Modelling the impact of Next Generation Access (NGA) on voice termination cost

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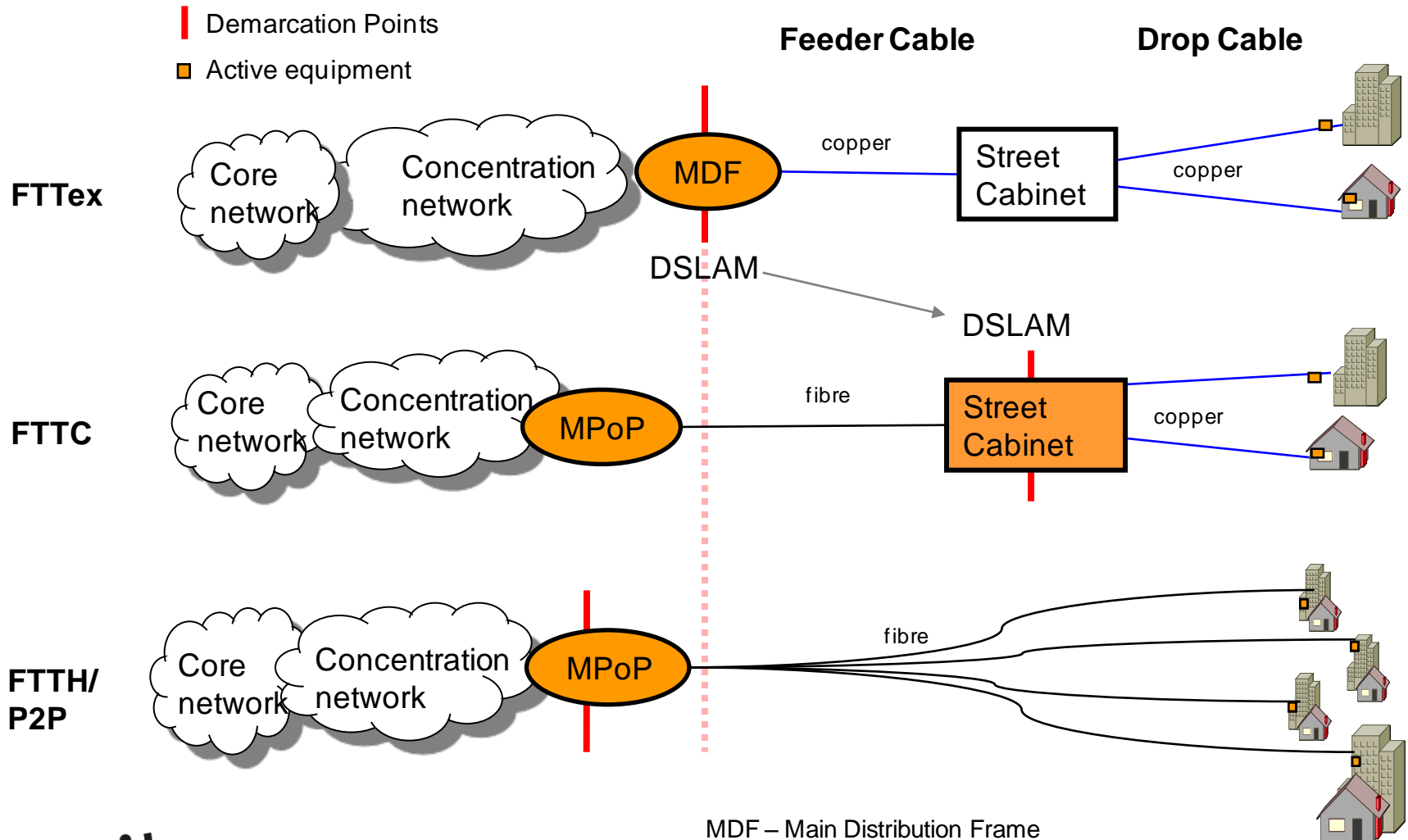
