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LASER COMMUNICATION.
MADE SCALABLE.

# C21 Presentation

February 2024

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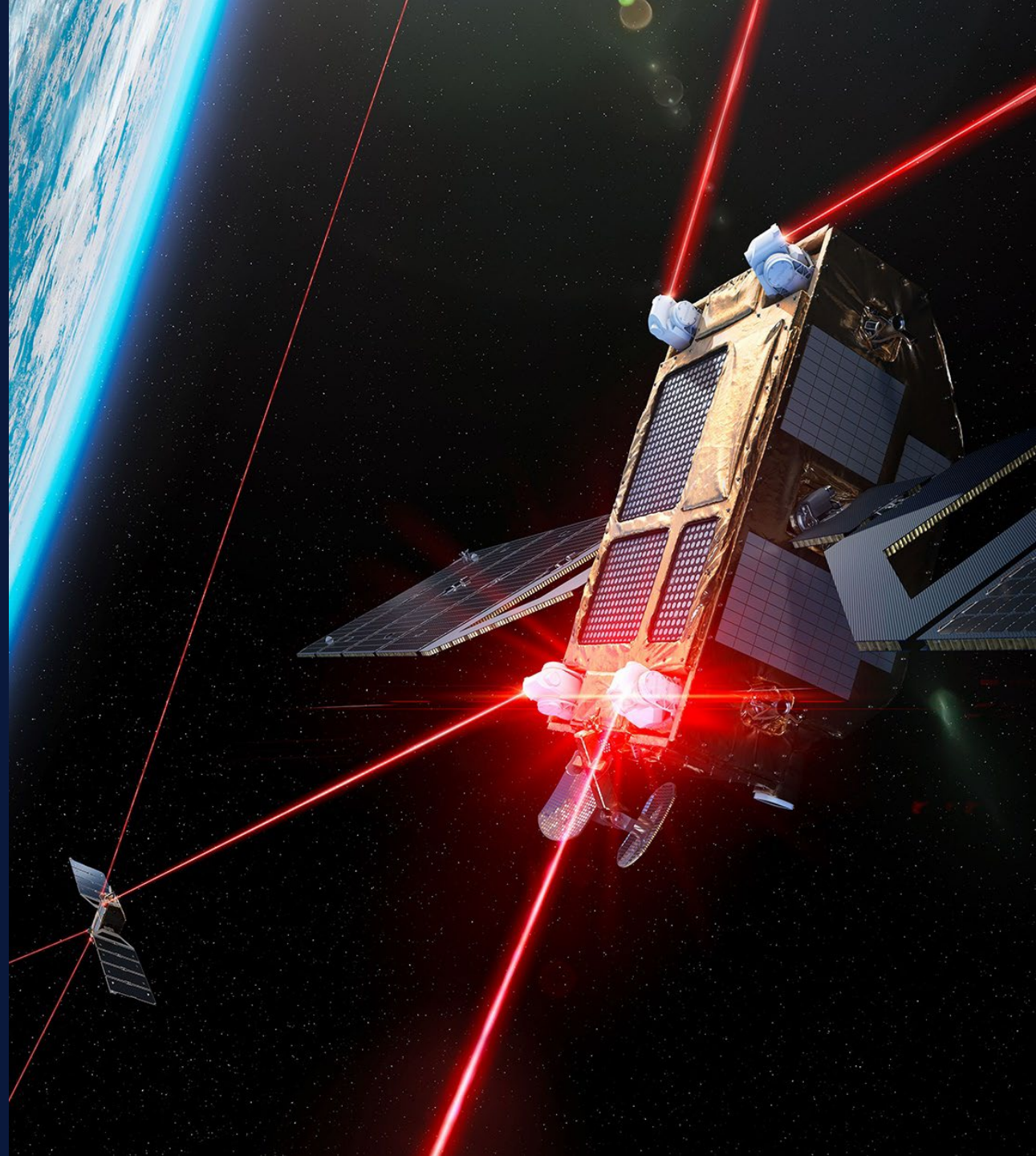
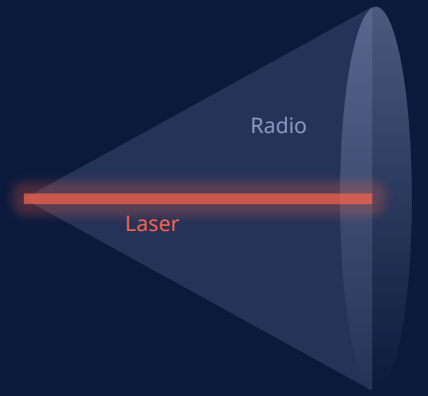


