

# Keeping the Internet Neutral?: A Response to the Wu-Yoo Debate

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Professors Tim Wu and Christopher Yoo have provided great insights on network neutrality through their writings including the debate printed in Volume 59, No. 3 (June 2007) of the *Federal Communications Law Journal*. Their work has helped me find a middle ground in my written work on the subject,<sup>1</sup> including this short piece. Professor Yoo has persuaded me that many types of price and service quality discrimination, including what I term “better than best efforts routing” and exclusive access to content, supports network diversity and competition. Professor Wu has convinced me that the first and last mile access to the Internet has not become so robust that government can ignore access issues, including discrimination of bitstreams in the same way Enron employees manipulated electricity streams.

The crux of the network neutrality debate involves one’s assessment of how the Internet will continue to evolve. Already we have witnessed the quick migration of a network of networks managed by “Netheads” keen on promoting connectivity with little regard for the cost. During the Internet’s

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<sup>1</sup> Rob Frieden, Internet 3.0: Identifying Problems and Solutions to the Network Neutrality Debate (Feb. 2007) (unpublished article on file with the Social Science Research Network), available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=962181](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=962181); Rob Frieden, *Network Neutrality or Bias?--Handicapping the Odds for a Tiered and Branded Internet*, 29 HASTINGS COMM. & ENT. L.J. 171 (Winter, 2007).

formative years governments underwrote development with monetary grants and by serving as anchor tenants. Since 1995, with decommissioning of the National Science Foundation's backbone network,<sup>2</sup> the Internet has become increasingly commercialized with major telecommunications companies owning both the Tier-1 Internet Service Providers, which provide the Internet's super high capacity long haul backbone routes, and the links providing consumers with first and last mile access to the Internet cloud.<sup>3</sup> "Bellhead" managers of Internet networks conceptualize access and interconnection using a telecommunications template that can readily meter use and attribute responsibility for cost recovery. It makes perfect sense to former AT&T Chairman Ed Whitacre to expect payment from Google every time Google's traffic traverses AT&T networks<sup>4</sup> regardless of the peering agreements AT&T executed which requires it to offer free carriage of traffic in exchange for reciprocal carriage of traffic generated by AT&T's subscribers. Likewise it predictably grieves Mr. Whitacre and others to see any Network Neutrality initiatives that would prevent flexibility in recovering investment and profiting from infrastructure upgrades.

Mr. Whitacre and Professor Yoo need to appreciate that even lacking the dreaded common carrier telecommunications service provider status, Internet Service Providers cannot engaged in unlimited discrimination. Service proliferation and "network diversity" should not extend to tactics like that practiced by Enron employees. After the fact antitrust remedies do not fully compensate for the harm done to consumers and competitors when network managers—whether wheeling kilowatts or switching bitstreams—deliberately create bottlenecks, price squeezes, shortages and dropped traffic. Professor Wu has convinced me that network operators, particularly vertically integrated ones serving end users and operating major backbone networks upstream, can discriminate in many different, anticompetitive ways. The discrimination need not appear obvious as would occur with absolute blockage. Enron benefited by straining the grid

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<sup>2</sup> National Science Foundation, *Cyberinfrastructure: A Special Report, A Brief History of NSF and the Internet* (Jan. 11, 2005), [http://www.nsf.gov/news/special\\_reports/cyber/internet.jsp](http://www.nsf.gov/news/special_reports/cyber/internet.jsp).

<sup>3</sup> See Rob Frieden, *Revenge of the Bellheads: How the Netheads Lost Control of the Internet*, 26 TELECOMMS. POL'Y, 425, 438 (2002).

<sup>4</sup> At SBC, *It's All About "Scale and Scope,"* BUSINESSWEEK ONLINE EXTRA, Nov. 7, 2005, [http://www.businessweek.com/@n34h\\*IUQu7KtOwgA/magazine/content/05\\_45/b3958092.htm](http://www.businessweek.com/@n34h*IUQu7KtOwgA/magazine/content/05_45/b3958092.htm) ("Now what they would like to do is use my pipes free, but I ain't going to let them do that because we have spent this capital and we have to have a return on it. So there's going to have to be some mechanism for these people who use these pipes to pay for the portion they're using. Why should they be allowed to use my pipes? The Internet can't be free in that sense, because we and the cable companies have made an investment and for a Google or Yahoo! or Vonage or anybody to expect to use these pipes [for] free is nuts!").

thereby forcing intermediary carriers to drop off the network temporarily. ISPs could benefit by partitioning their networks so that the plain vanilla, public Internet all but guarantees dropped packets and degraded performance even in the absence of real congestion.

