N.N. – A Network Operator's Perspective

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“Net-Neutrality” – a term in search of a meaning

- What's it all about? **“The end of the public Internet?”** vs.
  “The demise of network operators?”
- The **term Network Neutrality** is as such **ambiguous.**
  What does “neutrality” mean? - “Non-discrimination”?
  If so, what about well established competition law principles?

Network operators have to **respond to customer’s demands** for:

- More bandwidth and more choice
- Reliable and secure services in an All-IP-World
- Guaranteed and enhanced Quality of Service (QoS) parameters
- Possibility to develop new business models along the value chain

All of which requires **innovation and investments in new networks**

Quality of Experience – users' demands on All-IP networks

Users expect at least today's PSTN / cable TV experience

- Dedicated TV "streams" (reserved channels)
  - simultaneous viewing/recording (at least three channels)
  - good standard quality
  - fast channel switching (zapping)
- Dedicated voice line
  - reliable & secure
  - easy to use
  - emergency functionality
- Dedicated Internet access
  - quick www / instant messaging / email
  - access to the "whole" internet

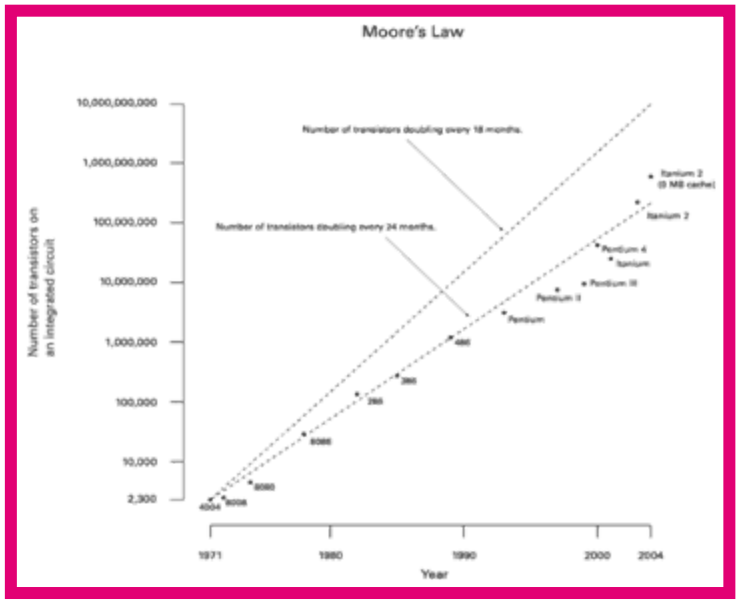
How can All-IP **further improve** that?

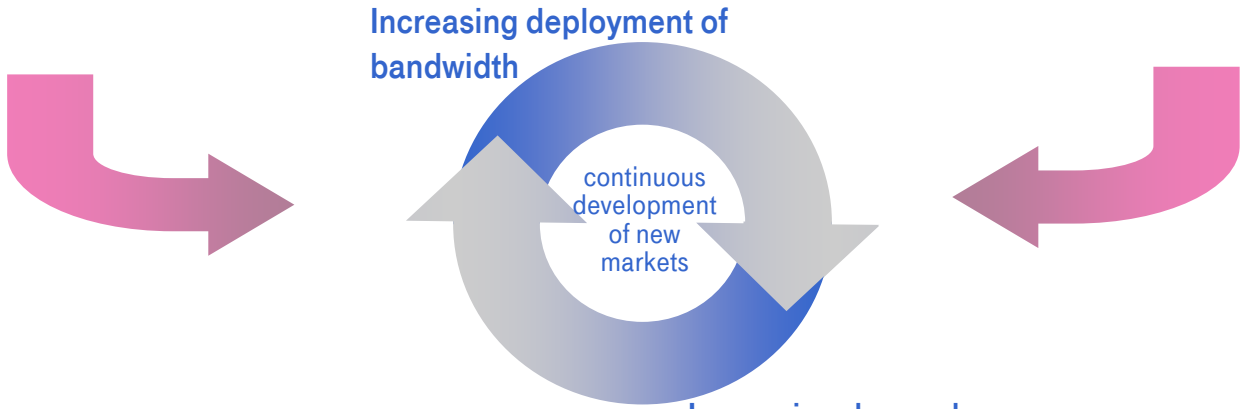
- secure / spam-safe email
- HDTV
- "unlimited" number of TV channels
- additional voice functionality, such as voice recognition, video conferences
- barrier free instant messaging
- seamless services (not bound to one single access point/technology)
- ...

