MAPPING DIGITAL MEDIA:
NET NEUTRALITY AND THE MEDIA

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OPEN SOCIETY FOUNDATIONS

Net Neutrality and the Media

WRITTEN BY

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Will the internet and telecom architecture be changed, in order to block or prioritize certain types of traffic? Much debate on media policy hinges on this, which is often called the "net neutrality" question. While it has reached intense levels, mainly in the United States, debate on net neutrality has more recently also drawn attention from regulators in Europe and elsewhere.

Although it may appear to be a narrow technical debate, in fact it has major implications for innovation, free speech and economic growth. The future of online media may well be determined by the outcome of this debate.

This paper introduces the net neutrality debate. It discusses the key network design principles involved; the current move toward discrimination or "access-tiering"; the arguments involved in the debate; the approaches suggested to secure network neutrality; and the current state of play in the US and Europe. Finally, it focuses on one sector that is likely to be particularly affected by the outcome of this debate: the media. The paper ends with a call for innovative solutions and increased engagement by public interest advocates to develop solutions that promote open, fair and sustainable societies.

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Mapping Digital Media

The values that underpin good journalism, the need of citizens for reliable and abundant information, and the importance of such information for a healthy society and a robust democracy: these are perennial, and provide compass-bearings for anyone trying to make sense of current changes across the media landscape.

The standards in the profession are in the process of being set. Most of the effects on journalism imposed by new technology are shaped in the most developed societies, but these changes are equally influencing the media in less developed societies.

The Media Program of the Open Society Foundations has seen how changes and continuity affect the media in different places, redefining the way they can operate sustainably while staying true to values of pluralism and diversity, transparency and accountability, editorial independence, freedom of expression and information, public service, and high professional standards.

The **Mapping Digital Media** project, which examines these changes in-depth, aims to build bridges between researchers and policy-makers, activists, academics and standard-setters across the world.

The project assesses, in the light of these values, the global opportunities and risks that are created for media by the following developments:

- the switchover from analog broadcasting to digital broadcasting
- growth of new media platforms as sources of news
- convergence of traditional broadcasting with telecommunications.

As part of this endeavour, Open Society Media Program has commissioned introductory papers on a range of issues, topics, policies and technologies that are important for understanding these processes. Each paper in the **Reference Series** is authored by a recognised expert, academic or experienced activist, and is written with as little jargon as the subject permits.

The reference series accompanies reports into the impact of digitization in 60 countries across the world. Produced by local researchers and partner organizations in each country, these reports examine how these changes affect the core democratic service that any media system should provide—news about political, economic and social affairs. Cumulatively, these reports will provide a much-needed resource on the democratic role of digital media.

The **Mapping Digital Media** project builds policy capacity in countries where this is less developed, encouraging stakeholders to participate and influence change. At the same time, this research creates a knowledge base, laying foundations for advocacy work, building capacity and enhancing debate.

The **Mapping Digital Media** is a project of the Open Society Media Program, in collaboration with the Open Society Information Program.

The views expressed in this publication do not represent, or necessarily reflect, the views of the Open Society Foundations.

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I. Introduction

Over the past 30 years, the internet has become a global network connecting billions of users around the world. It has fuelled tremendous innovation, generated new business practices and transformed many areas of society. A range of applications has increased users' opportunities to interact with each other, access new information, learn skills and participate in social, cultural and political discourse.

Recently, the internet's success has led to attempts to change its basic architecture and design principles. In particular, the rapid growth of data flow, a result of the exponential increase in users and applications, has encouraged efforts to block or prioritize certain types of traffic. These efforts, in turn, have led to an increasingly sharp debate over whether governments should step in to limit changes to network architecture.

This debate encompasses a variety of issues, interests and actors. It is often referred to as the "net neutrality" debate. While it has reached intense levels mainly in the United States, it has more recently also generated concern and attention from regulators in Europe and elsewhere. Although it appears to be a narrowly technical debate, in fact it has major implications for innovation, free speech and economic growth. The future of online media—and in particular whether media are dominated by a small set of conglomerates or a profusion of independent voices—may also be determined by the outcome of this debate.

This paper provides an introduction to the net neutrality debate. It discusses the network design principles involved; the current move toward discrimination or so-called access-tiering; the arguments involved in the debate; the approaches suggested to secure network neutrality; and the current state of play in the United States and Europe. Finally, it focuses on one sector that is likely to be particularly affected by the outcome: the media.

II. Net Neutrality as a Network Design Principle

At its core, *net neutrality* is a network design principle that argues for the need to have a "neutral" public network carrying every form of information and supporting every kind of application, without discrimination or preferential treatment. It therefore argues for the internet's most basic design principle, known as the "end-to-end" principle, which has been latent in system design for many years but was first articulated in the 1980s.[2] According to Jerome Saltzer, the end-to-end argument says: "Don't force any service, feature, or restriction on the customer; his application knows best what features it needs, and whether or not to provide those features itself."[3]

In practice, this means, as David Isenberg argues, that the internet was originally designed as a "dumb" network.[4] The network's key function is to pass packets of data via "pipes", "routers" and "nodes" until they reach their destination. The pipes, routers and nodes do not query where the packets comes from, where they go or what they contain; they simply receive them, determine their destination address and pass them on to the next node.

The network itself is not designed with any particular application in mind. In this sense, it is like the electricity grid, which has been called a model of a neutral, innovation-driving network: "The electric grid does not care if you plug in a toaster, an iron, or a computer. Consequently it has survived and supported giant waves of innovation in the appliance market. The electric grid worked for the radios of the 1930s and works for the flat screen TVs of the 2000s."[5] In a neutral network, intelligence is incorporated in the applications at its "edges" or "ends".

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2. Jerome H. Saltzer, David P. Reed, and David D. Clark, *End-to-End Arguments in System Design.* (Second International Conference on Distributed Computing Systems, April 1981), 509–512.

