



# Towards ubiquitous connectivity through convergence and service management

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# BT Group – at a glance

## Our Brands



openreach

## Our customer facing units

### Global

We are a leading business connectivity, communications and IT services provider to major multinational corporations in **around 180 countries**. We own an extensive global voice and data network providing managed services, security and network and IT infrastructure services, enabling customers' digital transformations.

### Enterprise

We are the leading business communications provider in the UK. We connect **more than 1m business customers** and public sector organisations with our extensive portfolio of communications and IT solutions. We also provide network products and services to communications providers operating in the UK and RoI.

### Consumer

We connect UK consumers to information, entertainment, friends and family, at home and on the move. We provide **the whole of the UK** with mobile, broadband, home phone and TV services.

### Openreach

We build, and sell access to, the network that connects the UK's homes and businesses. We provide **wholesale 'last mile' fixed access** from homes and businesses to exchanges, and we install and maintain the fibre and copper communications networks.

## Financial highlights (FY 2019/20)

**£22.9bn**

Revenue

**£7.9bn**

EBITDA

**£2.0bn**

Normalised Free  
Cashflow

*We are one  
of the world's  
leading  
communications  
services company*

# Our three-pillar strategy is how we'll realise our ambition, growing value for all stakeholders



# The best converged network

Priorities | What actions will we take?

## 5G by default

Make 5G the primary solution 'on the go'



## Extended access

Ensure rich customer experience everywhere



## Fibre by default

Make FTTP the backbone for all future applications



## Network capability

Build secure, flexible and robust edge computing and core capabilities

These fundamental principles will enable us to shape our network:

**1** Enable APIs for service and partner ecosystems

**2** Leverage data-driven network optimisation and automation

**3** Create a single flexible IT architecture



# BT – A Long Track Record in Space

1960s &  
1970s

- The new Post Office Satellite Earth Station takes part in the **first transatlantic television transmission** made via Telstar 1.
- The open parabolic dish design of the UK General Post Office's Goonhilly Down Antenna One (AKA 'Arthur') set the **global standard for satellite ground stations**.
- GPO UK Signatory on **creation of Intelsat**.
- Post Office Satellite Earth Station **relays radio and television transmissions from NASA to the whole of Europe**, including coverage of the first manned landing on the moon.

1980s &  
1990s

- Adastral Park's satellite dishes beamed television signals for **Europe's first satellite transmission service**.
- British Telecom's first satellite coast station came into service - **telephone and telex calls could be made or received direct for the first time to almost anywhere in the world**, via Britain.
- **First ever live satellite television programme from a ship at sea** broadcast from the QE2.
- Launched Skyphone **the world's first satellite telephone system** on a British Airways 747.
- Development of satcoms services via **sub 5 degree low elevation paths at C and Ku-Band**
- First **VSAT IP network management**

2000s  
onwards

- **3D modelling satellite beam near field blocking** to ensure antenna placement without interference
- Provision of **bespoke interference countermeasures**, ranging from tuned filters to physical RF screening walls
- Up-Path Power Control Systems Applied to a **C-Band Low Elevation Satellite Link**
- **VSAT connected Ground Based Network (GBN)** used by emergency services for **Public Mobile Radio**
- Design and test **Radio over Fibre long route** over 100km
- **VSAT interference countermeasures** specific to WiMAX proliferation in 3rd world locations



# BT & the UK Space Sector today

## BT's capabilities today...



- Our BT Madley Communications Centre is one of the one of largest satellite receiving stations in Europe
- Professional & antenna hosting services

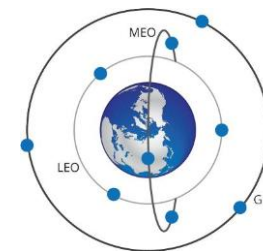


- Satellite is a core part of our portfolio of connectivity services
- Typical use cases are:
  - Infill (no terrestrial available)
  - Network resilience & disaster recovery
  - Temporary coverage



- EE has Satellite Cellular Backhaul to fixed and portable mobile base stations x the UK.
- Case study in terrestrial and non terrestrial integration
- Emergency Response Team

