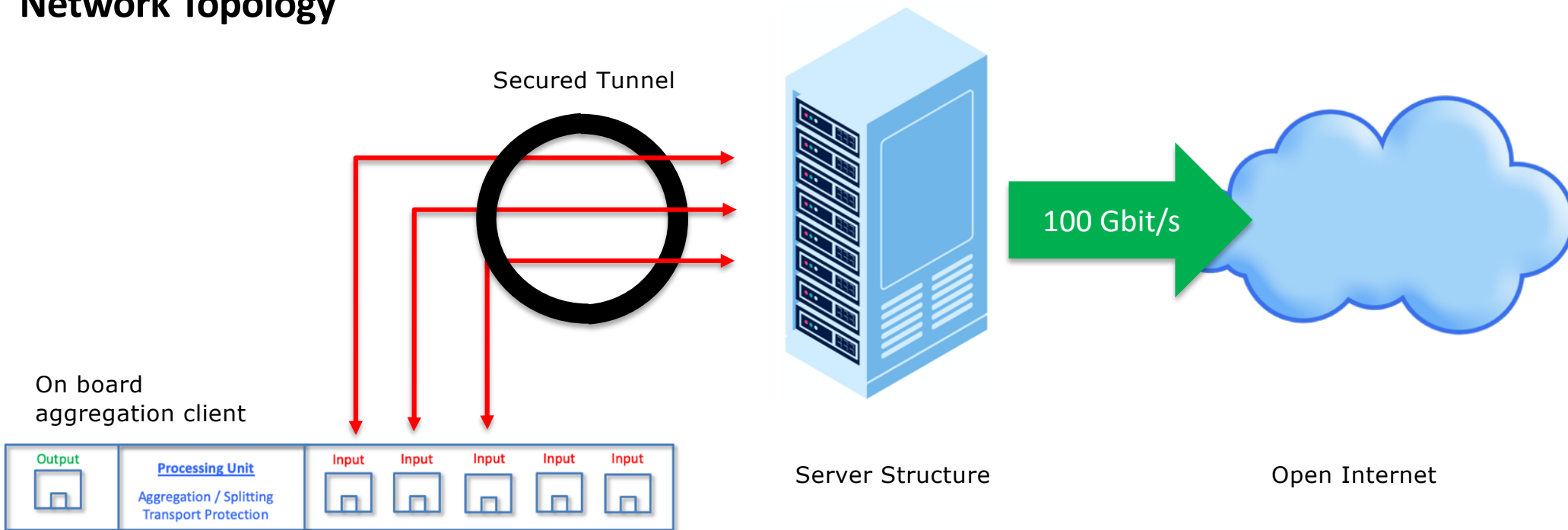
- Advantages:
 - **Simple to integrate** , no changes on existing topology or IP address range
 - Bandwidth aggregation **up to 80%**
 - **Extending and combining of coverage (different SIM)**
 - Same public IP for every client/application
 - Protection level of VPN
 - Dynamic bandwidth control and fail-over
 - **Seamless “sort-in and sort-out” of uplink on behalf of link quality**
 - High bandwidth for video transfer with VoIP Option
 - Not a SD-WAN
 - Integration of **3GPP compliant** components (4G/5G) only
- Disadvantage:
 - 20% “loss” (unused) Bandwidth
 - SD-WAN extensive control functions not available

