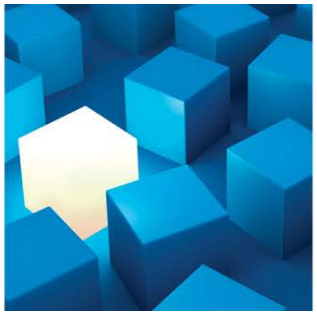
Economic Repercussions of Applying Title II to Internet Services



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White Paper

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Executive Summary

The economic repercussions of reclassifying Internet services as telecommunications services in order to make them subject to selected parts of Title II of the Communications Act of 1934, as amended most recently in the Telecommunications Act of 1996, would lower competition and consumer welfare in the United States. There is strong evidence that leads to these conclusions.

First, Title II is simply the wrong way to manage Internet services. The FCC already rejected it for cable; it is subject to biased interpretation, and Congress most definitely did not design it to accommodate innovative new information services. Congress established Title II regulation for traditional plain-old-telephone service (POTS), not Internet services. Thus, it comes as no surprise that a one-size-fits-all approach will not work in an environment with many providers using different technologies to provide all types of services not envisioned when Congress enacted Title II. Moreover, imposing Title II is inconsistent with an emphasis on ensuring free-market competition among providers. To make matters worse, the application of Title II to Internet services will be open to interpretation by regulators, which will lead to lengthy regulatory and litigation battles, producing not fair and balanced outcomes but a selection of winners and losers. It is also unclear why the FCC is reconsidering this proposal when it previously considered and rejected it. Further, there is no international precedent for regulation of this kind as no regulator has subjected Internet services to the regulatory regime designed for POTS. Once more, Congress designed Title II for wireline services provided by the at-the-time wireline incumbents. Yet, it failed, creating no additional competition but definitely adding lengthy and costly court battles. Consequently, applying Title II to Internet services is at best bound to fail and more than likely will inflict serious competitive and welfare harm to the US

economy by eliminating, or at least limiting, the introduction of innovative new information services.

Second, if the FCC decides to use Title II for Internet services, it would seriously disrupt the Internet ecosystem. It would allow for regulatory arbitrage—ecosystem participants will not provide services that are in demand but services that receive the most favorable regulatory treatment. Given the uncertain and undefined nature of Title II as applied to Internet services, it would necessarily introduce much regulatory risk for all participants of the ecosystem. For instance, under Title II reclassification, ISPs would not have the proper incentives to provide additional network capacity. This, in turn, would forestall innovation from startup edge providers and favor more traditional service providers. Costs for most, if not all, ecosystem participants would increase because the regulatory process, not market forces, would define market success. Why would the regulatory process increase costs? The answer is simple—the regulatory process quite often requires significant funding for lobbying and litigation, funding that many Internet service providers do not have built into their budgets.

Third, distorting the incentives of ecosystem participants has direct negative effects on competition. It creates market barriers because only those with adequate funding will obtain a favorable regulatory environment. Similarly, it will lower innovation as risk levels increase because obtaining the necessary financial funding will become a problem with riskier investments. At a minimum, it will increase retail prices as regulatory costs and the additional risk must be recovered in the long run. In essence, applying Title II to Internet services neutralizes market forces as market outcomes are no longer determined by these forces but by regulatory policy. Ironically, the proposed reclassification will not even meet the expectations of

its proponents because it has no provision that incentivizes competitive entry. Hence, it is unclear how reclassification would increase competition.

Finally, the consequences of these effects will result in decreased consumer welfare in the United States. Practically, this means reduced technology take-up, which, in turn, increases the digital divide and lowers the US's competitive broadband positioning relative to other nations. Even absent the reclassification, according to the FCC's most recent report, an estimated 17 percent of US households are without broadband service. Through the American Recovery and Reinvestment Act of 2009 (Recovery Act) and the National Broadband Plan, the Obama Administration has put specific programs in place to approach or even reach full broadband penetration. By applying Title II to Internet services, these efforts will become futile. Each percentage point increase in broadband penetration is expected to increase employment by 0.2–0.3 percent. Hence, failing to serve the 17 percent of households signifies the potential loss of over seven million US jobs. The failure to increase broadband penetration will also negatively impact other macroeconomic indicators, including research and development in the Internet sector and foreign direct investments.

Regulation has its place, and it is vital in some instances. In the case of an industry without a great deal of innovation and in which competition is technically infeasible, classic economic regulation serves to balance the needs of captive customers and the investment needs of the utility. However, the Internet does not fit that description. Regulatory policy in the presence of innovation—such as in the industry of Internet services—requires picking winners and losers; indeed, the regulatory process *creates* winners and losers. Innovation is already an uncertain business; the vast majority of innovations fail. Adding a regulatory hurdle in the midst of an

already uncertain process makes it more expensive to innovate. This in turn lowers the rate of innovation. Regulatory authorities have no particular expertise in picking winners and losers; even the venture capitalists who do have the requisite expertise have modest batting averages.

In light of these well-known problems and their likely economic repercussions, we urge the FCC to reject policy proposals that seek to reclassify Internet services under Title II or Section 706 of the Telecommunications Act of 1996.

I. Introduction

CALinnovates commissioned NERA Economic Consulting (NERA) to prepare this White Paper, which critically examines proposals to reclassify Internet services as telecommunications services in order to make them subject to selected parts of Title II of the Communications Act of 1934, as amended most recently in the Telecommunications Act of 1996.[1] Specifically, the FCC is investigating whether to issue new rules governing how ISPs manage and price the traffic that flows through their networks.[2]

> On December 23, 2010, the Commission released the *Open Internet Order*, which established high-level rules requiring transparency and prohibiting blocking and unreasonable discrimination. In its *Verizon v. FCC* opinion, the D.C. Circuit affirmed the Commission's authority to regulate broadband Internet access service and upheld the transparency rule, but vacated the no-blocking and no-unreasonable-discrimination rules as impermissible common carrier regulation of an information service. [*Verizon v. FCC*, No. 11-1355, slip op. at 17, 63]
>
> We stress that under the transparency rule, which remains in full force and effect, broadband Internet access service providers must continue to disclose the network management practices, performance characteristics, and terms and conditions of their broadband services. [*Open Internet Order*, 25 FCC Rcd at 17936-41, ¶¶ 53–61] The transparency rule helps consumers make informed choices about their broadband service, and it gives edge providers technical information that helps them develop their business plans and assess risks (some footnotes omitted).

Because of convergence, the same broadband platform now can carry voice, data, and video. No longer is a specific service technology dependent. The Telecommunications Act of 1996 updated the 1934 Act, which addressed cable, telephone, and radio services, with the term information service. Further, it gave the FCC the express authority to forbear from the application of all common carrier provisions in Title II (1996 Act, § 10). The broad scope of this forbearance

[1] Telecommunications Act of 1996, Pub. L. No. 104-104, 110 Stat. 56 (Feb. 8, 1996), *codified as amended* in scattered sections of 15 and 47 U.S.C.

[2] Federal Communications Commission, "New Docket Established to Address Open Internet Remand, GN Docket No. 14-28," Public Notice DA 14-211, rel. Feb. 19, 2014.

provision unambiguously indicates that Congress envisioned an era in which market-based competition would completely supplant Title II regulation as the means of ensuring just and reasonable charges. If Congress had intended the preservation of Title II regulation in perpetuity regardless of competition, it would not have authorized the FCC to forbear from its provisions in their entirety.

This White Paper will explain that Title II reclassification will (a) likely not achieve the goals that its supporters have laid out, (b) have a strong negative incentive on innovation (with associated harms to investment and employment), and (c) almost certainly forestall further competition for ISP services that would obviate any need for further regulation. To take the path towards Title II reclassification is not only to take a step backward, it would also change the path forward in such a way as to make a return to the current environment very difficult.

We have a great deal of experience regarding how regulatory schemes, in particular Title II, work in practice. We show the problems of Title II reclassification independent of the goals that its proponents have in mind. No one can deny that the Internet revolution has been extremely innovative. Although the proponents of Title II reclassification do not seek to lower the rate of innovation, continued innovation is incompatible with Title II reclassification. Most of the proponents conclude that it is required because ISPs are insufficiently competitive. However, whatever Title II does to regulate the current incumbents, it all but ensures that no competition beyond what currently exists will ever arrive. In this sense, Title II reclassification is a policy of resignation: it is both a step backward and a barrier to the sensible path forward in which incumbent ISPs face more competition than they do today.

