Redes Nova Geração
Potencialidades da Fibra Óptica

ACIST – AET

CCB – 5th March 2008

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Telecom market is redefining itself

Beyond voice – a fragmented market

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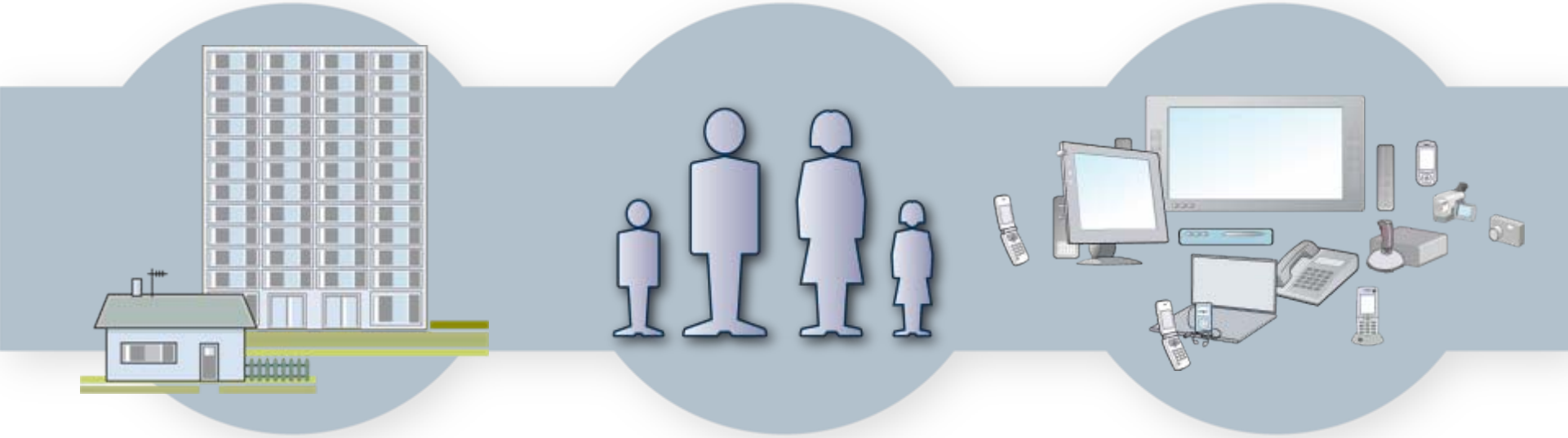
Rethinking family home life

Home

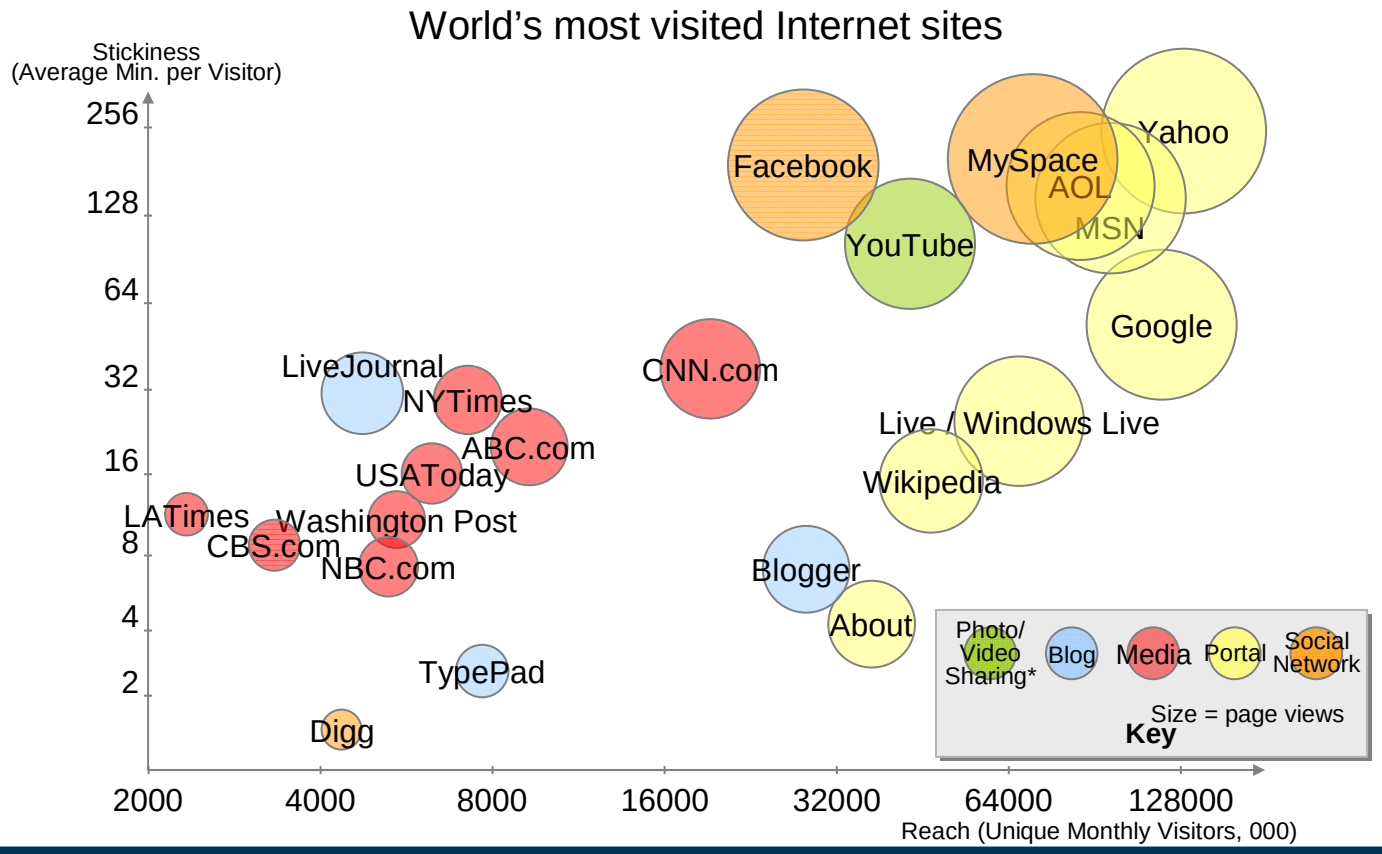
Family

Technologies



- More communication and media consumption take place in the home
- Increasing number of devices
- Devices growing in complexity

