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Legal Implications of Telecom Convergence in the U.S.

By

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ABSTRACT

Convergence, has blurred the artificial limits that traditionally existed between separated sectors and services. In particular, technological convergence united cable and telephone networks as convenient platforms for the provision of numerous new telecommunications services. The advent of the Internet and the development of other services started a race for the acquisition of broadband transmission that has, in part, prompted a number of corporate mergers between the major telephone, cable, and Internet service providers.

This thesis analyzes the legal implications of the convergence of cable operators and telephone carriers in the United States of America (U.S.). The analysis was conducted in light of the 1996 *Telecommunications Act*'s provisions, the Federal Communications Commission's reports and orders, and under the critical approaches of the cable and telephone industries. This thesis presents recommendations addressed to promote an equal regulatory treatment for all telecommunications competitors in the U.S.

RESUMÉ

La convergence, a rendu floues les limites traditionnelles, mais artificiellement créés, entre divers secteurs et services. En particulier, la convergence technologique a uni les réseaux cablé et téléphonique en tant que plateformes utilitaires destinées à l'approvisionnement d'une diversité de nouveaux services de télécommunications. L'avènement de l'Internet et le développement d'autres services ont fait débuter une course à l'acquisition d'une transmission large bande qui a également, en partie, provoqué un certain nombre de fusions entre sociétés de téléphonie, de câble et de fourniture de services via Internet ayant un rôle majeur sur le marché.

La présente thèse analyse les implications légales de la convergence des opérateurs du câble et de téléphonie aux États-Unis d'Amérique. Cette analyse a été effectuée à la lumière des dispositions du Télécommunications Act de 1996, des rapports et circulaires de la Fédéral Communications Commission, et des approches critiques qu'ont les sociétés de téléphonie et de câble sur le sujet. Cette thèse fournit également une série de recommandations destinées à promouvoir un traitement réglementaire égal pour tous les concurrents actifs dans le secteur des télécommunications aux États-Unis.

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I would like to dedicate this thesis to my beloved grandmother Irene

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INTRODUCTION

Just as globalization has affected the world's economy, convergence is affecting telecommunications and computing. The concurrence of these two fields is unprecedented, with the driving force behind this trend being digital technology.[1] Thanks to digital technology, that is, the ability to store bits of 0s and 1s in an electronic circuit,[2] increased amounts of information can be compressed and transmitted in digital format. Digitization in telecommunications and computing, in addition to expanding our understanding of communications services and technologies, has dramatically transformed the communications industry.[3] It is this transformation that is generally known as convergence.[4] The most relevant impacts of convergence have been on technology, services, regulation, and industry alliances and mergers.[5] Different communications service providers, once circumscribed to traditional separated sectors, can now compete against each other in a greater marketplace.[6] Moreover, network

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[1] See R. Ono & K. Aoki, "Convergence and New Regulatory Frameworks: A Comparative Study of Regulatory Approaches to Internet Telephony" (1998) 22:10 Telecommunications Policy 817.

[2] See D. Johnston, D. Johnston & S. Handa, *Getting Canada On Line: Understanding the Information Highway* (Toronto: Stoddart, 1995) at 7.

[3] See Ono & Aoki, *supra* note 1. See generally J. Horrocks, *Telecommunications Technology*, in C.D. Long, *Telecommunications Law and Practice*, 2nd ed. (London: Sweet & Maxwell, 1995).

[4] See generally *Convergence Competition and Cooperation, Policy and Regulation Affecting Local Telephone and Cable Networks*, Report of the Co-chairs of the Local Networks Convergence Committee (Ottawa: Minister of Supply and Services Canada, 1992).

[5] See E.C., *Green Paper on the Regulatory Implications*, COM (97) 623: *Green Paper on the Convergence of Telecommunications, Media and Information Technology Sectors, and the Implications for Regulation Toward an Information Society Approach* (Brussels: E.C., 1997), online: <http://www.ispo.cec.be/convergencegp/97623.html> (date accessed: 8 August 2000).

[6] See I. Vogelsang & B.M. Mitchell, *Telecommunications Competition The Last Ten Miles* (Washington, D.C.: AEI Press, 1997) at 3.

platforms have become interchangeable for different types of services, and corporate alliances and mergers are currently formed between distinct providers in order to enlarge and enhance their services.[7]

Convergence has also altered the face of telecommunications and computing in the United States of America (U.S.). Despite several previous attempts, convergence has only been formally possible in the U.S. since the enactment of the 1996 *Telecommunications Act*.[8] By passing the *Act*, Congress assured a larger marketplace where all competitors could come to offer telecommunications services of any kind.

Before the enactment of the *Telecommunications Act*, federal laws in the U.S. had traditionally treated cable television and telephone services as distinct technologies. This regulatory division affected cable operators and telephone carriers, since both were forbidden from competing in the same market offering the service provided by the other. After advantageous Court rulings,[9] cable operators and telephone carriers were gradually allowed to offer telephony and cable television services. However, it was not until the enactment of the *Telecommunications Act* that they could compete against each other in the same market.

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[7] See J. Monluis, "The Future of Telecommunications Operator Alliances" (1998) 22 Telecom. Policy 635. See also J.V. Cuilenburg & P. Verhoest, "Free and Equal Access" (1998) 22 Telecom. Policy 171.

[8] See *Telecommunications Act of 1996*, Pub. L. No. 104-104, 110 Stat. 56 (1996) (to be codified at 47 U.S.C.) [hereinafter *Telecommunications Act*].

[9] See *Chesapeake & Potomac Tel. Co.* v. *United States*, 830 F. Supp. 909 (ED.VA. 1993) [hereinafter *Chesapeake & Potomac*].

The *Telecommunications Act* represents an important legislative change in telecommunications,[10] particularly because it finally extinguished the artificial regulatory barriers that formerly existed between different competitors in order to facilitate a broader margin of competition. The new broader telecommunications market conceived by Congress not only promotes relations between telcos-into-cablecos and cablecos-into-telcos, but also the consolidation of both cable operators and telephone carriers to offer Internet and other information services through their networks.[11]

Internet and other related information services are part of the new technologies that the U.S. government wants to encourage and deploy for the benefit of all Americans. The Internet is growing exponentially;[12] eighty million Americans (32.7% of the population) are currently online.[13] Providing Internet service is very demanding, thus incredibly attractive for providers such as cable operators, telephone companies, and Internet Service Providers (ISPs).

Unlike other telecommunications services, the transmission of Internet and other related services supposes larger amounts of data, sound, and video constantly being sent or received. Larger, heavier transmissions have necessitated a shift from traditional narrow

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[10] See S.M. Gorison, "Deregulation in Telecommunications: Competition or Confusion?" (2000) 47 Fed. Lawyer 24 at 25.

[11] See R.E. Wiley, "Developments in Communications Law: Competition, Consolidation and Convergence" (1999) 584 Pract. L. Instit. Patents, Copyrights, Trademarks & Literary Property Crse Hdbk Ser. 155 at 160.

[12] See C.R. Kiser, "Cable Provision of Telecommunications Services" (2000) 593 Pract. L. Instit. Patents, Copyrights, Trademarks & Literary Property Crse Hdbk Ser. 711 at 777.

[13] See *ibid.* at 778, citing *The FCC and the Unregulation of the Internet* (July 1999).

bandwidths to broad bandwidth conduits. A broadband conduit, along with digital technology, are the perfect platforms to transmit new Internet and other related information services.

Cable operators have commonly used broadband coaxial cable, while telephone carriers have used copper twisted-pair cable.[14] Broadband coaxial cable has a greater capacity than other platforms to quickly deliver larger amounts of data, or rich transmissions like Internet telephony and interactive videos. The easiest way for telephone carriers to blur this technological incapacity is by interconnecting to a cable operator's broadband network. However, cable operators do not want to allow open access to telephone carriers and unaffiliated ISPs. In fact, access to cable operators' broadband networks has sparked controversy among carriers, providers, and operators.

At the core of the debate lies two issues. The first is whether or not cable operators that provide Internet access should have to permit open access on a nondiscriminatory basis to their networks to telephone carriers and unaffiliated ISPs, while the second is whether the *Telecommunications Act* defines the transmission of information services and Internet access by a cable network as a common carrier service, or as a cable service regulated under the cable service provisions.

According to telephone carriers, competition in the delivery of Internet and other related information services cannot be achieved fairly if cable operators do not allow open access

[14] See Wiley, *supra* note 11 at 183.

to their networks, as telephone carriers are forced to do with their own. Unaffiliated ISPs also hold that cable operators should allow open access to their broadband networks.

Unlike telephone carriers, the majority of ISPs do not operate their own networks. Consequently, some ISPs have affiliated themselves with cable operators in order to lease or purchase capacity from them. However, unaffiliated ISPs are at disadvantage because cable operators usually have exclusive agreements with their affiliated ISPs that do not allow them to lease or sell capacity to unaffiliated ISPs.

Since the demand for Internet access has grown so rapidly, some telephone carriers have assured their positions in the market by acquiring and merging with a cable operator. By doing so, the telephone carrier has the advantage of controlling and operating the broadband facilities and pipelines through which it becomes possible to provide Internet and other related information services. Such is the case of the merger between AT&T Corporation (AT&T) and Tele-Communications Inc. (TCI), the biggest telephone and cable companies in the U.S., which now offer Internet and other information services through @Home, TCI's affiliated ISP. The Federal Communications Commission (FCC) has already approved the AT&T-TCI merger, but it is still analyzing two pending mergers between AT&T and MediaOne Group Inc. (MediaOne), and American On Line Inc. (AOL) and Time Warner Inc. (Time Warner).

Telephone carriers and unaffiliated ISPs have asked the FCC to intervene in the broadband open access debate in order to compel cable operators to provide access to

their broadband platforms. They have also told the FCC that its lack of intervention favors cable operators, which already have enough monopoly power over the video market. In their opinion, cable operators might use that power to control access to their broadband network, which could damage them and competition in the marketplace.

However, for the FCC, the fact that the broadband industry is just nascent impedes the Commission from imposing a mandatory open access policy over cable operators.[15] According to its position, the broadband industry is formed by a multitude of competitors such as cable, telephone, wireless, and satellite companies, all rushing to provide broadband services to homes.[16] The immediate result of this competition is that consumers will have a wide selection of broadband features, capabilities, and prices from which to choose.[17] Pursuant to the FCC, this multiplicity of choices would be at risk if the government were to intervene at this early stage. The FCC has also pointed out that by promoting competition without open access regulation over cable operators, the government is encouraging investments, not only in cable but also in alternative broadband technologies. In fact, the deployment of Digital Subscriber Line (DSLs), on behalf of the telephone companies, and Local Multipoint Distribution Systems (LMDSs), on behalf of satellites providers, among other technologies, have been a step forward in gaining broadband access.[18] The FCC, and mostly its Chairman, William Kennard, has

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[15] See D.A. Lathen, "Broadband Today" (2000) 593 Pract. L. Instit. Patents, Copyrights, Trademarks & Literary Property Crse Hdbk Ser. 491 at 530.

[16] See *ibid.* at 545.

[17] See *ibid.*

[18] See *ibid.*

clearly stated that market forces, not regulation, must direct the open access broadband debate.[19] According to Mr. Kennard, market forces seem to be bringing good results for the open access debate. Apparently, cable operators are now more open about allowing access to their networks to telephone carriers and unaffiliated ISPs. This seems to be the case with MindSpring-EarthLink and AT&T-TCI, which recently announced the possibility of opening its pipes to new competitors.[20] However, the AT&T-TCI open access commitment will not be realized until exclusive agreements the merged company has already with affiliated ISPs expire. This will happen in 2002. AOL and Time Warner[21] have also agreed to supply open access broadband service to unaffiliated ISPs. Therefore, if market forces failed, Chairman Kennard has said, the FCC will intervene. In the meantime they will only observe the market.[22]

Despite the recent decision of the U.S. Court of Appeal for the Ninth Circuit in *AT&T* v. *City of Portland*, the FCC has yet to determine under which section of the *Telecommunications Act* broadband open access should be regulated. Contrary to the

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[19] See M. Russo, "FCC Chairman William E. Kennard's Remarks Supporting Marketplace Solutions for the "Open Access" Debate" *Federal Communication Commission News* (11 January 2000), online: FCC Homepage: <http://www.fcc.gov/Bureaus/Cable News_Release/2000/nrcb0002.html> (date accessed: 7 September 2000).

[20] See W. Kennard, "Broadband Cable Next Steps" (Los Angeles: Federal Communication Commission, 1999) at 3, online: Federal Communication Commission Homepage <http://www.fcc.gov/Speeches/Kennard/spwek944.html> (date accessed: 12 July 2000). [here in after "Broadband Cable Next Step"]

[21] See "ISP Gets Access to Time Warner Cable Service" *The [Montreal] Gazette* (1 August 2000) D3.

[22] See M. Russo, "FCC Chairman to Launch Proceeding on Cable Access" *Federal Communication Commission News* (30 June 2000), online: Federal Communications Commission Homepage <http://www.fcc.gov/Bureaus/Cable News_Release/2000/nrcb0017.html> (date accessed: 3 August 2000). [here in after "FCC Chairman to Launch Proceeding on Cable Access"]

provided by @Home was a telecommunications service that must be regulated as such under the *Telecommunications Act's* provisions. No doubt, the decision of the Court is the most important precedent in the open access debate so far. Hopefully, this case will also be applicable to others.

The present analysis of telecom convergence in the U.S. was undertaken in light of the provisions of the *Telecommunications Act*, the FCC's orders and reports, related bibliographical sources, and a study of the most recent major merger cases. This thesis is divided into three chapters. The first is an introduction to the technical background of cable and telephone systems. This chapter highlights the differences between analog and digital technologies, the features of the broadband network as the best conduit for the transmission of the Internet and new information services, and finally the differences between wire and wireless systems.

The second chapter explores the evolution of convergence between cable and telephony services before and after Congress passed the *Telecommunications Act*. This part of the thesis is dedicated to studying regulation existing before Congress passed the *Act*, examines early regulatory attempts toward the convergence of the cable and telephone services, and the part dedicated to studying regulation after the enactment of the *Act* analyzes the provisions of the *Act*, as the main source of cable and telephone convergence, and the FCC's most relevant orders and reports.

The third chapter is divided into four main parts. The first one analyzes the two main goals of the *Telecommunications Act*: universal services and competition. This part describes how the *Act* envisioned competition in the local and greater telecommunications markets. The second part of this chapter examines how cable operators and telephone carriers are now able to provide telephony and video services interchangeably through their networks. The third part outlines the competition between telephone carriers and cable operators for the provision of Internet and other information services. In particular, this section explains the broadband open access debate, and the telephone and cable industries, along with the FCC's approach. Finally, the fourth part explores how market forces rather than regulatory provisions have driven the open access debate.

CHAPTER I

TECHNICAL BACKGROUND

The objective of this chapter is to give a brief account, from a technological perspective, of the physical components, technologies, and characteristics of telephone and cable television services. This chapter details how the traditional physical conduits have been enhanced in order to provide services never before transmitted by them.

The first part of the chapter studies the differences between analog and digital technologies. The second describes broadband and its advantages for high-speed Internet transmission. The third part, dealing with the differences between wireless and wire communications transmissions, elaborates the major characteristics of both systems and outlines the services currently being transmitted through them. The final part provides a succinct explanation about what the Internet is and how it works.

1. Analog and Digital Technologies

Analog[23] technology is the transmission of analogous signals through sine waves traveling by electrical currents.[24] Using analog technology, information is encoded[25] in sine waves and then transmitted with an impulse from an electrical power source to a device, which could be a telephone receiver, a radio, or a TV set.[26] The device receives the information, decodes it, and converts it from sine waves into a human voice or visual images that can be easily understood by human beings.[27] Telephone carriers have traditionally used analog technology to transmit voice over twisted-pair lines.[28]

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[23] Analog:

> comes from the word "analogous" which means "similar to". In telephone transmission, the signal being transmitted-voice, video, or image- is "analogous" to the original signal. In other words, if you speak into a microphone and see your voice on a oscilloscope and you take the same voice as it is transmitted on the phone line and ran that signal into the oscilloscope, the two signal would look essentially the same. The only difference is that the electrically transmitted signal (the one over the phone line) is at a higher frequency. In correct English usage "analog" is meaningless as a word itself. But in telecommunications analog means telephone transmission and/or switching which is not digital. Outside the telecom industry, analog is often called linear and covers the physical world of time, temperature, pressure, sound, which are represented by time-variant electrical characteristics, such as frequency and voltage.

H. Newton, *Newton Dictionary*, 15th ed. (New York: Miller Freeman, 1999), s.v <<analog >>.

[24] See T.G. Krattenmaker, *Telecommunications Law and Policy*, 2nd ed. (Durham, North Carolina: Carolina Academic Press, 1998) at 37.

[25] J.V. Duurem, P. Kastelein & F.C. Schoute, *Fixed and Mobile Telecommunications: Networks, Systems and Services*, 2nd ed. (Harlow: Addison-Wesley, 1996) at 159:

> [**B**]y encoding we mean the conversion of a given signal type by an algorithm to another signal type. The goal of this operation is to achieve a better match to the characteristics and limitations of the transmission and/or processing system. Of course the information in the input signal must be completely preserved... Among the encoding method is the Pulse Code Modulation which is used to convert an analog information signal into digital form.

[26] See Krattenmaker, *supra* note 24 at 36.

[27] See Johnston, Johnston & Handa, *supra* note 2 at 40.

[28] Analog transmission:

> A way of sending signals –voice, video, data, in which the transmitted signal is analogous to the original signal.(...)

