Network Neutrality and Consumer Welfare

Ecole Nationale Supérieure de Télécommunications
Paris
29 May 2007

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Journal version of remarks

- J. Gregory Sidak, *A Consumer-Welfare Approach to Network Neutrality Regulation of the Internet,* 2 Journal of Competition Law & Economics 349 (2006)
  - available at http://papers.ssrn.com/sol3/cf_dev/AbsByAuth.cfm?per_id=206474

Four themes

1. Blocking access is not the real issue
2. Real issue: May network operators shift to models that offset consumer subscriptions with advertising revenues?
3. Net neutrality regulation could reduce competition
4. Ex ante prohibitions would be reckless

A political snapshot of the network neutrality movement in the U.S.

- Strong political movement despite vagueness of “network neutrality”
  - Strange political coalition on Left and Right
  - Telco and cable groups spent nearly $42 million on net neutrality ads nationwide, Jan.-June 2006
- FTC and FCC studying the issue
- AT&T-BellSouth merger approval conditions

Familiar problems of pricing, cost recovery, and discrimination

- Differential pricing among customer classes or among the products of a multiproduct firm
  - Large sunk costs, economies of scope
  - Two-sided market
- Discriminatory prices, terms, and conditions in the sale of an input to competitors by a vertically integrated monopolist
  - Examples: access pricing, compulsory licensing

Who advocates net neutrality regulation?

- Google, Amazon, eBay, Microsoft, Yahoo!
- Leading intellectuals
  - Prof. Lawrence Lessig, Stanford Law School
  - Prof. Tim Wu, Columbia Law School
  - Advocates of “the commons”
- Political groups

Traditional telecom policy: improve the welfare of the marginal consumer

- How does the marginal consumer of broadband Internet access compare to existing broadband customers?
  - Lower income (36.5% vs. 26.3% under $50K)
  - Less likely to have any college education
  - Less likely to be Caucasian: (55.5% vs. 75.2%)
- Hence, we infer a lower willingness and a lower ability to pay for broadband

What constituency do network neutrality advocates want to protect?

- Not concerned about bringing broadband access to the marginal consumer
- Instead, the concern is for future entrepreneurs engaged in “innovation on the edge of the network”
  - The “next Google”

What specifically do they want?

1. prevent access providers from denying end-users access to specific applications on the Internet ("upholding Internet freedoms")
2. prevent access providers from conditioning the quality of service for the delivery of content upon the payment of a fee ("ban on access tiering")
3. prevent access providers from vertically integrating into the production of content and applications

Blocking or degrading access is not the significant issue

- *Madison River* case of VoIP blockage is grossly exaggerated
- Galvanizes political and journalistic support for regulatory intervention, which would encompass other provisions

The real issues of economic consequence

- Prohibiting transactions between network operators and content providers for differential pricing of priority (more than best efforts delivery)
- Prohibiting vertical integration by network operators into Internet advertising markets
  - Google may believe that incremental advertising revenues generated from new broadband subscribers is less than the advertising revenues it expects to lose if faced with competition from network operators that have vertically integrated into its market
  - An absence of discussion of the competitive effects on the market for advertising

