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Net Neutrality and Nonprofit Fundraising: Will It Affect Us, and If So How Much?

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Abstract: In 2015, the FCC issued its most sweeping order protecting net neutrality. Fast forward to today's environment in which the FCC rolled back most net neutrality protections for consumers and producers of content on the Internet. The essence of such deregulation is that Internet service providers can discriminate among Internet users, allowing prioritization (for a price) in the transmission of their data. In this paper, we address different "discrimination" policies (regulatory regimes) to determine how they could affect nonprofits. We expect this research to inform nonprofits, policymakers, and consumers about technology and media policy for nonprofit organizations in the future.

Introduction

On December 14, 2017, the Federal Communications Commission (FCC) voted to allow Internet service providers (ISPs, or companies that provide subscribers with access to the Internet) to consider alternative methods of providing access to content and applications[i], potentially affecting the speed and access of particular services or websites. Most of the discussion of the FCC vote centered on the effect of deregulation on businesses and consumers, but very few researchers have thoroughly analyzed the effects of policy change on nonprofit organizations. Nonprofit leaders, concerned citizens, policy makers, and some consumer advocacy groups take the position that the policy change will increase costs to nonprofits, adversely affecting their ability to deliver services and reach desired mission outcomes.

Many make passionate arguments and raise great concern about the "end" of net neutrality as they have come to believe that the Internet belongs to all and is a vital resource or even a given "right" to provide freedom of speech, global access to information, and ways to participate in the global economy and society. Advocates, such as Consumer Reports, through its consumer advocacy division, Consumers Union (2017), and Kristin Nimsger, Chief Executive Officer at Social Solutions (2017) present articulate concerns about ending net neutrality. They perceive that Internet access has become a critical resource, and that limited or delayed access to information would disrupt operations and have financial ramifications for nonprofits.

Nimsger (ibid.) notes that many nonprofits have, and most will eventually use web-based applications, cloud-computing, webinars, podcasts, and other aspects of Internet technology

to provide financial and logistical support for needed services (for example, mobilization of staff and volunteers or movement of needed resources). Redirecting funds from programmatic needs to pay for ISP-imposed higher tier levels of service may affect the numbers of clients who can be served and the levels of service they receive. The current political climate in which many social service providing agencies face budget cuts exacerbates the problem. Further, the same concerns over tiered access to the Internet suggest that impaired access will negatively affect nonprofits' communication with funders, fundraising effectiveness, volunteers, and other stakeholders.

From the perspective of business leaders, these fears are unfounded. Harold Furtchtgott-Roth (2017), in a piece written for *Forbes*, notes that network neutrality advocates express their fears with great passion and concern, but states that

> "[t]heir concerns are more about hypothetical future bad outcomes, not about past bad outcomes before 2015. They present an unpersuasive argument that while we may not have needed network neutrality rules before 2015, we will need them in the future."

Net neutrality rules before 2015 and after December 14, 2017, align fairly closely, and advocates of deregulating the Internet assert that there is no evidence that any of the fears of consumers and net neutrality advocates are well founded. Further, deregulation advocates point out that while citizens and advocacy groups have made similar (regulation) arguments about television broadcasting, the major U.S. television networks, NBC, CBS, and ABC, act in the public interest in that they respond to consumer interests. A question remains as to whether and how much Internet access, which in effect has replaced or enhanced everything from Encyclopædia Britannica to patient-doctor conversations to raising funds for victims of natural disasters, mirrors characteristics of other media such as TV and radio broadcasting. "How much" of the Internet is a "public" good? Perhaps better

questions are whether, how, and how much could nonprofits be affected by changes in quality of service and price paid to ISPs?

The remainder of this paper is structured as follows. In the next section, we explain net neutrality and broad aspects of the Internet that affect arguments for and against deregulation. Section 2 presents a brief snapshot of ways nonprofits use the Internet. We follow this in Section 3 with a discussion of an ISP's strategic view on profits, investments, and the provision of service, including technical information on information transmission and what characteristics Internet users demand for various applications. Section 4 introduces different regimes or policies that ISPs could take to effectively discriminate among producers and consumers of Internet-based transmissions. In Section 5, we discuss nonprofit usage of the Internet and what the end of net neutrality means for different applications nonprofits choose to use. In the final section, we conclude, discuss limitations of this study, and provide recommendations for further research.

1. What is net neutrality and how does it affect ISPs and users?

Net neutrality, or the idea that ISPs must treat all content on the Internet equally, does not allow ISPs to discriminate against or charge different prices to users, content providers (such as nonprofit organizations, companies, and individuals[ii]), websites, platforms, or equipment on the basis of content. Tenets of net neutrality may include the following: (1) All content should be delivered equally; (2) ISPs should not be able to block legal websites or filter access to information, regardless of corporate bias; (3) Every person should be able to access legal content, applications, and services over the internet, without unreasonable discrimination. This includes not giving favorable treatment to corporate affiliates or

discriminating against certain users by identity, content of information, or type of service provided; (4) Not allowing ISPs to prioritize transmission; (5) Not allowing ISPs to degrade transmission "either intentionally or by failing to invest in adequate broadband capacity to accommodate reasonable traffic growth;" and (6) requiring ISPs to provide transparency (National AfterSchool Association, 2017).

At the root of many of the arguments for or against net neutrality is the interpretation of the Internet as a public good or service. Due to its characteristics, the Internet may be defined as a specific type of quasi-public service. Bernbom (2000) stated that the Internet is

> "a global collection of multiple, interrelated resource facilities, each of which may be analyzed as a common pool resource (CPR). The Internet is comprised of a physical network infrastructure (network commons), a vast and distributed collection of information resources (information commons) that are accessible using this infrastructure, and a global communications forum (social commons) that is created and supported by the Internet."

