

The Post-Internet Order Broadband Sector: Lessons from the Pre-Open Internet Order Experience

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Abstract A significant component of the contentious debate over the Federal Communications Commission's (FCC) 2015 Open Internet Order (OI 2015) has been its effects on future broadband investment and the development of Internet content and other applications. Although such debate can advance understanding of the potential consequences of the OI 2015, much of it, albeit informed by economics, is of necessity speculative. It may be useful to see how experience up to OI 2015 might be informative. That experience is notably thin, with the FCC's citing two to four instances in ten years that would have violated OI 2015. After explaining why the OI 2015 order and its predecessor may be largely non-binding, we look at the four examples for lessons in what kinds of behavior OI 2015 might prevent. This experience suggests that non-economic concerns should have been more explicit in OI 2015.

Keywords Net neutrality · Telecommunications · Regulation · Political economy

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1 Introduction

To understate the obvious, much has been written about “net neutrality” in general and the Federal Communications Commission's (FCC's) “Open Internet” Order issued in February of 2015 (Federal Communications Commission 2015, hereafter

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“OI 2015”). Some of that writing has applied industrial organization economics to potential consequences of vertical control by broadband providers in imperfectly competitive markets, including investment incentives and discrimination in prices and services, and ways to resolve network externalities (Farrell and Weiser 2003; Hermalin and Katz 2007; Choi and Kim 2010; Brennan 2011; Economides and Tåg 2012; Economides and Hermalin 2012; Litan and Singer 2014). OI 2015 paid specific attention to issues raised by price discrimination in intermediate good (input) markets (OI 2015 at ¶126, citing Katz 1987; Yoshida 2000). Many commentators have focused on the importance of fair and nondiscriminatory access to the Internet when innovation, social inclusion, and civic participation depend ever more on such access (Ganley and Allgrove 2006; Newman 2008; Lee and Wu 2009; Schewick 2012; Mehta 2015). Others have discussed whether net neutrality policies are consistent with the architecture and operation of the Internet (Yoo 2010; Claffy and Clark 2014).

Most of the commentary has centered on a number of legal issues. Some of these are part of wider debates about the extent to which regulatory agencies can act without explicit Congressional direction. In this context the question is whether the FCC followed the procedural requirements of the Administrative Procedures Act¹ (raised in Pai 2015) or whether it acted within the boundaries of agency discretion established in the *Chevron* case² and questioned recently in the *Obamacare* case *King v. Burwell*.³ Other legal questions are narrower. Commenters have questioned whether the FCC established a record sufficient to reverse its 2005 classification of “broadband Internet access service” (BIAS) as an unregulated “information service”, or attempted to regulate the price BIAS providers charged content (“edge”) providers for delivery to end users without following appropriate regulatory processes, such as hearings to determine just and reasonable rates (Ford and Spiwak 2014a; Pai 2015).

In the midst of all of this discussion, it may be useful to see what we can learn from past experience about what may happen if OI 2015 survives legal challenges. The record of alleged (rather than theoretical) conduct that the FCC cited in support of OI 2015 is meager. It cited two incidents that were challenged prior to issuing an Open Internet Order in 2010 (“2010 Order”), the reversal of which by the D.C. Circuit in 2014 precipitated OI 2015.⁴ It mentioned two other incidents since then, making a total of four, which are listed below.

The thinness of this record, especially since the reversed 2010 Order, is particularly noteworthy because of the contrast with the experience that followed the imposition of restrictions on the information service offerings of the regional

¹ Pub.L. 79–404, 60 Stat. 237, enacted June 11, 1946.

² *Chevron* U.S.A., Inc. v. *Natural Resources Defense Council*, 467 U.S. 837 (1984).

³ *King v. Burwell*, 576 U.S. ____ (2015), discussed in Lyons (2015).

⁴ The 2010 Order is Federal Communications Commission, *In re Preserving the Open Internet*, 25 F.C.C.R. 17905 (2010). The 2014 D.C. Circuit decision remanding Order 2010 to the FCC is *Verizon v. FCC*, 740 F.3d 623 (D.C. Cir. 2014).

Bell operating companies (RBOCs) after their 1982 divestiture from AT&T.⁵ Between the time the divestiture went into effect in 1984 until the information service restrictions were eliminated in 1990 by the trial court on orders from the D.C. Circuit,⁶ the RBOCs continually pushed against those restrictions by regularly seeking DOJ's support for waivers to provide one information service or another.⁷ The lesson from the divestiture experience is that regulated firms will push back against binding regulations to identify the true limits of the rules. The paucity of such efforts while the Open Internet Order of 2010 was binding—and when the FCC's legal authority to “regulate the Internet” was in some doubt⁸—suggests that the rule may not have been binding in the first place.

This leads to the first main subject of this paper: Why might a regulation—that the FCC claimed was desperately needed—had been largely non-binding? This discussion will review why firms with market power retain incentives to provide levels of service that their customers want, and why (outside regulated contexts) discrimination in favor of affiliated service providers is likely to promote efficient price discrimination. These claims admittedly leave open the question of why Verizon challenged the FCC's 2010 Internet Order. In general, large BIAS providers have claimed that their conduct conforms to the letter of that order (Comcast Corp. 2014). This implies that the concern could be that granting the FCC the level of authority that is implicit in the 2010 order would lead to regulations that would thwart envisioned future practices, such as direct delivery charges to content providers or “paid prioritization”: offering better delivery service such as greater speed or reduced latency for higher price.

