
ARTICLES

TRANSPORTING COMMUNICATIONS

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The Comcast Situation, the latest development in a story of increasing private control over access to basic communications functions, has brought national attention to the way in which this country conducts its communications policy. In this Article, Professor Crawford suggests that the FCC's ad hoc treatment of Comcast reveals the fundamental incoherence of current communications law. After tracing the history of the non-discrimination principle in U.S. treatment of telegraphy and telephony, Professor Crawford suggests that regulatory gymnastics and credulous courts have caused us to forget that private discriminatory control over basic communications networks has never been acceptable. At the same time, public uproar over growing private domination of this basic service is rising to the level that caused the U.S. to create its communications legal structure in the first place. Professor Crawford calls for reforms that will restore the role of basic non-discriminatory transport that the framers of U.S. communications law had in mind. Open access fiber installations should be the rule. Making access to dumb, dark, and cheap fiber ubiquitous will provide this essential kernel of non-discriminatory transport.

INTRODUCTION

Your World. Delivered.

– AT&T slogan, introduced December 2005, following merger with SBC Communications, Inc.¹

It's the Network.

– Verizon Wireless slogan, introduced 2005.²

“What would be left in the common-carrier category?”

– Justice Ginsburg, during oral argument in *Brand X*³

“Whoever controls the telephone is powerful. Whoever controls the telephone and TV is very powerful. Whoever should one day control the

¹ See Stuart Elliott, *AT&T Prepares to “De-Brand” the Cingular Wireless Name*, N.Y. TIMES, Jan. 12, 2007, at C5.

² All About Verizon Wireless, <http://www.squidoo.com/about-verizon-wireless> (last visited Mar. 25, 2009).

³ Transcript of Oral Argument at 15, *Nat'l Cable & Telecomms. Ass'n v. Brand X Internet Servs.*, 545 U.S. 967 (2005) (No. 04-277).

telephone, TV, and the computer would be as powerful as God the Father.”

– Telequal 1979⁴

Over the last ten years, telephone and cable companies that provide Internet access have succeeded in persuading an industry-sympathetic Federal Communications Commission (“FCC” or “Commission”), deferential courts, and an inactive Congress to allow them to act just like all other profit-maximizing businesses. Yet despite having caused the FCC to eliminate any express ex ante legal obligation to treat all high-speed Internet communications equally, providers of Internet access services in this country – our new access providers for general-purpose communications, whose services are replacing the telephone all over the country – still want to portray themselves as wide-open, even-handed carriers of information. Users of Internet access services, for their part, believe these companies are fundamentally in the transport business and have a duty to carry all communications presented to them without discrimination.

This substantial gap between user belief (recently articulated by millions of Americans surprised by Comcast’s well-publicized discrimination against popular peer-to-peer applications)⁵ and regulatory reality presents a puzzle. The depth of user interest in this set of regulatory issues suggests the existence of a powerful, populist countervailing force that is resisting the Commission’s abandonment of its traditional obligation to assure equal access to basic communications. On a larger scale, concerns about private discrimination may have once again mounted towards the heights that drove this country to adopt the original paradigm of regulation in the telecommunications field: administrative oversight of an industry providing common carrier services.⁶ The challenge in resolving this puzzle is to find a model of regulation that maintains the essential nugget of basic, common carriage non-discrimination regulation without resurrecting the superstructure of heavy-handed rate-based governmental micromanagement that both regulator and regulated were happy to dismantle.

The founders of United States communications law chose to allow private companies in the telegraphy and telephone business to provide general-purpose⁷ communications services subject to a key regulatory requirement:

⁴ ROBERT J. THOMAS, NEW PRODUCT SUCCESS STORIES 118 (1995).

⁵ See *infra* Part II.H.

⁶ Joseph D. Kearney & Thomas W. Merrill, *The Great Transformation of Regulated Industries Law*, 98 COLUM. L. REV. 1323, 1325 (1998).

⁷ I use the term “general purpose” to distinguish between broadcast law, which has never treated broadcasters as general-purpose communications networks, and telegraph/telephone law, which has always treated these networks as general-purpose communications facilities. In the words of MIT professor J.C.R. Licklider, broadcast television has rarely been considered “a medium for two-way communication or as a way of transmitting the text of a

non-discrimination against particular sources of messages or particular message content. They chose this model having in mind a long tradition of imposing non-discrimination obligations on companies that are involved in the general-purpose transport of communications. As a result, general-purpose communications network law over the last 150 years in this country has assumed the existence of an underlying non-discriminatory network.

Just as telephony replaced telegraphy, access to the Internet has replaced telephony as the new basic, general-purpose communications network. Now, high-speed access to the Internet is replacing dial-up access. The history of telecommunications law in this country suggests that there should be a strong tidal pull towards requiring all providers of high-speed access to the Internet to provide transport services on a non-discriminatory basis, but the facts on the ground are quite different. We have somehow emerged with a model of communications law that is unmoored from the basic structure of non-discriminatory transport that gave rise to the communications legal structure in the first place.

Scholars have focused intensely on the idea of “network neutrality” in the last seven years or so, with Professors Larry Lessig and Tim Wu leading the way.⁸ Many academics have attempted to theorize the importance of neutral, non-discriminatory Internet access to innovation and economic growth, including Brett Frischmann and Barbara van Schewick among others.⁹ There

book or the stimulus material for a course of programmed instruction.” J.C.R. Licklider, *Televistas: Looking Ahead Through Side Windows*, in CARNEGIE COMMISSION ON EDUCATIONAL TELEVISION, PUBLIC TELEVISION 201, 201 (1967). Broadcast networks were from the start dedicated to one-to-many entertainment-related content and subject to special content-related “public trustee” obligations. Hernan Galperin & François Bar, *The Regulation of Interactive Television in the United States and the European Union*, 55 FED. COMM. L.J. 61, 65-67 (2002). Although telegraphy and telephony networks were and are certainly optimized to carry particular modes of communication (telegraphs and phone calls, respectively), they came in time to be considered basic, ubiquitous, essential communications tools for two-way communications and were relied on by all Americans for this purpose. Instead of using the term telegraph/telephone law, I use the term “general-purpose” communications law.

⁸ See, e.g., LAWRENCE LESSIG, *THE FUTURE OF IDEAS: THE FATE OF THE COMMONS IN A CONNECTED WORLD* 34-35 (2001); Tim Wu, *Network Neutrality, Broadband Discrimination*, 2 J. ON TELECOMM. & HIGH TECH. L. 141, 142 (2003) [hereinafter Wu, *Broadband Discrimination*]; Tim Wu, *The Broadband Debate, A User’s Guide*, 3 J. ON TELECOMM. & HIGH TECH. L. 69, 70 (2004) [hereinafter Wu, *User’s Guide*]; Letter from Tim Wu & Lawrence Lessig to Marlene H. Dortch, Secretary, FCC 5 (Aug. 22, 2003), available at http://faculty.virginia.edu/timwu/wu_lessig_fcc.pdf.

⁹ See, e.g., Brett M. Frischmann, *An Economic Theory of Infrastructure and Commons Management*, 89 MINN. L. REV. 917, 939-41 (2005); Brett M. Frischmann & Barbara van Schewick, *Network Neutrality and the Economics of an Information Superhighway: A Reply to Professor Yoo*, 47 JURIMETRICS J. 383, 384 (2007); Mark A. Lemley & Brett M. Frischmann, *Spillovers*, 107 COLUM. L. REV. 257, 297 (2007); Barbara van Schewick,

has also been intense scholarly discussion of the regulatory treatment of modern communications networks under current statutory law.¹⁰ But both the positive historical social role of the non-discrimination framework in communications law and the dramatic subversion of that framework during the last few years have been under-explored.¹¹ The objective of this Article is to fill this gap by closely analyzing the transformation in communications law that has occurred in the modern era.

In a nutshell, communications law has been gradually modified by concentrated telecommunications-industry groups to favor their commercial interests: the requirement to provide non-discriminatory access to their general-purpose communications networks has been eliminated. This move is part of the wave of deregulatory fervor that washed over this country during the last thirty years.¹² The underlying telecommunications statute has stayed just about the same, but it has been interpreted by a set of regulatory gymnasts and “credulous” (Justice Scalia’s word)¹³ courts in a way that has undermined the coherence of communications law. Now the question is whether the rise in public awareness of the discriminatory capabilities of basic communications transport companies will force a change and what form the new regime should take.

The conventional view of the dismantling of the central communications framework of non-discrimination is that it was inevitable given the economic pressures to which the carriers have been subject over the last few years.¹⁴ On

Towards an Economic Framework for Network Neutrality Regulation, 5 J. ON TELECOMM. & HIGH TECH. L. 329, 383 (2007).

¹⁰ See, e.g., Eli M. Noam, *Beyond Liberalization II: The Impending Doom of Common Carriage*, 18 TELECOMM. POL’Y 435, 435 (1994); James B. Speta, *FCC Authority to Regulate the Internet: Creating It and Limiting It*, 35 LOY. U. CHI. L.J. 15, 19 (2004); Kevin Werbach, *Breaking the Ice: Rethinking Telecommunications Law for the Digital Age*, 4 J. ON TELECOMM. & HIGH TECH. L. 59, 95 (2005); Christopher S. Yoo, *Beyond Network Neutrality*, 19 HARV. J.L. & TECH. 1, 13-18 (2005) [hereinafter Yoo, *Beyond*]; Christopher S. Yoo, *Network Neutrality and the Economics of Congestion*, 94 GEO. L.J. 1847, 1907-08 (2006) [hereinafter Yoo, *Economics of Congestion*].

¹¹ Mark Cooper, in *Open Communications Platforms: The Physical Infrastructure as the Bedrock of Innovation and Democratic Discourse in the Internet Age*, 2 J. ON TELECOMM. & HIGH TECH. L. 177, 178-80 (2003), and Tim Wu, in *Why Have a Telecommunications Law? Anti-Discrimination Norms in Communications*, 5 J. ON TELECOMM. & HIGH TECH. L. 15, 17 (2006), have touched on this subject, but have not focused on the crucial history of “information services” over the last fifty years.

¹² Kearny & Merrill, *supra* note 6, at 1337-40 (describing the shift from social-welfare, public-interest regulation of telecommunications to competition-based regulation).

¹³ Nat’l Cable & Telecomms. Assoc. v. Brand X Internet Servs., 545 U.S. 967, 1013 (2005) (Scalia, J., dissenting).

¹⁴ See, e.g., Howard A. Shelanski, *Adjusting Regulation to Competition: Toward a New Model for U.S. Telecommunications Policy*, 24 YALE J. ON REG. 55, 57 (2007) (proposing eliminating ex ante non-discrimination regulation in favor of ex post competition enforcement).

this view, this dismantling has no particular precedent – it merely marks the coming of a new age of communications – and there is no reason to fix this state of affairs through legislation or other government actions. Even more mechanically, lawyers for the incumbent high-speed Internet access services will assert that *because* the FCC has classified high-speed Internet access service as an “information service” under the current telecommunications statute (which has no non-discrimination obligation), not a “telecommunications service” (which would be subject to a non-discrimination obligation), that classification must be deferred to; end of story, no non-discrimination required.

In this Article, I present a different view of both the historical precedent for the dismantling of the common carriage framework and the need for decisive reform of the current situation. Current general-purpose communications law is failing us. It is incoherent to have a communications system that does not include non-discriminatory access to general-purpose communications.

We have ample precedent for this point of view, because the history of the telegraph and telephone shows that companies providing general-purpose access services given sufficient legal discretion will both discriminate against particular communications in favor of their own complementary businesses and act on the content of messages they are asked to transmit, to their own commercial advantage. There are many good social and economic reasons to maintain the non-discrimination requirement that constrained those activities in the past. To have a communications law *without* this principle in place puts our general-purpose communications network – yesterday, the telephone; today, the Internet – at great risk of control by private entities, something lawmakers have done their best to avoid in the past. To ignore this history requires abandoning the kernel of social-welfare regulation that the FCC was formed to carry out.

Part I describes the evolution of the common carriage framework for the general-purpose communications networks of telegraphy and telephony. That history demonstrates that private entities in the basic transport and communications businesses have been understood to be standing in for the sovereigns that were traditionally involved in providing basic, general-purpose communications services to their citizens. We may have outsourced the function, but we have retained the non-discrimination obligation subject to which the function operates. Market power is not the reason that this non-discrimination obligation has been imposed on basic communications networks; we have it because of the essential, utilitarian, social nature of the function itself.

Part II analyzes the statutory story by examining the sources of the current “information service”/“telecommunications” dichotomy in some detail. Although the Supreme Court’s *Brand X* opinion ignored the history of this

dichotomy,¹⁵ the classification of something as a (non-basic) “information service” is based on the concomitant continued existence of a non-discrimination obligation for basic transport. The Commission’s own “Computer Inquiries” (drawn-out proceedings that began in the 1960s) as well as the American Telephone and Telegraph Company (“AT&T”) consent decree of 1956, the divestiture of 1984, and the 1996 Telecommunications Act itself support this interpretation.¹⁶

Part III argues that three conditions provide the necessary context for decisive return to the non-discrimination portion of the common carriage ideal: (1) the longstanding national policy consensus as to the importance of Internet access to economic growth and innovation; (2) the growing popular instinct (now linked to public activist involvement) that the provision of non-discriminatory access to basic communications is akin to a traditional government function; and (3) the impossibility of “fixing” communications discrimination through post hoc adjudications. Part III also responds to a number of arguments against non-discrimination requirements.

Part IV offers proposals for remedying the current situation. Our laws are outdated and ineffective, and a true *ex ante* non-discrimination legal framework for general-purpose communications will require cooperation from Congress and the new administration. The elements of this legal framework must include the complete structural separation of network operators from other businesses, federal subsidies for network provision in rural and other underserved areas, and the central non-discrimination provision that is the subject of this Article. Part IV includes a simple technical explanation of how this new regime would work. Mandating the offering of access to “dark” fiber optic cable installations (in which the lasers and other electronic equipment have not yet been installed)¹⁷ to any retail communications business on a non-discriminatory basis would provide the kernel of non-discriminatory access that is needed in this country. Laying fiber is expensive, and so this effort may require extensive government involvement; but that is what government is for.

I. COMMON CARRIAGE – WHAT COMMUNICATIONS LAW IS FOR

The idea that general-purpose communications networks should be subject to non-discrimination obligations, and that those obligations are understood to benefit the rest of society, has a long history. This Part will unpack two parts of this idea: first, the tangled history of the legal notion of “common carriage” in this country, and second, why those obligations have historically been seen to benefit the rest of society.

¹⁵ See *Brand X*, 545 U.S. at 976-79 (summarizing the Commission’s findings without looking into the history of the dichotomy).

¹⁶ See discussion *infra* Parts II.A-C.

¹⁷ “Dark fiber” simply means glass fiber optic threads with nothing attached to them and thus no light being sent through them. See George Gilder, *Into the Fibersphere*, FORBES ASAP, Dec. 7, 1992, <http://www.discovery.org/a/44>.

A. *Common Carriage*

1. History

“Common carriage” for communications networks has its roots in two very different sources of law: the law of bailment, under which carriers were responsible for the goods they carried, and the law of franchise and monopoly, under which companies allowed by the state to provide general communications or transport networks were required not to discriminate and to serve each comer equally.¹⁸ Following the first of these two threads, from which the label “common carriage” came to communications without its underlying meaning, common carriers of goods had been treated as insurers, responsible for the goods they were carrying. This strict liability approach was supposed to make carriers more responsible, and did not necessarily carry with it a duty to serve all comers or serve them equally.¹⁹

Following the second thread, from which the meaning (but not the label) of “common carriage” came, certain basic transportation businesses (e.g., operators of ports or cranes through a license with the sovereign) historically had a duty to serve all comers and serve them equally.²⁰ The content of these non-discrimination rules (again generally) was that the franchisee or other transportation network provider must “grant access to their property on equal terms without discriminating among applicants.”²¹ Such non-discrimination rules were applied to telegraphy providers from the mid-nineteenth century onwards, and to telephony providers when they started business in the late-nineteenth century.²²

An 1848 New York statute regulating telegraphy providers stated, for example:

It shall be the duty of the owner or the association owning any telegraph line, doing business within this state, to receive dispatches from and for

¹⁸ See WILLIAM JONES, THE COMMON CARRIER CONCEPT AS APPLIED TO TELECOMMUNICATIONS: A HISTORICAL PERSPECTIVE 9-10 (1980), available at <http://www.cybertelecom.org/notes/jones.htm>; Thomas B. Nachbar, *The Public Network*, 17 J. COMM. L. & POL’Y 67, 83 (2008).

¹⁹ See JONES, *supra* note 18, at 10. The FCC came to the same conclusion as to this history in its 1981 proceeding. Policy and Rules Concerning Rates for Competitive Common Carrier Services and Facilities Authorizations, 84 F.C.C.2d 445, ¶ 8 (1981) [hereinafter *FCC 1981 Rules*]. Private carriers would not have been liable as insurers, but “common carriers” would have been. See *id.* ¶ 123, at 493.

²⁰ See Matthew Hale’s 1670 description of port facilities, bridges, ferries, and the like as being private businesses that are nonetheless “affected with the public interest.” *Munn v. Illinois*, 94 U.S. 113, 127-29 (1876) (citing *Bolt v. Stennett*, (1800) 101 Eng. Rep. 1572, 1573).

²¹ Nachbar, *supra* note 18, at 70 (citing *Interstate Commerce Comm’n v. Balt. & Ohio R.R. Co.*, 145 U.S. 263, 275 (1892)).

²² See JONES, *supra* note 18, at 12.

other telegraph lines and associations, and from and for any individual, and on payment of their usual charges for individuals for transmitting despatches [sic], as established by the rules and regulations of such telegraph line, to transmit the same with impartiality and good faith, under penalty of one hundred dollars for every neglect or refusal to do so²³

Similarly, a statute from 1850 provided:

Any person connected with a telegraph company . . . who shall wilfully [sic] divulge the contents, or the nature of the contents, of any private communication entrusted to him for transmission or delivery, or who shall willfully refuse or neglect to transmit or deliver the same, shall . . . be adjudged guilty of a misdemeanor²⁴

Virginia, Michigan, Connecticut, Illinois, California, Maryland, Missouri, Kentucky, Louisiana, Wisconsin, Massachusetts, Pennsylvania, and Iowa, among other states and territories, all passed laws in the mid-nineteenth century that incorporated non-discrimination obligations directed at telegraphy companies.²⁵

Thus, telegraph companies had duties to serve all upon reasonable terms – even if they were not common carriers for purposes of liability, and even if they were tiny systems with no possibility of dominating any market.²⁶ When telephone companies started doing business in the 1870s, similar non-discrimination obligations were imposed on them by state²⁷ and federal law.²⁸

2. Common Carriage and Communications Statutes

The shift that applied the label of “common carriage” status to communications companies in this country occurred because railroads played both carrier roles – they both carried goods *and* were in the transportation business to which non-discrimination obligations traditionally applied. Railroad law was the precedent for communications law when the Interstate Commerce Commission (“ICC”), then responsible for railroad regulation, took on the responsibility of telephony under the Mann-Elkins Act of 1910.²⁹

²³ Act of Apr. 12, 1848, ch. 265, 1848 N.Y. Laws 392, 395.

²⁴ Act of Apr. 10, 1850, ch. 340, 1850 N.Y. Laws 739, 739.

²⁵ JONES, *supra* note 18, at 32.

²⁶ It is important to note that domestic telegraph systems were usually state owned at this point in all developed countries other than the United States and Canada. See Robert Pike & Dwayne Winseck, *The Politics of Global Media Reform, 1907-23*, 26 MEDIA, CULTURE & SOC’Y 643, 645 (2004).

²⁷ JONES, *supra* note 18, at 44.

²⁸ *Id.* at 37 (discussing 1860, 1864, and 1888 federal legislation requiring non-discrimination).

²⁹ Mann-Elkins Act, ch. 309, 36 Stat. 539, 544-45 (1910) (codified as amended at 47 U.S.C. § 601 (1934)). The ICC was created by the Interstate Commerce Act of 1887; the

Acting in response to popular concern over private discrimination over general-purpose communications networks, Congress simply treated telephone and telegraph companies like railroads, declaring them to be common carriers who would have to offer their services without discrimination to all comers and whose rates would be set by the ICC.³⁰ The label “common carriage” came without its liability baggage, and the term came to stand for its central non-discrimination obligation.

Because the ICC’s job was primarily railroad regulation, it was criticized for not paying enough attention to communications regulation, particularly as mergers continued between the Bell System and local networks.³¹ Title II of the Communications Act of 1934³² shifted responsibility for communications away from the ICC to the new FCC, but retained the then-existing railroad standards that the ICC had been administering.³³

Title II, as enacted in 1934 and as amended in 1996, set up a detailed set of “common carriage” obligations, including furnishing service on reasonable request, charging just and reasonable rates, and making unlawful unreasonable price or service discrimination.³⁴ Common carriers were defined generally as “any person engaged as a common carrier for hire.”³⁵ The “rate base” regulation called for by Title II required the agency to set the rate of return the firm is allowed to collect, decide what property will be part of the rate base (and how quickly it may be depreciated), decide which operating expenses are

overriding goal of that Act was unquestionably non-discrimination. See Kearney & Merrill, *supra* note 6, at 1332.

³⁰ Kearney & Merrill, *supra* note 6, at 1332. At the time, AT&T (which had a monopoly position in long-distance telephone services) controlled the monopoly telegraph provider, Western Union. This and AT&T’s subsequent efforts to discriminate in favor of its telegraph arm are described in Part II.A-B.

³¹ There is more detail to this story than is within the scope of this Article. At the time of the Mann-Elkins Act, AT&T also sold local telephone services. To protect those services, it refused to allow competitive local carriers to connect to its long-distance lines. In 1913, AT&T entered into the “Kingsbury Commitment,” which mandated interconnection between AT&T long distance and competitive local carriers. See GERALD W. BROCK, *THE TELECOMMUNICATIONS INDUSTRY: THE DYNAMICS OF MARKET STRUCTURE* 155 (1981).

