Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	**)**	
Technological Transition of the Nation's	**)**	**GN Docket No. 12-353**
Communications Infrastructure	**)**	

REPLY COMMENTS OF THE CONSUMER FEDERATION OF AMERICA

Mark Cooper,
Director of Research
February 25, 2013

Commenters

The Consumer Federation of America is pleased to submit these comments in response to the Public Notice in the above captioned proceeding. The Consumer Federation of America (CFA) is an association of non-profit consumer organizations that was established in 1968 to advance the consumer interest through research, advocacy, and education. Today, nearly 300 of these groups participate in CFA and govern it through their representatives on the organization's Board of Directors and the annual Consumer Assembly.

CFA has been involved in communications, media and Internet policy for decades in legislative, regulatory and judicial arenas and has advanced the consumer view in policy and academic publications. Appendix A presents a selection of citations to comments filed at the Federal Communications Commission and academic articles and papers published by CFA and its staff over the past thirty years that address the public service principles discussed in these comments.

Approach and Recommendations

As the Internet and its powerful communications protocols (Internet Protocols, IP) come to dominate communications, the telecommunications carriers who own and operate the 20th century

public switched telephone network (PSTN) have requested that the old network be retired and they be allowed to migrate the network to an all IP approach. The resulting "sun setting" the PSTN raises vital questions about the public service principles that guided the extremely successful deployment of the PSTN and the obligations that were placed on the telecommunications carriers to serve the public in specific ways.

In order to properly address the question of whether and how the public service principles should apply in the future, it is necessary to understand the long history and purpose of those principles, as well as the specific legal obligations that attached to communications carriers that deliver telecommunications service. The examination of that history makes it clear that the public service principles that governed the telecommunications network throughout the 20th century contributed mightily to its success and should be preserved and expanded in the 21st century.

While the telecommunications carriers are quite correct in seeking to sunset the PSTN, the long sweep of history and the 1996 Telecommunications Act make it clear that the half dozen principles that have come to constitute the public service obligations of communications carriers should be preserved. As the PSTN is transformed into the public digital communications network (PCDN) the old technology may sunset, but the fundamental values should not. Thus, we reject the claim that the public service principles are antiquated, obsolete hindrances to progress. On the contrary, they are fundamental values; tried and true guideposts that ensure progress in a long march to economic and political freedom.

These comments briefly summarize the attached paper, entitled *The Long History and Increasing Importance of Public Service Principles for 21st Century Digital Communications.* The paper presents a detailed historical, economic, policy and legal analysis that shows the public service principles in the Act should be extended to 21st century telecommunications.

The long history of public service obligation demonstrates their increasing importance in the 21st Century Communications Sector

Public service principles that govern activities that are "affected with the public interest," have a very long history in Anglo American law and U.S. practice. Brought by the earliest settlers to North America, this legacy was fertilized by uniquely American ideas – the U.S. Constitution and the vibrant tradition of federalism – to grow into the cornerstone of a progressive, democratic communications model.

Section I of the paper reviews the history of the expanding public service principles applied to the transportation and communications sectors. The analysis highlights the fact that a steadily progressive expansion of the public service principles has taken place throughout U.S. history. As the economy grew and society changed the principles became broader and more complex. The important and expanding role of telecommunications in the economic, social and political life of 21st century society strongly supports the policy conclusion that the public service principles should be affirmed and strengthened.

- The basic principle that certain activities are "affected with the public interest" stretches back almost 600 years to the early renaissance and the birth of capitalism. The legal obligation to provide nondiscriminatory access to the vital services associated with the means of transportation and communications under Anglo Saxon common law was well articulated by the 17th century.
- As the industrial revolutions of the 19th and 20th centuries transformed the economy and society, the need for public service principles expanded and the mechanism to enforce them changed.

The specific statutory building blocks on which the current public service principles stand were put in place almost exactly a hundred years ago, when the obligation of network integration (interconnection and interoperability) was established.

- The Mann-Elkins Act of 1910, which extended the Interstate Commerce Act (1887) to telecommunications, placed interstate telecommunications provided by private companies under the jurisdiction of a federal agency with a clear mandate for nondiscriminatory access.

- Soon thereafter, a 1914 consent decree entered into by the U.S. Department of Justice, required AT&T to integrate (interconnect and interoperate on terms of equal access) with independent telephone companies. This has been an essential characteristic of the telecommunications network since.
- Public safety was added in the Radio Acts (1912, 1927).
- Universal service and consumer protection were made explicit with the Communications Act (1934) of the New Deal, which also consolidated the public service principles in the mission of a single agency (the Federal Communications Commission).
- Innovation at the edge as a public service principle was added by regulatory proceedings at the Federal Communications Commission (Carterphone, 1968, the Computer Inquiry, 1968 and unlicensed radio spread spectrum, 1985). This principle was embraced by Congress in the 1996 Telecommunications Act.

Enforceable, *Ex Ante* obligation are necessary to promote the public service principles in the digital age, flexible, multi-stakeholder process are best suited to implement them in the digital age

Having demonstrated the importance of preserving and strengthening the public service principles that should govern the 21st century communications space on the basis of the historical record, Section II of the paper reviews the same historical record for insight into how the principles should be implemented. That record shows that as the infrastructure networks evolve, the substance and enforcement mechanism of the public service principles have evolved, as well. The analysis rejects the two most frequently offered approaches to implementing the public service principles as poor choices.

- Reliance on the market alone to take care of the principles is unacceptable because ubiquitous, seamless, nondiscriminatory access to integrated infrastructure networks is not an outcome that one can expect from infrastructure network industries in a number of areas, including communications markets.
- Command and control regulation, the dominant approach to promoting the public service principles in the 20th century, is ill-suited to achieve the goal in the digital communications space because it is rigid and slow, antithetical to the dynamic, diverse communications that innovation at the edge produces.

Fortunately, the digital revolution that has transformed the communications space has also produced the building blocks of an alternative communications model. It has already provided two

remarkably successful examples – the Internet protocol and Wi-Fi communications using unlicensed spectrum. These two revolutionary communications protocols required a new combination of public and private action to create a space for economic and political freedom between the market and the state.

- It is only because the state made and enforced critically important decisions to keep the space free from meddling by both regulators and communications carriers that innovation and entrepreneurship could thrive.
- The new entrants, innovators and entrepreneurs adopted open standards and multi-stakeholder processes to govern the new space.
- Incumbent infrastructure network operators have repeatedly failed to embrace open standards and resist integration.

The Carterphone and the Computer Inquiries in the late 1960s ensured that nondiscriminatory access to the telecommunications network would extend to the flow of data and that innovation in customer premise equipment could flourish. The dominant incumbent telecommunications carrier despised the idea of a decentralized communications protocol and would have quickly throttled it by denying access had they been allowed to. Without decisive public policy action by the FCC, the telecommunications companies might have defeated decentralized communications altogether, certainly would have slowed its development down and probably would have distorted its growth, if only by forcing the government to regulate the space more intensely. The voluntary action of the developers of the new communications protocol to fill the space opened by government action was a key ingredient for success. The social institutions they developed and used to manage the decentralized network for thirty years deserve close study and deference as candidates for the future governance structure of the communications network. Carterphone and the Computer Inquiries must be seen as the origin and foundation for a significant advance in the thrust of public policy with respect to the communications network. They introduce the possibility for innovation at the edge of the network as a primary driver of economic activity.

The spread spectrum rulemaking adopted by the FCC to allow everyone and anyone to have access to radio frequencies, which had been considered garbage by the commercial users of the public airwaves, subject to simple rules of use, had a similar effect. It ensured access to an irreplaceable, raw communications resource in the most deregulatory, free market approach imaginable, unlicensed, universal access. The private sector concluded, to its credit, that a common communications protocol would expand the market and the best approach was to create voluntary institutions to adopt and defend those standards.

In both cases, the rules were structured in such a way that the government did not have to get involved in the day-to-day regulation of behavior. In both cases, because of the deregulatory age in which these decisions were made, the presumption was shifted in favor of the freedom to act. The incumbent network operators had to show that devices would harm the network, or data traffic should not be allowed to flow, which they rarely, if ever were able to show.

For three decades encompassing the birth, childhood and adolescence of the digital revolution, Internet traffic flowed freely over the telecommunications network under the Computer Inquiries to devices that were made possible by the Carter phone decision.

The model worked precisely because it was located between the market and the state. The state used its power to create a space that was free from the worst instincts of both the market and the state, and the private actors who wanted to enter that space realized that they needed to regulate themselves in a manner consistent with the principle of nondiscrimination, which they equated with interoperability.

The Communication Act providers clear legal authority on which the Federal Communications Commission can build a framework for the public service principles to govern advanced telecommunications services in the 21st century

Section III of the attached paper examines the question of how the FCC can construct and expand ther new framework for public service principles in the digital communications space from

within the current legal structure. Congress could always enact a new law, but most observers seem to think the prospects for that are dim. Having testified as early as 1982 on issues and in proceedings that would be considered to be in the direct history of the Telecommunications Act of 1996, we believe most observers are too optimistic. Fortunately, the legal framework that governs the public service principles of the PSTN under the 1996 Telecommunication Act is adequate to the task at hand.

In the 1996 amendments to the Communications Act, the Congress clearly intended for the public service principles of the public switched telephone network to apply to advanced telecommunications services.

- It explicitly defined telecommunications "regardless of the facilities used."
- It declared that universal service was an evolving concept that applied to information and advanced telecommunications services.
- It identified the specific conditions that were necessary to extend the definition.

The deregulatory aspiration of the Act was reconciled with the affirmation and expansion of public service obligations by laying out a new process in Section 10 that allowed the Commission

- to forbear from implementing rules that are no longer "necessary in the public interest,"
- stating the specific conditions that the Commission must find to conclude that regulation is no longer necessary.

Because the Commission failed to use the approach outlined by Congress in its initial consideration of one of the principle (nondiscriminatory access), the Commission failed to exercise it proper role in promoting the goals of the Act. The Commission failed

- to assess the impact of its decision on the wide range of public service goals it was charged with accomplishing,
- failed to conduct a proper forbearance proceeding in classifying highs speed data transmission as an information service, and
- has struggled to reconcile the public service goals of the Act with the ill-considered classification of high speed data transmission, cobbling together a series of *ad hoc* rules to attempt to implement the intent of Congress.

The definitional exercises in which the FCC engaged not only failed to follow the process outlined by the Congress, the proceedings were highly contentious and have proven to be inaccurate at analyzing critical elements that were central to its conclusion. In the highly speculative definitional proceedings, the FCC proved to be particularly inept at

- characterizing technological relationships,
- predicting technological developments,
- describing consumer behavior and
- identifying competitive trends.

The Commission decision to classify high speed data transmission as an information service not only failed to follow the process outline by the Congress, the Commission

- reversed long standing precedent regarding how services should be classified, and
- assumed that it would still have the authority to implement the public interest goals of the Act based on a long standing legal interpretation that it could use "ancillary authority" under Title I to achieve goals that are contained in other Titles of the Act.

It was evident from the beginning that the "administrative" repeal of Title II threatened to undermine the public service principles that Congress clearly intended to apply to telecommunications and advanced telecommunications service.

- The FCC has struggled to deal with the other public service principles it did not consider in its initial decision.
- This threat became more palpable when an adverse ruling by the D.C. Appeals called the assumption of FCC authority into question for the one public service principle it directly addressed.

Combining the clear intent of Congress, the compelling case for preservation of the public service principles, and the legal weight of a full and thorough evaluation of all the public service principles, affirmation of FCC authority must be the first step to developing an effective approach to ensuring and advancing the public service principles in the 21st century as Congress intended, is to

affirm that the Federal Communications Commission has the authority to implement those principles.

- The misclassification of high speed data transmission as an information service should be corrected.
- With authority established, the FCC can then determine under the forbearance procedure which specific rules are no longer necessary in the public interest.

If the D.C. Circuit upholds the FCC's Open Internet Order, which would affirm its authority over nondiscriminatory interconnection and interoperability via Title I authority that is ancillary to the other Titles in the Act, the FCC should assert Title II authority to implement the other public service principles. The Orders in the Computer Inquiries, which play a vital role in creating the conditions for the birth and growth of the Internet, were rested on ancillary authority, while the other public service principles were enforced under Title II and Title III authority. Thus, relying on ancillary authority for some rules and direct authority for others would restore the situation that existed for over 35 years, a situation that the Congress showed no intent to alter in the 1996 amendment to the Communications Act.

APPENDIX A
FCC COMMENTS AND ACADEMIC ARTICLES ON THE PUBLIC SERVICE PRINCIPLES IN THE COMMUNICATIONS SECTOR

FCC COMMENTS

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"Policies and Rules Concerning Dominant Carriers: The FCC's Price Cap Proposal," Federal Communications Commission, CC. Docket No. 87-313, October 19, 1987

"Affidavit of Dr. Mark N. Cooper on Abuse of the Monopoly Franchise by the Regional Bell Operating Companies in the Marketing of Optional Services," United States District Court for the District of Columbia, United States of America v. Western Electric Company and American Telephone and Telegraph Company, C.A. No. 82-0192, October 17, 1990

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"The Telecommunication Act of 1996: The Impact on Separations of Universal Service and Access Charge Reform," before the Federal State Joint Board on Separations, February 27, 1997

"Comments of the Consumer Federation of America," before the Federal Communications Commission In the Matter of Federal-State Joint Board on Universal Service, CC Docket No. 96-45, August 2, 1996

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"Reply Comments of the Consumer Federation of America," In the Matter of Application by BellSouth Corporation, BellSouth Telecommunications, Inc., and BellSouth Long Distance, Inc., for Provision of In-Region, InterLATA Services in Louisiana, Federal Communications Commission, CC Docket No. 97-231, December 19, 1997

"Reply Comments of Consumers Union and the Consumer Federation of America, before the Federal Communications Commission," In the Matter of Consumer Federation of America, International Communications Association and National Retail Federation Petition Requesting Amendment of the Commission's Rules Regarding Access Charge Reform and Price Cap Performance Review for Local Exchange Carriers, Federal Communications Commission, Docket No. RM9210, February 17, 1998

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"Comments of Texas Office of Public Utility Counsel Consumer Federation of America Consumers Union (Joint Consumer Commentors), In the Matter of Low Volume Long Distance Users Federal-State Joint Board on

Universal Service, Before the Federal Communications Commission, CC Docket No. 99-249, September 20, 1999

"Reply Comments of Consumer Federation of America on Joint Petition for Waiver," before the Federal Communications Commission, In the Matter of Implementation of the Subscriber Carrier Selection Changes Provision of the Telecommunications Act of 1996, Policies and Rule Concerning Unauthorized Changes of Consumers Long Distance Carriers, CC Docket NO. 94-129, FCC 98-334

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"Comment of the Texas Office of Public Utility Counsel, Consumer Federation of America and Consumers Union," *In the Matter of Intercarrier Compensation*, CC Docket No. 91-92, October 25, 2006

"Reply Comments of Consumer Federation of America and Consumers Union," *In the Matter of the Petition of Free Press, et al. for Declaratory Ruling that Degrading an Internet Application Violates the FCC's Internet Policy Statement and Does not Met an Exception for "Reasonable Network Management," and Vuze, Inc. to Establish Rule Governing Network Management Practices by Broadband Network Operators, Broadband Industry Practices, Commercial Availability of Navigation Devices,* WC Docket No. 07-52, CS Docket No. 97-80, February 28, 2008

"Reply Comments -- National Broadband Plan, Public Notice #30, Center for Media Justice, Consumer Federation of America, Consumers Union, Open Technology Initiative, Public Knowledge, on Broadband Adoption," Before the Federal Communications Commission, In the Matter of A National Broadband Plan for Our Future, GN Docket No. 09-47, 09-51, 09-137, January 27, 2010

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Rulemaking Regarding Low Power Auxiliary Stations, Including Wireless Microphones, and the Digital Television Transition, Amendment of Parts 15, 74 and 90 of the Commission's rule, Regarding Low Power Auxiliary Stations, Including Wireless, Federal Communications Commission, Docket No. 12-268 ET, WT Docket No. 08-166, WT Docket No. 08-167, Docket No. 10-24, January 25, 2013

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THE LONG HISTORY AND INCREASING IMPORTANCE OF

PUBLIC SERVICE PRINCIPLES FOR 21ST CENTURY DIGITAL COMMUNICATIONS NETWORKS

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F. Split Authority

LIST OF EXHIBITS

INTRODUCTION

The day after to the 2012 presidential election, AT&T filed a petition asking the Federal Communications Commission to consider how telecommunications would be regulated un the Communications Act of 1934 as the architecture of the communications network is transformed from primary reliance on analog technology and copper wires to digital technologies and fiber optic cable. This has become known as the "sunset" of the public switched telecommunications network.

Less than six months later, in the response to Hurricane Sandy, Verizon announced that it would not repair the copper telephone wires that the storm had destroyed on Fire Island. Instead, it proposed to use a wireless, digital service, to provide basic telephone service. This triggered an intense debate, as many in the community objected to what was perceived to be a significant reduction in the quality of service. The New York State Attorney General strenuously opposed the move and public interest groups demanded a full proceeding.

What AT&T was asking for and Verizon implemented, was a dramatic change in the policies and principles that had governed the communications network for over 100 years.

