

Kick off presentation on ICT and Climate Change - a wireless and mobile perspective

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New services and applications are booming and require very high speed connections

>50Mbit/s

Consumer generated content

Photo Encyclopedia Video Travel

flickr™



tripadvisor®
get the truth. then go.™

YAHOO!
Video

jumpcut™
Make Amazing Movies Online

Google™
Video BETA

YouTube

UnCut video™
See it. Shoot it. Share it.

Social Networking

Social networks Weblogs Communities

orkut™

Blogger

CLUBE OI

myspace.com
a place for friends

Pageflakes

EBO



facebook

T-Community

Windows Live™

netvibes

StumbleUpon

Subscriber's behavior has changed from pure consumption
to active participation

Usage of Internet based services is growing

+150 %

Watching Film,
TV or Video
Clips



Top 5
Growth
Areas

+42 %

Ratings &
Reviews



+18 %

TV & Film
Downloads



+17 %

Podcasting



+15 %

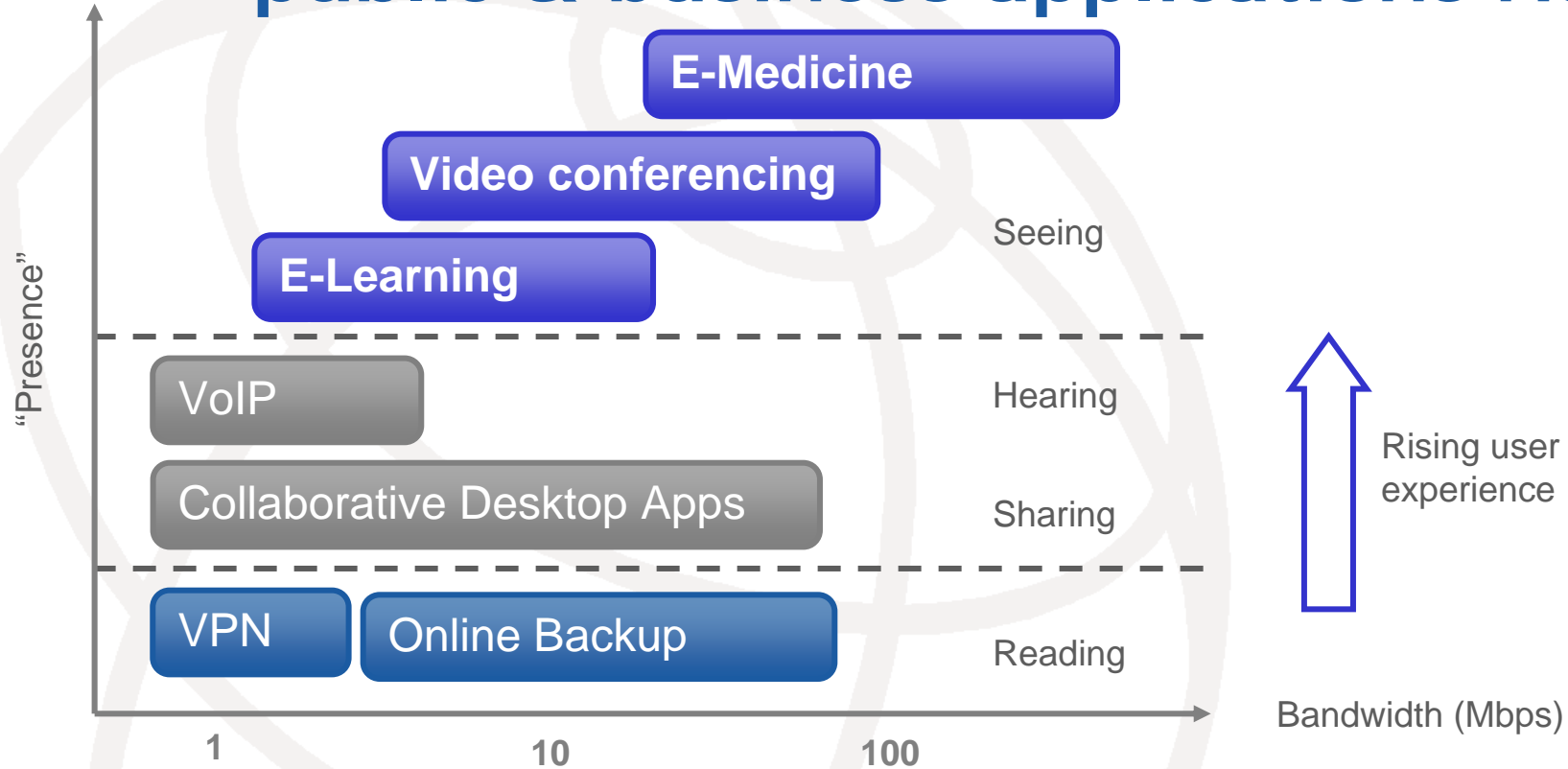
P2P File
Sharing



Interactivity adds value to an operator's service offering



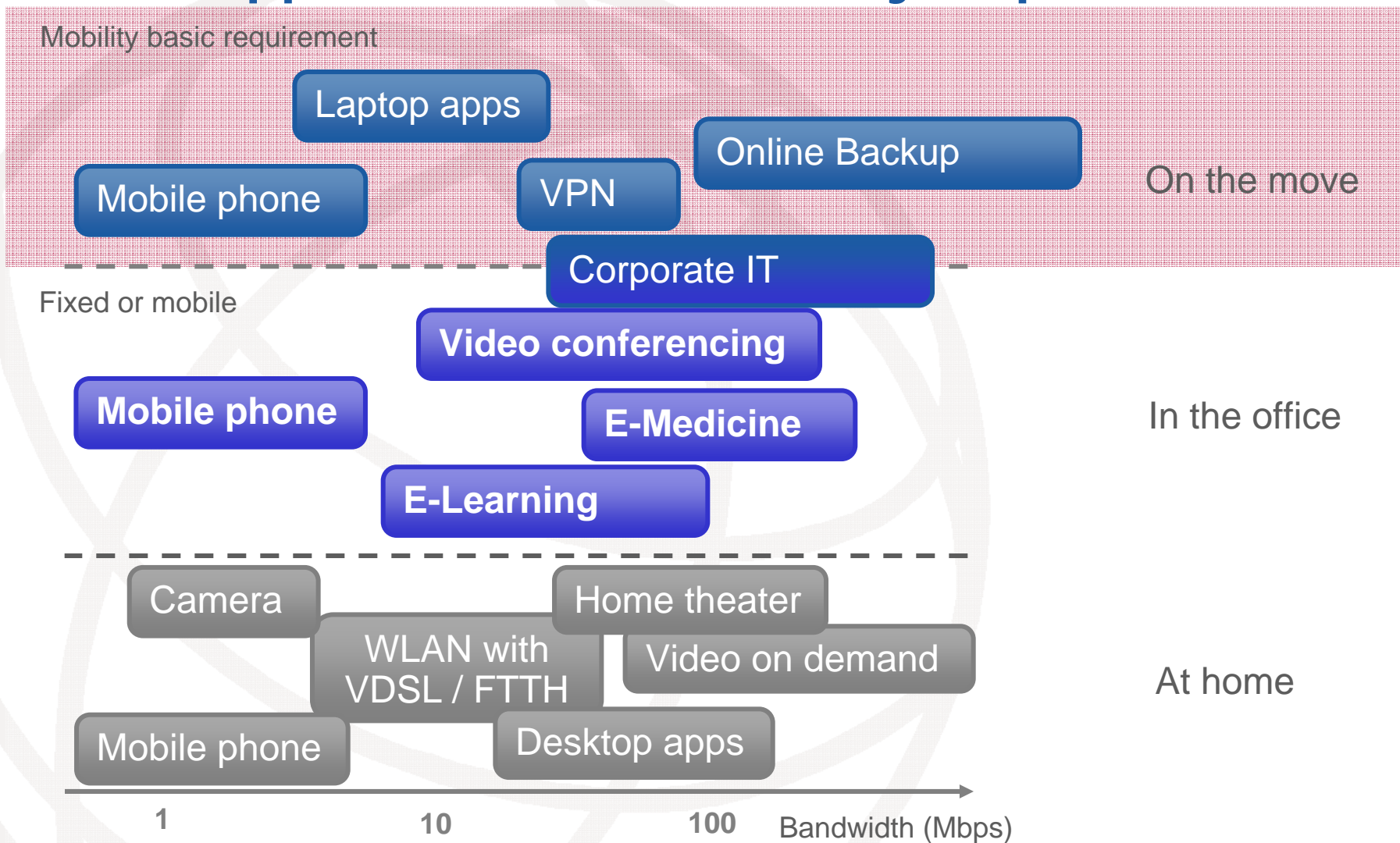
Bandwidth requirements of modern public & business applications rise