Technical Details – on board



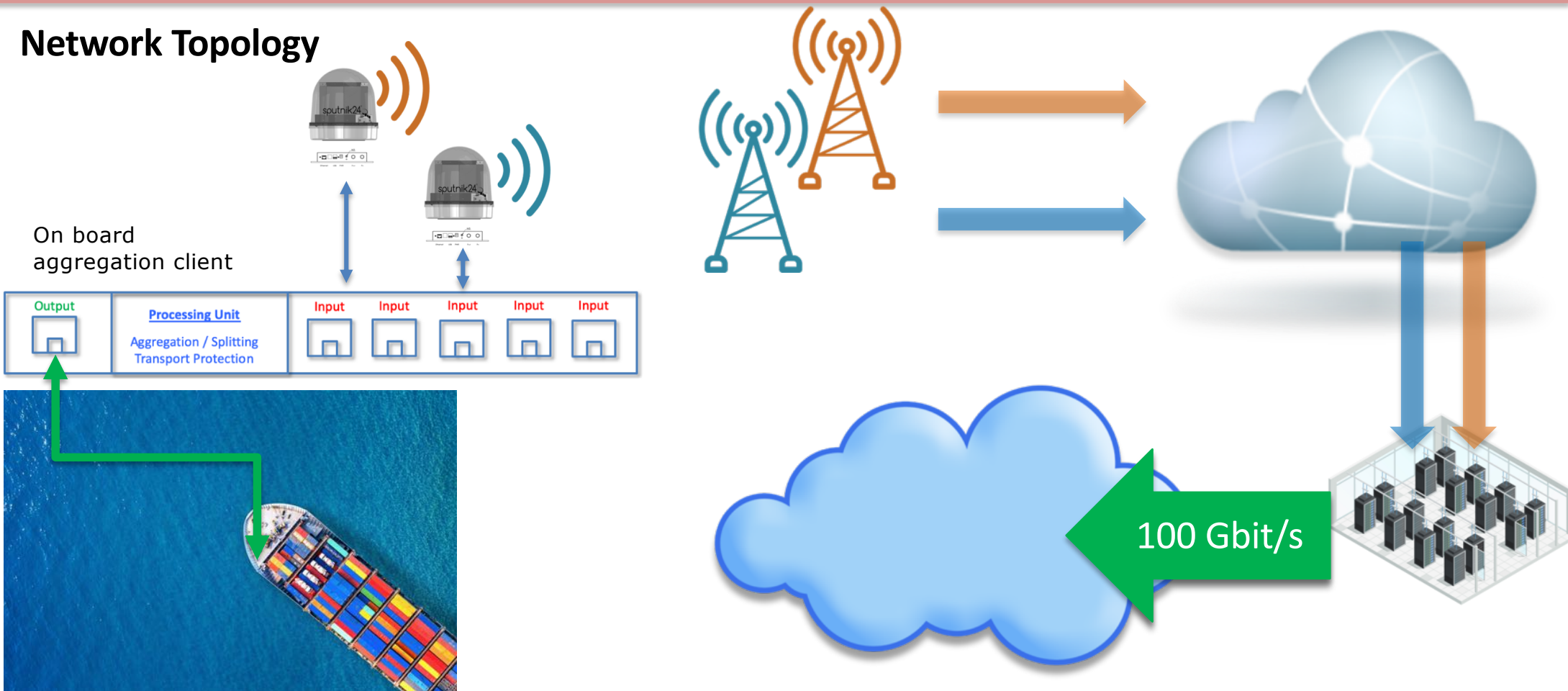
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Network Topology

