

# Net Neutrality

- the challenges of a changing business model

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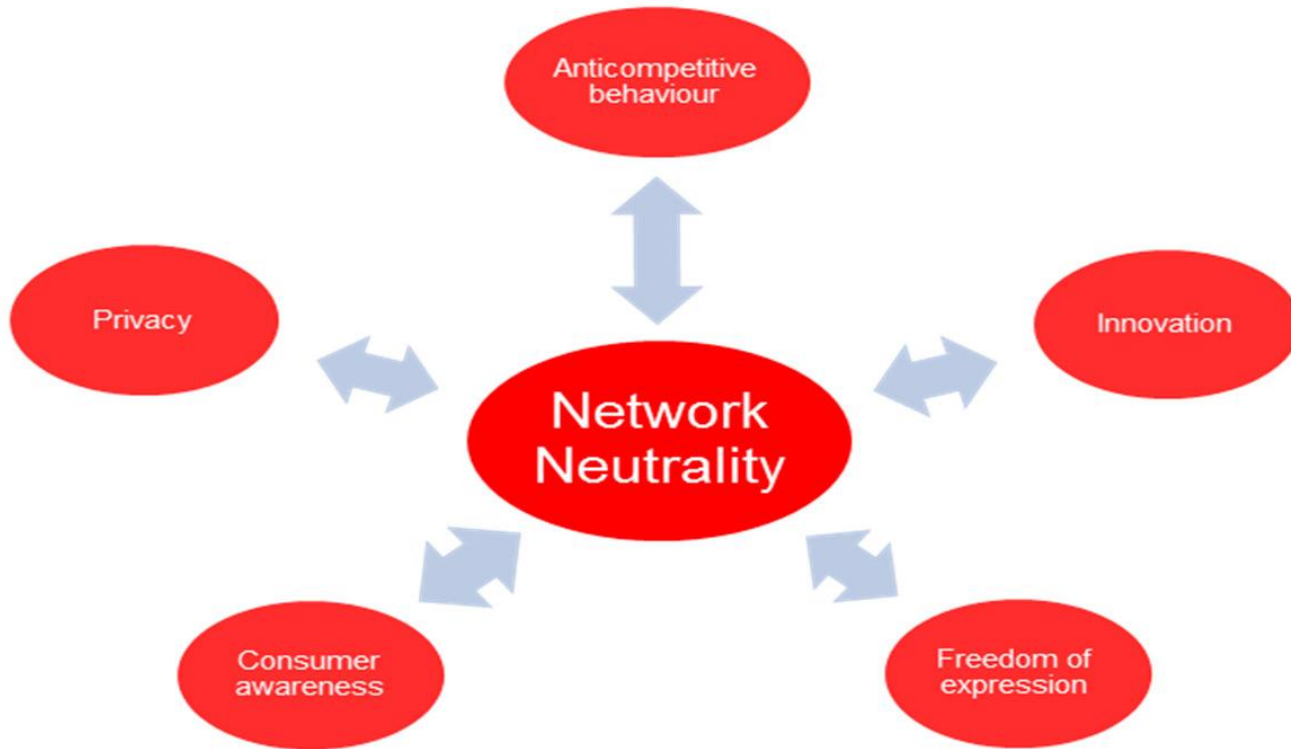
# What is net neutrality?

- The principle of equal treatment of traffic over the internet, where every IP-packet is delivered on a "best-effort" basis, independent of what content is carried or who the sender or the receiver is.
- Has been attributed as one of the core principles that has made the internet into what it is today.
- Allows low barriers to entry and the decoupling of services from networks

# So what is the problem about?

- As services over the internet replace the use of "traditional" communication services, operator revenue is in decline.
- At the same time, operators claim that they carry all the cost for network expansion as more and more data is consumed.
- Network operators, who control the "last mile", also control the Quality of Service (QoS) for end-users.
- There are incentives to get more bang for the buck than settling with becoming a "bit pipe" provider...and people want good quality in general.

