

COCONUT



COst-effective COhereNt ultra-dense-WDM-PON
for lambda-To-the-user access

SPECIFIC TARGETED RESEARCH PROJECT (STREP)
INFORMATION & COMMUNICATION TECHNOLOGIES



BT's Perspective on Access

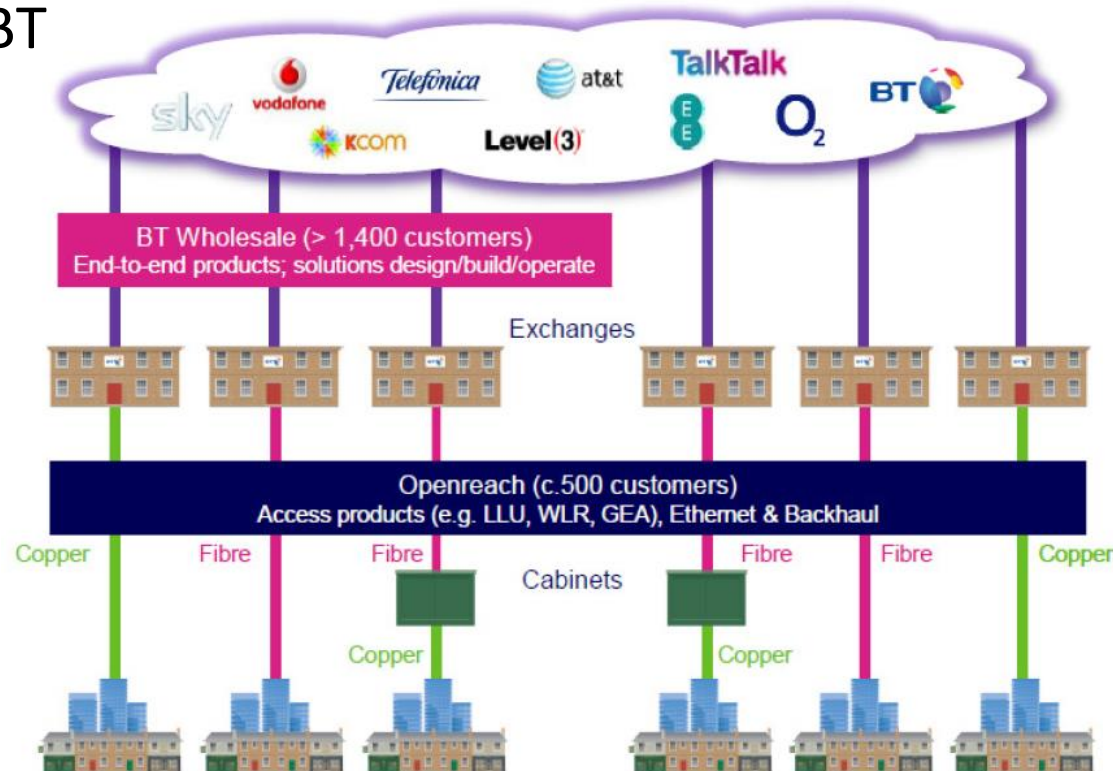
Albert Rafel

COCONUT Public Workshop, Pisa, 5 February 2016



Openreach: Open Access to Support Competition and Choice

- Ofcom (UK Regulator) launched a Telecommunications Strategic Review (TSR) in Dec 2003
- Ofcom accepted a set of Undertakings, or legally-binding commitments, offered by BT
- Openreach launched on 21st Jan 2006
- Separate BT line of business set up to **manage the UK access network**
- Created to ensure all Communications Providers (CPs), including BT, have transparent and **Equivalence of Access** to the network



Openreach Products and Services

- Openreach offer four principal products and services: **Fibre broadband**, **copper based services**, **infrastructure** and **Ethernet**