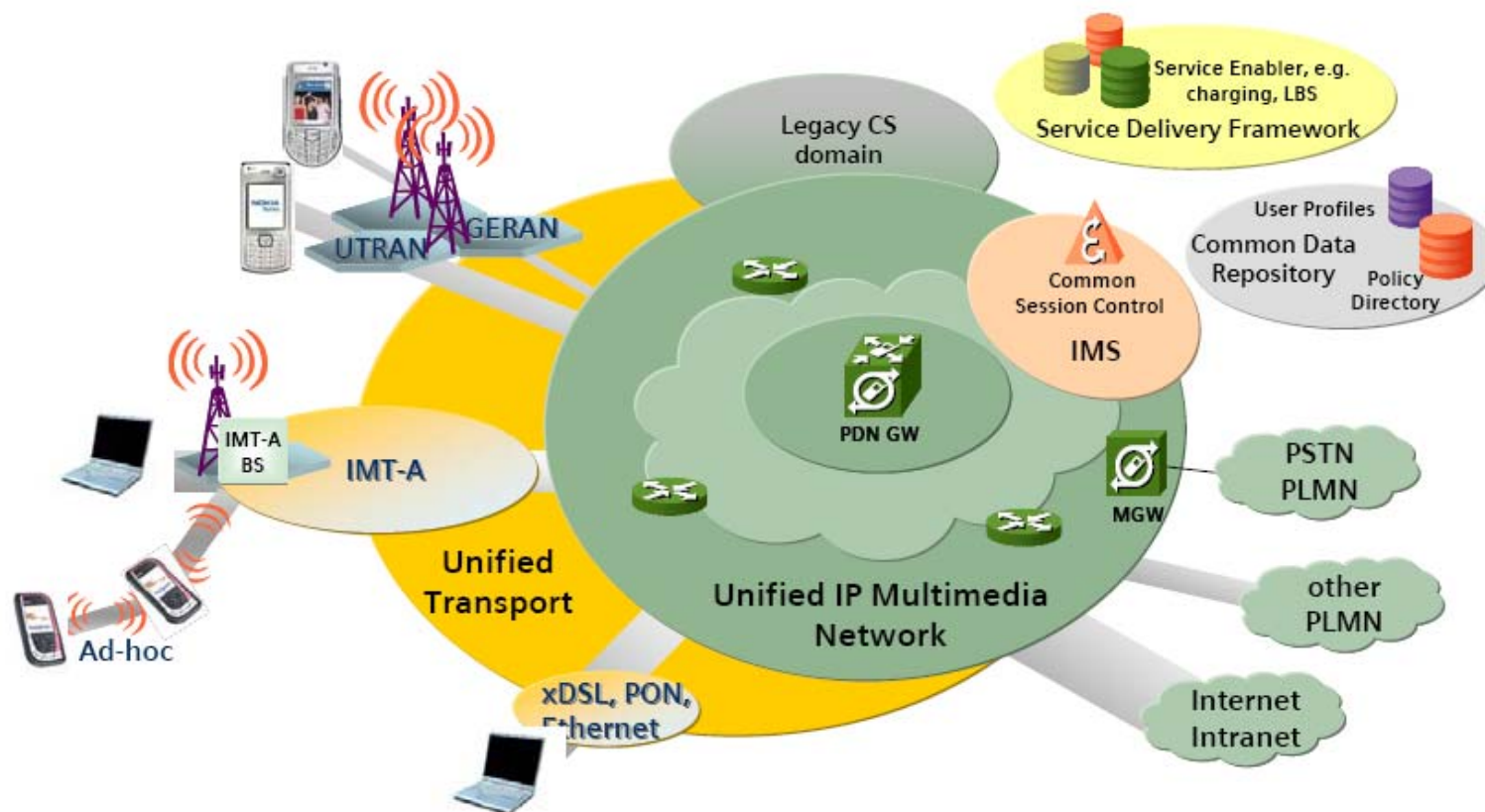
Source: Telework Consortium / Own

Nielsen's Law of rising bandwidth requirements can also be applied to the revenue generating business sector

