Creating Sustainable Regulation of the Open Internet

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Every day, new innovations move us toward a mobile, always-accessible Internet. In this time of rapid technological change, the challenge for any new regulation of the Internet is sustainability: to craft rules that can adapt to and withstand the constant evolution in technology and network structure. This comment analyzes the Open Internet Order, the latest attempt by the FCC to protect Internet neutrality and openness, through the lens of regulatory sustainability. In the Order, the FCC has decided to regulate "mobile" ISPs less than their "fixed" ISP counterparts. Critics worry that this lesser regulation of mobile Internet will create a foundation of discriminatory practices by mobile broadband providers who could take advantage of the lax regulation and block specific content and applications. Missing from these critiques, however, is a clear understanding of the repercussions on the sustainability of these regulations caused by dividing Internet providers into separate categories.

This comment argues that in using the categories of "fixed" and "mobile," the FCC continues its flawed tradition of placing communications technologies into distinct regulatory silos that become unwieldy when new hybrid technologies erode the differences between those silos. We are heading towards a convergence of networks, where wireless and fixed-line networks will combine to form one overarching network that caters to all endpoints, stationary or moving. This convergence of networks will result in the Order's distinctions between "fixed" and "mobile" becoming obsolete. This comment argues that the FCC should reject its ex-ante fixed category-based approach in the Order and rely on a more flexible, ex-post adjudicatory system to create sustainable regulations for the future. This comment proposes one such solution to ensure that the Order remains sustainable.

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> Telecommunications technology marches forward. We cannot retard it any more than we can catch lightning in a bottle. . . Just as we now snicker and guffaw over earlier attempts to regulate the telephone industry through the Kingsbury Commitment of 1913 and the AT&T consent decree of 1956, so will our grandchildren wonder what all this fuss was about.[1]

I. INTRODUCTION

We are in the midst of a rapid Internet sea change. Every day, new innovations such as Wi-Fi on high-speed trains, smartphones, and wireless hotspots move us toward a mobile, always-accessible Internet.[2] In this time of accelerated technological change, the challenge for any new regulation of the Internet is sustainability: to craft rules that

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[1] Thomas G. Krattenmaker, *The Telecommunications Act of 1996*, 49 FED. COMM. L.J. 1, 49 (1996).

[2] The Pew Internet and American Life project found that in 2011, 35 percent of American adults owned smartphones. Aaron Smith, *Smartphone Adoption and Usage*, PEW INTERNET & AMERICAN LIFE PROJECT (July 11, 2009), http://pewinternet.org/Reports/2011/Smartphones.aspx. For a description of this move towards mobile computing (also known as nomadic computing) *see* Jianguo Ding et al., *Management Challenges for Emerging Wireless Networks*, *in* EMERGING WIRELESS NETWORKS CONCEPTS, TECHNIQUES AND APPLICATIONS, 3, 9 (Christian Makaya & Samuel Pierre eds., 2011).

can adapt to and withstand the constant evolution in technology and network structure.

Sustainable regulation will be necessary to protect the open Internet. Events of the past few years have shown that the openness and accessibility of the Internet, which enable it to serve as a space for open dialogue, innovation and social change,[3] are at risk and cannot be taken for granted.[4] While the world watched with outrage as the Egyptian government ordered Internet service providers (ISPs) to shut off Internet and cell phone access in an effort to quell protests,[5] few outside of California noticed the decision by San Francisco Bay Area Rapid Transit (BART) officials to shut off Internet and cell phone access in its stations in response to a planned protest.[6] If these examples seem extreme and far removed from the average American's daily life, consider the fact that Comcast, a popular provider of cable Internet service,[7] deliberately slowed down certain peer-to-peer communications

[3] Preserving the Open Internet Broadband Industry Practices, Notice of Proposed Rulemaking, 24 FCC Rcd. 13064, 13065 (proposed Oct. 22, 2009) (discussing how the Internet's openness and the transparency of its protocols have been critical to its success) [hereinafter *Proposed Rulemaking*].

[4] Preserving the Open Internet, 76 Fed. Reg. 59192, 59224 (Sept. 23, 2011) [hereinafter Order]. In this Comment, the "openness" of the Internet is interchangeable with the idea of "net neutrality." *See Frequently Asked Questions*, SAVE THE INTERNET, http://www.savetheinternet.com/frequently-asked-questions (last visited Mar. 8, 2013). Tim Wu describes net neutrality as a network that "aspires to treat all content, sites, and platforms equally. This allows the network to carry every form of information and support every kind of application." *Network Neutrality FAQ*, TIM WU, http://timwu.org/network_neutrality.html (last visited Mar. 8, 2013).

[5] Christopher Rhoads & Geoffrey A. Fowler, *Egypt Shuts Down Internet, Cell Phone Service*, WALL ST. J. (Jan. 29, 2011), http://online.wsj.com/article/SB10001424052748703956604576110453371369740.html.

[6] Zusha Elinson, *Bart Cut Cell Service on Spur of the Moment, Emails Show,* THE BAY CITIZEN, (Oct. 11, 2011, 2:58 PM), http://www.baycitizen.org/bart-protests/story/bart-cut-cell-service-spur-moment-emails/; *see also* Mike Masnick, *FOIA Info Reveals That BART Shut Down Cell Service With One Email To Telco Partner*, TECHDIRT (Sept. 22, 2011, 1:45 PM), http://www.techdirt.com/blog/wireless/articles/20110922/04153416051/foia-info-reveals-that-bart-shut-down-cell-service-with-one-email-to-telco-partner.shtml (posted email correspondence from BART officials that showed not only that BART shut down access to cell phone service by turning off their own antennas but that they also instructed Wi-Fi provider WifiRail to turn off Wi-Fi Internet service in stations as well). The FCC is currently investigating BART's actions. *See* Mike Masnick, *FCC Investigating Whether BART Cell Service Shut Off Was A Violation Of Federal Law*, TECHDIRT (Aug. 16, 2011, 8:31 AM), http://www.techdirt.com/blog/wireless/articles/20110815/17485115538/fcc-investigating-whether-bart-cell-service-shut-off-was-violation-federal-law.shtml.

[7] Comcast is the biggest U.S. cable provider. Trefis Team, *Can Comcast Increase Pay TV Market Share*, FORBES (Feb. 9, 2011, 3:32 PM), http://www.forbes.com/sites/greatspeculations/2011/02/09/can-comcast-increase-pay-tv-market-share/.

of its users in 2007.[8] Or consider how in 2005, Madison River Communications, a rural broadband provider, paid to settle a Federal Communications Commission (FCC) investigation into whether they had blocked Vonage, a rival voice over Internet protocol service, to favor their own services.[9] These examples illustrate the extent to which governments and ISPs have the incentive and have taken action to block sites, slow down connections, and control the content and services a user can access online.[10] Not only is regulation necessary to prevent ISPs like Comcast from taking such action, but this regulation must also be sustainable. If regulation that protects the openness of the Internet cannot adapt to changes in technology, then those protections will quickly become ineffective.

The Open Internet Order (the Order),[11] which was published in the Federal Register in December 2011 after two years of public debate, is the latest attempt by the FCC to protect the "basic values" of Internet freedom and openness.[12] The majority of the criticism of the Order, which is currently being challenged in the D.C. Circuit,[13] has come from open Internet advocates and is centered around the FCC's decision to draw a distinction between fixed and mobile broadband ISPs.[14]

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[8] Formal Complaint of Free Press and Public Knowledge Against Comcast, 23 FCC Rcd. 13028, 13031 (Aug. 20, 2008). ("On October 17, 2007, the AP . . . concluded that Comcast 'actively interferes with attempts by some of its high-speed Internet subscribers to share files online.' 'Comcast's interference affects all types of content, meaning that, for instance, an independent movie producer who wanted to distribute his work using BitTorrent and his Comcast connection could find that difficult or impossible.' The AP found that Comcast's conduct had a 'drastic effect . . . on one type of traffic – in some cases blocking it rather than slowing it down.'").

[9] Order, *supra* note 4, at 59203, n. 60 ("[B]roadband providers have blocked lawful traffic without informing end users or edge providers. In addition to the Madison River and Comcast-BitTorrent incidents . . . broadband providers appear to have covertly blocked thousands of BitTorrent uploads in the United States throughout early 2008."); *see also* Madison River Communications, 20 FCC Rcd. 4295 (2005).

[10] *See Frequently Asked Questions*, *supra* note 4; Order, *supra* note 4, at 59195-98.

[11] *See Frequently Asked Questions*, *supra* note 4; Order, *supra* note 4, at 59195-98.

[12] Preserving the Open Internet; Broadband Industry Practice, Report and Order, 25 F.C.C. Rcd. 17905, 18039 (Dec. 23, 2010) (Statement of Chairman Julius Genachowski) [hereinafter Genachowki Statement].

[13] Harold Feld, *Meanwhile, Back at the D.C. Circuit.... The Open Internet Litigation Plods Along*, PUBLIC KNOWLEDGE (Mar. 27, 2012), http://publicknowledge.org/blog/meanwhile-back-dc-circuit-open-internet-litig.