Sharing knowledge, fun, and innovation



Empowered consumer
Value chain transformation
Internet players: "Insane customer focus"

Sources: comScore Media Metrix (June, '07), Gartner Analysis

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Already high volumes of multimedia

More than two billion songs, 50 million TV episodes and 1.3 million feature-length films have been purchased and downloaded from **iTunes**

A million downloads a month of user-generated **SeeMe TV (3UK)**

World of Warcraft, the subscription-based online game, has more than 8 million users

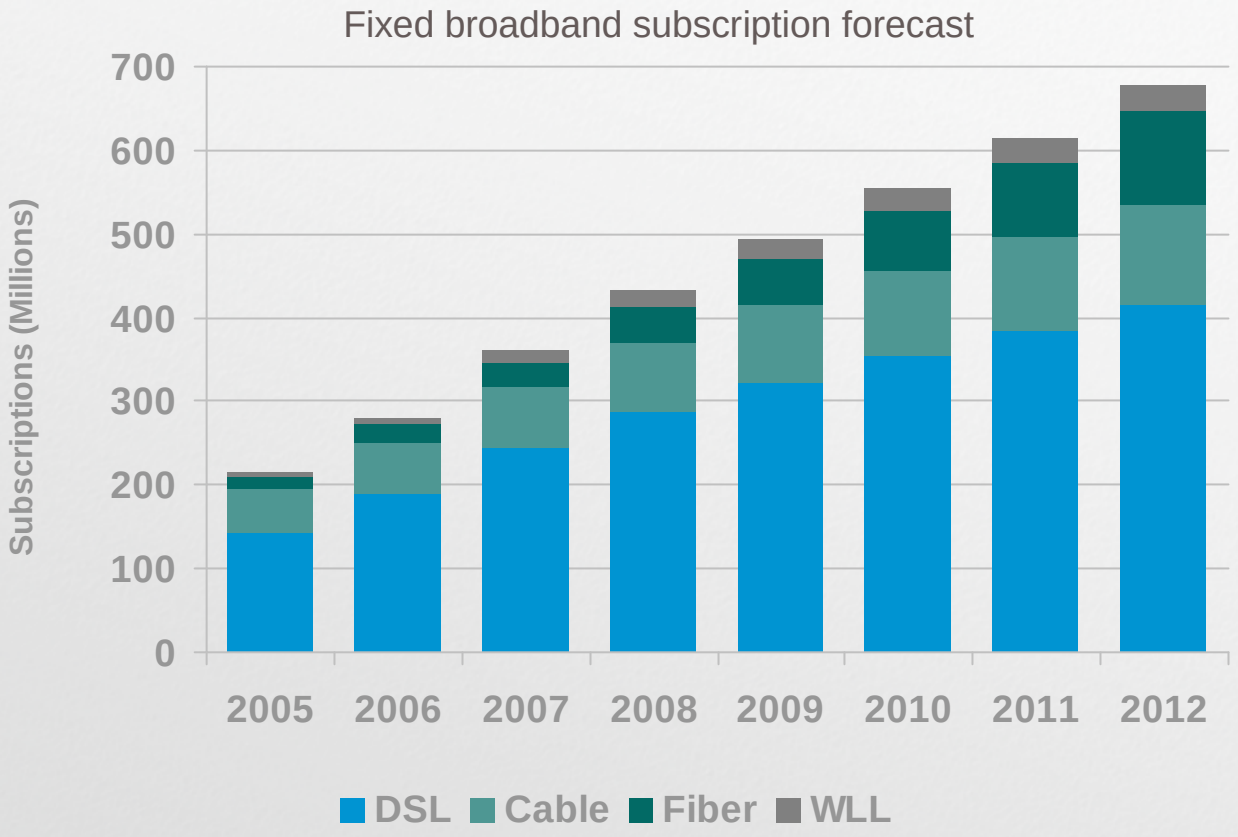
YouTube

More than 100 million videos watched per day on YouTube

Source: The Guardian May06, Apple Jan07, Blizzard Jan07 and MarketingVox Jul06

The digital home

Fixed broadband subscriptions



Source: Ovum RHK & Internal Ericsson