³² Act of June 19, 1934, ch. 652, 48 Stat. 1064, 1070-81 (codified as amended at 47 U.S.C. §§ 201-231 (2000)).

³³ See Jonathan Weinberg, *The Internet and “Telecommunications Services,” Universal Service Mechanisms, Access Charges, and Other Flotsam of the Regulatory System*, 16 *YALE J. ON REG.* 211, 217 (1999).

³⁴ 47 U.S.C. § 201(a)-(b) (2000). Section 205 grants the FCC the authority to set carrier rates and dictate practices. *Id.* § 205. Section 201(a), which includes the duty to serve, was based on Section 3 of the Interstate Commerce Act. Act of Feb. 4, 1887, ch. 104, 24 Stat. 379, 380; see *FCC 1981 Rules*, *supra* note 19, ¶ 106, at 486.

³⁵ 47 U.S.C. § 153(10). This definition is somewhat circular.

appropriate, review tariffs (schedules of services published by the firm), and set up accounting systems that can handle all of this work.³⁶

Given the absence of clear guidelines for dividing legal persons engaged in communication from “common carriers,” there has been an understandable tussle over what precise enterprises the “common carrier” category contains. The FCC believes it has been given an ambiguous statute and no principles for interpreting this category, and so has the discretion to decide for itself.³⁷ Up until 1981, the Commission took the view that common carriers were persons “engaged in rendering communication service for hire to the public.”³⁸ This social understanding of communications regulation was widely-held; it amounted to the acceptance of the idea that government oversight of common carrier services was appropriate and necessary to ensure that these services were reasonable and non-discriminatory, whether or not carriers were market powerful.³⁹ Based on this interpretation by the FCC, and on its own view of the common law, the D.C. Circuit decided in 1976 that common carriers were those who “held themselves out” as providing communications services to the public.⁴⁰

3. Common Carriage Since 1981

In 1981, the FCC sharply rejected the “holding out” test in considering the question of deregulating telecommunications services provided by “competitive common carriers” (at the time, everyone other than AT&T).⁴¹ This turn has affected the Commission’s interpretation of “common carriage” ever since. The Commission in its 1981 proceeding took the approach that market power was the essential element that had driven the adoption of common carriage regulation⁴² – and that to oblige non-market-powerful companies not to discriminate would be “contrary to the public interest.”⁴³ The Commission rejected entirely the suggestion that it look to other industries (such as trucking and aeronautics) that had been comprehensively regulated without relying on market power determinations.⁴⁴ Looking to the history of

³⁶ *Id.* § 252.

³⁷ *FCC 1981 Rules*, *supra* note 19, ¶ 54(b), at 463.

³⁸ 47 C.F.R. § 21.2 (2007).

³⁹ *See* Kearney & Merrill, *supra* note 6, at 1334-35.

⁴⁰ *Nat’l Ass’n of Regulatory Util. Comm’rs v. FCC*, 525 F.2d 630, 641-42 (D.C. Cir. 1976).

⁴¹ *FCC 1981 Rules*, *supra* note 19, ¶ 62, at 468.

⁴² *Id.* ¶ 15, at 450.

⁴³ *Id.* ¶ 6, at 447.

⁴⁴ *Id.* ¶ 63, at 469 (“[W]e are unwilling to assume, as some commenters do, that the similarity of regulatory schemes connotes equivalency of regulatory purpose.”). Eleven paragraphs later, however, the Commission cited an aeronautics case (from a “sister agency”) for the proposition that it has broad authority to forbear from regulating. *Id.* ¶ 74, at 474.

the 1934 Act,⁴⁵ which was adopted at a time when there was almost no competition for telecommunications services, the Commission declared that this history indicated the essential purpose of the common carriage regime was to constrain market-power-enabled abuses.⁴⁶ This mandatory de-tariffing was eventually struck down by the D.C. Circuit because it did not comply with the 1934 Communications Act.⁴⁷

Thus, operators of physical transportation networks (for both tangible and intangible goods) have traditionally been subjected to non-discrimination obligations because of their “public,” transportation-related character. Under the 1996 Act (and its predecessors the 1934 Act and the Mann-Elkins Act),⁴⁸ communications network providers came to be understood as “common carriers.” Although this label used the words “common carrier,” it did not carry with it the “insurer” basis for those words. Instead, telecommunications common carriers were subject to duties of non-discrimination based on their standing as transporters of basic communications, not on their market dominance or “necessity.”⁴⁹ Notwithstanding this history, since the 1981 proceeding the Commission has frequently taken the view that only “market powerful” providers of basic telephone services should be subject to non-discrimination obligations.⁵⁰ It asserts “discrimination” does not exist in a competitive market.

In essence, the Commission has shifted from the notion that non-discriminatory access to general-purpose communications networks is *always* necessary because of their public-ness and the spillover effects they create

⁴⁵ Act of June 19, 1934, ch. 652, 48 Stat. 1064.

⁴⁶ *FCC 1981 Rules*, *supra* note 19, ¶ 14, at 450. This statement about the essentiality of market power was incorrect, at least in regards to non-discrimination obligations. The Commission was engaging in a kind of was-ought analysis, moving from the dominance of the Bell System at the time of the adoption of the 1934 Act to the assertion that this dominance was the reason that common carriage obligations were imposed by the Act. It is true that at the time of the 1934 Act, the Bell System “had a virtual monopoly of all interstate telephone communications, 94.3 percent of the operating revenues of all substantial telephone companies, and 89.8 percent of all local exchange messages.” *Id.* ¶ 43, at 459. Western Union and International Telephone & Telegraph (“ITT”) dominated telegraph communications, together accounting for 99.9 percent of all cable and telegraph revenues. *Id.* ¶¶ 44-46, at 460. It is not true that common carriage obligations arose at the moment the 1934 Act was adopted; as described above, they had been present for all general-purpose communication networks in the United States for almost one hundred years.

⁴⁷ *MCI Telecomms. Corp. v. FCC*, 765 F.2d 1186, 1195-96 (D.C. Cir. 1985); Kearney & Merrill, *supra* note 6, at 1338. The FCC’s desire to treat non-dominant carriers differently was later made possible by Congress inserting “forbearance” authority into the 1996 Telecommunications Act. Telecommunications Act of 1996, Pub. L. No. 104-104, § 401, 110 Stat. 56, 128-29 (codified as amended at 47 U.S.C. § 151 (2000)).

⁴⁸ See *supra* notes 29, 34, 45 and accompanying text.

⁴⁹ See 47 U.S.C. § 254.

⁵⁰ See *supra* notes 41-44 and accompanying text.

(non-discrimination presumption) to the idea that non-discriminatory requirements are *only* necessary where firms have monopoly power (discrimination presumption). It is on this “monopoly” rationale, and on the basis of its belief that the market for high-speed Internet access is competitive, that the Commission has gradually lifted non-discrimination obligations from providers of high-speed Internet access.⁵¹

Between the time of the enactment of the 1934 Act and that of the 1996 Act, the Bell System agreed in 1956 to stay out of the provision of non-common-carriage services.⁵² It then agreed to a divestiture in 1984 that broke up the Bell System and allowed AT&T (but not the local general-purpose Bell operating companies) to provide non-common-carriage services. Since then, and particularly in the last six years, the Bell System has effectively reconsolidated and is providing almost *nothing but* non-common-carriage services. I discuss this history in Part II.

B. *Why Non-Discrimination?*

Why have non-discrimination obligations been applied to companies in the transportation or network business, and not to other businesses? Professor Thomas Nachbar has carefully separated the different strands of “common carriage” history, and points out that, in general, non-discrimination rules have been imposed on industries when they have been considered to be “affected with the public interest” – and that those industries usually are related to physical transportation or communications networks.⁵³ Nachbar’s overall argument is that this element of *general physical transport* is central to the imposition of non-discrimination obligations.⁵⁴ There appears to be only a

⁵¹ See *infra* Part II.C; see also PROGRESS & FREEDOM FOUND., DIGITAL AGE COMMUNICATIONS ACT: PROPOSAL OF THE REGULATORY FRAMEWORK WORKING GROUP 3 (2005) (“The development of competition eliminates the need for laws designed to limit monopoly power, and, in particular, laws that presume – as both the telephony and cable television titles of the current Communications Act largely do – that all providers of certain kinds of services have dominant market power.”).

⁵² See *infra* Part II.B.

⁵³ Nachbar, *supra* note 18, at 70. Nachbar points out that government could itself provide a common carriage service, and thus make sure it was available non-discriminatorily; alternatively, it could contract with a private party to do so (as in the case of roads and ferries), conditioning the franchise agreement on an undertaking not to discriminate. *Id.* at 72-75. In this country, however, we have taken the position that private parties providing general-purpose communications networks are subject to non-discrimination obligations that are sometimes simply imposed by law (and not as part of a franchise agreement). *Id.* at 74.

⁵⁴ *Id.* at 104-07 (explaining that having the status of being a physical transport network, taken together with the “inherent public control over roads,” leads to non-discrimination obligations, rather than any other explanation).

weak correlation between market power or natural monopoly and the historical imposition of non-discrimination obligations.⁵⁵

Nachbar's suggestion, one also put forth by Professors Joseph Kearney and Thomas Merrill, is that it is the state's traditionally close relationship to transport, and the general transport-ness of the business, that brings a particular business under non-discrimination obligations – not the market power wielded by that business.⁵⁶ Because states have been closely related to physical transport and communications networks, these networks are treated differently.

But the mere existence of a long history of state involvement with transport does not necessarily tell us what the principled *basis* of that involvement is.⁵⁷ Highways have “always been governmental affairs,” but scholars have not been able to determine why. The link to physical transport provides one clue as to why certain businesses are obliged not to discriminate: these are commodity inputs (or infrastructure) essential to other industries and to society as a whole.⁵⁸ On the other hand, flour and salt are also commodity inputs, but they need not be provided on a non-discriminatory basis. It may be that the collective action problems involved in providing enough resources to build a road or a physical communications network (including cleared public land and the right to condemn private land) have always required the state to intervene; Nachbar suggests that having the state solve these collective action problems became a habit.⁵⁹

The answer may be more profound than that, for three reasons. First, there is nothing as fundamental to a successful polity as transport and communications, and if a state is to be useful to its members, and upheld by them, it has to be seen as providing these basic services. Roads and other basic communications networks are fundamental, basic inputs to the society the state wants to be seen as serving. Second, a physical road well-used by all is a visible reminder of a stable state as well as a useful commodity-transport mechanism. How else can a state make itself visible and easily extend its influence across its physical territory? Third, roads and basic communications networks are necessary to national competitiveness, generating spillovers that are not necessarily quantifiable. For all of these reasons, when roads and communications networks fall apart the state will rush in to fix them first, before grappling with buildings and other secondary services.

What, though, is the link between state involvement with physical transport and communications networks (or their centrality to the role of a state) and a

⁵⁵ *Id.* at 100 (“Natural monopoly remains as the dominant *economic* justification for imposing non-discriminatory access and rate regulation on industries, but while market power remains important to the non-discriminatory access debates, it does not adequately explain the scope of pre-twentieth-century limits on discrimination.”).

⁵⁶ See Kearney & Merrill, *supra* note 6, at 1334.

⁵⁷ Nachbar, *supra* note 18, at 103 (citing Noam, *supra* note 10, at 436-37).

⁵⁸ See Frischmann, *supra* note 9, at 1005.

⁵⁹ Nachbar, *supra* note 18, at 106-07.

requirement of non-discriminatory access? States have traditionally required that *their own* communications come first,⁶⁰ but that once their needs are served all other communications should be dealt with on a non-discriminatory basis. States may initially have become involved with transport and communications networks (even if the state was not providing the network itself) to ensure that the state's communications and vehicles could move smoothly and swiftly across the state's territory in the service of national security and law enforcement interests. After this self-protective priority is ensured, a second role of the state – ensuring equal access to essential physical utilities and services – can become operative.

Whatever the principled basis for the state's initial involvement and close relationship with transport and communications networks, this special relationship has existed for a long time. This involvement has traditionally included a requirement that the state ensure transport and communications networks used by the public for general purposes (such as the post) have a duty to serve all and not to discriminate.⁶¹ These requirements persist even when the state has enlisted the aid of a private company in providing a basic general-purpose transportation or communications function. In exchange for this burden of non-discrimination, these private carriers are permitted to use public rights of way when needed. The end result of all this history, whether intended or not, is that non-discrimination obligations for access to basic communications and transport networks have ended up serving a key role in

⁶⁰ As a current example, the Emergency Alert System (“EAS”) is a national public warning system that requires broadcasters (radio and television), cable television systems, wireless cable systems, wireline video providers, satellite digital audio radio service providers, and direct broadcast satellite service providers to make their communications facilities available to the President during a national emergency. See Emergency Alert System Message Priorities, 47 C.F.R. § 11.44 (2007) (requiring presidential emergency messages to “take priority over any other message [being carried by television or radio broadcasters, telephone, cable, or satellite] and preempt it if it is in progress”). In 2005, the DOJ suggested its emergency packets should have priority over all others online; in 2007, the FCC suggested spectrum be put aside for use by a commercial network whose packets would be preempted by first-responder communications if an emergency took place. See Susan P. Crawford, *The Ambulance, the Squad Car, and the Internet*, 21 BERKELEY TECH. L.J. 873, 874-75 (2006); Susan P. Crawford, *The Radio and the Internet*, 23 BERKELEY TECH. L.J. 933, 987-88 (2008).

⁶¹ See Ithiel de Sola Pool, *Government Regulation in the Communications System*, 34 PROC. ACAD. POL. SCI. 121, 122 (1982):

A common carrier is required to make its facilities available to all comers on a non-discriminatory basis. That is the essence of the matter; there are other typical but not universal regulations. . . . [N]ot all common carriers are monopolies (for example, taxis), and not all are denied the right of exit or have tariffs set under rate-of-return regulation. The only essential feature is nondiscriminatory access

Id.

providing commodity inputs to a great many products and services that have had an enormous impact on the growth and health of national economies.⁶²

Recent scholarship has dug deep into the importance of neutral networks to economic growth and innovation,⁶³ but has not explored the relationship between neutral general-purpose access networks for transportation and communications and the function of the state. The link to sovereignty provides the foundation lacking in arguments for neutral basic transport.

II. INFORMATION SERVICES

With the central non-discriminatory idea of common carriage as background, we can now explore what has happened to that principle over the last fifty years. In 1956, AT&T agreed to engage in no business *other than* the furnishing of common carrier non-discriminatory communications services.⁶⁴ The FCC's 1971 *Computer I* decision established a dichotomy between "communications" and "data processing," and ensured "communications" – the basic transport of unaltered messages that was AT&T's only legal business – remained subject to non-discrimination obligations.⁶⁵ Nine years later, in *Computer II*, the FCC reconceptualized this dichotomy as one between "basic services" – again, the pure transport of unaltered messages – and "enhanced services" like voicemail and data processing, and left non-discrimination obligations in place for basic services.⁶⁶ *Computer II* allowed common carriers into the "enhanced services" business for the first time, provided they met certain requirements and adhered to their common carrier obligations with respect to the "basic services" they offered. After the 1984 breakup of AT&T, the dichotomy was again reconceptualized as "telecommunications services" which were subject to non-discrimination obligations, and "information services," which were not.⁶⁷ Thus, for the last fifty years the idea of non-discriminatory access to basic communications was carved in stone. All other services depended on this basic transport.

In the current deregulatory era, the FCC has responded to the rise of the Internet – the new general-purpose network that is replacing the telephone – by classifying high-speed Internet access within the relatively unregulated "information services" category, free from non-discrimination restrictions. At the same time, AT&T has re-formed and is again a vertically-integrated, dominant network operator. Together with the few other vertically-integrated, dominant network providers that control communications in this country, AT&T has succeeded in breaking down the walls that formerly prevented it from being involved in discriminatory lines of business, by claiming its actions

⁶² See, e.g., *infra* note 215 and accompanying text.

⁶³ See, e.g., Frischmann, *supra* note 9, at 1016.

⁶⁴ See *infra* Part II.A.

⁶⁵ See *infra* Part II.A.1.

⁶⁶ See *infra* Part II.A.2.

⁶⁷ See *infra* Part II.B.

are adequately constrained by market competition (this argument has required some fancy footwork in the course of defining the relevant market). Indeed, AT&T and colleagues Verizon, Time Warner, and Comcast (who together control approximately seventy percent of residential Internet access in this country)⁶⁸ are moving as quickly as they can to avoid *any* remaining obligation to provide the non-discriminatory “transport of communications” services that were AT&T’s only business fifty years ago.

This Part analyzes this fifty-year evolution of communications policy. Policymakers fifty years ago were concerned that common-carriage telephone companies would control access to early computing services. To avoid this, regulators came up with the idea of categorizing new computing services differently from basic common carriage communications by calling these new services “data processing,” “enhanced services,” or finally, “information services” (the current form of words used for the same idea). This categorization and its implementation was designed to protect the computing industry from the depredations of the carriers. It was premised on the continued existence of basic, general-purpose, non-discriminatory access and transport. It was never designed to protect the carriers, although it has been pressed into that duty recently by the FCC.

Uncovering the history of the regulatory split between new computing services, on the one hand, and basic transport, on the other, helps explain why this split remains important. The continued existence of basic non-discriminatory transport has been a premise of communications policy for 150 years. Now, as a result of deregulatory actions by the Commission and the courts, and their exclusive reliance on “market power” arguments as the only possible basis for regulation, basic transport is almost extinct. Access to the Internet (now the relevant new form of basic, general-purpose communications access) is no longer constrained by a non-discrimination requirement. In this country, all high-speed Internet access providers are now private businesses that, like any other retailer, are free to discriminate in ways that serve their own profit-making goals. Meanwhile, other earlier forms of general-purpose communications networks, such as the postal system and the telephone network, are being replaced by Internet access. Recent events, including but not limited to Comcast’s 2007 throttling of popular peer-to-peer applications, demonstrate that a non-discrimination requirement is necessary.

Section A describes the history of the 1956 AT&T consent decree and its requirement that the company keep out of computing services. Section A also untangles the story of the first two FCC-run Computer Inquiries that led to the “information services” and “telecommunications services” categories we have today. Section B ties the history of the breakup of AT&T and the third Computer Inquiry that followed that breakup to this central division between

⁶⁸ YUANZHE (MICHAEL) CAI & JAMES KUAI, PARKS ASSOCS., NORTH AMERICAN BROADBAND MARKET UPDATE 1 (2008), http://parksassociates.ecnext.com/free-scripts/document_view_v3.pl?item_id=0256-9585&format_id=PDF.

information and telecommunications services. Section C analyzes the continuation of the Computer Inquiry approach in the 1996 Act, Section D describes how Internet access works, and Section E explains the main rationale behind treating Internet access as an “information service.” Section F turns to the *Brand X* decision of the summer of 2005, when the Supreme Court deferred to the FCC’s view that high-speed access to the Internet should be classified as an “information service.” Section G assesses the state of the market for high-speed Internet access (now categorized as an “information service”) today and surveys the substitution of Internet access for earlier general-purpose communications networks. Finally, Section H gives a real-life case study depicting the problem of discriminatory basic transport.

A. *The Embarrassing Decree*

In January 1956, the Department of Justice (“DOJ”), Western Electric (then a manufacturing subsidiary of AT&T), and AT&T agreed to a brief consent decree.⁶⁹ The decree restrained AT&T from “engaging . . . in any business other than the furnishing of common carrier communications services.”⁷⁰ Additionally, both Western and AT&T were prohibited from manufacturing any equipment which was not being sold to Bell System companies for use in common carrier communications.⁷¹

For the DOJ, this 1956 decree was an embarrassment. The Antitrust Division had seen that AT&T’s operating companies, which had complete control over the provision of phone service in the United States, were buying all of their phones from Western Electric, and therefore AT&T could use phone service prices to drive up the operating companies’ costs.⁷² The clear goal of the Antitrust Division’s lawsuit filed in 1949 (during President Truman’s administration) had been to force the divestiture of Western from AT&T.⁷³

At about the same time the lawsuit was filed, however, the Bell Labs portion of AT&T was asked by the Atomic Energy Commission (“AEC”) to take over

⁶⁹ *United States v. W. Elec. Co.*, 1956 Trade Cas. (CCH) ¶ 68,246, at 71,134 (D.N.J. 1956).

⁷⁰ *Id.* at 71,138. AT&T was permitted by the decree to continue furnishing services to the DOJ. *Id.* The government maintained it needed network and surveillance assistance from AT&T – so “special projects for the federal government” were an exception to the operation of the decree. See Milestones in AT&T History, <http://www.corp.att.com/history/milestones.html> (last visited Mar. 19, 2009). This is a constant theme; AT&T has played a key role in U.S. defense policy. See ERIC LICHTBLAU, *BUSH’S LAW: THE REMAKING OF AMERICAN JUSTICE* 139-40 (2008).

⁷¹ *W. Elec. Co.*, 1956 Trade Cas. (CCH) at 71,137.

⁷² STEVE COLL, *THE DEAL OF THE CENTURY: THE BREAKUP OF AT&T* 58-60 (1986). The suit arose out of 1930s-40s concerns over whether regulators were able to tell whether Western’s equipment charges were fair. JOHN BROOKS, *TELEPHONE: THE FIRST HUNDRED YEARS* 233-34 (1976).

