Net Neutrality Regulation

The Theory of Property Rights Final Essay

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I. Brief Summary of Net Neutrality

Net neutrality provisions require basic Internet protocols be non-discriminatory with respect to content. The debate addresses the right of Internet users to freely access content, services and web applications without interference from network operators. Internet service providers (ISPs) cannot throttle bandwidth or quality of service (QoS) between the end customer and any content provider. Net neutrality, in a nutshell, restricts ISPs from prioritizing data across its network.

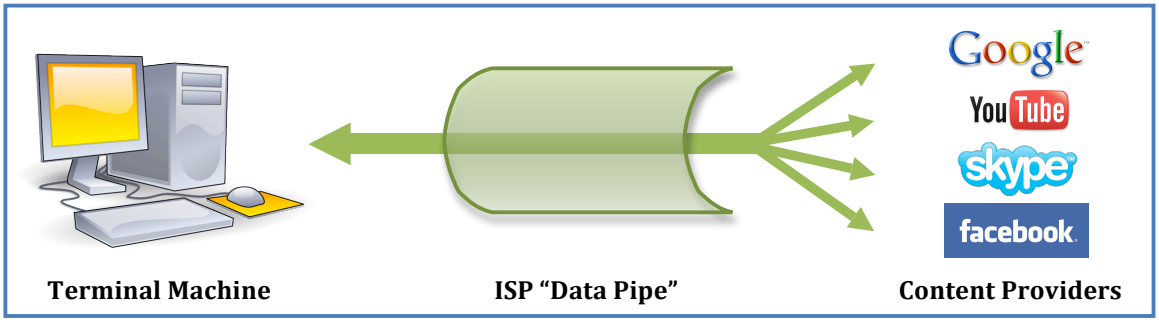
Net neutrality policies aim to require universal access to all resources connected to the Internet. The Internet has developed without any government intervention and is currently unregulated. There is no formal regulation to require net neutrality, but most ISPs currently observe its practice. Recent actions by ISPs to shift away from net neutrality have instigated a public outcry for FCC involvement.

II. The Connection Process to the Internet

***With* Net Neutrality:** The process of connecting to the network is simplified as such: The end user accesses the Internet from his or her own Internet enabled device. The terminal machine connects to the content providers through a "data pipe" operated by the ISP. Internet service providers charge a flat fee to the end user for unlimited access to the "data pipe" which connects them to *any* content provider of their choice. The end user and the content provider are able to

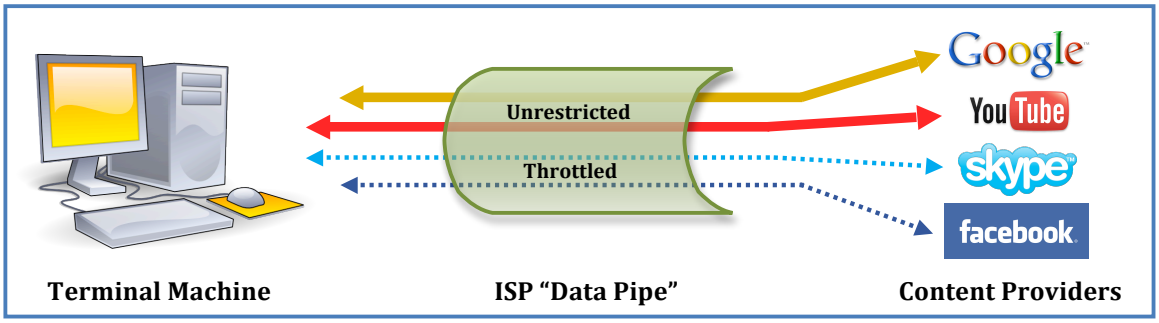
exchange data with no content or bandwidth restrictions. All data is undistinguished and receives equal treatment over the ISP's network.

How the Connection Process Works: With Net Neutrality



***Without* Net Neutrality**: The process of connecting to the network is simplified as such: The end user accesses the Internet from his or her own Internet enabled device. The terminal machine connects to the content providers through a "data pipe" operated by the ISP. The ISP offers a tiered service to the end user which connects the customer to only the content providers stipulated in his or her selected Internet package. Access to subscribed content is prioritized while premium content is either blocked or throttled to a lower speed. In effect, some content providers receive a fast lane to the end user and others are at a disadvantage. The ISP distinguishes between the content sent over its network and adjusts bandwidth and quality of service accordingly. Actions by the ISP therefore significantly effect the performance of any given web application to the end user.

