REFLECTIONS ON NETWORK TRANSITIONS AND SOCIAL CONTRACTS FOR THE BROADBAND WORLD

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INTRODUCTION

Transportation is an essential service in the modern world. Without access to on-demand automobiles, urban residents would have trouble getting to work and going about their lives. Those residents can't easily check before each ride whether their driver has a valid license, no criminal record, a working car, or an accurate meter. For these and other reasons, virtually every municipality regulates taxis and car services. Those regulations, though, have downsides. They can limit companies' flexibility and raise prices by artificially restricting supply.

Uber is a service that allows car service drivers to pick up additional riders in between jobs, managed through a mobile application.[1] Many people find Uber's service faster and more efficient than taxis and car services. However, Uber generally charges more than regulated taxis; it

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1. *See* Nick Bilton, *Disruptions: Ride-Sharing Upstarts Challenge the Taxi Industry*, N.Y. TIMES, July 22, 2013, at B4.

can pick and choose where and how to provide service; and it ratchets up its prices in times of high demand, sometimes by a factor of seven or more.[2] Uber's defenders say these aren't problems, because anyone who objects can just call a taxi.

What if there are no more taxis?

This is not an article about transportation. The challenge Uber poses to regulated taxi services, however, is a good analogy to the challenge that unregulated and differently regulated digital communications services pose to traditional telecommunications regulation. As we move into a broadband world, it becomes increasingly important—and increasingly difficult—to define the backstop obligations often described as the social contract.

Communication is an essential service in the modern world. The primary providers of that capability have for nearly a century been subject to rules and requirements that don't apply to most other companies in the economy. Over the past three decades, regulators have rolled back those requirements in two ways. The incumbents have been freed from restrictions deemed unnecessary or counterproductive, where competition is seen as a better way to achieve the same policy goals. And novel technologies and services have been shielded from the regulatory apparatus, either by carving out exemptions or by creating further restrictions on how the incumbents interact with them. Three of these technologies—voice over Internet protocol (VOIP), broadband Internet access, and mobile phone service—have now reached a point of maturity and adoption at which they are challenging traditional regulated telecommunications. And the incumbent telecommunications operators are looking to join them. The situation is inherently unstable.

The transition from the legacy public switched telephone network (PSTN) to this emerging mesh of data-centric providers—some might call it a digital broadband migration[3]—will produce great benefits for consumers, innovation, and the economy. The new technologies and providers bring a raft of new capabilities and the promise of competitive markets, rather than regulatory decisions, promoting the public interest. Yet there is a danger. An environment in which new services exist under a regulatory umbrella created for a legacy world is unsustainable when those new services become the mainstream. It depends on regulatory line-drawing that is increasingly untenable.

2. *See* David Streitfeld, *Rough Patch for Uber Service's Challenge to Taxis*, N.Y. TIMES, Jan. 26, 2014, at B1; Dean Baker, *Don't Buy the 'Sharing Economy' Hype: AirBnB and Uber are Facilitating Rip-offs*, GUARDIAN, (May 27, 2014, 7:30 AM), http://www.theguardian.com/commentisfree/2014/may/27/airbnb-uber-taxes-regulation.

3. *See generally* Michael K. Powell, *Preserving Internet Freedom: Guiding Principles for the Industry*, 3 J. ON TELECOMM. & HIGH TECH. L. 5 (2004) (describing the implications of the digital broadband migration).

What if there are no more wireline circuit-switched telephones?

We are now fairly far along in the evolution from analog to digital communications systems, and the grand convergence into a network of networks based around the technologies of the Internet. It is important to survey and consider the facts on the ground. It is even more important, though, to step back and consider the societal goals that animate communications policy in the first place. Standing behind the particulars of regulation is a set of broad, if imperfectly defined, normative commitments. Those commitments should not evaporate based on the configuration of the market at any given time. The means of achieving them, by contrast, cannot remain unchanged when the context changes.

The difference between regulated communications markets and the bulk of the economy is frequently described in terms of social contracts.[4] Social contract thinking provides a convenient way to explain why companies are subjected to obligations above and beyond the generic requirements of antitrust and consumer protection. Such language in telecommunications is especially common during periods of transition.[5] The term "social contract," however, is often thrown around in these contexts with little attention to its origins or meaning. In considering the transition to a digital broadband environment for virtually all communications and media services, social contracts provide a useful touchpoint.

I. THE SOCIAL CONTRACT

A. History

The notion of a social contract was developed most prominently by 18th century political theorists such as John Locke, Thomas Hobbes, and Jean-Jacques Rousseau.[6] These Enlightenment thinkers argued that the

4. *See, e.g.*, Anita L. Allen, *Social Contract Theory in American Case Law*, 51 FLA. L. REV. 1, 11 n.47 (1999) (referencing Congressional Telecommunications Sub-Committee chair Ed Markey's statement that he hoped "to reinvigorate the social compact between broadcasters and the American people.") (quoting Kim McAvoy, *Markey Lays Out Legislative Agenda*, 124 BROADCASTING & CABLE 22, 22 (1994)); Dennis L. Weisman, *Default Capacity Tariffs: Smoothing the Transitional Regulatory Asymmetries in the Telecommunications Market*, 5 YALE J. ON REG. 149, 158 (1988) ("The acceptance of these responsibilities may be viewed as an implicit social contract between regulators and the local companies . . . ."); DOUGLAS N. JONES, NAT'L REGULATORY RESEARCH INST., A PERSPECTIVE ON SOCIAL CONTRACT AND TELECOMMUNICATIONS REGULATION (1987), *available at* http://www.ipu.msu.edu/library/pdfs/nrri/Jones-Social-Contract-Telecomm-87-15-June-87.pdf.

5. *See* Mark S. Fowler et al., "*Back to the Future": A Model for Telecommunications*, 38 FED. COMM. L.J. 145 (1986).

6. JOHN L. LOCKE, TWO TREATISES OF GOVERNMENT (Peter Laslett ed., Harvard Univ. Press 1970) (1690); THOMAS HOBBES, LEVIATHAN OR THE MATTER FORME AND POWER OF A COMMONWEALTH ECCLESIASTICAL AND CIVIL (Michael Joseph Oakeshott ed., Collier Books 1962) (1651); JEAN JACQUES ROUSSEAU, THE SOCIAL CONTRACT (Willmoore Kendall

state derived its power from the consent of its citizens, through a hypothetical collective transaction. Understanding that life in the state of nature was likely to be, in Hobbes' famous formulation, "solitary, poor, nasty, brutish, and short,"[7] free individuals would cede some of their freedom to a democratically elected government, in order to maximize their enjoyment of life, liberty, and the pursuit of happiness.[8]

This account is likely to be familiar to many Americans from their school days. Some aspects of it, though, bear emphasizing. The social contract is a myth. In fact, it is a myth on at least two levels. It is not a historical fact. And in the anthropological sense, a social contract is an organizing concept for a society.[9] In other words, when we talk in terms of a social contract, what we're really doing is describing certain attributes that we want to believe about our society. We want to think, for example, that those who give something up get something in return. We want to believe that basic freedoms are enshrined in some deep way in the essence of our polity. Those aren't always true in reality, of course. The myth of the social contract can't actually make life fair; at best it provides an ideal to compare reality to.

The most influential contemporary social contractarian in political philosophy was John Rawls. Rawls famously argued in *A Theory of Justice* that a just society was one that citizens would argue for behind a "veil of ignorance"—in other words, without knowing what their individual status would be in the society.[10] This addresses the problem that not only is the social contact ahistorical, it is a deal many people would not actually agree to. Given the choice, for example, parents of children in private schools might not pay to support public schools for their neighbors. Without knowing their personal situation, however, those parents would accept that education should be provided for all through public taxation.