⁷³ COLL, *supra* note 72, at 58.

management of the national atomic bomb stockpile in New Mexico.⁷⁴ AT&T argued pointedly to the Chairman of the AEC that the “antitrust lawsuit . . . seeks to terminate the very same Western Electric-Bell Laboratories-Bell System relationship which gives our organization the unique qualifications to which you refer” in asking that the Bell System manage the atomic stockpile.⁷⁵ Western Electric took over operation of the production of atomic weapons and continued to operate it for twenty-five years.⁷⁶ Meanwhile, the lawsuit dribbled on, the Cold War continued (making AT&T’s atomic bomb coordination important to the administration),⁷⁷ the Republican administration of Dwight Eisenhower began in 1952, and it seemed to the new administration like an opportune time to do away with the 1949 lawsuit. Attorney General Herbert Brownell famously met with the AT&T general counsel in July 1953 at the Greenbrier Hotel in White Sulphur Springs, West Virginia; there, the general counsel reminded Brownell of AT&T’s “contribution to the national defense,” and Brownell said “a way ought to be found to get rid of the case” by agreeing to practices that could be enjoined with “no real injury” to the AT&T business.⁷⁸ The Department of Defense strongly supported AT&T’s request to be free of the antitrust suit.⁷⁹

The absence of a divestiture remedy in the resulting 1956 consent decree, which would have conclusively cut AT&T off from the manufacturing business, was viewed as a scandal inside the DOJ. AT&T was limited only to “furnishing common carrier communications services” defined to be “communications services and facilities, other than message telegram service, the charges for which are subject to public regulation under the Communications Act of 1934.”⁸⁰ DOJ lawyers believed AT&T had used its political heft to avoid divestiture, and as a result, the public had not been well-served.⁸¹

For AT&T, ironically, this “no real injury” decree came to be seen in time as a severe impediment. Although the decree left the integrated Bell System

⁷⁴ BROOKS, *supra* note 72, at 235.

⁷⁵ *Id.* at 236.

⁷⁶ *Id.* at 238.

⁷⁷ See PAUL N. EDWARDS, *THE CLOSED WORLD: COMPUTERS AND THE POLITICS OF DISCOURSE IN COLD WAR AMERICA* 17 (1996).

⁷⁸ STAFF OF H. COMM. ON THE JUDICIARY, 86TH CONG., REPORT ON CONSENT DECREE PROGRAM OF THE DEPARTMENT OF JUSTICE 53-54 (Comm. Print 1959) (citing Memorandum from T. Brooke Price, AT&T Vice President and General Counsel (Mar. 3, 1954) (quoting U.S. Attorney General Herbert Brownell)); see also Michael Steffen, *The Seven Lives of a “Telecommunications Carrier”: A Case Study in Agency Statutory Interpretation* 13 (2008) (unpublished manuscript, on file with author).

⁷⁹ BROOKS, *supra* note 72, at 253; see STAFF OF H. COMM. ON THE JUDICIARY, *supra* note 78, at 55-56.

⁸⁰ *United States v. W. Elec. Co.*, 1956 Trade Cas. (CCH) ¶ 68,246, at 71,137 (D.N.J. 1956).

⁸¹ See COLL, *supra* note 72, at 56-59.

intact, AT&T had locked itself out of the computer business by agreeing not to do anything outside “common carrier” activities.⁸² This had not seemed important in the 1950s, when computers were “big, impersonal oracles sitting off in air-conditioned rooms somewhere, crunching data for big, impersonal institutions.”⁸³ As of 1956, there was little real computing business, although the International Business Machines Corporation (“IBM”) was selling large mainframe computers like the IBM 650 to universities and government labs as of 1953 (including the enormous Semi-Automated Ground Environment, or SAGE).⁸⁴ In the 1950s, “the standard perception of computers was batch processing, an assembly-line style of operation inherited from the punch-card-tabulator era.”⁸⁵

But soon there was an extensive computing business. Beginning in 1961, MIT researchers had access to much less expensive computers than IBM was selling (the interactive, transistor-based PDP-1 series, manufactured by the Digital Equipment Corporation), and those computers were being used for programming rather than batch processing.⁸⁶ IBM continued working on making computers bigger and faster, but other manufacturers focused on making them “more intuitive, easier to program, easier to understand, and easier to communicate with.”⁸⁷ AT&T got into the act. As of 1964 researchers at Bell Labs, together with colleagues from other firms, began research into new forms of time-sharing systems, predecessors of today’s personal computing techniques, that allowed individual users to interact with giant batch-processing machines.⁸⁸ Their plan was to provide an interactive computing service on a continuous basis. That project proved to be too complicated for its time, but Bell Labs researchers learned from the experience and went on to invent the Unix operating system.⁸⁹

For five years or so Unix was used only inside AT&T, and then after Bell Labs researchers presented a paper about the operating system, AT&T licensed

⁸² *Id.* at 59. The decree itself does not mention the computer business. It says merely that AT&T must only “furnish[] . . . common carrier communications services.” *W. Elec. Co.*, 1956 Trade Cas. (CCH) at 71,138. AT&T’s lawyers read the decree to mean “no business other than phones and telegrams.” Nils Fredrik Gjerull, Open Source Software Development in Developing Countries: The HISP Case in Ethiopia, § 4.3, at 64-67 (Sept. 15, 2006) (unpublished masters thesis, University of Oslo), http://www.gjerull.net/nilsfr_oss_developing_countries_hisp_ethiopia.pdf.

⁸³ M. MITCHELL WALDROP, *THE DREAM MACHINE: J.C.R. LICKLIDER AND THE REVOLUTION THAT MADE COMPUTING PERSONAL* 142 (2001). The digital computing effort had begun in the late 1940s, and the Whirlwind project for use in computerized air defense (the world’s first real-time computer) had been funded in 1951. *Id.* at 104, 113.

⁸⁴ *Id.* at 116-17, 143.

⁸⁵ *Id.* at 143.

⁸⁶ *Id.* at 155-57.

⁸⁷ *Id.* at 154.

⁸⁸ *See id.* at 252-53.

⁸⁹ *Id.* at 315.

the source code for Unix for a nominal fee – it did not want to appear to be in the software business because of the 1956 decree.⁹⁰ Unix flourished as an academic/shared resource, with AT&T often sharing source code in exchange for bug fixes.⁹¹ Yet, constrained by the decree, AT&T could not be seen as operating in the computer business.

Indeed, by the 1960s there were concerns that other telecommunications companies, as well as Western Union (which had a monopoly in telegram service), would use their control over communications lines to throttle a new computing industry – data processing.⁹² Large mainframe computers were being used to provide many different kinds of data processing, storage, and retrieval services, and absent additional safeguards the communications carriers might arguably both control access to them and compete unfairly by providing services subsidized by their common-carrier revenues.⁹³ To address this question, and to decide whether any of these new data processing services should be treated as regulated communications services, the Commission in 1966 began a series of proceedings known as the Computer Inquiries.

1. *Computer I*

Two concerns animated the Commission's first Computer Inquiry.⁹⁴ First, as described above, the Commission noted that the potential existed for common carriers to favor their own data processing activities by cross-subsidizing them using their monopoly revenues.⁹⁵ Second, the Commission wanted to protect the relatively new data processing market from traditional common carriage regulation with all its heavy superstructure of rate-based tariffing.⁹⁶

The decision in *Computer I*, four years in the making, established a sharp dichotomy between data processing, on the one hand, and message-switching,

⁹⁰ *Id.* at 425 (“Unix was ‘free’ only because AT&T wasn’t allowed to sell it; until the breakup, in 1982, the company was a regulated telephone monopoly and as such was barred from doing much of anything in the computer business.”).

⁹¹ *Id.* at 426-27. As Professor Roger Noll and economist Bruce Owen have described the situation: “With its leadership in semiconductor technology, Bell was positioned to be a very effective early competitor in computers; indeed, one can speculate that AT&T might well have been better off giving up the telephone but retaining its rights in transistors and computers.” Roger G. Noll & Bruce M. Owen, *The Anticompetitive Uses of Regulation: United States v. AT&T (1982)*, in *THE ANTITRUST REVOLUTION* 290, 294 (John E. Kowka & Lawrence J. White eds., 1989).

⁹² See Delbert D. Smith, *The Interdependence of Computer and Communications Services and Facilities: A Question of Federal Regulation*, 117 U. PA. L. REV. 829, 836 (1969).

⁹³ See Steffen, *supra* note 78, at 14-15.

⁹⁴ Regulatory & Policy Problems Presented by the Interdependence of Computer & Comm’n Servs. & Facilities, 7 F.C.C.2d 11, ¶ 10 (1966) (notice of inquiry).

⁹⁵ *Id.* ¶ 15.

⁹⁶ *Id.* ¶ 21.

or transport, on the other, even though this data processing was frequently carried out using transport over common carriage facilities between user terminals and central computers. “Message-switching” was defined by the Commission to be any service that involved “the computer-controlled transmission of messages between two or more points, via communications facilities, wherein the content of the message remains unaltered.”⁹⁷ Data processing was everything not included in the “message-switching” definition: “[t]he use of a computer for the processing of information as distinguished from circuit or message-switching.”⁹⁸ Where a hybrid service – both data processing and transport (i.e., message-switching) – was involved, the Commission decided that where the basic thrust of the service was communications, and data processing was incidental, the entire service would be treated as “communications” (in essence, a point-to-point service substituting for traditional communications) and regulated accordingly. Data processing services would not be regulated, and so AT&T would not be permitted under the “embarrassing” 1956 consent decree to offer them. Other non-AT&T carriers would be permitted to offer data processing services, but only through separate corporate affiliates.⁹⁹

The deeply-contextual, fact-specific “hybrid” category posed real problems for the Commission in later years.¹⁰⁰ The crucial element of *Computer I*, though, was its separation between “message-switching” and “other” in order to protect the nascent computing industry from the depredations of the carriers. *Computer I* unquestionably assumed that common carriers (with or without market power) would continue to exist, and merely tried to find a way to constrain their activities in this new marketplace.

2. *Computer II*

In 1976, to grapple with the “hybrid” problems that had emerged under *Computer I*, the Commission initiated the *Computer II* proceeding.¹⁰¹ *Computer II*, which also went on for four years, declared that new “enhanced” services like voicemail and data processing should not be subject to the economic regulation of Title II of the 1934 Act – but that the basic transport services used by those enhanced services should be.¹⁰²

⁹⁷ Regulatory & Policy Problems Presented by the Interdependence of Computer & Commc’n Servs. & Facilities, 28 F.C.C.2d 291, ¶ 15 (1970) (tentative decision).

⁹⁸ *Id.*

⁹⁹ *Id.* ¶ 36.

¹⁰⁰ Steffen, *supra* note 78, at 16-17; Robert Cannon, *The Legacy of the Federal Communications Commission’s Computer Inquiries*, 55 FED. COMM. L.J. 167, 181 (2003).

¹⁰¹ Amendment of Section 64.702 of the Comm’n’s Rules & Regulations (Second Computer Inquiry), 77 F.C.C.2d 384 (1980) (final decision) [hereinafter *Computer II*], *aff’d sub nom.* Computer and Commc’ns Indus. Ass’n v. Fed. Commc’ns Comm’n, 693 F.2d 198 (D.C. Cir. 1982).

¹⁰² *Id.* ¶ 5, at 387.

“Basic” services were defined as “pure transmission capability over a communications path that is virtually transparent in terms of its interaction with customer supplied information.”¹⁰³ Any other communication that was “more than a basic service” was labeled an “enhanced” service, to include those services “offered over common carrier transmission facilities” that “employ computer processing applications that act on the format, content, code, protocol or similar aspects of the subscriber’s transmitted information; provide the subscriber additional, different, or restructured information; or involve subscriber interaction with stored information.”¹⁰⁴ Thus, *Computer II* declared that the unchanged transport of information would continue to be treated as a basic service subject to non-discrimination obligations, and also that there could be no “enhanced” services in the absence of a “basic” service over which those “enhanced” services were provided.

The definition of “enhanced services” in *Computer II* was broader than the definition of “message-switching” in *Computer I* so the Commission could avoid the definitional problems that had plagued the “hybrid” services regime. Importantly, all facilities-based carriers (carriers that owned their own transmission facilities) could offer enhanced services in addition to their basic services, but were forced to pay rates for basic transport through their facilities that were identical to those charged to others. Thus, “unbundling” of basic physical transport was required by *Computer II* – as it had been required of other general-purpose physical transport and communication networks for more than a hundred years. The Commission suggested that this revised basic/enhanced barrier brought the “common carrier” non-discriminatory notion into the modern era.¹⁰⁵

The essential move in *Computer II* was to allow common carriers into the “enhanced” business, but only if they sold their basic transport services separately and without discrimination. The Commission shored up the importance of “basic” services by providing that the Bell System would be subject to rules aimed at keeping its leverage opportunities extremely limited. Thus, although the Commission suggested that AT&T-marketed enhanced services would be allowed despite the 1956 consent decree (arguing, somewhat weakly, that these services would be “incidental . . . to common carrier communications services” and thus permitted), the Commission said that AT&T could do so only through a separate subsidiary.¹⁰⁶ The key separation

¹⁰³ *Id.* ¶ 96, at 420.

¹⁰⁴ 47 C.F.R. § 64.702(a) (2007).

¹⁰⁵ *Computer II*, *supra* note 101, ¶¶ 119-132, at 430-35.

¹⁰⁶ *Id.* ¶ 271, at 490. The Commission therefore decided that “enhanced services” could be understood as “business or services incidental . . . to common carrier communications services” under the 1956 decree. *Id.* ¶¶ 277-281, at 492-95.

between “transport” and “other” was maintained in order to protect new computerized businesses.¹⁰⁷

B. *The Breakup of AT&T*

1. Antitrust Divestiture

Beginning in the 1970s, Microwave Communications, Inc. (“MCI”) began offering microwave-tower-based, long-distance communications between St. Louis and Chicago.¹⁰⁸ AT&T did its best to eliminate MCI, which prompted MCI to file an antitrust suit leading to a DOJ antitrust action against AT&T.¹⁰⁹ The DOJ had also been hearing from equipment manufacturers that AT&T was refusing to buy their equipment or to allow consumers to buy it.¹¹⁰ AT&T was simply outsmarting its regulator with complicated accounting and other strategies.

The case crawled along, but in 1982, under the aegis of Judge Harold Greene, AT&T agreed to divestiture of its Bell operating companies (its local phone service providers, later consolidated into seven Regional Bell Operating Companies, or “RBOCs”), who in turn agreed not to sell long-distance services or manufacture telephone equipment.¹¹¹ Under the resulting Modification of Final Judgment (“MFJ”),¹¹² AT&T, for its part, agreed not to sell local phone services.¹¹³

¹⁰⁷ Michael Steffen argues that the policy logic behind *Computer I* and *Computer II* was quite different. In his view, the Commission was trying in *Computer II* to define a basic service that carriers would have to resell on a non-discriminatory basis, and relying on that resale regime to justify non-regulation of everything else. Steffen, *supra* note 78, at 19; Email from Michael Steffen to author (Sept. 14, 2008, 07:35 EST) (on file with author). Steffen also points out that the reason for this division was not some rigid adherence to the continued existence of a basic/enhanced dichotomy, but instead the Commission’s view as to the competitiveness or not of the markets involved. *Id.* My point in this Article is that the policy outputs of *Computer I* and *Computer II* are in close harmony: a basic, regulated communications service was kept in place in order to protect data processing services. The rationale supporting non-discrimination had changed to the economic argument I criticize above (departing from the principle’s roots in infrastructural, sovereign-related social policies), but the outcome remained the same.

¹⁰⁸ COLL, *supra* note 72, at 17-18.

¹⁰⁹ *United States v. Am. Tel. & Tel. Co.*, 552 F. Supp. 131, 139-41 (D.D.C. 1982) (indicating the case was filed in 1974), *aff’d sub nom. Maryland v. United States*, 460 U.S. 1001 (1983). The lawsuit claimed AT&T had used its government-authorized monopoly in local telephone services to establish dominance over long-distance services and equipment manufacturing. *Id.* at 135-36.

¹¹⁰ BROOKS, *supra* note 72, at 313-15.

¹¹¹ COLL, *supra* note 72, at 361-63.

¹¹² *Am. Tel. & Tel. Co.*, 552 F. Supp. at 227-28. The term MFJ was created because AT&T styled the settlement of the DOJ antitrust suit as a modification to the 1956 consent

Importantly, the MFJ maintained the transport/other dichotomy that had been present in general-purpose communications law since the beginning. The Bell Operating Companies (“BOCs”) were prohibited from doing several specific things, either directly or through an affiliated enterprise:

1. provide interexchange telecommunications services [long distance service] or information services;
2. manufacture or provide telecommunications products or customer premises equipment (except for provision of customer premises equipment for emergency services); or
3. provide any other product or service, except exchange telecommunications and exchange access service, that is not a natural monopoly service actually regulated by tariff.¹¹⁴

All of these terms were defined to mirror the *Computer II* basic/enhanced split.¹¹⁵ The MFJ said “information services” were essentially the equivalent of “enhanced services” under *Computer II*,¹¹⁶ and “telecommunications services” were those common carriage services that AT&T had been permitted to sell under the 1956 decree.¹¹⁷

Thus, there was a continued division between “transport” and “other”: the BOCs would be allowed to provide local basic transport only. “Information services” – the key term for anything other than transport – would be provided by others, including AT&T. In 1991, and over Judge Greene’s objection, the

decree, leading to quite a ruckus between Judge Greene, the New Jersey Court (who issued the 1956 decree), and the DOJ. See COLL, *supra* note 72, at 147-160.

¹¹³ *Am. Tel. & Tel. Co.*, 552 F. Supp. at 223.

¹¹⁴ *Id.* at 227-28.

¹¹⁵ For example:

J. “Information service” means the offering of a capability for generating, acquiring, storing, transforming, processing, retrieving, utilizing, or making available information which may be conveyed via telecommunications, except that such service does 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.

...

O. “Telecommunications” 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, by means of electromagnetic transmission medium, including all instrumentalities, facilities, apparatus, and services (including the collection, storage, forwarding, switching, and delivery of such information) essential to such transmission.

P. “Telecommunications service” means the offering for hire of telecommunications facilities, or of telecommunications by means of such facilities.

Id. at 229.

¹¹⁶ *Id.* at 178 n.198.

¹¹⁷ *Id.* at 223.

restriction on the BOCs provision of information services was lifted.¹¹⁸ But the BOCs were still required to unbundle their basic transport service and sell it separately.¹¹⁹

AT&T announced at the time of the 1982 breakup that the action would “get[] rid of restrictions which are contained in the 1956 consent decree. No one contemplated twenty-five years ago that a revolution in modern technology would largely erase the difference between computers and communications.”¹²⁰ Getting rid of this 1956 decree and entering the “other” world of computer processing had become central to AT&T’s strategy. With the breakup, the price of a Unix source code license soared from a nominal fee to \$100,000.¹²¹

2. *Computer III*

The FCC’s Third Computer Inquiry focused on AT&T’s new role as a long-distance company.¹²² Because the long-distance market had become more competitive following the breakup, it made less sense from the FCC’s perspective to require AT&T to provide “information services” through a separate subsidiary. So the Commission planned to move from structural safeguards to non-structural safeguards.¹²³ But the Commission continued to require “basic” transport be provided by AT&T on an unbundled basis.¹²⁴ The Commission created some new terms and rules (“comparably efficient interconnection” and “open network architecture”) to govern unbundling.¹²⁵ This allowed AT&T into the “information service” business and, dangerously, attempted to provide in words how AT&T should make its transport facilities open to competitors while also becoming an information service provider itself. But the essential basic/other (or transport/telecommunications services versus “information services”/“enhanced services”) dichotomy remained in place.

C. *The 1996 Act and the Internet*

In the 1996 Telecommunications Act, the terms “basic” and “enhanced” were translated into the parallel terms “telecommunications” and “information

¹¹⁸ *United States v. W. Elec. Co.*, 993 F.2d 1572, 1575, 1582 (D.C. Cir. 1993).

¹¹⁹ *Am. Tel. & Tel. Co.*, 552 F. Supp. at 227. This requirement remained unchanged when the restriction on the BOC’s provision of information services was lifted. *W. Elec. Co.*, 993 F.2d at 1575.

¹²⁰ COLL, *supra* note 72, at 332.

¹²¹ Gjerull, *supra* note 82, § 4.3, at 64-67.

¹²² Amendment of Sections 64.702 of the Comm’n’s Rules & Regulations (Third Computer Inquiry), 104 F.C.C.2d 958 (1986) (report and order) [hereinafter *Computer III*].

¹²³ Cannon, *supra* note 100, at 200.

¹²⁴ *Computer III Further Remand Proceedings: Bell Operating Co. Provision of Enhanced Servs.*, 14 F.C.C.R. 4289, ¶¶ 4, 11-12 (1999) (report and order).

¹²⁵ *Id.* ¶ 8.

service” drawn from the MFJ.¹²⁶ The intent of the 1996 Act was to trigger competition in local telephone service by requiring incumbent local telephone companies to make their lines into peoples’ homes and businesses available to their competitors and to allow competitors to co-locate their equipment in the offices of the incumbents.¹²⁷ At the same time, AT&T was allowed to return to providing local telephone service and the RBOCs were allowed to provide long-distance service (after completing a checklist of regulatory items) and to merge. The idea of “basic,” common carriage telecommunications service

¹²⁶ 47 U.S.C. § 153(20), (43) (2000) (using almost verbatim the definitions of “telecommunications” and “information service” that were employed in the MFJ). Other terms were defined as follows:

The term “telecommunications carrier” means any provider of telecommunications services, except that such term does not include aggregators of telecommunications services (as defined in section 226 of this title). A telecommunications carrier shall be treated as a common carrier under this chapter only to the extent that it is engaged in providing telecommunications services, except that the Commission shall determine whether the provision of fixed and mobile satellite service shall be treated as common carriage.

Id. § 153(44).

The term “telecommunications service” means 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. § 153(46).

The term “telecommunications” 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 or received.

Id. § 153(43).

The term “information service” means the offering of a capability for generating, acquiring, storing, transforming, processing, retrieving, utilizing or making available information via telecommunications, and includes electronic publishing, but does 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. § 153(20).

