



GOONHILLY
EARTH STATION

Developments at Goonhilly

Welcome to Goonhilly

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@goonhillyorg

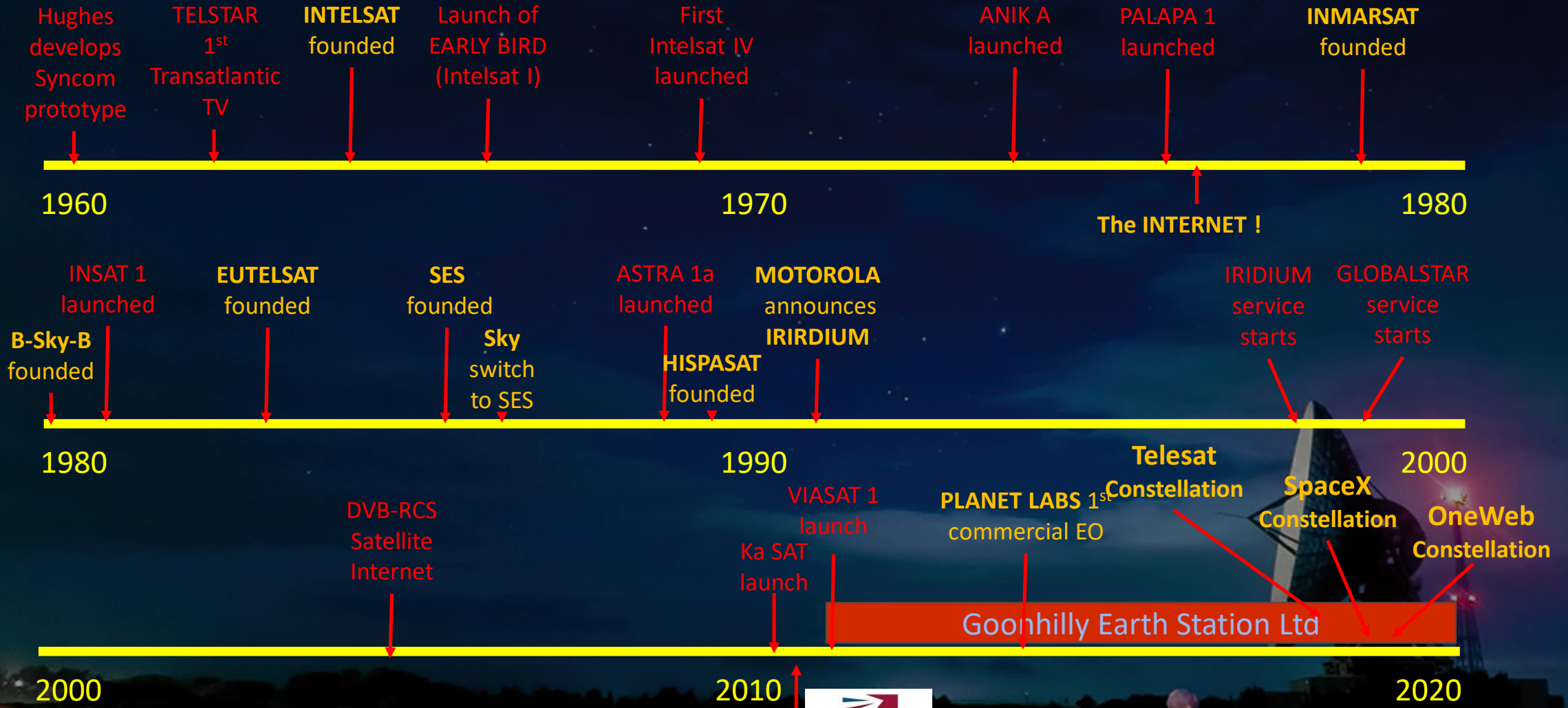




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Commercial Satellite Communications Timeline