To shed light on these concerns, we can turn to specific instances when broadband providers engaged in conduct that the FCC challenged or has hinted that it might challenge under OI 2015. As noted above, the record identifies four such instances. Two were challenged before the FCC's adoption of its 2010 Open Internet Order:

- Madison River telephone companies' denial of ports to “voice over Internet protocol” (VoIP) providers, which was subject to an FCC order in 2005.⁹
- Comcast's deferral of delivery of BitTorrent traffic to off-peak delivery times, which was subject to an FCC order in 2008.¹⁰

⁵ The divestiture followed the settlement of the Department of Justice's (DOJ) antitrust case against AT&T, *U.S. v. AT&T*, 552 F. Supp. 131 (D. D.C. 1982). Brennan (1987) reviews the line of business restrictions and their rationales.

⁶ *United States v. Western Elec. Co.*, 900 F.2d 283 (D.C.Cir. 1990).

⁷ This is based largely on my experience on the post-divestiture case staff while at the DOJ through the fall of 1986.

⁸ *National Cable and Telecommunications Association v. Brand X Internet Services*, 545 U.S. 967 (2005); *Comcast Corp. v. FCC*, 600 F.3d 642, (D.C. Cir. 2010).

⁹ *Madison River Communications*, File No. EB-05-IH-0110, Order, 20 FCC Rcd 4295 (Enforcement Bur. 2005).

¹⁰ *In re Formal Complaint of Free Press and Public Knowledge Against Comcast Corp. for Secretly Degrading Peer-to-Peer Applications*, 23 F.C.C.R. 13028 (2008), reversed by the D.C. Circuit, *Comcast Corp. v. FCC*, 600 F.3d 642 (D.C. Cir. 2010).

OI 2015 alluded to two other incidents, although not as practices that would definitely be proscribed:

- AT&T's refusal to provide FaceTime video calling via iPhones over its 3G network (OI 2015 at para. 96, n. 200, discussing conduct subject to complaint in 2012).¹¹
- Comcast and other major BIAS providers' practice of charging Netflix for delivery of traffic, with service throttled until such payments were agreed upon (OI 2015, para. 196–201, esp. n. 505, referring to Netflix's comments in 2014).

Each of these examples provides cautionary lessons with regard to how OI 2015, if upheld largely in its entirety, might affect the development of the broadband sector.

One interpretation of this history may be that OI 2015 stands on weak footing. This interpretation may be an artifact of the decision to frame the issue largely in terms of antitrust concepts. We therefore conclude with some rationales for the OI 2015 outside antitrust that may motivate both support for and opposition to the order. On the regulation side, perhaps BIAS providers are concerned that OI 2015 is the “camel's nose under the tent”; a precursor to regulating retail internet rates or, similarly, requiring wholesale provision of access to broadband facilities at regulated rates to non-facilities based retailers.

Another concern for both proponents and opponents of OI 2015 could be that BIAS providers are not profit maximizers and thus may not provide that quality of service that theory and evidence summarized here predict. Supporters of strong rules may also invoke non-economic social concerns that are related to the First Amendment or a sense that the Internet is primarily a global community to which everyone should have equal access without some having preferential treatment. Finally, one might speculate that the motive for Open Internet rules may involve how U.S. content providers are treated by BIAS providers in other countries.

2 Might Open Internet Rules Be Non-Binding?

Much of OI 2015 and its predecessors begin with a presumption that BIAS providers—not including firms that offer mobile broadband data—have the incentive and the ability unreasonably to favor some content over others. A counter-argument is that BIAS providers compete. Including wireless companies, I can choose from at least seven providers, four wireless and three wireline. However, the FCC claims that competition is attenuated—if not non-existent—because high switching costs make it too much trouble for consumers to change BIAS providers. For this reason, at least in the short- to medium-term, a content provider must go

¹¹ In its OI 2015 discussion of the Facetime incident, the FCC also mentions complaints against mobile carriers with regard to restrictions on tethering and slowing down “unlimited” data service. These seem more in the area of consumer protection than content discrimination. The Facetime complaint engendered the most discussion and criticism. See OI Order at 333, dissent of Commissioner Ajit Pai.

through a user's BIAS provider to deliver its service. The FCC consequently has found that BIAS providers have terminating monopolies.

Others contest that finding on the grounds that the market is workably competitive (Nuechterlein and Yoo 2015). One might look at churn rates and the extent to which BIAS providers apparently compete with each other to attract customers from each other. Here, I grant the FCC's "terminating monopoly" presumption. It does not follow that net neutrality regulation, such as OI 2015, is binding. The arguments are familiar and not particularly advanced, but because they seem to have been largely ignored in the formulation of OI 2015, they bear a restatement.