In its 1998 Report to Congress on Universal Service, the Commission described this translation between the MFJ and the 1996 Act and its understanding that these terms were parallel to the earlier use of “basic” and “enhanced.” Federal-State Joint Bd. on Universal Serv., 13 F.C.C.R. 11,501, ¶ 28, at 11,514, ¶¶ 39-42, at 11,520-22 (1998).

¹²⁷ 47 U.S.C. § 251 (allowing competitors to share the lines of incumbents by purchasing rights to use “local loop” facilities – covering the crucial “last mile” between homes and telephone companies’ central offices – that the RBOCs own). Most analysts agree that local competition was not in fact facilitated by the 1996 Act, primarily through drawn-out litigation over the details of line-sharing costs and co-location terms. *See, e.g.*, ROBERT W. CRANDALL, THE BROOKINGS INST., THE AT&T DIVESTITURE: WAS IT NECESSARY? WAS IT A SUCCESS? 14 (2007), available at <http://www.ftc.gov/os/sectiontwohearings/docs/070329CrandallPresentation.pdf> (“Eight Years of Network Sharing Under the 1996 Act Did Not Produce Meaningful Competition.”). It also may have been uneconomic to be a local competitor, given the falling costs of telephone service overall.

remained central. All telecommunications carriers would be subject to the traditional requirements for common carriers (*Computer II* unbundling of basic transport and *Computer III* “open network architecture” and “comparably efficient interconnection” rules), plus additional requirements.¹²⁸

In sum, under the 1996 Act, the three Computer Inquiries, and the consent decrees reached with AT&T, carriers providing the physical facilities for basic communications transport – in which the substance of the messages carried is not altered – were obliged not to discriminate with respect to that transport.

D. *How the Internet Works*

Before diving into the regulatory treatment of Internet access and our country’s abandonment of the non-discriminatory kernel of general-purpose communications law, a short briefing on Internet access itself is appropriate.

The Internet is a logical Internetworking protocol (the “Internet Protocol”) that allows computers to communicate across the globe. The Internet Protocol is a kind of common language allowing the division of all communications into small packets that are then individually routed, one hop at a time, to their destination – without any router knowing more than where the next hop is or that it is dealing with an undifferentiated packet (although this situation is gradually changing as network access providers build more intelligence into their routers so that traffic can be optimized for commercial purposes).¹²⁹ Because Internet traffic has been packetized, there is no need for it to occupy a circuit for the full duration of an exchange. Instead, one can use the circuit just for the brief interval needed to transmit the packet. And because each packet has a unique source and destination address embedded in its header, simultaneous conversations can coexist on the same circuit without interfering with one another, and without anyone having to be in charge of the routing of these conversations.¹³⁰ The Internet Protocol provides a simple, common interface for all kinds of networked applications to run over all kinds of physical networks.

At the moment, local access to the Internet is provided in this country by privately-owned companies. These access mechanisms include telephone dial-

¹²⁸ These additional requirements include universal service payment obligations, *see infra* Part II.E, access to the disabled, *see* 47 U.S.C. § 255, and interconnection obligations, *see* 47 U.S.C. § 251(a).

¹²⁹ Nate Anderson, *Deep Packet Inspection Meets 'Net Neutrality*, CALEA, ARSTECHNICA, July 27, 2007, <http://arstechnica.com/hardware/news/2007/07/Deep-packet-inspection-meets-net-neutrality.ars>.

¹³⁰ I described the Internet similarly in Susan P. Crawford, *The Internet and the Project of Communications Law*, 55 UCLA L. REV. 359, 370-72 (2008) [hereinafter Crawford, *The Internet*]. For more information on how the Internet works, see generally Jeff Tyson, *How Internet Infrastructure Works*, HOWSTUFFWORKS, <http://computer.howstuffworks.com/Internet-infrastructure.htm> (last visited Mar. 26, 2009).

up, telephone Digital Subscriber Line (“DSL”),¹³¹ cable modem,¹³² wireless, satellite, and broadband-over-powerline connections. When Americans were using dial-up access, they placed an ordinary telephone call to a company (a separate company, not the telephone company) that called itself an Internet Service Provider (“ISP”). That ISP would take the data (already made analog by a modem connected to the user’s computer) and connect it to the larger network via its connection to an Internet “backbone” – a wide, fast-moving pipe of bits running between major cities and across oceans.¹³³ Now, in 2008, as a result of the regulatory contortions described in the next two Sections, the network access provider – say, Verizon – is both the last-mile provider of that connection to an ISP and the ISP itself.

E. *The Money Flow*

Much of the rationale behind treating Internet access as an “information service” has come from the Commission’s attempts to avoid burdening Internet access providers with universal service fees. The basic idea behind universal service is to subsidize the cost of some basic telephony services for underserved and under-funded populations.¹³⁴ Although there are a number of different universal service programs, none is focused on facilitating high-speed access to the Internet per se.¹³⁵ At the moment, “telecommunications carriers”

¹³¹ DSL technology changes ordinary telephone lines into high-speed digital lines “by using the upper level of the frequency of the telephone company’s copper wires to the home to deliver data while leaving the lower frequency for analog voice.” ROBERT D. ATKINSON, DANIEL K. CORREA & JULIE A. HEDLUND, INFO. TECH. & INNOVATION FOUND., EXPLAINING INTERNATIONAL BROADBAND LEADERSHIP 7 (2008).

¹³² Atkinson, Correa, and Hedlund explain:

Cable Internet works by using TV channel space for data transmission, with certain channels used for downstream transmission, and other channels for upstream transmission. Because the coaxial used by cable TV provides much greater bandwidth than telephone lines, a cable modem can be used to achieve extremely fast access to the Internet.

Id.

¹³³ I assume that the backbone market is competitive. See MARIUS SCHWARTZ, AEI CTR. FOR REGULATORY & MKT. STUDIES, INTERNET BACKBONE COMPETITION AND THE SBC/AT&T MERGER (2005), <http://www.aei-brookings.org/policy/page.php?id=221>. Certainly these backbones are not capacity-constrained. Nate Anderson, *Keeping Pace? Torrents of Traffic and the Internet Backbone*, ARSTECHNICA, Apr. 13, 2008, <http://arstechnica.com/old/content/2008/04/exaflood-not-happening.ars>.

¹³⁴ For a brief outline of the history of universal service, see STUART MINOR BENJAMIN ET AL., TELECOMMUNICATIONS LAW AND POLICY 763-64 (2d ed. 2006). I wrote about universal service in my article, *The Internet and the Project of Communications Law*. Crawford, *The Internet*, *supra* note 130, at 392-94.

¹³⁵ During his campaign for the presidency, then-Senator Obama proposed focusing universal service programs on the provision of high-speed Internet access. See OBAMA FOR AM., BARACK OBAMA ON TECHNOLOGY AND INNOVATION 6, http://www.barackobama.com/pdf/issues/technology/Fact_Sheet_Innovation_and_Technolo

and providers of interconnected Voice over Internet Protocol (“VoIP”) services fund universal service.¹³⁶

As communications services have come to be mostly IP-based, the question of who should pay for universal service has become vital. In 1998, Senators Ted Stevens and Conrad Burns were worried about the continued health of universal service, and asked the FCC to examine what the impact of moving the information service/telecommunications dividing line would be on funding.¹³⁷ The FCC responded that “Internet access services” were information services, based on two assumptions: first, the assumption there would be a telecommunications service provider that would be providing pure transmissions capacity to its customers and allowing interconnection to all ISPs under the 1996 Act;¹³⁸ and second, the assumption ISPs would be providing other services such as mail servers, hosting web pages, and operating caches.¹³⁹

The FCC was trying to avoid saddling ISPs with universal service charges, and so classified “Internet access” as an “information service.” But the entire point of an IP-based network is that it need not provide any of the additional functions listed by the FCC (e.g., mail services, hosting web pages) in order to be fully useful *as an ISP*. It can simply provide “transmission, between or among points specified by the user, of information of the user’s choice, without change in the form or content” – in other words,

gy.pdf (last visited Mar. 16, 2009) (“Obama will establish a multi-year plan with a date certain to change the Universal Service Fund program from one that supports voice communications to one that supports affordable broadband, with a specific focus on reaching previously un-served communities.”). The FCC Federal-State Joint Board on Universal Service suggested the creation of a “Broadband Fund” in 2007. High-Cost Universal Serv. Support, Fed.-State Joint Bd. on Universal Serv., 22 F.C.C.R. 20,477, ¶¶ 11-15 (2007) (recommended decision).

¹³⁶ 47 C.F.R. § 54.706(a) (2007); see Rob Frieden, *Killing with Kindness: Fatal Flaws in the \$6.5 Billion Universal Service Funding Mission and What Should Be Done to Narrow the Digital Divide*, 24 CARDOZO ARTS & ENT. L.J. 447, 448-49 (2006). Kevin Werbach has suggested that the goal of universal service should be to provide ubiquitous access to the unitary (fully-interconnected) Internet. Kevin Werbach, *Connections: Beyond Universal Service in the Digital Age*, 7 J. ON TELECOMM. & HIGH TECH. L. (forthcoming 2009) (manuscript at 2, on file with author).

¹³⁷ Weinberg, *supra* note 33, at 225-26.

¹³⁸ See Federal-State Joint Bd. on Universal Serv., 13 F.C.C.R. 11,501, ¶¶ 73-79, at 11,536-39 (1998).

¹³⁹ *Id.*; Weinberg, *supra* note 33, at 231. There was a protracted dispute over the classification of “protocol conversion services” provided by ISPs, as well as other ISP-provided services: “domain name lookup,” web hosting, and email. In his analysis of the Computer Inquiries, Robert Cannon has made clear that “where protocol conversion is for the benefit and facilitation of the network as opposed to the edge user, it is a basic service” with a non-discrimination obligation. Cannon, *supra* note 100, at 190. It is also undisputed that ISPs do not have to provide domain name lookup, hosting, or email service in order to provide Internet access.

“telecommunications.”¹⁴⁰ Avoiding the imposition of these charges on ISPs did some substantial semantic damage to the FCC’s interpretation of the Act.

The salient element of the FCC’s classification decision in 1998 was, however, that it depended on the continued existence of non-discriminatory telecommunications providers. Indeed, the FCC made clear pure transmission capacity to backbone providers would continue to be telecommunications.¹⁴¹ The Commission assumed all “information services” would be using telecommunications, and so universal service would be adequately funded by telecommunications providers.¹⁴² ISPs, therefore, could be shielded from the obligation to contribute.

What happens when the ISP and the “telecommunications provider” are the same entity? The *Brand X* decision in 2005 examined that question, not altogether successfully.

F. Brand X

In light of the extensive history of maintaining the common carriage non-discriminatory boundary for general-purpose communications through the Computer Inquiries, the various AT&T decrees, and the 1996 Act, it might seem the provision of physical transport for Internet access in the last mile (which does not necessarily transform the substance of information as it is carried across physical transport facilities) would be a “basic,” regulated, non-discriminatory service. But the Supreme Court’s 2005 decision in *Brand X* upheld the FCC’s determination that high-speed Internet access was an “information service” and, therefore, its providers were free to discriminate in any way they chose.¹⁴³ This decision is difficult to understand on any basis other than extraordinary deference to the FCC’s interpretation of the 1996 Telecommunications Act. It unquestionably upended a long tradition of imposing non-discrimination obligations on basic, general-purpose communications networks.

At the time the 1996 Act was passed, telephone companies were treated like common carriers. When they started providing high-speed DSL access to the Internet over their own copper lines (using electronics to enhance the speed of communications), they were still treated like common carriers and required to unbundle this high-speed basic service for sale to competitors who wanted to resell it.¹⁴⁴ By contrast, the FCC had never regulated cable operators like

¹⁴⁰ Weinberg, *supra* note 33, at 231.

¹⁴¹ *Id.*

¹⁴² *Id.* at 227.

¹⁴³ Nat’l Cable & Telecomms. Ass’n v. Brand X Internet Servs., 545 U.S. 967, 986-1003 (2005).

¹⁴⁴ The FCC has held:

An end-user may utilize a telecommunications service together with an information service, as in the case of Internet access. In such a case, however, we treat the two services separately: the first service is a telecommunications service (e.g., the xDSL-

common carriers. Instead, they were subject to a very light-touch regulatory regime – they were viewed essentially as entertainment broadcasters who were not broadcasting using public airwaves and thus were not subject to the full range of broadcaster “public trustee” obligations.¹⁴⁵ Cable system operators (initially) were also not providers of general-purpose two-way communications networks and thus were not subject to common carriage non-discrimination requirements drawn from telegraphy and telephony.¹⁴⁶

But cable changed its stripes. When cable operators got into the business of providing Internet access via cable modems, these regulatory wires (or traditions) crossed. The FCC was initially unwilling to say how this service would be treated as a regulatory matter. From the “level playing field” perspective, what cable operators were doing was exactly like what DSL providers were doing: providing physical transport for high-speed connections to the Internet over the “last mile” between their offices and the user’s home or business. This perspective would argue for treating cable operators just like telephone companies with respect to their Internet access function. But from the “we want to de-regulate and let the market operate freely” perspective sweeping the nation (and from the “cable has not been heavily regulated by us in the past” perspective), burdening cable operators with all of the rate-based tariffing obligations of Title II seemed inappropriate.

The FCC took its time, finally declaring in 2002 that cable modem Internet access services were “information services” without any requirement of non-discrimination.¹⁴⁷ It also suggested it planned to deregulate DSL.¹⁴⁸ By the time the FCC spoke in 2002, it was a little late. The Ninth Circuit had already ruled that cable modem providers were indeed “telecommunications service [providers]” under the 1996 Telecommunications Act.¹⁴⁹ After the FCC’s

enabled transmission path), and the second service is an information service, in this case Internet access.

Deployment of Wireline Serv. Offering Advanced Telecomm. Capability, 13 F.C.C.R. 24,011, ¶ 36 (1998) (memorandum opinion and order).

¹⁴⁵ See Kevin Werbach, *The Federal Computer Commission*, 84 N.C. L. REV. 1, 31 (2005) [hereinafter Werbach, *Federal Computer Commission*].

¹⁴⁶ Inquiry Concerning High-Speed Access to the Internet Over Cable and Other Facilities, 17 F.C.C.R. 4798, ¶ 61 (2002) (declaratory ruling and notice of proposed rulemaking) [hereinafter *Cable Modem Inquiry*].

¹⁴⁷ *Id.* ¶ 7.

¹⁴⁸ See Appropriate Framework for Broadband Access to the Internet over Wireline Facilities, Universal Service Obligations of Broadband Providers, 17 F.C.C.R. 3019, ¶ 30-64 (2002) (notice of proposed rulemaking) [hereinafter *Wireline Broadband NPRM*] (suggesting deregulation of DSL, without much analysis); see also *id.* app. at 3073 (separate statement of Michael J. Copps, Comm’r, dissenting in part, concurring in part) (describing deregulation as a “U-Turn,” without analysis).

¹⁴⁹ *AT&T Co. v. City of Portland*, 216 F.3d 871, 876-80 (9th Cir. 2000). The Ninth Circuit was reacting to rules imposed by localities requiring providers to provide “open

2002 statement that cable modem providers were “information service” providers under the 1996 Act, despite the *Computer II* and *Computer III* precedents to the contrary, the Ninth Circuit said again that its initial ruling was correct.¹⁵⁰ The FCC and the DOJ acted together to ask for review of the Ninth Circuit decision, and the Supreme Court granted certiorari in *Brand X* to decide whether cable modem access was an “information service.”¹⁵¹

What were the logical steps allowing the Commission to categorize Internet access service as an “information service” in the first place? In the past, the link between the user’s home and an ISP (separate from the telephone company) had been a regular telephone call. That link was clearly telecommunications, and clearly burdened with a non-discrimination obligation. Now, when the user requested high-speed online access using a cable modem, that last-mile link was inextricably intertwined with the Internet access link. The two were experienced by the user as a single event of connection. If the cable company had offered “last-mile” connectivity (between, again, a user’s home and an Internet connection point) separately, then that service as a separate product would have been categorized as “telecommunications.” But the *combination* of last-mile and Internet connection was seen by the Commission as an information service, an “integrated” offering,¹⁵² because the definition of “telecommunications service” requires the service be “offer[ed] . . . for a fee directly to the public,” and the pure transmission component was not offered separately.¹⁵³ The Commission reasoned DSL had been treated differently for categorization purposes *because* telephone companies had always offered transmission services separately – because they were required to.¹⁵⁴ The Commission also took the view – as it had in the 1998 “Stevens Report”¹⁵⁵ – that Internet access should be considered an “information service” because it involved functions beyond mere transport, and those functions trumped the telecommunications component of Internet access.¹⁵⁶

To simplify the complicated reasoning in the 2002 order: the FCC declared that because telephone companies had been required to offer pure transmission historically, they were in fact telecommunications providers even when what

access” to ISPs – basic transport to which the ISPs could connect – as a condition of holding a franchise. *Id.* at 874-75.

¹⁵⁰ *Brand X Internet Servs. v. FCC*, 345 F.3d 1120, 1127 (9th Cir. 2003), *rev’d sub. nom.* Nat’l Cable & Telecomms. Ass’n v. *Brand X Internet Servs.*, 545 U.S. 967 (2005).

¹⁵¹ Nat’l Cable & Telecomms. Ass’n v. *Brand X Internet Servs.*, 543 U.S. 1018, 1018 (2004) (granting certiorari).

¹⁵² *Cable Modem Inquiry*, *supra* note 146, ¶ 41, at 4824.

¹⁵³ 47 U.S.C. § 153(46) (2000).

¹⁵⁴ *See Cable Modem Inquiry*, *supra* note 146, ¶¶ 43-44.

¹⁵⁵ Federal-State Joint Bd. on Universal Serv., 13 F.C.C.R. 11,501, ¶¶ 73-79, at 11,536-39 (1998).

¹⁵⁶ *Cable Modem Inquiry*, *supra* note 146, ¶ 43.

they were selling was DSL access to the Internet. But because cable operators had never been subject to the pure transmission requirement, they could avoid regulation by continuing to refuse to provide pure transmission services – effectively deregulating themselves.¹⁵⁷ This is regulatory gymnastics.

It is not apparent from the face of the “information service” definition why ISP provision of Internet access was considered by the Commission to be an information service.¹⁵⁸ ISPs were certainly “transmi[tting], between or among points specified by the user, . . . information of the user’s choosing, without change in the form or content of the information as sent or received.”¹⁵⁹ Although at oral argument in *Brand X* the FCC’s lawyer argued that ISPs were providing information retrieval services, email, and browsing capabilities, Justice Breyer pointed out that each of these services is similar to an answering machine service that can be purchased separately from phone transmission services.¹⁶⁰

During oral argument, Justice Scalia was troubled by the assertion that last-mile transport to Internet access points is not a telecommunications service if it has not been sold as a separate service to the public: “[W]hy is it offered to the public if it’s offered alone, but it’s not offered to the public if it’s offered with a tie-in? . . .”¹⁶¹ In responding to this question, the government’s lawyer, Frank Hungar, pointed out cable companies had never historically been forced to “unbundle” pure transmission services, and so therefore they were not covered by the “telecommunications service” regime.¹⁶² Justice O’Connor took up the question: “But it seems to be saying, because the cable companies do not offer separate telecommunications service, they don’t have to offer it.”¹⁶³ Hungar responded: “Correct.”¹⁶⁴ Justice Scalia was scathing on this point:

[W]hat I’m still waiting to hear is how you get [treatment of cable modem services as an information service] out of the definitions, which is the lever that the Commission is using to implement this good policy. It is saying, in some cases, that a bundled offering is an offering of

¹⁵⁷ *Id.* ¶¶ 40-45.

¹⁵⁸ Again, “information services” are defined as follows:

[T]he offering of a capability for generating, acquiring, storing, transforming, processing, retrieving, utilizing or making available information via telecommunications, and includes electronic publishing, but does 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.

47 U.S.C. § 153(20).

¹⁵⁹ *Id.* § 153(43).

¹⁶⁰ Transcript of Oral Argument at 21, *Nat’l Cable & Telecomms. Ass’n v. Brand X Internet Servs.*, 545 U.S. 967 (2005) (No. 04-277).

¹⁶¹ *Id.* at 5.

¹⁶² *Id.* at 12.

¹⁶³ *Id.* at 13.

¹⁶⁴ *Id.*

telecommunications [DSL]; and, in other cases, it's saying a bundled offering isn't [cable modem] That's not my understanding of how definitions work.¹⁶⁵

The characterization of Internet access as an "information service" was also troubling to Justice Scalia: "[D]on't you think that the telecommunications aspect of what's going on here is at least as important as the information aspect of it? The information is useless unless it can be conveyed."¹⁶⁶ Hungar answered, no, if all you had was transmission you would not have the domain name system – an information service.¹⁶⁷ This answer was substantially misleading. The domain name system is not a "service" offered by ISPs.¹⁶⁸

Hungar also argued that calling ISPs telecommunications providers would be contrary to what the FCC said "before the '96 Act, and it's contrary to what Congress said in the 1996 Act."¹⁶⁹ This answer made little sense. As I have explained, what the FCC said before the 1996 Telecommunications Act was enacted was that basic non-discriminatory services would continue to exist in unbundled form, and enhanced (discriminatory) services would be able to use these unbundled services.¹⁷⁰ What Congress said in the 1996 Act, reflecting the FCC's determinations in the Computer Inquiries, was that common carriers

¹⁶⁵ *Id.* at 16.

¹⁶⁶ *Id.* at 6.

¹⁶⁷ *Id.* at 6-7.