[14] Free Press, an open Internet advocacy group currently challenging the Order in court, decries the different treatment of "fixed" and "mobile" as arbitrary and unjustified, especially given the increasing importance of mobile devices for younger demographics and diverse populations as their primary means of accessing the Internet. Press Release, Free Press, Rules Arbitrarily Leave Wireless Internet Users Unprotected (Sept. 28, 2011), *available at* http://www.freepress.net/press-release/2011/9/28/free-press-files-suit-challenge-fccs-open-

In addition to its goal of protecting the open Internet, the FCC also wanted to ensure that any regulation it created in the Order did not stifle innovation and investment in mobile broadband, which the FCC views as a rapidly evolving technology still in its early stages.[15] As a result, the FCC has chosen in the Order to regulate "mobile" ISPs less than their "fixed" counterparts. Mobile ISPs are exempt from roughly half of the requirements the FCC has created to ensure that fixed ISPs do not block a user from accessing a certain application or discriminate against certain kinds of content.[16] For example, under the "no blocking rule," "fixed" ISPs are forbidden from blocking lawful applications, content, websites, or devices.[17] "Mobile" providers, on the other hand, are only prohibited from blocking access to lawful websites and applications that could compete with their own services. This means that if Sprint were to block the Skype app, that action would run afoul of the Order because Skype competes with Sprint's mobile phone service. However, if Sprint were to block a theoretical BART protest app, this action would likely be acceptable under the law.[18] Open Internet advo-

internet-rules [hereinafter Free Press PR, Wireless Users].

[15] Genachowski Statement, *supra* note 12, at 18039; *see also* Proposed Rulemaking, *supra* note 3, at 13067 ("Broadband providers' ability to innovate and develop valuable new services must co-exist with the preservation of the free and open Internet that consumers and businesses of all sizes have come to depend on."); *see also* Order, *supra* note 4, at 59201-02.

[16] With the exception of the transparency rule, under which both fixed and mobile broadband providers are subject to the same standard, the Order subjects mobile providers to far less regulation. The "no discrimination" rule does not apply to mobile ISPs. *See* Order, *supra* note 4, at 59210-12.

[17] 47 C.F.R § 8.3.

[18] Within the FCC, the Order has been heralded as an effective balance between protecting the Open Internet through regulation and not placing an unreasonable burden on ISPs. However the consensus outside the FCC is that the Order is a classic "Washington solution," in that it pleases no one. *See* Brian Stelter, *FCC Approves Net Neutrality Rules and Braces for Fight*, N.Y. TIMES (Dec. 21, 2010, 8:52 PM), http://mediadecoder.blogs.nytimes.com/2010/12/21/f-c-c-approves-net-rules-and-braces-for-fight/. On one side, ISPs criticize the Order as over-regulation that will stifle competition. *See* Press Release, Verizon, Verizon Appeals FCC Imposition of 'Net Neutrality' Rules (Sept. 30, 2011), *available at* http://newscenter.verizon.com/press-releases/verizon/2011/verizon-appeals-fcc.html; *see also* Press Release, Bob Goodlatte, Goodlatte Calls FCC to Account for Overreaching Net Neutrality Regulations (May 5, 2011), *available at* http://goodlatte.house.gov/press_releases/251. On the other, open Internet advocates criticize the Order as being, at best, semi net-neutrality giving wiggle room for wireless providers such as AT&T and Verizon to shirk regulation. Press Release, Free Press, Even Weak, Watered-Down Rule Not Enough to Appease Verizon (Jan. 20, 2011), *available at* http://www.freepress.net/press-release/2011/1/20/free-press-even-weak-watered-down-rule-not-enough-appease-verizon; *cf.* Stelter, *supra* note 18. The Order is currently being challenged in federal court on *both* sides of the debate, with each side arguing that the Order is arbitrary and capricious in violation of the APA. *See* Verizon v. FCC, No. 11-01356 (D.C. Cir. Sept. 30, 2011); *see also*, Press Release, Access Humboldt, Access Humboldt Challenges

cates argue that this lesser regulation of mobile Internet will create a foundation of discriminatory practices by mobile broadband providers who could take advantage of the lax regulation and block specific content and applications.[19]

While the different regulation of "fixed" and "mobile" providers could in fact lead to discriminatory practices in the mobile broadband industry, there is a more fundamental problem in the Order than this regulatory asymmetry. In criticizing the decision to treat "fixed" differently from "mobile," open Internet groups have not stopped to consider which providers are "fixed" and which are "mobile." Missing from the critiques of the Order on both sides of the debate is a clear understanding of whom this regulation will actually affect and what the repercussions will be of dividing broadband providers into separate categories. Specifically, critics of the Order have overlooked the repercussions of this bifurcation on the sustainability of the Order.

Instead of focusing on the decision by the FCC to regulate "mobile" less heavily than "fixed," this Comment looks at the classifications themselves. What is "fixed"? What is "mobile"? While the different regulation of "mobile" is potentially unfair and troubling, the foundation of this regulation, namely the stratification of Internet services into "fixed" and "mobile," will prove to be even more problematic for the FCC. In using the categories of "fixed" and "mobile," the FCC continues its flawed tradition of placing communications technologies into distinct regulatory silos that become unwieldy when new "hybrid technologies"[20] erode the differences between those silos. This process, by which the differences between previously distinct technologies disappear, is known as *technological convergence.*

As should have been foreseeable to the FCC, new technological convergence has already begun to erase the line between what the FCC defines as "fixed" and "mobile." Granted, the FCC decision to use the categories of "fixed" and "mobile," rather than more technology-specific categories such as "wireline" and "wireless," has eliminated an array of potential problems associated with previous technological convergence. For example, the convergence of telephony, which was traditionally transmitted via fixed-line connections, onto both fixed-line and wireless channels makes it difficult to place telephony exclu-

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FCC's Open Internet Rules (Sept. 28, 2011), *available at* http://accesshumboldt.net/site/access-humboldt-challenges-fccs-open-internet-rules [hereinafter Access Humboldt PR].

[19] Kendra Leghart, Comment, *The FCC's New Network Semi-Neutrality Order Maintains Inconsistency in the Broadband World*, 12 N.C. J. L. & TECH. ON. 199, 230 (2011); Free Press PR, Wireless Users, *supra* note 14.

[20] "Hybrid technologies" are those that fit into multiple categories or "silos."

sively in either a "wireline" or "wireless" regulatory category. Nonetheless, this shift to "fixed" and "mobile" is insufficient. We are heading towards a convergence of networks, where wireless and fixed-line networks will combine to form one overarching network that caters to all endpoints, stationary or moving. This convergence of networks will result in the Order's distinctions between "fixed" and "mobile" becoming obsolete. This Comment argues that the FCC cannot continue to simply update its categories to reflect changes in technologies because, given the speed of convergence in telecommunication technology in the Internet age, any difference between categories will quickly be eroded by technological convergence. As a result, the regulations and protections built around these categories will quickly become ineffective. Instead, the FCC should reject its ex-ante fixed category-based approach in the Order and rely on a more flexible, ex-post adjudicatory system to create sustainable Internet regulations for the future.

Part II of this Comment seeks to define the problem of technological convergence and how it has plagued the FCC's attempts to create sustainable regulation of communications technology. In particular, this part will focus on the FCC's continued use of "regulatory silos," which, when faced with technological convergence, cause confusion and create incentives for companies to represent themselves as providing whichever category of service subjects their business to less regulation, eventually resulting in the overarching regulation becoming ineffective. Part III of this Comment examines the Open Internet Order's classifications of "fixed" and "mobile" and analyzes how these two classifications, though sufficient for the technological environment as it stands now, are simply new regulatory silos that will become too restrictive and narrow in a world of converging networks. Finally, Part IV proposes how the Order could be more sustainable and move away from its reliance on the fixed/mobile distinction while still satisfying the dual goals of preserving the open Internet and promoting competition and innovation in mobile broadband.[21] This part draws from environmental law principles of adaptive capacity and proposes a solution to the Order that relies on ex-post forbearance proceedings and can hopefully serve as an example of how the FCC can move away from placing future technologies into rigid regulatory silos.

[21] Note that this paper will not address the FCC's authority to enforce the Order. This Comment assumes that the challenges to the Order based on the FCC's authority will not be successful.

II. TECHNOLOGICAL CONVERGENCE: A CHALLENGE TO SUSTAINABLE FCC REGULATION

When a single technology becomes increasingly able to perform functions previously associated with a different technology, it can be said that those two technologies have converged.[22] In other words, technological convergence occurs when the historical distinctions and differences between technologies disappear.[23] Today, for example, while there may still be "cable" companies and "phone" companies, the Internet is quickly becoming the common platform for all communications industries.[24] Increasingly, the voice signal from a phone call to China or the information retrieved from a Google search online is digitized and sent as Internet protocol packets over the connection to the user.[25] It makes no difference to the user if that connection is a wireline fiber optic cable or 4G wireless cellular network.[26] All these services and various transmission channels increasingly connect to and operate via the Internet. We are witnessing a massive convergence of services onto one single platform: the Internet.