# The many faces of Net Neutrality

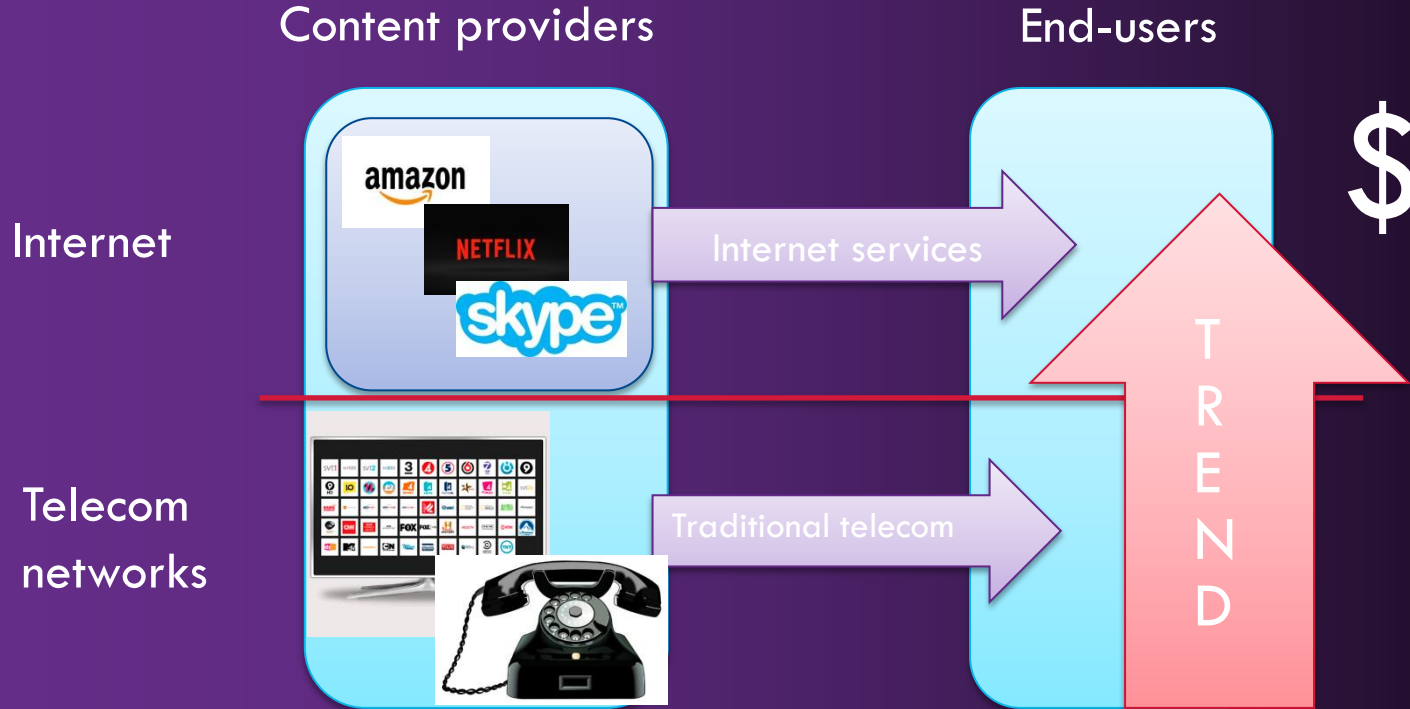


# Three theoretic ways to increase revenue...

- Make your "own" services more attractive by throttling or blocking competing services over the internet!
- Use QoS-parameters to get paid from one or both sides of the market (Fastlanes)!
- Differentiate the internet access service, and charge for how people use it!

In all three examples, "traffic management" on the internet is key to succeeding – and Net Neutrality is in the way.

# Make your own services more attractive...



# Use QoS-parameters to get paid...

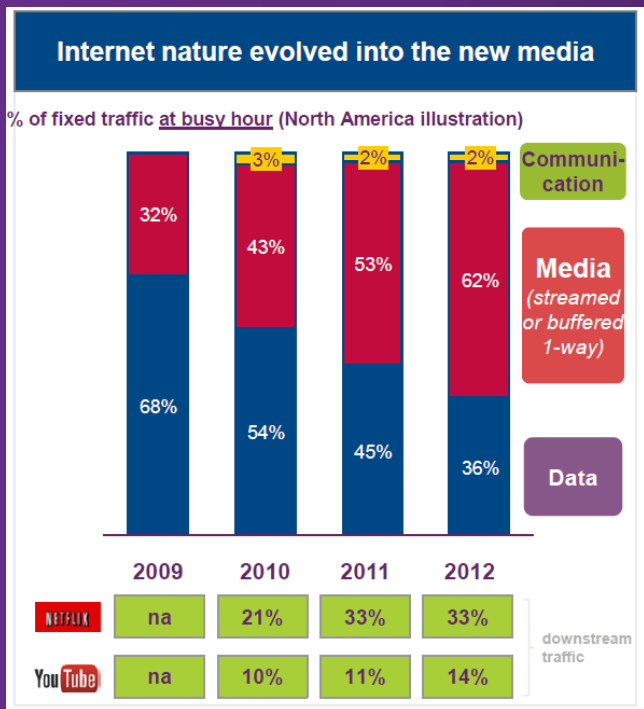


...or charge for how it is used!





# On the other hand...



The internet is increasingly used for services that expect quality

Traffic management, particularly in mobile networks, is important to efficiently handle congestion.

