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Net Neutrality:

The Social Responsibilities of Internet Service Providers

The idea of the net, when broken down to its simplest representations, is a system of relationships between three primary parties. The first, that of the consumer, is quite simply any end user wishing to utilize or consume content delivered via the medium. Whether this is an individual, a corporation, or other entity, the same basic concepts of paying to receive access to the web's information repository and services remains the same. The second party is that of the content producer. Whether this content is a service platform for consumer interactions such as eBay or Facebook, or a creative content provider such as NBC, YouTube, or a simple webcomic, the party again has the same general idea at its core of internet existence, that of producing content and making it available to those with an internet connection. Whether these content producers choose to monetize through advertising or offering various service levels with features like subscriptions is a general detail focusing on a relationship with consumers that does not change the fundamental relationship of the producer with the internet itself. Finally, there is a third major category of stakeholder involved, that of the service provider. It is by and large the role of these players that lie at the heart of the net neutrality debate. As internet access demand has grown, competition

amongst providers tightened, and technologies become increasingly complex, many service providers have attempted to redefine themselves and their roles to maintain relevancy and their market positions. Such ideas as implementing varying pricing models based on the source or content of the data being transmitted or even leveraging the providers' own media assets as not counting towards a consumer's quotas. Other traffic management processes and systems are also under consideration or being implemented by various service providers. While the providers themselves seem to be able to provide a variety of reasons for needing to implement such policies, it can be demonstrated that the transition from being a 'dumb pipe' to another player creates a disruption in the relationship between consumers and content producers, is at many times an unfair practice as implemented, and creates a variety of inconveniences and problems for all other stakeholders involved in the web ecosystem. For these reasons, it can be argued that internet providers have an ethical duty to avoid these conflicts of interest and upsets of balance of network neutrality via these sorts of practices.

To begin a discussion of the role of the service provider in the web ecosystem, it is prudent to first examine exactly what the service that is being provided is. In the internet's case, the traditional role has been to supply to a consumer, be it residential or business, connection and access of a specific level of bandwidth to any material or device also connected to the internet. In the majority of cases, this constitutes connections to servers and webpages, but more direct connections to other machines for the sakes of activities such as file transfer or playing games are also utilized. With a few exceptions, the majority of providers also implement a data cap on the amount of content

their subscribers can obtain without incurring extra fees. This is claimed to be done to avoid network congestion, but many scholars and industry analysts have suggested that such practices are poorly targeted to affect this goal. Monica Paolini, PhD, of Senza Fili Consulting *“expect[s] subscribers to selectively react to traffic limitations. To extract more value from their data plans, subscribers are likely to increase data usage during peak time, and, to compensate, they are willing to cut less important activities during off-peak times.”* [1] She argues that users will still utilize their connections to watch videos, check social networks, and use services such as Skype at convenient times such as waiting in/riding transit, but will reduce usage from the home or office where there is wifi, and have less services that update frequently throughout the day active on their phone to keep their usage rates low. Paolini suggests that this probable scenario *“translates into higher percentage of the monthly traffic concentrated during peak time and lower usage during off-peak time. The higher usage at peak hour is driven by the fact that most people find it more desirable to use their service at that time – this is why it is peak-hour in the first place.”* This means that during off-peak hours the network will be under-utilized and both consumers and operators are effectively losing value. Paolini cites the fact that *“Vodafone stated that their network utilization is 35% in Europe. Most operators do not release this data, but in the US network utilization is likely to be even lower than this.”* Looking at the issue from a metaphorical perspective, one sees a system of highways (networks) in a city, with people’s use of the roads and their driving being representative of the transferred data. By placing a cap on the quantity of kilometers a road ‘subscriber’ can use in a month, commuters are likely to avoid driving when not necessary, but peak points such as rush hour will still have the same backup problems as everybody will spend their allocation on these most important peak times. Meanwhile, an individual