I. PUBLIC SERVICE PRINCIPLES IN THE TRANSPORTATION AND COMMUNICATIONS SECTORS[1]

A. THE ORIGIN OF THE PRINCIPLE OF ACTIVITIES THAT ARE "AFFECTED WITH THE PUBLIC INTEREST

The legal principle that some activities constitute a public service and therefore incur obligations in the way they are offered to the public stretches back to the mid-14th century. Over the ensuing centuries, the specific activities that are considered to be "affected with the public interest" and the nature of the obligations have varied. One area where the march of history has been to strengthen and expand public service principles, however, has involved the means of communications and commerce (see Exhibit I-1).

> Although the original economic reasons for the idea of a "common" calling disappeared, the concept underwent an important transformation…. [S]ometime during the latter part of the seventeenth century, most trades began to do business generally with the public. Accordingly, the idea of a common calling began to lose significance in most kinds of business. Certain kinds of businesses, however, most notably common carriers by land and water and innkeepers were treated differently. This treatment marks the beginning of the idea of a public service company.[2]

Reflecting this historical and legal pattern of development, discussions that deal with the public service principles that govern telecommunications services and attach to telecommunications service providers reach back to the 18th century. They point to how the common law dealt with services that were provided in the transportation sector. A mid-18th century Blackstone commentary described the principle as it applied to innkeepers.

> if an inn-keeper, or other victualler, hangs out a sign and opens his house for travellers, it is an implied engagement to entertain all persons who travel that way; and upon this universal *assumpsit*, an action on the case will lie against him for damages, if he without good reason refuses to admit a traveller.[3]

A 1701 court decision that used the blacksmith as an example offered similar reasoning.

> Whenever any subject takes upon himself a Publick Trust for the Benefit of the rest of his fellow Subjects, he is… bound to serve the Subject in all the Things that are within the Reach and Comprehension of such an Office…. If on the Road a Shoe fall off my Horse, and I come to a Smith to have one put on and the Smith refuse to do it, an Action will lie against him, because he has made Profession of a trade which is for the Publick Good… One that has made Profession of a Publick Employment is bound to the utmost Extension of that Employment to serve the Publick.[4]

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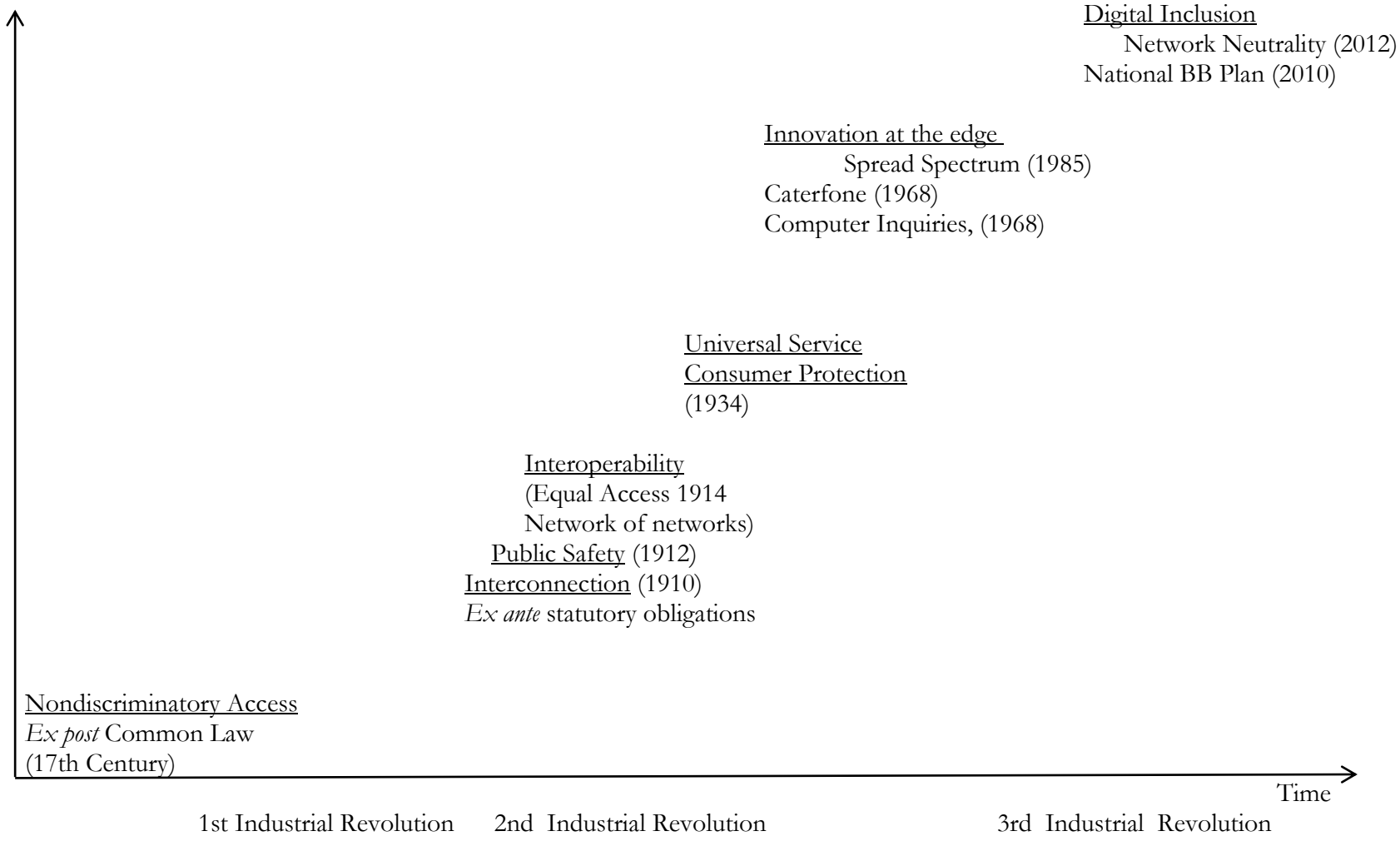
[1] Mark Cooper, "From the Public Switched Telephone Network to the Public Digital Communications Network: Interconnection, Interoperability, Universal Service & Innovation at the Edge," *Interconnection Policy for the Internet Age, The Digital Broadband Migration: The Future of Internet-Enabled Innovation*, Silicon Flatirons, February 10-11, 2013.

[2] Alan Stone, *Pubic Service Liberalism: Telecommunications and Transitions in Public Policy* (Princeton: Princeton University Press, 1991), p. 29.

[3] Cited in James B. Speta, *A Common Carrier Approach to Internet Interconnection*, 54 FED. COMM. L.J., 254 (2002).

[4] Lane v. Cotton, 1701, cited in Stone, p. 30.

EXHIBIT I-1: THE PROGRESSIVE EVOLUTION OF PUBLIC SERVICE PRINCIPLES IN THE COMMUNICATIONS SECTOR



It is important to note that while activities that were associated with transportation, like innkeepers and black smiths, incurred the public service obligation under common law the underlying transportation facilities actually incurred even stronger obligations under statute. Navigation projects, canals, and turnpike trusts chartered under obligations of providing service to the public were the early vehicles of the emerging capitalist political economy to provide for transportation infrastructure.[5] Created in the 15th through 18th centuries and building on principles of common law, these were private undertakings with a public franchise to collect tolls on the section of a road or waterway whose upkeep was the responsibility of the franchise holder as a trustee for the public. Fees were assessed and access provided on a nondiscriminatory basis. While different rates could be charged to different types of traffic, discrimination within categories was forbidden.

Thus, it is historically correct to say that the principle of nondiscriminatory access to the means of communications and commerce has been part of the DNA capitalism since its birth. It is analytically important to make this statement strong and broad because the movement of goods and ideas is essential to the success of the capitalist economy and the democratic polity.[6] As capitalism was dissolving feudalism, the emerging social order discovered an important new social, political and economic function – mobility. Physical and social mobility were anathema to feudalism, but essential to capitalism and democracy. Providing for open and adequate highways of commerce and means of communications were critical to allow commerce to flow, to support a more complex division of labor and to weave small distant places into a national and later global economy. This principle came to the new world with the Anglo Saxon settlers who ultimately dominated the American continent.[7]

B. The Preservation and Extension of Public Service Principles for the Transportation and Communications Sectors in the Industrial Era

With the rate of economic change accelerating throughout the industrial era, pressures mounted on the institutional legal structure that governed nondiscriminatory access to the means of communications and commerce. By the late 19th century, direct public responsibility for roads, as opposed to franchise trusts, became the norm and provided nondiscriminatory access.[8] Maintaining a network of transcontinental roads became a governmental responsibility, first city, then state, then national. Other means of communications and commerce, railroad, canals, telegraph, telephone, tended to remain in private hands with substantial public support and public service obligations.

The institutional structure grappled with the emerging industrial mode of production throughout the 19th century, as the nature and scale of economic activity changed. Public service obligations on the means of communications and commerce increased.

> It was originally supposed that they [railroads] would add, and… they have added, vastly and immeasurably, to the general business, the commercial prosperity and the pecuniary resources of the inhabitants of cities, towns, villages and rural districts through which they pass and with which they are connected. It is in view of these results, the public good thus

[5] Mark Cooper, "Making the Network Connection," in Mark Cooper (Ed.), *Open Architecture as Communications Policy: Preserving Internet Freedom in the Broadband Era* (Center for Internet and Society, 2003), pp. 111-112; Andrew Odlyzko, *Pricing and Architecture of the Internet: History and Perspectives from Telecommunications and Transportation* (2003).

[6] Cooper, Making the Network Connection."

[7] As Stone (p. 17) notes, things might have been very different if the French and Indian Wars had gone the other way

[8] http://en.wikipedia.org/wiki/Turnpike_trusts

> produced, and the *benefits thus conferred upon the persons and property of all the individual composing the community,* the courts have been able to pronounce them matters of public concern.[9]

Here there is an interesting contrast between England and the U.S. In England the common law approach allowed central authority to expand rapidly, moving beyond regulation to nationalization. In the U.S., common law was cabined by constitutional law. Expanding the scope of central authority required much more compelling evidence to fit within Constitutional constraint. It was only when the expanding economy and increasingly complex division of labor drove interstate commerce to the heart of the economy that the federal role could expand. It did so by the end of the 19th century.

Moreover, in a typical America pattern, the Interstate Commerce Act did not spring *sui generis* into existence. The field had been well plowed by the states in the American federalist system, which had been grappling with and extending their oversight over the burgeoning industrial economy. State promotion and regulation of canals and railroads began in the mid- 19th century and progressed steadily over the course of the century. More local utility services – water, gas, electricity, telephone – were promoted and regulated at the municipal level.

The important role of state and local activity in the development of the uniquely American institutional approach to public service principles should not be overlooked. No only was the legal field plowed at the state and local levels, but a significant public sector was built up to deliver local services in a variety of contexts where the regulated private sector had failed to live up to the public service expectations. While electronic communications were predominantly privately owned in America, there has been a substantial local public sector for a number of utility services, which results in a mixed sector. The role of service providers that were not privately owned was never quantitatively large (less than 5 percent of subscribers in electricity), but the institutional diversity was important.

By the end of the 19th century as the 2nd industrial revolution pushed the scale and complexity of the economy to a much higher level and spilled across state borders, law and practice had paved the way for the institutionalization of public service obligations. The ground had been well-plowed in the evolving relationship between the private firms that delivered these uniquely public services and state and local governments.

The railroads, which had become the dominant means of commerce and communications in the 19th century, were the focal point of the economic and legal activity. The recognition of the importance of the railroads was the basis for the extension of public service principles.

> The railroad, as an improved means of communication and transportation, has produced indescribable changes in all the manifold transactions of every-day life which go to make up what is called commerce. Successful commerce brings prosperity, which in turn makes possible the cultivation and development of the graces and attributes of the highest civilization.[10]

The positive contribution of the railroads to economic progress was the primary justification for imposing public service obligations, but the harmful effects of failing to provide service on a nondiscriminatory basis was the proximate cause of a more direct and aggressive enforcement of the

[9] Olcott v. Supervisors of Fond du Lac Co. (1873) cited in Stone, p. 35.
[10] Collum Report, 1886, p. 135, cited in Stone, pp. 32-33.

public service obligation on carriers. The Cullum Commission Report outlined the immense benefit of the railroads, explored the interstate nature of commerce, recounted state efforts to deal with railroad abuses and recommended national legislation to address a lengthy list of complaints.[11]

Electronic communications entered the picture in the mid-19th century and rapidly joined the railroads as a critically important public service infrastructure. The state courts that had been grappling directly with the new means of communications and commerce drew strong analogies between transportation and communications. A quote from an 1886 Indiana court case links the past to the present.

> The telephone has become as much a matter of public convenience and of public necessity as were the stagecoach and sailing vessel a hundred years ago, or as the steamboat, the railroad, and the telegraph have become in later years. It has already become an important instrument of commerce. No other known device can supply the extraordinary facilities which it affords. It may therefore be regarded, when relatively considered, as an indispensable instrument of commerce. The relations which it has assumed towards the public make it a common carrier of news – a common carrier in the sense in which the telegraph is a common carrier – and impose upon it certain well-defined obligations of a public character. All the instruments and appliances used by the telephone company in the prosecution of its business are consequently, in legal contemplation, devoted to a public use.[12]

This quote captures the long history of the concept of public obligation that attached to services that play the vital role of supporting the flow of commerce and communications. The early date of this observation, 1886, is notable, since the telephone had just begun to penetrate. Traditional practice did not excuse it from public service obligations because it was new. The quote points to several transportation carriers – stagecoaches, sailing vessels and steamboats – that were not infrastructure industries and were likely competitive but still were required to shoulder public service obligations. Thus, competition did not excuse important activities from the public service principles, reminding us that it is the nature of the service, not the conditions of supply that creates the pubic obligations. This citation also suggests the dual nature of communications networks as both a means of commerce and a means of democratic expression.

Interestingly, the above legal characterization came the year before the passage of the first piece of progressive federal legislation, the Interstate Commerce Act, which underscores the clear shift in the approach to nondiscrimination that was about to take place. A quarter of a century after the Interstate Commerce Act created a federal, statutory basis for direct oversight over the public service principles in the railroad industry, the principles were extend to electronic communications. The Mann Elkins Act of (1910) placed the interstate telecommunications under the Interstate Commerce Act.

> Now the telegraph line and the telephone line are becoming rapidly as much a part of the instruments of commerce and as much a necessity in commercial life as the railroad.[13]

---

[11] Senate Select Committee, Interstate Commerce (Cullom Committee Report), January 18, 1886. p. 180, http://books.google.com/books?id=AYxCAQAAIAAJ&printsec=frontcover&dq=cullom+report&hl=en&sa=X&ei=7CsgUbHHF6Tb0wGY7IGgBA&ved=0CDcQ6AEwAQ#v=onepage&q&f=false

[12] Cited in James B. Speta, *A Common Carrier Approach to Internet Interconnection*, 54 FED. COMM. L.J., 254 (2002).

[13] 45 Congressional Record 5534 (1910), cited in Stone, p. 33.

C. THE EXPANSION OF THE PUBLIC SERVICE PRINCIPLES DURING THE QUARTERLIFE CRISIS OF THE 2ND INDUSTRIAL REVOLUTION

The court case noted above, dating from 1886, and the other activities around nondiscriminatory access and the expanding concept of public service principles (identified in Exhibit I-1) all took place in a period that we have called the quarterlife crisis of the second industrial revolution[14] (see Exhibit I-2), which spans the Progressive Era and the New Deal. What we see in those policy changes is the adoption of a new approach to ensuring that important traditional principles are preserved as the dominant mode of production in society is changing. This is the moment when the new, maturing mode of production is asked to shoulder the burdens of social goals and public aspirations that are deeply embedded in society. And, in a progressive society, it is the moment to move those social goals to a higher level.

The response to the maturation challenges of the 2nd industrial revolution went well beyond simply reaffirming the importance of and commitment to nondiscriminatory access. The progressive era approach to nondiscrimination exhibited other important characteristics that indicate a new, more far-reaching approach. These highlight key characteristics that the public service principles should embody in the 21st century:

1) It shifted from *ex post* to *ex ante* regulation of nondiscrimination.[15]

2) It layered oversight across sector specific regulation and general antitrust law.[16]

3) It introduced the concept of equal access between network operators, thereby highlighting the fact that society was becoming a network of networks, a concept that the digital revolution would make much more prominent and take to a much higher level.[17]

The latter point deserves emphasis. The economic value of interconnection and interoperability of networks in continental economy was compelling. A century and a quarter ago, in one of the first and most important acts of the Progressive Era at the federal level, the United States adopted the Interstate Commerce Act, which shifted the nation from an *ex post,* harm-based theory of nondiscrimination under common law to an *ex ante* prophylactic theory of nondiscrimination under sector specific law.[18] The approach was first applied to the railroads, the dominant means of transportation. Twenty- five years later, and in spite of the promises of from AT&T executives, Vail and Kingsbury, the new approach to public service principles was extended by statute and statutory enforcement to electronic telecommunication. Private carriers were to provide nondiscriminatory access as a matter of law; individuals did not have to prove they had been harmed by the denial of service.

[14] Mark Cooper, "Why Growing up is Hard to Do: The Quarterlife Crisis of the Digital Revolution," Journal of Telecommunications and High Technology Law, forthcoming.

[15] Mann-Elkins Act, ch. 309, 36 Stat. 539, June 18, 1910

[16] The Sherman Act and the Interstate Commerce Act both applied to interstate commerce.

[17] U.S. v. AT&T, 1914, p. 491.