- **Fibre broadband**

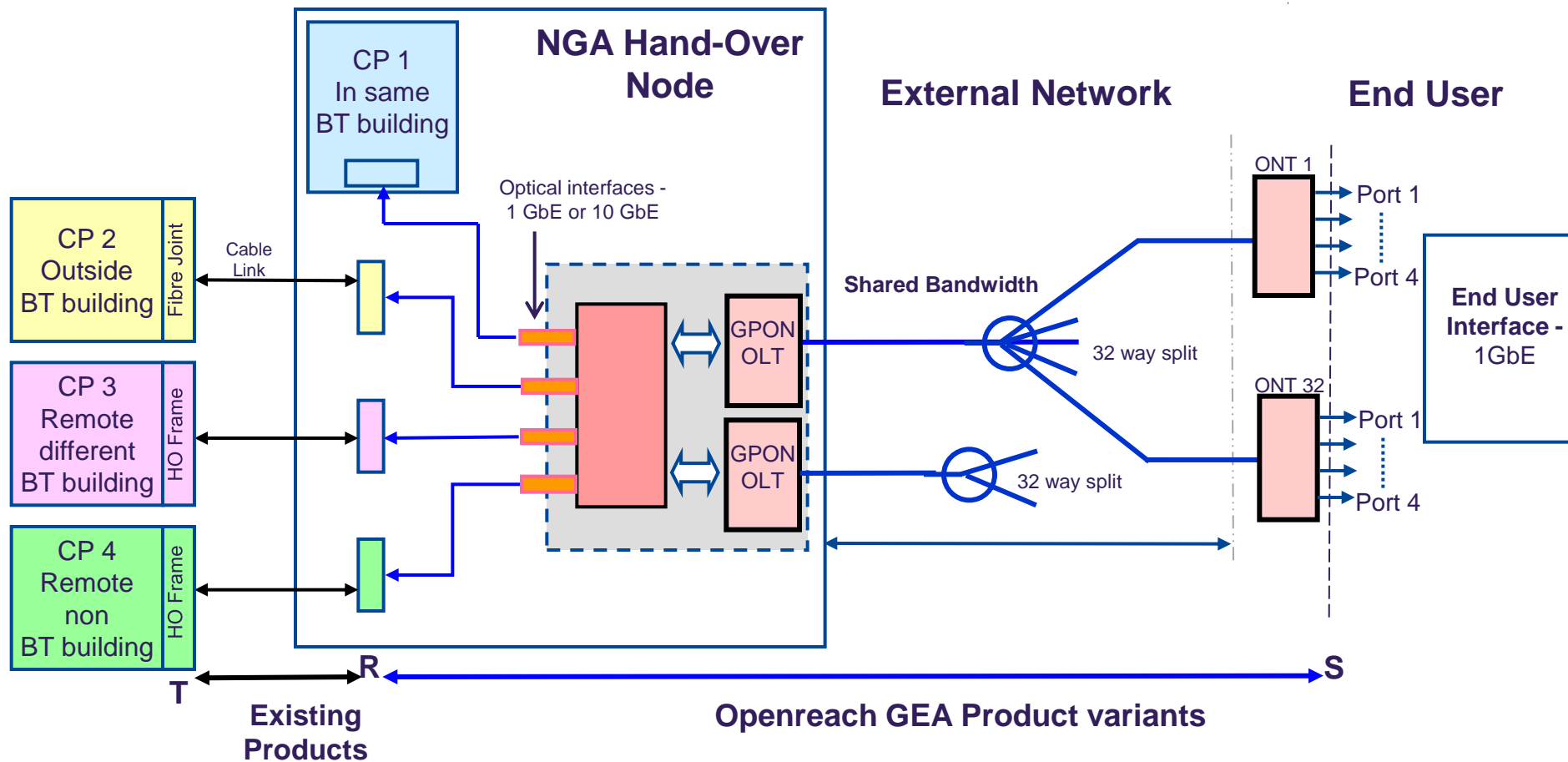
The ***wholesale fibre broadband product is called Generic Ethernet Access*** and it is delivered over a number of technologies:

- **Fibre-to-the-Cabinet (FTTC)** provides speeds of up to 80Mbit/s; when CPs connect a new customer, they can either choose to have an Openreach engineer visit a home or business site or use a 'self-install' option. FTTC is our most widely-used service
- **Fibre-to-the-Premises (FTTP)** provides faster speeds of up to 330Mbit/s. CPs can offer voice services over FTTP
- **FTTP-on-Demand (FoD)** allows end customers in areas served by FTTC to obtain an FTTP connection (at a higher installation cost), currently available to nearly 9m premises.