For the FCC, the problem with technological convergence arises

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[22] Monroe E. Price & John F. Duffy, *Technological Change and Doctrinal Persistence: Telecommunications Reform in Congress and the Court*, 97 COLUM. L. REV. 976, 976-81 (1997).

[23] Kevin Werbach, *Breaking The Ice: Rethinking Telecommunications Law for the Digital Age*, 4 J. ON TELECOMM. & HIGH TECH. L. 59, 61 (2005) [hereinafter Werbach, *Breaking the Ice*]. This is not a new phenomenon of the Internet age. In 1996, it was technological convergence that drove Congress to overhaul the Communications Act of 1934. The Communications Act had been written at a time of purely analog transmission, where every communication service had its own unique transmission medium. Telephones and telegraph services were transmitted exclusively by wire. Radio and later television were broadcast solely over the air. Fast-forward to 1996, when most Americans were receiving their television from wireline cable service, and many were making phone calls over wireless cell phones. In 1996, any communication platform could potentially offer any kind of service. A service like telephony was no longer relegated to wireline transmission technologies like copper wires. Both television and telephone could now be transmitted via wireline or wireless technologies. In other words, services like phone and television had converged onto the same transmission paths. The goal of Congress in 1996 was to reflect that convergence. *See* Krattenmaker, *supra* note 1, at 4-6. *See generally* Sen. Ted Stevens, *Policy Essay: The Internet and the Telecommunications Act of 1996*, 35 HARV. J. ON LEGIS. 5 (1998).

[24] Kevin Werbach, *The FCC and the Future: Article: The Network Utility*, 60 DUKE L.J. 1761, 1766-67 (2011) [hereinafter Werbach, *Network Utility*].

[25] Werbach, *Breaking the Ice*, *supra* note 23, at 62 ("Everything starts to change when information is transmitted in digital form. Digital communications are fundamentally just strings of ones and zeroes. They are ultimately interchangeable, meaning that any communications platform can, in theory, offer any service.").

[26] For a detailed description, *see* MARTIN SAUTER, BEYOND 3G – BRINGING NETWORKS, TERMINALS AND THE WEB TOGETHER 8 (2009).

when regulators do not consider that the technological universe existing at the time the regulation is drafted could change. Instead, they regulate according to the narrow roles technologies play at that particular point in time. Regulators create rigid regulatory silos based on existing infrastructures and technologies with one service allocated to each silo.[27] When a new hybrid service is created that can fall under either silo, companies exploit the regulatory uncertainty and present themselves as belonging to whichever silo has fewer regulatory requirements.[28] As companies increasingly find ways to skirt rules and restrictions, the regulation ceases to be effective.

Consider, for example, the problem the FCC faced with Voice Over Internet Protocol (VOIP). Under the 1996 Telecommunications Act (1996 Act), traditional telephone companies fall under the regulatory silo of "telecommunications service." As a result, telephone companies are subject to obligations such as contributing to the Universal Service Fund and ensuring that their customers are able to contact 911 in an emergency.[29] Judicial construction of the Act, on the other hand, categorizes ISPs as "information services" which are subject to far less regulation.[30] The 1996 Act therefore created two distinct regulatory silos subject to different levels of regulation.[31] Problems arose with technologies such as VOIP, which offers the functionality of a phone but utilizes Internet protocol to transmit the voice data. VOIP is essentially a phone service over the Internet. It is therefore a hybrid technology in that it straddles two separate silos. The FCC was faced with the dilemma of how to categorize VOIP. Unsurprisingly, VOIP pro-

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[27] Rob Frieden, *Legislative and Regulatory Strategies for Providing Consumer Safeguards in a Convergent Information and Communications Marketplace*, 33 HASTINGS COMM. & ENT. L.J. 207, 214 (2011).

[28] Werbach, *Network Utility*, *supra* note 24, at 1784-85; *see also* Krattenmaker, *supra* note 1, at 42-43 (illustrating this phenomenon using a hypothetical housing example: "[t]o revert to the 'universal housing' example, a firm might start selling newly constructed mobile homes and argue that they were not "houses" as defined in a hypothetical Universal Housing Act").

[29] For an explanation of what these requirements entail, see Judith A. Endejan, *Will the FCC Ever Make the Call on VOIP Service?*, 25 FALL COMM L. 4-5 (2008); Linda A Rushnak, Comment, *Is Voice Over Internet Protocol (VOIP) Subject to Regulation Under the Telecommunications Act of 1996*, 17 ALB. L.J. SCI. & TECH 213 (2007).

[30] Matthew Lasar, *New Regulatory Battle Brewing Over ISPs*, ARS TECHNICA (Feb. 1, 2010, 12:44 PM), http://arstechnica.com/telecom/news/2010/02/are-isps-common-carriers-let-the-debate-begin.ars. *National Cable v. Brand X*, 545 U.S. 967 (2005) affirmed the FCC's decision to label ISPs as information services.

[31] The Telecommunications Act of 1996 did not contemplate the Internet to this degree. It was only through later adjudications, notably in *National Cable v. Brand X*, that ISPs were labeled as information services.

viders argued that they should be considered an information service, the service subject to fewer regulatory taxes.[32] If the FCC classified VOIP as a telecommunications service it would directly contradict precedent classifying Internet services under the "information service" silo.[33] Conversely, if the FCC classified VOIP as an information service as the VOIP companies wanted, it would place traditional telephone companies, who were subject to far more regulation, at a competitive disadvantage.[34]

To make matters worse, because the FCC classified VOIP as an "information service," some scholars were able to identify a further loophole. Professor Rob Frieden suggested that *traditional* telephone providers regulated under the "telecommunications" silo could now seek to recast their "telecommunications service" as a software-defined "information service."[35] Frieden argued that "telecommunications service providers can migrate nearly every service they offer into the unregulated information service 'safe harbor,' and the FCC would have no legal basis to continue enforcing regulatory safeguards even though essential public policies and competition policies necessitate its ongoing involvement."[36] By having one silo subject to far less regulation than others, companies are incentivized to cast themselves as falling under that silo to avoid regulation, and the consumer protections provided by a particular regulation are endangered. In the case of VOIP, it took a series of complex adjudications and orders for the FCC to finally require that VOIP providers offer the same consumer protections required of traditional telephone companies.[37]

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[32] *See e.g.*, Vonage Petition, 19 FCC Rcd. 22404, 22416-17 (2004).

[33] Rob Frieden, *The FCC's Name Game: How Shifting Regulatory Classifications Affect Competition*, 19 BERKELEY TECH. L.J. 1275, 1312-13 (2004) [hereinafter Frieden, *Name Game*].

[34] If VOIP seems like a regulatory tangle, consider how cable companies, who were once themselves classified under the 1984 Cable Act as a completely different "cable" regulatory silo, also offer Internet and VOIP services. Traditional phone companies now offer cable-like television service and Internet as well. What we are left with is a landscape full of hybrid services that straddle multiple classifications. The rigid absolute classifications of "information," "telecommunications," and "cable" are unable to accommodate these changed circumstances. *See, e.g.*, Frieden, *Name Game*, *supra* note 33, at 1278-82 (discussing how the Internet service provided by cable companies has caused its own set of legal headaches: "In the span of a few months, three courts reached three different conclusions regarding the scope of Internet access responsibilities that a county or municipal government lawfully can impose on a cable television operator.").

[35] Frieden, *Name Game*, *supra* note 33, at 1312-13.

[36] *Id.*

[37] The FCC is still struggling with the VOIP issue. Instead of regulating VOIP under Title II, the FCC has worked to impose individual regulations one by one on VOIP such as the requirement to pay into the Universal Service Fund and provide emergency 911 connection.

Technological convergence eradicates the distinctions between regulatory silos, and therefore not only creates incentives for regulated companies to shirk regulation but also makes the regulations themselves ineffective. In Part III, this Comment outlines how in the Open Internet Order, rather than learning from the mistakes of the past, the FCC has created a new set of regulatory silos. Due to technological convergence, these silos will once again cause regulatory uncertainty and loopholes through which companies can avoid regulation. Because of technological convergence, the use of these silos will render the Order unsustainable.

III. THE ORDER'S USE OF "FIXED" AND "MOBILE": OUT OF THE FRYING PAN INTO THE FIRE

As mentioned in Part I, the FCC chose in the Order to regulate the various channels that consumers use to access the Internet differently.[38] The FCC divided these technologies and services into two distinct silos: "fixed broadband access service" and "mobile broadband access service."[39] The criticisms of the Order by open Internet advocates have focused on the FCC's unequal regulation of these two categories. Under the rules set out in the Order, "mobile" broadband providers are subject to the same transparency requirements as "fixed" providers, but are only prohibited from blocking lawful websites and applications that compete with their own. Unlike fixed providers, mobile providers are completely exempt from the no-discrimination rule in the Order.[40] Thus, under the rules in the Order, a "mobile" provider could potentially block an application simply because they disagreed with its message or because a rival application paid more for exclusive carriage.[41]

See Endejan, *supra* note 29, at 5.