The notion of a social contract is, in effect, a way to encode certain values. For the Enlightenment thinkers of the 18th century, these values included democracy and protection of private property. For Rawls, they related to the notion of justice. Having a mechanism to inject values into public policy is important in telecommunications regulation. Without it, discourse defaults back to generic economic concepts of welfare and allocative efficiency.

trans., Henry Regnery Co. 1954) (1762).

7. HOBBES, *supra* note 6.

8. These philosophers generally extended their conception only to white property-owning men. Modern interpretations of the social contract extend to all people.

9. *See generally* JOSEPH CAMPBELL, THE HERO WITH A THOUSAND FACES (New World Library, 3rd ed. 2008) (describing the function of myths).

10. JOHN RAWLS, A THEORY OF JUSTICE 118 (Harvard Univ. Press rev. ed. 1999) (1971).

For some, general-purpose economic principles are sufficient for a legal regime for telecommunications.[11] Even neoclassical economics, however, acknowledges that markets can fail, particularly markets involving high fixed costs, significant scale economies, strong network effects, gains from standardization, and incentives for vertical integration.[12] And economics can only measure what it measures. It struggles with concepts such as innovation, fairness, inclusion, creativity, and democratic discourse, all of which play significant roles in the telecom policy conversation.

The second important aspect of social contracts is that they are conceived of as contracts: bargained-for exchanges in which both parties expect to be bound.[13] The Enlightenment thinkers who developed social contract theory needed a rationale for state authority that did not depend on the divine right of kings, or some other fundamentally religious basis. A social contract view is an alternative to natural law approaches that postulate some obligations precede human actions. It relies on the conceit that those obligations are in some way voluntary. A notional ancestor in Rousseau's "state of nature" or behind Rawls' "veil of ignorance" would accede to them, so we can fairly be bound today, even if we ourselves might not favor such restrictions.

B. Social Contracts in Telecom

Social contract language in telecommunications policy has a long, if somewhat fuzzy, history. It is often conflated with the notion that telecommunications carriers are public utilities, and thereby imbued with social obligations. In the 1876 case of *Munn v. Illinois,* the Supreme Court found that grain elevator operators were "affected with a public interest,"[14] allowing for government regulation of their business practices. While the Court never successfully articulated a principle for distinguishing such businesses, and eventually conceded the definition was circular,[15] a significant body of doctrine has accumulated on the proper treatment of "public service corporations."[16]

11. *See, e.g.*, PETER HUBER, LAW AND DISORDER IN CYBERSPACE: ABOLISH THE FCC AND LET COMMON LAW RULE THE TELECOSM (1997).

12. *See* Joseph Farrell & Philip J. Weiser, *Modularity, Vertical Integration, and Open Access Policies: Towards a Convergence of Antitrust and Regulation in the Internet Age*, 17 HARV. J.L. & TECH. 85 (2003).

13. RESTATEMENT (SECOND) OF CONTRACTS § 1 (1981) (defining a contract as "a promise or a set of promises for the breach of which the law gives a remedy, or the performance of which the law in some way recognizes as a duty.").

14. Munn v. Illinois, 94 U.S. 113, 127 (1876) (quoting MATTHEW HALE, DE PORTIBUS MARIS (1670)).

15. Nebbia v. New York, 291 U.S. 502, 536 (1934).

16. *See* BRUCE WYMAN, THE SPECIAL LAW GOVERNING PUBLIC SERVICE CORPORATIONS AND ALL OTHERS ENGAGED IN PUBLIC EMPLOYMENT (1911); Kevin

Public utilities are presumed to have certain advantages or degrees of societal importance that justify the imposition of various regulatory obligations. Such determinations may in fact be accurate. However, they leave open the possibility that facts will change. If the meaning of what it is to be a telephone company, say, is radically different in 2014 than in 1914, does it make sense to draw an inherent connection between the telephone business and public utility regulation?

It is easy to suggest that a social contract for the public switched telephone network, as embodied by the Communications Act's stated goal to promote "a rapid, efficient, Nation-wide, and world-wide wire and radio communication service with adequate facilities at reasonable charges," is eternal.[17] Yet this is not necessarily the case. Industries that are dominant in one era may be insignificant in another. The public policy obligation should only endure if its fundamental basis remains operative. And services that didn't exist in the past may become crucial later. Broadband Internet access was insignificant fifteen years ago, for example. So it is essential to consider the purpose of the alleged social contract.

On the other hand, when the statutory basis for regulation is less than obvious or less than clear, social contract thinking becomes more valuable. This is particularly the case during periods of transition. If regulators are going to remove some obligations because market conditions have changed, or impose obligations on entities that have not traditionally been under the regulatory umbrella, it helps to fall back on some normative rationale. Social contract thinking also helps ensure that the benefits and burdens of regulation are roughly balanced. Companies that enjoy protections may appropriately be subject to concomitant obligations, and vice versa.

The transportation scenario in the Introduction above illustrates this point. In transitional periods where regulated and unregulated services collide, the social contract manifests itself as the backstop obligations that underlie the competitive market. Otherwise, the potential outcomes include unregulated entrants with an artificial advantage over regulated incumbents, or regulated incumbents using nascent competition as an opportunity to become unregulated oligopolists. As the regulated telecommunications industry collides with the unregulated Internet at the tail end of thirty years of deregulation, these are very real possibilities.

While social contracts may thus be generally useful in telecommunications policy, it remains important to apply them thoughtfully. Both the rationale for, and the scope of, social contract

Werbach, *Only Connect*, 22 BERKELEY TECH. L.J. 1233, 1246–50 (2008) (discussing rationales for common carriage and public utility regulation).

17. 47 U.S.C. § 151 (1996).

obligations should be considered carefully. Otherwise "social contract" runs the risk of becoming nothing more than a rationalization for whatever requirements one advocates.

1. Explicit vs. Implicit

As an initial matter, there are two usages of "social contract" in telecommunications policy that should be distinguished. One involves explicit agreements between regulators and regulated companies to eliminate certain obligations and preserve other commitments going forward.[18] Such social contract agreements were most prominently employed during the 1980s and 1990s for cable television providers and in state-level deregulation schemes for local telephone companies before the 1996 Telecommunication Act.[19]

For cable, the perceived need for a social contract arose from the exclusivity in most municipal franchise arrangements.[20] If cities were going to give a private, for-profit company access to public rights-of-way, with the end result being a local monopoly over potentially very lucrative services, they wanted to ensure that public interest goals were met. These agreements involved not only direct payments to municipalities in the form of franchise fees, but various other commitments such as building out to less affluent areas and providing free or low-cost channels for public, educational and government (PEG) uses.

The social contracts discussed for local telephone companies during the period of experimental deregulation between the AT&T divestiture and the 1996 Telecommunications Act had a somewhat different rationale. Regulators in some states wanted to eliminate regulatory obligations on incumbent carriers, but were concerned about the potential effects on end-user prices if "rate of return" limitations were removed.[21]

18. It is perhaps inaccurate to call these social contracts, because as noted earlier, the term implies a fictive arrangement.

19. *See* JAMES C. GOODALE & ROB FRIEDEN, ALL ABOUT CABLE AND BROADBAND § 3.02, at 3-7 (2014) (discussing social contract agreements for cable); Fowler, et al., *supra* note 5, (noting the growth of "social contract" alternative regulation plans in the states); Albert K. Smiley, *Regulation and Competition in Cable Television*, 7 YALE J. REG. 121, 121 (1990) (explaining the "social contract" arrangement involved in cable TV franchises).

20. The 1996 Telecommunications Act prohibited such exclusive deals. However, very few entrants attempted the costly process of overbuilding existing cable infrastructure. Competition for cable has come instead through entry by telephone companies using broadband platforms such as AT&T's UVerse and Verizon's FiOS, and, more significantly, from direct broadcast satellite services such as Dish Network and DirecTV that require no local franchises.

