

# Beispiele von “enhanced” Bitstream

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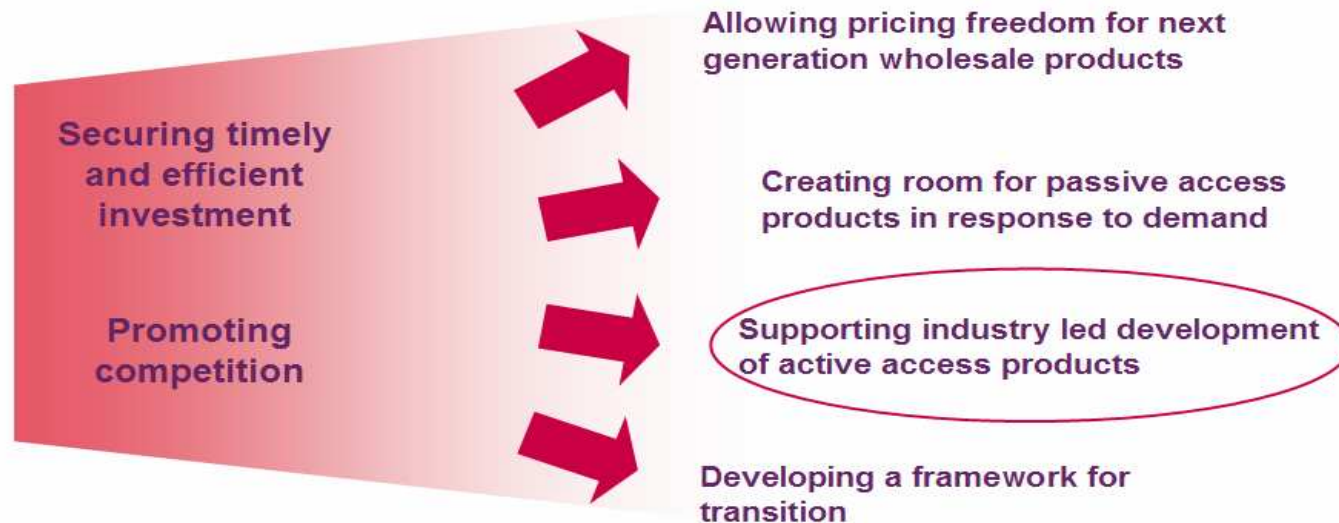
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# Ofcoms Ethernet Active Line Access Konzept