[38] Order, *supra* note 4, at 59201-02 ("We recognize that there is one Internet . . . and that it should remain open and interconnected regardless of the technologies and services end users rely on to access it. However . . . we apply open Internet rules somewhat differently to mobile broadband than to fixed broadband at this time.").

[39] *See* Order, *supra* note 4, at 59202 (defining fixed broadband as a service that serves users primarily at fixed endpoints using stationary equipment and mobile broadband as a service that serves primarily mobile stations). The Order does not regulate dialup. Going forward, references to fixed or mobile Internet refer to broadband connections only.

[40] *See infra* text accompanying notes 41-42.

[41] For example, an ISP could follow what Google-owned website YouTube did when it chose to remove videos showing American soldiers being killed by snipers because it felt they were inappropriate. Bob Unruh, *YouTube Yanks Video of Americans 'Killed'*, WND (Apr. 8, 2008, 3:31 PM), http://www.wnd.com/2008/04/61054/. A more extreme hypothetical would be if the city of San Francisco asked a mobile ISP to shut off access to Twitter because of a planned protest. Under the Order, the mobile provider has the ability to do so without having

Open Internet advocates have been up in arms about the granting of this power.[42] But they have not stopped to ask *who* exactly has this power. Missing from the debate is a clear understanding of which technologies and services are "fixed" and which are "mobile." Who are "mobile" providers? Unfortunately, the answer to this question is becoming less and less clear due to technological convergence, as are the protections the Order will ultimately provide consumers.

A. *Fixed/Mobile is not the same thing as Wireline/Wireless*

Critics of the Order have largely assumed that, under the Order, traditional wired home broadband Internet options, such as those provided by cable or traditional phone companies, fall under the "fixed" category of the Order, while cell phone companies that provide wireless broadband Internet access fall under "mobile."[43] When discussing the Order, they have interchangeably used words like "wired" to refer to "fixed," and "wireless" to refer to "mobile." By using these terms interchangeably, these critics overlook the steps the FCC has taken to move its definitions away from being restricted to specific technologies towards broader categories based on how consumers use various services to access the Internet. These critics overlook the positive steps the FCC has taken to avoid past problems of technological convergence, and to make the Order more sustainable and less vulnerable to technological change.

Historically, the wireline/wireless distinction has been used to differentiate services provided by cable and telephone companies, such as Comcast, from services offered by cellular providers like Sprint.[44] However, the use of the wireline/wireless distinction has become increasingly problematic given the convergence of services onto both wireline and wireless transmission technologies that has led to an abundance of hybrid telecommunications services. For example, satellite television services like DirectTV fulfill a similar function to Com-

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to ask the FCC for permission. Given the BART controversy, this hypothetical is not very farfetched. These actions are permissible under the Order.

[42] *See,* e.g., *Frequently Asked Questions*, SAVE THE INTERNET, http://www.savetheinternet.com/frequently-asked-questions (last visited Mar. 8, 2013) (discussing how the threat to net neutrality and the open Internet is not just hypothetical).

[43] *See, e.g.*, Access Humboldt PR, *supra* note 18 ("The FCC does not require wireless ISPs to adhere to the same rules."); Free Press PR, Wireless Users, *supra* note 14 ("Our challenge will show that there is no evidence in the record to justify this arbitrary distinction between wired and wireless Internet access.").

[44] Academics have used the wireline/wireless distinction. *See, e.g.*, Rob Frieden, *Lock Down on the Third Screen: How Wireless Carriers Evade Regulation of their Video Service*, 24 BERKELEY TECH. L.J. 819, 819-21 (2009).

cast in that they deliver the same channels we expect from a wired cable connection. Like Comcast, they also offer Internet access. Unlike Comcast, however, Direct TV utilizes satellite, a wireless technology, to bring television and Internet service to the home.[45] A distinction between wireless and wireline fails to take into consideration technologies such as satellite, which is more akin to traditional "wireline" providers in terms of the services it offers but utilizes a transmission technology similar to "wireless" services like cellular networks.

Increasingly, consumers are utilizing Wi-Fi routers to wirelessly connect their home computers to Internet provided by a telephone or cable company. Some are even using Wi-Fi technology to connect their televisions wirelessly to cable boxes.[46] With the last leg of traditional wireline technologies becoming increasingly wireless due to Wi-Fi, what most people think of as accessing the Internet via a "wireless" or "wireline" connection drifts further away from the plain meaning of those words. Therefore, the use of the wireline/wireless distinction has become much less useful as a means of regulatory classification.

The difficulty of using the wireline/wireless distinction is even clearer when one looks beyond the "last mile" connections to customers towards what is sometimes referred to as "backhaul" infrastructure.[47] Even for traditional "wireless" cell phone service, the networks that support the service are not always wireless. Wireless operators utilize both wireless microwave and fixed line technologies, such as T-1 lines, to backhaul data from one wireless base station to another.[48] In other words, when a consumer in New York uses his or her cell phone to call a California cell phone, the data of their phone call moves not only over the air via wireless microwave technology but also through

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[45] *Exede High-Speed Internet to be offered by DIRECTV in New Video/Broadband Bundle* (May 17, 2012), http://www.viasat.com/news/exede-high-speed-internet-be-offered-directv-new-videobroadband-bundle.

[46] Doug Aamoth, *AT&T U-verse Customers Get Wireless Cable Box Option*, TIME TECHLAND (Oct. 27, 2011), http://techland.time.com/2011/10/27/att-u-verse-customers-get-wireless-cable-box-option/.

[47] This area has been virtually ignored by the FCC in both the Order and in previous Internet rulemakings. *See* Werbach, *Network Utility*, *supra* note 24, at 1779-83 (discussing how "[t]he FCC has never chosen to address the Internet backbone market, in part because it has always deemed competitive forces sufficient. The FCC never explicitly concluded that backbones were outside of its authority. It simply never adopted rules applicable to that marketplace . . . . [I]ndeed, interconnection in the backbone bears a strong resemblance to certain interconnection issues the FCC regulates in the telephone world, often involving the same companies. The FCC has simply never taken up these arguments.").

[48] SAUTER, *supra* note 26, at 148.

the provider's backhaul network, which is often wireline.[49] If that same New York cell phone calls a cell phone in Dubai, chances are the data is travelling through undersea fiber optic cables to reach its destination.[50] Conversely, while cable television reaches your flatscreen via a cable to your home, the signal actually originates from a wireless satellite feed.[51] Thus, to refer to a cable service as "wireline" and a cellular phone service as "wireless" ignores the fact that the service likely incorporates both wireless and wireline technologies along the way. Future regulation will cause tremendous confusion if it refers to a particular service, whether it be cable, Internet, or phone, as either wireline or wireless. Therefore, the FCC was correct to move away from the immediately problematic wireline/wireless distinction when it drafted the Order.[52]

B. *The FCC's Use of Fixed/Mobile Eliminates the Problems of Wireline/Wireless*

As discussed above, had the FCC used the wireline/wireless distinction in the Order, it would have created two overly rigid regulatory silos that would have immediately caused confusion. Companies utilizing both wireless and wireline technologies would have immediately argued that they should be classified as "wireless" in order to shirk regulation. Instead, the FCC has used the categories of "fixed" and "mobile":

> We define "fixed broadband Internet access service" as a broadband Internet access service that serves end users primarily at fixed endpoints using stationary equipment, such as the modem that connects an end user's home router, computer, or other Internet access device to the network. This term encompasses fixed wireless broadband services (including services using unlicensed spectrum) and fixed satellite broadband services. We define 'mobile broadband Internet access service' as a broadband Internet access service that serves end users primarily using mobile stations. Mobile broadband Internet access includes services that use smartphones as the primary endpoints for

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[49] *Id.* (discussing how cellular base stations are often connected through non-wireless connections).

[50] JERRY KANG, COMMUNICATIONS LAW AND POLICY, 78 (4th ed. 2012).

[51] See *id.* at 77, figure 2.5 for an illustration.

[52] The fixed/mobile distinction is not only used by the FCC in the Order. The National Broadband Plan also utilizes the fixed/mobile distinction and points out the fact that ISPs like satellite providers are also fixed. CONNECTING AMERICA: THE NATIONAL BROADBAND PLAN (Part I., chapter 4), *available at* http://www.broadband.gov/plan/4-broadband-competition-and-innovation-policy/.

connection to the Internet.[53]

Under the Order, services that primarily serve consumers who access the Internet on stationary equipment like home computers are considered "fixed," while services that primarily serve users accessing the Internet though a mobile device like a smartphone are "mobile." The definitions of these two terms also explicitly address many of the issues raised above about services that incorporate both wired and wireless transmission technologies. For example, wireless technologies such as a Wi-Fi router in one's home are explicitly considered "fixed" under the Order. The FCC draws a distinction between "fixed" satellite, such as an attached dish to a home, and a satellite smartphone. Thus, satellite services providing Internet and television to the home, such as DirectTV, are considered fixed. An emerging technology, such as a satellite smartphone,[54] would likely fall under "mobile" since it is a service catering to smartphones even though it also utilizes satellite technology. The FCC has therefore anticipated and addressed many of the current problems associated with the wireline/wireless distinction.[55]

Distinguishing between fixed/mobile and wireline/wireless will not allay the criticisms of the Order.[56] Open Internet advocates will remain upset with the more lax treatment of "mobile" services, even if that category no longer includes satellite ISPs. Similarly, they have not been appeased by the fact that connections via Wi-Fi routers are safely in the more highly regulated "fixed" category. However, it is important to recognize that the FCC has taken active steps to overcome

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[53] Order, *supra* note 4, at 59201.