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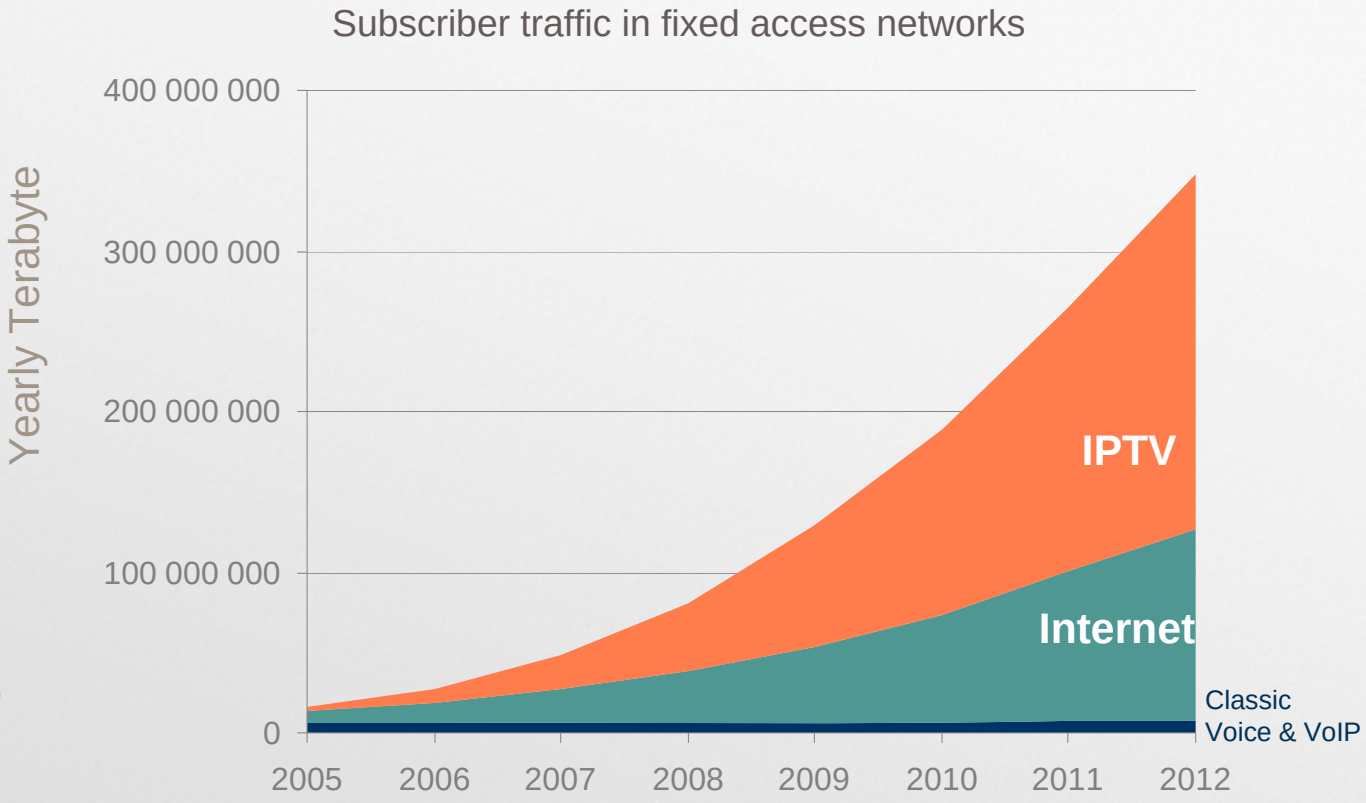
Fixed traffic to grow tenfold by 2012



Definitions: se note pages

Source: Internal Ericsson

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The new TV world

From analogue to digital TV (HDTV)

From broadcasting to interactive TV

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Bandwidth Demand Staircase

Multi-Stream High Definition Unicast

New Media Experiences

Access:	50 Mbps
Throughput:	10 Mbps
Aggregation:	1:5

Ongoing race:

Smart coding vs. More demand

Linear TV Single stream Broadcast

1st Generation IPTV

Access:	10 Mbps
Throughput:	1 Mbps
Aggregation:	1:10

Best effort Internet surf

Internet surf

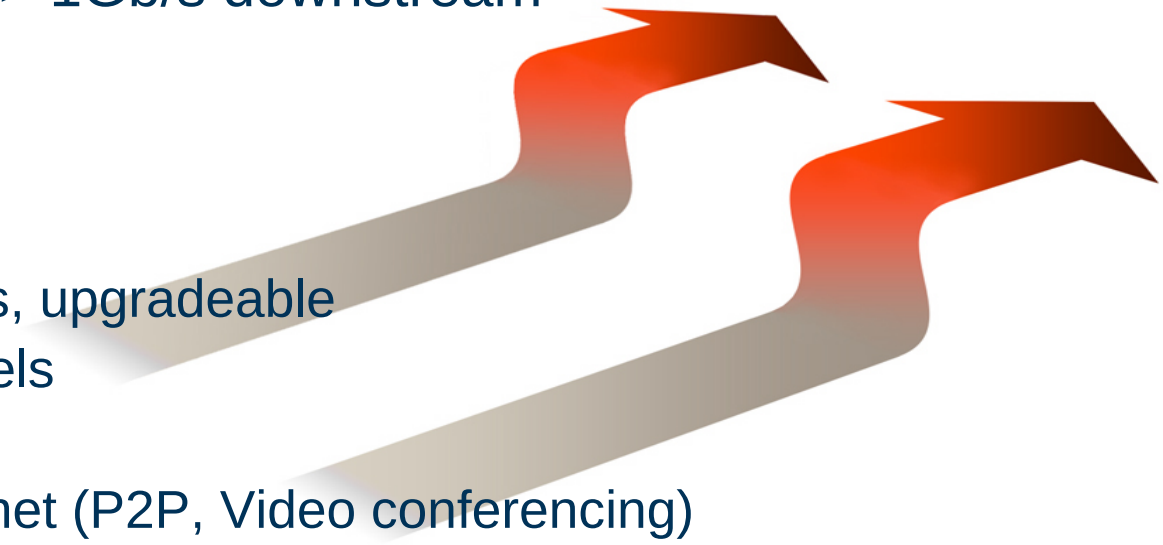
Access:	5 Mbps
Throughput:	100 Kbps
Aggregation:	1:50