Congress rewrote Title II in 1996 in reaction to specific issues arising out of the 1982 Bell System breakup. The intention was to regulate the incumbent telephone companies and to foster nascent competition, which it failed to do. Title II today retards telecommunications competition far more than it enhances it by protecting the old wireline companies and their investments.

This paper is structured as follows. In the next section, we discuss the Internet—its basic structure and composition. We then look at regulatory problems in general in Section III. International comparisons are discussed and critiqued in Section IV. Next, we give a brief review of Title II regulations in Section V. In Section VI, we discuss the harm that too much regulation could bring. Section VII presents alternatives to the regulatory approach put forth by ISP competitors. Section VIII concludes.

II. A Short Guide to the Internet

The Internet is a sprawling, complicated concept. In an attempt to simplify the concept in order to promote various regulatory policies, the ISPs' users employ a number of analogies. Many of these analogies draw parallels between the Internet and various other transportation mechanisms and systems. Among the metaphors actually driving policy, the Internet has been described as the "Information Superhighway" or even "a series of tubes." As others have commented, the problem with looking at the Internet in pure transportation terms is that it makes the implementation of regulatory policy sound much easier than it is. Internet policy is not the same as traffic engineering.[3] To mistakenly think that good Internet policy is a simple reconciliation of traffic engineering principles and incentives is a classic technocratic error—it lays the

[3] In addition, even traffic engineering is actually a lot more complex than it is made out to be.

groundwork for the idea that the only problem is one of misplaced or warped incentives that regulators can mold to their liking.

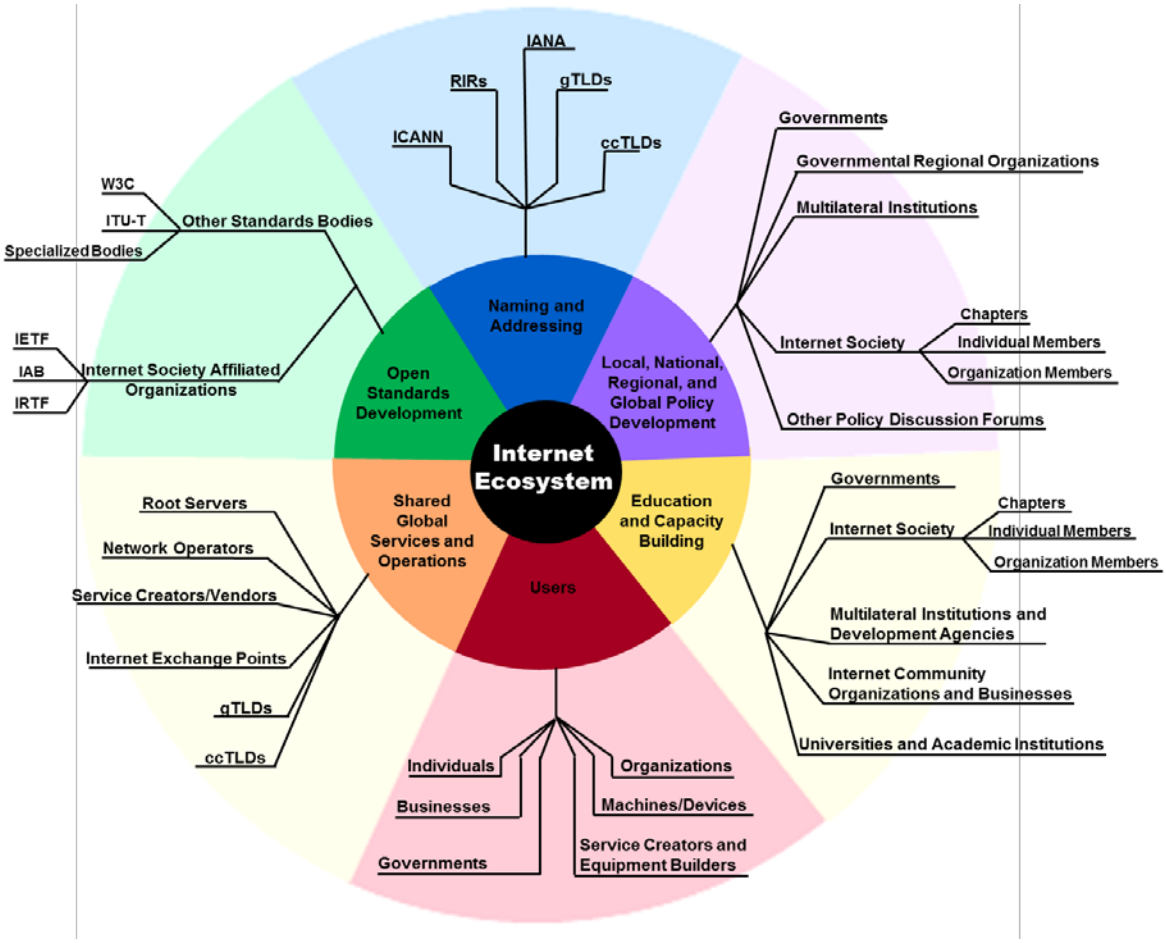
Unfortunately, it is not that simple. The Internet is actually an ecosystem with a number of interrelated sets of players such as ISPs, content providers, and Tier 1 backbone suppliers (all described below). In an ecosystem, each group of players occupies a specific niche whose purpose is defined by the joint actions of all the other players. Just as with natural ecosystems, one tinkers with any part at one's peril, simply because the complex interrelationships are not well understood and are balanced in a host of ways that small changes can disrupt. One can easily appreciate an ecosystem. Actually improving it is something much more difficult. The interdependence that characterizes ecological niches characterizes Internet niches as well. To change the characteristics of one set of players significantly will change the equilibrium arrangements of other players. The new equilibrium (to the extent that "equilibrium" has any meaning at all in an industry as constantly evolving as this one) may look very little like the old equilibrium in ways that are impossible to predict and that have high likelihoods of being worse than the starting situation.[4]

Ecosystems evolve, and the Internet is evolving rapidly. In an evolving ecosystem, even the wisest regulators have little understanding of the consequences of their actions. The Internet Society, a nonprofit policy and standard-setting body, has created a useful map of the Internet

[4] This is not just luck, where a random change has a 50-50 chance of making things better or worse. In an evolutionary system, *most* changes are bad because the system has evolved to a better functioning state at least along some metrics.

Ecosystem,[5] although somewhat focused on Internet management, which we reproduce as Figure 1.

Figure 1. The Internet Ecosystem



Our focus is on the bottom wedge of the ecosystem, which the Internet Society calls "Users," but we are also concerned to some extent with the wedge to the left of Users, termed "Shared Global Services and Operations," and to some extent with the rest of the ecosystem as well.

Following, we discuss the structure of the Internet. For purposes of this discussion, it is important to understand that the issue of regulation is mainly between the "broadband providers"

[5] Internet Society, "Internet Ecosystem: Naming and addressing, shared global services, and open standards development," February 2014, http://www.internetsociety.org/who-makes-internet-work-internet-ecosystem.

and the "edge providers." The broadband providers want to be able to regulate the type of traffic passing over their networks to individuals and the edge providers want a free and open Internet.

A. End Users

End users are those entities connected to the Internet who use it to obtain information and services from distant sources—generally described as those of us sitting at home who log on to the Internet to access information and entertainment. As noted later, exactly who an end user is in a particular context may not be clear. However, this is a necessary distinction if Title II is to work because the main thrust of Title II regulation is to regulate the behavior of ISPs that provide Internet services to various end users.

B. Edge Providers

Edge providers offer end users Internet services that include just about every website and app maker on the planet. Google's YouTube, Amazon, and Apple's iTunes are all large edge providers. In essence, edge providers are on the other end of the network from end users. They provide whatever data the end user requests. Edge providers can be as small as a single web-server operating on someone's computer delivering family photographs to the world or as large as the ones noted above. Edge providers are the vanguard of innovation on the Internet.

C. ISPs

ISPs connect end users and edge providers to the network. They maintain facilities to do so. The main US ISPs are telephone and cable companies that provide Internet services over the networks they are already using to provide telecommunications and television services,

respectively, albeit with extra investments required in both cases to provide ISP services. There are many other smaller ISPs as well.

