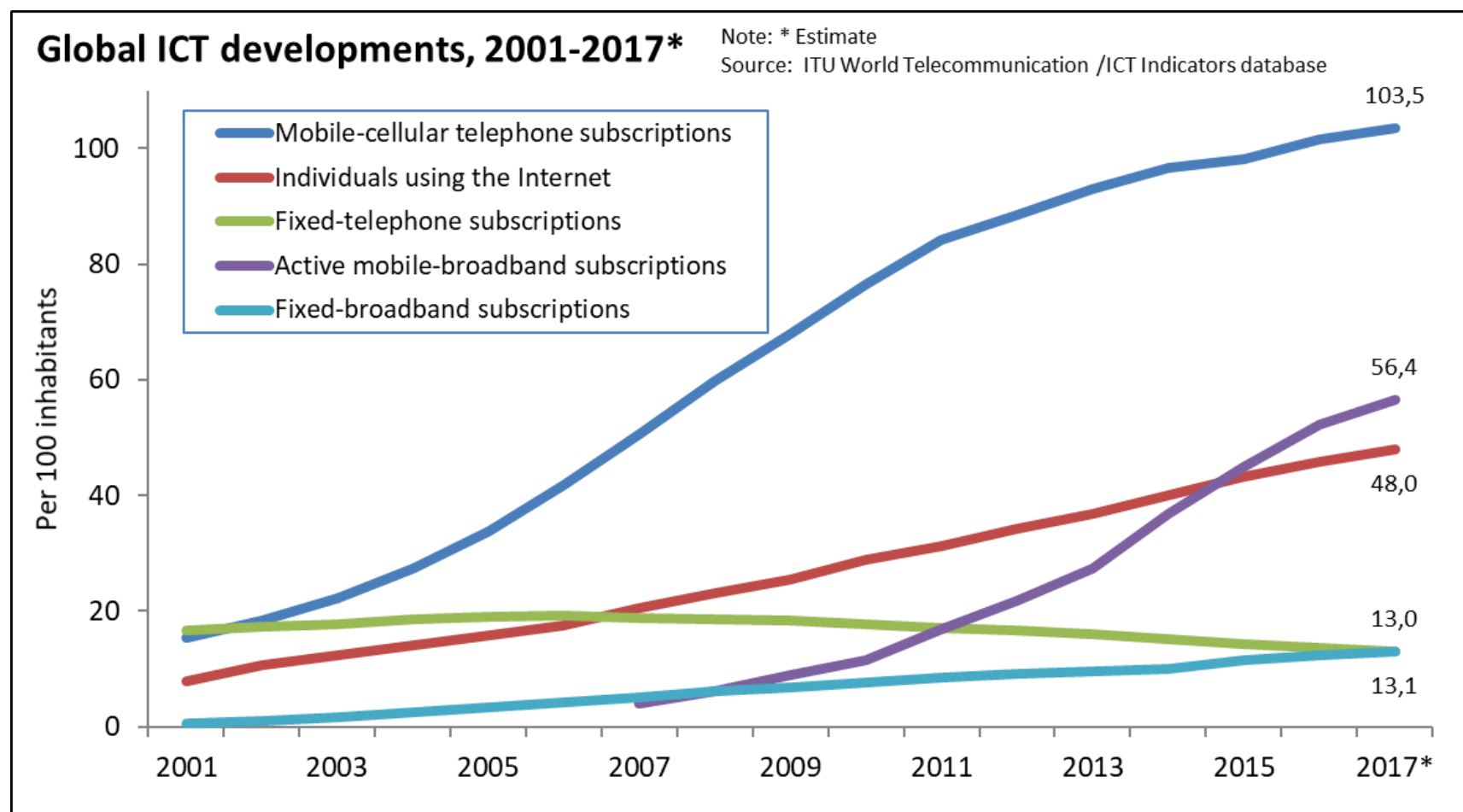


Networks: Current Challenges

Manuel de Oliveira Duarte

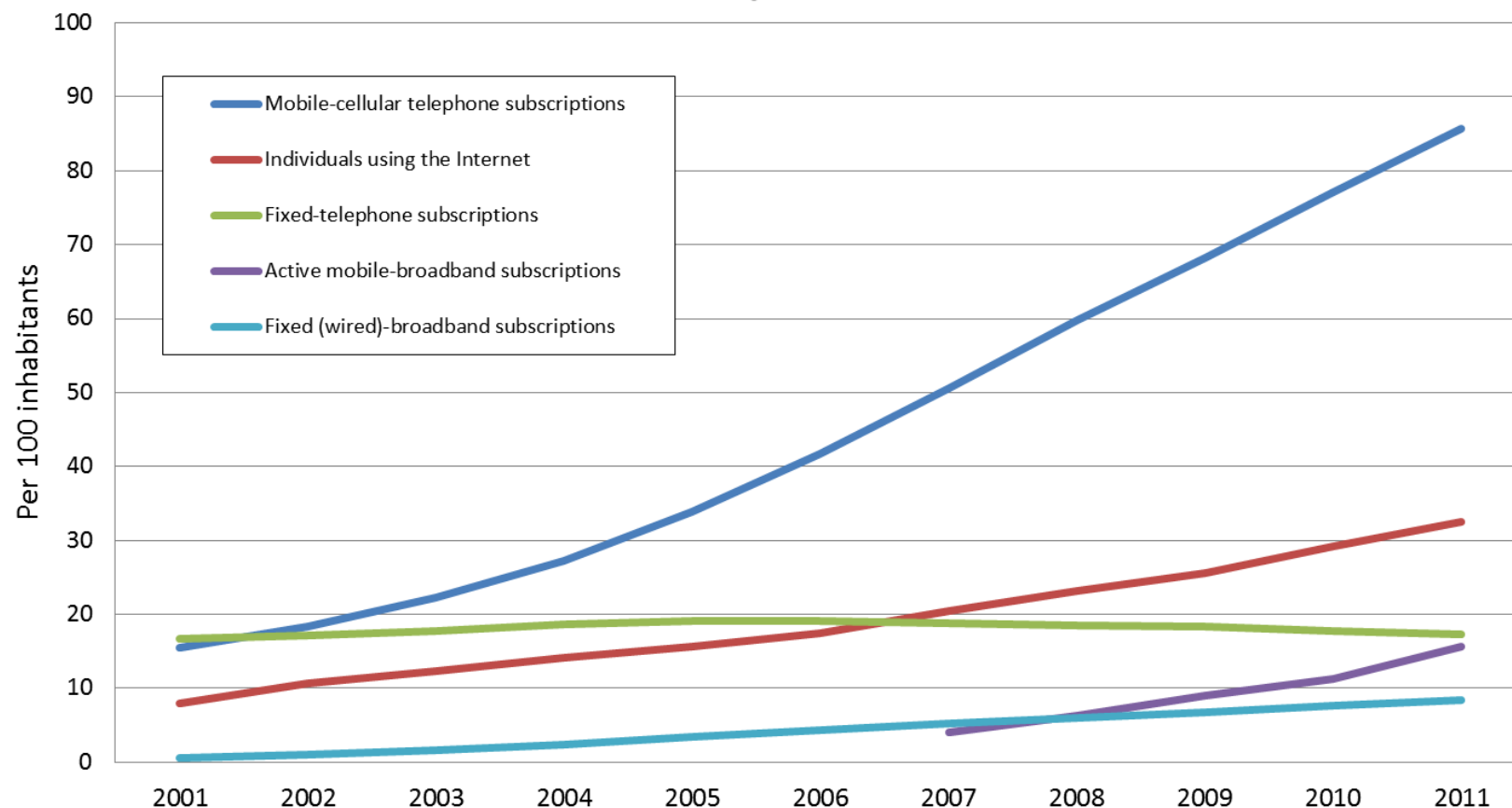
Extremely fast growth in usage of telecommunications services



Source: ITU-T (ITU Statistics - <http://www.itu.int/ict/statistics>)