# Why Laser Communication

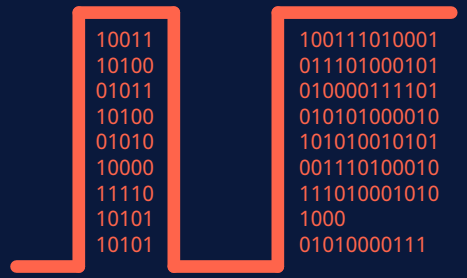
## FAST
Ultra high data rates of multiple Gigabits per second

## SECURE
Small beam footprint ensures low probability of detection and interference




## LICENSE-FREE
No frequency coordination required due to unregulated spectrum

## COST-EFFICIENT
High data rates allow lowest cost per bit



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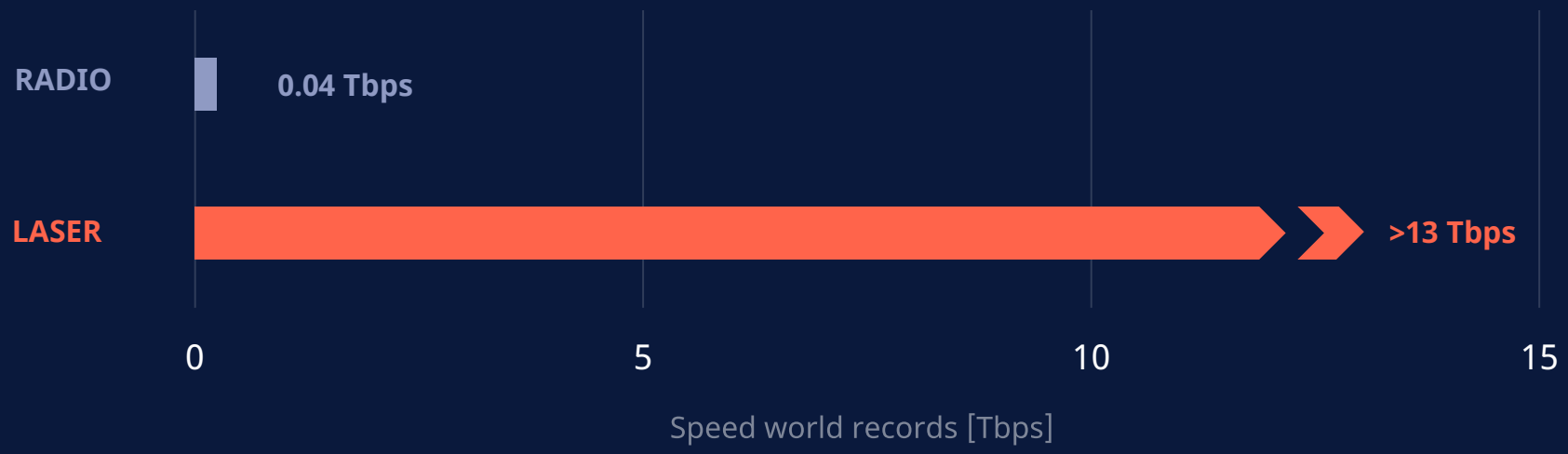
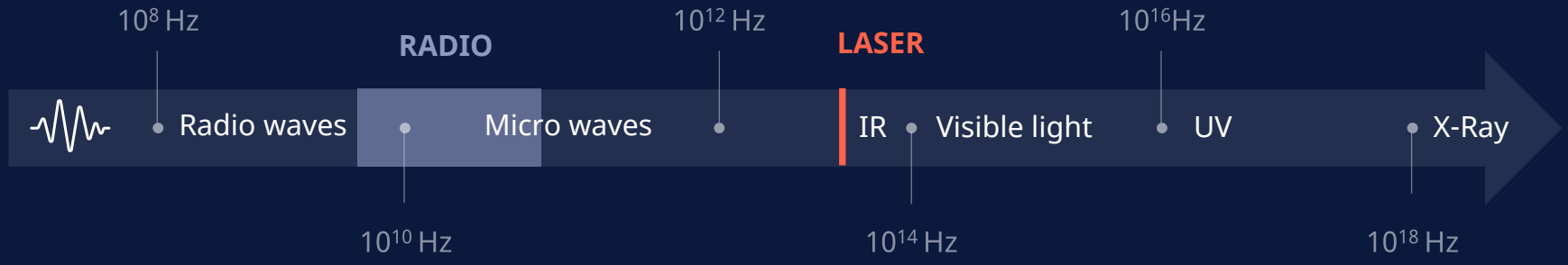
# Unprecedented Wireless Communication Speeds