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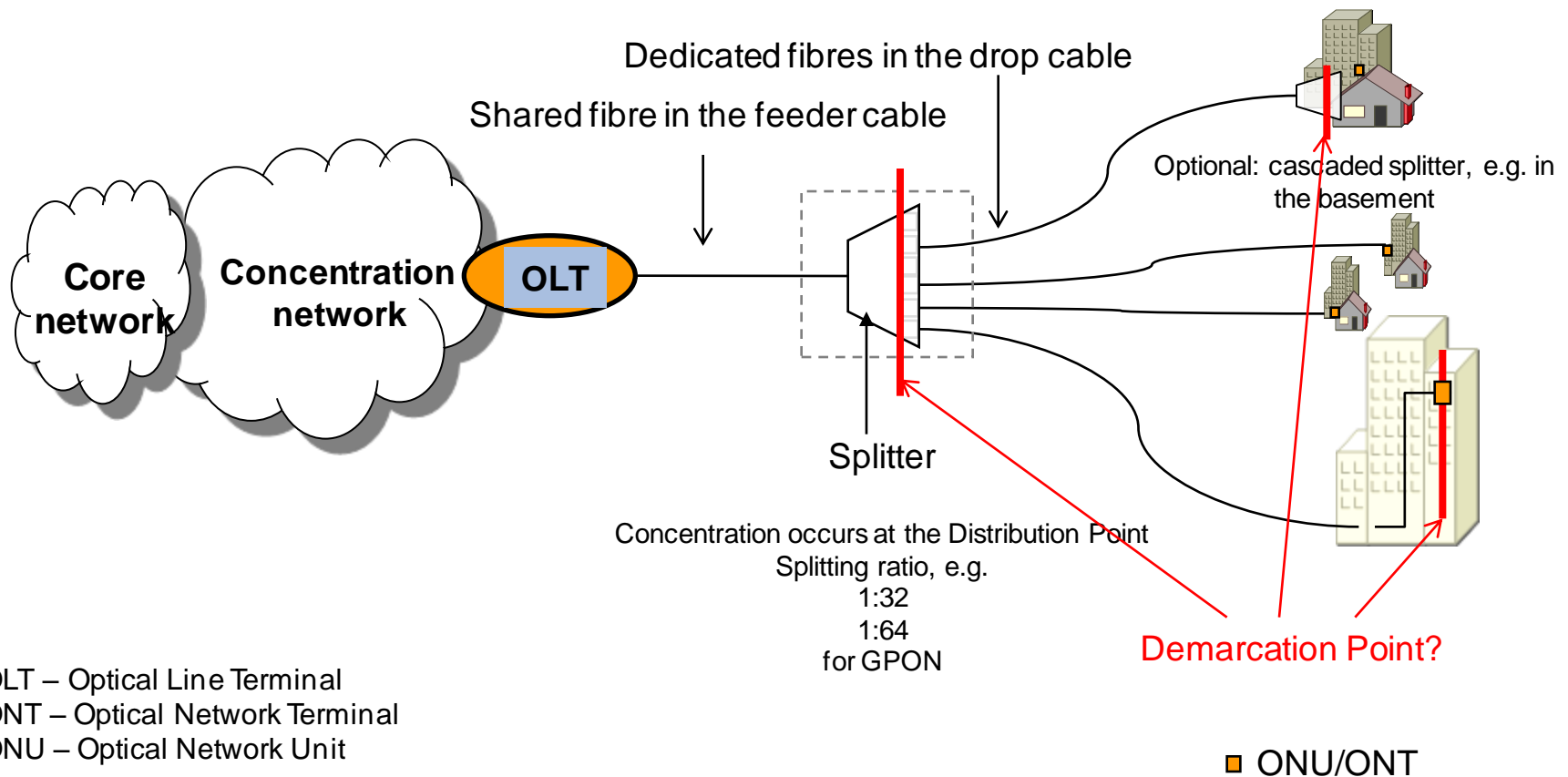
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Agenda