Extremely fast growth in usage of telecommunications services

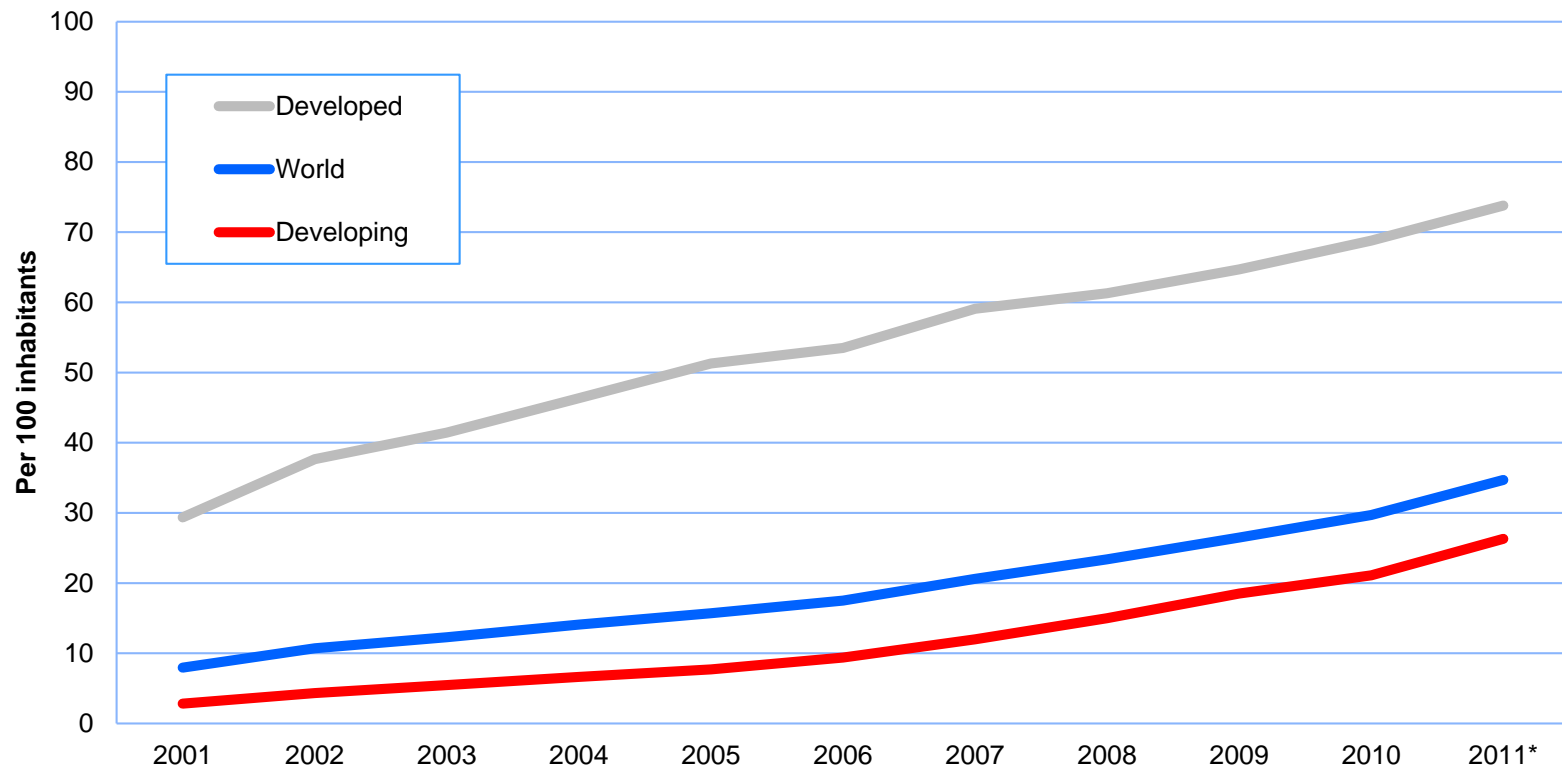
Global ICT developments, 2001-2011



Source: ITU World Telecommunication/ICT Indicators database

...happening all over the world,...

Internet users per 100 inhabitants, 2001-2011*



* Estimate.

The developed/developing country classifications are based on the UN M49, see:
<http://www.itu.int/ITU-D/ict/definitions/regions/index.html>

Source: ITU-T (ITU Statistics - <http://www.itu.int/ict/statistics>)

