Net Neutrality is in the Public Interest
Submission to FCC, Docket 17-108

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Washington, DC 20554

In the Matter of  )
Restoring Internet Freedom  )
) WC Docket No. 17-108

Comments of
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Summary

After a number of iterations, the FCC established in 2015 reasonable and efficient network neutrality regulatory rules for broadband Internet widely used by businesses and consumers. These rules were upheld by the Court of Appeals and opened the prospect of regulatory stability in broadband. Economic research has established the broad benefits of network neutrality for society. These benefits should be based on the total benefit of consumers, businesses that use the Internet, and telecom and cable companies that provide access. The proper analysis should not be focused on the profits of access ISPs only, and of course not on just the investment of these ISPs. Economic research has established that total benefit of consumers, businesses that use the Internet, and telecom and cable companies that provide access is maximized under network neutrality rather than when network neutrality is violated, for example by paid prioritization. In summary, network neutrality has contributed very significantly to the fast and vigorous growth of the high technology sector in the United States and the rest of the world. Re-writing the rules at this stage would create significant uncertainty and is likely to significantly decrease total benefits. I urge the FCC to maximize the public interest by preserving the 2015 rules undisturbed.

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1 These comments are my opinions. I have not received compensation by any party. I have written extensively on telecom and Internet issues. My full CV is at http://www.stern.nyu.edu/networks//wp-content/uploads/Economides_CV.pdf.
1. **Benefits of Network Neutrality**

Network neutrality has facilitated businesses innovation “at the edge of the Internet” without seeking approval from network operator(s). The decentralization of the Internet based on network neutrality fueled innovation resulting in big successes such as Google and Skype, as well as a myriad of smaller innovative companies. Network neutrality also increased competition among applications and among services “at the edge of the network” since they did not need to own a network or have a special relationship with a network operator, carrier or Internet Service Provider (ISP) to provide a service.²

2. **Criteria to Assess the Impact of Network Neutrality**

First, I should underline that we should measure the impact of network neutrality on benefits to society of the whole Internet ecosystem, and not just on the ISPs. We should take into account and add the benefits to consumers, the benefits to applications and content providers “at the edge” of the Internet, as well as the benefits to telecom and cable ISPs. Focusing on benefits and costs of only one of three groups (consumers/users, applications and content providers, or ISPs) would be incorrect both from an economic and a public policy point of view.

3. **Losses to Society Arising from Departures from Network Neutrality**

Departures from network neutrality are likely not to be in the public interest and to result in several detriments to the total benefits of the Internet ecosystem.

Let’s consider a key violation of network neutrality, the introduction of paid prioritization by an Internet Service Provider (ISP), such as Verizon. Under prioritization, the ISP would change the priority of information packets and services so information of companies that paid the ISP would arrive to the customers first. For example, in the market for Internet search, if Google paid Verizon for prioritization but Yahoo did not, Google’s search results would appear at Verizon’s customers before the results of Yahoo and other search engines. Clearly, some customers would not wait for search results of other search engines, thereby giving a significant advantage to Google for which

Google would pay Verizon. In this example, it is clear, that violating network neutrality allows Verizon to determine (or very significantly influence) the winner in the Internet search market. In a similar fashion, if network neutrality is abolished, ISPs can also influence the winner in many different services or products delivered through the Internet. And it should be clear that prioritization does not require actually faster delivery. An ISP can generate profits by just degrading the arrival time of information packets that originate from non-paying firms while keeping the arrival timing of the paying firms the same as before the violation of network neutrality.

Paid prioritization would create artificial scarcity which may be profitable to residential ISPs but would be detrimental to the public interest. Paid prioritization would create a “special lane” for the information packets of the paying firms while restricting the lane of the non-payers without expanding total capacity or requiring additional investment. By manipulating the size of the paying firms’ lane, the ISP access provider can guarantee a difference in the arrival rates of packets originating from paying and non-paying firms, even if the arrival time for paying firms’ packets is not improved over net neutrality. This would create a significant reduction of innovation at the edge of the network.