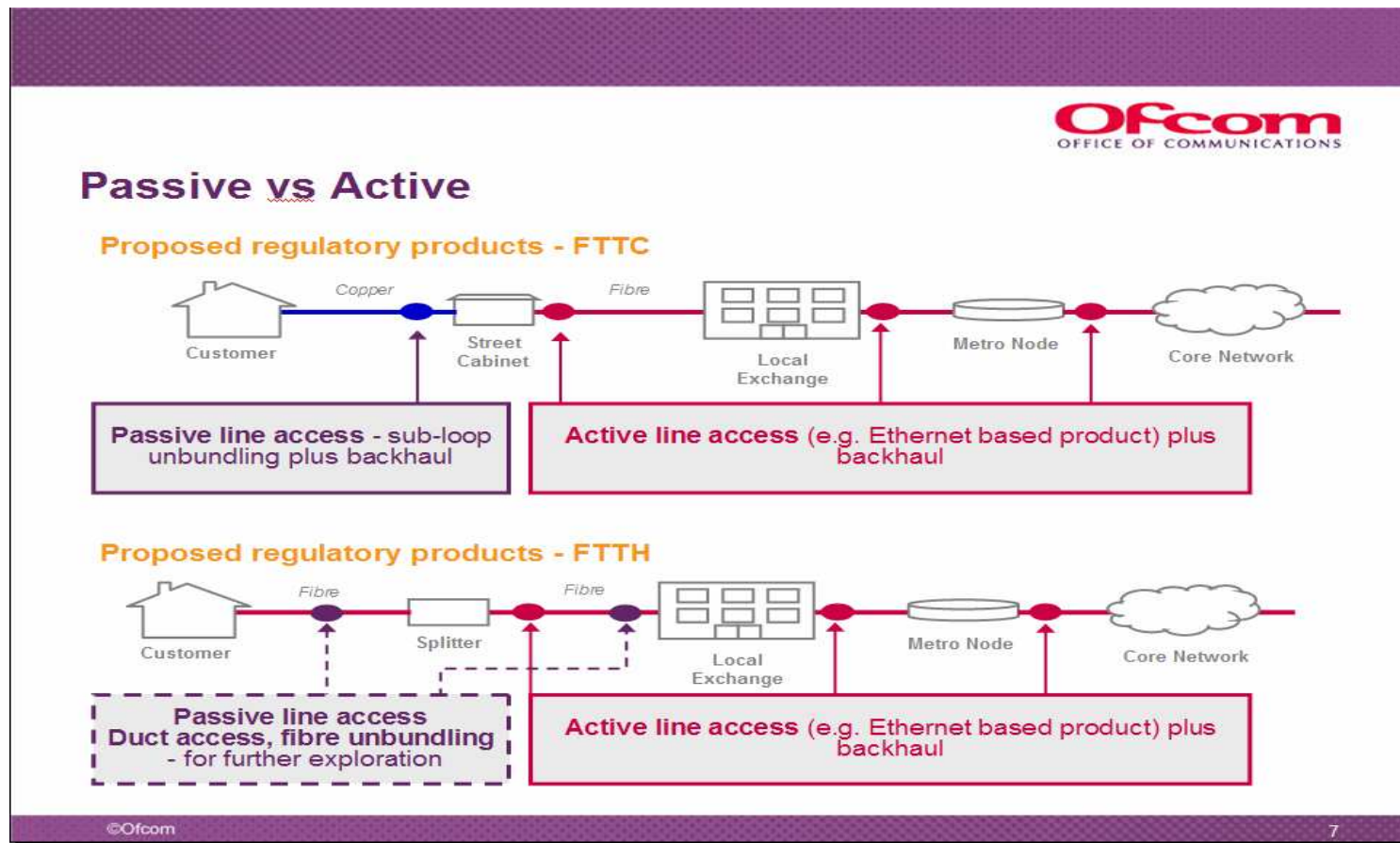
## On Tuesday we published a consultation on delivering superfast broadband