It may be useful to begin with a reminder of the basic result that a monopoly sets its price only where demand at that price is elastic. This is no less true in the presence of switching costs. Essentially, a monopolist will set its price at the point where further increases in price would significantly reduce the demand for its service. This reduction can arise because additional increases would cause customers to refrain, or to decide that searching for an alternative provider is likely to be worth the effort.

I bring up this familiar argument because the FCC's position in OI 2015 strongly implies that BIAS terminating monopolies can and will discriminate against content providers with impunity because their customers, trapped by high switching costs, will put up with abuses. Were this so, the BIAS monopoly could most profitably abuse these trapped customers by maintaining a higher price. But as prices are not infinite, apparently there are limits.

Those limits—the price a BIAS terminating monopoly could charge—will depend on the willingness to pay of its customers for the service. For this reason, the standard result applies that a monopoly, while maintaining a high price, need not reduce the quality of its service below the optimum level (Spence 1975).¹² So too does the corollary that it may well set quality above the optimum level, depending on its marginal effect on the marginal customer's willingness to pay. For BIAS, the relevant dimension of quality is neutral access to content providers and other Internet-delivered services, unless customers prefer that some services be delivered at higher speeds or with less latency.

This simple idea—without appealing to models of two-sided pricing and the like—suggests why Open Internet rules may have been largely nonbinding on BIAS provider performance in the past and may be largely nonbinding in the future. However, issues that are raised by the rules may indicate an increase the likelihood of discriminatory conduct. One of these issues underlies some of the concern with allowing BIAS providers to provide better services to some content providers for a fee, which is often described as "paid prioritization" (OI 2015 at ¶¶ 18–19,

¹² Spence's result applies when a BIAS provider can provide only one level of product quality, in this case non-discrimination of content provision, to its end users. To the extent that it could provide different levels of quality to them, the analyses noted in the following paragraph, applied to different levels of delivery quality supplied to content providers, are pertinent—particularly the finding that lower quality levels will be degraded to boost demand from high willingness to pay buyers for higher quality service.

125–132).¹³ If a BIAS provider could charge higher prices for premium service, it would likely have an incentive to degrade the quality of standard service (Mussa and Rosen 1978; Besanko et al. 1987; Hermalin and Katz 2007).¹⁴

In principle, an appropriate remedy would not be to ban paid prioritization, but instead would impose minimum quality standards for BIAS services. Minimum quality standards may also promote network externalities based on X's presumption that Y has access to links that are embedded in X's content (Brennan 2011). It may also address concerns with regard to consumer protection: whether customers are getting the service that they thought they were buying. Minimum quality standards also can promote First Amendment-related values, in ensuring that any "speaker" over the Internet has a reasonable opportunity to reach an audience. While the FCC claims to have rejected minimum quality standards, they are implicit in rules that ban "blocking" and "throttling". The level of service below which a content provider can claim to be "throttled" effectively sets a minimum quality standard.

Consideration of rules against blocking and throttling brings up a reason why OI 2015 may create an incentive to discriminate that might not have been present in the past. Together, a no blocking and no throttling rule imply that the minimum level of service that is implied by a throttling ban has to be provided at a zero price. Charge a positive price requires the ability to deny service to those who do not pay, but such service denial to non-payers would violate a proscription against blocking. Hence—and despite somewhat tortured machinations to avoid the literal application of price regulation of BIAS services to content providers—OI 2015 regulates the price of unthrottled service to content providers and sets that price at zero.

As with net neutrality overall, this too need not be a binding regulation. BIAS service is two-sided, with customer demand depending on the number and quality of content providers available, and content provider demand depending on the number of potential viewers. The FCC posits a "virtuous circle" in which no charges to content providers for delivery will increase the number of providers, and thus stimulate demand for broadband, which will lead to greater investment.¹⁵ If this argument is valid, BIAS providers would recognize it as well, and perhaps offer delivery for free, as they have generally done in the past.¹⁶

The virtuous circle, however, may operate in the other direction. If BIAS providers can charge content providers for delivery, they have an incentive to make delivery more valuable, by attracting more customers. This creates an incentive to cut prices to those customers and thereby stimulate more broadband investment.

¹³ By "paid prioritization" here, I refer only to obtaining higher quality delivery for a higher price. Paid prioritization that involves specifically that a content provider gets better service than its competitors—that is, paid prioritization "contracts that reference rivals" (Scott-Morton 2013)—raises competitive concerns that do not arise when considering simply whether a BIAS provider should be allowed to offer the equivalent of express mail.

¹⁴ The argument is similar to why firms may enforce a price discrimination scheme by reducing the quality of good sold at lower prices, even if there is no appreciable cost saving for doing so (Shapiro and Varian 1999).

¹⁵ Note that the idea that demand fosters investment is in tension with the FCC's presumption that BIAS providers are indifferent to demand because their customers are trapped.

¹⁶ The possible Netflix exception is discussed in the next section.

The absence, so far, of charges for delivery suggests that the FCC's posited direction may be the right one, but that could change.