How the Connection Process Works: Without Net Neutrality



III. Reasons for Net Neutrality Regulation: Potential Detrimental ISP Actions

Without enforceable net neutrality regulation, ISPs have significant market power to influence innovation of Internet services. Due to the high fixed cost to construct network infrastructure, competition among local ISPs is scarce. In many areas, only two or three broadband options exist for consumers. The lack of competition may not allow the market to self-regulate and operators attain monopolistic authority.

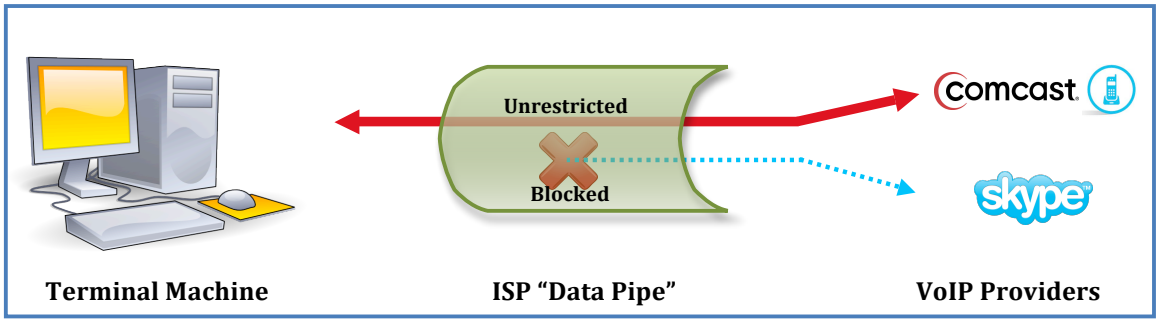
Monopoly power in most industries is leveraged to obtain high profit margins through elevated prices or diminished product quality with respect to the competition equilibrium. The lack of net neutrality regulation can be abused by ISPs to limit product offerings to its customers. The throttling of certain content deters investment towards small Internet content providers. ISPs are not forced to provide open access to all online services due to the lack of competition.

Currently, the Internet provides an even playing field to innovators as large as Google and as small as a single programmer working out of his or her own garage. The opportunity available to small entrepreneurs attracts significant investment and produces many new products that grow to become staples in the lifestyles of many. Conglomerates like Google, Facebook, eBay and others all started not as the invention of a major corporation, but rather as a pet project of a small group of individuals in a basement. Without net neutrality regulations, ISPs can charge additional fees to content providers to supply access to a fast, un-throttled, experience to the end visitor. Large companies pay to provide better performance

to their end users while the innovations of small firms are throttled and the entrepreneurs are unable to compete. As a result, only large companies who can afford the additional fees can drive innovation and the brilliant ideas of the individual programmer working out of his or her basement never see the light of day. Barriers to entry are smallest with nondiscriminatory Internet access and therefore universal access provides the best opportunity for valuable innovation to occur.

In addition to raising the barriers to entry for startups, monopolistic actions by network operators damage any firm that wishes to compete with them. Major ISPs like Comcast throttle throughput to non-partnered competing services. For example, lets assume Comcast releases its own voice over Internet protocol (VoIP) product solution. Unlike similar free services like Skype, Comcast decides to charge its customers $10/month to use its VoIP service. If both products provide the same quality of service, customers will use Skype because it costs less. A network operator who vertically integrates into content and applications can, it is feared, leverage its data pipe and adjust data transfer priority to degrade the services of its competitors. If Comcast throttles or blocks Skype's data feed, customers wishing to use VoIP are forced to use Comcast's own solution. Because of practices by the ISP, the customer receives higher prices or worse service.

Detrimental Action By ISP: Port Blocking



IV. Reasons Against Net Neutrality Enforcement

Internet service providers advocate that net neutrality not be enforced. It is their contention, to provide the highest quality of service at the lowest price to the consumer, certain content must be assigned different priority levels.

Certain services impose technical limitations that necessitate bandwidth prioritization. For example, online video streaming requires a large and constant level of available bandwidth. The user experience of online video is hurt when streaming videos drop frames or have to buffer due to insufficient real-time bandwidth. The user experience for other services, like email, is not as critically dependent on immediate data transfer. A viewer of an online video is likely to become irritated after his or her video stops to buffer after every 10 seconds of play, and at such point the video perhaps becomes unwatchable. Alternatively, a user who must wait an extra 10 seconds to receive an email is probably unaffected by the delay. The ISPs therefore argue they must place certain services at a higher priority over their network with respect to the attended use of the data. They must fast track online video streaming and delay the transfer of email data to ensure bandwidth can support high-quality video performance.

