



Opportunities in Space for 5G/6G Non-Terrestrial Networks



Space for 5G / 6G Non-Terrestrial Networks

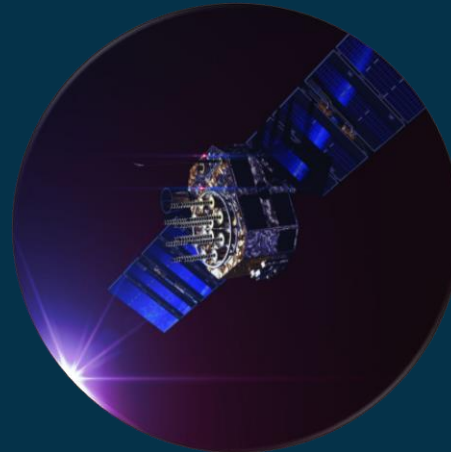
Objective 1

Achieve full integration of satellite with terrestrial 5G/6G networks



Objective 2

Engage vertical market stakeholders in 5G/6G integrated pilots (satellite and terrestrial)



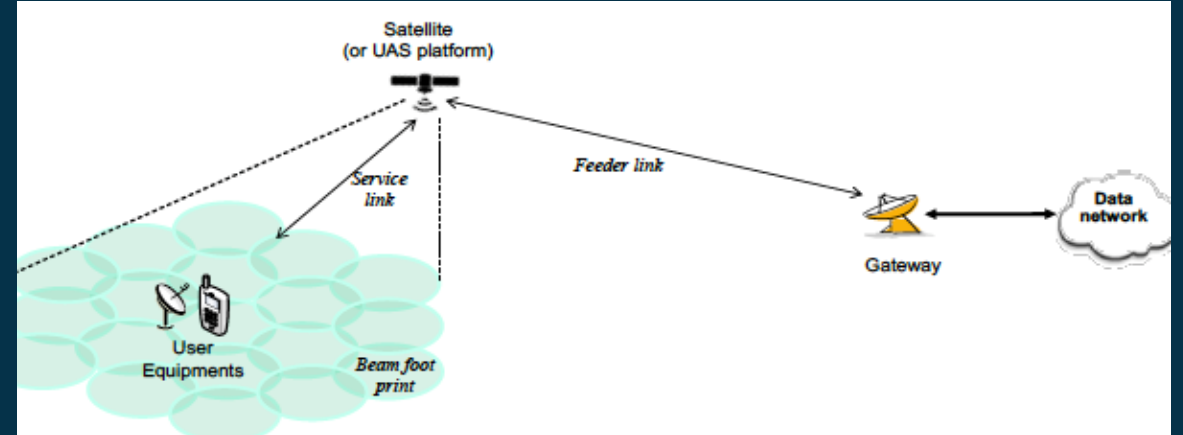
Objective 3

Drive standardisation activities to ensure full inclusion of satellite in 5G and 6G standards



Drive Standardization Activities to Ensure Full Inclusion of Satellite in 5G and 6G Standards

- 3GPP rel. 17: near term 5G Non-Terrestrial-Network (NTN), assuming transparent payload architecture and FDD in FR1 (<6GHz)



- 3GPP rel. 18+: future satellites supporting 5G/6G, making use of regenerative payloads with more sophisticated on-board processing (ASICs, DSPs and high-speed data converters). Support of mm-wave, sub-THz/optical technologies also required in some scenarios (e.g., ISL)