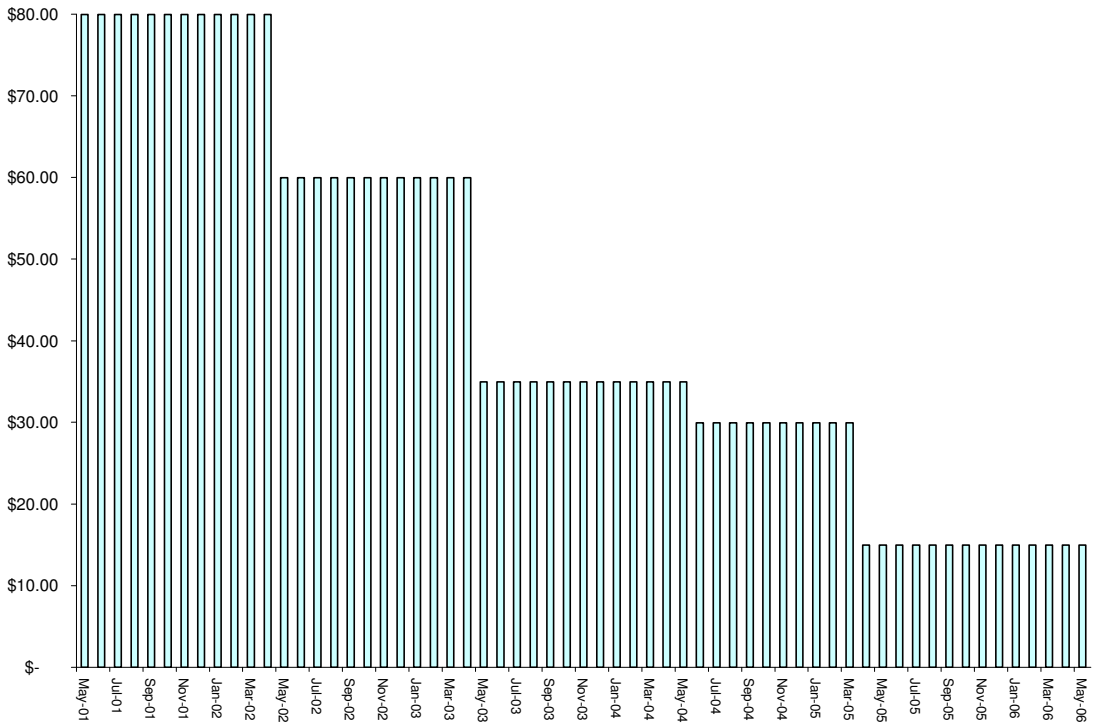
Two assertions of market failure as justifications for net neutrality regulation

- Claim 1: Broadband is not competitively supplied
  - False
- Claim 2: Underinvestment at the edges of the network due ("the next Google" argument)
  - Nonfalsifiable
    - Even if claim 2 were true, telecommunications law is not the best policy instrument with which to try to increase those investment incentives at the margin

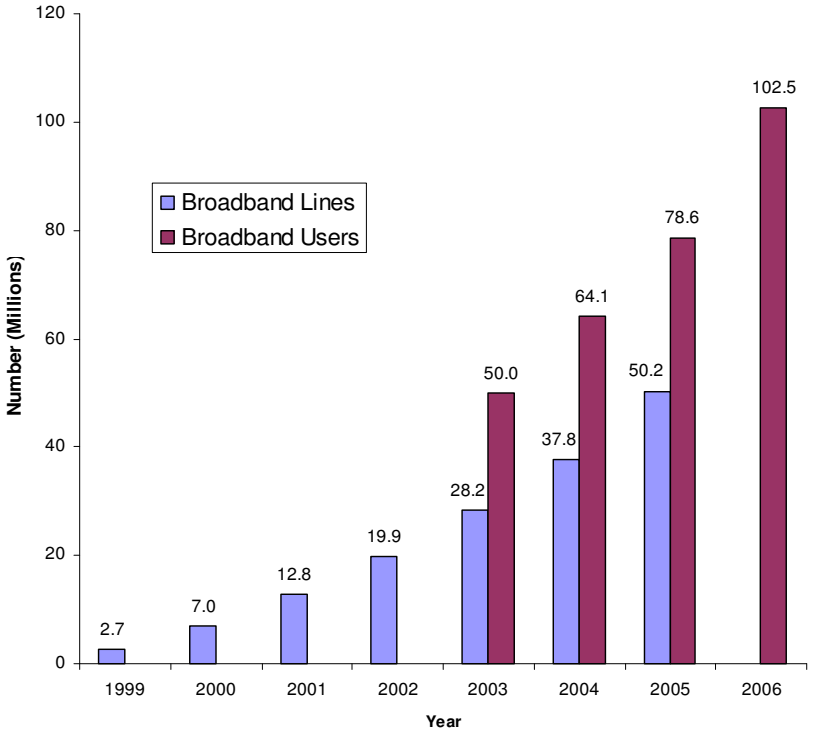
Is broadband access competitively supplied in the United States?