Common-pool resources (CPRs) have aspects of public goods in that it is difficult to exclude anyone from using a CPR; however, they also have aspects of private goods in that if use is unchecked, all users experience diminished benefits.

Individual users, such as nonprofits, certainly benefit from Internet use, and given its "free" nature, they have no incentive not to consume as much of it as they desire. Practically speaking, this means that whether an organization sends thousands of emails or a gamer plays live games for hours, they both are equal users who can choose to use as much or as little of the resource desired without regard to (or likely understanding) the costs of their choices.

Providers (ISPs) of computer hardware and networks (Bernbom's network commons), or the "physical layer" of the Internet, can only accommodate a limited amount of information. These ISPs finance the physical layer by charging customers for Internet service. While one might argue that ISPs charge enough to provide unlimited services, and that the Internet should be free and open to all once they have paid or find access to it (at a library, for example), real physical limitations exist. Due to these limited physical resources, when ISPs experience high usage, they have no legal mechanism by which to prioritize Internet use. All users should experience the same degradation in their service in longer wait time or lower quality, and critical first responders, Internet-based tele-medical services, and the like experience the same level of degraded service as, for example, gamers or those streaming movies. Further, as individual actors can target websites to attack servers with the intent to overwhelm capacity (because ISPs cannot drop traffic based on priority of information transmitted), their actions could prevent critical responses and public or nonprofit service providers from conducting their operations.

How could ISPs provide better services to customers? ISPs invest in physical infrastructure such as routers when their assessment of profitability suggests that investing produces greater net profits. They also improve their routing algorithms to move traffic more efficiently. Further, if their assessment of differentiating among customers leads them to believe they will earn greater net profits, they would like to change their policies for pricing and tiers of service. ISPs have the technology, and even under conditions of net neutrality discriminate legally against some users by excluding some types of content and users from access. For example, national governments use laws to block content such as hate speech, private information, pornography, and access to copyrighted or other intellectual property.

Under net neutrality policies, however, they cannot lawfully block or throttle (slow down one customer's Internet service) content, and they cannot charge users based on usage. Whether in hardware or software upgrades, or by charging different prices, an improvement in service provision generally requires resources, and from the ISPs' point of view, net neutrality limits the ways in which they may provide better (and more profitable) Internet service. Further, the possible solutions under net neutrality mean that ISPs must allocate resources from one or more actors in ways that do not necessarily affect the behavior of those who use the resources the most.

In sum, at the root of the deregulation argument is the tradeoff between compensation and profits for ISPs, or the network commons, and price or service quality for users, or the information and social commons. Open access norms change constantly, and policymakers as well as the public must continue to monitor and provide desirable, practical policies for Internet regulation, balancing the discussion of freedom of speech and information and global access with efficiency and compensation for service provision (including physical infrastructure)[iii].

We next provide a brief snapshot of growth of the Internet and nonprofit use of it.

2. The Growth of the Internet and Nonprofit Use

To begin to understand the effects of net neutrality on nonprofits, one must first consider the changes in Internet use over the past few years and the specific uses of the Internet by nonprofits.

Internet use worldwide continues to grow with even the most remote corners of the world gradually gaining access. In early 2018, the Global Digital Report 2018 showed that the

number of Internet users worldwide surpassed four billion, up seven percent from 2017. Social media users increased to over three billion, up 13 percent, and the number of mobile phone users surpassed five billion, up four percent (Kemp, 2018).

Nonprofits use the Internet in various ways to connect with global users to support their missions and meet organizational goals; to raise resources such as funding and volunteers; to increase social capital; to drive civic engagement; to increase political participation; and to promote awareness and action, among other activities. With respect to fundraising, for example, in 2017, U.S. nonprofits raised over $31 billion in online, up from $19.2 billion in 2012 (Nonprofits Source, 2018). Average online donations were $128 while average monthly donations for recurring donors were $52. U.S. churches that accepted tithing online reported increased overall donations of 32% from the previous year. “Giving Tuesday,” a “global day of giving fueled by the power of social media and collaboration (GivingTuesday, n.d.) reported that their one-day giving event raised $274 million in 2017, up from just $10.1 million in 2012[iv].

Some of the statistics provided by Nonprofits Source for U.S. nonprofits provide a point of departure for understanding how different Internet service provision regimes could affect nonprofit organizations. Table 2: Nonprofit Uses of the Internet shows some of the most useful statistics.

Table 2: Nonprofit Uses of the Internet

MEASURE	STATISTIC OR FACT
GENERAL NONPROFIT STATISTICS	
Average online donations for U.S. nonprofits in 2017; average for those making a monthly commitment	$128; $52
Average number of touchpoints (digital and other) it takes for U.S. nonprofits to reach a customer for the first time	18-20
How responses to fundraising campaigns vary by preferred technology and interaction with nonprofits, e.g., percent of Millennials responding versus those in the Greatest Generation in 2016	47% of millennials gave on a website, responding to texts and social media but rarely to calls or emails; those 75+ respond best to calls and direct mail
Percent of wealthy donors ($200K+ in income) who prefer to give online	51%
NONPROFITS AND WEBSITES	
For nonprofits using websites, traffic to websites declined by	1.4% of viewers each month in 2017
For nonprofits using websites, the average time it took to load the homepage and average time it took to load donation pages	3.181 and 2.816 seconds
NONPROFITS AND WEBSITES	
For nonprofits using email, the average number of email messages sent per subscriber in 2017	66
For nonprofits using email, the open rate emails	15-18%
For U.S. nonprofits, online donations accounted for	26-33% of all online revenue
For small nonprofits (under 100K email subscribers), the amount of donations received per 1000 subscribers	$71
For medium nonprofits (100K-500K email subscribers), the amount of donations received per 1000 subscribers	$36
For large nonprofits (over 500K email subscribers), the amount of donations received per 1000 subscribers	$32
NONPROFITS AND SOCIAL MEDIA	
For U.S. nonprofits, the percentage that paid for advertising on social media	31%
Percentage of social media visitors who take some sort of action for the nonprofit	55%
Percentage of social media visitor who donate money or make in-kind donations as a result of interaction	59%; 52%
Percentage of social media visitors who volunteer as a result of interaction	53%