¹⁶⁸ The current structuring of the domain name space is rooted in Request for Comment ("RFC") documents from the 1980s and 1990s. For examples of these RFCs, see generally P. MOCKAPETRIS, USC/INFO. SCI. INSTIT., REQUEST FOR COMMENT: 882 (1983), *available at* <http://tools.ietf.org/rfc/rfc882.txt>; J. POSTEL & J. REYNOLDS, USC/INFO. SCI. INSTIT., REQUEST FOR COMMENT: 920 (1984), *available at* <http://www.faqs.org/rfcs/rfc920.html>; J. POSTEL, USC/INFO. SCI. INSTIT., REQUEST FOR COMMENTS: 1591 (1994), *available at* <http://www.ietf.org/rfc/rfc1591.txt>. RFC 1591 states, for example: "In the Domain Name System (DNS) naming of computers there is a hierarchy of names. The root of the system is unnamed. There are a set of what are called 'top-level domain names' (TLDs)." POSTEL, *supra*, at 1. End user systems get domain names translated into machine addresses (IP addresses) by querying a "recursive name server," which can be but does not have to be operated by an ISP. End users can use recursive name servers connected to the Internet that are not provided by their ISP. See B. WELLINGTON & O. GUDMUNDSSON, THE INTERNET SOC'Y, REQUEST FOR COMMENT: 3655, at 3-4 (2003), *available at* <http://rfc.sunsite.dk/rfc/rfc3655.html>.

¹⁶⁹ Transcript of Oral Argument, *supra* note 160, at 18.

¹⁷⁰ See, for example, Indep. Data Comm. Mfrs. Ass'n, Inc., 10 F.C.C.R. 13,717, ¶ 59 (1995) (memorandum opinion and order), in which the Commission reaffirmed that the unbundling rule applied to all facilities-based carriers (carriers providing physical transport services): "[A]ll facilities-based common carriers providing enhanced services in conjunction with basic frame relay service must file tariffs for the underlying frame relay service." *Id.*

would continue to have the obligation not to discriminate.¹⁷¹ Neither the FCC nor Congress had said communications companies should be able to avoid non-discrimination obligations merely by *combining* their Internet access services with “last mile” physical high-speed transmission. And neither the FCC nor Congress had said before the 1996 Act or afterwards that the characterization of any given communications service provided by a “facilities-based carrier” (a physical provider of basic transport) could be changed into an “information service” by the mere addition of Internet access.¹⁷²

Justice Ginsburg quickly saw the problem, asking: “What would be left in the common-carrier category?”¹⁷³ The government’s answer was messy:

Well, any standalone, pure transmission offering, including, under the Computer II rationale, to the extent the Commission adheres to it – and it hasn’t overturned it yet; it’s considering the extent to which it should create an exception in the DSL context – but under Computer II, a basic, traditional common carrier cannot get away – cannot get out of Title II regulation by offering an integrated offering. They will also have to make the standalone offering, unless and to the extent the Commission determines that that’s not necessary; for instance, because the enhanced

¹⁷¹ See *supra* Part II.C. The government may also have been referring to the preamble to 47 U.S.C. § 230, which says that it is the policy of the United States “to preserve the vibrant and competitive free market that presently exists for the Internet and other interactive services, unfettered by Federal or State regulation.” 47 U.S.C. § 230(b)(2) (2000). This language means that walled gardens like the former AOL (“online service providers,” in the language of § 230) that provide content as well as Internet access, or content providers generally (in the language of the cases under § 230) should not be treated like publishers. Congress wanted to avoid making companies like AOL or eBay liable for every posting of their users; that was the point of § 230 and its preamble. Susan P. Crawford, *Shortness of Vision: Regulatory Ambition in the Digital Age*, 74 *FORDHAM L. REV.* 695, 705 (2005) [hereinafter Crawford, *Shortness of Vision*]. Section 230 itself had nothing to do with whether telephone companies or cable companies providing access to the Internet should or should not be burdened with non-discrimination requirements. Non-discrimination in basic physical transport was assumed as part of the background for § 230. As the Commission itself pointed out, at the time § 230 was enacted “[t]he Commission applied extensive common carrier regulation to the underlying telecommunications services.” Formal Complaint of Free Press & Public Knowledge Against Comcast Corp. for Secretly Degrading Peer-to-Peer Applications, 23 *F.C.C.R.* 13,028, ¶ 25, at 13,042 (2008) (memorandum opinion and order) [hereinafter *Comcast Order*].

¹⁷² This is the “contamination” theory, which should not apply to any provider of a physical network for general-purpose communications transport:

[A]pplication of the contamination theory to a facilities-based carrier such as AT&T would allow circumvention of the Computer II and Computer III basic-enhanced framework. AT&T would be able to avoid Computer II and Computer III unbundling and tariffing requirements for any basic service that it could combine with an enhanced service. This is obviously an undesirable and unintended result.

Indep. Data Comm. Mfrs. Ass’n, Inc., 10 *F.C.C.R.* ¶ 44, at 13,723.

¹⁷³ Transcript of Oral Argument, *supra* note 160, at 15.

or integrated – information-service market is sufficiently competitive that it’s not necessary and there are adequate alternative . . . communications pipelines.¹⁷⁴

This argument was paraphrased by Justice Scalia as “[W]hat the Commission hath given, the Commission may well take away – unless it doesn’t.”¹⁷⁵

Essentially, the FCC took the view that it had been handed an ambiguous statute – “offering telecommunications” – and had done its best to interpret the statute, and should not be obligated to apply common carriage principles to all possible carriers, even those the public viewed as providing general-purpose communications transport services. The *Brand X* Court deferred to the FCC’s interpretations of “information service” and “telecommunications” and application of those interpretations to high-speed Internet access.¹⁷⁶ Shortly thereafter, the FCC declared DSL Internet access service an “information service,” leaving DSL providers (like cable modem providers) free to discriminate in any way they chose.¹⁷⁷ No DSL provider would be obliged to sell its pure, common-carriage transmission services separately any longer; *Computer II*’s requirements no longer applied to DSL.¹⁷⁸

Interestingly, the FCC declined to reach this same result through its statutory authority to forbear from imposing any particular Title II regulation on cable modem service.¹⁷⁹ As Justice Scalia noted in his scathing *Brand X* dissent, the “statutory criteria for forbearance – which include what is ‘just and reasonable,’ ‘necessary for the protection of consumers,’ and ‘consistent with the public interest,’ §§160(a)(1), (2), (3) – correspond[ed] well with the kinds of policy reasons the Commission has invoked to justify its peculiar construction of ‘telecommunications service’ to exclude cable-modem service.”¹⁸⁰ The Commission’s regulatory gymnastics served the interests of the enormous incumbent network providers by allowing them to discriminate against other services.¹⁸¹

¹⁷⁴ *Id.* at 15-16.

¹⁷⁵ *Nat’l Cable & Telecomm. Assoc. v. Brand X Internet Servs.*, 545 U.S. 967, 1013 (2005) (Scalia, J., dissenting). Justice Scalia continued: “This is a wonderful illustration of how an experienced agency can (with some assistance from credulous courts) turn statutory constraints into bureaucratic discretions.” *Id.*

¹⁷⁶ *Id.* at 974 (majority opinion).

¹⁷⁷ *Appropriate Framework for Broadband Access to the Internet over Wireline Facilities*, 20 F.C.C.R. 14,853, ¶ 14, at 14,863 (2005) (report and order and notice of proposed rulemaking) [hereinafter *Wireline Broadband Order*].

¹⁷⁸ *Id.* ¶ 41, at 14,876.

¹⁷⁹ 47 U.S.C. § 160 (2000).

¹⁸⁰ *Brand X*, 545 U.S. at 1012 (Scalia, J., dissenting) (citing § 160).

¹⁸¹ *See* James S. Granelli, *Justices Take Up Future of Net Access*, L.A. TIMES, Mar. 21, 2005, at C1 (“[Chairman Michael Powell’s] policies have set up two local monopolies – cable and phone – to deliver high-speed Internet access. Designating them as information

Justice Ginsburg's question has become increasingly important since the summer of 2005. What is left of common carriage?

G. *The State of the Market*

The answer to Justice Ginsburg's question is: "Not much is left of common carriage, and what is left doesn't matter." Plain old telephone service ("POTS"), which is subject to common carriage requirements, is rapidly being replaced by wireless connectivity and high-speed Internet access – neither of which is obliged to treat all communications equally. Americans are "cutting the cord" with alacrity, abandoning their telephone service.¹⁸² Although a substantial percentage of Americans have held onto their dial-up telephone connections to the Internet (which remain subject to non-discrimination and unbundling obligations), most have or want high-speed Internet access. As people move to DSL or fiber optic¹⁸³ Internet access, the carriers that had been selling them POTS are yanking the copper physical telephone connections and wires.¹⁸⁴ Indeed, it is high-speed Internet access that is replacing every other method of communication.

At the same time as communication methods are converging on high-speed Internet access, choices of providers are narrowing. Although AT&T was broken up years ago into several RBOCs, and constraints were placed on those seven companies obliging them to stay out of non-common-carriage businesses, most of these structures have been dismantled. The RBOCs have re-consolidated (leaving just three, Verizon, SBC (now AT&T), and Qwest), and have successfully gone back into the business of providing long-distance services and "information services." There are just a few large cable modem

services, critics say, would allow the two industries to discriminate against other services, such as voice and video, that other competitors offer over broadband connections.").

¹⁸² Leslie Cauley, *Consumers Ditching Land-Line Phones*, USA TODAY, May 14, 2008, at 1A. Verizon has said it is not worried: "'We saw this trend coming for a long time,' says spokesman Eric Rabe. That's why the company is building an all-fiber cable network 'and going after television customers.'" *Id.*

¹⁸³ See JIM BALLER & CASEY LIDE, BALLER HERBST LAW GROUP, CAPTURING THE PROMISE OF BROADBAND FOR NORTH CAROLINA AND AMERICA 11 (2008):

Of all current technologies, the most robust is fiber optics. Hair-thin glass fiber optic cables can carry virtually infinite amounts of digital information encoded on light beams traveling at nearly the speed of light between lasers at the ends of the cables. Capacity is limited only by the capacity and quality of the lasers, which are constantly improving. Once fiber cables are deployed, which is the most costly part of building a fiber system, the system can readily be upgraded simply by swapping out the lasers.

Id.

¹⁸⁴ When Verizon installs its fiber network, it takes its (regulated) copper lines out of service. See *US Telecommunications Company Verizon's Copper Cutoff Traps Customers, Hampers Rivals*, INT'L HERALD TRIBUNE, July 8, 2007, <http://www.iht.com/articles/ap/2007/07/08/business/NA-FIN-US-Verizon-Cutting-Copper.php>.

access providers. The market for high-speed Internet access is quite concentrated, with the top four providers controlling about seventy percent of the market.¹⁸⁵ (By contrast, ten years ago there were an estimated seven or eight thousand Internet service providers offering dial-up access.)¹⁸⁶ Fiber optic services are beginning to be rolled out in the U.S., but progress is slow.¹⁸⁷ Most of the people in the U.S. have, at most, two choices of high-speed Internet access provider.¹⁸⁸

The Commission claims “inter-modal” competition has increased for high-speed Internet access, pointing to competition between telephone companies and cable companies, and between fiber and DSL/cable modem service.¹⁸⁹ But none of these providers is selling Internet access separately at competitive prices, so there is no direct competition for the provision of that particular

¹⁸⁵ AT&T (former BellSouth and SBC) 21%, Comcast 21%, Verizon 12%, Time Warner 12%. Email from S. Derek Turner, Research Director, Free Press, to author (Apr. 26, 2009, 14:33 EST) (on file with author); *see also* CAI & KUAI, *supra* note 68, at 1. U.S. residences connect to the Internet using the following technologies: 50.6% cable modem; 37.5% DSL; 1.7% fiber optic; and the rest (about 10%) use wireless, satellite, or power line. INDUST. ANALYSIS & TECH. DIV., FCC, HIGH-SPEED SERVICES FOR INTERNET ACCESS: STATUS AS OF JUNE 30, 2007, at 3 (2008), available at http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-280906A1.doc. Incumbent phone companies control 97% of DSL Internet access, 91% of fiber Internet access, 81.5% of wireless high-speed Internet access, and 49% of dial-up access. *Id.*

¹⁸⁶ CTR. FOR DEMOCRACY & TECH., PRESERVING THE ESSENTIAL INTERNET 7 (2006), available at <http://www.cdt.org/speech/20060620neutrality.pdf>.

¹⁸⁷ *See* ATKINSON, CORREA & HEDLUND, *supra* note 131, at 38 (stating that 9.6 percent of households had fiber access by the end of 2007; actual subscribership was lower). Verizon plans to deliver services over an advanced fiber-optic broadband network (under the brand name “FiOS”) to eighteen million households by 2010. *See* VERIZON FIOS, WHAT IS FIOS? 1 (2007), available at <http://newscenter.verizon.com/kit/nxtcomm/Product-sheet-FIOS-1Q07.pdf>. So far, over one million people in America subscribe to FIOS. *Id.* Cable providers are responding by, for example, upgrading their networks.

¹⁸⁸ S. DEREK TURNER, FREE PRESS, SHOOTING THE MESSENGER: MYTH V. REALITY: U.S. BROADBAND POLICY AND INTERNATIONAL BROADBAND RANKINGS 19 (2007) (“Almost 96 percent of all residential advanced service lines in the United States are provided over the cable and DSL platforms. In nearly every single locality where these two platforms are available, there is just one company providing cable and just one providing DSL.”).

¹⁸⁹ *Comcast Order*, *supra* note 171, ¶ 31, at 13,046 (“Internet access networks are complex and variegated. We thus think it possible that the network management practices of the various providers of broadband Internet access services are ‘so specialized and varying in nature as to be impossible to capture within the boundaries of a general rule.’”); *see* INDUST. ANALYSIS & TECH. DIV., FCC, HIGH-SPEED SERVICES FOR INTERNET ACCESS: STATUS AS OF DECEMBER 31, 2006, at 4, 22 tbl.16 (2007), available at http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-277784A1.pdf (showing the competing providers serving high-speed subscribers).

“product.”¹⁹⁰ There is no mandated “unbundling” of Internet access in this country save (by default) for the remnants of dial-up access. Phone and cable companies are “bundling” Internet access with multiple other services, including Internet Protocol Television (“IPTV”), Video on Demand, and telephone.¹⁹¹ “Inter-modal” *platform* (vertically-integrated) competition is not helping consumers reap the benefits of innovation and lower costs for Internet access, because the large providers (whether dominant or not) are themselves competing with Internet access and are not interested in providing it separately. This absence of head-to-head competition in combination with the network providers’ shared practice of prioritizing particular Internet transmissions means the traditional regulator’s focus on “price reductions in telecommunications services” is fruitless. There is nothing useful to compare when it comes to high-speed Internet access because each service is both bundled with a host of other products and special in its own discriminatory way. These companies simply do not compete on the provision of Internet access alone.

The key regulatory problem, then, is a lack of “unbundled” basic physical transport. With that element in place, competition for non-discriminatory Internet access might emerge, resulting in the lower prices for comparable services that regulators are historically interested in providing. Additionally, this absence of unbundled non-discriminatory basic transport poses a problem for Internet applications, content, and as-yet-undeveloped uses, because the rug can always be pulled out from under them by private network access providers who are “shaping” traffic and prioritizing transmissions. The following Section describes this phenomenon, using the 2007 Comcast Situation as a case study.

H. *The Comcast Situation*

During the late fall of 2007, an investigation by the Electronic Frontier Foundation and the Associated Press revealed that Comcast, the second largest provider of high-speed Internet access to U.S. residents,¹⁹² was systematically throttling use of an online protocol called BitTorrent.¹⁹³ At first, Comcast strenuously denied it was doing anything of the sort.¹⁹⁴ Then, after the Associated Press broke the story, Comcast confessed it had acted in the manner described.¹⁹⁵ Comcast argued throttling was necessary in order to address

¹⁹⁰ For example, Comcast charges twenty dollars more per month in Ann Arbor, Michigan, for Internet access alone than it charges per month for Internet access “bundled” with phone and cable service.

¹⁹¹ See, e.g., VERIZON FIOS, *supra* note 187, at 2 (stating that nearly every FiOS customer has also signed up for another Verizon service as well).

¹⁹² *Comcast Order*, *supra* note 171, ¶ 6, at 13,030.

¹⁹³ *Id.* ¶¶ 6-8, at 13,030-31.

¹⁹⁴ *Id.* ¶ 6, at 13,030.

¹⁹⁵ *Id.* ¶ 9, at 13,032.

upload congestion in its network.¹⁹⁶ An uproar ensued, culminating in dramatic hearings at Harvard Law School in February 2008 and Stanford Law School in April 2008 attended by all five FCC Commissioners.¹⁹⁷ The Commission declined to carry out a rulemaking process about network provider practices. Rather, it decided to adjudicate the Comcast matter in an extraordinarily fact-specific way,¹⁹⁸ grinding through each public Comcast statement (for example, Comcast's statement that the company does not actively block particular applications)¹⁹⁹ and showing that these statements conflicted with facts found as a result of investigative reporting by the Associated Press and the Electronic Frontier Foundation. Indeed, the Commission specifically said it did not want to intervene in the market for high-speed access generally. Instead, the Commission announced Comcast's fact-specific practices amounted to unreasonable network management.²⁰⁰

The Commission imposed no injunction or fine, but pledged to monitor Comcast's adherence to its promise to adopt a protocol-agnostic method of network management by the end of 2008.²⁰¹ The Commission also required Comcast to disclose the details of its network management practices to the public.²⁰² Importantly, the Commission stated it *would* be appropriate for Comcast to block or degrade "illegal" traffic or otherwise prioritize communications – as long as the prioritization was "reasonable."²⁰³

In slapping Comcast's wrist, the Commission did not rely on Title II or common carriage/non-discrimination principles. Instead, it claimed Comcast's actions amounted to a breach of a 2005 "Internet Policy Statement" that two Commissioners had already said was unenforceable,²⁰⁴ plus was covered under

¹⁹⁶ *Id.*

¹⁹⁷ Press Release, FCC, FCC Announces Public En Banc Hearing in Cambridge, Massachusetts on Broadband Network Management Practices (Feb. 12, 2008), available at http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-280194A1.pdf; Press Release, FCC, FCC Announces Second Public En Banc Hearing on Broadband Network Management Practices at Stanford University, Palo Alto, California (Mar. 19, 2008), available at http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-280895A1.pdf. The FCC received over 6500 comments on the Comcast matter, and the record in the proceeding filled fifteen boxes. *Comcast Order*, *supra* note 171, app. at 13,068 (separate statement of Chairman Kevin J. Martin).

¹⁹⁸ *Comcast Order*, *supra* note 171, ¶ 29, at 13,045 (stating the FCC's choice to "adjudicate disputes regarding federal Internet policy on a case-to-case basis").

¹⁹⁹ Marguerite Reardon, *Comcast Denies Monkeying with BitTorrent Traffic*, CNET NEWS, Aug. 21, 2007, http://www.news.com/8301-10784_3-9763901-7.html.

²⁰⁰ See *Comcast Order*, *supra* note 171, ¶ 51, at 13,058 ("[I]t is our expert judgment that Comcast's practices do not constitute reasonable network management . . .").

²⁰¹ *Id.* ¶ 54, at 13,059.

²⁰² *Id.* at 13,060.

²⁰³ *Id.* ¶ 31, at 13,046.

²⁰⁴ Appropriate Framework for Broadband Access to the Internet over Wireline Facilities, 20 F.C.C.R. 14,986, ¶ 4, at 14,988 (2005) (policy statement) [hereinafter *Internet*

the Commission's "ancillary" authority under Title I.²⁰⁵ The *Comcast Order* did declare that outright blocking of particular applications would likely be frowned upon by the Commission in future case-by-case considerations.²⁰⁶ But the Commission's statement that physical Internet access providers should be allowed to discriminate against traffic they believed to be illegal or harmful to the network placed enormous discretion in the hands of the carriers.²⁰⁷ This was far from an ex ante non-discrimination rule.

Backward-looking, case-by-case adjudications like the effort made in the Comcast Situation suffer from three flaws. First, they give the Commission enormous discretion to "regulate the Internet" – the FCC makes no regulatory distinction between physical Internet access services and an online site such as the *New York Times* (nytimes.com). Both are "information services." Second, such fact-specific adjudications will not fix the basic problem of discrimination. They are, at the most, tiny solutions to particular problems that

Policy Statement]; see Press Release, FCC, Chairman Kevin J. Martin Comments on Commission Policy Statement (Aug. 5, 2005), available at http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-260435A2.pdf ("While policy statements do not establish rules nor are they enforceable documents, today's statement does reflect core beliefs that each member of this Commission holds regarding how broadband Internet access should function."); see also *Wireline Broadband Order*, *supra* note 177, app. at 14,980 (separate statement of Michael J. Copps, Comm'r, concurring) ("While I would have preferred a rule that we could use to bring enforcement action, this is a critical step. And with violations of our policy, I will take the next step and push for Commission action.").

²⁰⁵ The FCC's ancillary jurisdiction stems from *United States v. Southwestern Cable Co.*, in which regulation "reasonably ancillary to the effective performance of the Commission's various responsibilities" was found to be appropriate. *United States v. Sw. Cable Co.*, 392 U.S. 157, 178 (1968). I questioned the scope of this authority in my article, *Shortness of Vision: Regulatory Ambition in the Digital Age*. Crawford, *Shortness of Vision*, *supra* note 171, at 734-36. In the *Comcast Order*, the Commission asserted that its power over Comcast's practices stemmed from a long list of statutory obligations whose protection required that the Commission limit Comcast's blocking practices. See *Comcast Order*, *supra* note 171, ¶ 16, at 13,036. The FCC's claim of jurisdiction seems both weak and overbroad, and as Commissioner McDowell stated: "Under the analysis set forth in the order, the Commission apparently can do *anything* so long as it frames its actions in terms of promoting the Internet or broadband deployment." *Id.* app. at 13,090 (separate statement of Robert M. McDowell, Comm'r, dissenting). Comcast is certain to sue over this jurisdictional question and may very well win.

²⁰⁶ *Comcast Order*, *supra* note 171, ¶ 39, at 13,049.