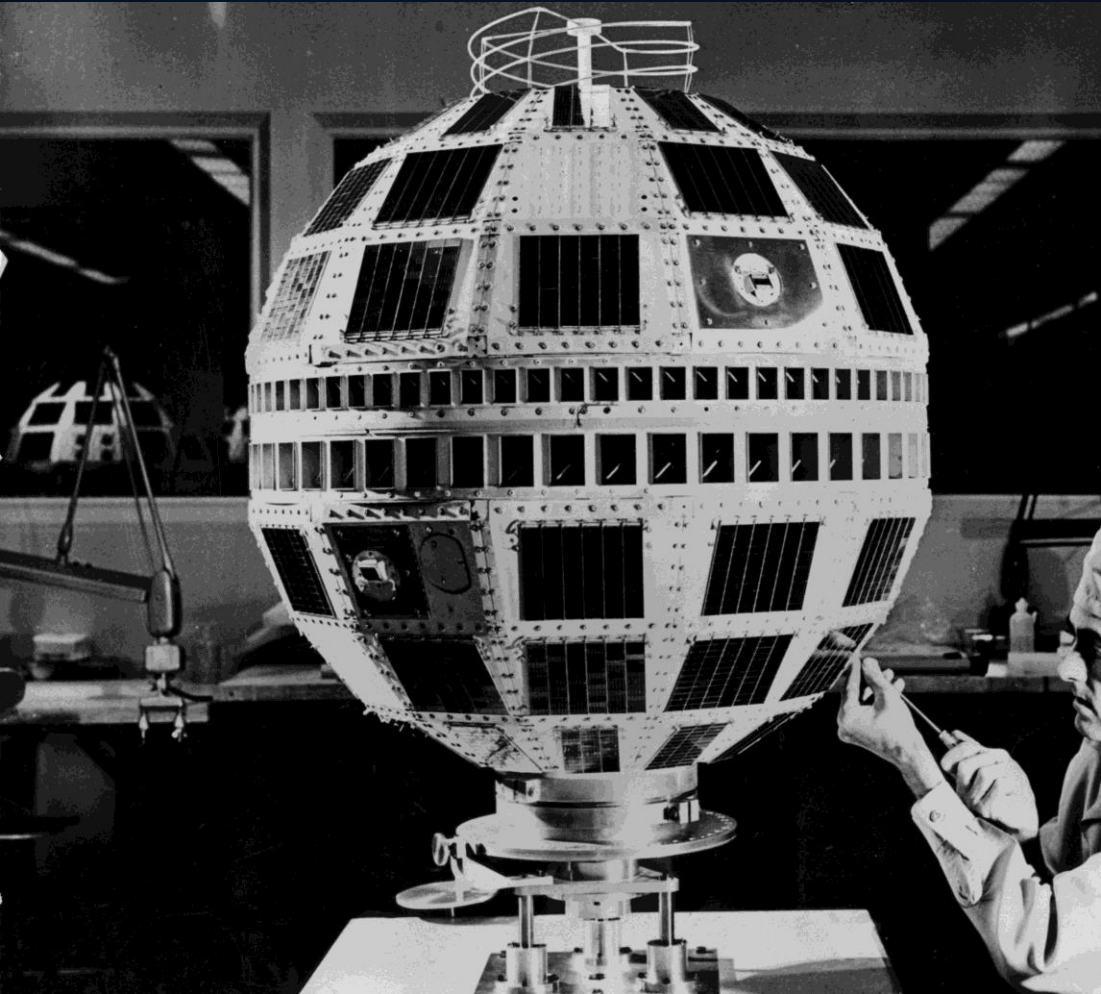


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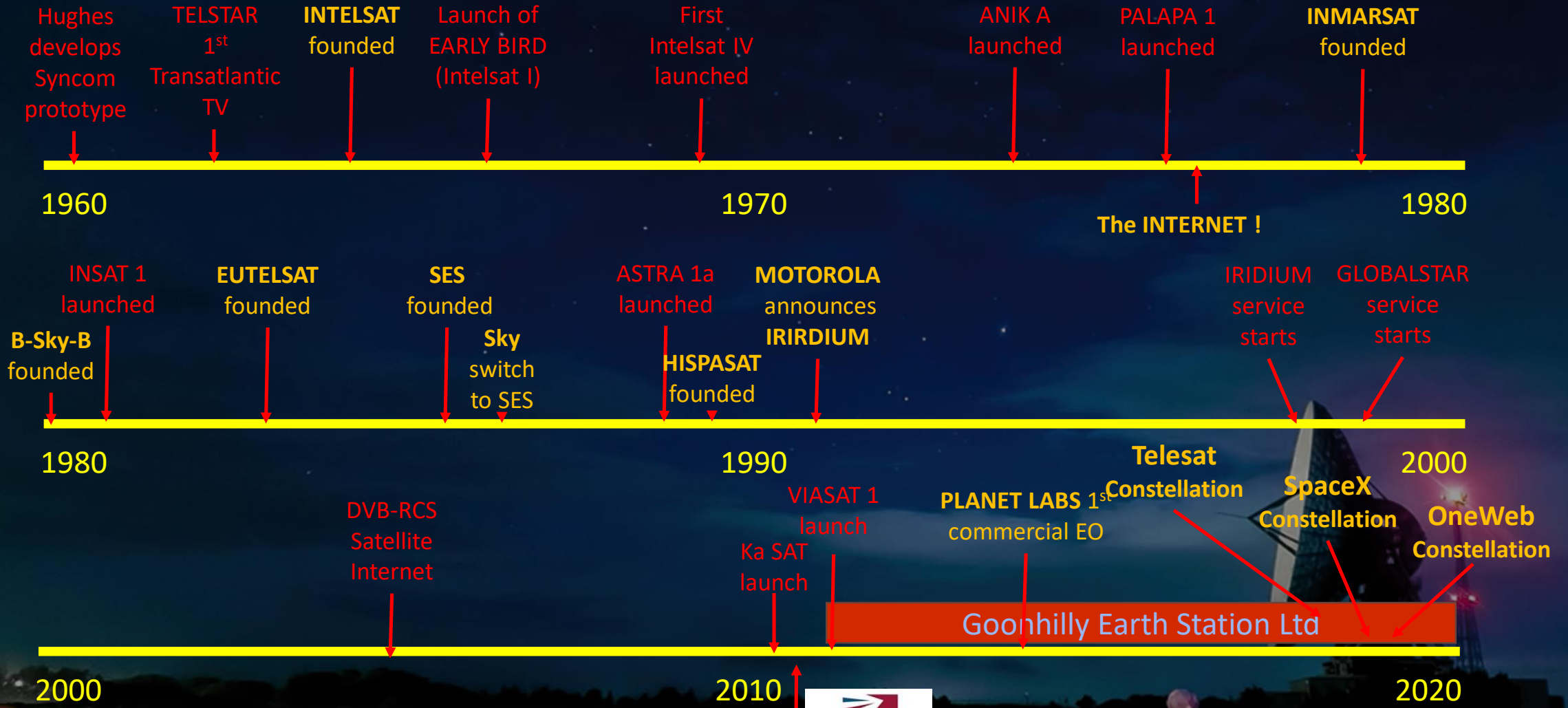
Telstar – Goonhilly -1



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Commercial Satellite Communications Timeline



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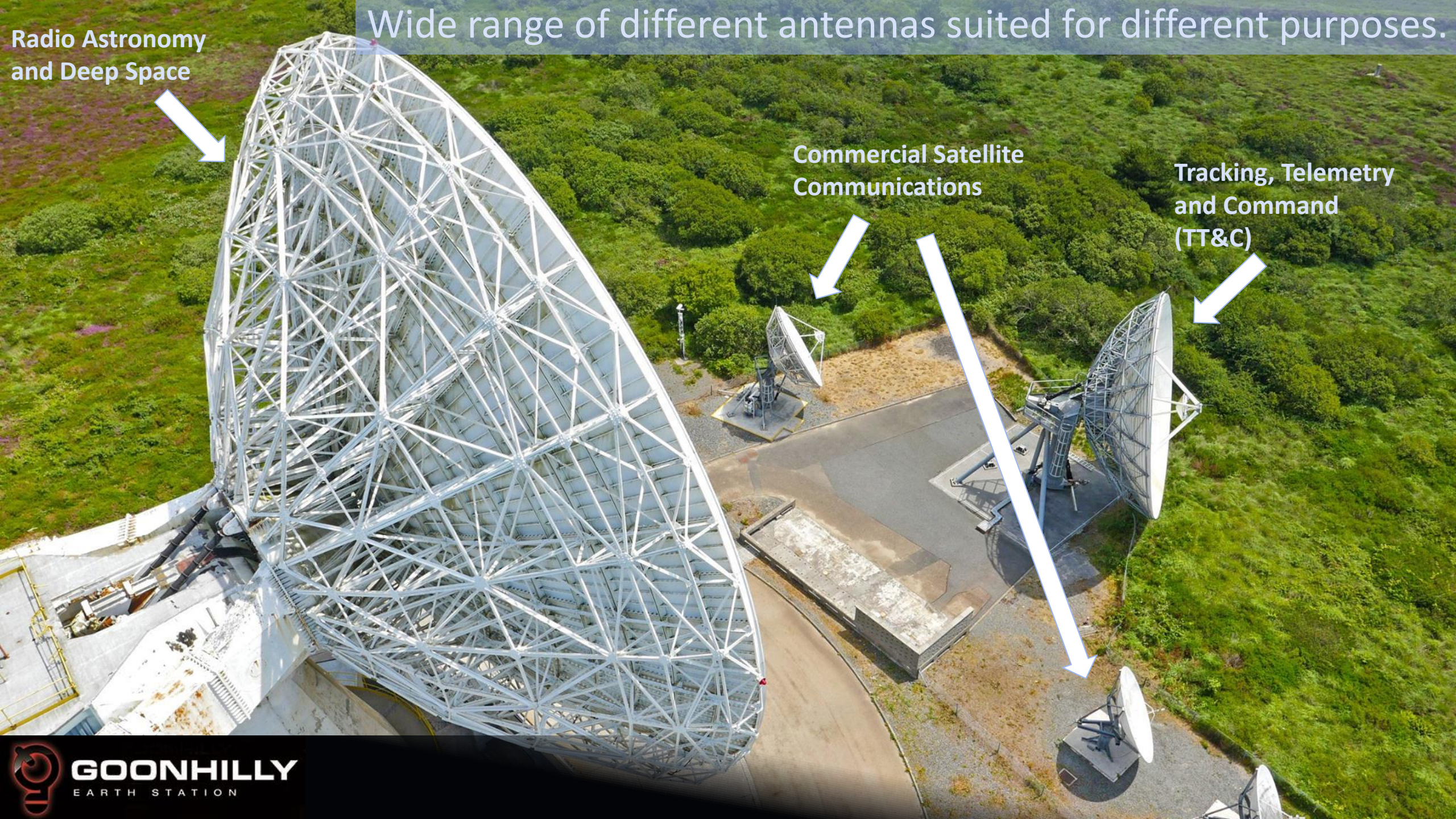