Demand for bandwidth will constantly increase

- Personal communication in social networks as supplement to traditional voice and messaging services
- Internet Services, incl. IPTV, independent of access ("multi-access")
- Mobile Internet as Mega-Trend
- Customer equipment and user interface as possible differentiators
- Broadband everywhere

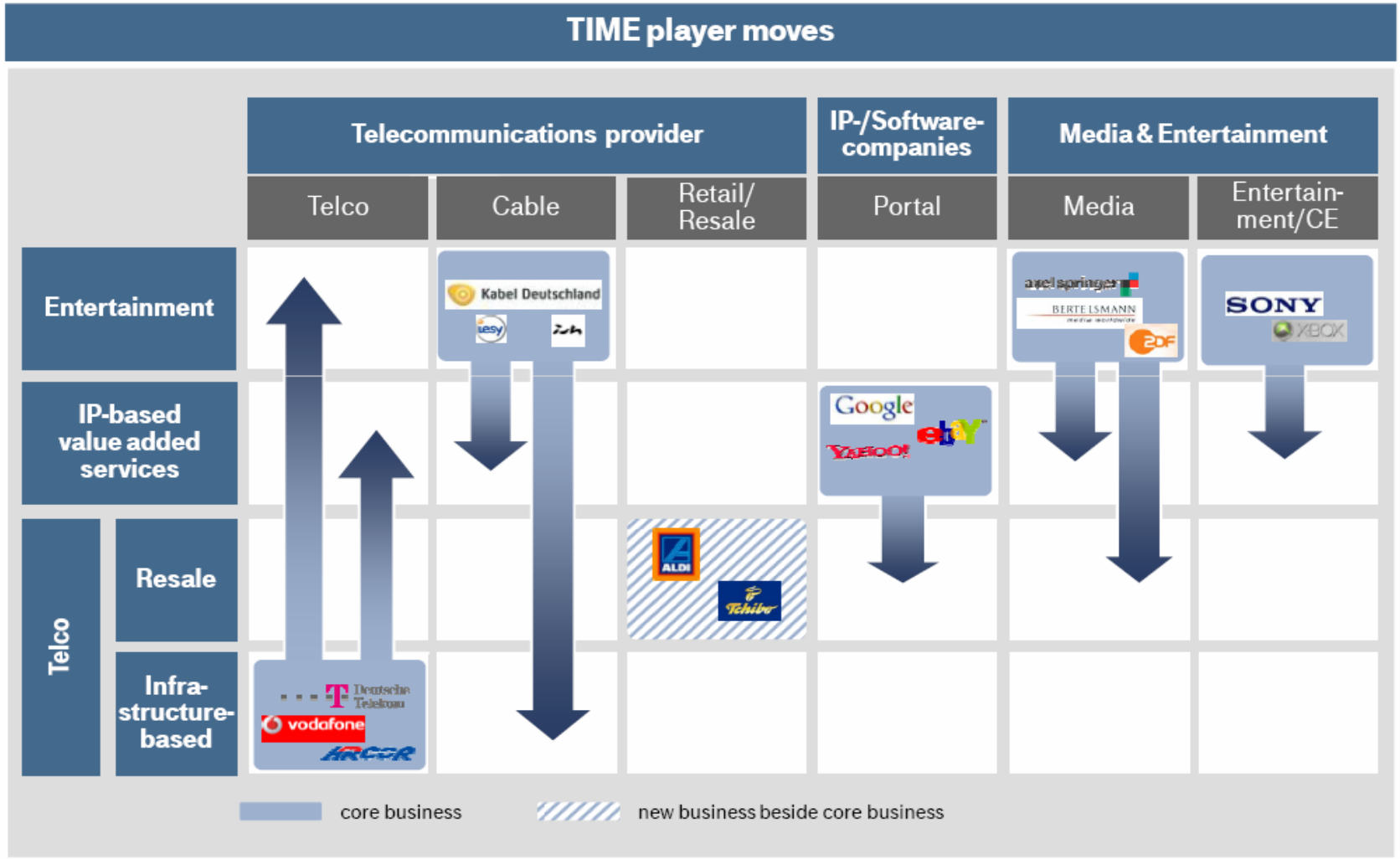
- Web 2.0
- IPTV
- Mobile Broadband





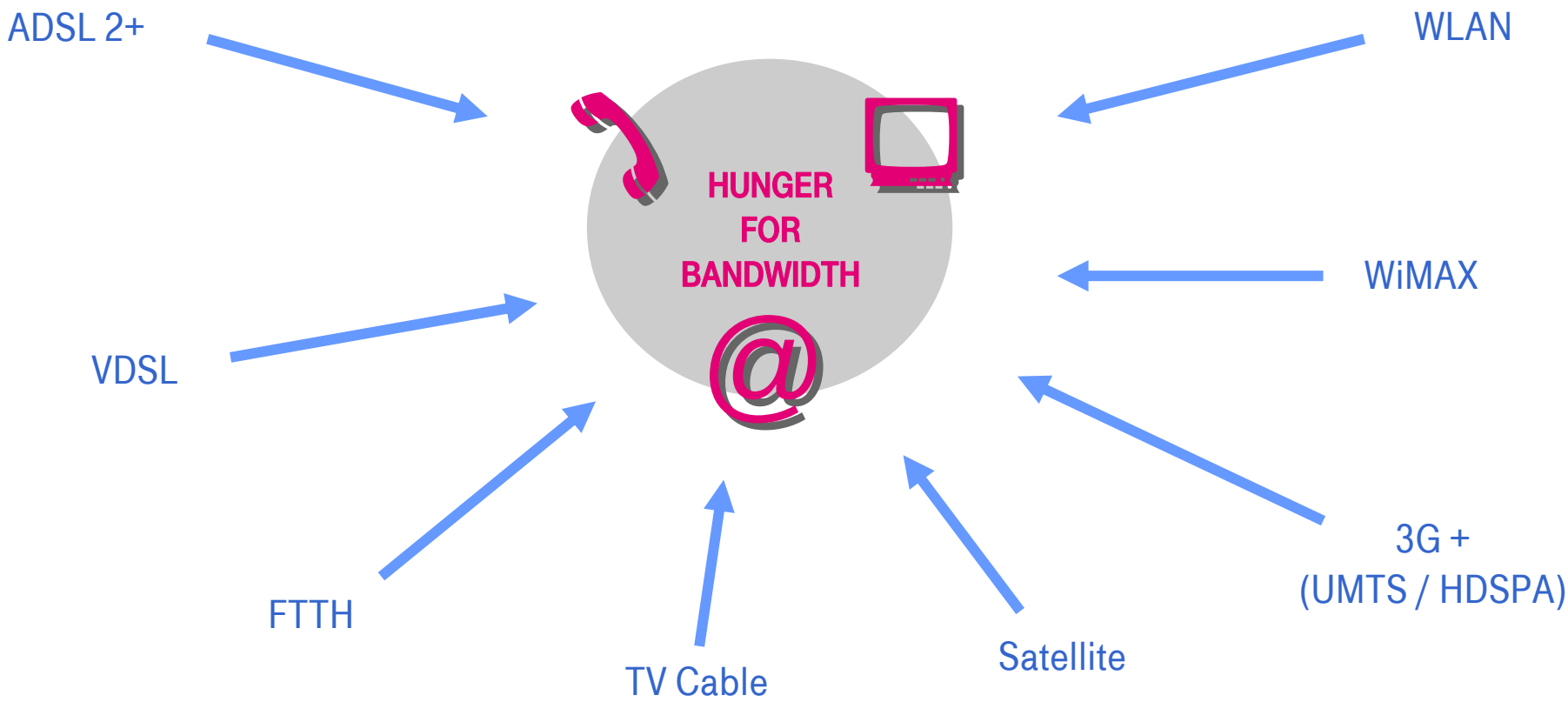
Changing market environment through convergence