However, analog technology is not resistant to noise transmission, and it is not a perfect medium for compressed and stored data either. These features make analog technology a poor medium for downloading and uploading information from or to the Internet. For this reason, the trend in telecommunications nowadays is to use digital rather than analog technology.[29]

Unlike analog technology, digital technology works under a binary system of 0s and 1s through which large amounts of information can be compressed and stored. A binary system, instead of analogous signals, is used because at the hardware level, the system of 1s and 0s works well in representing the voltage-on and voltage-off states.[30] If voltage were in continuous sine wave form it would be analog, not digital.

In this modern age, more and more devices and services are digital. Digital technology is the most common platform to offer better noise resistance, i.e., less false information, and

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Newton, *supra* note 23, s.v <<analog transmission>>.

[29] Digital:

> In telecommunications, in recording or in computing, digital is the use of a binary code to represent information. See PCM (as in Pulse Code Modulation). Analog signals –like voice or music– are encoded digitally by sampling the voice or music analog signal many times a second and assigning a number to each sample. Recording or transmitting the information digitally has two mayor benefits. First, the signal can be reproduced precisely. In a long telecommunications transmission circuit, the signal will progressively lose its strength and progressively pick up distortions, static, and other electrical interference "noises". In analog transmission, the signal along with the garbage it picked up is simply amplified. In digital transmission, the signal is first regenerated. It is put through a little "Yes-No" question. Is this signal a "one" or "zero"? The signal is reconstructed (i.e. squared off) to what it was identically. Then it is amplified and sent along its way. So digital transmission is more "cleaner" than analog transmission. The second major benefit of digital is that the electronic circuitry to handle digital it is getting cheaper and more powerful. It' is the stuff of computers. Analog transmission does not lend itself to the technical breakthroughs of recent years in digital.

Newton, *supra* note 23, s.v <<Digital>>.

[30] See Johnston, Johnston & Handa, *supra* note 2 at 42.

more capacity for storing large amounts of information. Digital technology has provided the necessary link between computing and communications. Thanks to this technology, convergence between different services and different devices is now possible. However, because analog technology was predominant for the majority of transmissions before the advent of digital, many services are still transmitted in analog. Thus, in order to connect both technologies a device called a *modem*, also known as modulator-demodulator, is required. This device converts digital signals into analog or analog into digital, allowing computer data to be carried over normal telephone and cable lines.[31]

Residential and business users used to access the Internet through a dial-up telephone modem connection limited to a speed of 56kbps. The slow speed of the dial-up telephone modem led users to demand higher speed connections. Nowadays, the quickest connections are offered by cable modems,[32] which run at speeds between 4Mbps and 10

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[31] See Cable Television Organization, *Glossary (2000)*, online: Cable Television Organization Homepage <http://www.catv.org/frame/cmt_glossary.html> (date accessed: 8 August 2000).

[32] Cable Modem:

> A device that allows high-speed data access (such as to the Internet) via a cable TV network. A cable modem will typically have two connections, one to the cable wall outlet and the other to a computer (PC). Most cable modems are external devices that connect to the PC through a standard 10Base-T Ethernet card and twisted-pair wiring. External Universal Serial Bus (USB) modems and internal PCI modem cards are also under development.

Cable Datacom News, "Overview of Cable Modem Technology and Services" (2000), online: Cable Datacom News Webpage <http://www.cabledatacomnews.com/cmic/cmic1.html> (date accessed: 8 August 2000).

How do cable modems work?

> Like its counterpart, the dial-up telephone modem, the cable modem modulates and demodulates signals. But the similarity ends there, since the cable modem is more complicated than the telephone modem. (...) Cable modems can be part modem, part tuner, part encryption/decryption device, part bridge, part router, part network interface card, part SNMP agent, and part Ethernet hub. Typically, a cable modem sends and receives data in two slightly different fashions. In the downstream direction, the digital data is modulated and then placed on a typical 6 MHz television channel, somewhere between 50 MHz and 750 MHz. Currently, 64 QAM is the preferred downstream modulation technique, offering up to 27 Mbps per 6 MHz channel. This signal can be

Mbps per second.[33] Nonetheless, local telephone companies are also offering high speed connections of up to 128 Kbps through their Integrated Service Digital Network, as well as DSL technologies, which can provide downstream speeds beyond 1.5 Mbps. Other alternatives, including fast downstream data connections, can be obtained from direct broadcast satellites (DBSs), fixed wireless providers, and, of course, high-speed cable modems.[34]

2. Broadband

Broadband has been defined by the FCC in its Section 706 Report as "[t]he capacity of supporting, in both provider-to consumer (downstream) and the consumer-to-provider (upstream) directions, a speed (in technical terms, "bandwidth") in excess of 200 kilobits per second (kbps) in the last mile." This rate is approximately four times faster than the 56kbps Internet access received through a standard phone line.[35] The FCC chose 200 kbps because "it is enough to provide the most popular forms of broadband to change

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placed in a 6 MHz channel adjacent to TV signals on either side without disturbing the cable television video signals. The upstream channel is more tricky. Typically, in a two-way activated cable network, the upstream (also known as the reverse path) is transmitted between 5 and 42 MHz. This tends to be a noisy environment, with RF interference and impulse noise. Additionally, interference is easily introduced in the home, due to loose connectors or poor cabling. Since cable networks are tree and branch networks, all this noise gets added together as the signals travel upstream, combining and increasing. Due to this problem, most manufacturers use QPSK or a similar modulation scheme in the upstream direction, because QPSK is more robust scheme than higher order modulation techniques in a noisy environment. The drawback is that QPSK is "slower" than QAM."
Cable Datacom News, Cable Modem Info Center, online: <http://www.cabledatacomnews.com/cmic/cmic2.html> (date accessed: 2 September 2000).

[33] See Lathen, *supra* note 15 at 517.

[34] See Cable Datacom News, *supra* note 32.

[35] See Lathen, *supra* note 15 at 515,citing *Section 706 Report*, 14 FCC Rcd. 2406.

web pages as fast as one can flip through the pages of a book and to transmit full-motion video."[36] The FCC has also pointed out that "[b]roadband service does not include content [itself], but consists only of making available a communications path on which content may be transmitted and received".[37] The FCC recognized that "[a]s technologies evolved, the concept of broadband also would evolve. Thus, the Section 706 Report provides the starting point for an elastic definition of "broadband".[38] Finally, the FCC has highlighted that "[w]e may consider today's "broadband" to be narrow band when tomorrow's technologies are deployed and consumer demand for a higher bandwidth appears on a large scale".[39]

3. Wireless and Wire Transmissions

3.1 Wireless communications

Wireless communication is possible through the delivery and reception of electromagnetic waves. Electromagnetic waves are classified based on their wavelength or frequency.[40] Among the types of electromagnetic waves are: radio waves, microwaves, infrared light, visible light, ultraviolet light, x-rays, and gamma rays.[41] These types of electromagnetic waves are used for different purposes. However, those

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[36] *Ibid.* at 516.

[37] *Ibid.*

[38] *Ibid.*

[39] *Ibid.*

[40] See Johnston, Johnston & Handa, *supra* note 2 at 39.

[41] See *ibid.*

commonly used for telecommunications and broadcasting are radio waves, or radio frequencies. This is due in part because these frequencies have enough length capacity to carry flows of large amounts of information. The information, which might be voice, video, and data, is encoded in the radio frequencies, which are sine waves, sent and received by a device that finally decodes it.

Radio frequencies, which carry information from point to point on the surface of the Earth or between Earth stations and satellites, or directly from a satellite to the receiver's device, they are the necessary links for the delivery of information. Radio frequencies, electromagnetic radiations, are measured in cycles or hertz per second.[42] Depending on the number of cycles or hertz per second, the measure might be counted in kilohertz, megahertz, gigahertz, tetrahertz, etc. According to the Radio Regulations of the International Telecommunications Union (ITU),[43] the radio spectrum below 3000 GHz is

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[42] See R.S. Jakhu, "Some Important Elements of the Geostationary Orbit" in *The Legal Regime of the Geostationary Orbit* (D.C.L. Thesis, Montreal: Institute of Air and Space Law, 1983) at 5 [unpublished].

[43] The International Telecommunications Union (ITU), or the International Telegraph Union as it was known when it was established on 17 May 1865, is an international agency that regulates the use of radio frequencies by its member states. The International Telegraph Union was created due to the rapid expansion of telegraph networks in Europe. The telegraph was a device originally used for local communication. In its early years, the telegraph's transmissions could not cross the frontiers of the neighboring country. Indeed, when a message was sent from one country to another, it had to be transcribed, translated, and handed over at frontiers before being retransmitted from the telegraph network of the neighboring country. Since the number of telegraphs grew so fast, twenty European countries decided to meet in order to work out a framework agreement for the regulation of international telegraph communications. On 17 May 1865, following two arduous months of discussion, the representatives of the participating countries signed the International Telegraph Convention and the International Telegraph Union was established to enable subsequent amendments to this initial agreement. And thus the ITU was borne. Today, many years since its founding, the basis and reasons for its existence still apply and the fundamental objectives of the organization remain almost unchanged. The ITU is formed by:

> [a] Plenipotentiary Conference that is the supreme authority of the Union; the Council, which acts on behalf of the Plenipotentiary Conference; a General Secretariat; the Recommendation Sector (including world and regional radio communication conferences, radio assemblies and a Radio Regulations Board); a Telecommunications Standardization Sector (including world telecommunications standardization

divided into classes of frequencies.[44] A group of frequencies is called a band.[45] Bandwidth refers to the total number of radio frequencies (Hz) in a particular band. The international classifications of the frequency bands is as follows:

> Very Low Frequency (VLF) from 3 to 30 KHz;
>
> Low Frequency (LF) from 30 to 300 KHz;
>
> Medium Frequency (MF) from 300 to 3000 KHz;
>
> High Frequency (HF) from 3 to 30 MHz;
>
> Very High Frequency (VHF) from 30 to 300 MHz;
>
> Ultra High Frequency (UHF) from 300 to 3000 MHz;
>
> Super High Frequency (SHF) from 3 to 30 GHz;
>
> Extremely High Frequencies from 30 to 300 GHz; and
>
> frequencies from 300 to 3000 GHz, which are known as decimillimetric waves.[46]

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conferences), a Telecommunications Development Sector (including world and regional telecommunication development conferences).
Telecommunication Regulatory Regime As Established by ITU (Geneva: ITU Press and Public Relations Service, 1993).

[44] See Jakhu, *supra* note 42 at 5, citing "Efficient Use of the Geostationary Orbit" (Background paper prepared for the Second UN Conference on the Exploitation and Peaceful Uses of Outer Space, Vienna, August 1982 (UN DOC. A/CONF.101/BP/7, January 1981)) 5.

[45] See *ibid.*

[46] See *ibid.*

The U.S. classification[47] of frequency bands is:

P band -0.2-1.0 Ghz;

L band-1-2 Ghz;

S band-2-4 GHz;

C band-4-8 Ghz;

X band-8-12.5 Ghz;

Ku band-12.5-18 GHz; and

Ka band- 26.5-40 Ghz.

The disadvantage of using radio frequencies is that the ether, or spectrum, is a scarce resource that has to be shared between many users and types of services. In order to avoid interference and overlap between radio frequency communications, the usage of the ether, or spectrum, is strictly regulated at the local level by the government of each country, and at the international level by the ITU.

A wireless system is at a disadvantage when compared with the wire system because of its vulnerability to physical and climatic effects that can alter the efficiency and quality of the transmissions. Such effects are: (i) the strength of the signal, which might limit how far it can travel; (ii) physical obstacles in the way, such as buildings, mountains, or rains, which can damage the quality of the transmission and can interrupt the signal; and (iii) the quality of the receiver's device, which can limit the amount of information received.[48]

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[47] See Newton, *supra* note 23, s.v <<Band, Frequency>>.

[48] See Johnston, Johnston & Handa, *supra* note 2 at 39.

However, a wide variety of services are transmitted by the wireless system; among them are cellular telephones, pagers, personal communication systems (PCSs), specialized mobile radios, mobile satellite services,[49] TVs, DBSs, Multi-channel Multi-point Distribution Systems (MMDSs), low powered televisions, and wireless cable services. The number of frequencies and the extent of the spectrum (bandwidth) needed for the transmission of a particular service depends on the type of information to be carried by the radio waves. For example, much more bandwidth is required to carry a color TV signal than to carry a human voice. Nonetheless, the amount of required bandwidth also depends on the type of technology used for the transmission. Information encoded in analog technology will require more bandwidth than information encoded digitally and compressed.[50]

The major sectors of the wireless industry are concentrated in paging, cellular, Enhanced Specialized Mobile Radio (ESMR), PCSs, fixed wireless, satellites, and the third generation (3-G) wireless technology, or Global Mobile Personal Communication by Satellites (GMPCS).

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[49] See H. Brands & E.T. Leo, *The Law and Regulation of Telecommunications Carriers* (Boston: Artech House, 1999) at 439.

[50] See Krattenmaker, *supra* note 24 at 43.

Nowadays, almost all the U.S. territory is served by a multitude of paging providers offering the service over a variety of frequencies in the VHF and UHF bands.[51] At the same time, the cellular industry is considered to be one of the relevant sectors of the wireless industry. This sector employs channels in the 800 MHz band and the system operates in virtually every market in the U.S. Still, even with the large investments already made to build the existing analog infrastructure, the cellular sector is now obligated to spend even larger amounts of money in order to upgrade and update the cellular network to equal the digital abilities of their competitors.[52]

The ESMR system, which utilizes the advancements of cellular architectures and digital technologies in the spectrum at 800 MHz, provides a unique digital alternative that combines the features of the land mobile environment with the advanced two-way voice and data capabilities of cellular and PCS.[53] Nonetheless, since ESMR operates in the traditional land mobile frequencies, the ESMR is channel-limited in comparison to the cellular and PCS.[54]

A PCS is an innovative system that includes digital technology as one of its more remarkable features. The PCS sector is the newest and broadest competitor in the cellular sector. The FCC has already granted five licenses for operating PCS service, which is

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[51] See M.C. Farquhar, "Developments in Wireless Telecommunications Policy and Regulation: A Review of The Past Year and Insights Into The Year Ahead" (1999) 584 Pract. L. Inst. Patents, Copyrights, Trademarks, and Literary Property Crse Hdbk Ser. 73 at 76.

[52] See *ibid.* at 77.

[53] See *ibid.*

[54] See *ibid.*

now transmitting all of the features of the cellular system on a fully digital basis. PCS licensees also entered the market with much more capacity than cellular systems. Nevertheless, PCS licensees have to reserve part of their available capacity for the less efficient analog technologies that form the bulk of their current customer base.[55]

Fixed wireless is a service that uses microwave networks to transmit high-speed Internet services.[56] Fixed wireless services are now operating at 24, 28/31, and 39 GHz. This system is showing particular promise to compete in the transmission of broadband services, since in comparison with wire systems, it is a less costly alternative than fiber-optic cable, for example.

LMDS operates at 28 GHz. The FCC is establishing new rules so that Multi-Point Distribution Services licensees can provide two-way voice services over their wireless cable networks. [57] In addition, the FCC is reclassifying interactive video and data service, which relies on LMDS, to allow licensees in this service to provide both mobile and fixed communications services to their customers.[58]

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[55] See *ibid.* at 78.

[56] See Lathen, *supra* note 15 at 519.

[57] See Farquhar, *supra* note 51 at 79.

[58] See *ibid.*

One of the most notable communications systems via satellites is the 3-G or GMPCS wireless technology.[59] Through this system, users are able to use the same phone anywhere in the world. The GMPCS system is able to furnish mobile multimedia services such as high-speed Internet services, full-motion video, and a host of other data-related applications in addition to regular voice telephony.[60] GMPCS represents a revolution in satellite communications,[61] particularly because unlike the traditional communication satellite system that is provided by geo-stationary satellites,[62] GMPCS provides the

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[59] See generally J. Perry, *Regulatory Issues in the Deployment of the Global Mobile Staellite Telecommunications Systems* (LL.M Thesis, Montreal: Institute of Air and Space Law, 1999) [unpublished]. See generally S. Metheekul, *GMPCS Regulations in the U.S. and Thailand* (LL.M Thesis, Montreal: Institute of Air and Space Law, 1997) [unpublished].

[60] See Farquhar, *supra* note 51 at 79.

[61] See M.E. Davis & R.S. Jakhu, "Global Mobile Personal Communications Satellites Systems-The International Regulatory Revolution" (Paper presented at the 49th International Astronautical Congress, Melbourne, Australia, 1998) 1.

[62] D.M. Khon, "Providing Global Broadband Internet Access using Low Earth Orbit Satellites", online: ISOC Homepage <http://www.isoc.org/inet97/proceedings/F5/F5-2.htm> (date accessed: 14 August 2000):

> [F]or more than three decades, geostationary satellites have been virtually the exclusive means of providing commercial space-based communications. Geostationary satellites will continue to play an important role, particularly for broadcast applications. However, these systems have a number of limitations for two-way communications, such as the need for high-power terminals and the signal delay caused by their high altitude. This delay means that a large number of applications, including essential Internet technologies such as the World Wide Web, are adversely affected--or simply don't work--over geostationary satellites. Because of their delay, geostationary satellites can never provide fiber-like delays to be seamlessly compatible with fiber-based networks on the ground. For natural economic reasons, these systems also tend to focus their capacity on the more economically developed areas. *Via Satellite* recently reported, for instance, that of over 200 geostationary commercial communications satellites, only *one* is in order to provide service to Africa. New options are becoming available, however, with the development of non-geostationary communication systems, which primarily use low-Earth-orbit (LEO) satellites. LEO satellite systems can help meet the demand for information by providing global access to the telecommunications infrastructure currently available only in advanced urban areas of the developed world. The low altitude of LEO systems allows them to provide delays that are seamlessly compatible with terrestrial networks. Just as networks on the ground have evolved from centralized systems built around a single mainframe computer to distributed networks of interconnected PCs, space-based networks are evolving from centralized networks relying on a single geostationary satellite to distributed networks of interconnected low-Earth-orbit satellites. The evolution from geostationary to LEO satellites has resulted in a number of proposed global satellite systems, which can be grouped into three distinct types. These LEO

system using small and big satellites located in both Low Earth Orbit (LEO) and Middle Earth Orbit (MEO).[63] Small LEO systems, which include small, light-weight satellites, are designed to provide low-speed mobile data services essentially for global positioning, paging and two-way messaging services. Bigger satellites than the ones described above are also located in LEO and MEO. These satellites are intended to provide communications with mobile (hand-held or vehicle-mounted) or fixed terminals, essentially for voice telephony, fax, and e-mail services. Broadband LEO satellites,[64] will provide a high data rate (broadband) global communications system. This type of satellite communications introduced what has been called the "Internet in the Sky".[65] Broadband satellites will be able to support worldwide interactive multimedia services equivalent to those already provided by broadband terrestrial networks. Among the services that deserve mention are: Internet, Intranet, online services, transactional services, database access, tele-shopping, video conferencing, video-telephony-tele-working, electronic mail, interactive video on demand, etc. Broadband satellite communication systems require mobile handset terminals, satellites, and Earth stations and gateways.