²⁰⁷ Chairman Martin's statement made this clear:

[In these adjudications,] [t]he Commission considers whether the network management practice is intended to distinguish between legal and illegal activity. The Commission's network principles only recognize and protect user's access to legal content. The sharing of illegal content, such as child pornography or content that does not have the appropriate copyright, is not protected by our principles. Similarly, applications that are intended to harm the network are not protected.

Id. app. at 13,066 (separate statement of Kevin J. Martin, Chairman).

will be out-of-date before they have been implemented and create no overarching precedent. They create no certainty for other users of the Internet who want to be able to rely on standardized online communications in carrying out their decentralized activities. Network access providers, who reveal no information about the workings of their networks to private parties or researchers, can always take the view that their discriminatory activities are “reasonable,” and force the complainer to the expense and difficulty of going to the FCC. Meanwhile, the complainer may either never have found out it/he was being discriminated against or may give up and pay the network provider for the privilege of access. Third, such adjudications take enormous Commission resources to resolve and are not necessarily within the core competency of the agency. The Comcast matter was overwhelming for the Commission. As Commissioner Adelstein said: “[R]arely has this Commission conducted such intensive fact-finding. We have witnessed nine months of filings and two hearings to glean testimony from providers, legal experts, engineers, entrepreneurs, scholars, consumer advocates, and many others. We have heard from thousands of individual consumers who have filed comments with us.”²⁰⁸ And Comcast was just the first – relatively straightforward – claim of unreasonable network management.

Although such a thing would have seemed utterly improbable in the 1950s or the 1980s, deregulatory fervor (along with a certain amount of definitional legerdemain) has allowed the United States to move from constraining common carriers in order to *protect* a complementary industry – data processing – to allowing common carriers to *control* non-transport functions such as content, new applications, and devices. Our general-purpose communications law framework has been subverted, and the traditional split between conduit and content has been entirely eliminated. At the same time, public concern over this issue is growing.

III. THE COMMON CARRIAGE IDEAL

So far, we have seen that communications policy in the United States has recently moved away from non-discrimination requirements despite a long and principled history of obliging general-purpose communications networks to act in a non-discriminatory fashion. We have also seen that the articulation of general-purpose communications law as including a non-discriminatory network (or not) has significant consequences. Now, it is time to ask the normative question – whether non-discrimination requirements are preferable for basic communications networks.

In this Part, I consider how a number of threads in the broader communications debate intersect with non-discrimination principles. Three conditions provide the necessary context for a decisive shift back to the non-discrimination portion of the common carriage ideal: (1) the longstanding policy consensus as to the importance of Internet access to economic growth

²⁰⁸ *Id.* app. at 13,081 (separate statement of Jonathan S. Adelstein, Comm’r).

and innovation; (2) the growing instinct that the provision of non-discriminatory access to basic communications is a traditional government function; and (3) the impossibility of “fixing” communications discrimination through disclosure or post hoc antitrust-like procedures. The early history of telegraphy is instructive on this third point. Finally, I acknowledge and respond to arguments against common carriage.

A. *Policy Consensus*

Although some conservative policymakers continue to assert that the explosive growth of the Internet is the result of unfettered competition in the free market, the fact is U.S. policy has been intentionally directed towards supporting open Internet access for many years. Starting in the 1960s, the federally funded²⁰⁹ Advanced Projects Research Administration Network (“ARPANET”) provided researchers with experience in Internet networking protocols.²¹⁰ The domain name system’s development was funded by the federal government as well.²¹¹ The Computer Inquiries were aimed at protecting the nascent data processing market by keeping domestic common carriers out (except as far as computing was “incidental to communications”). Dial-up access to the Internet over customers’ phone lines was treated by the FCC as an interstate service subject to its jurisdiction, and the ISPs these dial-up users called were exempted from interstate access charges.²¹² Although critics suggested usage-sensitive access charges should be set by the market and imposed on ISPs, the FCC rejected this approach.²¹³ ISPs were permitted to take advantage of business and flat-rate local line charges, instead of being treated like carriers themselves, and were exempted from any obligation to pay into universal service funds. All of this special treatment for ISPs assumed the continuing existence of non-discriminatory basic transport networks that the ISPs would use.

The centrality of high-speed Internet access to the economic future of the United States has been acknowledged at every level of government. Indeed, in 2004, President Bush asserted that increased high-speed access was a priority:

This country needs a national goal for . . . the spread of broadband technology. We ought to have a universal, affordable access for broadband technology by the year 2007, and then we ought to make sure

²⁰⁹ MILTON L. MUELLER, RULING THE ROOT: INTERNET GOVERNANCE AND THE TAMING OF CYBERSPACE 68 (2002).

²¹⁰ *Id.* at 74-75.

²¹¹ *See id.* at 68.

²¹² Steve Bickerstaff, *Shackles on the Giant: How the Federal Government Created Microsoft, Personal Computers, and the Internet*, 78 TEX. L. REV. 1, 47-48 (1999).

²¹³ *Id.* at 53 (“More than a rejection of the ILECs’ [Incumbent Local Exchange Carrier] claims of network congestion or added costs, the FCC’s *Access Charge Reform Order* seems aimed at achieving what the Commission perceived was the politically correct result: don’t jeopardize the ISPs, the Internet, or the economy.”).

as soon as possible thereafter, consumers have got plenty of choices when it comes to [their] broadband carrier.²¹⁴

Several studies support the argument that high-speed Internet access is important to ensuring the continued success of the United States as a country.²¹⁵ The U.S. Conference of Mayors unanimously approved a resolution calling on the Administration, FCC and Congress to develop policies making high-speed Internet access a national priority.²¹⁶ Many groups have called for the creation of national policies for increasing high-speed access.²¹⁷

The relevance of high-speed Internet access to economic growth and innovation is widely conceded, and the country's past tradition of supporting open Internet access is clear. For these reasons, it is a particularly good time to focus on the appropriate regulatory treatment of high-speed Internet access.

B. *The Common Carriage Instinct*

The strength of the public response to Comcast's discrimination is evidence of a deep instinct that providers of transport to the public of private networks should not be permitted to discriminate. Many people – nearly two million – were shocked by Comcast's behavior,²¹⁸ as they had been by Verizon's in a text-messaging censorship episode some months before.²¹⁹ As I explained above, this instinct has a distinguished history behind it, as non-discrimination for basic communications networks had been part of U.S. law and policy until quite recently.²²⁰ Access to general-purpose communications networks, a traditional government function, is something the people of this country expect to be "public" in nature, or, if provided by private parties, subject to strict non-

²¹⁴ Remarks in Albuquerque, New Mexico, 40 WEEKLY COMP. PRES. DOC. 477, 484 (Mar. 26, 2004).

²¹⁵ BALLER & LIDE, *supra* note 183, at 16-19 (citing multiple studies).

²¹⁶ Press Release, City of Boston, Major Metro Cities, Mayors Call For National Broadband Action (Jun. 26, 2008), *available at* http://www.baller.com/pdfs/major_cities_uscm_res.pdf.

²¹⁷ These groups include, but are not limited to, Information Technology and Innovation Foundation, Connected Nation, Connect Kentucky, Free Press, Consumers Union, Consumer Federation, Educause, Internet For Everyone, and the Communications Workers of America.

²¹⁸ SaveTheInternet.com, a coalition that pushed for Comcast to be stopped from blocking BitTorrent transmissions, asserts that it has 1.5 million members. *See* SaveTheInternet.com, <http://savetheinternet.com/> (last visited Mar. 26, 2009).

²¹⁹ Verizon Wireless had denied a request from Naral Pro-Choice America to use its network for a text-message program. Adam Liptak, *Verizon Rejects Text Messages from an Abortion Rights Group*, N.Y. TIMES, Sept. 27, 2007, at A1. Because of customer outrage, Verizon quickly reversed course and permitted the abortion rights group to use Verizon's network. Adam Liptak, *In Reversal, Verizon Says It Will Allow Group's Text*, N.Y. TIMES, Sept. 28, 2007, at A20.

²²⁰ *See supra* Part I.A.

discriminatory limitations.²²¹ Recently, every major Senate Democratic challenger announced support for network neutrality.²²² The FCC's actions with respect to Comcast responded to this instinct.

That millions of people were willing to have their voices heard in connection with the relatively minor matter of Comcast's discrimination with respect to popular peer-to-peer file-trading (discrimination carried out daily by vertically-integrated providers of Internet access around the world)²²³ indicates that the longer-term plans of providers to use deep-packet inspection and cell-phone-like layers to differentiate between different communications over their access networks should create substantial public uproar – if these plans could be adequately explained to the public.

Comcast's action is evidence of the potential for discriminatory activity by vertically-integrated providers of high-speed Internet access. An early indication of things to come, many providers of high-speed Internet access intend to adopt cell-phone-like monetizing layers with "deep packet inspection" use to charge for particular uses of the Internet.²²⁴ Verizon has announced plans to use an Interactive Multimedia Subsystem technique for prioritizing Internet traffic.²²⁵ The legal regime now in place would prohibit

²²¹ Internet access could, and probably should, be treated as a utility, like water and electricity. Just as the power company does not have the power to dictate how precisely electricity should be used, the basic communications transport company should not have the power to dictate how bits will be used. Only history has created the difference; power companies never contemplated having the technical ability to charge differently for different "services"; high-speed Internet access companies have the technical ability to do so, and claim the exercise of that ability as an entitlement. The difficult question is where to draw the line: what is the basic general-purpose communications network to which non-discriminatory access by competitors should be available? I answer this question in Part IV.B, *infra*.

²²² Posting of Sarah Lai Stirland to WIRED (July 24, 2008, 23:36), <http://blog.wired.com/27bstroke6/2008/07/net-neutrality.html>.

²²³ Bad ISPs, AzureusWiki, http://www.azureuswiki.com/index.php/Bad_ISPs (last visited Mar. 26, 2009) (listing ISPs around the world that shape traffic).

²²⁴ *What Your Broadband Provider Knows About Your Web Use: Deep Packet Inspection and Communications Laws and Policies: Hearing Before the H. Comm. on Energy and Commerce, Subcomm. on Telecommunications and the Internet*, 110th Cong. 9-12 (2008) (statement of Alissa Cooper, Chief Computer Scientist, Center for Democracy and Technology), available at <http://cdt.org/testimony/20080717cooper.pdf>. Techniques that use deep packet inspection are collectively called "traffic shaping." Traffic shaping uses pattern recognition or data flow analyses to separate some traffic from others for differential treatment, and is not apparent to end-users save in extreme cases. See Christian Sandvig, *Network Neutrality Is the New Common Carriage*, 9 INFO 136, 140 (2007).

²²⁵ Steve Taylor & Larry Hettick, *Verizon: IP Multimedia Subsystem on the Cusp of Being Viable in 2008*, NETWORK WORLD, Jan. 2, 2008, <http://www.networkworld.com/newsletters/converg/2008/1231converge2.html>; Richard Lynch, Executive Vice President & Chief Tech. Officer, Verizon Commc'ns, Keynote Address at the Progress and Freedom Foundation Aspen Conference (Aug. 20, 2008),

none of this. Putting the few companies that provide this access in charge of picking which online communications move quickly and which do not, when those companies have their own commercial interests in being successful content companies, may be destructive as an economic matter.²²⁶ More broadly, the loss of a non-discriminatory general-purpose network will have non-quantifiable social welfare effects and undermine the entire framework of communications law.

In the context of the Comcast matter, the FCC's recognition of the public instinct that access to general-purpose communications networks should be non-discriminatory was meaningful. But the Commission is asking the wrong questions. It has failed to address the fundamental point: non-discriminatory access to the only general-purpose communications facility of our time that matters – the Internet – has essentially disappeared. Given the public response to the Comcast issue and other evidence of discrimination by network providers, the ground has arguably been prepared for a move back to a non-discrimination requirement.

C. *Other Approaches to Non-Discrimination*

Two suggestions addressing the problem of discrimination (other than a non-discrimination rule or regime) have been made over the last few years: (1) required disclosures by network providers, and (2) antitrust-like adjudication by the FCC. Neither will be effective.

1. Disclosures

Some commentators deal with the problem of discrimination by network access providers by arguing for required disclosures to users of the parameters of the access “service” the users have purchased.²²⁷ This consumer protection approach to network access discrimination has been popular with the Federal Trade Commission as well as the FCC. The idea is that users would be told, for example, when the access provider has shaped traffic at times of congestion, or blocked particular uses altogether.

available at <http://newscenter.verizon.com/leadership/speeches/progress-and-freedom-1.html> (“The true technical solution to the challenge of convergence comes as we make the move to IMS, or IP Multimedia Subsystems, which will provide the common control and protocols for applications to work across our networks.”).

²²⁶ See Crawford, *The Internet*, *supra* note 130, at 399-400.

²²⁷ ROBERT D. ATKINSON & PHILIP J. WEISER, INFO. TECH. & INNOVATION FOUND., A “THIRD WAY” ON NETWORK NEUTRALITY 2 (2006) (supporting requiring “broadband providers to state their broadband access and usage policies in clear terms”); Philip J. Weiser, *The Next Frontier for Network Neutrality*, 60 ADMIN. L. REV. 273, 291-97 (2008) (suggesting the FTC and FCC develop standards for disclosures); CTR. FOR DEMOCRACY & TECH., PRINCIPLES FOR NETWORK MANAGEMENT, LIMITED ROLE FOR FCC (2008), <http://cdt.org/publications/policyposts/2008/7> (supporting “transparency” for network management practices).

It is not clear what disclosures would actually be meaningful to users. In debates over privacy policy self-regulation, firms making statements about their data practices will deliberately speak broadly so as not to constrain their ability to change their plans. It is likely network providers given the same self-regulatory option would speak equally broadly (as they now do in their Terms of Service). The vague language they would use would not necessarily alert users that what they were getting was not “the Internet” and that they should switch to another provider.

Additionally, specific language describing the consequences of each traffic-shaping technology in use by the network provider would be useless to users. They would not understand what these lengthy descriptions meant, and would likely skip reading them altogether. Again, the data privacy parallel is instructive here; users who are shown each cookie and asked whether or not they want to accept it will routinely become overwhelmed and will ask that all of this disclosure information be forced back into the background again.

The audience needing disclosures about network management is not necessarily that of users. Network management creates an unpredictable environment for information running over the provider’s network. Affected by this unpredictation environment are developers of new ways of aggregating and filtering information; these developers are not necessarily subscribers to that particular network, but are instead merely trying to be available to users of that network. Developers can also be individual users who “subscribe” to the access provided by the network provider, but need not be. Finally, because network providers do not allow anyone to research the fate of traffic passing over their links, it will be very difficult for any one complainant or developer to test whether any particular disclosure is actually being complied with. There are many links in the chain of communication, and any one of them could potentially affect transmission.

In sum, disclosures – while undeniably helpful to some extent in focusing attention on network practices – will not address the core problem of discrimination by high-speed Internet access providers.

2. FCC Antitrust-Like Adjudication

Professor Phil Weiser and others have suggested antitrust law can provide an appropriate check on network management practices.²²⁸ In this view, the FCC would have after-the-fact authority to hear complaints about selective offerings of quality-of-service guarantees by network access providers. The FCC would provide an expedited proceeding schedule to complainants. Network providers without market power would have a defense, and others

²²⁸ ATKINSON & WEISER, *supra* note 227, at 2 (calling for “antitrust-like” regulatory powers for the FCC).

could be enjoined from continuing their anticompetitive practices.²²⁹ Along these lines, in early 2008 legislation was introduced, adding sections to the Clayton Act making discriminatory pricing of network management services potentially new causes for antitrust claims.²³⁰

Antitrust adjudications are unlikely to be helpful in addressing the problem of discrimination. As Professor James Speta has pointed out: “Antitrust depends upon case-by-case adjudication and the development of facts via an adversarial process, creating the possibility for delay and nonuniformity, both of which interfere with the development of business models.”²³¹ The process assumes everyone involved has the wherewithal and the sophistication to pursue relief, which may not be true of would-be competitors. And by the time those competitors or unborn applications finished with their complaints to the Commission they would be dramatically weakened if not out of business entirely.

More importantly, antitrust law does not deal well with platforms. It assumes Internet access is just like any other marketplace, when in fact the core of Internet access is utility-like basic transport.²³² Ultimately, antitrust enforcement would depend on assessments of market power in a dynamic and multi-sided environment in which many actors are depending on Internet access as a basic communications platform, and in which the oligopolists who are providing that basic access have similar motivations not to compete with one another in providing non-discriminatory access. An essential-facilities-like regime would make sense in this context, but such an approach is unlikely to succeed under current law.²³³

The idea of a non-discrimination rule did not come from competition law. Instead, it rests on common-law notions of social welfare and appropriate state function. Antitrust law, with its single-minded focus on firms competing in established markets, is ill-equipped to deal with discrimination by providers of physical transport networks for Internet access.

The time is ripe for a re-statement of and re-commitment to the ideal of non-discrimination – the central element of common carriage.

²²⁹ Phil Weiser has argued that the FCC should be reformed so as to become an antitrust-focused light-touch agency performing solely in an adjudicative manner. Weiser, *supra* note 227, at 322.

²³⁰ Internet Freedom and Non-discrimination Act of 2008, H.R. 5994, 110th Cong. (2008) (outlawing charging of discriminatory fees by network providers for providing content, applications, or services online).

²³¹ Speta, *supra* note 10, at 19.

²³² See *supra* Part I.B (explaining why transportation and communication are regulated as common carriers).

²³³ See *Aspen Skiing Co. v. Aspen Highlands Skiing Corp.*, 472 U.S. 585, 600 (1985) (finding it unnecessary to consider the “essential facilities” doctrine).

D. *Arguments for Discrimination*

Network operators have made three major arguments in support of their discretion to discriminate: (1) avoiding onerous “common carriage” regulation will be efficient; (2) competition among carriers is best fostered by deregulation; and (3) carriers’ speech will be interfered with by regulation.

First, network operators claim it will be far more efficient to allow them to avoid the heavy burden of Title II ratemaking regulation. They characterize a non-discrimination rule as essentially a repeat of all the heavy burdens of full-out common carriage regulation.²³⁴

The specter of endless ratemaking proceedings can horrify. It is also true that the tussling over the 1996 Act unbundling requirements for telephone common carriers went on for a decade and failed to create real local competition. And finally, it is true that the universal service system is deeply flawed. But the imposition of a non-discrimination rule would not necessarily carry with it all the baggage of the prior common carriage regime, and the proponents of discrimination may be illegitimately playing on fears of over-regulation created by an overbroad system from the past. As I discuss in Part IV, a non-discrimination rule could be implemented simply through structural separation between transport and other carrier businesses, and without a heavy regulatory superstructure or universal service obligations.²³⁵

Second, carriers argue that they need incentives in order to invest in improving U.S. high-speed Internet access, and that the ability to perfectly price-discriminate will provide that incentive.²³⁶ Christopher Yoo has also argued that carriers will be able to compete more effectively and offer lower prices to consumers if they are able to discriminate freely.²³⁷ Philip Weiser has

²³⁴ Bruce M. Owen, *Antecedents to Network Neutrality*, 30 REGULATION 14, 14 (2007).

²³⁵ See *infra* Part IV.A.

²³⁶ See, e.g., Press Release, Verizon, Verizon Calls on FCC to Clarify Broadband Policy to Align Incentives to Invest (Sept. 25, 2003), available at <http://newscenter.verizon.com/press-releases/verizon/2003/page.jsp?itemID=29715045>. In 1999, in response to a question about allowing online video streaming applications to run over AT&T’s network, an AT&T executive responded: “AT&T did not spend \$56 billion to get into the cable business ‘to have the blood sucked out of our vein.’” David Lieberman, *Media Giants’ Net Change Major Companies Establish Strong Foothold Online*, USA TODAY, Dec. 14, 1999, at 3B. As a final example of the carrier argument, see the remarks of Verizon’s Chief Technology Officer:

The public interest can best be served by getting as much broadband in front of as many people, as quickly as possible, and ensuring that investment keeps up with demand. To a large extent, this is a matter of taking down the barriers to investment and refraining from erecting new ones.

Lynch, *supra* note 225.

²³⁷ See, e.g., Yoo, *Beyond*, *supra* note 10, at 47-48 (“The fact that telecommunications networks now serve as the conduit for mass communications and not just person-to-person communications greatly expands the justification for allowing them to exercise editorial control over the information they convey.”); Yoo, *Economics of Congestion*, *supra* note 10,

claimed that carriers lack any incentive to discriminate because they will perform better if their platforms are more popular.²³⁸

These arguments boil down to the notion that carriers are in the best position to efficiently extract profits from both consumers of Internet access and providers of online content seeking to reach those consumers, and so should be allowed to continue to extract those profits. These advocates and scholars are not engaging with the principles of general-purpose networks that gave us a non-discrimination rule in the first place; they are taking the view that all of communications policy is essentially about fostering competition, and not about forwarding social welfare. Yes, installing high-speed Internet access networks is expensive, but the expense does not ineluctably lead to the conclusion that access providers must internalize all possible profits from the use of these networks.

Third, scholars and advocates for the access providers have argued that any government involvement in Internet access will undermine the access providers' speech rights.²³⁹ They contend that a non-discrimination rule is sufficiently content-based as to be subject to intermediate scrutiny (at the least) under *Turner Broadcasting Systems, Inc. v. FCC* due to fears of government censorship that it triggers.²⁴⁰ Under that test, the network providers argue that any non-discrimination rule is insufficiently narrowly-tailored to serve the government's interest, and that the interest is itself unclear.²⁴¹ Using the intermodal competition arguments the FCC itself has raised over the last few years, the network providers claim that there is no market failure supporting the imposition of a non-discrimination rule.²⁴²

at 1907-08; *see also* Lynch, *supra* note 225 ("Far from being a commodity or a 'me-too' asset, our broadband networks are a source of competitive advantage and value-creation, and we have devoted many years' worth of intellectual and financial capital to mould them to deliver a real differentiated experience to our customers.").

