

OPTICAL COMMUNICATION IN SPACE

SCYLIGHT ROADMAP ON OPTICAL COMMUNICATION FOR SATCOM

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PROPRIETARY INFORMATION

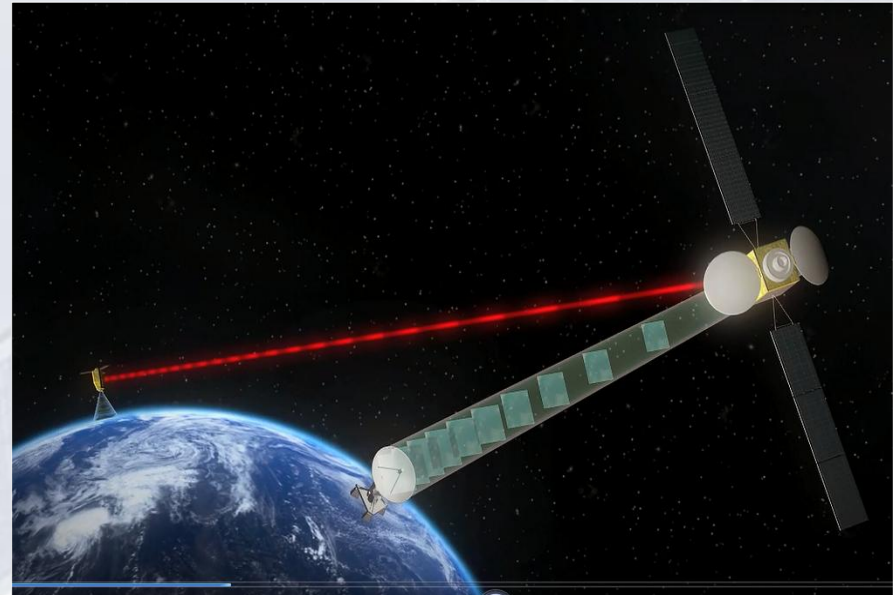
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LASER COMMUNICATION TERMINALS FOR DATA RELAY

- » **GEO Alphasat in orbit since July 2013**
- » **GEO EDRS A in orbit since Jan 2016**

- » Successful Link Operation from GEO with:
 - » LEO: Sentinel-1A, 1B
 - » LEO: Sentinel-2A, 2B
 - » Optical Ground Station
 - » ESA-OGS

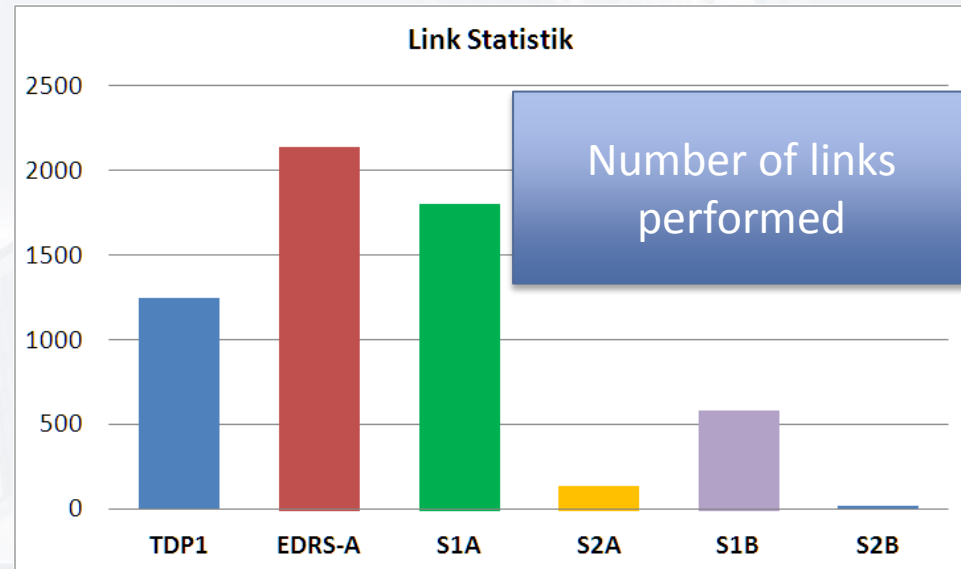
- » Underlying Laser Com technology is mature



