

New Focus and New Orbits

**Are the NGSO's a threat or an opportunity
to the current GEO business models?**

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03b mPOWER 2nd Generation MEO



Start of service in MEO with 12 satellites

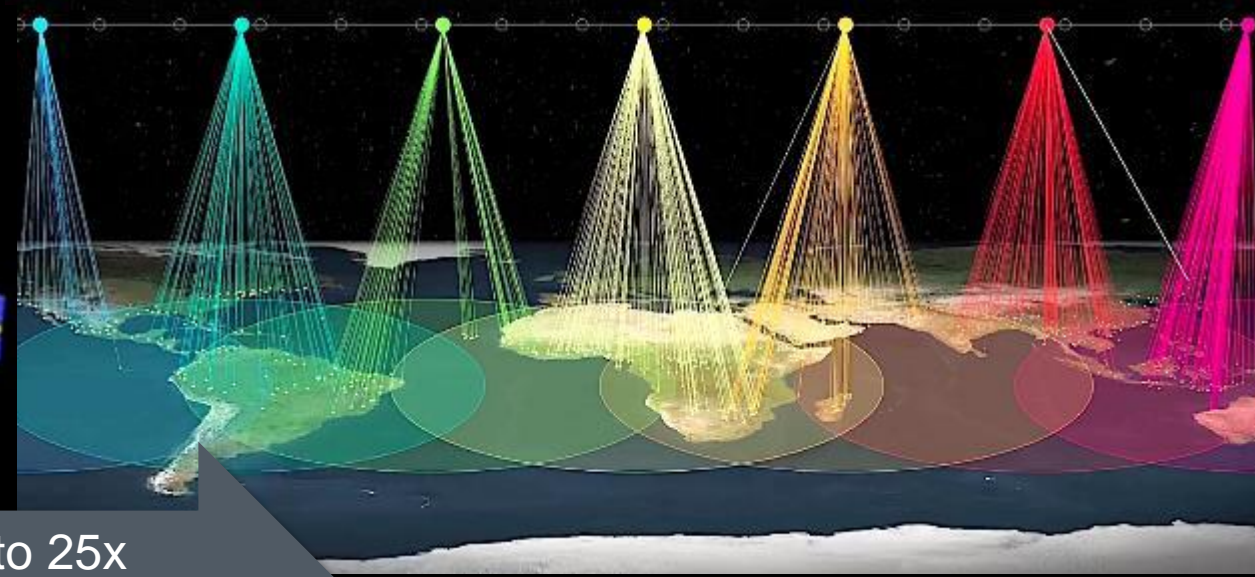
Offer hybrid GEO/MEO solutions

mPOWER announced

Scale 1st gen with 8 more satellites

Deploy Network intelligence

mPOWER Start of Service



10 to 25x Improvement

mPOWER

Broadening the addressable market

KEY OBJECTIVES

- Low cost
- Low power
- Ease-of-use/installation
- High level of integration
- High efficiency/shared radio frequency (RF)
- Dynamic resource allocation
- Software-defined networking (SDN)

