COMMUNICATIONS ACT 2021

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Abstract

The Communications Act of 1934, as amended by the Telecommunications Act of 1996, is showing its age.[1] Like an old New England house that added drafty new additions over the years to accommodate a growing extended family, the Act is poorly suited to meet today's challenges. Much of what is included in the Act relates to earlier technologies, market structures, and regulatory constructs that address issues that are either no longer relevant or that cause confusion when one tries to map them to current circumstances. The legacy Act was crafted in a world of circuit-switched POTS[2] telephony provided by public utilities, and even when substantially revised in 1996, barely mentions broadband or the Internet.[3]

[1] *See* Communications Act of 1934, 47 U.S.C. §§ 151-614 (1934).
[2] *See Plain Old Telephone Service (POTS)* [hereinafter POTS], TECHOPEDIA (May 6, 2018), *archived at* https://perma.cc/52K6-7E3E (explaining that POTS stands for Plain Old Telephone Service, and refers to analog voice service generally provided over a copper "pair" connection.) For many, POTS was the network connection to dial-up Internet before the advent of broadband network access. *Id.*
[3] *See* Telecommunications Act of 1996, 47 U.S.C. §§ 251-614 (1996) (commenting on the use of phrases such as "broadband" and "Internet"). The phrase "broadband" was used once and "internet" was used eleven times. *Id.* at §§ 230, 271, 706.

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Moreover, the FCC has struggled in recent years to establish its authority to regulate broadband services, and also in its efforts to craft a framework to protect an open Internet (sometimes, referred to as Network Neutrality). While many of the fundamental concerns that the legacy Act addressed remain core concerns for public policy, the technology, market, and policy environments have substantially changed.

For example, while most agree that universal access to broadband and Internet services is an important policy goal, the current framework enshrined in Title II of the legacy Act does not do a good job of advancing those goals. Additionally, spectrum policy within the FCC is too entangled in legacy decisions that blend management of scarce spectrum resources with media content considerations[4] and industrial policy.[5]

In this paper, we identify the key concerns that a new Act should address, and those issues in the legacy Act that may be of diminished importance. We propose a list of the key Titles that a new Communications Act of 2021 might include and identify their critical provisions. Our straw man proposal includes six titles: Title I establishes the basic goals of the Act and sets forth the scope and authority for the FCC; Title II provides the basic framework for regulating potential bottlenecks; Title III establishes a framework for monitoring the performance of communications markets, for addressing market failures, and for promoting industrial policy goals; Title IV focuses on managing radio-frequency spectrum; Title V focuses on public safety and critical infrastructure; and Title VI addresses the transition plan.

[4] For example, in return for free access to broadcast licenses, over-the-air broadcasters are held accountable for providing public interest programming such as news, access for political advertising, and children programming. This blending of content and spectrum regulation complicates the challenge of directing spectrum resources to their most efficient uses.

[5] For example, the history of command & control spectrum regulation bundled decisions about the appropriate technologies to use (FDM for mobile services) and market structure (how much spectrum to allocate to each licensee to enable a targeted number of competitors). As we move toward a world in which spectrum should be shared more dynamically, it is desirable to separate industrial policy and spectrum management goals as we discuss further below.

Our goal is to provoke a discussion about what a new Act might look like in an ideal, clean-slate world; not to address the political, procedural, or legal challenges that would necessarily confront any attempt at major reform. That such challenges are daunting we take as given and as a partial explanation for why the legacy Act has survived so long. Nevertheless, it is worthwhile to create a clear picture of what a new Communications Act should include, and the benefits that having a new Act might offer so that we can better judge what our priorities should be, and what reforms might best be attempted.

I. Introduction

The Communications Act of 1934, as amended by the Telecommunications Act of 1996, is showing its age.[6] Like an old New England house that added drafty new additions over the years to accommodate a growing extended family, the Act is poorly suited to meet today's challenges.[7] Much of what is included in the Act relates to earlier technologies, market structures, and regulatory constructs that address issues that are either no longer relevant or that cause confusion when one tries to map them to current circumstances.[8] The legacy Act was crafted in a world of circuit-switched POTS[9] telephony provided by public utilities, and even when substantially revised in 1996, barely mentions broadband or the Internet.[10]

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[6] *See* Communications Act of 1934, 47 U.S.C. §§ 151-614 (1934) [hereinafter *Communications Act of 1934*]

[7] *See id.* (using antiquated phrasing such as "wire" and "radio").

[8] *See id.* (expanding upon the antiquated language used throughout the Act).

[9] *See* Fred B. Campbell, Jr., *The First Amendment and the Internet: The Press Clause Protects the Internet Transmission of Mass Media Content from Common Carrier Regulation*, 94 NEB. L. REV. 559, 563 (2016) [hereinafter *Campbell the First Amendment*] (discussing the presence of the Communications Act of 1934 and how telephone service was typically a "state-sponsored monopoly, "with POTS being regarded as a "natural monopoly"); POTS, *supra* note 2 (defining POTS, Plain Old Telephone Service, as an old analog telephone service "implemented over copper twisted pair wires"). POTS connects homes and businesses to neighborhood central offices, which are ultimately connected to other offices and long distance facilities. *Id.* POTS is the most widely used "telephony system." *Id.*

[10] *See* Telecommunications Act of 1996, 47 U.S.C. §§ 251-614 (1996) (commenting on the use of phrases such as "broadband" and "Internet"). The phrase "broadband" was used once and "internet" was used eleven times. *Id.* at §§ 230, 271, 706.

Moreover, the FCC has struggled in recent years to establish its authority to regulate broadband services, and also in its efforts to craft a framework to protect an open Internet (sometimes, referred to as Network Neutrality).[11] While many of the fundamental concerns that the legacy Act addressed remain core concerns for public policy, the technology, market, and policy environments have substantially changed.[12] For example, while most agree that universal access to broadband and Internet services is an important policy goal, the current framework enshrined in the Title II of the legacy Act does not do a good job of advancing those goals.[13]

In this paper, we identify the key concerns that a new Act should address and those issues in the legacy Act that may be of diminished importance. We propose a list of the key Titles that a new *Communications Act of 2021* might include and identify their critical provisions.[14] Our straw man proposal includes six titles: Title I establishes the basic goals of the Act and sets forth the scope and authority for the FCC;[15] Title II provides the basic framework for regulating potential bottlenecks;[16] Title III establishes a framework for monitoring the performance of communications markets, for addressing market failures, and for promoting industrial policy goals;[17] Title IV focuses on managing radio-frequency spectrum;[18] Title V focuses on public safety and critical infrastructure;[19] and Title VI addresses the transition plan.[20]

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[11] *See* United States Telecom Ass'n, et al. v. FCC, 825 F.3d 674, 689 (D.C. Cir. 2016) (discussing how broadband Internet service providers recently petitioned an FCC order which sought to compel Internet openness, commonly known as "net neutrality").

[12] *See* Stuart N. Brotman, *Revisiting the Broadcast Public Interest Standard in Communications Law and Regulation*, BROOKINGS (Mar. 23, 2017), *archived at* https://perma.cc/MW8G-SQRG (opining on the lack of clarity in the 1934 Communications Act, which has yet to be remedied).

[13] *See* Communications Act of 1934, 47 U.S.C. § 253 (1996) (stating the standard for "removal of barriers to entry" found in the 1934 Communications Act).

[14] *See infra* Part 6.2. Exhibit 2.

[15] *See infra* Part 4.1.

[16] *See infra* Part 4.2.

[17] *See infra* Part 4.3.

[18] *See infra* Part 4.4.

[19] *See infra* Part 4.5.

[20] *See infra* Part 4.6.

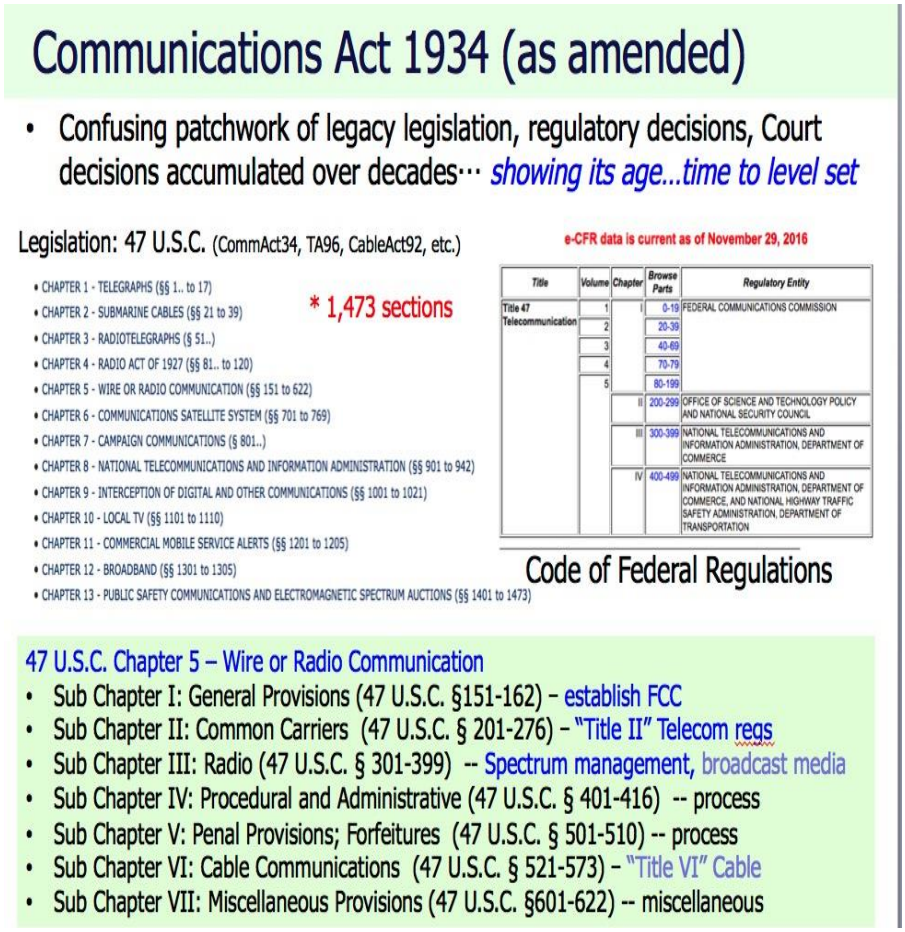
Our goal is to provoke a discussion about what a new Act might look like in an ideal, clean-slate world; not to address the political, procedural, or legal challenges that would necessarily confront any attempt at major reform. That such challenges are daunting we take as given and as a partial explanation for why the legacy Act has survived so long. Nevertheless, it is worthwhile to create a clear picture of what a new Communications Act should include, and the benefits that having a new Act might offer so that we can better judge what our priorities should be and what reforms might best be attempted.

II. Background

Communications law in the U.S. is a complex amalgam of legislation, regulatory, and court decisions that have accumulated over many decades. The Communications Act of 1934, as amended ("the Act"), is the centerpiece legislation that created the Federal Communications Commission ("FCC") as an independent regulatory agency and underlies the core provisions of telecommunications regulatory policy.[21] The Act is comprised of seven Titles, but the ones that will concern us most here are Title I, which establishes the FCC as an independent regulatory authority; Title II, which specifies the common carrier framework for regulating telecommunication services; Title III, which addresses services that use the radio spectrum; and Title VI, which focuses on services provided by cable television network providers.[22]

[21] *See* 47 U.S.C. § 151 (1) (1934) (highlighting the creation of the FCC, who enforce the Communications Act); 47 U.S.C. §§ 101-710 (1996) (supplementing the Communications Act of 1934).

[22] *See* 47 U.S.C. § 151 (1) (2) (3) (6) (1934) (noting that Title 1, the establishment of the FCC, works in conjunction with Title II regulations for telecommunications services, as well as Title III and VI, radio and cable television).



This basic framework (circa 1996) was established in a pre-convergence world, wherein the industry, technical and market boundaries between telephone networks, over-the-air broadcast services, cable television networks, and computing were fairly distinct.[23]

[23] *See* Robert Cannon, *Where Internet Service Providers and Telephone Companies Compete: A Guide to the Computer Inquires, Enhanced Service Providers and Information Service Providers*, COMMLAW CONSPECTUS, Vol. 9, No.1 (July 3, 2001) (discussing how enhanced services are not regulated under Title II). As telephone network switches morphed into software-controlled computers and distributed computing blended data communications with computer processing and data storage functionality, it has become increasingly difficult to draw clear boundaries between the computer and communications industries. *Id.* Historically, consent decrees resulting from antitrust actions by the Department of Justice in the case of AT&T, for example, sought to enforce structural separation by limiting the ability

Regulating telephone networks as public utilities and common carriers made sense because historically they were regarded as natural monopolies that collectively comprised a national end-to-end network that needed to interconnect with other national end-to-end telephone networks.[24] Over-the-air television and radio broadcasters were regulated as content providers that made use of scarce radio frequency spectrum.[25] In both cases, the providers owned and operated network facilities based on quite different technologies.[26] Although the digitalization of telecommunications networks and the rise of demand for data communication services began to blur the boundaries between telecommunications and computing, the equipment and software used for telecommunications (and broadcast television) was sufficiently specialized and distinct from general computing hardware and software to make it feasible to sustain regulatory separation, at least in the early days.[27] Telephone network providers and over-the-air broadcasters each could be regulated by the FCC under separate Titles overseen by separate bureaus; while computer hardware and software were exempt from FCC oversight.[28]

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of the then-dominant firms to compete in each other's markets. *Id.* In the context of communications policy regulation, the provision of "computing" services entered into policy debates with the Computer I decision in the 1971 when the FCC made its first attempt to identify the boundary between data processing and communication services. *Id.*

[24] *See* Verizon Comm. Inc. v. FCC, 535 U.S. 467, 477 (2002) (articulating the history behind telephone communication services). In most parts of the world, the national telephone networks were owned and operated as government monopolies. *Id.*

[25] *See id.* at 491-92 (inferring that regulation would prevent monopolization in the telecommunication radio frequency spectrum); OECD, COMPETITION ISSUES IN TELEVISION AND BROADCASTING 23 (2013) (finding that regulations for the broadcasters' regarding lack of spectrum and management help prevent monopolization).

[26] *See* OECD, TELECOMMUNICATIONS AND BROADCASTING 9 (1992) (explaining that even when the two types of networks shared facilities, as was the case when over-the-air broadcasters made use of telephone network transmission lines to distribute programming to broadcast antennas, there are economic and technological benefits to distinguishing the activities of telecommunication service providers and broadcasters).

[27] *See id.* at 9 (noting that data computing and communications were historically separate sectors, however, now these fields are converging).

[28] *See* Robert Cannon, *The Legacy of the Federal Communications Commission's Computer Inquiries*, 55 FED. COMM. L.J. 166, 175 (2003) (discussing the FCC's statement that there was no need for regulation of data processing). The FCC viewed the data processing market as an "innovative, competitive market with low

With the emergence of cable television networks, the new types of providers were regulated under a new Title of the Communications Act as a separate class of service providers.[29] Although both cable and telephone network providers had similarities in terms of offering wired network facilities that were monopolies in their local markets (and hence were subject to public utility regulatory oversight),[30] their networks made use of quite different technologies and they offered non-overlapping services.[31] The fact that cable television providers did offer services that competed directly with over-the-air broadcasters, including direct broadcast satellite services which emerged later, did raise complications that were addressed by adding program access and must-carry rules.[32]

Finally, starting in the 1980s, the emergence of mobile telephony carriers created another new class of telecommunications service providers with networks that shared the radio-frequency spectrum,

barriers to entry and little chance of monopolization." *Id.* *See also* Delbert D. Smith, *The Interdependence of Computer and Communications Services and Facilities: A Question of Federal Regulation*, 117 U. PA. L. REV. 829, 830-31 (1969) (predicting the interconnectedness of computer and data processing services would cause regulatory issues for the FCC).

[29] *See Cable Television*, FCC (Dec. 15, 2015), *archived at* https://perma.cc/N6TV-PK5Z (stating that the regulations provided for cable providers are provided by the FCC, such as obtaining a certificate of compliance).

[30] *See id.* (describing the importance of equitable distribution of broadcast services performed through regulatory authorities). Local franchising authorities may provide licenses to cable television providers that require commitments to provide services throughout the community and to support a variety of public interest needs, such as network services for the local government and a community television channel. *Id.*

[31] *See id.* (differentiating a local exchange carrier as a telephone company and cable television as a wired video delivery service).

[32] *See* 47 U.S.C. 521 § 601 (1934) (establishing a remedy for direct competition between service providers and outlining the purposes of the Communications Act to establish policy, encourage diversification, and provide guidelines in cable communications); *History of Cable*, CAL. CABLE & TELECOMM. ASS'N (Jan. 18, 2018), *archived at* https://perma.cc/PW8Z-LE5L (demonstrating the need for similar services provided by both cable television providers and over-the-air broadcasters due to poor reception areas in rural communities).

while offering services that initially complemented (more than substituted for) fixed telephony services.[33] The licensing of mobile telephone services was designed to promote competition from the start.[34] Initially, spectrum resources were allocated to support two licensed operators in each local market, with one license allocated to the incumbent local (fixed) telephone operator and the other to another, unaffiliated operator (which, in many cases, was the incumbent local telephone operator from another region).[35]

In the U.S., management of the radio frequency spectrum is split between the FCC, which regulates non-Federal uses (i.e., state and local government, commercial, and private use), and the National Telecommunications Information Agency (NTIA), which regulates Federal uses (e.g., the Department of Defense, Federal Aviation Authority, etc.).[36] As we discuss further below, this bifurcation of regulatory responsibilities is another source of stress in managing national spectrum resources.