If the direction of the virtuous circle changes, then OI 2015's zero price for unthrottled delivery becomes a binding regulation. In the presence of binding price regulation, the regulated firm has an incentive to evade that regulation by vertically integrating and discriminating against unaffiliated rivals (Brennan 1987). Here, the vertical integration would be of BIAS providers into content, with discrimination against unaffiliated rivals of the BIAS's content provider.¹⁷ This may be particularly consequential for wireline BIAS providers, which typically also provide content—primarily video programming packages—and other integrated services, such as voice calling.

Ironically, OI 2015 could create an incentive for discrimination where none existed before. Whether this discrimination is harmful is more difficult to ascertain than in other contexts (e.g., telephones, electricity transmission) where vertical integration or control has been constrained. BIAS is two-sided; but only one side—prices to content providers—is regulated under OI 2015. A predictable consequence of that regulation is higher prices on the other side of the market—end user payments for broadband service—than what would have occurred in its absence. Evading that regulation through discrimination would result in lower prices to those end users and perhaps a more efficient outcome, although discrimination imposes costs of its own by reducing the ability of differentiated firms to compete.

In summary, BIAS firms need not have an incentive to engage in unreasonable discrimination against content providers, in violation of net neutrality principles. They may have an incentive to reduce the quality of standard service if they could concomitantly charge higher prices for premium quality; but that possibility could be addressed through the minimum quality standards that are implicit in OI 2015's ban against throttling. OI 2015 may create an incentive to discriminate against content providers, however, as it effectively regulates (at zero) the price that BIAS providers can charge for content delivery.

This leaves the question that if free delivery and net neutrality was standard practice, why did BIAS providers take the FCC to court to void earlier and current Open Internet Orders? An examination of the handful of episodes that the FCC identified as past or potential violations of Open Internet policies may be instructive. Among the lessons from these episodes is: The future may not resemble that past. Positive prices for content delivery may be profit-maximizing as content provision over the Internet has become a more lucrative enterprise.¹⁸

¹⁷ While vertical integration is one way of carrying this out, another would be to enter into exclusive dealing agreements with some content providers with payments to the BIAS provider that are based on audience "hits". This would provide a similar incentive to discriminate against providers outside these agreements, although the agreements would be likely to be easily detected and banned.

¹⁸ Commenters on this paper have posited that the AT&T post-divestiture context, where the RBOCs routinely fought against line of business restrictions, does not apply here because BIAS providers are more sensitive to trying to avoid pushing regulatory boundaries in the hope of having them lifted. This suggestion is not persuasive. In the post-divestiture context, the RBOCs were also hoping to get the courts and then later Congress to lift the line-of-business restrictions, and they were successful. If BIAS providers thought caution would deter regulation, it has not worked so far. These limited and admittedly

3 Lessons from the Four Episodes

Although prior Open Internet rules may have been largely non-binding, the FCC took enforcement actions twice against telecommunications firms that violated its Open Internet principles. OI 2015 also mentions two practices that the FCC suggests may have violated those principles, but for which no enforcement action was taken. These four examples may provide some insight as to the kinds of effects that OI 2015 could have on the future development of the broadband sector. We look first at the two enforcement actions and then look at the two that potentially could have been subject to enforcement had OI 2015 been in effect earlier.

3.1 Prior Enforcement

Madison River. In 2005, the FCC issued a ruling in the case that precipitated the beginning of a formal policy with regard to an open Internet. Madison River was and is a small rural telephone company headquartered in North Carolina. After it began providing the 2005 version of DSL broadband services, Madison River refused to provide ports to VoIP providers that wanted to offer telephone service to Madison River's broadband customers. In effect, Madison River wanted to tie its voice service to its DSL service.

Whether tying is beneficial or anticompetitive has been a subject of considerable debate. The most likely justification here begins with the supposition that if Madison River were able to charge broadband customers who wanted to use VoIP a fee that was equal to its foregone profits from lost sales of its standard voice service, it would have no incentive to deny ports to unaffiliated VoIP providers (absent coordination, quality control, or other efficiency justifications).¹⁹ However, one can imagine that such pricing might not be feasible. To maintain its profit margins in voice service, Madison River might have had no option other than to bar VoIP provision. Madison River agreed to provide ports to VoIP suppliers and paid a \$15,000 fine to the FCC. This agreement indicates that the benefit to Madison River of the practice and its social harm were not great, especially to the extent that Madison River's customers obtained voice service under state-regulated rates.

The lesson looking forward, however, is that cases such as this can discourage the expansion of offerings if doing so requires giving up profits from preexisting services. If Madison River realized that offering DSL would mean giving up profits from its standard voice service and that the FCC would block its only means for recovering those profits, it may not have offered DSL at all, at least as early as 2005. As noted, the consequences in this instance were not great. But it does suggest that OI 2015 enforcement could discourage new business models by BIAS providers if they worry that the FCC would then force them to forgo profits from prior services.

Footnote 18 continued

anecdotal examples indicate that pushing the boundaries may convince regulators that strong regulations are costless, which increases the likelihood that they will be imposed and extended.

¹⁹ This assumes (or may assume) that the unaffiliated VoIP providers were not likely entrants into broadband service and thus were not being "nipped in the bud", unlike the claim in *U.S. v. Microsoft*, 253 F.3d 34 (2001).