# So there are some balances to consider

- "Reasonable traffic management" vs. Anti-competitive traffic management
- Doing nothing may in some instances be more "damaging" for certain services than doing something.
- Traffic management vs. capacity expansion
- Innovation at the end-points or innovation by operators
- How should "other services", that may need high QoS, be considered in relation to Internet access services?

So are there reasons for concern?

# According to politicians..YES!

- The internet, with its low barriers to entry and global reach, represents a vital architecture for growth, export and jobs.
- The EU will in a matter of days introduce substantial rules to safeguard Net Neutrality



# In the US...Yes, it seems so.

- The European debate on Net Neutrality has been very influenced by events in the US.
- All started with Comcast blocking P2P (Bittorrent) in 2008
- The FCC turned to its "Internet Policy Statement (2005)" and declared it did not comply with "reasonable traffic management"
- After several years of court process – a new Open Internet Order was adopted in 2015

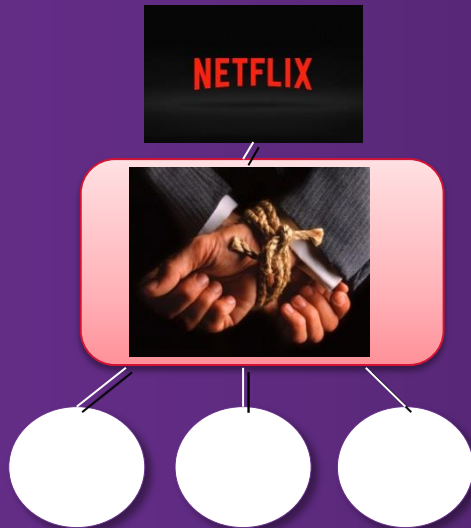
# In the EU...perhaps not

- A sort of Net Neutrality rules have applied since 2009 in the EU
- However, there have been no real challenges to Net Neutrality in the EU
- The big difference between the EU and the US is the presence of access regulation and competition in fixed networks

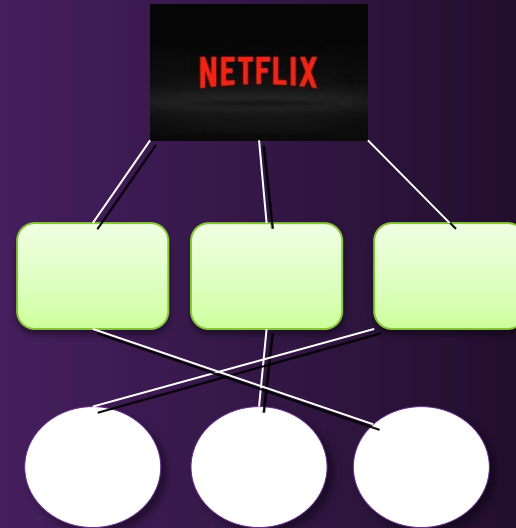
# Why Net Neutrality is a bigger concern in the US

## US

For 25/3 Mbps, only 25% of Americans have two choices of broadband provider, and only 2% have a choice of three or more. The rest (73%) have (at best) one single provider.