21. Gregory J. Vogt, *Cap-Sized: How the Promise of the Price Cap Voyage to Competition Was Lost in a Sea of Good Intentions*, 51 FED. COMM. L.J. 349, 367 (1999) ("[T]he efficiency improvements that the utilities will create under price caps means that the overall price of services can be lowered without imposing confiscatory regulations."); Charles

The approach that was ultimately adopted almost uniformly, with the exception of small rural carriers, was to impose retail price caps while allowing companies to retain additional profits if they could limit costs.[22] In the early stages of these discussions, however, the leading proposals were couched in social contract terms.

These social contract approaches for deregulation involved explicit agreements between carriers and state regulators to limit local rate increases according to an index, and make specified capital investments to upgrade networks, in return for deregulation.[23] One limitation of such arrangements was their continuation of the artificial separation of retail residential rates from costs and other services. If the local rate cap was artificially low, something else had to be priced at artificially high rates to compensate.[24] A second limitation was that these agreements conceived of social obligations almost entirely in terms of low end-user prices.[25] That represents only one of many elements of the social contract concept in telecommunications.

Any real contract is limited by (a) its terms, and (b) the context of a time, a place, and two or more particular parties. When talking about a social contract in telecommunications, it is important to distinguish these explicit deals from notional social contracts along the lines envisioned by Rousseau, Locke, and Rawls. There have been many explicit agreements between regulators and regulated companies, going back in telecommunications at least to the 1913 Kingsbury commitment between AT&T and the Department of Justice.[26] However, none of these provide a general basis to fashion social contract obligations today. The company now called AT&T shares a continuous thread of history with the one that employed Nathan Kingsbury a century before, but for all intents and purposes they are different entities. The fact that the old AT&T accepted a deal that eventually turned it into a regulated monopoly doesn't really tell modern regulators anything about what they can and should do today.

There are many arguments that could be advanced about whether telecommunications providers *should* be subject to special social contract obligations, above and beyond ordinary companies, but these turn out to

D. Cossona, *You Say You Want a Revolution? Fact and Fiction Regarding Broadband CMRS and Local Competition*, 7 COMMLAW CONSPECTUS 233, 250 n.65 (1999).

22. Policy and Rules Concerning Rates for Dominant Carriers, *Notice of Proposed Rule Making*, 2 FCC Rcd. 5208 (1987) (proposing to replace rate-of-return regulation with price caps for telephone companies).

23. Fowler et al., *supra* note 5, at 196 n.156; JONES, *supra* note 4; Gail Garfield Schwartz & Jeffrey H. Hoagg, *Virtual Divestiture: Structural Reform of an RHC*, 44 FED. COMM. L.J. 285, 317 n.79 (1991).

24. Fowler et al., *supra* note 5, at 196 n.156.

25. *Id.*

26. Letter from N.C. Kingsbury, AT&T Vice President, to J.C. McReynolds, Attorney General (1913), *available at* http://vcxc.org/documents/KC1.pdf.

be limited in most cases to rhetorical force. Ma Bell was a protected monopoly, but today's incumbents are not. Many telecommunications and broadband markets today are oligopolies, but so are airlines and search engines, without similar obligations such as universal service. Telecommunications is important, yet so is transportation, as stated at the outset, and so is housing, neither of which is subject to the same obligations.

2. Universality

Even though the contours of an implicit social contract for the public switched telephone network are impossible to define with certainty, there are still some elements that can be identified as central. One of the fundamental dimensions, if not *the* fundamental one, is universality.[27] This is evident not only in the many billions of dollars annually reallocated through explicit and implicit universal service subsidies, but also in things like disability access and 911 emergency services requirements. It is one thing to say that a useful feature is to be able to dial three numbers and immediately be connected to a public service access point (PSAP) and from there to police or other emergency services. It is a different thing to say that everyone should have that capability.

One way to look at such obligations is to turn back to the notion of public utility regulation.[28] An argument for imposing common carriage and other duties on telephone companies, and other public utilities, is that they were private firms carrying on public functions. In the case of 911, emergency services are a public function, carried out in large part by government actors such as police and fire departments. However, they also require the participation of private actors, including hospitals and telecommunications providers.

The alternative to universal access to 911 through the telephone networks is not a public safety regime that only works for those who happen to be lucky enough to pick up the right device; it is a public safety regime that also requires the communications network to be publicly provisioned. Since the United States has decided that telecommunications is a privately offered service, the social contract of universality is necessary for at least some functions. How far that extends is a legitimate topic of debate. It is important to be clear, with any assertion that certain obligations are associated with a social contract, just what values are being protected, and why.

The challenge of universality is cost. It can be inefficient to give

27. *See* Kevin Werbach, *No Dialtone: The End of the Public Switched Telephone Network*, 66 FED. COMM. L.J. 203 (2014).

28. *See supra* Part II(B).

most or all people certain functionality. Markets are very good at allocating resources to the bulk of the population. They are more likely to fail in reaching *all* of the population. For example, it is relatively simple to design a health insurance system for people who are healthy. The costs are not that great for any one individual, and therefore it is fairly straightforward to spread risks and having insurance system. It is much harder to design a health insurance system where some people are not healthy and have pre-existing conditions, or people have the moral hazard incentive to sign up for health insurance only when they get sick. These difficulties have been well illustrated in the contentious debate over the Affordable Care Act.[29] My goal is not to take a position on the quality of the solution that legislation represents; it is simply to observe that the problems we face in ensuring universal telecommunications functionality are very well understood and yet extremely difficult.

The simplest dimension of universality in telecommunications is the fact that some customers may be unaffordable to serve. In other words, the network will not reach them by market forces alone. After many decades of regulated monopoly and universal service subsidies, combined with evolving technology, the percentage of Americans who cannot be reached by basic telephone service is vanishingly small.[30] However, there is a not-insubstantial number of rural subscribers who might have to pay significantly more if carriers charged fully de-averaged rates.

The challenge of universality remains greater for broadband service. The number of Americans who cannot get any form of broadband service meeting the FCC's current definition of 4 Mbps downstream and 1 Mbps upstream, while still a small minority of households, is significantly greater than the number who cannot get phone service.[31] Delivering high-speed broadband (20-100 Mbps) to all Americans is an even more daunting challenge. In the National Broadband Plan, the FCC estimated the cost of a fiber optic network providing ubiquitous high-speed broadband at over $300 billion.[32]

29. *See* EZEKIEL J. EMANUEL, REINVENTING AMERICAN HEALTH CARE 39-42 (2014); Michael J. Graetz & Jerry L. Mashaw, *Constitutional Uncertainty and the Design of Social Insurance: Reflections on the Obamacare Case*, 7 HARV. L. & POL'Y REV. 343, 350-51 (2013); WHITE HOUSE, ECONOMIC REPORT OF THE PRESIDENT at 115-16, 119-20 (2011), *available at* http://www.whitehouse.gov/sites/default/files/microsites/2011_erp_full.pdf.

30. INDUSTRY ANALYSIS AND TECHNOLOGY DIVISION, WIRELINE COMPETITION BUREAU, FED. COMMC'NS COMM., TELEPHONE PENETRATION BY INCOME BY STATE (DATA THROUGH MARCH 2009) 1 (2010) (showing that national telephony penetration rate above 95%), *available at* https://apps.fcc.gov/edocs_public/attachmatch/DOC-297986A1.pdf.

31. *See* INDUSTRY ANALYSIS AND TECHNOLOGY DIVISION, WIRELINE COMPETITION BUREAU, FED. COMMC'NS COMM'N, INTERNET ACCESS SERVICES: STATUS AS OF JUNE 30, 2013 (2014) (providing statistics about broadband availability in the United States), *available at* http://transition.fcc.gov/Daily_Releases/Daily_Business/2014/db0625/DOC-327829A1.pdf.

