

The conceptual foundations and the economics network neutrality

“Neutralità della rete e aspetti socio-economici”

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- Introduction
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- Describing Network Neutrality
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- Summary

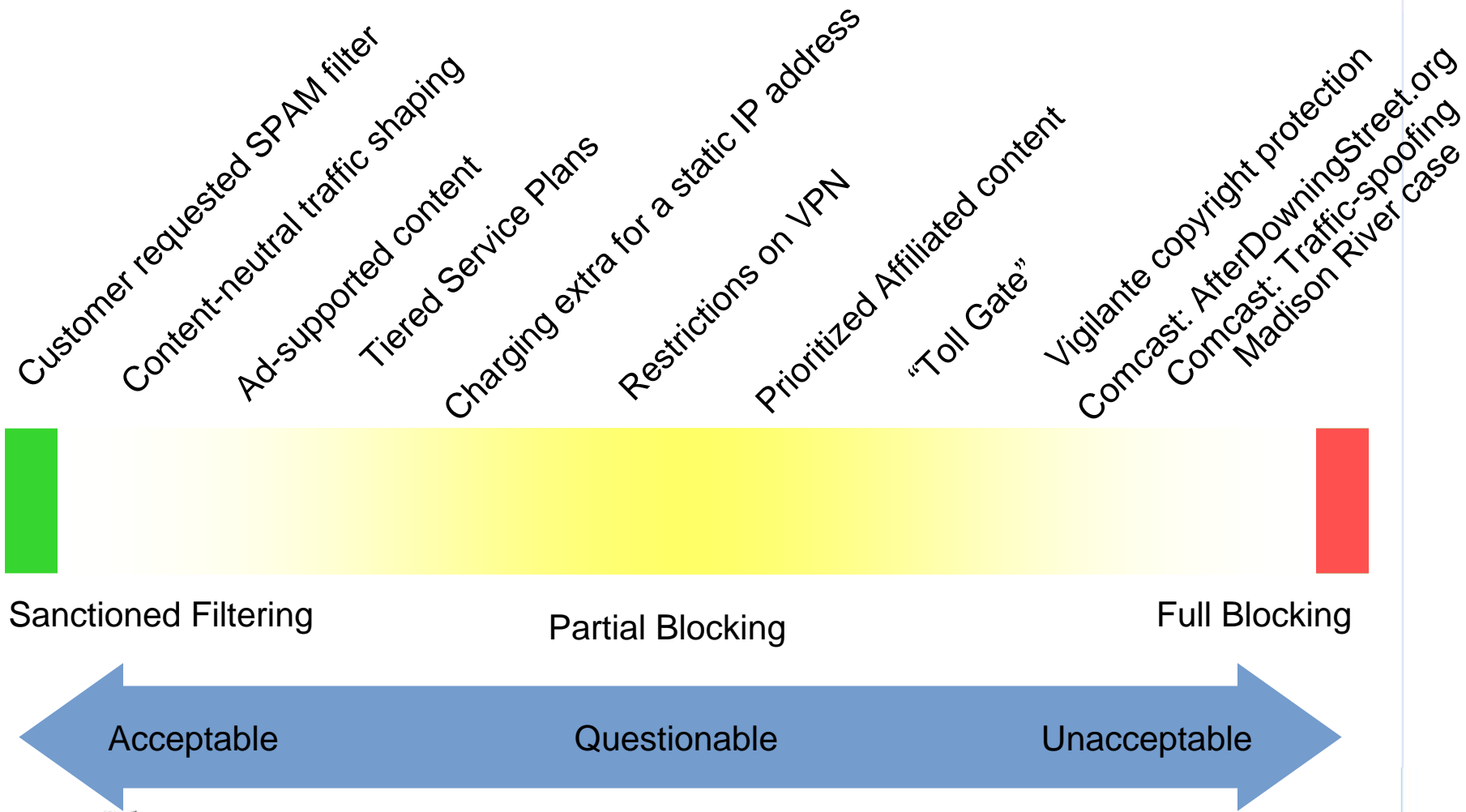
What is meant by “Network Neutrality”?