- FCC effectively deregulated DSL in 2005 on the rationale that it was competitive
- Facts support that conclusion

Verizon's Monthly Price for 1.5 Mbps DSL Access, May 2001-May 2006



Broadband Lines and Broadband Users, United States, 2000-2006



Source: Wireline Competition Bureau, FCC, High Speed Services For Internet Access: Status as of Dec. 31, 2005 (2006); Q4 2003 NetRatings Earnings Conference Call – Final, Fair Disclosure Wire, Feb. 26, 2004; *U.S. Broadband Penetration Tops 40%,* Editor and Publisher, Sept. 28, 2005; Carol Wilson, *Nielson: Broadband Use Nears 75%*, Prism Insight, Jun. 22, 2006.

Prima facie evidence of competitive market

- Falling prices
- Increasing output
- Any barriers to entry have been overcome
- Actual entry by Sprint WiMax with nationwide coverage by 2008
  - alternative technologies
  - well-funded rivals

Questions for network neutrality proponents

- The strong growth in broadband lines and users in the United States over the past 6 years invites two questions:
  - Where is the evidence of market failure?
  - Is there any growth rate that would be high enough for network neutrality proponents to concede that their policy prescriptions are unnecessary?

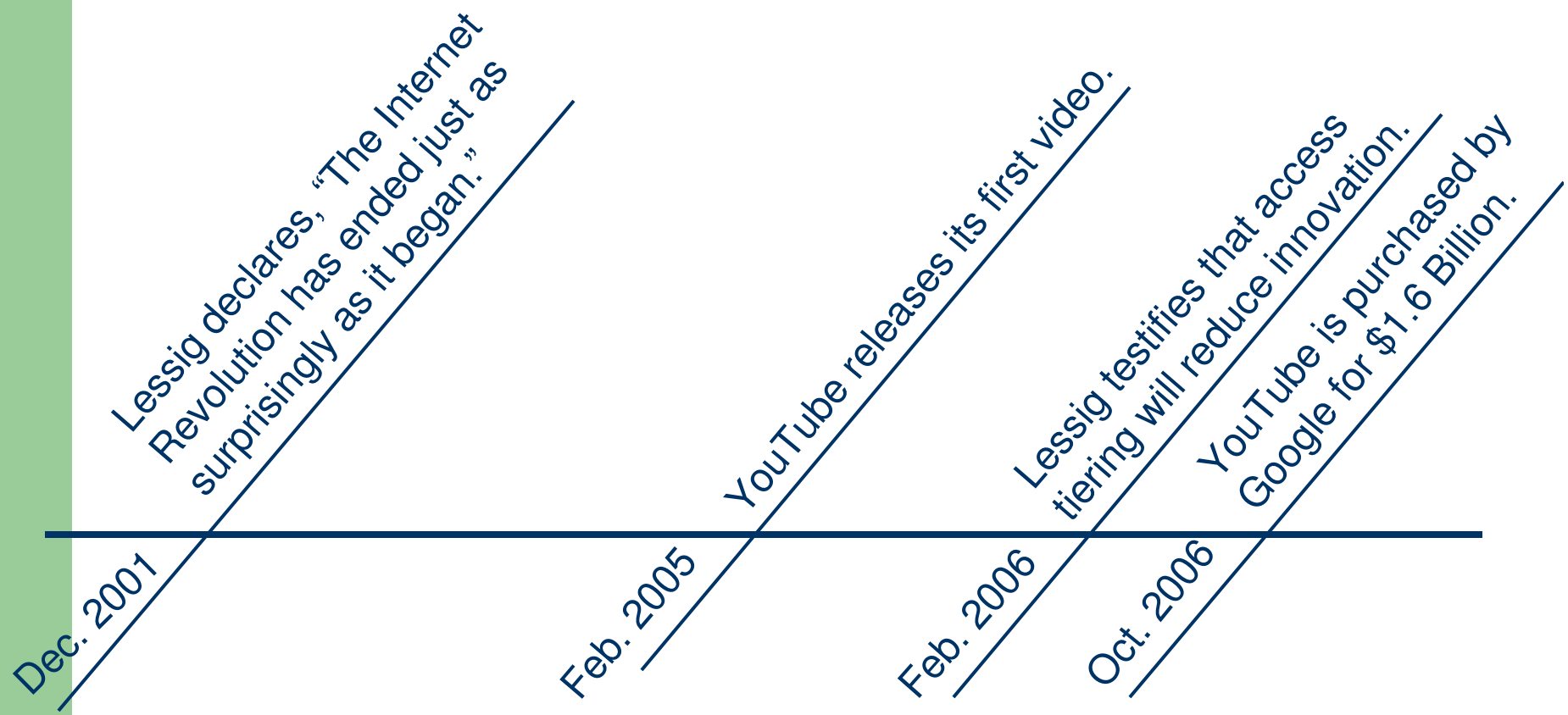
Google's Mountain View Wi-Fi Network

- Free service to 72,000 residents
- Called a demonstration project to show the feasibility of competitive entry into broadband Internet access
- Cost $1 million ($14 per resident)