NONPROFITS AND FACEBOOK	
For every order of magnitude increase in Facebook friends (10, 100, 1000), the "probability of success" ???? for the nonprofit increases drastically	9% to 20% to 40%
NONPROFITS AND CROWDFUNDING	
By updating supporters every 5 days, nonprofits using crowdfunding raise	3X more
How much more nonprofit crowdfunding campaigns raise with personal videos than those without	150%
NONPROFITS AND YOUTUBE OR VIDEO ON DEMAND	
Percentage of nonprofits on YouTube	28%
Number of nonprofit videos viewed in 2016	6 billion
Percentage of viewers who go on to make a donation to the nonprofit after watching a video	57%
Percentage of nonprofit video watchers who view similar videos within 30 days	68%
NONPROFITS AND TWITTER	
Percentage of people who engage with a nonprofit via Twitter who take some sort of action for the nonprofit	55%
NONPROFITS AND MOBILE DEVICES	
Percentage of mobile users who visit nonprofit website from a mobile device	51%
Increase in donations made by mobile phone users over past year	205%
Amount raised by Red Cross for Haiti's earthquake relief in a text-to-give campaign	$43 million
NONPROFITS AND CHURCHES	
Percentage increase in 2017 (over 2016) of tithing for U.S. churches that accept tithing online	32%

Of note from these statistics are a few key points. The first is that nonprofits must make repeated contact with customers (such as clients, donors, and volunteers), as these data suggest it takes, on average, 18 to 28 touchpoints before reaching them for the first time. Nonprofits may find that taking multiple approaches, especially digital, to reach these critical stakeholders benefits them. Further, social media use is critical. While website visits are

declining, many stakeholders still interact with them, and the speed with which visitors can find sites and load pages matters. Further, nonprofits pay for advertising on social media, and the response rate in terms of visitors who take action, donate, make in-kind donations, or volunteer are all over 50%. With YouTube reporting over six billion nonprofit videos viewed in 2016, and the similar high percentage (over 50%) of visitors who take action after watching a video, or engaging with a nonprofit via Twitter or mobile device, it is clear that nonprofits find social media effective. Their continued successes depend on Internet access and the ability to use various Internet-based applications.

To analyze the effects of ISP policies on nonprofits requires one to understand some of the aspects of Internet provision that affect prices and qualities of service for various Internet applications. We now address how the Internet works with respect to data transmission.

3. How Does the Internet Work? Information transmission, types of transmissions, and nonprofits

Since its inception, the Internet has worked by dividing messages, or other information, into data packets that are routed through the network autonomously to their end destination. By design, the packets are routed without intervention in the process and as soon as possible (Kramer, Wiewiorra, & Weinhardt, 2013). To get packets to their destinations as fast as possible, not all packets take the same route, and they do not necessarily arrive in order. Moreover, packets can end up in router queues; if they arrive faster than the router can send them out, they can be dropped if the queue is full.

Under net neutrality the Internet essentially operates as a common resource as described above. Full queues cause congestion and important pieces of information can be dropped. ISPs cannot prioritize traffic in the queue, which is processed first-in first-out. As noted

above, net neutrality means that ISPs should or must treat all Internet data as the same regardless of its kind, source, or destination, which is problematic for (at least) two reasons.

The first is the classic CPR problem, noted above, in which content producers and consumers have no incentive to limit packet transmission. In some cases, they have incentives to produce extra. Moreover, ISPs do not have incentives to invest in better data transmission infrastructure as they receive no compensation from doing so without raising their rates. Whether ISPs would invest more, however, if they were compensated for the use of or investments in the infrastructure is an open question given their market power. Data from *PC Magazine* (Segan, 2017) show that almost all U.S. households have access to fewer than five ISPs, with approximately 85-90% having access to fewer than four. For greater processing speeds, the vast majority of U.S. households have access to fewer than three[v]. Thus, ISPs operate as monopolies or oligopolies, and their market power provides them the opportunity to make excess profits. While the profits may be used to improve service delivery, some or all of them may be used for other things such as higher salaries, nicer facilities, and other perks to owners, managers, and employees.

The second problem stems from the fact that not all data traffic is the same. Four important aspects of traffic are latency, bandwidth, throughput, and jitter. Comer (2014) explains three of these concepts in what we have labeled, Figure 1: Delay, Capacity, and Variability in Internet Transmission.