taking advantage of the built network and taking long drives late at night with very few other drivers on the road would be charged extraneous fees for 'using up' too many of the limited kilometers. A more prudent solution would be to expand the [band]width of the roadways to allow more simultaneous users, or to only provide users with vehicles that take up half of the space that their current vehicles do. In terms of the internet, this would translate into slower bandwidth rates that the network can actually support as advertised simultaneously, ideally while allowing higher speeds during off hours when the network is underutilized. Looking again at the traffic metaphor, the road operators do not produce the vehicles on the road, and only have to ensure that the lanes they build are wide enough to support the efficiency the end users desire. It costs no more to the road operator whether 100 fully loaded shipping trucks pass through in an hour or only 1 family sedan. Similarly, internet providers are not responsible for generating data, only providing a means for its transfer. The content of this data does not factor into the costs for the ISP, and the point of origin very minimally. Professor Michael Geist of the University of Ottawa, using numbers from Bell Canada, estimated the cost of transferring a gigabyte of data to be approximately 8 Canadian cents. [2] In the traditional role of a 'dumb pipe', ISPs must simply maintain networks with high enough capacities to handle the bandwidth demands of their clients, and supply them access to these networks to communicate with other points on the web. This simple and non-interfering role allows simple consumer choice based on network speeds and does not discriminate against any services beyond their capacity to serve data in an efficient manner over potentially limited bandwidth connections.

However, many ISPs, particularly in the field of mobile data, have been flirting with the idea of expanding their role in the interplay of consumers and content providers over the ISPs' networks. Recently, AT&T executive John Donovan suggested an idea where mobile application developers could theoretically pay AT&T fees that would provide end users with subsidized/free data when utilizing those applications, stating *"A feature that we're hoping to have out sometime next year is the equivalent of 800 numbers that would say, if you take this app, this app will come without any network usage,"* at the 2012 Mobile World Conference. [3] This news was widely panned by industry critics and consumer groups, *"arguing that AT&T could stifle competition and shift the playing field toward well-heeled app developers and content providers that have the financial capacity to subsidize mobile customers' data use."* [3] with legal director for consumer group Public Knowledge, Harold Feld, saying *"This new plan is unfortunate because it shows how fraudulent the AT&T data cap is, and calls into question the whole rationale of the data caps. Apparently it has nothing to do with network management. It's a tool to get more revenue from developers and customers. The plan creates two new groups of customers and app developers — those who pay AT&T extra for the privilege of being exempt from the cap and those who don't."* [4] One can easily see that under such a scenario, any upstart application developer or content producer would be at a tremendous initial disadvantage. A new video streaming service for instance, would be unable to match the capital a corporation such as Google/YouTube or Netflix could provide, and from the end consumer's standpoint, these now subsidized services would likely be far more attractive as they would not be charged any extra for data usage, even though the new competitor may have an equally deserving or even stronger product. Even amongst the large players, there would be a clear hierarchy between the reserves of

YouTube with its revenue from the rest of Google versus specialized players such as Netflix, Hulu, or Vimeo. With ISPs treating all data equally, these disparities are removed and create a more level playing field, promoting competition and consumer choice. AT&T is far from the only corporation dabbling in this sort of inequality, with a variety of 'social data' plans available from different carriers at different times, offering free facebook/twitter/email/instant messaging services as a separate option from a full fledged data plan. The existence of such options severely undercuts the effectiveness of any competitors to these services as low end mobile data users will not have access to these competitor services. While these sorts of interferences and support of established brands across corporations have plenty of precedent in other industries, (McDonald's restaurants stocking Coca Cola products in lieu of Pepsi for instance) this is particularly damaging in the internet's case as a democratizing platform where choice does not have to be artificially limited to match the issues of keeping physical stock in warehouses, distribution via freight, and scarcity of product. As data is simply information available to be replicated and transmitted, these sorts of exclusive deals again harm to consumer rights and freedoms. Another controversial practice is the locks and fees on tethering in the mobile space. Canada's Rogers Wireless for instance, does not allow tethering, the act of sharing a mobile device's received data to another device, on any plan under less than 1GB of data. The very nature of tethering produces the same amount of traffic no matter what end device receives the data however, and any additional 'strain' this apparent 'heavy usage' causes should be expected by the network operator and the bandwidth available to devices on the operator's network and towers. Nearly all ISPs in North America have some sort of

tethering restrictions, again undermining the consumer's rights to utilize the service they are paying for in the manner they would like.