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Wide range of different antennas suited for different purposes.

Radio Astronomy
and Deep Space

Commercial Satellite
Communications

Tracking, Telemetry
and Command
(TT&C)

Business Plan for Growth

1. Near Space Communications
2. Deep Space Communications
3. Data Connectivity Services
4. Engineering Design
5. Mission Operations
6. Other (Enterprise Zone)



1. Near Space: Commercial Satellites



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SPACEPORT CORNWALL

Cornwall will grow the Space Sector through the development of:

- Satellite applications focused on Goonhilly Earth Station
- Business/research hubs
- Spaceport UK

VISION FOR SPACE GROWTH IN CORNWALL BY 2020



2. Deep Space



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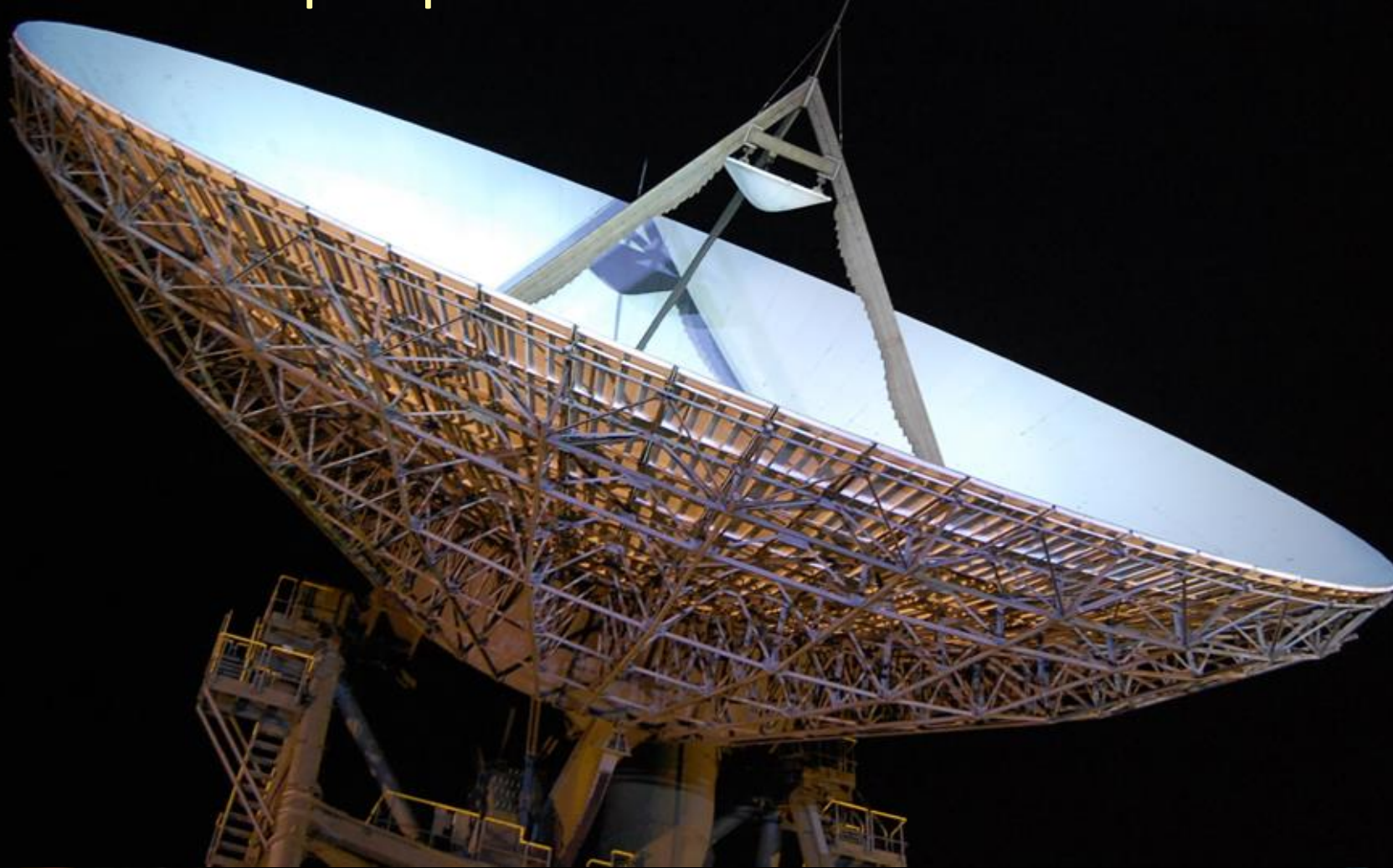
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Conversion to DSA and Radio Astronomy



Deep Space Communications – ESA Contract

- £8.4m upgrade contract
- Plan to create world's first private global Deep Space Network