- **Modelling Approach**

- Modelling Results

- Conclusions

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Demarcation Points in FTTexchange, FTTC and FTTH/P2P architectures

Feeder Cable **Drop Cable**

| Demarcation Points
| Active equipment

FTTex
Core network — Concentration network — MDF — copper — Street Cabinet — copper / copper

DSLAM → DSLAM

FTTC
Core network — Concentration network — MPoP — fibre — Street Cabinet — copper

FTTH/ P2P
Core network — Concentration network — MPoP — fibre

MDF – Main Distribution Frame
DSLAM - Digital Subscriber Line Access Multiplexer
MPoP – Metropolitan Point of Presence

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FTTH PON (Passive Optical Network) technology concentrates fibres closer to the user:
Less but shared fibre in the feeder segment

Dedicated fibres in the drop cable

Shared fibre in the feeder cable

Optional: cascaded splitter, e.g. in the basement

Core network

Concentration network

OLT

Splitter

Concentration occurs at the Distribution Point
Splitting ratio, e.g.
1:32
1:64
for GPON

Demarcation Point?

OLT – Optical Line Terminal
ONT – Optical Network Terminal
ONU – Optical Network Unit

ONU/ONT

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GPON: ITU-T G.984
Gigabit PON

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We have used a Bottom-Up cost model to calculate the cost of NGA deployment by a stand-alone competitor in denser regions of Germany

- Base: WIK NGA model used in 2008 & 2009 studies on NGA economics

  - Calculate network cost (up to demarcation point)

  - Allocate according to traffic share of voice termination in overall traffic

  - Key assumptions

    - Deployment passes all buildings

    - 50% become customers. Average customer demands

      - 1000 voice minutes per month

      - Sensitivities on bandwidth demand

    - All telephony is VoIP

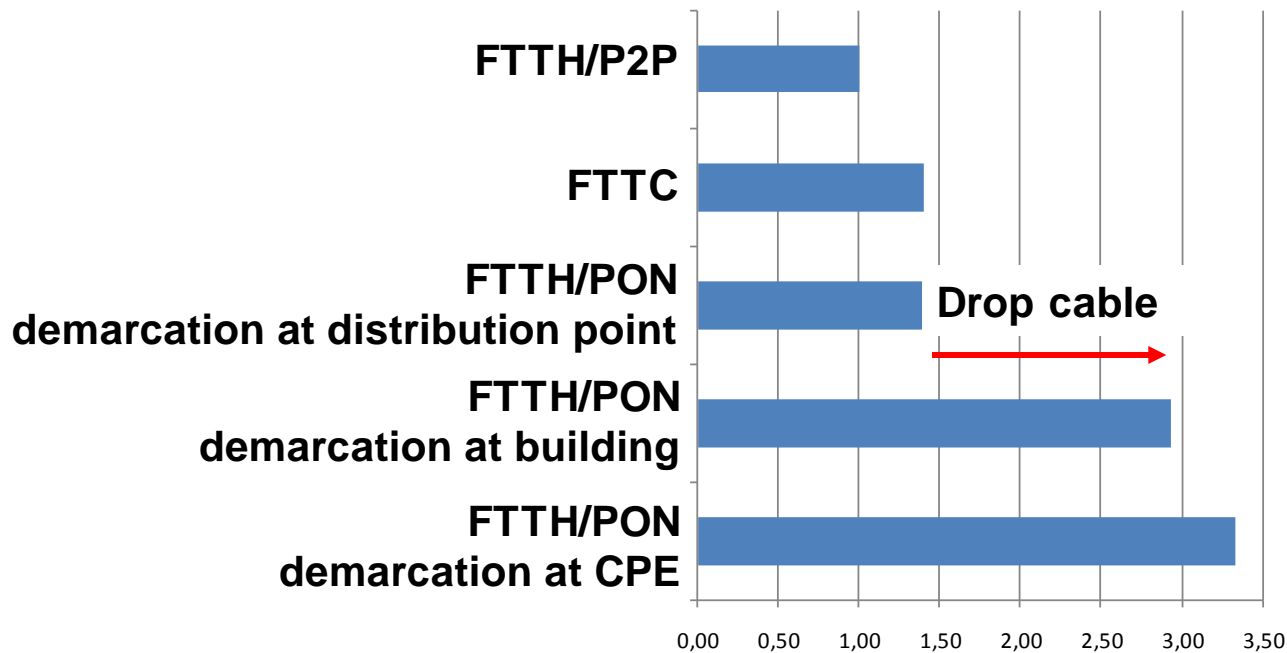   - Simplification: Same core and concentration network cost for all architectures