New firms with small capitalization (and those innovative firms that have not yet achieved significant penetration and revenues) will very likely be unable to pay the fees of paid prioritization. This will likely lead to a calcification/freezing of industry structure and will significantly reduce innovation and economic growth.

Even without taking into account the negative effects of violating network neutrality on economic growth, academic economic research has shown that network neutrality is likely to maximize the benefits to society that the Internet provides. The benefits to society of network neutrality increase dramatically when

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its impact on economic growth through the virtuous circle of network effects is taken into account.

Typically access ISPs also provide their own content and applications, or, more generally, they provide substitutes to the content and applications of independent firms. For example, Netflix’s customers may use Comcast to download video from Netflix, while Comcast sells video services delivered through cable TV. Similarly, both telecom and cable TV ISPs provide their own phone services that are also provided by independent VOIP providers such as Vonage. ISPs may favor their own services and degrade transmission of rivals that use their pipes. This is likely to distort competition and reduce the social benefits of the Internet.

Finally, there are political opinions and news diversity concerns if content in newspapers and websites is delayed in comparison with sites and newspapers that pay for prioritization.

The Commission should preserve the rules that require (i) no blocking or throttling; (ii) no paid prioritization; (iii) transparency and disclosure by ISPs; (iv) equal application to fixed and mobile; and (v) enforcement by the FCC rather than an agency of minimal expertise on the issues, such as the FTC.

4. ISP Investment is Not the Goal of Public Policy

The goal of public policy, such as the network neutrality rules, is to maximize the total public benefit to participants of the Internet ecosystem that includes consumers/users, applications and content providers, and ISPs. Investment by


ISPs is one of the variables that may contribute in public benefit. It is not the appropriate measure of the public benefit to the ecosystem. Instead of focusing on ISP investment, we should look carefully at all aspects of the impact of the regulation. As discussed earlier, there are very significant benefits of network neutrality to applications and content providers sector, including investment in that sector, as well as substantial benefits to consumers.

5. The Impact of Network Neutrality on Investment; Predictions of Economic Models

Economic models give mixed results on the impact of a network neutrality regulation on the incentive of ISPs to invest more. The results depend on the specification of the model in terms of the underlying features of the consumers as well as on the investment technology that ISPs may use for potential network expansion. Thus, in some models and for some parameters, the ISP wants to invest less under network neutrality, but in other models or even in the same model for other parameters, the ISP wants to invest more under network neutrality.

Different academic papers give opposite directions in the incentive to invest when network neutrality is imposed. J. Gans, “Weak versus Strong Net Neutrality” Rotman School of Management Working Paper No. 2439360 (2014), shows that “strong net neutrality may stimulate content provider investment while the model concludes that there is unlikely to be any negative impact from such regulation on ISP investment.” J.P. Choi and B.C. Kim “Net Neutrality and Investment Incentives.” RAND Journal of Economics, vol. 41 (2010), pp. 446–471 underline “the ISP’s incentive to invest on capacity under a discriminatory network can be smaller than that under a neutral regime where such rent extraction effects do not exist. Contrary to ISPs claims that net neutrality regulations would have a chilling effect on their incentive to invest, we cannot dismiss the possibility of the opposite.” N. Economides and B. Hermalin, “The Economics of Network Neutrality,” RAND Journal of Economics, vol. 43, no. 4, Winter 2012, pp. 602–629, discuss a special case of their general model where under specific conditions, ISPs decrease investment as a result of imposing network neutrality. In the general model of Economides and Hermalin (2012), under alternative specific conditions, investment may also increase as a result of imposing network neutrality.

In summary, one cannot claim that network neutrality should result in lower investment by ISPs. It is equally possible that network neutrality will prompt ISPs
to invest more.

6. **Conclusion**

Network neutrality has contributed very significantly to the fast and vigorous growth of the high technology sector. The impact of network neutrality should be assessed on the whole ecosystem, not just on ISPs and not just on ISPs investment. Academic economic research shows that network neutrality is likely maximize the total benefit to society of the Internet. The FCC should keep the (2015) rules unchanged.
comprised of computers that share the same technical standard or operating system, and on network issues in general.