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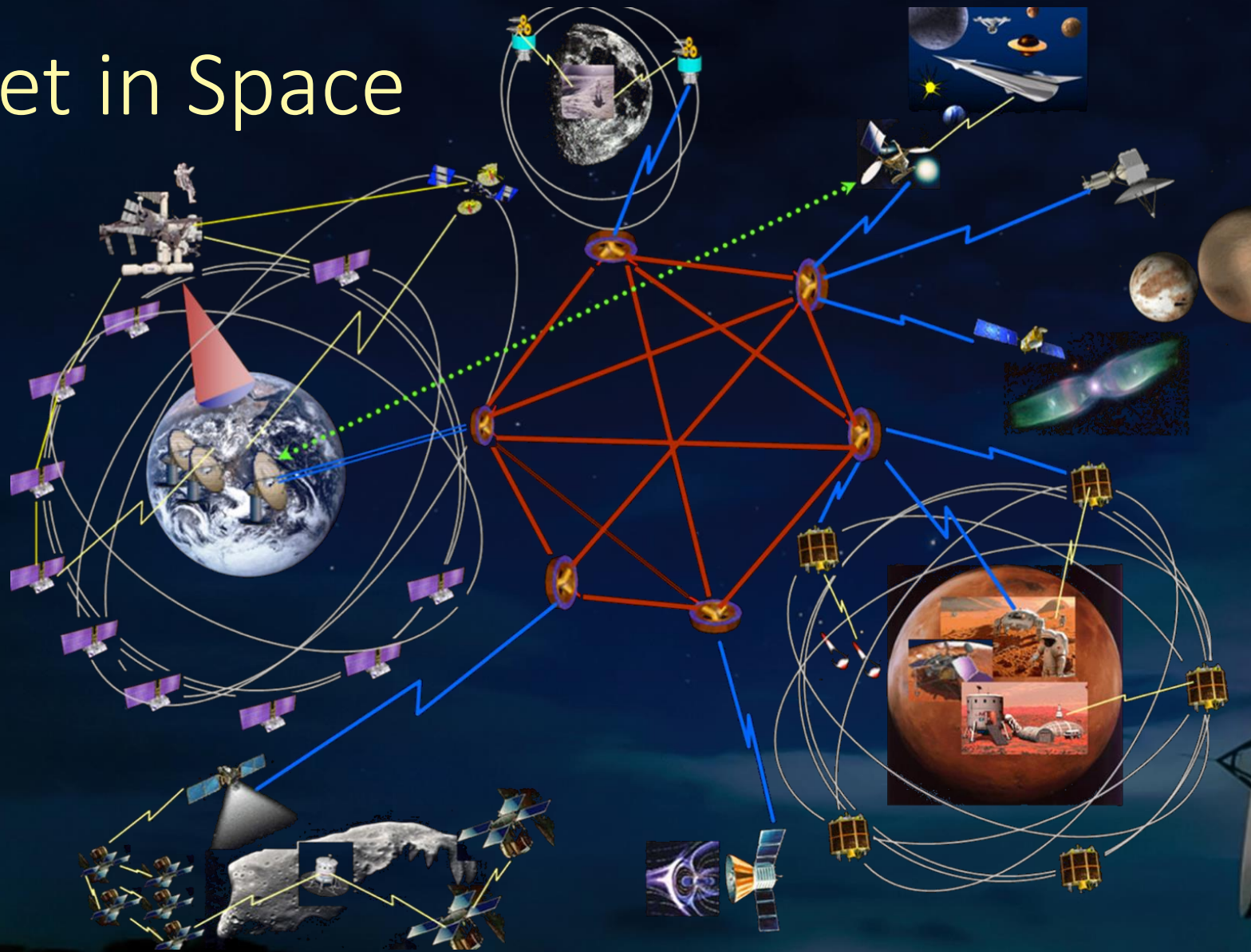
Lunar Pathfinder



- Collaboration with Surrey Satellite Technology Ltd (Airbus)
- £ 50m mission
 - Paid by customers
 - Supported by ESA and UK Space Agency
- £300m ESA Commercial mission



Internet in Space



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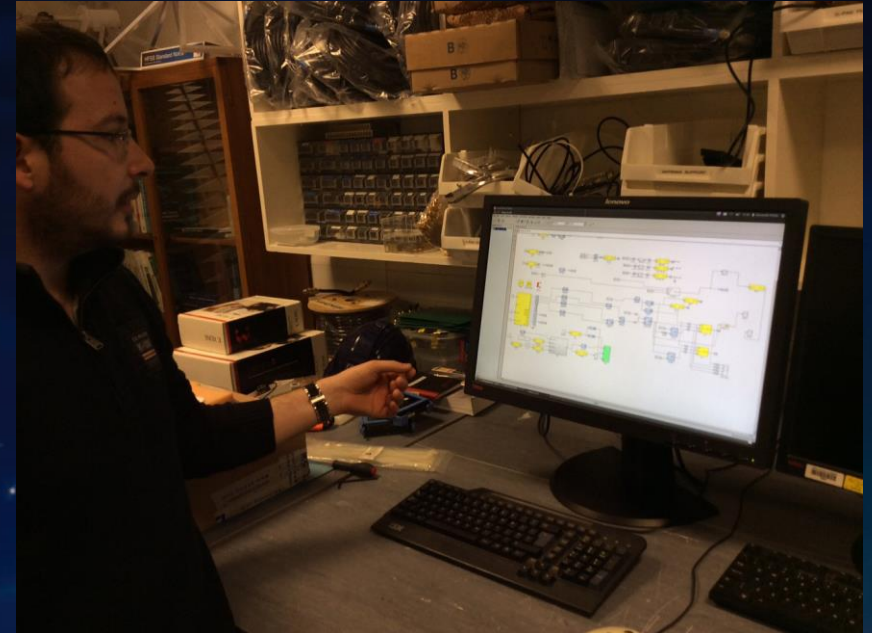
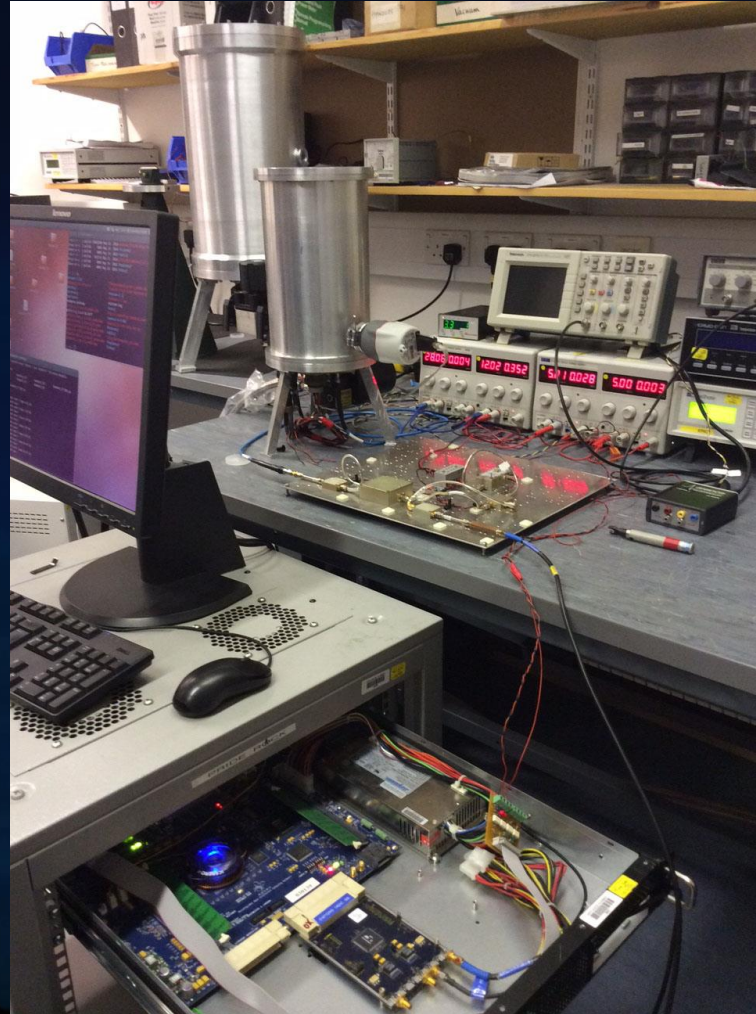
Conversion to DSA and Radio Astronomy



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Oxford Receiver



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Conversion to DSA and Radio Astronomy



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eMERLIN

Adding Goonhilly into the eMERLIN network will double the longest baseline (currently 198km) along a North-South axis.

