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# 30 Internet Over Cable: Defining the Future In Terms of the Past

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# Internet Over Cable:
# Defining the Future in Terms of the Past

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# EXECUTIVE SUMMARY

## A. Background

The Internet poses significant challenges for government policy makers and regulators. Difficult legal and policy issues arise from the fact that Internet-based services do not fit easily into the longstanding classifications for communications services under federal law or FCC regulations. Against these underlying category difficulties, the Telecommunications Act of 1996 ("the 1996 Act") radically restructured the regulatory landscape for the provision of local telephone communications services, attaching significant new consequences to statutory definitions derived from the technologies of the past.

While the Internet arguably represents one form of technological and service convergence, the pro-competitive, de-regulatory program of the 1996 Act depends upon the viability of distinct regulatory categories for services, facilities, and service providers to establish the rights and obligations of carriers as competition is introduced to formerly monopoly-based markets. Integrated digital service offerings, such as those provided over the Internet, present fundamental problems to a regulatory framework dependent upon technological distinctions reflecting delivery of analog communications services.

The Federal Communications Commission ("FCC") has already begun to grapple with the problems "integrated" or "converged" broadband digital services and service providers pose in terms of the two fundamental regulatory categories: "telecommunications" versus "information services." A third and equally important regulatory category is that of Title VI "cable services." The issue of the regulatory status of Internet-based services provided by cable operators over their cable systems arises as a result of revisions to the definition of "cable services" contained in the 1996 Act. This issue has yet to receive comprehensive assessment by the FCC. How the FCC resolves issues concerning Internet access and the provision of Internet-based communications services by cable operators has vast implications for both providers and consumers of Internet-based services.

This Working Paper is intended to stimulate discussion and critical comment on these significant issues of regulatory classification and their consequences. It suggests, without advocating particular outcomes, that regulatory classification must be done in light of agreed-upon policy objectives.

## B. Summary of Contents

**Section I** introduces the Internet regulatory classification issues arising under the 1996 Act, from the telecommunications and cable perspectives, including the FCC's historical approach to services like those now being provided by means of the Internet by enhanced service providers ("ESPs") and its current approaches implementing the provisions of the 1996 Act regarding "telecommunications" and "information services."

**Section II** surveys the development of the Internet and its treatment in the 1996 Act.

! The first portion contains a brief description of the Internet, its history and development, and identifies some of the qualities that set it apart from traditional communications networks and services. This discussion is crafted to highlight features of the Internet industry and Internet communications relevant to the legal and policy analyses that follow.

! The second portion examines the 1996 Act's statutory definitions and policies that directly apply to the Internet, and the court decisions relevant to these sections.

! The most significant statement of policy contained in the 1996 Act regarding the Internet is section 230(b)'s declaration that is the policy of the United States, "to promote the continued development of the Internet and other interactive computer services and other interactive media [and] to preserve the vibrant and competitive free market that presently exists for the Internet and other interactive computer services, unfettered by Federal or State regulation."

**Section III** reviews the treatment of voice and data communications under the FCC's *Computer Inquiry* framework.

! This series of proceedings, begun in the late 1960s, focussed on how to reconcile the convergence and interdependence of communication and data processing technologies within the strictures of Title II common carrier regulation.

! The FCC established two categories of services: "basic" (telephone communications) and "enhanced" (data processing). The former when provided by telephone carriers would be regulated as common carrier telephone services under Title II; the latter would be treated as non-regulated "wire communications," subject only to the FCC's ancillary jurisdiction under Title I.

! Basic telephone service would be provided as a common carrier service, subject to the FCC's Title II interconnection, tariffing, and facilities construction approval authority. Under *Computer II*, the subject common carriers would have to offer enhanced serviced subject to structural safeguards. Enhanced service offerings themselves would not be regulated. Competing enhanced service providers would be treated as non-carrier end users, able to purchase the underlying basic service as end users on an unbundled, tariffed basis. *Computer III* permitted certain dominant common carriers to provide enhanced services on an integrated basis, subject to non-structural accounting and interconnection safeguards.

**Section IV** examines several of the key 1996 Act implementation orders the FCC issued in which it addressed the treatment of telecommunications and information services.

! "Telecommunications" is defined in the 1996 Act as the transmission, between or among points specified by the user, of information of the user's choosing, without change in the form or content

of the information as sent or received.

! "Information service" is defined in the 1996 Act as the offering of a capability for generating, acquiring, storing, transforming, processing, retrieving, utilizing or making available information via telecommunications, and includes electronic publishing. Excluded is the use of such capability for telecommunications system or service management.

! Internet-based services and Internet service providers fall within the regulatory categories of both "information" and "enhanced" services.

! All of the services the FCC had previously classified as "enhanced" services would be treated as "information" services under the 1996 Act.

! Information services are not telecommunications services.

! Telecommunications carriers' telecommunications service offerings are subject to interconnection obligations; universal service contributions; and other common carrier obligations such as the payment of access charges for the origination and termination of long distance calls and Title II facilities-authorization requirements.

! Internet service providers and other online service providers that had previously been considered as providing enhanced services under the *Computer Inquiry* decisions would continue to be treated as unregulated non-carriers.

! In the future, certain services offered over the Internet, such as phone-to-phone Internet Protocol telephony, may be functionally indistinguishable from traditional telecommunications service offerings, and their non-regulated status may warrant re-examination.

**Section V** addresses the evolution of cable service from its inception in the late 1950's through today. It is divided into two main portions.

! The first portion discusses the definition of cable service and cable systems under the 1984 Cable Act (Title VI) and the FCC's application of these definitions in particular cases.

! In 1984, "cable service" was defined as the one-way transmission to subscribers of video programming or other programming service, and any subscriber interaction required for the selection of such programming. "Video programming" is programming comparable to, or provided by, a television broadcast station. "Other programming service" is information that a cable operator makes available to all subscribers generally. Cable service was a bundled offering of transmission and content or programming.

! Cable operators are not subject to interconnection or facilities unbundling requirements; they were subject to carriage requirements that require them to reserve channel capacity for certain

programming provided by other entities.

! The 1984 Cable Act established a fundamental distinction between a service that is provided over a cable system that is "cable service," and a broadband service provided over such a system that is not within the statutory definition.

! The excluded category included two-way communications services such as e-mail, facsimile transmissions and data processing, services which are identical to those long defined by the Commission as "enhanced services" under the *Computer Inquiry* decisions, as well as basic telephone communications services.

! The 1984 Cable Act's legislative history makes it clear that, such interactive information and enhanced services as are provided over the Internet could not come within the original definition of cable services insofar as they generally provide the subscriber with a two-way capacity to engage in transactions, or to store, transform, manipulate, or otherwise process information or data.

! Prior to the 1996 Act's revision to the definition of cable service, it would not have been possible for the FCC to have interpreted the section 602(6) definition of "cable service" to include Internet-based services provided over cable systems.

! The final portion of this section describes technological advances in cable system architecture that make it possible for cable operators to provide two-way, Internet-based broadband communications services. It concludes with a survey of the features of several of the major cable Internet services currently available.

**Section VI** analyzes the significance of the revisions to the definition of cable services under the 1996 Act, and concludes that the FCC could find that Congress amended the section 602(6) definition of cable services to include certain cable-provided Internet services.

! The 1996 Act added the phrase "or use," changing the definition of cable service to the: "one-way transmission to subscribers of video programming or other programming service, and subscriber interaction, if any, which is required for the selection *or use* of such video programming or other programming service."

! The legislative history of this revision refers to cable services as now including "interactive services such as game channels and information services made available to subscribers by the cable operator, as well as enhanced services."

! If cable services now include information and enhanced services, and Internet-based services such as those provided by the typical Internet service provider are enhanced/information services, then cable services may include Internet-based services "by definition."

! The FCC could reasonably conclude that cable Internet-based services, such as Road Runner, @Home and like offerings, when provided by a cable operator over its cable system in its franchised service area, come within the definition of "cable services" under Title VI.

! The result of such classification would be the creation of "parallel universes" for regulation of cable and telephony-provided Internet services. Cable operators would be permitted to provide such advanced cable services under a Title VI regime, free of interconnection and unbundling requirements, while certain telecommunications carriers would be obligated under the 1996 Act and the Commission's rules to offer network interconnection, unbundled network elements, and tariffed rates to competing enhanced and information service providers.
! Whether this differing regulatory treatment is sustainable must be answered in light of congressional intent and the policy goal (or goals) to be achieved.

! The remainder of the section analyzes selected regulatory issues that would flow from the classification of cable Internet services as Title VI cable services. These issues are broken down in 7 main categories: (1) pole attachments; (2) the scope of local cable franchises; (3) franchise fees; (4) unbundling/competitive neutrality; (5) resale/interconnection; (6) cross-subsidy; and (7) other issues arising under Title VI, including cable facilities and equipment regulation, programming-based regulation, system capacity issues and protection of subscriber privacy.

! Issues 1, 2, 3 and 7 are discussed in terms of the "regulatory fit" of cable Internet-based services under Title VI cable television rules and requirements. The discussion highlights, where appropriate, areas of relative ease and relative difficulty that appear when old service categories are amended to incorporate new forms of service.

! Issues 4 through 6 focus on certain questions of regulatory parity that would arise under Titles II and VI if the FCC were to classify cable-provided Internet services as cable services under Title VI. They highlight the tensions between the two regulatory frameworks.

**Section VII** links the analysis of the current regulatory framework to the problems posed for communications policy by integrated networks and services.

! The communications and communications services made possible by the Internet are fundamentally unlike those provided in the past over the technologically separate public switched telephone network, data networks, broadcast networks, and cable television systems, in that a single medium is capable of delivering nearly any type of communications service on an integrated basis. This renders application of existing regulatory categories difficult, if not impossible, for many forms of Internet-enabled communications.

**Section VIII** concludes that, in the future it will become increasingly difficult to maintain that particular facilities and services are "cable" as opposed to "telecommunications."

! This problem will be evident in the case of regulatory requirements written in terms of "cable

operators" as opposed to "telecommunications carriers" and "information service providers."

! When a single provider offers all three types of services in digital format over primarily fiber optic broadband plant, how these categories will apply is questioned. The same is true of regulatory requirements that are placed upon certain services, when a single software application together with access to the Internet makes it possible to provide voice, video or data communications, at the initiation of the end user, rather than the "network" operator.

! The challenge for the regulator, at each step, is to examine the underlying purposes and policy goals behind existing regulatory categories, and to apply them only where those purposes and policy goals make sense. Any regulatory efforts in this arena should begin with an analysis of whether the operator in question exercises undue market power over an essential service or facility necessary to provide an essential service.

! Ultimately, the FCC (and perhaps Congress) may need to develop a new regulatory paradigm and language that fits the new global communications medium known as the Internet. The regulatory categories, for example, of "basic" telephone and "enhanced" or "information," and "cable" services are more than twenty years old, whereas the technologies they are being applied to are new, and evolving rapidly in unforeseen and unforeseeable ways.

! Although the FCC has repeatedly found that the old regulatory categories are essentially carried forward in the 1996 Act's new "telecommunications" and "information" service categories, the 1996 Act also gives the FCC the new and flexible regulatory category of "advanced telecommunications capability" in section 706.

! Rather than concentrate solely on trying to squeeze the Internet and Internet-based services into familiar categories, the Working Paper suggests that the FCC might better endeavor to give full meaning and effect to this new regulatory category in its domain.

## C. Purpose of this Examination

The Working Paper is intended to promote greater understanding on the part of both government and the private sector, of the unique policy issues that the provision of Internet-based services by cable operators raises for the FCC, local franchising authorities, and other governmental offices. The discussion of the regulatory classification issue for Internet over cable systems, and the related common carrier issues, is intended to map the contours of the legal and policy issues that surrounding the clash of new, advanced capabilities such as the Internet with the old regulatory framework.

The discussion of an issue is not a suggestion that a particular outcome is either mandated or desirable. Rather, the goal of this mapping exercise is to facilitate informed discussion and decision-making in this very important area by identifying the correct coordinates and posing the relevant questions.

## I. INTRODUCTION

The regulatory status of Internet-based services provided by cable operators over their cable systems is a significant implementation issue under the Telecommunications Act of 1996 (1996 Act),[1] that has yet to receive comprehensive assessment by the Federal Communications Commission ("the Commission"). How the Commission resolves issues concerning Internet access and the provision of Internet-based communications services by its regulated industries has vast implications for both providers and consumers of Internet-based services.

It is widely recognized that the Internet has revolutionized the computer and communications industries in an unprecedented manner. According to those involved in its development, "[t]he Internet is at once a world-wide broadcasting capability, a mechanism for information dissemination, and a medium for collaboration and interaction between individuals and their computers without regard for geographic location."[2] With respect to the Internet and related developments, traditional dividing lines become blurred as individual companies provide capacity to transmit communications for others and also provide their own content.

The emergence of the Internet as a preeminent global communications medium was largely contemporaneous with the development of the 1996 Act's fundamental regulatory framework. As a result, the 1996 Act's primary approach to communications services, service providers and facilities neither fully reflects nor anticipates the impact of Internet-based communications capabilities on existing networks and the regulatory regimes that govern them. While the Internet arguably represents one form of technological and service "convergence," the 1996 Act's deregulatory, pro-competitive program depends upon the viability of distinct regulatory categories for services, facilities, and service providers to establish the rights and obligations of carriers as competition is introduced to formerly monopoly-based markets. As the Commission has recognized: "All of the specific mandates of the 1996 Act depend on application of the statutory categories established in the definitions section."[3]

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[1] 1996 Act, Pub. L. No. 104-104, 110 Stat. 56. The 1996 Act amends the Communications Act of 1934, 47 U.S.C. §§ 151 *et. seq.* All citations to the 1996 Act will be to the relevant sections of the United States Code, unless otherwise noted. The 1996 Act established a "pro-competitive, de-regulatory national policy framework" for the U.S. communications industry. *See* S. Conf. Rep. No. 104-230, 104th Cong., 2d Sess. 1 (1996) (*Joint Explanatory Statement*).

[2] Barry M. Leiner, Vinton G. Cerf, David D. Clark, Robert E. Kahn, Leonard Kleinrock, Daniel C. Lynch, Jon Postel, Larry G. Roberts, Stephen Wolff, "*A Brief History of the Internet*, version 3.1," last revised Feb. 20, 1998, <http://info.isoc.org/internet-history> at p.1 (*"Brief History of the Internet"*).

[3] By amendment to its 1998 appropriations legislation, Congress required the Federal Communications Commission ("the Commission") to undertake a review of its implementation of the provisions of the 1996 Act relating to and impacting universal service, including telecommunications and Internet access, to be completed and submitted to Congress no later than April 10. *See Common Carrier Bureau Seeks Comment for Report to Congress on Universal Service Under the Telecommunications Act of 1996*, Public Notice, CC Docket No. 96-45 (Report to Congress), DA 98-2 (January 5, 1998); *In the Matter of Federal-State Joint Board on Universal*

The 1996 Act's distinction between "telecommunications" and "information" services, and the differing regulatory consequences that attach, largely carries forward the "basic" versus "enhanced" distinction created by the Commission during the course of its *Computer Inquiry* proceedings, beginning in the late 1960s.[4] Integrated service offerings, such as those provided over the Internet, present fundamental problems to a regulatory framework dependent upon technological distinctions. As one writer recently observed, "[w]hen basic and enhanced services become intertwined and indistinguishable, the current regulatory system implodes."[5]

Currently the over-arching consensus among domestic policy makers is that the government should recognize the unique qualities of the Internet, and avoid unnecessary regulation and undue restrictions on electronic commerce conducted over the Internet.[6] Yet regulators charged with implementing communications regulation find themselves unavoidably drawn into a process of determining the application or not, of existing rules whose terminology was established without regard to this new medium for delivering communications services. How the existing regulatory categories may be adopted to, or walled-off from, new developments such as the Internet, which fundamentally differs from existing communications capabilities, is a topic only

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*Service, Report to Congress*, CC Docket No. 96-45, FCC 98-67 (released April 10, 1998) ("*Report to Congress*") at para. 21.

[4] *See Regulatory and Policy Problems Presented by the Interdependence of Computer and Communication Service and Facilities, Notice of Inquiry*, 7 FCC 2d 11 (1966); *Supplemental Notice of Inquiry*, 7 FCC 2d 16 (1967) (entire series of proceedings referred to herein as "*Computer Inquiry*"); *Report to Congress* at para. 45.

[5] Ira H. Goldman, "*Technology Will Kill Telecom Taxes,*" The Wall Street Journal, Aug. 10, 1998 at A14.

[6] *See, e.g.*, 47 U.S.C. 230(b) (it is the policy of the United States to "preserve the vibrant and competitive free market that presently exists for the Internet and other interactive computer services, unfettered by Federal or State regulation"); "*The Emerging Digital Economy*," Secretariat on Electronic Commerce, U.S. Department of Commerce, April 15, 1998. This report is part of the Clinton Administration's initiative on global electronic commerce, described in the July, 1997, "*Framework for Global Electronic Commerce*." Both reports are available at: <http://www.ecommerce.gov>. *See also* Kevin Werbach, *"Digital Tornado: The Internet and Telecommunications Policy*," OPP Working Paper Series No. 29, Federal Communications Commission, Office of Plans and Policy, March 1997 ("*Digital Tornado*"), for the author's analyses and conclusions on Internet Regulatory Policy; *Report to Congress* at para. 82 ("We recognize the unique qualities of the Internet, and do not presume that legacy regulatory frameworks are appropriately applied to it"). Nonetheless, there is a certain tension evident in the 1996 Act's approach toward regulation of the Internet which contains statements of congressional intent to leave the Internet "unfettered" by Federal or State regulation, and provisions criminalizing the provision of specified Internet content. *Compare* 47 U.S.C. § 230(b) and § 223(a) & (d).

beginning to be explored here[7] and abroad.[8]

To date, that exploration has focused entirely on the issue from a telecommunications perspective.[9] Future examinations must also consider the case of cable-provided Internet services. Cable service has traditionally been regulated and delivered as an integrated video, information content, and conduit service under Title VI.[10] The regulatory model for cable services presents a particularly intriguing model in terms of current and future integrated digital communications offerings.

The pre-1996 Act definition of cable services in the Communications Act was descriptive of the way cable services, which were developed to receive and transmit analog broadcast television signals by wire, were provided. Cable services have traditionally consisted of a series of channels and services largely, but not exclusively, under the control of the cable operator. The 1996 Act introduced a new component to the definition of cable services under section 602 by addition of the two words, "or use," to the provision describing subscriber interaction required for "the selection of such video programming or other programming service" found in the previous version. The legislative history states, "[t]he conferees intend the amendment to reflect the evolution of cable to include interactive services such as game channels and information services made available to subscribers by the cable operator, as well as enhanced services."[11]

The Commission has only begun to evaluate the implications of Internet communications

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[7] Concurrent with the initiation of its proceeding to reform the Commission's "access charge" rules, the Commission launched an inquiry into Internet-based services and related regulatory questions. *See* Section IV.E., *infra*; *see also Report to Congress*.

[8] In a statement released on January 15, 1998, the European Commission decided that at this time, telephony delivered over the Internet is not mature enough to be considered "voice telephony," and should not be subject to licensing or universal service fund requirements by national authorities within the European Union. "*Status of Voice Communications on Internet Under Community Law, and in Particular, Under Directive 90/388/EEC*," Published in the OJ No. C 6, 10.1.1998, p.4. The Notice suggests that phone-to-phone Internet telephony would be treated as "voice telephony" (and potentially subject to EC universal service fund contributions) in the future if the service were marketed to the public as an alternative form of voice telephony service, with speech quality guaranteed by a bandwidth reservation, and represented to the public as equal to that of circuit-switched voice telephony.

[9] In its *Report to Congress*, the Commission expressly reserved for the future consideration of the "regulatory classification of Internet services provided over cable television facilities." *Report to Congress* at para. 69 n.140.

[10] The statutory framework for cable regulation was first established by the Cable Communications Policy Act of 1984 ("1984 Cable Act"). Cable Communications Policy Act of 1984, Pub. L. No. 98-549, 98 Stat. 2779 (1984), 47 U.S.C. § 521 *et seq*. (adding Title VI to the Communications Act of 1934, as amended, 47 U.S.C. § 151 *et seq*. Title VI was further amended by the Cable Television Consumer Protection and Competition Act of 1992, Pub. L. No. 102-385, 106 Stat. 1460 (1992), 47 U.S.C. 521 *et seq*. ("1992 Cable Act") (collectively, "the Cable Act").

[11] *Joint Explanatory Statement* at 169.

for the regulatory frameworks it administers. The Commission's examination of the 1996 Act definitions and rules relevant to the Internet has been undertaken exclusively in the context of its implementation of the Act's new regulatory regimes intended to bring competition to local telephone markets. The Commission has found that Internet-based services and Internet service providers fall within the regulatory categories of both "information" and "enhanced" services, and that information services are not telecommunications services.[12] This classification places Internet-based communications services that utilize wireline public switched telephone network ("PSTN") connections outside the scope of Title II telecommunications common carrier regulation, but arguably within its Title I jurisdiction over wire communications.[13]

Cable industry representatives argue that the Commission could reasonably find that Internet-based services provided by telecommunications carriers over telecommunications facilities are information and/or enhanced services, but that Internet-based services provided over cable systems by cable operators are cable services.[14] Among other benefits, bringing cable Internet-based services under the cable framework would provide the industry desired regulatory stability at the most fundamental level.

Cable regulators and other government entities are also examining the regulatory status of cable Internet offerings. Local cable franchising officials are interested in franchising issues arising out of the introduction of Internet-based services in terms of whether such services are covered under their cable and/or telecommunications franchising authority. Similarly, Congress is currently considering legislation exempting Internet access and interactive computer on-line services from taxation generally. Whether this legislation will continuing to permit local franchising authorities to collect franchise fees on revenues derived from cable operators' provision of Internet-based services over their cable systems remains to be seen.[15] The terms of

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[12] *See, e.g., Report to Congress* at paras 52, 55, 61-82. *See discussion infra.* Section V.

[13] *See* Cannon, Robert, "What is the 'Enhanced Service Provider Status of Internet Service Providers?," FCBA News, Feb. 1997 at p. 11 ("*ESP Status of ISPs*").

[14] As discussed in Section VI., *infra*, the National Cable Television Association ("NCTA") and several individual cable operators have advocated this both formally and informally before the Commission.

[15] The "Internet Tax Freedom Act," which originated in the House of Representatives as, H.R. 1054, continues to undergo significant change as it progresses through the House. *See* 105th Congress, 1st Sess., H.R. 1054 (1997). The companion bill in the Senate is S. 442 (1997) H.R. 1054 contained a six-year moratorium imposed on the collection of taxes and fees on access to, or use of, Internet or on-line services and related applications. By October, 1997, the draft bill also included a list of state and local taxes that would be grandfathered in the moratorium, including sales and transaction taxes, telephone taxes, and cable franchise fees. Arguably, this exemption from the moratorium is an additional indication that Congress may view cable Internet services as Title VI cable services, subject to franchising obligations and fees. Since late 1997, the approach of the draft legislation has undergone significant change. *See Communications Daily*, July 29, 1998. In the Senate, the Committee on Commerce, Science and Transportation's bill, S. 442, was referred to the Senate Finance Committee for mark-up in late July, 1998. The Senate Finance Committee passed a new version of the Internet Tax Freedom Act, replacing the 6-year moratorium on new state and local Internet taxes with a 2-year ban on new Internet taxes, likely to go to

the dialogue bear watching as they may shed additional light on Congress' view of the regulatory status of cable Internet services.

The potential classification of Internet-based services as "cable services" when provided over cable systems by cable operators raises difficult definitional, jurisdictional and policy concerns. If the Commission were to classify cable-provided Internet services as cable services under Title VI, the result would be the creation of "parallel universes" for regulation of cable and telephony Internet-based services. Cable operators would be permitted to provide advanced cable services under a Title VI regime, free of interconnection and unbundling requirements, while certain telecommunications carriers would be obligated under the 1996 Act and the Commission's rules to offer network interconnection, unbundled
network elements, and tariffed rates to competing enhanced and information service providers.

The first portions of this paper provide a description of the Internet and how it functions; review the 1996 Act's approach to the Internet and Internet-related definitions; examine both the Commission's historical approach to services like those now being provided by Internet service providers; and review its implementation of the provisions of the 1996 Act with respect to the regulatory treatment or classification of the Internet. The final sections focus on the pre-1996 definition of cable services; the significance of the 1996 Act revision; and the specific issues raised by Congress' revision to the definition of cable services vis-a-vis Internet services, from both a definitional and policy perspective. They also discuss the regulatory consequences that would flow from a classification of cable-provided Internet services as Title VI cable services, and review several proceedings pending before the Commission.

An understanding of this regulatory backdrop should provide the basis upon which informed decisions regarding Internet-based communications services may be made so that the goals of the 1996 Act, to preserve and promote the "vibrant and competitive free market that presently exists for the Internet and other interactive computer services,"[16] may be fully realized.

## II. THE INTERNET AND THE 1996 ACT

### A. A Brief Description of the Internet

#### 1. General Background

The Internet is not a single physical or tangible entity, but rather a complex series of interconnected computer networks forming a widespread information infrastructure, commonly

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the Senate floor for a vote in September. *Id.* As reported out by the Finance Committee, the substitute bill would impose a moratorium on Internet access taxes, "bit" taxes, and multiple and discriminatory electronic commerce taxes. "*Senate Finance OKs 2-Year Internet Tax Moratorium,*" Telecommunications Reports, Aug. 3, 1998 at p. 22.

[16] 47 U.S.C. § 230(b).

described as a "network of networks." Such networks are connected in a manner which permits each computer in any network to communicate with computers on any other network in the system by using the non-proprietary Internet protocol ("IP"), a set of rules for exchanging data.[17] This global web of linked networks and computers is referred to as "the Internet." Some of the computers and computer networks that make up the Internet are owned by governmental and public institutions, some are owned by non-profit organizations, and some are privately owned by corporations. The resulting whole is a decentralized, global medium of communications -- or "cyberspace" -- that links people, institutions, corporations, and governments around the world.[18]

Spiraling growth is one of the hallmarks of the Internet. By January 1997, there were over sixteen million host computers on the Internet, more than ten times the number of hosts five years earlier.[19] Although the United States is still home to the largest proportion of Internet users and traffic, more than 175 countries are connected to the Internet.[20] As many as 40 million people around the world were estimated to access the Internet by 1997.[21] By 1998, the number using the Internet is estimated to have grown to over 100 million, with traffic on the Internet doubling every 200 days.[22] "This expansion is driving dramatic increases in computer, software, services and communications investments."[23]

Origins. The Internet had its origins in 1969 as an experimental project of the U.S. Department of Defense's Advanced Research Project Agency ("ARPA"), that was called the

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[17] IP is a routing protocol that defines the structure of data, or "packets," transmitted over the Internet. The higher-level "transmission control protocol" or "TCP" and the "user-defined protocol" or "UDP" are transport protocols that control the transmission of these packets across networks. Most Internet services use TCP, and therefore the Internet is often referred to as a "TCP/IP" network. The important fact is that this simple IP protocol separates new services and applications development from the transmission and switching of the digital bits, so that new services can be introduced without affecting the Internet. *See, generally*, *Digital Tornado* at 10 n.12.

[18] *See ACLU v. Reno*, 929 F. Supp. 824, 831 (E.D. Pa. 1996); Shea v. Reno, 930 F.Supp. 916, 925 (S.D.N.Y. 1996), *affirmed Reno v. ACLU*, 117 S.Ct. 2329 (1997); *Reno v. Shea*, 117 S.Ct. 2501 (1997) (hereinafter "*Reno v. ACLU*"). The District Court decision in *ACLU v. Reno* made extensive findings of fact, most of which were based on a detailed stipulation prepared by the parties. *See* 929 F.Supp. 824, 830-849. The findings describe the character and the dimensions of the Internet, the availability of sexually explicit material in that medium, and how one accesses and sends messages over the Internet. These undisputed facts also formed the underpinnings for the Supreme Court's discussion of the legal issues in *Reno v. ACLU*, 117 S. Ct. at 2334.
ACLU v. Reno, 929 F.Supp. at 831.

[19] *Digital Tornado* at 21.

[20] *Id.*

[21] *Id.*

[22] *The Emerging Digital Economy* at p. 2, 7.

[23] *Id.* at 7.

"ARPANET."[24] This network linked computers and computer networks owned by the military, defense contractors, and university laboratories conducting defense-related research. As ARPANET grew during the 1970s and early 1980s, several similar networks were established, primarily between universities.[25] The Internet was based on the idea that there would be multiple independent networks of rather arbitrary design, beginning with the ARPANET as the pioneering packet switched network, but soon to include packet satellite networks, ground-based packet radio networks and other networks.[26] A key underlying technical concept for the Internet was "open architecture networking." In an open network architecture, the individual networks may be separately designed and developed and each may have its own unique interface which it may offer to users and/or other providers, including other Internet providers.[27] From its inception, the Internet was designed to be a decentralized, self-maintaining series of redundant links between computers and computer networks, capable of rapidly transmitting communications without direct human involvement or control, and with the automatic ability to reroute communications if one or more individual links were damaged or otherwise unavailable.[28]

Having successfully implemented a system for the reliable transfer of information over a computer network, ARPA began to support the development of communications protocols for transferring data and electronic mail (e-mail) between different types of computer networks.[29] Recognizing the usefulness of computer networking, and especially e-mail, many universities, research facilities, and commercial entities began to develop and link together their own networks implementing these protocols.[30] For example, the U.S. Department of Energy established "MFENET" for its researchers in Magnetic Fusion Energy; NASA Space Physicists established "SPAN," several individuals established "CSNET" for the (academic and industrial) computer science community with an initial grant from NSF, AT&T disseminated the UNIX computer

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[24] *ACLU v. Reno*, 929 F. Supp. at 831. The ARPA changed its name to Defense Advanced Research Project Agency ("DARPA") in 1971.

[25] *Id*.

[26] *Brief History of the Internet* at 3-6. According to the authors, the Internet's history revolves around four distinct aspects. The first is the technological evolution that began with early research on packet switching and the ARPANET (and related technologies), and where current infrastructure research continues to examine issues such as scale, performance, and higher level functionality. The second is the operations and management aspect of a global and complex operational infrastructure. Third is the social aspect, which has resulted in a broad community of "*Internauts"* working together to create and evolve the technology. Finally, there is the communications aspect, resulting in an extremely effective transition of research results into a broadly deployed and available infrastructure. *Id*.

[27] *Id*.

[28] *ACLU v. Reno*, 929 F.Supp. at 831.

[29] *Shea v. Reno*, 930 F. Supp. at 926.

[30] *Brief History of the Internet* at 7.

operating system, which gave rise to "USENET," and the development by two individuals of the "BITNET," which linked academic mainframe computers in an "e-mail as card images" paradigm. With the exception of BITNET and USENET, many of the initial networks were intended for, and largely restricted to, closed communities of scholars and researchers in particular scientific and academic areas and there was little pressure for the individual networks to be compatible with one another.[31]

Internet Protocols. "TCP," or "Transmission Control Protocol," converts messages into streams of packets at the source, then reassembles them back into messages at the destination. "IP," or "Internet Protocol," handles the addressing, seeing to it that packets are routed across multiple nodes and even across multiple networks with multiple standards, including Ethernet, "FDDI" and X.25 protocol.[32] The TCP/IP enables communications between distant public and private networks running over any medium: analog or digital phone lines, traditional network lines, fiber, cable television facilities and wireless systems. It is also "computer independent," running across personal computers (PCs), Macintoshes, workstations and mainframes. Other Internet protocols are the "file transfer protocol" or "ftp," which specifies how directories of files are named and exchanged among client and server computers, and "mail transfer protocols" or "MTP" are used by client computers to send and receive electronic messages -- e-mail -- through mail servers, which store, copy, distribute, and forward the messages to their destinations.[33]

Government Internet Policy. In 1985, the "NSFNET," a high-speed "backbone" network, funded and sponsored by the National Science Foundation, announced programs intended to serve the entire higher education community, regardless of discipline.[34] A condition for a U.S. university to receive NSF funding for an NSFNET connection was that ". . . the connection must be made available to ALL qualified users on campus."[35] That same year, NSF made a critical decision, that TCP/IP would be the mandatory protocol for the NSFNET program, in recognition of the need for a wide-area networking infrastructure to support the general academic and research community. This decision also supported the related decision to develop a strategy for establishing such infrastructure on a basis ultimately independent of direct federal funding.[36] One step in process was to ensure the interoperability of ARPA's and NSF's pieces of the Internet by

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[31] *Id*.

[32] *See, e.g., Digital Tornado* at 10; Metcalfe Lecture.

[33] *See* "Internet Futures," a lecture delivered by Dr. Robert Metcalfe for the Massachusetts Institute of Technology Enterprise Forum, June 26, 1997, available upon request at: <metcalfe@infoworld.com> ("Metcalfe Lecture").

[34] *A Brief History of the Internet* at 7-9.

[35] *Id*. at 7.

[36] *Id*. at 8.

having the two organizations jointly author the formal specifications for "Internet Gateways."[37]

The military portion of ARPANET had been integrated in to the Defense Data Network by the early 1980s, and the civilian portion of ARPANET was taken out of service in 1990. By that time, the NSFNET had supplanted ARPANET as a national backbone to which smaller regional networks were connected. It is this series of linked networks (themselves linking computers and computer networks) that is today commonly known as the Internet.[38]

According to several of the developers of the Internet, in addition to selecting the critical TCP/IP protocols for the NSFNET program, federal agencies made and implemented several other policy decisions which shaped the Internet of today. These significant decisions are:[39]

- Federal agencies shared the cost of common infrastructure and jointly supported "managed interconnection points" for interagency traffic, which served as the models for the Network Access Points ("NAPs") and "*IX" facilities that are prominent features of today's Internet architecture.

- To coordinate this sharing, the Federal Networking Council ("FNC") was formed. The FNC also cooperated with other international organizations, such as RARE in Europe, through the Coordinating Committee on Intercontinental Research Networking, "CCIRN," to coordinate Internet support of the research community worldwide.

- This sharing and cooperation between agencies on Internet-related issues dates back to an agreement in 1981 between CSNET and the NSF, and ARPA that permitted CSNET traffic to share ARPANET infrastructure on a statistical and un-metered settlements basis.

- NSF subsequently encouraged its regional (initially academic) networks of the NSFNET to seek commercial non-academic customers, expand their facilities to serve them, and exploit the resulting economies of scale to lower subscription costs for all.

- On the NSFNET Backbone, the national-scale segment of the NSFNET, NSF enforced an "Acceptable Use Policy" which prohibited Backbone usage for purposes "not in support of Research and Education." The predictable and intended result of encouraging commercial network traffic at the regional and local

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[37] *Id*.

[38] *ACLU v. Reno*, 929 F.Supp. at 832.

[39] The following list has been condensed slightly from the original, which appears at p. 8-9 of *A Brief History of the Internet*.

level, while denying its access to nation-scale transport, was to stimulate the emergence and/or growth of private, competitive long-haul networks such as Performance Systems International ("PSI") and UUNet Technologies ("UUNet") and others.

! The National Research Council published several reports commissioned by the NSF that laid the foundations for the concept of a future "information superhighway." One, in 1988, was entitled, "Towards a National Research Network," ushered in high speed networks that laid the networking foundation for the future information superhighway. Another, published in 1994, entitled, "Realizing the Information Future: The Internet and Beyond,"articulated an influential blueprint for the evolution of the information superhighway. It also anticipated the critical issues of intellectual property rights, ethics, pricing, education, architecture and regulation for the Internet.

! NSF's privatization policy culminated in April, 1995, with the elimination of funding for the NSFNET Backbone. The funds recovered were competitively redistributed to regional networks to buy national-scale Internet connectivity from the now numerous, private long-haul networks. Thus, the backbone had made the transition from a network built from routers out of the research community to commercial equipment in just under nine years.

Thus, while the Internet has been left unregulated in traditional terms, the federal government played a significant role in its funding and development, and through prescient and targeted policy decisions, largely shaped the Internet as we know it today.

Domain Names. "Domain names" are the familiar names for Internet computers.[40] The computer nodes on the Internet are divided into basic categories. Most in the United States are grouped into six generic "top-level domains" ("TLDs" or "gTLDs"): "gov," "mil," "edu," "com," "org," and "net;" respectively, government, military, educational, commercial, non-profit organizations, and net computers serving as gateways between networks.[41] The names map to unique IP numbers that serve as routing addresses on the Internet. The "domain name system" or "DNS," translates Internet names into the IP numbers needed for transmission of information across the network.[42] Currently, all Internet service providers recognize one standard for Internet addresses, known as: "Uniform Resource Locators," or "URLs." The phenomenal growth in Internet usage makes resolution of this issue of critical importance. As of December 1996, about

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[40] *See Digital Tornado* at 18-19. *See also* "A Proposal to Improve Technical Management of Internet Names and Addresses," *Discussion Draft 1/30/98*, a proposed rule of the U.S. Department of Commerce. <http://www.ntia.doc.gov/ntiahome/domainname/dnsdrft.htm> at 1-2 ("*NTIA DNS Proposal*").

[41] *Id*.

[42] *NTIA DNS Proposal* at 1.