OPERATIONAL DATA RELAY

Since November 2016, EDRS is operational, serving the Sentinel users

- Now: 20 operational links per day Sentinel 1A and 1B with EDRS A
- will grow to 45 links per day with 4 Sentinels



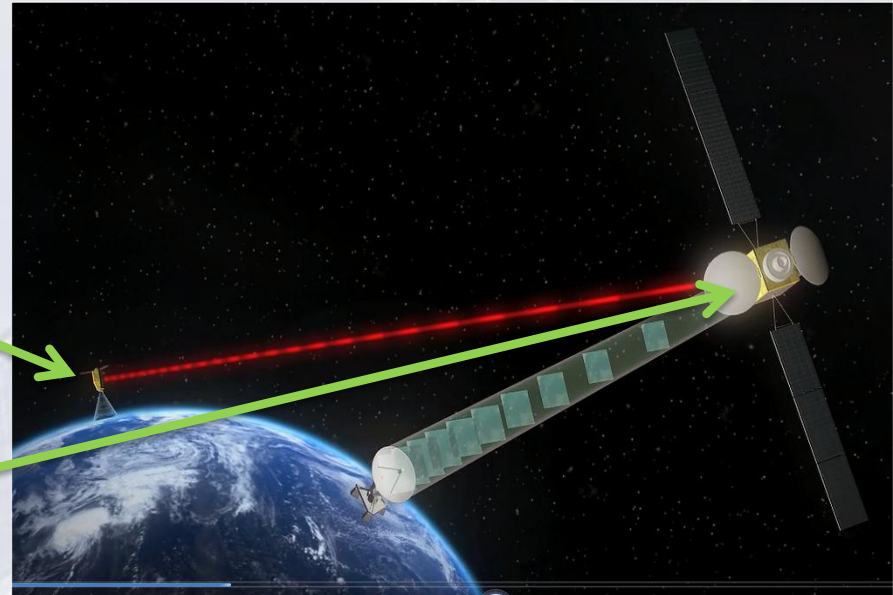
DATA RELAY ROADMAP

User Terminal:

- » SMART LCT
- » Simple, low complexity, but EDRS compatible
- » Development program running, supported by DLR

GEO Terminal:

- » Next Generation GEO LCT



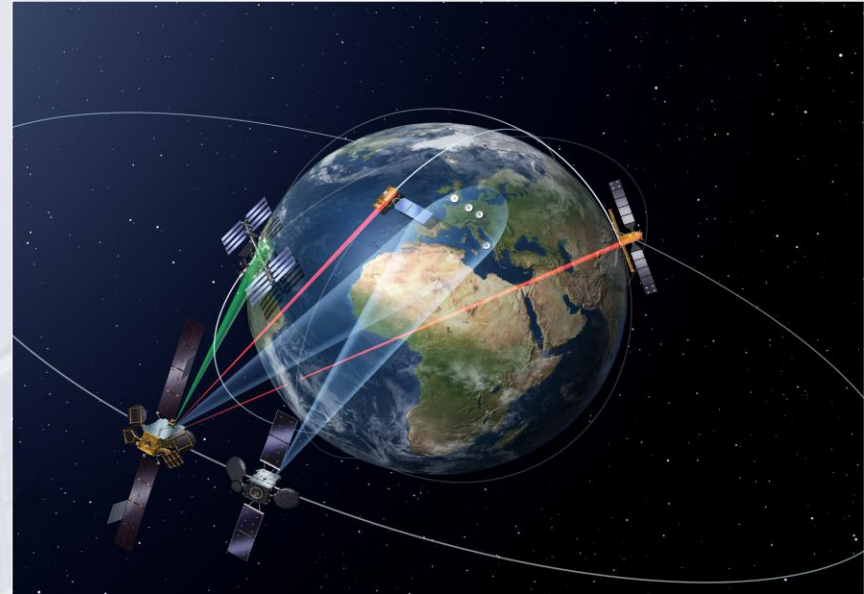
SCYLIGHT NEXT GENERATION GEO LCT

Next step: Drive Laser Com technology further.