The fibre broadband network can carry **broadcast and on-demand internet protocol television (IPTV) services**.

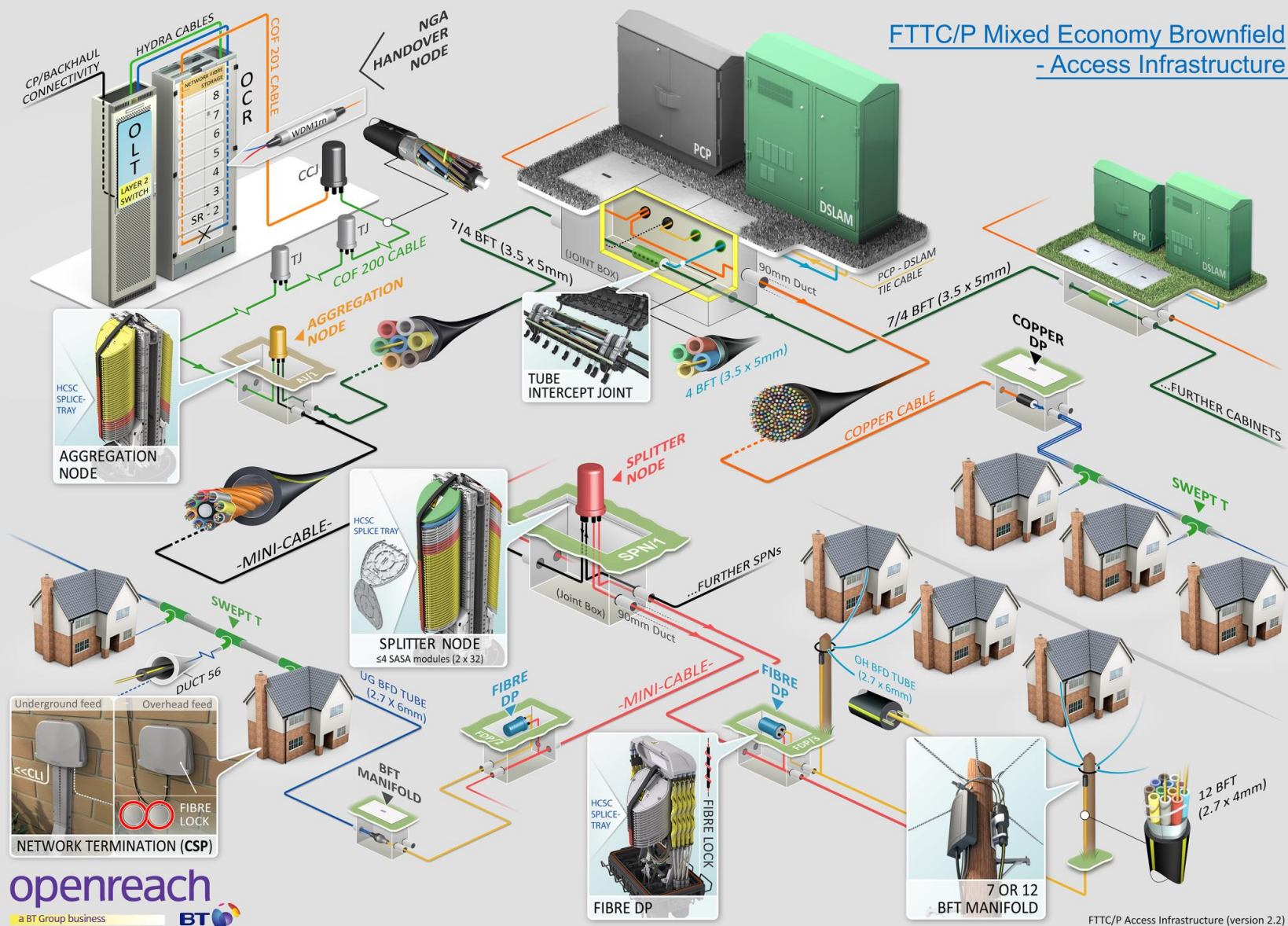
Openreach provide a multicast service over its broadband access network and CPs can choose to prioritise TV over other web traffic.