The ISPs want to throttle content for which the user experience is unaffected by the slight delay of download. Furthermore, ISPs complain about the significant amount of bandwidth occupied for potentially illegal data transfers like Bit Torrent. By throttling Bit Torrent peer-to-peer transfers of illegal copyrighted material, more bandwidth is made available for legitimate uses, and users who download illegal

content are deterred because of the slow transfer speeds. The ISPs lobby the user experience for high bandwidth services is improved after data is prioritized across its network and the user experience for all other, legitimate, services is mostly unaffected.

ISPs contend building infrastructure to provide Internet access with high data speeds is crucial for future innovations online, but that cost is currently passed down to the end user. Content providers like Google earn high profits off the back of the ISP's network. A wealth transfer can be implemented through a charge to successful online services for un-throttled access to the end user. Google and other online services depend on Internet infrastructure as a tool to supply their products and currently do not pay for this crucial element. The ISPs claim end users will see lower connection fees once the cost of network infrastructure is supplemented by the companies that profit from its services.

V. Government's Jurisdiction in Regulating the Internet

The Internet has developed without Government intervention. The FCC must determine if it has the jurisdiction and responsibility to set standard regulations for Internet principles. The FCC may lack authority to promote Internet practices, and regulation may not be necessary to achieve net neutrality. Furthermore, technical protocols may be best left to programmers and not in the hands of less knowledgeable regulators.

Current ISPs are made up of an assortment of telecommunication, cable and other communication companies. The 1996 Telecommunications Act and prior statues impart jurisdiction to the FCC to regulate the telecommunication industry, but currently the FCC does not impose policies on ISP divisions of the telecom firms. For regulation to have an impact, policies must be distributed across all ISPs. Without broad regulation applied to all network operators, unregulated firms will likely continue illicit practices. Furthermore, enforcement of such policies on only telecom firms puts the telecom ISPs at a disadvantage and may justify an improper 'taking.' The legal "ancillary jurisdiction" for broad ISP regulation is unclear and likely requires significant Congressional legislative measures before the FCC can regulate the industry.

Before Congress provides authority to the FCC, it must determine if regulation of the Internet is needed. Proper net neutrality practices may evolve naturally without government intervention. The success of the Internet thus far without regulation suggests that the market sufficiently provides incentives to self-regulate. Competition may result in proper net neutrality practices by the ISPs and can even lead to a better-unforeseen solution. The government should only regulate the Internet if it believes the market will not self-regulate to a solution with productive efficiency, fairness, and substantial downstream investment incentives.

VI. Policies to Enforce Net Neutrality

Net neutrality is a normative principle with different understandings of the intended objectives. Thus, the policies to best enforce net neutrality do not

encompass a set of direct regulations. The debate focuses around two central definitions: non-discriminatory allocation of bandwidth and universal access to *all* content providers. Advocates who concentrate on regulation of bandwidth argue technical protocols be instituted to force ISPs to treat all data equally. Alternatively, policies to enforce universal access to all resources on the web aim more broadly to prevent the establishment of limits on the possible content, applications and services accessed by Internet users. Solutions to each definition are not necessarily distinct.

Policies to require uniform data treatment over a ISPs network ensure both the non-discriminatory allocation of bandwidth and provide universal access to all content providers. Proper net neutrality practices are enforced, but advantages from data prioritization are neglected. Future online innovations by content providers require a constant high level of bandwidth that can only be achieved if timely data has dedicated throughput and other data is delayed until sufficient bandwidth exists. Services like online video benefit from data prioritization and do not substantially hurt other services. I personally argue uniform treatment of data across a ISPs network is therefore not the optimum solution to enforce net neutrality.

Net neutrality regulation, in my opinion, does not require ISPs to treat all data equally. It is necessary for packet prioritization across the network to promote high bandwidth services, to prevent the transmission of illegal content, and to protect against spam and network attacks. Networks therefore must discriminate

against different forms of data, but ISPs must not be the chokepoints to impose such policies because of their market power.

VII. Conclusion

The Internet is a catalyst which paves the way for new products. It is important end users continue to experience quality service and entrepreneurs continue to push innovation. Net neutrality practice must be widespread to ensure open-access and to encourage investment. I believe network operators are likely to shift away from net neutrality practices because of the monopoly power they hold. It is my contention that the Government must therefore intervene to prevent such actions. Optimal policies do not force ISPs to treat all data equally, but should require that they offer universal access to all content providers. I argue Congress must write legislation to grant the FCC authority to regulate the ISPs.

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