Figure 1: Delay, Capacity, and Variability in Internet Transmission (Comer, 2014)

Measure	Description
Latency (delay)	The time required to transfer data across a network
Throughput (capacity)	The amount of data that can be transferred per unit time
Jitter (variability)	The changes in delay that occur and the duration of the changes

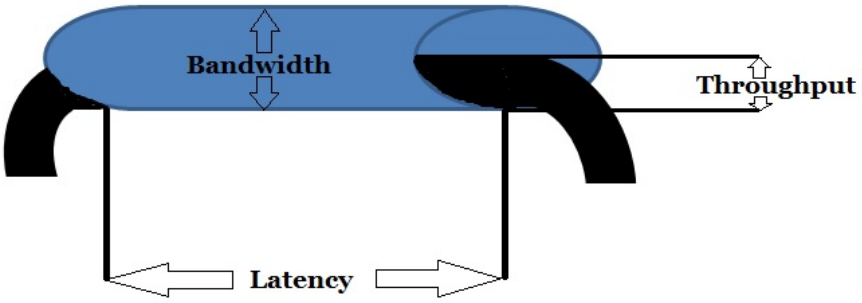
Figure 27.1 Key measures of data network performance.

Some data transmission is time critical (requires low latency or little delay before a transfer of data begins following an instruction for its transfer). For example, users want voice calls to have no discernible delay between speakers (low latency). These same users also want to receive a steady flow of data in the right order (low jitter). Real-time voice and video communications including logistics, tele-medical, online meeting, and gaming uses depend on low latency and jitter[vi].

Bandwidth and throughput also contribute to quality of service. Bandwidth is the maximum amount of data transfer that can pass through a communication channel (PerfMatrix, 2017). Throughput measures the amount of data moved successfully from one place to another in a given time period, often measured in megabits per second (Mbps) or gigabits per second (Gbps) (Ibid.). As shown by PerfMatrix, (in this paper, labeled Figure 2: Information Throughput), the amount of information that passes through a communication channel depends on bandwidth and latency (delays) in transmission.

ISPs currently label data packets with information about the type of service they provide, and as labels allow prioritization of certain types of traffic, ISPs could differentiate the

Figure 2: Information Throughput (PerfMatrix, 2017)



packets based on the kind of data they carry. Under strict net neutrality, this is prohibited. Content providers, in response, have come up with technical solutions to the problem, sometimes by sending extra packets, compounding the Internet congestion problem. In the nonprofit world, repeated emails, for example, are common methods to raise awareness of the organization's missions and goals, and to solicit donations. Nonprofits Source (2018) reported that for every 1000 emails a (U.S.) nonprofit sends, the organization raises $42. In order to increase donations and the odds that a subscriber to the nonprofit's page or list responds, and as massive email blasts are currently "free," (included in the price of Internet service), nonprofits understandably send them repeatedly. In 2017, the average nonprofit sent 25 fundraising emails to each subscriber during the year. The average number of all emails sent was 66 and ranged from 34 to 89 per subscriber[vii]. The lack of prioritizing, while seen as a negative for many, also means that packets used to transmit gaming content (or the nonprofit's 89th email blast) get the same priority as those transmitting life-saving surgeries done in real time.

Hintersteiner (2015) provides a useful table, (which we have named Figure 3: Internet Application and Quality of Service), showing quality of service requirements for various types of Internet applications. Of importance to nonprofits will be the methods they currently use and plan to use to engage with their stakeholders. Those using email and web browsing

Figure 3: Internet Application and Quality of Service (Hintersteiner, 2015)

Application Type	Throughput Demand	Latency Tolerance	Jitter Tolerance	Loss Tolerance
Email	Low	High	High	High
Web browsing	Low	High	High	High
File transfer (FTP)	Low - High	High	High	High
Chat (IM)	Low	Medium	Medium	Medium
Video streaming (e.g. surveillance)	Medium - High	Medium	Medium	Medium
Video on demand (e.g. YouTube / NetFlix)	High	Medium	Medium	Low
Voice over IP / WiFi	Low	Low	Low	Low
Videoconferencing (e.g. Skype, FaceTime)	Medium - High	Low	Low	Low

have relatively high tolerances for lower quality of service, i.e., latency, jitter, and loss. However, nonprofits using remote telemedicine, such as Doctors Without Border (Doctors Without Borders/Médecins Sans Frontières (MSF), 2016) use the Internet not only to receive information by text or message but to undertake procedures by videoconference. Those using Wi-Fi connections, Voice over Internet Protocol (VoIP, which comprises many voice communication features such as conference calling; forwarding calls to multiple numbers in the field; low cost long-distance calling; forwarding voicemail; auto attendant; and other features)[viii], live streaming, and videoconferencing (Skype, FaceTime, etc.) applications demand a much higher quality of service, having low tolerance for delays or

variability in quality on either end. Thus, various nonprofits will be affected by ISP policies and regimes depending upon their uses of Internet services.

In the next section, we provide examples of possible ISP changes to service provision under a deregulated environment.

4. What happens without net neutrality?

At its most basic level, relaxing net neutrality rules forces users to pay in some way for the amount of the common-pool resource they use. We can classify users as both producers of content and consumers of content. While information to date about actual behavior remains relatively sparse, on the day that the FCC voted to end net neutrality, The Verge (Kastrenakes, 2017) reached out to 10 ISPs to "see what their stances are on three core tenets of net neutrality: no blocking, no throttling, and no paid prioritization." Out of the 10, few made commitments to retain these policies. None made a commitment or would even comment on paid fast lanes and prioritization. Kastrenakes (ibid.) speculated that, "ISPs likely won't go out and block large swaths of the web, but they may start to give subtle advantages to their own content and the content of their partners, slowly shaping who wins and loses online."

Early indications, however, suggest the changes will not come so slowly. A new study by Li and Choffnes (2018) using over 100,000 observations in 157 countries shows that, even before the repeal of net neutrality, "almost all the major cellular ISPs in the US implement application-specific differentiation policies, including AT&T, T-Mobile US, Verizon, MetroPCS, Cricket, Boost Mobile" (abstract). They also find evidence suggesting the practice happens in the UK and Germany, and most important to this study, that "the most commonly

implemented practice is bandwidth throttling for video streaming applications. For example, most of the ISPs listed above limit the bandwidth of YouTube to 1.5 Mbps over cellular" (abstract). Further, some countries block applications; for example, UAE blocks Skype. Their research goes on to state that throttling did not occur due to congested networks but rather appeared to be specific only to certain types of use.