...with mobile communications assuming a clear leadership,...

Mobile Complements Fixed for Broadband



Fixed Broadband



1.3 Billion Lines
19.4% of the world's population

Mobile



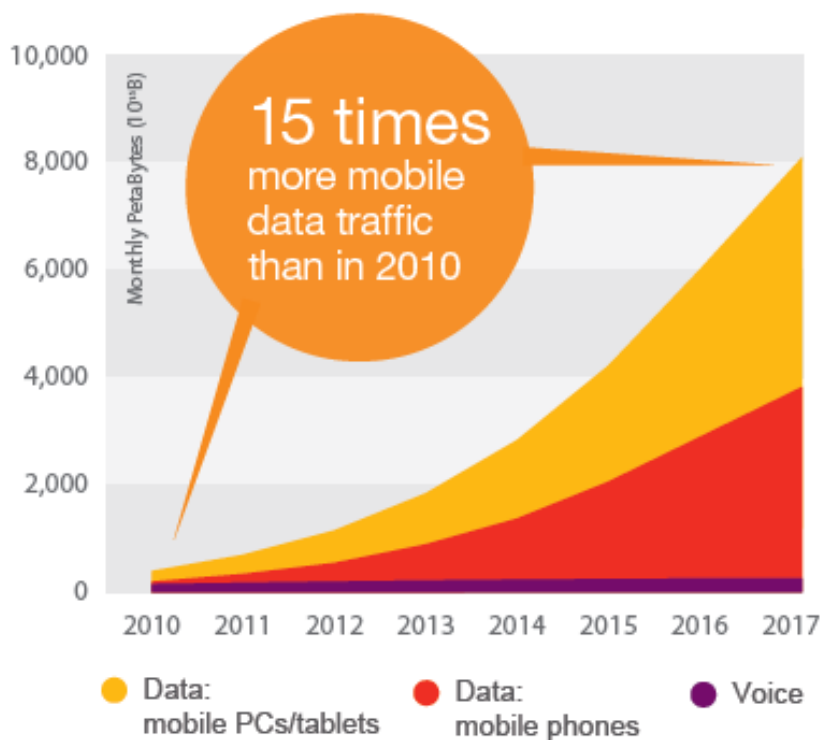
4.8 Billion Connections
72.7% of the world's population

© GSM Association 2010

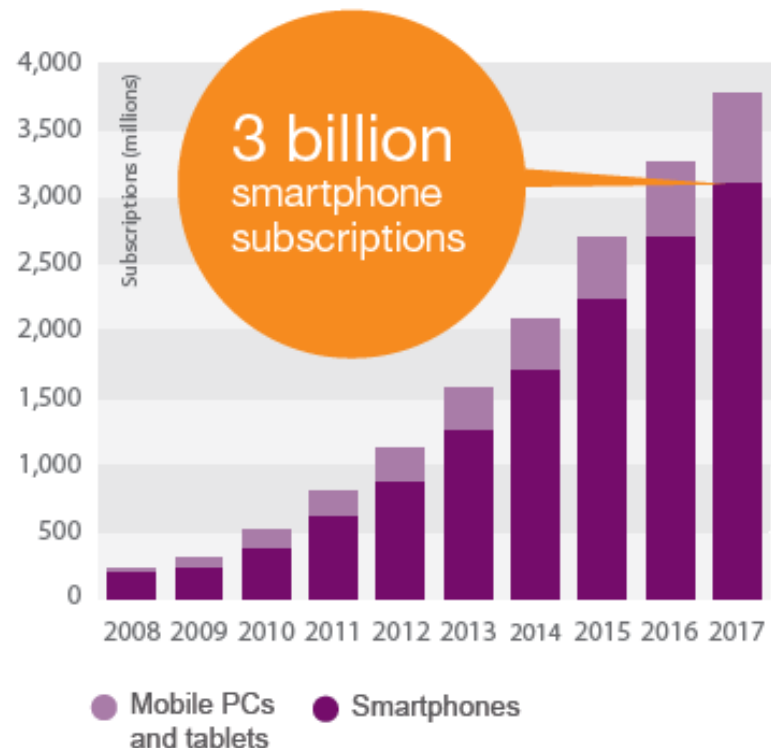
Source: <http://www.itu.int/ITU-D/afr/events/FTTRA/2010/documents/GSMA-Africa-exelby.pdf>

...that will continue in the foreseeable future.