Comcast/BitTorrent. Toward the end of the decade of the 2000s, a significant use of the Internet was peer-to-peer sharing of large files, notably digital copies of theatrical films via BitTorrent sharing software. Comcast claimed that this file-sharing was clogging its network. Comcast began delaying BitTorrent traffic transmission until off-peak times, which it justified as a means to ensure that other customers would not suffer a loss of service quality as they used the Internet for more conventional emailing and web surfing.

The FCC found that this practice violated its Open Internet principles,²⁰ which had been expressed as an Internet Policy Statement by Chairman Michael Powell in 2004 but not formally adopted as a rule (Powell 2004; OI 2015 at ¶64). Comcast agreed to drop the practice, but challenged the FCC's authority to impose rules with regard to the management of traffic over its broadband network. The D.C. Circuit agreed with Comcast and found that under existing precedent, the FCC lacked authority to so regulate. Rather than appeal this ruling, the FCC elected to adopt a formal Open Internet Order in 2010.

The FCC's action with regard to BitTorrent challenges the ability of BIAS providers to manage congestion on their networks. It may be important to observe that some believe that "last mile" broadband networks are essentially uncongestible: They have the space to hold all predictable traffic, just as a local water system can deliver all of the water that is available and that people might want (Schulzrinne 2014). This belief also supports opposition to paid prioritization, because if the last mile cannot be congested, there is no latency to minimize and no speed that is worth ensuring.

I am not an engineer, so I have to concede that anything is possible. But the idea that last mile capacity is effectively unlimited is contrary to economic intuition. This is especially so as the demand for faster service and more data—especially streaming—both stored and in real time has been growing rapidly. Implementation of OI 2015 will, I hope, clarify the extent to which the FCC regards network management as a necessary enterprise or as a justification for nefarious blocking or throttling.

3.2 Potential Enforcement

AT&T and FaceTime (OI 2015, ¶96).²¹ When the iPhone 4 was released in 2010, it came with a new feature, the ability to make video calls. This feature, called FaceTime, was highly bandwidth intensive for the wireless networks of the day. When initially offered, Apple limited its use to WiFi networks, and would not make it available over wireless facilities. Apple lifted its restriction in 2012, but allowed mobile service providers to impose their own restrictions. AT&T allowed FaceTime but restricted its use to customers that would pay more for using mobile service above a cap; those with unlimited service could not use FaceTime. AT&T noted in

²⁰ *Comcast Corp. v. FCC*, 600 F.3d 642, (D.C. Cir. 2010).

²¹ For a description of the events and review of the issues, see Yoo (2014) and Open Internet Advisory Committee Mobile Broadband Working Group (2013).

its defense that it did not offer a competing video calling service, and that Apple pre-loaded FaceTime onto its phones.

Because OI 2015 extends the reach of the earlier 2010 order to mobile services, it would have applied to the FaceTime issue. This may well be why the FCC elected to expand its Open Internet policy to mobile service. One issue that is raised by enforcement is whether the FCC will limit the application of data caps. Data caps are a problematic way to address congestion.²² A more obvious tactic, which is used in the electricity market (and in the past was used in voice telephone markets), is time-of-day pricing or even, as is true of “high occupancy toll” highways, prices that vary in real time to reflect congestion (i.e., peak-load pricing). Since such timing involves the Internet, it would be relatively easy to let users know when their use might involve a positive price, and what that price might be, so that they can decide whether to defer use.²³

A further issue beyond the particulars of the FaceTime episode is quality control. Suppose a wireless or wireline BIAS provider believes that the quality of an application may be degraded if used over its network. The fault may be with the application itself, but the BIAS provider could end up bearing the blame from its customers. Since the demand for its service matters to a BIAS provider, even if it has a terminating monopoly, restrictions on its ability to control quality by establishing network practices could lead to a less desirable network overall.

Netflix versus BIAS providers (OI 2015, ¶80). The last issue considered here is the FCC’s concern with Comcast and other BIAS providers charging Netflix for delivery. This is nominally a charge for “interconnection,” but interconnection is the means by which delivery charges are enforced; this is akin to claiming that one pays only for the plastic electronic key when getting a room at a hotel. To enforce the charge, Comcast and some other major BIAS providers allegedly artificially degraded Netflix traffic until it paid up. Since excluding non-payers is necessary to force payment, this issue is largely about whether Netflix should have to pay for delivery.

This again raises the question about the direction of the virtuous circle and whether the FCC got it right. It also raises issues about congestion management, since Netflix expanded in a short time from nothing to over one-third of all Internet traffic, as is shown below. Moreover, fees may provide some compensation for BIAS network resources that Netflix uses to deliver its programs and may be influenced by whether Netflix has to pay for them.²⁴ Embedded in this issue also is the view that Netflix is subject to this congestion fee because it competes with video offerings of BIAS providers, video-on-demand (VoD) in particular. The contention that Netflix is degraded because it is a substitute for VoD offerings might be more plausible if BIAS providers symmetrically considered degrading their VoD

²² Data caps may be a tactic to price discriminate between high volume and low volume users.

²³ As noted above, if the last mile is a resource with practically unlimited capacity, there would never be a need for congestion pricing.