- Evidently, no recognition of having rebutted one of its own two arguments for net neutrality regulation

Second rationale for banning access tiering

- Restore innovation “at the edges of the network”
- “Only incumbent content providers will be able to afford the price for priority”
  - The “Next Google” will fail to emerge
- Frivolous economic argument
  - Conflates ability to pay and willingness to pay
    - Why not subsidize gasoline, rent, computers, electricity, etc. used by Palo Alto garage inventors?
  - Venture capitalist fund compelling business plans
  - Is it even a falsifiable argument?

Can you spare a paradigm?



Zero sum game?

- Does giving one packet priority “degrade” the delivery of others, leading to a zero sum game?
- Engineers versus economists

Strong and weak forms of the proposal to ban access tiering

- Abstract: Access provider cannot condition the provision of priority delivery on the payment of some fee by a content provider
- Strong form: Access providers cannot charge content providers for priority delivery
  - Implication: Any contracting for priority delivery must be negotiated between the access provider and the end user
- Weak form (Lessig): Access providers can charge content providers for priority delivery only if they establish a single price for all similar content

Allowable Activity Under a Ban on Access Tiering

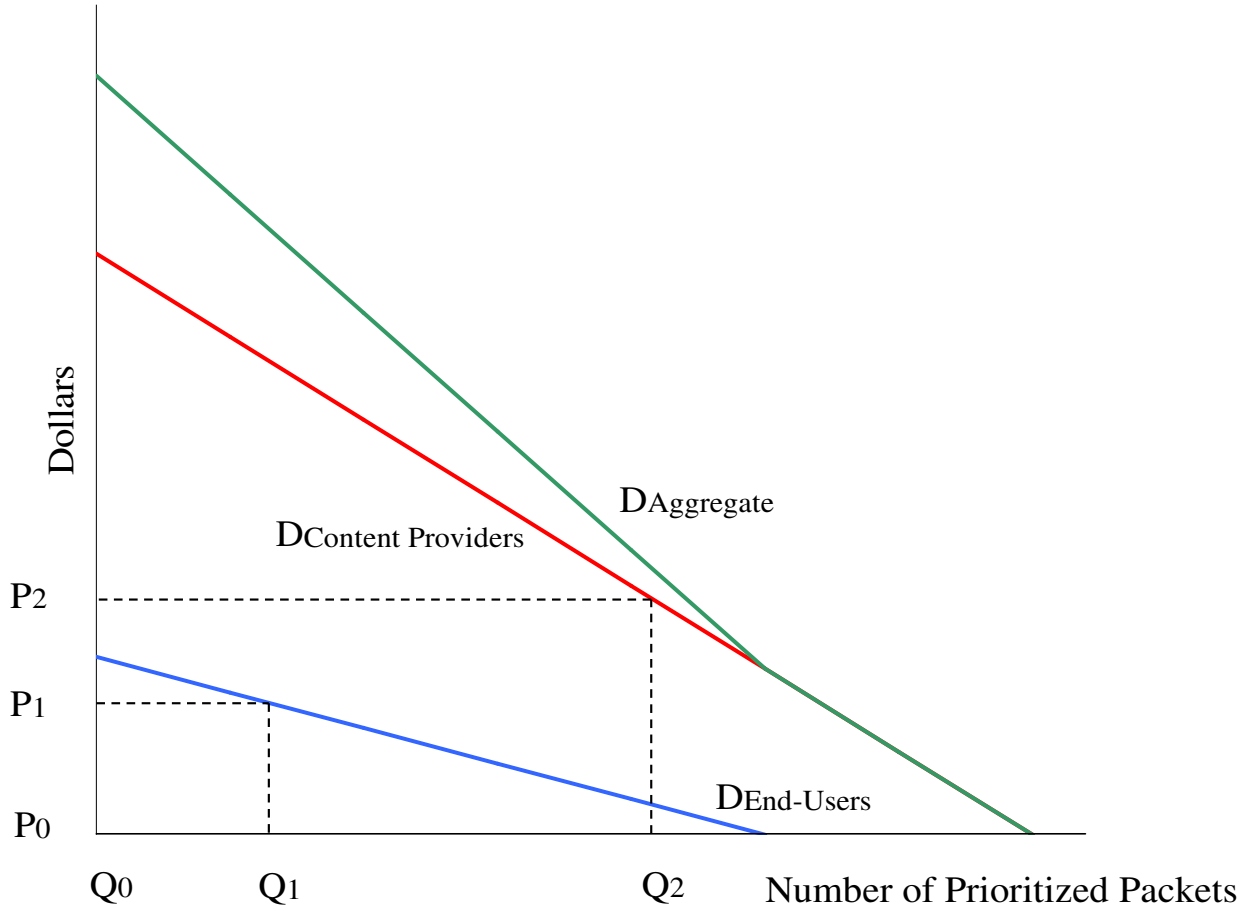
	Content Provider	End User
Bandwidth	Allow	Allow
Priority	Ban	Allow