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systems can best be distinguished by reference to their terrestrial counterparts: paging, cellular, and fiber.

System Type	Little LEO	Big LEO	Broadband LEO
Example	ORBCOMM	Iridium, Globalstar, ICO	Teledesic
Terrestrial Counterpart	Paging	Cellular	Fiber

[63] See S. Le Goueff, "Licensing Global Mobile Personal Communications By Satellites" (1997) XXII:I Ann. Air & Sp. L. 417 at 418.

[64] See *ibid.* at 419.

[65] See *ibid.*

The mobile handset terminal is a pocket-sized telephone similar to a cellular phone. Its new technological features make it capable of functioning as both a traditional cellular telephone and a satellite telephone.[66]

In order to provide global service coverage, broadband satellite providers need to employ a determined number of satellites in LEO or MEO. The main function of the satellites is to act as though they are mirrors in the sky, receiving and amplifying signals that come from the mobile handset terminals and re-transmitting them to Earth stations, and vice versa.[67] However, there is another system, used by Iridium at one time,[68] through which the signal can be transmitted from one satellite to another until it reaches the Earth station closest to the mobile handset terminal.[69]

Earth stations and gateways are required to establish a connection between the satellites and the plain old telephone or a mobile telephone. Earth stations connect, on one hand,

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[66] See *ibid.* at 420.

[67] See *ibid.* at 421.

[68] See generally A.N. Longie, *Legal Implications of Mobile Communications Systems in Low Earth Orbit (LEOs)* (LL.M. Thesis, Montreal: Institute of Air and Space Law, 1996) [unpublished].

[69] The system described here was implemented by Iridium LLC. Unfortunately, Iridium LLC was unsuccessful; financial and regulatory problems plagued the company and the project the entire time. "[I]ridium LLC is an example of a proven, pioneering technology. The company and its people worked together to implement a global communication system that was, from a technology standpoint, an extraordinary achievement..." "Motorola Comments on Iridium LLC Motion", online: Motorolla Homepage <http://www.motorola.com/satellite/info/2htm> (date accessed: 14 August 2000). On 17 March 2000, Iridium LLC announced that "it would terminate the provision of a commercial service. The U.S. Bankruptcy Court for the Southern District of New York approved use by the Company of its secured leaders' cash collateral to commence the wind down of its operations and the sale of its assets..." "Iridium LLC Announced End of Service", online: Motorolla Homepage <http://www.motorola.com/satellite/info/eoc.html> (date accessed: 14 August 2000).

with the satellites and, on the other hand, with the gateway.[70] Once the gateway receives the signal, it interconnects the satellites to land-basic public telecommunications networks in order to deliver the call to the end user, who may be connected to plain old telephone or to a mobile telephone.[71]

Up to this point, we have described how some of the wireless systems work, especially those designed to delivery voice and Internet services. However, perhaps the most important wireless service is DBS. DBS is another wireless version of the cable television services that nowadays occupy an important segment of the video market.

The DBS system works by transmitting programs from the Earth to satellites positioned in specific geostationary orbital "slots", which then disseminate the programs directly to small dish antennas usually placed on roofs of subscribers' homes.[72] DBS systems use mid-to high-powered signals transmitted in the Ku-band, unlike other systems, like the C-band systems, which generally use large dish antennas designed to capture lower-powered signals.[73]

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[70] See Le Goueff, *supra* note 63 at 421.

[71] See *ibid.*

[72] See R.L. Weber, "Riding a Diamond in the Sky: The DBS Set-A-Side Provisions of the 1992 Cable Act" (1999) 40 William & Mary L. Rev. 1795 at 1797.

[73] See *ibid.* at 1797.

3.1.1 Wireless Standards

The wireless industry began to explore the advantages of implementing digital instead of analog technology as a means of expanding capacity back in the late 1980s. In 1989, the Cellular Telecommunications Industry Association (CTIA) chose Time Division Multiplexing Access (TDMA) over Frequency Division Multiplexing Access (FDMA) (used by Motorola), because FDMA offered a narrow band analog mobile service.[74] With the growing technology competition introduced by Qualcomm in favor of a new standard called Code Division Multiple Access (CDMA), along with the European standard Global System for Mobile Communications (GSM), the CTIA made the decision to let carriers choose the technology they wanted. The result is two major competitive systems, the TDMA and the CDMA. Even though TDMA seems to be the most popular standard around the world, a debate over the merits of both services has surfaced in the last few years. However, both systems will be less important soon, since the ITU has already launched a new standard, the Universal Mobile Telecommunications System (UMTS), as the most promising technology for the years to come.[75]

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[74] See online: Proforum Homepage <http://www.iec.org/tutorials/tdma.html> (date accessed: 16 August 2000).

[75] See *ibid.*

- **Time Division Multiplexing Access (TDMA)**

TDMA is a digital transmission technology that allows a number of users to access and share the same radio frequency channel without interference by allocating unique time slots to each channel and user.[76] TDMA multiplexes three signals over a single channel. The channel is divided into six time slots, with each signal using two slots, providing a 3 to 1, which means an advantage in capacity over the advanced mobile phone service.[77]

- **Code Division Multiple Access (CDMA)**

CDMA is a spread spectrum technology that allows multiple frequencies to be used simultaneously.[78] CDMA utilizes a code system through which every digital packet is coded and sent with a unique key. A CDMA receiver, responding only to that key, can pick up and demodulate the associated signal.[79] CDMA is a technology that currently competes with GSM technology for dominance in the cellular world.[80] There are different variations of CDMA technology, with the original being known as CDMA ONE. CDMA ONE has been enhanced in order to provide data rates of up to 300 kbps, with a significant increased capacity as well as an extended battery life for handsets.[81]

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[76] See *ibid.*

[77] See *ibid.*

[78] See *ibid.*

[79] See *ibid.*

[80] See online: Cellular Homepage <www.cellular.coza/cdma.html> (date accessed: 16 August 2000).

[81] See *ibid.*

Nowadays, the third generation of CDMA technology is being developed. This new technology has expanded its capacity by using a broader bandwidth, which has enhanced transmission speeds.

- **Universal Mobile Telecommunications System (UMTS)**

UMTS is seen as the most promising technology for the future. UMTS, developed within a framework defined by the ITU, is known as IMT-2000. Under UMTS, the ITU, along with a variety of operators and manufacturers, want to create a unique worldwide mass communication market for accessing tomorrow's "Information Society".[82] UMTS will offer transmission rates of over 2 Mbits per second, equal to that of today's big banks' intranets. Furthermore, UMTS will deliver low-cost, high-capacity mobile communications. Unlike other wireless technology standards, UMTS is based on a packet-switched circuit. UMTS will be launched commercially in 2001, and licenses have already been awarded in several European countries.[83]

> UMTS will deliver pictures, graphics, video communications and other wide-band information as well as voice and data, direct to people who can be on the move. UMTS will build on and extend the capability of today's mobile technologies (like digital cellular cordless) by providing increased capacity, data capability and a far greater range of services using an innovative radio access scheme and an enhanced, evolving core network.[84]

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[82] Online: Forum Organization Homepage <http://www.umts-forum.org/what_is_umts.html> (date accessed: 16 August 2000).

[83] See *ibid.*

[84] *Ibid.*

3.2 Wire communications

The first system to use wires as transmitter conduits of the human voice was the telephone.[85] However, after the spectrum was declared a scarce resource, the usage of

[85] Telephone service is possible through the transmission of electricity over electronic circuits. See Johnston, Johnston & Handa, *supra* note 2 at 39. In its early years, the telephone system was formed by three elements: the customer equipment or handset used by the person making the call; the handset of the person receiving the call; and a battery, which was the electricity source. See Brands & Leo, *supra* note 49 at 32. Under this precarious system, voice-generated sound waves were captured by the transmitter and converted into electronic pulses, expressed as voltage. Once converted, the electrical waves traveled along the wires from the point of origin to the destination point, which was the handset of the person receiving the call. Finally, the receiver's handset converted the electric waves into a sound wave in the form of words easily understandable to a person. See Johnston, Johnston & Handa at 39. See also Brands & Leo, *supra* note 4 at 32. There was no network to interconnect each telephone. On the contrary, the rudimentary system required that each telephone device be attached to the other by a wire. Under such conditions the system could not last for long, since this meant that it was necessary to attach innumerable wires to a single device in order to make just one connection between a specific point having a multitude of destination points. See Krattenmaker, *supra* note 24 at 343. Later, a real telephone network became possible due to the creation of a central switchboard.

Modern networks comprise four essential elements: customer premises equipment, the local loop, switches, and the transport network. Customer premises equipment: They are electronic devices (*e.g.*, telephones, fax machines, answering machines, computer modems, and some pay phones) that connect customers with the network by wires called intra-premises. See Brands & Leo, *supra* note 49 at 31. The local loop: It is an electronic circuit between the phone and the central office. See Brands & Leo at 32. The customer's inside wiring connects with a single pair of thin wires that make connecting the customer's premises with a distant central location, the central office, possible. See Brands & Leo at 32. Switching: Through switching, all the customers' wires are connected to a switchboard that distributes and connects the call with the premises of the person being called. Modern switches have been digitized since the 1980s. Digital switches are built around microprocessors (chips), which are similar to a computer's mainframe. The principal advantages of digital switches is that they can run more complex software programs than analog switches and can connect to other computer peripherals more easily. See Brands & Leo at 34 [emphasis added]. Summary of the types of switching and switching principles:

Switching Principle	Version	Information Stream	Topology	Services
Circuit Switching		Two-way	Many	Telephony, business communications, telex
Message Switching	Store and forward	One –way	Many	Public Telegraph
	Store and retrieve	One-way	Many	CBMS(*), MHS(*), E-mail
Packet switching	Datagram Connectionless	One-way	Many	Private networks
	Connection Oriented	Two-way	Many	Public data network
Fast packet switching		One- and two-way	Many	B-ISDN(*)

wires for voice and TV channel transmissions, with the advent of cable television service, increased the demand for this new method of transmission.

Nowadays, there are several accepted wiring standards used in information transmissions: twisted-pair, base broadband, broadband coaxial cable, fiber-optic cable, hybrid fiber-optic coaxial cable (HFC), and symmetric and asymmetric digital subscriber lines (SDSL and ADSL). Besides the physical characteristics that distinguish each of these types of wires, the most relevant distinction is the bandwidth of each one. Twisted-pair and base broadband are wires with narrow bandwidths, while the rest of the wires have broad bandwidths. Broadband will be discussed later in this chapter; however, it is important to point out that the broader the bandwidth, the greater the capacity of the wire to transmit information. Having a broadband platform for the delivery of information enable telecommunication companies to increase the speed of the transmission of their services,

Local Switching		One- or two-way	Linear Tree/ring	Local area networks (LAN)

CBMS: Computer Based Messaging System
MHS: Message Handling Systems
B-ISDN: Broadband-Integrated Service Digital Network
J. van Duuren, P. Kastelein & F.C. Schoute, *Fixed and Mobile Telecommunications: Networks, Systems and Services*, 2nd ed. (Harlow: Addison-Wesley, 1996) at 30.
Transport: The system that makes the connection between switches is called local transport. A local area might have a large number of switches, depending on the number of customers subscribing to the service. The Bell Operating Companies (BOCs) and other Incumbent Local Exchange Carriers (ILECs) provide local telephone service in the U.S. Each of these companies is permitted to serve a specific Local Access and Transportation Area (LATA), but they cannot handle calls that cross LATA boundaries. See Brands & Leo at 36. Companies, such as long distance and wireless companies, wishing to provide local telephone services in a specific LATA have to interconnect their networks with that of the ILEC to exchange traffic. They usually do so by collocating their connecting equipment in the ILEC's central office location. Unlike telephone companies, ISPs connect to the telephone line in a different way. To establish a connection between a computer and a telephone line, a modem is required. The modem converts digital signals generated by the computer into analog tones, which can be carried over the telephone network. See Brands & Leo at 36. Through the modem, any computer can reach the switch telephone network to be connected with an ISP or computerized database.

usually based on telephony and cable television services, and now including the Internet and other information services.

- **Twisted-pair**: This type of wire has been the traditional transport of telephony systems. Its extremely limited bandwidth, and therefore its narrow capacity, makes it the slowest medium in terms of information transmission.[86] Its greatest advantages are its low cost and its easy replacement.[87] Copper wires twisted together make a connection possible to avoid electromagnetic interference. The twisted-pair wire works with analog technology, and thus it is a poor transmitter for Internet and other information services. This physical incapacity of the wire is inconvenient for telephone companies wishing to provide these kinds of services, particularly since Internet and other information services use digital technology instead of analog. Thus, telephone companies have had to use repeaters, devices that push and compress the information, as well amplifiers, in order to keep the signal alive.[88] Besides, telephone companies have already upgraded their services, providing Integrated Services Digital Networks (IDNSs). An IDSN uses digital adapters at both ends of an ordinary copper wire to boost capacity to two or three times more than the analog line.[89] Recently, telephone companies have included the SDSL and ADSL as another improvement of their services. Both systems will be described later in this chapter.

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[86] See Johnston, Johnston & Handa, *supra* note 2 at 67.

[87] See *ibid.*

[88] See *ibid.*

[89] See Brands & Leo, *supra* note 49 at 33.

- **Baseband Coaxial Cable**:It is a slight step up from twisted-pair. This type of cable offers broader bandwidth than the twisted-pair and is thus capable of transmitting more digital data.[90] Baseband coaxial costs more than twisted- pair, but it requires less maintenance.[91]

- **Broadband Coaxial Cable**: This type of cable enjoys of a broader bandwidth than those cables described above. It has been regularly used for transmitting of cable television service. Its broad capacity makes it a strong transmitter of a large number of channels or television stations, at least between fifty and one hundred.[92] This cable has recently been used to transmit telephony service. However, unlike twisted-pair cable, which allows information to flow in two directions, broadband coaxial cable allows only one direction. This inconvenience has led to improvements to the cable in order to provide telephony and Internet telephony.

- **Fiber-Optic Cable**: This type of cable, unlike the others described above, operates on light, rather than electrical signals, and consists of thin strands of glass or plastic fiber bundled together. Among the advantages that this type of cable offers are its ability to work with either digital or analog technology, its

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[90] See Johnston, Johnston & Handa, *supra* note 2 at 68.

[91] See *ibid.*

[92] See *ibid.*

increased bandwidth capacity, and the lower number of repeaters required for transmissions.[93] There are only a few types of fiber-optic coaxial cable. Special attention is given to the Hybrid Fiber-Optic Coaxial Cable because of its clearer transmission signal and its larger bandwidth capacity, both of which facilitate two-way transmissions.[94]

- **Hybrid Fiber-Optic Coaxial Cable (HFC):** HFC is a combination of fiber-optic and coaxial cable. It is an upgraded version that gathers the advantages of the coaxial and fiber-optic cables. The HFC architecture replaces the previous coaxial trunk with a fiber-optic trunk.[95] The fiber-optic cable terminates at a node, where the signal is then carried though an upgraded high bandwidth coaxial cable to the customer's premises.[96] The result of replacing coaxial cable with fiber-optic cable is a cleaner transmission path, which is necessary for two-way transmission, increased capacity, telephony, and very high data rates. With the advent of HFC, cable operators are able to offer more than one hundred analog video channels, hundreds of digital video channels, and capacity for Internet access, telephony, and other services.[97] Regarding Internet access, HFC cable is one hundred times faster than the connection provided by dial-up modems over ordinary telephone lines, and even one hundred times faster than the ISDN telephone lines. However,

[93] See *ibid.* at 69.

[94] See Lathen, *supra* note 15 at 516.

[95] See *ibid.*

[96] See *ibid.*

[97] See *ibid.* at 517.

since this type of cable is a shared medium its speed can vary depending on the number of subscribers utilizing the Internet connection at the same time.[98]

- **Digital Subscriber Line - Asymmetrical and Symmetrical - (DSL):** This is the telephone carrier's version of broadband access. DSL is able to upgrade the twisted-pair cable to carry high capacity data transmissions.[99] The new technology of DSL not only expands the number of frequencies used over the copper line, but also divides them into high and low frequencies. By dividing the frequencies, the DSL is able to use the higher line frequencies for transmitting data, while receiving the lower frequencies for voice and fax transmissions.[100] DSL users do not need to have an extra line for Internet access, apart from the regular telephony or fax line, since both functions can work simultaneously.[101] The deployment of DSL is less expensive because a new cable is not needed. Besides, DSL allows providers to serve both residential and business customers.[102] Indeed, the DSL technology has two versions, depending on whether the type of service it will provide is residential or business. Asymmetrical DSL is better for residential services, while Symmetrical DSL is better for business services.

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[98] See *ibid.*

[99] See *ibid.* at 518.

[100] See *ibid.*, citing S.S. Barney Telecommunications Services, *XDSL Breaking the Loop* (April 1999) at 11 (*Salomon Report*).