²⁴ If Netflix’s payments are fixed annual fees rather than based on the traffic that is sent or other specific practices, the argument that payments lead to more efficient network operation is less compelling.

offerings to boost demand for Netflix and thus the fees that they could charge Netflix for access to their (terminating monopoly) customers.

A simpler explanation is available. Among the panoply of services that use the Internet, which of those are likely to be targets for delivery charges by the large wireline BIAS suppliers? One necessary characteristic is that the service cannot be effectively used on mobile devices because it is not amenable to being viewed on small screens or requires large and steady data transmission speeds. A second, related characteristic is that the services are not data-intensive. Otherwise they would run up against the relatively tight data caps that characterize much if not most high-speed mobile broadband service. Finally, the service has to be something that customers will pay for, so as to provide a pool of potential revenue that the BIAS provider can extract.

As the pioneering large-scale online video service, Netflix is one of the few Internet services that meets these criteria. If so, then the rationale for charging Netflix for delivery may have little to do with diverting eyeballs from BIAS providers' VoD services. Rather, it may be for the same reason Willie Sutton supposedly gave when asked why he robbed banks: "That's where the money is." To a BIAS provider, Netflix is where the money is, regardless of whether the BIAS provider offered any video content of its own.

The first lesson here builds on potential lessons from the FaceTime episode: If large users can cause stress on the network, efficient management of the network can involve not just setting out practices that, perhaps, grant priority to some services over others and restrict the use of those for which quality maintenance is problematic. One can readily imagine scenarios in which being able to charge some providers fees to compensate for network stresses—as well as charging end users peak-load prices—could benefit the content provider, the BIAS provider, and the customers who use both to get the content they desire.

A second lesson is that Netflix may be the first of many content providers who take advantage of widespread high speeds for broadband delivery to offer lucrative mass-market subscription-based video services over the Internet. The willingness to pay for broadband delivery may no longer be primarily on the consumer side of the two-sided market. That may imply in turn that BIAS providers would no longer find it profitable to sustain the past practice of having subscribers foot the entire bill for the service. In some places and at some margins, the profitability of investments to increase broadband speeds and decrease latency could depend on payments from content providers. Whether this is so depends on empirical facts regarding the costs of those investments and the elasticities of demand of the content providers and of the end-user sides of this two-sided market—which is a topic that is beyond the scope of this article.

4 If It's Not a Big Deal, Why is it a Big Deal?

The lessons from the past may be that the rules in OI 2015 may not be binding most of the time. The handful of incidents suggests some potential problems, but they have not seemed significant so far. Of course, as the sector evolves in "Internet

time”, hitherto minor or nonexistent issues may come to play a larger role. However, the record may also suggest that the motivations for FCC net neutrality regulation may lie outside the scope of market failures due to insufficient competition. Such alternatives also may be needed to explain the importance that the FCC has vested in this issue and the vociferous of opposition to it. Recognizing these alternatives may also provide insight into how net neutrality policy may proceed if the Open Internet Order is modified or rejected by courts in the US, and as efforts in other countries to design their net neutrality policies proceed.

4.1 Camel’s Nose Under the Tent

Despite the substantive focus of OI 2015 on the terms of trade between BIAS providers and content suppliers, the implementation of Title II regulation in the Order is exclusively on the retail side, rather than imposed directly on the services that BIAS providers supply to content providers. This would seem to reduce the distance between OI 2015 and the regulation of retail prices. In OI 2015, the FCC says that it will forbear from regulating retail rates.

A BIAS provider might be concerned that the claim of forbearance is neither legally nor politically credible. On the legal side, Ford and Spiwak (2014b) have observed that the Telecommunications Act of 1996 set specific criteria for forbearance:

(1) enforcement ... is not necessary to ensure that the charges, practices ... are just and reasonable and are not unjustly or unreasonably discriminatory; (2) enforcement of such regulation or provision is not necessary for the protection of consumers; and (3) forbearance from applying such provision or regulation is consistent with the public interest.²⁵

Ford and Spiwak argue that these enforcement criteria are inconsistent with the FCC’s finding that each BIAS provider has a terminating monopoly.

BIAS providers may face the same effective threat but under a different mechanism. The crux of the FCC’s case is that circumstances in the broadband sector have changed sufficiently to warrant reclassification of broadband service from an essentially unregulated information service to a telecommunications service that is subject to Title II regulation.²⁶ The FCC initially classified broadband provision as an information service when it rejected the claims by non-facilities based broadband providers that they were legally entitled to wholesale access to BIAS provider facilities at regulated rates. The basis for that claim for wholesale access entitlement was that BIAS provision was a telecommunications service.

In reclassifying broadband service as a Title II service, the FCC restores the basis for the previously rejected entitlements to wholesale access at regulated rates. Moreover, to make a wholesale access regime work in a nondiscriminatory manner,

²⁵ Telecommunications Act of 1996, Pub. L.A. No. 104-104, 110 Stat. 56 (1996), Sec. 401 (47 U.S.C. 159, Sec. 10).