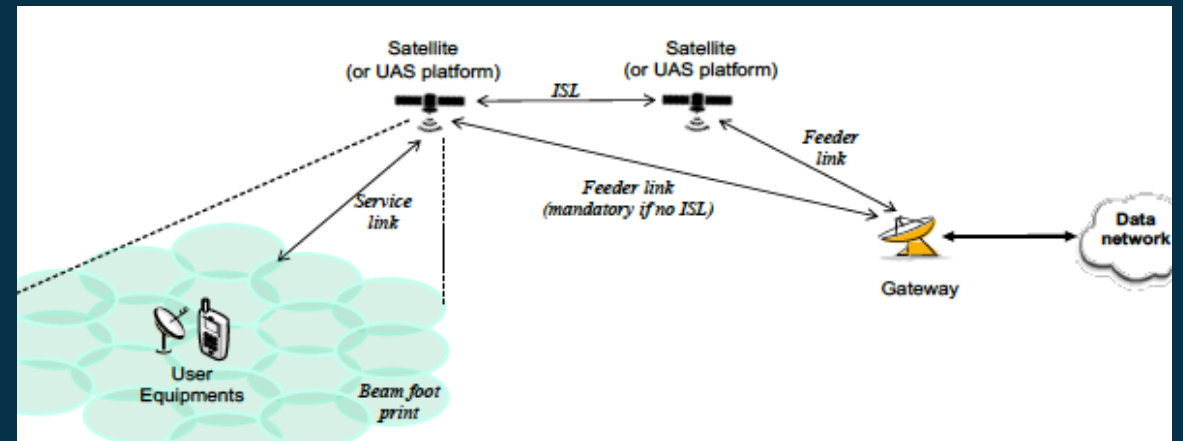
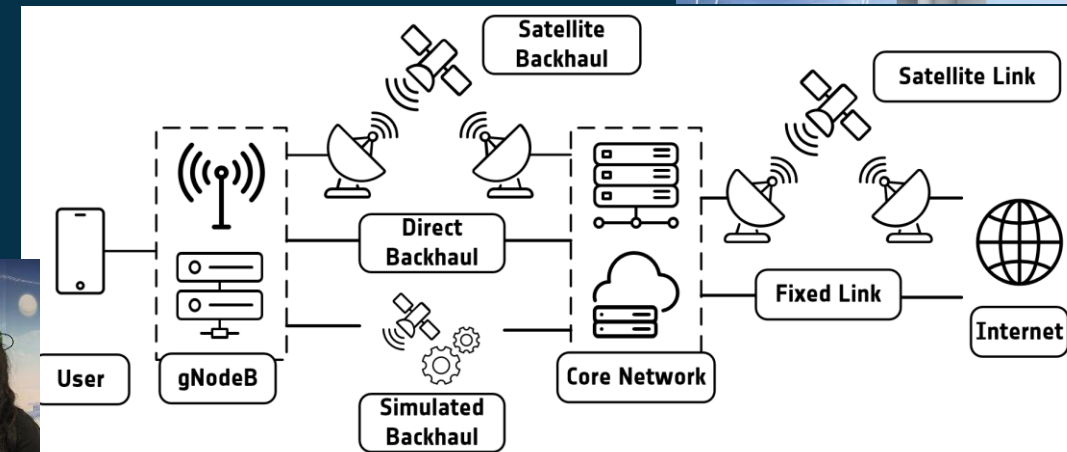