Today, the convergence of technology toward all-IP networks is well-advanced.[37] Traditional wired telephone and cable television network providers have evolved their networks into multi-service broadband platforms that can offer bundles of video, data, and telephony services that compete directly with each other.[38] The evolution

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[33] *See* NAT'L. RES. COUNCIL, RENEWING U.S. TELECOMMUNICATIONS RESEARCH 11 (The Nat'l. Academies Press 2006) (discussing the emergence of mobile telephone carriers and its impact on telecommunication service providers).

[34] *See* JOHN ALDEN, COMPETITION POL'Y IN TELECOMM. THE CASE OF THE U.S. 5 (Int'l Telecomm. Union 2002) (noting that the resulting Telecommunications Act of 1996 created a policy to promote telephony competition at the national level).

[35] *See* Assignment of Frequencies, 47 C.F.R. § 2.102 (2017) (providing the rules and regulations that govern, found in the Code of Federal Regulations). The allocation of spectrum frequencies is governed by the FCC under this statute. *Id. See also* Purpose, 47 C.F.R. § 20.1 (2015) (stating the purpose of the Code of Federal Regulations is to "set forth the requirements and conditions applicable to commercial mobile radio service providers").

[36] *See Radio Spectrum Allocation*, FCC (Jan. 23, 2018), *archived at* https://perma.cc/965A-Q385 (affirming the radio spectrum is divided between the FCC and the NTIA). The FCC regulations cover non-federal purposes, while the NTIA regulations cover federal uses. *Id.*

[37] *See* OECD, CONVERGENCE AND NEXT GENERATION NETWORKS MINISTERIAL BACKGROUND REPORT 7 (2008) [hereinafter *Next Generation Networks*] (asserting that previously distinct communication networks and services are today converging onto one network, thanks to the digitalization of content).

[38] *See id.* at 9 (referring to the concept of "bundling," which allows consumers to purchase a number of services combined in a single package).

of cellular providers into mobile broadband platform providers and expanded availability of Wi-Fi access to fixed wire network services has helped drive the convergence of wired and wireless networking.[39] Finally, the rise of over-the-top video entertainment is blurring the boundary between entertainment broadcasting, telecommunications, and the Internet.[40]

In Lehr & Sicker (2016), we examined the stresses that convergence of entertainment media and the Internet pose for the future of network architecture, industry economics, and public policy.[41] An important conclusion we reached in our earlier analysis is the need to clearly differentiate between broadband access regulation and Internet policy.[42] A future in which broadband networks are based on all-IP technology does not mean that all broadband traffic should be over the Internet, even if the Internet will share resources with the broadband network, and so regulatory concerns to promote both broadband access and Internet openness will overlap.[43] Broadband access refers to the services offered over the broadband IP platforms operated by access ISPs that provide the on-ramps to the Internet, which is a network of interconnected networks, communicating via the IP-suite of protocols.[44] One of the important applications that the Internet supports is the World Wide Web, a network of linked content sites that

[39] *See* Aaron Charles, *The Difference Between Mobile Broadband & Internet Enabled Phones*, IT STILL WORKS (Jan. 24, 2018), *archived at* https://perma.cc/8LGF-UKP9 (contending that traditional cellular telephone providers have entered into the mobile broadband market through Internet enabled devices such as mobile hotspots or USB modems).

[40] *SEE* OECD, COMPETITION ISSUES IN TELEVISION AND BROADCASTING 12 (2013) (suggesting that video entertainment: between broadcasting, telecommunications, and the Internet are converging and overlapping in their technological capabilities).

[41] *See* William Lehr & Douglas Sicker, *Would You Like Your Internet With or Without Video?*, 2017 U. Ill. J. L. Tech. & Pol'y. 73 [hereinafter *Would You Like*] (concluding that overlapping of entertainment media and the Internet can have negative impacts on regulation, economics and design).

[42] *See id.* at 49 (determining that blurring the boundaries between broadband access and Internet policy can result in negative effects to the end users).

[43] *See id.* at 3-4 (criticizing "everything over IP" has significant disadvantages such as issues with performance, connectivity, market structure, and competition).

[44] *See Types of Broadband Connections*, FCC (June 23, 2014), *archived at* https://perma.cc/DW5U-KR46 (defining broadband connections as "high-speed Internet access that is always on and faster than the traditional dial-up access").

are hosted on servers spread across the networks that comprise the Internet.[45] In common parlance, broadband, the Internet, and the Web are often used interchangeably, and although the boundaries between these may not be clear in all contexts, they are distinct.[46]

A number of other themes indicative of the stresses the current regulatory regime is under were also briefly touched upon in Lehr & Sicker (2016).[47] For example, the rise of wireless networking and the potential for these to more seamlessly complement and compete with wired networks is challenging traditional regulatory classification schema and the justification for different rule sets under which the networks and services are regulated.[48] Also, the technology and markets for communications/computing infrastructure is growing more complex with the transition to cloud computing and the nascent emergence of Internet of Things (IoT) technologies and

[45] *See The Internet and the World Wide Web Are Not the Same Thing*, NBC NEWS (Mar. 12, 2014), *archived at* https://perma.cc/CSK7-LZC6 (delineating the web is an avenue for transmitting data over the Internet consisting of strings of characters entered into uniform resource locators (URL)). Other important applications that the Internet supports include file transfer, email, chat, voice telephony, social networking, etc. *Id.*

[46] *See id.* (noting the difference between the Internet and the "web"); Dong Ngo, *Home Networking Explained, Part 4: Wi-Fi vs. Internet*, CNET (Sept. 3, 2016), *archived at* https://perma.cc/XA4F-9P2E (articulating a broadband network is hosted from a router, which is different than the Internet, which is hosted from the modem).

[47] *See Would You Like*, *supra* note 41, at 49 (stressing the importance of separating policy regulations and regulatory systems in regard to the delivery and transmission of data).

[48] *See Would You Like*, *supra* note 41, at 52 (explaining the significant changes in the way Internet traffic is managed results from the rise of wireless networking). The rise of "hyper-giants" have monopolized the broadband access to the Internet and this monopolization has resulted in an increased regulation of interconnection. *Id.*

services; and with these, growing policy concerns about cyber security and privacy policy.[49] The legacy framework is not well-suited to address these issues in appropriate technology/sector-neutral ways.[50]

III. Why a new Communications Act?

Although significant convergence has already occurred with respect to network technologies, the markets and services offered, and the identity of the providers who participate in the markets, the legacy regulatory framework enshrined in the Act and the supporting apparatus of regulatory and court decisions has not been harmonized.[51] Services that appear similar and networks with similar capabilities are subject to different sets of rules.[52] When mobile services are competing with fixed services, and over-the-air broadcasts are competing with telephone, cable provider-based services and over-the-top services, having separate regulatory regimes for each type of provider results in regulatory distortions, confusion, and uncertainty.[53] Although asymmetric regulation of providers with asymmetric circumstances may make sense, the present landscape of overlapping legacy rules and decisions render a difficult situation more

[49] *See Would You Like*, *supra* note 41, at 17 (examining new and innovative communications services, such as cloud computing, Internet of things, ecommerce, and social networking); Omner Barajas, *How the Internet of Things (IoT) Is Changing the Cybersecurity Landscape*, SECURITY INTELLIGENCE (Sept. 17, 2014), *archived at* https://perma.cc/7WUG-7LYQ (describing that as more things are connected to the Internet, there is a greater risk of security breaches).

[50] *See* Protecting the Privacy of Customers of Broadband and Other Telecommunications Services, 81 Fed. Reg. 87274 (Dec. 2, 2016) (to be codified at 47 C.F.R. pt. 64) (issuing comprehensive new rules for how ISPs should manage consumer broadband-related data on behalf of the FCC). *But see* S.J. Res. 34, 115th Cong. (2017) (nullifying the FCC's order).

[51] *See* United States Telecom Ass'n, et al. v. FCC, 825 F.3d 674, 71-121 (D.C. Cir. 2016) (discussing that under the Communications Act, the FCC refrained from applying general rules to all interconnection disputes, preferring to evaluate them on a "case-by-case basis").

[52] *See* Charles J. Cooper & Brian Stuart Koukoutchos, *Federalism and the Telephone: The Case for Preemptive Federal Deregulation in the New World of Intermodal Competition*, 6 J. ON TELECOMM. & HIGH TECH. L. 293, 295 (2008) (discussing the different types of telecommunications that are subject to different regulations).

[53] *See id.* at 298, 337-38 (suggesting competition in "wireline, wireless, and cable" network technologies strengthens the rationale for preemptive federal regulation).

difficult than it needs to be.[54] Moreover, the lack of clarity in the current structure makes it more difficult to adapt the framework to accommodate the myriad of rapidly emerging new issues and address new market circumstances.[55]

One obvious solution might be to accelerate the pace of deregulation.[56] If the net effect of convergence is to intensify competition, then some might argue that a key justification for communications sector-specific regulation disappears.[57] From this perspective, the question is not whether we should have a new Communications Act, but rather how best to get rid of the legacy regulations we have, including eliminating the FCC as an independent regulator.[58] We reject this perspective on several grounds.

First, the FCC's role in promoting competition in communications networks and services is only one of the roles the FCC plays.[59]

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[54] *See id.* at 337-38 (arguing that the rise of new technologies has posed challenges in regulation while working within legacy constructs). One Court has already reversed the FCC's implementation of the 1996 Act for "failing to consider adequately [the impact of] intermodal competition." *Id.*

[55] *See* RICHARD ADLER, RETHINKING COMM. REGULATION 1-1, 7-8 (The Aspen Institute, 2013) (questioning whether present communications regulations still make sense when considering regulations for the Internet due, in part, to its constant "technological progress").

[56] *See* Brian Fung, *The FCC Just Repealed a 42-Year-Old Rule Blocking Broadcast Media Mergers*, WASH. POST (Nov. 16, 2017), *archived at* https://perma.cc/MT4C-D3Q9 (discussing the recent repeals of stale regulations by the FCC to bring broadcast ownership rules to the digital age).

[57] *See* Su-Yeon Lim, Myeong Ho Lee & Ki Won Lee, *Can Sector Specific Regulations Survive with Convergence Between Broadcasting and Telecommunications*, RESEARCH GATE (Jan. 2018), *archived at* https://perma.cc/6MKD-NY9Z (opining that "[t]he ongoing global convergence between telecommunications and broadcasting industries has prompted debates . . . regarding the regulation of these specific industries").

[58] *See* Roslyn Layton & Joseph Kane, Alternative Approaches to Broadband Policy: Lessons on Deregulation from Denmark 5 (Mar. 22, 2017) (unpublished manuscript) (on file with George Mason University's Mercatus Center) (illustrating that contrary perspectives exist asserting that "the FCC has fulfilled its primary mission of liberalizing the telephony market"). "[T]hus it is arguable that the FCC's work is complete and its staff and resources should be reassigned elsewhere". *Id.* Further, "the Danish approach is more representative of traditional intentions of classic regulation, working toward full competition and the subsequent removal of regulation and even of the regulator itself." *Id.*

[59] *See id.* at 60 (arguing that standard general-purpose competition policy and consumer protection policy would be superior to sector-specific competition protec-

Broadband and other advanced telecommunications and computing infrastructure, including the Internet, have been determined to be critical infrastructures for society and the economy.[60] Ensuring that U.S. citizens, the government, and businesses have access to appropriate critical communications infrastructure is a core industrial policy that most believe warrants sector-specific regulation.[61] The goal is not just to manage a presumptively competitive market of communication networks and services.[62] Were that the sole issue, then it might be appropriate to rely on general competition policy with its standard antitrust set of tools to discipline anti-competitive behavior.[63] However, that is not the case. The desire to ensure universal access to telephone networks as a national industrial policy helped create the legacy monopoly franchises that have dominated wired communications networks since the beginning.[64] Since at least 1996, the desire to

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tion). Apparently, Layton & Kane do not regard the economic features that characterize telecommunications as sufficiently distinctive to warrant sector-specific treatment; but that is a position that may reasonably be challenged (although to do so would be a distraction from the main points of our paper). Moreover, as we explained above, we reject the presumption that the only important policy goal for a communications-sector-specific regulator is to promote competition or that the goal of liberalizing telephony markets is sufficiently complete. *Id.*

[60] *See* WORLD ECONOMIC FORUM, DELIVERING DIGITAL INFRASTRUCTURE: ADVANCING THE INTERNET ECONOMY 1 (2014) (stating that "Internet-based economic activity is expected to reach $4.2 trillion in the G-20 nations by 2016, or more than 5% of GDP, and this does not include a whole universe of pursuits not captured in GDP figures.").

[61] *See* Howard A. Shelanski, *From Sector-Specific Regulation to Antitrust Law for U.S. Telecommunications: The Prospects for Transition*, 26 TELECOMM. POL'Y. 335, 347 (2002) (explaining that sector-specific laws, such as "non-discriminatory interconnection" rules, are necessary for facilitating calls between subscribers of different providers).

[62] *See id.* (arguing that universal telecommunication service reform requires regulation in the form of government subsidies, and that those subsidies will vanish if direct regulation is withdrawn).

[63] *See* Layton & Kane, *supra* note 58, at 62 (noting that anti-trust measures are sufficient to regulate the telecommunications sector, especially because the Federal Trade Commission can recover damage for consumers).

Even if the focus were solely on competition, one might argue that the special economic characteristics of communication networks (e.g., natural monopoly elements, large sunk/fixed/shared costs, rapid technological change, and significant network effects) warrant sector-specific regulation. *Id.*

[64] *See* Layton & Kane, *supra* note 58, at 18 (arguing although the government had good intentions, the privatization of the telecommunications industry lead to legacy monopolies that dominate the market).

transition toward increased reliance on market competition and lighter-handed regulation that provided more scope for network providers to select their technologies and determine what and how services are offered, while promoting universal access to next generation communication services, is a continuation of this basic industrial policy.[65] Since 2010, this has been formalized in the U.S. national broadband plan.[66] Although the methods for securing the sector-specific industrial policy goals may have changed, there are still significant sector-specific national industrial policy goals that must be addressed.[67]

Second, and closely related to the above, is the public interest, and role in ensuring certain other sector-specific goals that are closely tied to how communications networks are provided and operated.[68] For example, having identified broadband and Internet access as basic infrastructure services, the government has a public interest in ensuring affordable access for all citizens.[69] To the extent competitive markets can meet this challenge, direct government interventions

[65] *See* Layton & Kane, *supra* note 58, at 19 (suggesting the deregulation of the telecommunications industry would better enable competition to thrive). However, as even the authors observe, following this model may result in the unintended consequences of further strengthening the monopolies already in existence, or future ones to come. *Id.*

[66] *See* CONNECTING AMERICA: THE NAT'L BROADBAND PLAN, FCC (2010) [hereinafter NAT'L BROADBAND PLAN] (outlining the FCC's plan to influence the broadband ecosystem "in four ways").

[67] *See* In the matter of Inquiry Concerning High-Speed Access to the Internet Over Cable and Other Facilities, GEN Docket No. 00-185, Notice of Inquiry, FCC 1, 14 (Sept. 28, 2000) [hereinafter *Inquiry Concerning High-Speed Access*] (illustrating that the FCC considered various methods to achieving their policy goals before the 2010 Communications Act); NAT'L BROADBAND PLAN, *supra* note 66, at 197-323 (providing a general overview of several different categories which require sector-specific policy initiatives, including health care, education, energy & environment, economic opportunity, and government performance).

[68] *See* NAT'L BROADBAND PLAN, *supra* note 66, at 193 (explaining the overarching policy goals that the FCC, directed by Congress, seek to achieve via the National Broadband Plan, such as advancing consumer welfare, civic participation, and homeland security).

[69] *See* NAT'L BROADBAND PLAN, *supra* note 66, *Preface* at xi (identifying the U.S. government's public policy interests in ensuring broadband accessibility). For the foreseeable future, it remains likely that broadband access and the Internet will remain important basic infrastructure, but how broadband and the Internet are defined

may not be necessary; however, where communities are determined to be under-served, government action, which may include subsidies, may be justified.[70] Indeed, U.S. policymakers have instituted universal service fund (USF) programs that result in transfer payments that exceed $8 billion per year.[71] Although it may be reasonable to conclude that the size of such programs is excessive, promoting universal service goals is likely to require some level of subsidies.[72]

Analogous to the above goal is the need to ensure that the government has access to the critical communications infrastructure and services that it needs in order to address its responsibilities in providing for public safety and national defense.[73] This includes support for e911, lawful wire taps and surveillance (e.g., CALEA).[74] The need to ensure that such capabilities are provided appropriately creates yet another public mandate for an FCC that goes beyond competition considerations.[75]

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may change. *Id.* Moreover, it is possible that competition may be sufficiently vigorous for both that government intervention to ensure a well-functioning market for advanced electronic communication services may not be necessary. *Id.*

[70] *See* NAT'L BROADBAND PLAN, *supra* note 66, at 136 (explaining that private investment alone may not be sufficient to provide services to under-served areas).