3. Jerome H. Saltzer, *"Open Access" is Just the Tip of the Iceberg* (22 October 1999). Available at http://web.mit.edu/Saltzer/www/publications/openaccess.html.

4. David Isenberg, *Rise of the Stupid Network* (Computer Telephony, August 1997), 16–26. Available at http://www.hyperorg.com/misc/stupidnet.html.

5. Tim Wu, *Network Neutrality, Broadband Discrimination* (Journal of Telecommunications and High Technology Law, Vol. 2, 2003, 141). Available at http://timwu.org/network_neutrality.html.

In theory, then, the internet was designed to treat all packets equally—sometimes called the "bit parity" principle—or at least on a "best efforts" basis. In truth, however, the perception that the current internet is "neutral" is seriously flawed. Different network services and applications often operate at different speeds, depending on what network users are prepared to invest in their own infrastructure. Several strategies have actually been used over the years to "prioritize" select data over other network traffic. For example, contractual arrangements between service providers and carriers often include guarantees of enhanced IP transit service.[6]

Although such interventions appear to violate the net neutrality principle, it is important to realize that they are user-led and happen at the edges of the network. The real concern of net neutrality proponents lies with the potential for network operators to discriminate in the "middle" of the network through "access tiering". The net neutrality debate is therefore often labeled as a fight between the edges and the middle, or the users and the operators, over control of the network.

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6.   Similarly, the emergence of content-delivery networks like Akamai, which reportedly serves 15 per cent of the world's internet traffic, is another innovation that makes the internet less neutral. Akamai minimizes delay in accessing content by purchasing bandwidth from local access providers and caching content at thousands of locations throughout the internet to ensure the shortest and least-congested routing of the request.

III. Discrimination and "Access Tiering"

The net neutrality debate grew out of concerns in the late 1990s that the vertical integration of cable firms with ISPs would threaten the end-to-end design of the internet.[7] Critics argued that if cable operators were allowed to bundle ISP services with cable services, cable operators would be in a position to destroy the neutrality of the network by favoring their own internet applications. In recent years, various routers have in fact been introduced that enable network operators to inspect data and subsequently prioritize or de-prioritize packets in a tiered fashion at the middle of the network. This process is known as "access-tiering", or discrimination, and it takes different forms:[8]

- **"Needs-based discrimination"** takes place when there is network congestion. Typically, when there is congestion, data packets are buffered in the router's memory, waiting to be released as soon as the outgoing link is free. However, when the router runs out of buffer memory a filter will kick in and prioritize or reorder certain packets (e.g., time-sensitive packages will be moved to the front of the queue). The criteria used to determine whether to reorder or prioritize packages may differ among carriers, and can include pure engineering necessity or clear preferential treatment.

- **"Active discrimination"** takes place when carriers inspect all data packages and reorder them according to pre-defined criteria, even when the network is not particularly congested.

- **"Blocking"** is the most severe form of access-tiering and occurs when carriers discard data traffic from a particular source. As opposed to needs-based and active discrimination, where data packages eventually get delivered, blocking stops the data package from reaching the intended recipient.

Whenever access-tiering occurs, users experience a difference in network performance. However, diminished (or improved) performance may also result from technical issues, and it is often difficult to distinguish the

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7.   See, e.g., Mark A. Lemley and Lawrence Lessig, *The End of End-to-End: Preserving the Architecture of the Internet in the Broadband Era* (UC Berkeley Law & Econ Research Paper No. 2000–19; Stanford Law Economics Olin Working Paper No. 207; UC Berkeley Public Law Research Paper No. 37, October 2000).

8.   Paul Ganley and Ben Allgrove, *Net Neutrality: A User's Guide* (Computer Law & Security Report, Volume 22, Issue 6, 2006), 454–463.

underlying cause.[9] This lack of transparency is therefore often listed as a complementary concern among net neutrality advocates, and is likely to grow in importance as networks become more differentiated and adopt increasingly varied usage policies.[10]

These three forms of access-tiering can also be implemented in a variety of ways. For instance:

- **Service provider discrimination** happens when an operator enters into an agreement with a service provider, such as a search engine, to favor its content over its competitors'.

- **Application discrimination** takes place when carriers inspect all data packages and reorder them according to pre-defined criteria, even when the network is not particularly congested.

- **Service provider and application discrimination** can also take place simultaneously, especially when operators have a vested interest in certain applications or content for which they may be the providers (for example, Voice-over-IP services). Such vested interests are a clear illustration of the dangers posed by the vertical integration of operators and providers.

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9. Edward W. Felten, *Nuts and Bolts of Network Neutrality* (Center for Information Technology Policy and Woodrow Wilson School of Public and International Affairs, Princeton University, 6 July, 2006). Available at http://itpolicy.princeton.edu/pub/neutrality.pdf.

10. Robert D. Atkinson and Philip J. Weiser, *A Third Way on Network Neutrality* (The New Atlantis, 2006), 47–60. Available at http://www.thene-watlantis.com/publications/a-third-way-on-network-neutrality.

IV. The Key Arguments in the
Net Neutrality Debate

Troubled by "access-tiering" and its impact on the end-to-end design principle, various actors (mainly content and service providers, joined by hundreds of individuals, non-profit groups and businesses) have embraced network neutrality and have called for intervention to guarantee that carriers treat all packages equally, without prioritization or blocking.

Counter-arguments have been made by network providers, as well as by law enforcement agencies (which seek, for instance, expanded capabilities to inspect data packages for surveillance purposes). The arguments used for and against network neutrality are as diverse as the actors involved, but can broadly be summarized as follows:

1.   Incentives to Upgrade Network Infrastructure

A key argument made by carriers and operators is that network neutrality would have a chilling effect on their financial incentive to invest in upgrading network infrastructure. This could limit the network's ability to accommodate increased internet usage and bandwidth-heavy applications such as streaming video and gaming.[11] As such, operators argue, network neutrality threatens promising future benefits to end users.