627,000 Internet domain names had been registered. Within one year, the number of registered domain names had nearly doubled, to reach 1.5 million.[43]

In 1993, the NSF contracted with a private entity to register three key Internet domain name addresses (.com, .org. and .net), numbering at that time in the thousands. Today, over one million domain names have been registered, and the NSF has recently announced that the commercialization of the Internet leaves the NSF less reason to stay involved, and has no plans to renew the private entity's contract to administer the names.[44] The NSF's action regarding domain names brought to the fore the question of who has sufficient authority over the Internet to control the creation and administration of domain names remains.

The Internet domain name governance issue is currently under examination both domestically and abroad. More recently, U.S. and European policy proposals on the future governance of the Internet are reported as indicating a growing consensus "that all pending decisions on Internet governance should be referred to the [a] new private-sector, self-regulatory Internet Assigned Numbers Authority (IANA)," which is to be created in the next few months.[45]

Decentralized Control. During the 1990s, the Internet expanded explosively beyond universities and scientific sites to include businesses and individual users connecting through commercial ISPs and consumer online services.[46] By the time the federal agencies had ceased direct funding for the Internet, the TCP/IP protocols had supplanted or marginalized most other wide-area network computer protocols. Collaborative coordinating activities were responsible for much of the practical, engineering and standards-setting functions supporting Internet communications. "Because the Internet links together independent networks that merely use the

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[43] "*The Emerging Digital Economy*," at 2.

[44] *See* Rebecca Quick, "*Internet Addresses Spark Storm in Cyberspace,"* Wall Street Journal, April 29, 1997, at B1; David Hilzenrath, "*Network Solutions Dropped as Registrar of Internet Domains*," Washington Post, April 24, 1997 at E1; "*ITU to Serve as 'Depository' for Internet Domain Document*," Telecommunications Reports, April 28, 1997 at 29. Shortly thereafter, an international accord was signed (Memorandum of Understanding "MoU") that directs the International Telecommunications Union ("ITU") to act as depository for the MoU. The MoU sets up a new self-governing system for registration of Internet addresses, however not all Internet service providers have agreed to this accord. Francis Williams, *"Pact will regulate registration of Internet addresses*," Financial Times, May 1, 1997 at p.6; "*Internet Group Signs Accord on Addresses; But Holdouts Remain*," Wall Street Journal, May 2, 1997 at B2. *See also NTIA DNS Proposal*. The U.S. prepared a revised version of its policy regarding Internet governance in June, 1998. "*European Commission Paper Welcomes Changes in U.S. Plan for Future Internet Governance*," Telecommunications Reports, August 3, 1998 at 21. The U.S. Department of Commerce's revised statement of policy on the Internet Domain Name System is available at <http:www.ntia.doc.gov/ntiahome/domainname/6_5_98dns.htm>.

[45] *Id.*, Telecommunications Reports, August 3, 1998 at 21.

[46] *See Shea v. Reno*, 930 F. Supp. at 926; *ACLU v. Reno*, 929 F.Supp. at 831 (in 1981, fewer than 300 computers were linked to the Internet; by 1990, over 9.4 million host computers worldwide, of which approximately 60% are located within the United States, were estimated to be linked to the Internet).

same data transfer protocols, it cannot be said that any single entity or group of entities controls, or can control, the content made publicly available on the Internet, or limits or can limit, the ability of others to access public content."[47] Rather, the Internet:

> exists and functions as a result of the fact that hundreds of thousands of separate operators of computers and computer networks independently decided to use common data transfer protocols to exchange communications and information with other computers (which in turn exchange communications and information with still other computers). There is no centralized storage location, control point, or communications channel for the Internet.[48]

No single government or network entity has responsibility for managing the Internet as a whole. Nonetheless, certain functions, such as domain name routing and standards setting must be coordinated to ensure technical compatibility if each network had to coordinate such issues with all others.[49] Such coordination functions have largely been accomplished through voluntary agreements between large user organizations.[50]

As the Internet continues to evolve away from its origins as a method of linking military, scientific and academic communities to a commercial communications medium, changes in the way access and service are provided are likely to increase, which in turn are likely to result in increased calls for regulation.

Defining the Internet. On October 24, 1995, the Federal Networking Council passed a resolution defining the term Internet, in consultation with members of the Internet and intellectual property rights communities. The definition is as follows:

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[47] *Shea v. Reno*, 930 F.Supp. at 926.

[48] *ACLU v. Reno*, 929 F.Supp. at 832.

[49] *Digital Tornado* at 20.

[50] *Id.* at 20-21. "The Internet Society ("ISOC"), established in 1992, is the closest thing to an authoritative body. Although non-governmental, it receives some government funding. Membership is open to any business, organization or individual interested in "extending the development and availability of the Internet and its associated technologies and applications." The Internet Engineering Task Force ("IETF), predates the ISOC, but now operates in association with it. IETF is a large, open international community of network designers, operators, vendors, and researchers who develop standards for the Internet. The Worldwide Web Consortium ("W3C") was formed in 1994 to formalize standards for the Web. Domain name registrations have also been handled cooperatively. They are done through "InterNIC," a project partially supported in the past by NSF, but run by AT&T and Network Solutions, Inc. ("NSI"), private corporations." BBN Corporation, "Get Smart: Customer Tutorial, What actually is the Internet?", <www.bbn.com/getsmart/what.html>

> *RESOLUTION: The Federal Networking Council (FNC) agrees that the following language reflects our definition of the term "Internet." "Internet" refers to the global information system that -- (i) is logically linked together by a globally unique address space based on the Internet Protocol (IP) or its subsequent extensions/follow-ons; (ii) is able to support communications using the Transmission Control Protocol/Internet (TCP/IP) suite or its subsequent extensions/follow-ons, and/or other IP-compatible protocols; and (iii) provides, uses or makes accessible, either publicly or privately, high level services layered on the communications and related infrastructure described herein.*[51]

As the foregoing definition demonstrates, it remains difficult even today to describe the Internet without lapsing into highly technical language. There are a huge variety of potential applications for the new Internet-based technologies, all of which offer broader options for global communication among telephone subscribers and computer users. Netscape has described the new paradigm of the Internet as "a connection-less protocol for communications traversing multiple interconnected carrier networks."[52] The Internet also encompasses numerous "intranets" and sector enterprise networks which, although operated privately, use the same physical networks, technologies and protocols.[53] Netscape argues that Internet technology is rapidly opening the way for new forms of "intermodal" competition.[54]

### 2. Features and Functions of Communications Over the Internet

Packet Switching. The basic operational characteristics of the Internet are that it is a distributed, interoperable, packet-switched network.[55] It is comprised of an interconnected web of "host" computers, each of which can be accessed from virtually any point on the network. Routers (other computers) throughout the network regulate the flow of data at each connection point, in contrast to the centralized public switched telephone network, in which all users within a local exchange connect to a single switch location. The network is interoperable through use of common or open protocols, permitting many different types of networks and facilities to be transparently linked together, and over which multiple services can be provided to different

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[51] *A Brief History of the Internet* at 13 (italics original).

[52] Netscape Opposition filed in response to ACTA Petition, RM No. 8775, filed May, 8, 1996, text at n. 17, <http://www.technologylaw.com/acta_com.html>.

[53] *Digital Tornado* at 16.

[54] *Id*.

[55] *Id.* at 10, 17-18. *See also ACLU v. Reno*, 929 F.Supp. at 831.

users.[56] Packet-switching splits up data transmitted over packet-switched networks into small chunks or "packets." In contrast to circuit-switched networks, it does not require a dedicated end-to-end transmission path (or circuit) to be opened for each transmission. Rather, each router calculates the best routing for a packet at a particular moment, given current traffic patterns, and send the packet to the next router, through a process known as "dynamic routing." At the destination point, packets must be reassembled, and packets that do not arrive must be resent.[57] "This system allows for efficient use of network resources, as many different communications can be routed simultaneously over the same transmission facilities."[58]

Common Protocols. The TCP/IP protocols function by sending data packets on any available path, with dynamic self-adapting routing.[59] The data comprising an Internet communication can therefore be handled by numerous different networks, with different portions of the communication being routed over completely different computer networks. Internet routers have no fixed routing tables, but rather dynamically update themselves by "talking" autonomously to other routers on the Internet in order to find available paths over which to transmit Internet data packets. There is no certainty that IP packets will follow the same path for a continuing stream of data or session; and if the underlying connectivity is broken or if congestion arises, an almost infinite array of alternative paths could be employed without the user or ISPs knowing it.[60]

> When an end user sends information over the Internet, the data is first broken up into packets, [each of which contains] a header that indicates the point from which the data originates and the point to which it is being sent, as well as other information. TCP/IP defines locations on the Internet through use of "IP numbers."[61]

"Internet users generally do not need to specify the IP number of the destination site, because IP numbers can be represented by alphanumeric domain names such as 'fcc.gov.'"[62] "Domain name servers throughout the network contain tables that cross reference these domain names with their underlying IP numbers;" the network "convert[s] the destination into its corresponding IP number

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[56] *Digital Tornado* at 17.

[57] *Id*.

[58] *Id.* at 18.

[59] *Id.* at 18.

[60] *See* Netscape Opposition, *supra*, text at notes 21, 22; *Digital Tornado* at 11-18.

[61] *Digital Tornado* at 18.

[62] *Id*.

and use[s] that for routing purposes."[63]

Internet Services. The routing mechanisms of TCP/IP do not define the actual services provided through the Internet to end users.[64] The Internet services "depend on higher-level applications protocols, such as hypertext transport protocol ("HTTP"); file transfer protocol ("FTP"); network news transport protocol ("NNTP"), and simple mail transfer protocol ("SMTP").[65] "Because these protocols are independent of the Internet itself, a new application-layer protocol can be operated over the Internet through as little as one server computer that transmits the data in the proper format, and one client computer that can receive and interpret the data."[66]

> By the late 1980s, the primary Internet "services" included e-mail, Telnet, FTP and USENET news. E-mail, the most widely used Internet-based service, allows users to send text-based messages to each other using a common addressing system. Telnet allows users to "log into" other proprietary networks, such as library card catalogs, through the Internet, and to retrieve data as though they were directly accessing those networks. FTP allows users to "download" files from a remote host computer onto their own system. USENET "newsgroups" enable users to spot and review messages on specific topics.[67]

World Wide Web. The World Wide Web or "Web" is one of the most well-known remote information retrieval methods.[68] The Web began in 1989 as an experiment at CERN, the European Particle Physics Laboratory in Switzerland to enable members of CERN's widely dispersed high-energy physics community to share information readily.

> [It] was created to serve as the platform for a global, online store of knowledge, containing information form a diversity of sources and accessible to Internet users around the world. Though information on the Web is contained in individual computers, the fact that each of these computers is connected to the Internet through Internet

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[63] *Id.* at 19.

[64] *Id.* at 19.

[65] *Id.* at 18.

[66] *Id*.

[67] *Id.* at 19-20. *See also Report to Congress* at paras. 76-77 for a description of the Internet services that Internet access providers (ISPs) typically provide their subscribers.

[68] *ACLU v. Reno*, 929 F.Supp. at 836.

> protocols, allows all of the information to effectively become part of single body of knowledge.[69]

"The Web is essentially a series of documents stored in different computers all over the Internet."[70] From the user's perspective, the Web appears as a giant global distributed database of multimedia documents. "Documents contain information stored in a variety of formats, including text, still images, sounds, and video."[71]

"An essential element of the Web is that any document has an address (rather like a telephone number). Most Web documents contain "links," which are short sections of text or image which refer to another document."[72] "Many organizations now have 'home pages' on the Web. These are documents which provide a set of links designed to represent the organization, and through links from the home page, guide the user directly or indirectly to information about or relevant to that organization."[73] Thus, full-scale user interfaces and complex services such as online shopping, continuously up-dated news information, and interactive games can be provided through the Internet over a non-proprietary system. Increasingly, the Web is becoming an interactive medium, where sites invite visitors to offer feedback via e-mail and to participate in online chats. The Web thus forms the foundation for virtually all of the new Internet-based services that are now under development.

The Web utilizes three Internet protocols. The first, URLs, are a standard way of specifying a type of Web document, the domain name server where it is to be found, and the location of the document on the server's disk.[74] The second, "Hypertext Markup Language or "HTML," is a standard format for Web documents that allows them to be formatted richly and to make references, or "Hyperlinks," using URLs, to other Web documents.[75] The "Hypertext Transfer Protocol," or "HTTP," uses DNS to resolve URLs and uses TCP/IP to download HTML documents from servers to client browsing software.[76]

"The Web links together disparate information on an ever-growing number of Internet-

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[69] *Id*.

[70] *Id*.

[71] *Id*.

[72] *Id.* at 836.

[73] *Id.*

[74] *See* Metcalfe Lecture.

[75] *Id*.

[76] *Id.*

linked computers by setting common information storage formats, the HTML, and a common language" or open architecture coding format that drives text and graphics for Web documents, the HTTP.[77] "The Web was designed so that organizations with computers containing information can become part of the Web simply by attaching their computers to the Internet and running the appropriate Web software."[78] Although from the user's perspective it may appear to be a single, integrated system, in reality it is a distributed system with no centralized control point.[79]

> The Web exists fundamentally as a platform through which people and organizations can communicate through shared information. When information is made available, it is said to be "published" on the Web. Publishing on the Web simply requires that the "publisher" has a computer connected to the Internet and that the computer is running Web server software.[80]

Various "search engines," or "browsers," such as "Yahoo," "Lycos" and "Magellan," have been developed to allow users of the Web to search for particular information among all of the public sites that are part of the Web.[81] The browsers permit the user to access information by pointing to it with a computer "mouse" or keystroke.

Service Providers. As noted above, in contrast to traditional telephone networks, no one entity or organization governs the Internet.[82] Each facilities-based network provider that is interconnected with the global Internet controls operational aspects of its own network. It is still possible to differentiate "online service providers" from "Internet service providers" or "ISPs," although the distinctions have grown blurred in practice.[83] Online service providers, such as America Online, Inc., CompuServe, Inc., Netcom, Earthlink and the Microsoft Network generally combine content origination, computer database services and proprietary interfaces with IP access (a computer connection) to the Internet.[84] These services offer nationwide computer networks

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[77] *See Digital Tornado* at 19-20; *see also ACLU v. Reno*, 929 F.Supp. at 837-38.

[78] *ACLU v. Reno*, 929 F.Supp. at 38.

[79] *Id.*

[80] *Id.*

[81] *Id*.

[82] *ACLU v. Reno*, 929 F.Supp. at 838.

[83] *Id.* at 833.

[84] *See Report to Congress* at para. 63. Online service providers package proprietary content with Internet access, and that ISPs increasing are adding content, such as Internet directories, search engines, and user-configuration real-time information distribution, to their services.

(so that subscribers can dial-in to a local telephone number) and the services provide extensive and well-organized content within their own proprietary computer networks and also allow subscribers to link to the much larger resources of the Internet. ISPs generally offer consumers and businesses purely access to the Internet, including at least an IP connection to an Internet host/router. More typically they offer a full point-to-point protocol IP connection, allowing the end user to connect to the Internet using communications software on his or her own computer. ISP offerings typically include dial-up analog, ISDN, dedicated and frame-relay based Internet connections.[85] "Content providers make information available on 'servers' connected to the Internet, where it can be accessed by end users."[86]

By mid-1997, there were more than 3,700 ISPs in North America alone.[87] More recent estimates indicate that the number of local and regional ISPs has grown to over 4,800.[88] At one point, collectively, the "Big Four" online service companies -- America Online, Inc., ("AOL") CompuServe (CompuServe was later acquired by AOL), Microsoft Corp., and Prodigy, Inc. -- served 84% of the total audience. Including AT&T Corp.'s "WorldNet" (the largest so-called "pure" Internet access provider) into a "Big Five" takes the collective total market share of these entities up to 88%, and underscores the increasing contribution of Internet access services to the overall online services sector.[89] At the time of the lower court cases challenging the Communications Decency Act, these commercial online services had almost 12 million individual subscribers.[90]

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[85] *See, generally*, *Report to Congress* at para. 63 ("*Access providers*, more commonly known as Internet service providers, combine computer processing, information storage, protocol conversion, and routing with transmission to enable users to access Internet content and services;" "Internet access providers" and "Internet service providers" are used interchangeably in the *Report*).

[86] *Id.* at para. 63. The Commission has identified major content providers to include, *inter alia*, Yahoo, Netscape, and Time Warner's "Pathfinder" service. *Id.*

[87] *See* Metcalfe Lecture. Because widespread use of the Internet is fairly recent, and its uses are developing rapidly, reliable figures are difficult to find. This discussion cites generally accepted figures reported over the last year to illustrate the magnitude of the industry. Carriers are cited by name and industry position for similarly illustrative purposes. The pace of industry consolidations and related corporate changes complicates the task facing any written analysis of the Internet industry.

[88] *See* Matt Richtel, "*Power Companies Embrace the Internet*," The New York Times, August 3, 1998 at D3 (Boardwatch Magazine, and industry trade journal, reports the number of ISPs to have grown to 4,850 from 1,500 since 1993); *see also* Greg Howard, "*What Mom and Pop are Doing*," tele.com, April 1998, Vol. 3, No. 4 at 43 (reporting results of 1998 survey conducted on local and regional Internet providers by "Infonetics Research") ("*What Mom and Pop are Doing*").

[89] *See* "*Online Services Households Top 20 Million Mark; IISR Scoreboard Shows Big 4 Serve 84% of the Total Audience*," Telecommunications Reports Daily, April 28, 1997 (reporting results of quarterly census conducted by TR's sister publication, Information & Interactive Services Report). Erols is an example of another "pure" Internet access provider.

[90] *See Reno v. ACLU*, 117 S. Ct. at 2334.

Both ISPs and online service providers transport TCP/IP packets to the next IP router up the line, typically a mid-level or backbone Internet gateway.[91] Metcalfe divides ISPs into the following categories: "Backbone" ISPs specialize in high-speed long haul circuits, and they employ large, fast routers and switches to provide their service. "Dial-Up" ISPs specialize in many points of presence, or "POPs," which accept local dial-in calls from clients using modems. "Backend" ISPs specialize in Web hosting and carrying frequently accessed information to server caches near to large populations of users. "Frontend" ISPs specialize in high-performance access and data caching for local user populations. In addition, the large telephone companies are beginning to integrate into Internet markets, in part through vertical and horizontal mergers.[92] Infonetics Research, Inc. has also recognized segmentation among ISPs, and has classified providers into five distinct groups: "local and regional ISPs, competitive local exchange carriers, cable operator ISPs, major Internet backbone providers, and telco ISPs."[93]

"Backbone providers" "route traffic between Internet access providers, and interconnect with other backbone providers."[94] Reports in mid-1997 indicated that five Internet "backbone" suppliers in the United States, MCI Communications, Sprint, UUNet Technologies Co. (subsequently acquired first by MFS Communications, Co., and later by WorldCom), BBN (later a unit of the GTE Corporation), and ANS, handled approximately 80 percent of the nation's Internet traffic.[95] Worldcom Inc., a Jackson Miss. telephone company, announced in early September, 1997 that is would acquire Compuserve and then sell its consumer subscription service to AOL, the largest on-line provider in the U.S. In return, AOL was to sell its Internet telecommunications unit, ANS, to WorldCom. WorldCom also became owner of UUNet through its purchase of MFS Communications. In early October, 1997, WorldCom announced a bid to acquire MCI Communications Corp., another significant provider of Internet infrastructure.[96]

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[91] *See* Metcalfe Lecture.

[92] *Id*.

[93] *What Mom and Pop are Doing*, tele.com at 43. The author of the article is the director of service provider programs at Infonetics Research, Inc. *Id*. at 44. The article discusses primarily the results of its survey of the ISP industry with respect to local and regional ISPs. Infonetics explains that a "local ISP has points of presence (POPs) within one state, and a regional ISPs has POPs in more than one state but does not have direct connections to network access points on both the East and West Coasts." *Id*. at 44.

[94] *Report to Congress* at 63.

[95] *See* Steve Lohr, "*The Internet as Commerce: Who Pays, Under What Rules?"* New York Times, May 12, 1997 at D1.

[96] *See* "*Worldcom to Buy CompuServe Corp.*," Wall Street Journal, Sept. 8, 1997 at A-3; *"Would WorldCom-MCI Deal Lift Tolls on the Net?*," Wall Street Journal, Oct. 2, 1997 at B-1. The combined company, if Worldcom succeeds with its offer, would control more than 60 percent of all U.S. traffic on the Internet and a large share of the traffic world wide, according to some estimates. Such a concentration of ownership of backbone Internet infrastructure may be a harbinger of changes in the way Internet-based services are priced and provided in the future. GTE, a competing bidder for MCI, is reported to have estimated that the combination of MCI with its

Subsequently, MCI and WorldCom announced an agreement to sell MCI's Internet holdings to address concerns by U.S. and European regulators that the combined company would unfairly control traffic on the Internet.[97]

Network Interconnection Arrangements. The sharing of traffic over the interconnected networks forming the Internet on a statistical and un-metered "settlements" (or "bill & keep") basis was a hallmark of early federal agency involvement in the development of the Internet. This system of traffic carriage free of charge became known as "peering."[98] Another arrangement for traffic carriage was for one network to purchase the ability to have its traffic transit another network to other points on the Internet.

Accessing the Internet. There are multiple options for individuals to access the Internet, in addition to the commercial on-line services, including access through their schools and employers.[99] Many educational institutions, businesses, libraries, and individual communities maintain a computer network linked directly to the Internet and issue account numbers and passwords enabling users to access the network directly or by modem.[100] Many communities across the country have established "free-nets" of community networks to provide their citizens with a local link to the Internet, and to provide local-oriented content and discussion groups. In addition, individuals can also access the Internet using some (but not all) of the thousands of local dial-in computer services, often called "bulletin board systems" or "BBSs."[101]

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backbone network and WorldCom through UUNet would control almost 40 percent of the data moving across the Internet. *See* Communications Daily, October 22, 1997, reporting views of GTE General Counsel William Barr regarding relative merits and problems with respect to WorldCom versus GTE's bids to acquire MCI. Barr allegedly distinguished GTE's acquisition of BBN as giving GTE a reseller of Internet access, not the facilities that controlled such access.

[97] *See* Mike Mills, "*Cable & Wireless, MCI Reach Deal*," The Washington Post, July 14, 1998 at C1.

[98] *See Brief History of the Internet* at 7-10. In May, 1997, WorldCom's ISP subsidiary, UUNet, announced that it would no longer provide "peering" service to smaller ISPs whose traffic is not routed on a "bilateral and equal basis." UUNet would continue peering traffic exchanges only with ISPs that operate a national network with dedicated diversely routed DS-3 or faster backbone facilities. For companies whose infrastructure does not support the exchange of similar traffic levels, UUNet would impose a monthly charge based upon the capacity of the connection. Steve Lohr, "*The Internet as Commerce: Who Pays, Under What Rules?*" New York Times, May 12, 1997 at D1. Following an outcry among Internet service providers, WorldCom dropped this plan. *See* Communications Daily, October 22, 1997.

[99] *ACLU v. Reno*, 929 F.Supp. at 832.

[100] A "modem" (a contraction of "modulator" and "demodulator") is a device that translates digital information into a signal for transmission over a telephone (or cable) line ("modulation") and translates a signal received over a telephone line into digital information ("demodulation"). *Shea v. Reno*, 930 F.Supp. at 926 n.4. For purposes of the Communications Decency Act, the court in *ACLU v. Reno* found that a modem could be considered a "telecommunications device." 929 F.Supp. at 828 n.5.

[101] *ACLU v. Reno*, 929 F.Supp. at 833.

Communicating Over the Internet. "Once one has access to the Internet, there are a variety of different methods of communication and information exchange over the network, which are themselves constantly evolving."[102] Although constantly evolving, "the most common methods of communications on the Internet (as well as the major online services) can be roughly grouped into six categories: (1) one-to-one messaging (such as "e-mail"); (2) one-to-many messaging (such as "listserv"); (3) distributed message databases (such as "USENET newsgroups"); (4) real time communication (such as "Internet Relay Chat"); (5) real time remote computer utilization (such as "telnet"), and (6) remote information retrieval (such as "ftp," "gopher," and the "World Wide Web")."[103] Various types of information, including text, data, computer programs, sound, visual images (*i.e.*, pictures), and moving video images can be transmitted by most of these methods.

Each of these six categories involves one of two basic uses of the Internet. "First, an individual who obtains access to the Internet can correspond or exchange views with one or many other Internet users. Second, a user can locate and retrieve information available on other computers."[104] "For any communication to take place over the Internet, two pieces of software, adhering to the same communication protocol, are required. A user must have access to certain kinds of 'client' software, which enables his computer to communicate with and make requests of remote computers where information is stored; these remote computers must be running 'server' software, which provides information in response to requests by client software."[105]

## B. Statutory Definitions and Policies

The 1996 Act defines the term "Internet" as, "the international computer network of both Federal and non-Federal interoperable packet switched data networks."[106] It defines the term "interactive computer service" to mean, "any information service, system, or access software provider that provides or enables computer access by multiple users to a computer server, including specifically a service or system that provides access to the Internet and such systems operated or services offered by libraries or educational institutions."[107]

The 1996 Act added many definitions to those contained in the Communications Act of 1934, both in the general definitions of Title I, section 3, and in specific provisions under Title VI.

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[102] *Id.* at 834.

[103] *Id.*

[104] *Shea v. Reno*, 930 F.Supp. at 926.

[105] *Id.* at 927.

[106] 47 U.S.C. § 230(e)(1).

[107] 47 U.S.C. § 230(e)(2).

Definitions relevant to the classification and regulatory treatment of Internet-based services that will be examined in this paper are found throughout Title I, governing wire communications ("telecommunications," "telecommunications carrier," "telecommunications service," "information service," "wire communication");[108] Title VI, governing cable communications ("cable service," "video programming," "other programming service," "cable system,""cable operator," "interactive on-demand services,"[109]); and Section 706 of the 1996 Act ("advanced telecommunications capability").[110]

The operative provisions of the 1996 Act deal with the Internet itself in fairly limited ways. The general approach to the Internet in the 1996 Act appears to have been that computer networks, web pages and on-line services comprised a market that was sufficiently competitive so that federal regulatory intervention was both unnecessary and undesirable.[111] The major area where the Congress did attempt to regulate interactive computer services involved the presentation of indecent material which could be accessed by minors. In addition to several noncontroversial provisions,[112] section 223 made the use of interactive computer services to display "patently offensive" sexually explicit material so that it was "available" to minors a criminal offense.[113]

Section 223(e)(6), which lists defenses to claims of violations of the operative provisions in subsection (a) and (d), specifically states that "[n]othing in this section shall be construed to

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[108] 47 U.S.C. § 153(43)(telecommunications); § 153(44)("telecommunications carrier"); § 153(46)("telecommunications service"); § 153(20)("information service"); § 153(51)("wire communication" or "communication by wire").

[109] 47 U.S.C. § 522(6)("cable service"); § 522(20)( "video programming"); § 522(14)("other programming service"); § 522(7)("cable system"); § 522(5)("cable operator"); § 522(12)("interactive on-demand services").

[110] Section 706 of the 1996 Act, entitled, "Advanced Telecommunications Incentives," directs the Commission to periodically initiate and complete inquiries concerning the availability of "advanced telecommunications capability," for all Americans, and in particular, elementary and secondary schools and classrooms, and to take appropriate action to accelerate deployment of such services. 47 U.S.C. § 157 nt; *see* § 157(c)(1) nt ( "advanced telecommunications capability").

[111] *See* Michael Meyerson, "*Ideas of the Marketplace: A Guide to the 1996 Telecommunications Act,*" Federal Communications Law Journal, Vol. 49, Number 2, Feb. 1997, at 284-85.

[112] For example, the 1996 Act makes it a crime to use telecommunications devices to induce a minor to engage in any illegal sexual act, 1996 Act, section 508, codified at 18 U.S.C. § 2422(b), or to annoy or harass another person either with obscene and indecent communication or by repeated telephone calls. Section 502, codified at 47 U.S.C. § 223(a)(1)(B), (D)-(E). The Act also clarifies that it is a felony to use a computer to transmit obscene material. Section 508, codified at 18 U.S.C. 1462. Pre-existing obscenity law was generally interpreted to reach that result. *See United States v. Thomas*, 74 F.3d 701, 704-05 (6th Cir. 1995) (affirming obscenity convictions for the operation of a computer bulletin board). Meyerson, *id*. at 285 n.210.

[113] The Communications Decency Act of 1996, which constitutes Title V of the 1996 Act, is codified at 47 U.S.C. § 223(a) to (h) ("CDA").

treat interactive computer services as common carriers or telecommunications carriers."[114] On the other hand, the Act protects what it terms "good samaritan" blocking of certain programming.[115] The 1996 Act also protects those who provide connections to the Internet or networks they do not control, and who are not responsible for on-line content. This protection is reserved for "entities that simply offer general access to the Internet and other online content."[116] Thus, a possible distinction appears to be imbedded in these provision of 1996 Act between the regulatory treatment of entities that provide only access to the Internet, but no content of their own origination, and Internet-based service providers who originate and provide their own online content together with access to the Internet.

Several provisions of the CDA were held unconstitutional by two different three-judge courts in *ACLU v. Reno* and *Shea v. Reno*.[117] These judgments were affirmed by the Supreme Court in *Reno v. ACLU*, 117 S.Ct. 2329 (1997). The Supreme Court held, *inter alia*, that the "indecent transmission" provision, section 223(a), and the "patently offensive display" provision, section 223(d), were content-based blanket restrictions on speech, and, as such, could not be properly analyzed on First Amendment challenge as a form of time, place, and manner regulation, and that the challenged provisions to be facially overly broad, in violation of the First Amendment.

Significantly, the Supreme Court rejected attempts to find a proper analogy for the Internet to other previously recognized media of communications, and instead focussed on the unique nature of the Internet and Internet communications.[118] "As the District Court found, 'the

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[114] 47 U.S.C. § 223(e)(6). Section 223(e)(6) by its terms applies only as a defense to charges that a provider of interactive computer services has violated the Communications Decency Act provisions of the 1996 Act. Nonetheless, it is instructive of a broad congressional policy to temper the Commission's authority with respect to the rapidly changing information services market.

[115] 47 U.S.C. 230(c)(2). This provision states that those who run interactive computer services may not be held liable if they voluntarily restrict access to material they consider, in good faith, to be "obscene, lewd, lascivious, filthy, excessively violent, harassing or otherwise objectionable."

[116] *Id.*, § 223(e); *see Joint Explanatory Statement* at 190.

[117] *ACLU v. Reno*, 929 F. Supp. 824 (First Amendment was violated by provisions of the Communications Decency Act that prohibited transmission of obscene or indecent communications by means of a telecommunications device and that prohibited sending patently offensive communications to person under the age of 18 through use of interactive computer service); Shea v. Reno, 930 F.Supp. 916 (First Amendment was violated by provisions of CDA that prohibited transmission of obscene or indecent communications by means of telecommunications device and that prohibited sending patently offensive communications to person under the age of 18 through use of interactive computer service; for purposes of CDA, a modem is a "telecommunications device"; court deferred resolution of tension between terms "telecommunications device" and "interactive computer service" in the statute for another day).

[118] *See, e.g., Reno v. ACLU*, 117 S.Ct at 2334-35 (Internet communication and information retrieval methods such as e-mail, listservs, newsgroups, chat rooms, and the World Wide Web, taken together "constitute a unique

content on the Internet is as diverse as human thought.' 929 F.Supp., at 842 (finding 74). We agree with its conclusion that our cases provide no basis for qualifying the level of First Amendment scrutiny that should be applied to this medium."[119]

The Court found that the "vast democratic fora of the Internet has [not] been subject to the type of government supervision and regulation that has attended the broadcast industry,"and that the Internet is not as invasive as radio or television.[120] Nor is the Internet supervised by any federal agency, and cannot be considered a "scarce" expressive commodity like broadcast spectrum at the outset of governmental regulation. "This dynamic, multifaceted category of communication includes not only traditional print and news services, but also audio, video, and still images, as well as interactive, real-time dialogue."[121]

The remainder of the CDA, apart from the "indecent transmission" and "patently offensive display" provisions, was left intact by the Court's decision in *Reno v. ACLU*. One of the remaining portions of the CDA is the "On-line Family Empowerment," provision. Section 509 of the 1996 Act, "Online Family Empowerment," amended Title II of the Communications Act of 1934 by adding at the end new section 230, "Protection for Private Blocking and Screening of Offensive Material." Section 230(a) contains five significant congressional findings with respect to the Internet:

> (1) The rapidly developing array of Internet and other interactive computer services available to individual Americans represent an extraordinary advance in the availability of educational and informational resources to our citizens.
> (2) These services offer users a great degree of control over the information that they receive, as well as the potential for even greater control in the future as technology develops.
> (3) The Internet and other interactive computer services offer a forum for a true diversity of political discourse, unique opportunities for cultural development, and myriad avenues for intellectual activity.
> (4) The Internet and other interactive computer services have flourished, to the benefit of all Americans, with a minimum of government regulation.
> (5) Increasingly, Americans are relying on interactive media for a

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medium -- known to its users as 'cyberspace' -- located in no particular geographic location but available to anyone, anywhere in the world, with access to the Internet").

[119] *Id.* at 2344.

[120] *Id.* at 2343.

[121] *Id*. at 2344.

variety of political, educational, cultural, and entertainment services.[122]

Section 230(b), in relevant part, states that, it is the policy of the United States, "to promote the continued development of the Internet and other interactive computer services and other interactive media [and] to preserve the vibrant and competitive free market that presently exists for the Internet and other interactive computer services, unfettered by Federal or State regulation."

## III. VOICE AND DATA COMMUNICATIONS UNDER COMMISSION'S RULES

The Communications Act of 1934, as amended ("the Act") gave the Commission extensive authority over all "common carriers," which the Act defined to include all persons "engaged as a common carrier for hire, in interstate and foreign communication."[123] Title II of the Act requires, *inter alia*, "that common carriers provide service at just and reasonable prices, and subject to just and reasonable practices, classifications and regulations; that they make no unjust or unreasonable discrimination; that they file tariffs, subject to Commission scrutiny; and that they obtain Commission approval before acquiring or constructing new lines."[124]

How to reconcile the "convergence and interdependence of communication and data processing technologies" with the strictures of Title II common carrier regulation has been the subject of one of the Commission's longest running, and most complicated, set of proceedings.[125] In the mid-1960s, the Commission determined that communications over telephone lines increasingly involved computers, with respect to both the means of communication -- how a message is transmitted and switched -- and the content of the communication -- providing data processing services to users.[126] The Commission initiated a series of proceedings in 1966, known as the *"Computer Inquiry"* proceedings, which, at the outset attempted to separate the regulatory treatment of computers that were involved in the means of communication from the treatment of computers which perform data processing services.[127]

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[122] 47 U.S.C. § 230(a). This memo discusses only the legislative findings and statement of policy contained in section 230.

[123] *Report to Congress* at para. 22.

[124] *Id*. (footnotes omitted), *citing* 47 U.S.C. §§ 201(b), 202(a), 203-205, 214.

[125] *See Regulatory and Policy Problems Presented by the Interdependence of Computer and Communication Service and Facilities, Notice of Inquiry*, 7 FCC 2d 11, 12 (1966).

[126] *ESP Status of ISPs at 11*.

[127] *See Regulatory and Policy Problems Presented by the Interdependence of Computer and Communication Service and Facilities, Notice of Inquiry*, 7 FCC 2d 11, 12 (1966); *Supplemental Notice of Inquiry*, 7 FCC 2d 16

From the outset, the central regulatory and policy questions in the *Computer Inquiry* proceedings were: "(a) the nature and extent of the regulatory jurisdiction to be applied to data processing services; and (b) whether, and under what circumstances, and subject to what conditions or safeguards, common carriers should be permitted to engage in data processing."[128] The primary focus of the Commission's effort was the establishment of regulatory safeguards that would permit efficient telephone company participation in competitive computer and data processing service markets, while at the same time protecting their customers and competitive service providers against unlawful cross-subsidization and interconnection discrimination through the establishment of competitive safeguards.[129] The regulatory categories that emerged reflect these goals, and still form the basis for regulation of certain Internet access services provided by Title II common carriers.

## A. *Computer I*

*Computer I* delineated the circumstances in which computer use constituted common carrier communication subject to regulation under Title II of the Act versus unregulated data processing.[130] Under *Computer I*, the Commission looked at the manner in which computerization was employed to determine how a service would be regulated. To facilitate this functional approach, the Commission established a three-part classification of computer and communications services, based on their technological and functional characteristics, with a different regulatory treatment for each classification. "Data processing" was defined as the use of a computer for the

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(1967).

[128] *Regulatory and Policy Problems Presented by the Interdependence of Computer and Communication Services and Facilities*, *Tentative Decision*, 28 FCC 2d 291, 295 (1970) (*Computer I Tentative Decision*); *Final Decision and Order*, 28 FCC 2d 226 (1971) (*Computer I Final Decision*), *aff'd in part sub nom. GTE Serv. Corp. v. FCC*, 474 F.2d 724 (2nd Cir.) (*Computer I.*), *decision on remand*, 40 FCC 2d 293 (1973) (*Computer I Remand*). In the *Computer I Tentative Decision*, the Commission identified possible dangers to the competitive data processing markets posed by common carrier entry as follows: "The dangers . . . relate primarily to the alleged ability of common carriers to favor their own data processing activities by discriminatory services, cross-subsidization, improper pricing of common carrier services, and related anticompetitive practices and activities." 28 FCC 2d at 301-302.