DEVELOPMENTS ACROSS MULTIPLE VERTICALS/PRODUCTS

- Common standards, platforms, APIs



Telcos



Energy



Maritime



Aero



Government

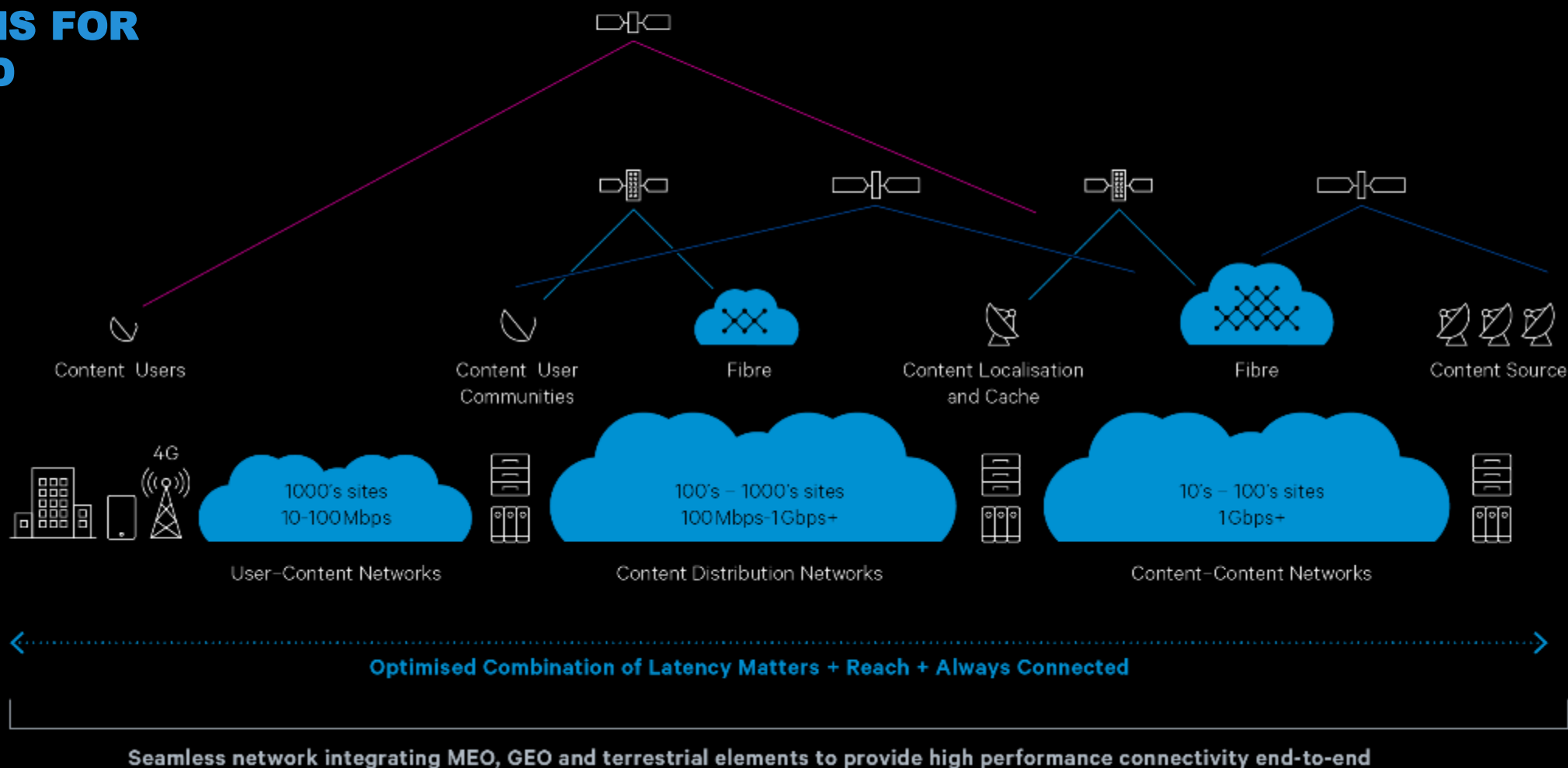


Cloud

Aligning Satellite to Next-Generation Data Architectures

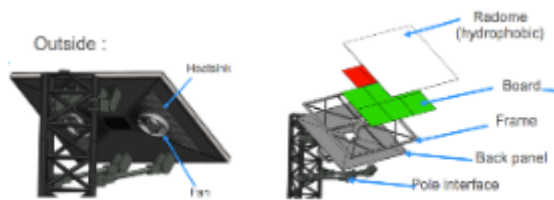
PLATFORMS FOR OPTIMISED

- Latency
- Coverage
- Resiliency
- Flexibility



Flat Panel Antenna Development

Viasat



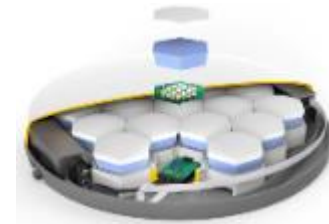
- ▲ Development Contract signed in Dec17
- ▲ Optimized for the O3b equatorial orbit
 - Dual beam capable (handover)
 - Separate Tx and Rx aperture on a single backing – all electronic
 - Uses existing ASIC (common across multiple Viasat product lines)