[101] See *ibid.*

[102] See *ibid.*

- **Asymmetrical DSL (ADSL):** This version of DSL is ideal for residential users who download large amounts of data but do not originate or send much. ADSL allows customers to use the line for Internet access while speaking on the phone using the same line.[103] ASDL offers advantages over cable modem Internet access, since ADSL maintains the same speeds regardless of the number of subscribers using the line.

- **Symmetrical DSL (SDSL):** SDSL has the advantage of offering the same upstream and downstream data rates, making it more suitable for business applications such as video conferencing. In particular, this version of DSL is better for business purposes since it has enough capacity for sending and receiving large amounts of data.

4. The Internet

The Internet is a large and powerful network system through which computers are interconnected. The Internet links governmental and educational institutions, homes, military quarters, businesses, and other organizations worldwide.[104] No one person has designed the entire network and no single organization or person is its owner. The transmission of data between networks is possible through Protocols, which are sets of

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[103] See *ibid.* at 519.

[104] See Johnston, Johnston & Handa, *supra* note 2 at 16.

rules by which the transmission of data takes place.[105] These rules are essential for any system, such as the telegraph, telephony, and even Internet, and their main function is to allow the encoding and decoding of data into a form that can be understood by both processors.[106] However, Protocols might vary depending on the functions they have to perform, the type of the network, the message, and the equipment used.

5. Conclusions

The importance of technological convergence is that it has generated the interchangeability of the conduits through which services are provided. Thanks to technological convergence, cable operators and telephone carriers are now able to provide the service previously offered only by the other. This means that the traditional technological barriers have finally been blurred. Due to technological convergence, the telecommunications regulatory framework in the U.S. changed, and thus the *Telecommunications Act* was enacted.[107]

Besides interchangeability, technological convergence has made it possible for cable operators and telephone carriers to offer new telecommunications services, such as Internet and other related information services, through their networks. The race for broadband, as the best conduit for providing those services, has produced a tense debate among different cable operators, telephone carriers, and unaffiliated ISPs, since cable

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[105] See *ibid.* at 76.
[106] See *ibid.* at 77.

[107] The analysis of this point is discussed in Chapter II, below.

operators have traditionally used broadband technology. As telephone carriers were denied access to cable operators' broadband networks, they decided to deploy DSL technology, in its two versions, Symmetrical and Asymmetrical, in order to compete with cable operators' broadband networks. Despite the DSL's power to deliver large amounts of information, HFC, the most current platform used by cable operators, is much faster, and thus better for transmitting greater amounts of information than DSL. However, HFC's speed depends on the number of subscribers utilizing the connection at the same time, while the number of subscribers does not affect DSL's speed since it is not a shared medium.

Telephone carriers and unaffiliated ISPs are still struggling before regulators to get access to the cable operators' broadband networks. The broadband open access debate is currently under discussion.[108]

[108] The analysis of these issues is treated in Chapter III, below.

CHAPTER II

TELECOM REGULATORY FRAMEWORK BEFORE THE ENACTMENT OF THE *TELECOMMUNICATIONS ACT* OF 1996

The purpose of this chapter is to analyze how cable television and telephony services were treated before the enactment of the *Telecommunications Act*. This chapter provides a regulatory and factual background based on a study of the laws, orders, and major judicial decisions of the first attempts at regulatory convergence in the U.S. before 1996.

The first part provides a brief history of telephony service in the U.S., namely the early age of competition in the local telephone market and later the AT&T monopoly. In addition, this part describes the evolution of telecom regulation, from monopoly, to AT&T's divestiture and the arrival of competition, and finally the deregulation era.

The second part offers an overview of the advent of cable television service and how cable operators took control of an important part of the video market in the U.S. This part also explains the relation between cable operators and telephone carriers in the race to provide the service of the other. Finally, the third part examines the first attempts at regulatory convergence between cable operators and telephone carriers in the U.S.

1. Briefly history of telephony in the United States of America

In contrast to other countries, in the U.S. private companies, non-state owned corporations, have always managed the telecommunications services and owned the networks.[109] Canada followed the same model as the U.S., but some time later,[110] while most of the European countries decided to operate their telecommunications services through governmental institutions or public companies. This situation has gradually changed, since many European countries have privatized their markets.[111]

It is important to realize that in countries such as the U.S. and Canada, the telecommunications industry has evolved from being monopolistic to liberalized and deregulated, whereas in countries following the European model, public monopolies were privatized and then deregulated.

The first epoch of telecommunications in the U.S. was characterized by the Bell Telephone Company (later known as the American Telegraph and Telephone Company (AT&T)) monopoly. The telephone, invented by Alexander Graham Bell in 1875, was patented on 7 March 1876.[112] Bell's patent control permitted the Bell Telephone Company to monopolize the provision of telephone service and the manufacture of

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[109] See G. Medina Ors, "Telecomunicaciones en los Estados Unidos" (1997) *Derecho de las Telecomuicaciones* (Madrid: La Ley-Actualidad, Ministerio de Fometo, 1997) 1163 at 1164.

[110] See J. Cremades Garcia, "Reflexiones sobre el marco regulatorio de las telecomunicaciones en Canada" (1997) *Derecho de las Telecomuicaciones* (Madrid: La Ley-Actualidad, Ministerio de Fometo, 1997) 1289 at 1290.

[111] See Medina Ors, *supra* note 109 at 1164.

[112] See Brands & Leo, *supra* note 49 at 2.

telephone instruments. Through the years, the company formed numerous local telephone companies, especially on the East Coast, since the demand for the telephone service in that region was remarkably high.[113] However, the Bell Telephone Company did not provide the service in small towns where demand was too low to be attractive. New, independent companies moved into serve these areas as soon as Bell's patent expired, and as the demand for the telephone service increased, these companies began to offer service even in areas already covered by the Bell Telephone Company.[114] Competition was finally seen in telephony. The arrival of competition made the price of telephone service drop and more people became interested in subscribing. However, the Bell Telephone Company did not allow the independent telephone companies to be interconnected to its network. Each one functioned with its own network. This made the independent telephone companies' systems worthless, since their subscribers could not call the Bell Telephone Company's subscribers, who were part of a much greater subscriber base.[115] Bell started to purchase those independent telephone companies that served areas where Bell did not. At the same time, Bell still refused to interconnect with those independent telephone companies serving areas covered by Bell.

The telephone system went from bad to worse. The quality of the service, both local and long distance, was poor, and subscriber and governmental authorities were unhappy with the situation. Due to the chaotic service, the local telephony service started to be seen as a

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[113] See *ibid.*

[114] See *ibid.*

[115] See *ibid.* at 3.

natural monopoly,[116] a service that would become more efficient if were provided by a single company. The Bell Telephone Company was completely favored since once again it had a monopoly over the telecommunications system in the U.S.[117]

No federal regulation touched the industry until 1910, when the *Mann-Elkins Act*[118] extended coverage of the *Interstate Commerce Act*[119] to telephone companies.[120] The *Interstate Commerce Act* had created the Interstate Commerce Commission (ICC), which regulated the interstate commerce of railroad and telegraph companies. Even though the

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[116] Local telephone service has been frequently conceived as a natural monopoly. With a **natural monopoly, "given the size of the market, long run average costs are minimized at a scale that allows only one firm to exist. The large capital stock and capacity required to provide service means multiple providers would result in wasteful capacity duplication"**. Canada, Library of the Parliament-Bibliotheque du Parlement, *Telecommunications: The demise of Natural Monopoly and its implications for regulation*, YM32-2/253E 0-660-14103-5 [emphasis added]. In the opinion of Krattenmaker, when goods or services are not substitutable for others identical to them, it is less expensive for consumers to get the good or the service from a single firm than from a group of them. The same author also adds, "[a] natural monopoly exists where the costs of producing a unit of the good or service are constantly declining over the normal range of consumer demand for the good or service." Under these circumstances, Krattenmaker says, competition has to be sacrificed in order to get the lowest price. In addition, he highlights "[c]ompetition in such market will end in monopoly." See Kratenmaker, *supra* note 24 at 375. However, it is relevant to highlight that by the time the local telephone market was seen as a natural monopoly no other technology had been deployed to serve the market as a substitute for that service. The arrival of new technologies has made this economic theory obsolete, particularly because the advent of competition in telecommunications has ensured that almost every economy can now accommodate more than one provider of telephone services. This is obviously true in both long-distance and local telephony markets. See D. Schiller, "Social Movement in Telecommunications: Rethinking the Public Service History of U.S. Telecommunications 1894-1919" (1998) 22:4/4 Telecom. Policy 397 at 398. In the U.S., the idea of natural monopoly gained importance after AT&T's patent ended in 1894. Afraid that competition could damage AT&T's position in the market, its President, Theodore M. Vail, precociously started endorsing regulation by administrative commission. It was he who convinced regulators that the telephone services provision comprises a "natural monopoly", and he succeeded in doing so. Vail exchanged unregulated competition for a regulated monopoly. AT&T, in turn, accepted a set of common carrier obligations imposed by the states' public utilities and by the Interstate Commercial Commission. Obviously, this new regulatory regime helped AT&T to strengthen its already dominant position over the U.S. telecommunication market. See D. Schiller, "Social movement in Telecommunications: Rethinking the Public Service History of U.S. Telecommunications 1894-1919" (1998) 22:4/4 Telecom Policy 397 at 398.

[117] See Brands & Leo, *supra* note 49 at 3.

[118] See *Mann-Elkins Act*, 18 June 1910, 36 Stat. 539, c. 309.

[119] See *Interstate Commerce Act*, 4 February 1887, 24 Stat. 379, c. 104.

[120] See Brands & Leo, *supra* note 49 at 4.

ICC had broad powers to regulate the railroad and telegraph companies, the *Mann Elkins Act* did not grant the ICC the power to set forth tariffs and to order telephone companies to interconnect their networks.[121] The ICC did not intervene nor regulate the telephone industry because at that time the commerce generated by railroads and telegraphs was much more important. However, in 1913 federal antitrust authorities found that the Bell Telephone Company was attempting to monopolize the local telephone market, and filed an antitrust action against the company.[122] This was the first time the Bell Telephone Company faced an antitrust action. The antitrust action was not strong enough to remove all the monopoly power that the Bell Telephone Company had acquired. On the contrary, the Company was left with sufficient power to control its local and long distance telephone service monopolies and to refuse to interconnect its systems with independent telephone companies.[123]

It is important to notice that what later finished in one of the most powerful monopolies ever in telecommunications in the U.S. could have been stopped if the antitrust authorities had protected competition for the sake of customers. Apparently, the antitrust authorities favored protecting the Bell Telephone Company's monopoly instead of promoting competition in the market based on the misconception that the telephone industry was a natural monopoly better served by a single company rather than a group of them.

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[121] See *ibid.* at 5.

[122] See *ibid.*

[123] See *ibid.*

Since the ICC was not efficient in regulating the telephone industry, in 1934 Congress enacted the *Communications Act*,[124] and created the Federal Communication Commission (FCC), a telecommunications regulatory agency.[125] Since then, the telephone industry has been more regulated by antitrust agencies and courts than any other industry in the U.S. In two different instances the Department of Justice (DOJ) filed antitrust actions against the Bell Telephone Company, now named AT&T; the first one was in 1949, and the second in 1974.

In 1949, the DOJ argued that AT&T was monopolizing the equipment market by controlling the distribution of switches and other telephone equipment through its own equipment manufacture division (Western Electric).[126] By that time AT&T had control over: i) local companies, such as New York Telephone, which served about eighty percent of the local U.S. telephone market; ii) AT&T Long Lines, which provided almost all domestic and international long distance service; and iii) Western Electric, including Bell Laboratories, which provided most of the telecommunications equipment for AT&T's local and long distance units.[127] The antitrust action finished in a consent

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[124] See *Communications Act of 1934*, 48 Stat. 1064, c. 652 (codified as amended in scattered sections of 47 U.S.C.).

[125] Congress empowered the FCC with broader powers than it had previously granted to the ICC. Congress also entrusted the FCC with the powers of the Federal Radio Commission (FRC), created by the 1927 *Radio Act*. Along with the FRC's powers, the FCC controls who uses the frequencies. In addition, the FCC is in charge of regulating interstate and international communication by wires and radio. This agency is the highest regulatory authority of telecommunications carriers, television and radio broadcasters, and cable television operators. See Brands & Leo, *supra* note 49 at 7.

[126] See *ibid.* at 6.

decree in 1956 by which AT&T was obliged to stay away from businesses other than telephone service and equipment.[128] However, AT&T remained the monopolistic leader in both terminal equipment and the local and long distance telephone market. Competition started to rise from new rivals, specially in the production and marketing of telephones, switches, and long distance services. In addition, computer manufacturers and information providers also wanted to compete against AT&T since it had shown its potential as a provider of computers and computer services.[129] Competing against AT&T was not easy for small or even big competitors, since the telecommunications giant did not compete fairly. AT&T's strategy was focused on using its monopoly power over the local telephone market to control other markets.

In 1974, the DOJ again brought an antitrust action against AT&T. The two major charges this time were cross-subsidization[130] and discriminatory interconnection.[131] After eight

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[127] See J.A. Hausman & J.G. Sidak, "A Consumer-Welfare Approach to the Mandatory Unbundling of Telecommunications Networks" (1999) 109 Yale L.J. 417 at 427.

[128] See Brands & Leo, *supra* note 49 at 6.

[129] See Krattenmaker, *supra* note 24 at 375.

[130] AT&T was charged with cross-subsidization because:

> it was able to gain monopoly profits from its ownership of local exchange carriers. This is because AT&T had monopolies on local exchange services and the prices for these services were not effectively controlled by regulation. AT&T was then able to use or threaten to use those profits to subsidize below competitive pricing in other markets. For example, AT&T might make a competing computer phone and be able to sell it below cost due to its local exchange monopoly profits. AT&T, it was feared, could cross-subsidize its computer phones with its local exchange services and thereby gain control of the computer phone market.

See *Ibid*, *supra* note 24 at 395.

[131] According to T.G Krattenmaker, AT&T was also charged with discriminatory interconnection because:

> AT&T used its monopoly power on local exchange services to deny firms that competed with AT&T in other markets (e.g., computer phones) necessary access to the local exchange service (e.g., interconnection to business) that these firms needed to compete with AT&T. That is, the claim is that AT&T raised its rivals' costs. AT&T might be able

years of litigation, U.S. District Judge Harold Green ended with AT&T's monopoly by publishing the Modified Final Judgement (MFJ).[132] As a result of AT&T's divestiture, the local telecommunications market was divided into seven different regions, each one served by a Bell Operating Company (BOC). AT&T continued to operate long distance telephone service and its manufacturing units. The decision allowed AT&T to become a competitor in the growing computer, computer-related, and information markets.[133] By the time AT&T was allowed to enter those markets, other competitors were already in place and so there was no reason to believe that AT&T could gain monopoly power as it had in telecommunications.[134]

Since 1983, BOCs have monopolized the local exchange market. BOCs have not been permitted to compete in manufacturing equipment, and supplying long distance and information services. These companies have been subject to strict regulation because the FCC believes they might represent a potential risk for the market if they were use to the same anti competitive practices used by AT&T.

Different considerations apply in the case of AT&T. AT&T has not been subject to the watchful eye of the FCC. Since AT&T lost its monopoly power over local and long distance telephone services, the FCC has regulated it less. Indeed, the FCC decided to

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to sell computer phones more cheaply because its costs of interconnection are lower. While subsidization claims focus on cost allocation, discrimination claims focus on engineering and technology issues.

See *ibid.* at 396.

[132] See *United States* v. *American Tel. & Tel. Co.*, 552 F. Supp. 131 (D.D.C 1982).

[133] See Krattenmaker, *supra* note 24 at 393.

[134] See *ibid.*

forbear the long distance telephone market and allow the entrance of new competitors, such as MCI Inc. and Sprint Inc. Competition in the long distance telephone service market has made it more open and self-regulated.

The period between the divestiture of AT&T and the enactment of the *Telecommunications Act* was regulated in great part by the decisions of District Judge Harold Green. The District Judge retained jurisdiction over the case, and the DOJ pledged to report to the court every three years once the restrictions outlined in the consent decree were lifted.[135] Gradually, Judge Green removed the restrictions imposed on BOCs; the most relevant ones concerned their presence in the information service market and their participation in non-telecommunications businesses. Apart from these modifications, Judge Green left intact what he had said about the restrictions on the inter-exchange and manufacturing segments.

After years of judicial regulation, the next major change in telecommunications was the *Telecommunications Act*.[136] The *Act* was adopted to promote competition in the local telephony market and permit the BOCs to reenter in the long distance and manufacturing industries. The other important change introduced by the *Act* has been the recognition of technological convergence between broadcasting and telecommunications. By acknowledging that these two sectors were artificially divided, the *Telecommunications Act* has blurred the barriers that separated them and has promoted their integration.

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[135] See *ibid.* at 439.

[136] See *Telecommunications Act*, *supra* note 8.

Thanks to this step, nowadays customers can enjoy a wider variety of services among multitude of competitors. An in-depth study of the provisions of the *Telecommunication Act* will be conducted in Chapter III.

2. Briefly history of the Cable industry in the United States of America

The first cable television system commenced operation in Astoria, Oregon in 1949. One year later, there were approximately 640 cable television systems providing service to 650.000 subscribers.[137] This rapid growth was due in part to the advantage for people living in remote areas. Some areas in the U.S. were extremely far away and the receiving local broadcast signal was difficult, and in some cases impossible. In the cable television system was the perfect carrier to distribute the signal, since it was distributed to local residents by a coaxial cable rather than via the electromagnetic spectrum.[138] However, local broadcasters saw cable television as a threat to the broadcasting business.