Network owners also point out that they incur the full cost of network improvements while some big service providers, such as search engines and portals, benefit economically from these improvements without making any contribution of their own—effectively enjoying a "free lunch." Accordingly, network operators are demanding a pricing scheme where, in addition to the basic charge for the service of transmitting bits,

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11.   Jay Pil Choi and Byung-Cheol Kim, *Net Neutrality and Investment Incentives* (NET Institute Working Paper No. 08–03, 2008). Available at http://ssrn.com/abstract=1285639.

they would be allowed to charge some service providers—such as Google, Yahoo or MSN—more for services applied to them. To implement such a business model, they need to be able to determine the nature of a packet (including its use and the identity of its sender or recipient) and effectively practice a certain degree of network discrimination.

Net neutrality advocates counter these arguments by pointing out that content and service providers have been financially supporting network enhancements through subscription and bandwidth charges for years, and will continue to do so in the future. In addition, allowing price discrimination based on access-tiering would in effect permit network operators to claim a share of the value of work created by others, similar to a situation in which Microsoft would claim royalties from the sale of documents created in Word.[12]

The Institute for Policy Integrity has also warned that price discrimination would harm the overall internet economy. It argues that such discrimination would "reduce the return on investment for internet content—meaning that website owners, bloggers, newspapers, and businesses would have less incentive to expand their sites and applications…Start-ups might not actually start up because it costs too much or the profits aren't worth the investment. If too many sites decide it's just not worth the price of entry, the internet loses value to the people who use it."[13]

2. Innovation and Competition

A central argument in favor of network neutrality involves the strong belief that any form of control or discrimination has the potential to hamper net innovation and competition. Larry Lessig and Mark Lemley point out that the end-to-end design principle

> expands the competitive horizon, by enabling a wider variety of applications to connect and use the network. It maximizes the number of entities that can compete for the use and applications of the network. As there is no single strategic actor who can tilt the competitive environment (the network) in favor of itself, or no hierarchical entity that can favor some applications over others, an e2e network creates a maximally competitive environment for innovation, which by design assures competitors that they will not confront strategic network behavior. The e2e design of the Internet has facilitated innovation.[14]

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12. This is argued by Susan P. Crawford, *Network Rules* (Cardozo Legal Studies Research Paper No. 159, June 14, 2006). Available at http://ssrn.com/abstract=885583.

13. Inimai M. Chettiar and J. Scott Holladay, *Free to Invest: The Economic Benefits of Preserving Net Neutrality* (Intsitute for Policy Integrity, New York University School of Law Report No. 4, January 2010). Available at http://policyintegrity.org/documents/Free_to_Invest.pdf.

14. Mark A. Lemley and Lawrence Lessig, *The End of End-to-End: Preserving the Architecture of the Internet in the Broadband Era* (UC Berkeley Law & Econ Research Paper No. 2000–19; Stanford Law & Economics Olin Working Paper No. 207; UC Berkeley Public Law Research Paper No. 37, October 2000). Available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=247737.

Others have countered such arguments with similar appeals to the importance of innovation and flexibility. For example, David Farber, an internet pioneer and opponent of network neutrality, has argued that giving telecom companies the freedom to experiment, unrestricted by net neutrality policies, could encourage unanticipated innovations on their part, which might benefit other stakeholders.[15]

3.   User Participation, Innovation and Freedom of Expression

Net neutrality advocates also make a public interest argument in favor of their cause. They suggest that an "open and fair" network enables a broad section of the population to participate in cultural production, and is reflected in the wide variety of user-generated content and applications available today. Net neutrality policies are therefore important for empowering users, and more generally for fostering the tremendous creativity and innovation that have marked the development of the internet.

In a related argument, proponents of net neutrality argue that it is essential in order to prevent telecom companies from restricting access to blogs, wikis, and independent podcasts. As such, net neutrality is tied to notions of free speech, individual autonomy and democratic participation.[16] Neelie Kroes, the European Commissioner for Digital Agenda, has for example explicitly linked the issue of net neutrality to the preservation of "freedom of expression", and expressed concern that ISP discrimination could limit this fundamental citizen right.[17]

Others have even suggested that net neutrality policies benefit public education, health, and safety because they ensure that everyone has equal access to the variety of health and education-related content on the internet.[18]

To counter these public interest arguments, opponents complain that the limitations placed on operators' private property interests for the sake of a "public space" or "commons" could eventually prove too burdensome to be commercially viable. Some believe that without the ability to adapt and develop business models that include a certain level of discrimination, service providers (especially those in the wireless arena) could become unprofitable.

In response, net neutrality advocates point to the long established concept of "common carrier," which dates from 16th-century English common law. This concept, which establishes the importance of private entities that perform certain public functions, has been applied in a variety of sectors, including telecoms, where infrastructure owners have flourished despite their public interest duties and comprehensive regulation.

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15. Larry Abramson, *Net Neutrality: What's at Stake?* (NPR, 24 July 2006). Available at http://www.npr.org/templates/story/story.php?storyId=5578594.

16. Yochai Benkler, *The Wealth of Networks: How Social Production Transforms Markets and Freedom, New Haven and London* (Yale University Press, 2006).

17. See, e.g., http://www.theregister.co.uk/2010/04/15/kroes_net_neutrality/.

18. Mark Lloyd, Net Neutrality (or Back to the Future (Center for American Progress, 26 February 2006). Available at http://www.americanprogress.org/issues/2006/02/b1432287.html.

4.   Security and Net Neutrality

The growing concern over malicious actors, hackers and cyber attacks also complicates the debate over net neutrality. Cybersecurity proponents and net neutrality advocates often find themselves on opposite sides, in particular when it comes to emerging technologies that allow for ever-greater examination of internet traffic.