Network neutrality means different things to different people

The possibility that an integrated ISP might :

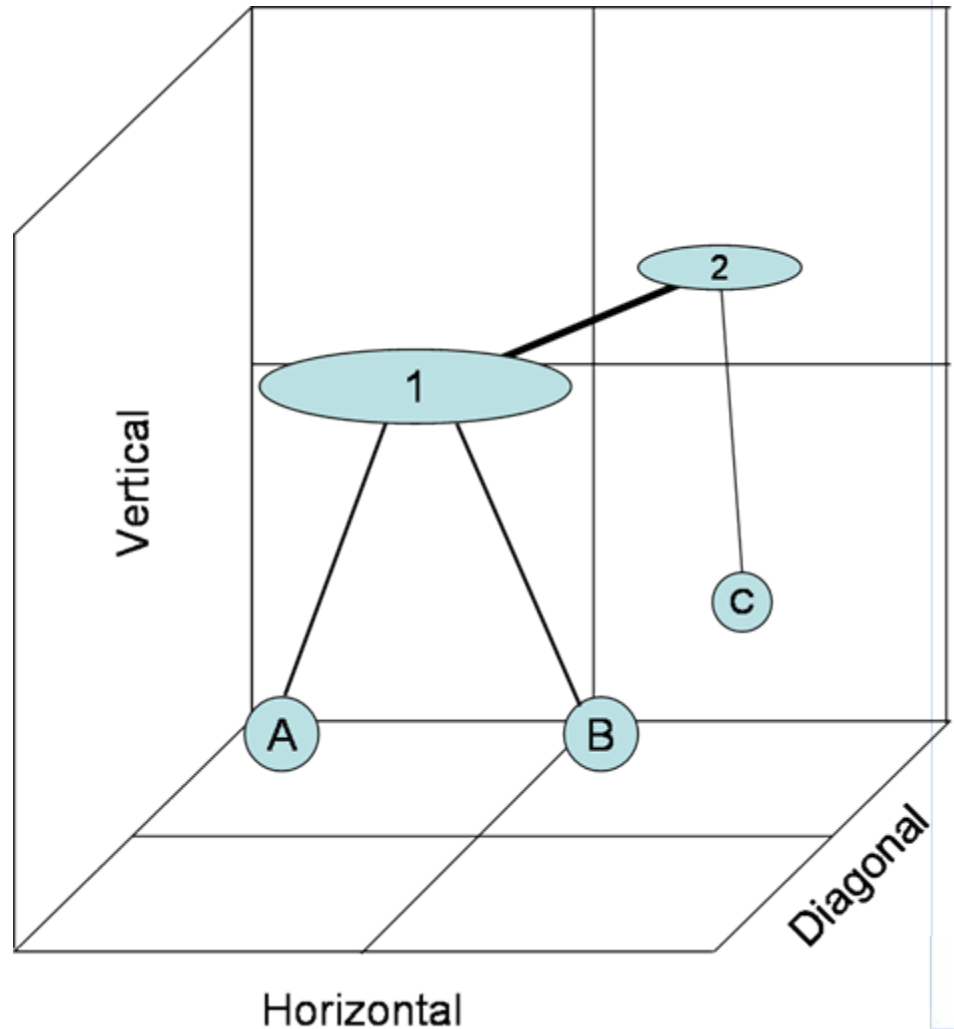
- Offer better performance to some Internet sites than to others;
- Assess a surcharge where a customer wants better-than-standard performance to certain Internet sites;
- Permit access only to affiliated sites, and block access to unaffiliated sites;
- Assess surcharges for the use of certain applications, or of certain devices;
- Disallow outright the use of certain applications, or of certain devices, especially where those applications or devices compete with services that the integrated ISP offers and for which it charges; and
- Erect “tollgates” in order to collect unwarranted charges from unaffiliated content providers who need to reach the integrated ISP’s customers.