[54] AT&T recently released the TerreStar GENUS Satellite and Cellular Smartphone, a phone designed for emergency responders who are working in areas affected by man-made or natural disasters. What is special about the TerreStar is that it is designed to be an everyday smartphone that provides web browsing, applications and phone service. Users can choose how they stay connected, via AT&T's cellular network or via satellite in a given area. *AT&T TerreStar GENUS™ Satellite and Cellular Smartphone*, SATPHONESTORE, http://www.satphonestore.com/att-terrestar-genus (last visited Mar. 8, 2013).

[55] The allocation of satellite dishes and home Wi-Fi routers to the "fixed" category and satellite smartphones to the "mobile" category is not surprising. The average consumer would likely assume their cable Internet was "fixed," even if they used a wireless router. Likewise a satellite smartphone user would likely say their service was "mobile" while a satellite home Internet user would likely say their service is "fixed." What the FCC is attempting to do in the Order, therefore, is to capture the way that society already defines wireline/wireless while taking away the confusion caused by the plain meaning of those two terms. We tend to view transmission paths to our home desktop or television, regardless of whether we use cable or satellite services, as a more stationary and "fixed" category and our cell phone as much more "mobile." The fixed/mobile distinction merely captures the way we already view technology today.

[56] The Order is currently being argued in Federal Court. *See* Feld, *supra* note 13.

the sustainability challenges caused by technological convergence. The fixed/mobile distinction will be effective in eliminating confusion[57] that could arise when the FCC begins to implement the Order. Therefore, the decision by the FCC to focus less on the method of transmission and more on the situations in which a technology is used is a positive step forward in crafting a more sustainable Order.

C. *Problems of Convergence and Classification Already Exist Given Current Technology*

Even though the FCC has taken steps to rectify the problems caused by past convergence by choosing not to use the wireline/wireless distinction, problems of convergence remain. Technological convergence has already begun to erode the distinctions between the existing silos. Consider the following scenarios:

Scenario A:

- A user accesses the Facebook application on an iPhone while sitting on a train moving at 100 mph.

Scenario B:

- A user accesses the Facebook website on their desktop computer while at home.

Based on the Order, it would be easy to say that the connection to the iPhone is "mobile" while the connection to the home computer would be considered "fixed." A home computer would definitely seem to fall under the category of "fixed" as it is a stationary device used at home. The Order even explicitly mentions that connections to modems that serve a home computer are "fixed."[58] The iPhone, is a smartphone, and the Order explicitly categorizes services that primarily serve devices such as smartphones as "mobile." It is hard to imagine that any service one accesses when travelling on a high-speed train would not be considered mobile. As discussed above, the Order eliminates some potential ambiguity in that even if the home computer were connected via a wireless service, such as a satellite connection or a Wi-Fi router, this fact would not alter the analysis.

But consider the two scenarios again. Would the answer be different if you knew that in Scenario A the iPhone was connected to a Wi-Fi Internet service provided by a traditional cable or telephone ISP? Or what if the desktop in scenario B was connected to the Internet via a

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[57] For example, Satellite Internet providers will know where they stand.

[58] *See supra* text accompanying note 55.

4G wireless connection?

These two scenarios are not based on theoretical future technologies. On the BART in San Francisco, commuters on their way to work can access Wi-Fi Internet on their computers or smartphones as the BART train speeds above and below ground. The Wi-Fi service is provided by a company called WifiRail that essentially works the same way a typical Wi-Fi router works in the home, where a signal from a wired broadband connection is promulgated via a specialized Wi-Fi router over the air to your device.[59] So is this "fixed" under the Order as a Wi-Fi router connection in your home would be? Or is this a mobile connection because you are accessing the Internet on the go via a smartphone? It is unclear how the Order would answer these questions. However, if the underlying Internet connection is via a cable ISP like Comcast, which *primarily* serves fixed endpoints like residential homes, it is likely that WifiRail's service would be categorized as "fixed" despite the mobile nature of the service.

Likewise, the 4G connection to a home desktop is a currently utilized technology.[60] For example, the T-Mobile-Rocket plugs into any single computer, whether it is laptop or desktop, providing the user with a 4G Internet connection.[61] 4G is a wireless connection provided by cell phone companies such as T-Mobile.[62] If the Rocket is plugged into a bulky home desktop, is this a "fixed" connection because the home computer is "stationary equipment?" Or, is this a "mobile" connection because it utilizes a service that, under the Order, primarily tends to serve cell phone customers? Again, it is unclear how exactly the Order would answer these questions. But because services like T-Mobile *primarily* serve mobile endpoints like smartphones, it is likely that this connection would fall under "mobile."

What begins to emerge through the above examples is a certain ar-

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[59] This is an oversimplification. The system used by WifiRail is similar in its basic structure to a home Wi-Fi router but in order to provide service to users travelling at such high speeds the WifiRail system is more complex. For details on the specific technology WifiRail uses, see *Rail Operators*, WIFIRAIL, http://www.wifirail.net/pages/RailOperators.html (last visited Feb. 28, 2013). Not all Internet services on trains utilize this kind of technology. Some, like Amtrak, rely on 4G cellular technology. *See* Ron Nixon, *Wi-Fi and Amtrak: Missed Connections*, N.Y. TIMES (May 30, 2012), http://travel.nytimes.com/2012/06/03/travel/wi-fi-and-amtrak-missed-connections.html.

[60] The FCC is aware of this technology. The National Broadband Plan prepared by the FCC also contemplates wireless being used in the home. CONNECTING AMERICA: THE NATIONAL BROADBAND PLAN, *supra* note 52.

[61] *T-Mobile Rocket 3.0 4G Laptop Stick*, CNET, http://reviews.cnet.com/modems/t-mobile-rocket-3/4505-3004_7-34818008.html (last visited Feb. 28, 2013).

[62] T-MOBILE, http://t-mobile-coverage.t-mobile.com/ (last visited Feb. 28, 2013).

bitrariness in the Order's application of the "fixed" and "mobile" categories. In the above scenarios, a smartphone accessing the Internet via a 4G cellular connection would fall under the "mobile" silo, but that same device with the same user would likely be regulated as "fixed" if accessing the Internet through a Wi-Fi connection either at home, a coffee shop, or even potentially on a high speed train. A home desktop computer accessing the Internet via a Wi-Fi router connected to a cable Internet service would definitely be considered "fixed," but the same computer in the same home accessing the web via a 4G connection would likely be considered "mobile." The same devices on different networks will be subject to different levels of protection and access.

For example, consider this completely plausible scenario under the Order: a user is in her living room accessing a new BART protest app on her smartphone. At that moment, her smartphone is connecting to the Internet via the residence's Wi-Fi. The user leaves home and walks out of range of her home cable Wi-Fi connection. Her phone would then switch its Internet connection from the home Wi-Fi to a 4G cellular connection. At that point, because the user has now moved onto a "mobile" ISP's network that is free to block an application like a BART protest app, the user is suddenly blocked from using the app even though she is still on the same device. The same device is being regulated differently depending on which network it is using to access the Internet. This commonplace scenario illustrates how the different regulation of "fixed" and "mobile" in the Order is already becoming increasingly arbitrary.[63]

D. *Problems that Will Arise – The Future of Network Convergence*

The problems outlined above are only the tip of the iceberg. These are merely the problems that already arise in today's world, where multiple services have converged onto the same transmissions paths and devices. But we are headed towards a world of converged networks that will render the distinction between "fixed" and "mobile" not simply arbitrary but useless and obsolete.