D. Backbone: Tier 1, Tier 2, and Tier 3

Once an ISP takes data from an end user or an edge provider, it delivers it to the Internet backbone (some of which the ISP itself may own) in order to deliver it (eventually) to where it is going. The tiers simply break the backbone up into volumes of interconnected traffic. Tier 1 networks transport large volumes of traffic from one point to another. Tier 2 networks transfer smaller volumes, and Tier 3 networks even smaller.

E. Content Delivery Networks

Content Delivery Networks are specialized communications paths that bypass all (or some) of the Internet at large to create a controllable pathway accessible to a subset of end users. A standard example would be distributing content in many places closer to end users that would allow them to access the content more reliably. Edge providers contract with Content Delivery Network providers to offer this service.

Although this is the standard typology of the Internet, no part of the Internet comes pre-labeled with any of these descriptors. One of the problems that regulators will have to struggle with is explicit definitions of each of these to the extent that the chosen regulatory scheme needs to make the distinction. The definitions cannot be arbitrary, although there are bound to be hard cases that are sensitive to the definitions employed. Advocates of Title II reclassification have not "descended into the weeds" to really make these definitions yet, even though the results of any reclassification scheme will be very sensitive to questions of *who* is regulated as much as *how*.

III. The Regulatory Problem in General

A. The Perils of Price Regulation: Determining a Just and Reasonable Price

Section 201(b) of Title II specifies, "All charges … regarding such communication services must be 'just and reasonable.'" Of course, it is just and reasonable that a common carrier be entitled to recover its cost of service. Indeed, it is unjust and unreasonable to deny the carrier its cost of service. Moreover, Title II states that just and reasonable rates shall be "based on the cost … nondiscriminatory … and may include a reasonable profit," which allows for not only the recovery of costs but also the right to earn a profit [§252(d)(1)(A-B)].

However, it is much more than cost recovery that regulation must consider. Regulators must take seriously the desire of the incumbents to expand their networks. Indeed, because everyone takes for granted that incremental investments, possibly quite sizeable ones, are necessary to build the Internet of the future, the regulator will naturally turn a quite sympathetic ear to the request of regulated incumbents to expand their offerings. As we will see below, this is actually the mechanism under which the incumbent forestalls competition. Nevertheless, for now, it suffices to note that the "fair and reasonable" criterion is the one under which regulation uniquely guarantees the incumbent recovery, and the ratepayers (here the ISP subscribers) pick up the check. In the current unregulated market, that is not the case.

Against an imperative that grants the regulated company an opportunity to recover all of its costs, the regulator has only one defense: an attack on the prudence of an expenditure. However, this requires second-guessing the no-doubt elaborate studies that the incumbent will generate to justify the investment. In a politicized regulatory context, such second-guessing is at best

difficult; it is typically impossible. Spending the ratepayers' money is just easier than trying to decide why some new service is too risky.

Proponents of Title II reclassification all believe that Title II reclassification either will immediately lower costs to consumers or will do so compared to a world in which incumbents have free rein in pricing. They take the opposition of telephone and cable companies to Title II reclassification as a sign that profits would decline, and so they might. However, declining profits by current ISPs is not, or should not be, a goal. The payoff to consumers is an Internet that provides new services, not just one that provides current services at lower cost. We would be sacrificing enormous potential social gains if we end up losing future applications by making innovation too costly. This might make sense if we thought the best applications were already out there, but to believe this puts us in the apocryphal situation of Charles Duell, the Patent Commissioner, who was reputed to have said "Everything that can be invented has been invented." [6] Duell may not have said it, but betting against the future is usually a bad bet.

Moreover, it is not merely betting against the future; it is betting against the ability of the regulated to mount a case for their preferred outcome. This is a very important consideration in subjecting services to regulation, which often is given short shrift. Regulation opens an avenue for complaint. Rather than have parties work out contracts for themselves, the promise of a regulatory short cut can actually create intransigence. Why negotiate when you can litigate? As David Farber and Gerald Faulhaber put it:

> The best example: since the inception of the Internet, backbone networks, regional networks, and content delivery networks have exchanged traffic under privately negotiated contracts (call "peering" and "transit" contracts) with no

[6] The origins of this quote are still unknown. See Dennis Crouch, January 6, 2011, comment on "Tracing the Quote: Everything that can be Invented has been Invented," *Patently-O Blog*, http://patentlyo.com/patent/2011/01/tracing-the-quote-everything-that-can-be-invented-has-been-invented.html.

> "help" from regulators. Recently, Level 3, a backbone and now content delivery network, has complained to the FCC that Comcast is renegotiating their contract in ways that violate network neutrality. Level 3 discerned that the FCC was now willing to inject itself into contracts that were previously privately negotiated, and that Level 3 could gain a negotiating advantage over Comcast. Unfortunately, the FCC has just agreed to "investigate" Level 3's allegations. And so it goes; market negotiations are trumped by a regulator too willing to inject itself into what has always been private transactions.[7]

B. The Nomenclature Problem

Regulation requires specific rules. We must be able to delineate precisely who is subject to regulation, and we must specifically describe how they are to be regulated. We must precisely describe the services being regulated. The starting point of this particular investigation is purely nomenclatural: determine whether Internet services (whatever they are) are telecommunications services (whatever they are). The regulatory mindset, enforced by the requirement that the regulated entity gets due process, is to create the process and definitions and then apply them. Note that this is virtually the exact opposite of what Title II advocates want. They want the providers of Internet services regulated because they feel there are advantages to doing so. Title II is merely the regulatory hook on which they hang their aspirations. However, regulation does not work that way. As Michael Powell astutely wrote in his concurring opinion to the 2002 decision not to classify cable Internet services under Title II, "The Commission is not permitted to look at the consequences of different definitions and then choose the label that comports with its preferred regulatory treatment. That would be contrary to law."[8]

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[7] David J. Farber and Gerald R. Faulhaber, "Net Neutrality: No One Will Be Satisfied, Everyone Will Complain," *The Atlantic*, December 21, 2010, http://www.theatlantic.com/technology/archive/2010/12/net-neutrality-no-one-will-be-satisfied-everyone-will-complain/68326/.

[8] Statement of Commissioner Powell, *In re* Inquiry Concerning High-Speed Access to the Internet Over Cable and Other Facilities; Internet Over Cable Declaratory Ruling; Appropriate Regulatory Treatment for Broadband Access to the Internet Over Cable Facilities, *Declaratory Ruling and Notice of Proposed Rulemaking*, 17 F.C.C.R. 4798 (Mar. 14, 2002).

Proponents of Title II reclassification act as if regulators have exactly the freedom that Commissioner Powell correctly asserted they lacked. Once Internet services are reclassified, policy is attached to the words of Title II and to the interpretation of such terms as "just and reasonable" as established in innumerable previous regulatory hearings and decisions. That is not to say that regulators have no degree of freedom at all. There are indeed ambiguities of interpretation that give the regulators tools at their disposal to follow their vision of the good. Unfortunately, however, this interpretive ambiguity runs two ways.

Regulated entities have long sought to use the nomenclatural distinctions written into law to their benefit. This is, of course, their right. However, this often leads to the conclusion that regulation is interminably slow at getting what it wants. Even where successful, the procedural and interpretive roadblocks to the implementation of a preferred policy make rapid policy change impossible. Indeed, the intention of Title II regulation was not to function quickly. To take an obvious example, any price change, even when approved, used to take at least four months to implement.[9]

The nomenclature of regulation ensures nomenclatural battles that consume enormous resources and time to adjudicate. The recent case of Aereo, for example, took years to decide and eventually went to The Supreme Court (*ABC v. Aereo*). It seemed to outside observers like a simple case: Was Aereo, which was streaming over-the-air television over the Internet to

[9] From Section 206: "Changes can only be made to the filed schedule 120 days after having given notice to the FCC and the public. Even after that point, hearings and decision making can easily stretch tariff changes to take years." This, of course, has changed as many services subject to competition no longer require tariffs or if they do they take effect on one day's notice.

customers, a broadcaster or an antenna renter?[10] The problem, of course, was that outside observers could not agree which simple answer was correct.