[71] *See* STAFF FOR THE FEDERAL-STATE JOINT BOARD ON UNIVERSAL SERVICE, UNIVERSAL SERVICE MONITORING REPORT 18 (2016) (calculating that the total USF payments to eligible providers in 2015 totaled approximately $8.3 billion). The FCC administers four Universal Service Programs: "High-cost support, Low-Income support, Schools & Libraries e-Rate, and Rural Health Care." *Id.*

[72] *See* NAT'L BROADBAND PLAN, *supra* note 66, at 136 (detailing that one FCC analysis has found that approximately $24 billion will be required to meet universal broadband service goals).

[73] *See* NAT'L BROADBAND PLAN, *supra* note 66, at 83 (warning that imposing fee systems on spectrum licensees must not disrupt government services promoting public safety and national defense).

[74] *See Communications Assistance for Law Enforcement Act*, FCC (Oct. 5, 2017), *archived at* https://perma.cc/SED4-93Q5 (elucidating that CALEA "requires that telecommunications carriers and manufacturers of telecommunications equipment design their equipment, facilities, and services to ensure that they have the necessary surveillance capabilities to comply with legal requests for information.").

[75] *See* OFFICE OF THE MANAGING DIR., FCC, AGENCY FIN. REPORT: FISCAL YEAR 2016 (Oct. 1, 2015 – Sept. 30, 2016) 8 (Apr. 27, 2017) (articulating FCC's "Strategic Goals and Objectives" which include "promoting economic growth and national leadership"). "Equally important, the FCC must also address the communications needs of public safety, health, and emergency operations." *Id.*

Third, since most of the investment in providing communications infrastructure and services is private, it is important that the national communications sector regulator be an independent regulatory authority.[76] A government regulator that is not independent is vulnerable to political capture and shifting policies as political fortunes shift, raising justifiable concerns from investors of regulatory uncertainty, timing consistency, and expropriation of returns by regulators.[77]

Fourth, even if the goal is to substantially de-regulate the communications sector and rely more on competitive market forces to direct how resources are allocated and production is organized in the sector, we believe a national regulator is necessary to oversee an orderly process.[78] In addition to Federal regulations, a complex landscape of state and local regulations embodied in state Public Utility Commission decisions and local franchise and zoning rules impose overlapping and often conflicting regulatory obligations on communication network providers and services.[79] A Federal regulator serves a useful purpose in disciplining and coordinating conflicting local rules, relying on its ability to pre-empt local rule-making when the service or issue at hand has an inextricable interstate commerce component.[80]

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[76] *See* OECD, PRINCIPLES FOR THE GOVERNANCE OF REGULATORS 8 (June 21, 2013) (reasoning that "[a] high degree of regulatory integrity helps achieve decision-making which is objective, impartial, consistent, and avoids the risks of conflict, bias or improper influence.").

[77] *See* David Thaw, *Enlightened Regulatory Capture*, 89 WASH. L. REV. 329, 333 (2014) (defining "regulatory capture" as often conflating the two ideas of "any private involvement in administrative rulemaking and adjudicatory processes").

[78] *See* William Lehr & Thomas Kiessling, *Telecommunication Regulation in the United States and Europe: The Case for Centralized Authority*, COMPLETION, REGULATION, AND CONVERGENCE: CURRENT TRENDS IN TELECOMM. POL'Y RES. 1-2 (arguing that without a centralized authority, nationwide deregulation would be significantly hindered by asymmetry within local deregulation efforts).

[79] *See* In the Matter of Vonage Holding Corp., WC Docket No. 03-211, FCC 04-267, 15 (Nov. 12, 2004) (describing an incident where the FCC preempted regulations set by the Public Utility Commission due to public safety concerns regarding access to emergency services).

[80] *See* Lehr & Kiessling, *supra* note 78, at 24 (recommending the FCC should have the ability to preempt state regulatory authority regarding communications policy and the promotion of local competition). Increasingly, the "softwarization" of modern communication networks makes it feasible to delocalize network functionality, enabling providers to lower costs by realizing scale/scope and other cost economies and improve quality. *Id.* at 3. Today, large communication providers

Taken together, the above reasons explain the need for an independent federal regulator for the communications sector, such as the FCC, remains necessary and desirable today.[81] However, Court decisions in recent years that have challenged the FCC's authority to regulate broadband services have called into question the FCC's jurisdictional authority under existing legislation.[82] For a national regula-

operate across multiple states if not nationally in ways that make it difficult to separate inter/intrastate concerns. *Id.* at 2-3, 9, 13. Moreover they explained how a centralized regulatory authority to coordinate the actions of local regulations made sense for both the U.S. and Europe regardless of whether policymakers' goal was to regulate *or* deregulate sensibly. *Id.* at 24. *See also* Douglas Sicker, *The End of Federalism in Telecommunication Regulations*, 3 NW. J. OF TECH. & INTELL. PROP. 130, 150 (2005) (arguing that modern communications networks, including the functions usually associated with access networks continue to be less confined to state or local boundaries).

[81] *See The End of Federalism in Telecommunication Regulations*, *supra* note 80, at 159 (proposing that although state level authorities are still useful, there remains a need for federal regulatory authority); Lehr & Kiessling, *supra* note 78, at 24 (recommending the FCC remain able to preempt state regulatory authorities).

[82] *See* In the Matter of Preserving the Open Internet Broadband Industry Practices, GN Docket No. 09-191, REPORT AND ORDER, FCC 17905, 17967 (Dec. 23, 2010) (describing the authority of the commission to regulate telecommunication services to prevent anti-competition practices by companies in the sector). In its 2010 Order, the FCC relied on its authority under its ancillary authority under the Telecommunications Act of 1996 to regulate broadband services, which the FCC had previously classified as "information services." *Id.* at 17972-74. Major parts of the FCC's first Open Internet Order in 2010 were struck down by the D.C. Court of Appeals in January 2014. *See* Adi Robertson, *Federal Court Strikes Down FCC Net Neutrality Rules*, THE VERGE (Jan. 14, 2014), *archived at* https://perma.cc/8PZW-ZVXX (reporting on a federal appellate court's smiting of segments of the FCC's open Internet rules); In the Matter of Protecting and Promoting the Open Internet, GN Docket No. 14-28 REPORT AND ORDER ON REMAND, DECLARATORY RULING, AND ORDER, FCC 15-24 (Mar. 12, 2015) (articulating the FCC reclassified broadband access services as a Title II telecommunications service, which allowed the FCC to assert regulatory authority under Title II) [hereinafter *FCC 2015 OIO*]. The reclassification of broadband access services as a "telecommunications service" and the regulatory framework the FCC has adopted under Title II for protecting Open Access continues to be challenged. *See* United States Telecom Ass'n, et al. v. FCC, 825 F.3d 674, 689 (D.C. Cir. 2016) (observing that the *United States Telecomm. Ass'n* case is the third dispute in seven years over the implementation of *FCC 2015 OIO*). The new FCC Chairman under President Trump's administration has been an outspoken critic of the OIO, and so its status as the regulatory frame-

tor to be effective, it must possess the capability to act, which requires it to possess the necessary resources and jurisdictional authority to act appropriately.

A key role for a new Communications Act would be to clarify the legislative mandate and the discretion that the FCC would need to regulate the communications sector going forward.[83] In addition, a new Communications Act should clean up and level set regulatory frameworks to appropriately address the effects that technological progress and market growth have wrought on the silo-structure of legacy regulation.[84] We need a framework that is more stream-lined, more technically neutral, and better tuned to the realities of all-IP networks and the more fluid and dynamic market processes that exist today.[85] Even if one were to conclude that all of what is desired already exists in the current Act, there would be advantages in having a clean slate with those principles set forth anew.[86] To do so would reaffirm and refine those principles, clarifying that they still apply today.[87]

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work for broadband or for ensuring an open Internet remains in question. *See* Cecilia Kang, *F.C.C. Reverses Rules Requiring Net Neutrality*, N.Y. TIMES (Dec. 15, 2017), *archived at* https://perma.cc/UF5R-SGFS (highlighting that *FCC 2015 OIO* was subsequently repealed under Chairman Pai, who stated repeal would help consumers and promote competition).

[83] *See* ADLER, *supra* note 55, at 28 (suggesting that because the FCC serves a diverse set of users, it must experiment with service models).

[84] *See* Richard Adler, *Will the Telecommunications Act Get a Much-Needed Update as it Turns 21?*, RECODE.NET (Feb. 8, 2017), *archived at* https://perma.cc/XH6M-RPBF [hereinafter *Will the Act Get an Update?*] (questioning if new telecommunications legislation will include updates that will account the growth of the Internet).

[85] *See Next Generation Networks*, *supra* note 37, at 4 (proffering that new legislation must not stifle the creation of a "marketplace" that will meet the needs of today's all-IP networks).

[86] *See Will the Act Get an Update?*, *supra* note 84 (discussing the potential changes that could be made to update the Telecommunications Act by the Trump administration).

[87] *See Will the Act Get an Update?*, *supra* note 84 (predicting the extension of certain FCC policies adopted by the Obama administration to the Trump administration, such as the United States Digital Service). This program places "small teams of techies and coders within large government agencies to work on rapid development of new digital apps." *Id.*

IV. Outline for a new Communications Act 2021

In the following sub-sections, we set forth our proposal on how to structure a new Communications Act for 2021, and the key rationales motivating our discussion of each of the six new Titles we propose (see Exhibit 2). We also discuss some of those issues that were included in the legacy framework that we do not regard as essential for inclusion in a new Act that might be candidates for deregulation.

Communications Act of 2021
Title I: FCC goals, scope, authority • Define FCC goals, scope of jurisdiction, and authority • Specify what national goals should be with respect to essential communications infrastructure, not what technology
Title II: Bottleneck facility regulation • Replace legacy Title II Common Carrier regulation of Telecommunications Services and operators. • Provide framework for (a) identifying bottleneck facilities; (b) enabling shared (open) access and interconnection to bottleneck facilities; and (c) structural remedies to protect against spillover of bottleneck facility regulation into non-regulated markets/services.
Title III: Competitive Communications Market Monitoring & Enforcement • Provide framework for promoting healthy market competition and industrial policy goals for communications sector • Enforce Powell's 4 Open Internet principles protecting consumer choice • Enact Universal Service plan to ensure affordable access to minimum level of essential communications services for all • Promote healthy ecosystem for data measurement, reporting and analysis to support evidence based decision-making and regulatory enforcement actions

• Provide inclusive process for evolving rules frameworks as conditions change
Title IV: Spectrum Management • Transition to independent spectrum regulator focused on efficient management of shared access to spectrum resources, independent of other industrial policy goals
Title V: Public Safety and Critical Infrastructure • Provide framework for management and interconnection of communication networks and services required for public safety, criminal enforcement, and for critical infrastructures
Title VI: Transition Plan • Include here all regulations from legacy Act that are in process of being transitioned either to new framework under Title above or for sunset as part of deregulation

Before providing our characterization of each of the core Titles, we would like to reiterate that our intent with this paper is to initiate a dialog and to provoke thought by offering our preliminary view of how best to frame or focus the issues. We are not attempting to be comprehensive – a goal that would be impossible in any case in any single paper. We freely admit that our superficial treatment leaves many complex issues unaddressed that would certainly pose difficulties in any real-world reform exercise, especially as those relate to legal details (which we do not address in detail, as we are not lawyers). By focusing less on the trees, we hope to better elucidate the landscape of the forest.

A. Title 1: General Provisions establishing FCC authority and scope

The principle function of Title I, as in the current Act, is to establish the FCC as an independent regulator and establish the scope of its authority.[88] Agency theory provides multiple rationales for why it may be desirable to establish an independent, expert regulatory agency that is granted authority to take discretionary action.[89] First, an expert regulator is better able to craft the detailed regulations that are needed to achieve the broad goals that legislators may agree on.[90] Congress can assert that their goal is to ensure that all citizens have access to *advanced* telecommunications services at *reasonably affordable and non-discriminatory* prices,[91] yet lack the information and resources to determine what those services or networks should look like or whether they are being made available with pricing and

[88] *See* 47 U.S.C. § 151 (establishing the purpose of the FCC and setting forth the purpose to regulate commerce in communication thus increasing accessibility to all without discrimination).

[89] *See* George J. Stigler, *The Theory of Economic Regulation*, 2 BELL J. OF ECON. AND MGMT. SCI. 3, 3-21 (1971) (analyzing the reasons why it may be desirable to establish an independent expert regulatory agency rather than a public agency); Richard A. Posner, *Theories of Economic Regulation*, 41 CTR. FOR ECON. ANALYSIS OF HUM. BEHAVIOR AND SOC. INST. 1 (Working Paper No. 41, 1974) (offering qualified support for the "public interest" theory of economic regulation). "This theory holds that regulation is supplied in response to the demand of the public for the correction of inefficient or inequitable market practices." *Id. See also* Pablo T. Spiller, *Politicians, Interest Groups, and Regulators: A Multiple-Principals Agency Theory of Regulation (or "Let Them Be Bribed")*, 8 C. OF COMM. AND BUS. ADMIN. 1-34 (U. of Ill. Urbana-Champaign ed., Working Paper No. 1436, 1988) (attributing agency problems to tensions between "politicians and regulators"); JEAN-JACQUES LAFFONT & JEAN TIROLE, A THEORY OF INCENTIVES IN PROCUREMENT AND REGULATION 538 (MIT Press, 1993) (illustrating that much of the literature regarding agency theory focuses on the problems that can arise as a consequence of incomplete control of the agency by the principal, in this case Congress, assumed to be acting on behalf of the public interest).

[90] *See* Spiller, *supra* note 89, at 1 (noting that policies are "seldom implemented directly by the politicians themselves . . . these are delegated to regulatory agencies, departments, or the courts.").

[91] *See About USAC*, UNIVERSAL SERVICE ADMINISTRATIVE CO. (Mar. 27, 2018), *archived at* https://perma.cc/PC28-D3FC (committing program to achieving universal service, defined as "accessible, affordable, and pervasive high-speed connectivity" for everyone in the United States).

terms that are appropriate.[92] Moreover, as technical and market conditions change over time, expert agencies are better able to adapt regulatory policies to fit the new circumstances.[93] For these reasons, it seldom makes sense for the statutory language in legislation to be overly specific with respect to the actions that should be taken to achieve the goals of the legislative mandate.[94]

Second, establishing the regulatory agency as independent helps insulate the agency (but does not isolate it) from the vagaries of changing politics.[95] With long-lived assets such as characterize telecommunications networks, it is important to be able to sustain long-

[92] *See* Posner, *supra* note 89, at 4 (explaining that mismanagement of administrative agencies often results in a disconnect between their mission and actual regulatory behavior).

[93] *See* Frida Pemer & Tale Skjolsvik, *Adopt or Adapt? Unpacking the Role of Institutional Work Processes in the Implementation of New Regulations*, 28 J. OF PUBLIC ADMINISTRATION RESEARCH AND THEORY 1, 138 (July 20, 2017) (focusing on the risks of changing transnational regulations). What constitutes appropriate advanced telecommunications has evolved from analog to digital, from narrowband to broadband, from fixed to mobile, and from 1G to 4G; while the markets for services have evolved from basic telephony to multimedia. An expert agency with appropriate staff and resources is better able to keep pace with dynamically changing circumstances in a complex industry such as telecommunications than a legislative body that confronts significant fixed costs associated with initiating new legislation (e.g., administrative procedural costs and challenge of generating majority consensus for actions).

[94] *See* Larry M. Eig, *Statutory Interpretation: General Principles and Recent Trends*, CONGRESSIONAL RESEARCH SERVICE 1, 2 (Sept. 24, 2014) (providing that Justices may read statutes with an "intentionalism" method, which is when Justices are more open to "taking extrinsic consideration into account when interpreting statutes.").

[95] *See* 47 U.S.C. § 154 (1996) (explaining that the Executive Office of the President has authority to appoint FCC Commissioners and propose agency budgets, which the Senate approves); U.S. CONST. art. I, § 8, cl. 18 (establishing that Congress retains the authority to amend prior and enact new legislation, which are deemed to be both "necessary and proper"). This article also asserts that Congress has the power to enact regulatory legislation that is to ensure government agencies "effective." *Id. See also* Doherty v. U.S., 94 F.2d 495, 497-98 (1938) (contending that Congress has the right to enact regulatory legislation as it has deemed necessary to protect and make government agencies effective). However, there have been disputes between the United States and other parties when determining if Congress has the power to allow agencies the flexibility to make long-term commitments. *Id.*

term commitments and avoid undue regulatory uncertainty associated with shifts in political power.[96]

Both rationales imply that expert agencies need discretion to interpret how to act to enforce what is often vague guidance in legislative mandates.[97] The freedom to act independently, however, poses a challenge for regulatory design, since there is the risk that too much discretion will allow the agency to pursue private interests that deviate from the public interest represented by the Congressional mandate.[98]

There is a risk that independent regulators that are inadequately monitored and controlled might pursue their own bureaucratic self-interests or be captured by a narrow interest group. One way to address this challenge is to limit the scope of the regulatory agency by defining narrowly the range of firms or industries over which the agency has jurisdiction; another way is to ensure that all important stakeholder interests can be adequately represented in

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[96] *See* Howard M. Friedman, *The Oversupply of Regulatory Reform: From Law to Politics in Administrative Rulemaking*, 71 NEB. L. R. 4, 1173 (1992) (citing Daniel F. Spulber & David Besanko, *Delegation, Commitment, and the Regulatory Mandate*, 8 J.L., ECON & ORG. 126, 133-140 (1992)) (demonstrating that "agencies tend to become partisan for the regulatory goal they were created to implement.").