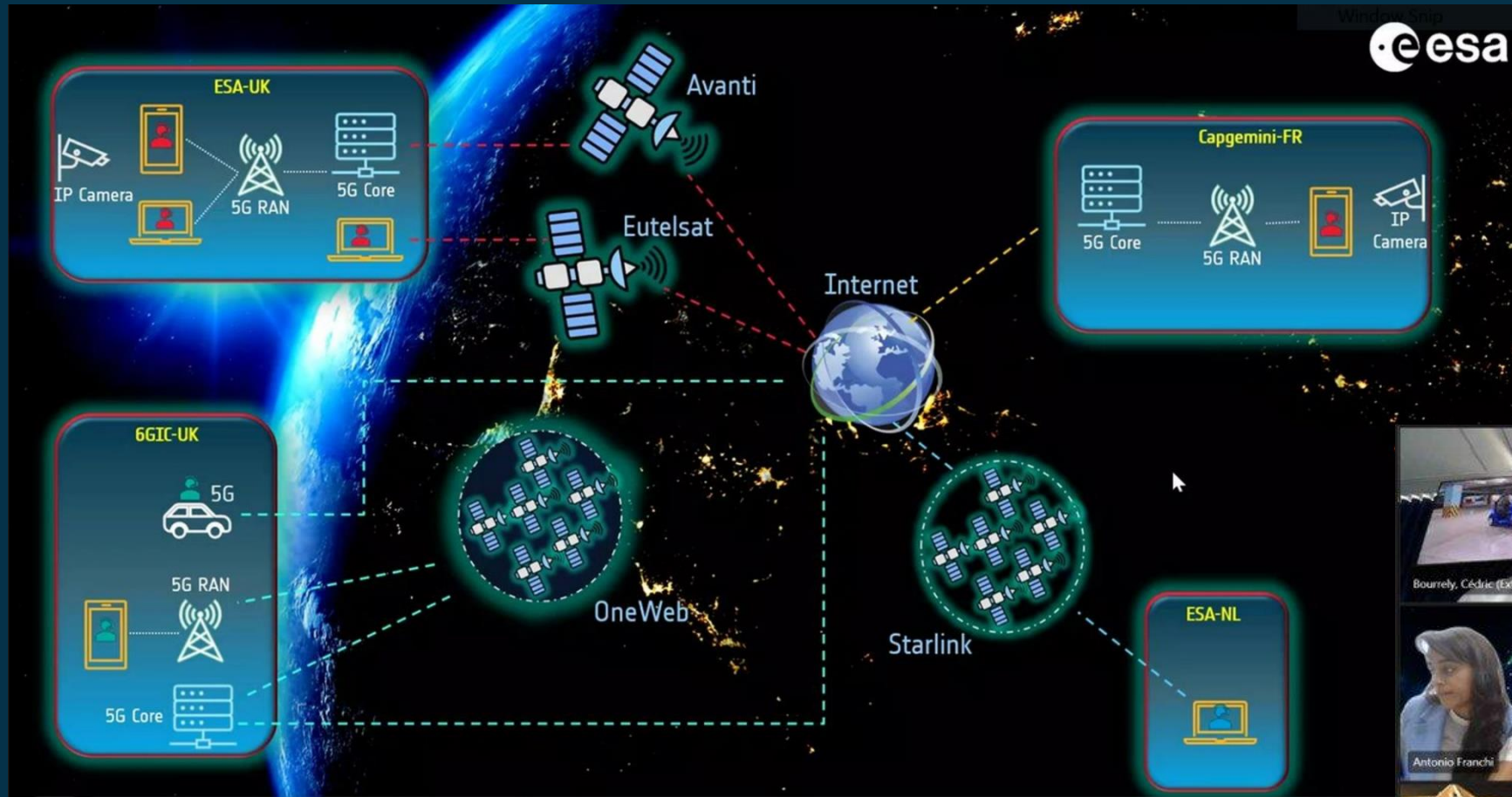
Image courtesy of 3GPP

5G/6G Hub at ESA - ECSAT, Harwell (UK)

- An integrated 5G hybrid private network
 - 5G network
 - A satellite multi-orbit simulator
 - Two GEO links + two LEO links
- Automated switching between configurations via simple user interface
- Local compute and storage, supporting edge processing and operations
- Augmented Reality demonstrations
- A collaborative place for 5G Engineering activities, Demonstrations and Showcase



Multi-orbit link: ECSAT / ESTEC / 6GIC / Capgemini

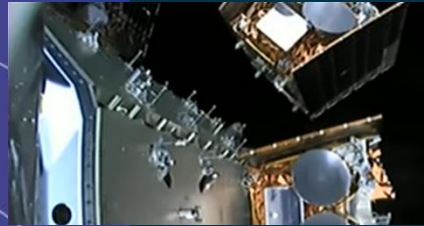


Achieve full integration of satellite with terrestrial 5G/6G networks

- Demonstrate added value of space in 5G / 6G services and applications
- Develop satellite communication products integrated in 5G / 6G networks
- Testbeds for trials and pilots, particularly with vertical industry stakeholders



Multi-Orbit Satellite Terminals converging towards 5G/6G



Separation of Joeysat (Source: ESA)

ALL.SPACE's first-of-its-kind terminal completes simultaneous, full performance, multi-link trials across all orbits



SatixFy Technology Enables First 5G link through a LEO constellation

Harwell, UK – SatixFy Communications Ltd. ("SatixFy"), a leader in next-generation satellite communication systems based on in-house developed chipsets, today ...

SatixFy Signs Deal & Partnership MOU with Astrome to Develop 5G GigaMesh 2.0 Terrestrial Backhauling Product

SatixFy Communications Ltd. ("SatixFy") (NYSE AMERICAN: SATX), a leader in next-generation satellite communication systems based on in-house developed chipsets, today ...