The first two decades of the regulation of cable television system were based on the discussion of whether or not they could retransmit local and distant signals. After receiving approval to transmit local signals, cable operators were finally able to expand their business and attract many new subscribers. In the early 1970s cable operators started to face strong FCC's regulation. The FCC designed a complex series of rules that, among other issues, required cable operators to obtain a certificate to prove their qualifications as

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[137] See Krattenmaker, *supra* note 24 at 511.

[138] See *ibid.* at 510.

cable operators and the feasibility of their cable system proposals.[139] In addition, the FCC also imposed a variety of technical and administrative standards and mandated a minimum channel capacity.[140] After six years under the FCC's strict regulatory scheme, many of the previous rules were lifted because the FCC realized that a cable industry could not be built under such regime.[141] 1978 was the beginning of a deregulatory epoch for cable operators. The FCC removed all tariff regulation and left the issue to the local franchising authorities in each city. Likewise, the FCC eliminated some franchise requisites and the certificate requirement. Years later, Congress passed the 1984 *Cable Act*.[142] To many, this *Act* was again meant to regulate the cable industry. However, the objective of the *Act* was focused on solving some franchise problems between cable operators and the franchising authorities, and forbidding telephone companies from purchasing cable systems in their same area of services.

The *Cable Act* of 1984 promoted a tariff deregulation system for basic cable service, starting on 30 December 1986. Congress included this provision on the ground that the advent of other video services offered in a same market would help keep the cable service's tariffs reasonable. In particular, under this provision Congress wanted to promote competition in the video delivery market. Cable operators took advantage of the

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[139] See R.D. Primosch, "El Cable y el Cable Inalambrico en los Estados Unidos" (1999) in *La Liberalizacion de las Telecomunicaciones en un Mundo Global* (Madrid: La Ley-Actualidad, Ministerio de Fomento, 1999) 803 at 805.

[140] See Krattenmaker, *supra* note 24 at 509.

[141] See Primosch, *supra* note 139 at 805.

[142] See *Cable Policy Communications Act of 1984*, Pub. L. No. 98-549, Stat. 2779 at 2781 (1984) (codified at 47 U.S.C).

deregulatory provisions and billed subscribers at whatever rate they wanted. The situation became chaotic. Subscribers were angry at cable operators, since the tariffs of the cable television service changed and passed from one price to another without any control. Cable operators were more powerful; they had freedom to determine the tariffs of their service in a market governed by them. No other video providers were as untouchable as cable operators were.

In response to the eager subscribers, Congress passed *the Cable Television Consumer Protection and Competition Act* of 1992.[143] Through this *Act* Congress regulated all facets of cable service. Among the most important provisions of the *Act* are:

a) franchising authorities could regulate the cable service's tariffs until such time that an alternative video provider entered the market and a considerable number of subscribers could get their service from it;
b) the FCC had the power to revise the tariffs imposed by the franchising authority;
c) cable operators were not allowed to purchase wireless cable systems or satellite television services inside their area of service;
d) the FCC had to impose restrictions on the number of subscribers and the number of services served and owned by a single operator;
e) the FCC's "must carry" rules were extended in order to include the carriage more new commercial and educational local channels;

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[143] See *Cable Television Consumer Protection Act of 1992*, Pub. L. No. 102-385, 106 Stat. (codified in scattered sections of 47 U.S.C.).

f) cable operators were forbidden from selling their cable service during the first three years of having started the service. [144]

Between 1992 and 1996, the competence that Congress envisioned for the cable video market finally emerged from new competitors, among them satellites providers, whose major service is the DBS system, multi-channel multi-point distribution services (MMDS), and satellites master antenna television (SMAT). Finally in 1996, Congress passed the *Telecommunications Act* and, once again, an era of deregulation favoring cable operators began.

3 First attempts of the Regulatory Convergence between telephone carriers and cable operators

On two separate occasions the regulatory limits between telephone carriers and cable operators were about to be broken. In both instances telephone carriers were favored more than cable operators. The first time was with the FCC' Video Dial Tone (VDT) rules, and the second one, with the decision of the U.S. District Court in Alexandria, Virginia in the *Chesapeake and Potomac* case.[145]

The importance of these two attempts is that both the FCC and courts started to recognize that telecommunications technology had increasingly blurred the lines that might be

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[144] See Primosch, *supra* note 141 at 807.

[145] See *Chesapeake & Potomac*, *supra* note 9.

drawn between telephone and cable systems.[146] This commenced the era of convergence. However, the most important factor for telecommunications convergence in the U.S. was the enactment of the *Telecommunications Act* in 1996. I will refer to this part again in Chapter III Section 2.

4. Conclusions

So far it has been submitted that telephone and cable television services were distinct services regulated by distinct laws. Due to some regulatory attempts that tried to end with the legal barriers between cable operators and telephone carriers, these two sectors were about to converge. However this did not happen until the enactment of the *Telecommunications Act.*

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[146] See Krattenmaker, *supra* note 24 at 466.

CHAPTER III

TELEPHONE CARRIERS AND CABLE OPERATORS UNDER THE *TELECOMMUNICATIONS ACT*

The convergence of telephone carriers and cable operators has had two main effects. The first is that telephone companies and cable operators can now provide cable and telephony services, while the second is that both telephone and cable operators can now compete to provide different services such as Internet and other related information services.

In order to study the legal implications of the convergence between telephone carriers and cable operators under the *Telecommunications Act*, this chapter is divided into four main parts. The first one analyzes the two main goals of the *Telecommunications Act*: universal service and competition. This part describes how the *Act* envisioned competition in the local and greater telecommunications markets. The second part of this chapter examines how cable operators and telephone carriers are now able to provide telephony and video services interchangeably through their networks. The third part outlines the competition between telephone carriers and cable operators for the provision of Internet and other information services. In particular, this section explains the broadband open access debate, and the telephone and cable industries, along with the FCC's approach. Finally, the fourth part explores how market forces rather than regulatory provisions have driven the open access debate.

1. The enactment of the *Telecommunications Act*

On 8 February 1996 President Clinton signed the *Telecommunications Act*,[147] the first major regulatory change to communications since the *Communications Act* of 1934. The most relevant alterations of the *Telecommunications Act* concern telephony, and radio and television broadcasting. Less extensive changes have been made to the satellite and spectrum regulation.[148] However, the FCC has encouraged the entry of new technologies, including DBS, PCS, and other wireless services.

The enactment of the *Telecommunications Act* primary responded to the advent of technological convergence. Law and policy makers realized that the provisions of the *Communications Act* of 1934 were not compatible with the speed of technological change. Moreover, they understood that in this technological era the role of the FCC had to change as well. Thus, law and policy makers believed that if electronic devices along with former separated segments of the market were to merge, or not to merge, the decision should be driven by market forces and not by regulation. Keeping these motives in mind, Congress passed the *Telecommunications Act* to achieve two main goals: i) create a broader telecommunications market where all competitors might come to

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[147] The scope of the *Telecommunication Act* covers:

> interstate and foreign communications by wire or radio and all interstate and foreign transmission of energy by radio, which originates and/or is received within the United States, and to all persons engaged within the United States in such communications or in such transmissions of energy by radio, and to the licensing and regulating of all radio communication or transmission in the Canal Zone, or to wire or radio communication or transmission wholly within the Canal Zone. The provisions of this Act shall apply with respect to cable service, to all persons engaged within the United States in providing such service, and to the facilities of cable operators with relate to such service, as provided in Title VI.

See *Telecommunications Act*, *supra* note 8, ss. 2(a) & 152(a) (codified as amended at 47 U.S.C. s. 152(a)).

[148] See Krattenmaker, *supra* note 24 at 3.

compete freely; and ii) to tear down regulatory entry barriers that had formerly impeded carriers and operators from providing services previously offered by the other.

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In order to implement these two goals the *Telecommunications Act* provides: i) a new definition of the term telecommunications; ii) a redefinition of the FCC's role; iii) an evolving concept of universal service; and iv) a new strategy to create and promote competition in the local and greater telecommunications markets.

The new definition of telecommunications is broader in scope so as to cover almost every service imaginable. According to the *Telecommunications Act,* "the term telecommunications means the transmission between or among points specified by the user, of information of the user's choosing, without change in the form or content of the information as sent and received."[149]

With this definition, Congress wanted to embrace all possible services, current and future, in order to possess a single definition for a single telecommunications market. In the early years after the enactment of the *Act*, some authors, and in particular Krattenmaker,[150] pointed out that the definition was imprecise, as it could be interpreted in a manner that even throwing a newspaper or sending a letter could be considered as telecommunications. However, contrary to Krattenmaker's opinion, since the enactment

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[149] *Telecommunications Act*, *supra* note 8, s. 3(46) (codified as amended at 47 U.S.C. s. 153(46)).

[150] See T.G. Krattenmaker, "The Telecommunications Act of 1996" (1996) 49:1 Fed. Communications Commission L.J. 2 at 3 [hereinafter "Telecommunications Act"].

of the *Act,* technology has demonstrated that the definition is not so broad; it has been and is fitting the size of convergence, and it will continue to embrace future services.

Redefining the FCC's role was necessary to adapt the Commission to the convergence era. In particular, if law and policy makers were thinking about letting the marketplace lead convergence, the FCC had to discard its previous role in order to adopt a new one more suitable to a competitive market.

In the strategic plan that the Chairman of the FCC delivered to Congress, Mr. Kennard was emphatic in saying:

> The FCC is meeting the challenge of reinventing itself to keep pace with the rapidly changing communications industry landscape. We've developed a well-though-out plan that reflects input from consumers groups, industry, state and local governments, the academic community, and FCC employees. It will allow the FCC to enter the next century able to respond fully and quickly to emerging technologies and the inexorable movement from regulation to competition. The Commission looks forward to a constructive dialogue with Congress and a continuing dialogue with all our stakeholders to ensure that this plan is inclusive, and address the needs of all Americans people." **The plan envisions that in five years U.S. communications markets will be characterized predominantly by vigorous competition that will greatly reduce the need for direct regulation. The FCC as we know it today will be very different both in structure and mission. As a result, the FCC must wisely manage the transition from an industry regulator to a market facilitator**. The plan notes that the advent of Internet-based and other new technology-driven communications services will erode the traditional regulatory distinctions between different sectors of the communications industry. The FCC's primary goals, however, of promoting in communications, protecting consumers, and supporting access for every American to existing and advanced telecommunications services will continue unabated. What will change is the means and mix of resources necessary to achieve these goals in an environment market by greater competition and convergence of

technology and industry sectors. "...**For each of these goals, the plan establishes specific objectives and policy initiatives.**"[151]

After reviewing Chairman Kennard's statement, it seems that the FCC is turning into more of an antitrust agency than a simple telecommunications regulatory agency. Under this new role, the FCC is supposed to let market forces and consumers' choices guide telecommunications in the U.S.

This new strategy of the FCC, along with the new provisions of the *Telecommunications Act*, seem to be reproducing the underlying philosophy of the antitrust consent decree adopted when AT&T was divided into several companies.[152] If the FCC, were really followed the rational of the consent decree, nowadays the telecommunications industry should be less regulated than before. However, this does not seem to be the case. On the contrary, it looks like the FCC is throwing out old previous regulatory provisions and then issuing new ones. This conclusion can be clearly drawn from the situation of the ILECs and BOCs, which are more heavily regulated under the *Telecommunications Act*. This point will be discussed later in this Chapter. Universal service and competition are discussed in detail in the next section.

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[151] U.S. Federal Communication Commission, "Chairman Kennard Delivers to Congress Draft Strategic Plan to the 21st Century" (12 August 1999), online: Federal Communication Commission Homepage <http://www.fcc.gov.speeches.com> (date accessed: 8 March 2000) [emphasis added].

[152] See "Telecommunications Act", *supra* note 150 at 9.

1.1 Universal Service

In 1907 Theodore Vail, President of AT&T, coined the phrase "universal service"[153] to describe the company's desire to interconnect all localities and telephone users through a single, nationally interconnected system. At that time, different companies served the U.S. telephony market; AT&T controlled 49%, while the rest was shared among many companies. Wishing to expand its control to the whole market, AT&T initiated an effort to connect all the systems. AT&T finally achieved its target and a single interconnected network was formed the beginning of the biggest telephony monopoly in the U.S.[154].The majority of AT&T's competitors were opposed to the idea of an integrated network, since AT&T, as the leader of the project, soaked up the largest group of consumers. However, most consumers embraced the idea of the interconnection of networks, since service, which under competition had been inefficient, improved. Consumers chose better service over the lower prices offered by the competition.

Thus, what initially began as a company slogan later became a formal principle endorsed by the majority of countries. In the U.S. the 1934 *Communication Act* re-defined the notion of universal service as the act of providing telephone service to everyone. A statement in the 1934 *Communications Act* Section 151 directs the FCC "[t]o make

[153] See Krattenmaker, *supra* note 24.at 350.

[154] See *ibid.*

available, so far as possible, to all the people of the United States, rapid, efficient, nation-wide, and world-wide wire and radio communication service at reasonable charges."[155]

Some authors say that this statement reflects the modern notion of universal service; however, other authors, like Milton Muller, have pointed out that the modern notion of universal service is not based on Vail's notion, since it was formulated in the latter part of the twentieth century.[156] The modern notion, which is focused on the idea of equity rather than efficiency, was conceived as a fair distribution of costs and rewards of telephone service.[157] An equitable system forced regulators to apply a cross-subsidy regime, requiring LECs to set different rates depending on the type of users. Thus, business users were charged higher rates than residential users, whose rates were relatively low.[158] Cross-subsidization favored only the AT&T-regulated monopoly. With the entrance of new competitors into the local telephony market, incumbent operators made every attempt to preserve their cross-subsidy systems. AT&T's universal service notion was kept intact for many years, even after AT&T's divestiture. However, with the enactment of the *Telecommunications Act* the concept of universal service has undergone certain modifications. [159]

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[155] *Ibid.*, citing *1934 Communication Act* (47 U.S.C. s. 151) at 351.

[156] *Ibid.*, citing M. Muller, "Universal Service in Telephone History" (July 1993) Telecommunications Policy at 355.

[157] See *ibid.* at 351.

[158] See Brands & Leo, *supra* note 49 at 197.

[159] See Kiser, *supra* note 12 at 723.

The *Telecommunications Act* has adapted the concept of universal service to fit the new technological and competitive marketplace, which is codified in Section 254.[160] Under this Section, Congress has tried to establish a compatible relation between universal service and competition, something that was never attempted before the enactment of the *Act*.[161]

Section 254 of the *Act* describes universal service as a concept that is continually evolving. With this new version of universal service, Congress has envisioned a concept that can change as technology changes.[162] In Section 254, Congress mandates that the FCC must periodically establish the definition of services embraced by the concept of universal service. In defining the universal service concept, the FCC shall adopt the recommendations of the Federal State-Joint Board. In addition, the FCC shall base policies for the preservation and advancement of universal service on the principles included in Section 254 of the *Telecommunications Act*.[163]The principles are:

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[160] See *Telecommunications Act*, *supra* note 8, s. 254(a) (codified as amended at 47 U.S.C. s. 254(a)).

[161] See Krattenmaker, *supra* note 24 at 464.

[162] The definition of universal service:

> Universal service is an evolving level of telecommunications services that the Commission shall establish periodically under this section taking into account advances in telecommunications and information technologies and services. The Joint Board in recommending, and the Commission in establishing, the definition of the services that are supported by Federal Universal service support mechanisms shall consider the extent top which such telecommunications services:
>
> (a) are essential to education, public health, or public safety;
> (b) have, through the operation of the market choices by customers, been subscribed to by a substantial majority of residential customers;
> (c) are being deployed in public telecommunications networks by telecommunications carriers;
> (d) and are consistent with the public interest, convenience, and necessity.

Telecommunications Act of 1996, *supra* note 8, s. 254(c) (codified as amended at 47 U.S.C. s. 254(c)).

[163] See *ibid.*, s. 254(b)(1)-(7) (codified as amended at 47 U.S.C. s. 254(b)(1)-(7)).

> (1) Quality and rates.- Quality services should be available at just, reasonable and affordable rates;
> (2) Access to advanced services.- Access to advanced telecommunications and information services shall be provided in all regions of the Nation;
> (3) Access in Rural and High Cost Areas.- Consumers in all regions of the Nation, including low-income consumers and those in rural, insular, and high cost areas, should have access to telecommunications and information services, including inter exchange services and advanced telecommunications and information services, that are reasonably comparable to those services provided to urban areas and that are available at rates that are reasonable comparable to rates charged for similar services in urban areas.
> (4) Equitable and non Discriminatory Contributions.- All providers of telecommunications services should make equitable and nondiscriminatory contribution to the preservation and advancement of universal service.
> (5) Specific and Predictable Support Mechanisms.- There should be specific, predictable and sufficient Federal and State mechanisms to preserve and advance universal service.
> (6) Access to Advanced Telecommunications Services for Schools, Health Care and Libraries.- Elementary and secondary schools and classrooms, health care providers, and libraries should have access to advanced telecommunications services as described in subsection (h).
> (7) Additional Principles.- Such other principles as the Joint Board and the Commission determine are necessary and appropriate for the protection of the public interest, convenience, and necessity and are consistent with this Act.

According to Section 254(D), "every telecommunication carrier that provides interstate telecommunications services shall contribute on an equitable and non discriminatory basis to the mechanisms established by the Commission to preserve and advance universal service."[164] The telecommunications carriers chosen to provide universal

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[164] *Ibid.*, s. 254(d) (codified as amended at 47 U.S.C. s. 254(d)).

service[165] may receive specific federal universal service support. The designated carrier shall use such support only for the provision, maintenance, and upgrading of facilities and services for which the support is intended.[166]

The Federal-State Joint Board issued its first recommendation in November 1996 and the FCC implemented virtually all the Board's recommendations in 1997. The implementation of the recommendations did not cause major controversy; however, as the date for implementing the new subsidy regimes approached, many started to question whether or not the FCC had correctly interpreted Section 254.[167] In particular, the FCC was criticized for the remarkable number of libraries and schools it intended to fund. In order to amend the FCC's position, Congress ordered the Commission to rethink its decisions and adopt new ones. However, in the FCC's 1998 Report to Congress it is evident that the FCC largely affirmed its earlier determinations.[168]

1.2 Competition

Competition is the most important goal envisioned by Congress in implementing the *Telecommunications Act*.[169] As was mentioned in Chapter II, ILECs and BOCs

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[165] See *ibid.*, s. 214(2)-(3) (codified as amended at 47 U.S.C. s. 214(2)-(3)).