Source: CEWC 2008, Ofcom, 25. Sept. 2008



# Ofcom propose two Wholesale Access Products



Source: CEWC 2008, Ofcom, 25. Sept. 2008



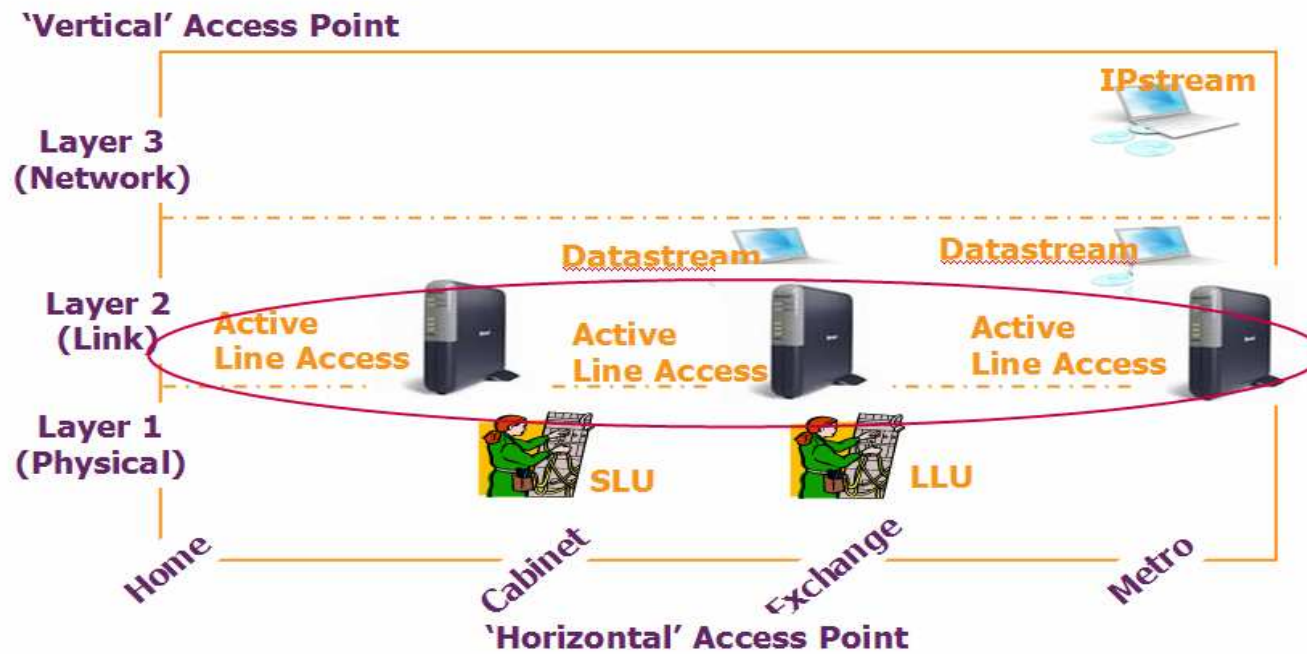
## What is Active Line Access?



### **‘Active line access’ is a form of *Ethernet bitstream* which**

- Retains as much as possible of the level of innovation supported by passive access
- Is neutral to higher layers:
  - IP-VPN, VLAN, PBB, PBT...
- Is implementation neutral to the underlying media
  - Ptp fibre, GPON, copper, bonded copper...
- Is service neutral to the applications:
  - Video, HDTV, voice, data...
- Helps overcome technology isolation
  - One wholesale access for all technologies
- Benefits from the economics of scale of Ethernet
- And the economics of distribution and management of bitstream
  - Customer acquisition does not necessitate truck roll
  - Interconnect at different points

Source: CEWC 2008, Ofcom, 25. Sept. 2008



Source: CEWC 2008, Ofcom, 25. Sept. 2008



## Why is Ofcom promoting Ethernet ALA?

- Like most regulators, we prefer infrastructure access
- We are also promoting sub-loop unbundling and looking at duct access
- But these unlikely to be viable everywhere – like LLU
- So some form of bitstream access is essential
- And the better it is, the more innovation will follow
- And the more consumers will benefit
- Other regulators are also looking at active line access type products

## What should this mean for infrastructure providers and operators?

- The availability of a standardised wholesale access product sooner rather than later
- Giving easy access to fibre communities wherever they may be
- Supporting wholesale and retail products
- And allowing for differentiation in pricing, quality of service, security, applications etc