It is not as though Aereo stumbled into the technology that they used or even chose an efficient technology. Their choice of technology was part of an explicit regulatory strategy to affect the method in which they were regulated and whether they owed (under the Copyright Act, as it happens, not the Communications Act) broadcast TV signal retransmission payments. Everyone grants that Aereo's technology was in fact more expensive than a simple central distribution service. However, the cost savings from the avoidance of retransmission rights payments more than compensated for the technological cost disadvantage. Although Aereo was not successful in getting the regulatory treatment it wanted,[11] it is an example *par excellence* of the use of regulated categories, irrelevant (or even inefficient) from a technological perspective, which have the ability to succeed in the marketplace owing to pure terminological issues.

These terminological issues cut both ways and undermine a world of competition where competitors vie not to provide the lowest technical costs but to provide lower costs by either evading regulation (like Aereo) or by getting regulated in order to stay in business. Take, for instance, Goldman Sachs, the investment bank. Goldman Sachs is certainly not a traditional bank: it does not take deposits, for example. Yet, in the 2008 financial crisis, Goldman Sachs

[10] David Post, June 25, 2014, comment on "*ABC v. Aereo* — A big (or maybe not-so-big) win for the networks," *ScotusBlog*, http://www.washingtonpost.com/news/volokh-conspiracy/wp/2014/06/25/abc-v-aereo-a-big-or-maybe-not-so-big-win-for-the-networks/.

[11] At least for the moment, Aereo is still not giving up and could still have a viable (regulatory) business model with other changes. Aereo now argues that it could be treated as a cable system with compulsory licensing. See Brian Fung, "How Congress could wind up accidentally saving Aereo," *The Washington Post*, August 12, 2014, http://www.washingtonpost.com/blogs/the-switch/wp/2014/08/12/how-congress-could-wind-up-accidentally-saving-aereo/.

petitioned to be regulated as a traditional bank in order to procure cheap loans from the Federal Reserve.[12]

One of the great unknowns is exactly how much of the Internet needs reclassification under Title II. An expansive view would reclassify all Internet services: edge providers, backbone networks, and ISPs would all be subject to, among other things, rate regulation. Lesser schemes concern the so-called "Mozilla proposal," in which Title II regulation would be limited to "remote delivery services provided by last-mile network operators to arms-length edge hosts," which represents an allegedly minimal regulatory scheme.[13] However, every term in that definition will be subject to hearings and to new entrepreneurs seeking aggressively to redefine themselves out of regulated categories or whose services may be blocked by being placed within those categories by regulated incumbents in regulatory filings. Content delivery networks, for example, could be classified as arms-length edge hosts or not. Depending on how the regulations are developed, it might be regulatory optimal to move content to an inefficient location simply to avoid the regulation that might come from hosting within the ISPs network sphere. We will have no idea until the regulations are developed, but we know that all entities will optimize their facilities relative to the regulations, not to the pure technological economics of the situation.

Even if we had a perfect understanding of where every entity in today's Internet ecosystem fits, whatever construct we eventually settle upon, we should have no confidence in our ability to classify new methods of delivery that have not yet emerged. There are two reasons for this: first, confidence in the ability to classify the unknown using our current classification schemes might

[12] Dealbook, "As Goldman and Morgan Shift, a Wall St. Era Ends," The New York Times, September 21, 2008, http://dealbook.nytimes.com/2008/09/21/goldman-morgan-to-become-bank-holding-companies/.

[13] Before the Federal Communications Commission, In the Matter of Mozilla Petition to Recognize Remote Delivery Services in Terminating Access Networks and Classify Such Services as Telecommunications Services Under Title II of the Communications Act, RM- __, May 5, 2014, p. 2.

be impossible if the new service is sufficiently different. Second, however, knowledge of the classification scheme creates situations like Aereo in which a new service seeks to exploit consciously the seams of whatever classification scheme we have established.

Even if we know whom to regulate, there is yet another problem in classifying the ratepayers (ISP subscribers). The term "end user" is not, at least without a host of definitional ambiguity, a coherent concept. First, every end user routinely sends messages as well as receives them. I send messages to Google and Facebook that enable them to sell services to advertisers, and they send me search results. Which of us is the edge provider, and which of us is the end user? An edge provider's employees use their connections during office hours to play a computer game or watch Netflix. Are they an edge provider or an end user? Is the classification with respect to all traffic or some subset of traffic? How do we figure out which traffic is regulated and which traffic is not? What happens when I run a small web-serving application out of my residence: do I lose my rights as an end user? If not, how much incoming traffic do I need to cause?

Second, many good economic cost-causative regulatory schemes separate ratepayers into classes that define rates. Classes can be based on traffic demand, business versus residential, or a host of other characteristics limited only by the regulator's imagination. When different rate classes develop different rates for service, the bureaucratic classification problem arises again. Who exactly is a residential customer, and who is a business customer? Rates can reflect costs or value of service. How we classify end users can have enormous effects on what they pay.

Finally, there is the problem of service definition. Proponents of Title II reclassification worry about incumbent ISP treatment of broadband access. However, what is broadband access? In an industry with as much change as Internet services, the definition of "fast" service keeps changing.

Nowhere is this clearer than in the statistics compiled by the FCC itself. In its June 2014 report on Internet Access Status (based on data from 2013), it places fixed (i.e., not mobile) service into three download/upload bandwidth buckets: (a) <3 Mbps/768 kbps; (b) between 3 Mbps/768 kbps and 6 Mbps/1.5 Mbps; and (c) above 6 Mbps/1.5 Mbps. This three-part bucket system is the FCC's distillation of ISP reporting requirements that have 72 different possible bandwidth variants. The report goes on to say that the FCC's actual broadband benchmark is 4 Mbps, a speed that does not correspond to any of the criteria. Nevertheless, the 4 Mbps will almost surely change over time as new technology enables higher speeds and new services arise that require those higher speeds. If the FCC redefines broadband speeds, for example, as 10 Mbps download or faster, there are several clear, predictable effects:

- If higher speeds are deregulated, then as services evolve to utilize those higher speeds, complaints will arise again.
- If higher speeds continue to be regulated, ISPs will have little incentive to develop the infrastructure to provide those higher speeds.
- The regulator must decide either to let the ISP invest in the higher speeds necessary to provide the new service or deny them the ability to do so. If they allow the investment and the new higher speed services do not turn out to be worthwhile, captive customers will have to pay the costs of infrastructure they do not want. If the regulator does not allow the investment and it turns out to be financially successful, the ISPs will lose customers and then charge the customers who remain higher and higher rates to compensate for the loss in subscribership. Only if the regulator correctly foresees the future (something no one can do consistently) will the ISP's customers not suffer.
- Development of faster services will dry up. No edge provider can offer a service that requires speeds faster than a critical mass of end users can utilize. Unless regulators are prepared to approve infrastructure with no proven market (and why would they), the virtuous circle between infrastructure improvements and innovation will be broken.

- The process of all innovations slows down while hearings are being held, and, following the regulatory hearings, court cases are filed as to what level of speed is "necessary." Innovators and their investors are caught up in regulatory delay. All the while, of course, other countries can move ahead.

C. The Dynamic Nature of Competition and How Regulation Brings It to a Halt

We have seen that a central complaint is the lack of competition to end users.[14] If every end user had 10 different ISPs to connect him/her to the rest of the Internet, then complaints that a particular ISP was providing bad service to a particular customer or set of customers would not be particularly troubling—the simple solution would be to find an alternative supplier that was not providing bad service.

Looking at the facts, however, this is not the case. Although there are many customers who have a choice of broadband ISPs, few have more than two, and very few have more than three. There is little economic evidence on exactly how many competitors are necessary to provide workable competition, but there is a general presumption that *more is always better.*

If additional ISP competition is the solution, then an obvious goal of regulatory policy should be to foster additional competition. Fostering additional competition is largely an issue of removing roadblocks. Several sets of roadblocks impede additional ISP competition today.

- *Technical investment costs*: The number of competitors is limited by the cost-per-customer potentially served. Suppose that in a town of 10,000 homes it costs $1,000 per home potentially served to enable broadband service to each ISP,[15] and there are two service providers. Even if every home subscribed to one service or the other, the cost per customer

[14] Again, we take no view as to whether those complaints are justified. We simply note that those complaints are a prominent impetus for the consideration of Title II reclassification.