²⁶ These definitions come from the Telecommunications Act of 1996, Pub. L.A. No. 104-104, 110 Stat. 56 (1996), Sec. 3(a) (47 U.S.C. 153). For their legal interpretation, see *National Cable and Telecommunications Association v. Brand X Internet Services*, 545 U.S. 967 (2005).

the BIAS providers may have to be excluded from providing retail service. This would follow the exclusion of the RBOCs from competitive lines of business following their divestiture from AT&T in 1984 (Brennan 1987).

Whether through the regulation of retail rates or the provision of wholesale access at regulated rates, BIAS providers may have some reason to think that their profits may shrink from regulatory or legal consequences of OI 2015 that may not currently be explicit within it. From the perspective of consumers, the difference between the two would largely be that under wholesale access they might see a more differentiated range of retail offerings than they might see from a single BIAS provider—although (of course) they see a range of offerings now from mobile and wireline providers subject to OI 2015. But from the perspective of BIAS providers, the consequences are largely identical and make their opposition to OI 2015 understandable even if their general practice has been to provide content to customers on a neutral basis and without a delivery charge. With regard to the other side of the debate, one could well imagine that many OI 2015 advocates may have been motivated by retail price regulation as well as net neutrality.

4.2 First Amendment Principles

The FCC's public interest mandate includes not just competition but promoting access to communications from a First Amendment perspective. Accordingly, a list of potential reasons for its promotion of Open Internet policy should include individual rights to access and to speak through communications technologies under its jurisdiction. This is familiar territory for the FCC with regard to radio and television broadcasting. It continues to justify diversity policies and ownership limits in broadcasting that go beyond what one would expect would hold on the basis of antitrust principles alone. A specific First Amendment concern has been the unfettered transmission of political content, which is a developing subject for economic modeling (Prat 2016).

The FCC has policies that are intended to expand access to broadband. One might expect the FCC to adopt complementary policies to ensure that access implies unfettered ability to get to websites of the user's choice and to transmit content through those broadband outlets. First Amendment arguments could cut both ways, as BIAS providers could argue that regulations that restrict their ability to discriminate in content transmission violate their First Amendment rights (AT&T 2015). Such views are consistent with the idea that First Amendment rights should vest with the owner of a communications facility rather than with those who might communicate over it (Brennan 1989).

Nevertheless, OI 2015 did not feature this traditional rationale, perhaps reflecting current FCC policy priorities. Chairman Tom Wheeler has stated that the “mantra” of the FCC is “Competition, competition, competition” (Wheeler 2015). To my ear, this sounds like “Antitrust Division, Antitrust Division, Antitrust Division”. As a veteran of the Antitrust Division, I find this narrowly appealing; but I wonder if this best promotes what the FCC should do under its “public interest” mandate.²⁷ As is

²⁷ See 47 U.S.C Chapter 5 throughout.

true for private enterprises, the FCC should probably consider differentiating its product rather than entering a market with two large experienced establishments (the Department of Justice and the Federal Trade Commission).

4.3 Non-Profit Maximization

BIAS providers may not behave as economic theory posits. Specifically, they may not be profit-maximizers, with potential adverse effects that would not occur if the firms did maximize profits (Brennan 1990). One possibility is that the executives in BIAS firms may be committed to a business model—vertical control over video content—that may no longer maximize profits as increased broadband speeds enable the delivery of video content through the Internet—so-called “over the top” or OTT video—rather than through dedicated “last mile” facilities. Given that the high-speed broadband market—especially without the use constraints that are typical of mobile—is difficult to enter, these executives may be in a position to pursue what John Hicks called the reward of monopoly: the “quiet life” (Hicks 1935, p. 8).

Another illustration of a potential failure to act in predictable ways involves an allegation with regard to the car—sharing service ZipCar. Robin Chase, the founder of ZipCar, has stated that she could not have started ZipCar without net neutrality rules in place (Chase 2011). Even if one believes that a BIAS provider has incentives to discriminate against competitors of affiliated content providers, and that doing so harms consumers or the economy overall, it is not clear why there would be a motive to provide unreasonable service to Zipcar or, perhaps more important given how Internet service is priced, to the end users who would want to be able to access Zipcar’s website.

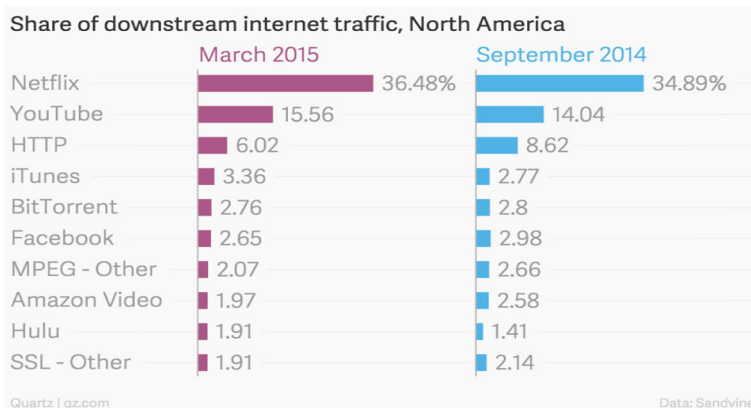
Perhaps this is not the end of the story. Even if a BIAS provider lacks a profit motive for the provision of bad service, perhaps it would do so out of quiet-life laziness, particularly if the underlying BIAS market lacks adequate competitive pressure. As an economist, I am continually struck by how little reassurance non-economists take from an observation that profit maximization removes incentives for a large firm to act nefariously. Somewhat more broadly, concerns about the abuse of control over access to a telecommunications facility is likely to be stronger the less constrained is the owner of that facility to profit maximization—that is, willing to sacrifice profits to pursue other ends (Brennan 1990). Empirically, however, this could be a legitimate policy rationale and explanation for BIAS firms’ opposition to reductions of their control over content, despite the paucity of incidents so far. Unfortunately, the FCC may lack the framework to assess the merits of regulation that is based on what firms have the ability to do apart from what they may have the incentive to do.