Source: CEWC 2008, Ofcom, 25. Sept. 2008





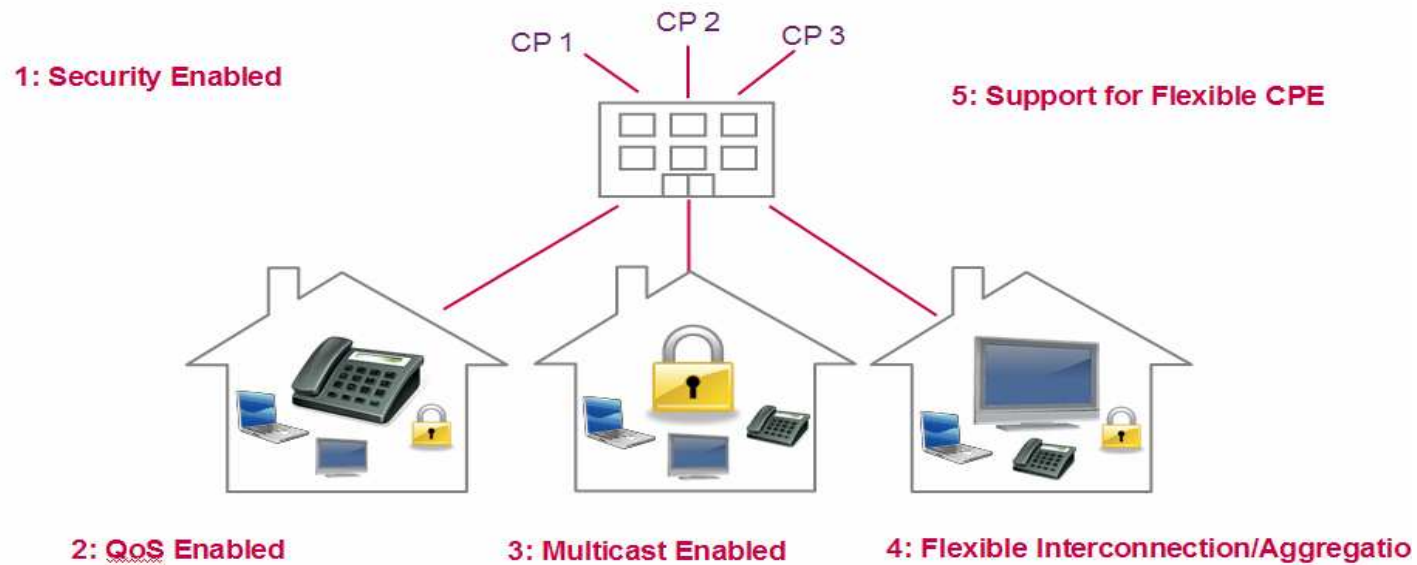
## It is for industry not regulators to define Ethernet ALA – and there are significant challenges

- Wide range of potential standards
- Needs to be highly scalable – thousands of CPs with millions of customers and hundreds of services
- Maximum control of underlying network requires product flexibility
- Ability to support quality of service is key, however that is achieved
- Flexibility within consumer premises equipment required
- Product definition requires significant effort by all industry players
  - Pan industry product specification
  - Industry players need to understand requirements and trade off product features to achieve an optimal definition...

Source: CEWC 2008, Ofcom, 25. Sept. 2008



## Key characteristics of Ethernet ALA



•Our engagement on the characteristics of Ethernet ALA: <http://www.ofcom.org.uk/telecoms/discussnga/eala/>

Source: CEWC 2008, Ofcom, 25. Sept. 2008



## The technical requirements of these competitive characteristics

Functionality	Justification	Technical requirements
Security enablement	<ul style="list-style-type: none"><li>• Secure delivery of services</li><li>• Authentication of users</li></ul>	<ul style="list-style-type: none"><li>• Separate traffic streams</li><li>• CPs implement own security</li></ul>
QoS enablement	<ul style="list-style-type: none"><li>• Satisfactory delivery of voice and video</li></ul>	<ul style="list-style-type: none"><li>• AIP provides information</li><li>• CP labels traffic</li></ul>
Multicast enablement	<ul style="list-style-type: none"><li>• Bandwidth savings in backhaul of one to many services (IPTV)</li></ul>	<ul style="list-style-type: none"><li>• Choice between CP and AIP solution</li><li>• Common interface</li><li>• Static and dynamic support</li></ul>
Flexible customer premises equipment	<ul style="list-style-type: none"><li>• To allow CPs to innovate in CPE functionality</li></ul>	<ul style="list-style-type: none"><li>• Common Ethernet interface (initial)</li><li>• Wires- / Fibre-only interface (future)</li></ul>
Flexible interconnection	<ul style="list-style-type: none"><li>• There is no universally economical interconnection point</li></ul>	<ul style="list-style-type: none"><li>• Local, regional, national interconnect</li><li>• Common interface</li><li>• Freedom to move</li></ul>