GEA-FTTP Service Connectivity Open Architecture

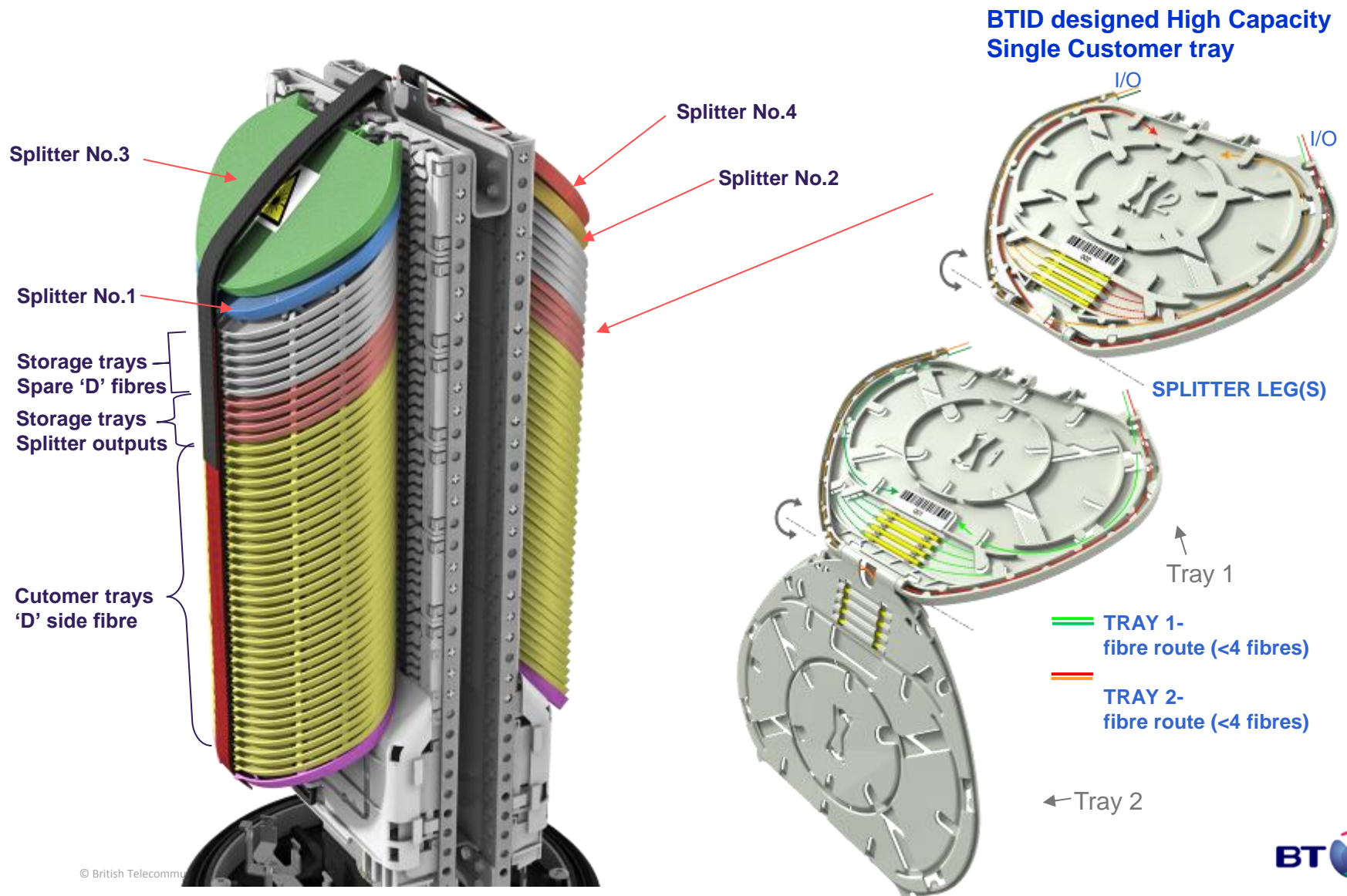


CP Flexibility point

FTTC/P Access Infrastructure



Splitter Node (SPN) – 128 Customer Capacity

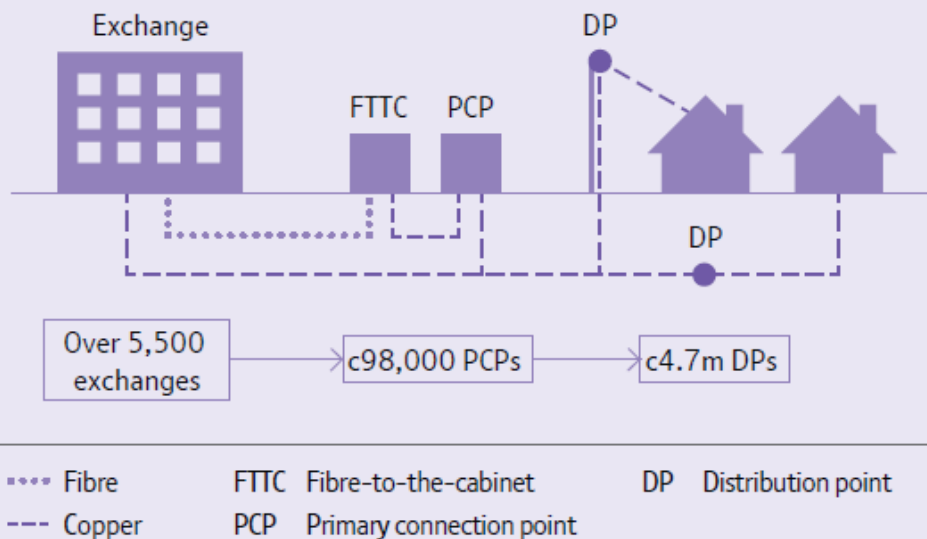


BT Access Network & Broadband Coverage

- BT's UK network links more than 5,500 exchanges, around 98,000 street cabinets (primary connection points, or PCPs) and around 4.7m distribution points
- BT network is used by nearly 80% of UK homes and businesses

- According to European Commission data, the UK has the highest coverage of next generation access (NGA) broadband of the five largest countries in Western Europe
- Coverage of 82%, including Virgin Media's network, is above the European Union average of 62%