[18] It is more than mere historical coincidence that the U.S. railroad system achieved full, national standardization at exactly this moment -- "The American gauges converged over time as the advantages of equipment interchange became increasingly apparent; notably, the South's 5 ft (1,524 mm) broad gauge system was converted to be compatible with standard gauge over two days, beginning May 31, 1886." http://en.wikipedia.org/wiki/Standard_gauge

EXHIBIT I-2: LIFE CYCLE OF INDUSTRIAL REVOLUTIONS

Invention	Date	Political Turmoil	Primary Mass Communications
1st Industrial Revolution			
Flying Shuttle	1733		
Cotton Mills	1742		
Water Frame	1764		
Spinning Jenny	1765		
Steam Engine	1769		
Steam Ship	1775	Age of	
Threshing Machine	1784	Revolution	
Power Loom	1785	1775	
Cotton Gin,	1793		
Interchangeable Musket Parts	1798		
Steam Locomotive	1804	Luddism	
Steamboat Service on the Hudson River	1807		
Typewriter	1829		
Telegraph, revolver	1836		Penny Press
Sewing Machine	1844, 1851	1848	Telegraph
	1860s		Photography
2nd Industrial Revolution			
Bessemer Steel	1855		
Synthetic Dye	1856		
Machine Gun	1862		
Transatlantic Cable, dynamite	1866		
Modern Typewriter	1867		
Tungsten Steel	1868		
Barbed Wire	1873		
Telephone	1876		
Phonograph,	1877		Telephone
Incandescent Light bulb	1879	Progressive Era	
Induction Electric Motor	1888	State	
Diesel Engine	1892	Regulation	
Radio	1901		
Airplane	1903		
Model T Ford, Assembly Line	1908, 1913		Radio
	1930s	New Deal	
	1940s		Television
3rd Industrial Revolution			
Transistor	1947		
Integrated Circuit	1958		
Micro Computer	1968	Caterfone/	
Internet	1969	Computer Inquiries	
Microprocessor, E-mail	1971		
Modem	1997		
PC-IBM	1980		
Commercial Internet	1986		
Commercial Wireless Service	1984		
WorldWideWeb	1991		
ISOC	1992	CALEA, DMCA,	
	1996	Telecom Act	Broadband
	1998	ICANN	
	1999	COPA,	
	2000		YouTube
	2003	WSIS	
	2004		Social media
	2012	SOPA,PIPA	

Source: Mark Cooper, "Why Growing Up is Hard to Do: The Quarterlife Crisis of the Digital Revolution," forthcoming in *Journal of Telecommunications and High Technology Law*

The Progressive Era not only shifted from *ex poste* to *ex ante* oversight of nondiscriminatory electronic communications, it layered public *ex ante* and *ex poste* oversight on the industry. Some of the most important federal actions in the telecommunications space have been initiated by the DOJ under the Sherman Act, not the Federal Communications Commission and its predecessor agencies, including the consent decree of 1914, the final judgment of 1956, and the modification of final judgment in 1984.

Moreover, while the Sherman Act is overwhelmingly based on an *ex post* harm-based approach, one extremely important exception involves business conduct that threatens to fundamentally alter the market structure to the detriment of competition. In merger review, the DOJ routinely acts in an *ex ante* prophylactic manner, blocking mergers that raise significant competitive concerns. At roughly the same time, legislation explicitly gave the sector specific, federal regulatory agency oversight over telecommunications mergers.[19] In the Communications Act of 1934, the Congress required the FCC to review mergers under much broader public interest standard than the DOJ applies. Thus, *ex ante* regulation at the FCC is reinforce by *ex-ante* merger review at the DOJ and backstopped by *ex post* regulation at the DOJ.

The quintessential expression of the expanding public service principles and obligations of the carriers who make up the public switched telephone network is the Communications Act of 1934. In the first sentence of the Act, the purpose is defined as follows:

> to make available, so far as possible, to all people of the United States a rapid, efficient nationwide and world-wide wire and radio communications service with adequate facilities at reasonable charges, for the purposes of national defense, for the purpose of promoting safety of life and property through the use of wire and radio communications, and for the purpose of securing a more effective execution of this policy by centralizing authority heretofore granted by law to several agencies and by granting additional authority with respect to interstate and foreign commerce in wire and radio communications.[20]

The commitment was broad and pragmatic, involved wired and wireless communications and recognized the centrality of communications to a number of social goals. The definition of the goals was inclusive and evolutionary and the commitment to the form of governance was secondary to the statement of goals. It chose the form of governance that dominated the response to the quarterlife crisis of the 2nd industrial revolution, expert agency regulation, but regulation is for the purpose of achieving the goals; it is not an end in itself. The public service principles broadly stated in the first paragraph of the Act are then given specificity in later titles of the Act, as suggested by Exhibit I-3.

D. THE INCREASING NEED FOR PUBLIC SERVICE PRINCIPLES IN THE ELECTRONIC COMMUNICATIONS SECTOR OF THE 2ND INDUSTRIAL REVOLUTION

Is all this concern about nondiscrimination, integration and universal service, etc., in communications necessary? Four hundred years of experience suggested to Progressive Era policy makers that it was. The shift from *ex post* to *ex ante* and the layering of regulation of integration was

[19] As Stone (p. 193, 201) points out, the ICC was inserted and the DOJ removed from merger review from 1920 (by the Willis Graham Act) to 1934, when the dual jurisdiction was created.

[20] SEC. 1. [47 U.S.C. 151]

driven by two factors, which are very much akin to the underlying forces that drove the broader progressive movement (see Exhibit I-4).

EXHIBIT I-3: TITLE I GOALS AND TITLES II AND III TOOLS OF THE COMMUNICATIONS ACT

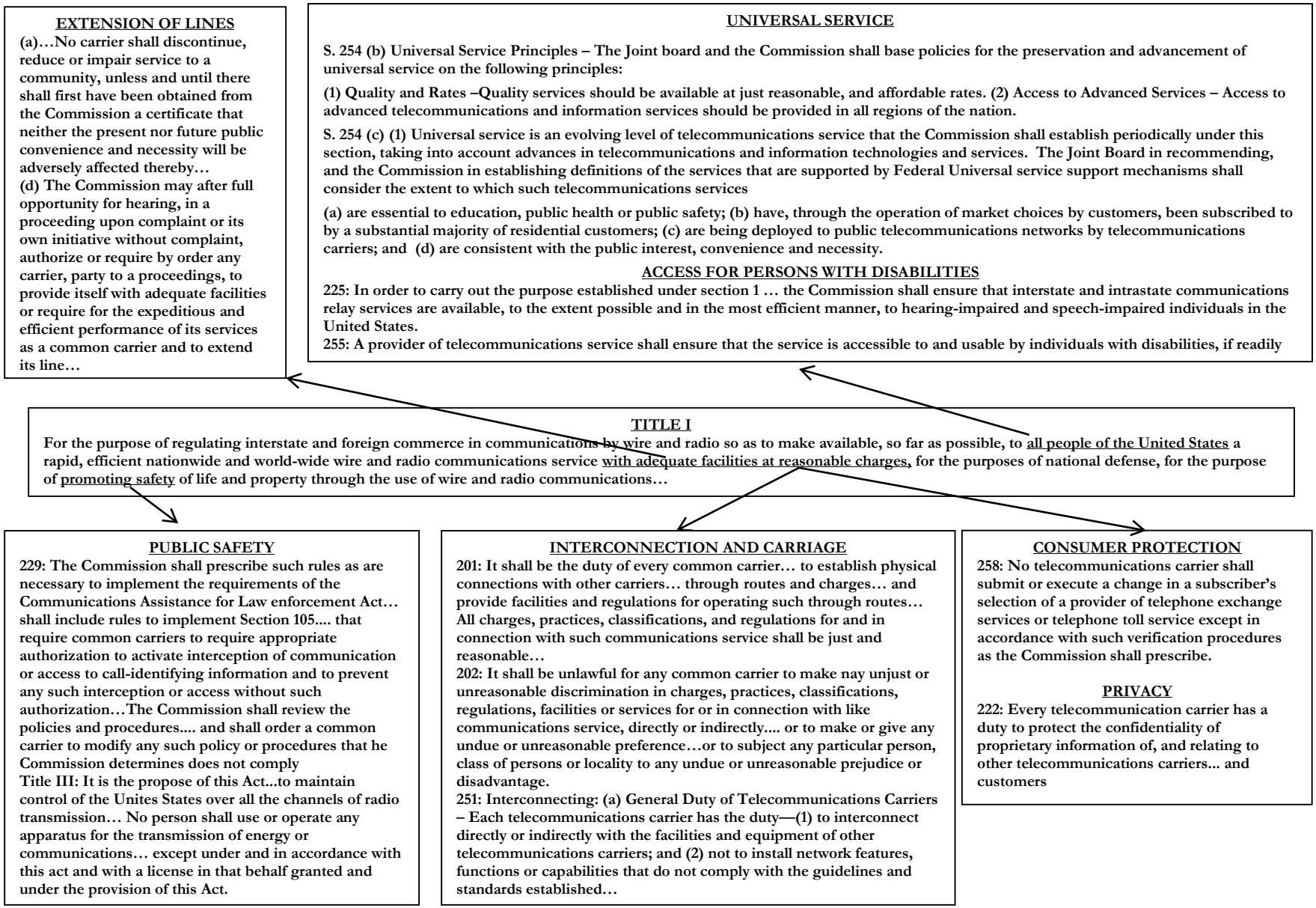
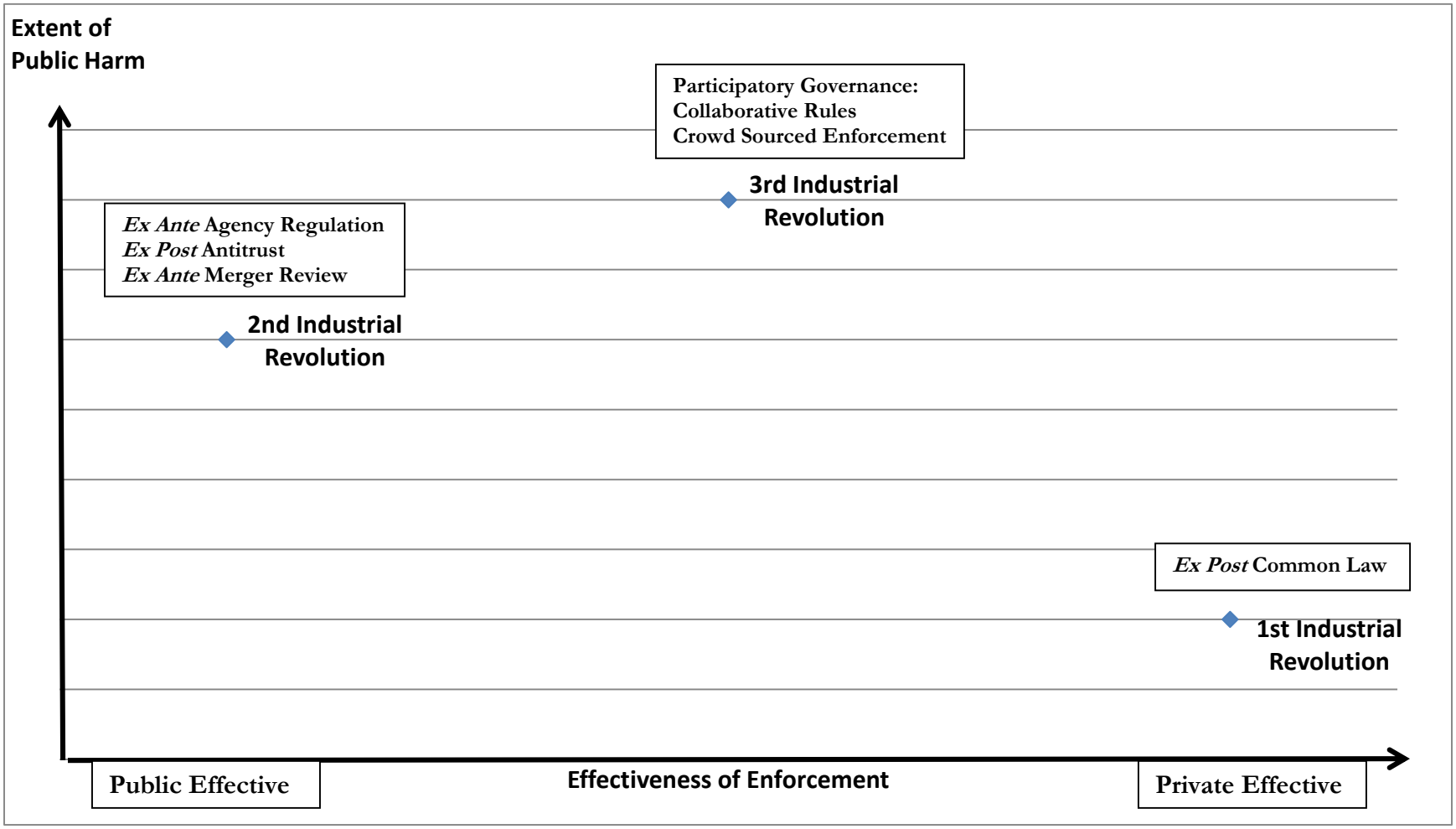


EXHIBIT I-4: ECONOMIC CONDITIONS DICTATE THE NATURE OF EFFECTIVE ENFORCEMENT



First, the importance of interconnection had grown as the division of labor became more complex and the scope of the economy expanded. Alfred Chandler, a preeminent American economic historian, described the vital role of transportation and communications in the expansion of the economy during the second industrial revolution as follows:

> But of far more important to the expansion of the factory system was the reliability and speed of the new transportation and communication. Without a steady, all-weather flow of goods into and out of their establishments, manufacturers would have had difficulty in maintaining a permanent working force and in keeping their expensive machinery and equipment operating profitably. Moreover, the marketing revolution based on the railroad and the telegraph by permitting manufacturers to sell directly to wholesalers, reduced requirements for working capital and the risk of having unsold goods for long periods of time in the hands of commission merchants. Reduced risks and lower credit costs encouraged further investment in plant, machinery and other fixed capital.[21]

Stone ties Chandler's observation back to Adam Smith through the important role that transportation and communications play in supporting the more complex division of labor.

> In short, the division of labor, as Adam Smith observed, is limited by the extent of the market. And the extent of the market is limited, in turn, by the speed, reliability, and cost of communications. Rapid and extensive communications, thus, radically transform production as well as distribution….
>
> The telegraph, in short, was not simply another new invention. Virtually every economic activity was significantly affected. Although its commercial capabilities were not recognized in the nations of Europe (with the exception of Great Britain), the telegraph in the United States was, together with the railroad, critical in the development of national markets.[22]

Second, key changes in society created a need for a change in the mechanisms for enforcing the public service principles. The ability of individuals to exercise their rights to nondiscriminatory access had been obliterated by the massive increase in size and power of the dominant owners of the means of communications and commerce. The suggestion that private individuals could effectively assert their rights under common law when confronted with the massive corporate power and resources, not to mention the legal expertise of the newly created corporate general counsels invented by the railroads, was not very credible. As the Cullum Committee Report put it bluntly, "The Common law fails to afford a remedy for such grievances."[23]

While the focus of attention has traditionally been on the economic factors and forces, the social bases of public service principles should also be recognized. Important social values have been involved including provision of necessities, appropriate standards of living, the ability to participate in modern life, and equality of opportunity.[24] Universal service and consumer protection can be seen as principles that bridge the social and economic dimensions.[25] Just as the economic

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[21] Alfred Chandler, Jr., *The Visible Hand* p. 245, cited in Stone, 25).
[22] Stone, p. 26.
[23] Cullum Report, 1886, p. 135,
[24] Stone, pp. 24, 36.
[25] "Inequality In The Digital Society: Why The Digital Divide Deserves All The Attention It Gets," Cardozo Arts and Entertainment Law Journal, 2002, first presented at Bridging The Digital Divide: Equality In The Information Age, Cardozo School Of Law, November 15, 2000; "The Digital Divide Confronts the Telecommunications Act of 1996: Economic Reality versus Public Policy," in Benjamin M. Compaine (Ed.), The Digital Divide: Facing a Crisis or Creating a Myth? (Cambridge: MIT Press, 2001); "Universal Service: A Constantly Expanding Goal," Consumer Perspectives on Universal Service: Do Americans Lose Under a Connection-based Approach? (Washington, D.C.: New Millennium Research Council, June 2003); "Dividing the Nation, Digitally: When a Policy Of Neglect is Not Benign," The Impact of the Digital Divide on Management and Policy: Determinants and Implications of Unequal Access to Information Technology, Carlson School of Management, University of

dimension of public service obligations expanded, the broader social values have expended as well, underscoring the progressive nature of expanding public service principles.

Thus, the economic costs and social injustice of the uneven enforcement of the private right to nondiscrimination that would result from massive corporations pursing their private interests in a under common law had become so great that society could no longer tolerate it and turned to a broader set of multi-layered public service principles imposed by regulation to enforce a broader right of access and achieve a higher level of integration. Simply put, the means of communications had become so important to the progress and practice of capitalism and democracy that, at the moment of ascendance of the 2nd industrial revolution, they were deemed sufficiently vital to merit both *ex ante* and *ex post* oversight that takes into consideration its "merely commercial aspects" **and** its broadly sociopolitical impacts.[26]

E. THE QUARTERLIFE CRISIS OF THE 3RD INDUSTRIAL REVOLUTION

The contemporary debate over the public service principles and obligations of the public switched network is taking place at roughly the same point in the lifecycle of the 3rd industrial revolution. Digital communications have become the dominant means of communications. We are living through the quarterlife crisis of the digital revolution and we ask how it will shoulder its new responsibilities across a dozen or more important social issues. Today, we confront exactly the same questions that society grappled with in the maturation of the 2nd industrial revolution. Should public service principles apply to the means of communications in the 21st century? Does it merit this close scrutiny?