32. TASK FORCE ON THE NATIONAL BROADBAND PLAN, FED. COMMC'NS COMM.,

A communications social contract for a broadband era will involve a determination of the appropriate limits on universality. For functions such as emergency services and core commitments to preserve equality of opportunity such as access for those with disabilities, such lines may be relatively easy to draw, at least in principle. In other cases the basic objectives are open to debate.

II. TRANSITIONS IN TELECOM

The transition now underway in telecommunications is an epochal change. However it is only the latest such shift in the communications market in the United States. Since Alexander Graham Bell patented the telephone in 1876, there have been five prior transformations, occurring at fairly regular 20–30 year intervals. In each case, policy-makers had to decide how to respond. The requirements they adopted differ in many specifics, but they have a surprisingly similar structure. In each case, the backstop of a social contract was essential.

A. The Current IP Transition

In 1996, the National Research Council published a report titled *The Unpredictable Certainty*.[33] It argued that the dominance of what was then called the National Information Infrastructure was inevitable, but the process of that transition was nonetheless extremely difficult to predict.[34] Part of that unpredictable certainty involves the Internet subsuming the world's telecommunications and digital media networks.[35] That these networks would all converge and shift from analog to digital transmission was already well understood by the early 1990s.[36] And as

PRESENTATION TO THE FCC: SEPTEMBER COMMISSION MEETING (2009), *available at* http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-293742A1.pdf.

33. NAT'L RESEARCH COUNCIL, THE UNPREDICTABLE CERTAINTY: INFORMATION INFRASTRUCTURE THROUGH 2000 (1996).

34. *Id.*

35. *See* Kevin Werbach, *A Layered Model for Internet Policy*, 1 J. TELECOMM. & HIGH TECH L. 37 (2002).

36. *See, e.g.*, Andrew C. Barrett, *Shifting Foundations: The Regulation Of Telecommunications In An Era Of Change*, 46 FED. COMM. L.J. 36, 42–43 (1993) ("As these industries experience a convergence of interests toward multimedia services, they will combine television, telecommunications, and computers to transform the way we interact with the information in our homes, automobiles, and elsewhere."); Edward J. Markey, *Cable Television Regulation: Promoting Competition In A Rapidly Changing World*, 46 FED. COMM. L.J. 1, 1–2 (1993) ("The convergence of the computer chip, the laser and fiber optics, digitization, and satellites are revolutionizing the telephone, cable, and broadcasting industries and driving our society towards a multimedia future that most of us can only dimly imagine."); John J. Keller, *Microsoft Plans Wireless Data Network with Mobile Telecommunications Firm*, WALL ST. J., Mar. 24, 1994, at B6 (referencing "the convergence of telecommunications and computers"); *see also* GEORGE GILDER, FREE PRESS, TELECOM: HOW INFINITE BANDWIDTH WILL REVOLUTIONIZE OUR WORLD (2000) (elaborating on these themes).

early as 1994, the FCC was petitioned to regulate VOIP.[37] However, knowing what's coming doesn't necessarily make the changeover easier. In particular, it doesn't indicate the inflection points of the curve where unpredictable collapses into certainty. That's what we are reaching today.

From the beginning, telephone networks have used an architecture known as circuit switching. A connection involves the opening of an end-to-end channel between the caller and the receiver. The technology involved has developed immeasurably over the intervening years, but these networks have remained recognizable and distinguishable from other kinds of systems. In its present form, the Communications Act distinguishes "telecommunications" from "information services," and grants the FCC explicit regulatory mandates only for the former.[38] Under a series of FCC decisions in the 2000s, IP-based services are, generally speaking, considered to fall within the information services bucket.[39] Over the past several years, this has provoked a series of legal and political battles over the FCC's ability to oversee business practices by broadband access providers, who are considered to be outside the "telecommunications" umbrella.[40] These debates, however, are only the precursor to the current controversy.

The Internet's packet-switching architecture is in the process of eating all communications and media. Already, all major entrants in the landline telephone market (primarily cable television providers) use VOIP as their core technology. Broadband Internet access, of course, is packet-switched, and converged platforms offering voice, video, and data such as Verizon's FiOS and AT&T's UVerse are as well. Even mobile phone services are increasingly data-centric with the rollout of 4G systems. The next technology to be implemented, known as Voice over LTE (VoLTE) will cement the transition to a fully Internet-inspired

37. *See* The Provision of Interstate & Int'l Interexchange Telecomms. Serv. via the "Internet" by Non-Tariffed, Uncertified Entities, *Petition for Declaratory Ruling, Special Relief, & Institution of Rulemaking*, No. 8775 (Mar. 4, 1995), *available at* http://www.fcc.gov/Bureaus/Common_Carrier/Other/actapet.html.

38. Telecommunications is defined as "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." 47 U.S.C. § 153(50) (2010). Information service means "storing, transforming, processing, retrieving, utilizing, or making available information via telecommunications. . . ." 47 U.S.C. § 153(24). *See also* Kevin Werbach, *Off the Hook*, 95 CORNELL L. REV. 535 (2010) (tracing the development of this distinction and its implications).

39. *See* Werbach, *supra* note 38.

40. *See* Formal Complaint of Free Press and Pub. Knowledge Against Comcast Corp. for Secretly Degrading Peer-to-Peer Applications, *Memorandum Opinion & Order*, 23 FCC Rcd. 13,028 (2008), *available at* http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-08-183A1.pdf, *rev'd,* Comcast Corp. v. FCC, 600 F.3d 642 (D.C. Cir. 2010); Preserving the Open Internet, *Report & Order*, 25 FCC Rcd. 17,905 (2010), *rev'd,* Verizon v. FCC, 740 F.3d 623 (D.C. Cir. 2014)..

architecture in wireless as well.[41]

The major companies that operate the public switched telephone network are eager to transition to Internet-based technologies and shut down their legacy circuit-switched networks. For carriers, this "IP Transition" means significant cost savings and efficiencies from elimination of duplication, as well as new capabilities. The existing circuit-switched equipment, based on 1980s-era mainframe technology, is aging. The opportunity to replace it and integrate an entire suite of services on the same converged platform is compelling. Moreover, the current amalgam of circuit-switched and Internet-based services involves significant overhead and limitations. There is no universal mechanism to link traditional telephone numbers to Internet-based calls, for example, forcing providers to add unnecessary complexity. Calls could have significantly better sound quality, features, and integration with other services if they were no longer tethered to the legacy infrastructure.

The IP transition is viewed as an event in the near future, but by some measures it has already occurred. By 2013, just a quarter of U.S. households relied on traditional wireline switched voice service.[42] Overall, from 2000-2012, the number of switched access lines in the U.S. fell by almost half, even as the population grew.[43] All those customers switched either to wireless service as their primary home connection (over 35 percent of homes, according to Centers for Disease Control surveys),[44] or to a phone service using voice over Internet protocol technology offered mostly by cable broadband providers.[45] The FCC's Technology Advisory Committee predicted that wireline switched voice lines will continue falling, dropping below ten percent of the total in the next few years.[46]

41. *See generally* MIIKKA POIKSELKÄ, ET AL., VOICE OVER LTE (VOLTE) (2012) (describing the technical functionality of VoLTE).

42. PATRICK BROGAN, EVIDENCE OF VOICE COMPETITION AND ILEC NON-DOMINANCE MOUNTS 1 (Apr. 3, 2013), *available at* http://www.ustelecom.org/sites/default/files/documents/130403_Voice_Comp_Update.pdf (sourcing data from several governmental sources including the FCC, Centers for Disease Control, and Census, as well as industry reports).