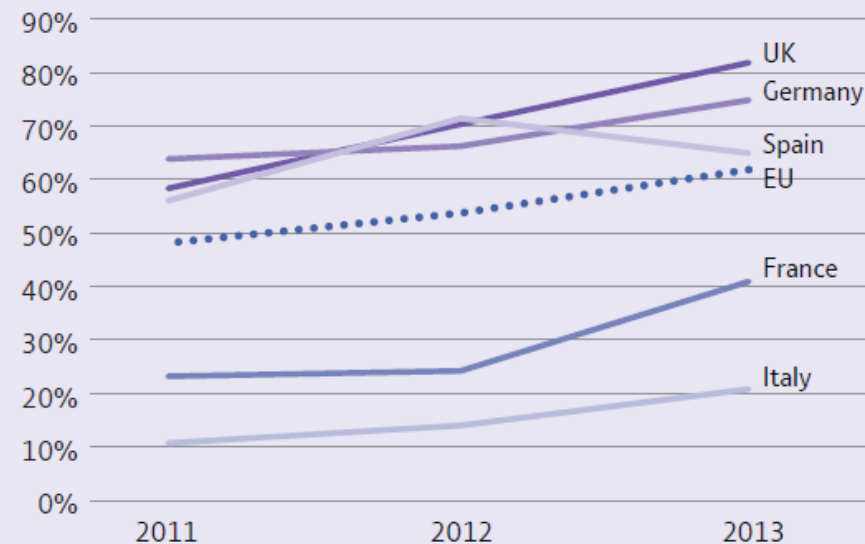
Openreach local access network



© British Telecommunications plc

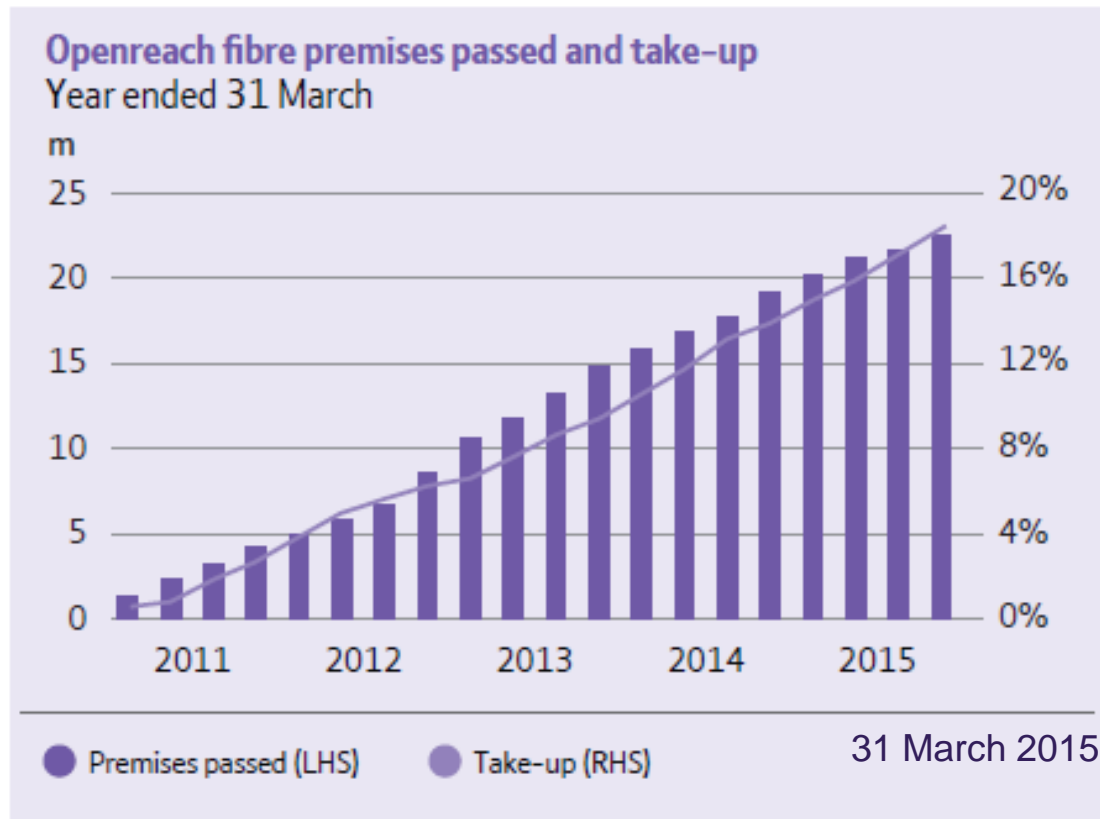
NGA broadband coverage

(% of households)