[15] We are imagining here a wired service that has substantial costs per home not subscribed.

would be at least $2,000 to at least one competitor because there would be no revenue for homes passed but not subscribed. If customers are not willing to pay that much, two competitors are simply one too many for cost reasons. The problem gets even worse if we imagine, say, five competitors because the entire market is now split five ways, not two. The costs per customer are now at least $5,000 for at least one competitor. One might think that costs are costs, so there really is no regulatory role in fostering competition; that is, we would have to put up with very few competitors if the cost conditions require it. Even here, however, there may be a role for regulation to play in lowering costs. We might be able to work out mandatory cost-sharing arrangements, for example, in which a competitor could lease the unused access that another competitor would build. The ability to share the investment cost among competitors could solve the problem of duplicative investments that earn no revenue. Title II, although promising some hope in this regard, as we shall see later, has in fact a checkered history of actually delivering what the advocates wanted.

- *Local franchise/homeowner association (HOA) issues*: Not all costs are technical. Many costs are imposed by local authorities, either a county or town, or at a more micro-level, costs imposed by HOAs or landlords, especially in multiple-dwelling units like apartment complexes. Some towns and HOAs have granted exclusive franchises to particular companies that obviously make direct competition impossible. A clear regulatory objective to foster competition is to ban or limit local franchise issues. An example of this is Section 207 of the Telecommunications Act of 1996. In order to foster competition from satellite providers, legislation now sets a high bar to those who would like to restrict the installation of satellite dishes.[16]

- *Litigation costs*: Also included in regulatory costs are the direct and indirect costs of litigation. It is fair to say that litigation will follow any proposed changes to the Internet regulatory construct. Title II is probably not much worse in that respect. However, it will also be the subject of continuing litigation as every new issue that arises will end up at the FCC in a time-consuming and resource-consuming process, which will exhaust all but the most well-funded.

[16] Federal Communications Commission, "Over-the-Air Reception Devices Rule," Guide, http://www.fcc.gov/guides/over-air-reception-devices-rule.

- *Regulatory uncertainty*: Uncertainty is the enemy of investment. The great majority of innovations fail, which means the costs of investing are already high. When we add the possibility that regulators will put a stop to the investment, costs rise more. Aereo's major cost was always regulatory: it had a proven technology, and the price advantage of bypassing retransmission costs would have provided a ready market. The real sticking point (possibly fatal, as it turned out) was regulators. Would regulators (who, in the case of the Copyright Act are the US court system, not the FCC) allow this competition? Regulatory uncertainty is one of Uber's, a car service mediator, largest costs as well.

Uber demonstrates how well regulation thwarts competition. In this case, the incumbents are local taxi services regulated by local regulators. Uber sends messages to car services to provide rides to Internet-connected end users; that is, Uber receives a request and finds a car service that will provide service. Taxi companies intervened with local taxi commissions to attempt to forestall competition. Why have they received such favorable treatment to date? The desire of the regulator to maintain a regulatory hold on the taxi industry is the simple reason.

> Fortunately for Uber, its affiliated drivers and its customers, the company is in an unusually strong position to fight for its right to operate. It has savvy fans who will pressure city officials; in fact, more than 5,500 of them signed an online petition opposing the proposed regulations, and many more tweeted or emailed city officials in Uber's defense. And because Uber has more money than the average startup—it has received about $45 million from investors—it can pay for costly lawyers and lobbyists. But what about the typical entrepreneur, who must devote all of his or her resources to ordinary business expenses and can't afford lawsuits or lobbyists?[17]

Regulators are actually *tasked* with stopping competition with incumbent firms. This stems from their obligation to keep the regulated company viable and is reinforced by the regulated company's ability to pull the levers of regulation in a way that the unregulated cannot, either through a lack of resources or experience with the specific regulator. This is the central problem

[17] Jacob Huebert, "So, What Really Happened with the Government vs. Uber?" *Technori*, http://technori.com/2013/02/3289-startup-innovation-government-vs-uber/.

with Title II reclassification: *when you make ISPs dependent on the regulator, you have to find a way to keep them in business, no matter what the cost in terms of lost efficiency and foregone innovation.*

New competitors, in whatever form they take, must agree to the common carrier status of Title II to be allowed to even compete. So, the new entrants are doing what they can to avoid Title II. For example, "As a direct result of these regulations, where ever google fiber is deploying, it is not including voice service as an option because Google Fiber does not want to take the risk that it could be regulated under Title II![18] Wireless telephony is already a broadband competitor for a number of services, even though some of this subset consumes too much aggregate throughput to be viable. New compression technologies or additional spectrum might relieve this bottleneck, but who would want to join the competitive fray under the conditions of being subject to Title II? There is, by definition, no upside: price regulation under Title II will do no more than allow the recovery of costs with a risk adjusted capital return.

D. Innovation and Its Fragility

The rise of the Internet in the last 20 years has seen the largest outpouring of innovation in the modern age. Literally hundreds of services that were unimaginable in 1994 are commonplace today, and these innovations are universally acknowledged to give a mere hint of what might someday be available. Furthermore, the infrastructure that has developed to deliver those services has grown at a phenomenal rate.[19]

[18] Cassandra Carroll, "Title II Bad For Business, Bad For Consumers," Internet Freedom Coalition, August 29, 2014, http://www.internetfreedomcoalition.com/?p=4050.

[19] We take the phenomenal growth in infrastructure and services to be unexceptional. Any doubters should refer to the Internet Society's 2014 Global Internet Report. One anecdote that demonstrates both of these phenomena is an update of an investigation Charles Jackson made in 2003: "An Internet search of the term *ftth [fiber to the*

Defenders of the regulatory status quo can point at this rich history of innovation and make sensible claims that the hands-off policy by the FCC in this period is no small cause of this efflorescence. Of course, even if true, it does not necessarily mean that Title II regulation is no longer necessary. It could be, for example, that the future threats to efficiency and consumer surplus are sufficiently high to warrant some action.

Innovation has been critical to the growth of the Internet. The Internet, like all network industries, sometimes has a "chicken-and-egg" problem in determining whether the base of customers cause innovators to develop or whether the services provided cause customers to sign up for broadband. In the case of the Internet, we have good evidence that innovation in new services has led to Internet growth. In 2003, economist Hal Varian estimated that even experienced computer users were not willing to pay for broadband services based on the services available in 1999.[20] Currently, there are over 100-million fixed-broadband connections. This dramatic increase in demand must come from the innovation in services provided because reductions in price cannot explain why anyone would subscribe to a service they are not interested in even at very low prices.

Of course, it is possible to freeze the Internet where it is today—to declare victory and lock the current set of edge providers into place and proceed to regulate the relationships thus locked in. We doubt anyone sees that as a serious alternative, but it is what Title II reclassification threatens. The lost social welfare from applications that are never developed would quickly swamp any

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home] on Google yields about 10,000 hits." A search of that term in August 2014 yielded 6.7 million hits. [Robert W. Crandall and James H. Alleman, *Broadband: Should We Regulate High-Speed Internet Access?* (AEI-Brookings, 2003), 92.]

[20] Hal Varian, "The Demand for Bandwidth: Evidence from the INDEX Project," in *Broadband: Should We Regulate High-Speed Internet Access?* ed. Robert W. Crandall and James H. Allman (AEI-Brookings, 2003), chap. 3.

possible gains from curbs on market power by ISPs, at least if the past 10 years are any guide to the future. For all the gains already made, few would argue that the biggest gains are yet to come.

However, what will those gains be? Today, no one knows. It is for that exact reason that raising barriers to innovative services would be the surest path to destroying social welfare. We know the typical innovator will fail; almost all do. Yet, the Internet ecosystem thrives on the few winners and the adaptation of the ecosystem to accommodate the winners.

What is needed to foster innovation is simple to state in theory but hard to provide in practice. There are really only three principles:

(1) Entry into the ecosystem needs to be as free as possible. Licenses, requirements to show the necessity of a service, should be low to nonexistent, and interconnection of any size should be a matter of days and a few phone calls.

(2) Capital barriers to entry should be as low as possible: entry barriers form one capital barrier, but so-called "fast lanes" may present another. Startups should not have to bear higher prices that are not reflective of the costs of what they intend to do.