Cybersecurity proponents point out that packet inspection and similar technologies can serve as powerful tools for preventing viruses, denial of service attacks and other malicious activity, thereby creating a more reliable and resilient internet. For example, the US government is already installing a full packet inspection and real-time response capability across all federal agencies to protect federal networks from attack.[19] Likewise, government officials are considering ways of extending this technology to critical private sector networks, such as those in the finance, utility and communications industries.[20] Many private companies already have similar technologies in place.

While governments are for now utilizing these technologies on a limited basis, plans for broader application remain unclear—and, to some proponents of net neutrality, worrisome. However, in the United States, network providers are already required to design their technology to enable domestic law enforcement agencies' efforts to monitor and intercept traffic for criminal investigations.[21] In the United Kingdom, by law, government agencies may contract only with network operators that agree to block ISPs identified as trafficking in child pornography, a process facilitated by deep packet inspection.[22] Ironically, the tools embraced by network operators to discriminate among packets could actually create unforeseen burdens for them, in the form of regulation or increased liability and concomitant compliance costs.

It is important to point out, however, that governments have also on many occasions proven defenders of the network neutrality principle, which they see as vital to promoting freedom of expression and political rights in despotic nations. For instance, the Defense Advanced Research Projects Agency (DARPA) recently began looking in the US for new technology to circumvent deep packet inspection blocklists, which are often used to block content by regimes seeking to suppress dissent.[23] On a tactical level, such lists can also undermine the integrity of military communications in the field.

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19.   National Security Council, *The Comprehensive National Cyber Security Initiative,* (Washington, D.C., March 2010). Available at http://www. whitehouse.gov/cybersecurity/comprehensive-national-cybersecurity-initiative.

20.   Kim Zetter, *Pentagon: Let Us Secure Your Network or Face the 'Wild Wild West' Internet Alone* (Wired Magazine: Threat Level Blog. 27 May 2010). Available at http://www.wired.com/threatlevel/2010/05/einstein-on-private-networks/.

21.   In 1994, the U.S. Congress passed the Communications Assistance for Law Enforcement Act (CALEA), which required telecommunications carriers and creators of telecommunications equipment to modify and design their equipment to enable government surveillance. In 2004, the Federal Communications Commission, under its rule-making authority, expanded the scope of CALEA to include broadband Internet access providers and managed VoIP providers. Electronic Frontier Foundation. CALEA: *The Perils of Wiretapping the Internet* (Electronic Freedom Foundation). Available at http://www.eff.org/issues/calea.

22.   Sean O'Neill, "Government ban on internet firms that do not block child sex sites," *The Times*, 10 March 2010. Available at http://technology. timesonline.co.uk/tol/news/tech_and_web/the_web/article7055882.ece.

23.   Defense Advanced Research Projects Agency, *Safer Warfighter Communications*—Broadband Agency Announcement (DARPA, 20 May 2010). Available at http://www.darpa.mil/tcto/docs/DARPA_SAFER_BAA-10-69.pdf.

V. Approaches to Secure Net Neutrality

The most discussed approach by net neutrality advocates involves government regulation to protect consumers from abusive behavior like blocking, discrimination, lack of transparency, and degradation of services. Opponents of regulation emphasize the difficulty of drafting and enforcing anti-discrimination rules, let alone defining what is meant by "neutral". They also see a danger in heavy-handed regulation of the internet ecosystem, arguing that it could lead to major job losses and other unforeseeable consequences.[24] Regulatory supporters, on the other hand, claim that regulation is essential now because it will become even more difficult and potentially more expensive to regulate once a position or business model has been locked in.

Many alternative or complimentary approaches to government regulation have also been made. They include increased industry self-regulation and alternative dispute resolution mechanisms to cope with discrimination complaints; reliance on community policing and expert third-party oversight;[25] voluntary transparency mechanisms and the use of encryption or new technical designs that prevent a network operator from harming an application or competing service.[26] Finally, others have suggested that existing legal regimes should be applied more rigorously to protect consumers against illegal abuses of market power.[27]

24. Charles M. Davidson and Bret T. Swanson, *Net Neutrality, Investment & Jobs: Assessing the Potential Impacts of the FCC's Proposed Net Neutrality Rules on the Broadband Ecosystem* (The Advanced Communications Law & Policy Institute, New York Law School, June 2010). Available at http://www.nyls.edu/user_files/1/3/4/30/83/Davidson%20&%20Swanson%20-%20NN%20Economic%20Impact%20Paper%20-%20 FINAL.pdf.

25. Adam Thierer and Mike Wendy, *The Constructive Alternative to Net Neutrality Regulation and Title II Reclassification* (The Progress & Freedom Foundation, May 2010). Available at http://www.pff.org/issues-pubs/pops/2010/pop17.9-constructive_alternative.pdf.

26. Xiaowei Yang, Gene Tsudik, and Xin Liu, *A Technical Approach to Net Neutrality* (University of California). Available at http://www.ics.uci.edu/~gts/paps/ylt06.pdf.

27. J. Gregory Sidak, *A Consumer-Welfare Approach to Network Neutrality Regulation of the Internet* (Journal of Competition Law & Economics, Vol. 2, No. 3, September 2006), 349–474. Available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=928582.

VI. State of Play in the United States and Europe

United States

As indicated above, the net neutrality debate has mainly raged in the United States. Despite years of discussion and a variety of proposals, regulation or legislation has yet to be enacted in the US. Instead, there has been much wrangling over whether or not the Federal Communications Commission (FCC) has the legal authority to regulate net neutrality.

In 2005, seeking to find a way to ensure that "the various capabilities of [broadband] technologies are not used in a way that could stunt the growth of the economy, innovation and consumer empowerment",[28] the FCC issued a non-binding Policy Statement embracing four principles that entitled consumers to:[29]

- access lawful internet content of their choice;

- run applications and use services of their choice, subject to the law;

- connect to their choice of legal devices that do not harm the network;

- benefit from competition among network, application, service, and content providers.