[129] *Computer I Tentative Decision*, 28 FCC 2d at 295.

[130] *Computer I Final Decision*, 28 FCC 2d at 268-70 (discussion of the extent of Commission jurisdiction over data processing not necessary in light of decision not to regulate date processing as such; however, Commission reserves right to reexamine its policies in future should significant changes in the structure of the industry develop or if abuses occur that require the exercise of corrective action); *Computer I Tentative Decision*, 28 FCC 2d at 295-98 (Commission has broad regulatory jurisdiction over communications by wire or radio that may encompass data processing services, but also has discretion in determining jurisdictional base and regulatory tools most effective in advancing Congressional objective; effective competition in data processing market renders governmental regulation of such activities at this time unnecessary, except to limited extent of regulating provision of such services by certain common carriers). *See, also, ESP Status of ISPs* at 11; People of the State of California v. FCC, 905 F.2d 1217, 1240 n.35 (9th Cir. 1990) (Commission's Title I jurisdiction over enhanced services is ancillary to its Title II authority over common carrier communications services).

processing of information as distinguished from the use of computers for circuit or message-switching.[131] "Processing" was defined as involving the use of the computer for operations which include, *inter alia*, the functions of storing, retrieving, sorting, merging and calculating data, according to programmed instructions.

Title II empowers the Commission to regulate only common carriers engaged in interstate or foreign communication by wire or radio.[132] The Commission determined not to regulate "data processing" services, which it found were being offered on a highly competitive basis.[133] The Commission chose to regulate what it described as "communications services" as common carrier offerings under Title II of the Act.[134] Thus, computer processing involved in the means of communications, such as message-switching, would be regulated under Title II of the Communications Act, whereas computer services providing data processing to end users over the telephone network would not be regulated under Title II.

"Hybrid" services, which the Commission defined as offerings that combine remote access data processing and message-switching to form a single integrated service, were to be treated as either data processing or communications services, based on case-by-case determinations as to which of the two functions were predominant in the particular hybrid service. The Commission specifically declined to regulate hybrid services that are primarily data processing services under Title II, despite their incorporation of a communications component, and regardless of whether that hybrid service was offered by a common carrier or non-common carrier.[135] Although data processing services were not regulated under Title II, the Commission found that it had jurisdiction over these services under the ancillary jurisdiction of Title I.[136]

Under *Computer I*, the Commission permitted common carriers over a certain size to provide data processing services subject to a "maximum separation" requirement.[137] The maximum separation requirement meant that common carriers could offer data processing services only through a separate corporate entity having separate accounting records, personnel,

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[131] *Computer I Final Decision*, 28 FCC 2d at 268 n.3.

[132] *Id*. at 264; 47 U.S.C. §§ 152; 201-205.

[133] *Id.* at 270.

[134] *Id.* at 274.

[135] *See Id.* at 276-78; *Computer I Tentative Decision*, 28 FCC 2d at 305 (where message-switching is offered as an integral part of and as an incidental feature of a package offering that is primarily data processing, there will be total regulatory forbearance with respect to the entire service whether offered by a common carrier or non-common carrier).

[136] *See Computer I Final Decision*, 28 FCC 2d at 268-70.

[137] *Id.* at 275.

equipment and facilities. This requirement was designed to protect telephone ratepayers and competitive data processing service providers by preventing the common carriers from engaging in anticompetitive behavior, such as interconnection discrimination and from unfairly burdening their regulated communications services with costs properly attributable to unregulated data processing services. The Commission did not establish requirements for AT&T and its affiliated Bell System companies in *Computer I*, based upon the assumption that they were precluded from offering any type of data processing services by the terms of an antitrust consent decree then in effect.[138]

## B. *Computer II and Computer III*

Although the *Computer I* rules were upheld on appeal, case-by-case determination of which hybrid services were to be treated as unregulated data processing, as opposed to Title II common carrier services, ultimately proved unsatisfactory in light of the increasing convergence of these services.[139] In response, the Commission initiated the *Computer II*, and later, *Computer III* proceedings.[140]

*Computer II*. In its 1980 *Computer II Final Decision*, the Commission adopted a regulatory scheme that distinguished between the common carrier offering of basic transmission services and the offering of enhanced services.[141] This decision introduced the concepts of "basic" and "enhanced" services, and divided these services into two non-overlapping categories.[142]

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[138] *See United States v. Western Electric Co.*, 13 Rad. Reg. (P&F) 2143, 1956 Trade Cas. (CCH) 71,134 (D. N.J. 1956) (the 1956 *Decree*).

[139] *See ESP Status of ISPs* at p. 12.

[140] *Amendment of Section 64.702 of the Commission's Rules and Regulations (Second Computer Inquiry), Final Decision*, 77 FCC 2d 384 (1980) (*Computer II Final Order*), *recon.*, 84 FCC 2d 50 (1980), *further recon.*, 88 FCC 2d 512 (1981), *aff'd sub nom., Computer and Communications Indus. Ass'n v. FCC*, 693 F.2d 198 (D.C. Cir. 1982) (*CCIA*), *cert. denied*, 461 U.S. 9389 (1983); *Amendment of Section 64.702 of the Commission's Rules and Regulations (Third Computer Inquiry), Phase I, Report and Order*, 104 FCC 2d 958 (1986) (*Computer III Phase I Order*), *modified on recon.*, 2 FCC Rcd 3035 (1987), *further recon.*, 3 FCC Rcd 1135 (1988), *second further recon.*, 4 FCC Rcd 5927 (1989); *Phase II, Report and Order*, 2 FCC Rcd 3072 (1987)(*Computer III Phase II Order*), *further recon.*, 4 FCC Rcd 5927 (1989), *rev'd in part sub nom., California v. FCC*, 905 F.2d 1217 (9th Cir. 1990), *on remand*, 6 FCC Rcd 7571 (1991), *vacated in part and remanded, California v. FCC*, 39 F.3d 919 (9th Cir. 1994). *See also Computer III Further Remand Proceedings: Bell Operating Company Provision of Enhanced Services, Notice of Proposed Rulemaking*, CC Docket No. 95-20, 10 FCC Rcd 8360 (1995).

[141] *Computer II Final Decision*, 77 FCC 2d at 387.

[142] *See Implementation of the Telecommunications Act of 1996: Telecommunications Carriers' Use of Customer Proprietary Network Information and Other Customer Information, Implementation of the Non-Accounting Safeguards of Section 271 and 272 of the Communications Act of 1934, as Amended*, CC Docket No. 96-115, CC Docket No. 96-149, *Second Report and Order and Further Notice of Proposed Rulemaking*, FCC 98-27 (released Feb. 28, 1998) (*"Use of CPNI"*) at para. 46 (summarizing Commission precedent as indicating that telecommunications services and information services are "separate, non-overlapping categories, so that

These categories rest upon the nature of the processing performed. Basic service was limited to "the common carrier offering of transmission capacity for the movement of information," or "a pure transmission capability over a communications path that is virtually transparent in terms of its interaction with customer supplied information."[143] Data processing, computer memory or storage, and switching techniques can be components of a basic service if they are used solely to facilitate the movement of information.[144]

Enhanced services were defined as "any offering over the telecommunications network which is more than a basic transmission service," and as "combin[ing] basic service with computer processing applications that act on the format, content, code, protocol or similar aspects of the subscriber's transmitted information, or provide the subscriber with additional, different, or restructured information, or involve subscriber interaction with stored information.[145] The Commission's rules were revised to define enhanced services in terms of the functions that were considered to be different from basic telephone service: "the term 'enhanced services' shall refer to services, offered over common carrier transmission facilities used in interstate communications, which employ computer processing applications that act on the format, content, protocol or similar aspects of the subscriber's transmitted information; or involve subscriber interaction with stored information."[146]

The Commission acknowledged that with respect to the line it drew between basic and enhanced services, "[p]lausible arguments can be tendered for drawing it elsewhere. At the margin, some enhanced services are not dramatically dissimilar from basic services or dramatically different from communications as defined in the *Computer Inquiry I*."[147] Nonetheless, the Commission refused to re-draw the line at this margin because such action potentially would subject the issue to constant adjudication over the status of individual services offerings.[148] In addition, the Commission stated that it had tried to draw the line "in a manner which distinguishes wholly traditional common carrier activities, regulable under Title II of the Act, from historically and functionally competitive activities not congruent with the Act's traditional forms," in recognition of the policy "that substance not form govern the treatment of services within the Act's reach." "We have acted upon that belief by applying traditional Title II regulatory

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information services do not constitute 'telecommunications' within the meaning of the 1996 Act").

[143] *Computer II Final Decision*, 77 FCC 2d at 419-20.

[144] *Id*.

[145] *Id*. at 387.

[146] *See* 47 U.S.C. § 64.702(a). Thus, enhanced services under *Computer II* include both data processing services under *Computer I* and "hybrid" forms of communications.

[147] *Computer II Final Decision*, 77 FCC 2d at 434.

[148] *Id*.

mechanisms to basic services and applying no direct regulatory mechanism for enhanced services."[149] Continuing, the Commission stated that although it recognized "the existence of a communications component" and that "some enhanced services may do some of the same things that regulated communications services did in the past," there was also a substantial data processing component in all of these enhanced services, over which the agency had never imposed a scheme of regulation.[150]

> Any agency regulatory decision in this area must assess the merits -- as we do in this order -- of extending regulation to an activity simply because a part of it is subject to the agency's jurisdiction where such regulation would not be necessary to protect or promote some overall statutory purpose.[151]

The Commission observed that because enhanced service was not explicitly contemplated in the Act, there is no more a requirement to confront it with a specific traditional regulatory mechanism than there was for, for example, with cable television (then unregulated under the Act), which has formal elements of common carriage and broadcast television. "Precedent teaches that the Act is not so intractable as to require us to routinely bring new services within the provision of our Title II and III jurisdiction even though they may involve a component that is within our subject matter jurisdiction."[152]

Because the Commission determined that the enhanced services market was competitive, and that consumers were deriving benefits from this competition, the Commission declined to regulate enhanced services as common carriage under Title II of the Act.[153] Such comprehensive regulation of competitive services would not be "directed at protecting or promoting a statutory purpose."[154] Nonetheless, the Commission again noted that it had jurisdiction over enhanced services under the ancillary jurisdiction of Title I, on the grounds that the enhanced services under consideration "constitute the electronic transmission of writing, signs, signals, pictures, etc., over the interstate telecommunications network ."[155] It further found that it could reasonably exercise

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[149] *Id.* at 435.

[150] *Id*.

[151] *Id*. at 435.

[152] *Id.* at 430.

[153] *Id.* at 430-35.

[154] *Id*. at 433.

[155] *Id*. at 432; *see also California v. FCC*, 905 F.2d 1217, 1240 n.35 (9th Cir. 1990) (Title I jurisdiction is not an independent source of regulatory authority; it confers on the FCC only such power as is ancillary to the Commission's specific statutory responsibilities; in the case of enhanced services, the specific responsibility to

these ancillary powers by imposing certain separate subsidiary requirements where required, to assure wire communications services at reasonable rates. Regulation of enhanced services provided by common carriers was deemed necessary to prevent the dominant carrier from burdening its basic transmission service customers with part of the cost of providing competitive enhanced services. In addition, the Commission stated that it could rely on the direct regulation it retains with respect to the independent provision of basic services, which remain a component of the charges for enhanced services. [156]

It is clear from the foregoing discussion that the Commission created its distinction between basic and enhanced services with the jurisdictional consequences of regulation versus no regulation (*i.e.*, Title II versus Title I) very much in mind. Again, as in *Computer Inquiry I*, the Commission's primary concern was in setting up definitional categories and regulatory consequences that would curtail the potential for anticompetitive conduct that could result from telephone carrier participation in competitive markets by means of integrated operations and service offerings. Of particular concern was that carriers with local telephone distribution networks could use their control over basic services to discriminate against other enhanced service providers' (ESPs) services and products, as well as with the potential for anticompetitive cross-subsidization from unregulated to regulated activities.[157] To guard against such abuses, the Commission required the major carriers with local distribution networks, the AT&T companies and GTE, to provide enhanced services and CPE only through corporate affiliates fully separated from their basic services operations.[158]

Section 202 of the Act prohibits common carriers from discriminating unreasonably in their provision of communications services. Pursuant to section 203, common carriers are required to tariff their interstate communications services. Although the separate subsidiary requirements of *Computer II* applied only to AT&T (and later to the divested Bell Operating Companies, "BOCs"),[159] the other requirements of *Computer II* applied to all facilities-based

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which the Commission's Title I authority is ancillary is its Title II authority over common carrier services).

[156] *Computer II Final Decision*, 77 FCC 2d at 435.

[157] Cross-subsidization occurs when a carrier mis-attributes costs incurred in the provision of unregulated services to the provision of regulated services. Because rates for regulated services are based partially upon the cost of providing those services, mis-attribution of costs results in the carrier's monopoly ratepayers' bearing a part of the cost of unregulated services. *See Computer II Final Decision*, 77 FCC 2d at 445, 476-77.

[158] *Id.* at 466-75 (in contrast, non-telephone carriers, *e.g.*, specialized carriers such as MCI, lack local distribution facilities entirely, and have no reservoir of monopoly ratepayers from which to extract the excess profits necessary to cross-subsidize other services; such carriers would be in a position to deny access only to a limited number of interexchange transmission systems).

[159] *See Policy and Rules Concerning the Furnishing of Customer Premises Equipment, Enhanced Services and Cellular Communications Services by the Bell Operating Companies, Report and Order*, CC Docket No. 83-115, 95 FCC 2d 1117 (1983) (*BOC Separations Order*) (applying *Computer II* structural safeguards to BOCs).

common carriers, regardless of whether their revenues exceeded the *Computer I* threshold. Carriers owning common carrier transmission facilities and providing enhanced services must unbundle the basic from the enhanced components of their services. They must offer the unbundled transmission capacity to other enhanced service providers pursuant to the same tariffed terms and conditions under which they provide such services to their own enhanced service operations.[160]

On August 11, 1982, the District Court for the District of Columbia entered a consent decree, known as the "Modification of Final Judgment" or "MFJ," settling the antitrust lawsuit against the AT&T's Bell System. The MFJ required AT&T to divest itself of the BOCs. The MFJ distinguished between "telecommunications" and "information" services.[161] The BOCs were to provide local exchange telecommunications services, but because of their control of the local exchange bottleneck, were prohibited from providing information services, interLATA services, manufacturing and selling telecommunications equipment, and manufacturing CPE. The interLATA information services restriction was modified in 1987 to allow BOCs to provide voice messaging services and to transmit information services generated by others.[162] The MFJ's category of "information services" was very similar, although not identical, to the Commission's "enhanced services" category. The MFJ's definition of information services was the basis for the 1996 Act's use of that term.[163]

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Subsequent history omitted. In *Computer II*, the Commission found that although AT&T remained subject to the 1956 *Decree*, that decree did not bar AT&T from the offering of customer premises equipment and enhanced services on a separated basis insofar as those offerings were "subject to regulation" by the Commission.

[160] "[T]hose carriers that own common carrier transmission facilities and provide enhanced services, but are not subject to the separate subsidiary requirement, must acquire transmission capacity pursuant to the same prices, terms, and conditions reflected in their tariffs when their own facilities are utilized. Other offerors of enhanced services, would likewise be able to use such a carrier's facilities under the same terms and conditions.*" Computer II Final Decision*, 77 FCC 2d at 475. In *Computer II*, the Commission also preempted state regulation of the sale of both customer premises equipment ("CPE") and enhanced services.

[161] *United States v. Western Elec. Co.*, 552 F. Supp. 131, 226-32 (D.D.C. 1982) (citing terms of the original MFJ). , *aff'd sub nom. Maryland v. United States*, 460 U.S. 1001 (1983); *United States v. Western Elec. Co.*, 569 F. Supp. 1057 (D.D.C. 1983) (Plan of Reorganization), *aff'd sub nom. California v. United States*, 464 U.S. 1013 (1983); *see also United States v. Western Elec. Co.*, No. 82-0192 (D.D.C. Apr. 11, 1996) (vacating the MFJ).

[162] *See United States v. Western Elec. Co.*, 673 F. Supp. 525 (D.D.C. 1987); *United States v. Western Elec. Co.*, 714 F. Supp. 1 (D.D.C. 1988). In 1991, the restriction on BOC ownership of content-based information services was lifted. *United States v. Western Elec. Co.*, 767 F. Supp. 308 (D.D.C. 1991), *stay vacated, United States v. Western Elec. Co.*, 1991-1 Trade Cases (CCH) ¶ 69,610 (D.C. Cir. 1991).

[163] The MFJ defines "information service" as the "offering of a capability for generating, acquiring, storing, transforming, processing, retrieving, utilizing, or making available information which may be conveyed via telecommunications . . . . " "Information" is defined as "knowledge or intelligence represented by any form of writing, signs, pictures, sounds, or other symbols." *U.S. v. Western Electric Co., Inc.*, 552 F.Supp. at 227-29. *See* H.R. Rep. No. 204, Part 1, 104th Cong., 1st Sess. 125 (1995) ("Information service" and "telecommunications" are defined based on the definitions used in the MFJ). In the House-Senate conference on the 1996 Act, the Senate

*Computer III*. In the *Computer III* proceeding, the Commission reviewed its customer premises and enhanced service safeguards, and replaced the structural separation requirement for the provision of enhanced computerized data services with a set of phased-in non-structural safeguards.[164] Thus, BOCs and AT&T would be permitted to provide enhanced services on an "integrated" basis (*i.e.*, through the regulated telephone company), subject to certain "non-structural" safeguards. In general, these safeguards were developed to (1) prevent cross-subsidization through cost accounting measures, (2) prevent discriminatory network access or interconnection practices; and (3) to regulate joint marketing practices through protection of customer proprietary network information (CPNI). The Commission also preempted nearly all state regulation of the sale of enhanced services by communications common carriers. [165]

The nonstructural safeguards featured implementation of a concept known as "open network architecture" or "ONA," designed to ensure non-discriminatory access to network facilities and functions for all ESPs. ONA as originally envisioned in *Computer III* was to provide all ESPs equal access to the components of the BOCs' telephone network, as well as the ability to select network service elements not used by the BOCs in providing their own enhanced services. "As a first step in implementing *Computer III*, the Commission permitted the BOCs, pending full structural relief, to offer individual enhanced services on an integrated basis ("*i.e.*, directly by the operating company, rather than through a separate affiliate) following approval of service-specific comparably efficient interconnection (CEI) plans."[166] The other non-structural safeguards include:

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receded to the House on the definition of information service. The House receded to the Senate on the definition of telecommunications, but the House and Senate bills contained similar definitions of this term. H.R. Conf. Rep. No. 458, 104th Cong., 2d Sess. 116 (1996).

[164] *See Amendment of Section 64.702 of the Commission's Rules and Regulations* (*Computer III*), CC Docket no. 85-229, Phase I, 104 FCC 2d 958 (1986) (*Computer III Phase I Order)* (subsequent history omitted). The customer premises equipment provisions were addressed separately.

[165] *Computer III Phase I Order*, 104 FCC 2d at 1126-28; *see also Separation of Costs and Regulated Telephone Service from Costs of Nonregulated Activities & Amendment of Part 31, the Uniform System of Accounts for Class A and Class B Telephone Companies to Provide for Nonregulated Activities and to Provide for Transactions Between Telephone Companies and Their Affiliates*, CC Docket No. 86-111, 2 FCC Rcd 1298 (1987) (*Joint Cost Order*), *recon*, 2 FCC Rcd 6283 (1987), *further recon*., 3 FCC Rcd 6701 (1988), *aff'd sub nom. Southwestern Bell Corporation v. FCC*, 896 F.2d 1378 (D.C. Cir. 1990). The *Joint Cost Order* adopted (1) cost allocation standards and, for certain carriers, a requirement that a cost allocation manual ("CAM") be filed with the Commission; (2) rules for recording transactions between regulated telephone companies and their corporate affiliates; and (3) accounting procedures, audit requirements, and other implementation and enforcement mechanisms.

[166] *Amendment of the Commission's Rules to Establish Competitive Safeguards for Local Exchange Carrier Provision of Commercial Mobile Radio Services*, et al., WT Docket No. 96-162, GEN Docket No. 90-314, *Notice of Proposed Rulemaking, Order on Remand, and Waiver Order*, 11 FCC Rcd 16639, 16684-16685 (*Wireless Safeguards Notice*). By the term "integrated," the Commission referred to the provision of enhanced services and basic services in a manner not consistent with the *Computer II* separation requirements. Under structural integration, BOCs have been able to offer enhanced services without establishing separate subsidiary companies, hiring separate personnel, or using separate computer equipment and other facilities. BOCs are still permitted to

"accounting safeguards; timely disclosure to competing ESPs of network information, including technical interfaces; access to and use of CPNI; and quarterly reporting to help ensure that BOC provision of basic services to competing ESPs was non-discriminatory in terms of quality, installation, and maintenance."[167]

The CEI requirement for BOCs was based upon a finding that the BOCs possessed local network facilities that, although increasingly subject to by-pass by alternative local access providers, still possessed substantial market power in providing network access for most end users and other large companies. Similarly, the Commission found that although AT&T was increasingly subject to competition in the markets for its regulated offerings, AT&T's position in interexchange basic service markets remained sufficiently strong, and therefore warranted the imposition of CEI requirements on its enhanced service offerings. The Commission further concluded that it would limit the CEI and ONA requirements to AT&T and the BOCs even though other "dominant" carriers with market power in the provision of basic services, including the independent telephone companies, could engage in the discriminatory practices against enhanced service providers that CEI is designed to prevent. Later, these requirements were extended to the GTE local exchange companies.[168]

In addition, the *Computer III* decisions subject certain carriers to further unbundling requirements in offering an enhanced service.[169] Under the ONA model, ESPs may obtain access to various unbundled ONA services, termed "Basic Service Elements," through access links

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offer their enhanced services through subsidiaries, but those subsidiaries can share personnel and resources with the parent company. *See Bell Operating Companies' Joint Petition for Waiver of Computer II Rules,* 10 FCC Rcd 4169 n.4 (1995) (*Joint Computer II Waiver Order*). In their CEI plans, BOCs were required to describe: (1) the enhanced service or services to be offered, (2) how the underlying basic services would be made available for use by competing enhanced service providers (ESPs), and (3) how the BOC would comply with the other non-structural safeguards *Computer III* imposed.

[167] *Wireless Safeguards Notice*, 11 FCC Rcd at 16685. "CPNI" was defined as "all the information about a customer's network services and a customer's use of those services that a BOC possesses by virtue of its provision of network services." *See Filing and Review of Open Network Architecture Plans,* CC Docket No. 88-2, Phase I, 4 FCC Rcd 1 (1988), para. 411.

[168] *Computer III Phase I Order*, 104 FCC 2d at 1026-27. *See also Application of Open Network Architecture and Nondiscrimination Safeguards to GTE Corporation*, CC Docket No. 92-256, 9 FCC Rcd 4922 (1994) (scope of GTE's expanded local exchange operations sufficiently similar to BOCs to justify imposing ONA and nondis-crimination safeguards to GTE to safeguard continued competitive development of enhanced services markets).

[169] *See, e.g.., Computer III Phase II Order*, 2 FCC Rcd 3072 (1987); *see also Filing and Review of Open Network Architecture Plans, Memorandum Opinion and Order,* 4 FCC Rcd 2449, 2453-54 (1988) (approving AT&T's plan involving a basic packet switching service underlying an enhanced protocol processing service): *AT&T CEI Plan for Protocol Conversion and Storage Services with Packet Switching Services, Memorandum Opinion and Order,* 5 FCC Rcd 651 (1990).

described as "Basic Serving Arrangements."[170] Non-carrier ESPs are not subject to Title II regulation, even if their enhanced service offering contains enhanced protocol processing service in conjunction with basic transmission service under the Commission's "contamination" theory.[171]

In *Computer III*, the Commission reaffirmed earlier decisions concluding that three types of protocol processing are not enhanced services within the meaning of its rules. First, the enhanced services definition applies only to end-to-end communications between or among subscribers. Thus, communications between a subscriber and the network itself (*e.g.*, for call setup, call routing and call cessation) are not considered enhanced services. Second, protocol conversions necessitated by the introduction of new technology (requiring protocol conversion to maintain compatibility with existing customer premises equipment) are also outside the ambit of the enhanced services definition. Third, inter-networking protocol conversions -- those taking place solely within the network that result in no net conversion between users -- are treated as basic services.[172]

In early 1998, the Commission issued a Further Notice of Proposed Rulemaking in the *Computer III* docket, that is also part of its 1998 Biennial Regulatory Review. The Commission believed it necessary to not only respond to the issues remanded by the Ninth Circuit Court of Appeals regarding *Computer III* unbundling requirements for BOC intraLATA enhanced services, but also to re-examine its non-structural safeguards regime governing the provision of information services by the BOCs in light of the 1996 Act.[173] Comment was sought, *inter alia*, on whether the Commission's "definition of basic service and the 1996 Act's definition of 'telecommunications service' should be interpreted to extend to the same functions, even though the two definitions differ."[174] Comment was also sought on the impact of the Act's unbundling and structural

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[170] *See Filing and Review of Open Network Architecture Plans*, 4 FCC Rcd 1 (1988) (*BOC ONA Order*), *recon*., 5 FCC Rcd 3084 (1990) (*BOC ONA Reconsideration Order*), 5 FCC Rcd 3103 (*BOC ONA Amendment Order*) (subsequent history omitted). Other ONA elements included unbundled basic service features an end user could obtain from a BOC in order to receive or use an enhanced service, and non-Title II services, such as billing and collection that may be useful to enhanced service providers. *See BOC ONA Amendment Order*, 5 FCC Rcd at 3104.

[171] *Amendment of Section 64.702 of the Commission's Rules and Regulations* (*Third Computer Inquiry*), *Supplemental Notice*, FCC 86-253, para. 43 n.52 (rel. June 16, 1986), 51 FR 24410 (July 3, 1986).

[172] *Computer III Phase II Order*, 2 FCC Rcd 3072, 3081-82.

[173] *Computer III Further Remand Proceedings: Bell Operating Company Provision of Enhanced Services, 1998 Biennial Review of Computer III and ONA Safeguards and Requirements*, CC Docket No. 95-20, CC Docket No. 98-10, *Further Notice of Proposed Rulemaking*, FCC 98-8 (released Jan. 30, 1998) ("*Computer III Further Remand Proceedings*"). *See also* 47 U.S.C. § 161. Pending the conclusion of the *Computer III Further Remand Proceedings*, the Commission's *Computer II*, *Computer III*, and ONA rules are the only regulatory means by which certain independent ISPs are guaranteed nondiscriminatory access to BOC local exchange services used in the provision of intraLATA information services.

[174] *Computer III Further Remand Proceedings* at para. 41.

separations requirements on the Commission's current non-structural safeguards framework; on the question of whether certain ISPs should have the same type of access to unbundled elements of BOC networks as is granted to telecommunications carriers under section 251 of the 1996 Act; and on certain specific proposals to streamline requirements for BOC provision of enhanced services.[175]

### C. BOC Provision of Internet Access Under Computer III

Consistent with *Computer III*, BOCs wishing to provide intraLATA Internet access service to connect end users to the Internet currently must file, and receive approval of, CEI plans that demonstrate that the underlying basic services are available on an equivalent, unbundled basis to unaffiliated ESPs.[176] For example, Bell Atlantic received such approval from the Common Carrier Bureau in June 1996, for its "Internet Access Service" ("IAS").[177] Bell Atlantic's service description indicated that, in addition to access to the Internet, the carrier would offer users supporting services, including access to the World Wide Web and Usenet, electronic mail, and "chat" services. As described in the *Bell Atlantic Internet Access CEI Plan Order*, Bell Atlantic's IAS uses several tariffed services, including Switched Multi-Megabit Data Service ("SMDS"), Frame Relay Service, and Integrated Services Digital Network ("ISDN"). It also utilizes a new service, "Internet Protocol Routing Service" ("IPRS"), which consists of network routers located at LATA hub sites that collect the customer's end user traffic and concentrate it for connection

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[175] *See Computer III Further Remand Proceedings* at paras. 7-8.

[176] *See Computer III Phase II Order*, 2 FCC Rcd 3072 (1987). Although AT&T remains subject to certain *Computer III* and *ONA* requirements, its burdens have been substantially lessened vis-a-vis those of the BOCs. *See, e,g,* Competition in the Interstate Interexchange Marketplace, Memorandum Opinion and Order on Reconsideration, 10 FCC Rcd 4562 (1995). The *Computer III Further Remand Further Notice*, *supra*, seeks comment on elimination of the CEI Plan requirement for BOC intraLATA services.

[177] *Bell Atlantic Telephone Companies Offer of Comparably Efficient Interconnection to Providers of Internet Access Services, Order*, CCBPol 96-09, 11 FCC Rcd 6919 (Com.Car.Bur. 1996) (*Bell Atlantic Internet Access CEI Plan Order*), *reconsideration pending*. In that order, the Common Carrier Bureau determined that Bell Atlantic's provision of Internet access service did not constitute an interLATA information service. On July 19, 1996, MFS Communications Co. filed a petition for reconsideration of the *Bell Atlantic Internet Access CEI Plan Order*, arguing, *inter alia*, that Bell Atlantic's Internet access service offering is an interLATA service that Bell Atlantic may provide only through a section 272 separate affiliate after obtaining section 271 authorization from the Commission, and that Bell Atlantic cannot simply rely on compliance with the Commission's *Computer II, Computer III* and ONA requirements. At about the same time, Southwestern Bell Telephone Company (SWBT) filed a CEI plan for Internet Support Services. *See* Pleading Cycle Established for Comments on SWBT's Comparably Efficient Interconnection Plan for Internet Support Services, CC Docket Nos. 85-229, 90-623 & 95-20, Public Notice, DA 96-1031 (rel. June 26, 1996). Thereafter, MFS filed a petition to consolidate the Bell Atlantic, SWBT and a rulemaking proceeding to implement section 272 on the grounds that all three proceedings raise similar novel, policy, factual and legal arguments. *See* Petition to Consolidate Proceedings filed by MFS Communications Company, Inc. (filed July 25, 1996). The rulemaking proceeding implementing the sections 271 and 272 non-accounting safeguard requirements will be discussed below in Section IV.C.

and transport over a Bell Atlantic SMDS interface.[178]

The *Bell Atlantic Internet Access CEI Plan Order* recites the following service characteristics: "end user customers will be able to dial into IAS using a standard seven or ten-digit telephone number, or may obtain direct connection through special access service;" "in either case, the end user customer will subscribe to the telecommunications service connecting the end user to IAS;" "end users using switched access are connected to a digital modem or ISDN port at Bell Atlantic's premises;" "modems and ports provide the customer with connection to a terminal router;" "[a]fter the customer enters a valid identifying password, Bell Atlantic's processor will connect the call to the Internet."[179] Once connected, switched access customers are able to navigate the Internet through "browser" software and an Internet "gateway" service to be provided by Bell Atlantic on an unregulated, unbundled basis. Dedicated access subscribers, in contrast, are continuously connected to the IAS and are not required to enter a password to access the Internet. Dedicated access subscribers also have the option of obtaining from Bell Atlantic browser software and Internet gateway functionality.[180]

Finally, the service includes design and hosting services for database providers. The *Bell Atlantic Internet Access CEI Plan Order* recites that the "design services will aid information providers in developing home pages and databases . . . the hosting services will provide ESPs with the ability to store Internet information, such as home pages, databases, bulletin boards, and other data on Bell Atlantic's processor, from which connection is provided to the Internet."[181]

### D. *Frame Relay Order*

The Common Carrier Bureau's *Frame Relay Order* applied to common carrier frame relay services the *Computer II* requirement that all carriers that own common carrier transmission facilities and also provide enhanced services, must unbundle basic from enhanced services and offer transmission capacity to other enhanced service providers under the same tariffed terms and conditions under which they provide such services to their own enhanced operations.[182] This

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[178] *Bell Atlantic Internet Access CEI Plan Order*, 11 FCC Rcd at 6922, 6930. The SMDS, Frame Relay Service, ISDN and IPRS basic services are all provided by Bell Atlantic separately from each other and unbundled from the proposed enhanced service, at the same rates, terms, and conditions they are available to Bell Atlantic's enhanced service operations. All are required to be provided under both state and federal tariffs for basic ONA services and services underlying the CEI Plan.

[179] *Id.* at 6922-6923.

[180] *Id*. at 6922-23 & n.25.

[181] *Id.* at 6923.

[182] *IDCMA Petition for a Declaratory Ruling that AT&T's Interspan Frame Relay Service is a Basic Service, Memorandum Opinion and Order*, 10 FCC Rcd 13717-18, 13725 (Com.Car.Bur. 1995) ("*Frame Relay Order*"), *recon. pending*. AT&T's InterSpan Service's "core aspects" are: (1) provision of bi-directional frame transfer; (2)

ruling came in response to a petition for declaratory ruling that AT&T's InterSpan Frame Relay Service is a basic transmission service, subject to tariffing and other requirements of Title II. The petitioner argued that AT&T possessed sufficient market power in the provision of frame relay service to warrant regulation.[183] AT&T, in turn, sought a ruling that the decision regarding InterSpan should apply to all other interexchange carriers (IXCs). AT&T maintained that its InterSpan frame relay service was enhanced service because protocol conversion was an integral part its service; other parties commenting, including several BOCs, countered that they provide basic frame relay service under tariff.[184]

The 1995 *Frame Relay Order* described frame relay technology "as a relatively new, high-speed packet-switching technology used to communicate digital data between, among other things, geographically dispersed local area networks (LANs). In addition, frame relay technology often serves as the intermediary format for data traveling between different computer systems employing different communications protocols."[185] The *Frame Relay Order* also recited that, in contrast to voice communications, data communications between computers is generally considered "bursty" traffic. "Packet-switched networks were developed to take advantage of the "bursty" nature of data communications. With packet switched data transmission, many users can share a single digital transmission channel. Each user's packet contains a header with address information that enable the network to route the packet to the proper destination."[186] Packets may be sent separately and reassembled at their destination; packets from several users may be interspersed during transmission, allowing more efficient channel usage.

The *Frame Relay Order* explained that "protocol conversion" is employed to permit existing customer terminal equipment to originate and terminate data sent by packet networks. Frame relay networks communicate "frames" containing digital data; frame relay switches are faster than packet switches because they do not store frames until positive acknowledgement is received from the destination switch. Rather, the destination switch, if it receives frames with errors, simply discards the frame, relying on higher-layer protocols of intelligent customers premises equipment to note omissions and take corrective action.[187]

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maintaining the frames across the network in the same sequence in which they were delivered to the network; (3) detection of errors; (4) transportation of user data transparently; and (5) no acknowledgement of frames (in contrast to X.25 protocol). InterSpan also provides protocol conversion for CPE that does not have a frame relay interface

[183] *Frame Relay Order*, 10 FCC Rcd at 13720.

[184] *Id.* at 13720-13721.

[185] *Id.* at 13718.

[186] *Id*. at 13717.

[187] *Id.* at 13717-13718.

The *Frame Relay Order* stated:

> Protocol refers to the ensemble of operating disciplines and technical parameters that must be observed and agreed upon by subscribers and carriers in order to permit the exchange of information among terminals connected to a particular telecommunications network. A subscriber's digital transmission necessarily consists of two components: information-bearing symbols and protocol-related symbols. The information-bearing symbols constitute a subscriber's message. The protocol-related symbols initiate various transmission control functions and also define the format in which the information-bearing symbols appear within the composite data stream.[188]

"Protocol processing" was identified as "a generic term, which subsumes 'protocol conversion' and refers to the use of computers to interpret and react to the protocol symbols as the information contained in a subscriber's message is routed to its destination. 'Protocol conversion' is the specific form of protocol processing that is necessary to permit communications between disparate terminals or networks."[189]

The *Frame Relay Order* noted that, prior to its divestiture, AT&T offered neither packet switching services nor protocol conversion.[190] Independent vendors of packet switched communications services known as "value-added-network" service providers ("VANs") purchased common carrier transmission facilities (lines linking switches together) from AT&T and added "value" by reselling the underlying transport services in conjunction with their own packet switched information services.[191] By 1995, AT&T, the BOCs and many other service providers

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[188] *Id.* at 13717 n.5.