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Reducing the dedicated part of the local loop increases voice termination cost

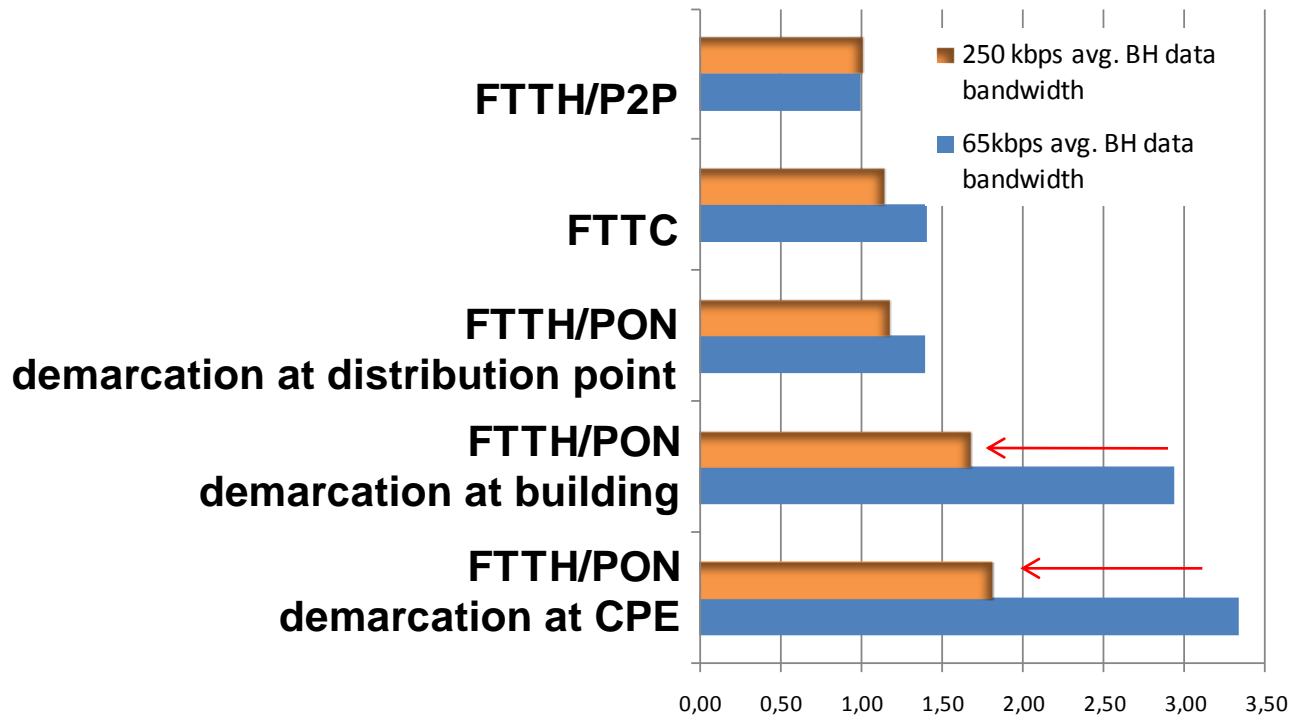**Double Play base case (65kbps data usage)**
FTTH/P2P = Index 1,00

Strong reduction of termination cost

Double Play (65kbps vs. 250kbps data usage)
FTTH/P2P base case = Index 1,00

Chart legend:
- 250 kbps avg. BH data bandwidth
- 65kbps avg. BH data bandwidth

Categories: FTTH/P2P, FTTC, FTTH/PON demarcation at distribution point, FTTH/PON demarcation at building, FTTH/PON demarcation at CPE