**FAST**

- Data rates of multiple Gbps already today
- Speeds of **multiple Tbps** possible in the future due to available bandwidth of optical frequencies



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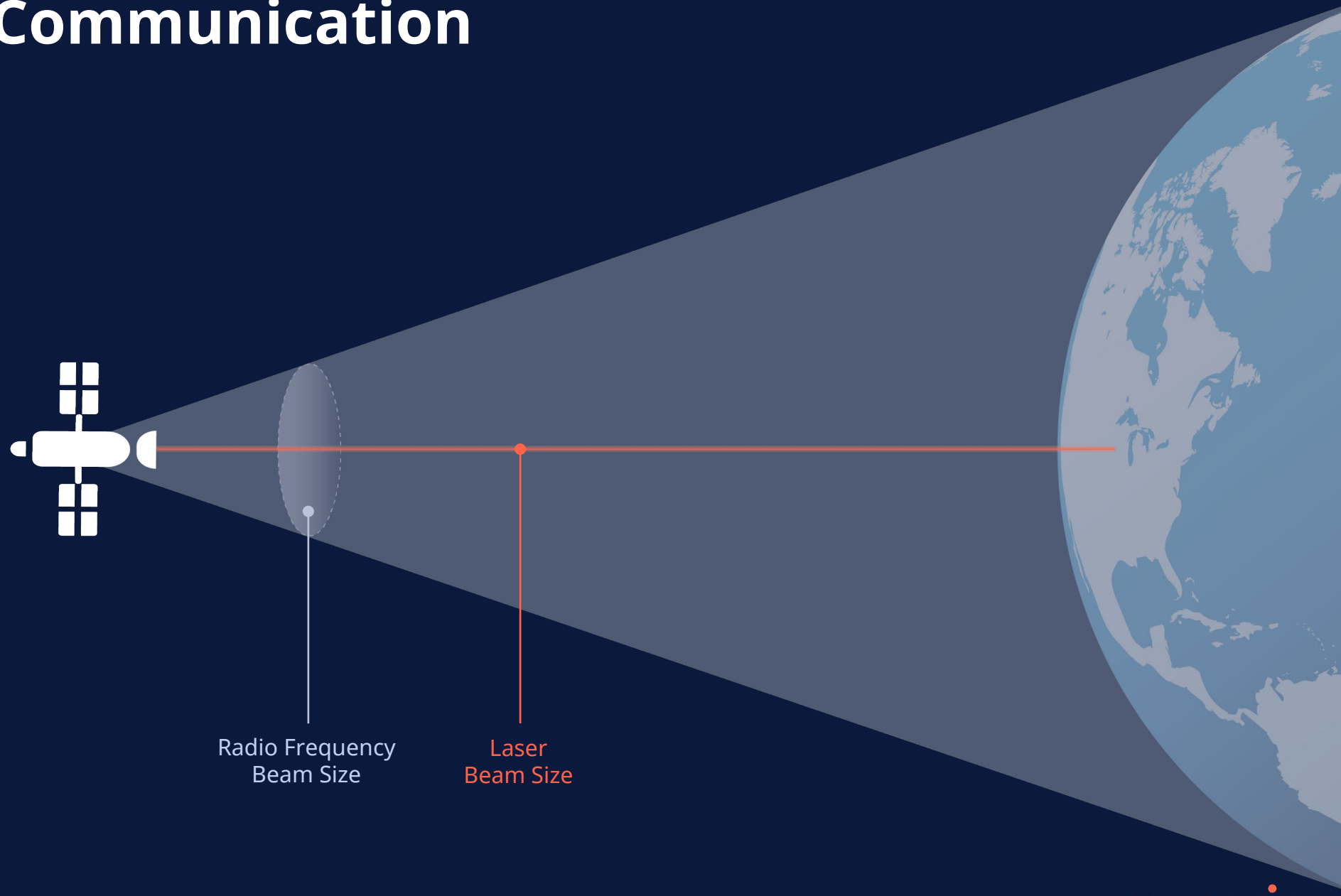
# Ultra-Secure Communication