Applications and mobility requirements

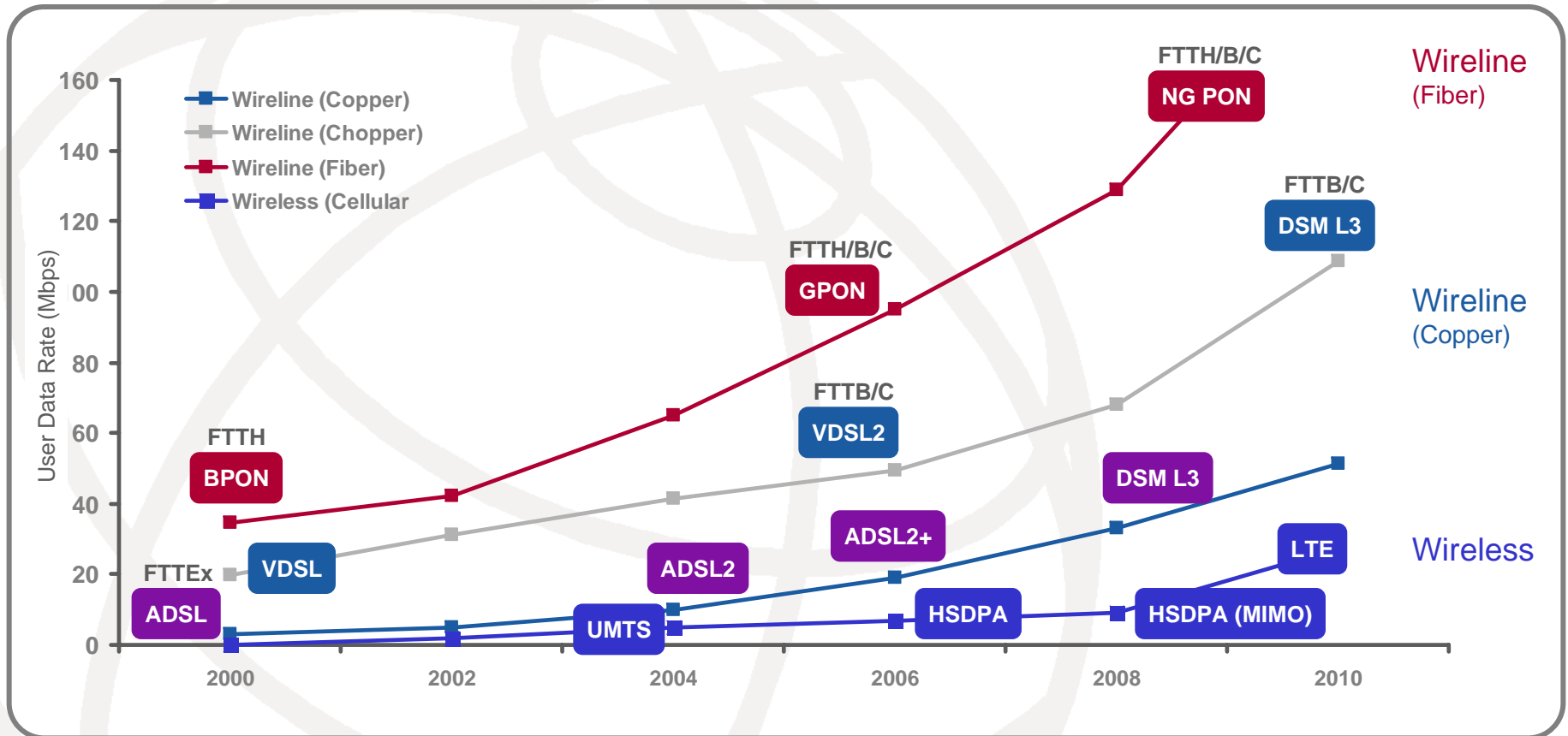


Fixed vs. mobile – it's a “last mile” discussion



The bulk of data traffic is served by fixed networks, the last mile to the end-user is fixed or wireless, depending on user requirements

Fixed broadband access will continue to offer higher data rates than wireless



The fixed user data rate is today some 30 times that of wireless, and both have similar evolutionary trajectory