43. Press Release, Fed. Commc'ns Comm'n, Federal Communications Commission Releases Latest Data on Local Telephone Competition (May 21, 2001), *available at* http://transition.fcc.gov/Bureaus/Common_Carrier/Reports/FCC-State_Link/IAD/lcom0501.pdf.

44. STEPHEN J BLUMBERG & JULIAN V. LUKE, NATIONAL CENTER. FOR HEALTH STATISTICS, WIRELESS SUBSTITUTION: EARLY RELEASE OF ESTIMATES FROM THE NATIONAL HEALTH INTERVIEW SURVEY, JANUARY – JUNE 2012 1 (Dec. 2012), *available at* http://www.cdc.gov/nchs/data/nhis/earlyrelease/wireless201212.pdf.

45. *See generally* BROGAN, *supra* note 42, at 2.

46. *See generally* FCC TECH. ADVISORY COUNCIL, STATUS OF RECOMMENDATIONS 10 (June 29, 2011), *available at* http://transition.fcc.gov/oet/tac/TACJune2011mtgfullpresentation.pdf (predicting continued migration away from the PSTN).

In this environment, both AT&T and Verizon, the leading incumbent telecommunications carriers, have urged the FCC to free them from what they consider outmoded regulation when they offer IP-based services. AT&T petitioned the FCC to authorize wire center trials as a foundation for authorizing a shutdown of PSTN infrastructure.[47] Verizon tried to replace wireline telephone service in areas affected by Superstorm Sandy with a less-functional wireless substitute.[48]

In January 2014, the FCC initiated a proceeding to seek comment on the IP transition.[49] As part of the process, it authorized carriers to propose experiments to test IP-based alternatives to traditional services, and initiated its own technical experiments and research efforts to ensure continuity for rural areas, people with disabilities, and telephone numbering.[50] The FCC identified four "enduring values underlying operation of today's networks": public safety, universal access to affordable communications services, competition, and consumer protection.[51] It did not, however, use the language of social contract explicitly.

The battle lines have been drawn. The major carriers argue that competition and technological innovation make the existing panoply of telecommunications regulation under Title II of the Communications Act unnecessary, counterproductive, and unfair as applied to only one segment of the marketplace.[52] Competitors and service providers that depend on access to the broadband Internet platform reply that nothing has fundamentally changed. Regardless of the technologies involved, they say, continued competition and innovation require the safeguards of the established regulatory regime. Moreover, they argue, the incumbents should continue to provide access to other providers using the legacy

47. AT&T Petition to Launch a Proceeding Concerning the TDM-to-IP Transition, *Petition to Launch a Proceeding*, GN Docket No. 12–353 (2012), *available at* http://apps.fcc.gov/ecfs/document/view?id=7022086087; Technology Transitions Policy Task Force Seeks Comment on Potential Trials, *Public Notice*, 28 FCC Rcd. 6346 (2013), *available at* https://apps.fcc.gov/edocs_public/attachmatch/DA-13-1016A1.pdf.

48. Jon Brodkin, *Verizon Would End "Century of Regulation" by Killing Wireline Phone, Says NY AG*, ARS TECHNICA (July 5, 2013, 12:50PM), http://arstechnica.com/information-technology/2013/07/verizon-would-end-century-of-regulation-by-killing-wireline-phone-says-ny-ag/; Samantha Bookman, *Verizon Goes on Offensive in Voice Link Deployment*, FIERCETELECOM (May 23, 2013), http://www.fiercetelecom.com/story/verizon-goes-offensive-voice-link-deployment/2013-05-23.

49. Technology Transitions, *Order, Report & Order & Further Notice of Proposed Rulemaking*, 29 FCC Rcd. 1433 (2014).

50. *See id.* at para. 5–6.

51. Press Release, Fed. Commc'ns Comm'n, FCC Oks Voluntary Experiments Testing Impact of Technology Transitions (Jan. 30, 2014) *available at* http://www.fcc.gov/document/fcc-oks-voluntary-experiments-testing-impact-technology-transitions.

52. *See* Werbach, *supra* note 27, at 262 n.270.

circuit-switched technologies, rather than switching entirely over to IP.

B. Prior Transitions

In some ways, the IP Transition is a new phenomenon. As recently as 2002, over 90 percent of American households received their primary home communications from a wireline switched telephone.[53] In other ways, this is a shift that has been in the works for half a century. The FCC began confronting the introduction of computer processing into the phone system, and the resulting blurring of the divide between regulated communications and unregulated services, in the mid-1960s in its Computer Inquiry proceedings.[54] Today's network is the result of several prior transitions, each of which in its way was as significant as the one we now face.

One dimension of prior network transitions is technical. The original telephone network relied on human operators to switch every call, until they were replaced with mechanical and then later digital switches. Network transmission also evolved from analog to digital, and from rotary dialing to touchtone. Signaling functionality evolved from in-band tones to the out-of-band SS7 network, enabling new functions such as call-waiting and voicemail. These and other innovations mean that, behind the scenes, the telephone network has changed over the past century as much as the automobile, even though a subscriber may still pick up the same kind of phone and dial the same kinds of numbers to reach another person. The current changes are in some ways not any more far-reaching.

Separate from, but broadly paralleling, the technical evolution of the communications network has been a series of business and regulatory shifts. The reality is that today's IP transition is at least the fifth major transition in U.S. telecommunications. Each one demarcated a business and regulatory epoch. Each time the endpoint was a shift in the regulatory environment, which had the same basic structure. The configuration of obligations on the incumbents was adjusted, generally in the direction of lessened regulation, and a set of backstop social contract obligations was reaffirmed.

The first epoch of American telecommunications began with the expiration of Bell's patents, beginning in 1894. This set the stage for a period of tremendous competition, as some 6,000 new local telephone

53. *See* BROGAN, *supra* note 42.

54. Regulatory and Policy Problems Presented by the Interdependence of Computer and Communication Services and Facilities, *Final Decision and Order*, 28 F.C.C.2d 267 (1971) [hereinafter Regulatory and Policy Problems]; Kevin Werbach, *The Network Utility*, 60 DUKE L.J. 1761, 1803–04 (2011).

companies entered the market.[55] For all intents and purposes, it was the beginning of the telecommunications marketplace. Partly in response to the end of its legally protected monopoly, AT&T during this period developed its intellectual property and market power in another segment of the market: long-distance service. After Theodore Vail took the helm of AT&T in 1907, it quickly moved to reconsolidate its power—buying up some competitors, and refusing to interconnect with others.[56]

The first telecommunications transition occurred when the U.S. government intervened to restrain AT&T's efforts. In the 1910 Mann-Elkins Act, it declared telephone companies common carriers, subject to oversight by the Interstate Commerce Commission.[57] The regulatory transition culminated with the 1913 Kingsbury Commitment.[58]

Under the Kingsbury Commitment, the Justice Department agreed to abandon its antitrust case against AT&T.[59] The company was required to divest Western Union and to subject future acquisitions to review by the Interstate Commerce Commission, but it was not prohibited from continuing to buy market share. Indeed, the ICC approved most of the subsequent transactions. Fundamentally, therefore, the commitment was a deregulatory decision. The one major backstop was that AT&T agreed to interconnect its long distance network with independent local telephone companies.[60] In other words, third-party access to the incumbent network was guaranteed.

In the second epoch, AT&T consolidated its position as, in effect, a legally protected monopoly over telecommunications in most of the U.S. The next transition involved the recognition that massive, powerful companies such as AT&T required new forms of oversight. The administrative agency emerged in the New Deal as a technocratic response to the technology-driven growth of modern big business. The Communications Act of 1934 placed oversight of the telecommunications industry under a new agency, the FCC, subject to a series of statutory obligations.[61] Once again, the supposedly regulatory

55. *See* AMY FRIEDLANDER, NATURAL MONOPOLY AND UNIVERSAL SERVICE: TELEPHONES AND TELEGRAPHS IN THE U.S. COMMUNICATIONS INFRASTRUCTURE, 1837–1940 (1995); Richard Gabel, *The Early Competitive Era in Telephone Communication, 1893–1920,* 34 LAW & CONTEMP. PROBS. 340 (1969).