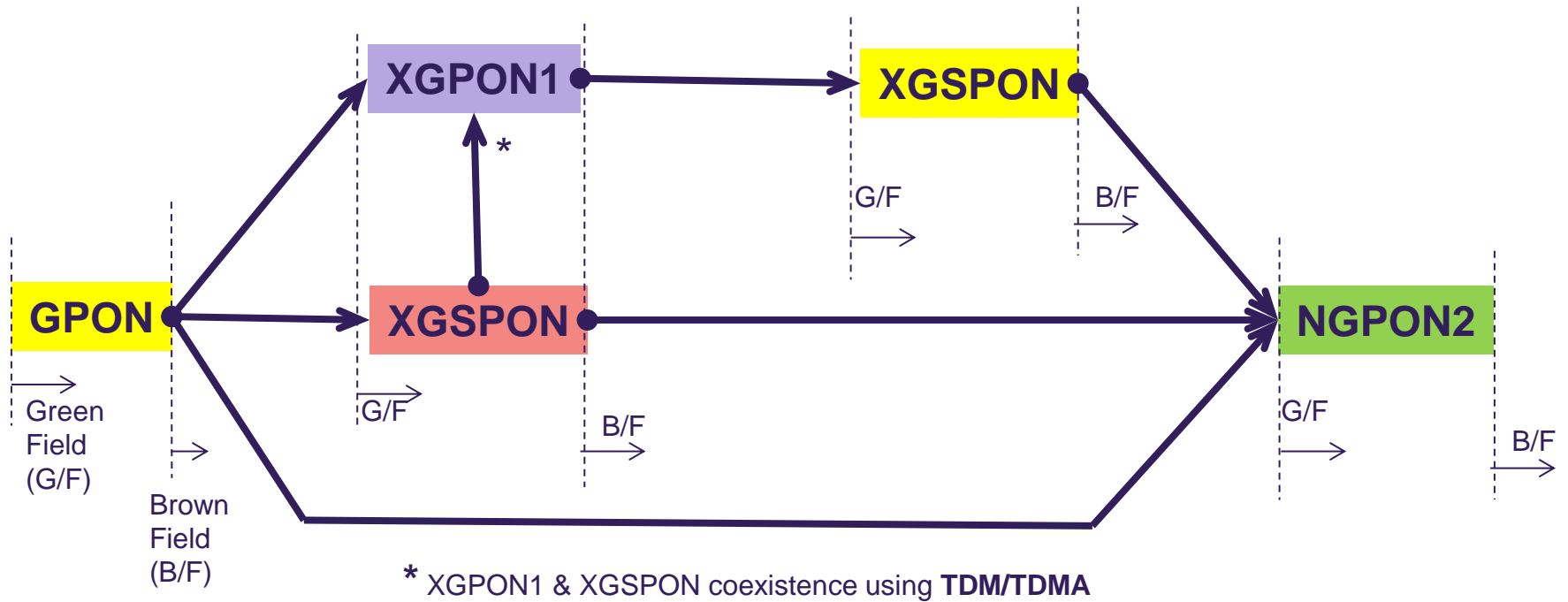
Source: European Commission Digital Agenda Scoreboard.

FTTC/P deployment status



- More than 22m premises (> 75% of UK premises) passed with fibre network technologies (FTTC & FTTP)
- 1.5m fibre broadband net connections in the FY 2014/15 (April to March)
- Around 4.2m homes and businesses in the UK are connected (19% take-up)
 - 5m as at end of September 2015 (21% take up)

FTTP Evolution Strategy Plan (Example)



- Evolution Strategy is used to anticipate POTENTIAL evolution and plan current deployment to enable migration avoiding (/minimising) infrastructure costs and service interruption
- There is no commitment to deploy any technology beyond commercial roll out
- Similar evolution strategy for Copper Technologies (e.g. ADSL → VDSL2 → G.fast → ...)
- System coexistence is typically done via WDM (different systems using different lambdas)
- ITU is currently developing G.xgspn (single wavelength, symmetrical 10G) which is now being incorporated in the FTTP evolution strategy



Bringing it all together