[189] *Id.*

[190] *But see American Telephone and Telegraph Company Tariff F.C.C. No. 270, Rates and Regulations for Bell Packet Switching Service; Tariff F.C.C. No. 267, Revisions to Dataphone Digital Service, Tariff F.C.C. No. 268, Revisions to Provide Digital Central Office Connecting Facilities, Memorandum Opinion and Order*, 91 FCC 2d 1 (1982) (case was decided on other grounds; Commission did not reach the specific question whether BPSS was basic or enhanced, but directed AT&T to supplement the record on this issue when it filed for its section 214 facilities authorization)

[191] *Frame Relay Order*, 10 FCC Rcd at 13717-13718; *see also Petitions for Waiver of Section 64.702 of the Commission's Rules (Computer II)*, 100 FCC 2d 1057 (1985) (*Asynch/X.25 Order*). Communications over packet switched networks have traditionally used the synchronous X.25 interface protocol. Most of the existing terminal equipment used by customers to originate and terminate data communications between their computers and other computers does not support the X.25 protocol, but rather, uses an asynchronous protocol. Thus, data communicated under asynchronous protocols must be converted to data employing synchronous X.25 protocol in order to be transmitted over a packet-switched network.

(both facilities-based carriers and VANs) offered packet switched and protocol conversion services, such as asynchronous-to-X.25 conversion.

The *Frame Relay Order* found that, despite some interim changes to the information transported over AT&T's packet switched data network, AT&T's frame relay service offered a transmission capability that is virtually transparent in terms of its interaction with customer-supplied data, and thus constitutes a basic service under the Commission's rules. InterSpan provided protocol conversion for CPE that did not have a frame relay interface. The "core" of InterSpan service was the provision of frame transmission in the frame relay format between the point where a customer's data enters the public switched network and the point where it leaves the network.[192] Treating frame relay, and basic digital services in general, as basic common carrier services was in the public interest because such a classification provides competitors with access to the underlying basic service of facilities-based carriers that are better able to implement new communications technologies. This treatment, in turn, permits competitive ESPs to enter and compete in the market for such technologies, thus promoting the public interest by accelerating the development of emerging digital technologies.

AT&T was directed to unbundle its basic frame relay service from any enhancements, and offer it pursuant to tariff. AT&T retained the ability to package CPE and enhanced protocol processing with the basic frame relay service, so long as the underlying basic service is also separately offered under tariff.[193] Significantly, the *Frame Relay Order* concluded that, pursuant to *Computer II*, all facilities-based common carriers providing enhanced services in conjunction with basic frame relay service must file tariffs for the underlying frame relay service and acquire that tariffed service in the same manner as resale carriers. This requirement was found to apply independently of any additional requirements under the *Computer III* proceedings.[194] The Bureau's order did not distinguish dominant from non-dominant common carriers for purposes of this unbundling requirement.

## V. TELECOMMUNICATIONS AND INFORMATION SERVICES UNDER THE 1996 ACT

Following enactment of the 1996 Act, the Commission initiated what it termed a "trilogy" of actions focussed on achieving Congress' goal of establishing a "pro-competitive, de-regulatory national policy framework designed to accelerate rapidly private sector deployment of advanced telecommunications and information technologies and services to all Americans by opening up all

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[192] *Frame Relay Order*, 10 FCC Rcd at 13718, 13722-13723 (also noting that six BOCs treat frame relay as a basic transport service).

[193] *Id.* at 13724.

[194] *Id.* at 13725.

telecommunications markets to competition."[195] The trilogy consists of the *Local Competition Order*, the *Universal Service Order*, and the *Access Charge Reform Order*. In addition to the local competition trilogy, the Commission launched several proceedings to implement various provisions of the Act (sections 271, 272, and 274) governing BOC entry and/or continued provision of specific services in competitive markets, such as interstate interexchange and information services, telemessaging, electronic publishing and alarm monitoring.[196]

While not initiated expressly to determine the appropriate regulatory treatment of Internet-based services, each proceeding addressed issues that inevitably arise where Internet-based communications services are provided by Title II telecommunications common carriers. The key underlying questions raised in the "trilogy" are whether Internet-based communications are "telecommunications" or "information services" under the 1996 Act, and the related question of whether ISPs are telecommunications carriers, entitled to interconnection rights under section 251 and subject to universal service fund contribution obligations, or are access service end users, exempt from paying access charges for their local exchange connections, and exempt from contributing to the universal service fund. The BOC entry proceedings necessitated decisions on whether BOC-provided enhanced services fell into the category of "information services" under the 1996 Act, and if so, the consequences for their existing and future intra- and interLATA information service offerings, including Internet access services.

### A. Interconnection Rights and Obligations Under Section 251; Who is a "Telecommunications Carrier"?

Section 251 requires all telecommunications carriers to interconnect directly or indirectly with other telecommunications carriers to facilitate the creation of a "network of networks." Section 251(a) specifically requires all telecommunications carriers: (1) "to interconnect directly or indirectly with the facilities and equipment of other telecommunications carriers;" and (2) "not to install network features, functions, or capabilities that do not comply with the guidelines and standards established pursuant to sections 255 or 256."[197] The issue presented vis-a-vis the Internet was whether enhanced and information service providers would be subject to the reciprocal interconnection rights and obligations imposed on telecommunications carriers under section 251.

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[195] *See Joint Explanatory Statement* at 1.

[196] On December 31, 1997, the United States District Court for the Northern District of Texas, Wichita Falls Division, granted the plaintiffs, SBC Communications, Inc. and U.S. West Communications, Inc.'s motion for summary attacking the constitutionality of Subtitle B of Title I of the 1996 Act (sections 271-275). The Court found that these "Special Provisions" concerning the Bell Operating companies amounted to an unconstitutional "bill of attainder" in violation of Article I, § 9, Clause 3, of the Constitution. *SBC Communications Inc. v. Federal Communications Commission*, Civil Action No. 7:97-CV-163-X, 1997 WL 800662 (N.D. Tex. Dec. 31, 1997), *request for stay pending*. Proceedings implementing these provisions are discussed herein solely in terms of their treatment of the Internet classification issue.

[197] 47 U.S.C. § 251(a).

The 1996 Act defines a "telecommunications carrier" as "any provider of telecommunications services, except that such term does not include aggregators of telecommunications services (as defined in section 226)."[198] A telecommunications carrier shall be treated as a common carrier under the Act "only to the extent that it is engaged in providing telecommunications services, except that the Commission shall determine whether the provision of fixed and mobile satellite service shall be treated as common carriage."[199] A "telecommunications service" is defined as the "offering of telecommunications for a fee directly to the public, or to such classes of users as to be effectively available directly to the public, regardless of the facilities used."[200] "Telecommunications" is defined in the Act as "the transmission, between or among points specified by the user, of information of the user's choosing, without change in the form or content of the information as sent and received."[201]

The *Local Competition Order* concluded that, to the extent a carrier is engaged in providing for a fee domestic or international telecommunications, directly to the public or to such classes of users as to be effectively available directly to the public, the carrier falls within the definition of "telecommunications carrier."[202] In addition, all telecommunications carriers that compete with each other would be treated alike regardless of the technology used, unless there is a compelling reason to do otherwise. Companies that provide both telecommunications and information or enhanced services, will be classified as telecommunications carriers for section 251 purposes. They will subject to the obligations under section 251(a), to the extent that such companies are acting as telecommunications carriers. Information and enhanced service providers that do not also provide domestic or international telecommunications, and are thus not telecommunications carriers within the meaning of the Act, do not obtain interconnection rights under section 251.[203]

## B. Universal Service; Status of Internet Services and Service Providers Under Section 254

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[198] 47 U.S.C. § 153(44). The term "aggregator" is defined as "any person that, in the ordinary course of its operations, makes telephones available to the public or to transient users of its premises, for interstate telephone calls using a provider of operator services." 47 U.S.C. § 226(a)(2).

[199] 47 U.S.C. § 153(44).

[200] 47 U.S.C. § 153(46).

[201] 47 U.S.C. § 153(43).

[202] *Implementation of the Local Competition Provisions of the Telecommunications Act of 1996, CC Docket No. 96-98, First Report and Order, 11 FCC Rcd 15499,15988-15989.(1996) (Local Competition Order*), Order on Reconsideration, CC Docket No. 96-98, 11 FCC Rcd 13042 (1996) (*Local Competition Reconsideration Order*), *vacated in part on other grounds, Iowa Utilities Board v. FCC,* No. 96-3321 and consolidated cases, 1997 WL 403401 (8th Cir. July 18, 1997), *appeal pending*.

[203] *Local Competition Order*, 11 FCC Rcd at 15990.

The *Report to Congress* states that the "universal service system is designed to ensure that low-income consumers can have access to local phone service at reasonable rates," and also ensures that consumers in all parts of the country, particularly those in sparsely populated rural areas, "are not forced to pay prohibitively high rates for their phone service."[204] The *Report* further explains that before passage of the 1996 Act, "universal service was promoted through a patchwork quilt of implicit and explicit subsidies at both the state and federal levels."[205] The 1996 Act directed the restructuring of universal support mechanisms so that support would be explicit, "and that 'every telecommunications carrier that provides interstate telecommunications service shall contribute, on an equitable and non-discriminatory basis, to the specific, predictable, and sufficient mechanisms established by the Commission to preserve and advance universal service.'"[206]

### 1. Requirements of Section 254

Section 254 directs the States and the Commission to establish support mechanisms to ensure the delivery of affordable telecommunications service to all Americans, including low-income consumers, eligible schools and libraries, and rural health care providers. Section 254(c)(1) defines universal service as "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." In making this determination, the definition of the services that are supported by Federal universal service support mechanisms, are to take in account specific statutory characteristics, including whether the services "have, through the operation of market choices by customers, been subscribed to by a substantial majority of residential customers."[207]

Section 254 explicitly designates elementary and secondary schools and libraries among the entities eligible to receive the benefits of universal service support. Section 254 describes the services that are to be supported for schools and libraries in terms of "telecommunications services," "special" or "additional" services, and access to "advanced telecommunications and information services."[208] Section 254(c)(3), "special services," provides that, in addition to the telecommunications services designate for support under section 254(c)(1), the Commission may designate "additional services" for universal support for schools, libraries and health care

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[204] *Report to Congress* at para. 6.

[205] *Id.* at para. 7.

[206] *Id.* at para. 8, *citing* 47 U.S.C. § 254(d)-(e).

[207] 47 U.S.C. § 254(c)(1)(B).

[208] 47 U.S.C. § 254(c)(1), (c)(3), (h)(2)(A).

providers for purposes of subsection (h).[209] Section 254(d) mandates that universal service support should be explicit, and that, with respect to federal universal support, "every telecommunications carrier that provides interstate telecommunications services shall contribute, on an equitable and non-discriminatory basis, to the specific, predictable, and sufficient mechanisms established by the Commission to preserve and advance universal service."

Implementation of section 254 required: (1) examination of whether the telecommunications services supportable by universal service funds could be defined to cover information and enhanced services, including Internet access services; (2) examination of whether the access to "advanced telecommunications and information services," and the "additional" services supportable for schools, libraries and health care providers includes Internet access services; and (3) determination of the status of Internet service providers with respect to the statutory obligation to contribute to universal support mechanisms, and the statutory right to benefit from such support.[210]

### 2. Section 254(c)(1) "Core" Telecommunications Services Do Not Include Internet Access

The *Universal Service Order* defines the "core" or "designated" telecommunications services that will be supported by universal service support mechanisms as: single party service, voice grade access to the PSTN, dial tone multi-frequency ("DTMF") signaling or its functional equivalent, access to emergency services, access to operator services; access to interexchange service, access to directory assistance, and toll limitation services for qualifying low-income consumers.[211]

The *Universal Service Order* addressed the question of whether Internet access should be

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[209] The 1996 Act contains no express definition of "special" or "additional" services or "advanced telecommunications and information services," as those terms are used in section 254. *But see* 47 U.S.C. § 157(c)(1) nt (section 706 definition of "advanced telecommunications capability," defined without regard to transmission media or technology "as high-speed, switched, broadband telecommunications capability that enables users to originate and receive high-quality voice, data, graphics, and video communications using any technology").

[210] In November 1996, the Federal-State Universal Service Joint Board issued recommendations to the Commission for reforming its system of universal service so that universal service in accordance with section 254 of the Act. *Federal-State Joint Board on Universal Service*, CC Docket No. 96-45, *Recommended Decision*, 12 FCC Rcd 87 (Corrected Version) (1996) (*Joint Board Recommended Decision*). On May 8, 1997, the Commission released the Report and Order in the Universal Service proceeding, reflecting virtually all of the Joint Board's recommendations on the establishment of universal support mechanisms that will fulfill the specific universal service goals established in the 1996 Act. *Federal-State Joint Board on Universal Service*, CC Docket No. 96-45, *Report and Order*, 12 FCC Rcd 8776 (released May 8, 1997), as corrected by *Federal-State Joint Board on Universal Service, Errata*, CC Docket No. 96-45, FCC 97-157 (released June 4, 1997) (*Universal Service Order*), *appeal pending in Texas Office of Public Utility Counsel v. FCC and USA*, No. 97-60421 (5th Cir. 1997) (subsequent history omitted).

[211] *Universal Service Order*, 12 FCC Rcd at 8809.

included in the category of core telecommunications services supported by universal service mechanisms. It recognized that Internet access consists of more than one element. The *Universal Service Order* stated that Internet access includes a network transmission component, which is the connection over a LEC network from a subscriber to an ISP, and an information service component.[212] Voice-grade access to the public switched network usually enables customers to secure access to an ISP, and thus to the Internet. Thus, it concluded that "the information service component of Internet access cannot be supported under section 254(c)(1), which describes universal service as an 'evolving level of telecommunications services.'"[213]

### 3. Supportable Services for Schools and Libraries Include "Basic Conduit Access to the Internet"

The *Universal Service Order* adopted the Joint Board's recommendation that all eligible schools and libraries should receive discounts of between 20 and 90 percent on all telecommunications services, Internet access, and internal connections provided by telecommunications carriers, subject to an annual cap. However, the Commission took this action pursuant to section 254(c)(3) and section 254(h)(1)(B) rather than section 254(h)(2), on which the Joint Board relied.[214] The Commission concluded that sections 254(c)(3) and 254(h)(1), in the context of the broad policies set forth in section 254(h)(2), authorized it to permit schools and libraries to receive, the telecommunications and information services needed to use the Internet at discounted rates provided by telecommunications carriers.[215] The Commission reasoned that section 254(c)(3) grants it authority to "designate additional services for support" and section 254(h)(1)(B) authorizes it to fund any section 254(c)(3) services.[216]

In addition, the Commission noted that section 254(a)(1) and (a)(2) mandate that the Commission define the "services that are supported by Federal universal support mechanism," but does not limit support to telecommunications services.[217] The Commission concluded that use of the broader term "services" in section 254(a) provides further validation for the inclusion of services in addition to telecommunications services in sections 254(c)(3) and 254(h)(1)(B).[218]

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[212] *Id.* at 8822.

[213] *Id.*

[214] *Id.* at 9002-9003.

[215] *Id.* at 9008-9009.

[216] *Id.* at 9009.

[217] *Id.* at 9009.

[218] *Id.*

Accordingly, schools and libraries may receive rate discounts from telecommunications carriers for the basic "conduit" access to the Internet, and that it could include the "information services," *e.g.*, protocol conversion and information storage, that are needed to access the Internet, as well as internal connections, as "additional services" that section 254(h)(1)(B) , through section 254(c)(3), authorizes the Commission to support.[219]

The Commission clarified that there are two types of "information" services at issue, and that it is not granting discounts on the cost of purchasing information content.[220] Rather, it is authorizing the provision of discounts on the data links and associated services necessary to provide classrooms with access to those educational materials, even though these functions meet the statutory definition of "information services" because of their inclusion of protocol conversion and information storage. Without the use of these "information service" data links, schools and libraries would not be able to obtain access to the "research information, [and] statistics" available free of charge on the Internet. It noted that these information services are essential for effective transmission service, i.e., "conduit" service; they are not elements of the content services provided by information publishers.[221]

The Commission also offered a more precise definition of what "information services" will be eligible for discounts under this program by cross-referencing the category of services excluded from the definition of "electronic publishing" in section 274 of the Act. The Commission specified that eligible schools and libraries will be permitted to use support to obtain discounted information services consisting of:

> (i) the transmission of information as a common carrier;
> (ii) the transmission of information as part of a gateway to an information service, where that transmission does not involve the generation or alteration of the content of information but may include data transmission, address translation, protocol conversion, billing management, introductory information content, and navigational systems that enable users to access information services that do not affect the presentation of such information services to users; and
> (iii) electronic mail services [e-mail].[222]

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[219] *Id.* at 9009-9011.

[220] *Id.* at 9011-9012.

[221] *Id.* at 9012.

[222] *Id.* at 9013. The Commission added a new "Part 54" to its Rules, 47 C.F.R. § 54.1, *et seq*. Subpart A, § 54.5, "Terms and definitions," defines "Internet access," as including the three elements described in the text above, transmission of information as common carriage, transmission of information as part of a gateway to an information service, etc., and as e-mail services.

### 4. Non-Telecommunications Carriers May Receive Support for Internet Access Services Provided to Schools and Libraries

The Commission determined that sections 254(c)((3) and 254(h)(1)(B) authorized support for telecommunications, Internet access and internal connections provided by telecommunications carriers, and relied upon sections 254(h)(2)(A) and 4(i) to authorize support for discounts for Internet access and internal connections provided by non-telecommunications carriers.[223] Thus, the same non-telecommunications services eligible for discounts if provided by telecommunications carriers under section 254(h)(1)(B) are eligible for discounts if provided by non-telecommunications carriers, such as cable operators, under section 254(h)(2)(A).[224]

### 5. Telecommunications Carriers Alone Must Contribute to Universal . . Service Support

Section 254(d) directs that all telecommunications carriers that provide interstate telecommunications services must contribute to the support mechanisms. It also states that the Commission may require "[a]ny other provider of interstate telecommunications" to contribute to universal service, "if the public interest so requires."[225] To be considered a mandatory contributor to universal service under section 254(d): (1) a telecommunications carrier must offer "interstate" "telecommunications;" (2) those interstate telecommunications must be offered "for a fee;" and (3) those interstate telecommunications must be offered "directly to the public, or to such classes of users as to be effectively available to the public."[226] The Commission concluded that only common carriers should be considered mandatory contributors to the support mechanisms, but that any entity that provides interstate telecommunications to users other than significantly restricted classes should be required to contribute under the Commission's "permissive" authority. Entities in this latter category may include private network operators that lease excess capacity on a non-common carrier basis, as "other providers of interstate telecommunications."[227]

Conversely, information and enhanced service providers are not required to contribute to

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[223] *Universal Service Order*, 12 FCC Rcd at 9084-9085.

[224] The Commission observed that section 254(h)(2)A) is not limited, as is 254(h)(1)(A), to extending support to services provided by telecommunications carriers, but rather, supplements the Commission's authority to enhance access to advanced telecommunications and information services free of limitations based upon the identity of the service provider. Accordingly, the Commission concluded that pursuant to authority in sections 254(h)(2)(A) and 4(i) of the Act, non-telecommunications carriers will be eligible to provide supported non-telecommunications services to schools and libraries at a discount. *Id.* at 9085-9088.

[225] 47 U.S.C. § 254(d); *Universal Service Order*, 12 FCC Rcd at 9182.

[226] *Id.* at 9173.

[227] *Id.* at 9178-9179; 9183-9186.

support mechanisms to the extent they provide such services.[228] The Commission rejected the argument that information services are "inherently" telecommunications services because information services are provided "via telecommunications."[229] The Commission stated that information services are not inherently telecommunications services under section 254(h), because that section directs the Commission to enhance access to advanced telecommunications and information services. The Commission reasoned that if they were the same thing, the language "and information services" would be repetitive.[230]

The Commission observed that ISPs alter the format of information through computer processing applications such as protocol conversion and interaction with stored data, while the statutory definition of telecommunications only includes transmissions that do not alter the form or content of the information sent.[231] Telecommunications services, by definition, do not involve a change in the form or content of the user's information as sent or received, whereas information services, although provided via telecommunications, by definition involve "generating, acquiring, storing, transforming, processing, retrieving, utilizing, or making available information."[232] Finally, the Commission recognized that the classification of information services, and especially Internet-based services, raises many complicated and overlapping issues, with implications far beyond section 254, and indicated that it would review the status of ISPs under the 1996 Act in a comprehensive manner in the *Internet Usage Notice of Inquiry*.[233] As discussed *infra*, the Commission addressed many of these classification issues in its April 10, 1998 *Report to Congress*.

### C. BOC Safeguards Under Sections 271 and 272 for InterLATA Information Services

The 1996 Act ended the prohibition against provision of interLATA services by BOCs that was imposed by the MFJ.[234] The 1996 Act conditions the BOCs' entry into certain in-

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[228] *Id.* at 9179-9181.

[229] *Id.*

[230] *Id.*

[231] *Id.* at 9180.

[232] *See* 47 U.S.C. § 153(20). *Universal Service Order*, 12 FCC Rcd at 9180 n.2023, *citing Amendment of Section 64.702 of the Commission's Rules and Regulations, Report and Order*, 2 FCC Rcd 3072, 3080 (1987).

[233] *Id.* at 9181.

[234] Section 3(21) of the 1996 Act defines interLATA services as "telecommunications between a point located in a local access and transport area and a point located outside such area." 47 U.S.C. § 153(21). LATAs were created as part of the MFJ's "plan of reorganization" under which the BOCs were divested from AT&T. *See United States v. Western Elec. Co.*, *supra*, 552 F. Supp. 131; *see also United States v. Western Elec. Co.*, No. 82-

region interLATA services on their compliance with the requirements of section 271. Under section 271, the Commission must determine, among other things, whether the BOC has complied with the safeguards imposed by section 272. Section 272 established certain structural safeguards for BOC entry into interLATA telecommunications services originating in states in which they provide local exchange and exchange access services, interLATA information services,[235] and BOC manufacturing activities. With enumerated exceptions, section 272 generally requires that such services be provided through one or more structurally separate affiliates. The Commission's proceeding to implement what it termed the "non-accounting" (*i.e.*, structural safeguards) in section 272, addressed the relationship between its category of "enhanced services," and the statutory definition of "information service," for purposes of determining which services must be provided through separate affiliates.[236]

### 1. Enhanced Services are Information Services

The *Non-Accounting Safeguards Order* concluded that all of the services that the Commission has previously considered to be "enhanced services" are "information services."[237] The Commission stated that "interpreting 'information services' to include all 'enhanced services' provides a measure of regulatory stability for telecommunications carriers and ISPs alike, by preserving the definitional scheme under which the Commission exempted certain services from Title II regulation."[238] It found "no basis to conclude that by using the MFJ term 'information

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0192 (D.D.C. Apr. 11, 1996) (vacating the MFJ). Pursuant to the MFJ, "all BOC territory in the continental United States [was] divided into LATAs, generally centering upon a city or other identifiable community of interest." *United States v. Western Elec. Co.*, 569 F. Supp. 990, 993 (D.D.C. 1983).

[235] The 1996 Act excludes electronic publishing (as defined in section 274(h)) and alarm monitoring (as defined in section 275(e)) from the separate affiliate requirement for interLATA information services. 47 U.S.C. § 272(a)(2)(C). BOCs may participate in electronic publishing by means of a separated affiliate or electronic publishing joint venture in accordance with section 274. 47 U.S.C. § 274. With certain exceptions for existing activities, BOCs are prohibited from providing alarm monitoring services for five years after enactment of the 1996 Act. 47 U.S.C. § 275.

[236] *Implementation of the Non-Accounting Safeguards of Sections 271 and 272 of the Communications Act of 1934, as amended, CC Docket No. 96-149, First Report and Order and Further Notice of Proposed Rulemaking, 11 FCC Rcd 21905 (1996) (Non-Accounting Safeguards Order*), *recon. pending, petition for summary review in part denied and motion for voluntary remand granted sub nom., Bell Atlantic v. FCC*, No. 97-1067 (D.C. Cir. filed Mar. 31, 1997), *petition for review pending sub nom., SBC Communications v. FCC*, No. 97-1118 (D.C. Cir. filed Mar. 6, 1997)(held in abeyance pursuant to court order filed May 7, 1997), Order on Reconsideration, 12 FCC Rcd 229 (1997) (clarifying categories of protocol processing services that the Commission has previously treated as basic services will now be treated as telecommunications services), Second Order on Reconsideration, FCC 97-222 (released Jun. 24, 1997) (section 272(e)(4) non-discrimination and cost allocation requirement applies to interLATA services that the BOC is otherwise authorized to provide and is not an affirmative grant of authority to provide integrated interLATA services on a wholesale basis).

[237] *Non-Accounting Safeguards Order*, 11 FCC Rcd at 21955.

[238] *Id.* at 21956.

services,' Congress intended a significant departure from the Commission's usage of 'enhanced services.'"[239]

However, the Commission also found that "information services" category includes services that are not classified as enhanced services under the Commission's rules. That is, "while all enhanced services are information services, not all information services are enhanced services."[240] Under Commission precedent, "enhanced services" are limited to services offered over common carrier transmission facilities used in interstate communications. In contrast, "information services" under the 1996 Act may be provided, more broadly, "via telecommunications." Further, live operator telemessaging services that do not involve computer processing applications are information services, even though they do not fall within the definition of "enhanced services."[241]

### 2. Protocol Processing Services are Information Services

The Commission concluded that, subject to certain exceptions, "protocol processing services constitute information services under the 1996 Act."[242] It rejected arguments that the "information services" category only includes services that transform or process the content of information transmitted by an end-user. Rather, the statutory definition makes no reference to the term "content," but requires only that an information service transform or process "information."[243] The Commission also agreed that an end-to-end protocol conversion service that enables an end-user to send information into a network in one protocol and have it exit the network in a different protocol clearly "transforms" user information. The Commission found that other types of protocol processing services that interpret and react to protocol information associated with the transmission of end-user content clearly "process" such information. Therefore, it concluded that both protocol conversion and protocol processing services are information services under the 1996 Act.[244] This interpretation is consistent with the Commission's existing practice of treating end-to-end protocol processing services as enhanced services.[245]

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[239] *Id*.

[240] *Id.* at 21956.

[241] *Id.*

[242] *Id.* at 21956.

[243] *Id*.

[244] *Id.*

[245] *Id.* at 21956-21957. *See, e.g., Bell Operating Companies Joint Petition for Waiver of Computer II Rules*, 10 FCC Rcd 13758, 13766, ¶ 51 and 13770-13774, app. A (1995) (*BOC CEI Plan Approval Order*) (approving PacTel CEI plan for provision of enhanced protocol processing services, as well as CEI plan amendments by Bell Atlantic, BellSouth, SWBT, and U S West).

The Commission rejected BOC arguments that it should treat protocol processing service as telecommunications services, noting that it had previously rejected similar arguments in its *Computer III Phase II Order*.[246] Although the Commission observed that theoretically it would be possible to treat protocol processing services as telecommunications services, that treatment would subject them to Title II regulation. Such theoretical possibilities were outweighed by other de-regulatory policy considerations supporting the conclusion that end-to-end protocol processing services should be treated as information services.[247]

The *Computer II* and *Computer III* rules had treated three categories of protocol processing services as basic services, rather than enhanced services, because they result in no net protocol conversion to the end-user. These categories include protocol processing: (1) involving communications between an end-user and the network itself (*e.g.*, for initiation, routing, and termination of calls) rather than between or among users; (2) in connection with the introduction of a new basic network technology (which requires protocol conversion to maintain compatibility with existing CPE); and (3) involving inter-networking (conversions taking place solely within the carrier's network to facilitate provision of a basic network service, that result in no net conversion to the end-user).[248] The Commission again found that analogous treatment should be extended to these categories of "no net" protocol processing services under the statutory regime.[249] Because "no net" protocol processing services are information service capabilities used "for the management, control, or operation of a telecommunications system or the management of a telecommunications service," they are excepted from the statutory definition of information service. Thus, "no net" protocol conversion services were held to constitute telecommunications services, rather than information services, under the 1996 Act.[250]

Finally, the Commission found that services previously classified as "adjunct-to-basic" should be classified as telecommunications services, rather than information services. In the *NATA Centrex* order, the Commission held that the enhanced services definition did not

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[246] *Non-Accounting Safeguards Order*, 11 FCC Rcd at 21957.

[247] *Id.* The Commission also stated that it had previously rejected treating protocol processing services as telecommunications services, in favor of treating them as enhanced services in the *Computer III Phase II Order*, 2 FCC Rcd at 3078, on the basis that protocol services were being effectively provided on a competitive, unregulated basis, and that reclassifying such services as basic services could cloud the regulatory boundary between basic and enhanced services. *Id*. at 21957 n.239.

[248] *Frame Relay Order*, 10 FCC Rcd at 13719 (paras 14-16); *Computer III Phase II Order*, 2 FCC Rcd at 3081-82. An example of the third type of protocol conversion occurs when a carrier converts from X.25 to X.75 formatted data at the originating end within the network, transports the data in X.75 format, and then converts the data back to X.25 format at the terminating end.

[249] *Non-Accounting Safeguards Order*, 11 FCC Rcd at 21958.

[250] *Id.*

encompass adjunct-to-basic services.[251] Although the latter services may fall within the literal reading of the enhanced service definition, they work to facilitate establishment of a basic transmission path over which a telephone call may be completed, without altering the fundamental character of the telephone service. Similarly, the Commission concluded that "adjunct-to-basic" services are also covered by the "telecommunications management exception" to the statutory definition of information services, and therefore are treated as telecommunications services under the 1996 Act.[252]

Applying these definitions to BOC-provided Internet access services, the Commission concluded that, if a BOC's provision of an Internet or Internet access service, or any information service, incorporates a bundled, in-region, interLATA transmission component provided by a BOC over its own facilities or through resale, that service may only be provided through a section 272 separate affiliate, after the BOC has received in-region interLATA authority under section 271. For purposes of its decision, the Internet was described as follows: "The Internet is an interconnected global network of thousands of interoperable packet-switched networks that use a standard protocol, Transmission Control Protocol/Internet Protocol (TCP/IP), to enable information exchange . . . . An end-user may obtain access to the Internet from an Internet service provider, by using dial-up or dedicated access to connect to an Internet backbone provider that carriers traffic to and from other Internet host sites."[253]

## D. BOC Safeguards Under Section 274 for Electronic Publishing

The Commission addressed the non-accounting requirements of sections 260, 274 and 275 of the Communications Act, which cover telemessaging, electronic publishing, and alarm

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[251] *Id.* at 21958. Such treatment of "adjunct-to-basic" services would correspond to the statutory definition of information services, which "does not include any use of any such capability for the management, control, or operation of a telecommunications system or the management of a telecommunications service." 47 U.S.C. § 153(20). *See* 47 C.F.R. § 64.702(a); *see also North American Telecommunications Association Petition for Declaratory Ruling under Section 64.702 of the Commission's Rules Regarding the Integration of Centrex, Enhanced Services, and Customer Premises Equipment*, ENF No. 84-2, *Memorandum Opinion & Order*, 101 FCC 2d 349, 359-361(1985) (*NATA Centrex Order), recon*., 3 FCC Rcd 4385 (1988) (*NATA Centrex Reconsideration Order*); 47 U.S.C. § 153(20). Adjunct-to-basic services include, *inter alia*, speed dialing, call forwarding, computer-provided directory assistance, call monitoring, caller i.d., call tracing, call blocking, call return, repeat dialing, and call tracking, as well as certain Centrex features.

[252] *Non-Accounting Safeguards Order*, 11 FCC Rcd at 21958.

[253] *Id.* at 21967-21968 & n.291. In denying an MFS request to consolidate issues relating to Bell Atlantic and Southwestern Bell Telephone's provision of Internet access services, the Commission also noted that the rulemaking was not the appropriate forum for considering whether the various specific Internet services provided by BOCs are "interLATA information services." Rather, such determinations must be made on a case-by-case basis in the context of the separate CEI plan proceedings regarding each service. *Id*. at 21967.

monitoring services, respectively in a separate proceeding.[254] Although "electronic publishing" is included in the definition of "information service" in section 3, section 274(g)(1) specifically allows a BOC to provide electronic publishing service disseminated by means of its basic telephone service only through a "separated affiliate" or an "electronic publishing joint venture" that meets the separation, joint marketing, and nondiscrimination requirements in that section.

"Electronic publishing" is defined in Section 274(h)(1) as, "the dissemination, provision, publication, or sale to an unaffiliated entity or person, of any one or more of the following: news (including sports); entertainment (other than interactive games); business, financial, legal, consumer, or credit materials; editorials, columns, or features; advertising; photos or images; archival or research material; legal notices or public records; scientific, educational, instructional, technical, professional, trade, or other literary materials; or other like or similar information." Section 274(h)(2) excludes from the definition of electronic publishing, *inter alia*, common carrier provision of telecommunications service, information access service, information gateway service, voice storage and retrieval, electronic mail, certain data and transaction processing services, electronic billing or advertising of a BOC's regulated telecommunications services, language translation or data format conversion, "white pages" directory assistance, caller identification services, repair and provisioning databases, credit card and billing validation for telephone company operations, E 911 and other emergency assistance databases, and video programming and full motion video entertainment on demand.[255]

The *Telemessaging/Electronic Publishing Order* found that electronic publishing services may include services provided through the Internet or through proprietary data networks. The Commission also clarified the scope of the "gateway" exception of section 274(h)(2)(C), which states that electronic publishing shall not include, "the transmission of information as part of a gateway to an information service that does not involve the generation or alteration of the content of information, including data transmission, address translation, protocol conversion, billing management, introductory information content, and navigational systems that enable users to access electronic publishing services, which do not affect the presentation of such electronic publishing services to users."[256]

The Commission concluded that a BOC's provision of access to introductory Web home pages, other types of introductory information, and software (such as browsers) does not constitute the provision of electronic publishing services under section 274(h)(2)(C). As long as a BOC merely provides access to a home page, or an initial screen that does not include any of the enumerated content types in section 274(h)(1), it is engaged in the provision of "gateway"

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[254] *Implementation of the Telecommunications Act of 1996: Telemessaging, Electronic Publishing, and Alarm Monitoring Services*, CC Docket No. 96-152, *First Report and Order and Further Notice of Proposed Rulemaking*, 12 FCC Rcd 5361 (1997) (*"Telemessaging/Electronic Publishing Order"*), *recon. pending*.

[255] 47 U.S.C. § 274(h)(1), (2).

[256] *Telemessaging/Electronic Publishing Order*, 12 FCC Rcd at 5380-5381.

services that section 274(h)(2)(C) excludes from the definition of electronic publishing services.[257] The Commission stated that "end user software products, such as World Wide Web browsers, to the extent they enable users 'to access electronic publishing services' and do not themselves incorporate the content types listed in section 274(h)(1), also constitute "navigational systems" that are excepted from the definition of electronic publishing."[258] Hypertext "links," and other "pointers, from any gateway or navigational system to electronic publishing content are similarly "navigational" systems and thus are not electronic publishing services under section 274(h)(1)."[259]

## E. *Access Reform Order/Internet Usage NOI*

### 1. Access Charges

In providing interstate long-distance service, interexchange carriers ("IXCs") use local telephone company facilities to originate and terminate calls. The use of local telephone company facilities to originate and terminate long-distance calls is referred to as "access service." Under Part 69 of the Commission's rules, LECs receive access charges for providing IXCs with connections to the LEC's customers. The rules were designed to promote competition in the interstate, interexchange market by ensuring that all IXCs would be able to originate and terminate their traffic over incumbent LEC networks at just, reasonable, and non-discriminatory rates.[260]

In 1983, the Commission determined that ESPs would be exempt from the access charge requirements, even though ESPs typically use the local exchange network to originate and terminate interstate communications.[261] ESPs were classified as non-carrier "end users," exempt from Title II regulation generally. To obtain connections, ESPs generally pay local business rates and interstate subscriber line charges for their switched access connections to LEC central offices.

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[257] *Id.* at 5381.

[258] *Id.* at 5381.

[259] *Id.* at 5381. The Commission defined a "hypertext link" is a reference from one document to another. On the World Wide Web, a user can select a link on one page and "jump" to a second page referenced by that link. *Telemessaging/Electronic Publishing Order*, at para. 46 n.114, *citing Wired Style: Principles of English Usage in the Digital Age* (Hale ed., 1996) at 49-50. *Id.*

[260] *See* 47 C.F.R. § 69.1 *et seq*. (Part 69). The Part 69 rules are designed to be consistent with the Commission's jurisdictional separations rules that govern the allocation of incumbent LECs' expenses and investment between the interstate and state jurisdictions. *See* Part 36 of the Commission's Rules; 47 C.F.R. §§ 36.1 *et seq*.

[261] *MTS and WATS Market Structure*, Docket No. 78-72, *Memorandum Opinion and Order*, 97 FCC 2d 682, 711-22 (1983) (*Access Charge Reconsideration Order*) (referring to origination and termination of interstate communications by enhanced service providers as "leaky" private branch exchange or "PBX" scenario). *See also Amendments of Part 69 of the Commission's Rules Relating to Enhanced Service Providers*, CC Docket No. 87-215, Order, 3 FCC Rcd 2631 (1988) (*ESP Exemption Order*).

ESPs also pay interstate special access surcharges under the Commission's rules.[262]

### 2. *Access Reform Order*; Internet Service Providers Will Continue to be Treated as Access Service End Users

The Commission released its First Report and Order in the *Access Charge Reform* proceeding on May 16, 1997.[263] The *Access Reform Order* concluded that the existing pricing structure for ISPs should remain in place, and that incumbent LECs will not be permitted to assess interstate per-minute access charges on ISPs. In other words, ISPs would continue to be treated as access service end users, not as IXCs (*i.e.*, telecommunications carriers), and would thus not be required to pay the carrier-to-carrier interconnection charges imposed under Part 69 of the Commission's Rules. Maintaining the existing pricing structure for ISP services was found to avoid disrupting the still-evolving information services industry and to advance the goals of the 1996 Act that the Internet remain free from regulation.