Mobile data traffic 2010-2017



Smartphone subscriptions, 2008-2017

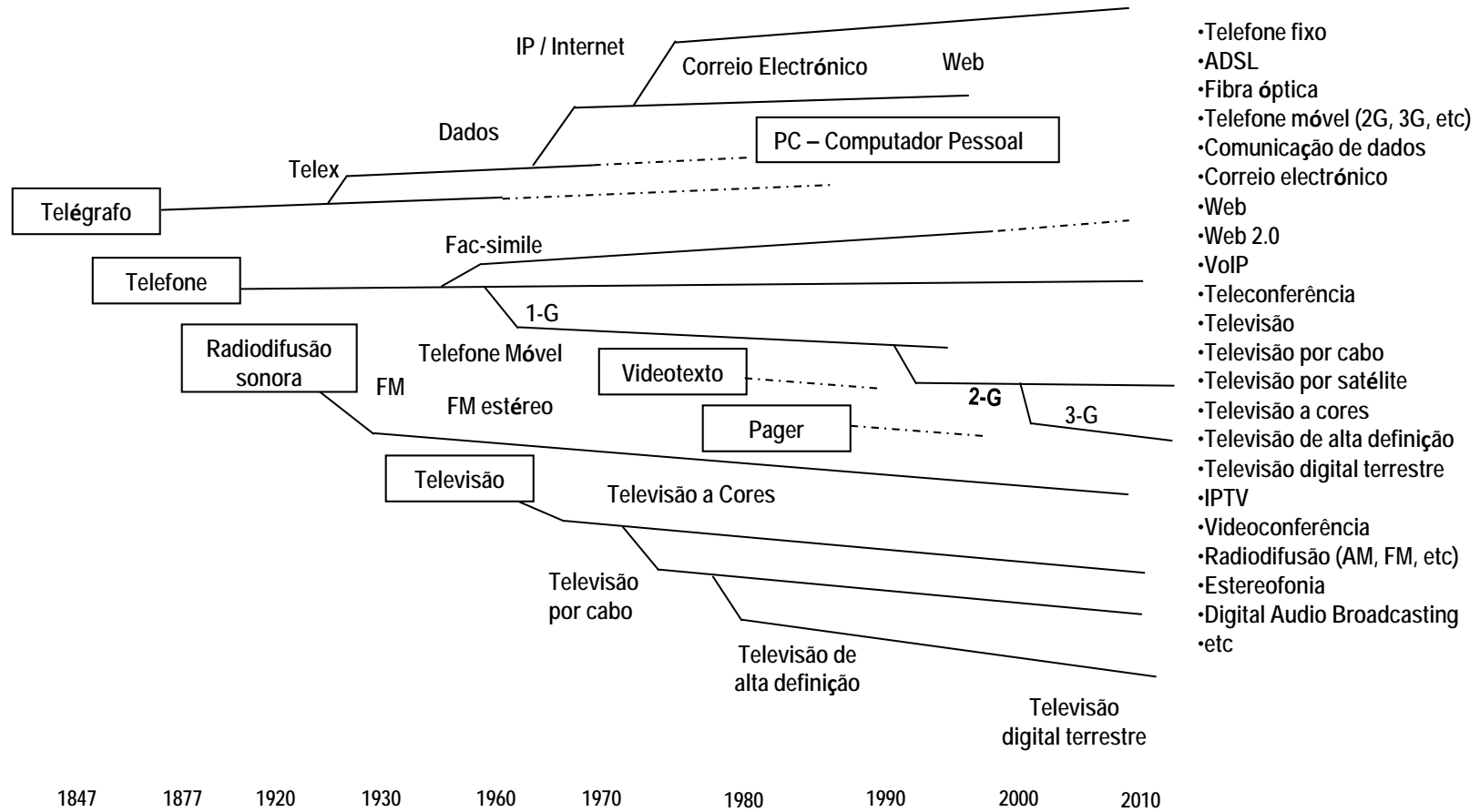


Source: Ericsson Traffic and Market Report, 2012

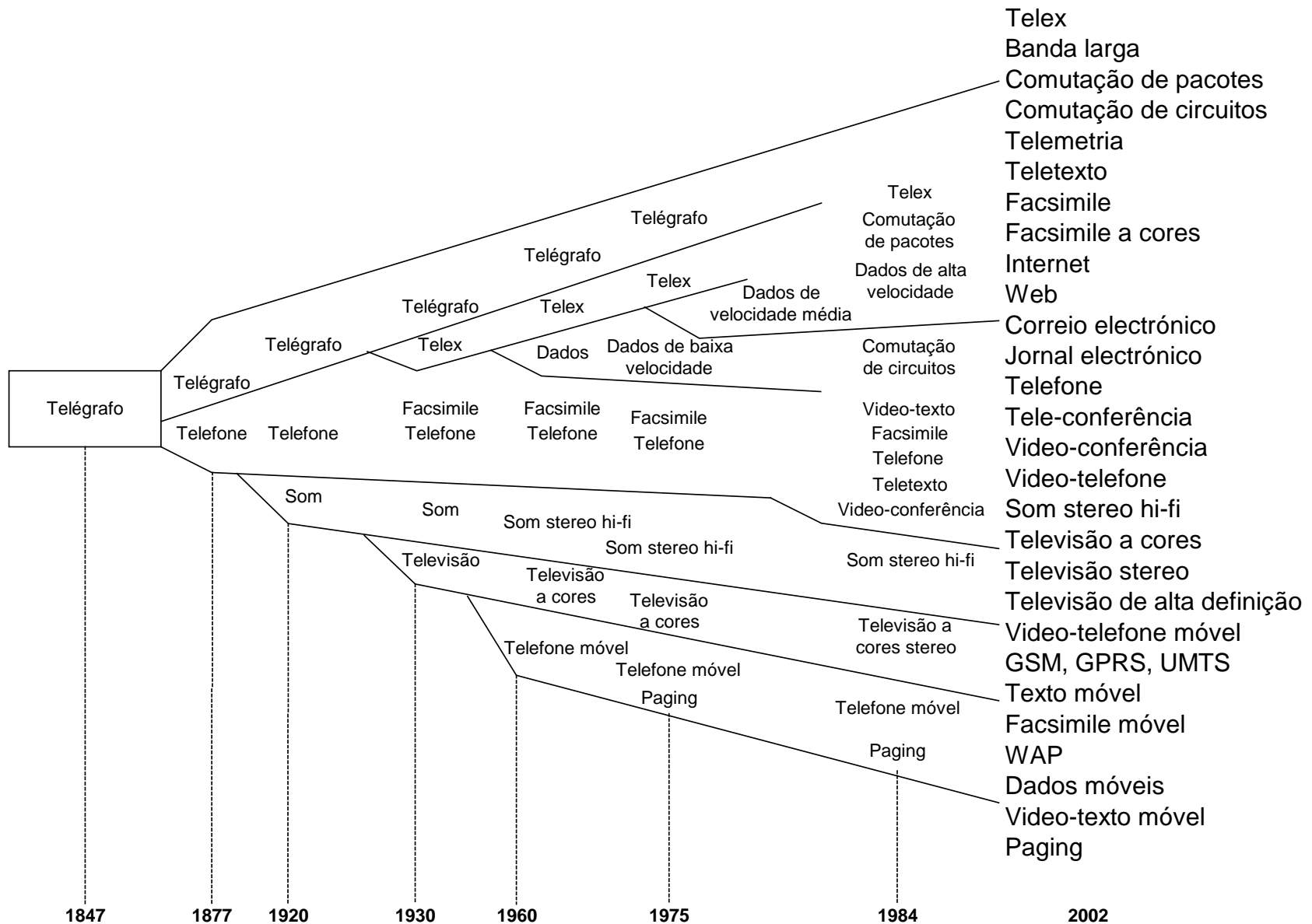