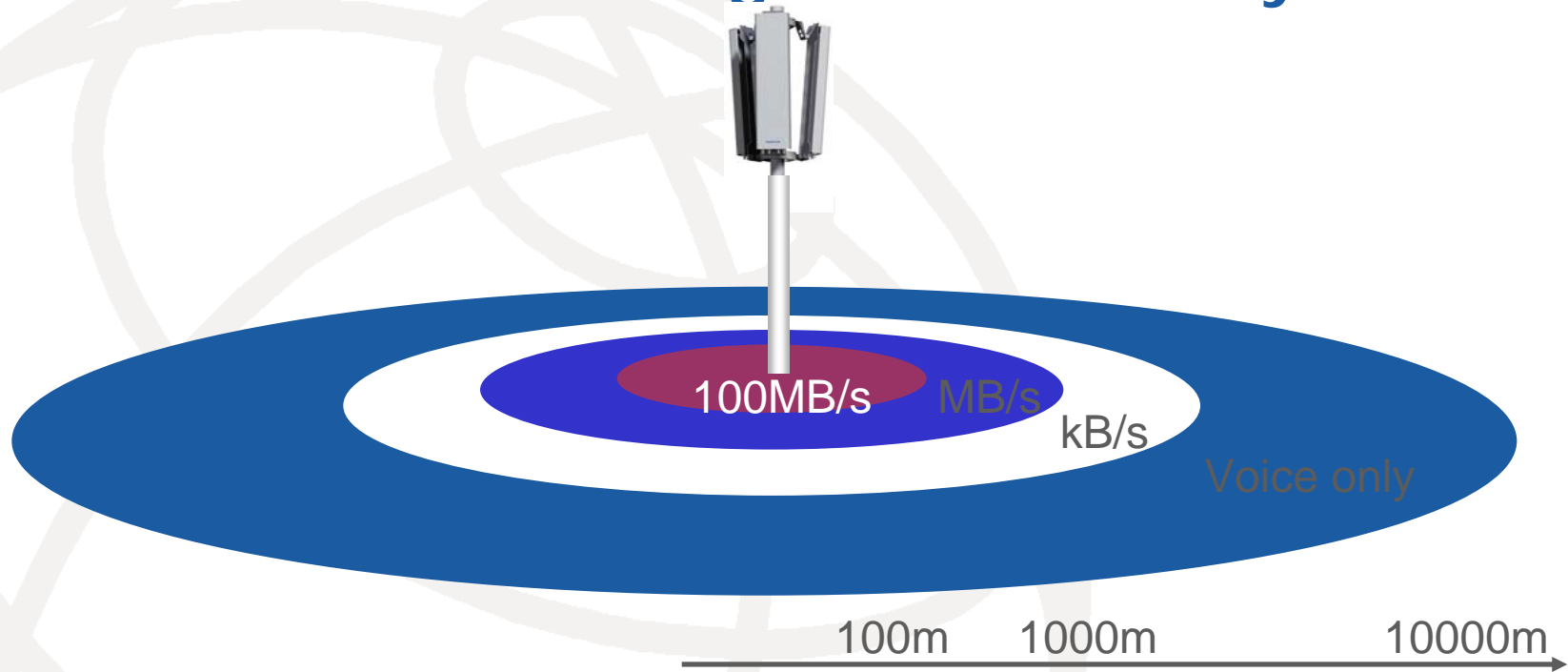


Data rates are only one part the story

- The data rate comparison ignores the impact of range / distance of different technologies
- Fixed access can provide significantly higher data rates over a considerably longer range
- Mobility can be only provided by wireless
- Faster rollout of uncovered areas with wireless
- Cheaper coverage of scarcely populated areas with wireless
- Different CAPEX / OPEX distribution

Fixed and wireless are complementary technologies

Data rates vs. range for cellular systems



Wide area wireless systems are limited to ~100MB/s
Higher data rates are only feasible for local area coverage



Energy efficiency of fixed and wireless

- 3B mobile subscriptions produce ~22Mt/a CO₂
- 0.4B fixed broadband connections emit about the same amount
- There are more mobile subscriptions than users
- There are more users than broadband connections
- There's a completely different usage pattern of fixed and mobile networks

We have currently no suitable scale to compare energy efficiency of fixed and wireless access