²³⁸ 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, 93-105 (2003) (discussing the pros and cons of carriers internalizing complementary efficiencies (or "ICE")). *But see* Van Schewick, *supra* note 9, at 380-81 (observing that carriers have long-term economic reasons to discriminate).

²³⁹ *See, e.g.*, Randolph J. May, *Net Neutrality and Free Speech*, BROADCASTING & CABLE, Sept. 16, 2008, http://www.broadcastingcable.com/article/talkback/105815-Net_Neutrality_and_Free_Speech.php; Lynch, *supra* note 225 (positing that sound public policy would "guard against turning technical and business decisions into political decisions").

²⁴⁰ *Turner Broad. Sys., Inc. v. FCC*, 512 U.S. 622, 662 (1994) (discussing a challenge to the requirement that cable companies carry local broadcaster programming and determining that laws targeting the press or its elements should be held to a heightened standard of judicial scrutiny).

²⁴¹ *Id.*

²⁴² *Id.* at 666-67.

Michael Steffen has persuasively argued that where there is no plausible threat of censorship posed by a communications policy non-discrimination rule, such a rule should be upheld if it is based on substantial evidence.²⁴³ This argument seems particularly applicable to the imposition of a non-discrimination rule on general-purpose, physical last-mile Internet access – no viewpoint or other content-based censorship is made possible by such a rule, and indeed it is difficult to say the network provider is making any “expressive” decisions in deciding to prioritize (or not) a particular stream of traffic. A non-discrimination rule for these physical transport providers should be upheld so long as it is supported by an adequate regulatory process. This is the kind of structural regulation the Commission was established to carry out. The real threat to speech lies in the discretion afforded to network access providers.

IV. THE WAY FORWARD

We do not have a vigorous marketplace of Internet access providers, and even if we did it would not be a substitute for the social and economic consequences of abandoning a non-discrimination rule for our new form of general-purpose network. Unbundling with words has proven to be fruitless. The central regulatory limitation on the physical last-mile network access providers should be that of non-discrimination – non-discrimination carried out on the lowest, physical layer of the Internet. At the same time, the money-driven considerations causing the Commission to characterize Internet access as an “information service” should be removed from the picture. Providers of last-mile physical Internet access transport should be subject only to the simplest rate-setting and allowed a modest rate of return. They should not be the only sources for contributions to the Universal Service Fund, which should instead be supported by a general revenue tax. The entire system needs to be re-vamped.²⁴⁴ There is a distinction between transport networks and edited mass media; they have become vertically integrated, but need not be, and their actual separation will be good for the rest of us.

The central non-discrimination rule of common carriage has no necessary connection to either intense regulatory oversight of revenues and expenses or to the subsidization of rural service. Government created the first obligation to

²⁴³ Michael Steffen, *Turner’s Forgotten Wisdom: Revisiting “Substantial Evidence” Review of Communications Policy Under the First Amendment 10* (2008) (unpublished manuscript, on file with author).

²⁴⁴ Such a reform effort is already underway, but political concerns will slow progress. See Dave Michaels, *Congress: Phone Fees Face Overhaul, Bills Would Revamp Huge Subsidies for Telecom Firms that Provide Rural Service*, DALLAS MORNING NEWS, July 29, 2008, at 1D (“Although there is widespread agreement that some reform [to Universal Service] is necessary, big changes would be likely to trigger a lobbying battle involving rural legislators – who largely favor the current system – and may hinge on the outcome of the presidential election.”).

constrain market abuses and the second obligation to target a convenient source of funding for services without going after general tax revenues. That they were tacked on to the basic non-discrimination obligation has thoroughly confused the question. To avoid burdening particular companies with obligations and fees, the regulator has tried to avoid the “common carriage” category through re-definition and a certain amount of subterfuge. In the meantime, the central non-discrimination obligation has weakened and is threatened with extinction.

Much of this work could be done without many changes to the underlying statute. Both the preamble and the overall structure of the Telecommunications Act indicate that the existence of a non-discriminatory, basic communications network is a deeply-embedded principle of communications law.²⁴⁵ The central purpose of the current Telecommunications Act is tied to ideals of common carriage – “to make available, so far as possible, to all the people of the United States . . . a rapid, efficient, Nation-wide, and world-wide wire and radio communications service with adequate facilities at reasonable charges.”²⁴⁶ Of course, “mak[ing] available” connotes government involvement, as does the “adequate facilities” and “reasonable charges” elements of this mission²⁴⁷ – and each is tied to ideas of non-discriminatory access. Although the Commission has defined the applicability of a non-discrimination rule almost out of existence, it is a basic rule of administrative law that an agency may not supplant its own solutions to the problems already addressed by the legislature. There is nothing in the Telecommunications Act’s legislative history to suggest members of Congress intended to eliminate the idea of non-discrimination for general-purpose physical communications access networks over which more elaborate services could be provided. To the contrary: the structure and substance of the Telecommunications Act depends on the existence of a basic, non-discriminatory general-purpose access regime. It has normative power that should be shaping the actions of the FCC.

The following Sections describe the elements of a proposal for the future treatment of providers of physical high-speed Internet access: structural separation, a non-discrimination regime, and funding universal service from general revenues.

A. *Structural Separation*

The story of the Bell System’s brief relationship with a complementary interconnected text-based business – the telegraph – demonstrates that a general-purpose communications provider will attempt to discriminate on its own behalf if it is at all possible to do so, even if the law prohibits such

²⁴⁵ 47 U.S.C. § 151 (2000).

²⁴⁶ *Id.*

²⁴⁷ *Id.*

discrimination. This precedent makes clear that mere words prohibiting discrimination are unlikely to be sufficient.

As of 1909, Western Union controlled ninety percent of the telegraph market,²⁴⁸ and AT&T controlled ninety-nine percent of the telephone market.²⁴⁹ In 1909, AT&T bought 30,000 shares of Western Union stock, effectively gaining working control of Western Union.²⁵⁰ In April 1910 the two companies announced a “joint traffic agreement,” stating:

We intend to have the service so developed that from any telephone a message may be sent to any part of the world by the joint use of telephone, telegraph, and cable wires, and an answer received promptly at the sending point without the necessity of the sender moving from his office or his home.²⁵¹

Western Union’s tiny competitor, the Postal Telegraph Company, had, at its peak, ten to twenty percent of the market share.²⁵² In 1911 and 1912 Postal complained the newly combined Western Union was charging unreasonable and discriminatory prices to carry Postal-originated messages to their final destination.²⁵³ But this discrimination was just the tip of the iceberg.

On April 1, 1912, a *New York Times* reporter confirmed Postal complaints that callers to the Bell Telephone Companies asking for Postal services were

²⁴⁸ See Tomas Nonnenmacher, *History of the U.S. Telegraph Industry*, ECONOMIC HISTORY.NET, Aug. 14, 2001, <http://eh.net/encyclopedia/article/nonnenmacher.industry.telegraphic.us>.

²⁴⁹ David Gabel, *Competition in a Network Industry: The Telephone Industry, 1854-1910*, 54 J. ECON. HIST. 543, 558 (1994).

²⁵⁰ BROOKS, *supra* note 72, at 134.

²⁵¹ *Wire Companies’ Merger*, N.Y. TIMES, Apr. 1, 1910. The two companies were at pains to make clear that they would continue as two separate organizations: “The telegraph and the telephone companies will continue separate and distinct organizations. There has been no absorption, no merging, no consolidation. Each has its own field, but there are certain points where they may meet on common ground and by mutual traffic arrangements increase their opportunities for public service.” *Id.*

²⁵² See Nonnenmacher, *supra* note 248.

²⁵³ *Loses on Its Messages: The Postal Accuses the Western Union of Discriminatory Methods*, N.Y. TIMES, Feb. 7, 1911. “For messages thus transferred the Postal is obliged to pay the Western Union full rates and a further charge is exacted for additional words which indicate the transfer point and the date. By this arrangement the Postal loses about 10 cents on each message transferred.” *Id.* On November 14, 1911, the New York Public Service Commission prohibited Western Union from imposing these additional charges. *Postal Telegraph Co.*, WALL ST. J., Nov. 14, 1911, at 7. On February 9, 1912, Postal again complained that Western Union was charging for additional words. *Postal Again Complains*, N.Y. TIMES, Feb. 10, 1912; *Postal Versus Western Union*, WALL ST. J., Feb. 12, 1912, at 7. On January 16, 1914, the New York Supreme Court affirmed the New York Public Service Commission’s decision to forbid Western Union from charging for additional words for telegraphs forwarded for Postal. *Western Union-Postal Telegraph*, WALL ST. J., Jan. 16, 1914, at 2.

instead automatically referred to Western Union.²⁵⁴ Across the United States, patrons trying to reach Postal experienced long delays and, in some cases, outright blocking by Bell operators. Operators routinely told patrons that what they really wanted was Western Union, and that “Western Union would give faster service and the toll would be charged on the monthly telephone bill.”²⁵⁵ Postal asserted this was illegal discrimination, because “[t]he law requires a telephone company to treat both telegraph companies impartially and give equal service to both,” and added: “What, then, is to be said of a telephone monopoly that is using its monopolistic power to divert the legitimate business of the Postal Company to the monopoly’s ally, the Western Union?”²⁵⁶ Postal demanded that Western Union be separated from Bell Telephone.²⁵⁷

The New York Telephone Company responded on April 1, promising to investigate the matter and saying that “if any of the telephone exchanges had diverted Postal customers to the Western Union as charged, this was in violation of specific instructions.”²⁵⁸ Two days later, the phone company asserted that “telegram” was a code word (we would call it now a “keyword”): if said by a caller to the telephone company operator, it would lead to the call being connected to Western Union.²⁵⁹ Perhaps the operators had not heard the additional word “Postal,” the company explained.²⁶⁰ In response, Postal asserted it was illegal to give Western Union control over the keyword “telegram,” and pointed out that because this happened all over the country it seemed to reflect a change in policy at the phone company rather than a mistake.²⁶¹

²⁵⁴ *Theft of Messages Charged by Postal*, N.Y. TIMES, Apr. 1, 1912. The *New York Times* article explained:

[These reports] show that when patrons of the Postal Company ring up on the telephone and call for the Postal in order to send a telegram, they are connected with the Western Union, and are not given a connection with the Postal Company until they object and protest and insist upon having the proper connection.

Id. (citing an April 1912 edition of the *Postal Telegraph Company* magazine).

²⁵⁵ *Id.*

²⁵⁶ *Id.*

²⁵⁷ *Id.*

²⁵⁸ *Postal Charges to Be Investigated*, N.Y. TIMES, Apr. 2, 1912.

²⁵⁹ *Telephone Co. Says It Shows No Favor*, N.Y. TIMES, Apr. 4, 1912.

²⁶⁰ *Id.*

²⁶¹ *Postal Co. Unconvinced*, N.Y. TIMES, Apr. 5, 1912. Postal charged:

I should like to ask how does it happen that the same mistake is being made all over the United States of late? Telegrams have been handled by telephone all these years and the Postal Company has impartially received its share until very recently; all of which bears evidence of an intent and not a mistake.

Id. (quoting Edward J. Nally, Postal Telegraph Company General Manager). A few days later, the *New York Times* reported phone subscribers were being paid a “commission” for messages forwarded by Western Union, and that this project was being investigated by the DOJ. *Western Union’s New Move*, N.Y. TIMES, Apr. 12, 1912.

In 1912, then-President of Western Union (and AT&T) Theodore Vail made the case for common ownership of Western Union and AT&T in emphatic terms:

If the public desire, as they do, not only improved facilities, but additional methods of intercommunication, and eventually cheaper rates, these benefits can only be obtained through a combined use of [telegraph and telephone] plant, and . . . if it results in a broad combined system extending over the whole country, such a system is inherent to the object to be accomplished, and it cannot be accomplished in any other way. There certainly can be no complaint so long as such a service is conducted, as it must necessarily be, under public control and regulation and on a line of policy which does not intend to offer any service or give any facilities, which, as a whole, are not remunerative, and at the same time place at the disposition of the public all the advantages which can only be obtained where facilities are not wasted.

. . .

If the public insist upon a duplication of plant for each kind of service, then the cost of these plants must be borne by the service, and the public must pay the cost.²⁶²

But by 1914, following public uproar and complaints, AT&T had disposed of Western Union as part of a move to avoid monopoly charges.²⁶³ Vail asserted smoothly that the two companies had always been operated independently, “so that the so-called divorce of the two companies is being accomplished with very little confusion.”²⁶⁴

The Bell System has had a long history of controlling complementary markets. When the Bell System wanted to be free to pick and choose its own equipment (and thus drive up its rate base for its tariffed services), it fought to hang onto its vertical integration.²⁶⁵ The “embarrassing decree” was embarrassing because it failed to achieve a divestiture of the equipment business.²⁶⁶ When the successor of the Bell System wanted to avoid unbundling requirements created by words, it litigated and dragged its feet.²⁶⁷ The telegraph story, however, is particularly interesting because of its close

²⁶² THEO. N. VAIL, W. UNION TELE. CO., ANNUAL REPORT OF THE PRESIDENT OF THE WESTERN UNION TELEGRAPH COMPANY FOR THE YEAR ENDED JUNE 30, 1912, at 18 (1912).

²⁶³ BROCK, *supra* note 31, at 155.

²⁶⁴ THEO. N. VAIL, W. UNION TELE. CO., ANNUAL REPORT OF THE PRESIDENT OF THE WESTERN UNION TELEGRAPH COMPANY TO THE SHAREHOLDERS MADE AT THEIR ANNUAL MEETING, APRIL 8TH, 1914, at 8 (1914) (“The organizations of the two companies were entirely distinct and independent and, with the exception of the President and a minority of the Directors, had no officers in common.”).

²⁶⁵ Werbach, *Federal Computer Commission*, *supra* note 145, at 17 n.77-78.

²⁶⁶ See *supra* Part II.A.

²⁶⁷ See, e.g., *Iowa Utils. Bd. v. FCC*, 219 F.3d 744, 747-48 (8th Cir. 2000).

similarities to the potential for discrimination in the Internet access regime. In addition, Bell's claims that an integrated system was simply more efficient are very similar to current providers' claims that better high-speed access will only be possible if the providers are permitted to discriminate. In effect, Bell went into the "content business" through its arrangements with Western Union, with disastrous results for competition.

This evidence drives towards the conclusion that nothing short of actual separation between transport and content – the remedy demanded by Postal, by the DOJ before the "embarrassing decree" was brokered,²⁶⁸ and by the 1984 AT&T divestiture as implemented by Judge Greene²⁶⁹ – will be effective to shield communications competition from the depredations of the transport companies. Any attempt to rely on regulatory walls between functions of vertically-integrated carriers involved in both "information" and "communications" businesses will be fruitless. The experience of "unbundling" access through the 1996 Act, under which the former Bell Operating Companies were required to sell access at a set rate, was painful.²⁷⁰ Most of the Competitive Local Exchange Carriers who wanted this access were driven out of business by long-running regulatory battles and litigation over access terms.²⁷¹ *Computer III's* "Comparatively Efficient Interconnection" regime,²⁷² which was another attempt to convey meaning about technical interfaces in words, was also fruitless.

Thus, this is what we know from fifty years of experience: carriers can always find ways to evade forms of words. As Barbara van Schewick has made clear, the economic reasons for a general-purpose communications provider to act in this way are powerful.²⁷³ In the meantime, the effects on networked information flows of a carrier's discriminatory behavior might be catastrophic. Arguably, the only one of many steps taken to address AT&T's potential power over the computing industry that actually worked was the 1956 consent decree, which kept AT&T confined to the business of common carriage transport provision.²⁷⁴ AT&T and other communications incumbents

²⁶⁸ See *supra* Part II.A.

²⁶⁹ See *supra* Part II.B.1.

²⁷⁰ See *A Survivor: US LEC Continues to Grow in Devastated CLEC Telecom Sector*, WRAL.COM, Feb. 13, 2003, http://localtechwire.com/business/local_tech_wire/biotech/story/1152564.

²⁷¹ Glenn Bischoff, *CLECs Seek Congressional Investigation of USTA Plan*, TELEPHONY ONLINE, Oct. 31, 2003, http://telephonyonline.com/news/web/telecom_alts_seeks_congressional/.

²⁷² *Computer III*, *supra* note 122, ¶¶ 111-116, at 1018-21.

²⁷³ Van Schewick, *supra* note 9, at 390 ("In the absence of network neutrality regulation, there is a real threat that network providers will discriminate against independent producers of applications, content or portals or exclude them from their network.").

²⁷⁴ See *supra* Part II.A.

have spent the last fifty years dismantling that decree.²⁷⁵ In order to return to a true state of non-discrimination for general-purpose physical transport in the last mile, the transport functions of these providers will have to be actually – not just functionally – separated from their other businesses.

B. *What to Unbundle*

What is the kernel of general-purpose Internet communications that should be unbundled and provided to all comers? What exactly about “the Internet” is a basic, general-purpose communications network? In this Article, I suggest that the physical network access vendors providing last-mile and middle-mile access to the Internet over fiber optic wireline facilities should be obliged to open up access to their networks to any service-level provider (by allowing those providers to attach their electronics to the fiber), and municipalities should be encouraged to provide dark fiber utilities to their citizens. There will likely be just one fiber into each home, due to the installation costs, the significant economies of scale involved in fiber networks, and the substantial *diseconomies* of having multiple providers building fiber networks that reach individual houses.²⁷⁶ We will need to decide on open-access schemes that will be physically and economically realistic. These steps will make possible remarkable competition, choice, and speeds.

The future is in fiber optic high-speed Internet access, as compared to DSL and cable modem service.²⁷⁷ Korea and Japan have long understood this, and moved before many Western nations to deploy fiber connections into peoples’ homes.²⁷⁸ In fiber-optic installations, strands of glass no thicker than a human hair allow pulsing photons to move across them at speeds close to the speed of light, conveying digital information across long distances with no amplification or power required.²⁷⁹ These moving photons, which originate

²⁷⁵ See, e.g., *Iowa Utils. Bd. v. FCC*, 219 F.3d 744, 748 (8th Cir. 2004).

²⁷⁶ The risk of having multiple fiber network providers include, obviously, low take-up rates for individual providers that, given the substantial up-front costs involved in building a fiber network, result in bankruptcy.

²⁷⁷ By “DSL and cable modem service” I mean services that depend solely on hybrid fiber-coaxial (“HFC”) designs in which copper wires rather than fiber are used in the “last mile” between a neighborhood node or central office and individual homes. The “fiber optic high-speed Internet access” I am interested in is made up solely of fiber all the way to the home. I am including in “fiber optic high-speed Internet access” the use of fiber as an underpinning for wireless access methods. I am grateful to Frank Coluccio for this point, as well as for his guidance in clarifying the discussion that follows. Interview with Frank Coluccio, Principal Consultant, Cirrant Partners, in New York, N.Y. (Oct. 17, 2008).

²⁷⁸ *Japan, Korea Lead in Fiber-Optic Broadband: OECD*, REUTERS, Oct. 23, 2008, <http://www.reuters.com/article/internetNews/idUSTRE49M4Q320081023> (observing that Korea’s fiber penetration alone is higher than the overall broadband penetration of Greece, Poland, the Slovak Republic, Turkey and Mexico).

²⁷⁹ See RAJIV RAMASWAMI & KUMAR N. SIVARAJAN, *OPTICAL NETWORKS* 32-37 (2d ed. 2000).

from lasers generating pulses of light at specific frequencies, are not affected by lightning strikes and do not respond to each other; they simply move quickly between a blinking transmitter at one end of the fiber and a receiver at the other.²⁸⁰ Ten billion digital bits (and speeds continue to increase – soon, 100 billion bits) can be transmitted per second along an optical fiber link in a commercial network, enough to carry tens of thousands of telephone calls; thus, a single strand of fiber can carry all the communications of a small city or support thousands of knowledge workers.²⁸¹ Bandwidth on fiber networks is almost unlimited.

Optical fiber is the most permissive communications medium ever invented. Unlike copper, which can carry only signals as a practical matter in the zero KHz to thirty MHz range, and coaxial cable, which can carry only signals into the UHF range (up to one GHz), optical fiber is capable of carrying electromagnetic signals in the form of photons across many terahertz of spectrum.²⁸² Just as our ears can pick out the sound of a familiar voice in a crowd, or radios “tune in” to desired signals being sent over the air, intelligent devices attached to fiber can pick out information across this enormous width of frequencies. This kind of edge-intelligence could in theory allow thousands of different two-way communications (different “channels,” in a sense) to be sent along a single, hair-thin fiber at the same time. Fiber has enormous capacity to carry information on individual wavelengths – or even on the same wavelength, modulated in sophisticated ways.²⁸³ It is difficult to convey in words the capacity of fiber to carry information.

Most younger Americans (and there are approximately 130 million of them between fifteen and forty-four years old)²⁸⁴ use high-speed Internet access.²⁸⁵

²⁸⁰ *Id.* at 34. Fiber optic’s lack of susceptibility to electrical interference contrasts sharply with coaxial cable. Because cable is copper-based, communications across cable can be affected by electrical storms or household appliances. The architecture of cable systems also forces households to share a single signal distribution node, so that use will be at the speeds the cable system advertises only if a user is the only one using his/her connection in the neighborhood. Cable systems are traditionally asymmetric, providing far higher download speeds than upload speeds. None of these limitations necessarily exist for fiber optic networks. Interview with Frank Coluccio, *supra* note 277; *see also* RAMASWAMI & SIVARAJAN, *supra* note 279, at 593-96.

²⁸¹ *See* How Fiber Optics Works, Fiber Optic Cable Design, <http://www.americantechsupply.com/howfiberopticsworks.htm> (last visited Mar. 9, 2009).

²⁸² Interview with Frank Coluccio, *supra* note 277.