Alcan

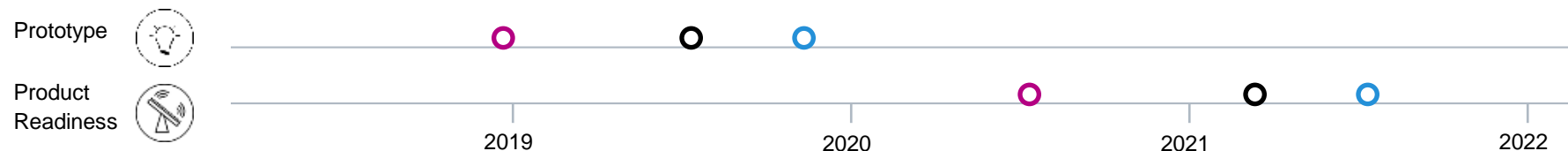


- ▲ Equity stake by SES
- ▲ Potential to radically reduce the cost of steerable antennas
 - Passive antenna based on a Liquid Crystal Panel with low cost manufacture in LCD Display Lines
 - Currently Tx and Rx on separate apertures, but to combine into one

Isotropic



- ▲ Multi-stage project for a low profile/ low cost Ka-band lens based Tx/Rx antenna
- ▲ Lens-based antenna

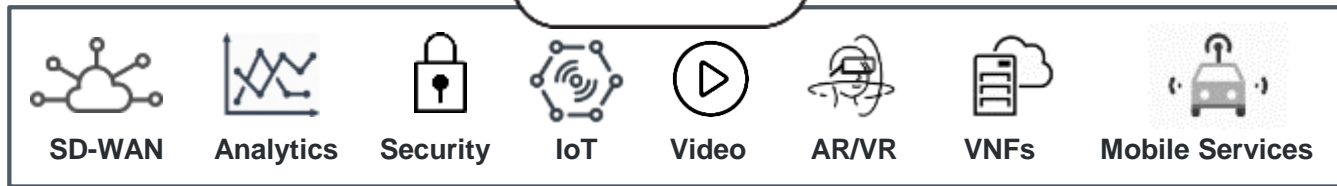


Investing in Edge Capabilities

Internet Cloud



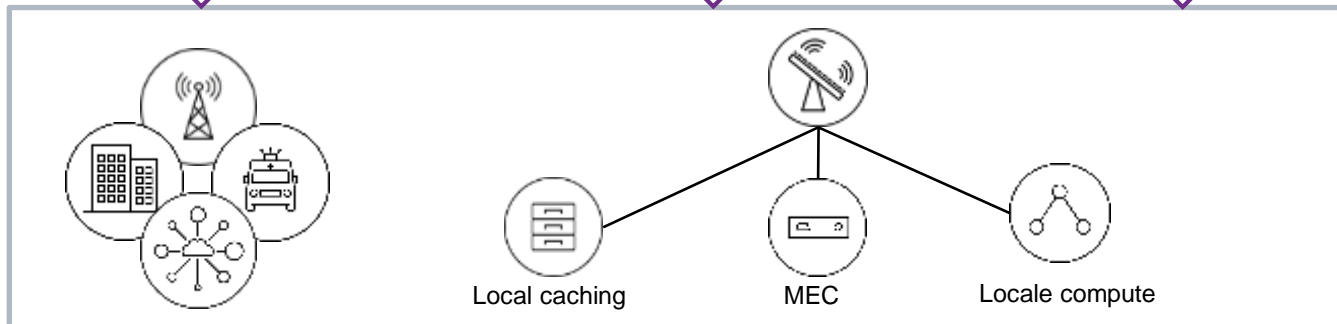
Services & Applications



Network Control & Orchestration



Edge Capabilities



- ▲ Virtualized Edge Services
 - MEC, vEPC, vCDN, vFW, vWAN
- ▲ Flexibility
 - Optimal resource utilization
 - Multi-technology at the edge
 - Network densification
- ▲ Automation
 - Lifecycle orchestration
 - Visibility and control
- ▲ On-demand and dynamic allocation

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