The sector broadens and competitive forces increase



Multi-platform competition for triple play

Operators pursue different access strategies to "see, surf, and speak"



"The EU broadband market is becoming ever more sophisticated, with ADSL2+ and VDSL services and increasing transmission speeds facilitating the introduction of new services. Cable is responding with the Euro-DOCSIS technology, which is expected to increase data transmission speeds significantly. ... Broadband over mobile networks (UMTS, HSDPA, CDMA, Flarion, EDGE) is gradually increasing, in particular in New Member States". (EU-KOM, 12th Implementation Report, Vol. 1, p. 31)

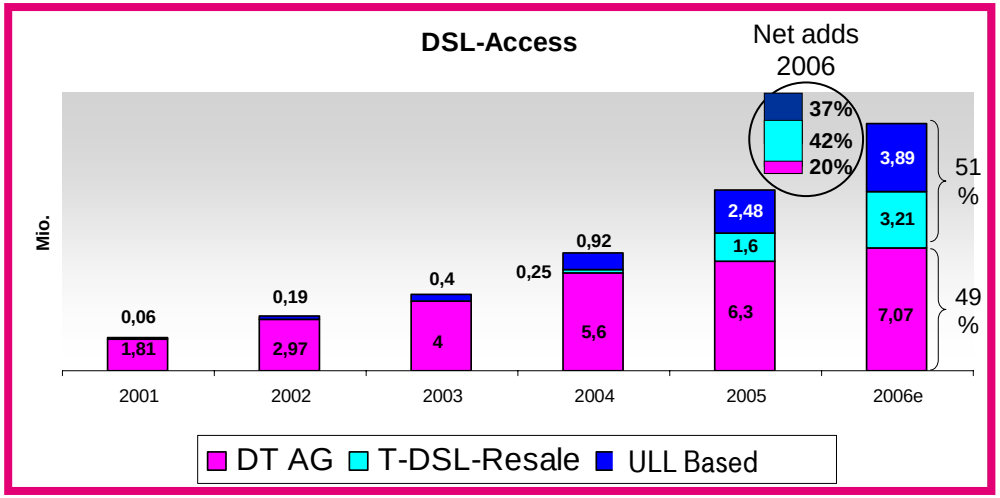
Case study – Competition on German broadband access market

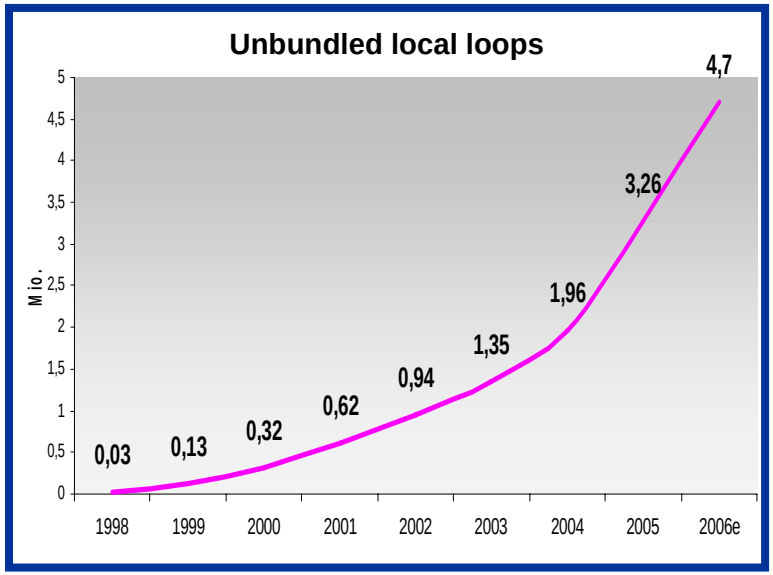
The "strongest growing market in Europe" (BNetzA, Annual Report 2006)