We believe history, law, economics and policy make the answer to these questions is emphatically YES.[27] If anything, the commitment should be even stronger and the scrutiny closer in the 21st century political economy.

The convergence of communications and commerce, the increasing importance of communications in economic, social and political life, and the more dynamic, interconnected nature of the digital economy means the failure of integration can impose greater harm than ever. All of the key, economy enhancing characteristics that Chandler attributes to the railroad and the telegraph in the middle of the 19th century certainly apply to digital communications technologies at the beginning of the 21st century with greater force.[28]

- For some products that can take a purely digital form, digital technologies reduce or eliminate the need for physical distribution networks, which can cut the cost of the delivered goods and services by more than one-half.

Minnesota, August 28, 2004; "Broadband in America: A Policy of Neglect is not Benign," in Enrico Ferro, Yogesh K. Dwivedi, J. Ramon Gil-Garcia, and Michael D. Williams, Eds., Overcoming Digital Divides: Constructing an Equitable and Competitive Information Society," IGI Global Press, 2009.

[26] Associated Press

[27] The consumer-friendly and citizen-friendly nature of the Internet was evident early on in its development, see Mark Cooper, *Expanding the Information Age in the 1990s: A Pragmatic Consumer View* (Washington, D.C.: Consumer Federation of America, January 11, 1990); "Delivering the Information Age Now," *Telecom Infrastructure: 1993, Telecommunications Reports,* 1993.

[28] Cooper," Wi-Fi to Wikis; "; "Structured Viral;" Mark Cooper, "The Economics of Collaborative Production in the Spectrum Commons," *IEEE Symposium on New Frontiers in Dynamic Spectrum Access Networks,* November 2005, "Collaborative Production in Group-Forming Networks: The 21st Century Mode of Information Production and the Telecommunications Policies Necessary to Promote It," *The State of Telecom: Taking Stock and Looking Ahead*, Columbia Institute on Tele-Information, October 2005; "The Economics of Collaborative Production: A Framework for Analyzing the Emerging Mode of Digital Production," *The Economics of Open Content: A Commercial Noncommercial Forum,* MIT January 23, 2006

- For many physical goods and services digital technologies transform the production process.
- For all products digital technologies lower transaction costs and dramatically reduce the need for inventory by ensuring a closer (in some cases perfect) fit between what is produced and consumed.
- Even more importantly, digital technologies empower and facilitate innovation by the users of the network on a pervasive basis, supporting a dramatic and unique transformation of the division of labor.
- Of equal or greater importance, the increase in citizen participation in political discourse made possible by the new means of communications can enrich democracy.

Because of the increasing public benefits of the seamless flow of information and data, more than in the past, the harm of failing to adhere to the public service principles is greater and the inability of *ex post* action to remedy it is magnified. In a decentralized economy one never knows where innovation will come from or how important it will be.[29] In a profoundly interconnected society that has become a highly recursive system, with dynamic, real time networks, discrimination can be devastating to rapidly evolving, highly interconnected activity.[30] In digital networks, discrimination can be subtle, but potent. With a small number of critical choke points that possess a great deal of vertical leverage and the ability to extract massive rents, thereby wasting important resources, the incentive and ability to discriminate is strong.[31] .

The case for the *ex ante* public service obligation is at least as strong when it comes to non-economic issues. As digital networks become the dominant means of communications and expression, the exercise of political rights becomes dependent on access to and the flow of information over those networks. Where basic rights are involved, "replacement" dictates that the right is not diminished as the medium of political discourse changes, but also expands on the new networks.[32] In light of the importance and power of digital communications networks, it makes even less sense to rely on *ex post* regulation than it did a century and a quarter ago when it was abandoned by progressive era policy makers.

However, in making the case for the increased importance of the public service principles on the basis of the dynamic, recursive nature of the digital age, we also lay the foundation for arguing that the approach to ensuring the public service principles must evolve as well.[33] More than five hundred years of history teaches that regulated common carriage is not synonymous with public service principles and obligations. On the contrary, for three quarter of the history of capitalism in the Anglo-American world nondiscrimination was enforced by common law, so we should be open

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[29] "Structured Viral Communications: The Political Economy and Social Organization of Digital Disintermediation," *Journal on High Telecommunications and High Technology Law,* 9:1, 2011; "From Wi-Fi to Wikis and Open Source: The Political Economy of Collaborative Production in the Digital Information Age," *Journal on Telecommunications and High Technology Law,* 5:1, 2006;

[30] Mark Cooper, "The Importance of Open Networks in Sustaining the Digital Revolution," in Thomas M. Lenard and Randolph J. May (Eds.) *Net Neutrality or Net Neutering* (New York, Springer, 2006); "Anticompetitive Problems of Closed Communications Facilities," in Mark Cooper (Ed.) *Open Architecture as Communications Policy* (Palo alto, Center for Internet and Society, Stanford Law School, 2003); Mark Cooper, *Cable Mergers and Monopolies: Market Power in Digital Media and Communications Networks* (Washington, D.C.: Economic Policy Institute, 2002);

[31] Mark Cooper, Microsoft

[32] "What's 'New" About Telecommunications in the 21st Century Economy: Not Enough to Abandon Traditional 20th Century Public Interest Values" *Models of Regulation For the New Economy*, University of Colorado School of Law, February 1, 2003.

[33] Cooper, "Why Growing Up is Hard."

to alternative ways of ensuring nondiscrimination in the digital economy, even though we reject the *ex post* approach.

The lesson is not that we need to impose the expert agency model exactly as it was during the second industrial revolution on the third industrial revolution. Rather, the lesson is that the public service principles need to be preserved, even expanded support the high level of performance of a networked society and implemented with a form of regulation that best supports the functioning of the new mode of production. The form of regulation needs to fit the nature of the networks and develop as they do. The digital communications sector requires a more flexible, dynamic *ex ante* approach to ensuring the implementation of the public service principles. Indeed, as we argue in the next section, it was a decision to replace the common carrier approach with a more flexible, less intrusive policy that created an environment that was uniquely favorable to the birth and growth digital revolution in communications.

II. PSEUDO-ACCESS COMPETITION AND UBIQUITOUS, SEAMLESS, INTEGRATION OF INFRASTRUCTURE NETWORKS

As we have seen, competition (or the lack thereof) does not determine whether public service principles govern an activity and impose obligations on service providers. The state of competition is a factor that will be examined, particularly in the current policy context, where one goal of public policy is to promote competition. In this context, the question of whether public policy can simply rely on competition to ensure the principles will inevitably arise. As discussed in the next section, the 1996 amendments to the Communications Act provide specific standards for answering the question. Here we examine how access competition affected interconnection in various circumstances in several industries in the U.S.

A. THE EVIL EMPIRE V. THE BENEVOLENT DESPOT, OR SOMETHING IN BETWEEN

The events of the early competitive period in the U.S. telephone sector are fairly well agreed upon. Their interpretation and meaning are not. Two primary theories are offered to explain the integrated near-national monopoly that developed. In one view,[34] it was the result of AT&T's nefarious strategy to end competition, using the promise of interconnection to convince regulators not to impose severe restraints and later allowing acquisition of the Independents. From the other view, AT&T saw the benefits of an integrated national monopoly and embraced a policy of natural monopoly that was consistent with the underlying economics and the public interest.[35]

After the expiration of the Bell patents a short intense period of construction of independent phone networks occurred, mostly in areas where AT&T did not to provide service.[36] Competition in long distance service was much weaker. At the height of the competitive period, independent

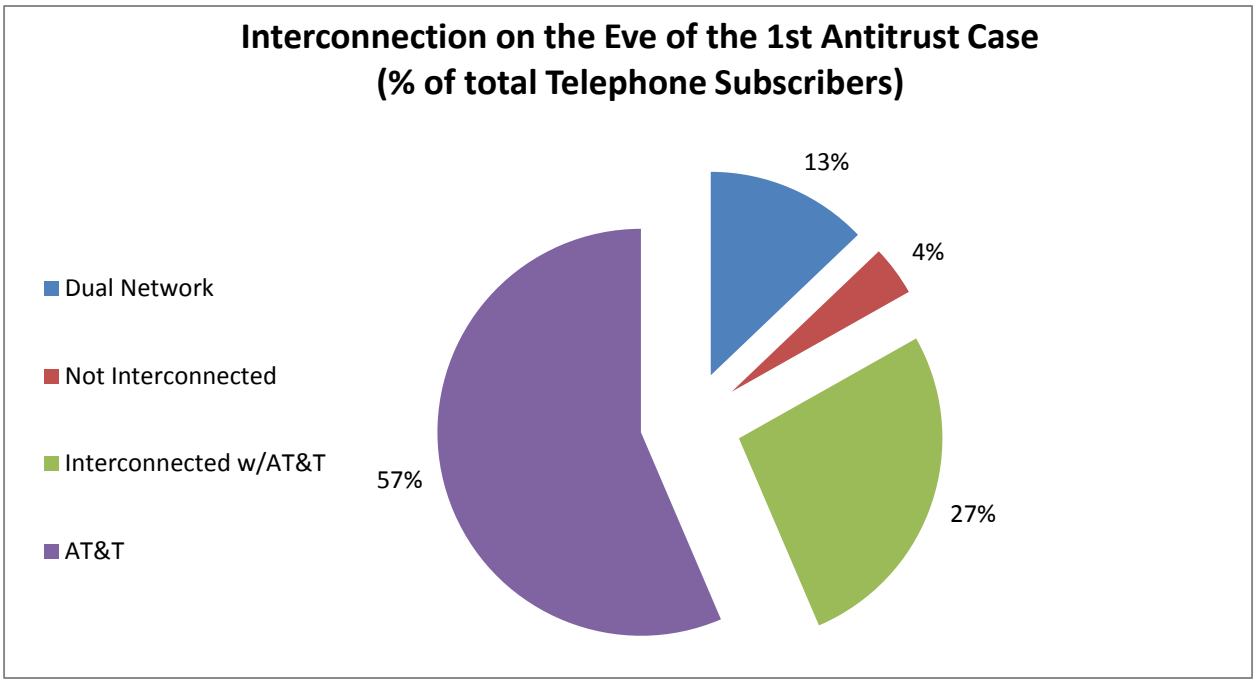
[34] David S. Evans (Ed.), *Breaking Up Bell: Essays on Industrial Organization and Regulation* (New York: North Holland, 1983); Milton Mueller, *Universal Service: Competition, Interconnection and Monopoly in the Making of the American Telephone System* (Cambridge, MA: MIT Press, 1997); Stone, *Public Service;* Crawford, *Captive Audience.*

[35] Stone, 1991; Susan Crawford, *Captive Audience* (New Haven, Yale University Press, 2013). .

[36] The beneficial effect of the expiration of the patent, which afforded open access to the underlying technology is another example of the beneficial effect of the principle discussed in this paper. The fact that the Constitution embodies the great suspicion of monopoly both reflects the intellectual tradition of the framers and the uniquely American approach.

accounted for over 40 percent of all telephone subscribers. During this period, however, 13% of all telephone subscribers (mostly businesses) had service from dual networks (see Exhibit II-1).

EXHIBIT II-1: TELEPHONE SUBSCRIPTION AND INTERCONNECTION PATTERNS IN THE COMPETITIVE ERA



Sources: Alan Stone, *Public Service Liberalism* (1991). Except dual network subscribers, which are from Milton Mueller, *Universal Service (*1998). Percentages are calculated assuming dual networks involve subscribers to AT&T local and an independent.

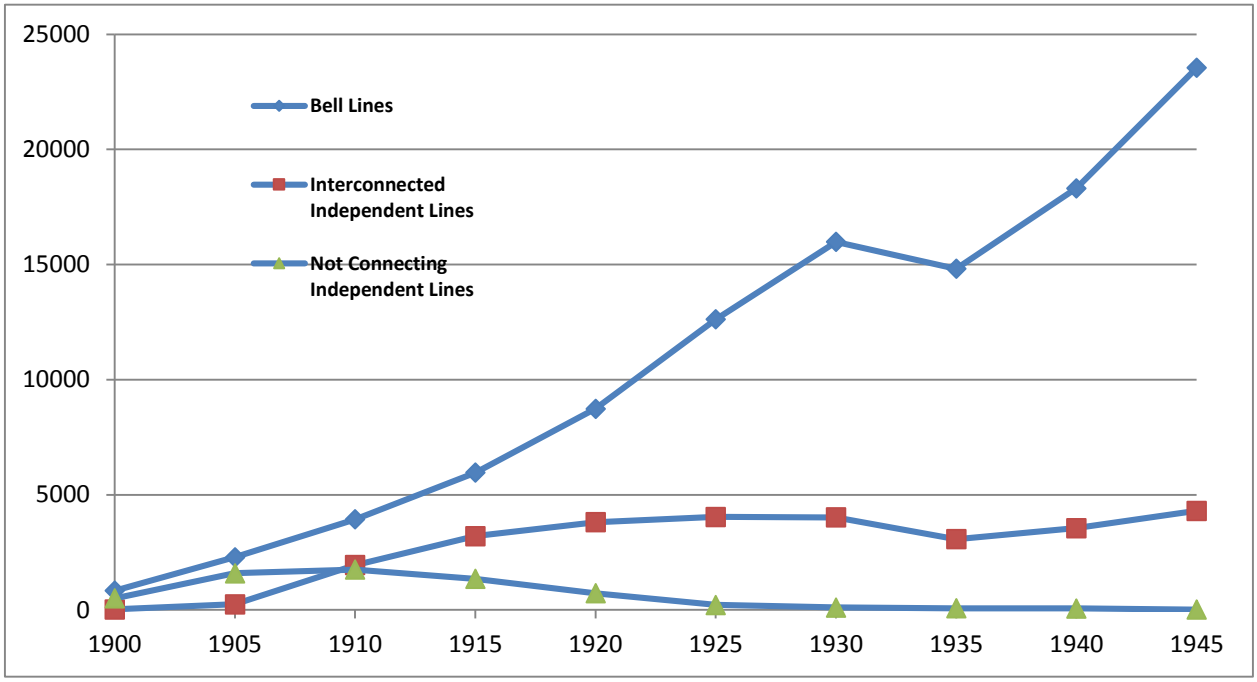
Initially AT&T refused to interconnect with independent networks, but as pressures mounted, they reversed course (see Exhibit II-2). Thus, in 1900 only 4 percent of independent lines were interconnected. By 1905 13 percent of independent phone subscribers were served by independent companies that interconnected with AT&T. By 1910, the number had risen to 53 percent and in 1920 it was 84 percent. The pressures came from Independents, who needed access to a long distance network to provide service that could compete with AT&T, from local businesses, who disliked the need for dual service, and from local regulators who saw duplication as wasteful and the denial of interconnection harmful to local interests.

The dominant carrier, AT&T, agreed to interconnect as part of a strategy that intended to restrict competition. The Independents had difficulty agreeing to interconnect with one another, particularly to build an independent long distance network to compete with AT&T, which would have greatly enhanced their ability to become viable, long term competitors for AT&T. Interconnection AT&T came at a price. AT&T asserted control over quality and imposed the condition that termination of calls in areas where AT&T faced a competitor had to be on the AT&T-affiliated local exchange. In other words, AT&T used its dominant position in long distance as vertical leverage to advantage its local services.