© Ericsson 2012 Read the report at: www.ericsson.com/networkedsociety/education



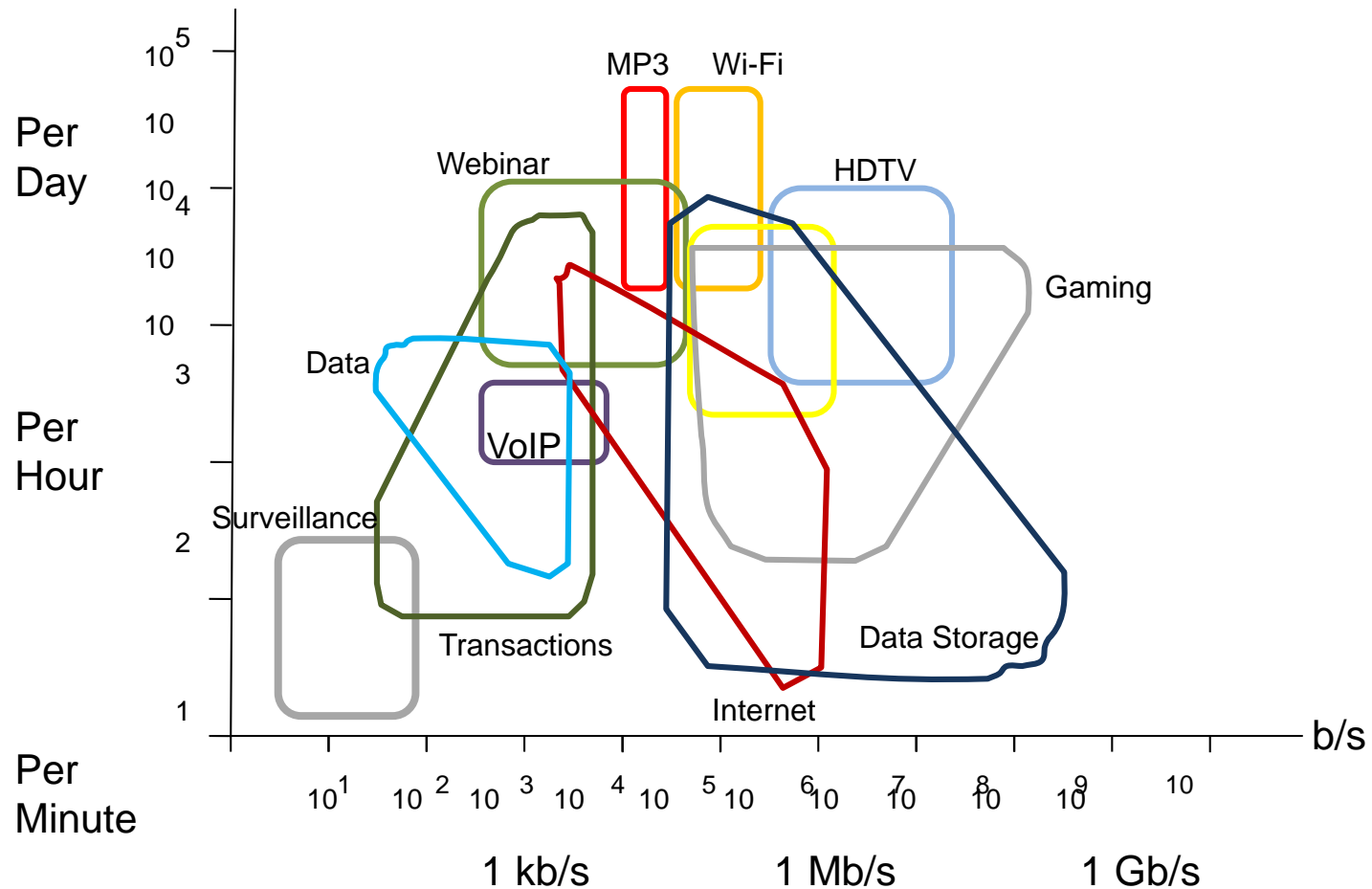
...explosive growth in service variety,...