In 2008, the FCC censured Comcast for, according to the FCC, unreasonably managing peer-to-peer traffic in a discriminatory manner. Comcast immediately appealed this decision, arguing that the FCC lacked the authority to enforce a non-binding policy statement. In 2009, with an appeal of this ruling pending in federal court, the FCC initiated a rulemaking push to adopt network neutrality rules in order to "provide greater clarity regarding the Commission's approach to these issues." In particular, the FCC sought to codify

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28. Michael K. Powell, "Preserving Internet Freedom: Guiding Principles for the Industry" (remarks at the Silicon Flatirons Symposium on "The Digital Broadband Migration: Toward a Regulatory Regime for the Internet Age," University of Colorado School of Law, Boulder, Colorado, 8 February 2004). Available at http://www.lessig.org/blog/archives/flatiron-FIN.pdf .

29. Appropriate Framework for Broadband Access to the Internet over Wireline Facilities, Policy Statement, 20 F.C.C.R. 14986 (2005) (*"FCC Policy Statement—2005"*).

the original four principles included in the 2005 Policy Statement and proposed adopting two additional principles—one regarding nondiscrimination and the other regarding transparency of broadband service providers.

On 6 April 2010, a U.S. Court of Appeals for the District of Columbia Circuit ruled in Comcast's favor, stating that the FCC "has failed to tie its assertion" of regulatory authority to any actual law enacted by Congress. This ruling severely limits the FCC's ability to regulate net neutrality, and in order to gain more authority, the FCC opened a consultation in June 2010 around a so-called "third way", which would basically reclassify broadband services so that some common carrier rules required of telecom services would apply to them.

After months of drafting a new set of guidelines seeking to limit the power of internet providers, the FCC abandoned such a "third way" approach at the end of 2010. On 23 December 2010, it issued the so-called "Open Internet Order" which called for three significant compliance requirements from network providers:

- "transparency": requiring the providers to "disclose accurate information regarding the network management practices, performance, and commercial terms of its broadband Internet access services" for the benefit of the consumers and content providers

- "no blocking": prohibiting the providers from restricting access to "lawful content, applications, services, or non-harmful devices, subject to reasonable network management"

- "no unreasonable discrimination": the providers are not allowed to discriminate in transmitting lawful traffic except to reasonably manage the network.

Although the FCC net neutrality rules will not take legal effect until autumn 2011, due to the requirements set by Paperwork Reduction Act, the "Open Internet Order" has already faced numerous challenges—both from the network providers and from Congress. In January 2011, Verizon and MetroPCS appealed the order in D.C. Circuit Court. The appellants wanted the case to be assigned to the same panel that heard and decided the Comcast case, rejecting the FCC's authority. This motion was denied, followed by the FCC's now pending motion to dismiss the appeal as premature.

Meanwhile, Congress republicans introduced two bills to invalidate the FCC's Order. One of the bills passed the House on party lines, but failed to pass the Democratically controlled Senate. In response to the Republican opposition, senator Maria Cantwell (D-WA) introduced the FCC favorable bill—the Internet Freedom, Broadband Promotion, and Consumer Protection Act of 2011 (S. 74)—"to ensure the broadband Internet continues to serve as a source of innovation, free speech and job growth." This bill was referred to the Committee on Commerce, Science, and Transportation, but has not been reported yet.

Europe

More recently, net neutrality has also been added to the political and regulatory agenda within the European Union. In the past, many in Europe, observing the net neutrality debate unfolding in the US, seemed to believe it was irrelevant in Europe given the different regulatory regimes in place and the flourishing competition among network operators. However, the need to revise the European regulatory framework to encourage investment in broadband and all IP-networks has led to greater attention to net neutrality and its consequences for investment, innovation and competition within the European Union.

After the European Commission adopted a "light-touch" approach to the issue at the end of 2007, the European Parliament started to consider possible moves towards more pro-neutrality rules. As one of the prerequisites for the successful conclusion of the 2009 EU telecoms reform package, the Commission gave a commitment to scrutinize closely the open and neutral nature of the internet and to report on the state of play to the European Parliament and the Council of Ministers. Subsequently, in April 2010, Neelie Kroes, European Commissioner for the Digital Agenda, announced her intention to conduct a consultation regarding whether the goal of net neutrality required additional regulation.[30] She also provided her own principles for considering the issues:

- freedom of expression is fundamental

- transparency is non-negotiable

- investment in efficient and open network is needed

- fair competition and support for innovation is also essential.

The consultation document, in the form of a questionnaire, was released on 30 June 2010.[31] The Body of European Regulators for Electronic Communications (BEREC), the collection of national regulators, has now also considered the issues that fall within the scope of the revised framework, with a view to providing input to the European Commission's work. In its response to the Commission's public consultation,[32] BEREC noted that the incidents of blocking or throttling by European internet providers to date are relevant but "may not necessarily represent breaches of network neutrality"; moreover, many were finally resolved "without any formal proceedings", and the incidents "have not led to a significant number of investigations by National Regulatory Authorities (NRAs)." According to BEREC, there appear to be few if any documented, clearly problematic incidents of thwarting net neutrality in Europe, and no demonstrated, sustained pattern of systematic and abusive discrimination.

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30. Neelie Kroes, "Net neutrality in Europe" (presented at the ARCEP Conference, L'Autorité de Régulation des Communications Electroniques et des Postes, Paris, 13 April 2010). Available at http://europa.eu/rapid/pressReleasesAction.do?reference=SPEECH/10/153.

31. European Commission, "Questionnaire for the Public Consultation on the Open Internet and Net Neutrality in Europe." (Information Society and Media Directorate-General, 30 June 2010). Available at http://ec.europa.eu/information_society/policy/ecomm/doc/library/public_consult/net_neutrality/nn_questionnaire.pdf .

32. BEREC, *Response to the Consultation on the Open Internet and Net Neutrality in Europe*. (The Body of European Regulators for Electronic Communications, 4 October 2010). Available at http://ec.europa.eu/information_society/policy/ecomm/doc/library/public_consult/net_neutrality/comments/04eu_national_regional_ministries_authorities_incl_berec/berec_x.pdf.