In support, the *Access Reform Order* noted that the access charge system still contains non-cost-based rates and inefficient rate structures, and that the reforms instituted therein only go part of the way to remove rate inefficiencies.[264] "Moreover, given the evolution in ISP technologies and markets since the Commission first established access charges in the early 1980s, it is not clear that ISPs use the public switched network in a manner analogous to interexchange carriers. Commercial Internet access, for example, did not even exist when access charges were established."[265] The Commission further noted that many of the characteristics of ISP traffic (such as large numbers of incoming calls to Internet service providers) may be shared by other classes of business customers.[266] In addition, the Commission was not convinced that the non-assessment of

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[262] *Amendments of Part 69 of the Commission's Rules Relating to Enhanced Service Providers, Order*, 3 FCC Rcd 2631 (para. 2 n.8) (1988); *see also* MTS and WATs Market Structure, (para. 4); 47 C.F.R. § 69.2(m)(1996) ("End User" means any customer of an interstate or foreign telecommunications service that is not a carrier).

[263] *Access Charge Reform; Price Cap Performance Review for Local Exchange Carriers; Transport Rate Structure and Pricing; Usage of the Public Switched Network by Information Service and Internet Access Providers*, CC Docket Nos. 92-262, 94-1, 91-213, 96-263, *Notice of Proposed Rulemaking; Third Report and Order and Notice of Inquiry*, 11 FCC Rcd 21354 (1996) (*Access Reform Notice and Internet Usage NOI*) (collectively, *Access Reform* proceeding); *Access Charge Reform; Price Cap Performance Review for Local Exchange Carriers; Transport Rate Structure and Pricing; End User Common Line Charges*, CC Docket Nos. 92-262, 94-1, 91-213, 95-72, *First Report and Order*, 12 FCC Rcd 15982 (1997) (*Access Reform Order*), *affirmed, Southwestern Bell Telephone Company, et al. v. Federal Communications Commission*, No. 97-2618, *et al*. (8th Cir. 1998) available at: <http://www.wulaw.wustl.edu/8th.cir/Opinions/980819/972618.P8>.

[264] *Access Reform Order*, 12 FCC Rcd at 16133.

[265] *Id.* at 16133.

[266] *Id*.

access charges results in ISPs imposing uncompensated costs on incumbent LECs.[267] The *Access Reform Order* noted that ISPs do pay for their connections to incumbent LEC networks by purchasing services under state tariffs. Incumbent LECs also receive incremental revenue from Internet usage through higher demand for second lines by consumers, usage of dedicated data lines by ISPs, and subscriptions to incumbent LEC Internet access services.[268]

Finally, the Commission rejected incumbent LEC allegations that network congestion warranted imposition of interstate access charges on ISPs.[269] Rather, it observed that the extent to which this usage creates congestion depends on the ways in which incumbent LECs provision their networks, and ISPs use those networks. "Incumbent LECs and ISPs agree that technologies exist to reduce or eliminate whatever congestion exists; they disagree on what pricing structure would provide incentives for deployment of the most efficient technologies."[270] The Commission found that the public interest would best be served by policies that foster such technological evolution of the network. The access charge system was designed for basic voice telephony provided over a circuit-switched network, and even when stripped of its current inefficiencies it may not be the most appropriate pricing structure for Internet access and other information services. As reflected below, the Commission pledged to consider solutions other than the imposition of access charges to solve any Internet-related network congestion. In the meantime, ISPs would remain classified as end users for purposes of the access charge system.[271] The *Access Reform Order* was affirmed on review by the United States Court of Appeals for the Eighth Circuit.[272]

### 3. *Internet Usage NOI*; Inquiry Begun on Broader Issues

The focus of the *Internet Usage NOI* was whether the Commission should consider additional actions relating to interstate information services and the Internet. The Commission acknowledged that it must consider the broader question of how its rules can provide incentives for investment and innovation in the underlying networks that support the Internet and other information services.[273] The Commission found that the development of the Internet and other

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[267] *Id.* at 16133-16134.

[268] The Commission observed that, to the extent that some intrastate rate structures fail to compensate incumbent LECs adequately for providing service to customers with high volumes of incoming calls, incumbent LECs may address their concerns to state regulators. *Id.* at 16134.

[269] *Id.* at 16134.

[270] *Id*.

[271] *Id.* at 16134-16135.

[272] *See* note 263, *supra*.

[273] *Internet Usage NOI*, 11 FCC Rcd at 21490-21491.

information services raise many critical questions that go beyond their relation to the interstate access charge system. "Ultimately, these questions concern no less than the future of the public switched telephone network in a world of digitalization and growing importance of data technologies. Our existing rules have been designed for traditional circuit-switched voice networks, and thus may hinder the development of emerging packet-switched data networks."[274] To avoid this result, the Commission sought to identify policies that would best facilitate the development of future high-bandwidth data networks, while preserving efficient incentives for investment and innovation in the underlying voice network. [275]

The *Internet Usage NOI* recognized that because virtually all residential users today connect to the Internet -- a packet-switched data network -- through incumbent LEC switching facilities designed for circuit-switched voice calls, issues regarding switch congestion would arise. It noted that end-to-end dedicated channels created by circuit switches are often unnecessary and inefficient when used to connect an end user to an ISP. The Commission sought comment on how its rules can most effectively create incentives for the deployment of services and facilities to allow more efficient transport of data traffic to and from end users.[276] In addition, comment was sought on what regulatory barriers -- at either the state or federal level -- might prevent provision of alternate network access arrangements for information service providers, or might create artificial dis-incentives against use of such arrangements when they become available.[277]

The Commission recognized that the current division in its rules between basic and enhanced services may not accurately capture the types of companies that provide information services today, and the manner in which these companies use incumbent LEC facilities.[278] It noted that there are many kinds of information services, with different usage patterns and effects on the network, and sought comment on whether it should distinguish between different categories of information or enhanced services. The Commission sought comment on how new services such as Internet telephony, as well as real-time streaming audio and video services over the Internet, should affect its analysis. It observed that another new service, "Internet telephony" (also referred to as "Internet Protocol" or "IP telephony") allows what appears to be a basic service -- voice transmission -- to take place over a packet-switched interactive data network traditionally considered to be an enhanced service.[279] This proceeding remains pending before the

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[274] *Id.* at 21491.

[275] *Id.*

[276] *Id.* at 21491.

[277] *Id.*

[278] *Id.* at 21492.

[279] *Id.* The Commission also stated that it planned to address the legal questions about Internet telephony raised in the *ACTA Petition*, and broader issues about the continued viability of its basic/enhanced dichotomy, in separate proceedings.

Commission.

## F. Report to Congress (Universal Service)

On November 26, 1997, in an Appropriations Act, the Commission was directed to report to Congress on certain aspects of the Commission's implementation of certain provisions of the 1996 Act regarding the universal service system.[280] Among other things, the Appropriations Act directed the Commission to review "the definitions of 'information service,' 'local exchange carrier,' 'telecommunications,' 'telecommunications service,' 'telecommunications carrier,' and 'telephone exchange service.'"[281] It also required the Commission to review "the application of those definitions to mixed or hybrid services and the impact of such application on universal service definitions and support, and the consistency of the Commission's application of those definitions, including with respect to Internet access under section 254(h)."[282] The Commission was directed to review its decisions regarding "who is required to contribute to universal service under section 254(d)" as well as who is eligible to receive support under sections 254(e), 254(h)(1), and 254(h)(2) of the Act.[283]

The April 10, 1998 *Report to Congress* focused on the Commission's implementation of the definitions relevant to universal service.[284] It revisited many of the Commission major decisions related to implementing the 1996 Act, with particular regard to the manner in which the regulatory classification of Internet and "information" services vis-a-vis "telecommunications" services impact on the current and future provision of universal service.

At the outset, the Commission reiterated that the 1996 Act carried forward the basic/enhanced framework established under *Computer II* and reflected in the MFJ:

> [T]he categories of "telecommunications service" and "information service" in the 1996 Act are mutually exclusive. . . . Congress intended these new terms to build upon frameworks established prior to the passage of the 1996 Act. Specifically, we find that Congress intended the categories of "telecommunications service" and "information service" to be mutually exclusive, like the

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[280] Departments of Commerce, Justice, and State, the Judiciary, and Related Agencies Appropriations Act, 1998, Pub. L. No. 105-119, 111 Stat. 2440, 2521-2522, § 623 (the "Appropriations Act"). Specifically, the Appropriations Act requires the Commission to submit a report to Congress, no later than April 10, 1998.

[281] *Report to Congress* at para. 13.

[282] *Id.* at para. 14.

[283] *Id.* at paras. 16, 17.

[284] *Id.* at para. 6.

> definitions of "basic service" and "enhanced service" developed in our *Computer II* proceeding, and the definitions of "telecommunications" and "information service" developed in the Modification of Final Judgment that divested the Bell Operating Companies from AT&T. We recognize that the 1996 Act's explicit endorsement of the goals of competition and deregulation represents a significant break from the prior regulatory framework. We find generally, however, that Congress intended to maintain a regime in which information service providers are not subject to regulation as common carriers merely because they provide their services "via telecommunications."[285]

With respect to the application of these definitions to "mixed or hybrid services," the *Report* concluded that "entities providing pure transmission capacity to Internet access or backbone providers provide interstate 'telecommunications.' Internet service providers themselves generally do not provide telecommunications."[286] In those cases where an Internet service provider owns transmission facilities, and engages in data transport over those facilities in order to provide an information service, the Commission does not currently require contributions to universal service, but stated that it may reconsider this in the future.[287] Finally, with respect to what it described as "phone-to-phone IP [Internet Protocol] telephony," the *Report* tentatively found "that certain of these services lack the characteristics that would render them 'information services' within the meaning of the statute, and instead bear the characteristics of 'telecommunications services.'"[288]

The *Report to Congress* also noted:

> [t]he phrase 'mixed or hybrid services,' as used in the Appropriations Act, does not appear in the text of the 1996 Act. We understand these terms to refer to services in which a provider offers a capability for generating, acquiring, storing, transforming, processing, retrieving, utilizing or making available information via telecommunications, *and* as an inseparable part of that service transmits information supplied or requested by the user."[289]

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[285] *Id.* at para. 13 (footnote omitted).

[286] *Id.* at para. 55.

[287] *Id.*

[288] *Id.*

[289] *Id.* at para. 56.

By reference to its *Computer II* decision, the Commission concluded that, despite the inclusion of a "telecommunications" component, "hybrid services are information services, and are not telecommunications services."[290] "An offering that constitutes a single service from the end user's standpoint is not subject to carrier regulation simply by virtue of the fact that it involves telecommunications components."[291] Characterizing this as a "functional approach," the Commission stated that it is consistent with "Congress' direction that the classification of a provider should not depend on the type of facilities used."[292] Thus, in the difficult case of classification of the services offered by facilities-based providers, the question becomes, "'functionally, [is] the consumer receiving two separate and distinct services.'"[293]

The *Report to Congress* states: "[m]ore generally, Internet-based offerings represent perhaps the most significant category of 'mixed or hybrid services.'"[294] The *Report* describes the Internet as "a loose interconnection of networks belonging to many owners. It is comprised of tens of thousands of networks that communicate using the Internet Protocol (IP)."[295] For purposes of the *Report*, the Commission found it "useful to distinguish five types of [Internet] entities: (1) end users; (2) access providers; (3) application providers; (4) content providers; and (5) backbone providers."[296] The Commission explained that in the *Report*, it was using the terms "Internet access providers" and "Internet service providers" interchangeably, and that "access services," as described therein, "are similar to the 'conduit services,'" the Commission defined in the *Universal Service Order*.[297] "Application providers" are those who "offer users a discrete end-to-end service rather than open-ended Internet connectivity," and examples include IP telephony and e-mail service providers.[298] "Content providers," "make information available by 'servers' connected to the Internet, where it can be accessed by end users."[299] The Commission

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[290] *Id.* at para. 57.

[291] *Id.*; *citing Computer II Final Decision*, 77 FCC 2d at 420-28.

[292] *Id.* at para. 58.

[293] *Id.* at para. 60, *quoting Federal-State Joint Board on Universal Service, Access Charge Reform, Price Cap Performance Review for Local Exchange Carriers, Transport Rate Structure and Pricing, End User Common Line Charge*, CC Docket No. 96-45, CC Docket Nos. 96-262, 94-1, 91-213, 95-72, *Fourth Order on Reconsideration*, FCC 97-420 (released Dec. 30, 1997) (*Fourth Order on Reconsideration*) at para. 282.

[294] *Report to Congress* at para. 61.

[295] *Id.* at para. 62.

[296] *Id*.

[297] *Id*. at para. 63 n.125.

[298] *Id*. at para. 63.

[299] *Id.*

also recognized that "[m]any companies fall into more than one of these categories."[300]

The *Report to Congress* notes that ISPs "typically utilize a wide range of telecommunications inputs," including purchases of analog and digital lines from LECs to connect their dial-in subscribers, and leased lines (T1s, T3s and OC-3s) from telecommunications carriers (*e.g.*,, IXCs) and also interconnection arrangements with one or more Internet backbone providers.[301] ISPs "themselves provide information services, not telecommunications (and hence do not contribute to universal service mechanisms)," but to the "extent that any of their underlying inputs constitutes interstate telecommunications," the Commission would have authority to require that the providers of those inputs contribute to federal universal service mechanisms."[302] In the context of its discussion of the issues regarding a facilities-based ISP's "furnishing of raw transmission capacity to itself," which would arguably constitute the provision of "telecommunications,"[303] the Commission stated that it expressed no view on the applicability of this analysis to cable operators providing Internet access service. The *Report* specifically declined to establish the regulatory classification of Internet services provided over cable television facilities.[304]

The *Report to Congress* recognized that Internet access service has data transport elements; information processing elements; and information content elements.[305] In the context of Internet services obtained by means of dial-up connections over the public switched telephone network, the Commission has stated that it would be incorrect to conclude that Internet access providers offered subscribers separate activities (*e.g.*, e-mail, web browsing, etc.) that should be deemed to have separate legal status, so that, for example, e-mail might be treated as a "telecommunications service," but web hosting treated as an "information service."

> The service that Internet access providers offer to members of the public is Internet access. That service gives users a variety of advanced capabilities. Users can exploit those capabilities through applications they install on their own computers. The Internet service provider often will not know which applications a user has installed or is using. Subscribers are able to run those applications, nonetheless, precisely because of the enhanced functionality that

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[300] *Id*.

[301] *Id.* at para. 66.

[302] *Id*.

[303] *Id.* at para. 70.

[304] *Id.* at para. 69 n.140.

[305] *Id.* at para. 80.

Internet access services gives to them.[306]

The *Report to Congress* notes that an Internet access provider, in essential aspect, looks much like other enhanced or information service providers, in that, an Internet access provider typically owns no telecommunications facilities of its own; it "conjoin[s] data transport with data processing, information provision, and other computer-meditated offerings;" and thereby creates an information service provided to the end user.[307] The Commission stated that its findings with respect this regulatory classification "are reinforced by the negative policy consequences of a conclusion that Internet access services should be classified as 'telecommunications,'" in light of the "significant consequences for the global development of the Internet."[308] Significantly, the Commission stated: "[w]e recognize the unique qualities of the Internet, and do not presume that legacy regulatory frameworks are appropriately applied to it."[309]

Nonetheless, the Commission recognized that despite its conclusions that Internet access providers do not offer "telecommunications service," when they furnish Internet access to their customers, it must also consider whether certain other Internet-based services might fall within the statutory definition of "telecommunications."[310] The Commission stated that "IP telephony" services "enable real-time voice transmission using Internet protocols,"[311] and that it had not yet considered the legal status of IP telephony.[312] The Commission clarified that when it uses the term "phone-to-phone" IP telephony, it tentatively intends to refer to services in which the provider meets the following conditions:

(1) [the provider] holds itself out as providing voice telephony or

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[306] *Id.* at para. 79.

[307] *Id.* at para. 81.

[308] *Id.* at para. 82.

[309] *Id*.

[310] *Id.* at para. 83.

[311] *Id.* at para. 84. "The services can be provided in two basic ways: through software and hardware at customers premises, or through "gateways" that enable applications originating and/or terminating on the PSTN. Gateways are computers that transform the circuit-switched voice signal into IP packets, and vice versa, and perform associated signalling, control, and address translation functions. The voice communications can be transmitted along with other data networks for improved performance." *Id.* (footnotes omitted).

[312] *Id*. at para. 83. The Commission noted that many of the issues addressed in the *Report* regarding IP telephony were also raised in the pending ACTA petition seeking a declaration that IP telephony software and hardware providers be classified as common carriers, and stated that it would be considering the petition directly in a separate order. *Id*. at n. 172, c*iting Common Carrier Bureau Clarifies and Extends Request for Comment on ACTA Petition Relating to "Internet Phone" Software and Hardware -- RM 8775*, Report No. CC 96-10 (March 25, 1996).

> facsimile transmission service; (2) it does not require the customer to use CPE different from that CPE necessary to place an ordinary touch-tone call (or facsimile transmission) over the public switched telephone network; (3) it allows the customer to call telephone numbers assigned in accordance with the North American Numbering Plan, and associated international agreements; and (4) it transmits customer information without net change in form or content.[313]

The Commission found that there are certain services provided over the Internet, such as "phone-to-phone" IP telephony, may be offered to the public in a manner that makes them functionally indistinguishable from traditional voice telephone services. In the future, it stated that it may be appropriate to classify such services as "telecommunications" rather than "information" services, and subject them to certain Title II regulatory requirements. The Commission deferred making more definitive conclusions in the absence of a more complete record focused on particular cases.[314]

In contrast, the Commission found that the provision of "computer-to-computer" IP telephony, through which individuals use software and hardware at their premises to place calls between two computers connected to the Internet, did not constitute the provision of "telecommunications" under the Act.[315] The Commission observed that "Internet service providers over whose networks the information passes may not even be aware that particular customers are using IP telephony software, because IP packets carrying voice communications are indistinguishable from other types of packets."[316] In that case, the "Internet service provider does not appear to be 'provid[ing]' telecommunications to its subscribers."[317]

The *Report to Congress* also examined the policy implications of the foregoing scheme of regulatory classification, and concluded that the "Internet and other enhanced services have been able to grow rapidly in part because the Commission concluded that enhanced service providers were not common carriers within the meaning of the Act. This policy of distinguishing competitive technologies from regulated services not yet subject to full competition remains viable."[318] The Commission further found that Congress, "by distinguishing 'telecommunications service'

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[313] *Id.* at para. 88.

[314] *Id.* at paras. 88-91.

[315] *Id.* at para. 87.

[316] *Id*.

[317] *Id*.

[318] *Id.* at para. 95. . . .

from 'information service,' and by stating a policy goal of preventing the Internet from being fettered by state or federal regulation, endorsed this general approach."[319]

At the same time, the Commission recognized that it is critical to make sure that its interpretation of the statute will continue to sustain universal service in the future. It acknowledged arguments that, as new communications services such as Internet access and IP telephony grow, traffic will shift away from conventional telecommunications services, thus draining the support base for universal service. The Commission stated that, in order to promote equity and efficiency, it should avoid creating regulatory distinctions based purely on technology, and reiterated its view that Congress did not limit "telecommunications" to circuit-switched wireline transmission, but instead defined that term on the basis of the essential functionality provided to users.[320]

The *Report to Congress* further addressed providers of pure transmission capacity used for Internet services, and concluded that these entities provide services that meet the legal definition of "telecommunications."[321] In addition, to the extent the Commission were to conclude that certain forms of phone-to-phone IP telephony are "telecommunications," and to the extent that providers of such services are offering those services directly to the public for a fee, those providers would be "telecommunications carriers." Accordingly, those providers would fall within section 254(d)'s mandatory requirement to contribute to universal service mechanisms.[322] The *Report to Congress* finds that, if such providers are exempt from universal service contribution requirements, users and carriers might have an incentive to modify networks to shift traffic to Internet protocol and thereby avoid paying into the universal service fund. In the near term, they might avoid payment of the universal service contributions embedded in interstate access charges. If that occurs, it could increase the burden on the more limited set of companies still required to contribute, which, in turn, could well undermine universal service. At this time, however, the *Report to Congress* found that there is no evidence that there is an immediate threat to the sufficiency of universal service support. [323]

## G. Summary

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[319] *Id.* at para. 95; 47 U.S.C. § 230(b)(1)-(2).

[320] *Id.* at para. 95; *see* 47 U.S.C. § 153(46) ("The term 'telecommunications service' means the offering of telecommunications for a fee directly to the public . . . *regardless of the facilities used*.") (emphasis added). *See also American Telephone and Telegraph Company, For Authority under Section 214 of the Communications Act of 1934, as amended, to Install and Operate Packet Switches at Specified Telephone Company Locations in the United States*, Memorandum Opinion, Order and Authorization, 94 FCC 2d 48 (1983) (*BPSS*) (classifying pure packet switching as a basic service).

[321] *Id.* at para. 98.

[322] *Id*.

[323] *Id*.

Regulatory classification of any service provided over the Internet that is functionally similar to more traditional services provided over conventional networks may depend not only upon the functionality it provides the end user/subscriber, but also upon how the service is positioned in the marketplace. The Commission's main focus is clearly upon whether, functionally, the subscriber is receiving two separate and distinct services, or is receiving one service consisting of integrated communications components. Traditionally, the Commission's answers to such questions have been influenced by the policy implications that classification as a regulated versus non-regulated service would entail.

With the exception of the analytical approach initiated in the *Report to Congress* on universal service issues, all of the 1996 Act proceedings discussed above largely assume the answers to fundamental questions about the nature of Internet access and Internet-based content and information services by concluding that they are synonymous with the more familiar category of enhanced services. The initiation of its other recent proceedings, including the *Internet NOI*, and the expansion of the *Computer III* further remand proceeding to reflect changes and requirements under the 1996 Act, should provide the Commission a much needed opportunity to review, in a more holistic fashion, its existing rules and policies with respect to the Internet. Significantly, the important question that none of these, or other Commission proceedings has directly addressed, is whether cable Internet-based services may receive significantly different regulatory treatment as Title VI services.

## V. EVOLUTION OF CABLE SERVICE

### A. Definition of "Cable Service" Under the 1984 Cable Act

When cable television service (known then as community antenna television or "CATV") began in the 1950's, the Commission initially determined that it did not have jurisdiction to regulate the new service under the Communications Act, as it was neither clearly a wire common carriage service governed by Title II (wire communications), nor a radio broadcast communications service, governed by Title III (radio/broadcast communications).[324] In 1966, the Commission reconsidered and began to regulate the cable industry.[325] The Supreme Court approved, to the extent that the Commission's regulations are "reasonably ancillary to the effective performance of the Commission's responsibilities for the regulation of television broadcasting."[326]

In order to prevent telephone company abuse of control over local network facilities, and

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[324] *See Frontier Broadcasting Co. v. Collier*, 24 FCC 251 (1958), *reconsideration denied*, *Report and Order*, Docket No. 12443, 26 FCC 403, 428 (1959); *United States v. Southwestern Cable Co.*, 392 U.S. 157, 164 (1968) (according to the FCC, cable systems are "neither common carriers nor broadcasters, and therefore are within neither of the principal regulatory categories created by the Communications Act").

[325] *See Malrite T.V. of New York v. FCC*, 652 F.2d 1140, 1143-44 (2d Cir. 1981).

[326] *Southwestern Cable. Co.*, 392 U.S. at 164.

to preserve a competitive environment for the development and use of broadband cable facilities and services, the Commission adopted regulations prohibiting telephone companies from directly providing cable television to subscribers.[327]

In 1972, the Commission created a comprehensive, dual regulatory regime whereby the state or local government issued franchises, while the Commission exercised "exclusive authority over all operational aspects of cable communication, including technical standards and signal carriage.[328] In 1984, Congress enacted legislation expressly designed to (de)regulate cable television, establish the boundaries of federal, state and local authority over cable systems, and establish franchise procedures and standards to encourage the growth and development of cable systems. The 1984 Cable Act, *inter alia*, exempted cable television operators from common carrier regulation insofar as they provide "cable service," preserved the local franchising system, and codified the telephone-cable cross-ownership restrictions.[329]

One of the driving factors behind the 1984 Act was the recognition that cable systems were capable of delivering both traditional one-way television-like programming and two-way data and voice transmission services.[330] The definition of "cable service" was developed to prevent cable systems delivering video programming from being treated as common carriers, while preserving existing federal and state authority to develop a regulatory scheme for the cable operators' expected future provision of non-traditional broadband communications services. Of particular concern with respect to cable's increasing capacity for two-way transmission services was the effect of telephone subscriber by-pass of the regulated local exchange networks in favor of the potentially unregulated provision of competing voice and data services by the cable companies. Such by-pass might leave the phone companies subject to universal service obligations, but lacking the revenues to support them, ultimately resulting in local telephone service rate increases.[331]

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[327] *See* T*elephone Company-Cable Television Cross-Ownership Rules, Sections 63.54-63.58*, 2 FCC Rcd 5092 (1987); *see also Applications of Telephone Common Carriers for Section 214 Certificates for Channel Facilities Furnished to Affiliated Community Antenna Television Systems*, 21 FCC 2d 307, *reconsideration in part*, 22 FCC 2d 746 (1970); 47 C.F.R. §§ 63.54-63.58.

[328] *See New York State Comm'n on Cable Television v. FCC*, 749 F.2d 804, 809 (D.C.Cir. 1984).

[329] *See* 47 U.S.C. §§ 541(c), 541(a)(2) and 533(b)(1)-(b)(4).

[330] H.R. Rep. No. 934, 98th Cong., 2d Sess. 19-23 (*House Report*) ("[L]ocal cable systems began to develop the capability to provide services other than those essentially resembling television broadcast. This included two-way communications services through which subscribers could call up programming or communicate over the cable system, and institutional networks with the capacity to provide the full range of communications and data transmission services to government and educational institutions and private businesses").

[331] *See House Report* at 27-29. The *House Report* cited several on-going proceedings at the federal and state level examining, *inter alia*, regulatory approaches to alternative suppliers of local private line services, including cable operators, and the question of local exchange by-pass.

The 1984 Cable Act defined the term "cable service" as the one-way transmission to subscribers of video programming or other programming service together with subscriber interaction, if any, which is required for the selection of such programming. The term "video programming" was defined as programming provided by, or generally considered comparable to programming provided by, a television broadcast station.[332] The term "other programming service" was defined as information that a cable operator makes available to all subscribers generally.[333] Further light on the nature of cable services under the statute comes from the definition of "basic cable service," also contained in section 602. Section 602(4) defines "basic cable service" as "any service tier which includes the retransmission of local television broadcast signals."[334]

The term "cable system" is defined as: "a facility, consisting of a set of closed transmission paths and associated signal generation, reception, and control equipment that is designed to provide cable service which includes video programming and which is provided to multiple subscribers within a community . . . ."[335] The term "cable operator" is defined to mean, "any person or group of persons (A) who provides cable service over a cable system and directly or through one or more affiliates owns a significant interest in such cable system, or (B) who otherwise controls or is responsible for, through any arrangement, the management and operation of such a cable system.[336]

The legislative history states that the Committee intended its definition of cable service "to mark the boundary between those services provided over a cable system which would be exempted from common carrier regulation under section 621(c) and all other communications services that could be provided over a cable system."[337] The *House Report* explains that the Committee intended to "exempt video programming from common carrier regulation in accordance with the traditional conception that the one-way delivery of television programs,

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[332] 47 U.S.C. § 522(20).

[333] 47 U.S.C. § 522(14).

[334] 47 U.S.C. § 522(4).

[335] 47 U.S.C. § 522(7). The definition also specifically excludes certain facilities, as follows: "(A) a facility that serves only to retransmit the television signals of 1 or more television broadcast stations; (B) a facility that serves subscribers without using any public right-of-way; (C) a facility of a common carrier which is subject, in whole or part, to the provisions of title II of this Act, except that such facility shall be considered a cable system (other than for purposes of section 621(c)) to the extent such facility is used in the transmission of video programming directly to subscribers, unless the extent of such use is solely to provide interaction on-demand services; (D) an open video system that complies with section 653 of this title; or (E) any facilities of any electric utility used solely for operating its electric utility systems."

[336] 47 U.S.C. § 522(5).

[337] *House Report* at 41.

movies, sporting events and the like is not a common carrier activity. Other programming services that make non-video information generally available to all subscribers are included as cable services because they are sufficiently like video programming to warrant a similar regulatory exemption."[338] Further, the legislation did

> not affect existing regulatory authority over the use of a cable system to provide non-cable communications services, such as private line data transmission or voice communication, that compete with services provide by telephone companies. Thus, the definition of other programming services requires that the information provided in a cable service must be made available to all subscribers generally and may not include information that is subscriber specific. If information transmitted over a cable system is made available only to an individual subscriber or to a discrete group of subscribers, the transmission of this information is not a cable service.[339]

In contrast, information that is of interest or use to only a particular class of customers may still be offered over a cable system as a cable service as long as it is made generally available to all subscribers. The *House Report* gives as an example of a "cable service" the offering to all subscribers, for use on personal computers, the transmission or downloading of computer software (such as computer or video games or statistical packages). The fact that such service would only be of interest and use to those cable customers who possess a personal computer, and the fact that the downloaded software could be used on such personal computers for a wide variety of purposes (including calculation and word processing) would not make the transmission or downloading of the software a non-cable communications service.[340]

The *House Report* also cautions that the requirement that cable operators "make available" the information in a cable service to all subscribers generally is not intended as a requirement that the cable operator actually create the information. "Accordingly, the provision of information over a cable system by a channel lessee or by the cable operator through a joint venture or other commercial arrangement would be a cable service if it met all other criteria for being a cable service."[341] The distinction between cable service and other services offered over cable systems "is based upon the nature of the service provided, not upon a technological evaluation of the two-way transmission capabilities of cable systems. For instance, any service that allows customers to buy a product by sending a signal over cable facilities, regardless of the precise mechanism used to

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[338] *Id.*

[339] *Id.* at 41-42.

[340] *Id.* at 42.

[341] *Id.* at 42.

transmit the signal, would not be a cable service."[342]

The *House Report* contains an extensive discussion of what non-traditional cable services fall within the statutory definition of cable services, and which services would be excluded. In general, all services offered by a cable system that "go beyond providing generally-available video programming or other programming are not cable services." Thus, "services providing subscribers with the capacity to engage in transactions or to store, transform, forward, manipulate, or otherwise process information or data would not be cable services."[343] For example, a cable service may not include "active" information services such as at-home shopping and banking that allow transactions between subscribers and cable operators or third parties. Similarly, a cable service

> may not provide subscribers with the capacity to communicate instructions or commands to software programs such as computer or video games or statistical packages that do not retrieve information and that are stored in facilities off the subscribers' premises. For this reason, a service that makes available the capacity to *calculate* the Dow Jones average using software located off the subscribers' premises could not be carried by a cable system as a cable service, even though a service that makes the Dow Jones average available to all subscribers would be a cable service.[344]

However, the Committee intended to permit a cable service to include interaction between the subscriber and the cable operator or a third-party for the limited purpose of selecting information provided in other non-video programming services. The *House Report* further distinguishes the type of subscriber interaction permitted in a cable service, the capacity to retrieve information, from the interaction that is excluded -- the capacity to engage in "offpremises data processing."

> The Committee intends that the interaction permitted in a cable service shall be that required for the retrieval of information from among a specific number of options or categories delineated by the cable operator or the programming service provider. Such options or categories must themselves be created by the cable operator or programming service provider and made generally available to all subscribers. By contrast, interaction that would enable a particular subscriber to engage in the offpremises creation and retrieval of a

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[342] *Id.* at 42-43.

[343] *Id.* at 42.

[344] *Id.* at 42 (emphasis original).

category of information would not fall under the definition of cable service.[345]

The *House Report* gives as an example of interaction permitted in cable services, "simple menu selection," and keyword information retrieval from pre-sorted data bases in accordance with a specific index of key words. Such subscriber requests for information would not activate a sorting program and would not produce a subset of data individually tailored to the subscriber's request. "Rather the information would already be sorted into a specific, limited number of options, all of which would themselves be generally available to all subscribers."[346] In contrast, unlimited keyword searches of information stored in data bases would not be included as cable services because such unlimited interaction goes beyond information retrieval and becomes a variety of data processing.[347]

Using these criteria, specific examples of cable services given were: "video programming, pay-per-view, voter preference polls in the context of a video program video rating services, teletext, one-way transmission of any computer software (including, for example, computer or video games) and one-way videotex[t] services such a[s] news services, stock market information, and on-line airline guides and catalog services that do not allow customer purchases."[348] Specific examples of non-cable services given were: "shop-at-home and bank-at-home services, electronic mail, one-way and two-way transmission on [sic] non-video data and information not offered to all subscribers, data processing, video-conferencing, and all voice communications."[349] The *House Report* observed that many contemporary commercial information services offer a package of services, some of which would be cable services (*e.g.*. news and stock listings) and some of which would not be cable services (*e.g.*, e-mail and data processing). Nonetheless, while cable operators would be permitted under the provisions of Title VI to provide any mixture of cable and non-cable services they chose, the manner in which a service was marketed would not alter its regulatory status as either a cable or non-cable service.[350]

Consistent with the definition of cable services, the *House Report* explained that the definition of "cable system" in section 602 would apply by its terms regardless of the fact that the system was utilized to provide both cable and non-cable communications services. "The term

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[345] *Id.* at 42-43. It appears that "other non-video programming services" in this context refers to services such as transmission and downloading of computer software and video games to the subscriber's personal computer, discussed previously.

[346] *Id.* at 43-44.

[347] *Id.* at 44.

[348] *Id.* at 44.

[349] *Id*.

[350] *Id*.

'cable system' is not limited to a facility that provides only cable service which includes video programming. Quite the contrary, many cable systems provide a wide variety of cable services and other communications services as well. A facility would be a cable system if it were designed to include the provision of cable services (including video programming) along with communications services other than cable service."[351]

## B. "Cable Service" and "Cable System" Under *Heritage*

Prior to the 1996 Act, Section 224 empowered the Commission to adjudicate disputes between cable television system operators and telephone and electric utilities concerning alleged unjust and unreasonable pole attachment rates, terms and conditions. In a pole attachment complaint proceeding, referred to herein as "*Heritage*,"[352] the Commission addressed a cable operator's claim that an electric utility unjustly and unreasonably imposed a separate charge for the attachment of facilities employed to provide non-video broadband communications services (*e.g.* data transmission services), in addition to the regulated rate that the utility had assessed the cable operator and its predecessor. The Commission adopted an expansive definition of a "cable system" for purposes of defining the scope of protection afforded cable system operators attaching their facilities to utility poles under section 224 of the Act, as amended in 1978.[353]

For purposes of clarity, and consistent with the 1984 Cable Act, the Commission defined the terms "conventional" or "traditional" cable service as used in *Heritage*: to refer to the delivery of television broadcast signals, cablecast or access programming, or other video programming by cable television systems to subscribers. Excluded from this category are non-video and other services not associated with the provision or selection of conventional or traditional cable services, such as electronic mail delivery, facsimile transmissions and other data transmission services. The Commission rejected TU Electric's challenge to the Commission's jurisdiction to resolve the dispute under section 224, on the grounds that Congress had not intended section 224 to reach only those pole attachments supporting equipment employed exclusively to distribute television broadcast signals and other video programming.[354]

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[351] *Id.* at 44.

[352] *Heritage Cablevision Associates of Dallas, L.P., and Texas Cable TV Association, Inc. v. Texas Utilities Electric Company, Memorandum Opinion and Order*, 6 FCC Rcd 7099 (1991) (*Heritage*), *recon. dismissed*, 7 FCC Rcd 4192 (1992), *affirmed, Texas Utils. Elec. Co. v. FCC*, 997 F2d 925 (D.C. Cir. 1993).

[353] Pub. L. No. 95-234, § 6, 92 Stat. 33, 35 (codified as amended at 47 U.S.C. § 224) ("Pole Attachments Act"). *Heritage*, 6 FCC Rcd at 7101-02. The Supreme Court has found that Congress enacted this legislation "as a solution to a perceived danger of anticompetitive practices by utilities in connection with cable television service." *FCC v. Florida Power Corp.*, 480 U.S. 245, 247 (1987). By conferring jurisdiction on the Commission to regulate pole attachments, Congress sought to constrain the ability of telephone and electric utilities to extract monopoly profits from cable television system operators in need of pole space. *Id*. at 247-48. *See also Alabama Power Co. v. FCC*, 773 F.2d 363, 364 (D.C. Cir. 1985)

[354] *Heritage*, 6 FCC Rcd at 7099 n.2., 7102.