From a utilitarian standpoint, these practices can definitely be seen as unethical. The obvious stakeholders involved are consumers, network operators large and small, and content providers, both large and established and smaller or non established. With requirements that ISPs treat all data equally in place, consumers may lose utility (happiness) from having to pay more than they may if applications were subsidized, but they also gain a large amount of utility from the increased choices and competition in applications and web content available. They may also gain further happiness from being able to choose to switch providers for various reasons such as customer service, political stances, or general speed without fear of losing premium access to certain content. From a content producers' standpoint, utility would likely see a drop in the major players as they have to compete on quality with any competitors rather than buying out the market, but at the same time see an increase in seeing potential greater profits from maintaining their status through brand recognition and what they are doing, without having to pay providers to keep pace with their nearest competitors. The smaller content producers would definitely see an increase in utility as they gain a more level playing field to promote their product on against the big players of the industries, and as there are far more small producers than big brand names, it is highly likely that utility sees an increase on the content side. This leaves the network operators, who will see the largest decrease in utility as they lose a lucrative revenue source and a potential point of differentiation in their service competitions. From this though, one can expect some level of utility

increase for the smaller and more local ISPs who may not have the clout or userbase to obtain the same sort of deals from content providers for premium service that the major carriers such as Verizon or Bell could acquire. These small ISPs would also gain utility in that they could, much like the smaller content producers, differentiate by the quality of their product, in this case service via bandwidth, customer support, coverage, and similar aspects rather than through perks and exclusive deals with the content industry that they just would not have the capital or userbase to negotiate for.

From a Kantian perspective, these sort of practices go against Kant's second formulation, "*act so that you treat humanity, whether in your own person or in that of another, always as an end and never as a means only*". [7] In utilizing exclusive deals with content producers and developers to sell service to consumers and also pitting said content producers to compete against one another in order to increase the network operator's own profits, it is clearly demonstrated that both sets of parties are being utilized as a means to an end. The first formulation of Kant's categorical imperative also states "*Act only according to that maxim by which you can at the same time will that it would become a universal law*." This law is somewhat more complex to apply as the network provider's position is somewhat difficult to convert into a generalized form. If summed up as those who control means of distribution may charge for priority access to their distribution channels, there is no inherent dilemma that arises. However, the fact that the second formulation is clearly violated and the following of the first opens the door to a wide array of discriminatory practices, it can be

concluded that analyzing the situation from a Kantian perspective also suggests that the level of ethicality is somewhat lacking in these scenarios.

A further element to consider is that in many countries, a variety of network operators have in fact built their networks in part with the assistance of governmental subsidies, which in effect means that many of these networks that consumers are being increasingly restricted in their use of, these same customers helped develop through taxes. In America this can be seen in such policies as the Universal Service Fund's incentives for telecoms to develop infrastructure in rural areas, for a long time in the form of telephone networks, and now shifting *"to a new Connect America Fund focused on broadband deployment to areas that don't yet have service. The FCC will cap the broadband fund at US\$4.5 billion a year, the current budget of the USF high-cost program, funded by a tax on telephone bills."* [5] This plan is expected to, *"Over the next six years,... bring broadband service to about 7 million of the 18 million U.S. residents who don't have it, the FCC estimated."* Countries such as Canada also provide incentives for carriers to develop infrastructure in rural areas, and has in fact pursued these sort of guidelines since *"The Railway Act was first amended to apply to telephone service in 1906, but even as early as the 1880's, the federal government had asserted limited jurisdiction in the telephone market, first by incorporating Bell Canada pursuant to an Act of Parliament in 1880,⁷ and then in 1892, by prohibiting the company from raising its rates without the approval of the Governor in Council. This resulted in a "price cap" that lasted for ten years."*[6]. A 2005 CRTC review of the history of such policies found that *"In 1902, the Bell Canada Special Act was also amended to impose an "obligation to serve" on the company. Interestingly, this statutory obligation, which*

was a forerunner of our universal service policy, also contained a quality of service component” The referred to ‘Universal Service Policy is later described by the CRTC report as “That principle, which embodies the "regulatory bargain" between the government and the telephone company, requires the telephone company to provide a high quality telephone service to users in its operating territory at affordable rates. The quid pro quo for this service was the promise of a just return on the capital expended by the telephone company in delivering on its part of the bargain. This principle, which was developed by regulators and the courts, was derived from the requirement in the Railway Act for all tolls to be "just and reasonable". It was implemented by provisions requiring all tariffs of tolls to be filed with the Commission for prior approval and conferring on the Commission broad powers to approve, disallow, amend, substitute or postpone any such tariffs of tolls.”[6] This initial support of Bell Canada as a monopoly to best develop accessible infrastructure for the largest possible subset of the population continued for many years, and similar ideals were adhered to when the Canadian government began to license use of wireless spectrum, as “In October 1982, the Department of Communications issued the Canada Gazette notice Cellular Radio Policy and Call for License Applications. In December 1983, the then Minister of Communications announced that CANTEL (now Rogers Wireless Inc.) was the successful applicant for the 20 MHz cellular spectrum sub-band A and also invited applications from local telephone companies to provide service in their operating areas in the 20 MHz cellular spectrum sub-band B. All licenses were authorized to begin offering service in their operating areas on July 1, 1985.” [7] Shortly afterwards, this continued when “In 1989, the two 5 MHz bands of cellular spectrum which had been reserved from 1983 for future use were allocated to the two cellular sub-bands. These cellular sub-bands were allocated to the incumbent cellular licensees,