This brings significant science benefits including a doubling of the resolution of the array and the ability to look at objects in the southern hemisphere.



Global Expansion



- SKA antenna
- 15m x 4 Interferometer



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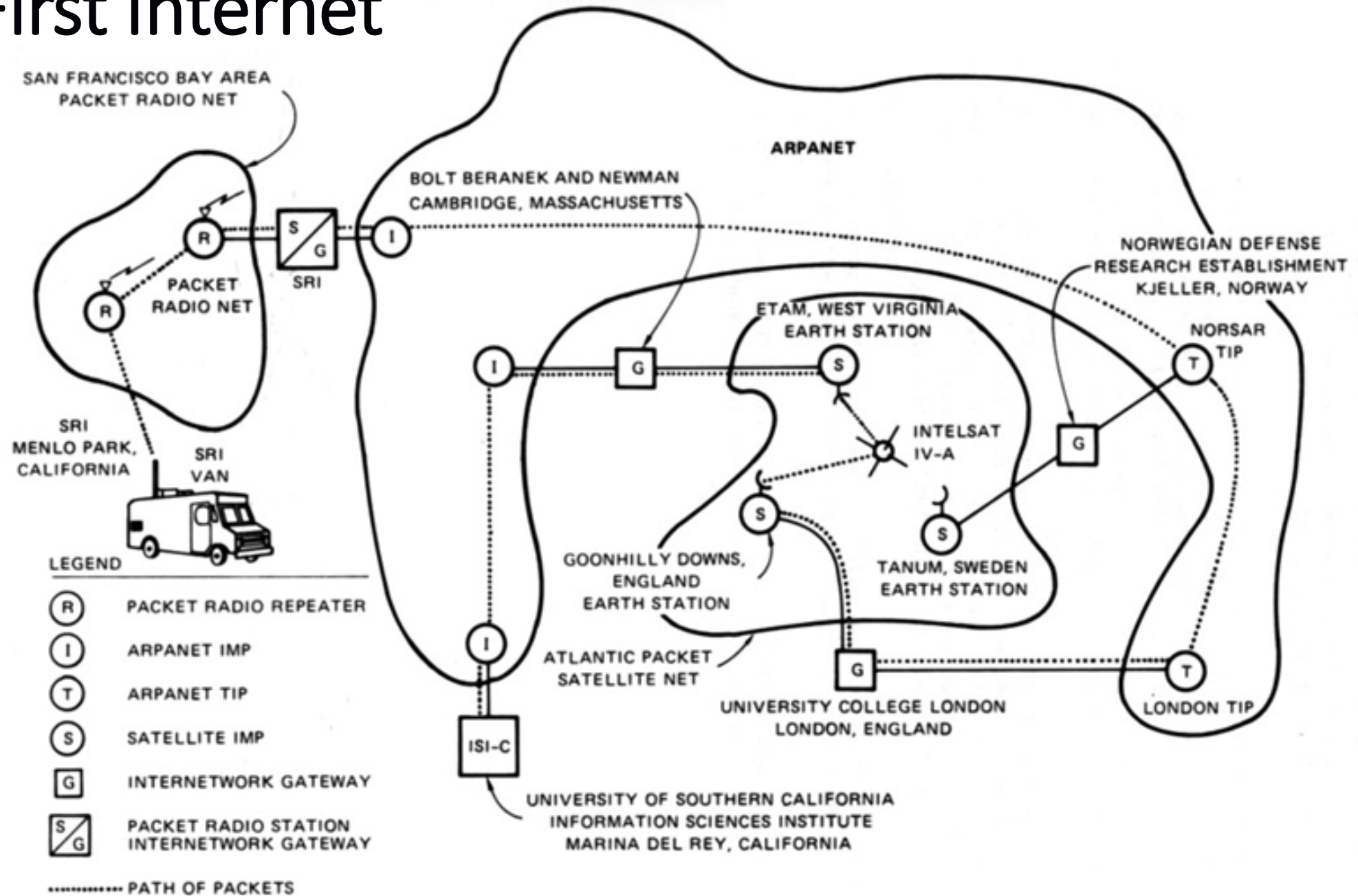
Data Connectivity