## BT's collaboration with the UK Space sector to investigate new opportunities



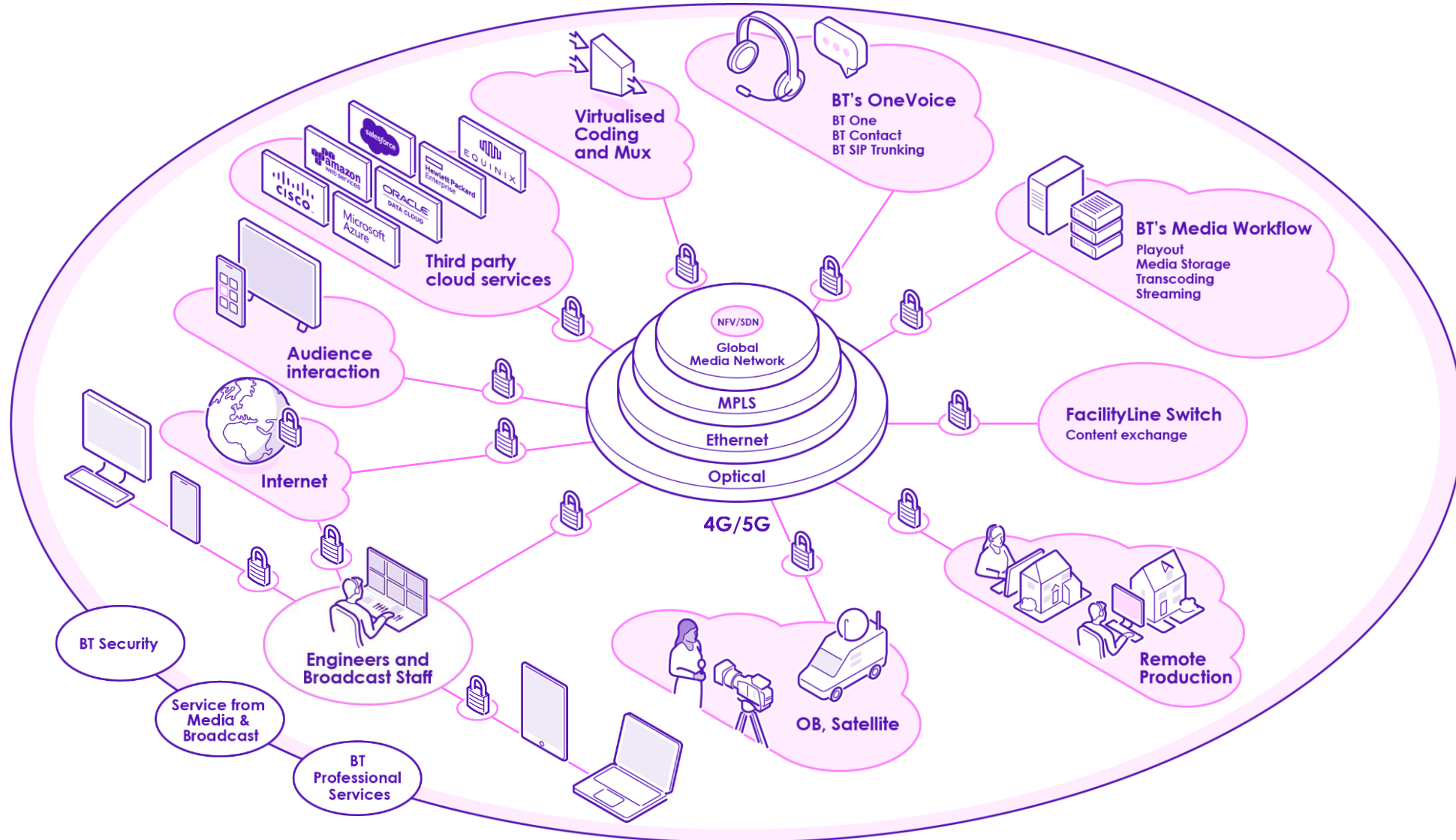
- Member of UKSpace (UK Trade Association)
- Active participant in innovation-led projects with Space Agencies, e.g. 5G Carnot, S-QKD, Autotrust, National Timing Centre

- Partnerships with space ecosystem, e.g. quantum technology start up Arqit

- Evaluating new technologies such as LEO & HAPS to understand future role in delivery of ubiquitous connectivity

# BT Media & Broadcast

## End-to-end managed services



# 5G: A step change