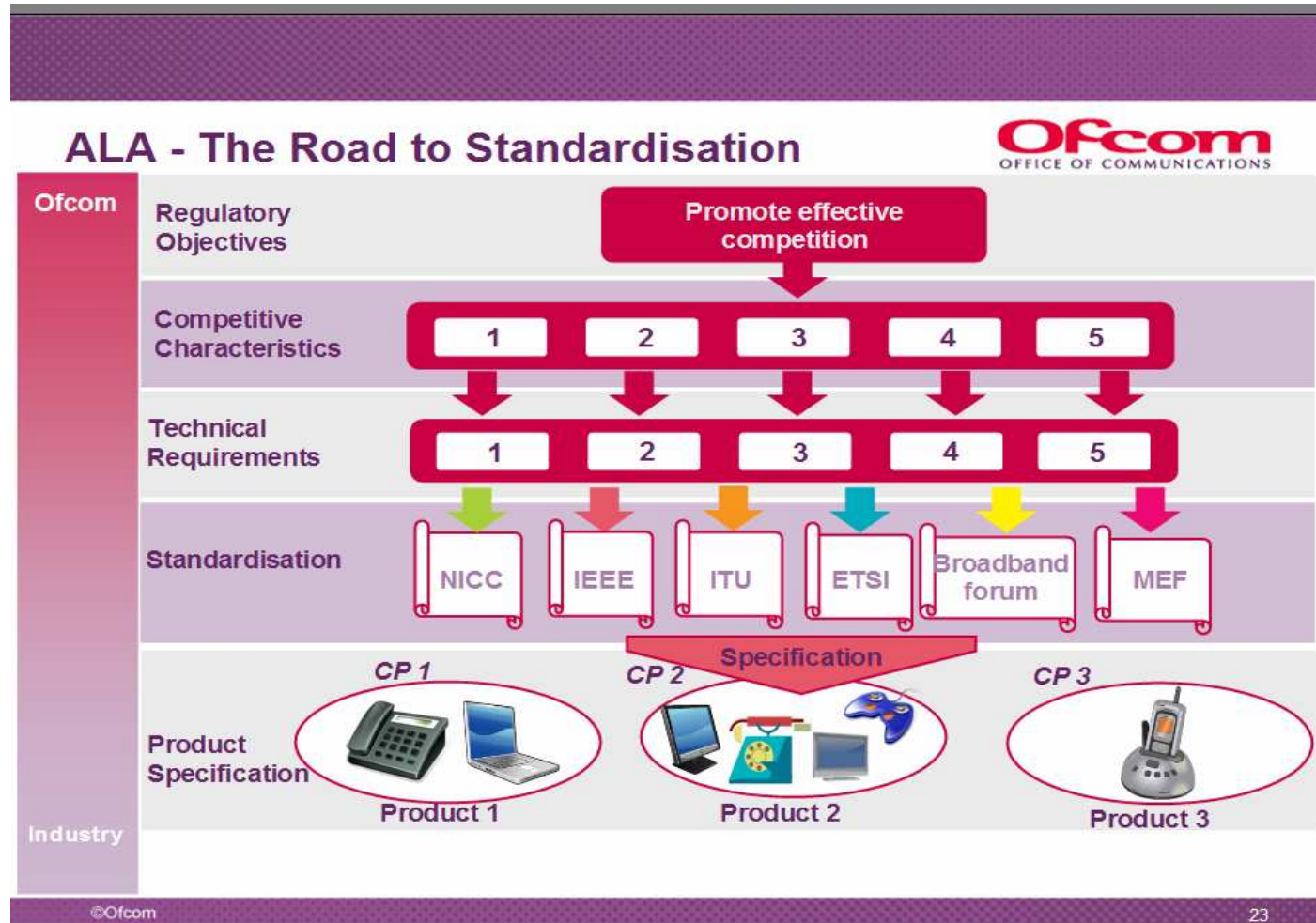
Source: CEWC 2008, Ofcom, 25. Sept. 2008