On 19 April 2011, the Commission issued a communication in which it indicated that it would wait until the end of the year to see if BEREC identifies any significant problems in regard to network neutrality.[33] Until then, it would be premature to propose any definitive regulatory framework for Member States in support of net neutrality. However, in a press release that followed the communication, Commissioner Neelie Kroes stated that she would "not hesitate to come up with more stringent measures" for regulating net neutrality, "which may take the form of guidance or even general legislative measures."[34] She added that "[i]f this proves to be insufficient, I am ready to prohibit the blocking of lawful services or applications."

EU member states, such as the UK, France and Sweden, held their own consultations. Ofcom (UK) released a discussion document entitled "Traffic Management and Net Neutrality,"[35] and held its consultation from June to September 2010. The consultation generated a great number of responses from actors in the communication sector, but the official findings have not yet been released.

In September 2010, the French Regulatory Authority for Electronic Communications and Postal Services (*Autorité de Régulation des Communications Electroniques et des Postes,* ARCEP) published a series of ten proposals on network neutrality.[36] The proposals were the result of 50 hearings held by ARCEP over the previous year. ARCEP stated that its approach was one of prevention, avoiding threats to network neutrality before they arise.

Finally, the Netherlands is on the verge of becoming the first European state to successfully enact net neutrality legislation.[37] Although the Dutch parliament twice delayed the final vote by the Senate (the vote was scheduled to take place on 14 June and 21 June 2011, and would be the last step in enacting the legislation), the bill is expected to pass into law without any hurdles. The new law would force mobile

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33. European Commission, *The Open Internet and Net Neutrality in Europe*. Communication from the Commission to the European Parliament, (The Council, The Economic and Social Committee and the Committee of the Regions, 19 April 2011). Available at http://ec.europa.eu/information_society/policy/ecomm/doc/library/communications_reports/netneutrality/comm-19042011.pdf.

34. Digital Agenda: Commission Underlines Commitment to Ensure Open Internet Principles Applied in Practice (Europa.eu, European Commission, 19 April 2011). Available at http://europa.eu/rapid/pressReleasesAction.do?reference=IP/11/486.

35. Office of Communications, T*raffic Management and 'Net Neutrality'—A Discussion Document* (Ofcom, 24 June 2010). Available at http://www.ofcom.org.uk/consult/condocs/net-neutrality/summary/.

36. They include:
    – Freedom and quality of internet access
    – Non-discrimination between internet data streams
    – A framework to govern traffic management practice
    – Managed services
    – Increased transparency with respect to end users
    – Monitoring traffic management practices
    – Monitoring the quality of the internet access service
    – Monitoring the data interconnection market
    – Taking account of the ISP's role in internet neutrality
    – Increasing the neutrality of device

    See: Autorité de Régulation des Communications Electroniques et des Postes, Internet and network neutrality: Proposals and recommendations (ARCEP, September 2010). Available at http://www.arcep.fr/uploads/tx_gspublication/net-neutralite-orientations-sept2010-eng.pdf.

37. *Dutch Parliament Voting on Mobile 'Net Neutrality'* (Associated Press, 22 June 2011). Available at http://www.forbes.com/feeds/ap/2011/06/22/technology-eu-netherlands-net-neutrality_8528675.html.

internet providers to refrain from discriminating against application and content providers and from giving preference to their own content.

The Dutch legislation is not unprecedented, however. On 15 July 2010, the Chilean Congress passed several amendments to the General Telecommunications Law, making Chile the first country in the world to mandate network neutrality in law.[38] One of the amendments—Bulletin 4915—specifically states that ISPs must "ensure access to all types of content, services or applications available on the network and offer a service that does not distinguish content, applications or services, based on the source of it or their property."[39]

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38. Rahul Gaitonde, *Chile Legally Mandates Network Neutrality and Increased Transparency for ISPs* (Broadband Breakfast, 15 July 2010). Available at http://broadbandbreakfast.com/2010/07/chile-legally-mandates-network-neutrality-and-increased-transparency-for-isps/.

39. *Chile Becomes First Country to Guarantee Net Neutrality, We Start Thinking about Moving* (CrunchDot, 15 June 2010). Available at http://www.crunchdot.com/chile-becomes-first-country-to-guarantee-net-neutrality-we-start-thinking-about-moving/.

VII. Net Neutrality and the Media

As discussed above, the net neutrality debate involves a host of contentious issues, and is likely to have broad implications for a range of industries and aspects of everyday life. Perhaps no industry will be so directly affected as the media industry. Indeed, the end of net neutrality will have huge consequences for the consumption of content as we know it today. The precise nature of these consequences is not yet clear. There are various possible outcomes, some negative and some in fact positive. Briefly, however, we can say that the outcome of the net neutrality debate is likely to affect at least the following aspects of the media sector.

Freedom of Expression and Access to Content

In today's "net neutral" environment, an individual blog, small business site, or independent media outlet has the same access to the internet (and citizens) as major news outlets and media sites like AOL or CNN. This equal opportunity to share and communicate is a core value of the internet, and many believe it is responsible for the explosion of information that has taken place over the last few decades.

Proponents of net neutrality worry that the advent of access-tiering or other similar schemes could limit this free flow of information, and thus undermine what is widely agreed to be one of the main contributions of the internet. Free Press, a media reform organization based in the United States, argues that "When companies choose to pay for not just access to the Internet, but for the right to give their content priority over their competitors, it tilts the playing field online against entrepreneurs and consumers, and towards the companies that can afford to buy market power."[40]

Public Knowledge, a U.S. non-profit organization focused on digital rights, also opposes access-tiering for similar reasons: "We don't object to the telephone and cable companies making money, but the additional revenue should not come at the expense of the principle of an open Internet which allowed today's Internet to develop as it has in an 'innovation without permission' environment."[41]

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40.   S. Derek Turner, "Just say no to fake Neutrality," CNET, 26 July 2010. Available at http://news.cnet.com/8301-13578_3-20011565-38.html.