On the other hand, Professor Wu and Network Neutrality advocates need to appreciate that a one size fits all Internet no longer satisfies all user requirements. As a college basketball fan I am glad CBS freely made most of the March Madness tournament games available via the Web. Demand for these extremely valuable bits required CBS to pay for a superior traffic management arrangement, because plain vanilla, best efforts routing—even in the absence of deliberate packet discrimination—would not ensure a consistently reliable viewing experience. I do not begrudge ISPs from pricing service based on customer tiers from low volume users who do not tax any network all the up to the power users whose bursty broadband traffic may require costly network upgrades. I also have to agree with Professor Yoo that exclusive content access agreements help stimulate investment and entrepreneurship as evidenced by what America Online achieved with its “walled garden” of preferred content.

AOL offers a case study on how a venture lost its competitive advantage, but it also demonstrates how conditions have so changed that such a company might not become so quickly dislodged now. AOL operated in a competitive marketplace where content and conduit were divided, with many ISPs and content providers competing, but they used the telephone company’s dial up network to serve their subscribers. In today’s broadband access environment Professors Wu and Yoo disagree on the competitiveness of the marketplace and whether the emphasis should lie in the content layer, or lower down in the networks that links consumers with the Internet cloud.<sup>5</sup> I agree that at the content and software applications level, the Internet marketplace operates robustly without the need for government intervention. However at the lower network level, credible statistics,<sup>6</sup> without the positive spin the FCC chooses to use,<sup>7</sup> show

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<sup>5</sup> See generally Rob Frieden, *Adjusting the Horizontal and Vertical in Telecommunications Regulation: A Comparison of the Traditional and a New Layered Approach*, 55 FED. COMM. L.J. 207 (2003) (examining the various layers of technological functions involved in Internet access).

<sup>6</sup> Even the FCC’s statistics show DSL and cable modems sharing a 98% national market share. “Of the 64.6 million total high-speed lines, 44.1% were cable modem, 34.9% were ADSL, 1.5% were symmetric DSL (SDSL) or traditional wireline, 1.1% were fiber to the end user premises, and 18.4% used other technologies.” INDUS. ANALYSIS & TECH. DIV., FCC, HIGH-SPEED SERVICES FOR INTERNET ACCESS: STATUS AS OF JUNE 30, 2006 2 (Jan. 2007), *available at* <http://www.c-c-g.com/FCC%20High%20Speed%20Service%20Report%20063006.pdf>.

<sup>7</sup> “Of the 50.4 million lines which were faster than 200 kbps in *both* directions, 55.9% were cable modem, 36.3% were ADSL, 1.9% were SDSL or traditional wireline, 1.4% were fiber

limited facilities-based competition between relatively slow speed telephone company and higher speed cable television company offerings.<sup>8</sup> I do not see the cable/telco duopoly quickly dissolving in the near term. Broadband over electrical power lines remains a test and demonstration technology. Terrestrial and satellite wireless technologies currently offer lower speeds at twice the cost and accordingly do not offer real, cost-elastic alternatives. Until facilities-based competition at the first and last mile matches the robustness further upstream concerns about Network Neutrality remain real when price and service discrimination exceeds a reasonableness standard.

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to the end user premises, and 4.5% used other technologies.” *Id.* at 3. Of the 45.9 million lines serving residential subscribers, “cable modem represented 59.9% while 35.8% were ADSL, 0.2% were SDSL or traditional wireline, 1.0% were fiber to the end user premises, and 3.2% used other technologies.” *Id.*

<sup>7</sup> “The Commission’s data collection program requires providers to list the Zip Codes in which the provider has at least one high-speed connection in service to an end user.” *Id.* “No consideration is given to the price, speed or availability of connections across the ZIP code.” S. DEREK TURNER, BROADBAND REALITY CHECK: THE FCC IGNORES AMERICA’S DIGITAL DIVIDE 2 (Aug. 2005), [http://www.freepress.net/docs/broadband\\_report.pdf](http://www.freepress.net/docs/broadband_report.pdf).

<sup>8</sup> Despite technological superiority in many areas the U.S. lags in broadband market penetration. The Organization for Economic Cooperation and Development reports that the United States ranked 12<sup>th</sup> in broadband penetration as of June 2006. OECD, OECD Broadband Statistics to June 2006 [http://www.oecd.org/document/9/0,2340,en\\_2649\\_34225\\_37529673\\_1\\_1\\_1\\_1,00.html#Data2005](http://www.oecd.org/document/9/0,2340,en_2649_34225_37529673_1_1_1_1,00.html#Data2005) (last visited June 7, 2007). The International Telecommunication Union ranked the United States 15<sup>th</sup> in the world in terms of broadband penetration per 100 inhabitants as of 1 January 2006. International Telecommunication Union, Strategy and Policy Unit Newslog - ITU Broadband Statistics for 1 January 2006, <http://www.itu.int/osg/spu/newslog/ITU+Broadband+Statistics+For+1+January+2006.aspx>. (last visited June 7, 2007). The ITU’s broader benchmarking of the most important indicators for measuring a nation’s capability to promote information and communications technologies and the “Information Society” ranked the United States 21<sup>st</sup> in the world. International Telecommunication Union, Digital Opportunity Index 2005, <http://www.itu.int/osg/spu/statistics/DOI/index.phtml> (last visited June 7, 2007).