Increasingly, devices such as the iPhone or the newly released cell-

[63] Granted, this seeming arbitrariness could be explained by the fact that there is more of a bandwidth congestion problem on cellular networks. Therefore, it makes sense that once one steps out of range of a home Wi-Fi network they should not be able to access all the services they could access via a cable Internet connection. However, under the Order, both fixed and mobile services can take reasonable steps to prevent network congestion (reasonable network management safe harbor). If the FCC had merely been concerned with network congestion, they could have just regulated mobile and fixed in the same way and allowed networks to manage their network congestion problems as they saw fit.

phone from Republic Wireless[64] are able to switch seamlessly from one's home Wi-Fi connection to the cellular 4G data network outside the home. Users move seamlessly from the small bubble of their home Internet connection to the larger 4G bubble outside.[65] Right now, these bubbles are separate. The provider of our home Internet Wi-Fi service is often different than the company we use for our cell phone service. Engineers predict that this divide between cell phone service providers and home Internet providers will soon disappear.[66] We can already see the beginnings of this trend through the AT&T microcell service. AT&T offers customers living in areas with low cellphone signal a microcell, which utilizes a fixed line broadband connection (that may or may not be provided by AT&T as well), to provide cellular service.[67] Companies like AT&T or Verizon who currently offer both fixed-line and wireless services separately will have a distinct advantage as they will begin to offer fixed Internet as well as cellular service in one package.[68]

But this convergence of networks is more than just a larger bundle being offered by a provider or a consolidation of bills. It is a single overarching network that utilizes both Wi-Fi and 4G technology and hosts any device or service a user might require.[69] A company like Verizon is uniquely positioned to utilize its wireline and wireless infrastructure to blanket areas with Internet service. In areas of high traffic, Verizon can overlay the cellular network over the fixed line Wi-Fi network made up of Verizon hotspots and perhaps even customer's

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[64] Republic Wireless is a cell phone service that seamlessly switches from Wi-Fi connections to cellular connections. As you move in and out of range of a Wi-Fi connection, Republic Wireless switches you onto the cellular network without interrupting your call. *How It Works*, REPUBLIC WIRELESS, http://republicwireless.com/how-republic-works (last visited Mar. 8, 2013).

[65] SAUTER, *supra* note 26, at 154.

[66] *Id.* at 154-55.

[67] The device acts like a mini cell tower in the home. *AT&T 3G Microcell*, AT&T, http://www.att.com/shop/wireless/devices/3gmicrocell.jsp?fbid=jHG3bCTYAlI (last visited Mar. 8, 2013).

[68] SAUTER, *supra* note 26, at 154-55.

[69] *Id.* at 154-55; *see also* Quan Le-Trung et al., *Mobility Management for All-IP Mobile Networks*, *in* EMERGING WIRELESS NETWORKS CONCEPTS, TECHNIQUES AND APPLICATIONS, 35, 37 (Christian Makaya & Samuel Pierre eds., 2012) (discussing how future 4G systems will seamlessly integrate existing and new wireless networks). For a detailed description on the logistics and challenges of an integrated network, see Li Jun Zhang et al., *Integrated Network Architecture Design for Next-Generation Wireless Systems*, *in* EMERGING WIRELESS NETWORKS CONCEPTS, TECHNIQUES AND APPLICATIONS, 107, 107-117, 126-143 (Christian Makaya & Samuel Pierre eds., 2012).

home microcells.[70] The user, whose device moves seamlessly from Wi-Fi to cellular wireless connections, remains unaware at any point in time which kind of service they are using to access the Internet. Any minute their connection to the Internet could change from Wi-Fi (fixed) to 4G (mobile) and back again. In this scenario, the cellular network is no longer distinct from the fixed line network. It is one large converged network.

How would the Order regulate this new converged network? In this world of converged networks, Verizon no longer primarily caters to either "mobile" or "fixed." Verizon is a provider of both "mobile" and "fixed" services to both stationary and mobile devices. If the Order remained unchanged, it is not hard to envision Verizon making the argument that they have become a completely "mobile" network in that any device can be used anywhere in the network at any time. They might claim there is no longer any service they offer which caters primarily to fixed endpoints. Therefore, Verizon will claim, they should be classified as a completely "mobile" service and should enjoy the regulatory exemptions for "mobile" ISPs. Once again, the FCC's regulatory silos would be rendered obsolete and unable to regulate the services as intended.

As a result, if a company like Verizon were able to convince the FCC that it should be entirely regulated as a "mobile" service, then Verizon could block an application both in the home and on the cellular network simply because the Verizon CEO disagrees with its political leanings. Until a court could determine what category Verizon falls under, there would be confusion as to whether Verizon is "fixed" or "mobile." Any protections provided to consumers would be in danger as ISPs seek to cast themselves as "mobile" providers who are free to block applications as they choose. The use of the fixed/mobile distinction renders the Order itself unsustainable and the goal of the Order to protect the open Internet will have been foiled.

IV. HOW TO FIX THE PROBLEM: A PROPOSAL

The previous sections have demonstrated that technological convergence in telecommunications is moving at a pace that will render the current Order, which relies on rigid regulatory silos, unable to protect the openness of the Internet. Going forward, regulation of the Internet needs to be sufficiently flexible to withstand technological con-

[70] Granted, companies like AT&T consciously split apart their cellular and Internet divisions so each business could gain the capital structure necessary to grow. *A Brief History: The New AT&T*, AT&T, http://www.corp.att.com/history/history5.html (last visited Mar. 8, 2013).

vergence and change. This Part proposes one possible solution for how the FCC can alter the Order to ensure its protection of the openness of the Internet is effective in a world of converged networks and beyond. The proposed solution is meant to demonstrate that the goals of the Order can be implemented without relying on regulatory silos. The hope is that this proposal can serve as an example for the FCC's regulation of telecommunications in general.

Before addressing the proposal presented in this Comment, it is important to first discuss the primary proposal that has already been put forth in response to the Order and why this solution is insufficient. As mentioned previously, much of the criticism of the Order has been focused on the different treatment of fixed and mobile ISPs.[71] Thus, there have been calls to simply eradicate the difference between "fixed" and "mobile," and instead regulate both equally.[72] In other words, some argue that the FCC should just apply the no blocking, no discrimination, and transparency rules equally across the board to all ISPs whether "fixed" or "mobile."

While simply eliminating the fixed/mobile distinction would likely satisfy many open Internet advocates, in that mobile ISPs would no longer be exempt from any regulation under the Order, this solution presents two problems. First, the accessibility of the Internet, the desire to prevent broadband ISPs from blocking or favoring certain content, was not the only goal of the Order. The Order was also meant to spur innovation, especially amongst providers of "mobile" broadband Internet service.[73] The FCC explicitly stated that due to the differences between "mobile" and "fixed" ISPs, including the earlier stage of development of "mobile," mobile ISPs should be less heavily regulated.[74] Whether or not the mobile Internet industry is currently in need of less

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[71] *See supra* note 14 and accompanying text.

[72] *See, e.g.*, Leghart, *supra* note 19, at 230. Leghart's argument can be characterized as stemming from the "absolute neutrality" or "absolutist" school of thought. The absolutist position considers an ISP a common carrier like a telephone carrier and suggests that carriers must, except for the most compelling reasons, treat all information transmitted equally. At its most extreme, the absolutist position would not even allow an ISP to block spam or carry on other kinds of blocking or discrimination that clearly falls under reasonable network management. *See* Tim Wu, *Why Have a Telecommunications Law? Anti-Discrimination Norms in Communication*, 5 J. ON TELECOMM. & HIGH TECH. L. 15, 40 (2006).

[73] The Order was meant to protect Internet freedom and openness on the one hand, and promote robust innovation and investment through the broadband ecosystem on the other. Genachowski Statement, *supra* note 12, at 18039.

[74] *See id.* at 18041.

regulation to spur innovation is a matter under debate.[75]

This Comment therefore strives to provide solutions for both sides of the debate. For the open Internet advocates who are primarily concerned with the dangers of regulating "mobile" providers less than "fixed" providers, this Comment agrees that the best solution would most likely be to simply eliminate the fixed/mobile distinction altogether. On the other side, the FCC believes that the costs of regulating mobile providers less are outweighed by the potential costs of stifling innovation in the mobile industry. A solution that eliminates the fixed/mobile distinction and simply regulates all ISPs equally fails to address this. Thus, the proposal in this Comment also addresses the FCC's explicit goal of regulating "mobile" less.

Second, this solution of simply eliminating the fixed/mobile distinction fails to address the more fundamental problem of regulatory silos used in the Order. By simply eliminating the fixed/mobile distinction, this solution fails to address the underlying problem that the FCC continues to utilize regulatory silos in the face of rapid technological convergence. Therefore, this Comment does not see a simple elimination of fixed/mobile as sufficient, nor does it propose that the fixed/mobile distinction should be updated or replaced with "better" categories. Instead, it seeks to show that the goals of the Order can be implemented using a regulatory framework that does not rely on placing different technologies into regulatory silos.[76]

In summary, this Comment's proposal seeks to do two things. First, it seeks to craft a flexible framework that can withstand the upheaval of technological convergence, and therefore protect the open In-

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[75] While the FCC claims that there is still enough competition in the mobile industry, recent situations such as the blocking of the AT&T/T-Mobile merger would indicate otherwise. In that case, both the Department of Justice and the FCC came out against the merger. Byron Acohido, *AT&T Drops Bid to Buy T-Mobile, Plans $4B Charge*, USA TODAY, (Dec. 19, 2011, 8:19 PM), http://www.usatoday.com/tech/news/story/2011-12-19/att-tmobile-merger/52076342/1.