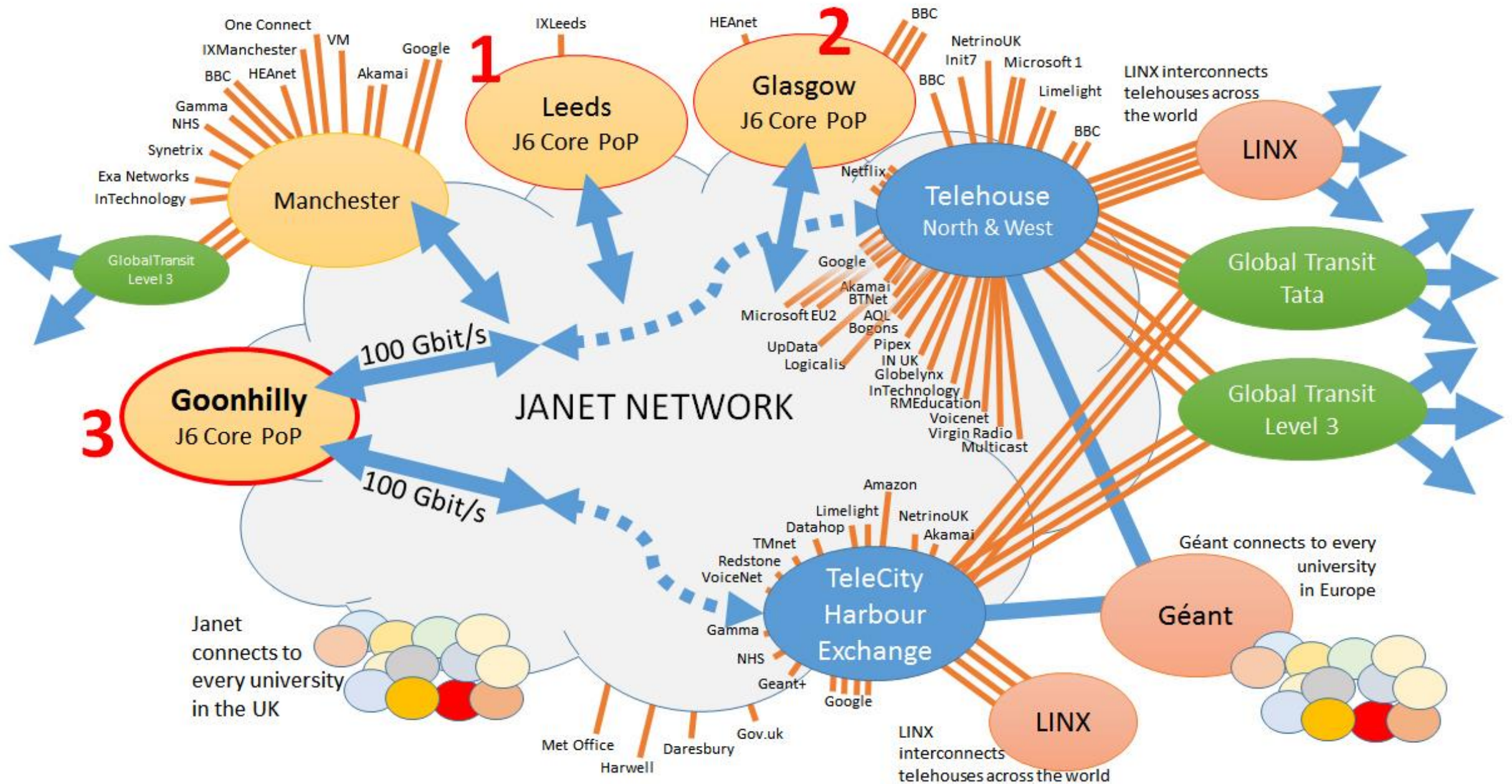


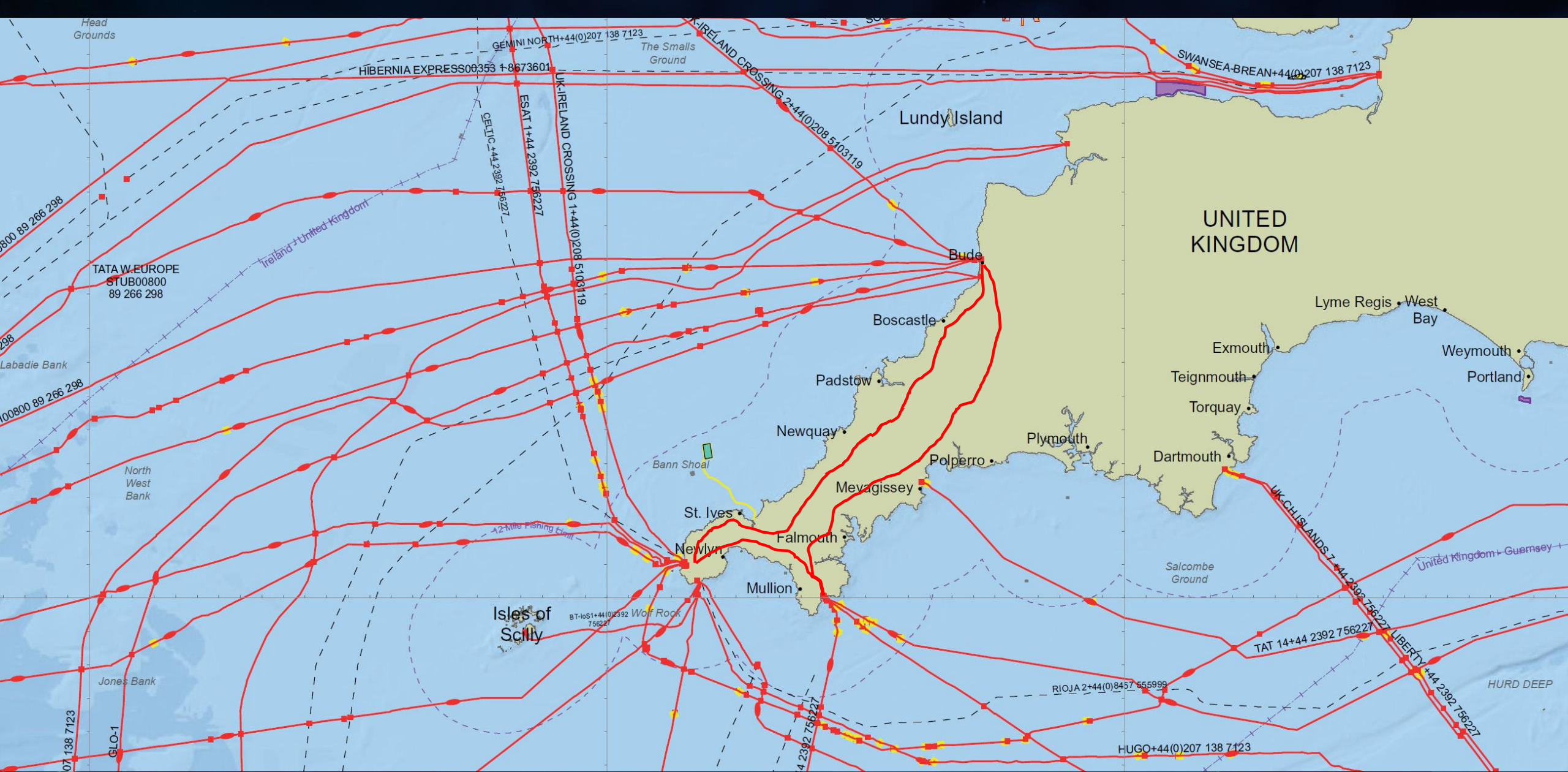
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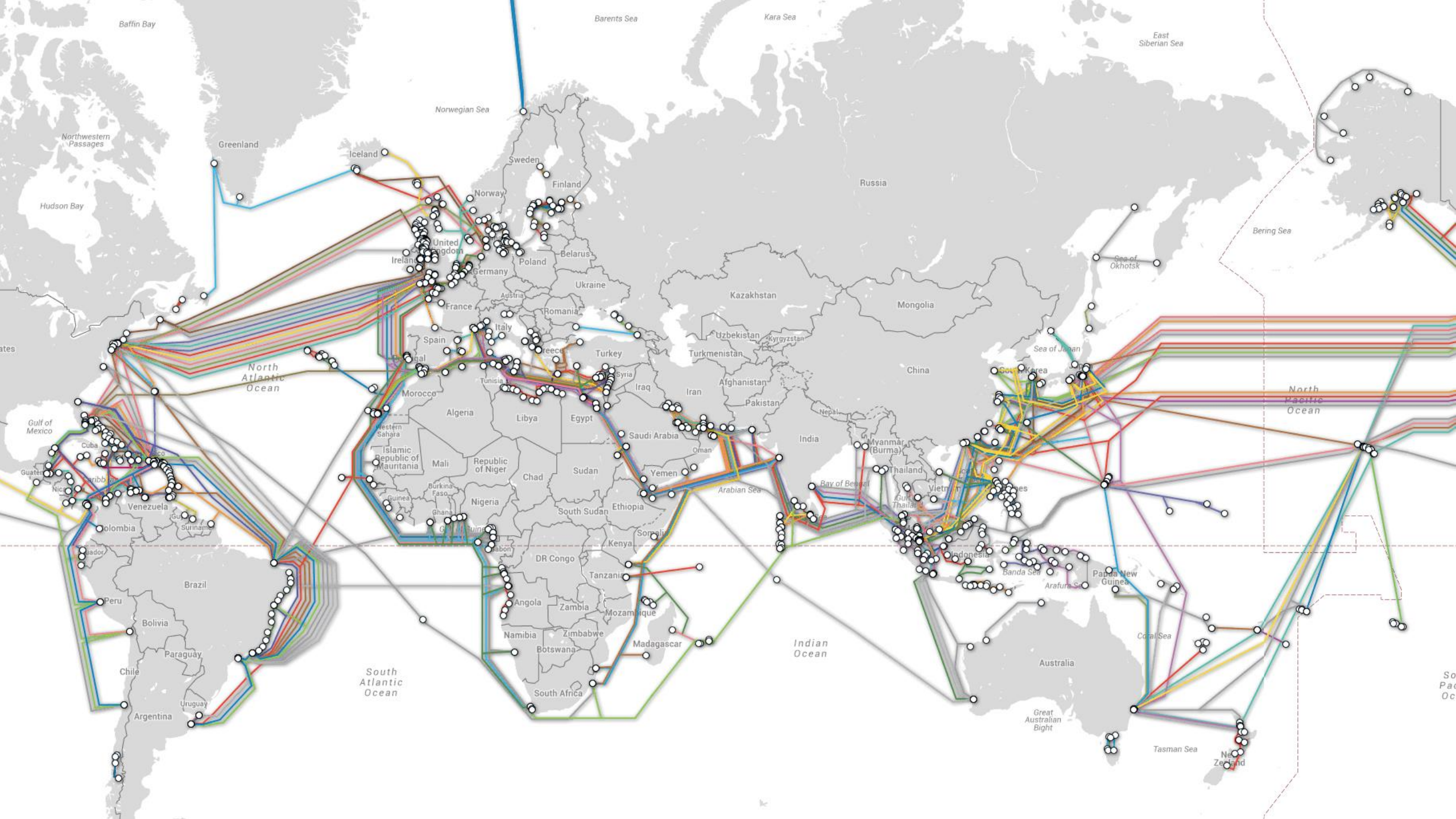
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The First Internet