[97] *See* Chevron, U.S.A., Inc., v. Nat. Res. Def. Council, Inc. et al., 467 U.S. 837, 842-44 (1984) (explaining the holding in the *Chevron* case to be that courts should defer to expert regulatory agency interpretations of ambiguous statutory language in legislation where Congress has not directly opined on the issue in question, and if the agency's interpretation is ultimately reasonable); Randolph J. May, *Defining Deference Down: Independent Agencies and Chevron Deference*, 58 ADMIN. L. REV. 429, 431 (2006) (describing how there is guidance and clarity for interpretation ambiguous statutes, post *Brand X*). The *Brand X* Court held that "once a court has construed a statue, the provision's meaning becomes fixed, even if the provision might be susceptible to more than on reasonable interpretation, leaving the agency no further interpretive discretion). *Id. See also* Michael Macagnone, *House Passes Bill Ending Chevron Deference*, LAW360 (Jan. 11, 2017), *archived at* https://perma.cc/A5LD-SU79 (indicating that in January 2017, the Trump administration and the Republican-dominated Congress passed bills to repeal the Chevron deference doctrine).

[98] *See* U.S. CONST. art I (articulating the separation of powers between executive, legislative branches and the courts on the one-hand and Federal and State powers on the other are key components on which the U.S. government's system of checks and balances rely); Daniel T. Deacon, *Administrative Forbearance*, 125 YALE L. REV. 1548, 1556 (2016) (indicating that enforcement discretion operates away from the public view because "policymaking through enforcement is vulnerable to criticism").

agency decision-making (so that the agency is not captured by a subset of the industry).[99] These two strategies come into tension when the agency's authority is limited to only a subset of stakeholders with important perspectives that need to be considered. For example, with respect to broadband policy, the FCC's limited authority over edge providers of content and applications constrains the FCC to focus on ISPs. This is one of the problems with how the FCC has framed its Network Neutrality rules.

The challenge that must be balanced is the need to limit the scope of regulatory authority so that it is clear what the agency can regulate and what it cannot. Regulations may be necessary, but they impose both direct costs (i.e., administrative process and enforcement costs) and indirect costs (e.g., distortion of market incentives). Appropriately limiting the scope of regulations helps an agency credibly target its actions, and provides protection from regulations adversely spilling over into markets that do not need regulation.

In the markets that are the focus of communications policy, changes in technology and market structure have blurred industry and firm boundaries sufficiently to make the narrow classifications of firms problematic for regulation. For example, as we discuss further below, threats to Internet openness that may be attributed to the market power of last-mile conduit providers may come from new directions in the future, associated with other functionality that is critical to the provision of essential communication services, but is not provided by traditional ISPs (e.g., access to addressing or identification information crucial for managing digital identities or for routing traffic).

As the markets for communication services have become more competitive and complicated, the FCC has sought to shift toward increased reliance on market-based regulation rather than specific Command & Control (C&C) proscriptive rules (e.g., detailed technical specifications or price regulations), and has shifted its focus toward broader or more outcome-based rules. Increasingly, market-based regulation eschews detailed ex ante restrictions in favor of ex-

[99] *See* Matthew D. McCubbins, et al., *Administrative Procedures as Instruments of Political Control*, 3 J. OF L. ECON. & ORG. 2, 243-77 (2004) (describing how there are political punishments and sanctions for agencies who do not comply with agency regulations).

post adjudication and enforcement on a case-by-case basis.[100] On the whole, this seems a good idea, but its efficacy depends on the FCC's ability to act credibly as a capable enforcer if and when problems requiring regulatory action should arise.[101] As the FCC shifts to lighter-handed, more market-based regulation, we expect the FCC's role to shift more toward acting as a referee and to rely more on industry self-regulation (including standardization processes) to manage market behavior. In this environment, the FCC will need appropriate regulatory tools, but these may stay in the toolbox if market performance is sufficiently competitive and consistent with the industrial policy goals.

Finally, in managing the transition in its role (who/what is the focus of its regulatory actions and market interventions), the FCC has an important role in helping coordinate regulatory changes at other levels of government (state and local regulation) and across policy domains (e.g., commercial and public safety). Increasingly, the softwarization of network technologies has allowed functionality to be

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[100] *See* Jonathan S. Marashlian, et al., *Confusion, Uncertainty, and Fear: How the FCC's Increased Reliance on Adjudication Is Harming Carriers, Competition, Consumers, and Investment*, 68 FED. COMM. L.J. 207, 218 (2016) (noting the FCC's shift from "heavy reliance" on administrative proceedings, such as rulemaking, towards more "informal adjudication").

> Adjudications are used most often to address conduct that occurred *before* the agency's action (i.e., *ex post* decision making) . . . Additionally, adjudications typically apply retroactively, making them ideal for addressing violations of preexisting rules or precedent. However, relying on adjudication limits the agency's control of its policy priorities because the agency's agenda will be dictated by the cases that happen to come before it.

Id. at 258; William Lehr, et al., *Broadband Open Access: Lessons Form Municipal Network Case Studies*, MIT COMPUT. SCIENCE & ARTIFICIAL INTELLIGENCE LAB, 8 (Jan. 2014) [hereinafter *Open Access*] (providing an example where ex ante rules are still necessary to reduce regulatory uncertainty and facilitate market coordination, such as regulating bottleneck facilities and proprietors).

[101] *See* recordman33, *Maytag Commercials – 1984*, YOUTUBE (June 15, 2012), *archived at* https://perma.cc/8WNW-7GJN (illustrating that although they may be called upon infrequently to intervene, the "repairmen" (regulators) need to have the resources and skills to act when called upon). In 1984, the Maytag consumer appliance company ran commercials touting the reliability of their appliances by claiming that their repairmen had little to do. *Id.*

delocalized, blurring the distinction between intrastate and interstate services.[102] The changing dynamics in how networks are provisioned and the need to coordinate policies across multiple domains often provides a justification for Federal preemption (or oversight) of local regulatory authority. Indeed, a great many smaller regulatory bodies might not be equipped to make such technical decisions and look to federal guidance.[103]

In summary, we see a need for Title I to reaffirm the authority of the FCC to serve as an independent expert agency for communication services with a relatively broad mandate that is consistent with generally-accepted industrial policy goals (e.g., as set forth in the 2010 Broadband Plan), and reaffirm the authority and tools to act so

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[102] *See* Douglas C. Sicker, *The End of Federalism in Telecommunication Regulations?*, 3 NW. J. TECH. & INTELL. PROP. 130, 132 n.7 (2005) (using "delocalized" to mean that the "control moves away from the user," however, both decentralization and delocalization can occur in services such as VoIP).

[103] *See* Thomas W. Hazlett, *Liberalizing US Spectrum Allocation*, 27 TELECOMM. POL'Y 485, 486 (2003) (warning that there is also a risk that local or state authorities might seek to hold-up providers to extract excess concessions or erect barriers to competition to protect local incumbents); Michael Botein, *Federal Regulation of FIOS and Lightspeed: A Tale of Two Jurisdictional Dilemmas*, 53 N.Y.L SCH. L. REV. 1041, 1044-45 (2008) (posing the question of that when federal preemption is appropriate is complex since it may be used either to erect or take-down regulatory barriers). Increased deployments of new wired technologies (e.g., Verizon's FiOS Fiber-to-the-Home deployments) and wireless (e.g., smaller cells requiring new antenna sites) raise issues for local zoning and access to rights-of-way that may be appropriate to manage on a local level. *Id.* at 1045. *See* Daniel Lyons, *Technology Convergence and Federalism: Who Should Decide the Future of Telecommunications Regulation?*, 43 UNIV. OF MICH. J. OF L. REFORM 2, 383, 402 [hereinafter *Lyons Technology*] (proffering that this could potentially result in higher costs for all consumers – not just those in the local community). However, often the FCC has sought to preempt local and state rules that the FCC determined posed a threat to competition. *See* LAUREN SISNEROS & BRIAN A. SPONSLER, EDUCATION TRENDS 7 (2016) (explaining the FCC decision regarding state preemption restricting municipal providers from providing broadband service outside of their current servicing areas was overturned by the Sixth Circuit Court of Appeals on August 10, 2016); Charles M. Davidson & Michael J. Santorelli, *Broadband, the States, and Section 706: Regulatory Federalism in the Open Internet Era*, 8 HASTINGS SCI. & TECH. L. J. 211, 231 (2016) (stating that the *Verizon* case provides key insights into how the FCC implements regulatory federalism, specifically in broadband regulation); George S. Ford, *The Impact of Government-Owned Broadband Networks on Private Investment and Consumer Welfare* 2, 45-46 (describing the FCC's preemption of state law as intended to "spur municipal investment in networks.").

as to regulate the behavior of firms that threaten those goals. Rewriting Title I would allow policymakers to reframe how the scope of the FCC is described to better reflect current technical and market realities that include the broadband Internet and the rise of cloud computing as the basic platforms for our communications infrastructure. The subsequent major Titles of the Act discussed below would set forth the FCC's responsibilities and authority in the several domains and contexts in which it may be expected to act.

B. Title II: Bottleneck Facilities Regulation

A key characteristic of end-to-end (e2e) networks is their vulnerability to hold-up, or adverse Quality-of-Experience (QoE) impacts associated with mismanagement or under-provisioning of bottleneck facilities. In an e2e network, the bottleneck is the link with the fewest alternative ways to provision, so that all services that seek to use the e2e network are constrained to share those bottleneck facilities. In the absence of regulation, this raises the potential for the owner of the bottleneck facility to restrict or provide discriminatory access to end-users or unaffiliated service providers that need access to the bottleneck to provide e2e service. By so doing, the bottleneck facility owner may seek to earn monopoly rents, or potentially worse, harm competition by seeking to raise rivals' costs. This can foreclose competition and adversely impact innovation incentives.

If bottlenecks exist for important components needed to provide e2e services, then some form of open access regulation may be necessary to protect against abuses of market power by the bottleneck facility owner.[104] Historically, last-mile access has been seen as the

[104] *See* Rob Frieden, *The Mixed Blessing of a Deregulatory Endpoint for the Public Switched Telephone Network*, 37 J. TELECOMM. POL'Y 400, 407 (2012) (providing an example of market power abuses by bottleneck facility owners through distorting, blocking, and manipulating traffic flows). Here, we use *open access* to refer generally to regulatory frameworks that impose obligations on facility owners to provide access to their bottleneck facility to unaffiliated third parties so that they may share use of the facility. We recognize that there is a wide continuum of regulatory regimes that could fit under this umbrella, ranging from the sort of detailed unbundling access constraints imposed by the Telecommunications Act of 1996 on Incumbent Local Exchange Carriers (ILECs) to more flexible frameworks such as the one embodied in the FCC's 2015 OIO rules for Broadband Internet Access Services (BIAS). We do not here attempt to specify precisely how Title II should ensure open access, leaving such (important) details for future debate.

critical bottleneck.[105] While that may remain an important bottleneck in the future (and in such case, would provide a sufficient justification for open access rules), it is reasonable to consider other potential bottlenecks may arise in the future. Additionally, it is conceivable that technology or market conditions may evolve so that historic bottlenecks cease to exist, in which case previously necessary regulation may then be lifted by agency authority.

Beyond last-mile infrastructure, potential bottlenecks might arise as a consequence of cybersecurity concerns or how traffic is routed or information is identified. It is conceivable that search or social networking platform capabilities may become sufficiently concentrated or lacking in economically viable alternatives for users that those are rendered bottleneck facilities.[106]

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[105] *See* James B. Speta, *Handicapping the Race for the Last Mile: A Critique of Open Access Rules for Broadband Platforms*, 17 YALE J. ON REG. 39, 45 (2000) (defining last mile as a physical barrier " that runs from a user to the nearest aggregation point or hub."). Typically, the last mile refers a barrier between telecommunications companies providing their services into the homes of their customers. *Id.* Historically, the entire telephone network was regarded as a natural monopoly, which meant that the entire e2e network was a bottleneck facility for telephone services and was regulated as a public utility. *Id.* at 62. Overtime, successive components of the e2e network have been deemed competitive, with the last-mile access links remaining the last focus of bottleneck regulation. *Id.* at 63. Although many if not most users have multiple choices for their broadband provider when they make their subscription choices (e.g., multiple wired and wireless options are available in most markets), once they subscribe they may face switching costs if they elect to move to another provider (e.g., lack of portability of email identities) and their broadband connection may be the only way that edge providers can route traffic to and from an individual subscriber (and hence, the broadband service constitutes a terminating monopoly). *Id.* at 81. Moreover, as modern cable networks have expanded capacity to enable them to offer significantly higher speed services than are available via DSL broadband, a larger number of fixed wired broadband subscribers may lack viable wired alternatives; although the rise of 5G wireless may render the distinction between wired and wireless alternatives less relevant. *Id.* at 40-41. It is not our intent here to argue whether last-mile conduit services remain bottleneck facilities in light of today's technologies and market conditions; however, we believe it is reasonable to assume that they are in a significant number of contexts and so a continued regulatory capability for broadband services remains important for the foreseeable future. We have placed this discourse in this footnote because the justification for legacy bottleneck regulation of broadband while important is secondary to the novel points we hope to make here.

[106] *See* William B. Tye & Carlos Lapuerta, *The Economics of Pricing Network Interconnection: Theory and Application to the Market for Telecommunications in*

While there may be technologies or industry structures that would eliminate potential bottlenecks were those technologies to be deployed at scale or were markets/industries to evolve appropriately, there is sufficient uncertainty, and the potential for multiple equilibria is sufficiently great that bottlenecks may result, even when they need not have occurred.[107] To future-proof the new Communications Act, we believe it is important to include a framework for regulating open access to bottleneck facilities that is sufficiently flexible to be applied to newly identified bottlenecks (and to be relaxed when bottlenecks disappear).

In the next sub-sections, we provide a high-level discussion of the open access regulatory authority that should be included in the new Title II.

1. Access & Interconnection

When a bottleneck facility has been identified, the regulator will need authority to mandate open access and interconnection rules to support shared use of the bottleneck facility. When the risks posed by the bottleneck are sufficiently severe for competition, then it may be necessary to mandate ex ante restrictions and impose constraints on how access to the bottleneck resource is provided. Traditionally, such rules tend to involve fairly strong C&C type rules that specify the terms for access and interconnection that the bottleneck facility provider must make available to unaffiliated users, and when resources are scarce, the mechanism for allocating access to the scarce resources (e.g., preferences/prioritization for public safety or other public interest uses; and/or limitations on discriminatory behavior). It is worth noting that any such open access rules that mandate that

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New Zealand, 13 YALE J. ON REG. 418, 419-500 (1996) (acknowledging that economists may reasonably differ in their judgments as to what constitutes economically viable alternatives). A cost advantage for an incumbent relative to an entrant does not render access to the incumbent's network a bottleneck facility. *Id.* In market competition, firms are often overcoming cost disadvantages to compete. *Id.* Access becomes a bottleneck for entry if there is no economically viable way that potential entrants might recover the costs of employing alternative solutions. *Id.*

[107] *See Open Access*, *supra* note 100, at 6 (discussing an example of an inadvertent creation of a bottleneck). "However, if there are not a suitable number of facilities-based alternative access networks serving each home, these may still comprise an economic bottleneck." *Id.*

bottleneck facility owners provide some form of open access also include explicit or implicit price regulations.[108] Furthermore, access rules also usually require interconnection rules, which may be either explicit or implicit, since "access" to a facility is not valuable unless it can be bundled with or "interconnected" with third-party services.[109]

The current Title II's approach for providing for open access to last-mile bottlenecks is based on the common carrier framework.[110] The problem with this is that the legacy of common carriage regulation under the common law heritage is hundreds of years old and the application of Title II rules to telecommunication services has given

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[108] *See Open Access*, *supra* note 100, at 8-10 (noting the types of regulatory options for enforcing or promoting open access, such as regulating pricing for wholesale access and establishing terms for providing access). If there were no price regulation, then a regulated firm could simply offer the mandated access at an infinite price to avoid complying. *Id.* at 8. The obvious response of a regulator would be to require the firm to set a "reasonable" price, which might be higher than incremental long run cost but would not be unbounded. *Id.* at 8.

[109] *See Open Access*, *supra* note 100, at 15 (explaining that the decision of which technology to put into effect must be "congruent" with the business model, but the individual providers can decide which services to offer and whether they will be offered as open access); Rob Frieden, *The Mixed Blessing of a Deregulatory Endpoint for the Public Switched Telephone Network*, 37 J. TELECOMM. POL'Y 400, 401 (2012) (noting that with the retiring of the PSTN and with it, the demise of the common carrier regulatory framework, there may be a need for new regulatory frameworks to ensure universal service obligations and interconnection in the Internet – policy goals previously promoted under Title II).