The Commission found that nothing in the legislative history of section 224 supported a conclusion that protection for traditional cable television service was Congress' exclusive concern. Although there was no explicit discussion of the issue in the House Report, the Senate Report had specifically referenced testimony "that the introduction of *broadband cable services* may pose a competitive threat to telephone companies, and that the pole attachment practices of telephone companies could, if unchecked, present realistic dangers of competitive restraint in the future."[355] The Commission further found that the term "broadband cable services" to which Congress was referring, has commonly been understood throughout the years to include non-video services, *e.g.*, business data transmission, as well as video services. As early as 1972, the Commission had identified the following services among those possible over cable's multichannel or broadband capacity:

> [F]acsimile reproduction of newspapers, magazines, documents, etc.; electronic mail delivery; merchandising; business concern links to branch offices, primary customers or suppliers; access to computers; e.g., man to computer communications in the nature of inquiry and response (credit checks, airlines reservations, branch banking, etc.), information retrieval (library and other reference material, etc.), and computer to computer communications. . . .[356]

*Heritage* cited earlier orders in which the Commission explicitly adopted restrictions on telephone common carriers' ownership and operation of CATV facilities in order to ensure that cable television development into a broadband communications system would not be inhibited by telephone companies. The Commission stated that "CATV service represents the initial practical application of *broadband* cable technology" and that "there is a substantial expectation that *broadband* cables, in addition to CATV services, will make economically and technically possible a wide variety of new and different services, involving the distribution of data, information storage and retrieval, and visual, facsimile and telemetry transmissions of all kinds.[357]

The Commission reiterated its earlier concern for the orderly development of cable within the structure of the existing nationwide communications system, in which it noted that cable television "presumably will become a major and integrally vital element of what many see as the

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[355] *Id.* at 7102, *quoting* S. Rep. No. 580, 95th Cong., 1st Sess. at 13, *reprinted in* 1978 U.S. Code Cong. & Ad. News at 121 (emphasis added).

[356] *Id.* at 7102, *quoting* Cable Television Report and Order, 36 FCC 2d 143, 144 n.10 (1972), *quoting* Notice of Proposed Rule Making and Notice of Inquiry, Docket 18397, 15 FCC 2d 417, 419-20 (1968).

[357] *Id.* at 7102, *quoting* Section 214 Certificates, Final Report and Order, 21 FCC 2d 307, 324-25 (1970) (emphasis added).

*broadband* communications system of the future."[358] Recognition that cable could provide "these broader functions" had previously led the Commission to substitute use of the "more inclusive term cable television systems" for "CATV." Similarly, in an antitrust action against telephone utilities for an alleged conspiracy to restrain trade in refusing a cable company's request to attach cables to telephone poles, the court construed the term "broadband" as applying to "a wide range of communications services including meter reading, stock market quotations, burglar and fire alarm services, at-home shopping services, data service, and two-way television."[359]

The Commission concluded that, given the commonly understood meaning ascribed to the term "broadband cable services," both prior to and contemporaneous with the passage of section 224, Congress was aware of the Commission's longstanding view of cable as a provider of video and non-video broadband services, and did not intend to limit its pole attachment authority to exclude non-video broadband services. It rejected TU Electric's arguments that the section 224 should be interpreted in light of the Cable Act definitions of "cable service" and "cable television system," and that these definitions did not encompass data transmission services, but were limited to video entertainment services.[360]

The Commission first noted that the statute specifies that the Cable Act definitions apply only "for purposes of this [Title VI]," and that nothing in the language or legislative history of the Cable Act suggests its definitions were intended to limit the Commission's pole attachment jurisdiction.[361] Even when section 224 is read in conjunction with the Cable Act, cable facilities carrying both video and non-video broadband services are not excluded from section 224. Several provisions of the Cable Act expressly contemplated that cable systems would carry both traditional cable services and non-cable communications services without the operators' facilities ceasing to be "cable systems" under the Title VI. Section 621 (then, as now) specifically reserves the authority of any State to regulate any cable operator to the extent that such operator provides any communications service other than cable service, whether offered on a common carrier basis or private contract basis.[362] The Commission concluded that the facilities at issue, which were

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[358] *Id.* at 7102-03 n.28, *quoting Clarification of the Cable Television Rules*, 46 FCC 2d 175, 176 (1974) (emphasis added).

[359] *Id*. at 7102-03, *quoting TV Signal Company of Aberdeen v. AT&T*, 617 F.2d 1302, 1304 n.1 (8th Cir. 1980).

[360] At the time of Heritage, section 602(6) defined "cable system" as "a facility . . . designed to provide cable service which includes video programming and which is provided to multiple subscribers within a community . . . *Heritage*, 6 FCC Rcd at 7103; 47 U.S.C. § 522(6)(1991). "Cable service"was then defined as, "(A) the one-way transmission to subscribers of (i) video programming, or (ii) other programming service, and (B) subscriber interaction, if any, which is required for the selection of such video programming or other programming service." *Id*.; 47 U.S.C. § 522(5) (1991). The only relevant difference between these definitions and the definitions under the 1996 Act, is the addition of the words "or use" in subsection (B), discussed below.

[361] *Id.* at 7104; 47 U.S.C. § 522 (1991).

[362] *Id*.; 47 U.S.C. § 541(d)(2) (1991).

designed to include the provision of cable services (including video programming) along with communications services other than cable service, met the definition of "cable system" within the meaning of the Cable Act, even though the operator also provides data transmission over its system.[363]

Thus, the 1984 Cable Act established a fundamental distinction between a service that is provided over a cable system that is "cable service," and a service provided over such a system that is not within the statutory definition. The excluded category clearly included two-way communications services such as e-mail, facsimile transmissions and data processing, services which are identical to those long defined by the Commission as "enhanced services" under the *Computer Inquiry* decisions, as well as basic voice communications services. In other words, cable regulation under Title VI contemplated a distinction between "traditional" or "conventional" cable video programming services and "non-video" or "broadband" services that is not unlike the distinction between "basic" and "enhanced" common carrier communications services established in the Commission's *Computer Inquiry* decisions. In each case, the "nontraditional" or unconventional service utilizes the facilities of the traditional system without thereby effecting a change in the classification of the underlying facilities for regulatory purposes. And, in each case, the nontraditional or enhanced service was defined principally as anything beyond the basic or traditional service offered by the respective provider. In each instance, this distinction was primarily drawn to exclude such "enhanced" services from the Title II or Title VI regulation otherwise mandated for the "basic" or "traditional" service. Carriers would not be prohibited from providing such non-traditional services, but the regulations applicable to their basic service would not necessarily apply.

It appears that, prior to the 1996 Act's revision to the definition of cable service, it would not have been possible for the Commission to have interpreted the section 602(6) definition of "cable service" to include cable Internet-based services. As discussed above, the 1984 Cable Act's legislative history makes it clear that such interactive information and enhanced services as are provided over the Internet could not come within the original definition of cable services insofar as they generally provide the subscriber with a two-way capacity to engage in transactions, or to store, transform, manipulate, or otherwise process information or data. Critical to the classification of "cable services" is the limitation that the programming provided be made available to all subscribers generally and that it arrive by one-way transmission from the cable headend. The follow section examines technological advances in cable architectures and services that demonstrate how cable systems have changed since 1984.

## C. Features of Internet Services Provided Over Cable Systems

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[363] *Id*. at 7104. On appeal, the D.C. Circuit Court affirmed the Commission's decision. The court held that although section 224 was ambiguous as to whether the Commission's regulatory authority extended to cables used to transmit non-video communications, the Commission had reasonably interpreted the Act to conclude that its authority extended to cables transmitting non-video communications. *Texas Utils. Elec. Co. v. FCC*, 997 F2d 925, 932-35 (D.C. Cir. 1993).

### 1. Advanced Cable Architecture

The cable industry is in the midst of a transformation from self-contained, coaxial distribution systems that feature one-way delivery of analog television signals to two-way, interactive broadband systems involving a hybrid of traditional coaxial and modern fiber optic technologies. These new hybrid fiber-coaxial ("HFC") networks are often linked by fiber into regional hubs, which enable the industry to deliver a wide range of telecommunications and information services -- including Internet access, telephony, and digital television.[364]

The traditional cable network was optimized for the delivery of traditional cable video programming service through one-way transmission of signals to subscribers. The basic cable system, optimized for one-way transmission, has been a "tree-and-branch" full coaxial, 350 MHz system, capable of providing approximately 50 channels of analog video service. The architecture is simple, with larger "trunks" leaving the cable "headend," and splitting into smaller trunks or "feeder or distribution" lines into the neighborhoods served. Along the way, the signal is amplified many times to maintain its integrity. A "drop" line connects the feeder line to the terminal equipment or network interface units at the subscriber's home. The headend is the center of the system, where many programming operations and functions are processed, such as the reception of satellite delivered programming and broadcast signals. It includes facilities for descrambling incoming signals form satellite and broadcast programming networks, assigning them channel numbers, and processing them for retransmission over cable lines. The headend also contains electronic equipment for inserting advertising at the local level, encrypting signals for security purposes, and playing or producing public access/local origination programming.

Trunk lines are high-capacity fiber or coaxial cables which carry signals from the headend to feeder cables serving local neighborhoods. Many cable operators are currently deploying fiber optic transmission lines to replace much of the coaxial cable present in trunk lines. The strategic deployment of fiber optic cable reduces noise in a system by requiring less electronic equipment (e.g., fewer amplifiers) and making the system "passive." Such "passive" architectures support newer, more reliable technologies by providing "cleaner" transmission paths which are necessary for two-way interactivity, telephony, and other new services. The existing feeder and drop lines represent the cable industry's "last mile" of plant into the consumer's home. These lines are high bandwidth coaxial cable, which are capable of delivering broadband applications at very high data rates.[365]

The HFC architecture takes fiber from the headend all the way to feeder lines, thereby increasing bandwidth and signal quality while placing fiber optics closer to the customer premises.

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[364] Information in this section is drawn primarily from: National Cable Television Association ("NCTA"), *Telecommunications and Advanced Services Provided by the Cable Television Industry*, April 1996, pp. 3-26 and NCTA, *The Cable Television Handbook*, January, 1997, Section 3 ("*NCTA 1997 Cable Handbook*").

[365] Cable plant is capable of transferring data at rates as high as 43 million bits per second in each 6 MHz television channel allocated for data transmission. *NCTA 1997 Cable Handbook* at 3-A-4.

The fiber terminates in neighborhood nodes, from which feeder and drop lines branch out to subscriber's premises. This network can utilize the tree-and-branch form, and can offer a number of capacities, most commonly 550 MHz and 750 MHz. With 750 MHz, a cable operator can offer 118 analog channels with extra capacity usable for telephone or other services. HFC networks offer improved reliability, increased capacity, and clearer signal transmission. The HFC design effectively transforms a single cable system into a series of smaller cable systems, with individual serving areas of as few as 200 to 500 homes. These "mini" systems are connected to the headend by fiber links, which increase bandwidth and facilitate two-way transmission.

Advanced cable architectures generally incorporate fiber backbone, fiber redundancy and regional hub interconnection to increase network reliability and interoperability, which are essential to two-way services such as voice transmission. Increasingly, multiple system operators are deploying "regional hubs" to interconnect system headends using high capacity fiber optic rings. Regional hubs also speed the deployment of telephony services and interactive two-way services by allowing cable companies to interconnect with other telecommunications networks, upon deployment of telephony switching and two-way signalling capability. Once these improvements are made, cable's fiber-based platform will enable the industry to transport personal communication services, competitive access for business to connect to long distance companies, and, eventually, local residential voice service.

The cable industry's broadband platform makes cable an optimal medium for transmitting large amounts of digital information -- data, graphics, and video -- at high speeds. Upgraded cable systems can, depending upon usage conditions, carry data up to 1000 times faster than transmission using dial-up modems over ordinary copper twisted-pair phone lines, and 100 times faster than ISDN (integrated services digital network) phone lines. As fiber upgrades are completed to accommodate digital services, cable networks will become more "passive," thus increasing the two-way capability of data transmissions over cable lines. Cable companies can operate as "pipeline" or "conduit" services, or become full-service providers of Internet access and other value-added services.

Cable plant utilizing an HFC cable architecture can transmit both upstream and downstream Internet access. The connection to the Internet is persistent, rather than obtained on a "dial-up" basis. Modulators and computer servers are located at the cable system headend, where the cable system interconnects with the Internet or outside information service provider. From the headend, laser nodes send signals to nodes located in the neighborhood, where the signals are transformed to travel over coaxial cable plant to the customer premises.

A technical problem for most existing cable systems's provision of two-way interactive data services is return path transmission interference. This problem arises for several reasons. Cable's traditional tree-and-branch or "bus" architecture permits a degree of noise ingress that can cause interference with return-path transmissions. In this arrangement, subscribers share the capacity of the coaxial cable infrastructure potentially making it more vulnerable to interference or

other forms of degradation caused by the actions of individual subscriber's equipment.[366] In addition, cable systems have a "low split" (at about 50 MHz) for their return path signals (at 5 MHz - 40 MHz), which can interfere with signals on the lower channels, such as channel 2, which start at 54 MHz. Several solutions are available, including utilization of different portions of the transmission path for return transmissions at a "high split" above 550 MHz. Other techniques such as activating "dark fibers" (a second, unused transmission line) and reducing the size of neighborhood nodes can lessen traffic and interference and create more bandwidth for return path transmissions.[367]

Yet another solution, being used by several cable operators, is using cable architecture for transmitting downstream data transmissions, and telephone lines for the upstream or "return" path, which requires far less capacity. This solution, which provides Internet access and content by transmission to the home downstream over cable plant, with transmissions back from the home upstream to the Internet over the analog phone line is an Internet access solution that would permit the vast majority of cable plant which is one-way (80% or more) to be immediately capable of supporting Internet services. The effect of this service configuration on the question of including Internet-based services under the revised statutory definition of cable services, will be discussed below.

### 2. Current Cable Internet Services

The high-speed data, interactive computer and other Internet-based services offered by cable operators are also referred to as "cable modem service." The cable modem is the piece of equipment that converts the data transmissions for use in the subscriber's premises. In the home, a cable modem connects to the cable television coaxial wiring and also usually attaches to the user's computer via a standard Ethernet connection. The speed of cable modems offers significant advantages in terms of speed of connection and data transmission over other equipment currently available to connect end users to online services, the Internet and the World Wide Web. Cable modems generally fall into three categories: (1) modems for personal computers, (2) modems for local area network ("LAN")-to-LAN network bridges, and (3) modems for LAN-to-LAN routing.

Particular Services. Members of the cable industry maintain that the primary Internet-based services the industry may provide, such as the @Home Network's "@Home" service, Time Warner's "Road Runner," Cablevision's "Optimum Online,"and MediaOne's "MediaOne Express" will be closer in nature to traditional cable offerings, with significant operator-provided content and browsing capability, than the Internet-based services provided by the telephone carriers,

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[366] *See Implementation of Section 304 of the Telecommunications Act of 1996, Commercial Availability of Navigation Devices*, CS Docket No. 97-80, *Report and Order*, FCC 98-116 (released June 24, 1998) at para. 122.

[367] *1997 NCTA Cable Handbook* at 3-D-3.

which consist of little more than a telecommunications transmission facility and a browser.[368]

The @Home Network was originally a joint venture of Tele-Communications, Inc. (TCI), Comcast Corp., Cox Communications, Inc., and Kleiner, Caufield & Byers. Since its founding in May 1995, the @Home Network has reached affiliate agreements with seven leading cable companies in North America, including TCI, Comcast, Cox, InterMedia Partners, Marcus Cable, Rogers, Shaw and Cablevision Systems Corp.[369] The @Home service comprises a private broadband network and interactive on-line service distributed in part though existing cable infrastructure, and uses the @Home Network's high-speed national backbone and a cable modem. @Home's primary offering, the "@Home service," permits residential subscribers to connect their personal computers via cable modems to @Home's Internet backbone. According to @Home, "[t]his service enables subscribers to receive the '@Home Experience,' which includes Internet service," an "always on" connection, and multimedia programming through "an intuitive graphical user interface. The content foundation of the @Home Experience is provided by the Company's @Media group, which aggregates content, sells advertising to businesses and will provide premium services to @Home subscribers."[370]

The @Home Network also offers a business version of its service, known as "@Work." The @Work service offers businesses "end-to-end managed connectivity for Internet, intranet and extranet solutions over a variety of transport media including the cable infrastructure and leased digital telecommunications lines."[371] @Work is a high-speed, fully managed data services and is designed to meet the demand for superior, reliable and secure network communications. @Work is also designed to enable businesses to connect their LAN to the Internet and to extend their corporate LAN to their employees working at home.[372]

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[368] These services are discussed for illustrative purposes only. The pace of change as the cable industry rolls out its Internet-based services, and forms alliances among operators, precludes absolute accuracy in descriptive text such as this. Any discrepancies should not affect the substantive analysis below.

[369] *See* Telecommunications Reports, Vol. 63, No. 15, April 14, 1997 at p.18; @Home Network, Company Background, <http://www.home.net/corp/background.html>. Cablevision Systems announced that it will affiliate with @Home for the delivery of broadband cable modem service and will receive warrants allowing it to buy shares on the same terms as the other owners. *See* CableFAX Daily, Oct. 3, 1997; Cable Datacom News, The Third-Quarter Report from @Home, <http://CableDatacomNews.com/current.html>.

[370] Written Statement of Milo Medin, Senior Vice President for Engineering and Chief Technology Officer, @Home Network, before the Federal Communications Commission, July 9, 1998, *En Banc Hearing* on Bandwidth. Available on the En Banc page of the Commission's website: <www.fcc.gov>

[371] *See, id.*, Written Statement of Milo Medin.

[372] *See also* <http://www.home.net/work/>. The @Work service may raise distinct issues in terms of regulatory classification under the Communications Act. From its description, including the fact that it is only partially provided over cable infrastructure, the service does not appear to be readily distinguishable from a traditional telephone carrier's broadband communications service. The conclusions in this paper regarding the potential for a regulatory classification of cable Internet services under Title VI cable services are addressed exclusively to the

Road Runner is another broadband online high-speed service over cable developed by the Excalibur Group, a joint venture between Time Warner Cable and Time Inc. According to Time Warner, this service provides customers with an opportunity to connect, at very high speeds, to community resources such as newspapers, libraries and government offices; explore a range of entertainment and information services; access the Internet and existing online locations such as Time Warner's "mega-site," Pathfinder; take advantage of e-mail, and use and access other online services. Time Warner claims that what primarily distinguishes Road Runner from other online services is its seamless mix of local content, national content, and cohesively packaged entertainment content provided by Warner Bros. Online, as well as third-party providers. In particular, Road Runner is a collaborate effort supported by the resources of Time Warner Cable, Time Inc., CNN and Warner Bros. "Pathfinder," Time Warner's site on the World Wide Web, for example, provides text, photos, graphics, audio and video from several of its more popular publications.

Road Runner and the @Home joint venture each offer their respective Internet-based services to other cable operators for resale to cable subscribers. These offerings may be customized by the purchasing system for its locality. The @Home offering delivers broadband Internet access and national and local content directly to the subscriber's personal computer via a cable connection, a cable modem, and a Netscape browser. In addition, @Home supplies subscribers with communications such as e-mail and chat, and customer support. In contrast, Road Runner, which is used by both Time Warner and Cablevision, uses versions of Microsoft's Internet Explorer browser. At present, cable operators only offer high-speed Internet-based services in selected locations. However, it is noteworthy that the combined cable networks of @Home's partners reach approximately 40 percent of U.S. households alone. Other large cable operators, such as MediaOne, Cablevision Systems and Jones Intercable, originally developed their own brand of Internet offerings, although several are now linking to either the @Home or Road Runner networks.[373]

Cablevision of Connecticut launched its Optimum Online, Cablevision System Corporation's high-speed Internet access service in Westport, Conn in 1997. Press reports indicated that Optimum Online links PC users to the Internet via cable modems that break the Web into seven categories for subscribers: news, sports, weather, entertainment, community, learning and children's. Proprietary localized services offered as part of Optimum Online include "News 12 Interactive," an online counterpart to Cablevision's regional cable news service, along

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residential, @Home service.

[373] As noted earlier, these services are noted for discussion purposes. Continental Cable had been acquired by US WEST's Media Group. The system was subsequently renamed, "MediaOne," and its Internet service, was renamed, "MediaOne Express." This paper continues to refer to Continental and Highway 1 only in discussing the features of this particular subscriber agreement. Recent reports indicate that Road Runner will combine its service with MediaOne Express (which will change its service name to Road Runner). *See* "*The Broadband Bob Report*," 08/07/98; <http://www.rdrun.com>; <http://www.mediaone.com/express>.

with "SportsChannel," "Community Center" and "ExtraHelp Online." Prices range for the service, depending on the customer's level of cable service, with extra charges per month for the cable modem.[374]

Similarly, Jones Communications, Inc., a subsidiary of Jones Intercable, Inc., launched its "Jones Internet Channel," "high-speed Internet content and Internet-over-cable access" service over its Alexandria, VA cable system, and nearby suburban systems in 1997. The Jones Internet Channel was described as "an Internet programming network, providing high-speed Internet connections over hybrid fiber optic and coaxial cable systems (cable television systems). Jones Internet Channel also offers local, national, and international content and the tools you need to make the most of your high-speed connection." In addition, the Jones Internet Channel provides full-service Internet access, which includes access to the World Wide Web, e-mail and newsgroups. The company represented that, "Jones Internet Channel is not a cable television network, but through its use of cable infrastructure and its focus on innovative content, it represents an advance form of cable programming. Additionally, the signal occupies a minimum of one channel space of bandwidth to transmit data."[375]

Sample Subscriber Agreement. The terms of the MediaOne subscriber agreement, for example, indicates that the cable operator is offering its Internet service as a "cable services."[376] The MediaOne "Highway 1 Cable Internet Access Service" has been offered through a residential Service Agreement ("Highway 1 Service Agreement") that describes the service as a "cable programming service." Under the terms of the agreement, the operator will provide a separate cable connection to the subscriber's computer, one cable modem, the connection between the modem and the home computer, and certain software. The software will include a single user electronic mail account and a web browser, and if required, TCP/IP software. The operator will also provide a single user IP connection through the "BBN planet commercial network." Other service features are also available for additional charges.[377]

"Subscriber obligations" include a subscriber acknowledgement that the "Service provides

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[374] Broadcasting & Cable, "Cableday," Thursday, October 16, 1997 at 1.

[375] *See* Jones Web site: <http://DCtoday.jones.com> and <http://DCtoday.jones.com/jic/faq.html> (Frequently Asked Questions). Comcast Corporation announced in May, 1998 that it would acquire shares in Jones Intercable, Inc. from BCI Telecom Holding company. Comcast Corporation, News Release, May 25, 1998. The Jones system in Alexandria will be converted to the @Home service.

[376] This particular agreement is discussed because it is available in the Commission's files for examination, and is summarized solely for purposes of illustrating the nature of one form of cable Internet access service. It may or may not contain terms and conditions found in other cable operator's cable Internet services agreements. The Commission does not ordinarily require that such service agreements be filed with the agency, and the author has no other similar service agreements upon which to make further comparisons.

[377] *MAI Petition*, Attachment at 1, "Service Agreement for Highway 1 Cable Internet Access Service," Sec. 1.1 ("*Highway 1 Service Agreement*").

full access to the Internet," and a subscriber representation that the subscriber is at least 18 years of age, and will supervise use of the service by anyone under 18 years of age. There are restrictions on the ability of the subscriber to transfer its rights and obligations under the agreement to any other person, or residence. The Highway 1 Service Agreement states that through use of the Service, the subscriber may access certain information, products and services provided by third parties for a charge, and that responsibility for all such fees or charges is the responsibility of the subscriber.[378]

The remainder of the Highway 1 Service Agreement contains various provisions governing installation and access, service and performance, support and maintenance, ownership and use of equipment and software, limitations on liability, disclaimers and disclosures regarding information accessible through the Internet connection it is supplying. Section 11, regarding customer use, describes the service as "a cable programming service for personal use," which includes an "IP connection as a component of the single user electronic mail account." The subscriber is specifically prohibited from reselling or redistributing access, and this prohibition includes, but is not limited to, the provision of e-mail, FTP and Telnet access. "Continental reserves the right to disconnect or reclassify the Service to a commercial grade for failure to comply with any portion of this provision." Certain additional restrictions on use of the Service for illegal purpose, excessive data transfers, and copying or distribution of the software are also included. The customer information and privacy provision expressly acknowledges that the subscriber's privacy interests are "safeguarded by the subscriber privacy provisions of the 1984 Cable Act, as amended.[379]

IP Telephony Over Cable. In addition to the open-ended Internet connectivity exemplified by services such as @Home, Comcast has recently announced that CableLabs (the research lab for the cable industry) is developing a specialized form of IP telephony tailored for cable systems, that would enable telephone customers to by-pass LEC and even IXC telephone networks entirely. As explained by Mark Coblitz, Comcast vice president-strategic planning, cable-based IP telephony differs from the forms of Internet telephony already in use. Instead of using the public Internet itself as the "carrier" for a telephone call, cable-based IP telephony uses IP addressing only, but carries the call over what is described only as an "engineered network."[380] This form of IP telephony would look like current, PSTN-based telephony from the customer standpoint. Customers would use current telephone handsets and inside wiring, but the wiring would connect the handset to the cable system through a cable modem, advanced set-top boc, or other dedicated device. Coblitz speculates that the service would not be marketed as 'IP telephony," but simply as a cheaper alternative to regular telephone service.[381] Coblitz acknowledges that this proposed

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[378] *Highway 1 Service Agreement*, Secs. 2, 5.1.

[379] *Highway 1 Service Agreement*, Sec. 12.1.

[380] Communications Daily, March 27, 1998.

[381] *Id*.

service raises significant, but not insurmountable regulatory issues: "If telephony is just part of an unregulated data stream, what is it?"[382] The following section will explore the "what is it?" question with respect to cable provided Internet-based services ("cable Internet-based services").

## VI. INTERNET SERVICE AS "CABLE SERVICE" UNDER THE 1996 ACT

### A. Revised Definition of "Cable Service" Under the 1996 Act

Plain language. Section 602(6) now defines "cable service" as: "the one-way transmission to subscribers of video programming or other programming service, and subscriber interaction, if any, which is required for the selection *or use* of such video programming or other programming service."[383] The "plain language" of the cable service definition raises several related interpretative questions: (1) how does the addition of the two words "or use" before the phrase "of such video programming or other programming service" in section 602(6)(B) change the existing definition of cable services; (2) are Internet-based services to be considered "video programming" under section 602(6)(A)(i) or "other programming services" under section 602(6)(A)(ii); and (3) how may the addition of the subscriber's ability to use the service for two-way communications comport with the definition of cable service in section 602(A) as the "one-way transmission" to subscribers? The legislative history of section 602(6) also provides some guidance on what Congress intended by this change to the Act.

The only change to the text of the statutory definition of cable services was the inclusion of the words "or use" modifying "of such video programming or other programming service" in section 602(6)(B). To determine the effect of the addition of the subscriber's ability to "use" the video or other programming service, one must first determine whether Internet-based services fall within either the statutory definition of "video programming" or "other programming service." As discussed above, the definition of "cable service" in section 602 was created in 1984 to "mark the boundary between those services provided over a cable system which would be exempted from common carrier regulation under section 621(c) and all other communications services that could be provided over a cable system."[384]

Section 602(20) defines the term "video programming" as "programming provided by, or generally considered comparable to programming provided by, a television broadcast station." Whether cable Internet-based services would constitute video programming under Title VI will depend largely upon what content is provided over the Internet and how that content is provided. For example, a basic Internet connection permitting a subscriber to visit Web sites put up by third

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[382] *Id*.

[383] 47 U.S.C. § 522(6).

[384] *House Report* at 41.

parties may not be comparable to programming provided by a television broadcast station. In contrast, live video images transmitted across the Internet by the technique known as "streaming" video might appear much closer to traditional broadcasting, particularly from the point of view of the subscriber.

Section 602(14) defines "other programming service" to mean "information that a cable operator makes available to all subscribers generally." It would appear that cable Internet-based services that are made available to all subscribers generally and that do not include information that is "subscriber specific" may be considered cable services under this prong of the definition.[385] The transmission and downloading of computer software or video games or statistical packages was cited as an example of a cable communications service that would fit under the "other programming services" prong of the definition.

It is therefore possible to fit cable Internet-based services within the statutory concepts of either "video programming" or "other programming services," depending upon the nature and manner in which the information is provided to the subscriber. What then does the ability of the subscriber to "use" such programming signify? It is arguable that the phrase "or use" was intended to cover the two-way, interactive nature of the types of communications that typically characterize interactive computer, enhanced and information services and Internet access services,as reflected in the legislative history under the 1996 Act. However, this interpretation also creates an apparent conflict between the later amendment and the un-amended portions of the definition of cable service in section 602(6), which rests upon cable services continuing to be defined as "one-way transmission to subscribers of video programming or other programming service."

One solution for this apparent conflict is to focus on the cable operator's transmission to subscribers of content and information available through the operator's computer connections to the Internet as the fundamental "cable service." This service, under the revised definition, includes the both the subscribers "selection" and "use" of such programming. These latter concepts could be said to cover the subscriber's "mouseclicks" sending messages upstream to the Internet server located at the cable headend, indicating which site on the Internet or Web the subscriber wishes to "visit, and what information the subscriber wishes to receive and/or download." Under this view, the programming service offered by the cable operator may be said to still be "one-way," while the cable service as a whole now contains a full two-way capability permitting interaction between the subscriber and the cable system for purposes of creation and retrieval of categories of off-premises stored information. Such an interpretation would not have been possible under the 1984 Cable Act definition of "cable services," but it is certainly feasible under the 1996 Act

[385] However, the legislative history of that provision also indicates that if information transmitted over a cable system is made available only to an individual subscriber or to a discrete group of subscribers, the transmission of this information is not a cable service. *See House Report* at 41-42.

amendments to that definition.[386]

Ultimately, the foregoing attempts at fitting newly developed concepts such as interactive computer services, and Internet-based services into what is still largely a 1984 definition of cable services do not provide entirely satisfactory answers to the question, what did Congress intend to do with its inclusion of the words "or use" in the cable services definition? With the 1984 Cable Act, it was important that cable services be defined in a manner that permitted them to escape common carrier regulation through two basic attributes: cable service would involve only one-way transmission, and its content would be similar to that provided by broadcast television stations in over-the-air transmissions. This approach does not lend itself easily to adoption to a world of digital transmission of information in which all communications services and their characteristics "converge." Congress clearly intended to augment the scope of cable services with its added language, but the significance of that addition must take into account the unchanged portions of the definition. Thus, it is necessary to examine the legislative history accompanying the amendment.

Legislative History. The legislative history of section 602(6) states:

> The conferees intend the amendment to reflect the evolution of cable to include interactive services such as game channels and information services made available to subscribers by the cable operator, as well as enhanced services. This amendment is not intended to affect Federal or State regulation of telecommunications service offered through cable facilities, or to cause dial-up access to information services over telephone lines to be classified as a cable service[387]

The definition expands the scope of cable offerings, without drawing under Title VI the similar information services offerings of telecommunications carriers, online service providers, or ISPs.

The 1996 Act defines information services as "the offering of a capability for generating, acquiring, storing, transforming, processing, retrieving, utilizing, or making available information via telecommunications, and includes electronic publishing, but does not include any use of any such capability for the management, control, or operation of a telecommunications system or the management of a telecommunications service."[388] The Commission's rules define "enhanced services" as services, offered over common carrier transmission facilities used in interstate communications, which employ computer processing applications that act on the format, content,

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[386] *See Id.* at 43.

[387] *Joint Explanatory Statement* at 169.

[388] 47 U.S.C. § 153(20).

protocol or similar aspects of the subscriber's transmitted information; or involve subscriber interaction with stored information.[389]

Arguably, the change in the statutory definition of cable services may have been intended to include exactly the types of interactive cable broadband services previously excluded under section 602. This is also suggested by statements on the House floor immediately prior to the passage of the 1996 Act, by Representative Dingell, commenting on how the revised definition of cable services would affect local franchising authorities' revenues from cable franchise fees, "[t]his conference agreement strengthens the ability of local governments to collect fees for the use of public right-of-way. For example, the definition of the term 'cable service' has been expanded to include game channels and other interactive services. This will result in additional revenues flowing to the cities in the form of franchise fees."[390] Representative Dingell may have been referring to Internet access and like services with his reference to "other interactive services." If so, his statement may taken as further support for the argument that Congress intended the revised cable service definition to include cable-provided Internet access and other Internet-based services.[391]

On the other hand, references, to "information services" and "enhanced services" as examples of the types of interactive services that would now be included under the definition of cable services could potentially raise a question as to whether Congress intended to import a "telecommunications" component into the definition of cable services, and what the significance of such a change would be. In other words, what did the conferees intend by their reference to "information services" which are defined as including transmission "via telecommunications" and, enhanced services, which also include a basic communications transmission component which, under the Commission's rules, are provided over "common carrier transmission facilities"? What would happen to the definition of "cable services" and "cable systems" and their distinct Title VI regulatory regime if cable services are interpreted to include a "telecommunications" component? Is it essential to the concept of "enhanced services" that the underlying facility be regulated as a "common carrier transmission" facility? In the alternative, did the conferees intend to reference an "enhanced" cable service as opposed to referencing the Commission's *Computer Inquiry* category of telecommunications services?

Analysis. In the *Universal Service Order*, the Commission rejected the argument that information services are "inherently" telecommunications services because they are provided "via telecommunications" for section 254 purposes. Rather, the Commission found that, "information

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[389] *See* 47 U.S.C. § 64.702(a).

[390] 142 Cong. Rec. H1156 (daily ed. Feb. 1, 1996) (statement of Rep. Dingell).

[391] This interpretation is supported by the definitions contained in section 230(e) of "interactive computer service" as "any information service, system, or access software provider that provides or enables computer access by multiple users to a computer server, including specifically a service or system that provides access to the Internet and such systems operated or services offered by libraries or educational institutions." 47 U.S.C. § 230(e).

services" differ from "telecommunications services" under the Act because telecommunications services by definition do not involve a change in the form or content of the user's information as sent or received, whereas information services by definition involve "generating, acquiring, storing, transforming, processing, retrieving, utilizing, or making available information."[392] In addition, all services that the Commission previously considered to be "enhanced services" are now to be treated as "information services."[393]

Under this approach, the reference in the 1996 Act's legislative history of section 602(6) to information services and enhanced services need not be interpreted as importing a telecommunications component into the definition of cable services, or otherwise blurring the distinction between Title II and Title VI services.[394] Moreover, based upon the precedents discussed above, it does not appear that the addition of non-traditional cable services to a cable operator's offerings would cause the cable operator to lose its identity as a cable operator, or necessarily turn cable systems into common carrier transmission facilities.[395] The question becomes whether the non-traditional service would be regulated as a cable or non-cable service, and consequently, whether the cable operator would be treated as a cable operator or as an Internet service or on-line service provider for such purposes.

Both categories, cable services as well as enhanced services, were created in large part to isolate cable operators and enhanced service providers from Title II regulation.[396] Enhanced and information services share with the category of cable services the common point of origin in having been established to foster the development of competitive broadband and advanced communications by isolating such services from regulation as common carriage under Title II, when provided by companies other than the major telephone carriers. Major telephone carrier offerings of enhanced services were regulated under the Commission's ancillary Title I jurisdiction only to the extent necessary to ensure the nondiscriminatory provision to competing enhanced service providers of the basic transmission services necessary to carry the enhanced service to the end user. Thus, there is nothing inherent in the nature of enhanced and information services that

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[392] *Universal Service Order*, 12 FCC Rcd at 9180. *See also Report to Congress* at paras. 39-48.

[393] *See Non-Accounting Safeguards Order*, 11 FCC Rcd at 21955-21956.

[394] Of course, the inclusion of the term "via telecommunications" in the statutory definition of "information services" remains nettlesome. One could argue that it precludes an interpretation of cable Internet services as falling within the definition of cable services, because such services are not delivered "via telecommunications."

[395] However, it is possible for a carrier to be considered a telecommunications carrier for some, but not all, of its services. *See Local Competition Order*, 11 FCC Rcd at 15988-89.

[396] *See*, e.g., 47 U.S.C. 621(c) (exempting cable operators from common carrier regulation insofar as they provider "cable service"); *Computer I Final Decision*, 28 FCC 2d at 277-81; 47 C.F.R. *§64.702; VDT First Reconsideration Order*, 7 FCC Rcd at 5071.

places them outside the potential scope of cable services for regulatory purposes.[397] This is reflected in the *Joint Explanatory Statement*'s acknowledgment that cable service now includes an information and enhanced service component. It might also support an interpretation of the reference to "enhanced" services as a category of cable, as opposed to common carrier, services.

The Commission could reasonably conclude that Internet access services, such as @Home and Road Runner, when provided by a cable operator over its cable system, come within the revised definition of "cable services" under Title VI. This interpretation finds support both in the revised definition itself, which suggests that subscriber use of (as opposed to the more passive "interaction" with) other programming services falls within the terms of the definition, and in the conferees's statement with respect to "interactive services such as game channels and information services made available to subscribers by the cable operator." In the case of these Internet-based services, in which the cable operator supplies significant amounts of its own content and local programming and information along with open-ended Internet connectivity, inclusion under the definition of cable services is relatively easy because, such Internet-based services share many of the features of traditional cable programming services. Moreover, if cable services now include information and enhanced services, and Internet-based services such as those provided by the typical ISP are enhanced/information services, then cable services may include Internet-based services "by definition."