**SECURE**

- Small beam footprint
- Low probability of detection and interference



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# Cost Efficient

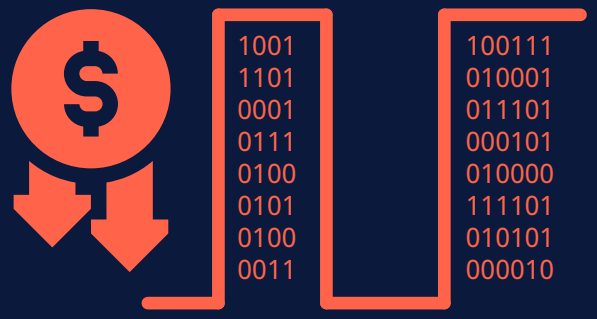
**LICENSE-FREE**

- No frequency coordination required
- Unregulated spectrum
- Free to use without limitations

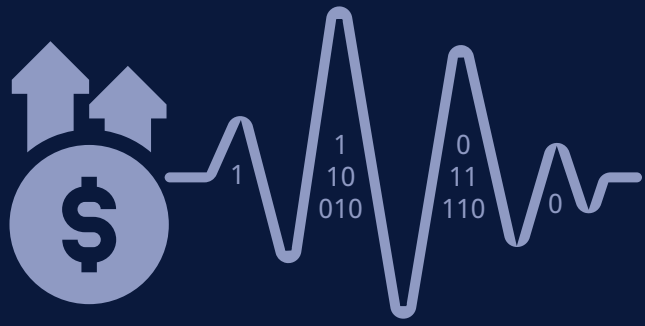
| | Typ. available bandwidth | Time to approval | License-free |
|---|---|---|---|
| X-band | 1 GHz | >12 months | ☐ no |
| Ka-band | 2 GHz | >12 months | ☐ no |
| Laser | 11,500 GHz | N/A | ☑ yes |

**COST-EFFICIENT**

- High data rates allow very low cost per bit




Laser Communications




Radio Frequency



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# Laser Communication made scalable

## Global Footprint and Experienced Management


**300+**
Employees

**150+**
Qualified Engineers

**40+**
Nationalities

TÜV SÜD ISO 9001 MYNA Nasdaq Listed

**Mustafa Veziroglu**
CEO
SA Photonics
LATTICE SEMICONDUCTOR XILINX

**Joachim Horwath**
CTO & Founder
DLR SIEMENS

**Stefan Berndt–von Buelow**
CFO
G+D Currency Technology

**Tim Deaver**
VP Global Sales and Solutions
G+D Currency Technology



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# 10+ Years Experience with Laser Communications

