IS1103 IS INNOVATIONS IN ORGANISATIONS AND SOCIETY: Take-home Assignment

This report is my own work effort and that I have complied with the NUS Code of Student Conduct.

Question 1.

Net neutrality is the principle that internet service providers (ISPs) should treat all content flowing through their cables and cell towers equally (IMDA, 2011). For instance, companies like AT&T should not be able to give preferential treatment to their own content or offer paid "fast lanes" for web traffic. They also should not block or throttle content such as by slowing down Netflix or blocking access to Voice-Over-IP applications like Skype (Wired, 2018).

The Federal Communications Commission (FCC) first proposed net neutrality policies and tried to enforce them from 2004-2014. However, when enforcing the policies, companies such as Comcast and Verizon sued the FCC. The federal court ruled that the FCC did not have the authority to impose such regulations. Thus, between 2005 and 2012, five attempts to pass the bills in Congress containing net neutrality provisions failed (Sylvester, 2017). Finally in 2015, FCC managed to successfully pass a net neutrality order approved by the federal court under Title II Order of the 1934 Communications Act by regulating ISPs as public utilities. However, when control of the FCC changed as a result of the 2016 election, the now Republican-controlled FCC voted to repeal the 2015 neutrality rules on December 2017, effectively throwing them out in their entirety (Wired, 2018). They re-classified internet service as an information source, rather than a common carrier.

The 2015 policies were repealed for three main reasons. Firstly, some argue that net neutrality is difficult to enforce in the first place due to the large scope of the internet. British computer scientist Neil Davies claimed that no tool could effectively measure if Internet sites were treated fairly. They further posit that net neutrality is thus not worth enforcing. They explain that net neutrality did not make networks faster, safer or cheaper over the years, so there's limited value in pursuing it (Bennett, 2017).

Secondly, opposing net neutrality benefits ISPs by giving them monetary profit. For example, AT&T required customers to subscribe to a more expensive text-and-voice plan to access FaceTime in 2012 (Huffington Post, 2014). As Ed Whitacre, CEO of SBC put it, "we have spent this capital (on the network infrastructure) and we have to have a return on it" (Gross, 2015). ISPs maximize their profit in this manner. Thirdly, the Trump administration uses the case of property rights - as the ISPs own the cables, they should have the right to do as they want with it (Ang, 2018). However, these rationale may not benefit the public.

On the other hand, FCC supported net neutrality in 2015 and it was institutionalized to ensure fair play, encouraging tech innovation and development. Without net neutrality, service providers can censor online content, slow down competitor's content and conduct various unjust practices. For instance, AT&T does not count its own DirecTV video service in one's data allowance plan, unfairly incentivising customers to use DirecTV over other video services (Forbes, 2016). In future, internet service providers may even allow companies to pay for priority treatment on broadband networks. This confers an unfair advantage since other companies, especially smaller ones, may not be able to afford the extra cost (Collins, 2018). Anti-competition practices weakens the competition and results in companies having less incentive to innovate and improve services for customers. In other cases, services are blocked like in the case of AT&T blocking Skype from 2007 to 2009 (Clark, 2017). Likewise, this hinders technology development and innovation when companies are preventing from growing. There is a loss of consumer welfare in terms of variety and quality of product due to reduced innovation, leading to negative social impact.

Next, when companies charge additional fees for access to certain services like VoIP, they short-change customer since some of them are on "unlimited" plans that are in actual fact, not unlimited. In future, consumers could suffer from pay-to-play deals or access fees (Schewick, 2014). Furthermore, without rules prohibiting paid prioritization, a fast lane could be occupied by big internet and media companies, as well as affluent households, while everyone else would be left in the slow lane, given that the United States does not have abundant bandwidth country-wide (Collins, 2018).

These are the reasons why net neutrality received widespread support from the public, computer science experts, consumer advocates and internet service providers. A poll by the University of Maryland found that 83% of the public were in favour of keeping the net neutrality rules (Wired, 2018). Several states are also taking up the fight for net neutrality, with Washington, New York, California passing its own net neutrality act.

Question 2. Singapore's Stance

Singapore has supported Net Neutrality since 2011, when the then Infocommunications Development Authority released a white paper detailing the policy. Singapore's stance has not changed since then and IMDA has been monitoring international development (The Straits Times, 2017). However, legal and Internet experts noted that Singapore does not strictly follow the definition of "Net neutrality".

Singapore's net neutrality policy prevents ISPs from blocking legitimate internet content. They also cannot implement practices which render content "effectively inaccessible or unusable". Thus, ISPs can still throttle Internet traffic, but they cannot do so to the extent that users are unable to access the content. This position which allows some form of traffic slowdown is similar to the FCC's stance after the 2017 repeal. However, unlike the US, this can only be done under specific scenarios like managing internet traffic. This can include slowing down the speeds of heavy Internet users who use so much bandwidth that other users experience slowdowns. ISPs can also apply bandwidth throttling for services such as BitTorrent. This ensures that Singapore remains the country with one of the fastest internet speeds.