CANTEL and the local telephone companies. In December 1995, the then Minister of Industry awarded personal communication services (PCS) licenses to 14 companies. Two national PCS licenses of 30 MHz were awarded to Cleanet PCS Inc. and Microcell Networks Inc. respectively, one national PCS license of 10 MHz was awarded to Rogers Cantel Mobile Inc., and one 10 MHz PCS license was awarded to the 11 regional shareholders of Mobility Personacom Canada for their operating territories.”[7] Cleanet PCS was later acquired by TELUS, and Microcell's Fido was acquired by Rogers.

Looking at this data, it becomes clear that the majority of Canada's wireless industry had enormous help getting into their current positions as market leaders through the licenses provided to them prior to the point at which *“In 1996, following a similar move in the U.S., the Radiocommunication Act was amended to give the Minister of Industry the authority to conduct spectrum auctions as a means to allocate new spectrum licenses, as part of a broader shift toward market forces in the regulation of Canada's radio and telecommunications system.”* [8] There also remain smaller carriers such as SaskTel that are in fact owned by the public, which in SaskTel's case is in the form of a provincially owned crown corporation. [9] When one then considers the public investment and support the public, via the government, has put into developing this infrastructure and creating the present market conditions, that any breach of neutrality and preferential treatment decided upon by an independent corporation is a violation of the inherent understanding and agreement of that initial investment. This is again of particular note in Canada, where policy has inherited and evolved from the original Railway Act, with the 2005 CRTC review noting *“The second principle required the telephone companies to treat their customers in a fair and non-discriminatory manner. This principle was*

an important one since, without it, customers would not have enjoyed any countervailing power to deal with the monopoly supplier. It was embodied in a statutory prohibition requiring that a telephone company shall not in respect of tolls or any services or facilities provided by it, unjustly discriminate against any person or company, or make or give any undue or unreasonable preference or advantage in favour of any particular person or company or any particular traffic, or subject any such person, company or traffic to any undue or unreasonable prejudice or disadvantage.” [6] Even with the era of subsidies over and policy shifted to open auctions, corporations such as Bell gained their market positions with an understanding of these policies in place and any deviation from these compromises with the public constitutes a breach of the social contract entrusted to them.

In spite of these precedents, many network operators continue to implement various traffic management technologies while insisting that such operations are necessary to maintain quality of service. While this may be true, Rogers' own testimony from the 2011 CRTC hearings on usage based billing *“avoided the focus on network congestion (the word congestion was barely mentioned) and instead emphasized the complexity of networks, the differences between cable networks and Bell's network, and the need for policies to encourage ongoing investment. The discussion included several interesting revelations, including cable's view that there is no bandwidth crisis (the issue for cable is paying for usage)” [10] Regardless of the veracity of the claims of the necessity of such practices, it has been documented on multiple occasions that the implementations utilized by many carriers unfairly impact traffic in unintended manners. As recorded by the CRTC, “Rogers Communications has been the target of nearly half of all cases opened in response to net neutrality complaints. In recent*

months,” [as of July 2011] “there have been multiple complaints arising from bandwidth throttling of *World of Warcraft*, a popular multi-player online game. Rogers initially denied any wrongdoing, only to later acknowledge that there was a problem. The company promised to address the issue, though no consequences arose and it was not forced to publicly disclose the issue.” [11] This issue highlighted the fact that Rogers’ attempts to manage and throttle specific variants of data traffic, in this case Peer-to-Peer filesharing, was poorly executed and inadvertently affecting legitimate users subscribed to the service with no inclination of the fact that their traffic was to be negatively affected on the ISP’s network. This is even without the ethical issues arising from handicapping other entirely legitimate uses of the Peer-to-Peer protocol, such as acquiring distributions of the Linux operating system or other software or media freely and purposefully available via such channels by the choice of the content creators. This would be akin to banning the use of semi-trailer trucks for all users of the highway system because a small number of individuals utilized that type of vehicle irresponsibly to cause damage to others. Rogers is far from the only company to have utilized such blunt practices. “In November 2010, Bell Canada was hit with a complaint over throttling download speeds from *Hotfile.com*, an online locker service that lets users store and access music and other files from any computer. Bell admitted its deep-packet inspection technology was mistakenly treating downloads from the site as peer-to-peer activity and slowing connection speeds. Bell promised a fix, but only after asserting that it was compliant with the guidelines” [11] As well, despite getting caught in net neutrality complaints while under obligation to adhere to CRTC policy, as of July 2011 “There [had] been only one complaint that led to a clear change in provider policy. In January 2010, *ExaTEL*, an Ontario-based Internet phone company, filed a complaint against *Barrett Xplore*, a satellite Internet