**2009**

**Founded** by experts of the German Aerospace Center (DLR)

**2012**

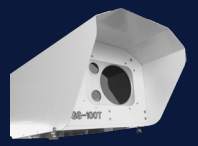
Singleton

**2013**

**World record**
1 Gbps transmission

**2014**

Singleton

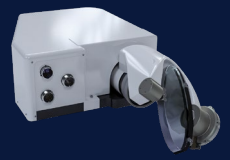


**2015**

**Long distance demonstration**
over 140 km

**2016**

Demonstrator



**2017**

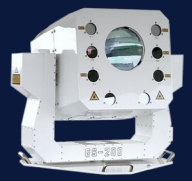
**World record**
10 Gbps transmission

**IPO** on Frankfurt stock exchange

Demonstrator

**2018**

Demonstrator



**2021**

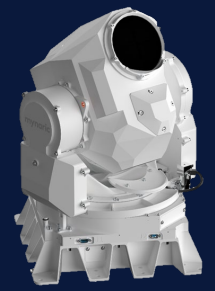
Opening of **serial production facility**

**IPO** on Nasdaq

**HAWK**
Pre-series product

**2022**

**CONDOR Mk3**
Series product



**2023**

Expansion of **facilities to Triebwerk**

Testing Working Principles

Technology Refinement

Early product deliveries



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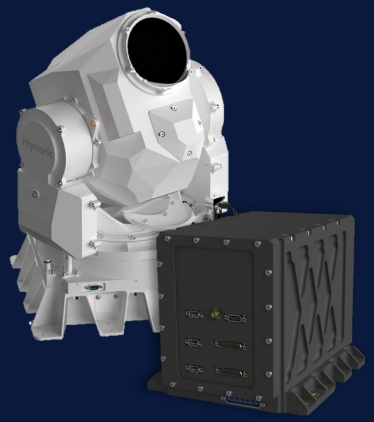
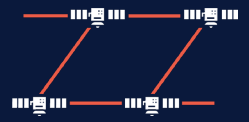
# Product Portfolio

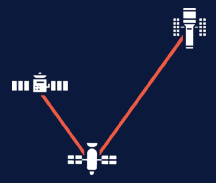


## CONDOR Mk3

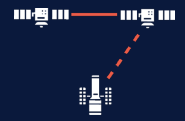
OCT for inter-satellite links in LEO



Constellation



Multi-Orbit Data Relay



3rd Party Connection

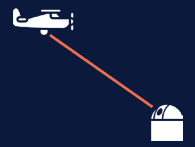
## CONDOR Plus

- MEO, GEO and beyond
- Inter-satellite and space-to-ground links

## HAWK Gen 1

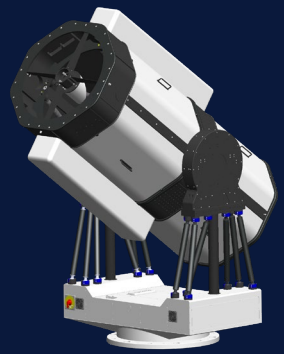
OCT for a wide array of airborne and terrestrial applications

Air-to-Air



Air-to-Ground

Ground-to-Ground



## RHINO

- Terrestrial system
- Connects to platforms in space



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# Beyond LEO

- LEO to MEO or GEO
  - Existing today in limited capabilities but interest is rapidly growing
  - Increased distances compared to LEO to LEO
  - Increased radiation environment with longer lifetime expectations

- Cislunar networks
  - In development for both LMO constellations and Earth to Moon communications

- Deep Space Optical Communications
  - NASA’s program to demonstrate laser communications over large distances
  - Currently achieved communications at about 10 million miles
  - Next demonstration with Psyche satellite will attempt to establish communications at 93 million miles (1 astronomical unit)