Competitive advantage

Bandwidth requirements per household within 5 years

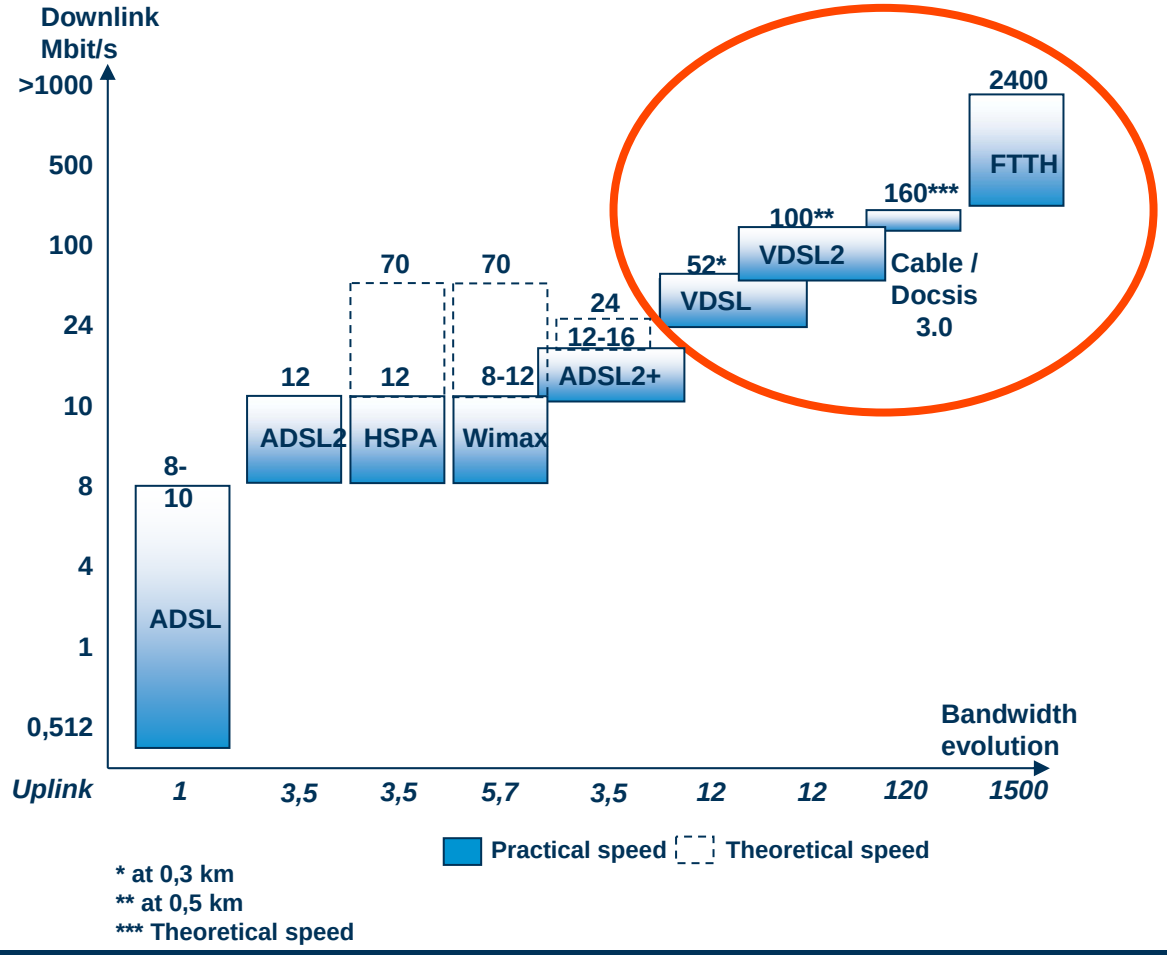
- 50-100 Mbit/s downstream
- 25-50 Mbit/s upstream
- Future proof/scalable > 1Gb/s downstream
- Quality & Security

- Serving for example;
  - 3 HDTV channels, upgradeable
  - 1-2 SDTV channels
  - HQ Audio
  - High speed Internet (P2P, Video conferencing)



Numerous technologies provide alternatives for operators going for broadband with speeds beyond ADSL2+

The current discussion - Technology



- ADSL2+ offers a practical speed of approximately 12-16 Mbit/s
- There are alternatives to deliver broadband beyond ADSL2+ over copper, coaxial or fiber
- Fiber based broadband access - highest BW today and currently seen most future-proof. All other technologies have the issue of theoretical vs practical speed.

Sources: Ovum, Strategy Analytics, Arthur D Little, IDATE

Players with different types of legacy could provide broadband beyond ADSL2+

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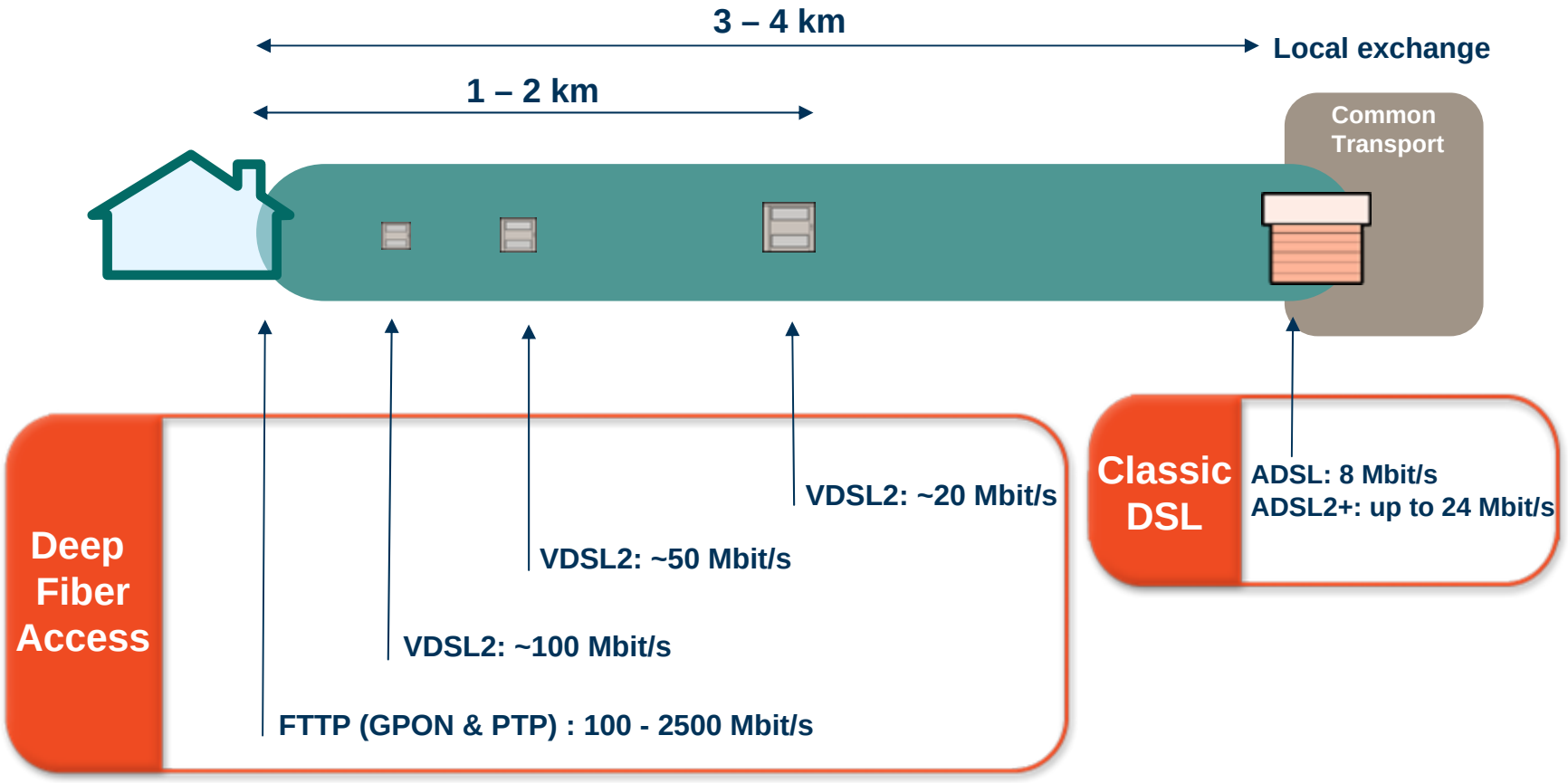
Transformation to Deep Fiber Access