Such an interpretation would leave Internet access services provided by a LEC or BOC as both enhanced services under Commission rules, and information services under the Act, while recognizing such Internet-based services as @Home or Road Runner as cable services when provided by cable operators over cable systems. Or, put another way, the Commission could reasonably interpret the 1996 Act as permitting the creation of "parallel universes" for cable and telephony Internet-based services. There is no indication in either the Act itself, or in the legislative history, that such an interpretation would necessarily violate legislative intent. The question remaining would be whether this interpretation would otherwise be inconsistent with such fundamental communications policy goals as competitive and technological neutrality.[398]

The case becomes more attenuated for cable Internet-based services that may offer the subscriber nothing more than basic conduit access to the Internet. The regulatory status of such a

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[397] The possible inclusion of cable television services within the category of content-based information services that the BOCs were prohibited from providing under the MFJ has been recognized. *See* Robert M. Pepper, *"Through the Looking Glass: Integrated Broadband Networks, Regulatory Policy and Institutional Change*," OPP Working Paper Series No. 24, November 1988 at 25-26 & n.46.

[398] *See Joint Board Recommended Decision*, 12 FCC Rcd at 101 (in universal service context, principle of competitive neutrality should include technological neutrality; competitive neutrality in this context means that support mechanisms and rules should neither unfairly advantage nor disadvantage one provider over another, and neither unfairly favor nor disfavor one technology over another). *See also Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996*, CC Docket No. 98-146, *Notice of Inquiry*, FCC 98-187 (released Aug. 7, 1998) (*"Section 706 NOI*") at para. 77.

service may best be resolved on a case-by-case basis. So too, the case of cable systems that provide cable modem service by utilizing cable plant for downstream transmissions, and the subscriber's telephone lines for up-stream or return path transmissions, may present a somewhat different interpretative problem, as the service itself would not readily fall under the plain language of the statute. On the other hand, if the foregoing analysis of why cable services may include Internet access and other Internet-based services is not adopted, and the statutory definition of cable services as "one-way transmission" of video and other programming were interpreted to preclude inclusion of two-way cable transmission services, then the cable down/telephone return path hybrid service might be the only cable-provided Internet-based service that could fit the statutory definition.[399] As discussed above, however, a post-1996 Act reading the phrase "one-way transmission" as a term of limitation on the service provided does not appear to be consistent with Congressional intent in revising the definition of cable services to be more, rather than less, inclusive.

In the alternative, the Commission could find that, using a "functional" approach to the service, cable operators offering Internet access services are simply "Internet access providers" offering members of the public "a variety of advanced capabilities" or "enhanced functionality" to exploit on the subscriber's own computers.[400] Under such an interpretation, the Internet access offerings of a cable operator would simply be treated as a separate, Internet access or on-line "information" services, governed not by Title VI, but subject only to the Commission's ancillary jurisdiction over "wire communications" under Title I of the Act.

As noted in the previous section, the provision of "phone-to-phone" IP telephony over cable systems by cable operators raises a host a difficult regulatory questions. Under the approach indicated by the Commission in the *Report to Congress*, a cable operator offering IP telephony may, in the future, be classified as offering a "telecommunications service," depending on how the service is configured, offered to the public, and operates with customer- supplied information.[401]

In summary, certain cable Internet-based services, particularly cable-enabled Internet access services, may be found to fall within the Commission's Title VI jurisdiction when viewed against the change to the definition of "cable services" in section 602(6). Or, they may be treated the same as any other Internet access or on-line service provider's "information service" offerings, and not subjected to Commission regulation under either Title II or Title VI of the Act. Whether the Commission should so classify these services is a policy question that can only be answered in light of an evaluation that persuasive policy goals exist in support of concluding such services to

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[399] The cable down/telephone return path configuration raises a service definition issue as well as the potential for a reciprocal compensation issue in the case of a cable operator that is also certified to operate as a competitive LEC for purposes of receiving upstream communications.

[400] *See Report to Congress* at para. 79.

[401] *Id.* at para. 88.

be cable service under the Act.[402] The ultimate significance of a regulatory classification, of course, lay in the particular regulatory consequences that would flow. The following section will briefly discuss several of the more significant questions that the classification of Internet access services as cable services may present under Title VI.

## B. Selected Cable Regulatory Issues

### 1. Pole Attachments

The 1996 Act granted telecommunications and cable operators a mandatory right of access to utility poles, and extended Pole Attachment Act protections to telecommunications carriers. Section 224(b)(1) directs the Commission to ensure that pole attachment "rates, terms and conditions are just and reasonable," and section 224(a)(4) provides that a "pole attachment" includes "any attachments by a cable television system or provider of telecommunications service" to a pole owned or controlled by a utility. Section 224 (d)(3) reserves the current regulated cable rate to "any pole attachment used by a cable television system solely to provide cable service." Section 224 (e)(1) directs the Commission to establish the rate for pole attachments by telecommunications carriers to provide telecommunications services.[403]

Under revised section 224, cable operators providing "pure" cable services, will pay lower pole attachment rates than cable operators providing commingled cable and telecommunications services. The classification of Internet services as cable services would entitle cable operators to retain the "pure" cable rate under section 224(d)(3). Classification of Internet services as "telecommunications" for section 224(e) purposes would not be consistent with the Commission's prior decisions under the 1996 Act. In contrast, a determination that Internet services were neither cable nor telecommunications services, arguably leaves the proper section 224 pole attachment rate uncertain, as the statutory language does not expressly make provision for other service categories.

The Commission's *Pole Attachments Notice* sought comment, *inter alia*, on "whether, and to what extent, overlashing facilitates the provision of services other than cable services by cable operators, such as Internet access and local telephone service."[404] Cable entities responded that the Commission's reference to Internet access as a service other than cable services should not be interpreted to mean that the Commission intended to classify Internet access as a telecommuni-

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[402] The Commission has, in the past, refrained from interpreting the Act so inflexibly as to bring within the Commission's regulatory jurisdiction services which arguably fit within one its recognized regulatory categories, absent a strong policy reason to do so. *See Computer II Final Decision*, 77 FCC 2d at 430-33.

[403] 1996 Act, § 703. 47 U.S.C. § 224(b)(1), (a)(4), (d)(3), (e)(1).

[404] *See* Implementation of Section 703(e) of the Telecommunications Act of 1996, Amendment of the Commission's Rules and Policies Governing Pole Attachments, CS Docket No. 97-151, Notice of Proposed Rulemaking, FCC 97-234 (released Aug. 12, 1997) (*"Pole Attachments Notice"*) at para. 15.

cations service. Rather, they argued, under the 1996 Act, Internet access over the cable is clearly treated as a cable service, and treating it otherwise will disserve the purposes of the amendment to section 602(6) and erect a barrier -- in the form of higher pole rents -- to the deployment of such an enhanced cable service. Electric utilities disagreed, arguing that broadband services such as data transmission and Internet services are neither telecommunications nor cable services, but rather are information services not entitled to a regulated pole attachment rate under section 224.[405]

The *Pole Attachments Order*, applying a *Heritage*-like analysis, concluded that the section 224(d)(3) cable rate applies to cable television system pole attachments that are used to provide Internet service and traditional cable services commingled on a single facility.[406] Citing the *Universal Service Order*, the Commission declined to apply the section 224(e) telecommunications rate to cable Internet service. The Commission reasoned that the definition of "pole attachment" does not turn on the type of service the attachment is used to provide, that the statutory definition of "pole attachment" includes any attachment by a cable television system, and therefore section 224 applies to the rates, terms and conditions for all cable system pole attachments.

The Commission relied upon its authority under section 224(b)(1) to set a just and reasonable rate for cable pole attachments. Application of the lower cable-only rate, the Commission reasoned, is consistent with the purposes of the Pole Attachment Act, would serve pro-competitive purposes, would encourage greater competition in the provision of Internet service and provide greater benefits to consumers. The Commission found it unnecessary to determine the precise category into which Internet services fit, stating that, "[r]egardless of whether such commingled services constitute 'solely cable services' under section 224(d)(3), we believe the subsection (d) rate should apply." The Commission noted it would continue to examine definitional issues relating to Internet in its forthcoming Report to Congress on universal service implementation, and that it did not wish to foreclose any aspect of that examination. Thus, while the ruling settles the pole attachment rate issue, its significance in terms of Internet classification for broader regulatory purposes remains to be seen.

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[405] See Comments of the National Cable Television Association, CS Docket No. 97-151, filed Sept. 26, 1997 at 6-7 n.9; *see also* Comments of Comcast, et al., at 18-19 (given the explicit legislative intent to include cable-delivered Internet services squarely within the definition of cable services, it defies logic to argue that Congress intended that such intent would be advanced by triggering a higher telecommunications pole attachment rate); New York Cable Television Assn. at 8 (high-speed Internet access services supplied over a cable system are defined as cable services under section 602(6) and (14)); US West Reply Comments at 2-3 (the Act's definition of cable service is broad enough to include interactive video services in addition to traditional cable TV service); American Electric, et al., Comments at 10; Edison Electric/UTC Reply Comments at 8.

[406] *Implementation of Section 703(e) of the Telecommunications Act of 1996, Amendment of the Commission's Rules and Policies Governing Pole Attachments*, CS Docket No. 97-151, *Report and Order and Further Notice of Proposed Rulemaking*, FCC 98-20**,** at paras. 30-34 (released Feb. 6, 1998) ("*Pole Attachments Order*"), *recon. pending*; *petitions for review pending*, U.S. Court of Appeals, 11th Circuit.

### 2. Scope of Local Cable Franchises

Section 621 has requirements concerning the provision of cable and telecommunications services by cable operators. Generally, pursuant to section 621(b)(1), a cable operator may not provide cable service without a local franchise.[407] The 1996 Act added section 621(b)(3), which exempts the provision of telecommunications services by cable operators from Title VI regulation, while preserving state and local authority over any intrastate communications service provided by a cable system, other than cable service.[408] The legislative history of subsection (b)(3) confirms that, "to the extent permissible under State and local law, telecommunications services, including those provided by a cable company, shall be subject to the authority of a local government to, in a nondiscriminatory and competitively neutral way, manage its public rights-of-way and charge fair and reasonable fees."[409]

Similarly, section 621(d)(2) states: "[n]othing in this title shall be construed to affect the authority of any State to regulate any cable operator to the extent that such operator provides any communication service other than cable service, whether offered on a common carrier or private contract basis."[410] Taken together, these provisions of the Act indicate a clear congressional intent to separate cable franchising from other forms of state and local regulation of any other communication services provided by cable operators over their cable systems.[411]

A Commission determination that Internet-based services offered by cable operators fall within the statutory definition of cable services would mean that such services must be provided under franchise pursuant to section 621. Such a determination would offer local franchising authorities a degree of certainty as to the application of their own cable and telecommunications ordinances or permitting requirements to this valuable service. Conversely, if such Internet services were not treated as cable services under Title VI, a question might arise as to whether

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[407] 47 U.S.C. § 541(b)(1).

[408] 47 U.S.C. § 541(b)(3). Section 621(c) provides that any cable system shall not be subject to regulation as a common carrier or utility by reason of providing any cable service. Section 621(d)(1) provides, in pertinent part, that a "State or the Commission may require the filing of informational tariffs for , that would be subject to regulation by the Commission or any State if offered by a common carrier subject in whole or in part, to title II of this Act."

[409] *Joint Explanatory Statement* at 180.

[410] 47 U.S.C. § 541(c) and (d).

[411] *See TCI Cablevision of Oakland County, Inc., Petition for Declaratory Ruling, Preemption and Other Relief Pursuant to 47 U.S.C. § 541, 544(e), and 253*, CSR-4790, *Memorandum Opinion and Order*, FCC 97-331 (released Sept. 19, 1997) at paras. 62-66, *recon. pending* (*"Troy Decision*").

cable operators *could* provide Internet services under the terms of their cable franchises.[412]

The amendments to section 621 indicate a congressional intent to not subject the telecommunications offerings of cable operators to Title VI franchising requirements, while permitting local authorities to exercise whatever independent regulatory authority, if any, they may possess over such service offerings. In the case of Internet-based services, the result is somewhat less clear. To the extent the Commission has already classified Internet-based services as information or enhanced services, and not telecommunications services, a local government's ability to require a separate franchise for such Internet-based services would depend on its state law authorization. Even if a state were to permit local franchising authorities to regulate, in any manner, the provision of Internet-based services, regardless of the identity of the provider, a further question would arise as to whether such regulation would be consistent with Congressional intent, as expressed in section 230(b) of the Act, that the competitive free market that presently exists for the Internet and other interactive computer services, continue "unfettered by Federal or State regulation."[413]

### 3. Franchise Fees

Section 622 now provides that, for any twelve-month period, "the franchise fees paid by a cable operator with respect to any cable system shall not exceed 5 percent of such cable operator's gross revenues derived in such period from the operation of the cable system to provide cable services."[414] Consistent with other changes recognizing the expansion of service offerings by cable operators, the 1996 Act amended prior section 622(b) by inserting "to provide cable services" immediately before the period of the end of the first sentence, thus limiting the scope of the services on which cable operators must pay franchise fees with respect to any cable system to cable services only.

Under revised section 622(b), if Internet-based services offered by cable operators over their systems are treated as cable services, they would become subject to any franchise fees imposed for cable services under the relevant franchise agreement. This interpretation is supported by the floor statements of Representative Dingell, indicating that one of the purposes of the revised definition of cable services under section 602(6) was to enlarge the base of revenues

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[412] The scope of the amendments to section 621(b) with respect to local government authority to regulate non-cable (telecommunications) services provided by cable operators over cable facilities is one of the issues raised in the *Troy* proceeding. The *Troy* proceeding did not raise the issue of whether either the City of Troy, or any other local authority, may require any Internet service providers to obtain a franchise.

[413] 47 U.S.C. § 230(b).

[414] Section 303(b) of the 1996 Act amended section 622(b) by inserting "to provide cable services" immediately before the period at the end of the first sentence. This amendment was part of Congress' revisions to the Cable Act that were intended to draw a bright line between the spheres of cable regulation under Title VI and telecommunications regulatory authority that derives from sources other than Title VI. *See*, generally, *Troy Decision* at paras. 62-78.

upon which the cities could assess and receive franchise fees.[415] The view that the changed definition of "cable services" was intended to expand the base upon which franchise fees may be assessed is reflected by McQuillin's treatise on the law of municipal corporations, in the section dealing with compensation for the use of public rights-of-way by cable franchisees.[416]

The National Cable Television Association ("NCTA") has advocated that cable Internet-based services are not telecommunications services, and that the revenues gained through such services should be subject to the cable franchise fees authorized under section 622 of the Act.[417] In contrast, if these Internet-based services were not treated as cable services, then cable Internet-based services would certainly not be subject to cable franchising fees under section 622. Whether a local governmental authority could asses franchise fees on Internet-based services on some other basis would be dependent on both state and federal law governing the regulation (or not) of such services.

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[415] *See* 142 Cong. Rec. H1156 (daily ed. Feb. 1, 1996) (statement of Rep. Dingell).

[416] The Telecommunications Act of 1996 expanded the definition of cable services to include interactive information and enhanced services made available to subscribers by the cable operator. Consequently, some municipalities may be in a position to require fee payments on a broader revenue base then that which is defined by a cable operator. McQuillin, Eugene, *The Law of Municipal Corporations*, Third Edition, 1995 Revised Vol. 12, Chap. 34, Franchises, § 34.37.20, 1996 Cumulative Supplement at 5.

[417] *See* Communications Daily, Oct. 9, 1997. This position was advocated in the context of Congressional action regarding a proposed moratorium on taxation of revenues derived from the provision of Internet services and e-commerce transactions. *See* 105th Congress, 1st Sess., H.R. 1054 (1997).

### 4. Unbundling/Competitive Neutrality

A significant cable industry concern prompting the desire to classify cable Internet services as Title VI services arises from the potential application of the Common Carrier Bureau's *Frame Relay Order* to any bundled services they may offer, combining common carriage telephony, cable video programming and cable modem Internet services. Adoption of such an interpretation cable fears, would require the unbundling of cable's basic transmission capability from the enhanced portion of their offerings, and the offering of basic frame relay transmission capability and access to cable's high speed data platform to competing Internet access and on-line service providers, a result fundamentally at odds with the Title VI regulatory regime.

AT&T's June, 1998 announcement that it would acquire the nations's second largest cable operator, TCI, has brought this issue into sharp relief. TCI owns 42% of @Home, which is reported to have exclusive contractual arrangements until 2002 to provide Internet access for TCI and its other cable affiliates, including Cox Communications Inc., Comcast Corp., Cablevision Systems Corp., and Rogers Cablesystems Ltd.[418] Although @Home presently has only 100, 000 Internet access customers, these cable operators together serve more than 55 million cable customers.[419] It is reported that @Home's contracts do not include rights to offer Internet-based telephone service, or full-motion video segments longer than 10 minutes; those services are reserved for the cable operators.[420]

At the time of the announcement, AOL was reported to be seeking an arrangement with the proposed AT&T-TCI combination to "purchase broadband connections on a wholesale basis for resale to AOL'S customers. Under such an arrangement, AOL could offer a broadband version of its on-line service to its 12 million customers, using the cable industry's underlying infrastructure but not competing consumer services such as @Home's."[421] Later, AOL suggested that cable operators be required to let competitors "hook into their networks, much the same as local phone companies must do."[422] In other words, unbundle their high-speed data platforms and offer access to competing providers on a wholesale basis. @Home has not reacted favorably to such suggestions, indicating that "[n]obody wants to become a dumb pipe in this equation."[423] More recently, AOL's position has been echoed by long distance provider Sprint Corporation. Sprint has expressed the desire to gain network access through cable companies generally, and

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[418] David Bank, "*AT&T Gets At Home Stake in TCI Deal*," The Wall Street Journal, June 25, 1998 at A16.

[419] *Id*.

[420] *Id*.

[421] *Id*.

[422] Mike Mills, "*Cable Internet Access Coming to Alexandria*," The Washington Post, July 1, 1998 at C11.

[423] *Id*., quoting @Home Chief Executive, Thomas A. Jermoluk.

particularly from TCI as a condition for regulatory approval of its acquisition by AT&T.[424]

Consistent with *Computer II*, the *Frame Relay Order* requires "all facilities based common carriers providing enhanced services in conjunction with basic frame relay service" to file tariffs for the underlying frame relay service and to acquire that tariffed service in the same manner as resale carriers.[425] The first question is whether the addition of frame relay transmission underlying the cable Internet-based services would cause cable system facilities to lose their Title VI "cable system" identity and be classified as "common carrier facilities" under *Computer II* and the *Frame Relay Order*. In the context of its open video system implementation, the Commission found that the addition of nontraditional services to cable operator service offerings did not cause the operator to lose its identity as a cable operator.[426] Similarly, the legislative history of the 1984 Cable Act demonstrated a clear intent to separate the nature of the facilities from that of the services provided over them for regulatory purposes.[427] This logic can also be applied to cable Internet offerings. The addition of such services does not automatically change the nature of cable system facilities into common carrier facilities, subject to Title II regulation.

A second question would be whether it can be said that cable operators in this situation are offering frame relay services, or are, like other ESPs or ISPs, using basic transmission services, adding value to them, and offering the value-added package or "enhanced" service to the subscriber? It is difficult to see how the traditional competitive goals of the *Computer Inquiry* proceedings would be advanced by such an application of *Computer II*. The Commission has found that the Internet access market is highly competitive.[428] The *Computer II* approach to common carrier resale and unbundling was crafted to answer the fundamental question, how can the Commission permit monopoly telephone providers to compete in the competitive computer services and data processing markets without (1) unduly advantaging their own enhanced services, and (2) engaging in anticompetitive conduct vis-a-vis their enhanced service competitors?

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[424] Broadcasting & Cable, Cableday (Cahners Publications) Thursday, July 16, 1998 at p. 2; Fred Dawson, *"Sprint Suggests Cable Strategy*," Multichannel News, Broadband Week, Weekly Edition for July 20, 1998 available at: <http://www.multichannel.com/b2.shtml>.

[425] *Frame Relay Order*, 10 FCC Rcd at 13725.

[426] *See In the Matter of Implementation of Section 302 of the Telecommunications Act of 1996; Open Video Systems*, CS Docket No. 96-46, FCC 96-312, Second Report and Order and First Order on Reconsideration, 11 FCC Rcd 18223 (1996) (*"Second OVS Order")* at para. 15 (*subsequent history omitted*).

[427] *See House Report* at 41-44. *See also* Section 621(3)(A) (prohibitions on local franchising authority application of Title VI provisions to a cable operator's provision of telecommunications services) and section 621(c) ("Any cable system shall not be subject to regulation as a common carrier or utility by reason of providing any cable service").

[428] *See Access Reform Notice*, at para. 284.

Arguably, the unbundling requirements *Frame Relay Order* should not be imposed on cable operators unless provision of Internet-based services over their integrated cable facilities possess some competitive threat to the ability of other ISPs to reach end users. Most ISPs currently offer Internet access to their subscribers through dial-up connections whereby the subscriber places a local (or in some cases, a toll call) to the ISP, and the ISP routes the call to the Internet. Short of record evidence to the effect that the cable Internet platform currently stands as an essential barrier to ISPs reaching their customers, the better approach would be to forbear from imposing the *Computer II* regime on cable provided-Internet access services, even if a literal reading of the rule might arguably suggest otherwise. The addition of telephone service to a bundled package of cable Internet-based services and traditional cable video programming services makes it a closer case, but should not alter the requirement that a sufficient policy goal must be articulated before requiring cable operators to offer access to their high speed Internet service platforms to competing ISPs on an unbundled basis. The Commission has traditionally forborne from imposing certain Title II common carrier obligations on carriers that do not exercise market power through a position of dominance in a particular market, and this approach could be applied to the question of the cable Internet platform today.[429] If, in the future, cable becomes the dominant provider of high-speed, broadband access to data networks and the Internet, application of the traditional dominant/non-dominant analysis may warrant a different regulatory response.

The next question may be whether the general policy of competitive neutrality, as expressed in numerous provisions of the 1996 Act, requires a different result.[430] With respect to unbundled access to services and facilities, this is a somewhat more difficult issue to resolve, as the concept of a "level playing field" for all providers of similar services is such a central concept. In this case, however, if the argument can be made that classifying Internet-based services as cable services, covered by existing cable franchises, will speed deployment of this valuable new broadband service to end users, and further, that encouragement of cable efforts to upgrade their plants to provide high-speed broadband data access capabilities will foster efforts to develop the "information superhighway," than such concerns may outweigh the goal of competitive neutrality. On the other hand, if evidence indicated that cable high-speed data communications platforms themselves occupied a "bottleneck" or "essential facilities" position vis-a-vis ISP or on-line service provider access to end users, and there was some evidence of market failure warranting regulatory

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[429] *See Policy and Rules Concerning Rates for Competitive Common Carrier Services and Facilities Authorizations Therefor*, Fifth Report and Order, 98 F.C.C. 2d 1191 (1984) (*Competitive Carrier Fifth Report and Order*); *Regulatory Treatment of LEC Provision of Interexchange Services Originating in the LEC's Local Exchange Area and Policy and Rules Concerning the Interstate, Interexchange Market Place*, CC Docket Nos. 96-149, 96-61, Second Report in CC Docket No. 96-149 and Third Report and Order in CC Docket No. 96-61, 12 FCC Rcd 15756 (*LEC Classification Order*), Order on Reconsideration, 12 FCC Rcd 8730 (1997), Order, DA 98-556 (rel. March 24, 1998), further reconsideration pending.

[430] *See, e.g.,*, 47 U.S.C. § 254 (several provisions either implicitly or explicitly mandating equitable and nondiscriminatory or competitively neutral rules regarding universal support mechanisms and contributions); 47 U.S.C. § 253 (b) & (c) (requiring state and local requirements for telecommunications providers to be "competitively neutral" and nondiscriminatory).

intervention, then the policy of competitive neutrality might well counsel a different result.

### 5. Resale/Interconnection of Cable Internet Access

The question of whether cable Internet-based services are cable services under Title VI is arguably raised in a petition filed with the Commission's Common Carrier Bureau by Microscope Associates, Inc. ("MAI"). The petition was treated as a petition for rulemaking, and was put out for public comment in a Public Notice released on September 18, 1997. The Notice describes the relief sought by MAI as follows: "[MAI] filed a petition seeking an 'interim order by authority of 47 U.S.C. § 203(b)(2) to the effect that: No tariff or customer subscription agreement of a telecommunications carrier may prohibit redistribution or resale of Internet service.'"[431]

The petition is directed against Continental Cablevision (now US West Media One), and the terms and conditions of its "Highway 1 Cable Internet Access Service." The Highway 1 service agreement describes the service provided as "a cable programming service for personal use," and stipulates that the subscriber must "not to resell or redistribute access to the service in any manner. The prohibition on resale or redistribution of access includes, but is not limited to the provision of e-mail, FTP and Telnet access." MAI, a non-profit, scientific research corporation, sought permission from Continental to establish service enabling MAI to provide a demonstration project for Internet use at the Dedham, MA Historical Society. The operating program MAI planned to use is a bulletin board system which is designed to serve up to 100 subscribers (any Historical Society member) dialing in on up to 8 telephone lines.

Continental Cablevision has no established business Internet access service, only a residential service, and MAI was unable to secure the service arrangements it sought from Continental.[432] MAI requested that the Commission require the cable operator to connect its cable system to local telephone lines, so that MAI may make a "combined, efficient use of the long-distance, incoming cable and local, outgoing telephone lines" as part of its plan to deliver a low-cost service in competition with the traditional dial-up Internet access market. MAI averred that it has shown that, "delivery of two-way signals using long-distance service by cable combined with local distribution by telephone is a new technology and service to the public, which is to be encouraged by the policy of the United States as expressed at 47 USC 157." Further, that "prohibitions of redistribution or resale prevent the prohibiting telecommunications carrier from

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[431] Public Notice, DA 97-2002, Petition for Rulemaking Filed, File No. CCB/CPD 97-51, "Pleading Cycle Established" ("*MAI Notice*"). The petition is referred to herein as the "*MAI Petition*." The pleading cycle established in the Notice closes on November 4, 1997. A subsequent Public Notice, "Errata For Petition filed by Microscope Associates, Inc.," was released on October 16, 1997. The Errata clarified that the petition will be treated as a Petition for Declaratory Ruling pursuant to section 1.2 of the Commission's Rules, 47 C.F.R. § 1.2.

[432] It filed the petition as a "stop-gap" measure while the Commission continues to examine similar issues in the *Internet Usage NOI* proceeding. According to the petition, MAI was facing a deadline for its application for an NSF grant for the concept of July 31, 1997, and sought expedited relief from the Commission in the hopes of making the deadline. *MAI Petition* at 1-3.

fulfilling its duty of interconnection under 47 USC 251," and "prohibitions of redistribution or resale impede the proper development of the Internet, which is encouraged by the policy of the United States as expressed at 47 USC 230."[433]

The *MAI Petition* raises a number of interesting and difficult questions relating to the provision of Internet access service as both a common carrier telecommunications service, and as a cable service. Although the petition is less than clear on many particulars, the resale and interconnection issues arguably raised may be viewed as variants of the unbundling issue motivating some cable operators to seek inclusion of their cable Internet-based services under the "cable" umbrella.

### 6. Cross-Subsidy

Anticompetitive cost-shifting or "cross-subsidization" of competitive services by basic telephone service ratepayers through improper joint and common cost allocation was one of the two explicitly recognized evils the Commission sought to avoid with its *Computer Inquiry* regimes of structural separation, and its later regime of nonstructural accounting safeguards.[434] The question arises, if BOC-provided Internet access services are subject to a cumbersome cost-allocation process, including the filing of CAM changes, aimed at protecting basic service ratepayers, shouldn't similar requirements also apply to cable-offered competitive services such as Internet access? The short answer may be that reliance upon existing mechanisms to ensure just and reasonable basic cable rates is sufficient to protect against such cross-subsidization, without the need to create additional joint and common cost allocations rules.

The rates for certain categories of cable services are subject to regulation by local and federal authorities under Title VI of the Act.[435] The goal of such cable television rate regulation is to ensure that rates of the basic service tier are reasonable and do not exceed the rates that would be charged for the basic service tier if such cable system were subject to effective competition. The statute requires the Commission to establish a formula for the maximum price of the basic service, taking into account, *inter alia*, the need to properly allocate the joint and common costs associated with signal carriage between the regulated and non-regulated service tiers.[436] The legislative history of this provision clearly states that although language in this section is similar to

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[433] *MAI Petition* at 5, 8.

[434] *See, e.g., Computer III Phase I Order*, 104 FCC 2d 958; *Joint Cost Order* 2 FCC Rcd 1298 (establishing, *inter alia*, cost allocation standards and requiring the filing of detailed "cost allocation manuals" by LECs over a certain size).

[435] This provision was added to the Communications Act of 1934, as amended, by, added by the Cable Television and Consumer Protection Act of 1992, Pub. L. No. 102-385, 106 Stat. 1460 (1992), 47 U.S.C. § 521 *et seq.* ("1992 Cable Act").

[436] 47 U.S.C. § 543(b)(2)(C)(iii).

that used in the regulation of telephone common carriers, "[i]t is not the Committee's intention to replicate Title II regulation. The FCC should create a formula that is uncomplicated to implement, administer and enforce, and should avoid creating the cable equivalent of a common carrier 'cost allocation manual.'"[437]

Thus, it is unlikely that the Commission would have authority to institute some *Computer III*- type cost allocation safeguards with respect to potential cross-subsidization between basic cable television services and unregulated Internet-based cable offerings in order to protect basic cable television ratepayers from improperly cross-subsidizing cable competitive ventures. Rather, the Commission could rely on its existing cable cost accounting requirements for non-competitive cable operators.[438]

### 7. Other Title VI Issues

The scope of cable franchises and the applicability of the cable rate for pole attachments are two of the broader and more obvious cable regulation issues that arise where cable operators provide Internet-based services over their cable systems. While Congress has amended the definition of cable services in section 602(6), and limited some other relevant provisions to apply to "cable services only," it has not amended the vast majority of Title VI's operative regulatory provisions. Those remaining Title VI provisions were not drafted with the Internet in mind, and, in many cases, do not lend themselves to seamless application to Internet-based services. This section is intended as a brief and non-exhaustive examination of the consequences, under Title VI, of including cable Internet-based services within the statutory definition of cable services.[439]

Title VI is comprised of five separate parts. Part I, the general provisions, contains mostly definitions of the terms appearing in the other parts. Part II governs use of cable channels and cable ownership restrictions. Part III governs franchising and regulation. Part IV contains miscellaneous provisions, including such topics as protection of subscriber privacy, consumer protection and customer service requirements, and scrambling requirements. Part V governs the provision of video programming services provided by telephone companies, and establishes the open video systems rules. With some important exceptions, Part II contains most of the rules directed at cable content and programming, and Part III contains most of the rules directed at the cable's physical facilities. The central problem presented by all of these provisions is one of "fit." How do old statutory categories and rules written for the type of cable services (essentially those that are similar to broadcast television services), that have been provided in substantially the same manner for at least 20 years mesh with a fundamentally new and different form of communi-

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[437] House Committee on Energy and Commerce, H.R. Rep. No. 102-628, 102d Cong. 2d Sess. (1992) at 83.

[438] *See* 47 C.F.R. § 76.924, "Allocation to service cost categories."

[439] In addition, other Title VI issues such as cable ownership restrictions (section 613) regulation of carriage agreements (section 616), program blocking and scrambling regulation (section 624) would have to be examined in terms of their applicability to cable Internet-based services.

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### a. Regulation of Cable Facilities and Equipment

It is not especially difficult to fit requirements directed at cable systems and their transmission facilities, which are shared by traditional cable service and cable Internet-based services, to the new services. For example, inclusion of cable Internet-based services in the definition of cable services governed by the franchising requirements (section 621), regulation of services, facilities, and equipment (section 624), and the modification of franchise obligations (section 625) provisions does not present any obvious conceptual difficulties.[440]

Equipment Compatibility. In contrast, section 624A, the equipment compatibility provision, amended by the 1996 Act, requires the Commission to adopt regulations to ensure compatibility between cable service and consumer electronics equipment (TV receivers and VCRs), but limits the scope of the Commission's authority to establish interface standards.[441] Under existing Commission rules, in order to be marketed as "cable ready" or "cable compatible," consumer electronics must meet certain requirements. If cable Internet-based services are categorized as cable services, what effect would this have on the rules describing "cable ready" and "cable compatible" equipment?

Navigation Devices. Section 629, entitled, "Competitive Availability of Navigation Devices,"added by the 1996 Act, directs the Commission to: "adopt regulations to assure the commercial availability, to consumers . . . of . . . equipment used . . . to access multichannel video programming and other services offered over multichannel video programming systems, from manufacturers, retailers, and other vendors not affiliated with any multichannel video programming distributor." Such rules are not to jeopardize the security of services offered over multichannel video programming systems, or impede the legal rights of a provider of such services to prevent theft of service.[442] In terms of the equipment covered, section 629(a) specifically includes, *inter alia*, "converter boxes, interactive communications equipment, and other equipment used by consumers to access multichannel video programming and other services."

In early 1997, the Commission issued its *Navigation Devices Notice*, identifying as the "core requirement" of section 629 that set-top boxes and other customer premises equipment used in conjunction with multichannel video programming distribution be commercially available through unaffiliated outlets.[443] The commission found that section 629 is applicable by its terms

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[440] *See* 47 U.S.C. §§ 541, 544, and 545.

[441] 47 U.S.C. § 544a.

[442] 47 U.S.C. § 549(a), (b).

[443] *Implementation of Section 304 of the Telecommunications Act of 1996, Commercial Availability of Navigation Devices*, CS Docket No. 97-80, *Notice of Proposed Rulemaking*, 12 FCC Rcd 5639, 5641 (1997)

to equipment used to access services offered over multichannel video programming systems. Noting the breadth of the potential coverage of equipment and entities in section 629, the Commission sought comment on the discretion the Commission may have to differentiate between the types of system covered, and on issues associated with the coverage of equipment, and identified various types of equipment that may be covered, including "modems (modulators/demodulators) or digital or data receivers."[444]

Section 629 does not prohibit multichannel video programming distributors ("MVPDs") from offering equipment to their subscribers, but it requires that the system operator's charges to consumers for such devices and equipment are separately stated and not subsidized by charges for multichannel video programming and other services. For cable systems facing effective competition, the Commission tentatively concluded that no anti-subsidy rules, beyond a possible separate itemization, should apply. The *Navigation Devices Notice* sought comment on how the term "subsidy" should be defined in those instances where the anti-subsidy rules apply. In addition, it sought comment on whether the language of section 629(a) precludes MVPDs from selling navigation devices below cost, and whether the language of that section prevents MVPDs from "bundling" equipment with service.[445]

On June 24, 1998, the Commission released its rules providing for the commercial availability of set top boxes and other consumer equipment used to receive video signals and other services.[446] The *Navigation Devices Order* concludes:

> [T]he statutory language of Section 629 indicates that its reach is to be expansive and that Section 629 neither exempts nor limits any category of equipment used to access multichannel video programming and other services offered over such systems from its coverage. Equipment used to access video programming and other services offered over multichannel video programming systems include televisions, VCRs, cable set-top boxes, personal computers, program guide equipment and cable modems.[447]

As reflected in the *Navigation Devices Order*, the applicability of the navigation devices

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("*Navigation Devices Notice*").

[444] *Navigation Devices Notice*, 12 FCC Rcd at 5646.

[445] *Id.* at 5657-5660.

[446] *Implementation of Section 304 of the Telecommunications Act of 1996, Commercial Availability of Navigation Devices*, CS Docket No. 97-80, *Report and Order*, FCC 98-116 (released June 24, 1998) ("*Navigation Devices Order*").

[447] *Navigation Devices Order* at para. 25.

commercial availability requirements to particular types of equipment and service providers does not rest upon an interpretation of the definition of "cable service" under Title VI. Rather, the statute is broader, and is directed to equipment used to "access multichannel video programming and other services offered over multichannel video programming systems." The *Navigation Devices Order* does not indicate whether cable modems are covered by the requirements of section 629 because the services provided over cable modems falls within the category of "multichannel video programming" service, or that of an "other service."[448]

### b. Programming-Based Regulation

Program Access. How section 628, which governs development of competition and diversity in video programming distribution (otherwise known as "program access") would apply to Internet-based services is another potentially difficult question.[449] The program access rules prohibit unfair and discriminatory practices in the sale of satellite cable and satellite broadcast programming and prohibit or limit the types of exclusive programming contracts that may be entered into between cable operators and vertically-integrated programming vendors. The rules are directed at the provision of multichannel video programming. Pursuant to section 602(20), "video programming" means programming provided by, or generally considered comparable to programming provided by a television broadcast station.[450]

As discussed above, it may be possible to categorize some Internet-based "programming" provided by cable operators as "video programming" for purposes of the definition contained in section 602(6)(A)(i), but the fit is not a comfortable one. It is easier to conclude that Internet services fall within the phrase "other programming service" in section 602(6)(A)(ii). An additional problem in determining whether and how this rule would apply to cable Internet-based services is the limitation on the statute's scope of application to satellite (as opposed to wireline) cable programming or satellite broadcast programming. Some of the content provided by cable Internet access may be transmitted by satellite, even though it is received through wireline connections at the cable headend.