In addition, headlines are beginning to show instances where ISPs have throttled users based on their data plans. In a shocking example, Verizon slowed the Santa Clara County Fire Department's "unlimited" Internet connection in the midst of the largest recorded fire complex in California history, the Mendocino Complex Fire (Murdock, 2018). The Department's mission, to "track, organize, and prioritize routing of resources from around the state and country to the sites where they are most needed," was of little consequence to the Verizon customer service representative, "an accounts manager called Silas Buss [who] suggested upgrading to an internet data plan costing '$99.99 for the first 20GB and $8/GB thereafter'" (ibid). At the time, the Fire Department's IT team found data rates were being reduced to 1/200 of its previous speeds. When called upon to explain (and now they will have their chance in court), Verizon said,

> "Like all customers, fire departments choose service plans that are best for them. [...] "This customer purchased a government contract plan for a high-speed wireless data allotment at a set monthly cost. Under this plan, users get an unlimited amount of data but speeds are reduced when they exceed their allotment until the next billing cycle" (ibid).

Both of these situations suggest that ISPs have ignored or exploited tenets of net neutrality and even public safety with their actions.

Finally, current regulation requires only that ISPs be transparent in their policies. The requirement will be difficult to implement and monitor. A quick Internet search of today's

environment shows that companies report varying information, sometimes in public statements, and other times, in the fine print of service provision terms. For example, in June of 2018, Comcast made a public statement that it had disabled a throttling system deployed in 2008 to slow down heavy Internet users. However, Brodkin notes that "Comcast still imposes data caps and overage fees in 27 states, claiming that it limits the amount of data customers use each month 'based on a principle of fairness.'" (2018). It remains unclear if and how ISPs will impose policies that prioritize traffic from some users over others. However, as we have suggested, evidence is beginning to show that ISPs throttle due to a user's service plan choice or type of use rather than only when necessary.

Below, we highlight some of the possible regimes or courses of action ISPs may take, which include maintaining the status quo; taxing email or other type of usage; various discrimination regimes; and "Opt-in" discrimination, or "Internet Light."

Do Nothing, or the Status Quo

Under the status quo, all Internet traffic remains equal. In this scenario, when ISPs experience high traffic conditions on a network, they do nothing, and the quantity of data uploaded by content providers or downloaded by end users may naturally experience a slowdown in Internet speed. This is not considered throttling as the ISP does not deliberately throttle (slow down) one customer's Internet service to increase the bandwidth of another's. All users may experience delays, which may not be acceptable to some, and the ISP leaves on the table the possibility to generate increased profits by discriminating among users.

Tax on Email or Other Type of Usage

For nearly two decades, researchers have examined various ways that Internet users could be forced to pay for service based on their usage. An early proposal was to tax emails users to reduce spam traffic. This practice comes from a fairly long literature on information overload based on the concept that when reaching out is cheap or free, no user has an incentive to reduce communication, and (as with advertising) email provides the opportunity to reach out to large swaths of people freely and easily, (See, for example: Anderson & Coate, 2000.) This type of information overload often imposes a nuisance on the receivers of these communications and results in the situation where users ignore messages (ibid.). Nonprofits impose such "costs" on their subscribers; for example, Nonprofits Source states that in 2017, nonprofit subscribers did not open 82-85% of emails received (2018). A small, penny per email tax, for example, may have minimal economic impact on those who send a few emails and would discourage repeated mass mailing and help cut down on information overload (Anderson & de Palma, 2009). Van Zandt (2004) points out that such a tax is most beneficial to those who know their target audience because their audience becomes more receptive to the message. We could not find literature substantiating this claim specifically for nonprofits and in fact believe such a policy may be hard on nonprofits with limited budgets. As Nonprofits Source (2018) reports that nonprofits send, on average, 66 emails to subscribers annually, a quick analysis reveals that a nonprofit with 50,000 subscribers would pay an extra $33,000 per year ($0.01 per email *50,000 * 66). We could also find no suggestion that this pre-2015 course of action might be resurrected today.

Discrimination by User and Message

Of largest concern to many is the idea that ISPs could discriminate purely on the basis of the user and the message. Some historical examples suggest that this practice occurred before net neutrality protection was passed in 2015. For example, in a 2007 dispute between the abortion rights group NARAL Pro-Choice America and Verizon, Verizon refused to allow NARAL to use its network for a promotional text message program, citing its own right to block "controversial or unsavory" content (Huffpost, 2017). The article goes on to quote Erin Shields, who works as the national field organizer for Internet rights at the Center for Media Justice, as saying that, "[s]he sees that potential for censorship as a problem. 'It's not a stretch to believe that, moving forward, we may see some kind of censorship of content that concerns things that corporations might find controversial.'" Ms. Shields goes on to suggest that "that even asking a nonprofit to pay for quicker delivery speeds can be detrimental to their cause, as it leaves that organization with fewer resources to, say, support LGBT youth" (ibid).