provider. ExaTEL alleged that Barrett Xplore was degrading Internet telephony traffic, creating an unfair advantage for its own phone service. The CRTC ruled that there was no undue preference, but that the throttling of time sensitive traffic violated its guidelines. Faced with the prospect of changing its practices or seeking special approval from the CRTC, Barrett Xplore changed its throttling approach to ensure that Internet telephony was unaffected.” [11] Furthermore, “Barrett Xplore was also the source of the longest running complaint as the company took months to respond to CRTC requests to improve its disclosure practices. Only after the Commission threatened to launch a public proceeding into the matter did Barrett Xplore respond.” [11] A further issue is that in some cases, network operators do not even bother adhering to principles or regulations as they expect the regulatory body to be ineffective. “In March 2010, a complaint was filed against Cogeco, a cable provider with a traffic shaping policy that continuously limited bandwidth for peer-to-peer applications on a 24/7 basis. Given the CRTC’s requirement that traffic management limits be linked to actual network congestion, the Cogeco policy raised red flags. Even so, the CRTC demanded that the complainant provide more evidence before it would investigate.” [11] While all of these examples are Canadian, the same issues arise in the United States with providers such as AT&T, Verizon, and Comcast, as well as in other countries, as the network technologies are fairly similar and standardized.

A final and arguably most problematic issue arises when one assesses the fact that many of these network operators are both horizontally and vertically integrated in their markets. Service providers like Bell Canada act not only in the role of one of their own competitors, creating a lack of choices for consumers, but also own significant stakes in content production organizations. This

setup lends itself to highly tempting and lucrative reasons to favour and prioritize the company's own assets over a competitor's. A company that owns and benefits from a traditional landline or mobile telephone network as Bell does would benefit greatly from throttling traffic of or restricting Voice over IP applications through their web operations, reducing the quality of the competition to their legacy telephony services. Similarly, with more internet providers providing IPTV and movie rental solutions as a part of their home network packages, competitors such as Netflix are an obvious target. In America, Comcast recently announced a new video service delivered via the Xbox 360 platform, with a distinct note that the service will not count against their subscribers' data caps as competing company's services, like Netflix, do. The consumer group Free Press emphasized this point, releasing a statement *"Comcast tries to justify preferred treatment for its own video on the Xbox 360 by claiming that the content is delivered over a private IP network rather than the public Internet. But not counting this video against a Comcast customer's monthly data limit gives the Comcast product an unfair advantage against other Internet video services."* [12] This highlights the major issue with these horizontally integrated organizations, where services that may have direct competitors in another medium can be protected with policies harming the competition on their alternative medium that they also control. Horizontal integration is far from the only problem seen in these monolithic network operators either. Vertical integration also plays a significant role. Again looking at Bell Canada, the company's wireless division offers a 'Mobile TV' service for their phones and tablets [13] that provides a significant priority and favouritism to the channels and programs that Bell owns through Bell Media and their acquisition of CTVglobemedia, encompassing sports, news, music, comedy, and other channels. Bell Media also recently announced plans to acquire

Astral Media, which contains a variety of further television networks as well as radio stations. [14]