[166] See *ibid.*, s. 254(e) (codified as amended at 47 U.S.C. s. 214(e)).

[167] See Brands & Leo, *supra* note 49 at 212.

[168] See *ibid.*

[169] See U.S. Federal Communications Commission, *In the Matter of Promotion Competitive Networks in Local Telecommunications Markets*, Notice of Inquiry in WT Docket No. 99-217, and third further notice

constituted the group of incumbent carriers that originally controlled the local loop, or local telecommunications market, in the U.S. After the divestiture of AT&T, the U.S. was divided into seven different regions, served either by ILECs or BOCs. ILECs and BOCs had monopoly power over the region they served, while interstate and international long distance carriers (IXCs) operated the greater telecommunications market. Unlike the local market, which was heavily regulated by the FCC, the Commission forbore the greater telecommunications market. Thus, IXCs competed freely.

ILECs and BOCs were not allowed to compete against IXCs for the provision of the services IXCs offered and vice versa. The local and greater markets were segmented. Consumers obtained fixed telephony service from the ILEC or BOC operating in the region in which they lived. But for interstate and long distance telephony services, consumers chose among IXCs.

By passing the *Telecommunications Act*, Congress dismantled the legal barriers existing between the local and greater markets in order to allow competitors from both markets to compete against each other for the provision of services previously provided only by the other. Eliminating those legal barriers also opened other segments of the market. Competitors such as cable operators, ISPs, DBS providers, PCS providers, and public utilities, among others, were also allowed to compete against ILECs/BOCs and IXCs. The entrance of these new competitors sealed competition in the market.

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of Proposed Rulemaking in CC Docket No. 96-98 (adopted 10 June 1999) at 5, online: Federal Communications Commission Homepage <http://www.fcc.gov.com.html> (date accessed: 10 July 2000).

Competition in telecommunications has to be achieved in both the local and greater telecommunications markets. Both types of competition suppose new competitors being interconnected with the ILEC/BOC's network, which represents a competitive advantage for new competitors, since: i) it is the largest telecommunications network, ii) the majority of calls originate and terminate in the ILEC/BOC's network, and iii) the construction of costly networks can be avoided.[170]

So far, the greater market has been developed more than the local market because, although small LECs also serve the local market, the majority of consumers in the U.S. still obtain dial tone service from the ILEC/BOC serving the region. Competition in the local loop is anticipated in the coming years with the enhancement of new technologies and the arrival of new competitors. Cable operators, among others, are the strongest potential competitors of ILECs/BOCs and LECs in the local market.

New competitors do not have to do more than plug into the ILECs/BOCs's network to become part of the local market. However, ILECs/BOCs are required to complete a hard group of duties, the most important being to provide nondiscriminatory interconnection to their networks at just and reasonable rates. Interconnection to the ILECs/BOCs's network is a key factor in promoting competition in the local market. The ILECs/BOCs duties will be described in detail in the next part of this section.

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[170] See *ibid.*

ILECs/BOCs are also expecting to compete in the greater market in the provision of different telecommunications services, such as Internet access. ILECs/BOCs might also provide other services, like international long distance and the manufacturing of telecommunications equipment, if they fulfill all the duties the *Telecommunications Act* requires of them. Law and policy makers have established additional duties for ILECs/BOCs so that they cannot exercise their power in other segments of the market. Reinforcing the provisions of the *Telecommunications Act*, the FCC has stated: "this Commission, in conjunction with state public utility commissions, has been statutorily charged with opening local markets to competition, on the specific premise that **without regulatory oversight**, the incumbent ILECs would be able to discriminate against and exclude local rivals."[171]

On the contrary, Krattenmaker holds that heavy regulatory constraints over ILECs/BOCs do not permit the carriers to compete as freely as other competitors.[172] Moreover, they are at disadvantage since they are supposed to compete against companies already positioned in the long distance market, such as AT&T, which seems to be stronger than them now. So far, the FCC has authorized only a few BOCs to provide long distance service and equipment manufacturing. This was the case of Bell Atlantic, which on 22 December 1999 became the first regional BOC to obtain the FCC's approval to provide inter LATA services in New York, thus meeting the Section 271 competitive checklist.[173] In January

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[171] U.S. Federal Communications Commission, *supra* note 151 [emphasis added].

[172] See "Telecommunications Act", *supra* note 150 at 39.

[173] See U.S. Federal Communications Commission, *In the Matter of Application of Bell Atlantic*, CC Docket No. 99-295, FCC 99-104, 1999 FCC LEXIS 6522 (1999).

2000, SBC Corporation filed for inter LATA authority under Section 271 to provide services in Texas.[174]

1.2.1 Competition in the Local Telecomunications Market. Every one into the ILECs and the BOCs

Part II of Title II of the *Act*, entitled "Development of Competitive Markets", establishes the duties of all telecommunications carriers.[175] The key issue of this Title is contained in Section 251, entitled "Interconnection".[176]

Section 251 distinguishes three categories of telecommunication carriers, with each category being regulated by different rules. The first and broadest group consists of general telecommunications carriers, the second one is formed by LECs, and the third comprises ILECs/BOCs.

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[174] See J.A. Endejan, "1999's Preview to the Millenium: Continuing Convergence and Consolidation in Telecom and Cable" (2000) 593 Pract. L. Instit. Patents, Copyrights, Trademarks, and Literary Property Crse Hdbk Ser. 729 at 741.

[175] A telecommunications carrier is:

> any provider of telecommunications services, except that such term does not include aggregators of telecommunications services (as defined in Section 226). A telecommunications carrier shall be treated as a common carrier under this 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.

Telecommunications Act, *supra* note 8, ss. 3(44) & 153 (to be codified at 47 U.S.C. s 153(44)). Telecommunication service means: "the offering of telecommunications for a fee directly to the public, or to such classes of users to be effectively available directly to the public, regardless of the facilities used." *Telecommunications Act* , ss. 3(46) & 153 (to be codified at 47 U.S.C. s 153(44)).

[176] *Ibid.*, ss. 251& 251(a) (codified as amended at 47 U.S.C. s. 251).

- **Duties for Telecommunications carriers**

a) Interconnection: Each telecommunications carrier must interconnect directly or indirectly to their networks the equipment and facilities of other telecommunications carriers.[177]

b) Installation of equipment: Telecommunications carriers must install their equipment on the existing network, following the standards and guidelines established under Sections 255 and 256 of the *Telecommunications Act.*[178]

- **Duties for LECs**

a) Resale: LECs cannot prohibit or impose unreasonable and non-discriminatory conditions or limitations on the resale of their telecommunications services.[179]

b) Number portability: LECs must offer number portability in accordance with the requirements prescribed by the FCC.[180]

c) Dialing parity: Through this service, LECs must allow other provides non-discriminatory access to telephone numbers, operator services, directory assistance, and directory listings with no unreasonable dialing delays.[181]

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[177] See *ibid.*, s. 251(a)(1) (to be codified at 47 U.S.C. s. 251(a)(1)).

[178] See *ibid.*, s. 251(a)(2) (to be codified at 47 U.S.C. s. 251(a)(2)).

[179] See *ibid.*, s. 251(b)(1) (to be codified at 47 U.S.C. s. 251(b)(1)).

[180] See *ibid.*, s. 251(b)(2) (to be codified at 47 U.S.C. s. 251(b)(2)). Number portability enables consumers to switch from one carrier to another without having to change telephone numbers.

[181] See *ibid.*, s. 251(b)(3) (to be codified at 47 U.S.C. s. 251(b)(3)).

d) Access to right of way: LECs must provide access to other providers of their poles and conduit ducts, and right of way on rates, terms, and conditions that are consistent with Section 224 of the *Telecommunications Act*.[182]

e) Reciprocal compensation: LECs must establish reciprocal compensation arrangements for the transport and compensation of telecommunications.[183]

- **Duties for ILECs**

In addition to the duties mentioned above, ILECs are also obligated to comply with the following provisions:

a) Duty to negotiate: ILECs must negotiate in good faith the terms and conditions of agreements to fulfill the duties described above.[184]

b) Interconnection: ILECs must provide interconnection to their network for the facilities and equipment of any telecommunications carrier. Interconnection must provided:

  - for the transmission and routing of telephone exchange service and exchange access;
  - at any technically feasible point within the carrier's network;
  - at an equal quality to that provided by itself; and
  - at rates, terms, and conditions that are just, reasonable, and non-discriminatory.[185]

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[182] See *ibid.*, s. 251(b)(4) (to be codified at 47 U.S.C. s. 251(b)(4)).

[183] See *ibid.*, s. 251(b)(5) (to be codified at 47 U.S.C. s. 251(b)(5)).

[184] See *i0bid.*, s. 251(c)(1) (to be codified at 47 U.S.C. s. 251(c)(1)).

c) Unbundled access: ILECs must allow unbundled access to their network elements.[186] Unbundled access means that new telecommunications carriers can access different elements of the ILEC's network without being compelled to use all of the elements of that network. Under unbundling agreements, new competitors only have to pay for access to the network elements they need, and not for access the entire network. This provision has a direct effect on interconnection rates because the rate to access the network elements has to be lower than the rate to access to the whole network. According to the *Act*, network elements not only include the physical equipment used to provide telecommunications services, but also systems and information used to transmit telecommunications services.[187]

d) Resale: ILECs must offer for resale at wholesale rates any telecommunications service that the carriers provide at retail to subscribers who are not telecommunications carriers. ILECs cannot prohibit or impose unreasonable or discriminatory conditions on the resale of telecommunications systems. Only a State Commission, following the FCC's regulations, has the power to prohibit a reseller from obtaining wholesale rates.[188]

e) Notice of changes: ILECs must provide public notice of changes in the information necessary to transmit and route telecommunications services through their network

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[185] See *ibid.*, s. 251(c)(2)(a)-(d) (to be codified at 47 U.S.C. s. 251(c)(2)(a)-(d)).

[186] See *ibid.*, s. 251(c)(3) (to be codified at 47 U.S.C. s. 251(c)(3)).

[187] See M. Meyerson, "Ideas of the Market Place: A Guide to the 1996 Telecommunications Act" (1997) 49 Fed. Communications Commission L.J. 251 at 256.

[188] See *ibid.*, citing *Telecommunications Act*, *supra* note 8, s. 251(c)(4)(a)-(b) (to be codified at 47 U.S.C. s. 251(c)(5)(a)-(b)).

and facilities, as well as of any other change that could affect the interoperability of those facilities and networks.[189]

f) Collocation: ILECs must permit new telecommunications carriers to collocate or place equipment necessary for interconnection or access to unbundled network elements on the premises of ILECs.[190]

1.2.2 Competition in the Greater Telecommunications Market

- **Special provisions and obligations for the BOCs**

The *Telecommunications Act* added a new part to Title II called "Special Provision Concerning Bell Operating Companies".[191] Under this part, the *Act* seeks to remove previous bans that impeded BOCs from supplying services such as long distance telephone or Inter LATA services,[192] telecommunications equipment manufacturing, and telecommunications or information services. The following part briefly describes analyzes how BOCs can be allowed to provide long distance telephone or Inter LATA services and telecommunications or information services.

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[189] See *ibid.*, citing *Telecommunications Act*, *supra* note 8 s. 251(c)(5) (to be codified at 47 U.S.C s. 251(c)(5)).

[190] See *ibid.*, citing *Telecommunications Act*, *supra* note 8, s. 251(c)(6) (to be codified at 47 U.S.C. s. 251(c)(6)).

[191] *Ibid.*, citing *Telecommunications Act*, *supra* note 8, s. 271 (to be codified at 47 U.S.C. s. 251).

[192] See *ibid.*, citing *Telecommunications Act*, *supra* note 8, s. 3(25) (to be codified at 47. U.S.C. s 153(25)) "Local Access and Transport Area". The term local access transport area means a contiguous geographic area."

Long distance telephone service provided by BOCs

In providing long distance telephone services or Inter LATA services, BOCs must follow a special procedure, which varies depending on whether the BOC plans to provide the service outside or within the local area it serves.

- **Long distance or Inter LATA services outside the BOC's area of service**

  The *Telecommunications Act* allows BOCs to provide long distance services outside their region of services. This provision is meant to enhance competition between BOCs and incumbent long distance carriers in the long distance telephone market.[193]

- **Long distance service or Inter LATA services provided inside the BOC's area of service**

  A BOC can provide long distance or Inter LATA services if the FCC approves its petition. In addition, the BOC has to meet the following requisites:

a) Complete the fourteen requirements included in the FCC's competitive checklist.[194]

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[193] See *ibid.*, citing *Telecommunications Act*, *supra* note 8, s. 271(b)(2) (to be codified at 47 U.S.C. s. 271(b)(2)).

[194] See *ibid.*, citing *Telecommunications Act*, *supra* note 8, s. 271(b)(2)(c)(a)-(b) (to be codified at 47 U.S.C. s. 271(b)(2)(c)(a)-(b)).

b) Conclude an agreement with an existing competitor in the BOC's local telephone service market. If no competitor exists in the market, the BOC has to make a statement that shows it is ready to provide the components of the FCC's competitive checklist. The State Commission, with jurisdiction over the area in which the BOC provides its local telephone service, has to approve both the agreement and the statement prior to it being filed before the FCC.[195]

c) Create an affiliate through which it will provide long distance telephone services, as well as other services: manufacturing telecommunications equipment, information services –different from incidental services- and services authorized before the 1996 *Act*.[196]

The BOC will no longer require an affiliate to provide long distance services if, after three years of being authorized, competition has flourished between new telecommunications competitors and the BOC. According to the *Telecommunications Act*, the FCC has to evaluate the market in order to determine if during this three-year period it has been competitive. If the FCC establishes that competition has not flourished in the market, it can extend the period for three more years.[197]

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[195] See *ibid.*, citing *Telecommunications Act*, *supra* note 8, s. 271(b)(2)(a) (to be codified at 47 U.S.C. s. 271(b)(2)(a)).

[196] See *ibid.*, citing *Telecommunications Act supra* note 8 s. 272(a)(1) (to be codified at 47 U.S.C. s. 271(a)(1)). See also *Telecommunications Act*, *supra* note 8, s. 272(2)(a)-(b) (to be codified at 47 U.S.C. s. 272(2)(a)-(b)).

The provisions relating to BOCs' information services shall cease four years after the enactment of the *Telecommunications Act*, unless the FCC extends such period by rule or order.[198]

2. Telcos into Cablecos and Cablecos into Telcos

2.1 Telcos. Video Service Provided by Telephone Carriers. Reduction of entry barriers

Telephone carriers took their first steps into video television provision through channel service activity. In 1950, shortly after the first cable networks were built, telephone carriers began to provide channel service. Through channel service, telephone carriers leased transmission capacity to cable operators for the delivery of local television signals. The partnership between telephone carriers and cable operators enabled the latter to avoid constructing costly networks, conduits, and poles, since the telephone carriers already had theirs. In addition, cable operators could also deliver their cable television services to all the telephone carriers' subscribers. Since video delivery service represented a profitable business for telephone carriers, they began building local cable distribution networks.[199]

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[198] See *ibid.*, citing *Telecommunications Act*, *supra* note 8, s. 272(f)(2) (to be codified at 47 U.S.C. s. 272(f)(2)).

[199] See Brands & Leo, *supra* note 49 at 522.

In 1956, a consent decree prohibited AT&T from providing non-common carrier services. The telephone giant and its BOCs were no longer allowed to compete with cable operators by using video channel service. Since AT&T, along with its BOCs, were well positioned in the market, the prohibition of delivery of cable television service did not seem to pose threat to them. However, by the 1960s the cable operators had increased their capacity to twelve or more channels and suddenly they got more subscribers. In order to halt this potential threat, AT&T restricted channel service provided over its networks and increased the rates it charged cable operators. In the early 1960s the conflict between cable operators and telephone carriers worsened and the FCC got involved.[200]

In 1966, the FCC deemed the channel service provided by telephone carriers an interstate service, meaning that the FCC had jurisdiction to regulate it. Therefore, the FCC required common carriers to file tariffs before the Commission for channel local distribution service.[201] Two years later, the FCC required telephone carriers to obtain a license in order to construct facilities to offer channel services. Since many telephone carriers started to file applications to obtain a license, the FCC's concern was shifted to whether telephone carriers should be permitted to provide cable services, and if so, what conditions it should impose on them. The FCC focused its analysis on how much telephone carriers could incur in anti competitive practices if they were allowed to

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[200] See *ibid.* at 523.

[201] See U.S. Federal Communication Commission, *Commission Order Requiring Common Carriers to File Tariffs with Commission for Local Distribution Channels for Use in CATV Systems*, 4 FCC 2d 257 (6 April 1966), online: U.S. Federal Communications Commission Homepage <http://www.fcc.gov.com.html> (date accessed: 20 July 2000).

provide cable television services. The FCC finally determined that not letting telephone carriers enter the video delivery market was in the best interest of the public. Thus, the FCC established new rules to regulate those carriers. These rules were known as the Telephone-Company Cable Television-Cross Ownership Ban (Cross-Ownership Ban Rules),[202] and according to them, telephone carriers asking for a license to provide channel service had to certify that they were unrelated and unaffiliated, directly or indirectly, with the cable operator's customers.[203]

In 1984, the U.S. Congress passed the *Cable Act* of 1984, banning telephone carriers from offering cable television services directly to subscribers in the area where they provided local telephone services. The FCC Cross-Ownership Ban rules were no longer needed, since this federal law clearly did not leave room for debate on whether telephone carriers could deliver video programming over their networks.