²⁸³ This kind of modulation scheme is called “wave division multiplexing.” Using this technique plus time-division techniques, “[t]he bandwidth of one fiber thread could carry more than 1,000 times as much information as all [of the] radio and microwave frequencies that currently comprise the ‘air.’” Gilder, *supra* note 17.

²⁸⁴ POPULATION DIV., U.S. CENSUS BUREAU, ANNUAL ESTIMATES OF THE POPULATION BY SEX AND SELECTED AGE GROUPS tbl.2 (2008), *available at* <http://www.census.gov/popest/national/asrh/NC-EST2007/NC-EST2007-02.xls>.

These people will require fiber installations. Online traffic is becoming dominated by streaming video, which requires truly high-speed last-mile access to view, and even higher-speed access for effective two-way interaction.²⁸⁶ Many new business models are made possible by high-speed access, and fiber access in particular.²⁸⁷ By contrast, DSL and cable modem access are subject to sharp capacity limitations which are rapidly rendering them obsolete for the types of activities Americans want to engage in online.²⁸⁸

²⁸⁵ JOHN B. HARRIGAN & AARON SMITH, PEW INTERNET & AM. LIFE PROJECT, HOME BROADBAND ADOPTION 2007, at 4 (2007), available at http://www.pewinternet.org/~media/Files/Reports/2007/PIP_Broadband%202007.pdf.

²⁸⁶ E-mail from David Burstein, Editor, DSL Prime, to David Farber, Professor of Computer Sci. & Pub. Policy, Carnegie Mellon Univ. (July 29, 2008), available at <http://www.interesting-people.org/archives/interesting-people/200807/msg00265.html>. Burstein cited an AT&T report about traffic on its backbone network: “[A]s of June 2008, traffic was about 1/3 Web (non video/audio streams), 1/3 Web video/audio streams, and 1/5 P2P (with other applications making up the remainder). For the first time in June 2008, Web video/audio was the highest traffic-generating application over our IP backbone network.” *Id.* Downloading one high definition film uses as much bandwidth as browsing 35,000 web pages online. FIBER TO THE HOME COUNCIL, FIBER-TO-THE-HOME: BASIC QUESTIONS AND ANSWERS 2, <http://www.ftthcouncil.org/UserFiles/File/FTTHQ&A.pdf> (last visited Apr. 20, 2009). YouTube used as much bandwidth in 2008 as the entire Internet consumed in 2000. Matthew J. Rubins, *Capitalizing on Telecom Uncertainties*, FIERCETELECOM, Sept. 29, 2008, <http://www.fiercetelecom.com/story/capitalizing-telecom-uncertainties/2008-09-29>.

²⁸⁷ MICHAEL CURRI, STRATEGIC NETWORKS GROUP, INC., THE TRANSFORMATIVE EFFECTS OF FTTP 2 (2008), available at http://www.baller.com/pdfs/SNG_0308.pdf. The report explains:

The real benefits of FTTP (“fiber to the premises”) are more than about doing the same things faster. The most significant gains from FTTP occur after 2 years of use once organizations have adopted new business models to realize new revenue streams and to transform their business operations for cost avoidance. While the greatest gains are realized when moving from dial-up to FTTP, there continue to be significant gains for businesses that move from other forms of broadband access.

Id. The future uses of fiber to the home are unknown, but will likely include increased use of distance learning, telemedicine, telecommuting, and real-time video conferencing.

²⁸⁸ OFFICE OF TECH. POLICY, DEP’T OF COMMERCE, UNDERSTANDING BROADBAND DEMAND: A REVIEW OF CRITICAL ISSUES 6 (2002) (emphasizing that “the current generation of broadband technologies (cable and DSL) may prove woefully insufficient to carry many of the advanced applications driving future demand. Today’s broadband will be tomorrow’s traffic jam, and the need for speed will persist as new applications and services gobble up existing bandwidth.”). As the Organisation for Economic Co-operation and Development (“OECD”) has said: “For the period 2010-2020 speeds of 50 Mbit/s downstream and 10 Mbit/s upstream may be required to enable the parallel consumption of services (HDTV, radio, videoconferencing, security etc.) over the network.” COMM. FOR INFO., COMPUTER, & COMM’N, OECD, DEVELOPMENTS IN FIBRE TECHNOLOGIES AND INVESTMENT 4 (2008) [hereinafter OECD REPORT].

Both Verizon, with FiOS (up to 50 Mbps advertised download speed),²⁸⁹ and the cable industry, with its DOCSIS 3.0 protocol (advertised as being capable of 100 Mbps),²⁹⁰ are addressing this need for speed, but even these technologies will not be able to cope with multi-use households over the long-term. For example, even today families in which one member is doing a remote programming task, one member is playing an online game, one member is playing with an Xbox, and another member is streaming a movie, will quickly be using 140 Mbps.²⁹¹ Wireless connections alone currently cannot achieve these speeds; nor can DSL or cable modems in their current incarnations.²⁹² At the same time, user demand for higher-speed connections is insatiable; where a 9.6 Kbps dialup connection was standard in 1998, 2009 users are looking for 10 Mbps speeds, with no end in sight.²⁹³ Indeed, the pace of growth in demand for higher speeds is accelerating over time.

Although for several years there was a widely publicized “fiber glut,” “dark” fiber now appears to be scarce, particularly in and near large cities.²⁹⁴ It is not clear whether this scarcity is real.²⁹⁵ Dark fiber is the ultimate basic

²⁸⁹ Verizon FiOS Internet, FiOS vs. Cable, <https://www2.verizon.com/Residential/FiOSInternet/FiOSvsCable/FiOSvsCable.htm> (last visited Mar. 9, 2009).

²⁹⁰ Nate Anderson, *Comcast at CES: 100 Mbps Coming This Year*, ARSTECHNICA, Jan. 8, 2008, <http://arstechnica.com/news.ars/post/20080108-comcast-100mbps-connections-coming-this-year.html>.

²⁹¹ Interview with Frank Coluccio, Principal Consultant, Cirrant Partners, in New York, N.Y. (Oct. 30, 2008).

²⁹² Even the advertised speeds of FiOS and DOCSIS 3.0 are “bursty” in nature, and not sustainable over a long period of time. *Id.*

²⁹³ *Id.*

²⁹⁴ Timothy W. Doyle, *Level 3 Buying Witel For \$680M*, DESERET MORNING NEWS (Salt Lake City), Oct. 31, 2005, <http://deseretnews.com/article/1,5143,635157693,00.html> (stating that an overbuilding of fiber caused a worldwide “glut of fiber-optic network capacity” starting in 1998); Rubins, *supra* note 286.

²⁹⁵ For a suggestion that telephone companies are deliberately refusing to lease the dark fiber they own in order to avoid competition, see Hunter Newby, *Dark Fiber Market Realities*, IP BUSINESS NEWS, Aug. 5, 2008, http://www.ipbusinessmag.com/articles.php?issue_id=67&article_id=422. Newby reports:

There is a bit of confusion in the market as to whether or not there is a glut or drought of fiber in the ground. The truth is that it all depends on the specific route and how many providers have how much fiber in that segment. Beyond that, though, there is the bigger issue of whether or not those that own the glass are actually leasing it. By not making it available they are in essence creating a false shortage where there may be in fact a physical abundance.

...

Many carriers do this to protect their own lit revenue streams so that they are not enabling others to become competitors.

Id.

communications transport for the twenty-first century. How to provide open access to this basic transport is not simple, however.

In the last mile, dark fiber is architected to be part of either a passive optical network (“PON”) or an Ethernet point-to-point network.²⁹⁶ There are different ways to build a PON network. The usual PON network features single fibers that run from a central office to a node (or “splitter”) in the field; at that splitter, single fibers are run into individual homes.²⁹⁷ PON networks are generally controlled by a single provider because the splitters out in the field are mounted in enclosures that are small, un-powered, and ill-equipped for co-location of multiple providers’ electronics.²⁹⁸ By contrast, point-to-point networks feature individual fibers that run all the way from a central office to a customer’s home.²⁹⁹ Point-to-point networks can be “lit” by any provider, as long as the central office is willing to allow those providers to co-locate their electronics in its facilities.³⁰⁰ The costs to dig trenches and install these networks are the same, but Ethernet point-to-point networks use standard, off-the-shelf components and adhere to the Institute of Electrical and Electronics Engineers (“IEEE”) standards at the logical layer; Ethernet itself is a standard protocol that carries IP packets.³⁰¹ PON networks are usually highly customized at the protocol, software, and hardware levels,³⁰² making it extremely difficult (if not impossible) for other vendors to interconnect effectively.

So far, more than two-thirds of the fiber-to-the-home (“FTTH”) installations in the United States are in the ground due to Verizon, and are exclusively PON networks.³⁰³ Approximately one-third of U.S. FTTH installations are being provided by independent builders, housing developers, and municipalities,

²⁹⁶ See OECD REPORT, *supra* note 288, at 20.

²⁹⁷ *Id.* at 24. One laser sends the data downstream towards users using a shared single fiber. In the field, passive optical splitters split the data and send targeted communications towards individual houses along individual fibers. On the return path, individual users send their data back and the splitters integrate that data onto the shared fiber. *Id.*

²⁹⁸ See *id.* at 25 fig.6.

²⁹⁹ *Id.* at 22.

³⁰⁰ Pauline Rigby, *Amsterdam’s Citynet Scores a Home Run for Fibre*, FIBRESYSTEMS.ORG, Feb. 4, 2009, <http://fibresystems.org/cws/article/magazine/37080>. This model is followed by the Amsterdam CityNet network. See *id.*

³⁰¹ See RAMASWAMI & SIVARAJAN, *supra* note 279, at 398.

³⁰² See OECD REPORT, *supra* note 288, at 23; RAMASWAMI & SIVARAJAN, *supra* note 279 at 610.

³⁰³ FIBER TO THE HOME COUNCIL, MUNICIPAL FIBER TO THE HOME DEPLOYMENTS: NEXT GENERATION BROADBAND AS A MUNICIPAL UTILITY 1 (2008), available at <http://www.ftthcouncil.org/UserFiles/File/Understanding%20the%20Benefits%20of%20Municipal%20Broadband.pdf>. In choosing this method, Verizon has selected an architecture that will resist enforced sharing or unbundling; as described above, PON is inextricably, fundamentally, vertically integrated.

using a mixture of PON and point-to-point architectures.³⁰⁴ To the extent these networks are PONs, they will not be amenable to open-access regimes in the field, although there may be ways to unbundle them by requiring operators to allow other operators to share their ducts and co-locate in their central offices.³⁰⁵

Furthermore, only point-to-point (or “home run”) architectures of dark fiber will directly fill the need to “unbundle” *future* fiber networks and ensure they will serve as basic, nondiscriminatory inputs into general-purpose communications.³⁰⁶ These networks permit any operator to install its equipment in a network exchange, allowing individual fibers to be lit by individual operators.³⁰⁷ For this reason, point-to-point network architecture is the favored choice of open-access network providers. Fiber can be the basic, non-discriminatory network of the future, and we should require point-to-point architecture for all fiber installations from now on – even for municipal fiber networks.³⁰⁸

However accomplished, dividing the provision of fiber from the provision of electronics and lasers – structural separation – would cordon off transport from content.³⁰⁹ It would result in fierce ISP competition and would not require drafting elaborate regulations governing the design of lasers, Ethernet gear,

³⁰⁴ *Id.* at 2.

³⁰⁵ See OECD REPORT, *supra* note 288, at 28 (“From a regulatory perspective a point-to-point network offers more possibilities for regulatory measures such as Local Loop Unbundling and Wholesale Broadband Access.”).

³⁰⁶ WDM-PONs may also be a possibility for open-access network architecture in the future, but this capacity is not well-developed at this point. See RAMASWAMI & SIVARAJAN, *supra* note 279, at 608.

³⁰⁷ In a recent article, Derek Slater and Tim Wu have supported this general idea, suggesting that a consumer should “own,” (condominium style) the fiber that runs into his or her home, and should be able to choose which provider should light that fiber. Derek Slater & Tim Wu, *Homes with Tails: What if You Could Own Your Internet Connection* 5-6 (New Amer. Found., Wireless Future Program, Working Paper No. 23, 2008), available at http://www.newamerica.net/files/HomesWithTails_wu_slater.pdf.

³⁰⁸ In both Europe and America, municipal fiber networks are becoming common. Indeed, much of the growth in FTTH is being prompted by municipal fiber installations. There are more than 200 such municipal, publicly-owned networks in Sweden alone. Carol Wilson, *FTTH with European Flair*, TELEPHONY, Oct. 1, 2008, http://telephonyonline.com/ftp/news/telecom_ftth_european_flair/. The government of Sweden intentionally drove these developments, investing \$820 million in loans and grants beginning in 1999. *Id.* In Vasteras, Sweden, the city offers its own open-access fiber services, and more than twenty-two other providers have joined in by using the city’s fiber. *Id.*

³⁰⁹ Structural separation can be accomplished at any of three levels: by requiring, even in PON networks, that conduits and central offices be open to collocation by competitors; by requiring that dark fiber in “home run” networks be leased to competitors; or by requiring (again, even in PON networks) that wavelengths be opened to different competitors. OECD REPORT, *supra* note 288, at 27-28.

and IP routers.³¹⁰ Such a regime would be easy to enforce and easy for consumers and businesses to understand. Moreover, no communications transport method is more extendable than fiber. Merely updating electronics at a central office and in homes can greatly expand the capacity of fiber.

In general, open access networks are more likely to be quickly adopted by customers and can be highly profitable. In Europe, FTTH networks are much more likely to be point-to-point open-access.³¹¹ Europe is becoming the hotbed of FTTH technology, with a number of service providers recently announcing major FTTH deployments.³¹² Amsterdam, for example, is served by an open-access FTTH network provided by the incumbent provider, KPN.³¹³ The French regulator decided to require open-access fiber installations, forcing the incumbent France Telecom to provide access to its ducts and cabinets, and requiring apartment buildings to allow all providers to interconnect.³¹⁴ Stokab AB in Stockholm is a very successful example of this model, as is a new project in Christchurch, New Zealand.³¹⁵ More recently, Singapore has decided to invest in an open-access fiber network that will reach

³¹⁰ I am indebted to Brough Turner for his presentation discussing a similar idea. Brough Turner, Chief Tech. Officer, NMS Commc'ns, Presentation at Emerging Communications Conference (Jun. 6, 2008), available at <http://www.slideshare.net/Brough/own-the-network-brough-turner-ecomm-2008>.

³¹¹ Wilson, *supra* note 308. In Greece, the government is subsidizing a nationwide open-access dark-fiber FTTH network that will serve two million people and fifty cities. David Burstein, *Open Fiber to 90% of Greek Homes*, DSL PRIME, Nov. 23, 2008, <http://www.dslprime.com/fiber-news/175-d/926-open-fiber-greece>.

³¹² Wilson, *supra* note 308.

³¹³ *KPN Fibre Venture to Take Control of Amsterdam's FTTH Network*, GLOBAL TELECOMS BUSINESS, Feb. 5, 2009, <http://www.globaltelecomsbusiness.com/default.asp?page=7&PubID=192&ISS=25292&SID=716940>.

³¹⁴ Alain Baritault, *French Operators Agree to Share Fiber Local Loop*, MUNIWIRELESS, Oct. 13, 2008, <http://www.muniwireless.com/2008/10/13/french-operators-share-fiber-local-loop/>.

³¹⁵ See Stokab in English, AB Stokab, <http://www.stokab.se/templates/StandardPage.aspx?id=306> (last visited Mar. 26, 2009). Stokab, owned by the City of Stockholm, was established to "stimulate the telecom market":

Stokab's core tasks are to build, operate and maintain the fiber optic communication network in the Stockholm region and to lease fiber optic connections. The company is competition-neutral and provides a network that is open to all players on equal terms. Stokab cooperates to facilitate the rollout of infrastructure for wireless communication and drives development of the broadband market in the Stockholm region.

Id. Christchurch City Networks in New Zealand, similarly, is owned by the Christchurch City Council, and will provide a dark fiber network that will be open to any purchaser or user installing electronics. See Christchurch City Networks Ltd, Unconstrained Bandwidth Christchurch New Zealand, <http://www.ccnl.co.nz/broadband/about-us/> (last visited Mar. 26, 2009).

all of its citizens' homes.³¹⁶ The vendor providing dark fiber will be also required to provide wholesale services to all downstream providers. This is structural separation at a national level.³¹⁷ The European Parliament has also indicated interest in structural separation as a last-mile solution.³¹⁸

C. *How to Pay for It*

Installing fiber is expensive – between \$500 and \$2500 per household.³¹⁹ Installers must invest in digging trenches or stringing fiber on poles, arranging for access to rights of way and multi-unit buildings, and locating Points-of-Presence or other central office analogues.³²⁰ Verizon has already begun an extensive program of fiber installation, as has (in a more limited fashion) AT&T.³²¹ Changing the nature of the control these companies have over their fiber installations will be expensive. Indeed, it may make sense to repay Verizon for its stranded costs incurred in installing its PON FTTH networks, rather than engaging in a long fight over the steps required to open access to this fiber.³²² Both direct government investment and reimbursement to the incumbents will likely be required.³²³ Government need not be involved in paying for fiber, however; businesses may be willing to put up the cost of

³¹⁶ Commsday, *World's Most Radical: Singapore Opts for Multi-Tier Separation for National Broadband Network*, TELECOMTV, Sept. 29, 2008, <http://web20.telecomtv.com/pages/?newsid=43909&id=e9381817-0593-417a-8639-c4c53e2a2a10>.

³¹⁷ *Id.*

³¹⁸ See Press Release, European Comm'n Responsible for Info. Soc'y & Media, Better Regulation for a Single Market in Telecoms (Dec. 10, 2007), available at <http://europa.eu/rapid/pressReleasesAction.do?reference=SPEECH/07/624&format=HTML&aged=1> (statement of Viviane Reding, Comm'n member).

³¹⁹ OECD REPORT, *supra* note 288, at 20.

³²⁰ *Id.*

³²¹ Saul Hansell, *A Smart Bet or a Big Mistake?*, N.Y. TIMES, Aug. 18, 2008, at C1.

³²² The carriers would undoubtedly argue that requiring re-architecting of their fiber networks is “‘so unjust as to be confiscatory,’ that is, as threatening an incumbent’s ‘financial integrity.’” *Verizon Commc’ns, Inc. v. FCC*, 535 U.S. 467, 524 (2002) (quoting *Duquesne Light Co. v. Barasch*, 488 U.S. 299, 307, 312 (1989)). It might be in the open-access movement’s interest to strike a deal with the carriers up-front. Cf. *Covad Cmmc’ns Co. v. FCC*, 450 F.3d 528, 531 (D.C. Cir. 2006) (ending almost ten years of litigation over scope of unbundling obligations under the 1996 Act); Timothy J. Brennan & James Boyd, *Political Economy and the Efficiency of Compensation for Takings*, 24 CONTEMP. ECON. POL’Y 188, 191 (2006) (suggesting disenfranchised environmentalists should support takings compensation, since it reduces landowner opposition to regulation).

³²³ For example, the Government of Singapore has committed to substantial grants to support the rollout of the new fiber network. Commsday, *supra* note 316.

building out, operating and managing a wholesale dark fiber installation in exchange for the increased opportunities such a fast connection will provide.³²⁴

For both existing and new installations, providers of fiber should be allowed to charge access fees for their cooperation in co-locating providers of electronics, or in coordinating the division of wavelengths among providers. Coordination (whether provided as a service by the dark fiber provider or provided by third parties) is a valuable function and could be a substantial business all by itself. One can imagine a huge number of Kinkos-like franchises across the country providing fiber coordination and related services.

Setting the rate to be charged for this coordination will no doubt be difficult and complex. The benefits of having a utility Internet access service available to all Americans will likely exceed the burdens of setting the price, however. Additionally, this price-setting need not be overly intrusive. Indeed, we have some experience with a non-discrimination regime that sets a price for a basic input but does not exercise continuing oversight over the price of detailed “services” related to that input – compulsory copyright licensing.³²⁵ Similarly, bus, train and taxi services have traditionally been subject to non-discrimination rules and basic price-setting without detailed continuing oversight of their rate-base or depreciation schedules. The solution to the rate-setting difficulties created by requiring cooperation may be marginal cost pricing with the government paying most of the infrastructure expenses. The standard equipment used by open access networks is available from many vendors, which both will keep prices low and allow for easy adaptation to changes in technology.

CONCLUSION

Network operators providing access to the Internet through coaxial cables, fiber-optic lines, and wireless transmissions have persuaded the FCC and the Supreme Court that everything they do falls into the “information services” category. There is very little common carriage “communications services” provision going on any more. The discretion to discriminate now enjoyed by high-speed Internet access physical providers is exactly what the framers of our communications law sought to avoid. Application of the words “information service” to high-speed Internet access (which certainly appears to be basic transport to everyone but communications lobbyists) should be extraordinarily difficult – this is now our basic, general-purpose communications modality. But rather than “information services” understood

³²⁴ See Chris O’Brien, *Palo Alto Fiber-Optic Project Is the Right Kind of Economic Development*, MERCURY NEWS (San Jose), Oct. 24, 2008, http://www.ipaloalto.com/pdf/MercNews_102408_PA.pdf (describing the plan of three private companies to commit \$30 million to build out and then run a Palo Alto fiber network in exchange for payments from third parties to lease space on the network and access at deep discounts).

³²⁵ Nachbar, *supra* note 18, at 74.

as something made possible by basic transmission, “information services” are now everything.

We need to return to the basic notion of a non-discriminatory network underlying communications. The legal idea that companies providing transport services for general-purpose communications networks are burdened with an express obligation not to discriminate with respect to the content or source of those communications is ready for a revival. Concern has mounted to the same heights that led the country to impose non-discrimination rules in the first place, and the old paradigm of regulation is new again – with a few changes. A non-discrimination principle applied to dark fiber could produce abundant competitive Internet access providers and bring the country up to speed.