### c. Regulation Based on System Capacity or "Use of Channels"

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[448] *Compare* section 602(14) (the term "other programming service" means information that a cable operator makes available to all subscribers generally). 47 U.S.C. § 522(14). The *Navigation Devices Order* stated that an issue was raised late in the proceeding as to whether electronic program guide equipment and guide services are covered by the requirements of section 629. Although it noted that the statutory language of section 629 appears to cover such equipment, the Commission found the record was limited on this issue, and that it could not "adequately address at this time the extent of any obligation of multichannel video programming systems to make such services available pursuant to section 629 or otherwise." *Navigation Devices Order* at para. 116.

[449] 47 U.S.C. § 548.

[450] 47 U.S.C. § 522(20).

The application of several important provisions of Title VI depend upon a determination of how many "cable channels" or "activated channels" are used in the cable system to deliver cable services. Some of these provisions arguably represent a form of service "unbundling," as they generally require cable operators to set aside a portion of their programming capacity for use by specified third-party programmers. The applicability of other forms of cable regulation, such as rate regulation, are also dependent on the provision of channels of programming in either tiers or a pay-per-view basis.

The term "cable channel" or "channel" is defined as "a portion of the electromagnetic frequency spectrum which is used in a cable system and which is capable of delivering a television channel (as television channel is defined by the Commission by regulation). "Activated channels" are defined as "those channels engineered at the headend of a cable system for the provision of services generally available to residential subscribers of the cable system, regardless of whether such services actually are provided, including any channel designated for public educational, or governmental use."[451]

A fundamental determination would have to be made as to whether cable Internet-based services are being provided on a "channelized" basis (i.e., as a channel of programming) before considering whether and how Title VI provisions such as PEG access, commercial leased access, and must carry would apply to cable Internet service. There does not appear to be anything in either of the definitions relating to channels that would preclude consideration of cable Internet-based services as being provided over a cable "channel," and it is likely that is how system operators are currently providing the service. It is apparently the manner in which Jones Communications provides its "Jones Internet Channel" service in the Alexandria, VA area. Similarly, @Home reports that delivery of the @Home Network service to the home occupies two or more 6 MHz channels out of the 750 MHz total coaxial capacity found in the more advanced upgraded cable systems.[452]

PEG Access. Section 611(a) permits franchising authorities to establish requirements in a franchise for the designation or use of channel capacity for public, educational, or governmental use (otherwise known as "PEG access").[453] Section 611(b) permits franchising authorities to request, in conjunction with cable franchises, that the cable operator designate channel capacity for public, educational, or governmental use, and that channel capacity on institutional networks be designated for educational or governmental use, and may require rules and procedures for the use of the channel capacity designated pursuant to that section. Franchising authorities are authorized to enforce any requirement in any franchise regarding the provision or use of such channel capacity, and for "services, facilities, or equipment proposed by the cable operator which

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[451] 47 U.S.C. § 522(4); 47 U.S.C. § 602(1).

[452] *See* @Home Network's White Paper, "The @Home Advantage; Network Architecture" at 4 of 5, <http://www.home.net/corp/advantage/network.html>.

[453] 47 U.S.C. § 531.

relate to" PEG use of channel capacity, whether or not required by the franchising authority pursuant to subsection (b). Pursuant to section 611(e), cable operators are generally prohibited from exercising editorial control over any PEG use of channel capacity.

The PEG access provisions were drawn to reflect the way cable video programming and related programming services have traditionally been provided. It is not entirely clear how this provision would apply to cable Internet-based services. For example, would the service be considered part of the "channel capacity" of the cable service, subject to a PEG set-aside at the request of local franchising authorities? Could local franchising authorities require cable operators, as part of the franchising process, to furnish Internet access capabilities as part of the "services, facilities, or equipment" relating to PEG use of channel capacity so that PEG programming providers may themselves offer Internet-based services over their PEG channels?

Commercial Leased Access. The issue of how to determine channel capacity would also arise under section 612, the commercial leased access provisions.[454] Pursuant to that provision, a cable system with 36 or more activated channels is required to lease a portion of its channel capacity for commercial use to programmers that are unaffiliated with the system's cable operator. Terms, conditions and rates for leased access use are governed by Commission rules. The purpose of section 612 is "to promote competition in the delivery of diverse sources of video programming and to assure that the widest possible diversity of information sources are made available to the public from cable systems in a manner consistent with growth and development of cable systems."[455] The leased commercial access requirement only applies by its terms to "activated channels" for the purpose of diversity of "video programming."

The potential application of commercial leased access rules to cable Internet services raises several significant and difficult questions. Would cable Internet-based services be considered as provided as a channel of programming so as to trigger the commercial leased access rules? Could an unaffiliated information service provider such as AOL seek carriage under the commercial leased access provisions of the Act? If so, would the Commission's current rate requirements for commercial leased access apply? How would the Commission's rules regarding indecent programming and other types of materials on cable access channels apply to such material provided over a commercial leased access channel?

Must Carry and Retransmission Consent. Sections 614 and 615 contain the cable television "must carry" requirements for commercial television stations and noncommercial television stations, respectively.[456] Commercial television stations may request mandatory carriage within their local market areas. Noncommercial television stations, are considered

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[454] 47 U.S.C. § 532.

[455] 47 U.S.C. § 532(a).

[456] 47 U.S.C. §§ 534, 535.

qualified, and may request carriage if they meet certain statutory criteria. The mandatory carriage provisions contain certain capacity-based limitations. For example, a cable system with 12 or fewer activated channels is generally required to carry at least three qualified local commercial television stations. Systems with more than 12 usable activated channels must carry the signals of local commercial television stations, up to one-third of the aggregate number of usable activated channels of such systems.[457] In addition, cable systems are obliged to carry qualified local noncommercial educational television stations according to a different formula, based upon a cable system's number of usable activated channels.[458] Again, the question raised with respect to cable Internet-based services is how their classification as cable services would affect requirements like must carry, which depend upon certain determinations regarding activated channels.

Section 614(b)(4)(B) also requires that, at the time the Commission prescribes standards for advanced television, it should commence a proceeding addressing the issues involved in mandatory carriage of a broadcaster's digital television ("DTV") signal.[459] The Commission has adopted new rules which anticipate the transition of the existing television broadcasting system from an analog to a digital form of transmission. Previously, in the *Advance Televisions Systems* proceeding, the Commission had solicited initial views on DTV signal carriage issues from industry and consumer interests.[460] Included among these issues is whether the Commission should redefine channel capacity to comport with any new DTV must carry rules that it may develop. Comment was specifically sought on how channel capacity should be defined in a digital environment, i.e., in terms of channels, bandwidth, or bits of data per second. That is, channel capacity could be determined by counting individual channels on the cable operator's channel line-up card, as is now the case, or channel capacity may be analyzed in terms of bandwidth, where all of the material transmitted by a broadcaster, in any combination, using 6 MHz, would count as one channel for capacity purposes.

On July 10, 1998, the Commission released a Notice of Proposed Rulemaking which specifically addresses the carriage of DTV signals by cable systems.[461] Among other issues raised by the *DTV Must Carry Notice* is the question of how capacity should be defined in the digital

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[457] 47 U.S.C. § 534(b)(1).

[458] 47 U.S.C. § 535(b).

[459] 47 U.S.C. § 534(b)(4)(B).

[460] *Advanced Television Systems and Their Impact Upon the Existing Television Broadcast Service*, MM Docket No. 87-268, *Fourth Further Notice of Proposed Rule Making and Third Notice of Inquiry*, 10 FCC Rcd 10540, 10552-10554 (1995) (*"Advanced Televisions Systems"*) (subsequent history omitted).

[461] *Carriage of the Transmissions of Digital Television Broadcast Stations, Amendments to Part 76 of the Commission's Rules*, CS Docket No. 98-120, *Notice of Proposed Rule Making*, FCC 98-153 ("*DTV Must Carry Notice*").

environment.[462] The *DTV Must Carry Notice* identifies three possible options in determining capacity: "(1) each programming service counts as one channel; (2) each 6 MHz block of spectrum counts as one channel; or (3) the digital capacity should be by data throughput, i.e., bits per second of digital data."[463] This re-examination of the issue of channel capacity may address how the addition of cable Internet-based services affects the definition of a cable channel.

Rate Regulation. Cable rate regulation for systems not subject to effective competition is also dependent upon the offering of tiers of channels of programming to subscribers, as opposed to the offering of programming on a separate per channel or per program basis. With certain exceptions, section 623 provides that rates for the basic service tier ("BST"), equipment (typically, converter boxes and remote control devices) and installation are subject to regulation by a community's local franchising authority, if that entity chooses to regulate BST and equipment rates. Cable programming service tier ("CPST") rates are regulated by the Commission upon receipt of a complaint by the local franchising authority.[464] Pay and premium services, which are offered on a per program or per channel basis, are not subject to rate regulation under section 623.[465] Thus, section 623, on its face, would seem to apply to cable Internet services to the extent such services fell within the definition of "cable services." However, a further determination would have to be made as to whether such service would be considered part of the BST, the CPST, or as a pay or premium service.

Section 623(b)(7)(A) requires cable operators of cable systems to provide subscribers a separately available basic service tier to which subscription is required for access to any other tier of service. Section 602(4) defines "basic cable service" as "any service tier which includes the retransmission of local television broadcast signals."[466] The minimum requirements of the BST include all must carry signals, any PEG programming required by the local franchising authority and any signal of any television broadcast station that is provided by the cable operator to any subscriber, except a signal which is secondarily transmitted by a satellite carrier beyond the local service area of such station. Cable operators may add video programming signals or services to the basic tier, but such additional service will be subject to rate regulation. It would not seem plausible to include cable Internet-based services as BST programming. However, it would appear that if Internet-based services are treated as cable services, section 623(b)(7)(A) would appear to permit cable operators to require Internet subscribers to also subscribe to the operator's

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[462] *DTV Must Carry Notice* at paras. 58-61.

[463] *DTV Must Carry Notice* at para. 60.

[464] 47 U.S.C. § 543(a). Originally, complaints could be filed by individual subscribers. In 1996, Congress restricted the complaint process so that only local franchising authorities could file a complaint against a CPST rate with the Commission.

[465] 47 U.S.C. § 542(b)(8)(A).

[466] 47 U.S.C. §§ 543(b)(7)(A), 522(4).

basic cable service in order to be eligible to receive the Internet-based services.

CPST programming, governed by section 623(c), is not subject to similar statutorily determined minimum components, but is subject to rate regulation by the Commission. The terms of that provision refer to "cable programming services," although the term is not separately defined. Viewed from a purely "plain language" perspective, cable Internet-based services could be included within that concept. Whether this would make sense from a policy perspective is an entirely different matter.

The most reasonable result may be to classify Internet services as either pay or premium, so that the rates would not be unnecessarily subjected to rate regulation. While it is generally acknowledged that cable Internet services offer superior transmission speeds as compared to other means of accessing the Internet, cable operators can hardly be said to maintain monopoly control of either the Internet content or Internet access markets. Thus, there does not appear to be a market failure that would require either the Commission or local franchising authorities to regulate the rates charged for cable Internet-based services. It would also avoid the imposition of the uniform rate structure requirements contained in section 623(d) on cable Internet-based services, as the uniform rate rules do not apply to video programming offered on a "per channel or per program basis."

Cable operators are permitted to make bundled offerings of programming and equipment subscriber need to receive the cable basic service tier. Such equipment may include a converter box and a remote control unit, addressable converter boxes or other equipment as is required to access programming under certain circumstances. Under the Commission's rules, rate regulated cable systems must establish cost-based rates for equipment which must be separately stated on customers' bills.[467] Because the equipment rate regulation rules apply only to equipment needed to receive the cable basic service tier, it does not appear that they would apply to cable modems as separate pieces of equipment, even where offered by non-competitive cable systems. Other issues relating to cable modem bundling and cross-subsidy will be addressed in the *Navigation Devices* rulemaking.

### d. Protection of Subscriber Privacy

Section 631 governs protection of subscriber privacy. By its terms, the provision applies to "any cable service or other service." Section 631((a)(2)(B) defines "other service," to include any wire or radio communications service provided using any of the facilities of a cable operator that are used in the provision of cable service.[468] Section 631 requires cable operators, at the time of entering into an agreement to provide cable service or other service to a subscriber, to provide notice in the form of a separate, written statement to such subscriber which informs the subscriber

[467] 47 U.S.C. § 543(b)(3)(A); 47 C.F.R. § 76.923(b) and (c).

[468] 47 U.S.C. § 551.

of, *inter alia*, the nature of personally identifiable information collected with respect to the subscriber and the nature of use of such information, any disclosures of such information, and limitations on the ability of cable operators to collect and disclose the information.[469] Section 631(b)(1) provides, that subject to certain exceptions, a cable operator shall not use the cable system to collect personally identifiable information concerning any subscriber without the prior written or electronic consent of the subscriber concerned. Exceptions include the ability of the cable operator to obtain information necessary to render service or detect unauthorized reception of cable communications.

Similarly, cable operators are prohibited from disclosing personally identifiable information concerning any subscriber without the prior written or electronic consent of the subscriber, and must take actions to prevent unauthorized access to such information. Exceptions to the disclosure prohibition include, *inter alia*, such disclosure as is necessary to "conduct a legitimate business activity related to, a cable service or other service provided by the cable operator to the subscriber," necessary to respond to certain court orders, and disclosure of the names and addresses of subscribers under certain limited circumstances.[470]

Thus, it appears that whether section 631 would apply to the provision of cable Internet-based services would turn directly on the issue of whether these services were classified as cable services. Indeed, the Highway 1 subscriber Service Agreement states that the subscriber's customer information and privacy interests are "safeguarded by the subscriber privacy provisions of the 1984 Cable Act, as amended."[471] Application of the subscriber privacy provisions of Title VI to cable Internet-based service would not appear to present any additional problems of "fit." However, cable operators may potentially run into problems of compliance with section 631 by the way the information is being collected by some advertising agencies from Internet users in the course of online sessions.

Persons "surfing" the Web through a browser may receive an on-line prompt advising them that the server they have accessed wished to set a "cookie" that will last for a set period of time, and giving the user a choice of "yes" or "cancel" with which to respond. The prompts usually do not define what a "cookie" is, what use the server wishes to make of the cookie, or what will happen if the user declines to accept the cookie. Such cookies are actually small files that are stored on a user's PC to serve as unique identifiers for tracking user movements across the Web. These small data files are first sent to the user's Web browser when a Web site is visited via the browser, and are then saved on the end user's hard disk. The next time the user visits the web site, his browser will send the cookie to the Web server. Originally, cookies were developed to be used within one Web site, to, for example, automate the process of logging in to a member-

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[469] 47 U.S.C. § 551(a)(1)(A)-(E).

[470] 47 U.S.C. § 551(c)(2)(A)-(C).

[471] *MAI Petition*, Attachment at p. 2, Sec. 11, "Customer Use."

ship-based site, or fill a "shopping basket" with online purchases. Several advertising agencies now use cookies to silently track a user's movement between client sites. When a user visits AltaVista, for example, a cookie is sent along with that site's images, and the information is stored in a database on a remote server. The database entries can be used to assemble user profiles for targeted advertisements.[472]

The use of cookies and other executable applications in conjunction with Web site visits raises many issues for cable Internet-based services under section 631. One issue will likely be whether section 631 applies to personally identifiable information gathered with respect to cable Internet subscribers over cable systems by persons other than the cable operator. If section 631 applies to the practice of setting cookies on the user's hard drive and tracking their movements across the Web, issues would arise with respect to cable operator responsibility for personally identifiable subscriber information disclosed to third parties for marketing and other related purposes.

## C. Summary

The foregoing review of the more significant regulatory consequences of treating cable Internet-based services as Title VI cable services reveals several instances of regulatory "fit," and several instances of difficulty in applying an old regulatory category to a fundamentally new and different service. Some of the existing rules governing cable operators, cable systems and cable services can be applied with little difficulty to cable Internet-based services because they are not based upon cable's provision of video programming that is similar in nature to the programming provided by broadcast television stations. Other rules were not written for two-way interactive services like Internet access, and may not be applicable without some dislocation. If these Internet services are treated as cable services for Title VI purposes, the Commission may quickly find itself involved in a lengthy process of determining how the various provisions of Title VI would apply. While classification of cable Internet-based services as cable services arguably serves the short-term interests of the cable industry by providing regulatory certainty on a number of important issues (franchises, pole attachment rates, unbundling), the long-term advisability of this result is less clear.

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[472] *See* Chris Jones, *"Shutting the Door on Cookies and Applets*," Wired News, Oct. 24, 1997, <http://www.wired.com/news/news/technology/story/7975.html> and James Glave, "*Next Netscape Will Chew Cookies on Command*," Wired News, Feb. 22,1997, <http://www.wired.com/news/news/technology/story/2196.html>.

## VI. INTERNET POLICY ISSUES AND PERSPECTIVES

### A. New Issues for Communications Policy

With respect to the Internet, traditional dividing lines become blurred as individual companies provide capacity to transmit communications for others and also provide their own content. The coming era of digital personal communications, according to Compaq Computer, is an "era of converging technologies, converging products, converging media and converging industries. More and more, the computer, broadcast, cable, telephone, satellite, and media entertainment industries will find themselves part of a much larger marketplace. These industries must learn to compete in broad markets, driven by consumer needs rather than be protected from competition in their traditional market segments."[473] Intel has described the Internet as the "universal backbone" of networked computing, and as a "strategic inflection point" for a variety of industries -- particularly those in the services sector.[474] The long-awaited development of integrated broadband communications platform may have arrived, not from the traditional carrier networks, but rather, in the form of Internet-based communications that permit voice, video and data transmissions through use of open computer protocols and protocol processing. [475]

In their introduction to the collection, "*The Internet and Telecommunications Policy*," Gerald W. Brock and Gregory L. Rosston maintain that the blurring of service categories over the Internet (including the Web and commercial online services) gives rise to three different kinds of "integration;" each of which raises new issues for communications policy.[476] First, they note, the Internet is created by the integration of multiple networks provided by independent entities with no overall control other than standards for interconnection protocols. The Internet thus represents the fullest expression to date of the unregulated "network of networks," which is widely expected to serve as a model for future communications. In contrast, the telephone industry is still largely

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[473] Paul Taylor, "*Whirlwind of Change in the Digital Era,"* Financial Times, March 5, 1998 at p. 1, *quoting* Mr. Eckhard Pfeiffer, President and Chief Executive of Compaq Computer.

[474] *Id., quoting*, Andrew Grove, Chief Executive of Intel Corporation.

[475] For example, in 1996, the Internet community announced it would adopt open standards for the exchange of integrated voice, video and data communications via computers, including real-time transmission of voice and video services, and that a number of proprietary software applications are already commercially available for full duplex voice communications between computer with direct IP connections to the Internet. In the spring of 1997, "push" technology, that automatically delivers specific information to computer users over the Internet, was widely discussed. Conceptually, push technology is not unlike newspapers or television broadcasting, but has been viewed by some as an important advance in Internet communications because it automatically sends users news and other information they select. *See* Greg Miller, "*Netscape Makes a Push for Improved Internet System,"* Los Angeles Times, April 15, 1997, at page B7. Although push technology was a hot issue in the spring of 1997, it subsequently received little attention. Internet-related developments appear to have significantly compressed shelf-lives, as compared to more traditional communications technologies.

[476] *See* Brock, Gerald W. and Rosston, Gregory L., *The Internet and Telecommunications Policy*, Lawrence Erlbaum Associates, Publishers, Mahawah, NJ (1996) (Introduction, at pps. 1-9) ("*Brock and Rosston*").

controlled by regulation and central planning; interconnection and access regulation ensures that competitive service providers can access end users through the local exchange "bottleneck monopolies."[477] "The future telecommunications network is likely to be made up of many different interconnected networks without any core monopoly as its anchor. . . . A significant policy problem is creating interconnection arrangements among multiple competing networks that achieve efficiency and allow competition to flourish."[478] The Commission's *Local Competition* and *Access Reform* proceedings represent the initiation of the Commission's attempts to deal with interconnection policy under its existing rules and the new regulatory structure of the 1996 Act.

Second, Brock and Rosston assert that "the Internet includes integration of multiple types of services with substantially different technical characteristics onto a single network. The Internet is used to transmit short e-mail messages, graphics, large data files, and (at a slow rate) video files. The various kinds of transmissions have vastly different bandwidth requirements and time sensitivities."[479] Reflective of the networks of the past which were optimized to provide a particular type of communications service over a single technology, past telecommunications policy has assumed (and sometimes mandated) separate facilities and policies for different kinds of transmissions. "The telephone network and associated policies are built around the switched two-way voice grade circuit, with an assumption that the predominant use of that circuit is to carry the human voice."[480] Similarly, the broadcast and cable-TV networks and the associated policies are based on providing one-way non-switched transmission of video signals.[481]

Brock and Rosston note that technological advances in fiber-optic transmission of signals and in compression of digital video signals have created the possibility of future integrated networks that carry all kinds of signals as digital packets of information, breaking down the policy boundaries of the past and creating the need for new integrated policies.[482] Until such policies are developed, the Commission will be likely be faced with the increasingly daunting task of re-evaluating the applicability of its existing regulatory categories to the new integrated service offerings based around the Internet, and the equally daunting task of sifting the claims of competing carriers that every other carrier should be regulated in a particular manner.

Third, Brock and Rosston state that, "the Internet and commercial networks connected to it now integrate the provision of transmission capacity to varying degrees with the provision of

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[477] *Brock and Rosston* at 2.

[478] *Id.*

[479] *Id.* at 2.

[480] *Id*.

[481] *Id*.

[482] *Id.* at 2.

information. Past telecommunications policies have largely distinguished between providers of communications capacity and providers of information content. Common carriers were required to transmit all information submitted to them in a nondiscriminatory way, and therefore had no editorial control over the information transmitted or any responsibility for that information. Broadcasters were required to operate 'in the public interest' with regard to the material they transmitted. They have been responsible for that material and have been required to meet a varying set of standards for appropriate material over time, such as: indecency restrictions, public service and news programming, limitations on advertising time, and children's programming requirements."[483]

Under the Title VI regulatory model, cable operators have escaped regulation as common carriers, and, for the most part, have been permitted the editorial discretion to select or provide the video programming transmitted on their systems. At the same time, they have also been required to "unbundle" or set aside system capacity for the use PEG entities at the request of franchising authorities, as well as certain channels for leased commercial access, and the transmission of local must-carry broadcast stations.

The communications and communications services made possible by the Internet are fundamentally unlike those provided in the past over the technologically separate public switched telephone network, data networks, broadcast networks, and cable television systems in that a single medium is capable of delivering nearly any type of communications service on an integrated basis. The Internet itself is a network of interconnected networks, comprising linked clients, hosts, routers and gateways, that communicate with each other through use of the common Internet protocols. The Internet protocols separate the transmission of information from the applications and service levels. The Internet supports a wide range of applications, including e-mail, ftp, integrated display of text and graphical data files on the World Wide Web. These attributes make application of existing regulatory categories difficult, if not impossible to many forms of Internet-enabled communications.

The next generation of Internet deployment is already under way, and it will only compound the regulatory and policy challenges described above. Some providers are beginning to go beyond the initial ISPs' provision of basic Internet connectivity, and are including Web hosting and IP facsimile services. Some speculate that the next generation will likely shift perspective to "content distribution services," and in particular to what is now called, "IP multicasting," a form of Internet "broadcasting." [484] Infrastructure providers who have recognized that such offerings

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[483] *Id.* at 3.

[484] Peter Lambert, "*This Revolution Will be Televised,"* tele.com, April 1998 at p.57, describing the views of Martin Hall, chief technology officer for Stardust Technologies Inc.; Stardust manages the IP Multicast Initiative (IPMI), a consortium of vendors and ISPs supporting the implementation of IP multicasting transmission standards. "IP multicasting" utilizes UDP/IP, instead of TCP/IP, to transmit a single file or stream to a list of subscribers' IP destinations. "Guided by a complete list of subscribers' IP destinations, the single stream leaves a server, then splits itself repeatedly wherever a router table confirms that down this or that tributary lies at least one

require that they fundamentally change the way they transport information, have begun to implement such changes as "decentralization of content storage, experimentation with service classification and tiered service routing mechanisms, deployment of multicast router and access device software, and creation of multimegabit residential connections and always-on residential Internet connections."[485]

Cable Internet service providers such as @Home and Road Runner have been leading the change to decentralized content storage on their data networks, in order to place content closer to users. These companies have been building (and may someday merge) their own Internet backbones linking dozens of regional data centers, where servers house copies of regularly updated popular content made accessible to local cable modem users.[486] These new "cable networks" may one day soon be providing interactive multicast IP video programming to subscribers. The fundamental question for cable regulators is whether application of the "legacy" cable regulatory frameworks under Title VI makes sense in the face of the rapidly evolving worldwide packet-switched data network currently known as "the Internet."

## B. Regulatory Alternatives

Definitional categories are important not in themselves, but because of the regulatory consequences that flow from them.[487] From the perspective of the regulatory agency, the important inquiries with respect to whether cable Internet-based services should be treated as Title VI services are whether this is what Congress intended in amending the definition of cable services under Title VI, whether classifying these services as cable services comports with its regulatory scheme for Internet access provided by non-cable operators, and whether such an interpretation would further important, identifiable regulatory goals.

Although it can argued that Congress intended to include cable Internet-based services under the Title VI regime, Congress also has stated generally that "it is the policy of the United States . . . to promote the continued development of the Internet and other interactive computer services and other services and other interactive media."[488] Reconciling these positions under the Communications Act presents the Commission with significant policy challenges. At least with respect to Title II telecommunications services, Congress may already have provided a key to

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recipient on the list." *Id.* at p. 60. One venture, between MCI Real Broadcast Network and a media software provider, Real Networks Inc., is using multicasting to distribute streaming media to local servers for on-demand, rather than, live access.

[485] *Id*. at 58.

[486] *Id.*

[487] *See Report to Congress* at para. 21 ("All of the specific mandates of the 1996 Act depend on application of the statutory categories established in the definitions section").

[488] *See* 47 U.S.C. § 230 (b)(1).

overcoming the challenges new technologies present for old regulatory frameworks. There does not appear to be a corresponding source of forbearance authority for resolving this dilemma with respect to Title VI cable services.

Section 706 of the 1996 Act states:

> The Commission and each State commission with regulatory jurisdiction over telecommunications services shall encourage the deployment on a reasonable and timely basis of advanced telecommunications capability to all Americans (including, in particular, elementary and secondary schools and classrooms) by utilizing, in a manner consistent with the public interest, convenience, and necessity, price cap regulation, regulatory forbearance, measures that promote competition in the local telecommunications market, or other regulating methods that remove barriers to infrastructure investment.[489]

Section 706(b) directs the Commission and each appropriate State commission to periodically initiate and complete inquiries concerning the availability of advanced telecommunications capability to all Americans. If the determination is that such capability is not being deployed in a reasonable and timely fashion, the respective regulators are to "take immediate action to accelerate deployment of such capability by removing barriers to infrastructure investment and by promoting competition in the telecommunications market."[490]

As discussed in Section IV, "advanced telecommunications and information services" as those terms are used in section 254(h) have been interpreted to include Internet services. Internet services, regardless of the identity of the entity providing them, could also fall under the section 706 definition of "advanced telecommunications capability," which is defined "without regard to any transmission media or technology, as high-speed, switched, broadband telecommunications capability that enables users to originate and receive high-quality voice, data, graphics and video telecommunications using any technology."[491] The *Section 706 NOI* seeks comment on the meaning and scope of the terms contained within the statutory definition of "advanced telecommunications capability," including whether it encompasses content, such as web pages, in

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[489] 47 U.S.C. § 157(a) nt.

[490] 47 U.S.C. § 157(b) nt. On August 7, 1998, the Commission adopted an inquiry concerning the deployment of advanced telecommunications capability to all Americans. *Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996*, CC Docket No. 98-146, *Notice of Inquiry*, FCC 98-187 (released Aug. 7, 1998) (*"Section 706 NOI*").

[491] The fact that Congress here uses "telecommunications" capability without respect to any transmission media or technology raises the question of whether Congress has intentionally (or inadvertently) created a category of "broadband telecommunications" services that is different from either "telecommunications services" or "cable services" under the Act.

addition to the ability to reach content.[492]

Section 10, added by the 1996 Act, expressly grants the Commission the authority to "forbear from applying any regulation or provision of this Act to a telecommunications carrier or telecommunications service, or class of telecommunications carriers or telecommunications services" if the Commission determines that enforcement of such regulation or provision is not necessary to ensure just and reasonable and non-discriminatory rates and practices with respect to telecommunications carriers and services; not necessary to protect consumers; and that forbearance is consistent with the public interest.[493] Limitations on the Commission's section 10 forbearance authority are contained in subsection (d). The Commission may not forebear from applying the requirements of section 251(c) or 271 (except as provided in section 251(f)) under subsection (a) of section 10 until it determines that those requirements have been fully implemented.[494]

The relationship between sections 10 and 706 forbearance authority is discussed in the *Section 706 MO&O*. There, the Commission found that section 706(a) does not constitute an independent grant of forbearance authority or of authority to employ other regulating methods. Rather, it directs the Commission to use the authority granted in other provisions, including the forbearance authority under section 10(a), to encourage deployment of advanced services.[495] There do not appear to be corresponding provisions in Title VI that grant the Commission similar forbearance authority for cable services, apart from the ability to forbear from rate regulation of systems facing effective MVPD competition. Thus, sections 10 and 706 do not appear to be available as independent sources of forbearance authority for cable Internet services.

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[492] *See Section 706 NOI* at paras. 13-17.

[493] 47 U.S.C. § 160(a).

[494] In 1998, four BOCs filed petitions seeking various forms of relief under section 706 for their provision of advanced high-speed data services, arguing that regulatory forbearance from, *inter alia*, LATA boundary restrictions, unbundling and resale obligations, would spur the rollout of such advanced telecommunications offerings as xDSL (digital subscriber line) services. The section 706 petitions were filed by Bell Atlantic Corp. (CC Docket No. 98-11), US WEST Communications, Inc. (CC Docket No. 98-26), Ameritech Corp. (CC Docket No. 98-32) and Southwestern Bell Telephone Company, Pacific Bell and Nevada Bell (CC Docket No. 98-91. Petitions for relief under section 706 were also filed by the Alliance for Public Technology (CCB CPD No. 98-15) and by the Association for Local Telecommunications Services (ALTS) (CC Docket No. 98-78). The petitions also raise issues regarding the relationship between the Commission's forbearance authority as expressed in sections 10 and 706. On August 7, 1998, the Commission addressed these petitions in a consolidated memorandum opinion and order and notice of proposed rulemaking designed to create market conditions that will allow both the incumbent and new entrants to provide advanced telecommunications services to the public based on market risk and reward. *See Deployment of Wireline Services Offering Advanced Telecommunications Capability*, CC Docket Nos. 98-147, 98-11, 98-26, 98-32, 98-15, RM 9244, 98-78, 98-91, *Memorandum Opinion and Order, and Notice of Proposed Rulemaking*, FCC 98-188 (released Aug. 7, 1998) (*Section 706 MO&O, Section 706 NPRM*").

[495] *Section 706 MO&O* at paras. 69-78

To reconcile the conflicting directives of placing cable Internet services under a Title VI regulatory regime, and yet preserving the unregulated nature of the Internet, the Commission may need additional, express Title VI forbearance authority. If it had such authority, the Commission could then fully effectuate congressional intent with respect to cable Internet services, by combining such targeted, regulatory actions as it finds are necessary to promote infrastructure development and competition, with equally targeted, regulatory "forbearance" where application of the full panoply regulation would slow infrastructure development or competition.

If forbearance authority were available in the case of cable Internet-based services, the Commission could reasonably find cable-provided Internet services to be cable services, as discussed above, but forbear from applying Title VI requirements that would otherwise hinder the continued development of an "unregulated" Internet. This would permit the Commission to encourage the deployment of such advanced telecommunications capabilities, as directed by that provision, by offering the cable operator the regulatory certainty, for example, that its cable franchise, in the ordinary case, covers the provision of such services as "cable services."[496]

Accordingly, it may be advisable for the Commission to seek legislative forbearance authority under Title VI similar to that which it is given with respect to Title II under sections 10 and 706. Such forbearance authority could be limited to "advanced" or "enhanced" cable services, such as two-way, interactive computer services and Internet access provided over cable systems.

Another approach may lie in the new statutory category of "advanced telecommunications capability," itself. This new statutory category, which speaks not in terms of services and service providers, but of "capabilities," may arguably be utilized to develop a new regulatory framework better suited to fluid the types of communications capabilities made possible by the Internet. Central to this question may be a determination of the relationship between Title II "telecommunications" services to section 706 "advanced telecommunications capability."[497] These

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[496] Another alternative identified by some members of the cable industry, would be use of a *Computer Inquiry*-like approach to find all "information services" to be Title I "enhanced services," categorically exempt from both Title II and Title VI regulation. This alternative would avoid many of the difficult questions of regulatory "fit" described above. However, cable operators, like the dominant LECs, potentially would still be subject to a Commission-imposed unbundling requirement, whereby they could be required to offer unbundled access to their cable high-speed data communications platforms to competing ISPs or on-line service providers use in reaching their subscribers. There is reportedly some debate within the cable industry as to which course is preferable for their cable Internet-based services, but the majority of providers take the position that these should be considered Title VI cable services.

[497] The Commission addressed the regulatory classification of "advanced services" in the *Section 706 MO&O*. It determined that advanced services offered by incumbent LECs, such as xDSL and packet-switched services, are basic services under the Commission's rules and telecommunications services under the 1996 Act. The Commission found that when an incumbent LEC offers members of the public a transparent, unenhanced, transmission path, for a fee, the incumbent LEC is offering a "telecommunications service." In contrast, when the end user utilizes a telecommunications service together with an information service, as in the case of Internet access, the offering is treated as two separate services. The first is a telecommunication service (the xDSL-enabled

issues may be addressed and resolved in the pending *Section 706* proceedings, or in later proceedings under that provision.

## VIII. CONCLUSION

Articles describing the convergence of telecommunications, computing and broadcasting industries as opening the way for seamless access to multimedia information and entertainment any time, any place, anywhere are commonplace in the late 1990s. Digital technology has made it possible to convert text, sound, graphics and moving images into coded digital messages which can be combined, stored, manipulated and transmitted quickly, efficiently, and in large volumes over wired and wireless networks. Broadband fiber optic networks enable high-speed transmission of these digital signals. A single world wide web page available on the Internet could be delivered to the subscriber (1) through the cable system and over a cable modem, (2) via a broadcaster's digital signal carried as a channel of television programming over cable systems, or (3) on a dial-up basis from a cable operator's competitive local exchange carrier offering. Under our current rules, each of these means of delivering the web page are regulated differently.

At some point in the not-too-distant future it will become increasingly difficult to maintain that particular facilities are "cable" as opposed to "telecommunications" if their utilization factor for the different types of services is roughly equal. This problem will also be evident in the case of regulatory requirements written in terms of "cable operators" as opposed to "telecommunications carriers" and "information service providers." When a single provider offers all three types of services in digital format over primarily fiber optic broadband plant, how will these categories apply? The same is true of regulatory requirements that are placed upon certain services, when a single software application together with access to the Internet makes it possible to provide voice, video or data communications, at the initiation of the end user, rather than the "network" operator.

These situations graphically illustrate the difficult task of sorting out appropriate regulatory categories in a world in which any carrier can offer any service over any transmission medium -- wired, wireless, cable, voice, data or video. It is increasingly likely that the above-mentioned regulatory categories painstakingly established over many years to further particular policy goals, must necessarily collapse of their own weight in the digital communications world of tomorrow. The challenge for the regulator, at each step, is to examine the underlying purposes and policy goals behind existing regulatory categories, and to apply them only where those purposes and policy goals make sense. Any regulatory efforts in this arena should begin with an analysis of whether the operator in question exercises undue market power over an essential service or facility necessary to provide an essential service.

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transmission path) and the second service is an information service -- in this case, Internet access. *Section 706 MO&O* at paras. 35-37, *citing Frame Relay Order*, 10 FCC Rcd at 13722-23; *Report to Congress* at para. 60. The Commission is seeking comment on the meaning of the statutory term, "advanced telecommunications capability," in the *Section 706 NOI* at paras. 13-17.

Ultimately, however, the Commission (and perhaps Congress) may need to develop a new regulatory paradigm and language that fits the new global communications medium known as the Internet. The regulatory categories of "basic" and "enhanced" or "information" services are more than twenty years old, whereas the technologies they are being applied to are new, and evolving rapidly in unforeseen and unforeseeable ways. Although the Commission has repeatedly found that the old regulatory categories are essentially carried forward in the 1996 Act's new "telecommunications" and "information" service categories, the 1996 Act also gives the Commission the new and flexible regulatory category of "advanced telecommunications capability" in section 706. Rather than concentrate solely on trying to squeeze the Internet and Internet-based services into familiar categories, the Commission might better endeavor to give full meaning and effect to this new regulatory category in its domain.