Network Management and Network Neutrality?



Three Dimensions of Network Neutrality

- Network neutrality presents the classic problem of the elephant and the blind men.
- This is due to the fact that a single network practice may give rise to several different economic, policy and technological issues, involving several different classes of persons.
- We view network neutrality generating three dimensions of issues for public policy
 - Vertical conflicts are those between players in the value chain – content sources, network operators, and endusers.
 - Horizontal conflicts are those between persons in the same link of the network value chain.
 - Diagonal conflicts arise when the actions of one party affect the benefits received by a party on a completely autonomous network.



Network Delay Demystified

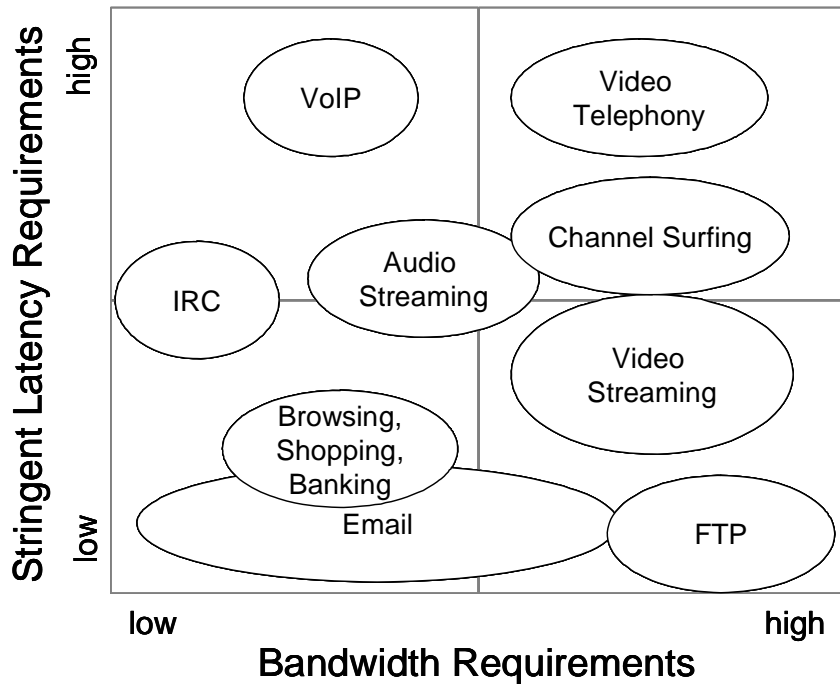


Processing Delay

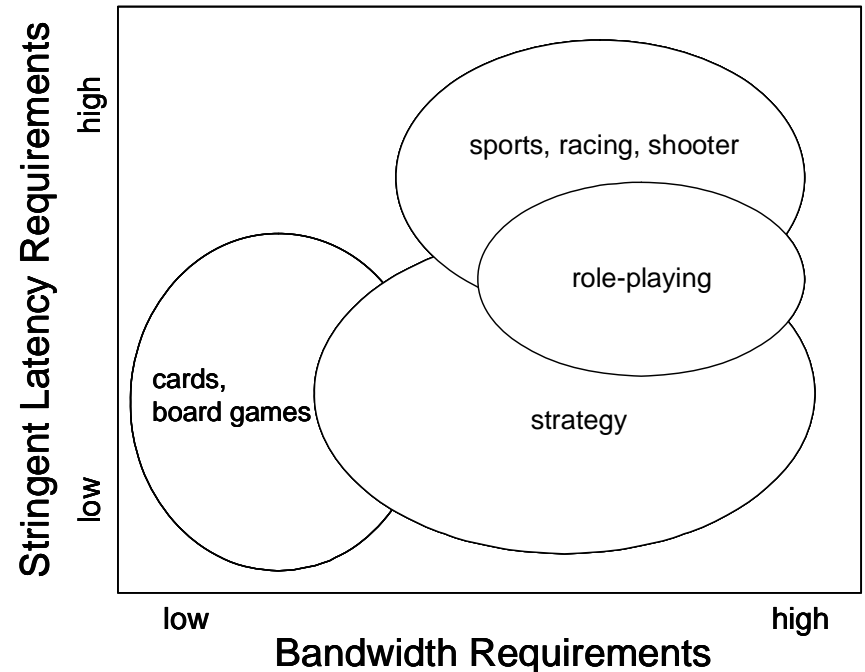
Queuing Delay

User Spectrum Heterogeneity of Demand & Applications

General Applications

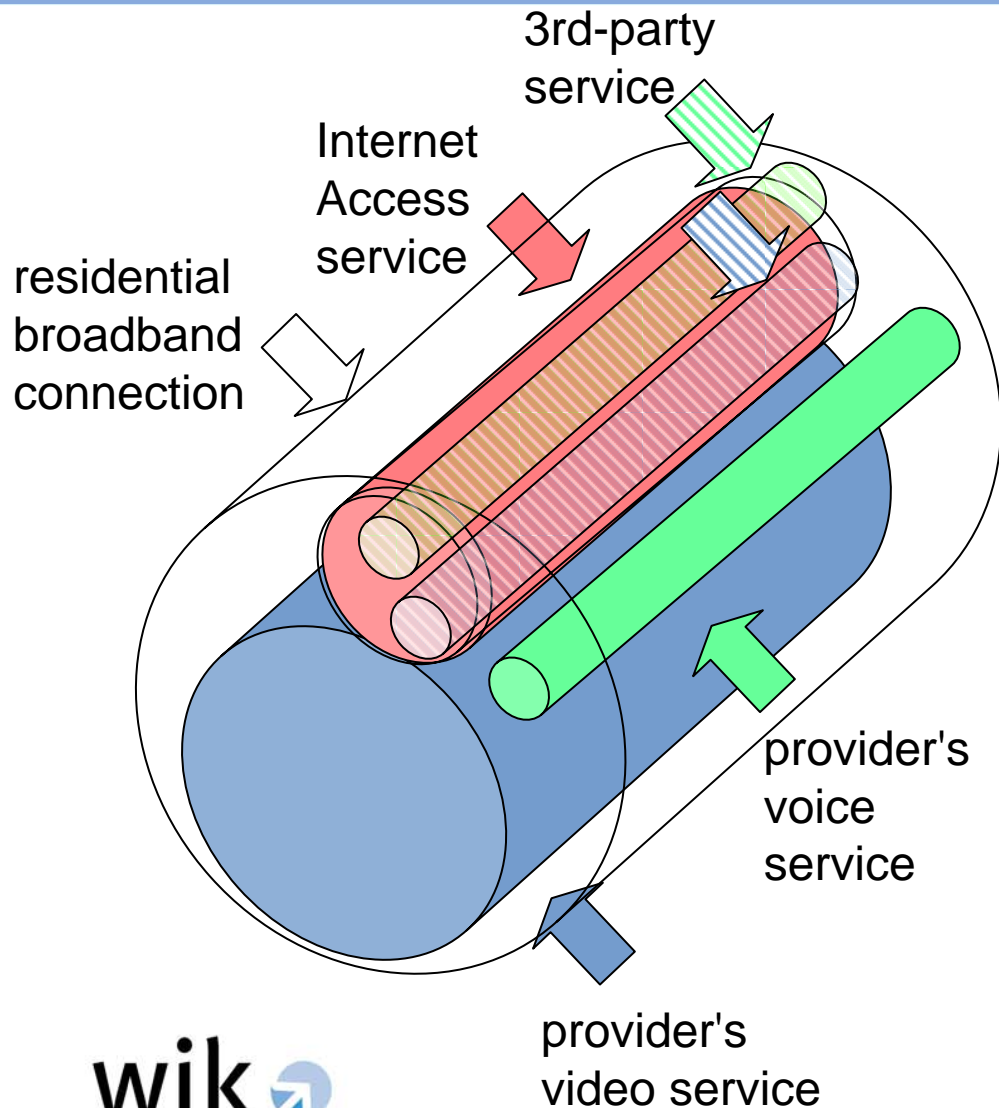


Gaming Applications



Network Neutrality: The Reality

Next Generation Residential Broadband Access: "Fractionalized IP"