(3) Innovators need the opportunity to earn profits from successful innovations. Mere cost recovery is not enough unless it is paralleled with cost recovery for those innovations that turn out to be unprofitable. No one supposes that the latter system is viable. Only established services can be compensated on a cost basis.

None of these principles is controversial. If the goal of Title II reclassification is to foster innovation, then the rules of Title II should implement these goals. It is all too clear that it will not. We break innovation into two separate pieces: innovation that directly competes with the ISPs in the ISP function itself and innovation by new edge providers to enhance the usefulness of the Internet.

1. ISP innovation

As we have shown above, Title II is inimical to allowing unregulated services to compete with regulated ones. It is in the business of setting prices to guarantee a return to the incumbent ISPs. Competition threatens those returns. The levers by which incumbent firms can forestall direct competition are both direct and indirect. Directly, they can simply put up roadblocks to competition through the regulatory process. Indirectly, they can configure their network in ways that make it hard for direct competitors to interconnect and hope that the regulatory protests by the putative entrant will take enough years of ligation and attorney time and effort to dissuade the effort altogether.

2. Edge provider innovation

The real losers from Title II reclassification will be the small edge providers, particularly new startups that may never see the light of day under Title II. Provision after provision of Title II reclassification will serve to increase capital costs for innovators both directly and indirectly as well as to foster the sort of regulatory uncertainty that deters investors from ever investing.

Currently, ISPs mostly want to accommodate new entrants because it is from the value of the services they provide that they maintain and increase ISP subscribers, the main source of ISP revenue.[21] Under Title II, the regulatory process allows for cost recovery and a reasonable profit; however, new edge providers and their accompanying traffic will simply represent costs to ISPs, not benefits. For instance, if an edge provider comes to an ISP with a proposal for a new service that requires additional network capacity, the ISP then must begin the regulatory process, which is time consuming, tedious, often contentious, and always costly. Additionally, edge providers

[21] No one seriously believes than any ISP gets more revenue from either its own edge services or payments from edge providers than it gets from subscribers, whether now or in the future under Title II or even under the status quo. Luring and keeping subscribers will always trump ancillary revenue sources, however lucrative.

may be subject to new administrative and/or reporting requirements that might require them to seek permission from the Commission prior to offering a new service or launching a new platform.

On the other hand, the edge provider asking for the new service has a new source of costs and a new source of regulatory uncertainty that compounds the uncertainty already present through the uncertainty of market acceptance for the application. This increases the edge provider's costs and is the reason why some innovations are never funded in the first place. The cost of the regulatory process is burdensome and the result uncertain. An ISP will likely want some type of commitment from the edge provider before it undergoes the regulatory process, which further increases the edge provider's risk. The entire process deters innovation. In today's environment, getting your product to the market quickly is critically important. Regulation is an impediment to this because it slows down the introduction of new and innovative services to the public.

Defenders of Title II reclassification may find this forecast excessively gloomy. If the point of Title II reclassification is to stop price discrimination and to foster and justify interconnection, then would barriers to service be lowered? Unfortunately, the answer is no. Even regulations drafted explicitly to provide some particular benefit have a checkered history, particularly under conditions of rapid technological change, of providing the desired result. We will see this below in our discussion of the Telecommunications Act of 1996.

E. Costs of Regulation

Concurrent with regulation are new costs: the costs of regulation itself. Some of these costs are public costs, such as increased staff at the FCC and increased caseloads in litigation. However, the majority of the costs are the staffing costs at the regulated firm to comply with and manage

the regulatory process. The incumbent telcos have some familiarity with this process because their provision of wireline telephony is under Title II regulation.

However, for the other major competitors (cable companies) and for the many smaller competitors establishing footholds today, an FCC regulatory staff related to this effort will represent a major expense. These costs, of course, will have to be recovered.

Furthermore, what often happens is that a regulatory agency, created to act in the public's interest, eventually acts in ways that benefit the industry it is supposed to be regulating, not the public. This is simply the recognition that:

- corporations will devote substantial attention to issues that affect their profits;
- this attention gives them a comparative advantage vis-à-vis regulatory staffs that are typically understaffed and face multiple competing objectives and that lack a profit incentive; and
- the clear result will be that the outcomes of the regulatory process are simply likely to be far closer to what the regulated firm wants than it is to what outside parties want—these outside parties will lack the resources and the knowledge of the process.

As David Farber and Gerald Faulhaber correctly pointed out the last time Title II reclassification was considered:

> When the FCC asserts regulatory jurisdiction over an area of telecommunications, the dynamic of the industry changes. No longer are customer needs and desires at the forefront of firms' competitive strategies; rather firms take their competitive battles to the FCC, hoping for a favorable ruling that will translate into a marketplace advantage. Customer needs take second place; regulatory "rent-seeking" becomes the rule of the day, and a previously innovative and vibrant industry becomes a creature of government rule-making.[22]

[22] David J. Farber and Gerald R. Faulhaber, "Net Neutrality: No One Will Be Satisfied, Everyone Will Complain," *The Atlantic*, December 21, 2010, http://www.theatlantic.com/technology/archive/2010/12/net-neutrality-no-one-will-be-satisfied-everyone-will-complain/68326/.

IV. International Comparisons

In many ways, Title II is unique. The specific rules of US regulation are unusual, and the regulatory culture in the United States, focusing as it does on the semi-litigation process of regulatory hearings, is unusual. Looking to Europe, however, it is noted that European regulation is more restrictive than current US regulation, and it is sometimes argued that Europe's results in providing service are better. Is not this a compelling argument for regulation in the United States?

Even if it were, it would not hold true for Title II. The United States has a long history with Title II, which ought to trump any comparison with a different regulatory scheme in a different country. International comparisons are very difficult to get right because they must transcend differences in culture, wealth, and legal systems.

Instructive in this regard is the comparison of two widely cited studies on international comparisons of next-generation broadband. The first, a 2010 study from Harvard's Berkman Center argues that the United States is, at best, in the middle of the pack and favorably cites unbundling-based competition implicitly (and at times explicitly) arguing that the United States would do better to adopt forced unbundling of incumbent wires.[23]

[23] *Next Generation Connectivity: A review of broadband Internet transitions and policy from around the world*," Final Report (The Berkman Center for Internet & Society at Harvard University, February 2010), http://cyber.law.harvard.edu/pubrelease/broadband/ (hereafter the Berkman Study).

In the second study, from June of this year, Christopher Yoo of the University of Pennsylvania published a study that argues quite forcefully that the United States is substantially ahead of Europe in the next generation of 25 Mbps and higher speeds for broadband.[24]

So who is right? We feel that the Yoo study has the better argument on two counts: first, the more recent data seem to demonstrate that whatever the US regulatory infirmities, they seem to have been surmounted. Undoubtedly, advocates of the previous study would argue that the specific metrics that Yoo uses amount to cherry picking. However, this seems to be less important than a second argument, which the Berkman Center study does not quite see the implications of. That is, the Berkman Center study compares various indices of Internet success across countries and finds that the United States ranks quite highly in measures of general success but is in the middle of the pack in those measures that focus narrowly on particular measures of broadband penetration. In particular, the study notes that the broader measures would rank the United States even higher, if not for

> its relatively high burden of regulation and tax, the inefficacy of American law making, and the inefficiency of American dispute resolution and its low level of judicial independence (the U.S. ranks in the 20s on efficacy of lawmaking and on judicial independence in this index). Factors tending to support the relatively high ultimate standing of the U.S. on this index are the efficiency of its markets and venture capital activity, its well developed R&D clusters, including Silicon Valley and the Research Triangle, its large pool of scientists and engineers, and the high quality of its universities.[25]

The study then notes:

> If one is interested more specifically in broadband policy—understood as policy aimed at supporting ubiquitous high capacity access to all Americans at affordable rates—the measures that influence standing in this index sweep too broadly to provide meaningful guidance. It would be odd to include in a National

[24] *U.S. vs. European Broadband Development: What do the Data Say* (Penn Law, June 2014), https://www.law.upenn.edu/live/files/3352-us-vs-european-broadband-deployment.