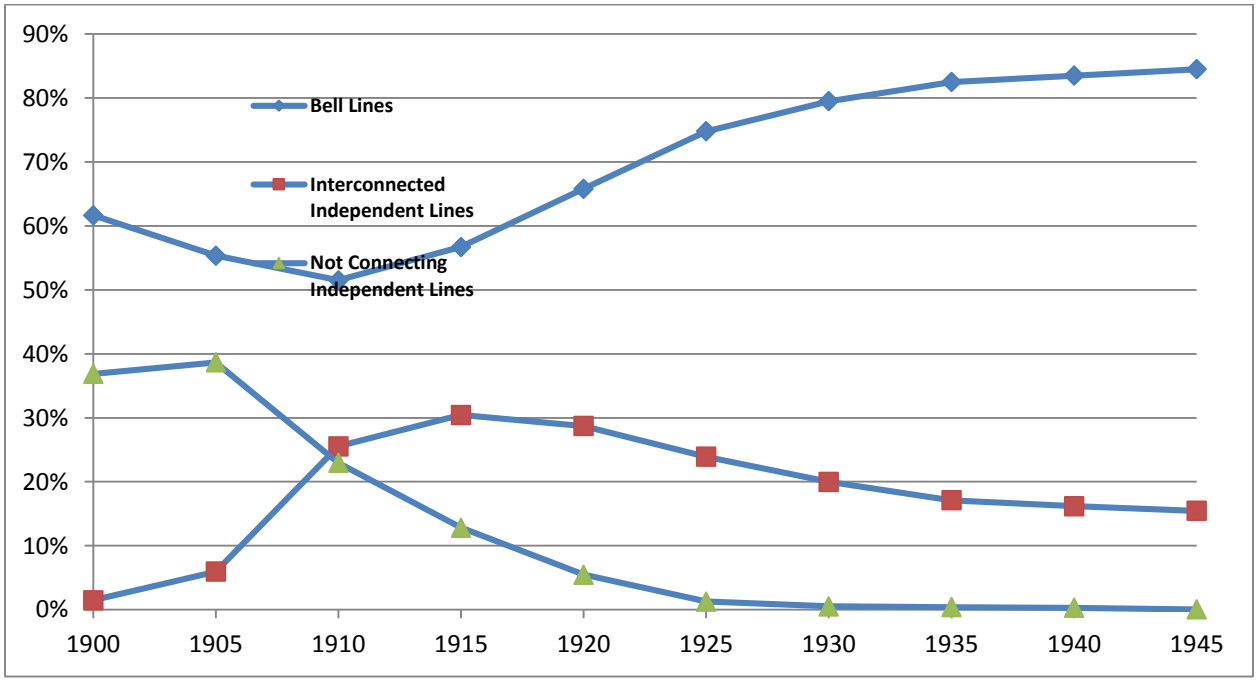
As the states grappled with the problem of lack of interconnection, federal policy makers took notice. It was during the competitive era that state regulation was imposed on local telephone companies, with one of the causes being the need for dual service and one of the consequences

EXHIBIT II-2: INDEPENDENT LINES INTERCONNECTED WITH AT&T

Number of Subscribers



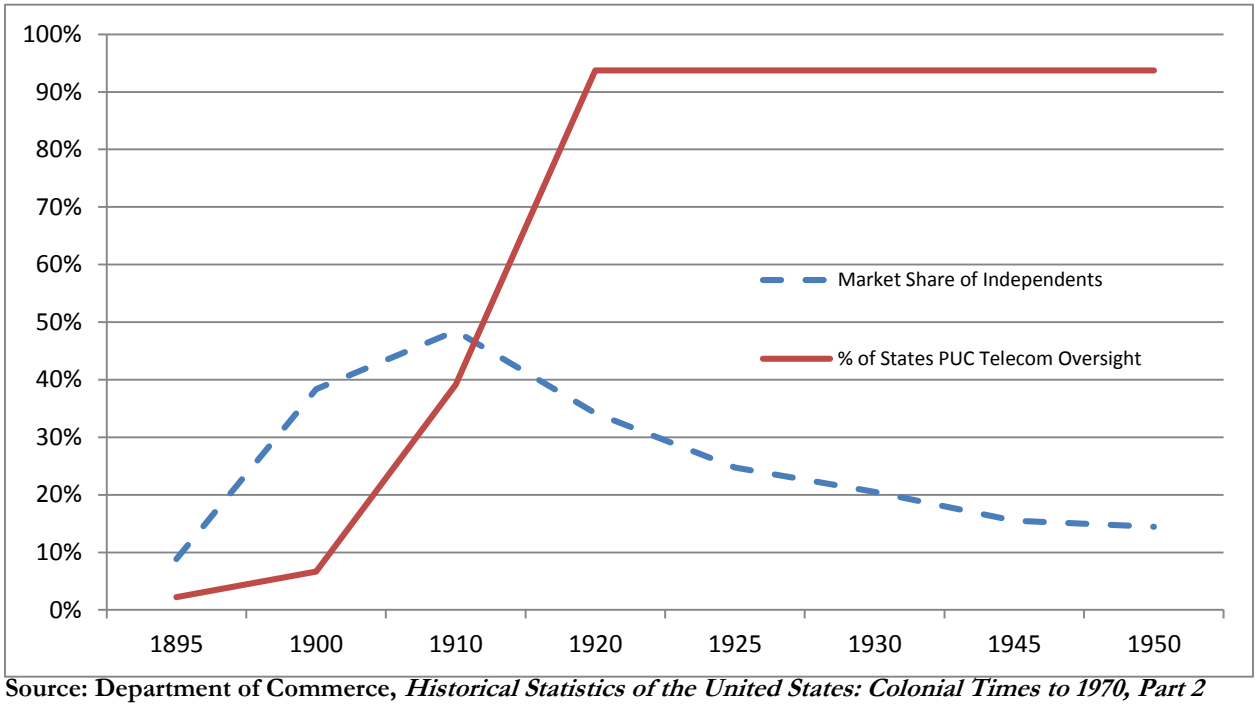
Percent of Subscribers



Source: Department of Commerce, *Historical Statistics of the United States: Colonial Times to 1970, Part 2* (Washington D. C., 1975). P. 783)

being the elimination of competition (See Exhibit II-3). From the of peak access competition with over 40% of subscribers being to non-AT&T companies (and 55% of all service territories, since the Independents tended to serve smaller towns and rural areas) the Independents shrank to 15% by 1965.

EXHIBIT II-3: COMPETITION AND REGULATION



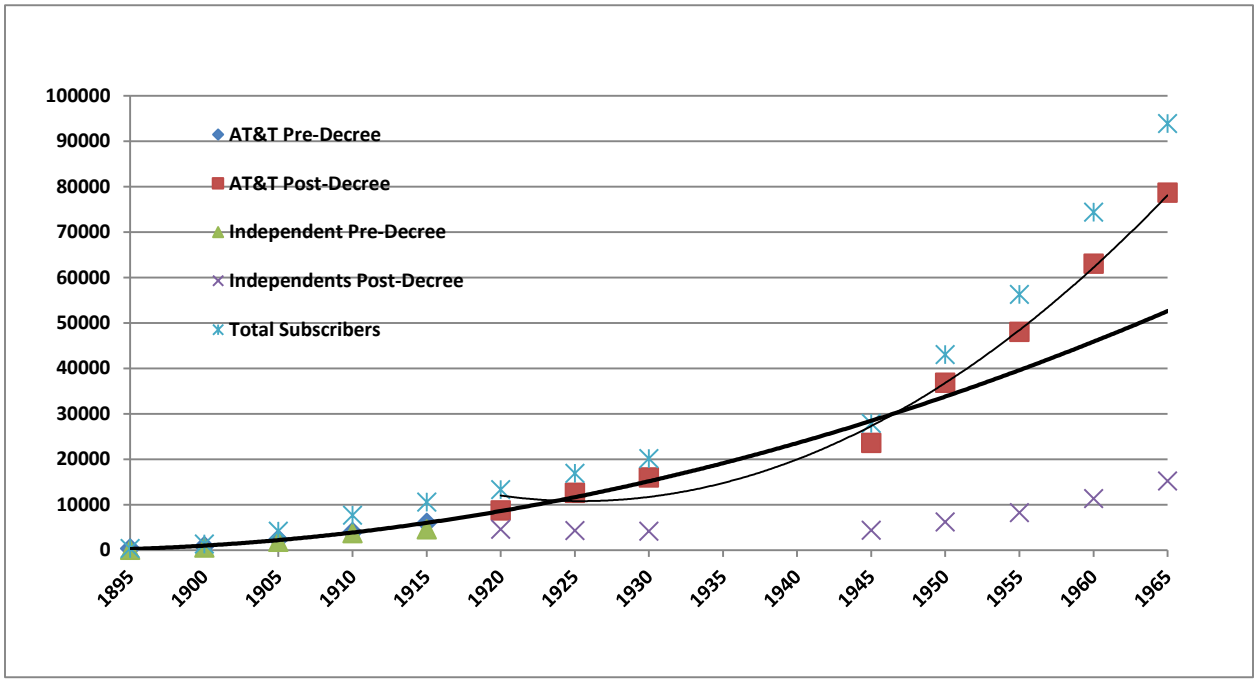
Source: Department of Commerce, *Historical Statistics of the United States: Colonial Times to 1970, Part 2* (Washington D. C., 1975). P. 783); Sources: Alan Stone, *Public Service Liberalism* (1991).

It is difficult to see much difference in the growth of subscribership between the competitive and the post-competitive periods, although the institutional changes make it difficult to sort out "causality." The colinearity of important variables means the competing explanations persist and drive analysts toward qualitative historical accounts (see Exhibit II-4). To be sure, the entry of independents extended telephone service to areas where AT&T had chosen not to go, but generally avoided head to head competition. Ultimately, growth under the monopoly models looks quite like growth during the competitive period.

B. PSEUDO-ACCESS COMPETITION DOES NOT LEAD TO UBIQUITOUS, SEAMLESS NETWORK INTEGRATION

The period of access competition did not produce interconnection. Advocates of competition argue that the problem was that there was not enough competition, so the independents still saw their subscriber base as a source of local market power to be exploited. If there had been more competition, the theory goes, independents would have realized the futility of separate networks and shared the benefits of interconnecting.

EXHIBIT II-4: SUBSCRIBER GROWTH COMPETITIVE PERIOD AND AFTER (000 SUBSCRIBERS)



Source: Department of Commerce, *Historical Statistics of the United States: Colonial Times to 1970, Part 2* (Washington D. C., 1975). P. 783)

> The competing telephone companies, as the discussion above demonstrates, failed to interconnect because there was too little competition rather than too much competition. These companies tried to use local exchanges as strategic bottlenecks in developing telephone systems. [37]

In this theory, the competitive access approach to interconnection requires not only a sufficient number of viable competitors to eliminate the allure of exploiting the local monopoly; it also requires vertical separation between local and long distance and vigorous antitrust oversight to prevent collusion.

> Separating the exchanges from the companies (or associations) providing long distance might have fostered interconnections and prevented the Bell system from establishing a monopoly over the national telephone system. Lacking any system-building incentives, local exchanges would have had strong incentives to either interconnect with each other or interconnect with a common-long distance company. There is no reason to believe that local exchange would have foregone these opportunities for mutually advantageous trades. This policy would have maintained a quasi-competitive local exchange market and, perhaps, a quasi-competitive long-distance market. On the other hand, the incentive to collude between competitive local exchanges and between local exchanges and long-distance companies might have required vigilant oversight over such an industry.

The question if not whether there is a range on the supply curve where marginal costs are rising, but how many competitor are sustainable when that scale has been reached. The question of

[37] Robert Bornholz and David Evans, "The Early History of Competition in the Telephone Industry," in *Breaking Up Bell: Essay on Industrial Organization and Regulation* (North Holland, New York, 1983), p. 33.

economic viability of competitors becomes critical.[38] Less than a decade after the consent decree required AT&T to interconnect and provide equal access to its long distance network, the competing firms that were identified in the decree were on the brink of bankruptcy and asked the court to lift the decree so they could merge. Destructive competition, in which rates were driven to non-compensatory levels contributed to the outcome.[39] The independents were too small to survive, but too big to be convinced that they should give up their local market power to join an integrated national network. The policy sweet spot of access competition is extremely small and the goal of "quasi-competition" is not all that attractive.

The challenge of finding this policy sweet spot is particularly difficult where there are multiple potential sources of vertical leverage and monitoring complex behavior is particularly difficult. Not only must policy hope that minimum efficient scale will support enough competition to induce integration, but it must prevent vertical integration across a number of linked products and police collusion.

Faced with this improbable scenario in which access competition can be relied on (in part) to yield interconnection, an alternative approach is to argue that ubiquitous, seamless integration is no longer desirable. Mueller argued that demand side economies of scale and advancing technologies change the policy terrain. He suggests that integration is "no longer an unqualified good, as it may have been in the era of Vail."[40] With technological change "in the present environment, it is easier to achieve various levels or gradations of compatibility and interconnection. Thus, it is unlikely that users will be confronted with the stark, choice between interconnection and no interconnection they faced in the past."[41]

Underlying this alternative view of interconnection are hypotheses about technology and consumer demand.

> As fears about privacy and security grow, and technologies such as voice mail and caller ID gain popularity, one can only conclude that today's users are as interested in controlling and restricting access as they are in broadening it. To many people, the indiscriminate intrusion of a universal "information superhighway" into their home or business is about as welcome as the presence of an eight-lane interstate highway in their backyard.
>
> The typical business card today carriers three or four different user addresses – one each for a telephone, a cellular phone, a fax and an electronic mail address, or a pager. There may be

[38] Mueller argues that supply side economies of scale are less important than people thought, citing statements by industry executives and findings that marginal costs are rising. He depicts the supply curve as one with only slightly rising marginal costs. Mueller misses the fact that there is a wide range of production in which the average costs are falling. The important questions for competition is not simply whether marginal costs are rising or falling, but whether the minimum efficient scale in the industry is small enough to support vigorous competition. If it is not, then the industry will not be vigorously competitive. He does recognize that current network economics may indicate the industry is in a range of declining cost, which makes competition difficult.

[39] Stone, p. 131-135, argues that comparative analysis of market performance in areas before, during and after competition across time, as well as between areas with and without competition, leave the claims for the superiority of competition, at a minimum, in doubt.

[40] Mueller, p. 187.

[41] One final point made by Mueller is important. He notes that the way we use the concept of universal service today quite different that the one used by Vail in 1908, although the 1934 is closer to contemporary usage. somewhat different that the way it was stated in the 1934 Act, but I think the intent of the Act was not fundamentally different. The concept as used today is quite different that the Vail used in 1908. Mueller is right about Vail who intended it as a commitment to interconnection, which is important. But the fact that the public service obligations of communications and transportation carriers has evolved over the course of half a millennium is not the insult that Mueller seems to think it is. Because his analysis is ahistorical, seeking to derive lessons for interconnection policy today by focusing on the short period of access competition, which lasted for only a couple of decades in a history that is approaching six hundred years, he vastly overstates its potential. The public service obligations evolve in a progressive manner over time, an evolution that has accelerated with the acceleration of technological progress. It is a fact of life, not a mistake of analysis.

> additional information about internal, enterprise networks. Compared to that, the advertisements of the dual service era, in which businesses had to list two different telephone numbers, seem simple… Indeed, a large number of users now have two incompatible and unconnected "telephones" on their desk. One is the traditional voice telephone connected to the public switched network, the other is a computer equipped with Internet voice transmission software…
>
> It is possible that technological and institutional difference between the past and the present have tilted the social optimum away from integration and toward more tolerance of heterogeneity, fragmentation, and competition."

The argument is based on several dubious assumptions. Heterogeneity and competition at the application layer does not require fragmentation at the physical layer. At the time these observations were offered, the Internet almost certainly rode on the public switched network. In that sense, they were not "incompatible and unconnected." In short order, voice over Internet protocol rendered the two completely compatible and connected. It is the incumbents who have historically resisted interconnection and interoperability that have blocked it on occasion and would certainly like to change the terms and conditions of interconnection in the digital age.

The value of ubiquitous seamless integration lies in the optionality of group formation.[42] The option value of the communications network does not lie in who you did talk to, but who you could talk to. The problem is that the subgroups of consumers who would like to talk to each other are hard to know in advance and the choices of subscribers with whom one wants to communicate may not be static. Who you want to talk to may change over time. That option value has grown dramatically in the digital age and is reduced by fragmentation of networks. Designing networks that cater to individual consumer needs is difficult and would result in severe fragmentation. This ignores the transaction costs of knowing which service reaches which customers and suppliers.

The exaflood of data and the sharing of information on social media suggest that users value access a great deal more than they value restriction of access. Users would certainly like more control of their data, but they clearly want to have and use access.

C. DEREGULATED NETWORK INDUSTRIES DO NOT EMBRACE SEAMLESS INTEGRATION

Infrastructure network industries in other circumstances without regulated integration suggest that it is not an outcome to be expected in the marketplace.[43] The inclination to use local market power to extract rents and undermine competition, rather than interconnect was as strong at the turn of the 21st century as it was at the turn of the 20th. In the airline and railroad industries interline movements were among the first victims of deregulation. Network operators want to drive end-to-end traffic onto their networks and they develop elaborate strategies for doing so.[44] In each

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[42] David Reed, "Sneaky Exponential." http://en.wikipedia.org/wiki/Reed%27s_law; Cooper, Wi-Fi to Wikis and Open Source,"

[43] Mark Cooper, "The Downside of Deregulation: A Consumer Perspective After A Decade of Regulatory Reform," Plenary Session, Consumer Assembly, February 12, 1987; "Protecting the Public Interest in the Transition to Competition in Network Industries," The Electric Utility Industry in Transition (Public Utilities Reports, Inc. & the New York State Energy Research and Development Authority, 1994); "Restoring the Balance of Public Values and Private Incentives in American Capitalism," Too Much Deregulation or Not Enough, Cato Institution, November 1, 2002; "Recognizing the Limits of Markets, Rediscovering Public Interest in Utilities," in Robert E. Willett (ed), Electric and Natural Gas Business: Understanding It! (2003 and Beyond) (Houston: Financial Communications: 2003); "The Failure Of Market Fundamentalism: What Are The Issues In The ICT Sector?" The New Economics of ICT: Implications of Post-Neoclassical Economics for the Information Communications Technology Sector, Columbia University, March 20, 2009.

[44] Airlines have developed the hub and spoke structure, which was not predicted by deregulatory theory. "Freeing Public Policy From The Deregulation Debate: The Airline Industry Comes Of Age (And Should Be Held Accountable For Its Anticompetitive Behavior), American Bar Association, Forum On Air And Space Law, The Air and Space Lawyer, Spring 1999. Railroads have developed "paper barriers" to prevent short lines from interconnecting with multiple long-haul railroads, "The Trouble with the ICC and the Staggers Act," Pacific Shipper, June 1, 1987; Bulk

of the cases of deregulation, the post-deregulation of the industry looked nothing like the pre-deregulation competition theory predicted, yet policy makers are urged to just plow ahead, in spite of the fact that behavior contradicts the theoretical basis for deregulation.

The telecommunications sector is not an exception. The reconstitution of integrated local and long distance companies through mergers by firms that also dominate wireless and have joint ventures with their closest cable rivals, bears no resemblance to the "sweet spot" that the pre-divestiture theory identified as the place where quasi-competition might produce "voluntary" integration between independent networks. Special access services, which allow competitors to interconnect with the wireline telecommunications network, have been a source of constant complaint about abuse since it was deregulated.[45] The FCC has successfully asserted jurisdiction over roaming charges for wireless interconnection.[46] In the realm of interconnection, even though the FCC asserted authority to compel interconnection, the telecommunications carriers have ignored, pushed the limits of, and violated the FCC's rules in a short period of time, suggesting that absent the principles integration will not be observed.