In 1987, the FCC suggested that Congress review its former Cross-Ownership Ban rules.[204] By that time, the Commission was concerned that the ban was restricting competition instead of protecting it. Three years later, the FCC started to develop a

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[202] See U.S. Federal Communications Commission, *Telephone Company Cable Television-Cross Ownership Ban Rules*, 21 FCC 2d., online: U.S. Federal Communications Commission Homepage <http://www.fcc.gov.comhtml> (date accessed: 5 October 2000).

[203] See *ibid.*

[204] See U.S. Federal Communications Commission, *Telephone Company-Cable Television Cross-Ownership Rules, Notice of Inquiry*, 2 FCC Rcd 5092 (1987). See also *Telephone Company-Cable Television Cross-Ownership Rules, Further Notice of Inquiry*, 3 FCC Rcd 5849 at 5856 (1988), online: U.S. Federal Communications Commission Homepage <http://www.fcc.gov.comhtml> (date accessed: 8 August 2000).

regulatory regime that would permit the reentry of telephone carriers into the video delivery market. This new regulatory regime became known as the VDT rules.[205]

Through these rules, telephone carriers were permitted to provide cable television services directly to subscribers in their service areas. Under the VDT telephone carriers were conditioned to operate on a common carrier basis and not to select the programming they transmitted.[206] Only one VDT system was ever operated, the system built by Bell Atlantic in Dover Township New Jersey. The VDT regime no longer exists, as Congress replaced it in the *Telecommunications Act* by the Open Video Systems (OVS) regime.

The most recent attempt at convergence prior to the enactment of the *Telecommunications Act* is the decision of the U.S. District Court in Alexandria, Virginia for the *Chesapeake and Potomac Telephone Company of Virginia* v. *U.S.* case.[207] The plaintiffs in this case were the Chesapeake and Potomac Telephone Company of Virginia and Bell Atlantic Video Service Company, both wholly owned subsidiaries of Bell Atlantic Corporation. These two companies challenged the constitutionality of subsections (1) and (2) of the *Cable Communications Policy Act,* which prohibited telephone companies and their affiliates from providing video television service within their areas. The Court decision allowed plaintiffs to provide video television services

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[205] See U.S. Federal Communication Commission, *Telephone Company-Cable Television Cross Ownership Rules, Further Notice of Proposed Rulemaking, First Report and Order and Second Further Notice of Inquiry*, 7 FCC Rcd 300 (1991), online: U.S. Federal Communications Commission Homepage <http://www.fcc.gov.comhtml> (date accessed: 9 August 2000).

[206] See "Telecommunications Act", *supra* note 150 at 13.

[207] See *Chesapeake and Potomak*, *supra* note 9.

within their areas. In the opinion of the Court, telephone carriers did not threaten the video delivery market, at least not in the same way that cable operators could threaten that market. In addition, the Court held that the FCC's rules were enough to subdue any potential menace from the telephone carriers to dominate the market. Therefore, the Court could find no reason why telephone carriers should be restricted from the video market.

Despite the previous attempts, the most important instrument created to regulate the provision of video delivery service by telephone carriers is the *Telecommunications Act*. The *Telecommunications Act* repealed the previous restrictions over telephone carriers and allowed them to offer cable television services.

The *Act* provides telephone carriers with four different alternatives in offering video television services. They are:[208]

1) As a video common carrier. The telephone carrier is treated as a common carrier, subject to the common carrier provisions of Title II of the *Act*.[209]

2) As a traditional cable operator. Telephone carriers can build cable systems that compete with the systems of incumbent cable monopolies. However, telephone carriers cannot purchase an existing cable operator within its local service territory.[210]

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[208] See *Telecommunications Act*, *supra* note 8, s. 651(a) (codified 47 U.S.C. 571).

[209] See *ibid.*, ss. 651(a) & 651(a)(2) (47 U.S.C (651)(a)(2)).

3) Through a radio-based communication. [211] The carrier is subject to Title III and the provisions of Section 652 of the *Telecommunications Act.*

4) As an open video provider. An open video system is a hybrid of sorts. It permits some programming control for the telephone carrier, but reserves other channels for use by nonaffiliated programmers.[212]

2.2 Cablecos. Telephone service provided by cable operators

Before the enactment of the *Telecommunications Act,* state and local regulation did not permit cable operators to provide voice communication services through their networks. Seeking to promote competition in the telecommunications market, the *Telecommunications Act* removed all state and local regulation that impeded competition and imposed unnecessary delays on new entrants.[213]

Thus, the *Telecommunications Act* includes Section 253, entitled "Removal of Entry Barriers", in order to promote and assure easy entrance of new competitors into the market. The provision clearly states in subsection (a) that no state or local statute or regulation, or any local or state requirement, may inhibit the ability of any entity to offer

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[210] See *ibid.*, s. 651(a)(3) (codified 47 U.S.C. s. 571(a)(3)).

[211] See *ibid.* s. 651(a)(1) (codified 47 U.S.C. s. 571(a)(1)).

[212] See *ibid.* s. 651(a)(4) (codified as 47 U.S.C. s. 571(a)(4)).

[213] See Kiser, *supra* note 12 at 714.

and provide interstate or intrastate telecommunications service.[214] If the FCC determines that a state or local authority has permitted or imposed any statute, regulation, or any other legal requirement that violates subsection (a), the Commission shall preempt the enforcement of such statute, regulation, or legal requirement to the necessary extent to correct such violation or inconsistency.[215]

With the removal of prior state and local entry barriers, cable operators may enter into the telecommunications market for the provision of voice services and other telecommunications services through interconnection, lease of unbundled network elements, or acquisition of other telephone carriers' capacity.

The inclusion of these provisions in the *Telecommunications Act* has made the proposal of mergers between cable operators and telephone companies possible. So far, the most important merger has been the one between AT&T and TCI, both giants in telephony and cable television delivery. Other mergers have been proposed before the FCC, but the Commission is still studying the cases. The AT&T-TCI merger will be analyzed in the next part of this Chapter.

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[214] See *Telecommunications Act*, *supra* note 8, s. 253(a) (codified at 47 U.S.C. s. 253(a)).

[215] See *ibid.*, s. 253(d) (codified at 47 U.S.C. s. 253(d)).

2.2.1 Sunset of some rate regulations

The 1996 *Telecommunications Act* has removed some rate regulation from cable television services. The *Act* introduces deregulation in the cable sector and permits cable operators to become telecommunications carriers and to compete to provide telecommunications services. The *Act* only imposes rate regulation when a cable television operator is not subject to effective competition, meaning when it does not confront a real rival in its market. The requirement of effective competition can be accomplished if the cable television operator competes with other cable operators, or with telecommunications carriers, such as ILECs/BOCs or other LECs, that also offer cable television service in the area served by them.[216]

3. The Broadband Open Access Debate: Roots and origins

As the demand for high-speed Internet, or broadband, has increased, so too has competition to serve that demand grown between cable operators and telephone carriers.[217] Broadband, as was pointed out in Chapter I, is a type of technology that allows users to access Internet and Internet-related services at much faster speeds than allowed by other conventional conduits.[218] Unlike the traditional narrow bandwidths and

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[216] See "Telecommunications Act", *supra* note 150 at 12.

[217] See E.W. Comstock & J.W. Butler, "Access Denied: The FCC's Failure to Implement Open Access to Cable as Required by the Communications Act" (2000) 8 Common Law Conspectus 5. See generally C.R. Graham & Matt Zin, "Cable On-Line Services" (2000) 593 Pract. L. Instit. Patents, Copyrights, Trademarks and Literary Property Crse Hdbk Ser. 771 at 786.

[218] See Lathen, *supra* note 15 at 507.

modems that run at speed of 56 Kbps or less, broadband technology is from fifty to one hundred times faster.[219]

In the race to become the number one provider of Internet and other Internet-related services, cable operators are better positioned in the market than telephone carriers, because cable operators already have a broadband network from which to offer high-speed services. Some of the major telephone carriers have already upgraded their networks, and nowadays the Internet access they provide is far better and faster than before. However, broadband cable service is still quicker than the upgraded version of telephone carriers' broadband. For this reason, telephone carriers want to obtain direct access to the broadband cable operators' network; cable operators have denied them access because, in their opinion, they are not legally obligated to provide access to their networks. In response, the telephone carriers proposed that the FCC establish a mandatory open access policy over cable operators. Unaffiliated ISPs agreed with the telephone carriers' proposal and held the same argument of mandatory open access. Unaffiliated ISPs are the most affected group of providers because they do not operate their own network, and therefore they need to be connected to other providers' networks.[220] Currently, some cable operators in the U.S. offer high-speed Internet access directly through its exclusive affiliated ISP. This is the case of AT&T and its ISP Excite @Home, and of Time Warner with Road-Runner.[221]

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[219] See *ibid.*

[220] See H. Feld, "Whose Line is it Anyway? The First Amendment and Cable Open Access" (2000) 8 Common L. Conspectus 23.

[221] See *ibid.*

Both telephone carriers and unaffiliated ISPs have argued that if cable operators keep on denying open access to their networks, the immediate consequences will be less competition, higher prices, and less technological innovation.[222] They have also claimed that having a closed broadband network inhibits consumer choice and the open nature of the Internet.[223] Cable operators, as the leader against open access, have highlighted that"[t]he market in which they compete should guide their corporate policy, not government regulation."[224]

Cable operators have argued that after enhancing and upgrading their networks for the provision of Internet and also telephony service, it is not fair they should have to allow open access to telephone carriers and unaffiliated ISPs, which have not contributed to the great investment they have made. In addition, cable operators have pointed out that the technical incompatibility between their and other providers' systems impedes open access to their networks. Among the cable operators leading the group against mandatory open access is AT&T, which recently became the largest cable operator in the U.S. after acquiring TCI, part of Time Warner, MediaOne, Cox Communications Inc. and Cable Vision Systems Corporation (Cablevision).

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[222] See Lathen, *supra* note 15 at 509.

[223] See *ibid.*

[224] *Ibid.* at 510.

On the other hand, the FCC has not yet agreed with a mandatory open access policy. According to the Commission, there is no national regulation that would force cable operators to allow access to their broadband networks. Besides, the FCC has also argued that in order to develop competition in the telecommunications market, it should not establish a mandatory open access policy. In fact, in its last broadband report the FCC concluded that "[t]he broadband industry is in its infancy and regulatory restrain continues to be warranted at this time."[225]

The FCC would rather let market forces guide the open access debate than regulation. In its opinion, market forces, not special policies, will help put an end to the differences that divide cable operators and telephone carriers. The FCC is now acting as a referee in the broadband open access debate. It will only intervene if the public interest needs to be protected or any if the providers are affected by anti competitive practices.

However, local franchise authorities do not have the same criteria as the FCC regarding the open access broadband debate. Unlike the FCC, local franchising authorities have begun to demand that cable operators open up or provide open access to their broadband networks. In particular, whenever cable operators need to obtain or renew their franchises, some local franchise authorities have asked them to give access to telephone carriers or unaffiliated ISPs.

[225] *Ibid.* at 493.

This was the case of the City of Portland, which imposed an open access provision over TCI's franchise transfer to AT&T.[226] The City of Portland, Oregon was the first municipal authority to pass ordinances at both the city and the county levels requiring AT&T-TCI to provide nondiscriminatory open broadband access of their facilities to unaffiliated ISPs. AT&T, disagreeing with the decision, disregarded it. The City of Portland refused to transfer TCI's franchise to AT&T unless AT&T agreed to open its network. In response, AT&T filed a suit before the Federal District Court against the City of Portland. The Federal District Court decided against AT&T. Soon after the Court reached its decision, AT&T filed an appeal before the U.S. Court of Appeal for the Ninth Circuit (the Court of Appeal) to have the decision declared unlawful.[227]

In June 2000, the Court of Appeal overruled the decision of the Federal District Court, rejecting the prerogative of the franchising authority to condition the transfer of the license on mandatory open access. However, the Court of Appeal determined that since @Home, the affiliated ISP of AT&T-TCI, did not provide a cable service, the franchising authority of the City of Portland did not have the right to impose such a condition. Moreover, the Court of Appeal established that to the extent that @Home provides its subscriber Internet transmission over its cable broadband facility, it is providing a telecommunications service as defined in the *Telecommunications Act*.[228]

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[226] See Feld, *supra* note 220 at 23.

[227] See J.B. Speta, "The Vertical Dimension of Cable Open Access" (2000) 71 Univ. of Colorado L. Rev. 975 at 984.

[228] See *AT&T.* v. *City of Portland*, (2000) D.C.No. CV-99-00065-OMP, online: Federal Communications Commission Homepage <http://ww.fcc.gov/ogc/doucuments/opinions/2000/99-35609.html> (date accessed: 30 September 2000) [here in after *AT&T* v. *City of Portland*].

The decision of the Court of Appeal is relevant because it clearly maintains that when an ISP that controls its own broadband facilities provides Internet transmission to its subscribers, this service has to be considered as a telecommunications service and not as a cable service.

Therefore, an ISP that provides telecommunications services has to be regulated as a common carrier under Section 251 of Title II of the *Telecommunications Act*. The most immediate effect that such conclusion entails is that a provider subject to Title II of the *Act* is obliged to provide open access to its facilities. This point will be analyzed more in detail later in this Chapter.

Even with the decision of Court of Appeal, the FCC still considers that market forces, not regulation, are the way to bring an end to the open access debate. Nevertheless, the decision made the FCC more alert about what is happening between cable operators, telephone carriers, and unaffiliated ISPs.

After the City of Portland decided to condition the TCI's franchise transfer, three other local franchise authorities -Broward County, San Francisco, and the City of Farifax- have voted on mandatory access proposals.[229]

Since the open access debate has sparked so much controversy in the telecommunications industry, AT&T and America On Line (AOL) have recently made commitments to

[229] See Lathen, *supra* note 15 at 512.

provide open access to unaffiliated ISPs.[230] In the case of AT&T, this company has committed itself to negotiating access agreements with unaffiliated ISPs after 2002, when its exclusive contract with @Home expires. On the other hand, AOL and Time Warner have made similar commitments to negotiate nondiscriminatory open broadband access agreements with unaffiliated ISPs. In the opinion of some advocates, these commitments are inadequate and do not help to resolve the open access debate.[231] First, they say, neither AT&T not AOL have offered significant discounts to other parties wanting to resell capacity transport on the system, and second, the commitments will not be effective until after their current exclusive agreements expire.[232]

Unlike the FCC-approved AT&T-TCI merger, the AOL-Time Warner merger is still pending. The FCC is now determining whether or not the AOL-Time Warner merger would benefit the public interest. AOL and Time Warner are facing a lot of pressure from other administrative regulatory agencies, such as the FTC. Advocates of the FTC are concerned that in certain markets where Time Warner operates, there is no viable competition to provide high-speed Internet access through cable TV-lines. Therefore, consumers in those areas will be forced to engage AOL-Time Warner TV programming and Internet content exclusively.[233] On behalf of the FCC, its Chairman, William

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[230] See Speta, *supra* note 227.

[231] See *ibid.*

[232] See *ibid.* at 979.

[233] See J. Grimaldi & A. Klein, "U.S. Puts Brakes on AOL-Time Warner Deal" *The [Montreal] Gazette* (5 September 2000) F5.

Kennard, has declared that, although he prefers market forces over regulation, if the former fail the FCC will intervene.[234].

The broadband open access debate is still on course, and probably much more time will be needed to reach a decision. It is important to say that the regulators seem to be taking part in the debate. Further comment regarding this subject will be given later in this Chapter.

3.1 Broadband Open Access Rules: Should Internet and other related information services be regulated as common carriers or as cable operators?

One relevant point regarding this issue is that no particular provision in the *Telecommunications Act* obligates cable operators to allow open access to their broadband network. In the opinion of some authors, and advocates of telephone carriers and unaffiliated ISPs, the FCC has used the lack of this fundamental provision to favor cable operators. However, the FCC has pointed out that its goal is to develop a broadband industry, not to favor cable operators, and in its opinion the only way to achieve this goal is without mandatory open access rules. The question is: does the FCC's approach meet the purposes and requirements of the *Telecommunications Act*?

Although the answer to this question seems to be in the *Act*, the debate over broadband open access has moved the FCC as well as cable operators away from the statute.[235]

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[234] See "FCC Chairman to Launch Proceeding on Cable Access" *supra* note 22.

Thus, in order to study the case, it is necessary to analyze the statutory rules to determine whether the *Telecommunications Act* defines the transmission of the Internet and other information services to the public over the cable operators' network as: i) a common carrier service regulated under Tile II of the *Act,* or ii) as a cable service regulated under Title VI of the *Act.*

A review of the *Telecommunications Act* indicates that the transmission of Internet and other related information services should be subject to Title II of the *Act*, even though the FCC and cable operators have rejected this interpretation. The following part of this Chapter describes common carriers, the cable industry, and the FCC's approaches concerning broadband open access. In addition, the reasons why they consider Internet and other related services should be regulated as cable or as common carrier services are provided.