56. *See* TIM WU, THE MASTER SWITCH: THE RISE AND FALL OF INFORMATION EMPIRES (2010).

57. Mann-Elkins Act, Pub. L. No. 61-218, 36 Stat. 539 (1910).

58. Letter from N.C. Kingsbury, Vice President, AT&T, to J.C. McReynolds, Attorney General, Justice Department (December 19, 1913) [hereinafter Kingsbury Letter].

59. MILTON MUELLER, UNIVERSAL SERVICE: COMPETITION, INTERCONNECTION AND MONOPOLY IN THE MAKING OF THE AMERICAN TELEPHONE SYSTEM 127 (1996) *available at* http://surface.syr.edu/cgi/viewcontent.cgi?article=1017&context=books.

60. It did not, however, have to interconnect its local network to other local competitors, or its long-distance network to competitors. *See* Kingsbury Letter, *supra* note 58.

61. Communications Act of 1934, Pub. L. No. 73-416, 48 Stat. 1064 (codified as

intervention was effectively a means to consolidate the incumbent's power, by legally enshrining limits on competitive entry.

The primary safeguards and compensating obligations in this period were universal service and price regulation. AT&T had originally coined the term "universal service" as a marketing weapon against the patchwork of competing carriers, but over time, with public utility regulation, it became shorthand for a federal policy to promote ubiquitous and affordable telephone service.[62] The other major thrust of the 1934 Act was to regulate the rates, terms, and conditions of AT&T and other incumbent telephone companies, giving them a guaranteed rate of return while ensuring they functioned as neutral common carriers.

The third epoch—that of the 1934 Communications Act—can be divided into two stages. The first was the period of classical public utility regulation. Competitive entry of any kind was forbidden.[63] The turning point was the 1956 Hush-a-Phone decision, which reversed an FCC order prohibiting the distribution of a plastic cup to fit on a telephone handset as an illegal "foreign attachment."[64] That same year, AT&T and the Justice Department entered into another consent decree, which prohibited the carrier from offering any non-common carrier services.[65]

While these two steps were not explicitly a form of social contract regulation, they represented limiting principles on the power of the regulated monopoly. From that point forward, the dominance of AT&T, while still for many years absolute in its core market, was limited from expanding into adjacent markets such as equipment manufacturing and data processing. This process accelerated in the late 1960s with the first FCC Computer Inquiry[66] and the adoption of Part 68 rules for third-party customer-premises equipment following the Carterfone case.[67] Once those steps were taken, it was only a matter of time before fractures emerged in the public utility organization of the communications market, which eventually would crack open.

The next great transition was thus the divestiture of AT&T in 1984.[68] At that point the regulated monopoly was pushed back into the local exchange market, the dominant carrier was broken up, and the newly formed long-distance industry was opened to full competition. The

amended at 47 U.S.C. §§ 151–615b (2006)).

62. *See* MUELLER, *supra* note 59.

63. *See, c.f., id.* at 17 (using manuals to illustrate the monopoly public utility regulatory scheme of the 1930s).

64. Hush-A-Phone Corp. v. United States, 238 F.2d 266 (D.C. Cir. 1956).

65. Werbach, *supra* note 54 (discussing the importance of the 1956 consent decree).

66. *See* Regulatory and Policy Problems, *supra* note 54.

67. Use of the Carterfone Device in Message Toll Telephone Service, *Decision*, 13 F.C.C.2d 420 (1968).

68. United States v. AT&T, 552 F.Supp. 131 (D.D.C. 1982), *aff'd mem. sub nom.* Maryland v. United States, 460 U.S. 1001 (1983).

Telecommunications Act of 1996 pushed this transition further by allowing for competition in the local market as well, and authorizing the descendants of AT&T to re-enter long-distance.[69] The last three decades are an era in which public utility regulation has been gradually replaced by a reliance on, and encouragement of, market competition. Along the way, digital convergence allowed new companies, most notably cable TV operators, to enter the telecommunications market, and mobile phone service emerged as a full-fledged alternative to wireline service.

During this fourth epoch, social contract rules have become more explicit. Divestiture included equal access obligations and line-of-business restrictions on AT&T to protect nascent competition. The 1996 Act formalized universal service support for the first time, adopted a checklist for opening local markets, and created new funding mechanisms for school and library connectivity, among other provisions. All of these steps reflected the recognition that even in a deregulatory environment, steps are necessary to protect competition and ensure that all Americans benefit from the communications marketplace.

Which brings us to today. Three decades after divestiture, the formal barriers to competitive entry in local telecommunications have come down. Nearly two decades after the passage of the 1996 Act, the split between local and long-distance service is largely a memory, and cable providers have become major competitors in the residential telephone market.[70] Companies such as Apple and Google that make equipment and services on top of the telecommunications infrastructure now greatly exceed the carriers in market capitalization and rival or exceed them in revenues and profits. And the one common thread throughout this more than century-long year saga, the public switched telephone network, is about to be mothballed.

III. OPEN NETWORKS AS SOCIAL CONTRACT

In the growing din of conversation about the IP transition, social contract notions are widely articulated. Each author or group has its own list of ideals that should be preserved after the shutdown of the legacy PSTN. The FCC lists four enduing values;[71] the Benton Foundation lists ten principles;[72] Public Knowledge advances "five fundamentals;"[73] and

69. Telecommunications Act of 1996, Pub. L. No. 104-104, 110 Stat. 56, 58 (codified in scattered sections of 47 U.S.C. (2006)).

70. *See, e.g.*, *Comcast Now Third Largest Residential Phone Services Provider in the U.S.*, COMCAST (Mar. 11, 2009), http://corporate.comcast.com/news-information/news-feed/comcast-now-the-third-largest-residential-phone-services-provider-in-the-us.

71. *See* Technology Transitions, *supra* note 49, at ¶ 1.

72. Ted Gotsch, THE NEW NETWORK COMPACT: MAKING THE IP TRANSITION WORK FOR VULNERABLE COMMUNITIES, (2013), http://benton.org/sites/benton.org/files/the-new-network-compact-ip-transition.pdf.

elsewhere I have described six definitions of the public switched telephone network.[74] Even AT&T and Verizon, while arguing to be released from "outmoded" telecommunications rules, acknowledge that some regulation is necessary in a post-PSTN world.[75] However the transition process takes place, some form of social contract seems quite likely to be incorporated.

As this article has shown, both the social contract and business transitions have a long history in telecommunications. The question is what lessons can be drawn from that history to help policymakers with the challenges now in front of them.

A. Lessons Learned

As discussed in Part II, social contracts can be either explicit or implicit. The Enlightenment notions that gave form to the social contract idea involved implicit arrangements, rather than any express commitments between actual parties. For practical purposes such as the IP transition, however, such notional contracts are less than helpful. They tend to serve primarily as rhetorical flourishes rather than guides for effective decision-making.

Vague normative principles such as "the public interest" can be hammered into specific legal guidance through the steady accumulation of case law over many years, but that history is less than helpful when the goal is to adjust to a fundamentally different market environment. The historical underpinnings of the telecommunications social contract dating to the Kingsbury Commitment are to a large extent no longer relevant to the telecommunications and broadband marketplace today. Any social contract obligations going forward should therefore be spelled out in explicit terms to the extent possible.