**Table 3: QoS Technical Requirements**

Ref	Draft requirement	Suggested standard(s) or activity
3.1	The bandwidth available shall include, as a minimum, a Committed Information Rate (CIR), but may also include extra contended bandwidth (the Peak Information Rate (PIR)) available on shared networks.	Further discussion required.
3.2	An ALA user shall know the access speed delivered to each subscriber's line to ensure it can deliver its services.	Broadband Forum TR-101 should be considered for managing this information on VDSL networks.
3.3	A reporting mechanism shall provide information on the CIR and PIR (where available) for each interface with the ALA user.	The MEF is already active in defining how CIR and PIR should be described on metro Ethernet networks
3.4	The management of bandwidth sharing and peak information rates on the network shall be optimised.	Further discussion required.
3.5	QoS shall be managed using existing standards, without overcomplicating the basis transport objective.	Each VLAN tag must have a IEEE 802.1p priority marking referring to a specific CIR:PIR contract.
3.6	The assigning of priority labels and CIR:PIR contracts, and how this varies by ALA user, should be standardised.	Further discussion required.

Source: Ethernet Active Line Access: Technical Requirements, Ofcom, 23. Sept. 2008,  
<http://www.ofcom.org.uk/telecoms/discussnga/eala/eal/>



Source: CEWC 2008, Ofcom, 25. Sept. 2008



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## Openreach Services delivered over FTTC – Pilot Product Proposal / Discussion Document

<http://www.openreach.co.uk/orpg/products/nga/downloads/FTTC%20Product%20Proposal%20Iss%201-0.pdf>



## Generic Ethernet Access (GEA) over FTTC - Allgemeines

- **BT** hat angekündigt in **NGA** ca. **1,87 Milliarden Euro** in ein FTTC Overlay und in FTTP bei Neubauten zu investieren
- Openreach entwickelt ein **GEA FTTC Produkt**, eine **Pilotinbetriebnahme** soll in **Q2 2009** in einem definiertem Gebiet beginnen und ca. 30-40 Cabinets (über die ca. 15.000 Haushalte erreichbar sind) umfassen
- Openreach hat einen **Vorschlag für ein GEA FTTC Produkt** erstellt und zwischen 21. August und 29. September 2008 konsultiert



## Generic Ethernet Access (GEA) over FTTC - Datenraten

- Der Vorschlag für ein GEA FTTC Produkt umfasst **folgende Datenraten**:

Downstream	Upstream
20 Mbit/s	5 Mbit/s
30 Mbit/s	10 Mbit/s
40 Mbit/s	15 Mbit/s

- Die **Bandbreiten** sind zwischen Openreach Handover Point (OHP) und dem Endkundenstandort **nicht überbucht**.
- Die Datenraten hängen von verschiedenen Faktoren wie Entfernung Endkundenstandort – DSLAM, Anzahl der Endkunden in einem Kabel, die DSL-Technologie verwenden etc. ab.
- Die angegebenen Datenraten sind **Maximaldatenraten**, es soll auch eine **minimale Datenrate** festgelegt werden.
- Es werden auch **SLAs** zum GEA FTTC Produkt angeboten.
- Das GEA FTTC Produkt bietet nur **einem ANB** die Möglichkeit Breitbanddienste anzubieten (einem ANB soll die gesamte verfügbare Bandbreite zur Verfügung stehen).





## Generic Ethernet Access (GEA) over FTTC - CPE

- Am Endkundenstandort wird ein **aktives Network Termination Equipment (NTE)** in Form eines **VDSL2 Modems** mit **Ethernetschnittstellen** (10 Mbit/s, 100 Mbit/s) installiert.
- Das VDSL2 Modem ist nicht das Customer Premises Equipment (CPE).
- Openreach nimmt an, dass die **ANBs** das **Router- / Hub-CPE zur Verfügung stellen** und auch **besitzen** werden
- Das aktive NTE stellt **2 Ethernetports** zur Verfügung, einen für Breitbanddienste, der andere ist für zukünftige Produktentwicklungen reserviert.
- In der **Pilotphase** wird das **VDSL2-Modem von Openreach ausgewählt** und **gehört das VDSL2-Modem Openreach**
- **Zukünftig**, wenn Standards verfügbar sind, soll es möglich werden dass ANBs die **Modemfunktionalität in ihr CPE integrieren**