Multiple Deep Fiber alternatives – VDSL2/GPON/PTP Fiber



Closer to customer to stay competitive

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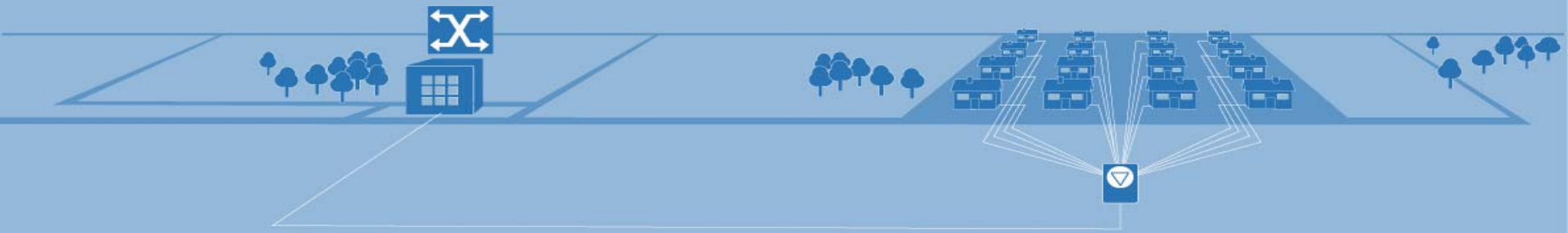
Popular FTTx Topologies

- Point-to-point (P2P)

- Point-to-Multipoint (P2MP)



Arhitecture - The ”x” in FTTx

In relation to technology & topology

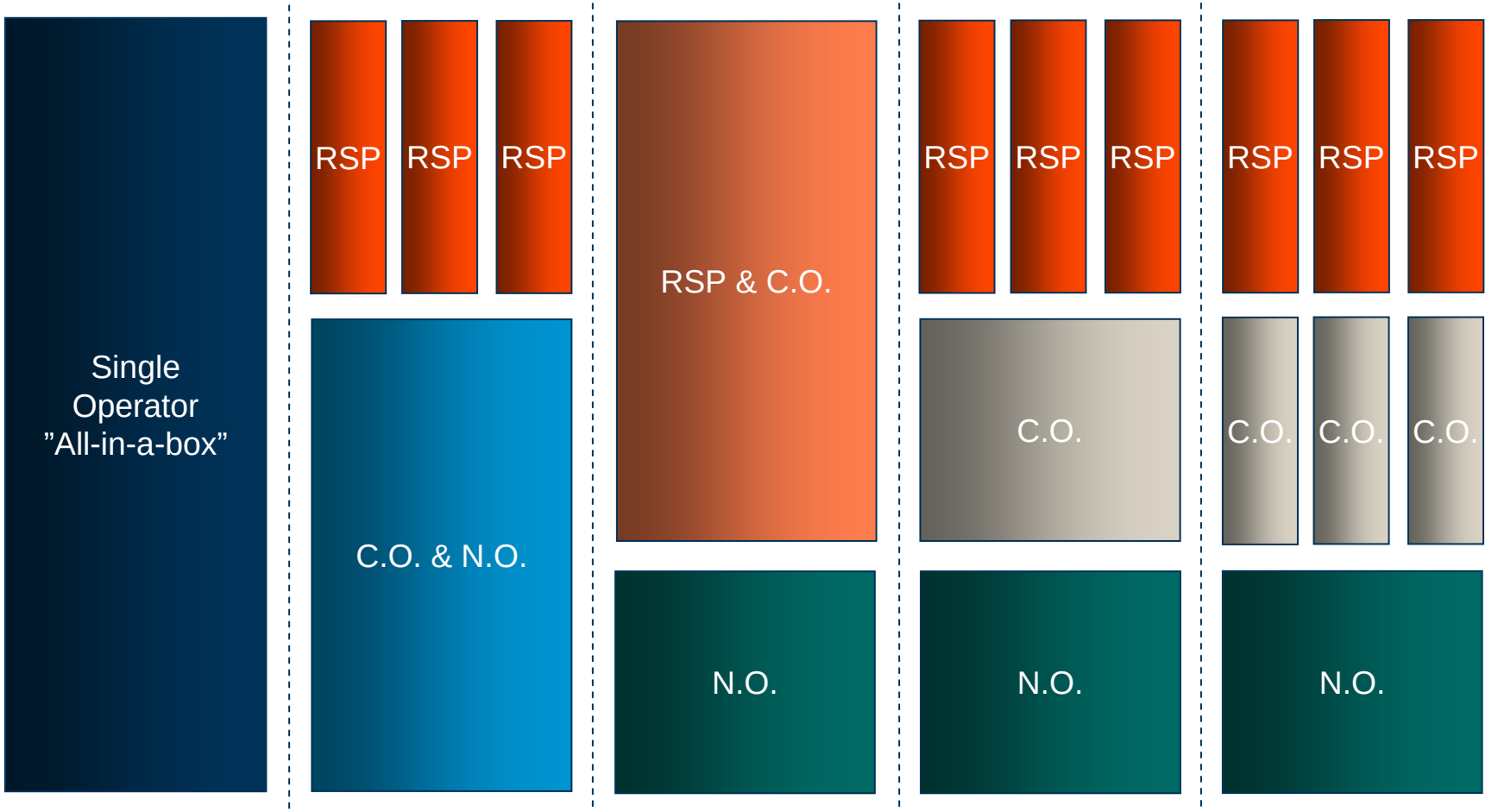
- FTTH
  - Fiber To The Home
- Fiber all the way to the end user
- Implementation:
  - AON, GPON (xPON)
  - ONT in individual homes