Two factors suggest that this may not have a significant effect on nonprofits. The first is that ISPs could experience a "downside" of engaging in such a discriminatory practice by opening up the ISPs to discrimination charges. The Santa Clara Fire Department story and resulting legal case suggests that public outcry (and possible legal action) is bad for business; thus, such discrimination may prove to be more challenging for corporate interests than allowing a more open Internet. Secondly, it may be reasonable to think that such discrimination could benefit nonprofits. ISPs could choose to charge lower rates to nonprofits and perhaps public organizations than to for-profit entities to "level the playing field" somewhat given the

smaller “excess” resources these organizations typically have when compared with for-profit corporations (Peitz & Schuett, 2016).

Discrimination Through Pricing by Quality of Service

One of the most common proposals for relaxing net neutrality would allow ISPs to charge content providers different rates for different quality of service levels. In particular, content providers would pay to have particular types of packets delivered with low jitter and low latency, such as videoconferencing using Skype or transmission of emergency services’ critical communications. The potential upsides of such a regime include reduced redundancy of time-sensitive packets from content providers, reduced Internet congestion, and that overall, time sensitive users would realize better quality. (Economides & Taag, 2012; Peitz & Schuett, 2016) This practice appears to have taken root, at least with some ISPs: Comcast’s June 2018 statement suggests that it is not averse to requiring users to pay more for better service or experience degradation in service when conditions warrant one or both. The statement said, “[w]e reserve the right to implement a new congestion-management system if necessary in the performance of reasonable network management and in order to maintain a good broadband Internet access service experience for our customers [,,,]” (ibid.).[ix] Further, it said that their technique will “identify which customer accounts are using the greatest amounts of bandwidth, and their Internet traffic will be temporarily managed until the congestion period passes. Customers will still be able to do anything they want online, but they could experience longer times to download or upload files or slower Web surfing.” (Brodkin, 2018).

Choi, Jeon, & Kim (2015) state that extracting new profits could lead ISPs to invest in better content delivery for higher-paying users. As such, deregulation could improve overall efficiency and effectiveness, incentivizing ISPs to invest in infrastructure and encouraging competition for better services even when such services operate with some market power. Some evidence for this increase in efficiency comes from Hazlett and Caliskan (2008) and Waverman, Meschi, Reillier, and Dasgupta (2007), who find that deregulation in the United States and Canada increased subscribership of the deregulated providers. Further, Faulhaber and Farber (2010) find that net neutrality reduces investment incentives in broadband infrastructure provision.

On the downside, Greenstein, Peitz, and Tommasso (2016) argue that two-sided pricing, may shift resources or profits from content providers, such as nonprofits and businesses, to ISPs, and depending on the heterogeneity of content providers, may lead to some being priced out of the market. One might surmise that nonprofits with fewer resources might fall into this latter category. Economides and Taag (2012) argue that if infrastructure investments do not result, consumers could pay higher prices for very little gain.

More perniciously, (and as the Verizon/Fire example suggests) Choi, Jeon, and Kim (2015) argue that monopoly ISPs may distort quality to those users who do not pay for high quality, thereby forcing at least some of them into the more expensive high-quality bracket. The fact that 10 ISPs would not comment on whether they might charge for higher tiers of service suggests that they are not averse to penalizing users who pay for the lower-quality options. Under this regime, monopoly ISPs have another reason to invest less as restricting supply of high-quality service allows them to extract higher payments for their high-quality service (Choi & Kim, 2010)

Discrimination through Agreements with Content Providers

Large scale content providers could benefit from agreements with ISPs. In 2014, for example, Netflix, one of the largest video streaming services, and Comcast, which was at the time the country's largest cable and broadband provider, announced that Netflix would pay Comcast for faster and more reliable access to Comcast's subscribers (Wyatt, 2014), (Greenstein, Peitz, & Tommasso, 2016). More troubling, perhaps, is that ISPs could discriminate through promoting their own content over a competitor's, as was the case when Madison River Communications blocked Vonage VOIP services, and Comcast interfered with Bit Torrent traffic (Federal Communications Commission, 2010). However, Faulhaber (2011) suggests that in many cases ISPs would hurt their own market prospects if they fail to deliver quality products from their competitors, and in many other markets even monopolists offer competitor products alongside their own. He also argues that ISPs may offer smaller players better deals (such as promising not to throttle services or raise rates on certain users, like nonprofits) and extract rents from the biggest players.

"Opt-in" Discrimination or "Internet Light"

Another possible kind of tiering for end users, a service already available in developing countries, permits users to opt for an "Internet light," which allows users to visit a limited number of websites/platforms for a reduced price. For example, Facebook launched Free Basics in 2014, which provides people in developing countries free access to a handful of websites. This would push traffic to a few platforms, making the big platforms even bigger, and make routing masses of people to unique small sites much more difficult.

5. Nonprofit Usage and the End of Net Neutrality

To condense the effects of deregulation on nonprofits into something useful for a nonprofit leader, manager, or board we used Figure 3 to divide nonprofit Internet use into two groups. We examine email, web browsing, file transfer (FTP), and chat services together in the first group, and video streaming, video on demand (e.g., YouTube, Netflix), VoIP / Wi-Fi, and videoconferencing (e.g., Skype, FaceTime) in the second.

Group 1: Email, Web Browsing, File Transfer, and Chat Services

Many nonprofit organizations use Internet applications that do not require the highest quality of Internet service provision. Applications in this category and respective experiences and likely actions by nonprofits include the following.

Nonprofits that rely on email and web browsing to allow stakeholders to donate or volunteer for activities and for information may experience little effect of lower-tiered service unless users cannot get to their website or open their pages in a reasonable amount of time. Except under the case of Internet Light (or the older suggestion to tax emails), the typical nonprofit would likely do nothing.