[110] *See* Harry M. Trebing, *Common Carrier Regulation: The Silent Crisis*, 34 L. & CONTEMP. PROBS. 299, 306-07 (1969) (providing a history of the regulations placed upon common carriers specifically in the period of 1912-1959); Peter Pitsch & Arthur Bresnahan, *Common Carrier Regulation of Telecommunications Contracts and the Private Carrier Alternative*, 48 FED. COMM. L. J. 447, 450-51 (1996) (introducing a history of common carriage regulation under the Communications Act of 1934); Christopher Yoo, *Is There a Role For Common Carriage In An Internet-Based World?*, 51 HOUS. L. REV. 545, 548 (2013) (demonstrating an early critique of common carriage by equating it to network neutrality); Mark Jamison & Janice Hauge, *Do Common Carriage, Special Infrastructure, and General Purpose Technology Rationales Justify Regulating Communications Networks?*, 10 J. OF COMPETITION L. & ECON. 1, 1-2 (2014) (criticizing common carrier regulation by arguing that communications networks should be considered a "special infrastructure"); BARBARA CHERRY, THE CRISIS IN TELECOMM. CARRIER LIABILITY: HISTORICAL REGULATORY FLAWS AND RECOMMENDED REFORM, 1 (Business Media N.Y., 1st ed. 1999) (highlighting the tension that is inevitably created between the ability of carriers to sustain acceptable profitability levels and their ability to achieve public policy goals).

rise to a complicated body of conflicting rules and decisions as regulators have struggled to figure out what parts of the framework to apply to which operators and services. At its core, common carriage embraces an open access and interconnection framework that requires the offering of common carriage services under tariffed rates that are intended to be "reasonable" (which is generally interpreted to preclude margins for monopoly profits) and non-discriminatory (which is generally interpreted to mean available to all under equivalent terms). It should be noted that this does not mean that common carriers are precluded from offering multiple tiers of quality-differentiated services. Moreover, in its application under the Communications Act, the common carrier obligation has imposed Carrier-of-Last-Resort (COLR) and Duty-to-Serve obligations on telecommunications operators.[111]

While such obligations may be appropriate for true bottleneck facilities that are required inputs for the delivery of many valuable services, not all services fit this model. Moreover, whereas open access and interconnection obligations may be needed to enable e2e markets to exist, other obligations (such as the COLR responsibilities) and rights (such as limited liability) that are associated with the common carriage tradition are logically separable. Because common carriage rules may be quite burdensome for the bottleneck facility owner and have the potential to distort competition in their own right, such open access regulation should be used sparingly. To limit the regulatory burdens of Title II regulation for new services or operators, the Act specified that Title II only applies to providers of *Telecommunications Services*, and not to other services that are designated as *Information Services*.[112]

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[111] *See* SHERRY LICHTENBERG, CARRIER OF LAST RESORT: ANACHRONISM OR NECESSITY? 5 (Nat'l. Reg. Res. Inst. 2016) (analyzing the historical roots of COLR and Duty-To-Serve requirements and their modern necessity for providing electricity and telecommunications to all for the public good).

[112] *See* 47 U.S.C. § 153 (43) (1934) (defining telecommunications as means "the transmission, between or among points specified by the user, of information of the user's choosing, without change in the form or content of the information as sent and received."); *Id.* at (46) (defining telecommunications service as is "the offering of telecommunications for a fee directly to the public, or to such classes of users as to be effectively available directly to the public, regardless of the facilities used."); *Id.* at (20) (defining information service as "the offering of a capability for generating, acquiring, storing, transforming, processing, retrieving, utilizing, or making available information via telecommunications, and includes electronic publishing . .

Over time, the FCC has used the reclassification of services and its ability to forbear using its enforcement authority to avoid imposing strong Title II regulatory obligations in a growing range of situations. A problem arises, however, when the FCC determines that it needs to impose an open access regime and would like to do something different from traditional PSTN-style common carrier regulation;[113] or when the bottleneck facility is not last-mile access or the operator who is threatening access is not a last-mile access provider.

The case of broadband regulation illustrates both situations.[114] With respect to broadband, the FCC originally attempted to regulate broadband under its network neutrality framework by relying on its ancillary authority under Title I of the Act, motivated in part by its own prior efforts to classify broadband and Internet services as Information Services[115] (which classification precludes Title II regulation) and the FCC's desire to take a more market-based approach to regulating broadband.[116] In response to the Supreme Court's decision denying that the FCC had the authority it claimed under Title I to reg-

.”). Information services do not “. . . include any use of any such capability for the management, control, or operation of a telecommunications system or the management of a telecommunications service." *Id.*

[113] *See* Nadeem Unuth, *What Is PSTN?*, LIFEWIRE (June 13, 2017), *archived at* https://perma.cc/2Y2P-R5G5 (defining PTSN as “the abbreviated term used for landline telephone system,” which was originally created for the use of analog voice communication over cables); *Voice Over Internet Protocol (VoIP)*, FCC (Feb. 20, 2018), *archived at* https://perma.cc/A4NM-6ELS (providing an example of a type of telecommunication that the FCC has determined as needing increased regulations as compared to traditional POTS).

[114] *See* Fran Berkman & Andrew Couts, *Title II is the Key to Net Neutrality – So What is it?*, THE DAILY DOT (Dec. 13, 2017), *archived at* https://perma.cc/LR7Z-JK9B (discussing the reclassification of broadband from Title I to Title II of the Act). Under Title II, broadband Internet services provide the legal basis for the FCC to enforce net neutrality rules, allowing for Internet service providers to face regulatory action for violating such rules. *Id.* Title I, however, allowed Internet service providers to abide by net neutrality rules voluntarily. *Id.*

[115] *See* Randolph J. May, *Defining Deference Down, Again: Independent Agencies, Chevron Deference, and Fox* 62 ADMIN. L. REV. 433, 437-38 (2006) (highlighting the constant change in FCC regulations and their attempt to restrict certain behaviors, which continuously are struck down as unconstitutional legal doctrines).

[116] *See Restoring Internet Freedom*, FCC (Feb. 21, 2018), *archived at* https://perma.cc/4W9D-43DP (articulating that the driving force behind the Act is to “empower consumers” and “facilitate effective government oversight” of broadband provider’s conduct).

ulate broadband appropriately, the FCC opted for reclassifying broadband as a Title II service.[117] Critics of the FCC's OIO framework argued that its unilateral focus on access ISPs did not adequately address the role of edge providers of content and applications in determining how access and interconnection to broadband access platforms should be managed.[118]

A new Title II should be both more encompassing and focused. It should be applicable in contexts where the bottleneck might involve something other than last-mile access; and it should also be more focused in clearly identifying the facility or capability that constitutes the bottleneck and targeting that for the open access requirements. In setting the terms (and implicitly, the prices) under which access should be provided and the entities, which have access to that, the new Title II should clearly identify the range of tools that may be used. In establishing the new Title II, the Act should disavow the direct connection to common carriage to disconnect the implementation of the new Title II from prior discussions of common carriage[119] and

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[117] *See* Barbara A. Cherry & Jon M. Peha, *The Telecom Act of 1996 Requires the FCC to Classify Commercial Internet Access as a Telecommunications Service*, SSRN (Dec. 23, 2014) (citing NARUC v. FCC et. al, 525. F.2d 630, 644 (1976), which rejected portions of the FCC's orders that regulate that goals that common carriers need to achieve and asserting that there are future challenges to the Commission's classifications for the common carrier definition).

[118] *See* David Clark, William Lehr, & Steven Bauer, *Interconnection in The Internet: The Policy Challenge*, SSRN (Aug. 9, 2011) (discussing how traditional telecommunications regulations were blended together to ensure common-carriage access to basic telecommunications services). The bridge was between the FCC reclassifying broadband services as "information services," which allowed the FCC to be more light-handed in regulations under Title II, and ensuring that regulations to specific content, such as pornography, was still being enforced by common-carriage. *Id. See also* Washington Bytes, *The Days of Common Carriage for Broadband Are Numbered. Here's Why*., FORBES (May 17, 2017), *archived at* https://perma.cc/6KYR-N6SV (explaining that Title II gives the FCC the legal authority to treat ISPs as common carriers).

[119] *See* Lichtenberg, *supra* note 111, at 1 (summarizing that a carrier of last resort has an "obligation to serve" by ensuring basic accessibility to essential services such as electricity, water, gas, and telecommunications). COLR's obligations are extremely important because it allows rural and underserved areas to have access to specialty services at fair costs. *Id.* COLR requires the aforementioned services to serve on a non-discriminatory basis and spread those services necessary for the "public good" such as telecommunications and electricity that many consider critical to everyday life. *Id.* COLR imposes four "core" obligations upon carriers of last resort:

allow this Title II to more narrowly focus on the case of communications policy and networks. This should include eliminating from Title II the question of COLR, duty-to-serve, or other rights and obligations[120] that are bundled into notions of common carrier regulation, unless those are expressly required to support the open access and interconnection rules that are the focus of the Title.

In addition to specifying how open access to a bottleneck facility should be provided, Title II must provide guidance to determine how bottleneck facilities are identified and then limit the scope of bottleneck regulations. To determine whether a facility is indeed a bottleneck, there must be a process for clearly identifying and specifying the nature of the bottleneck. This will entail a market definition and analysis exercise. In effect, the ongoing debates over the state of competition and the viability of alternative technologies in fixed and mobile telephone services, whether a dominant carrier exists or not, and whether broadband access is sufficiently competitive, already exemplify this process.[121] Defining a new Title II will not obviate the need for these contentious debates, but will provide an opportunity for resetting the dial and conducting the assessment freed from the burden of prior decisions.

> 1)The obligation to serve all customers within their territory, including extending facilities where necessary to provide service;
> 2)The obligation to obtain specific agreement of the state commission for local exchange service and the FCC for interstate service prior to withdrawing service;
> 3)And obligation to charge "just and reasonable prices;" and,
> 4)An obligation to "exercise their calling with adequate care, skill, and honesty."

Id. at 9.

[120] *See* LICHTENBERG, *supra* note 111, at 2, 41 (asserting that carriers are seeking to put limits on COLR obligations due to the transition to broadband and increases in competition). Many COLR requirements have been modified or eliminated by Legislatures to create alternative availability to telecommunication services. *Id.*

[121] *See* Martin Cave, *Anti-Competitive Behavior in Spectrum Markets*, SSRN (June 2009) (explaining that European Regulatory Framework sets forth a process by which a facility or service is first determined to be subject to market power); *National Regulatory Authorities*, WORLD HEALTH ORGANIZATION (Feb. 21, 2018), *archived at* https://perma.cc/QLU8-S38P (defining national regulatory agencies to be "responsible for ensuring that products released for public distribution . . . are evaluated properly and meet international standards of quality and safety.").

2. Structural Remedies

In addition to the role of the market assessment in narrowing the focus of bottleneck regulations, Title II will also need to include authority to impose structural remedies that constrain how regulated bottleneck services may be provided by operators.

Structural remedies are necessary to isolate and limit the scope of heavy-handed and distortionary bottleneck facility regulations. The whole point of the open access rules is to constrain the behavior of bottleneck facility operators, and hence open access rules interfere with market processes and are distortionary by design.[122] Structural remedies constrain how providers of bottleneck services operate in regulated and unregulated markets.[123] Strong rules may require full organizational separation into separate enterprises. This was the model that prevailed in the U.S. following the divestiture of AT&T when ILECs were precluded from competing in long distance markets and were required to provide equal access interconnection services to long-distance, interexchange operators.[124] Sometimes structural separation may be adopted voluntarily as was the case in the UK by British Telecom when it opted to establish Open Reach as a separate entity that would provide wholesale services on a non-discriminatory basis to all users of the platform, including third-party providers unaffiliated with BT.[125] Softer frameworks are also feasible, such as accounting separation, in which providers track accounts separately for regulated and unregulated services.

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[122] *See Open Access*, *supra* note 100, at 8 (stating that open access rules are necessary to prevent monopolization by bottleneck facility operators).

[123] *See* Robert W. Crandall, Note, *The Failure of Structural Remedies in Sherman Act Monopolization Cases*, 80 OR. L. REV. 109, 114 (2001) (describing the method of horizontal divestiture used by courts as a structural remedy for bottleneck monopolization).

[124] *See* United States v. AT&T, 552 F. Supp. 131, 170 (D.D.C. 1982) (holding that AT&T's anticompetitive actions justify the remedy of divestiture of the company under the Sherman Antitrust Act); Crandall, *supra* note 123, at 109-10 (analyzing the divestiture of AT&T and how it propelled competition in the telecommunications industry).

[125] *See* William H. Lehr & R. Glenn Hubbard, *Economic Case for Voluntary Structural Separation*, SSRN (2003) (identifying examples of voluntary structural separation in telecommunication firms); J. Gregory Sidak & Andrew P. Vassallo, *Did Separating Openreach from British Telecom Benefit Consumer?*, 38 WORLD COMPETITION, 31-32 (2015) (analyzing the separation of Openreach from British

Additionally, structural remedies are two-sided and also impose obligations or restrictions on users of the bottleneck facility. A key justification for bottleneck regulation in the first place is the lack of economically viable alternatives.[126] Providers of bottleneck facilities may need to be protected from cream-skimming entry when such entry might be privately viable, but socially damaging.[127] In pricing access to platforms, a key challenge is how best to recover shared costs.[128] Users of a platform often want to argue in favor of prices reflecting short-run incremental costs that fail to contribute adequately to the recovery of fixed and shared costs.[129] If the provision of the bottleneck facility is not economically viable at the prices prevailing (or mandated by) the open access framework for the bottleneck provider then that implies the bottleneck has been misidentified or the framework may be in need of reform.

Telecom and its efforts "to provide equal[ity] [of] access to local access network[s] and backhaul products").

[126] *See Open Access*, *supra* note 100, at 7 (asserting multiple justifications of bottleneck regulation, such as "allow[ing] multiple downstream competitors to share a bottleneck facility"). Further, "access is open if it is sufficiently non-discriminatory that all competitors can access the bottleneck facility under equivalent cost and quality terms." *Id.*

[127] *See* ALFRED E. KAHN, THE ECONOMICS OF REGULATION XXXIV (1988) (explaining how this might be the case if the bottleneck facility is a natural monopoly (i.e., total costs are lower when demand is met by supply from a single firm) that is not sustainable (i.e., entry is feasible for portions of the market, that if served will increase the costs of serving the entire market)); PETER SMITH, SUBSCRIBING TO MONOPOLY: THE TELECOM MONOPOLIST'S LEXICON – REVISITED 3 (The World Bank, 1995)*(* defining the term "cream skimming," as it is used in reference to telecommunication, as "[an] argument that new entrants in telecommunications are likely to focus on the most profitable parts of the market—typically the international and national long-distance and local business telephone service—or on the largest customers in these market segments").

[128] *See LB&I International Practice Service Transaction Unit*, DEPT. OF THE TREASURY 3 (April 10, 2015) (explaining different ways of cost sharing, such as arm's length dealing, in order to give some type of fairness and equally shared cost to all involved).

[129] *See* Sanford V. Berg & Dennis L. Weisman, *Incremental Costs for Incremental Decisions in Telecommunications*, SEMANTIC SCHOLAR 23 (Aug. 29, 1991) (acknowledging that variable prices which reflect short run conditions can offer substantial efficiency gains for situations involving telecommunications investments).

C. Title III: Communications Market Monitoring & Enforcement

The hope and expectation is that most communication services and infrastructures, including the Internet, can best be provisioned and sustained by relying on competitive markets, unimpeded as much as possible by regulations. However, it is widely recognized that markets require regulation to address legacy market power that may result from historic regulatory decisions (e.g., the grant of a monopoly franchise in the past) or from emerging sources of market power associated with new market conditions that may result in new sources of market power in the Internet ecosystem (e.g., the growing importance of social media platforms like Facebook or Twitter or ancillary platform service providers like Apple, Google, or Amazon).[130]

Whereas Title II is reminiscent of legacy public-utility regulation and imposes heavy-handed rules governing the provision of bottleneck facilities, the goal of Title III is to provide a more light-handed, market-based framework for promoting industry policy goals (e.g., broadband access, privacy protection, and the continued introduction of innovative new services) and competition.

The focus of Title III should be to define a flexible, pro-competition regulatory framework for the digital economy that strives for minimalist intrusions into market-processes (i.e., is "light touch"). In the following four sub-sections, we highlight the key components that a new Title III will need to address.[131]

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[130] *See* NICHOLAS ECONONOMIDES, THE LIMITS OF MARKET ORGANIZATION 60 (Richard R. Nelson ed., 1st ed. 2005) (stressing that telecommunication advantages came from historical regulations that preserved competition and attempted to ensure that monopoly power arising did not limit or expose other markets); Jeffrey Eisenach, PhD. & Bruno Soria, PhD., *A New Regulatory Framework for the Digital Ecosystem*, GSM ASS'N 4 (Feb. 26, 2018) (recognizing that it is critical to adapt to changing markets because if not competition can be harmed and innovation may slow which would deprive consumers of "technological progress").