"Next Generation" = c.2006-2010

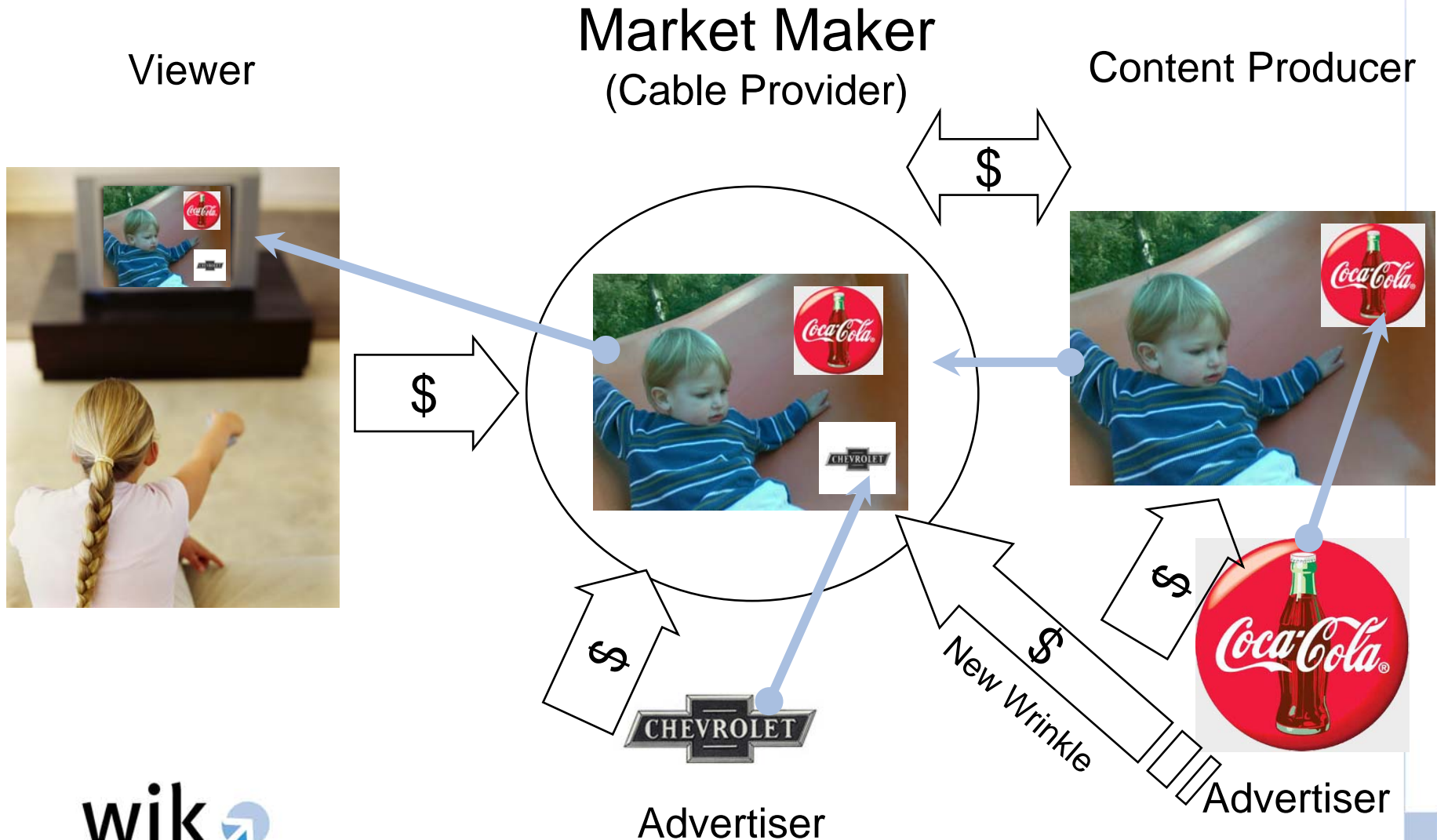
- eg, 30Mbps [fiber, VDSL,...]
 - 5Mbps commodity Internet
 - .5Mbps voice (using IP)
 - 20Mbps video (using RF>IP)
- parallel access to distinct nets – *eventually* all using IP
- "fractionalized IP" (reserved) – not single "prioritized" stream
- multiple LANs multiplexed on a single trunk (VLAN technology)
- user can provision third-party services over Internet service
- here: five IP pipes with potentially different attributes