Nonprofits that transfer large files using some sort of file transfer protocol (FTP), e.g., HTTPS, FTP, FTPS, and many others), and especially those that use cloud-based file storage such as Box, Dropbox or OneDrive may experience degraded services or higher prices. These nonprofits could experience slow file transfer or slow service or increased prices of their selected cloud-based storage applications. Further, if their chosen applications (and parent companies) increase prices or affiliate with other content providers or ISPs in a way that is

not advantageous to the nonprofit, nonprofits will experience negative effects. The amount of Internet advertising aimed at nonprofits suggests that many firms currently seek to provide these services to nonprofits. In most cases, the effects would likely be small, suggesting again that the typical nonprofit would do nothing.

Nonprofits that use chats or chatbots (artificial intelligence that holds automatic "conversations" with users, such as Siri) (Lynch, 2017) may experience lower effectiveness of their applications. Examples of these services include: The Climate Reality Advocacy Bot (chatbots), which are used by the environmental advocacy Climate Reality on its Facebook page to provide alerts and awareness information for interested subscribers (along with leads for the nonprofit); and the Hellovote chatbots app (via web page or text) from Fight for the Future (and Fight for the Future Education Fund), which provides users with everything needed to vote (ibid). As long as nonprofits use automated chatbots on large platforms such as Facebook, they may experience little degradation in service. However, nonprofits using live chats, such as The University of Denver, PBS, and The Foundation Center, may experience moderate service quality issues and may have to reconsider the platform on which they host their chats. Again, the amount of Internet advertising for chat services suggests a relatively large nonprofit market for such applications, and their quality needs along with increased ISP power may lead to price increases.

These applications were categorized as Group 1 because, in general, throughput demand for these services tends to be low (possibly moderate in the cases of those nonprofits maintaining and transferring large files, and those using live chat applications). For all except live chats, tolerance for latency, jitter, and loss is relatively high. (For live chats, tolerance is categorized as "medium.") The overall effects, while perhaps little to moderate

in terms of price increases and degradation in service, may be relatively few choices, forcing nonprofits to adjust their strategic communications and fundraising plans to minimize cost and to attract stakeholders by using the most efficient and effective applications possible. A nonprofit's combination of desired Internet uses will push them in the direction of ISP plans, and given more limited selections over time, nonprofits could face higher monopoly prices for no improvement or increases in service.

Group 2: Video Streaming, Video on Demand, Wi-Fi and VoIP, and Video Conferencing

Where we expect we may see significant effects in terms of price, quality of service, and choice, is in our second category of Internet use, which includes applications with either high throughput demand or low to medium tolerance for quality (latency, jitter, and loss) or both. Many of these services are increasingly used and thought to be effective by nonprofits. For example, live-streaming video, according to Julia Campbell (2017) "on Facebook, Instagram, Periscope, etc., is all the rage for nonprofits who want to up their digital storytelling game." The Metropolitan Museum of Art, The Humane Society of the United States, Red Nose Day, and other nonprofits have used live video series, live newsjacking and commentary, and live crowdsourcing to interact successfully with supporters while an event is happening (ibid). Even educators are getting into the action: The Edyth Bush Institute for Philanthropy and Nonprofit Leadership at Rollins College uses Facebook Live events to get people excited about their upcoming courses (Jackson & Bacon, 2018). Campbell states that live-streaming video is the most popular form of video content on the web today, and one that she sees as an innovative way to "create an authentic connection with supporters."

While live-streaming may still be in the realm of larger, more established nonprofits with more resources, many other services a typical nonprofit uses fall into Group 2. For example, most Internet users, including nonprofits, use Wi-Fi connections, and ISPs and other companies routinely sell VoIP as part of Internet packages, with Vonnage, Ooma, Grasshopper, and Comcast perhaps being some of the most familiar. VoIP services allow nonprofits to make and receive calls through their Internet service rather than using a traditional phone carrier (although with the mergers and concentrations occurring in telephonic, digital, and other technology companies, formerly diverse companies either become one or work together to provide a convenient, one-stop shop for phone, Internet, TV / cable / satellite, and other services). In the past, VoIP has often been a cost-effective solution for organizations, and nonprofits have used them to deliver information to their volunteers, donors, co-workers, and employees, and to communicate in real time, in different locations.

Finally, nonprofits make good use of video conferencing solutions such as Zoom, Skype, and GoToMeeting to manage their organizations, fundraisers, and events.

To understand the possible effects of the end of net neutrality on Group 2 Internet applications, consider the stages of live streaming. First, the source of the signal is the nonprofit's contracted ISP or for an event held at a different location, the ISP contract for the entity providing service at that location. The nonprofit or event entity pays for a fast Internet connection so that the nonprofit can stream and attendees can tweet and email. Under deregulation, the nonprofit or event host may have to pay more or have special deals with their ISPs to offer events that require high-quality service (Espey, 2017).

Secondly, the nonprofit uses a content delivery network (such as Facebook or YouTube) to upload live stream and distribute it to viewers anywhere in the world. In the future, nonprofits may be faced with little choice in provision of content delivery networks or the prices they must pay as the networks possibly arrange better business deals with ISPs for uploading or streaming content. One might argue that this is the case now, and it is, but as ISPs begin new regimes, working with them potentially becomes more difficult and "exclusive," and nonprofits may be forced to make choices about which platforms they use, with fewer choices and higher prices.

Finally, viewers of content have their own service plans, and their connection speeds and resolution of video depend on those plans. Whether end users wish to see video on demand or live stream events, ISPs will have the opportunity to charge higher prices for better access. Given the likelihood that ISPs will discriminate among Internet users, it may be the case that nonprofit messages that were relatively inexpensive to access under 2017 or today's ISP plans will become cost prohibitive, whether to the nonprofit, its stakeholders, or both in the future. This will limit the number of stakeholders reached, potentially having devastating effects on a nonprofit's ability to interact with them.