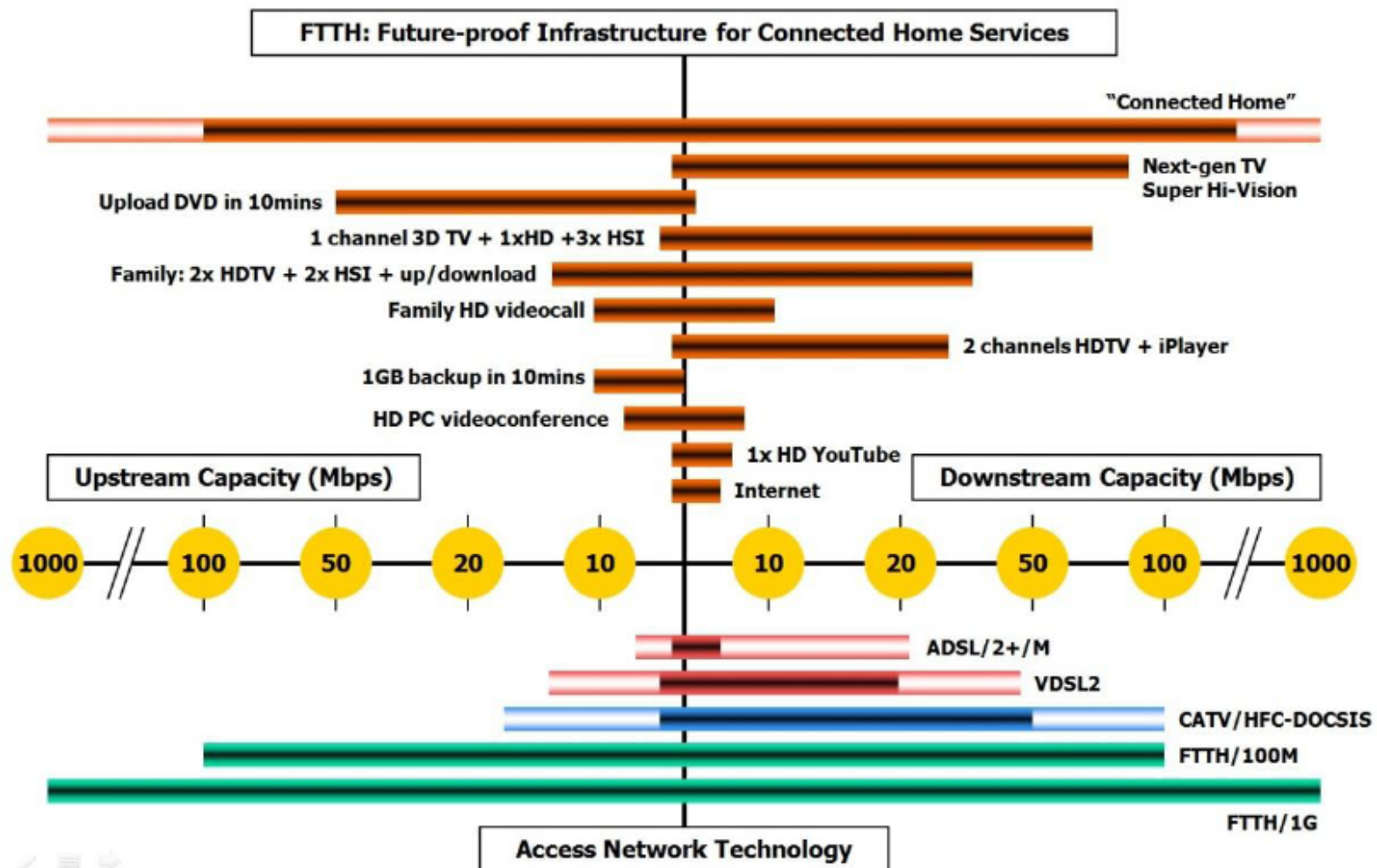
...explosive growth in service variety,...



...with very heterogeneous requirements,...