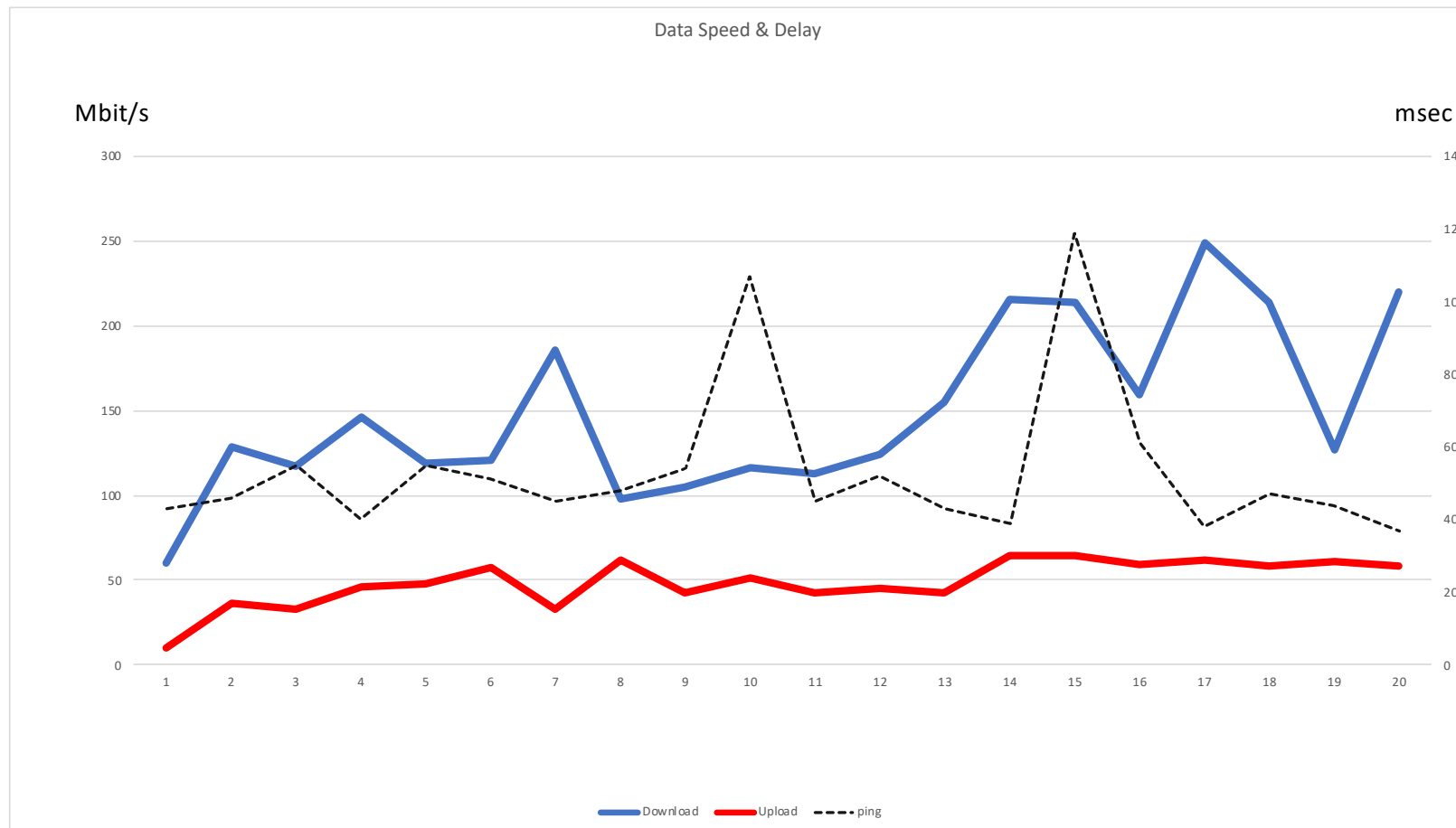


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Network Topology



Log data: Bandwidth



Long Range & High Bandwidth sputnik24[®] secured network aggregation



- Available from July 2023
- A) Variant as a „easy-to-use“ service (price per 100Mbit/s capability)
- B) Type of service: „simple“, „sophisticated“ and „managed“ services
- C) Option: Installation (client and server) just on customers IT only

Optimization options: Throughput (aggregated bandwidth)
 Latency
 Up/Downlink capabilities

Developed and produced in Germany

Customers get direct support (also EMC etc.) from dealer and
sputnik24.de

Easy integration in existing IT topology.

sputnik24[®] antenna/router system compliant **CISPR-25 class 5**
SAR Minimum-Distance: **0 Meter**
(EU 1999/519/EC & ICNIRP Guidelines)

The background is a deep blue space scene. On the left, the curved horizon of the Earth is visible, with a bright light source (the sun) just behind it, creating a lens flare effect. The rest of the background is filled with a field of stars and faint orbital lines. In the lower right, there is a faint, stylized graphic of a satellite in orbit and a ground station antenna tower.

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