[131] *See* Michael K. Powell, Chairman, FCC, Remarks at the Silicon Flatirons Symposium on "The Digital Broadband Migration: Toward a Regulatory Regime for the Internet Age" at University Colorado School of Law (Feb. 8, 2004) (transcript available at fcc.gov) (outlining the success and transformations developed by a free and open Internet, which has allowed consumers to access any service that they choose); Brian Fung, *FCC Plan Would Give Internet Providers Power to Choose the Sites Customers See and Use*, WASH. POST (Nov. 21, 2017), *archived at* https://perma.cc/5UQQ-GA58 (reasoning that the next generation of broadband

1. Powell's 4 Principles

A key goal of current communications infrastructure policy is to preserve an open Internet that supports the innovative ecosystem of edge and network providers that has characterized the growth of the global Internet to date.[132]

In 2004, then-FCC Chairman Michael Powell espoused four basic principles to guide policy in preserving an open Internet that were adopted as FCC policy in 2005.[133] The four principles are that consumers should have freedom of choice to (1) access legal content, (2) use lawful applications, (3) connect safe devices, and (4) select among a competitive selection of choices for service, application and content providers.[134] While these principles do not precisely explain what behaviors would be allowed, it is relatively easy to identify examples of behaviors that would violate those principles.[135] Not being lawyers, we find this lack of specificity a virtue rather than a problem.

Since Powell's four principles were originally announced, there appeared to be general consensus (at least publicly) that these are worthwhile and desirable goals.[136] Moreover, these principles are

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regulations will make applications possible to continue driving infrastructure deployment).

[132] *See Principles to Preserve & Protect an Open Internet*, INTERNET ASS'N (Feb. 26, 2018) *archived at* https://perma.cc/ST9D-GABL (asserting that a free and open Internet benefits the whole Internet ecosystem, including consumers and small businesses who benefit from a wide range of innovative services).

[133] *See* Powell, *supra* note 131, at 1 (offering Michael K. Powell's insight on the FCC's regulations effects on "digital broadband migration").

[134] *See* Powell, *supra* note 131, at 5-6(detailing broadband consumers rights to "Internet Freedom", which promote competition amongst high speed platforms); In the Matters of Appropriate Framework for Broadband Access to the Internet over Wireline Facilities et. al., CC Docket No. 02-33, et. al., FCC 05-151, POL'Y STATEMENT (Sept. 23, 2005) [hereinafter *Appropriate Framework for Broadband Access*] (reaffirming the four key principles Michael K. Powell relies on in his 2004 speech, which aim to ensure that broadband networks are open, affordable and accessible to all consumers).

[135] *See* Fung, *supra* note 131 (portraying Internet "bad behavior" to include conduct such as Internet providers selectively blocking or slowing websites and speeding up websites that agree to pay providers a fee).

[136] *See FCC Adopts a Policy Statement Regarding Network Neutrality*, TECHLAW JOURNAL (Feb. 27, 2018), *archived at* https://perma.cc/WK7E-B4UT (noting some

consistent with what one would expect to see in an effectively competitive market, which is the outcome that is generally desired.[137] When the FCC has been challenged on these principles, most of the criticism has been with respect to whether the FCC has the authority to act and whether there is any need to act to preserve an open Internet; and with respect to how the FCC has chosen to embody and apply these principles in regulation and practice.[138]

The FCC's efforts to implement these principles in specific rules via its Open Internet Order (OIO) proceedings[139] has proven highly contentious, in part because the FCC has sought to implement

reactions to the FCC's 2005 policy statement). The CEO of the Computer and Communications Industry Association stated that "this policy statement supports principles of network neutrality crucial to a vibrant Internet, and should be the foundation upon which broadband policy is made." *Id.* A representative from the Consumer Electronics Association also stated that "we commend the Commission's endorsement of principles ensuring that Americans retain their freedom to access content, use applications and connect devices of their choice to high-speed Internet networks. Adherence to these principles is vital to ensure the development of new innovative consumer electronic devices that depend on unrestricted connection to broadband networks." *Id. But see* Shane Greenstein, *The Evolution of Internet Architecture: Glimmers and Signs of Innovation Health in the Commercial Internet*, 8 J. ON TELECOMM. & HIGH TECH. L. 25, 27 (2010) (arguing that the FCC's four principles are "open-ended and curt" when compared to other agencies' policy guidelines).

[137] *See Appropriate Framework for Broadband Access*, *supra* note 134, at 2 (explaining the national Internet policy and the policy of the United States to "preserve the vibrant and competitive free market that presently exists for the Internet").

[138] *See* Comcast Corp. v. FCC, 600 F.3d 642, 661 (D.C. Cir. 2010) (vacating the FCC's Order regulating an ISP's network management practices and barring the ISP from interfering with customers' use of peer-to-peer networking applications). The court explained that "'the allowance of wide latitude in the exercise of delegated powers is not the equivalent of untrammeled freedom to regulate activities over which the statute fails to confer . . .Commission authority.'" *Id.* Therefore, the court vacated the order "because the Commission has failed to tie its assertion of ancillary authority over Comcast's Internet service to any 'statutorily mandated responsibility.'" *Id. See also Principles to Preserve & Protect an Open Internet*, *supra* note 132, at 3 (discussing one disagreement regarding the FCC's legal authority content).

[139] *See* ANGELE A. GILROY, CONG. RESEARCH SERV., R40616, THE NET NEUTRALITY DEBATE: ACCESS TO BROADBAND NETWORKS 4-8 (2017) (providing a history of the FCC 2010 Open Internet Order through the most recent FCC 2017 Open Internet Notice of Proposed Rulemaking).

strong rules that unilaterally impose network (traffic) management restrictions on access ISPs (but not edge providers) under Title II of the Act.[140]

Our intent here is not to debate what should have happened in the world of the legacy Act and prevailing political environment, but rather to paint a picture of what might be a better framework were we to have a new Communications Act 2021. In that world, a decision would be made whether there was a bottleneck facility associated with last-mile infrastructure that warranted identification and regulation under a (new) Title II as discussed above. Assuming that such a conclusion was reached, then the FCC *might* define a Broadband Internet Access Service (BIAS), and perhaps other services (e.g., a Video-over-IP Access Service, or VIAS as discussed in Lehr & Sicker, 2016), that would be subject to Title II rules.[141] In this case, the nature of the bottleneck, the conditions used to demonstrate its existence, and the specifics of what had to be provided would be detailed. Presumably, this would allow for more nuanced market-by-market assessments of when Title II rules would apply based on the extent to which alternative last-mile options existed or were feasible (i.e., the market is contestable). In markets where there was adequate competition, or in the case that no bottleneck facility was identified, Title II rules would not be applied.

In markets where Title II authority was not sustained, the FCC would retain authority to act under Title III if the evidence clearly demonstrated that the Powell principles were being violated by the access ISP, content provider, or edge provider. To protect against the FCC's arbitrary assertion of authority and to reduce regulatory uncertainty, claims of violations of the Powell principles should focus on egregious examples where the available evidence provides strong support that violations have occurred. Parties seeking to invoke FCC action under Title III would confront a significant burden of proof that market competition was being harmed by the alleged behavior for a significant period of time. This would ensure a fair degree of latitude for market processes to work themselves out

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[140] *See id.* (asserting that one of the most controversial aspects of the FCC's new 2015 Internet rules is to reclassify broadband ISP's as telecommunications service under Title II subjecting ISP's to a stricter regulatory framework).

[141] *See Would You Like*, *supra* note 41, at 116 (suggesting if the video is not delivered via the BIAS service, a new regulated service like VIAS should be created to "ensure competitive access to last-mile bottleneck facilities").

without regulatory intervention. If a successful showing could be made, then Title III would grant the FCC authority to invoke antitrust remedies, such as ordering injunctive relief or imposing fines; and may require the FCC to initiate further regulatory proceedings to address the competitive harm.

2. Universal Service

A key component of communications policy is to promote universal, affordable access to essential communications services.[142] Over time, universal service rules have given birth to a bloated and poorly focused tax and subsidy regime that transfers in excess of $8 billion per year, mostly to support access to basic telephone services.[143]

In its present form, the universal service programs cannot be regarded as a form of light-touch regulation, but do represent an important area for industrial policy – but one that might be re-examined in light of current markets, technologies, and public opinion.[144]

We accept that that there is an obvious public interest in ensuring affordable universal access to essential infrastructure services and that the FCC is the logical authority to be responsible for crafting policies to ensure universal access to essential communication services, such as telephony.[145] However, whether this requires subsidies or direct action by the FCC depends upon the circumstances. We are skeptical that subsidies are required to sustain universal service to telephony in today's world in which telephony is typically just one of

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[142] *See Universal Service,* FCC (Feb. 27, 2018), *archived at* https://perma.cc/ZX33-JBRZ (defining the cornerstone of the Communication Act of 1934 as the principle that "all Americans should have access to all communications services").

[143] *See* Gregory L. Rosston & Bradley S. Wimmer, *The "State" of Universal Service, in* 12 INFORMATION ECONOMICS AND POL'Y 261-83 (D. Waterman, 3rd ed., 2000) (concluding that "large universal service funds and resultant taxes . . . affect telecommunications" by increasing service prices resulting in tax and subsidy funding around $8 billion per year).

[144] *See* David Shepardson, *New FCC Chair Vows "Light-Touch" Approach to Regulation*, REUTERS (Feb. 28, 2017), *archived at* https://perma.cc/HA42-8JSQ (describing concerns of Internet service providers that new net neutrality laws will prevent Internet providers from better managing traffic and "discourage investment in additional capacity").

[145] *See* NAT'L. RES. COUNCIL, *supra* note 33, at 13 (attributing the Telecommunications Act of 1996 and the FCC with setting the current regulatory environment, which includes telephony).

many communications applications supported over broadband IP network platforms. If subsidies are needed, they should be re-targeted toward broadband.

Moreover, we believe it may be appropriate to have a public debate over what should be subsidized in light of the wide disparity in broadband service quality and tiers that already exist and are likely to persist in the future. The standard of what constitutes acceptable broadband service increases over time.[146] Whereas first generation broadband services offered data rates measured in single-digit Mbps and second generation in 10s of Mbps, the standard for next generation broadband services may require 100s or 1,000s of Mbps data rates, and will include improvements in other Quality of Service (QoS) metrics such as latency and reliability.[147] Additionally, access to mobile, or at least, nomadic broadband services is becoming increasingly important, and for a growing number of subscribers may be an adequate substitute for fixed broadband service.[148] While we

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[146] *See* Devin Coldewey, *Average Broadband Speed in US Rises Above 50 Megabits for the First Time*, TECH CRUNCH (Aug. 3, 2016), *archived at* https://perma.cc/MDQ4-SVAL (reporting that the average broadband speed in the United State rose to "54.97 megabits per second" in August 2016).

[147] *See* James Titcomb, *Scientists Create Internet Cables 50,000 Times Faster Than Superfast Broadband*, THE TELEGRAPH (Feb. 11, 2016), *archived at* https://perma.cc/GSG6-PXBW (notifying readers that British researchers invented a new Internet cable capable of sending data 50,000 times faster than traditional broadband).

[148] *See* Statcounter, *Mobile and Tablet Internet Usage Exceeds Desktop for First Time Worldwide*, STATCOUNTER (2016), *archived at* https://perma.cc/X8LM-NXSN (stating Internet usage in the U.S. as of 2016 was split between 58 percent mobile and tablet usage compared to 42 percent on desktop). There are significant differences between mobile and fixed broadband services with respect to their capabilities, how they are used, and the pricing models that render them, at best, imperfect substitutes. *See Mobile Broadband Service is Not an Adequate Substitute for Wireline*, CTC TECH. & ENERGY 1, 12 (Oct. 2017) (distinguishing the higher speeds of wireline over mobile broadband services). Typically, data rates are higher and the price per MB of data is lower for fixed services that may be shared by all users in a household; whereas mobile services are often personalized and subject to lower data caps, although family plans are also common. *Id.* at 21. *See also Types of Broadband Connections*, *supra* note 44 (providing consumers with several factors for selecting broadband technology, including how services are packaged). Because a significant share of mobile traffic is off-loaded to WiFi networks connected to fixed broadband services, for many consumers, fixed and mobile broadband are complementary. *See* Thomas W. Hazlett & Michael Honig, *Valuing Spectrum Allocations*, 23 MICH. TELECOMM. TECH. L. REV. 45, 71 (2016)

do not seek to specify what the standard should be here, we do believe the FCC has an on-going responsibility to establish such standards and set that threshold as the target for its universal service goals. At the same time, we do not think that the FCC's goal should be to ensure that all consumers have the same quality of broadband service, and one would expect that there will remain choices for higher quality broadband services that some consumers will benefit from and select (for both mobile and fixed broadband services).

The debate over the appropriate quality of the broadband service that should be provided should consider the applications that will need to be supported, and to the extent broadband infrastructure investments tend to be long-lived, the FCC will need to consider how traffic may develop in the future. Today, most of the traffic driving demand for broadband services and investments in capacity expansion is associated with entertainment video.[149] It is a valid question whether the public wants to subsidize access to entertainment video.[150] On the other hand, future applications that may contribute significantly to economic growth and social goals (e.g., eHealth, smart energy systems, augmented reality systems, etc.) may benefit from having infrastructure and capacity that today is required only by

(identifying the benefits of seamless data connection given to consumers by complementary products). Whether universal service should seek to ensure that consumers have at least one type or both types of broadband access (fixed and/or mobile) needs to be debated. *See* Richard S. Whitt, *Evolving Broadband Policy: Taking Adaptive Stances to Foster Optimal Internet Platforms*, 17 COMMLAW CONSPECTUS 417, 419 (2006) (discussing the need for debate regarding consumers access to high speed Internet connectivity and broadband because the "extent of public policy implications is too important to be ignored").

[149] *See* Hermant Joshi, *Global Trends: Transition to On-Demand Content*, DELOITTE DIGITAL MEDIA: RISE OF ON-DEMAND CONTENT 1, 6 (2015) (analyzing Internet data consumption for entertainment services by traffic growth).

[150] *See* Cecilia Kang, *F.C.C. Fine-Tunes Plan to Subsidize Internet Access*, N.Y. TIMES (Mar. 8, 2016), *archived at* https://perma.cc/6HQU-5EWG (suggesting that while subsidizing Internet service would provide low-income individuals with access, necessary functions such as downloading and streaming would quickly use up "monthly allotments"). While many have called for subsidized Internet to benefit the public interest, it may also result in higher bills for all Americans due to "waste, fraud, and abuse." *Id. But see* Marissa Lang, *Should the FCC Subsidize Internet for Low-Income Individuals*, GOV. TECH. (Mar. 29, 2016), *archived at* https://perma.cc/2CRU-94D8 (declaring areas of inequity amongst Americans which would require subsidized Internet access). For example, many Americans without Internet access resort to smartphone use for necessary functions such as job applications however, smartphone technology is often not sufficient. *Id.*

entertainment video and gaming traffic.[151] These are difficult questions that policymakers should consider as we discussed in Lehr & Sicker (2016).[152]

Badly designed universal service programs, however, can distort investment decisions.[153] One option is to shift subsidies to end-user credits instead of supplier subsidies (as is mostly the current program), then subsidies would be less distortionary and might better allow individuals to decide how and what they want to subsidize.[154]

3. Measurement, Disclosure, and Transparency

Markets cannot work without information.[155] If the FCC is to rely on market forces to produce efficient outcomes, then consumers, edge providers and ISPs need market intelligence data to make informed decisions about what to buy and sell.[156] Moreover, the FCC requires the analytic capacity and resources to be able to act credibly if needed, even if most of the time it may choose to let market forces work unimpeded.[157] If the FCC lacks the information and cannot

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[151] *See Would You Like*, *supra* note 41, at 101 (discussing the technological advancements in application development that will use less broadband and Internet than they do currently).

[152] *See Would You Like*, *supra* note 41, at 102 (proffering further questions to be addressed by research and policy communities regarding broadband capacity and isolation).

[153] *See* Clark, *supra* note 82, at 17 (noting that if society needs continued investment in wired and wireless access facilities, then the financing of such investments can be difficult).

[154] *See* April Glaser, *Opposition to Lifeline Broadband Subsidies Is More About FCC Politics Than Tech*, WIRED (Apr. 6, 2016), *archived at* https://perma.cc/KK36-SJX6 (describing how end user subsidies for broadband services would enable a higher percentage of citizens to have Internet access). Shifting to end-user subsidies might allow better targeting for what the subsidies are used for: broadband or entertainment services. *Id.* This would likely drive changes in how entertainment and broadband services are packaged and marketed, and may be more consistent with current trends toward a la carte programming. *Id.*

[155] *See* Katherine Arline, *What is Market Intelligence?*, BUSINESS NEWS DAILY (Feb. 18, 2015), *archived at* https://perma.cc/5GEM-WTSS (explaining that "keeping track of competition . . . [in any industry] is an integral part of operating any business," generally known as "market intelligence").

[156] *See Stronger Footing: Maps Deliver Wireless Market Intelligence*, ESRI (Mar. 1, 2018), *archived at* https://perma.cc/G4QU-PLTZ (recognizing that data from competitor information assists in product sale and purchasing decisions).