ISPs can still offer specialized plans to differentiate them from the competition – for instance, they can offer zero-rating plans where certain services do not count towards a monthly data cap. This is unlike the FCC's 2015 policies which does not allow this. However, this is less of a concern in Singapore than in the United States because there are many service providers in Singapore which have alternative mobile plans that customers can choose from (Ang, 2018).

Next, Singapore allows ISPs to offer "fast lanes" to customers who can afford to pay more as long as this is not done at the expense of the average user. This is possible because unlike US, Singapore has sufficient bandwidth to handle data demands. There is no need to throttle one service in order to facilitate another. Additionally, ISPs have to comply with IMDA's information transparency requirement and disclose to end-users their typical Internet broadband download speeds and network management practices (IMDA, 2011).

Reflecting on the differences, generally, the FCC used to be stricter than Singapore, but has laxed the policy following the 2017 repeal. In the long run, Singapore should consider tightening its standards of net neutrality such as being stricter on specialized plans because it might negatively affect start-ups and small companies who do not have the advantage of partnering with a broadband provider. Alternatively, if competition among ISPs remains high with many players in the market, this may be less of a concern. Consumers would still be able to choose an ISP that caters to their needs, unlike in US where it is difficult to regulate the monopoly of ISP players.

Question 3: Personal View
My personal view is that Net neutrality should be enforced to keep the internet an open playing field. This is important for the benefit of the public. Secondly, it encourages technology innovation and long term growth as well. Even though there may be an argument for opposing net neutrality, ultimately, internet access being a public good entails that an even playing field is needed. However, the level of

regulatory strictness does depend on the country as different countries have different factors and needs that make net neutrality more important or less so.

Firstly, absence of net neutrality unfairly deprives the public of access to services that should otherwise be available. In 2005, Comcast secretly blocked peer-to-peer technologies such as BitTorrent and Gnutella without prior disclosure. The streaming speed of Netflix and Hulu were intentionally throttled as well because AT&T had a competing DirecTV voice streaming service. Additionally, AT&T blocked Skype and other competing VoIP phone services from the iPhone. Google Voice and Google Wallet were not allowed in the iPhone store since Google Wallet it competed with a similar service that Sprint, Verizon and AT&T were developing. From all these, customers are disadvantaged since they are unable to access the services despite the technology being available. Further, AT&T disabled FaceTime in 2012 unless customers subscribed to a more expensive text-and-voice plan (Karr, 2018). Evidently, ISPs restrict access to protect their own profit margins and interests. When the public cannot access services despite being on "unlimited" data plans, internet freedom is restricted.

Secondly, over the long term, tech innovation and development is hindered. Creative applications cannot develop fully when major ISPs block certain services or throttle its speed which negatively impacts growth. Especially when ISPs own a large market share like in the US, a company's actions has a significant impact. This is not equitable as well since the internet is a public good, as Former United States President Barack Obama explains. As he puts it, "our law has recognized that companies who connect you to the world have special obligations not to exploit the monopoly they enjoy over access in and out of your home or business". "It is common sense that the same philosophy should guide any service that is based on the transmission of information—whether a phone call, or a packet of data" (Obama, 2014). Fair competition over the internet should be allowed, and healthy competition on an even playing field can potentially lead to large improvements in product quality and innovation.

On the other hand, I concede that ISPs own their own cables and thus do deserve some autotomy to manage them. Even though they have a right to handle their own property, their actions have significant impact on the public at large. In the long run, this could hinder important innovations. For instance, if the Internet was severely restricted in the mid-2000s, we might not have Netflix or Youtube today (Wired, 2017). Thus, ISP companies' business practices cannot be done at the expense of the average consumers considering that the internet is a public good. Additionally, opponents argue that net neutrality rules results in investment in ISPs lowering by $150-$200 billion and loss of paid prioritization fees, and this cost is passed on to consumers. Nonetheless, it is worth noting that without net neutrality, customers also experience higher costs when they pay for access to certain services. Lastly, some claim that net neutrality is unnecessary since networks were efficient before 2015, in the absence of net

neutrality. However, the FCC has been attempting to enforce rules since 2004, and without their regulation, there might have been more severe negative consequences today.

Perhaps a factor for consideration is the country that the ISP is operating in. For one, one can consider the level which ISPs can be regulated. Singapore managed to prevent blocking of access to services, but this was difficult in the United States. The major players were of much larger scale and even won lawsuits against the regulatory body, the FCC, in the past. Thus, the United States requires stricter laws and more resources to enforce net neutrality. Another point to note is that countries such as Singapore have sufficient bandwidth for "fast lines", which allows for laxer net neutrality policies in that respect.

Thus, net neutrality should be enforced and not left to the market to decide. However, the level of regulation does depends on the country that the ISP is operating in.

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