In fact, in each of these network infrastructure industries we observe a period of pseudo-access competition (quasi-competition is too strong a word).[47] Small, "mom and pop," service providers crop up in unserved areas to extend service. Head-to-head competition does not make sense to these entrants and is quite rare. Interconnection also is not attractive to them, as they guard their local monopoly as a source of potential rents. In order to get going, the small entrants rely on inferior technology, offer services on non-compensatory rates, and fail to maintain their quality of service. In short order, there is a wave of bankruptcies and buyouts. Advocates of competition, ignoring economics of scale and the rigors of minimum efficient scale, wave their arms in the air about the evils of concentration.

This pattern occurred in the railroads (1860s-1870s), telephone (1910s-1930s) and the cable industry (1970s- 1990s) and cellular service (2000-2010).[48] Incumbent telecommunications carriers strangled competition where it represented a threat, as in the Baby Bell approach to interconnection with the Competitive Local Exchange Carriers after the Act. To the extent there is end-to-end seamless integration of infrastructure communications networks, that is the result of mandated integration

Ironically, a claim that an especially weak form of pseudo-access competition (especially weak because it was not head-to-head, intramodal competition, but intermodal competition) would discipline market power in broadband access played a key role in leading the FCC to misclassify high speed data transmission as an information service. Pseudo-competition quickly gave way to a monopoly, or at best a cozy duopoly in access.[49] As shown in the Section III, speculation about the possibility of future competition that might develop was a very weak and illegal basis on which to pin the future of the public service principles of the Communications Act. Congress placed a much

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Commodities and the Railroads After the Staggers Act: Freight Rates, Operating Costs and Market Power, October 1987; "Comments of The Consumer Federation Of America On November 2008 Report Of L.R. Christensen Associates, Inc." United States Of America, Surface Transportation Board, Ex Parte No. 680, Study Of Competition In The Freight Rail Industry, December 22, 2008

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46 The interconnection between the wireless and wireline networks has been subject to FCC authority under title III throughout.

47 Crawford, 2013.

48 Crawford, 2013, notes each of the short periods of competitive access giving way to monopoly markets.

49 Lessons From 1996 Telecommunications Act: Deregulation Before Meaningful Competition Spells Consumer Disaster (Consumer Federation of America, February 2000); The Failure of 'Intermodal Competition in Cable and Communications Markets (Consumer Federation of America and Consumers Union, April, 2002).

higher value on the principles and established a much more rigorous process to relax regulation, a process that the FCC mistakenly ignored.

D. THE INADEQUACIES OF COMMAND AND CONTROL REGULATION TO GUARANTEE PUBLIC SERVICE PRINCIPLES IN THE DIGITAL COMMUNICATIONS SPACE

As noted above, the 20th century approach to promoting the public service principles of the communications sector relied on command and control regulation. Some would like to extend it, lock, stock and barrel to the 21st century digital network.[50] Yet, there are good reasons to believe that command and control regulation is not well-suited to the new mode of production. Repeating the historic pattern, new enforcement mechanisms are needed.

First, the dynamic, complex and interconnected nature of the 21st century economy, particularly those sectors touched by digital technologies, makes it difficult for centralized, bureaucratic oversight to write and enforce regulation.[51] Ponderously slow moving common carriage may have been well-suited for railroad tracks, copper wires, electricity grids, and water pipes whose products are relatively homogeneous and static, but it is ill-suited to the dynamic digital environment. Given that common carriage was the exception in the long history of public service principles we should be open to alternative ways of ensuring nondiscrimination in the digital economy, even as we reject the *ex post* approach.

The magnitude of the difference between the digital communications space and other infrastructure networks is stunning. Two analogies that are frequently made are the highway system and electricity. The former is a public sector undertaking. The latter is a regulated private utility. In the five decades from 1960 to 2010, the output of these two infrastructure industries increased by more than four fold. In contrast, the traffic flowing on the Internet increased four-fold every two years between 1996 and 2006, and doubled every two years from 2006 through 2011. The increase in the diversity of traffic was also orders of magnitude greater than in the other network infrastructure industries as well.

Second, the legitimacy of the state to exercise authority is weakened in an increasingly complex environment, where the complexity is, in part, the result of the enrichment and growth of the communications capabilities. The command and control model reflected the passive representational pattern of the 19th and 20th century. The command and control regulation rests on the assumption of delegation of authority from a passive public to an expert agency through institutions of representative democracy. . In light of the dramatic increase in communications and empowerment at the edge, the traditional approach to democratic participation has become stale. The 21st century citizenry is vastly more heterogeneous and active. The borderless, transnational

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[50] Crawford, 2013.

[51] "[I]ndustry-led approaches can play an important role in delivering regulatory objectives: these can help address an issue quickly and flexibly while benefiting from industry expertise, often at a lower cost to society than formal regulation. Timeliness and flexibility of solutions are particularly critical in fast moving, technologically complex communications markets." Identifying Appropriate Regulatory Solutions: Principles for Analysing Self- and Co-Regulation, Office of Communications (U.K.) 4 (Dec. 10, 2008), http://stakeholders.ofcom.org.uk/binaries/consultations/coregulation/statement/statement.pdf "A common theme is that traditional regulation is not suited to meet many contemporary policy needs (although as we emphasize below, it still has a role to play), and indeed it is partly in response to the perceived shortcomings of the regulatory status quo . . . . 'underlying each strand in the literature is the belief that the increased complexity, dynamism, diversity, and interdependence of contemporary society makes old policy technologies and patterns of governance obsolete.' Neil Gunningham, Reconfiguring Environmental Regulation: The Future Public Policy Agenda, conference paper presented at Environmental Law in a Connected World, La Follette Sch. Pub. Affairs, U. Wis. – Madison 9 (Jan. 31, 2005) available at http://www.lafollette.wisc.edu/research/environmentalpolicy/gunninghamreconfigure.pdf (quoting Daniel Fiorino, Rethinking Environmental Regulation: Perspectives from Law and Governance, 23 Harv. Envtl. L. Rev. 441, 464 (1999)); See also Denis D. Hirsch, The Law and Policy of Online Privacy: Regulation, Self-Regulation, or Co-Regulation?, 34 Seattle U. L. Rev. 439, 458 (2011).

nature of the Internet resource system compounds the problem of weakening state authority. Because information flows are so fluid and multinational, it is argued that the challenge to national authority is well beyond the typical international challenge.[52]

The above two factors involve very fundamental economic and political problems with command and control regulation. These have been compounded by more superficial, but important factors. The traditional approach to formal, notice and comment regulation was based on the belief that expert agencies could do a better job than political bodies like legislatures in designing regulation to deal with the day-to-day functioning of industries. Once the regulatory agency becomes politicized, it loses its advantage.[53] The model of an expert agency relied upon to implement broad goals has been undermined by the politicization of the regulatory process. Moreover, traditional regulation is not likely to work very well because the ability of the state to implement and enforce regulation has been undermined by systematic and persistent defunding of regulatory agencies.[54] Decades of anti-government and pro-market rhetoric have taken their toll. The agencies now lack the resources to do their jobs. In the United States, the number of regulatory and antitrust employees per dollar of value they oversee in the economy at large and the communications sector is one-fifth the level it was in 1970.[55] Compared to profits and assets, agency budgets are less than half the level they were in 1970.

None of these factors is likely to be reversed any time soon. Rather than expending a great deal of effort trying to rehabilitate an enforcement mechanism that is not likely to work very well, even if it is resurrected, public policy should embrace new approaches to advancing and enforcing the expanding set of public service principles.

E. EXPANSION OF ACCESS IN THE 3RD INDUSTRIAL REVOLUTION: CREATING SPACE BETWEEN THE MARKET AND THE STATE

The search for a new model to advance the public service principles without undermining the dynamic nature of the core communications resource system of the digital economy need go no farther than the examples provided by the digital revolution, itself. The Internet protocols and the development of Wi-Fi are remarkable communications systems based on brutally simple obligations of interconnection and integration that are open to all on a nondiscriminatory basis and supported by voluntary standards, managed by multi-stakeholder processes that promote interoperability. A key

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[52] Elena Pavan, *Frames and Connections in the Governance of Global Communications: A Network Study of the Internet Governance Forum* (Lanham: Lexington Books, 2012), at xxix. (citations omitted). . Pavan presents a concise summary that sweeps across all of the issues discussed up to this point.. [W]e are standing in an epoch of overall political uncertainty caused, in the first place, by the fact that states have to face multiple and complex issues that extend beyond the boundaries of their sovereignty and, more importantly, that require an incredibly large amount of competency to be managed adequately. This does not mean that states have lost their functions: institutions continue to be the sole agents in charge of producing policies. What changes is that they can no longer perform their functions "behind closed doors" but, rather, find themselves forced to act within a very crowded environment, populated by a multiplicity of non-institutional actors who possess the required knowledge and the expertise for managing complex and dynamic global issues. How to translate the necessity for multiactor collaboration into efficient governance arrangements remains an open question. This is particularly true in the case of information and communications matters, where technical and social aspects are both relevant and so interwoven that, when it comes to their regulation, governments have to coordinate a plurality of interests, knowledges, agendas, and priorities but often are not equipped with the necessary competencies to do so.

[53] *See* Jo Becker & Barton Gellman, *Leaving No Tracks*, WASH. POST, June 27, 2007, at A01, *available at* http://voices.washingtonpost.com/cheney/chapters/leaving_no_tracks, Which suggests that while producers complain about the involvement of public interest groups, it is certainly true that there has been a politicization of the process on both sides and industry has generally gotten the best of it, symbolized by Vice President Dick Cheney's campaign against environmental regulation in which he told his clients to "match the science.".

[54] See Mark Cooper, Crowd Sourcing Enforcement: Building a Platform for Participatory Regulation in the Digital Information Age, presentation at The Digital Broadband Migration: The Dynamics of Disruptive Innovation, SILICON FLATIRONS CTR. (Feb. 12, 2011), http://siliconflatirons.com/documents/conferences/2011.02.13/MarkCooperPresentation.pdf.

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spark is provided by a regulatory decision of guarantee access, while a backstop of the threat of further governmental oversight ensures that access is available.

In both cases, the government had an important role in creating the environment in which an entirely new approach to communications could thrive. This is a space that lies between the market and the state in the sense that the abuse of power by dominant communications companies and government regulators was held in check.

The Caterfone and the Computer Inquiries launched in the late 1960s ensured that nondiscriminatory access to the telecommunications network would extend to the flow of data and that innovation in customer premise equipment could flourish.[56] The dominant incumbent telecommunications carrier despised the idea of a decentralized communications protocol and would have quickly throttled it by denying access had they been allowed to, just as they had done a century earlier at the start of the telephone age. Without decisive public policy action by the FCC, the telecommunications companies might have defeated decentralized communications altogether, certainly would have slowed its development down and probably would have distorted its growth, if only by forcing the government to regulate the space more intensely. The voluntary action of the developers of the new communications protocol to fill the space opened by government action was a key ingredient for success. The social institutions they developed and used to manage the decentralized network for thirty years deserve close study and deference as candidates for the future governance structure of the communications network.

Caterfone and the Computer Inquiries must be seen as the origin and foundation for a significant shift in the thrust of public policy with respect to the communications network. They introduce the possibility for innovation at the edge of the network as a primary driver of economic activity.[57] Once any device can connect and transmit information, individuals are free to invent new uses and applications. Functionalities that were monopolized by the network operator or, more importantly, never dreamed of, explored or developed by them become possible. The critically important change is to ensure that traffic flows first and shift a heavy burden onto the network operator to show that it should not. When the broader digital revolution located an immense amount of intelligence at the edge of the network with the personal computer, the possibilities became virtually limitless.

AT&T's desire for centralized control did not go quietly into history. It repeatedly complained that services and communications by innovators should be stopped. By resisting the attempts of AT&T to burden the decentralization of innovation, the FCC established an environment in which innovation at the edge could flourish. Innovation at the eedge becomes the driving force for economic and productivity growth.

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[56] Robert Cannon Where Internet Service Providers and Telephone Companies Compete: A Guide to the Computer Inquiries, Enhanced Service Providers and Information Service Providers, Version 6.0, July 2001.

[57] Tim Wu, *The Master Switch* (New York: Knopf, 2010), pp. 190-191, The phone jack and the Caterfone decision made it possible to sell to the public devices like fax machines and competitively price (non-Bell) telephones. They also made possible the career of Dennis Hayes, a computer hobbyist ("geek" is the term of art) who, in 1977 built the first modulator/demodulater (modem) designed and priced for consumers… He built, that is, the first consumer device that allowed personal computers to talk to each other, and with that you can spy the first causal relations between the federal deregulation of the 190s and the birth of the Internet…. with strange and unprecedented foresight, the FCC watered, fertilized, and cultivated online computer services as a special protected industry, and, over the years, ordained a set of rules called the *Computer Inquiries,* a complex regime designed both to prevent AT&T from destroying any budding firm and also to ensure that online computer services flourished unregulated. What matters so much for the fate of telecommunications and our narrative is that he infant In short, in these obscure and largely forgotten regimes, the new FCC played surrogate parent to the Internet firms.

The mid-1980s spread spectrum rulemaking adopted by the FCC to allow everyone and anyone to have access to radio frequencies, which had been considered garbage by the commercial users of the public airwaves, subject to simple rules of use, had a similar effect.[58] It ensured access to an irreplaceable, raw communications resource in the most deregulatory, free market approach imaginable, unlicensed, universal access. The private sector concluded, to its credit, that a common communications protocol would expand the market and the best approach was to create voluntary institutions to adopt and defend those standards. Had they not done so, there is a good chance that the government would have stepped in to ensure interoperability, with rules that would have been significantly less friendly to innovation, entrepreneurship and consumers.

In both cases, the rules were structured in such a way that the government did not have to get involved in the day-to-day regulation of behavior. In both cases, because of the deregulatory age in which these decisions were made, the presumption was shifted in favor of the freedom to act. The incumbent network operators had to show that devices would harm the network, or data traffic should not be allowed to flow, which they rarely, if ever were able to show.

For three decades encompassing the birth, childhood and adolescence of the digital communmications revolution, Internet traffic flowed freely over the telecommunications network (free as in speech, not as in beer) under the Computer Inquiries to devices that were made possible by the Carter phone decision. Shifting to an approach that offered *ex ante* freedom and required the powerful incumbent to prove *ex post* harm to the network, rather than requiring the entrants to show *ex ante* they would do no harm (by offering a simple certification standard and process) is a key pillar on which future interconnection policy should stand.

The model worked precisely because it was located between the market and the state. The state used its power to create a space that was free from the worst instincts of both the market and the state, and the private actors who wanted to enter that space realized that they needed to regulate themselves in a manner consistent with the principle of nondiscrimination, which they equated with interoperability.

Ironically, the telecommunications infrastructure network operators had the opportunity after the Cable Modem Orderwith the declaration of the four Internet freedoms, and again after the Wireline broadband order, and the Network Neutrality order to follow the model of the IP-community and the Wi-Fi-community. They could have filled the space opened by the Cable Modem and Wireline Broadband orders with a vigorous voluntary process to demonstrate a commitment to the four freedoms. They failed utterly to do so, immediately attacking and infringing the principles. History repeats itself; incumbent network operators have never willingly conceded constraints on their market power in half a millennium. Open spaces like the Internet and Wi-Fi protocols are the meat and potatoes of new entrants and entrepreneurs; but anathema to entrenched network incumbents.

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[58] Mark Cooper, "Governing the Spectrum Commons," September 2006. *Telecommunications Policy Research* Conference, October 2006; Efficiency Gains and Consumer Benefits of Unlicensed Access to the Public Airwaves: the Dramatic Success of Combining Market Principles and Shared Access, January 2012; Comments Of The Consumer Federation Of America, Before the Federal Communications Commission, *In the Matter of Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auction Revisions to Rules Authorizing the Operation of Low Power, Auxiliary Stations in the 698-806 MHz Band, Public Interest Spectrum Coalition, Petition for Rulemaking, Regarding Low Power Auxiliary Stations, Including Wireless, Microphones, and the Digital Television Transition, Amendment of Parts 15, 74 and 90 of the Commission's rules, Regarding Low Power Auxiliary Stations, Including Wireless*, Docket No. 12-268, WT Docket No. 08-166, WT Docket No. 08-167, WT Docket No. 08-167, ET Docket No. 10-24, January 25, 2013.

The flexible, multi-stakeholder approach to implementing public service principles that are well-defined in statutes, is a challenging process, but one that has proven successful and holds much greater potential for success than the alternatives. The approach has been broadly embraced by the Internet community and important policymakers. Exhibit II-5, drawn from an OECD policy Communiqué that U.S. authorities helped to develop and have embraced, reflects the importance of the public service principles, the vital role that the state plays in implementing them, and also the desire to have voluntary, multi-stakeholder processes accomplish as much of the goals as possible. The key observation here is that striving to use flexible, civil society processes as much as possible does not require one to disavow the importance of the role of state in defining and defending the public service principles.