[157] *See* Timothy Lee, *FCC Would Be Right to Stay Out of the Business Data Services Market*, THE HILL (Apr. 14, 2017), *archived at* https://perma.cc/3PBZ-5YDS

readily acquire the information in the marketplace on a timely basis to take informed action, its enforcement capabilities will not be credible, undermining its role as the market referee.[158]

New networking technologies are increasingly embedding measurement capabilities to support real-time adaptive behaviors.[159] This is part of the trend toward the Internet of Things, Big Data, and ubiquitous computing that is manifesting itself in the most developed ICT markets.[160] We are evolving toward a digital world in which many more things can be measured, and there are measurements used for customized decision-making on a more granular level (in space, time, and context).[161] Making sense of all this data from multiple sources (smartphones, applications, ISPs and third-party data providers, including consumer and provider market intelligence providers) will be complex and different decisions will require different summary statistics.[162]

In this future of more complex data and metrics, the role of government policymakers and an expert agency like the FCC with respect to promoting access to appropriate data and information will change. The FCC should seek to play a role in (a) focused efforts to fill key data gaps that are not otherwise well-addressed by publicly

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(stating that the digital revolution has regularly been an example of free enterprise, because of the lack of government control in this field).

[158] *See* Fred Campbell, *The FCC: An Internet Referee Without Rules*, FORBES (July 31, 2015), *archived at* https://perma.cc/Y7J5-7Z62 (referencing that the former chairman of the FCC has previously stated the agency's role is "'to be a referee on the field to keep the Internet fast, fair and open,' and not to 'call the plays'").

[159] *See* John A. Stankovic, *Real-Time and Embedded Systems*, 1 COMPUTER SCI. DEP'T FAC. PUB. SERIES 142, 142 (1996) (opining that real-time technology is becoming increasingly relevant in multiple facets including telecommunications).

[160] *See* Rashid Mijumbi et al., *Network Function Virtualization: State-of-the-art and Research Challenges*, 18 IEEE COMM. SURV. & TUTORIALS 1, 21 (2015) (explaining that the Internet holds so much information that in order to identify certain sources, "unique identifiers" need to be embedded in the source to collect and transfer various types of big data over a network without human interaction).

[161] *See* Ashwin Caripaa, *Measuring Customer Level Profitability in the Telecom World*, TTEC (July 2016), *archived at* https://perma.cc/RXQ6-J4VE (providing that the company, Saudi Telecom, utilizes real-time monitoring to make decisions in order to "increase customer value consistently and proactively decrease the number of unprofitable customers.").

[162] *See* Steven Bauer et al., *Improving the Measurement and Analyzing of Gigabit Broadband Networks*, SSRN (Mar. 31, 2016) (highlighting that as real-time adjustments become more popular, challenges for measuring broadband performances become more challenging).

available data sources;[163] (b) assisting in data curation by helping consumers identify good (and bad) market data;[164] and, (c) helping to encourage a healthy data ecosystem.[165] This last will require the FCC to engage in public-private partnerships,[166] promote transparency policies,[167] and hopefully, provide research funding.[168] Title III

[163] *See* Ethyl Corp. v. EPA, 541 F.2d 1, 17 (D.C. Cir. 1976) (asserting that "Regulators such as the Administrator must be accorded flexibility, a flexibility that recognizes the special judicial interest in favor of protection of the health and welfare of people, even in areas where certainty does not exist.").
[164] *See* Cecilia Kang, *F.C.C. Plans Net Neutrality Repeal in a Victory for Telecoms*, N.Y. TIMES (Nov. 21, 2017), *archived at* https://perma.cc/J5QG-YAHV (recognizing FCC Chairman, Ajit Pai, who is seeking to have the FCC be completely forthcoming with regards to having Internet services providers be completely transparent about their practices to customers).
[165] *See* Cecilia Kang, *F.C.C. Repeals Net Neutrality Rules*, N.Y. TIMES (Dec. 21, 2017), *archived at* https://perma.cc/YR3H-LKPX (articulating one of the intentions the FCC's repeal of net neutrality was to promote a healthy economy by having a stronger oversight on Internet service providers).
[166] *See Measuring Broadband America*, FCC (Dec. 30, 2015), *archived at* https://perma.cc/9FGF-8FCS (illustrating that the FCC collaborated with SamKnows, an international statics and analytics firm, to incorporate the best practices for stakeholders "to collect and report accurate data for consumer broadband performance in the United States").
[167] *See* DEP'T OF ENERGY, DATA ACCESS AND PRIVACY ISSUES RELATED TO SMART GRID TECHNOLOGIES 2 (Oct. 5, 2010) (staking long-term success of Smart Grid technologies on certain factors). As the data needed and used becomes increasingly granular, privacy, security, or confidentiality concerns are likely to loom larger. *Id.* This will make it increasingly important to have properly tailored data access/management policies that will preclude supporting open access to all data. *Id.* at 2. When data cannot be fully disclosed, then transparency policies that allow the data to be trusted will be important. *Id.* at 32. This is reaffirming the importance of policies promoting transparency in Organization of Economic Co-operation and Development Guidelines. *Id.*
[168] *See* 2016 MEASURING BROADBAND AMERICA FIXED BROADBAND REPORT 24, FCC (Dec. 1, 2016) (noting that the FCC has previously consulted diverse group of academics when crafting policy). Academics have a key role to play as independent, and, hopefully, trustworthy reviewers and analysts of market and technology trends. Their ability to play this role will depend on their access to research support, and to the extent this can be public, it will raise fewer suspicions about whether the research might be biased by the funding source. . As the time-window between research and market commercialization has narrowed, especially in a world of networked software systems, the need to bridge communications across academic disciplines (within engineering sciences to support cross-layer designs and across engineering and social sciences) and across academia, industry, and government policy is ever more important.

should recognize the importance of sustaining a healthy ecosystem for market-related performance data.

4. Rule-making authority & process

In a changing world, the FCC will need to adapt. That means that the FCC needs clear rule-making authority and process rules granting the FCC the flexibility to change, but also protecting markets from too much regulatory discretion. The process rules must facilitate open engagement by stakeholders in the regulatory process. The process rules will add bureaucratic impediments to rapid change, but that is a necessary cost of protecting against a runaway regulator with too much discretion.[169] In a market, decision-making is a collective, decentralized process that often requires time-consuming coordination and stakeholder-public input.[170]

D. Title IV: Spectrum Management

One of the problems with spectrum management is that it is currently bifurcated into commercial and Federal spectrum, which is outmoded in today's world.[171] A further problem is that spectrum policy has been conflated with industrial policy.[172] For example, the allocation of spectrum to mobile operators has been used to control the number of competitors and choice of technology.[173] Spectrum is

[169] *See* McCubbins, *supra* note 99, at 257-58 (listing process rules which include notice requirements, evidentiary, participation, and voting rules).
[170] *See* Bram Klievink et al., *The Collaborative Realization of Public Values and Business Goals: Governance and Infrastructure of Public-Private Information Platforms*, 33 GOV'T INFO. Q. 67, 69 (2015) (elucidating balance between autonomy of parties and coordination of the platform when decision rights should be disclosed).
[171] *See Spectrum Management Overview*, ICT REGULATION TOOLKIT (Mar. 6, 2018), *archived at* https://perma.cc/2Q82-M4YS (arguing that splitting spectrum management between FCC and NTIA has resulted in significant coordination issues).
[172] *See id.* (explaining that "[r]esolving these issues clearly depends on a number of considerations including the value of scarce spectrum – expressed as the potential demand for alternative service provided with the spectrum, which would be released along with considerations, such as social, political or industrial development, international agreements, etc.").
[173] *See id.* (stating that spectrum management has been heavily regulated to prevent conflicts between competitors).

a scarce resource that should be managed to maximize its potential for efficient sharing of the resource (i.e., optimal sharing that minimizes the effects of harmful interference).[174]

Ideally, spectrum policy would be consolidated under a single independent regulatory authority, which might actually be independent of the FCC, but would have principal authority to administer non-interfering sharing of the spectrum as a technical matter. To the extent spectrum users require additional resources to acquire spectrum for socially beneficial uses, support for those would be provided independently.

In the near term, however, transitioning to the future of shared spectrum will require industrial policy considerations since we cannot disentangle economic/policy concerns from technical spectrum management concerns overnight. For example, the choice between worst case or actual interference models and the granting of exclusion rights requires economic/market structure-relevant decisions that cannot be purely technical as argued in Lehr (2016).[175]

E. Title V: Public Safety and Critical Infrastructure

We see public safety and critical infrastructure issues as a set of services that require a separate title. All of these services, including Communications Assistance for Law Enforcement Acts (CALEA), emergency 911, and FirstNet, face major technical and regulatory challenges due to the evolution of communications networks; an evolution that has largely passed by public safety to date.[176] Primary responsibility for some of these functions may lie

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[174] *See id.* (defining what constitutes harmful interference is non-trivial even if treated as a purely technical matter).

[175] *See* William Lehr, Article, *Spectrum License Design, Sharing, and Exclusion Rights*, U. ILL. J.L. TECH. & POL'Y 1, 1-33 (2016) [hereinafter *Spectrum License Design*] (analyzing worst-case models of interference and concluding that they are "inefficient and unnecessarily coarse mechanism[s] for managing interference").

[176] *See* Douglas C. Sicker, *Applying a Layered Policy Model to IP Based Voice Services*, 3 (IEEE, 2003) [hereinafter *Applying a Layered Policy*] (introducing security and safety concerns and whether the policies obligate providers to offer those services); COMM. ON TELECOMM. RES. AND ENG'G AT THE DEP'T OF COMMERCE'S BOULDER LAB., TELECOMM. RES. AND ENG'R AT THE COMM. TECH. LAB. OF THE DEP'T OF COMMERCE 28-29 (The Nat'l Acad. Press, 2015) [hereinafter TELECOMM.] (identifying FirstNet's contributions to public safety and the challenges that have resulted as new technologies emerge).

with DHS, with coordination with the FCC.[177] It seems likely that some functions, like reliability, could remain at the FCC, and expanded oversight and data collection could be added.

As identified and enabled by FirstNet legislation, public safety communications ability must be enabled in mobile broadband.[178] While this effort is underway, we are far from enabling first responders with the same access to broadband Internet access that nearly all of the public has. Addressing this challenge will require coordination among the FCC, DHS, NTIA, and law enforcement, and will require a sustained commitment of time and resources to build and maintain the infrastructure and operability.

Just as there is a need to modernize the communications infrastructure for first responders, we likewise need to modernize the communication between first responders and the public. This includes the 911 function for summoning help, as well as the emergency-alert infrastructure (e.g., wireless emergency alerting, emergency broadcast). Both of these services are under review for modernization (such as moving toward a mobile broadband application model), but this will be a continuous, long-term effort.[179] These services are currently, and will likely continue to be, managed by the FCC, DHS, and other public safety entities.[180]

CALEA will continue to evolve as communications adopts new technologies and law enforcement seeks to gain necessary and legal intercept of communications.[181] Of course, encryption and

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[177] *See* TELECOMM., *supra* note 176 (outlining the public safety communications research program that the FCC and DHS, among others, have collaborated on to help promote public safety).

[178] *See Public Safety*, NAT'L TELECOMM. AND INFORMATION ADMINISTRATION (Mar. 6, 2018), *archived at* https://perma.cc/G2GF-LARM (highlighting the broadband network provisions that assist emergency medical service professionals, police, firefighters, and other public safety professionals in order to effectively perform their services, as created under the Middle-Class Tax Relief and Job Creation Act of 2012).

[179] *See* LINDA K. MOORE, CONG. RESEARCH SERV., RL34755, EMERGENCY COMMUNICATIONS: THE FUTURE OF 911, (2009) (outlining 911 infrastructure and discussing potential ways to modernize the system).

[180] *See id.* at 4, 17 (discussing the regulatory functions of the FCC and DHS in regard to emergency broadcasting and communications and the possibility of adopting policy-making functions in the future).

[181] *See Applying a Layered Policy*, *supra* note 176, at 6-7 (indicating the government and industries should work together to minimize the difficulties of keeping up with changes in technology regarding accessibility).

other evolving confidentiality and anonymity enhancing features will continue to complicate the ability for such legal intercepts to be carried out.[182] It is likely that the FCC will continue to have a role here, but DHS and the courts will more likely take a larger part of this effort.[183]

A more general government need will be to ensure the reliability of critical infrastructure.[184] In a world of classic PSTN, many factors ensured a highly reliable and available communications network, but deregulation has eroded this level of critical support.[185] Current voice systems are not as reliable as the PSTN, and there is less monitoring of these systems.[186] However, we now have multiple means of communication, as well as enhanced mobility, which changes the calculus surrounding reliability.[187] It is clear that some portion of the Federal government should be monitoring the state of network reliability, particularly the critical infrastructure, in whatever way that might be defined.[188]

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[182] *See* MOORE, *supra* note 179179, at 1 (highlighting the inability of the current 911 call system to adapt to modernizing technology). Moore evidences the current system's inability to carry text messages or connect to Public Safety Answering Points and continuously dropping calls. *Id.*

[183] *See* MOORE, *supra* note 179, at 17 (pointing out that the Department of Homeland Security, in response to public safety concerns, took the lead through the Department of Homeland Security Appropriations Act by the coordination of emergency communication grants and the formation of regional working groups).

[184] *See* William Lehr et. al., *Measuring Performance when Broadband is the New PSTN*, 3 J. INFO. POL'Y 411, 422 (2013) [hereinafter *PSTN*] (providing analysis for the need of the public for Internet services and broadband PSTN, thus requiring increased reliability in service as the Internet has become an "essential, mission critical infrastructure").

[185] *See id.* at 421 (noting the deregulation of the PSTN communications network led to an increase in the regulations concerning compensation and interconnection).

[186] *See id.* at 422 (predicting that the implementation of a monitoring system would increase the reliability performance of the Internet).

[187] *See id.* at 423 (addressing a multitude of infrastructures that can have an effect on the reliability of services). For example, packet transport infrastructure would be necessary to support the Internet, different IP networks would be necessary to support the next generation of telephony, and data centers would be necessary to support higher-level Internet services or content delivery. *Id.*

[188] *See id.* at 437 (discussing the importance of government regulation which focusses on essential infrastructures such as IP networks, telephony, and the Internet). The regulations will increase the reliability of the Internet when controlled by the government. *Id.*

F. Title VI: Transition Plan

Nothing happens overnight. A key challenge of putting in place a new regulatory regime is the need to address the transition of legacy regulations for the PSTN and broadcasting.[189] The details of this should be considered after a better understanding of just what needs to be transitioned. It will be the case that some segments of industry may acquire regulatory oversight that they did not previously have, while others find themselves with less oversight.[190] The goal, as we see it, is to both reduce this burden and to make it consistent as appropriate.

Much of today's regulatory apparatus of rules and enforcement actions at the Federal, state and local levels remains focused on yesterday's technologies, markets, and associated industry value chains.[191] A key example of that is the need to transition from legacy PSTN regulation to a future of all-IP networks.[192] Many providers are in the process of retiring legacy copper wire loops in their last-mile networks as they upgrade to fiber.[193] Retiring the copper wire plant necessitates a number of significant adjustments by network providers, customers, and third-party service providers (e.g., providers of legacy DSL services).[194] For example, transitioning from me-

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[189] *See id.* at 437-38 (suggesting that legacy regulation of telephone networks needs to be "re-mapped into the broadband Internet world"). Market forces will be key in determining policy outcomes in the future of broadband. *Id.*

[190] *See PSTN*, *supra* note 184, at 416 (stating that a transition from telephone networks to the broadband Internet world will require more regulation in certain areas and less in others). For example, pricing could take on more significant regulations while businesses could have less regulations and more discretion in how they run their businesses and implement technology options. *Id.* at 418.

[191] *See PSTN*, *supra* note 184, at 416 (articulating that prior regulations were heavily focused on public utility, whereas with today's technology there needs to be a shift towards market-based regulations).

[192] *See PSTN*, *supra* note 184, at 438 (focusing on the challenge of legacy PSTN evolving into today's broadband based technology). There is a complexity in the core functionality of today's newer technology, and this complexity requires a new set of policies that focus on market-based metrics. *Id.*

[193] *See Open Access*, *supra* note 100, at 2, 22 (examining prior network infrastructure consisted of services provided over copper wire, however, over time a shift to fiber cable has proven to be more economically and financially efficient).

[194] *See Open Access*, *supra* note 100, at 6 (evaluating the challenges associated with retiring copper wire and updating to fiber technology). Upgrading to new networks

tallic loops to optical fiber requires changes in the physical and network interfaces at customer locations and multiple other points in the providers' networks.[195] Fiber optic loops can support much higher data rate services and have lower maintenance costs, but cannot be used to deliver electric power for customer premises equipment.[196] Copper and fiberoptic facilities are maintained differently, and retiring the copper can allow service providers to reduce operating costs for maintaining dual plant facilities, but may impose switching costs on consumers and eliminate the ability of DSL resellers to continue to provide service.[197]

Section 214 of the legacy Communications Act establishes a framework for managing the transition, and in 2015, the FCC adopted rules to manage the retirement of copper loop facilities.[198] The framework requires providers to seek FCC approval before retiring facilities, and it adopted a notice procedure to inform consumers and

will require substantial investment and will be affected by the terrain and architectural conditions of the previous infrastructures. *Id.*

[195] *See Open Access*, *supra* note 100, at 14-15 (demonstrating the complexity involved with transitioning from copper wire to fiber optic cables). The residential areas would be affected by the installation of a brand new fiber optic network. *Id.* at 15.