4.4 Conflicting Visions

A fourth potential explanation for the controversy over the FCC’s Open Internet policies may lie in different views as to what the Internet is. To many, the promise of the Internet goes back to its early days as a way to share research and other information, and as a tool for the small innovator in the garage to develop the “Next

Big Thing”. The Internet also obliterates distance and allows all users to share and live as equals in a global village. “Net neutrality” may reflect an effort to maintain that romantic view against the threat that corporations will turn the Internet into cable TV.²⁸

As appealing as this sentimental vision may be, it may be out of date. Recent data from Sandvine (2015) are instructive: The chart below (Quartz.com 2015 based on Sandvine 2015 data) describes the source of Internet traffic in North America.



As of March 2015, just over 52% of all Internet traffic involved the viewing of videos from Netflix and YouTube. Other video services are part of the top 10, with more to come from OTT services from Dish, HBO, and CBS among others. “HTTP”, which I take to be the “global village” part of the Internet, is only 6%. Despite the slogan that BIAS providers should not be allowed to turn the Internet into cable TV, subscribers have already turned it into the next video delivery mechanism. Interestingly, while advocacy of net neutrality may rest on the visions of the global village and the garage innovator, the FCC’s characterization of the issue largely in terms of competition in video markets seems more appropriate.

4.5 International Transfers

A last possibility, which is more speculative, involves international broadband development. The leading global content providers are U.S. companies (Google, Facebook, Netflix). As more countries, particularly in the developing world, invest in broadband networks, communications authorities in those countries may find it tempting to use content delivery charges as a way to extract value from US content providers—perhaps in excess of the costs that those broadband systems incur to deliver their traffic. This would repeat concerns regarding “international

²⁸ Bennett (2016) discusses how the “best efforts for all” view of Internet services become less relevant as the Internet came to carry voice and video. Brennan (2011) has a slightly expanded discussion of this conflict in worldviews, in conjunction with a rationale for minimum quality standards to promote the realization of network externalities.

settlements”, referring to the basis for rates paid to other countries’ telephone providers for the exchange of voice traffic.²⁹

The relevance of this possibility to Open Internet policy is as follows: Suppose the US, through the FCC, were to permit US BIAS providers to impose delivery charges on content providers. This could make sense as a matter of efficiency to promote two-sided market pricing or to provide incentives for content providers to use BIAS facilities in a cost-effective manner. While this may be good for efficiency domestically, the US would no longer be able to argue to foreign governments and regulators that they should not impose delivery charges on US providers.

In principle, such delivery charges may be efficient and could promote broadband investment in countries by making it profitable to reduce prices.³⁰ This sets the FCC’s virtuous circle in the other, equally plausible direction, particularly in relatively poor countries, where broadband investment could be most important. However, perhaps the risk that such charges would be excessive justifies the imposition of an Open Internet policy for which past experience matters considerably less than the intensity of the debate surrounding it would suggest.

5 Conclusion

If we assume that the Open Internet Order survives legal challenge, the question for observers of the telecommunications sector is how that might change behavior in the broadband sector. Based on a decade of experience prior to the FCC’s promulgation of OI 2015, the apparent answer is that behavior may not change much at all. The FCC identified only a handful of actual or putative violations of Open Internet principles, which suggests that the broadband service providers were not acting as if they were continually constrained by the Open Internet policy statements and orders prior to OI 2015.

The four incidents that I have found do suggest some cautionary lessons with regard to disincentives to expand into broadband provision, government oversight of technical network management, and capturing new value sources on the content side. Non-economic considerations—such as threats of future intrusive regulation, failure to maximize profits, speech rights, conflicts of vision, and potential exploitation of US content providers by foreign broadband providers—may explain the motivations that underlie current controversies. These, rather than issues that have been explicitly featured in OI 2015 and many of its economic critiques, may play a significant role in understanding how the broadband sector will evolve in an Open Internet world.

²⁹ For background, see FCC, International Bureau, “International Settlements Policy and U.S. International Accounting Rates”, available at <https://www.fcc.gov/general/international-settlements-policy-and-us-international-accounting-rates>.

³⁰ Why US progressive populists have so strongly supported a communications policy that ensures that consumers pay all of the costs of broadband and the Googles and Facebooks of the world pay nothing remains a puzzle to me, unless the primary objective was the regulation of retail broadband prices.

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