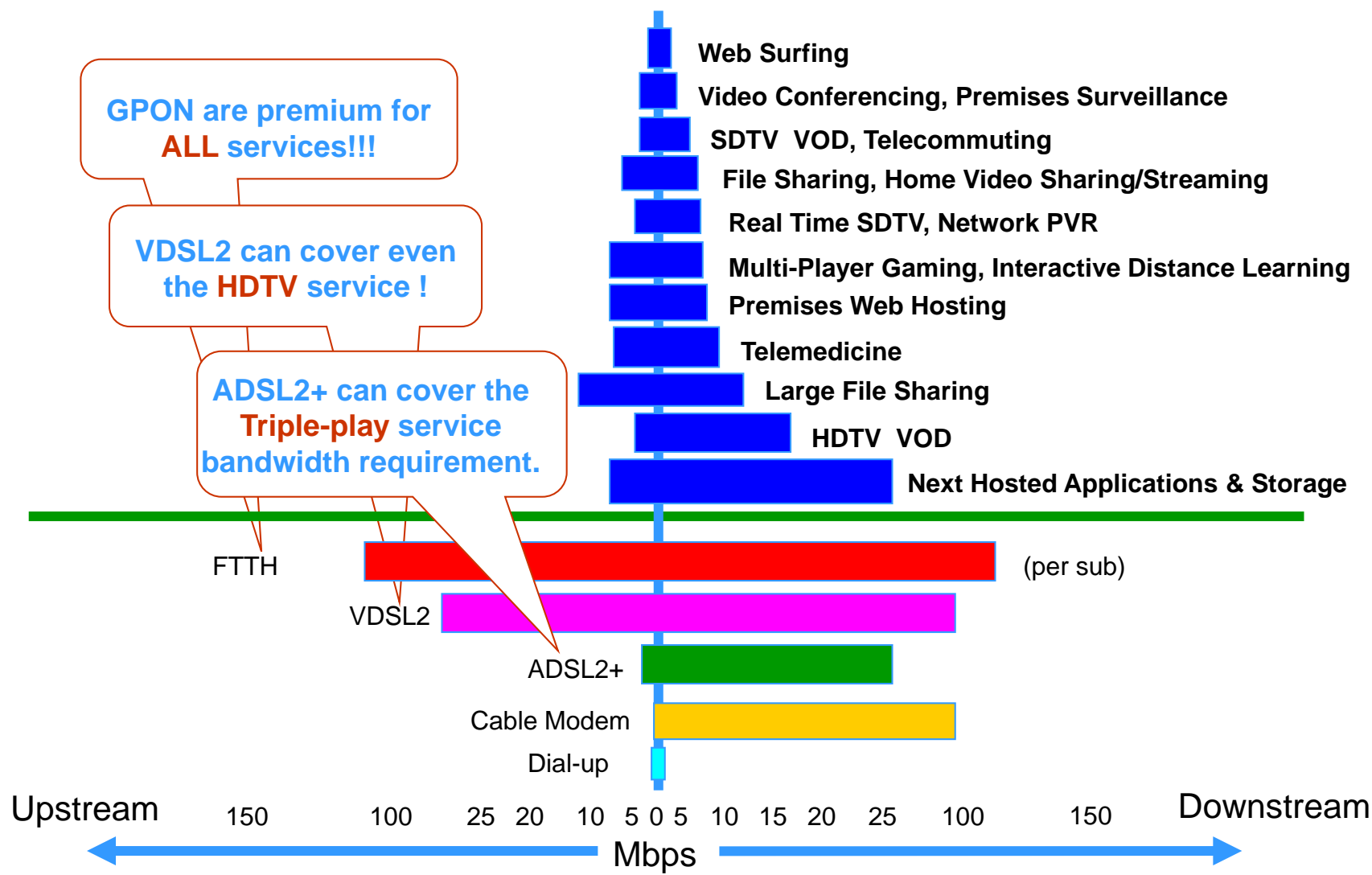


...profound mismatch between the capacity of most common technologies and new services and applications requirements...