III. THE LEGAL FOUNDATION FOR PUBLIC SERVICE PRINCIPLES TO GOVERN THE DIGITAL COMMUNICATIONS NETWORK

This section shows that the FCC has the tools to maintain and advance the public service principles of the communications network as it transitions from 20th century (TDM) switching facilities to 21st century (IP) switching facilities. Its ability to do so has been made more difficult by an initial decision that appears to have placed its authority to implement the Communications Act for advanced telecommunications services in doubt, but that is a reversible error.[59]

The FCC ended up in the wrong place because it took the wrong approach to a narrow consideration of only one of the public service obligations of telecommunications carriers. Consideration of the full range of issues and the full body of evidence demonstrates that there is strong legal, historical, policy, technological and economic evidence to support the classification of high speed data transmission as a telecommunications service. Thus, when considering the full range of policy issues raised by the petitions to sunset the public switched telephone network, classifying high speed data transmission would not be a matter of "reclassifying" high speed data transmission as a telecommunications service; it is more a correction of its partial misclassification as an information service.

A. ADVANCED TELECOMMUNICATIONS SERVICES ARE TELECOMMUNICATIONS SERVICES THAT ARE GOVERNED BY THE PUBLIC SERVICE PRINCIPLES OF THE ACT

As noted above, the goals of the Communications Act of 1934, referred to as the public service priciples or public interest obligations of telecommunications carriers include integration (nondiscriminatory interconnection and carriage), universal service, public safety, access for people with disabilities, consumer protection, and protection of consumer privacy. The goals are stated in the first sentence of the Communications Act and the statute links those goals directly to the tools for achieving them, which are laid out in Titles II and III. In these subsequent Titles the Congress not only defined the public interest goals with precision, it also identified the specific tools and procedures that the Commission should use to accomplish them. The Telecommunications Act of 1996 reaffirmed the commitment to these goals and strengthened them in several ways.

[59] Mark Cooper, "Handicapping the Next Network Neutrality Court Case," NARUC, Summer Meeting, Sacramento, July 2010.

EXHIBIT II-5: PUBLIC SERVICE PRINCIPLES IN THE GLOBAL CONTEXT: OECD COMMUNIQUÉ ON PRINCIPLES FOR INTERNET POLICY-MAKING

We recognised the essential contribution of stakeholders, including business, civil society, the Internet technical community and academic institutions, to the ongoing development of the Internet and the enrichment of society using the Internet….

We emphasised that, in certain cases, public support and investment may be needed to ensure the greatest practical availability of these networks in our countries, in particular in rural and remote areas, and that such public intervention should support market competition and promote private investment initiatives…

The roles, openness, and competencies of the global multi-stakeholder institutions that govern standards for different layers of Internet components should be recognised and their contribution should be sought on the different technical elements of public policy objectives. Maintaining technology neutrality and appropriate quality for all Internet services is also important to ensure an open and dynamic Internet environment. Provision of open Internet access services is critical for the Internet economy…

Suppliers should have the ability to supply services over the Internet on a cross-border and technologically neutral basis in a manner that promotes interoperability of services and technologies, where appropriate. Users should have the ability to access and generate lawful content and run applications of their choice. To ensure cost effectiveness and other efficiencies, other barriers to the location, access and use of cross-border data facilities and functions should be minimised, providing that appropriate data protection and security measures are implemented in a manner consistent with the relevant OECD Guidelines…

Governments may be able to achieve certain policy goals through flexible, adaptive means by encouraging, facilitating and supporting the development of codes of conduct that are supported by effective accountability mechanisms… Such co-operative efforts should be balanced and consistent with the applicable legal framework and where those co-operative efforts are not forthcoming, other policy options consistent with these principles should be considered in consultation with relevant stakeholders…

Strong privacy protection is critical to ensuring that the Internet fulfils its social and economic potential. Current privacy challenges are likely to become more acute as the economy and society depends more heavily on broadened and innovative uses of personal information that can be more easily gathered, stored, and analysed… Privacy rules should be based on globally recognised principles, such as the OECD privacy guidelines, and governments should work to achieve global interoperability by extending mutual recognition of laws that achieve the same objectives. Cross-border enforcement co-operation will further protect privacy and promote innovation. Privacy rules should also consider the fundamental rights of others in society including rights to freedom of speech, freedom of the press, and an open and transparent government.

Low barriers to entry enabled by the open platform nature of the Internet environment have been crucial to online creativity and innovation. Policies and practices should continue to encourage and promote an Internet environment which is conducive to launching creative and innovative technologies, businesses, and other endeavours that respect recognised legal rights without having to obtain permission or affirmative co-operation from established service providers.

Encouraging investment and innovation in the Internet marketplace requires clearly defined legal rights and a robust and fair process to protect those rights, including users' rights, consistent with the need of governments to enforce applicable law. It is important in this regard that governments, industry and civil society work together to foster respect for the law and protect fundamental rights. Sufficient government enforcement resources and industry co-operation should also be available to ensure that Internet-based activities comply with law. Current legislative and regulatory provisions could be reviewed to ensure that they can be effectively enforced and are consistent with fundamental rights.

Source: Communiqué on Principles for Internet Policy-Making OECD High Level Meeting On the Internet Economy, 28-29 June 2011

AT&T's petition to sunset the public switched telephone network (PSTN) reveals the fundamental flaw in the approach taken by the Federal Communications Commission to the definition of services since the passage of the Telecommunications Act of 1996. In updating the Communications Act of 1934, the Congress embraced the framing of the definition of services and the approach to regulation that had been developed by the FCC and the courts over the previous quarter of a century. Congress explicitly intended for the public service principles to apply to the evolving telecommunications environment by defining telecommunications services, "regardless of the facilities used" to deliver service to the public. [60]

In affirming and expanding the commitment to universal service, the Congress stated that "the Joint Board and the Commission shall base policies for the preservation and advancement of universals service on the following principles." Among these was access to advanced telecommunications and information services." The definitions clause of the Universal Service section declares "Universal service is an evolving level of telecommunications services that the Commission shall establish periodically under this section, taking into account advances in telecommunications and information technologies and services." The next section, entitled "Access by persons with disabilities," was tied to this definition of telecommunications services.

The close fit between the language of the statue and the underlying technology led the court in the initial test of the definition of telecommunications service applied to cable modem service to conclude that, as a matter of law and policy, high speed data transmission is clearly a telecommunications service.

> Among its broad reforms, the Telecommunications Act of 1996 enacted a competitive principle embodied by the dual duties of nondiscrimination and interconnection. See 47 U.S.C. § 201 (a)… § 251 (1) (1)… Together, these provisions mandate a network architecture that prioritizes consumer choice, demonstrated by vigorous competition among telecommunications carriers. As applied to the Internet, Portland calls it "open access," while AT&T dysphemizes it as "forced access." Under the Communications Act, this principle of telecommunication common carriage governs cable broadband as it does other means of Internet transmission such as telephone and DSL service, "regardless of the facilities used." The Internet's protocols themselves manifest a related principle called "end-to-end:" control lies at the ends of the network where the users are, leaving a simple network that is neutral with respect to the data it transmits, like any common carrier. On this the role of the Internet, the codes of the legislator and the programmer agree.[61]

B. PROVIDING FOR FORBEARANCE FROM REGULATION

The Telecommunications Act allowed the Commission to forebear from applying specific rules in specific circumstances, if it found that those rules were no longer "necessary in the public interest" to accomplish the goals of the Act. It never contemplated that the Commission would give up its authority to adopt policies to achieve the goals. Yet that is exactly what has happened because the Commission mishandled the distinction between information services and the telecommunications facilities that communications carriers use to deliver those services "to the public for a fee."

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[60] Earl W. Comstock and John W. Butler, "Brief of Earthlink Inc., Brand X Internet Service," in Mark Cooper (Ed.) *Open Architecture as Communications Policy* (Palo alto, Center for Internet and Society, Stanford Law School, 2003).

[61] AT&T Corp. v. City of Portland, 216, F.3d 877 (9th Cir. 2000).

In outlining the conditions under which the FCC could forbear from regulation, the Congress was precise and identified the public service principles as touchstones. It requires the Commission to ensure that key public service principles will be protected. It invokes the key nondiscrimination and consumer protection language from section 201, as well as a broader concern about consumer protection.

> (a) REGULATORY FLEXIBILITY- Notwithstanding section 332(c)(1)(A) of this Act, the Commission shall forbear from applying any regulation or any provision of this Act to a telecommunications carrier or telecommunications service, or class of telecommunications carriers or telecommunications services, in any or some of its or their geographic markets, if the Commission determines that--
>
> (1) enforcement of such regulation or provision is not necessary to ensure that the charges, practices, classifications, or regulations by, for, or in connection with that telecommunications carrier or telecommunications service are just and reasonable and are not unjustly or unreasonably discriminatory;
>
> (2) enforcement of such regulation or provision is not necessary for the protection of consumers; and
>
> (3) forbearance from applying such provision or regulation is consistent with the public interest.
>
> (b) COMPETITIVE EFFECT TO BE WEIGHED- In making the determination under subsection (a)(3), the Commission shall consider whether forbearance from enforcing the provision or regulation will promote competitive market conditions, including the extent to which such forbearance will enhance competition among providers of telecommunications services. If the Commission determines that such forbearance will promote competition among providers of telecommunications services, that determination may be the basis for a Commission finding that forbearance is in the public interest.
>
> (d) LIMITATION- Except as provided in section 251(f), the Commission may not forbear from applying the requirements of section 251(c) or 271 under subsection (a) of this section.[62]

This framing very carefully and explicitly separates the public service principles from the competitive aspirations of the Act. Subsection b allows the promotion of competition to meet subsection (a)(3), but subsections (a)(1) and (a)(2) must also be met. Moreover, there are some provisions that are not subject to forbearance.

C. THE TORTUOUS ROUTE TO MISCLASSIFICATION OF HIGH SPEED DATA TRANSMISSION

The strong continuity of the 1996 Act and the regulatory framework that had developed over the quarter century before the amendments to the 1934 Act were adopted provides an important context for the tortuous route that the FCC took to the misclassification of high speed data transmission as an information service. As shown in Exhibit III-1, the classification of mass market, high-speed data transmission service has been up in the air for over a decade.

[62] 47 U.S.C. §10.

EXHIBIT III- 1: THE HISTORY OF A CLOSE CALL, THE REGULATORY AND JUDICIAL TREATMENT OF MASS-MARKET, HIGH SPEED DATA TRANSMISSION SERVICE HAS BEEN UP IN THE AIR FOR OVER A DECADE

Year	Event	Implications for Current Classification Review
1998	Stevens Report	Ambiguous on Classification
1998	Public Interest Groups Petition for Title II Classification	Need for Nondiscrimination demonstrated
2000	Portland v. AT&T Cable: 9th Circuit Court of Appeals finds cable modem service involves telecommunications is subject to Title II	Title II Classification asserted
2000	FTC imposes commercial access condition on AOL-Time Warner	Concern about bottleneck provider expressed
2002	FCC issues Cable Modem Declaratory Order classifying Cable modem service as an information (not telecommunications) service.	Classified Information Service; Title I Authority Asserted, Need to address Communications Act principles affirmed
2003	Brand X v. FCC – 9th Circuit Court of Appeals affirms its Portland v. AT&T and overturns Cable Modem order	Information Service rejected; telecommunications affirmed
2004	Chairman Powell declares Four Internet Freedoms	Importance of Non-discrimination, Consumer protection affirmed
2005	FCC uses Title II authority to investigate undue discrimination by Madison River	Importance of Non-discrimination affirmed
2005	Supreme Court reverses 9th Circuit (6-3) on procedural grounds and upholds FCC information service classification	Information service upheld, Justices debate Title I authority
2005	FCC extends the Information service definition to mass market, high-speed data transmission services offered by telephone companies.	Title I authority claimed; Need to address Communications Act principles affirmed
2005	FCC turns Four Internet Freedoms into a policy statement	Importance of Non-discrimination, Consumer protection affirmed
2006	AT&T agrees to network neutrality Bell South merger condition	Ability to distinguish service demonstrated
2007	FCC finds Comcast illegally discriminated against peer-to-peer applications.	Need for non-discrimination affirmed Technical ability to offer separate services demonstrated
2010	Open Internet Proceeding initiated	Need for Non-discrimination stated, Title I authority asserted
2010	National Broadband Plan	Importance of Communications Act principles affirmed Failure to achieve Communications Act goals documented
2010	D.C. Appeals Court overturns FCC action against Comcast	Title I authority questioned
2010	Broadband Internet Access Notice of Inquiry	Recognizes important of all Communications Act principles Documents failure to achieve goals of the Act.

To begin with, the definition of high speed data transmission service as an information service rested on a theory of "contamination," i.e. that the combination of telecommunications and information services in a "bundle" turns the whole bundle into an information service. This was a reversal of long standing Commission policy and the regulatory structure that provided the model for the 1996 Act.[63] Previously, the presence of telecommunications in the bundlecreated a telecommunications service.

The issue was first litigated before the Ninth Circuit Court of Appeals in 1999, in Portland v. AT&T, when Portland attempted to impose conditions of nondiscrimination on cable modem service. The court concluded that the underlying service was a telecommunications service, which should be subject to the nondiscrimination provisions of the Act.

Later that year, the Federal Trade Commission imposed open access requirements on Time Warner as a condition of approving the AOL-Time Warner merger.

In 2002, the FCC issued it Cable Modem declaratory ruling, which declared it an information service, in contradiction to the Ninth Circuit decision.

Brand X, a small, non-facilities based Internet Service Provider (ISP), appealed the decision to the Ninth Circuit, which affirmed its earlier conclusion, that the high-speed data transmission is a telecommunications component of the service.

While the Supreme Court review of Brand X v. AT&T was pending, the FCC engaged in two acts that seemed intended to quiet fears that classifying high-speed data transmission would undermine the principle of nondiscrimination in telecommunications.

First, Chairman Michael Powell, a vigorous defender of the information service classification, declared that there were four Internet freedoms that should be preserved. They cover several of the public service principles – including integration (ability to connect devices, access content and use applications) and consumer protection (obtaining service plan information).[64] These were later turned into a policy statement of the Commission[65] and were proposed as part of a new Open Internet rule. Second, the FCC brought an enforcement action against a small telephone company for blocking Voice over Internet Protocol, an Internet application that competed with its voice service. In the consent decree, Title II authority was invoked twice – section 201 (a) in the introduction and section 208, in the body of the consent decree. In other words, three weeks before the oral argument in the Brand X case and less than four months before the ruling, the FCC was using its Title II authority to prevent undue discrimination in access to the telecommunications network. Two years later, the FCC found a cable operator had violated the nondiscrimination policy of the Commission.

A split (6-3) Supreme Court reversed the Ninth Circuit and upheld the FCC's definition of high speed data transmission as an information service, based on purely procedural grounds, concluding the agency should be afforded Chevron deference in an ambiguous situation.

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[63] Comstock and Butler, 2003.
[64] Michael Powell, "Preserving Internet Freedom: Guiding Principles for the Industry," *Journal of Telecommunications and High Technology Law,* 3:2004.
[65] August 5, 2005.

The reversal of the Ninth Circuit ruling was even a closer call than the math indicates. In his concurrence Justice Breyer emphasized the closeness of the decision saying, "I join the Court's opinion because I believe that the Federal Communications Commission's decision falls within the scope of its statutorily delegated authority – though perhaps just barely."

The dialogue between the Justices foreshadowed the controversy that continues to this day. While defending agency discretion, Justice Breyer went on to point out that agency discretion might not apply in cases where "Congress may have intended not to leave the matter of a particular interpretation up to the agency, irrespective of the procedure the agency uses to arrive at that interpretation, say where an unusually basic legal question is at issue."[66] In a second concurrence Justice Steven pointed out that overturning an Appeals Court for second-guessing the agency "would not necessarily be applicable to a decision by this Court that would presumably remove any pre-existing ambiguity."[67] Substance trumps process. If the Courts interpretation of a law clears up the ambiguity in a way that supported the Appeals court, it would not be bound overturn the Appeals Court on procedural grounds. The nature of the underlying law and the nature and the extent of the ambiguity are critical considerations.

Scalia's dissent argued the substance and reached a conclusion that supported the Ninth Circuit. "After all is said and done, after all the regulatory cant has been translated, and the smoke of agency expertise blown away, it remains perfectly clear that someone who sells cable-modem service is "offering" telecommunications. For that simple reason, I would affirm the Court of Appeals."[68] Most telling, however, was the exchange between Scalia and Thomas, first at oral argument and then in Scalia's dissent. He took special issue with the suggestion by the FCC and the majority that Title I authority could be used to replace the Title II authority that had been abandoned with the decision to classify the service as a Title I service.

> In other words, what the Commission hath given, the Commission may well take away – unless it doesn't. This is a wonderful illustration of how an experienced agency can (with some assistance from credulous courts) turn statutory constraints into bureaucratic discretions. The main source of the Commission's regulatory authority over common carriers is Title II, but the Commission has rendered that inapplicable in this instance by concluding that the definition of "telecommunications service" is ambiguous and does not (in its current view) apply to cable-modem service. It contemplates, however, altering that (unnecessary) outcome, not by changing the law (i.e. its construction of the Title II definitions), but by reserving the right to change the facts. Under its undefined and sparingly used "ancillary" powers, the Commission might conclude that it can order cable companies to "unbundle" the telecommunications component of cable-modem service. And presto, Title II will then apply to them, because they will finally be "offering" telecommunications service! Of course, the Commission will still have the statutory power to forbear from regulating them under section 160 (which it has already tentatively concluded it would do). Such Mobiius-strip reasoning mocks the principle that the statute constrains the agency in any meaningful way[69].