Another conclusion to draw from the history of social contracts in

73. Jodie Griffin & Harold Feld, *Five Fundamentals for the Phone Network Transition*, PUBLIC KNOWLEDGE (July 2013), http://www.publicknowledge.org/files/PKThinks5Fundamentals.pdf.

74. *See* Werbach, *supra* note 27.

75. *See* Ryan Knutson, *AT&T's Plan For the Future: No Landlines, Less Regulation*, WALL ST. J. (Apr. 7, 2014, 10:39 PM), http://online.wsj.com/news/articles/SB10001424052702304834704579403090132882148; John Eggerton, *AT&T's Cicconi to FCC: Change or Become Irrelevant,* MULTICHANNEL NEWS (Sept. 10, 2013), https://www.multichannel.com/news/policy/att-s-cicconi-fcc-change-or-become-irrelevant/262775 ("'AT&T understands that we are not moving into a regulation-free zone. We get that,' [Cicconi] said."); Technology Transitions Policy Task Force Seeks Comment on Potential Trials, *Comments of AT&T*, GN Docket 13-5, at 5, *available at* http://apps.fcc.gov/ecfs/document/view?id=7520928958; Gary Arlen, *But What's Verizon Real Vision for a Telecom 'Framework'?*, MULTICHANNEL NEWS (May 20, 2013), http://www.multichannel.com/blog/i-was-saying/what-s-verizon-real-vision-telecom-framework/325429 ("[Verizon's] Silliman said that he is 'not suggesting that the answer is to abolish all regulation.'").

telecom is that the term tends to refer to two different kinds of obligations. One set involves substitutes for robust competition. The other involves dimensions of universality that competition cannot itself produce. The same kinds of measures may serve one or both purposes. For example, caps on retail prices generally strive to produce results comparable to competitive markets. If there is sufficient retail and wholesale competition, markets are the most efficient means to set reasonable prices. The fact that the most explicit social contracts in telecommunications, such as the state-level deregulation plans of the 1980s, had price regulation as centerpieces, reflects the lack of true competition for residential voice services at the time.

On the other hand, subsidies to keep prices low in rural and high-cost areas, including implicit subsidies through requirements that customers in both rural and urban areas pay the same rates, reflect an awareness that even in a market with many competing providers, there may be areas that are simply un-economical for anyone to serve. For that reason, universal service mechanisms were not eliminated once the 1996 Telecommunications Act opened up the local telephone market to full competition; in fact, they were strengthened and even expanded. Other obvious examples of social contract measures that do not depend on the absence of competition include emergency services, law enforcement access, and access for persons with disabilities. In these cases, the social contract represents a conscious decision that a market in which, for example, users can choose between providers that are usable by the deaf and those that aren't, fails to protect important societal values.

A third important lesson is that social contract measures should be targeted. Where the problem is a lack of competition, measures should be focused on removing barriers to competition wherever possible—and creating results that mimic a competitive market where not. The focus of the 1980s deregulation plans on end-user rates, while perhaps addressing the most politically sensitive consequences of such measures, failed to take into account the full range of values and obligations associated with the extant social contract for incumbent telecommunications providers.

Recognizing that formal barriers to competition have largely been abandoned, and that even where competition is lacking or not sufficiently widespread, monopolies are far rarer in today's telecommunications world than 30 years ago, the tenor of social contract discussions needs to evolve. In the old social contract, companies got benefits like franchises and access to rights of way in return for their social and regulatory obligations. In the new environment, any company can enter the market, and to a much greater extent than before, it will be governed by normal market forces. What gives rise to the social obligations, therefore, is the nature of the business, rather than a transactional history.

B. Open Network Architecture: A Blast From the Past?

On the question of what requirements should apply to telecommunications providers following the IP Transition, a significant part of the answer is relatively clear. Over a period of several years, the FCC has on a piecemeal basis imposed most of the general social policy obligations that inure to regulated telephone service onto "interconnected" VoIP providers.[76] As a general matter, this term refers to companies that offer something functionally equivalent to traditional telephone service with VoIP as the transmission technology.[77]

Today, interconnected VoIP providers must contribute to universal service,[78] offer access to law enforcement subject to legitimate wiretaps,[79] provide E911 emergency service,[80] support users with disabilities,[81] protect the privacy of customer information they use to complete calls,[82] offer number portability,[83] and report service outages.[84] The FCC has adopted all these requirements, which have been relatively uncontroversial, without ever having to decide whether certain forms of VOIP fall under the definition of "telecommunications service" subject to Title II of the Communications Act.

These obligations represent a reasonable starting point for a new post-PSTN social contract. The FCC will ultimately need to adopt a comprehensive set of requirements that applies more broadly than just to interconnected VoIP providers, but for the most essential obligations that

76. *See* Rob Frieden, *The Mixed Blessing of a Deregulatory Endpoint for the Public Switched Telephone Network*, 37 TELECOMM. POL'Y 400 (May–June 2013).

77. 47 C.F.R. §§ 9.3, 54.5 (2007) (defining "interconnected VoIP service").

78. *See* Universal Serv. Contribution Methodology, *Report & Order & Notice of Proposed Rulemaking*, 21 FCC Rcd. 7518, ¶ 2 (2006), *aff'd sub nom.* Vonage Holdings Corp. v. FCC, 489 F.3d 1232, 1241 (D.C. Cir. 2007).

79. *See* Commc'ns Assistance for Law Enforcement Act & Broadband Access & Servs., *First Report & Order & Further Notice of Proposed Rulemaking*, 20 FCC Rcd. 14,989, ¶¶ 1, 4 (2005).

80. *See* IP-Enabled Servs., *First Report & Order & Notice of Proposed Rulemaking*, 20 FCC Rcd. 10,245, 10,257–58, ¶ 24 (2005), *aff'd*, Nuvio Corp. v. FCC, 473 F.3d 302 (D.C. Cir. 2006).

81. *See* IP-Enabled Servs., *Report & Order*, 22 FCC Rcd. 11,275, ¶ 1 (2007); IP-Enabled Servs., *Order & Public Notice*, 22 FCC Rcd. 18,319, ¶¶1–3 (2007) (granting in part and denying in part waivers of the FCC order); *see also* Contributions to the Telecomms. Relay Servs. Fund, *Report & Order*, 26 FCC Rcd. 3285, ¶ 1 (2011).

82. *See* Implementation of the Telecomms. Act of 1996: Telecomms. Carriers' Use of Customer Proprietary Network Info. & Other Customer Info., *Report & Order & Further Notice of Proposed Rulemaking*, 22 FCC Rcd. 6927, ¶ 1 (2007), *aff'd sub nom.* Nat'l Cable & Telecomm. Ass'n v. FCC, 555 F.3d 996, 1003 (D.C. Cir. 2009).

83. *See* Tel. No. Requirements for IP-Enabled Servs. Providers, *Report & Order, Declaratory Ruling, Order on Remand, & Notice of Proposed Rulemaking*, 22 FCC Rcd. 19,531, ¶ 1 (2007).

84. Proposed Extension of Part 4 of the Comm'n's Rules Regarding Outage Reporting to Interconnected Voice Over Internet Protocol Serv. Providers & Broadband Internet Serv. Providers, *Report & Order*, 27 FCC Rcd 2650, ¶¶ 89, 98 (2012).

aren't tied to competition, it has a template that can be extended in a straightforward way.

There is, however, a significant gap that remains. The obligations on interconnected VOIP sketch out the particular social obligations that have accumulated over time for telecommunications providers. As discussed earlier, however, a social contract embodies a broader conception. If social contract thinking is intended to surface and encode important values, those values are not limited to the specifics of historical regulation. As described in Part II, one of the most fundamental of these values is ubiquity. And the most effective means to promote ubiquity and its downstream benefits is openness.