VoIP, Wi-Fi, and other applications requiring high quality service provision will likely be affected in similar ways. Corporations, as owners of the network commons, have the option to block or throttle content, and can provide "fast lanes" for their preferred partners. Such actions could cripple VoIP systems, causing nonprofits to lose their ability to communicate effectively.

In the future, then, one might expect ISPs to act like cable providers, providing different packages for different prices, thereby controlling what users see and how they see it based on a nonprofit's or individual's ability to pay increasing fees. Based on current practices, one might also expect that ISPs will explicitly target uses such as video teleconferencing and live streaming. Preferential treatment for some companies is also likely to inflate prices for these and other services (Espey, 2017). Unless some providers offer discounts to non-profits, we expect this will slow the adoption of effective but expensive applications. In the event that ISPs do not offer nonprofits and other public organizations a better rate for high quality service, it is quite possible that many nonprofits will be priced out of the market for using Group 2 applications.

6. Conclusions and the way forward

In sum, nonprofits use the Internet in various ways: to connect with global stakeholders to meet organizational goals; to raise resources; and to promote awareness, action, and engagement. They have adopted different Internet-based applications that suit their mission needs and continue to expand their uses of social media and other methods to interact with their stakeholders. Many have come to rely on high-quality Internet service to provide critical services through applications such as telemedicine, and online conferencing.

At the same time, net neutrality may cause resources to be overused: too much email; too much peer-to-peer (computer systems connected through the Internet) traffic; an incentive structure that encourages sending out the same information multiple times; and providing the incentive for too little investment for physical infrastructure. Recent changes in policy, not only in the U.S., but in many parts of the world, however, have allowed ISPs to change the way they are doing business to address some of these resource limitations. These

changes to the provision of Internet services will have an effect on a nonprofit's ability to be successful. Non-profits that use the Internet exclusively for applications with lower bandwidth requirements that can be delayed or experience variation in delay, may experience little to no change in the price or quality of their Internet service. However, they may experience having fewer choices of plans, and in the longer run, may experience price increases due to the monopolistic nature of the market and the policies that ISPs may undertake.

Nonprofits that use social media, particularly those using applications that require higher quality service, may face significantly higher costs to maintain quality, and non-profits wishing to innovate through new web applications may find themselves priced out of the market. Given that response rates to many forms of social media interaction are very high, these changes could have devastating effects on not only individual nonprofits but the sector as a whole.

What are possible remedies to this situation? As a first step, nonprofit researchers, practitioners, advocates, and citizens in general must emphasize the importance of transparency as it can lead to better outcomes for nonprofits, their clients, and consumers. In the longer run, these concerned organizations and individuals must find others with like minds to push for greater regulation in the provision of Internet service. While it may not make sense to force all of the tenets of net neutrality described in this paper, stories like Verizon's treatment of Santa Clara Fire show that it only makes sense to manage the information and social commons part of the internet differently. Informing consumers about the cost of their choices and differentiating for the public good would be good starting points. Managing the network commons, or ISPs, as a public utility, may provide better long-

term service, albeit at a higher price. However, the higher price may be worth the ability to hold ISPs accountable for providing a quality of service commensurate with their resources without allowing them to make excess profits. Without a concentrated effort, the continued successes of nonprofits that depend on Internet access cannot be guaranteed as increased costs and lower quality adversely affecting their ability to deliver services and reach desired mission outcomes.

Limitations: U.S. data only

Limited knowledge of and experience with ISPs post 2017 net neutrality

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[i] In December, 2017, the FCC's deregulation (end of net neutrality) vote allowed ISPs to deliver services as they choose. The only condition stated is that ISPs must disclose their policies on network management practices, performance, and commercial terms. Thus, ISPs may throttle or block content and may charge different prices as long as they admit it. (See, for example, Kastrenakes, (2017).)

[ii] Writers use terms quite loosely, that if more specific, would be helpful to understand net neutrality concepts. For example, an Internet content provider can be either an organization or website that handles the distribution of online content, which includes blogs, files, music, and videos. Online producers may be web producers, publishers, content producers, or online editors, and oversee the making of this content.

[iii] In order to provide Internet service at a quality desired by the public, one of two things must occur. Either governments provide a market-based but potentially regulated framework for the provision of Internet services, or they make the Internet a publicly-owned system, which requires providing all funding for infrastructure, maintaining of the network, charging customers (whether through taxes or as individual users), and regulating its use. Neither efficiency nor effectiveness are likely outcomes of government provision, and in most, if not all, countries, ISPs will continue to provide the infrastructure of the Internet.

[iv] The top issues online donors discussed were for the following causes: public and societal benefit, human services, education, health, environment and animals.

[v] For example, for download speeds of >=25 megabits per second (Mbps), 91% of households have access to fewer than three, and for speeds of <=100 Mbps, 91% have no access, eight percent have one ISP provider, and one percent have two (Segan, 2017).

[vi] Those assessing network service examine both delays and "packet delay variation (PDV)," which looks at the deviation from mean transmission time and is an important quality of service factor

[vii] At the high end, environmental nonprofits sent an average of 89 emails, and at the low end, healthcare nonprofits sent an average of 34.

[viii] This assumes the VoIP service is Internet and not based on a private network.

[ix] Comcast further noted that, "This technique will identify which customer accounts are using the greatest amounts of bandwidth, and their Internet traffic will be temporarily managed until the congestion period passes. Customers will still be able to do anything they want online, but they could experience longer times to download or upload files or slower Web surfing."