[25] Berkman Study, p. 29

> Broadband Plan an effort to improve the efficacy of American law making or the independence of its judiciary.[26]

We profoundly disagree. It is not possible to mix and match bits and pieces of regulatory structure to establish "best practices" that are independent of the regulatory milieu. We must take the United States as we find it; even if forced unbundling created the perfect ground for ISP competition in Europe (and, again, Woo argues that it did not), we cannot simply take the US unbundling scheme, intended for a very different telecommunications structure, and apply it as if we were in Europe. The United States is not a country in Europe and Title II and the FCC are not British, Swedish, or Dutch regulators.

However, note also the focus on the efficiency of markets and venture capital activity. As valuable as the data in the Berkman Center result are (if now slightly outdated), the report's international regulatory suggestions for the United States are misguided. One cannot draw conclusions about regulatory impact without consideration of the regulatory milieu. This is even truer for Title II, which is encumbered by years of decision-making constraints.

The bottom line on international comparisons is:

(1) International comparisons, although interesting, are difficult to do correctly. The Berkman Center study raises many of the data collection and standardization issues.

(2) Internet technology and speeds are changing so rapidly that conclusions made in one year are liable to be reversed, or at least debatable, just a few years later (comparing the Berkman Center study with the Yoo study).

(3) The lessons, whatever they are, cannot be simply moved to the United States without a careful consideration of how those policy recommendations would work in the United States in practice.

[26] Berkman Study, p. 30

Overall, there is no evidence that international experience supports Title II classification.

V. Title II History

A. The Telecommunications Act of 1996

Title II, in its current form, had a specific purpose. Fourteen years after the Bell System breakup, part of the Telecommunications Act of 1996 overhauled the regulation of telephony. The intent was, among other things, to foster competition for wireline telecommunications. Eighteen years later, we have substantial competition for wireline telecommunications, but not necessarily because of Title II.

Robert W. Crandall summarizes the situation well in his 2005 book on the topic. He contends that the Telecom Act, in particular in its changes to Title II, created "years of disputes, legal appeals, and general uncertainty, many of which remains unresolved."[27] Crandall further argues that although proceeding with "the best of intentions, regulators have not facilitated competition but likely delayed it."[28] He further states, "Instead, competition has developed in ways totally unanticipated by regulators, namely through unregulated wireless providers and cable broadband platforms."[29]

This summary of the effects of The Telecommunications Act of 1996 suggests that the effects for Title II reclassification of Internet services will fare even worse. Congress made the Title II changes to achieve a particular result in a particular industry. Now, advocates of reclassification are asking for Title II regulation, written for an entirely different purpose, to be redirected toward

[27] Robert W. Crandall, *Competition and Chaos: US Telecommunications since the 1996 Telecom Act* (Brookings Institution Press, 2005), 9.
[28] Ibid., p. 6.
[29] Ibid., p. 157.

ISPs. Even with the FCC's ability to forbear in completely applying Title II, the Commission is encumbered with language about "just and reasonable rates" and rules that allow "[a]ny construction, extension, or impairment of the service that does not follow the provisions in the section may be enjoined by any court of competent jurisdiction."[30] Clauses like this, deemed necessary by advocates to enforce their notions of net neutrality, are, in the hands of skilled litigators, simple mechanisms to delay innovation and useful change. Any party seeking to retard change can be expected to use the new levers they have been handed.

The proponents of the 1996 changes to Title II wanted to increase wireline telecommunication competition and felt that the changes to Title II were required to make it happen. Nevertheless, Title II proved to be wasteful and counterproductive; only the forbearance from application of Title II to cable companies and wireless companies gave the United States the highly competitive telecommunications landscape it has today. Applying Title II to Internet services and encompassing all the current competitors will delay competition until such time as an unregulated technology begins to make inroads.

B. FCC's Declaratory Ruling in 2002

The FCC has been down this path before. Twelve years ago, they rejected the exact path being recommended today. In the *Inquiry Concerning High-Speed Access to the Internet over Cable and Other Facilities*, the FCC rejected Title II classification for broadband Internet services, at least with respect to cable companies at which the ruling was directed. As the Declaratory Ruling states:

> Since we issued the Notice, the cable modem service marketplace has changed significantly. As discussed above, the cable modem service business is still

[30] Telecommunications Act of 1996, Section 214.

> nascent, and the shape of broadband deployment is not yet clear. Business relationships among cable operators and their service offerings are evolving….Given that cable modem service will be treated as an information service in most of the country, we tentatively conclude that the public interest would be served by the uniform national policy that would result from the exercise of forbearance to the extent cable modem service is classified as a telecommunications service. We also believe that forbearance would be in the public interest because cable modem service is still in its early stages; supply and demand are still evolving; and several rival networks providing residential high-speed Internet access are still developing. For these same reasons we tentatively conclude that enforcement of Title II provisions and common carrier regulation is not necessary for the protection of consumers or to ensure that rates are just and reasonable and not unjustly or unreasonably discriminatory. As such, we believe that forbearance from the requirements of Title II and common carrier regulation is appropriate in this circumstance.[31]

This analysis was correct in 2002, and there is nothing to alter its conclusion today. If anything, the nature of Internet relationships has become even more dynamic. The FCC in 2002 recognized the dangers of injecting Title II formality into a rapidly evolving industry already generating user benefits. It is no less true today.

VI. Harms of Regulation

In 2014, Facebook (an edge provider) paid $19 billion to acquire the mobile messaging platform WhatsApp and $2 billion to acquire the virtual reality hardware and software company Oculus VR. Although high profile acquisitions like these make headlines, hundreds of other new edge providers create value every month. We will never know which ones would have secured funding or which ones might have run out of cash if regulatory compliance costs were in play under a Title II regulatory regime. However, we can confidently predict that raising the cost of innovation, in a probabilistic sense, must cost the industry successful firms. Further, the value

[31] In the matter of Inquiry Concerning High-Speed Access to the Internet Over Cable and Other Facilities; Internet Over Cable Declaratory Ruling; Appropriate Regulatory Treatment for Broadband Access to the Internet Over Cable Facilities, *Declaratory Ruling and Notice of Proposed Rulemaking*, 17 FCC Rcd 4798 (2002), ¶ 95.

that these firms can create (again, probabilistically) is so large relative to the costs of creation that it is easy to draw the inference that billions of dollars of social benefit are at risk.

Without presenting any definitive estimates, we think it is clear that Title II reclassification would at least slow the development of new broadband services through the mechanisms that we have discussed in this White Paper. Any slowing trajectory would have billions of dollars in lost social benefits and would cost the economy thousands of jobs. It is also likely to disproportionality affect certain geographic areas and demographic groups according to a report by the National Telecommunications and Information Administration and the Economics and Statistics Administration. Geographic location is associated with differing broadband adoption rates, with higher rates in urban locations than rural locations. The report found that only 58 percent of rural households had adopted broadband, compared to 72 percent for urban households.[32] Similarly, demographic adoption rates varied, where "[l]ow-income and less educated households experienced computer ownership and broadband adoption rates well below the national average." For example, compared to a national broadband adoption of 69 percent only 55 percent of African American and 56 percent of Hispanic households had adopted broadband.[33]

The best estimates that we have seen suggest that a one-percentage point increase in broadband penetration leads to a 0.2–0.3 percent increase in employment.[34] This is at best an incomplete

[32] "Exploring the Digital Nation, America's Emerging Online Experience," prepared by National Telecommunications and Information Administration and the Economics and Statistics Administration in the U.S. Department of Commerce, June 2013, p. 27. The survey used by the NTIA/ESA asked each household which of the following technologies members utilized to connect to the Internet from home: dial-up service, DSL, cable modem, fiber, optics, satellite, mobile broadband, or some other Internet connection technology.

[33] Ibid., pp. vii, 26–29.

[34] Robert Crandall, William Lehr, and Robert Litan, "The Effects of Broadband Deployment on Output and Employment: A Cross-sectional Analysis of U.S. Data," *Issues in Economic Policy* (The Brookings Institution), No. 6, July 2002.

measure because it would stop when broadband became ubiquitous, but that is not really the case: more services and heavier utilization would cause the minimum broadband speed to decrease, at which point the percentage of homes connected to true broadband would fall and the cycle would begin anew.