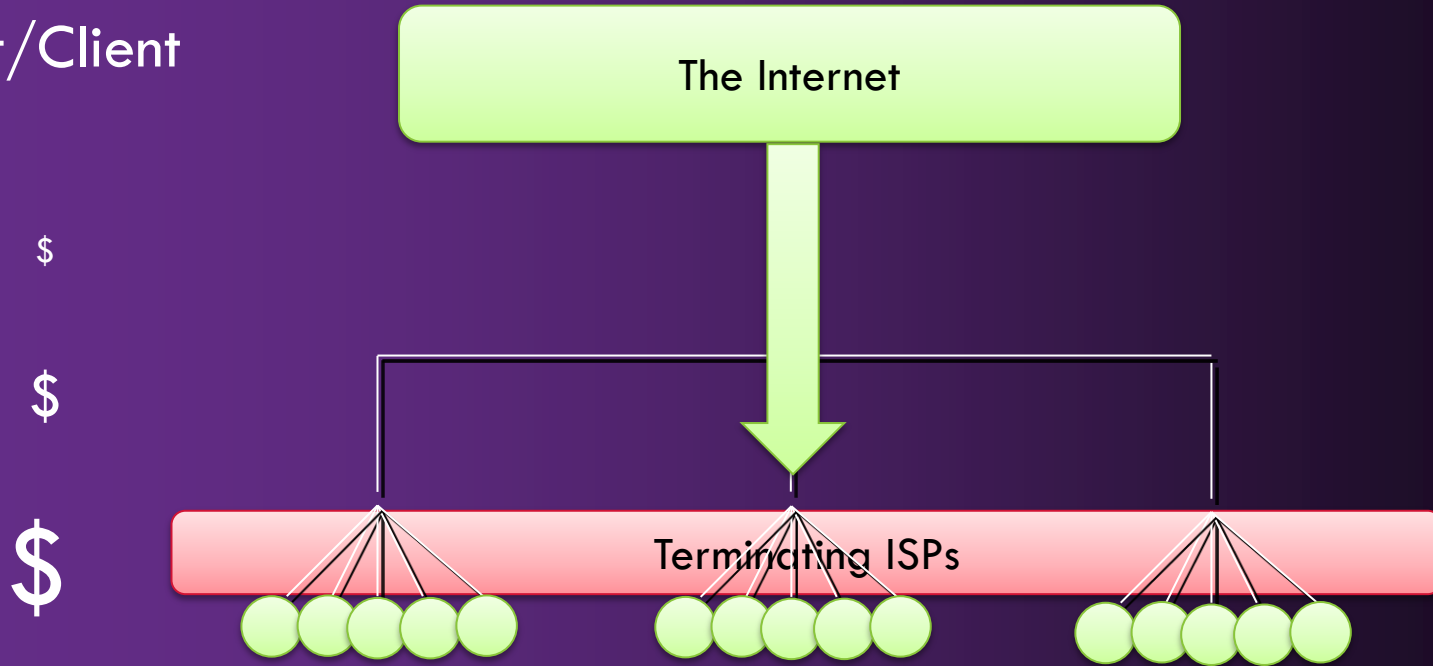


## EU



# The bottleneck is in the access

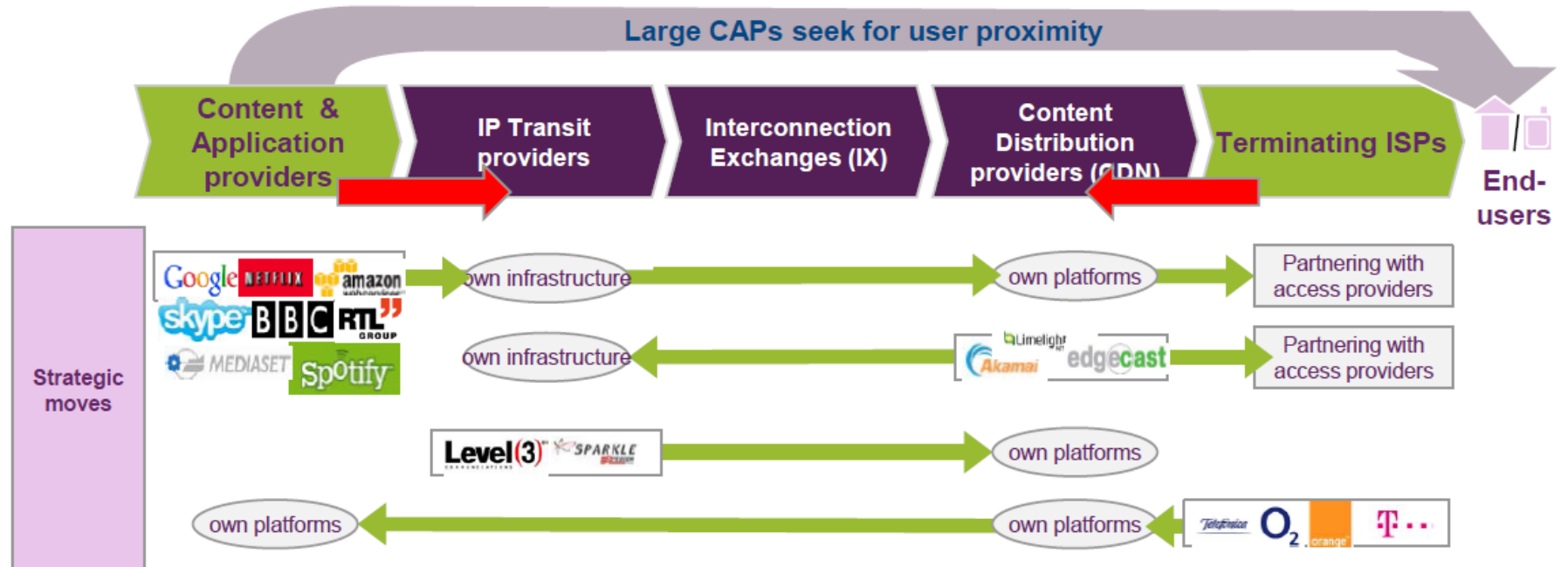
Cost/Client





# The IP Interconnection value chain: CAPs and ISPs vertically integrate and interconnect directly..

## IP interconnection value chain



# Net Neutrality in the EU – a political interest rather than an actual problem?

- The EU has been very influenced by the process in the US
- Previous stance was "transparency and switching/competition will solve the problem"
- The new Net Neutrality rules aim to preserve the internet as it is perceived, rather than strictly limiting the use of traffic management.
- There are high values at stake

Questions?