Images courtesy of OneWeb / SatixFy

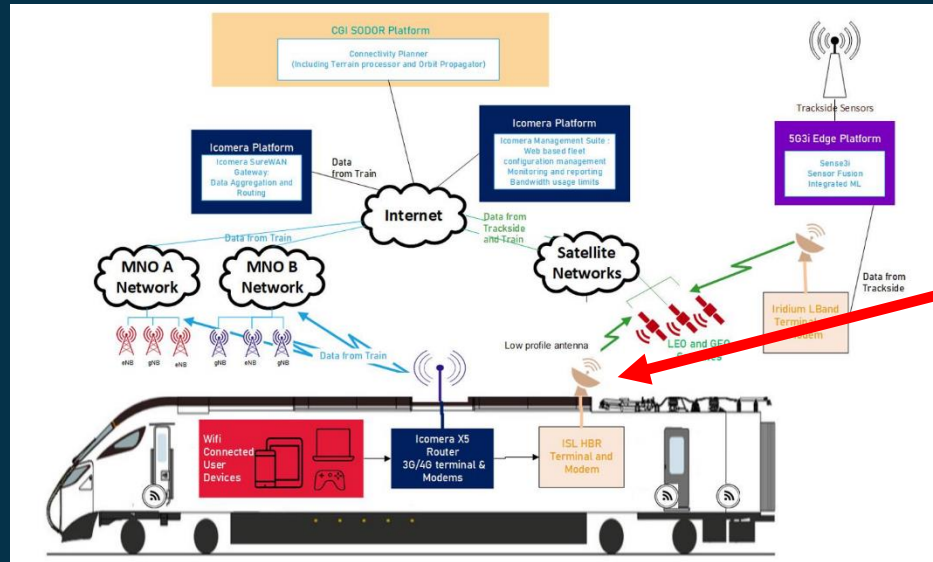
UK antenna manufacturer reveals plans for modular terminal



ALL.SPACE joins UK Government and European Space Agency consortium led by CGI to develop hybrid satellite communications for trains

Images courtesy of All.Space

Satellite / Terrestrial hybrid connectivity on the North Yorkshire Moors Railway (NYMR) – happening this week