Residential broadband connections grew from 31 million in June 2009 to 65 million in June 2013, more than doubling in four years.[35] This is a brilliant success whose benefits are only now beginning to percolate through the economy. However, this is only 54 percent of US households.[36] Seventeen percent have slower connections.[37] Merely upgrading those connections could cut US unemployment significantly. It does so by making Americans fundamentally more productive. Households with 200 kbps connections that do not have broadband-speed connections are clearly interested in some level of Internet services. Current broadband services are simply not valuable enough to them to support upgrading.[38] Only innovations that they find worthwhile will induce them to subscribe. Investments in litigation, regulatory wrangling, and regulatory delay are productive investments only to those who make a living by their involvement in the regulatory process: lobbyists, lawyers, and expert witnesses.

So, opening the door to more competition and more innovation is our best hope for convincing an additional 17 percent of US households to subscribe to our current conception of broadband. Applying the employment multiplier above suggests as many as 7.5 million additional jobs could be created. Unfortunately, there is no good way to estimate how many of those jobs would be

[35] FCC Industry Analysis and Technology Division, Wireless Competition Bureau, *Internet Access Service: Status as of June 30, 2013* (June 2014), Table 4.

[36] Ibid., Table 13.

[37] Ibid. Calculated by subtracting 54 percent from the 71 percent having at least 200 kbps service in at least one direction in Table 13.

[38] There may be some for whom broadband speeds are unavailable. However, given the availability of broadband to 92 percent of census tracts (Figure 5a) this cannot be a large fraction of broadband nonsubscribers.

lost through the inevitable slowdown in competition and innovation that Title II reclassification would cause. Indeed, if we proceed down the path of reclassification, we will not even know how many jobs we lost after the fact because the lost innovations will simply never be seen. However, history demonstrates that we will find ourselves on a slower innovation path as the Title II litigation path starts: regulatory costs and delays hamper the strengths of the US's innovative culture, efficient venture capital finance system, and an Internet of permission-less innovation.

VII. Alternatives to Title II Reclassification

If Title II is not the answer, then what is? The most often cited alternative is Section 706 of the Telecommunications Act of 1996. In fact, the FCC itself has proposed to adopt the Commercially Reasonable Practices Rule under Section 706 of the 1996 Act, which the D.C. Circuit found grants the FCC the authority to adopt rules that promote broadband deployment and adoption.[39] As with Title II, we make no judgment as to whether Section 706 can achieve the net neutrality objectives, whatever they are, so we will assume they can for our purposes. One objection might be—is not Section 706 just more FCC regulation? Would not the same arguments apply?

In our opinion, Section 706 regulation is quite different. First, Section 706 is not a full set of regulatory instructions to the FCC. Consequently, it is (or can be made to be) far less intrusive on the competitive and innovative process. It does not, on its own, set up a tariffing scheme in which ISPs have to get regulatory approval to set prices in a dynamic industry, and it does not contain a requirement to assess "just and reasonable" prices.

[39] In the Matter of Protecting and Promoting the Open Internet, *Notice of Proposed Rulemaking*, GN Docket No. 14-28, rel. July 15, 2014.

On the one hand, Section 706's brevity gives hope that something rational might emerge. It is only its less onerous focus (simply making broadband services available to all) that gives us some confidence that combined with a broad set of principles sensible regulation might emerge.

Although many commentators have concluded that Title II and Section 706 are the only direct FCC mechanisms currently available, we note in passing that other possible mechanisms that might solve current issues are also available, although we have no opinion as to their political feasibility in the current climate. First among these is direct Congressional action that can change the FCC's mandate as Congress wishes. Second is existing (or altered) antitrust policy as administered by the Department of Justice. Third is a possible industry standard-setting arrangement, which could cede authority to the FCC for final rulemaking approval under Section 706.

We are always mindful that we should not let the best be the enemy of the good. In the case of Internet policy, however, we are equally mindful that the truly awful, that is, Title II reclassification, is the enemy of almost anything else.

VIII. Conclusion

Kudzu is a vine native to Japan.[40] In the 1930s and 1940s, soil erosion was an issue in the American South, and kudzu was planted on about one million acres to stop the erosion. Famously, kudzu then became "the vine that ate the South." It has disrupted the natural ecology, is still growing at about 150,000 acres per year, and now covers 7.4 million acres. The negative economic impact has been estimated at over $500 million.

[40] All facts about kudzu from Forseth Jr. IN and Innis AF. 2004. Kudzu (pueraria montana): History, physiology, and ecology combine to make a major ecosystem threat. Crit Rev Plant Sci 23(5):401-13.

Kudzu does what it was supposed to do—stop erosion. However, its introduction into an ecosystem so disrupted that ecosystem that it is clear that the cure was far worse than the problem. It was unclear prospectively that this would be the case because the interaction of kudzu with the very intricate mechanisms of Southern ecology were unknown and unknowable.

Title II reclassification is different. Here, the side effects on the Internet ecosystem are qualitatively foreseeable and therefore preventable, although the innovations we will lose will never be known. Regulation of broadband Internet services has advocates who see a problem and think that Title II reclassification will address the problem. We have no opinion on that issue. What we do know, however, is that the solution they propose will radically change the ecosystem they want to protect. This ecosystem is both dynamic and fragile. As much as one might think that Title II could be wielded to change only the components of the ecosystem that are thought to need change, experience has taught us that Title II will not solve any theoretical problems with the Internet, it will only create more.

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With 18 years of experience, Dr. Dippon is an internationally renowned expert in telecommunications, specializing in wireless, wireline, cable, and emerging technologies. His clients call on him for his expertise with telecommunications markets and their participants, including local exchange carriers, mobile network operators (MNOs), mobile virtual network operators (MVNOs), long distance carriers, Internet service providers (ISPs), cable operators, satellite providers, voice over Internet protocol (VoIP) providers, and equipment manufacturers. Dr. Dippon has consulted to clients in countries around the world, including the United States, Australia, Brazil, Canada, China, the Dominican Republic, Hong Kong, Hungary, Indonesia, Ireland, Israel, Japan, Korea, Malaysia, New Zealand, Palestine, Qatar, Singapore, Spain, Thailand, Turkey, United Arab Emirates, and the United Kingdom.

Dr. Dippon has authored and edited several books as well as book chapters in anthologies, and has written numerous articles on telecommunications competition and strategies. He also frequently lectures in these areas at industry conferences, continuing education programs for lawyers, and at universities. National and international newspapers and magazines, including the *Financial Times*, *Business Week*, *Forbes*, the *Chicago Tribune*, and the *Sydney Morning Herald* have cited his work.

Dr. Dippon serves on the Board of Directors of the International Telecommunications Society (ITS) and on the Editorial Board of *Telecommunications Policy*. He is a member of the American Economic Association (AEA), the American Bar Association (ABA), and the Federal Communications Bar Association (FCBA).

Dr. Dippon holds a PhD and an MA in Economics and an undergraduate degree in Business Administration. He is bilingual in English and German and proficient in French and Thai. Prior to joining NERA, Dr. Dippon was an analyst at BMW in Bangkok, Thailand.

Jonathan Falk, Vice President, is involved in NERA's Global Energy, Environment, and Network Industries Practice. Mr. Falk has worked on a variety of issues involving the modeling of investment and industry structure. He has advised on the structure of market rules in both capacity and energy markets for various entities and has testified on those issues before numerous regulatory bodies. He has testified on the measurement, pricing, and environmental effects of demand response. He has been involved in the creation of novel insurance products to transfer price risk in electric markets. He has studied market power questions in emerging electricity markets and has estimated the social benefits of real-time pricing options for

electricity, as well as questions of valuation and the financial risks associated with restructured electric markets. He has also advised on the structure of market rules and has created a number of models to value flexibility in utility planning.

In NERA's Communications Practice, Mr. Falk has participated in studies on residential access demand to the telephone system, choice of service among telephone company offerings, optimal pricing structures, and estimation of the marginal costs of telephone service.

In environmental economics, Mr. Falk has estimated benefits in recreational activity and increased property values resulting from tighter discharge standards for paper mills and for nuclear power plants.

Mr. Falk has also worked on several cases involving credit discrimination in automobile and housing markets. He has performed statistical analyses to predict credit decisions.

Finally, in labor economics, Mr. Falk has testified both on statistical estimations of liability in termination and promotion processes and in calculations of lost earnings in both wrongful termination and wrongful death cases. He has also testified in several cases on contract damages and has extensive experience in the estimation of damages arising from contract disputes.

Mr. Falk has completed his PhD examination requirements at Yale University and has an MA and BA in economics from Yale.