- FTTB
  - Fiber To The Building
  - Fiber To The Basement
  - Fiber To The Business
- Combination Fiber + (drop) Copper
  - Short copper loops, indoor placement
  - Typically MDU / MTU
- Implementation:
  - AON, GPON (xPON) ***plus***
  - Eth over Cat5/6 or VDSL2 over Cat3

- FTTC
  - Fiber To The Curb
- Combination Fiber + (drop) Copper
  - Short copper loops, outdoor placement
  - Typically SFU neighbourhoods
- Implementation:
  - AON, GPON (xPON) ***plus***
  - VDSL2 over Cat3

GPON & VDSL2 Complementary

FTTx Business Models



- RSP = Retail Service Provider, providing the services
- C.O. = Communication Operator, investing in and operating the active layer
- N.O. = Network Operator, investing in and operating the passive layer

Mass deployment enablers

Long term business plan

- Thorough analysis & planning
- Understand starting point
- Regulatory environment
- Financing
- Maximizing the take rate
- Competitive advantage
- Atractive content
- Flexible staffing

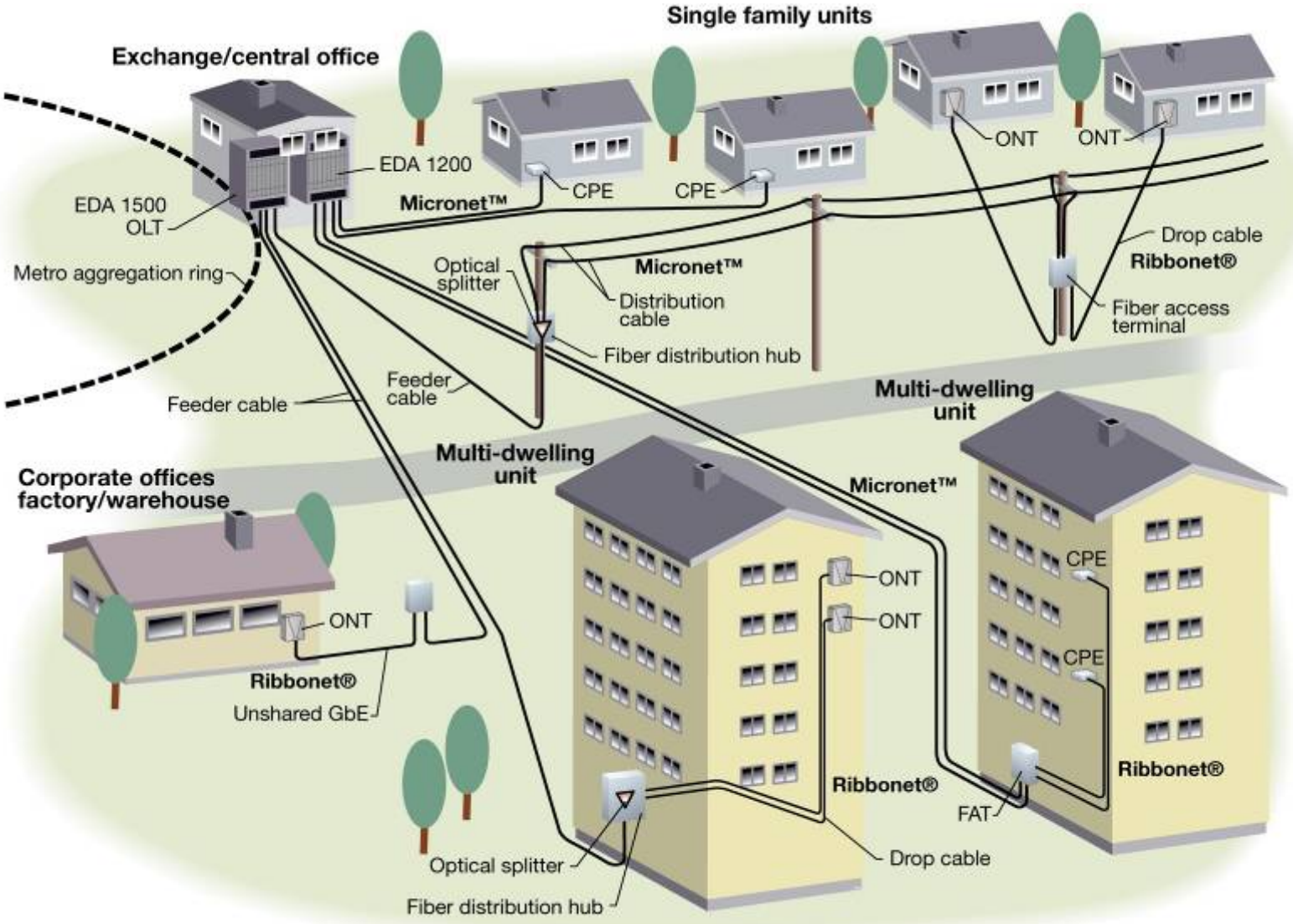
Active Electronics

- Future proof system architecture
- Grow with demand and penetration
- Meet business user demand
- Meet residential user demand
- Allow all x's in FTTx
- Flexibility
- Low OPEX

Passive Network

- Fiber deeeeeep…
- Long term investment
- Future proofing
  - spare ducts, spare fiber
- Smart deployment
  - Existing rights-of-ways
  - Duct sharing
  - Innovative installation methods
- Flexibility