The decision to classify mass market, high-speed service as an information service was premature, based on a very short period of experience with service. Both of the orders that classified mass market, high-speed data transmission service presumed that the FCC had adequate

[66] National Cable & Telecommunications Ass'n v. Brand X Internet Services, S. Ct. 2688 (2005), Breyer, p. 1.
[67] Id., Stevens Concurring, p. 1.
[68] Id. Scalia dissenting, p. 11.
[69] Id., pp. 10-11.

authority,[70] ancillary to it general authority under Title I of the Act to implement the policies necessary to carry out the purposes of the Act and both orders affirmed that policy was necessary,[71] although they devoted almost no attention to those policies.

At every key point in the regulatory and judicial process, the FCC asserted that it needed and had the authority to implement policies to promote the Communications Act goals under both Title I and Title II. The assumption repeatedly made by the Commission, that it would be able to exercise substantial "ancillary" authority under Title I to accomplish the goals provided for in Titles II and III has also now been called into question.

The National Broadband Plan affirmed the urgent need for policy, which the D.C. Circuit Court decision calls into question the authority. At the same time, the technological and economic assumptions on which the information service classification rested no longer apply, if ever they did.

Because those proceedings involved only one of the many important public obligations in Title II, the Commission never thoroughly vetted the full range of implications of the definitional exercise for universal service, public safety, consumer protection, not to mention innovation at the edge. It recognized that there could be important implications of its actions and launched proceedings to consider them, but it implemented the definitions without every completing those inquiries. With the AT&T petition to sunset the public switched telephone network and Verixon's unilateral decision to abandon it, the Commission is forced to confront all of the implications of its actions that it never addressed in classifying high speed data transmission as an information service.

When the full range of public service principles and the explicit language of the Act are considered, classification of high speed data transmission is consistent with the long standing practice and with the intent of Congress. It clears up ambiguity introduced by the FCC, not the underlying language. On the basis of history, law and policy, high speed data transmission should be classified as a telecommunications service. Technology and economics also contradict the FCC's misclassification of high speed data transmission as an information service.

D. THE TECHNOLOGY AND ECONOMIC EVIDENCE INDICATE THAT THE ASSUMPTIONS ON WHICH THE FCC BASED ITS CLASSIFICATION ARE QUESTIONABLE AT BEST

The Supreme Court found that the statute was ambiguous and the technologic situation very complex. It concluded the Ninth Circuit Appeals Court, which had twice decided that high speed data transmission is a telecommunications service that should be subject to Title II, should not second guess the expert agency.

However, developments since that time suggest that the decision was premature and not well grounded. The Title I information service classification was reached by the agency based on a hearing record that was completed in 2000, just four years after the passage of the Telecommunications Act of 1996 and well before mass market, high-speed data transmission service had penetrated widely in the marketplace. As the service penetrated and the market developed, the fundamental technological and economic assumptions on which the decision was based proved to wrong, as summarized in Exhibit III-2. By the time the first dispute under the information service

[70] Federal Communication Commission, *Declaratory Ruling and Notice of Proposed Rulemaking,* 17 FCC Rcd 4798, 2002, (Cable Modem Order); para, 75-81;*Report and Order and Notice of Proposed Rulemaking,* 20 FCC Rcd 14853, 2005, Wireline broadband Order) paras. 61-77.

[71] Federal Communication Commission, *Declaratory Ruling and Notice of Proposed Rulemaking,* 17 FCC Rcd 4798, 2002, (Cable Modem Order); para, 108, 110, 111;*Report and Order and Notice of Proposed Rulemaking,* 20 FCC Rcd 14853, 2005, Wireline broadband Order) paras. 61-77.

classification reached the D. C. Circuit, the underlying assumptions that the FCC has used had already proven to be incorrect.

The argument that high speed data transmission is so intimately intertwined with applications and content that it could not be treated separately never rested on solid ground and recent developments on both the supply and the demand sides make it clear that bundling of data transmission and services has no compelling technological underpinning. It is a strategy to avoid regulation and a marketing strategy to maximize market power and extract consumer surplus.

EXHIBIT III-2: TECHNOLOGICAL AND ECONOMIC UNCERTAINTY HAVE BEEN REDUCED, IF NOT ELIMINATED

Supply-side

Historically, the FCC had made just such a distinction for over three decades under the Computer Inquiries. The telephone companies had no difficulty making high-speed data transmission available on a stand alone basis, primarily to the enterprise market (T-1 service) and continue to do so.

In the years after the cable modem order hundreds of small telephone companies offered plain vanilla high speed data transmission services to their mass market customers for a fee separate for applications and content and continue to do so.

AT&T agreed to network neutrality provisions that rested on a technological definition that it could easily implement. Indeed, as part of its agreement, it distinguished specific services for which it wanted the ability to prioritize traffic, thereby affirming the distinction between the underlying transmission of data and the service.

In the BitTorrent case Comcast demonstrated the ability to distinguish transmission from applications by singling out a specific application for discriminatory treatment and, when pressed, quickly came up with a nondiscriminatory alternative.

Independent third party provision of functionalities that the FCC argued were "inextricably intertwined," with transmission, like IP address assignment, DNS, caching, etc. are readily available on a stand-alone basis.

Demand-Side

From the point of view of usage, consumers fully understand the difference between data transmission and services, even with respect to the services that the Commission claimed had to be bundled with data transmission.

Cable operators routinely market separate services. Above all, speed is what they sell, but they also differentiate levels of service by additional applications included in the bundle. Clearly, there is not technological imperative in bundling high-speed data transmission and services of functionalities.

The majority of e-mail accounts are with independent service provides who do not bundle transmission and e-mail

When it comes to content sites, the disparity is even greater. No web site of an ISP affiliated with a network operator ranks in the Web sites of the top high speed data transmission service providers are nowhere to be found in the top twenty web sites; none ranks in the top 20 news web sites.

Even if we look at the top video web sites, we find that Comcast, the largest broadband ISP ranks 12th and AOL (owned by Time Warner) ranks 13th. Comcast and AOL account for about 2 percent of video views on the web, but they account for close to one-third of all broadband subscribers. Consumers clearly take the data transmission service and use separate applications and content services from independent ISPs.

Supply-side: From the point of view of technology, the distinction between transmission and applications was easy to make. The FCC had made just such a distinction for over three decades under the Computer Inquiries. The telephone companies had no difficulty making high-speed data transmission available on a stand-alone basis, primarily to the enterprise market. In the years after the Cable Modem Order hundreds of small telephone companies offered plain vanilla high speed data transmission services to their mass market customers for a fee separate from applications and content. It is hard to argue that the much larger network operators, many of whom had plenty of practice, could not figure out how to make high-speed transmission service available to the mass market.

The hoped for competition from broadband over power lines that was loudly touted by the Commission had failed miserably. Cable modem service had moved to the fore, with the national broadband plan expecting near total market dominance by the cable technology.

As a condition of its acquisition of Bell South, AT&T agreed to network neutrality provisions that rested on a technological definition that it could easily implement. Indeed, as part of its agreement, it distinguished specific services for which it wanted the ability to prioritize traffic, thereby affirming the distinction between the underlying transmission of data and the service.

In the BitTorrent case Comcast demonstrated the ability to distinguish transmission from applications, by singling out a specific application for discriminatory treatment and, when pressed, quickly came up with a nondiscriminatory alternative.[72]

Independent third party provision of functionalities that the FCC argued were "inextricably intertwined," with transmission, like IP address assignment, DNS, caching, etc. is readily available on a stand-alone basis.

Demand-Side: From the point of view of economics and usage, consumers fully understand the difference between data transmission and services, even with respect to the services that the Commission claimed had to be bundled with data transmission.

Thus, the majority of e-mail accounts are with independent service provides who do not bundle transmission and e-mail. Web sites of the top high-speed data transmission service providers are nowhere to be found in the top twenty web sites in general or for specific types of content like news. Independent third party provision of functionalities that the FCC argued were "inextricably intertwined," with transmission, like IP address assignment, DNS, caching, etc. is readily available on a stand-alone basis.

Even, if we look at the top video web sites at the time of the decision, we find that Comcast, the largest broadband ISP ranks 12th and AOL (owned by Time Warner) ranks 13th. Comcast and AOL account for about 2 percent of video views on the web, but they account for close to one-third of all broadband subscribers. Consumers clearly take the data transmission service and use separate applications and content services from independent ISPs. The claim of an integrated bundle was never a technological issue. It is not even a marketing reality. Cable operators routinely market separate services. Above all, speed is what they sell, but they also differentiate levels of service by

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additional applications included in the bundle. Clearly, there is no technological imperative in bundling high-speed data transmission and services of functionalities.

Exhibit III-3 summarizes the case for correcting the misclassification of high speed data transmission as an information service. Technology, economics law and policy all support the conclusion that the FCC should correct the mistake and classify high speed data as a title II telecommunications service.

EXHIBIT III-3 CONSIDERATION OF ALL THE PUBLIC SERVICE PRINCIPLES STRONGLY FAVORS A TELECOMMUNICATIONS/TITLE II CLASSIFICATION

Based on a short period of experience with mass market, high speed data transmission legal ambiguity and technological uncertainty opened the door to the exercise of agency discretion to classify the service as an information service, but subsequent developments remove the ambiguity and uncertainty and a full consideration of the policy implications indicates that a classification as a telecommunications service is superior.

<u>Factors causing change in non-discrimination/information service classification</u>

The Cable Modem Declaratory Order was a rush to judgment. To the extent there was legal ambiguity or technological uncertainty, these have been cleared up since the order was issued.

Technology:	**Claim of technological integration was always dubious and separation of transmission and content has become more evident: Hundred of carriers offer wholesale high speed data transmission service, functionalities are widely available from 3rd party services user patterns and company marketing indicate consumers and producers know the difference between transmission and service**
Economics:	**Discriminatory practices repeatedly occur threatening competition in applications and content** **Competition has failed to develop as predicted (e.g. broadband over powerline, satellite).**
Law:	**Title II classification was supported by history at least as much as Title I.** **Title I authority had been used and it was assumed to be available to prevent undue discrimination and the other policy goals of the Act, but the Title I safety net has now been called into question.**
Policy:	**The National Broadband Plan supersedes the Universal Service (Stevens) Report**

There were never any grounds for Chevron discretion to classify high-speed data transmission service as anything but a Title II (or title III) service with regard to these principles.

Technology:	**There is no technological complexity that would allow the FCC discretion to alter or abandon these goals and authorities.**
Economics:	**These goals have not been achieved and the increasing importance of high-speed data transmission makes them all the more important** **and urgent (per the National Broadband Plan).**
Law:	**These issues were never addressed in the rulemakings or court proceedings that dealt with nondiscrimination. There is no legal** **ambiguity that would allow the FCC discretion to alter or abandon the clear language of the statute**
Policy:	**The National Broadband Report establishes a firm evidentiary basis for immediate implementation of policies to accomplish these goals, but the uncertainty about FCC authority hampers its ability to do so. Weakening the tools available to achieve these goals would be contrary to clear Congressional intent.**

E. MISCLASSIFYING HIGH SPEED DATA TRANSMISSION MAKES IT DIFFICULT, IF NOT IMPOSSIBLE TO ADDRESS THE OF PUBLIC SERVICE GOALS OF THE ACT

In initial comments Public Knowledge identifies Five Fundamentals that are the principles that should apply to the communications network that track well with the public obligations identified above. The PK comments add an important perspective by walking through the diverse ways in which Voice over Internet Protocol (VOIP) have been handled by the Commission with respect to each of the principles (See Exhibit III-4). VOIP is a useful test case since its very name captures the key endpoints of the transitions from the preeminent service in the telephone age (voice) into the digital age (Internet Protocol).

The following table highlights two key aspects of the transition.

(1) The extension of the principles has been inconsistent.

(2) The legal authority on which the application of the principles to the IP space rests is tied to Title II justifications, but ancillary jurisdiction or the capability a VOIP call might to touch the public switched network could well be eliminated if the FCC sunsets the public switched network.

EXHIBIT III-4: THE INCONSISTENT TREATMENT OF VOICE OVER INTERNET PROTOCOL

PUBLIC GOALS	VOIP TREATMENT	LEGAL AUTHORITY
Adequate Facilities		
Numbering	**Grandfathered, but new numbers must be be purchased from incumbents**	**Ancillary authority**
Reliability	**back up power**	
Universal Service		
USF	**Covered for purposes of revenue collection, Excluded for purposes of revenue disbursement**	**Ancillary authority, Capability of reaching the PSTN**
Disability	**Applies, Contribution to TRS required**	**Ancillary authority**
Public Safety	**E-911**	
Interconnection		
Duty	**NA**	
Numbering	**Applied**	**Ancillary Authority**
Consumer Protection	**Slamming, cramming rules do not apply although they could if enough complaints arise**	**Unclear**

Source; "Comments of Public Knowledge," ***In the Matter of Technological Transition of the Nation's Communications Infrastructure, Federal Communications Commission,*** **GN Docket No. 12-353, January 28, 2013**

Because the FCC erroneously classified high speed data transmission as an information service, it struggled to execute its primary responsibilities to pursue the public service goals of the Act. The petition of AT&T and the action of Verizon in seeking to sunset the PSTN brings the flaw in the FCC classification of high speed data into clear focus.

F. SPLIT AUTHORITY

Consolidating the authority for all the public service principles under Title II is the simplest and most direct path to ensuring they apply to 21st century telecommunications services. It is not the only way that the end result could be achieved. The D.C. Circuit court might uphold the assertion of ancillary authority govern network neutrality, which is the basis on which the Computer Inquiries always rested. The FCC could then assert authority to implement the other public service principles under Title II. The split basis for authority might seem odd, but that was the situation for over thirty years under the Computer Inquiries, which always rested on ancillary authority. Because the data flow covered by the Computer Inquiries did not intersect with the other public service principles, the conflict did not present itself forcefully.

The above analysis provides a framework of accommodating the split authority. In its decision overturning the FCC's BitTorrent order, the D.C. Appeals Court states that the legal standard for Title I ancillary authority is well settled. There are half a dozen rulings, some that granted ancillary authority, some that did not, which outline the analysis precisely. The fact the some were granted and some denied does not mean that the law is murky. On the contrary, if there is a consistent pattern of what makes for a winning case versus a losing case, it means that the path to winning ancillary authority is straight forward. The D.C. Appeals Court ruling drew the roadmap.

The agency must (1) identify the Congressional policy that governs the FCC action; (2) cite specific authorities elsewhere in the Act that are the nexus for ancillary authority; and (3) explain why the new technology, not covered by the Communications Act, threatens to frustrate the FCC's ability to implement the authorities in the Act. (4) As a natural outgrowth of the second and third steps, the ancillary authority claimed and exercised must be narrowly tailored to the underlying authority and the specific threat of the technology. If the FCC makes these four showings, it can assert ancillary authority tailored to the stated purpose.

The D.C. Circuit Appeals court ruling works carefully through the steps of an ancillary authority showing in the Comcast case. It (1) accepted the validity of the Congressional policy goals identified by the FCC; and (2) found the new technology argument plausible; but (3) it noted that the FCC had not provided any specific authority elsewhere in the statute to which the Title I authority would be ancillary. Therefore, the claim for ancillary authority looked like an effort to claim an overly broad claim. The D.C. Circuit had to deny ancillary authority as an illegal expansion of FCC authority.

It is interesting to recall that the D.C. Appeals Court noted that the FCC's argument "places particular emphasis on the Computer Inquiries (Computer and Communications Industry Association v. FCC, CCIA)." This is important for four reasons.

First, the Computer Inquiries established the regime of nondiscriminatory interconnection for data transmission that allowed the Internet to grow under Title I, putting the lie to the claim that network neutrality hurts the Internet. Second, the Computer Inquiries validate the principle that voice and video can be invoked to reach the transmission of data. Third, the Broadband Wireline Order, which was the basis for the Comcast complaint, relied on the same theory of ancillary jurisdiction on which the Computer Inquiries were built, but it sought to replace the regulatory scheme of the Computer Inquiries with the "Internet Policy Statement." Fourth, perhaps the clearest statement of the legal standard for ancillary jurisdiction made by the D.C. Circuit is with

regard the Computer Inquiries.

Responding to the D.C. Appeals Court ruling, the FCC has a boat load of provision throughout the Act on which to rest it ancillary authority, including Sections 151, 152,, 230, 201, 202, 251, 254,256, 257, 301, 303, 304, 307,309, 316, 616, 628, and 706. The long list of candidates reflects the convergence of communications onto broadband. The expression triple play, so commonly applied to broadband services -- refers to voice, video and data. Voice and video (broadband and cable) are the services to which Titles II, III and VI apply. The FCC's ability to implement the Communications Act policies in the 21st century rests on its ability to exercise the many authorities Congress afforded it to guide the communications network toward the public service goals of the Act.

> The crux of our decision in CCIA was that in its Computer II Order the Commission had linked its exercise of ancillary authority to its Title II responsibility over common carrier rates – just the kind of connection to statutory missing here… In other words, we viewed the Commission's Computer II Order – like the Supreme Court viewed the regulations at issue in Southwestern Cable – as regulation of service otherwise beyond the Commission's authority in order to prevent frustration of a regulatory scheme expressly authorized by the statute.[73]

These were services that were well within the Commission's authority and a hasty, incomplete, ill-founded decision to misclassify high speed data services as information services creates no only the frustration of the regulatory scheme Congress clearly authorized in the statute, but also the frustration of the ability of the Commission to achieve the fundamental goals of the Act.

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