Subsea Cable Landing Sites

SEA-ME-WE-3

- Al Fujairah (UAE)
- Alexandria (Egypt)
- Batangas (Philippines)
- Chania (Greece)
- Da Nang (Vietnam)
- Deep Water Bay (Hong Kong)
- Djibouti (Republic of Djibouti)
- Fangshan (Taiwan)
- Goonhilly** (UK)
- Jakarta (Indonesia)
- Jeddah (Saudi Arabia)
- Karachi (Pakistan)
- Keoje (South Korea)
- Kochi (India)
- Mazara del Vallo (Italy)
- Medan (Indonesia)
- Mersing (Malaysia)
- Mount Lavinia (Sri Lanka)
- Mumbai (India)

AC1:

- Beverwijk (Netherlands)
- Shirley (USA)
- Westerland (Germany)
- Whitesands Bay (near **Goonhilly**, UK)

AC2:

- Bellport (USA)
- Widemouth Bay (near **Goonhilly**, UK)

Apollo:

- Lannion (France)
- Manasquan (USA)
- Shirley (USA)
- Widemouth Bay (near **Goonhilly**, UK)

EIG:

- Abu Talat (Egypt)
- Al Fujairah (UAE)
- Barka (Oman)
- Djibouti (Republic of Djibouti)
- Gibraltar (Gibraltar)
- Jeddah (Saudi Arabia)
- London (UK)

FLAG (Atlantic North):

- Northport (USA)
- Sennen Cove (near **Goonhilly**, UK)

ESAT1:

- Sennen Cove (near **Goonhilly**, UK)
- Kilmore Quay (Ireland)

TGN Atlantic:

- Highbridge (UK)
- Saunton Sands (near **Goonhilly**, UK)
- Wall Township (USA)

Artic Fibre:

- Arviat (Canada)
- Barrow (USA)
- Cambridge Bay (Canada)
- Cape Dorset (Canada)
- Chesterfield Inlet (Canada)
- Coral Harbour (Canada)
- Cork (Ireland)
- Goja Haven (Canada)
- Hall Beach (Canada)
- Highbridge (UK)
- Igloolik (Canada)
- Iqaluit (Canada)
- Kangiqsujaq (Canada)
- Kotzebue (USA)

WACS:

- Abidjan (Cote d'Ivoire)
- Accra (Ghana)
- Brazzaville (Democratic Republic of Congo)
- Cape Verde (Praia da Quebra Canela)
- Fonte da Telha beach (Portugal)
- Highbridge (UK)
- Lekki (Nigeria)

GLO1:

- Abidjan (Cote d'Ivoire)
- Accra (Ghana)
- Banjul (The Gambia)
- Bissau (Guinea Bissau)
- Cape Verde (Praia da Quebra Canela)
- Casablanca (Morocco)
- Conkary (Guinea)
- Cotonou (Benin)

TAT14:

- Blaabjerg (Denmark)
- Katwijk (Netherlands)
- Manasquan (USA)
- Norden (Germany)
- Saint-Valery-en-Caux (France)
- Tuckerton (USA)
- Widemouth Bay (near **Goonhilly**, UK)
- London (United Kingdom)
- Cape Verde (Praia da Quebra Canela)
- Casablanca (Morocco)
- Conkary (Guinea)
- Cotonou (Benin)

TGN Western Europe:

- Bilbao (Spain)
- Highbridge (UK)
- Saunton Sands (near **Goonhilly**, UK)
- Seixal (Portugal)