41.   Public Knowledge, "Net Neutrality," *Public Knowledge*, 26 July 2010. Available at http://www.publicknowledge.org/issues/network-neutrality.

Other—mainly US-based—groups, such as the Center for Media Justice, argue that net neutrality is critical for communities of color and other historically marginalized groups: "With lower barriers to entry, the Internet can create a platform where these groups can speak for themselves and on behalf of their communities, to wider audiences. Neutral networks grant equal opportunity to every idea and can help ensure that communities of color do not experience the same lack of representation they have in other media platforms."[42] An access-tiered system, however, could significantly undermine accessible public forums for these populations.

In sum, proponents of net neutrality share the concern that, if ISPs are allowed to tier access, it could result in large news companies having faster sites and being able to display richer, more varied multimedia content than smaller, often independent, organizations or individuals. The internet could in effect find itself with a "fast lane" for rich and powerful content creators, and a "slow lane" for less powerful creators.

Such a "multi-lane" internet could have major implications for freedom of expression and its concomitant value, freedom to access different forms of expression. Indeed, access-tiering has the potential to shut out content from smaller players, particularly if they are producing or hosting high bandwidth products such as video or interactive services (e.g., VOIP). In an extreme case of such "architectural censorship",[43] ISPs could even block particular web sites or content providers completely, with potentially devastating consequences for freedom of expression.

Anti-competitive Behavior

Access-tiering could also change the competitive landscape of the media industry in a variety of ways. Chief among these is the possibility that ISPs might seek to favor content produced by their own company and limit the content produced by competitors. In addition, ISPs could seek to leverage their gatekeeper position by selling favorable access on the network to certain players, thus also affecting existing market arrangements.

It is important to point out, however, that some proponents of access-tiering believe the practice would have only a limited effect on competition.[44] They argue that anti-competitive behavior could only affect the flow of information in the rare cases where an ISP enjoys such a degree of market dominance that customers are effectively precluded from switching providers, or when an ISP is itself a content provider with an interest in privileging its own content. They suggest that the relative rarity of such situations (which can be regulated separately, under existing anti-monopoly laws) should not be used as a reason to prevent access-tiering.[45]

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42. Center for Media Justice, "Network Neutrality, Universal Broadband and Racial Justice," Center for Media Justice, 26 July 2010. Available at http://centerformediajustice.org/wp-content/files/BroadbandNet_Neutrality.pdf.

43. Yoo, Christopher S. "Architectural Censorship and the FCC". *South California Law Review*, Vol. 78, No. 3 (2005), 669–731.

44. Wu, Tim and Yoo, Christopher S., "Keeping the Internet Neutral?: Tim Wu and Christopher Yoo Debate." *Federal Communications Law Journal,* Vol. 59, No. 3 (2007), 576. Available at http://ssrn.com/abstract=953989. (Yoo, who opposes net neutrality regulations, states: "Deviation from network neutrality may represent nothing more than network owners' attempts to satisfy the increasingly intense and heterogeneous demands imposed by end-users.")

45. Wu and Yoo 2007, 579.

Innovation in Services

Some proponents of access-tiering argue that it could help to foster greater innovation in the media industry and spur the development of new products and services.[46] For example, many media companies are currently considering or already implementing high-bandwidth applications (e.g., the BBC's iPlayer), but the spread of these applications is limited by the limited capacity of ISP networks. Allowing access-tiering could be one way to for ISPs to raise capital and make the necessary upgrades to their networks. In addition, access-tiering would allow ISPs to give preference to such services on their existing networks, thereby ensuring the viability of new services and the satisfaction of subscribers who might otherwise get frustrated by network congestion.[47] Likewise, supporters also note how network management and deep packet inspection, in addition to offering subscribers heightened security, could enable more effective parental controls, which is increasingly important as the Web takes over as the main source of media.[48]

These are just some of the most important ways in which access-tiering and other forms of content discrimination could affect the media landscape. There exist, no doubt, many others that remain unpredictable for now. But although the precise consequences remain unclear, the end of net neutrality would no doubt mark a fundamentally "disruptive" moment for the media sector, ushering in a new technological and competitive era. It would, in effect, change the way our society collects and shares information.

At the very least, and especially given the extent to which media are at the heart of an open and free society, the radical nature of change suggests that great care should be paid before any further steps are taken toward dismantling this core technological principle of the network.

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46. Christopher Yoo, Professor of Law, Communication, and Computer & Information Science at Pennsylvania University Law School, and proponent of competition, argues that "imposing network neutrality threatens to reduce investment in new last-mile technologies." He notes that in the aftermath of Supreme Court's *Brand X* decision, which "made clear that content and applications providers could no longer count on regulation to guarantee access to cable modem and DSL systems", companies such as Google, Intel, Microsoft and Earthlink invested heavily in wireless broadband and broadband over powerline to ensure that they could reach potential customers. (Wu and Yoo 2007, 584.)

47. See Maurizio Naldi, et al., *Evaluating the Effect of Network Neutrality on Content Provider Business Models* (ARC MENEUR meeting, Paris, May 2011). Available at http://www.irisa.fr/dionysos/pages_perso/tuffin/MENEUR/Slides/netNeut_model.pdf.

48. Kyle McSlarrow. "Communications Networks and Consumer Privacy: Recent Developments" (Testimony of Kyle McSlarrow, President and CEO, National Cable and Telecommunications Association before the Committee on Energy and Commerce Subcommittee on Communications, Technology and the Internet. U.S. House of Representatives, 23 April 2009). Available at http://energycommerce.house.gov/Press_111/20090423/testimony_mcslarrow.pdf.