[76] It is important to note that this Comment is not arguing that the FCC should do away with *all* regulatory silos like some scholars have suggested. *See* Wu, *supra* note 72, at 18-26. Granted, as the above sections have argued, any regulatory silo will eventually fall victim to technological convergence. However, in some cases, the speed of technological convergence is not fast enough to critically affect the sustainability of regulation. For example, the speed of convergence from the 1934 Act until 1996 (when the act was revised) did not outpace the speed at which regulators could react to that convergence. During that time, telephone technology gradually converged, in that it moved from only wireline to some wireless technologies. In contrast, the past ten years has seen a flood of new hybrid technologies every year, from Wi-Fi capable smartphones, to TVs that connect to the Internet. *See* Werbach, *Breaking the Ice*, *supra* note 23, at 61-62. *See generally* Krattenmaker, *supra* note 1. This comment therefore argues that the FCC should eliminate its use of silos in the case of Internet regulation and other areas where the speed of technological convergence is occurring at such a fast pace.

ternet in a world of converged networks and beyond. Second, it aims to ensure that under this new flexible regulatory structure, the FCC is able to encourage innovation amongst "mobile" providers by regulating them less.

A. *Finding a Flexible Framework That Can Withstand Convergence*

The first challenge is to create a regulatory framework that can withstand the speed of technological convergence. Other areas of law have faced similar problems and can provide guidance on how to meet this challenge. For example, in environmental law, regulators are tasked with creating a regulatory framework given the unpredictability of factors like climate change.[77] Scholars, such as Professor J. B. Ruhl, have discussed the need for a legal framework in environmental policy to be resilient and have adaptive capacity.[78] According to Ruhl, a system that is resilient is able to maintain its core structure in the face of a dynamic, changing environment.[79] A system must "adapt without undermining its own basic behavioral structure."[80] Ruhl advocates a system known as adaptive management.[81] This system moves away from front-end focused regulation, which assumes that effects can be assessed ex-ante, and instead uses formal follow-up mechanisms that require the regulator to integrate new information into an ongoing decision-making process such as case-by-case adjudications.[82] In other words, Ruhl argues that in order for regulations to be sufficiently flexible to withstand a rapidly changing environment, they must move away from stiff ex-ante rules.

The problem that policymakers face when crafting environmental

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[77] Holly Doremus, *Adaptive Management as an Information Problem*, 89 N.C. L. REV 1455, 1456 (2011).

[78] J.B. Ruhl, *General Design Principles for Resilience and Adaptive Capacity in Legal Systems – With Applications to Climate Change Adaptation*, 89 N.C. L. REV 1373, 1373-76 (2011).

[79] *Id.* at 1375-1376 ("[A] good working definition of resilience as used in natural and social sciences is the 'capacity of a system to experience shocks while retaining essentially the same function, structure, feed-backs, and therefore identity.' One hallmark of system resilience thus is the capacity to maintain a high level of consistency of behavioral structure in the face of a dynamic environment of change.").

[80] *Id.* at 1388.

[81] *See generally id.* Adaptive management rejects decision-making based on rigid standards and relies on a method of continued monitoring, assessment, and recalibration. *Id.* at 1391.

[82] *Id.* at 1396 (arguing that legal systems stressed by climate change must be unshackled from "front-end" decision-making because it depends too heavily on assumptions of stasis and predictability to effectively respond to a rapidly changing environment).

law within an ever-changing environment mirrors the problems the FCC faces when dealing with the problem of technological convergence. The current Order, with its rigid ex-ante regulatory silos is an example of legislation that lacks resilience and adaptive capacity. The current silos in the Order are an example of "front-end" decision-making, which, as described in previous sections, will soon fall victim to a changing technological environment. This Comment thus borrows from the scholarship on adaptive management in environmental law. It proposes that the FCC should move away from the ex-ante fixed/mobile distinction and instead rely on the use of its flexible ex-post *forbearance authority*.[83]

Forbearance is the ability of a telecommunications provider to petition to be exempt from regulation.[84] Section 1302(a) of the Telecommunications Act allows the FCC to use its forbearance authority to encourage the deployment of broadband.[85] In other words, Section 1302(a) enables the FCC to forbear from enforcing regulation against broadband ISPs. Thus, the Commission has the ability to refrain from enforcing regulation such as that set out in the Open Internet Order.[86] Under the Order as it stands now, fixed ISPs such as Comcast could petition that the FCC forbear from enforcing rules like the "no blocking" rule against them. If the FCC were to eliminate the fixed/mobile distinction and simply apply the Order equally to both "fixed" and "mobile" providers, mobile providers wishing to be exempt from the rules would also have to petition the Commission to forbear. Therefore, as a first step, this proposal eliminates the fixed/mobile distinction in the Order and falls back on mechanisms such as forbearance that the FCC already has in place to exempt various ISPs from regulation. In fact, the only major difference between the status quo and the first part of this proposal is that in order to be exempt from the rules in the Or-

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[83] This is not to say that the FCC has not already tried alternatives to the standard rule-making process. In fact, before the Order, the FCC had tried to protect the open Internet through adjudication (which was challenged in the Comcast case). The FCC had to turn to a rule-making process when the decision resulting from the adjudication was struck down by the D.C. Circuit in Comcast Corp. v. FCC, 600 F.3d 642 (D.C. Cir. 2010). This Comment does not argue that this proposal is better or worse than attempting to go through the courts as in Comcast; it merely aims to suggest how FCC rule-makings can be made more sustainable moving forward.

[84] 47 C.F.R. § 1.54.

[85] 47 U.S.C.A. 1302(a) (West 2012).

[86] *Id.* ("The Commission . . . shall encourage the deployment . . . of advanced telecommunications capability to all Americans . . . by utilizing, in a manner consistent with the public interest, convenience, and necessity, price cap regulation, regulatory forbearance, measures that promote competition in the local telecommunications market, or other regulating methods that remove barriers to infrastructure investment.").

der, *both* mobile *and* fixed ISPs will now have to petition for forbearance.

Forbearance authority is a classic example of a resilient and adaptive regulatory framework. Because it operates on a case-by-case basis and relies on technology-neutral criteria such as "promoting the public interest,"[87] it is flexible enough to withstand both technological and network convergence. For example, a public interest goal today may be promoting competition amongst ISPs that provide cellular phone service, like Sprint. A few years (or even months) down the line, this could change.[88] Unlike the fixed/mobile distinction or other regulatory silos, the forbearance criteria allows the core structure of the regulation to remain constant despite a rapidly changing technological landscape. A changing definition of the public interest does not mean that use of the public interest as a forbearance criterion will change. Forbearance has an additional benefit in that it is not new to the FCC. The FCC already has the ability to process forbearance cases, so this solution will be easily implementable. Therefore, in searching for a resilient and adaptive solution, there is no need to create an entirely new system of regulation.

The reliance on the FCC's forbearance authority, rather than an ex-ante set of regulations, will face several criticisms. Those in favor of the status quo may argue that up-front categories and rules, like those in the Order, are sufficiently flexible because they can be changed and repealed.[89] However, frequently changing the regulation itself is the opposite of a resilient system, since the core of the regulatory framework will have to change every time the regulation is repealed or revised. With forbearance, the forbearance mechanism and criteria can remain constant even if the companies that qualify for forbearance change drastically over time. Relying on ex-post case-by-case adjudications creates a more resilient framework that is better suited to responding to the speed of technological convergence and change.

Mobile ISPs will likely criticize this proposal for relying on forbearance authority to promote competition amongst ISPs, since this forbearance authority places the burden on them to petition the FCC.[90]

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[87] *Id.*; *see also* 47 C.F.R. § 1.54.

[88] By having a system that works on a case-by-case basis, the system will also be less susceptible to political restraints in the long run.

[89] The Order contemplates that the rules favoring mobile may periodically have to be updated by setting up a plan to monitor the mobile market to see whether adjustments to the Order framework are necessary. Order, *supra* note 4, at 59213.

[90] 47 C.F.R. § 1.54.

While it is true that the burden has been shifted to mobile ISPs, it is not unreasonable for the company who wishes to be exempt from regulation to bear the burden of proving why they should be exempt. Mobile ISPs may also argue that relying on forbearance will create a backlog of lengthy forbearance adjudications and will be costly for smaller ISPs. However, the amount of adjudications may not be that large. The proposed solution would keep in place the broad safe harbor of reasonable network management in the Order, which allows ISPs to discriminate and block content if necessary to achieve a legitimate network management purpose.[91] ISPs would only need to petition the FCC if that safe harbor was insufficient. It is also unlikely that the emphasis on forbearance would result in a huge backlog of adjudications. The FCC states that if it fails to act on a forbearance petition within one year, the petition is "deemed granted" by operation of law.[92] As a result, it is in the FCC's best interest to process petitions in a timely manner. It is true that the shift of burden to the ISPs and the cost of preparing petitions could hurt smaller ISPs. The FCC should therefore consider ways in which the process can be further streamlined so as to minimize the financial impact on smaller ISPs.

A third potential criticism of the reliance on forbearance authority is more troubling. Just because a system is resilient and can withstand drastic changes in the area it is regulating does not mean that the system is effective.[93] In this case, the question remains as to whether the reliance on forbearance, while a more adaptive framework, has actually done anything to eliminate the problem of the fixed/mobile distinction. A criticism of this proposal's reliance on forbearance is that it has simply moved the fixed/mobile distinction from an explicit ex-ante rule to an implicit ex-post forbearance criterion. In other words, since the FCC believes that that "mobile" providers are in need of less regulation, it is likely that if a provider is viewed as "mobile" that would be considered a compelling reason to forbear. As a result, even though the regulatory framework of this proposal may be resilient and adaptive, and even though ex-ante regulatory silos are no longer present, the arbitrary distinction between "fixed" and "mobile" outlined in this Comment has not been eliminated at all, it has just been moved.