The concept of openness has been the subject of significant debate and controversy for the past several years in the context of network neutrality.[85] The FCC, in fact, styled its 2010 decision on the topic as "Preserving the Open Internet."[86] The FCC and proponents of network neutrality have expressly linked the benefits of Internet openness to the historical openness of the telephone network, even though the FCC has not chosen to impose Title II telecommunications regulation on broadband access. As I have written elsewhere, network openness, manifested as interconnection obligations, has a long and distinguished history as a parallel concept to non-discrimination.[87]

Openness means that other service providers, device manufacturers, and content providers can connect to the network without undue hindrance. This in turn may require interconnection mandates or technical standards to facilitate smooth interconnection.[88] In the argot of contemporary software and online services, openness involves modular design and well-established application programming interfaces (APIs) for third parties.[89] Thirty years ago, however, before there even was a commercial Internet market, the FCC was thinking along the same lines.

In 1986, FCC Chairman Mark Fowler and two FCC staffers published an article in the *Federal Communications Law Journal* that exhibits interesting parallels to the debate today.[90] "[N]ew technologies and the introduction of competition have transformed the nature of the telecommunications industry in the United States," they began.[91] The result, they argued, was that "traditional public utility regulation of

85. *See* Formal Complaint of Free Press and Pub. Knowledge Against Comcast Corp. for Secretly Degrading Peer-to-Peer Applications, *supra* note 40.

86. Preserving the Open Internet, *supra* note 40.

87. *See* Werbach, *supra* note 16.

88. *See* Werbach, *supra* note 27.

89. *See* Jay P. Kesan & Rajiv C. Shah, *Deconstructing Code*, 6 YALE J.L. & TECH. 277 (2004); CARLISS Y. BALDWIN & KIM B. CLARK, DESIGN RULES, VOLUME 1: THE POWER OF MODULARITY (2000).

90. Fowler et al., *supra* note 5.

91. *Id.* at 146.

telecommunications has come under greater and greater stress."[92] In response, they advocated trials in which regulation would be suspended for a period of time, after companies had implemented certain safeguards. The parallel to AT&T's proposal for "all-IP" trials a quarter century later is hard to miss.[93]

The primary backstop the Fowler article advocated was Open Network Architecture (ONA).[94] ONA grew out of the FCC's *Computer III* proceeding in the mid-1980s, and struggled along for roughly fifteen years.[95] The FCC wanted to remove structural separation requirements that prevented the incumbent local telephone companies from offering enhanced services on an integrated basis, without creating completely separate arms-length entities. To prevent the carriers from excluding or disadvantaging competing enhanced service providers, it adopted two requirements. The carriers had to file comparably efficient interconnection (CEI) plans detailing how competitors would have access to the same features as their own services.[96] And they had to develop ONA plans.[97]

ONA was an ambitious effort to turn the proprietary telephone network into a set of standardized modules, which could be made available on non-discriminatory rates to competitors and other providers.[98] It was, in some ways, the foundation of an alternate Internet; a programmable cloud accessible to all services. Unfortunately, the vision proved difficult to realize. Enhanced service providers and carriers fought over the terms of ONA implementation, and the courts remanded the overall *Computer III* framework to the FCC.[99] The 1996 Telecommunications Act and the growth of the Internet took more steam out of the sails of ONA, and the FCC eventually closed down the process before it ever really got off the ground.

Fowler's article therefore provides an indication more of what might have been than what actually was, or perhaps could have been. It is useful less for its reliance on ONA specifically than for the recognition that open access could be a necessary and potentially sufficient bulwark

92. *Id.*

93. *See* Technology Transitions Policy Task Force Seeks Comment on Potential Trials*, Reply Comments of AT&T Services, Inc.*, GN Dkt. No. 13-5 (2013), *available at* http://apps.fcc.gov/ecfs/comment/view?id=6017462198.

94. *See* Filing and Review of Open Network Architecture Plans, *Memorandum Opinion and Order*, 4 FCC Rcd. 1 (1988) (BOC ONA Order), *petition for review denied*, California v. FCC, 4 F.3d 1505 (9th Cir. 1993).

95. *See* Kevin Werbach, *The Federal Computer Commission*, 84 N.C. L. REV. 1, 22–26 (2005); Robert Cannon, *The Legacy of the Federal Communications Commission's Computer Inquiries*, 55 FED. COMM. L.J. 167, 203 (2003).

96. *See* Werbach, *supra* note 95, at 24–25.

97. *See id.* at 25

98. *See id.*

99. *See id.* at 25–26.

to advance a social contract for telecommunications, in a period of deregulation and technological transformation.

As Ronald Reagan's FCC Chairman, Fowler was an aggressive proponent of deregulation. Even he, though, recognized that deregulation of telecommunications markets had to be accompanied by a limited set of baseline obligations to ensure a sufficient level of market functionality. As Fowler and his co-authors pointed out, the "social contract" deregulation proposals under discussion at that time in the states defined that baseline in terms of retail price caps.[100] They criticized that approach for leaving in place and even exacerbating the pricing distortions of regulation, because it would force artificial hidden subsidies to flow to the entire class of residential subscribers. In essence, their alternative proposal was to let prices be set by market forces, allow states to implement targeted subsidies from general tax revenues, and rely on Open Network Architecture to protect competition and innovation.

Fowler's proposal was never adopted. This might be a good time to re-examine it. A new open network architecture could be the foundation for thinking about how technical mechanisms could mediate anti-competitive behavior, reducing the need for intrusive regulation. Network operators themselves have been moving in this direction, with standards for the convergence of voice, data, fixed, and mobile networks that are based on a modular architecture. Moreover, a focus on network access would help to address the kinds of controversies that are becoming increasingly central as activity shifts towards broadband Internet-based networks and controversies involving network operators and providers at the edges of those networks.

Increasingly, debates over network neutrality have shifted from concerns over blocking and degrading traffic to "paid prioritization" or "freezone" arrangements in which certain providers receive either accelerated performance or exemption from data caps.[101] Such arrangements have no clear analogue in the old telephone world. Moreover, the rise of content delivery networks and cloud computing create incentives for edge providers to demand new kinds of interconnection with access providers.[102] Netflix, for example, has developed a system called OpenConnect that caches video close to the edge for better performance and reduced transport costs.[103] However, it

100. Fowler et al., *supra* note 5.

101. *See* Kevin Werbach & Phil Weiser, *The Perfect and the Good on Network Neutrality*, HUFFINGTON POST (Apr. 27, 2014, 6:03 PM), http://www.huffingtonpost.com/kevin-werbach/network-neutrality_b_5221780.html.

102. *See* Werbach, *supra* note 16.

103. *See* Miriam Gottfried, *Netflix Ages Gracefully*, WALL ST. J. (Oct. 14, 2013, 5:31 PM),

requires permission to locate its servers inside access provider networks, which so far the access providers have been reluctant to grant.[104]

An open network architecture approach will require significant additional work to flesh out. There must be an appropriate balance between micro-management and a hands-off approach that fails to produce a useful architecture. The FCC was unsuccessful in this effort for the original ONA. There is no guarantee it will be up to the task now. However, it can build on the long history of social contract obligations in telecommunications. As Internet-based services increasingly undermine longstanding brick-and-mortar industries, the kinds of questions facing the FCC will be debated in many quarters. Looking to history, both distant and recent, offers the best hope for resolving the tensions in a way that promotes competition, investment, innovation, and broader societal values.

http://online.wsj.com/news/articles/SB10001424052702304330904579135842514498038.

104. *See* Brian Fung, *Netflix Speeds Are Down. But Don't Blame Verizon.*, WASH. POST (Feb. 12, 2014), http://www.washingtonpost.com/blogs/the-switch/wp/2014/02/12/netflix-speeds-are-down-but-dont-blame-verizon/.