X-axis: 0,00 0,50 1,00 1,50 2,00 2,50 3,00 3,50

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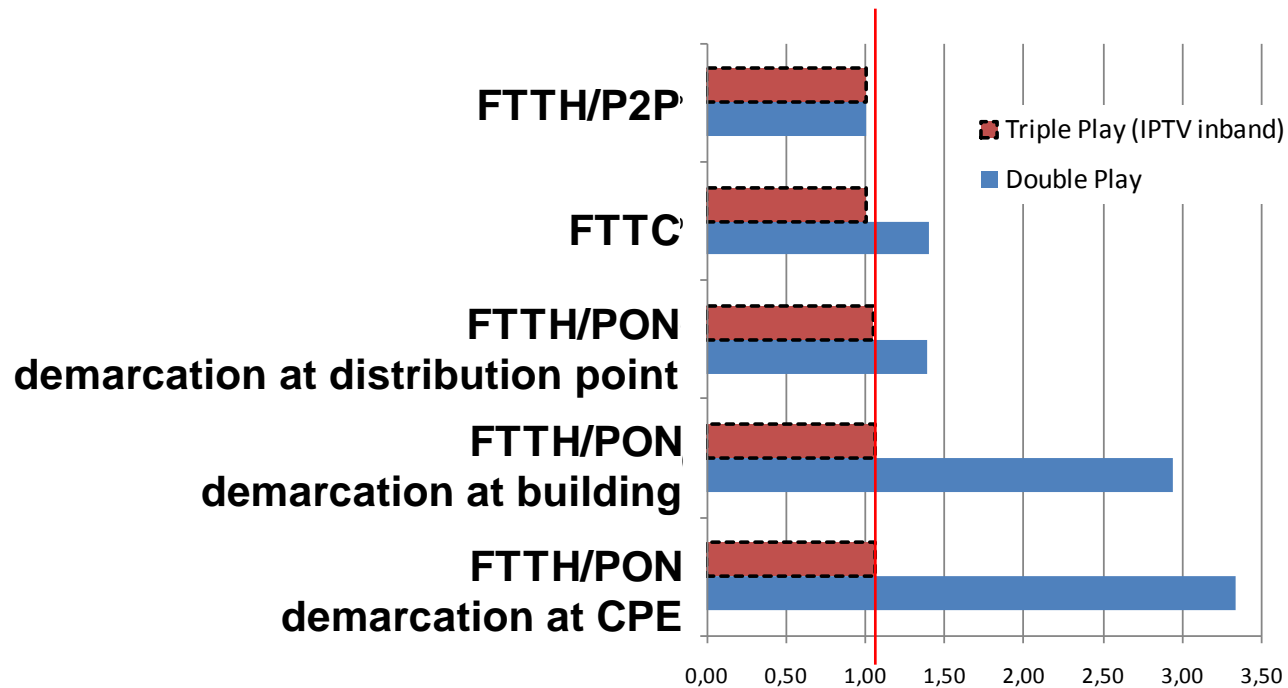
Multicast IPTV creates heavy load in the drop and feeder segment: Termination cost ~equalized

Triple Play (65kbps data usage + IPTV)
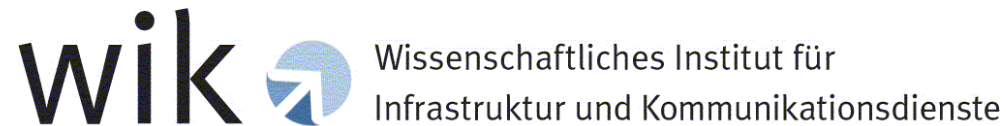FTTH/P2P base case = Index 1,00

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- When taking the regulatory framework for determining termination cost to the NGA we found

    - Different demarcation point locations, some debateable (PON)

    - Voice termination cost can become equalized at level of MPoP cost

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- Will future data & IPTV usage scenarios lead to drastically reduced voice share?

- Termination rates per architecture or per operator?

- Can regulators define one or a few "efficient" architectures?

- "Unwanted" investment incentives?

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