Deep Fiber Architecture



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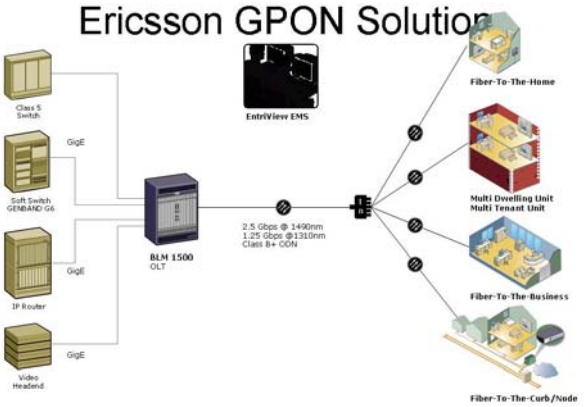
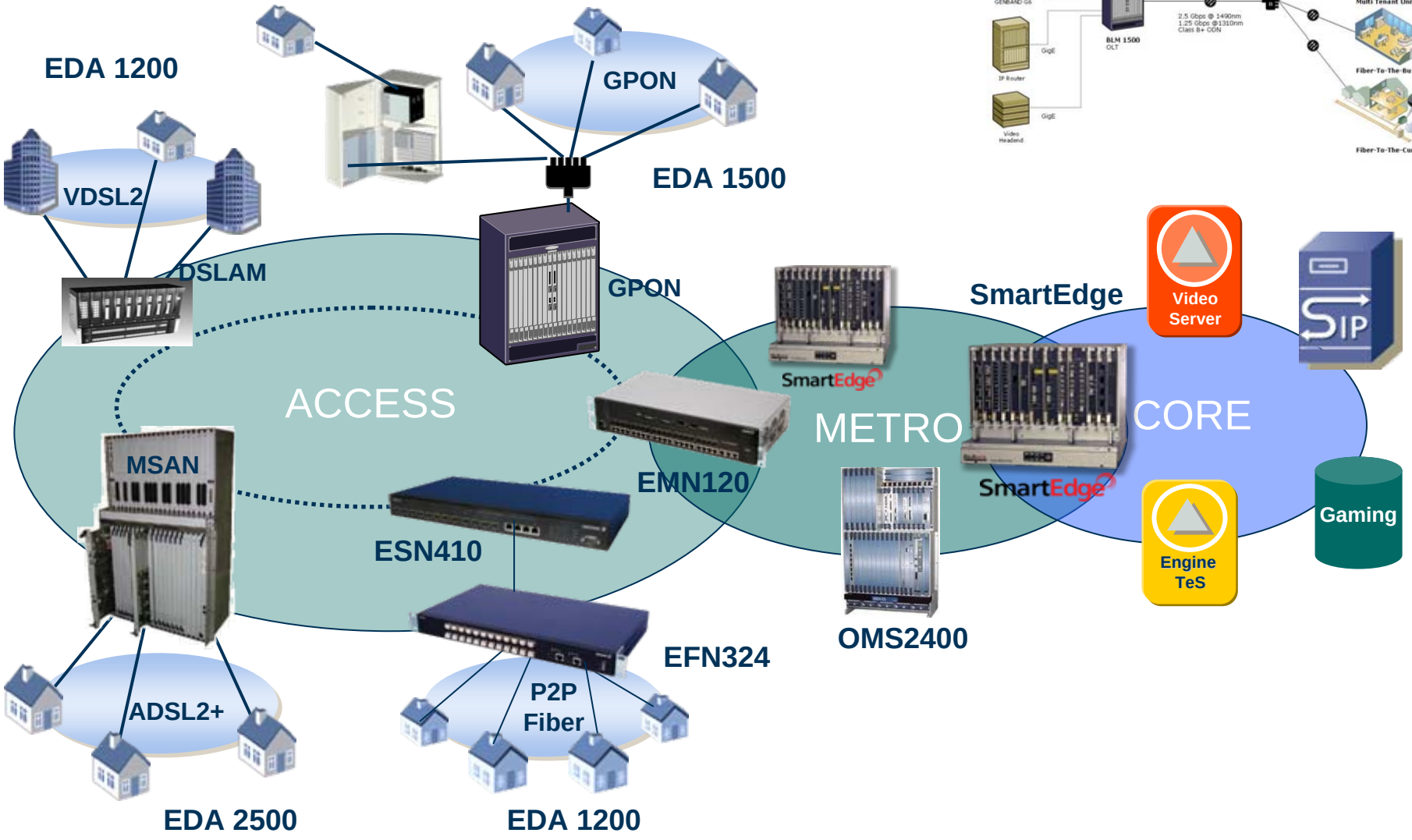
The EDA Portfolio

True Triple Play - Drop Technology Agnostic





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ONT portfolio overview

SFU
Single Family Unit

Outdoor / Indoor

Entry level / Advanced

HGU
Home Gateway Unit

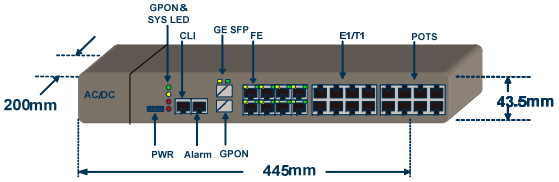
Full routing beyond 100Mbit/s

SBU
Single Business Unit

Voice and data distributed with full security and control.

Outdoor SBU

MTU
Multi Tenant Unit

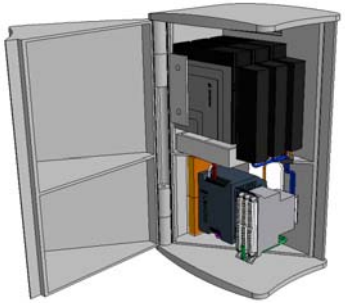


Designed for Multiple Enterprises

CBU
Cellular Backhaul Unit

Mobile Backhaul

MDU
Multi Dwelling Unit



FTTC , FTTB

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Tools, methods and passive equipment