Make data relay systems

- » more flexible in operation,
- » more efficient,
- » more attractive for LEO / UAV users.
- » Provide higher capacity
- » Expand to new applications

→ **ScyLight Next Generation GEO LCT**



NEW FEATURES



Dual Wavelength 1064 nm + 1550 nm support



GEO-GEO Link 1.8 Gbps over 80.000 km



3.6+ High Data Rate 3.6 Gbps reception



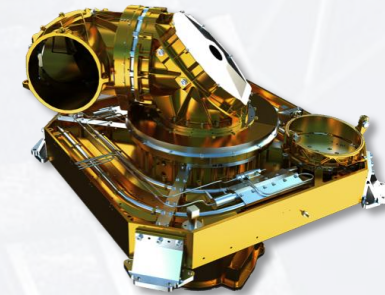
Fast Acquisition Drastic reduction of acquisition time



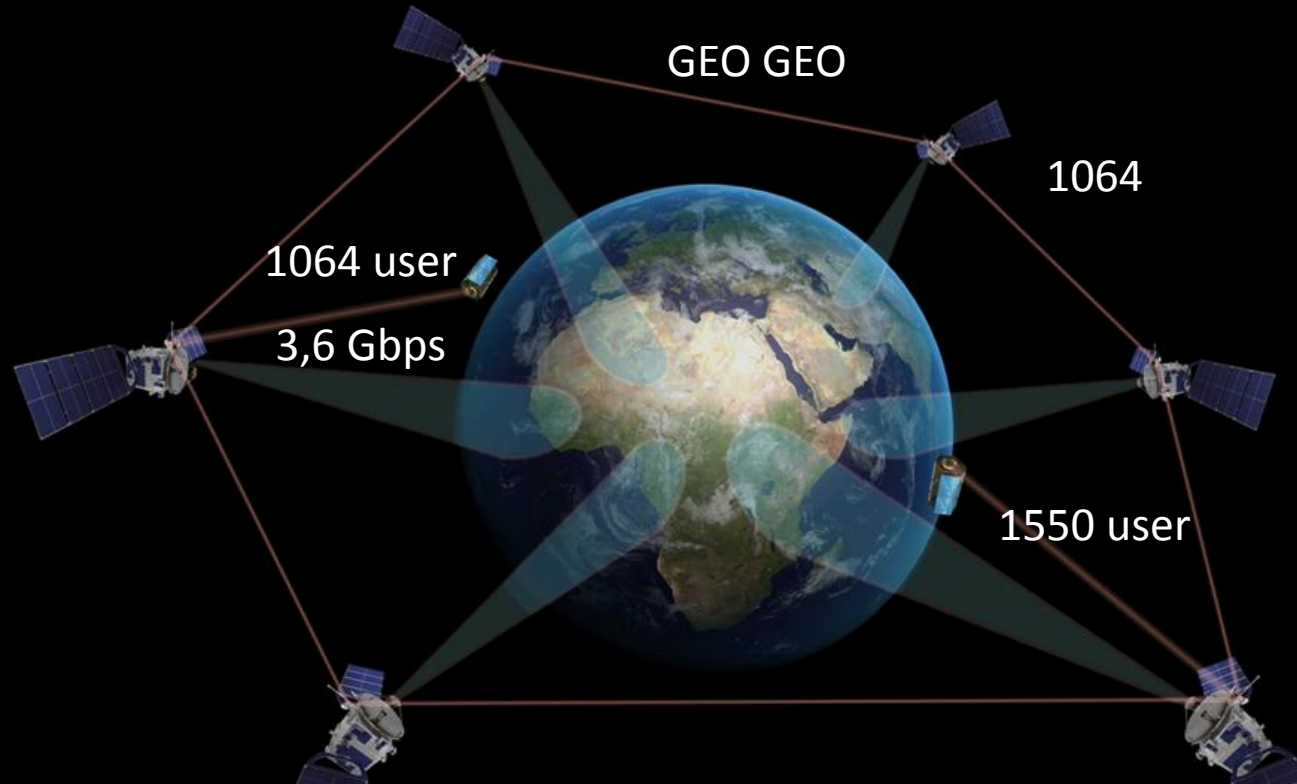
Improved Reliability FIT rate reduction; Colder operating temperatures



ASK Forward 2 Mbps forward channel (GND→GEO→LEO/UAV)



NEXT GENERATION GEO LCT TECHNOLOGY APPLICATIONS



A large satellite with long solar panel arrays is shown in space, emitting a bright laser beam from its central body. The background is a light blue sky with some clouds.

THANK YOU FOR YOUR ATTENTION

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