- Under what conditions could a network operator abuse market power with respect to priority delivery but not abuse said market power with respect to bandwidth?

Two-sided market: Ban on access tiering would decrease the quantity of prioritized delivery

- Demand for prioritization of end-users is weak and relatively elastic (depicted by a flat slope)
- Demand for prioritization of content providers or their advertisers is strong relatively inelastic (depicted by a steep slope)

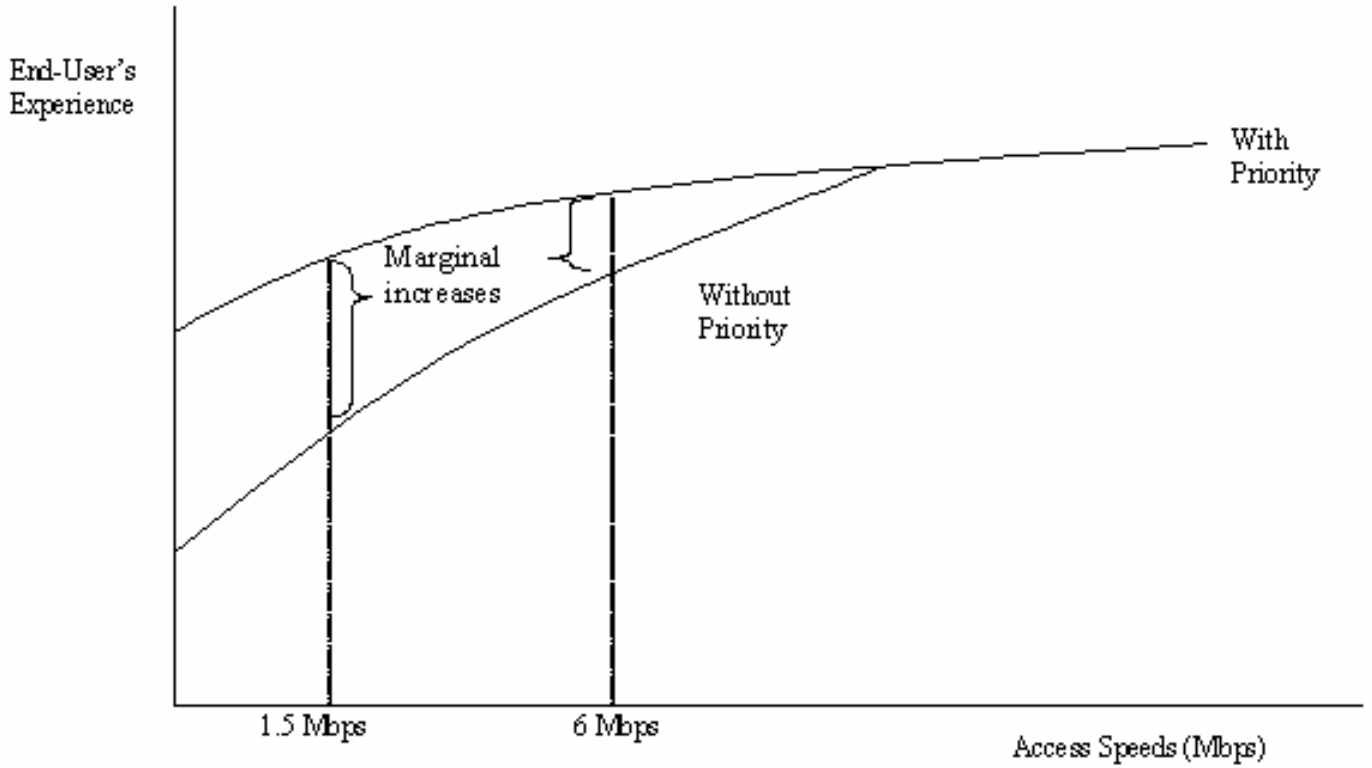
The Effect of Restricting A Network Operator from Charging Content Providers for Priority Delivery of Packets in a Market with Two-Sided Demand