VIII. Conclusion

The debate over net neutrality takes place at a moment of major transformation within the internet ecology and industry worldwide. The tremendous growth in internet traffic, due in large part to the availability of new services that are bandwidth-heavy and highly delay-sensitive,[49] has put an immense burden on network operators to upgrade their physical networks. This is particularly true with regard to wireless access networks whose capacity to accommodate the growing use of smart phones is increasingly limited.

Network management technologies are therefore seen as increasingly necessary to handle these congestion challenges. In addition, the content and online industries are considering new technical designs to reach consumers more directly (and faster). And, of course, consumers are themselves increasingly demanding richer data (especially video), which puts a further strain on networks.

Given these transformations, the complexity of the issues and the conflicting needs and interests at stake, it is clear that there will not be a simple solution to achieving the goals advocated by net neutrality champions. In order both to upgrade networks and to empower users to innovate and apply the internet across their activities, a package of policy solutions is needed that reaches beyond traditional regulation. New, innovative solutions are needed, and it will be important for public interest advocates to participate in the development of these solutions. In particular, they can help develop a clear frame of reference and set of actions to connect the engineering questions surrounding net neutrality with the broader goals of promoting an open, fair and sustainable society.

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49. CISCO, "CISCO Visual Network Index Forecast 2009–2014". Available at http://www.cisco.com/en/US/solutions/collateral/ns341/ns525/ns537/ns705/ns827/white_paper_c11-481360.pdf. CISCO notes that in global internet traffic increased 45 percent in 2009 and estimates that internet traffic will quadruple by 2014. Moreover, "the global online video community will surpass 1 billion users by the end of 2010. This number of people is exceeded only slightly by the populations of China (1.3 billion) and India (1.1 billion), making this user group equivalent to the third largest country in the world."

Further Reading

This brief paper can only serve as an introduction to the concept of, and debate over, network neutrality. More in-depth analysis can be found in the following recommended readings:

Scholarly Explorations

Mark A. Lemley and Lawrence Lessig, *The End of End-to-End: Preserving the Architecture of the Internet in the Broadband Era* (UC Berkeley Law & Econ Research Paper No. 2000–19; Stanford Law & Economics Olin Working Paper No. 207; UC Berkeley Public Law Research Paper No. 37, October 2000). Available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=247737

Tim Wu and Christopher S. Yoo, *Keeping the Internet Neutral?: Tim Wu and Christopher Yoo Debate*, (Federal Communications Law Journal, Vol. 59, No. 3, 2007; Vanderbilt Public Law Research Paper No. 06–27; Vanderbilt Law and Economics Working Paper No. 06–30; Columbia Law and Economics Working Paper No. 310). Available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=953989

Christopher S. Yoo, *Free Speech and the Myth of the Internet as an Unintermediated Experience* (The George Washington Law Review. Vol. 78. June 2010), 697. Available at http://groups.law.gwu.edu/lr/ArticlePDF/78_4_Yoo.pdf

Policy Documents

ARCEP, *Internet and network neutrality: Proposals and recommendations.* (Autorité de Régulation des Communications Electroniques et des Postes, September 2010). Available at http://www.arcep.fr/uploads/tx_gspublication/net-neutralite-orientations-sept2010-eng.pdf

European Commission, *Questionnaire for the Public Consultation on the Open Internet and Net Neutrality in Europe.* (Information Society and Media Directorate-General, Electronic Communications Policy, 30 June 2010). Available at http://ec.europa.eu/information_society/policy/ecomm/doc/library/public_consult/net_neutrality/nn_questionnaire.pdf

European Commission, *The Open Internet and Net Neutrality in Europe.* (Communication from the Commission to the European Parliament, The Council, The Economic and Social Committee and the Committee of the Regions, 19 April 2011). Available at http://ec.europa.eu/information_society/policy/ecomm/doc/library/communications_reports/netneutrality/comm-19042011.pdf

J. Scott Marcus, *Network Neutrality: Challenges and Responses in the EU and in the U.S.* (European Parliament, May 2011). Available at http://www.europarl.europa.eu/document/activities/cont/201105/20110530ATT2 0513/20110530ATT20513EN.pdf

Federal Communications Commission. *In the Matter of Preserving the Open Internet, Broadband Industry Practices,* GN Docket No. 09–191, (23 December 2010). Available at http://transition.fcc.gov/Daily_Releases/Daily_Business/2010/db1223/FCC-10-201A1.pdf

Julius Genachowski, *The Third Way: A Narrowly Tailored Broadband Framework.* (Federal Communications Commission, 6 May 2010). Available at http://www.broadband.gov/the-third-way-narrowly-tailored-broadband-framework-chairman-julius-genachowski.html

Office of Communications, *Traffic Management and 'Net Neutrality'—A Discussion Document* (Ofcom.org.uk, 24 June, 2010). Available at http://www.ofcom.org.uk/consult/condocs/net-neutrality/summary/

Mapping Digital Media is a project of the **Open Society Media Program** and the **Open Society Information Program.**

Open Society Media Program

The Media Program works globally to support independent and professional media as crucial players for informing citizens and allowing for their democratic participation in debate. The program provides operational and developmental support to independent media outlets and networks around the world, proposes engaging media policies, and engages in efforts towards improving media laws and creating an enabling legal environment for good, brave and enterprising journalism to flourish. In order to promote transparency and accountability, and tackle issues of organized crime and corruption the Program also fosters quality investigative journalism.

Open Society Information Program

The Open Society Information Program works to increase public access to knowledge, facilitate civil society communication, and protect civil liberties and the freedom to communicate in the digital environment. The Program pays particular attention to the information needs of disadvantaged groups and people in less developed parts of the world. The Program also uses new tools and techniques to empower civil society groups in their various international, national, and local efforts to promote open society.

Open Society Foundations

The Open Society Foundations work to build vibrant and tolerant democracies whose governments are accountable to their citizens. Working with local communities in more than 70 countries, the Open Society Foundations support justice and human rights, freedom of expression, and access to public health and education.

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