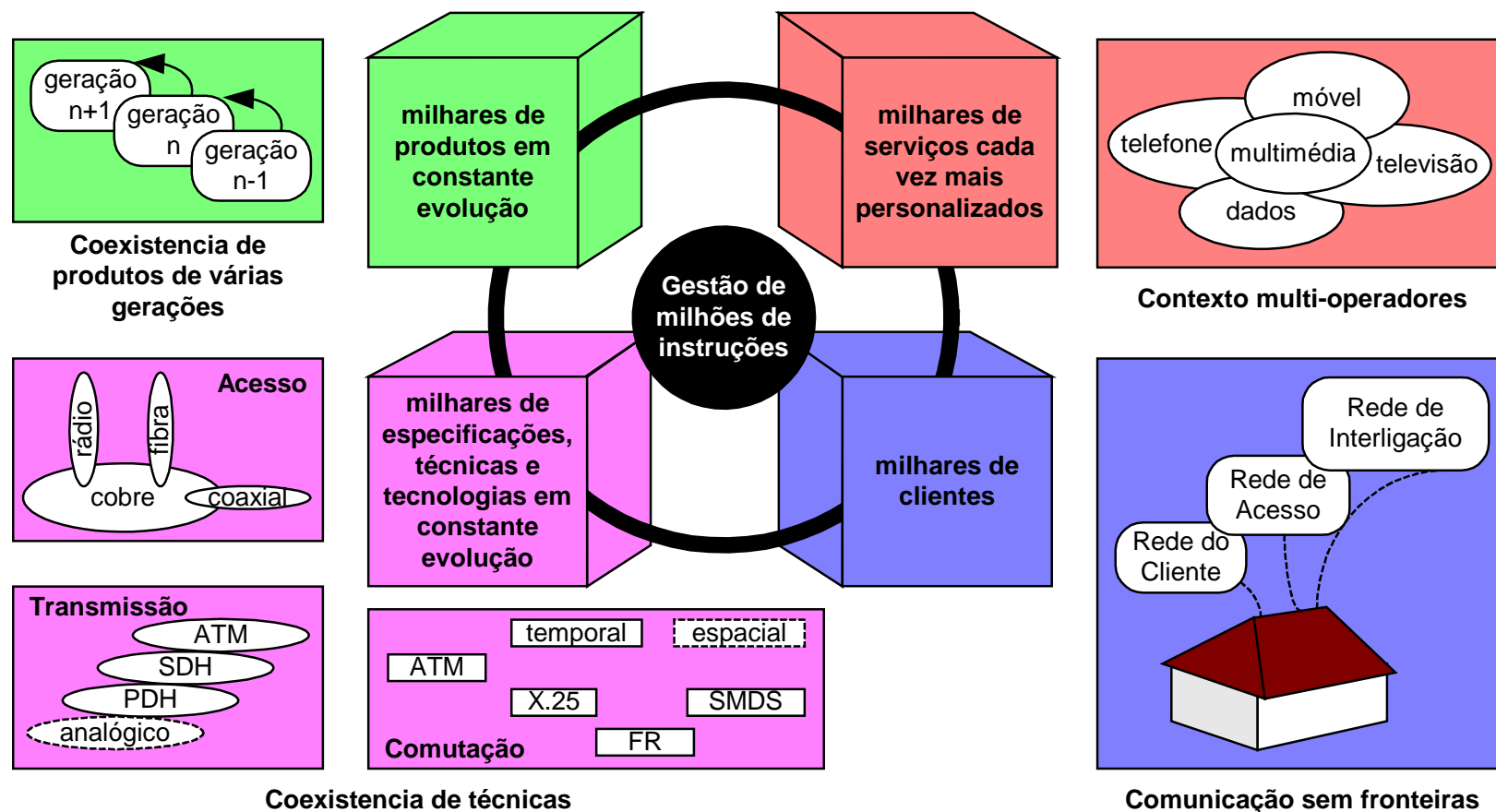
Fonte: FTTH Council

Consumer's BW Requirements Met by FTTH



Source: <http://www.samenacouncil.org/samenaold/prev/event/gpon08/EmbraceFiberAccessEra-HuaweiFTTxDeploymentSolution.ppt>

...enormous heterogeneity in deployed services, products, technologies, etc...



Answering to the above challenges implies:

- 1. Modernization of existing networks**
- 2. Construction of new networks**
- 3. Finding new business models involving new players**
- 4. Finding new engineering solutions combining new technologies with judicious planning and economic evaluation.**

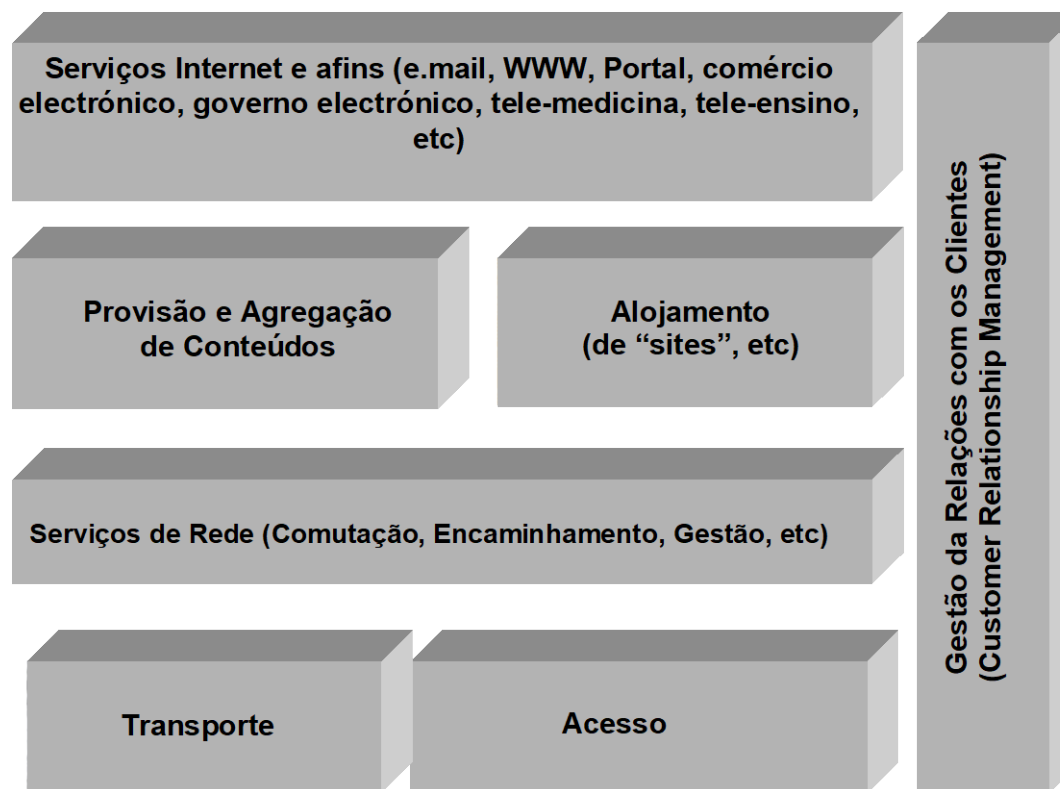
Modernization of existing networks (1)



Construction of new networks (3)



Finding new business models involving new players



New engineering solutions combining new technologies with judicious planning and economic evaluation



End ...

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