Marginal utility of prioritization

- Access tiering implicates the marginal utility of bandwidth and the marginal utility of prioritization.
  - Both are positive
- The relevant question for the access-tiering debate: What is the marginal effect of greater bandwidth on the marginal utility of prioritization?
- Marginal effect on utility from greater quality of service (higher prioritization) decreases with faster connection speeds.
- Hence, Lessig's "scarcity over abundance" remark

Marginal Effect of Priority Delivery on End-User's Experience with Increasing Access Speeds



Demand for Priority Delivery With and Without Capacity Constraints

	Capacity Constraint	No Capacity Constraint
End User	Moderate incremental value	No incremental value
Content provider	High incremental value	Moderate incremental value

Other problems with banning access tiering

- Upstart content providers will be discouraged from developing real-time applications by virtue of the uncertainty in execution created by a ban on contracting with access providers.
- Contracting for priority delivery between end users and access providers will generate greater transactions costs.

Taking a leaf from the tobacco TV ad ban

- A law banning access tiering would be a law forbidding providers of Internet content and applications from using prioritization of packet delivery as a means to differentiate their products.
- When firms are constrained in their ability to compete through product differentiation, price becomes the principal, perhaps solitary, dimension over which competition can occur.
  - collusion is more stable among producers of a homogeneous product than producers of differentiated products

Third network neutrality goal: Ban vertical integration by network operators into content and applications

- Lessig: “Separating control over the use of the network from ownership of the wires that make up the network is a necessary step to restoring the growth and innovation of the original Internet.”
- Structural separation revisited

A ban would sacrifice the benefits of vertical integration

- Gains from economies of scope in access and content could be shared with end users
- Content revenue (from advertisers) could be used to subsidize the price of access
  - Not different from Google Wi-Fi project in Mountain View and proposed network in San Francisco

Why does Google favor a ban on vertical integration by network operators?

- A ban would benefit incumbent content providers' market power vis-à-vis advertisers
- By giving away their content to end users, incumbent portals have chosen to finance their operations entirely from advertising revenues
- Entry by cable modem and DSL providers threatens this model
- Same argument applies to wireless broadband that is partly paid for by advertisers

Preliminary advice to regulators

- Clearly state that consumer welfare takes precedence in the analysis
  - Define the relevant product markets completely: broadband access, Internet advertising, Internet content and applications, etc.
- Explain clearly the how innovation will weigh in the calculus
- Set grounds rules on a priori, empirical, and nonfalsifiable argumentation
- Recognize the risk of ex ante prohibitions