## Generic Ethernet Access (GEA) over FTTC – Zusammen- schaltung, Multicast-Funktionalität

- Openreach schlägt im Vorschlag für ein GEA FTTC Produkt **850 – 1000 Openreach Handover Points (OHPs)** vor.
- Es ist vorgesehen, dass es **kein integriertes Backhaulprodukt** als Teil des GEA FTTC Produkts gibt (ANBs können aber ihre bestehende Backhauldienste verwenden)
- Openreach **beabsichtigt nicht**, dass das GEA FTTC Produkt in der **Pilotphase Multicast-Funktionalität** unterstützt, Openreach **überlegt** aber diese Funktionalität – abhängig vom Interesse der ANBs – **anschließend einzuführen**





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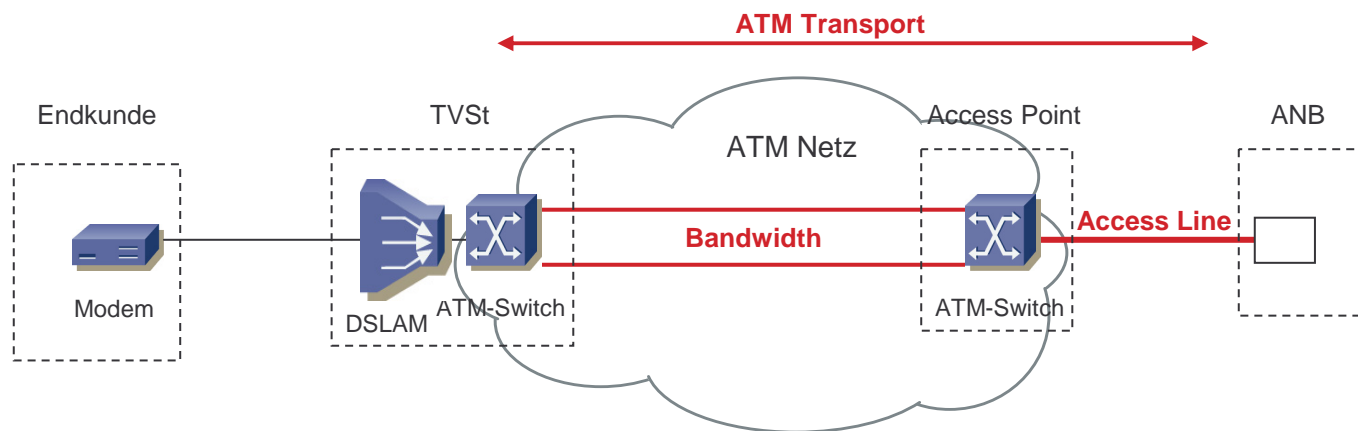
## Belgacom Reference Offer For Bit Stream Access BROBA II ADSL and Reach Extended ADSL2

[http://www.belgacom.be/nationalwholesale/fr/jsp/dynamic/standardPage.jsp?dcrName=broba\\_index](http://www.belgacom.be/nationalwholesale/fr/jsp/dynamic/standardPage.jsp?dcrName=broba_index)



## BROBA II ADSL and Reach Extended ADSL2 umfasst

- Die Bereitstellung von Bandbreite zwischen DSLAM und einem Belgacom Access Point
- Die Bereitstellung einer Access Line zwischen Belgacom Access Point und ANB
- Die Bereitstellung und Konfiguration von ATM Transport zwischen DSLAM und ANB
- Der Belgacom Access Point muss sich in der gleichen „Access Area“ wie die DSLAM befinden (Belgien besteht aus 8 „Access Areas“)





# BROBA II ADSL and Reach Extended ADSL2 Charakteristiken

Max. 12 ATM Virutal Paths (VPs) pro DSLAM

VP Typen: CBR, VBR rt, VBR nrt, UBR+