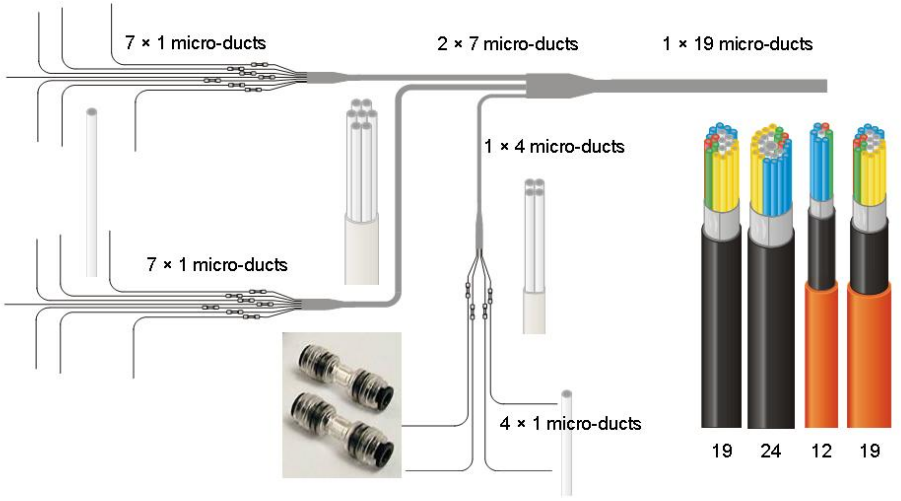
Ericsson's air tool

Smallest and fastest in the world

- Ericsson patented air tool
  - Handheld, battery
  - Pre connected fiber drum directly attached t the tool
  - Friction clutch to eliminate fiber damage
- With compressed air
  - Up to 1000 m
- Without compressed air
  - 50–70 m

Infrastructure

Micro / multi-ducts – flexibility



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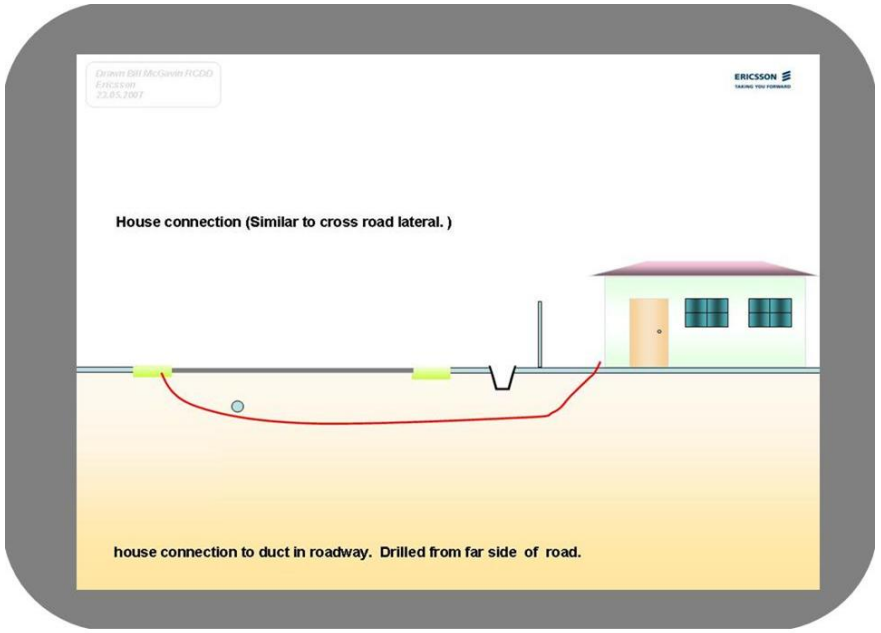
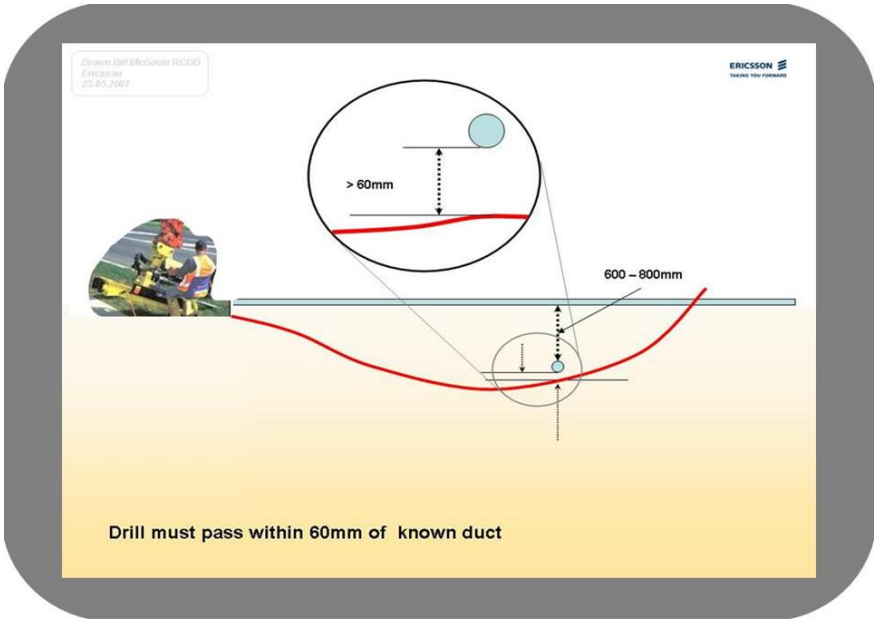
Tools, methods and passive equipment





Micro-trenching

@ >$300 per metre

@ <$70 per metre
Including Service location

The key - Directional drilling

@ <$30 per metre

Ericsson’s Deep Fiber Offering

Active Ethernet, GPON or VDSL2	Systems integration	Support services
Business consulting	Network deployment	=
Network technology consulting	Managed services	End-to-end

Conclusions

- Services and Competition are driving FTTx
  - New media experiences drive the BW need beyond non-FTTX capabilities
- Regulatory environment
  - Understand and adjust to
- New mix of market players
  - may require new approaches for business modeling
- Choice of architecture, technology and topology AFTER thorough analysis
  - AON, EPON, GPON, VDSL2 available
  - No ”universal” best technological solution
  - GPON being adopted by Tier 1 Telcos as global standard
- Business case has a very important role!
- Technology is available today. Ericsson has it.

Questions and Answers

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Дзякую
akpé
faleminderit
go raibh maith agat
gracias
danke
hvala
kiitos
thank you
Barak Allahu fiik
a ni kié
chokrane
märsi
gracie
murakoze
dankon
tanemirt
diolch
trugéré
meherbani
eskerrik asko
hvala
Obrigado
gràcies
salamat
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