Not only is such integration unfair to consumers utilizing Bell's network services that would desire the same quality of treatment for competitor's media, but also for those using competitor's networks that are deprived of access to Bell's media. With Rogers Media and Shaw Communications also having significant holdings in television and radio broadcasting, the majority of Canadian internet consumers are tied into and/or locked out of these sorts of various prioritized content arrangements. Again, Canada is far from the only country with these problems, with amalgams such as 2011's Comcast takeover of NBC Universal, with both regulators and skeptics *"concerned that an all powerful Comcast might stifle competition from new online video competitors including Hulu, in which it now owns a stake."* [15] This complex web of ownership alongside distribution channels and the conflicts of interest generated can be extremely extensive and not always immediately obvious. Once more looking at Bell Canada Enterprises, BCE owns a significant 18% share of the Montreal Canadiens hockey team [16] and recently acquired an even greater (37.5%) share of the Maple Leaf Sport and Entertainment company together with Rogers, which will own another 37.5%. The MLSE consists of the Maple Leafs NHL team, the Raptors NBA team, the Toronto FC Soccer team, and the Marlies AHL team. [17] It is not hard to imagine that ownership and profit derived from these clubs provides a significant incentive to provide premium time and content of these team's games and news on the same parent company's sports and news channels, distributed over the same parent company's television, internet, and mobile networks, to the disadvantage of all competing organizations at all levels of the ecosystem.

Reflecting again on the ethical angles of these issues, utilitarianism again stands in opposition to these anti-neutrality practices. Looking at the building of the networks, one can see a large amount of happiness lost for the public as their investments and subsidies give rise to a network that they may not even be able to use to its full potential due to interference of another party. Government agencies also lose utility as they see their agreements and actions defied and abandoned, causing a lack of willingness to attempt similar cooperative efforts in the future and forcing stricter legislation. The traffic management practices also see a wide array of utility lost, from all users whose choices of how to use their network subscriptions are hampered by restrictive policies and misleading advertising where not all data is equal. In the case of P2P throttling, a user paying for a higher bandwidth plan is receiving the same level of service as a user on a lower rate as artificial caps tied to specific protocols may be lower than either plan's maximum advertised speeds. This also causes lost utility for any developers or content producers whose products are caught up in these restrictive systems, whether it is a game like World of Warcraft or a VoIP service such as Skype, as they potentially lose customers due to poor service experiences outside of their control. The issues associated with horizontal and vertical integration cause an enormous amount of utility lost to all competitive services and content at all levels, as well as for consumers as they lose a tremendous amount of choices and freedom. The only party to gain utility in these scenarios is the network operator, although even they lose some utility as other integrated organizations restrict their content similarly, leaving a telecom like Shaw unable to offer their customers the sports experience they may desire, and having to come up with alternative content to keep customers using their services, whereas with a free and neutral system, competition on bandwidth technology

and system reliability could be focused on without having to consider all sorts of side media factors. Kantianism also again falls on the side of the argument against these practices, with universal laws of “a company may prevent a competitor from selling a particular product” and “an organization may ignore the wishes of those who assisted in completing a project in that project’s use” resulting in extremely fractured, selfish, and poorly functioning systems. Subsidiary company branches and consumers locked into a particular ecosystem are also utilized as a means to an end in increasing the value and revenue of one’s own services.

Overall, through an assessment of the history and foundations of the internet and the construction of the networks that carry it, particularly the goals laid out by citizens and governments in laying the groundwork for these companies, it can be seen that they have a responsibility to respect the neutrality and democratic ideals of these systems. Through an analysis of the stakeholders involved, from consumers, to content producers, to the network operators and service providers with a utilitarian point of view, it can be clearly demonstrated that neutral, open, and fair practices are the only way to maximize happiness and utility, whereas divisive and preferential practices only serve to increase the utility of a select few established and prominent parties. While they may be sizable, in comparison to the wide variety of those negatively impacted, this increased utility fails to provide a net increase or argument for these concepts being ethical from a utilitarian standpoint. Kantianism too, finds that in nearly all situations, an open and egalitarian system is the ethical means of ensuring that no parties are used as a means to an end rather than an end, and provides a balanced and sustainable set of universal maxims. From data throttling to preferential treatment for specific

content sources, be they third party or in house, actions by network operators to leverage their unique positions as gatekeepers on the internet are almost universally anti-consumer, anti-freedom, and anti-choice, and simply serve to cement established player's positions at the expense of competition and progress. Not gone into detail in this paper, but worthy of a passing mention, is the issues that arise when content becomes political. This is largely under the umbrella of 'hurting access to competitive content', assuming the network operator promotes their own specific sort of political stance, and can be assumed to be an extension of all prior arguments for protecting equal access to competition, but with a slight extra weight and impact to its effects on the populace. For these reasons, it can be seen that network operators and service providers indeed have an ethical duty to maintain impartiality in their delivery of data traffic. With great power comes great responsibility, and thanks to their tremendous ability to impact competition and the flow of information in a way few other parties are capable of, the ISPs indeed must shoulder that significant ethical responsibility.

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