- DT's total market share <50%
- DT's share of net adds approx. 20% last year
- 55% of new entrant's access lines based on ULL

plus

- Cable access +100% in 2006 (∑500.000)
- Coverage of CATV triple play offers: 15 mio. hh





- **Exponential increase** of fully unbundled lines
- Increase of **1.45 million in 2006 alone**
- 46% of all ULL in Europe

Source: BNetzA, annual report 2006.

“Net-Neutrality” – a debate in search of a problem

- Call for regulation of IP-access and -transport services, although:
  - **Not a single competition problem has arisen so far –** no indication, whether there will be any problems at all.

    Ex-ante regulation taken to extremes!
  - Despite already existing legal restrictions: there would be **no sense to “block” any Internet content.** Users expect to have unlimited access.
  - **Network operators benefit from the openness** of the Internet leading to increasing user communities and demand.
  - **IP networks are technically speaking not “neutral” and never have been.** The Internet consists of thousands of autonomous systems (networks) with different performance characteristics. But it works fine so far!
  - Many **IP networks already provide for Quality of Service differentiation** (e.g. most European operators offer ATM based business products).
  - **QoS allows for additional enhanced services** next to best effort Internet.
- If there is a need/demand for guaranteed QoS, will network operator be allowed to respond to the market without regulatory intervention?

Quality differentiation is normal business practice

By better serving customer's needs, **quality differentiation is welfare enhancing** and thus widespread:

- First class and second class (business/economy) on trains, airplanes, ferries
- Airmail and "normal" mail
- Toll bound motorways and toll-free country roads
- Credit cards: silver, gold, platinum
- Internet search engines:
  - customers can offer their products with additional features (fotos, bold fonts) to gain better attraction
  - by paying more, their products are placed at the top of the product lists
  - eye-catching advertisements are displayed at the search result lists, depending on special search terms which can be booked
- Next day delivery for internet orders, when customers pay an express-surcharge
- "Mail plus"-accounts with more storage, more protection and no graphical ads
- ...

The market serves consumer's interests best

- Market forces lead to favourable results, since
  - **no incentive for operators to block or degrade** access to lawful content. Costumers will not accept a quality lower than currently perceived.
  - **market forces competitors to make better offers**, using Quality of Service differentiation for the sake of the consumer.
  - **costumers can switch to competitors** due to technical by-pass possibilities.

- Regulation tends to preserve the status quo and to impose a certain structure on the market, even though
  - **future market structures are completely unpredictable** and Quality of Service can enable numerous new services.
  - **markets should be free to explore all possibilities** without regulation trying to block or outguess the market.

Next steps: get the facts right

- What is the debate really about? Real market failure vs. self interest of market participants? (i.e. regulation as a strategic competition tool)
- Where would be the welfare benefits in treating the IP-networks as privately supplied 'public goods'? And what will be the impact on private investments?
- What kind of services will the customer demand? How can we ensure the overall functionality of future IP-networks as more and more applications are bandwidth-hungry and time sensitive making congestion a real challenge?
- Will N.N. increase or decrease choice? Is uniformity better than diversity? Wouldn't we expect that more choice on the network level leads to more choice on the services level?
- Is there an actual need for regulation? What is the role of existing (ex-post) competition law rules (non-discrimination rules)? Isn't it much more flexible and therefore much more suitable to cope with uncertain future developments?

Thank you for your attention!