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[91] 47 C.F.R. § 8.3; 47 C.F.R. § 8.5; 47 C.F.R. § 8.7; 47 C.F.R. § 8.11. The Order allows ISPs a great deal of discretion in determining what counts as reasonable network management by using vague language to define the term and acknowledging that it will determine the scope of reasonable network management on a case-by-case basis. Order, *supra* note 4, at 59208.

[92] *Forbearance*, FCC, http://transition.fcc.gov/wcb/cpd/forbearance/ (last visited Mar. 8, 2013).

[93] *See* Ruhl, *supra* note 78, at 1382.

This third criticism highlights a kind of catch-22. The FCC has stated that it wishes to regulate "mobile" less due to its belief that the "mobile" market is more nascent, and therefore should be subject to less regulation in order to stimulate development and innovation.[94] Thus, as mentioned above, any solution for the FCC must allow the FCC to achieve its goal of regulating "mobile" ISPs less.[95] At the same time, this Comment has argued that the fixed/mobile distinction cannot stand because technological convergence will quickly render it arbitrary and obsolete. So how does the FCC craft a statute that eliminates the fixed/mobile distinction but also enables "mobile" providers to benefit from less regulation? How can the FCC regulate "mobile" providers less without either explicitly or implicitly setting them aside as a distinct category? In Part IV.B., this Comment attempts to solve this conundrum.

B. *Allowing Mobile ISPs to be Less Heavily Regulated (Without Recreating the Fixed/Mobile Distinction)*

The FCC must move away from thinking about technology-based silos, not only in its ex-ante rules but throughout the entire forbearance process. Thus the criteria the FCC considers when deciding whether or not to forbear from enforcing the Order must not be based on technological categories. The fact that an ISP is considered "mobile" should not in itself be a reason to forbear. And yet somehow, as outlined above, the ability of the FCC to regulate "mobile" providers less must be maintained. This Comment therefore moves beyond the first step outlined above of falling back on the FCC's forbearance authority and additionally proposes a list of forbearance criteria the FCC should use when determining whether or not to forbear from enforcing the Order. These criteria, which would be applied to all ISPs regardless of technology used, are based not only on the goals of the Order, but on the reasons the FCC chose to regulate "mobile" less heavily in the first place. By isolating the economic and policy reasons behind why "mobile" was singled out, "mobile" providers will be able to successfully apply for forbearance without ever being identified as "mobile." In other words, "mobile" providers will be successful in their applications for forbearance, not because they are "mobile," but because they are ISPs operating under certain market conditions that qualify them for regulatory forbearance.

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[94] *Supra* note 16 and accompanying text.

[95] *Id.*

The criteria listed below are suggestions to narrow and further define the standard broad forbearance criteria used by the FCC[96] and are specific to the Order.[97] It will take a more detailed economic and policy analysis, beyond the scope of this Comment, to determine what the precise criteria will be. The suggested criteria[98] are as follows:

1. An ISP may not apply for a blanket exemption from the Order rules.[99] In other words, the ISP must apply to the FCC to forbear from enforcing the rules of the Order for a specific service or for a specific geographic area.
2. Any forbearance granted is for a limited time and will be revisited upon the expiration of that limited time by the FCC. As the elements of the broadband industry develop, the FCC should be free to reconsider whether it deems it necessary to continue forbearing from applying the Order's restrictions to that ISP.
3. In order to qualify for forbearance an ISP must:
   - Outline the proposed service and the specific geographic area that requires forbearance.
   - Outline the kind of discrimination or blocking necessary (e.g. blocking certain kinds of applications or blocking certain kinds of devices).
   - Show that the proposed service in the proposed area will be impossible or unreasonably burdensome to implement if the

[96] §1302(a) of the Telecommunications Act allows the FCC to use its forbearance authority to encourage the deployment of broadband. While §1302 does not provide any specific instructions as to the criteria the FCC should use in determining whether to apply forbearance to ISPs, subsequent cases have interpreted §1302 to simply imply the use of the forbearance criteria set out under §10 of the Communications Act. Under §10, the Commission is required to forbear from applying to a telecommunications carrier any FCC regulation if it determines that: 1) enforcement is not necessary to prevent unreasonable discrimination by a carrier; 2) enforcement is not necessary to protect consumers; and 3) forbearance is consistent with the public interest. 47 U.S.C.A. § 160 (West 2012). In deciding whether to forbear, the FCC also must consider whether forbearance will promote a competitive marketplace. 47 U.S.C.A. 1302(a) (West 2012); 47 C.F.R. § 1.54.

[97] Using criteria specific to the Order would contradict case law, which directs the use of general forbearance criteria. *See, e.g.*, Cellular Telecomm. & Internet Ass'n v. FCC, 330 F.3d 502, 509 (2003). However, those criteria are so broad that it is likely the proposed criteria would fall under them.

[98] It is useful to remember that forbearance will only apply to a very narrow set of cases. The rules of the order include a very broad safe harbor for network management. Therefore, the only cases the FCC will consider are those ISPs who seek to block or discriminate for reasons beyond network management.

[99] 47 C.F.R § 8.3 (transparency); 47 C.F.R § 8.5 (no blocking); and 47 C.F.R § 8.7 (no discrimination). These three sections in the Order set out what rules an ISP must comply with.

ISP is not permitted to block or discriminate.

- Explain why reasonable network management techniques are insufficient to provide the service in question.

4. In deciding whether to apply forbearance, the FCC must consider whether the state of competition in the market for a particular service or geographic market is such that forbearance is critical to an ISP's ability to roll out that service and compete in that market. (For example, if the ISP is competing against more established ISPs and thus lack of forbearance will preclude its ability to compete, or if the ISP is utilizing a new technology that is untested and reasonable network management is not sufficient for it to successfully compete against more established technologies.)

If, as the FCC has argued, mobile broadband is at an early stage of development such that it is competing against established fixed ISPs and therefore needs to be exempt from regulation to compete, criteria four should allow for mobile ISPs to obtain forbearance from the Order rules. However, because the criteria focus more on the conduct of an ISP and less on what technology that ISP is using, these criteria move further away from a reliance on the fixed/mobile distinction.

Admittedly, the fixed/mobile distinction would not be completely eradicated. In order to consider whether an ISP requires forbearance to compete in a market, that market must first be defined. In defining the market, the FCC is essentially creating a category by including some ISPs as being competitors and excluding others. This may mean that the FCC will consider the "mobile" or "fixed" market. And yet, by defining the market on a case-by-case basis, the hope is that the FCC will not be tied to a stagnant fixed/mobile distinction and will allow its understanding of broadband markets to change and develop over time. By disallowing a blanket forbearance and forcing the FCC to consider the specific geographic area in which forbearance will be applied, these criteria will also work against generalizations of "fixed" or "mobile" markets. In each geographic area, the markets will be different and the FCC will have to re-evaluate. For example, an urban market may be saturated with so many fixed options that a mobile ISP will be unable to compete, while the market will look different in a rural area that has only been served by cell phone companies like Sprint. As this Comment has argued, we are entering an era of converged networks. When we reach that era, the market in which an ISP functions will look very different. The proposed criteria, however, will apply just as well to that market of converged networks as they do to the current Internet

landscape.

This kind of case-by-case evaluation may seem overly time-intensive and burdensome to the FCC and ISPs seeking forbearance in order to innovate. However, as mentioned previously, it is likely that the amount of cases will be small given that reasonable network management allows ISPs much flexibility.[100] These criteria are suggestions. The FCC should consider how to further craft criteria that ensure ISPs are able to obtain speedy decisions.

V. CONCLUSION

We are heading towards a world of network convergence. Consumers will purchase Internet access for their mobile, stationary, and home devices from one single provider. As a result, ISPs such as Verizon and AT&T will be at a distinct advantage since they already control both fixed-line Wi-Fi and cellular wireless infrastructure. In this time of rapid network convergence and evolution, the FCC must develop adaptable and resilient regulations that can last through the many inevitable and increasingly frequent technological changes. As it stands, the Order's regulation of ISPs and its protections of the open Internet are not sustainable, in that its rigid regulatory silos will be too easy for ISPs to circumvent. The categories of "fixed" and "mobile" will soon blend together, causing confusion as to which rules apply to which providers and creating opportunities for ISPs to shirk regulation. The Order is therefore an example of why the FCC cannot continue to rely on regulatory silos when regulating the Internet. This Comment has proposed how the FCC can create sustainable regulation that achieves its joint goals of preserving the open Internet and promoting competition amongst emerging technologies. As a result, the FCC can create protections to last in the coming world of converged networks and in the future networked world that we cannot yet imagine.

[100] *See supra* note 96.