[196] *See Open Access*, *supra* note 100, at 2 (quantifying broadband access delivery rates can reach over 500 Kbps- 3 Mbps on standard DSL modems). Additionally, initial costs of fiber optic cable installation are more expensive than copper wire, but over time the maintenance costs are minimal compared to the latter. *Id.* One negative of fiber optic cables is that a power outage would render the network useless. *Id. See also PSTN*, *supra* note 184, at 422 (presuming a power outage occurs, fiber optic cables will not provide a source of power, and therefore the telephone must have a backup power source).

[197] *See Lyons Technology*, *supra* note 103, at 401, 403,16 (providing that the transition costs from copper to fiber optic cables can be significant). Costs associated with the fiber optic network interface are shifted to the consumer. *Id.* at 403. Initial fixed costs are high, but maintenance costs are low because companies shift the cost of maintenance into the customer's service rate. *Id.* at 401, 416. *See also Open Access*, *supra* note 100, at 13 (highlighting that in Europe and Asia, fast DSL solutions have recently proven to be a viable approach).

[198] *See* In the Matter of Technology Transitions, GN Docket No. 13-5, REPORT AND ORDER, ORDER ON RECONSIDERATION, AND FURTHER NOTICE OF PROPOSED RULEMAKING, FCC 15-97, 24 (Aug. 7, 2015) (concluding that a modification to "network change disclosure rules to require direct notice to retail customers of planned copper retirements is warranted and consistent with the public interest").

other stakeholders of impending retirements and the decommissioning of legacy services.[199] In April 2017, the FCC proposed relaxing the rules further, in a move opposed by some consumer advocates.[200]

Regardless of one's take on how fast providers ought to be able to migrate to new services and retire old ones, and the rules needed to ensure adequate protections for consumers and other competitors during such transitions, it is important to have a process for managing the transition from the legacy Act to the new one. Title VI of the Communications Act of 2021 would manage that process. The basic idea is to have a Title into which all of the existing rules and regulations that need to be transitioned can be collected and jointly overseen during the transition.

Title VI would serve several purposes. First, it would provide a framework for addressing the transition, which would include provisions for the sunsetting of regulations included under Title VI. The sunset provisions might identify specific dates or may consider automatic sunset provisions after some pre-agreed but finite time period (e.g., 24 months). This transition would also need to address issues where technology updates might take longer due to cost and/or the need for public funding support (e.g., Universal Service) to address locations where the market might not otherwise transition.

Second, Title VI would allow the new framework to proceed with a greater degree of independence from the legacy framework. For example, a facility or service that is subject to the new bottleneck rules under Title II or competitive framework under Title III as described earlier could not simultaneously be subject to rules under Title VI. It is hoped that the appeal of moving to a more streamlined and market-based regulatory regime under the new Act would provide stimulus incentives to expedite the difficult process of transitioning.

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[199] *See id.* (stating that "notice is required only where the retail customer is within the service area of the retired copper and only where the retirement will result in the involuntary retirement of copper loops to the customer's premises").

[200] *See* Press Release, FCC, FCC Takes Further Steps to Expand Rural Broadband Deployment (Apr. 20, 2017) (citing the recent announcement of the FCC's proposed amendment to amen[d] its rules to help bring high speed Internet to locations that are very costly to serve.").

G. Those Titles that are Missing

Finally, it is worth considering what elements of the legacy Act we think may be largely dispensed with, potentially via the Title VI transition process, and what new issues may be better addressed by other regulatory authorities than a reformed FCC.[201] For example, Title III (Radio) and Title VI (Cable Communications) of the legacy Act address a number of areas where continued regulatory oversight by the FCC may no longer be necessary.[202] And, privacy and cyber-security are two looming issues of significant concern to communications policymakers that may be better addressed by other authorities than the FCC.[203]

H. Sunset Media and Cable Regulation

For example, with the transitions in entertainment and other media services (e.g., news), including over-the-air television and radio, we question the need for the FCC to act as an independent regulator of media services. The FCC's media rules were crafted in a world of over-the-air broadcasters using scarce public airwaves to deliver their content.[204] This seems badly antiquated in light of industry

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[201] *See infra* note 202 (further exemplifying areas of communication regulation addressed with looser scrutiny).

[202] *See* 47 U.S.C. §§ 301-399B, 601-653 (1934) (setting forth the regulations for radio and cable communications). For example, the FCC currently regulates radio license applications based upon the consideration of public interest, convenience and necessity. *Id.* Under a "light touch" regulatory model this may no longer be necessary regulatory action. *See Principles to Preserve & Protect an Open Internet*, *supra* note 132, at 10 (suggesting that current light touch rules are effective protections that still preserve the Internet service providers ability to fix issues and control quality of service). Additionally, regulatory oversight may no longer be necessary for cable communications due to the departure of PTSN from public utility regulation in the telephony legacy to the new Internet legacy. *Id. See PSTN*, *supra* note 184, at 416 (arguing that the "new PTSN" could be comprised of cloud technology and may give rise to new expectations for broadband access service, computing on demand, and delivery networks).

[203] *See PSTN*, *supra* note 184, at 435 (arguing that the role of the FCC "may become more curatorial" because of the intricacies associated with market-based data through the means of selecting among public sources of data and compelling data collection from ISP's).

[204] *See* 47 U.S.C. §§ 151-152 (1934) (identifying the purpose and application for the Communications Act and Federal Communications Commission to "regulate interstate and foreign commerce in communication by wire and radio").

convergence, changing consumer tastes, the rise of social media, and the shift to on-demand media consumption.[205] The pro-competitive and paternalistic content regulations embodied in the menu of program access, must-carry, and media cross-ownership rules and in the requirements to supportpublic interest programming (e.g., news or youth), and censoring certain types of speech or programming, seems ripe for reconsideration.[206] The pro-competitive rules may be successfully transitioned to general competition rules;[207] while the content regulation has never existed comfortably with the Constitution's First Amendment strong protections for freedom of speech.[208] With the transition to a new spectrum management regime under the new Title IV discussed earlier, the FCC's justification for imposing programming obligations on broadcasters, which today are using public airwaves for free, should disappear.[209]

Additionally, Title VI, which subjects Cable network providers to a separate body of regulatory rules than telecommunications providers, has been a continuing source of confusion and regulatory asymmetry that has become increasingly hard to justify in light of technical and industry convergence.[210] Both the legacy cable and telephone providers are migrating toward all-IP broadband platform in-

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[205] *See* Lehr & Kiessling, *supra* note 78, at 6 (illustrating the changing landscape of telecommunications generally and the need for more specialized, centralized regulatory authority).

[206] *See* Inquiry Concerning High-Speed Access, *supra* note 67, at 19-20 (questioning the paternalistic approach of the FCC's regulatory authority over telecommunications specifically relating to the forbearance consistent with the public interest and whether it is still necessary in the modern landscape).

[207] *See* Davidson & Santorelli, *supra* note 103, at 221 n.43 (providing that the FCC, "by augmenting competition, promotes improved services for consumers at reasonable prices").

[208] *See* Campbell, *supra* note 9, at 611-12 (indicating how "[i]t has yet to be demonstrated how governmental regulation of the Internet can be exercised consistently with First Amendment guarantees of a free press").

[209] *See Spectrum License Design*, *supra* note 175, at 2 (discussing the transition of radio frequency spectrum management to market-oriented regulation); The Media Bureau, *The Public and Broadcasting*, FCC (July 2008), *archived at* https://perma.cc/A2EK-45AY (identifying the current rules and regulations in the FCC manual, which specifically states that each radio and television licensee is required by law to operate its station in the "public interest, convenience and necessity.").

[210] *See* 47 U.S.C. § 521 (1934) (setting forth specific provisions for cable network providers, including franchise and competition procedures).

frastructures and it makes sense to subject them to a common regulatory framework.[211] This will assist in realizing the goal of technically neutral regulation.[212]

I. Privacy and Cybersecurity Policy and FCC's Role?

Two looming concerns today, and continuing into the future, are threats to privacy and cybersecurity, as society and the economy become increasingly digital.[213] Broadband, the Internet, and other components of our electronic communications infrastructure are key vectors by which these threats are manifested, raising the question of what role the FCC should play in regulatory policies to address these threats.[214]

While privacy and cybersecurity are both issues of great relevance to the design and operation of the communications infrastructure and markets that are the principal focus of the FCC, these are not sector-specific issues.[215] As such, a key justification for the need for an independent, sector-specific regulator is missing in this context.[216]

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[211] *See* Trevor R. Roycroft, *The IP/ Broadband Transition – Public Policy Still Matters*, NAT'L ASS'N OF ST. UTIL. CONSUMER ADVOC. 1, 3 (2013) (describing how "legacy networks" have recently started upgrading their infrastructure to deliver advanced IP-broadband platforms).

[212] *See id.* at 11 (citing the regulations on incumbent local exchange carriers ("ILEC") have remained extremely neutral despite the major investment made by telephone companies).

[213] *See* Catherine Mulligan, *Cybersecurity: Cornerstone of the Digital Economy*, IMPERIAL COLLEGE BUS. SCH. (Feb. 27, 2017), *archived at* https://perma.cc/JF2D-TTD4 (articulating the urgent need to secure our digital economy as threats to cybersecurity increase in the coming years).

[214] *See Cyber Security and Network Reliability*, FCC (Mar. 8, 2018), *archived at* https://perma.cc/4CV7-F8BG (delving into the FCC's responsibility to ensure the reliability and resiliency of our communication network by securing against Internet threats).

[215] *See id.* (addressing the work done through the FCC's Federal Advisory Committee, the Communications Security, Reliability, and Interoperability Council ("CSRIC"), which have developed methods that promote reliable networks for users).

[216] *See* Marc Quintyn & Michael W. Taylor, *Should Financial Sector Regulators Be Independent?* 1 (Int'l Monetary Fund, Working Paper No. WP/02/46., 2004) (denoting how financial analysts recognize a need for protection against political pressures). However, "few analyses have systematically discussed why independence for the financial regulatory agency might be desirable and how it might best be achieved." *Id.*

Although the FCC may play an important role in enforcing privacy and cybersecurity regulations, abetted in its efforts by its specialized expertise, primary regulatory responsibility in these areas may best be directed elsewhere.[217]

In the case of privacy, an argument may be made that the FTC is better positioned to enforce general privacy protections because its mandate is not limited to a single sector, and because it has taken the lead historically in promulgating privacy standards.[218] Arguably, the FCC's decision to reclassify broadband access as a Title II service created a gap in privacy protections, because the FTC is prohibited by the Act from regulating firms subject to Title II.[219] To address this gap, the FCC issued strong privacy rules in October 2016;[220] but Congress moved to strike down these rules following the election of the Trump administration.[221] Regardless of whether one prefers the FTC's framework or the FCC's October 2016 framework, the current situation leaves a significant gap in existing privacy protections that

[217] *See id.* (expounding on the duties for regulators and supervisors to maintain the wellbeing of financial institutions by providing consumer protection and regulating the financial sector).

[218] *See* Timothy J. Muris, Former Chairman, FTC, Remarks before the Aspen Summit, Cyberspace and the American Dream, The Progress and Freedom Foundation: The Federal Trade Commission and the Future Development of U.S. Consumer Protection Policy (Aug. 19, 2003) (arguing for the FTC to regulate privacy and cyberspace protections, as opposed to the FCC, due to the fact the FTC has historically made policies over privacy matters and are less restricted by governmental constraints).

[219] *See* Rebecca A. Ruiz & Steve Lohr, *F.C.C. Approves Net Neutrality Rules, Classifying Broadband Internet Service as a Utility*, N.Y. TIMES (Feb. 26, 2015), *archived at* https://perma.cc/JV8N-8JHY (addressing the FCC's reclassification of high-speed Internet service as a telecommunications service under Title II of the Telecommunications Act).

[220] *See* Protecting the Privacy of Customers of Broadband and Other Telecommunications Services, 82 Fed. Reg. 87,274, 87,284 (Dec. 2, 2016) (to be codified at 47 C.F.R. pt. 64) [hereinafter *Protecting the Privacy*] (listing the final rules regarding the material changes made to the telecommunication carriers' privacy policies).

[221] *See S.J.Res. 34: A Joint Resolution Providing For Congressional Disapproval Under Chapter 8 Of Title 5, United States Code, Of The Rules Submitted By The Federal Communications Commission Relating To "Protecting The Privacy Of Customers Of Broadband And Other Telecommunications Services"*, GOVTRACK (Mar. 19, 2017), *archived at* https://perma.cc/667V-73FT (reporting the number of Senate and House Republican cosponsors of the bill).

would not be there under our proposed framework.[222] It seems unreasonable to have either significantly stronger or weaker privacy restrictions on access ISPs than on other Internet providers such as Facebook, Google, and Amazon that may pose as large a threat to consumer privacy on the Internet.[223]

In the case of cybersecurity, the Department of Homeland Security (DHS) may be better positioned to take the lead on security regulations and policy, since addressing cybersecurity is also not a sector-specific issue, and since it requires close coordination with criminal enforcement and national security agencies in the U.S. and internationally, with which DHS already interfaces.[224]

With respect to both issues, as noted, we expect the FCC to play an important role. However, the FCC's role may be to advise technically, coordinate with and support, but generally defer to the recommendations in these areas to other agencies.

V. Conclusions

Communications policy in the U.S. is at an important crossroads. Over the past two decades we have substantially transitioned from a communications infrastructure based on the PSTN that was designed to support end-to-end electronic communications, principally comprising telephone voice calls, to an all-IP broadband platform that supports all forms of multimedia communications and, increasingly, cloud computing services.

While the technologies and market structures have changed significantly, our regulatory frameworks and their legislative foundation in the Communications Act of 1934 (as amended) has become

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[222] *See Protecting the Privacy*, *supra* note 220 at 13942 (stating that the current framework would leave sensitive personal information unprotected, such as social security numbers).

[223] *See* Jon Brodkin, *Net Neutrality Rules Should Apply to ISP and Websites, Senator Says*, ARS TECHNICA (Nov. 9, 2017), *archived at* https://perma.cc/KE7J-9AGW (demonstrating that Senator Franken believes that both ISPs and tech giants should have the same neutrality limitations because no one company should dictate what content reaches consumers).

[224] *See Cyber Security Division*, DEP'T OF HOMELAND SEC. (Mar. 19, 2018), *archived at* https://perma.cc/EL9P-C6WS (addressing how the Department of Homeland Security is positioned and tasked to prevent against criminal Internet activity that is "aimed at profit gain, hacktivism and espionage.").

increasingly outdated and ill-suited to meet present-day challenges. Whereas the legacy Act was designed to address the need to regulate a monopoly telephone network and separate broadcasting industry that made use of public air waves and was dominated by a handful of national broadcasting networks, the new world calls for more market-based regulation of a more complex and converged set of technologies that share network resources to deliver the full spectrum of electronic communication and information services (including television).

The FCC has struggled for years to deal with the fundamental market changes by tinkering with the existing framework. First with Voice-over-IP, and later with broadband services (at least originally), the FCC has struggled to craft a lighter-handed regulatory framework that exempted these from the heavy-hand of common carriage PSTN regulations. The FCC has had to confront the on-going tension between dual regulatory regimes for over-the-air broadcasters and cable TV providers on the one-hand and between cable TV and telephone network operators on the other. And, with the rising importance of the Internet and the IP networks more generally, the FCC has struggled with clarifying its role as the independent regulator tasked with ensuring the healthy evolution of our national electronic communications infrastructure.

The existing framework still has too much of its weight in the old world and is poorly positioned for the world that is rapidly emerging with new providers, new services, and as yet, uncertain market changes. The rise of the Internet of Things, of Big Data analytics and AI-powered automation, and always-on/everywhere-connected mobile computing are already changing the ways we work and live, and are confronting us with new regulatory challenges (e.g., changing world of cybersecurity and privacy), as well as changing forms of old regulatory challenges (e.g., nature of last-mile bottlenecks and access to media).

This paper proposes a new Communications Act of 2021 as a way to initiate a debate over what we might do if we could simply sweep away the existing Act and start anew. In taking this clean-slate approach, we consciously ignore the legal and political issues that would loom large in any real-world attempt to draft replacement legislation for the 1934 Act. Our goal is to take a step back from the existing regulatory frameworks that we have engaged with for several decades ourselves and ask what elements seem to us essential,

important, and worth preserving in the world we see rapidly emerging. We emphasize those elements, but ignore many of the details in order to provide a clear construct for addressing the important challenge of reforming our basic regulatory framework for our communications sector regulator.

Our simplified proposal for a Communications Act of 2021 incorporates the following six titles: Title I (goals, scope, and authority); Title II (framework for regulating potential bottlenecks); Title III (framework for monitoring and addressing communications markets); Title IV (radio-frequency spectrum); Title V (public safety and critical infrastructure); and Title VI (transition plan). In the relevant subsections, we highlight the key features that we believe are required for each Title. For example, we re-frame Title II explicitly as authority to regulate interconnection and open access to bottleneck facilities and disavow and eschew any reference to common carriage or its heritage; and we recognize that bottleneck facility regulation is necessarily heavy-handed and so should be limited and isolated to focus only on facilities that are identified as critical bottlenecks. The main focus of regulatory attention should be on Title III and the role of the FCC in promoting industrial policies such as universal access and in promoting competition in markets where light-touch regulation is appropriate. We also propose adding a Title VI that is expressly focused on managing the transition from legacy regulations; and we consciously choose not to propose a Title for regulating broadcast media. In making these proposals, we have sought to be provocative and hope to spark discussion.