What are the economic implications?

- Many of the concerns that have been raised in regard to network neutrality relate to behaviors that, in the absence of market power, would tend to *enhance* consumer welfare.
 - Some would appear to represent legitimate *price discrimination*.
 - Others enforce the economic property of *excludability* (the ability to prevent someone from using a service that he did not pay for) in support of price discrimination.
 - In a competitive market, these practices would be entirely appropriate.
- Other violations of network neutrality, however, could imply some form of economic *foreclosure* (the attempt to project market power into a vertically related market segment that would otherwise be competitive), which should be viewed as being anticompetitive.

Two-sided Market

With a new wrinkle



Why now? Why in the U.S.?

Three simultaneous developments: a “perfect storm”.

1. Collapse of the U.S. wholesale broadband Internet access market; consolidation into a series of non-overlapping geographically distinct duopolies.
2. A series of mega-mergers, with no meaningful undertakings imposed on the parties:
 - SBC/AT&T
 - Verizon/MCI
 - AT&T/Bellsouth
3. FCC withdrawal of regulation, including traditional obligations of nondiscrimination, with no economic analysis and no consideration of the implications of possible market power.

FCC “Broadband Policy Statement”

“... to ensure that broadband networks are widely deployed, open, affordable, and accessible to all consumers, the Commission adopts the following principles:

- ... consumers are entitled to **access the lawful Internet content of their choice**.
- ... consumers are entitled to **run applications and use services of their choice**, subject to the needs of law enforcement.
- ... consumers are entitled to **connect their choice of legal devices** that do not harm the network.
- ... consumers are entitled to competition among network providers, application and service providers, and content providers.”

- Comcast was blocking and degrading peer-to-peer file uploads
- FCC attempts to prevent Comcast from blocking or degrading peer-to-peer traffic.
- FCC claims Comcast practices violate its broadband principles.
 - No specific rules were adopted.
 - No enforcement mechanisms were identified.

Implications for European policymakers

- Europe today enjoys a far more competitive broadband market than does the United States.
 - On the average, more than half of all retail DSL lines in Europe are provided by competitive entrants.
 - Most consumers have access to more than two providers.
 - For these purposes, service-based competition is sufficient.
- Trying to address network neutrality challenges through *ex ante* regulation is likely to prove extremely difficult.
- The first line of defense for European policymakers should instead be to avoid the problem altogether by maintaining the competitiveness of the underlying markets.
- Occasional or sporadic problems related to network neutrality might be addressed *ex post* through the exercise of competition law.

- Attempting to regulate “network traffic management” all options are unattractive
- Market and technology moves too quickly for administrative or legislative management
- The welfare enhancing benefit of competition is self-evident and is the best fix for network neutrality.
- In the presence of effective competition, informed consumer choice and low switching costs, the market will punish welfare-diminishing discrimination
- Competition is hard to sustain.

Grazie.



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