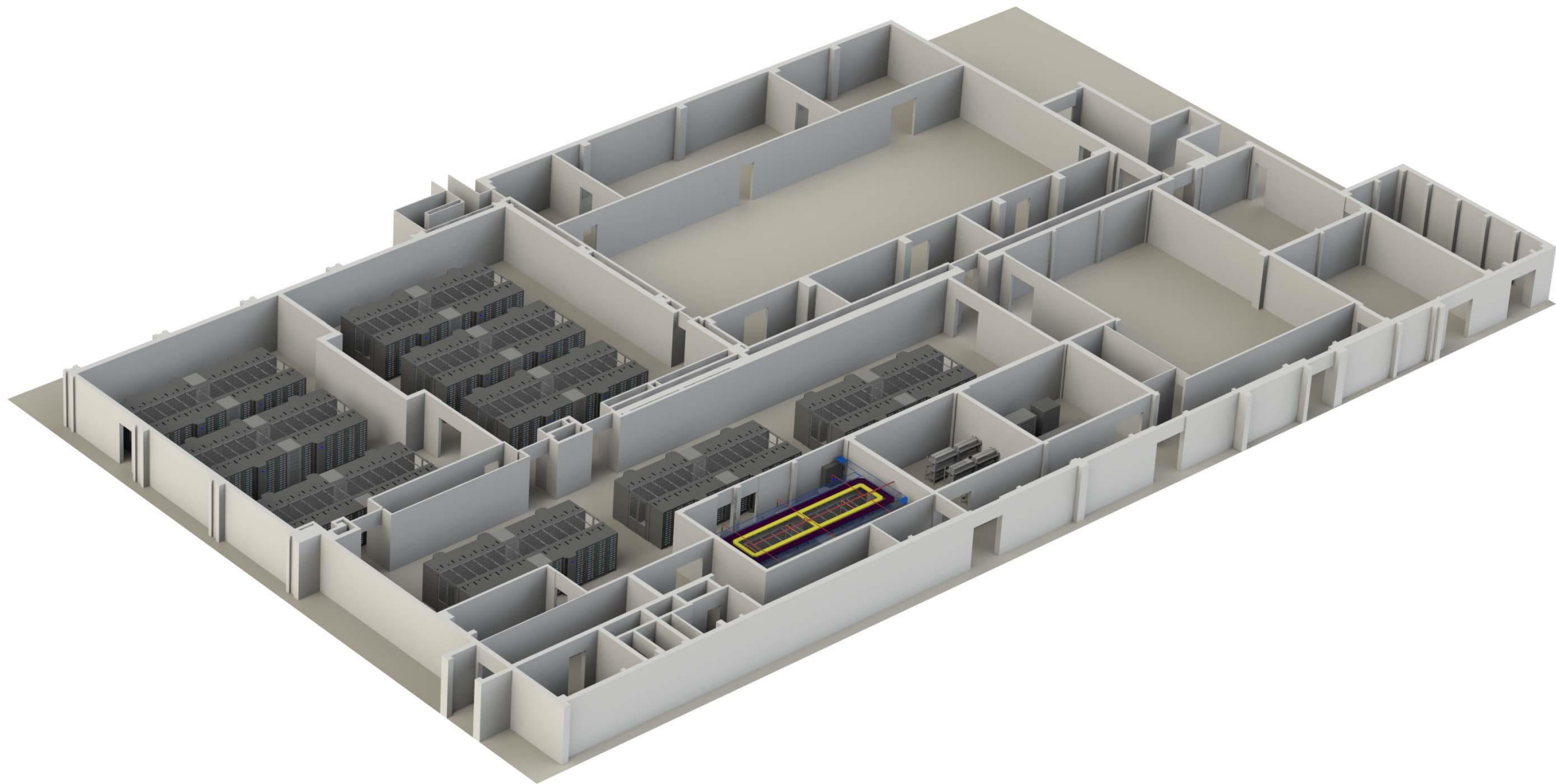
FLAG (Europe ASIA):

- Al Fujairah (UAE)
- Alexandria (Egypt)
- Aqaba (Jordan)
- Estepona (Spain)
- Island Park (USA)
- Jeddah (Saudi Arabia)
- Lantau (Hong Kong)
- Miura (Japan)
- Mumbai (India)
- Nanhui District (China)
- Ninomyia (Japan)



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4. Engineering Design

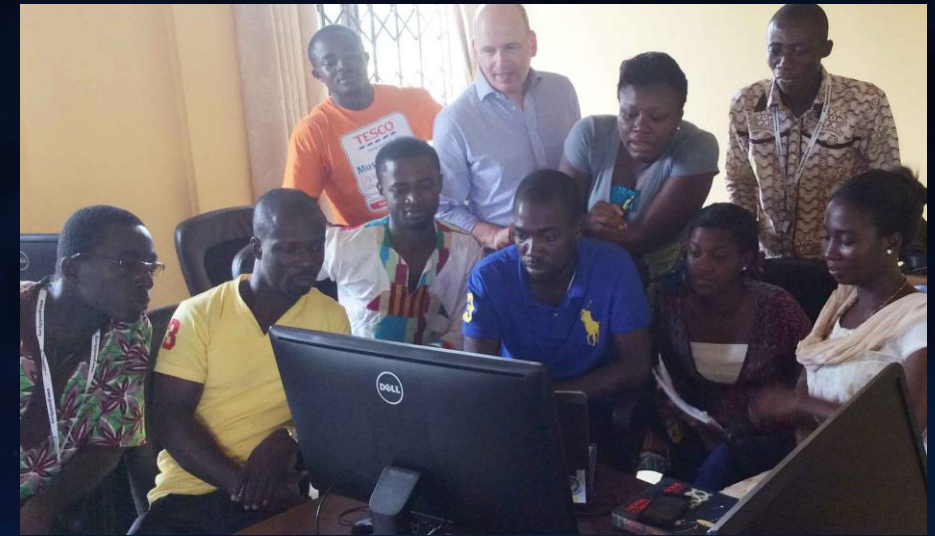
5. Mission Operations



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Education Outreach



University Partners – Newton Fund

In conjunction with our university partners we are proud to be a part of the UK Newton Fund programme providing overseas development aid projects.

Goonhilly's role is to support teaching and development of satellite communication, business and entrepreneurship skills to students across Africa and Central America.

This in turn is driving new business relationships.

Right: Teaching satellite communication, business and entrepreneurship skills in Ghana



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AEROHUB

Space to Fly Place to Grow

We are delighted to have been selected as one of the new Enterprise Zones as part of the Newquay Aerohub+ extension.

Goonhilly is a key element in the Cornwall Economic Development Strategy touching all five of the named smart specialisations:

- Space & Aerospace
- eHealth
- AgriTech
- Maritime
- Digital



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New Enterprise Zones Network



**SMALLER
TOWN &
RURAL**



15
NEW Smaller Town
& Rural EZs

15 new and extended Enterprise Zones that are in smaller town and rural settings

From Goonhilly, Cornwall to Berwick-upon-Tweed, Northumberland

Covering these industries

Agri-Tech



Space



Cyber Security



Nuclear



Chemical



Life Science



Creative & Digital

Find out more about Enterprise Zones from the official website and social media channels



www.enterprisezones.communities.gov.uk



@EntZonesGov | #EnterpriseZones



www.linkedin.com/in/enterprisezones

**Enterprise
Zones**



Department for
Communities and
Local Government

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Sat Apps Catapult

Regional Centre of Excellence



Goonhilly Earth Station has been selected to host the Satellite Applications Catapult Regional Centre of Excellence for the South West.

The Centre, led by Exeter University, will engage with academic and industry partners to promote and develop space application innovation and growth.



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