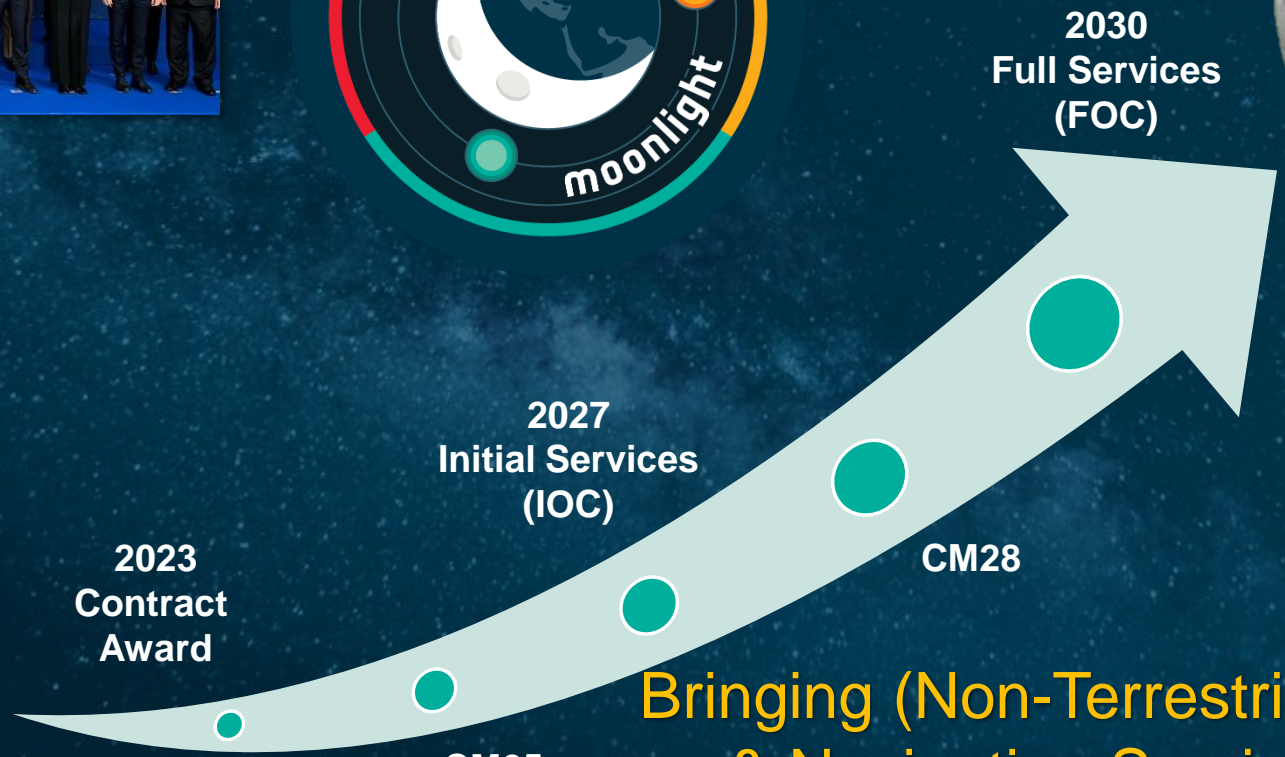
Flat Panel Antenna



Images courtesy of All.Space

Images courtesy of NYMR

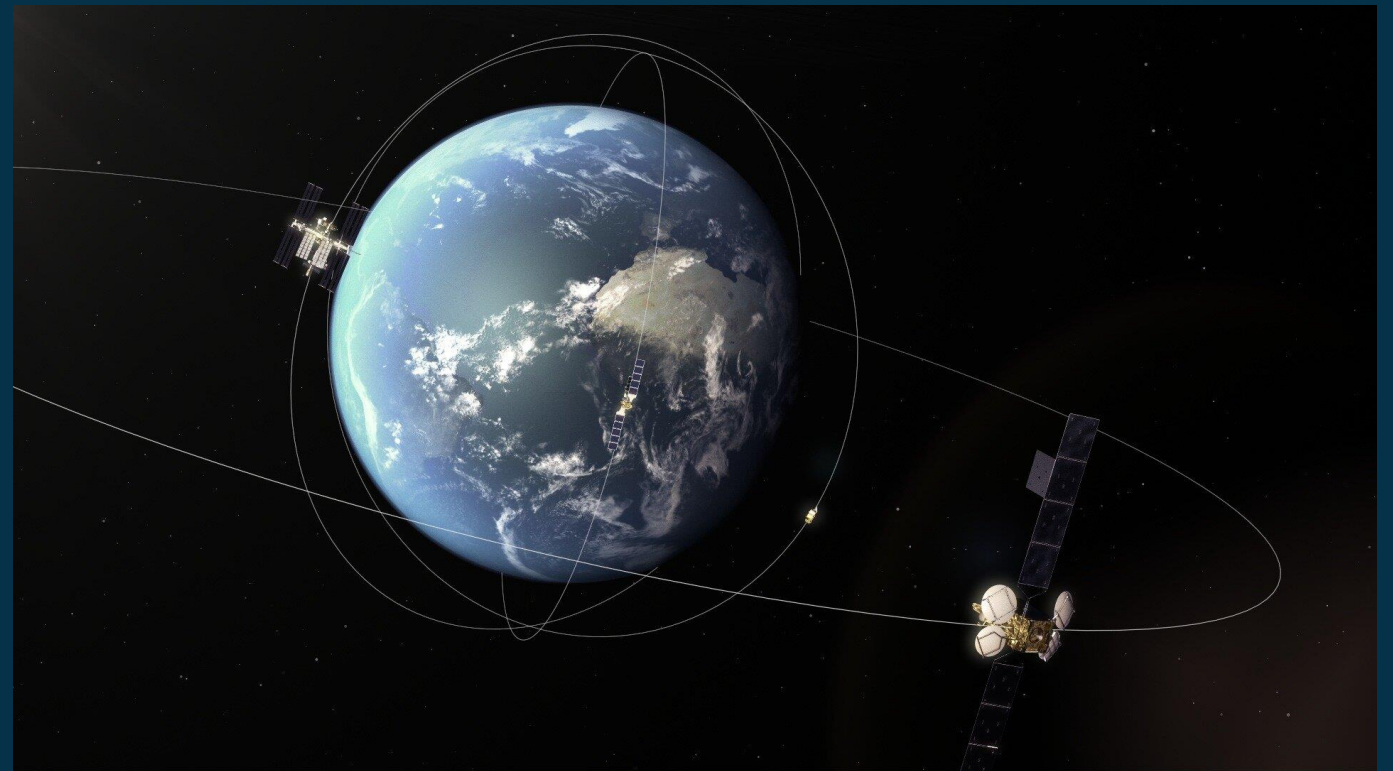
MOONLIGHT – The LIFT OFF



Bringing (Non-Terrestrial) Communication & Navigation Services to the Moon!

Flagship Strategy: Multi-Orbit 5G/6G Space Network

- Advance network beyond 5G with multi-orbit constellations
- Research and industrial activities into architecture and technology options:
 - HAPS
 - VLEO
 - LEO
 - MEO
 - HEO
 - GEO
 - ...and much more



Thank You!

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