Only fiber has the potential to cover the growing data traffic in future

- Fast Internet
- Media Streaming
- Tele-working

- Mbps
- Voice POTS

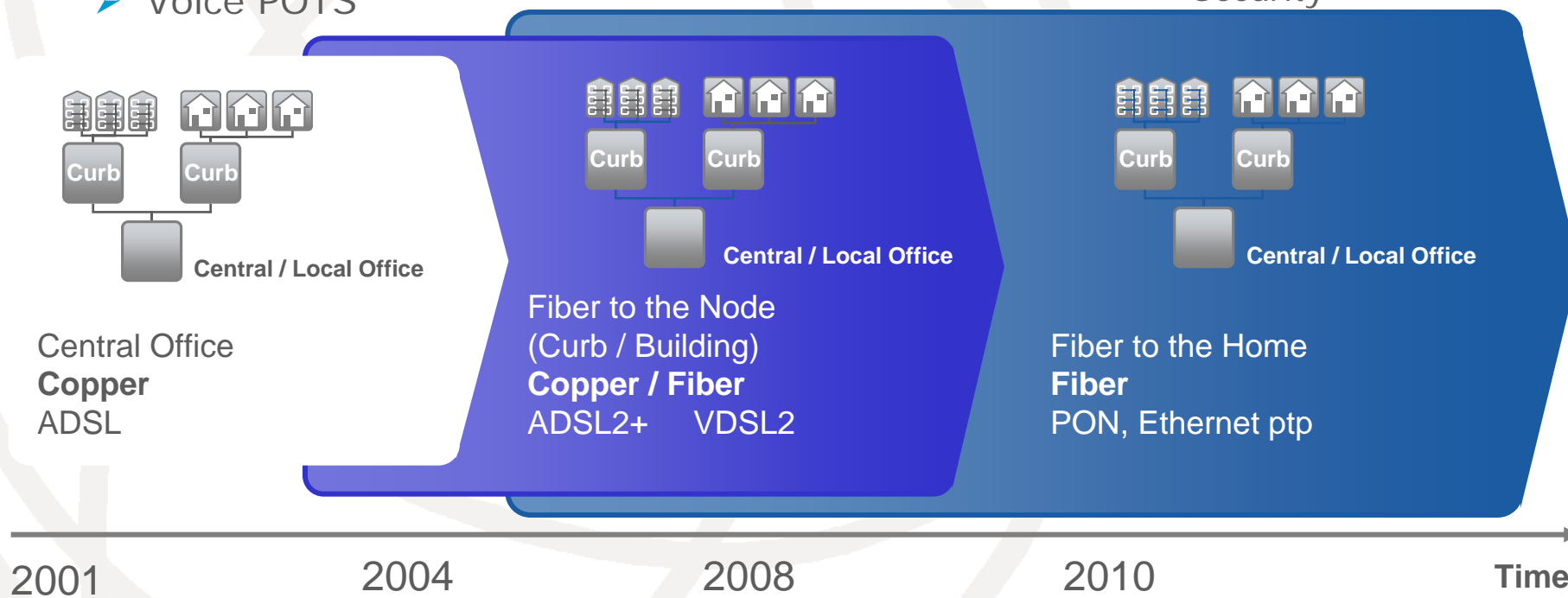
- Multimedia Home
- Broadcast TV / VoD

- TV Channels, VoD
- 10 Mbps
- Voice POTS & VoIP

- Multi channel Entertainment

- HDTV Channels, VoD
- 100 Mbps and more
- Voice VoIP
- Home Control & Security

— Copper
— Fiber

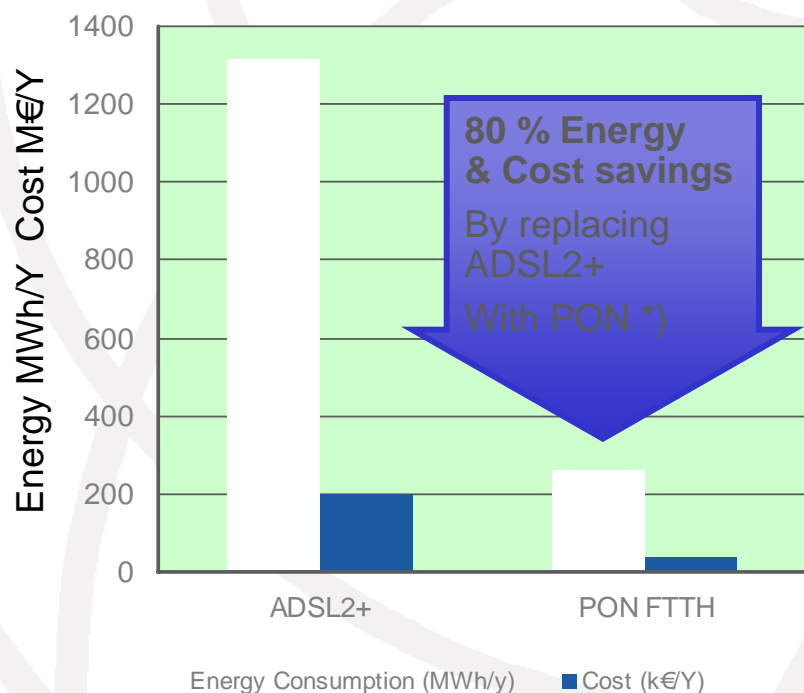


Fiber is a „green technology“: Enormous energy savings reduce also OPEX



Example: 100.000 subscribers

GPON Energy and Cost efficiency



*) Costs for air conditioning are not considered

Copper access based on ADSL2+

- 16 Mbit/s
- Energy Consumption:
1314 MWh/year = 775t CO₂

FTTH network based on GPON

- 100 Mbit/s
- Energy Consumption:
262 MWh/year = 154t CO₂



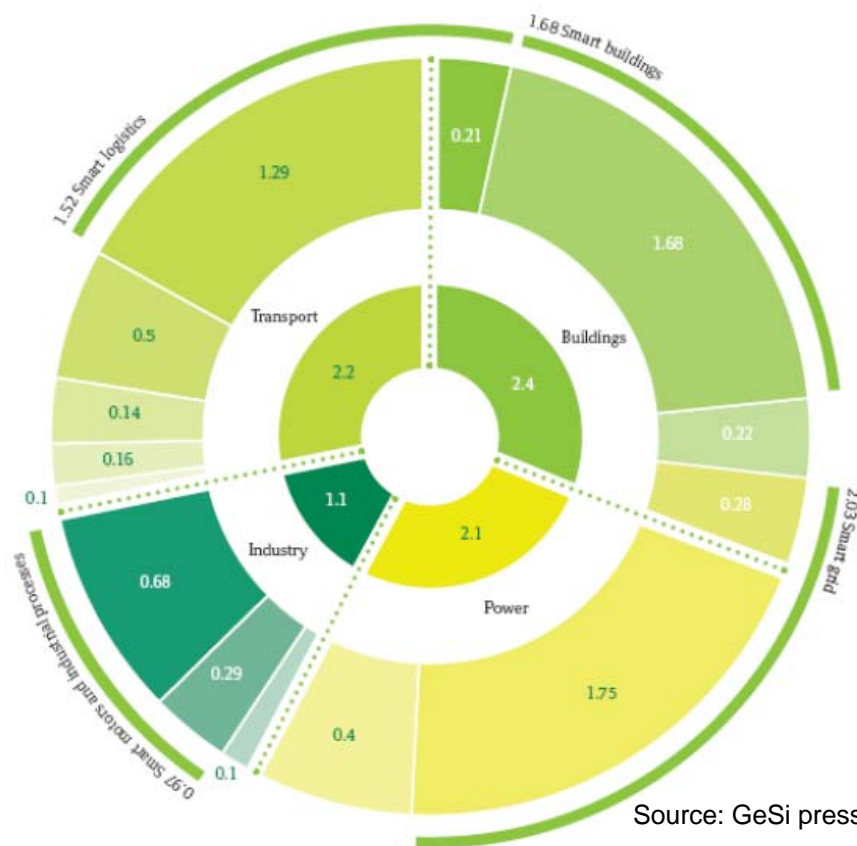
The telecom & ICT can leverage energy consumption

GtCO₂e

7.8 GtCO₂e of ICT-enabled abatements are possible out of the total BAU emissions in 2020 (51.9 GtCO₂e)

The SMART opportunities including dematerialisation were analysed in depth

- Industry**
 - Smart motors
 - Industrial process automation
 - Dematerialisation* (reduce production of DVDs, paper)
- Transport**
 - Smart logistics
 - Private transport optimisation
 - Dematerialisation (e-commerce, videoconferencing, teleworking)
 - Efficient vehicles (plug-ins and smart cars)
 - Traffic flow monitoring, planning and simulation
- Buildings**
 - Smart logistics†
 - Smart buildings
 - Dematerialisation (teleworking)
 - Smart grid‡
- Power**
 - Smart grid
 - Efficient generation of power, combined heat and power



Source: GeSi press release June 2008

ICT's global footprint: 830MtCO₂e (2007)

1430MtCO₂e (2020)

ICT's abatement potential:

7800MtCO₂e (2020)

Thank You!



ITU and
Climate
Change

Nokia Siemens
Networks