- **The common carrier's approach**

Under this approach the telephone carriers concluded that Internet and other related information services are telecommunication services regulated under the common carrier provisions of Title II of the *Telecommunications Act.*

The common carriers' approach is based on the definition of Internet and other related information services, which according to them is included in the definition of information

[235] See Comstock & Buther, *supra* note 217 at 6.

services contained in Section 3(20) of the *Telecommunications Act*. According to the provision, those services are defined as:

> [t]he offering of a capability for generating, acquiring, storing, transforming, processing, retrieving, utilizing, or making available information **via telecommunications**, and includes electronic publishing, but does not include any use of any such capability for the management, control, or operation of a telecommunications system or the management of a telecommunications service.[236]

What the common carriers' approach aims to outline is that the information is transmitted via telecommunications; that is, information is delivered between or among the specific points chosen by the user. Pursuant to the *Act*, the term telecommunications means: "**[t]he 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."[237]

In addition to this provision, the *Telecommunications Act* states that the action of transmitting information directly to the public via telecommunications constitutes a telecommunications service. Thus, when a provider transmits telecommunications between points specified by the user for a determined fee, the service is considered as a telecommunications service. According to the *Telecommunications Act*, "**[t]he term telecommunications means the offering of telecommunications for a fee directly to**

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[236] *Telecommunications Act*, *supra* note 8, s. 3(20) (47 U.S.C. s. 3(20)) [emphasis added].

[237] *Ibid.*, s. 3(44) (47 U.S.C. s. 3(44)) [emphasis added].

the public, or to such classes of users effectively available directly to the public, **regardless of the facilities used**."[238]

The last part of the provision cited above -"regardless of the facilities used"- is extremely important, since it is the core of the common carriers' approach. However, this provision has to be analyzed alongside Section 3(44) of the *Telecommunications Act*. According to Section 3(44) of the *Act*:

> [T]he term "telecommunications carrier means any provider of telecommunications services, except that such term does not include aggregators of telecommunications services (as defined in section 226). **A telecommunications carrier shall be treated as a common carrier under this 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.[239]

The combination of all the provisions outlined above, but in particular, the last two, leads to the conclusion that a provider who transmits telecommunications services should be treated as a common carrier as long as it provides telecommunications services. As a final point it is worth mentioning that no matter through which facilities the telecommunications services are being provided, the provider engaged in such activity is subject to Title II of the *Telecommunications Act*, which regulates common carriers.

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[238] *Ibid.*, s. 3(46) (47 U.S.C. s. 3(46)) [emphasis added].

[239] *Ibid.*, s. 3(44) (47 U.S.C. s. 3(44)) [emphasis added].

If a telecommunications provider is subject to Title II of the *Act*, it is also subject to the duty of interconnection. As was explained in the previous Chapter, interconnection is mandatory for all common carriers.

In addition to the preceding analysis, the last point of the common carriers' approach lies in the definition of advanced telecommunications capability contained in Section 706 of the *Telecommunications Act*,[240] which states: "advanced telecommunications capability" is defined by the Act as ...[h]igh speed, switched, broadband telecommunications capability that enables users to originate and receive high-quality voice, data, graphics, and video telecommunications **using any technology**."[241]

It is important to realize that the FCC has related the definition of broadband technology to this provision. For this reason, the common carriers' approach adds it to its analysis in order to conclude that the provision of broadband access might be transmitted using any technology. This means that providers of broadband telecommunications services should not be regulated under a determined section of the *Telecommunications Act* based on the technology they use to deliver the service.

To review the points previously analyzed, the common carriers' approach concludes that whenever a telecommunications provider transmits broadband telecommunications services over its facilities, it is bound to provide open access to other providers.

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[240] See, e.g., B. Rowe, "Strategies to Promote Advanced Telecommunications Capabilities" (2000) 52 Fed. Communications L.J. 381 at 383.

[241] See *Telecommunications Act*, *supra* note 8, s. 706 (47 U.S.C. 706) **[emphasis added]**.

- **The cable operators' approach**

The cable industry considers that Internet access and other related information services should be regulated as a cable service. The industry reached this conclusion after analyzing the following provisions:

According to the *Telecommunications Act,* cable service means:

> [(**A**)] 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 or use of such video programming or other programming service.[242]

Pursuant to Section 602(20) of the *Telecommunications Act,* the term video programming means "[**p**]rogramming provided by, or generally considered comparable to programming provided by, a television broadcast station."[243] Furthermore, the *Act* also defines other programming services as "[I]nformation that a cable operator makes available to all subscriber generally."[244]

Pursuant to these definitions, in order for the service to qualify as a cable service it has to meet the requirements set forth in subparagraphs A and B of the definition: i) the service must provide one-way transmission to the subscriber; ii) the transmission must consist of

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[242] *Ibid.*, s. 602(6)(a)-(b) (47 U.S.C. s. 522(6)(a)-(b)).

[243] *Ibid.*, s. 602(20) (47 U.S.C. s. 522(20)).

[244] *Ibid.*, s. 602(14) (47 U.S.C. s. 522(14)).

either video programming or another information service; and iii) the service might provide subscriber interaction for the selection or use of the video services.[245]

However, after inspecting the above provisions and then comparing them with the definition of information service, one can conclude that Internet and other information services are not covered by the video programming and video services provisions, particularly because video programming is a service comparable to that provided by TV stations and does not have anything in common with Internet and other information services. Can a TV station be said to engage in the "offering of capability for generating, acquiring, transforming, processing, retrieving, utilizing, or making available information via telecommunications..."?[246] On the contrary, what can be drawn from Section 602 of the *Telecommunications Act* related to cable service definition is the intention of law makers to clarify that cable and broadcasting services are similar to but at the same time different from common carrier services.

Thus, having rejected the possibility of defining Internet access and other information services as video programming, the only other option remaining is that those services might be addressed by the "other programming service" provision. Cable operators, especially AT&T-TCI, hold that the term information service and the term other

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[245] See Comstock & Buther, *supra* note 217 at 14.

[246] *Telecommunications Act*, *supra* note 8, s. 3(20) (codified as 47 U.S.C. s. 153(20)).

programming service have the same meaning.[247] Hence, when a cable operator is providing Internet access or other programming services it is offering a cable service.

In comparing the texts of Section 3(20) (information services) with Section 602(14) (other programming services) of the *Telecommunications Act*, it is easy to discern that their contents are not related, and thus each section is intended to regulate different services. The term information services included in Section 3(20) of the *Act* was conceived to describe and regulate Internet and other related information services such as the transmission of voice, video, Internet telephony, etc. Since all these services can be manipulated, selected, changed, or created by users, the information services' subscribers are called "active users". In the case of other programming services, included in Section 602(14), subscribers receive what the cable operator sends to them, without manipulating or managing the information. These types of subscribers, called "passive users", are more comparable to TV broadcast viewers than Internet users.[248]

Although the *Telecommunications Act's* provisions described in Chapter II are amply explicit, the legislative history of the *Cable Act* leaves little room for doubt about the meaning of cable services. Back in 1984, when the *Cable Act* was enacted, *the House Cable Act* Report pointed out:

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[247] See *In Re Petition of Internet Ventures, Inc and Internet On-Ramp, Inc., Reply Comments of AT&T Corp.*, Docket No. CSR-5407-L (11 August 1999) at 6.

[248] See Comstock & Buther, *supra* note 217 at 15.

> 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...**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.**[249]

The *House Cable Act* Report was drafted to clarify that cable services did not have same meaning as "enhanced" or "information" services. Indeed, two years before the enactment of the *Cable Act*, the Modification of the Final Judgement in the AT&T antitrust case had already adopted a precise definition for information services. Since then, it has become understood by law makers, the FCC, and the industries that information service refers to "[t]he offering of a capability for ... storing, transforming, processing, retrieving, utilizing...information by means of telecommunications...".[250]

As has been explained by E.W. Comstock & J.W. Buther, activities related to Internet access and other information services definitions were expressly excluded from the definition of cable services. Furthermore, the authors point out when commenting on the *House Cable Act* Report that the language of this Report could not be as explicit as the *Act* when it outlines that"[s]**ome examples of non-cable services would be**: shop-at-home and bank-at-home services, electronic mail, one way and two way transmission of

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[249] *Ibid.* at 15, citing H.R. Rep. No 98-934 at 42 [emphasis added].

[250] *Ibid.* at 16, citing *United States* v. *AT&T*, 552 F. Supp. 131 at 179 (D.D.C. 1982); *Maryland* v. *United States*, 460 U.S. 1001 (1983). As E.W. Comstock & J.W. Buther says, Congress adopted and included the Modification of the Final Judgement's definition of information services in Section 3 of the *Telecommunications Act*. See Comstock & Buther, *supra note* 218.

non-video data and information not offered to all subscribers, data processing, video-conferencing, and all voice communications".[251]

When the above-mentioned definition was drafted, Congress was precise and explicit because Internet and other information services were at least ten years away from being regulated and it could not predict how these services would evolve in the future.

However, no matter how explicit and clear the statutory provision of the *Telecommunications Act* might be, the cable industry still does not recognize that the provision of Internet access and information services does not constitute a cable service. Another argument that the cable industry has put forward is that the *Telecommunications Act* amended the definition of cable service, adding the phrase "or use", which according to the industry has changed the meaning of the definition.[252] Nonetheless, the mandatory nature of the provision remains intact. The new definition of cable service states: "[(**A**)] 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 **or use** of such video programming or other programming service".[253]

According to the cable industry, the phrase "or use" in subparagraph B gives the user some leeway to interact with and manipulate the system. However, in the opinion of some authors the addition of such a phrase in subparagraph B does not make any

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[251] *Ibid.* at 16, citing H.R. Rep. No. 98-934 at 44.

[252] See *ibid.* at 16.

[253] *Telecommunications Act*, *supra* note 8,s. 602(6)(A)-(B) (47 U.S.C. s. 522(6)(A)-(B)) [emphasis added].

difference since it does not alter the main definition of cable service included in subparagraph A. The cable industry has slowly taken advantage of the amendment of the Section, arguing that it expands the 1984 *Cable Act's* definition of cable service in order to allow interactive gaming among multiple cable subscribers. [254]

Thus, if Internet access and other related information services are not cable services, then cable providers, in providing broadband Internet access and other information services over their broadband facilities, act as LECs when they provide those services.

In determining how to regulate LECs and ILECs that provide Internet access along with telephone services through the same conduit, the FCC recently stated that the two services must be regarded as distinct services. The first should be treated as an information service, and the second as a telecommunications service (*e.g.*, the xDSL-enabled transmission path).[255] In relation to the cable and Internet access service provided by cable operators, -and in particular, the Internet service that AT&T transmits to its subscribers through @Home- the FCC itself has described it in terms of separate services that are bundled together at the time they are offered to consumers.[256] Thus, one service

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[254] See Comstock & Buther, *supra* note 217 at 17.

[255] See U.S.Federal Communications Commission. *Advanced Services Order*, 13 FCC Rcd 24029 at 24030, para. 36, online: U.S. Federal Communication Commission Homepage <http://www.fcc.gov.html> (date: accessed: 30 September 2000).

[256] See Comstock & Buther, *supra* note 217 at 18, citing U.S. Federal Communication Commission, *In re Applications for Consent to the Transfer of Control of Licenses and Section 214 Authorizations from TCI to AT&T*, Memorandum Opinion and Order, 14 FCC Rcd. 3160 at 3195, para. 70 (1999).

is the "underlying transport service" or "use of the cable network for data delivery", while the other is an "Internet service" and "content".[257]

In summary, it would be possible to end the broadband open access debate by regulating Internet broadband access and traditional cable services when they are provided by cable operators as separate services. Thus, Internet access would be regulated as an information service like that provided by LECs and ILECs, while cable service would be regulated as such. However, the FCC has not yet adopted this solution. So far the broadband open access debate is still being discussed among ILECs, LECs, cable operators, and unaffiliated ISPs.

- **The FCC's approach**

Initially, the FCC adopted a discretionary approach to the open access debate. According to the FCC, a person[258] who provides information services to the public is a common carrier only if the FCC affirmatively determines its status.[259] This approach has been mainly criticized for its lack of legal basis, specifically because there is no provision in the *Telecommunications Act* that grants the FCC discretionary authority to determine whether a person operating an information service is a common carrier or not. On the contrary, what Section 1 of the *Telecommunications Act* states is that the FCC has the

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[257] *Ibid.* at 18

[258] According to the *Act*, the term person means: "an individual, partnership, association, joint-stock company, trust or corporation". *Telecommunications Act*, *supra* note 8, s. 3(32) (codified as 47 U.S.C. s. 153(32)).

[259] See Comstock & Buther, *supra* note 217 at 7, citing Lathen, *supra* note 15.

duty to enforce and execute the provisions of the *Act*.[260] Therefore, the FCC has only follow the spirit and goals of this law without using a discretionary authority that it does not bear.

In 1976, the D.C. Circuit Court of Appeals, in *National Association of Regulatory Utility Commissioners* v. *FCC*, stated:

> **We reject an unfettered discretion in the Commission to confer or not confer common carrier status on a given entity depending upon the regulatory goals it seeks to achieve.** Besides the Court also said [a] **particular system is a common carrier by virtue of its functions, rather than because it is declared to be so.**[261]

Twenty years later, Congress followed the same criteria as the Court of Appeal when in the *Telecommunications Act* it did not include a provision that granting discretionary authority to the FCC. As mentioned earlier in this Chapter, the *Telecommunications Act* is extremely clear in Section 3(10) when it outlines which entities shall be treated as common carriers.[262] A review of Section 3(10) shows that it does not delegate authority to the FCC to determine whether or not an entity should be regulated under the common carrier provisions. Congress was clear when it gave the FCC enough discretionary authority to forbear from applying requirements of the *Telecommunications Act* under

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[260] See *Telecommunications Act*, *supra* note 8, s. 1 (codified as 47 U.S.C. s. 151).

[261] Comstock & Buther, *supra* note 217 at 7, citing 525 F.2d 630 at 644 (D.C. Circuit. 1976 Naruc I).

[262] According to the *Telecommunications Act*, the term common carriers refers to "any person engaged as a common carrier for hire, in interstate or foreign communication by wire or radio or in interstate or foreign radio transmission of energy, except where reference is made to common carriers not subject to this Act; but a person engaged in radio broadcasting shall not, insofar as such person is so engaged, be deemed a common carrier." *Telecommunications Act*, *supra* note 8, s. 3(10) (47 U.S.C s 153 (10)).

certain conditions. However, the determination of when a person shall be considered as a common carrier is not part of the FCC's forbear authority.

The position of the FCC is a response to the fact that the Commission does not want to apply the *Telecommunications Act's* common carrier provisions to cable operators when they provide information services such as the Internet, probably because if the FCC were to do so, cable operators would be forced to open their networks to new competitors.

Therefore, in order not to assume the responsibility of imposing a mandatory open access policy over cable operators, the FCC's most revolutionary argument is that market forces and not regulatory orders and reports have to direct the broadband open access debate.[263] In fact, in the opinion of the FCC's Chairman, Mr. William Kennard, they have to let the market forces govern the situation.[264] In the view of the Commission, only if market forces fail will it intervene and regulate open access. In the meantime the Commission will just remain alert.[265]

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but a person engaged in radio broadcasting shall not, insofar as such person is so engaged, be deemed a common carrier." *Telecommunications Act*, *supra* note 8, s. 3(10) (47 U.S.C s 153 (10)).

[263] See W.E. Kennard, "Broadband Cable: Next Steps" (1999), online: U.S. Federal Communications Commission Homepage <http:www.fcc.gov/Speeches/Kennard/spwek944.html> (date accessed: 20 June 2000). See also "FCC Chairman Kennard Releases Cable Staff Report on the State of the Broadband Industry: Provides Evidence of Emerging Competition and Importance of National Policy" *FCC News* (13 October 1999), online: U.S. Federal Communications Commission Homepage <www.fcc.gov/Bureaus/Cable/News_Releases/1999/nrcb9017.html> (date accessed: 8 August 2000).

[264] See W.E. Kennard, "Kennard's Remarks Supporting Marketplace Solutions for the Open Access Debate", online: Federal Communication Commission Homepage <http://www.fcc.gov/Bureaus/Cable/News_Releases/2000/nrcb0002.html> (date accessed: 8 August 2000).

[265] See U.S. FCC, "Cable Access", *supra* note 22.

problem with this approach is that many unaffiliated ISPs and telephone carriers are not being connected with cable operators' broadband facilities, which among other things means that a number of consumers are not being served. Besides, this is creating an environment of powerful corporations such as AT&T-TCI, which currently control a huge portion of the cable broadband facilities in the U.S. In the opinion of some authors, like E. Comstock and J. Buttler, the solution to the open access debate is in the provisions of the *Telecommunications Act*. Thus, according to them, the FCC does not even have to establish a national mandatory open access policy over cable operators, but simply has to enforce the provisions of the Act.

The FCC has refused to enforce the *Telecommunications Act's* provisions related to open access. In the opinion of the FCC, in doing so it would damage the nascent broadband market. Furthermore, a non-mandatory open access regime has allowed different providers to deploy new technologies such as DSL (Symmetric and Asymmetric) and Satellite broadband platforms, among others, which has benefited consumers, who may now select from a variety of choices.

However, the FCC recently stated that some consumers have had problems obtaining broadband access. Apparently this fact has forced the FCC to take a different approach to the open access issue. In fact, the Commission is now starting to notice that letting market forces lead the broadband access issue is not benefiting the market, and at the same time, it is damaging small competitors and consumers. In the FCC's Report on the Availability of High-Speed and Advanced Telecommunications Services, the FCC

recognized that some groups are particularly vulnerable to not having access to advanced services if the deployment of a broadband network is left to market forces alone.[266] In particular, the FCC Report pointed out that "[r]ural Americans, particularly those outside of population centers; inner city consumers; low-income consumers; minority consumers; and tribal areas"[267] are being damaged by not having access to a broadband network.

Recently the FCC acknowledged that a new approach is needed to improve the situation.[268] Thus, the Commission issued a list of actions that might accelerate the adoption of a solution to the broadband open access debate. Among the actions listed is that "[t]he Commission will initiate a proceeding on the issue of whether to establish a national policy to mandate access by multiple Internet service providers to a cable company's platform."[269]

After reviewing the FCC's above-mentioned statement, it seems that the Commission is slowly changing its view of the open access debate. However, the FCC does not need to issue a new national open access policy to solve the problem since it should only enforce

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[266] See U.S. Federal Communication Commission, "FCC Issues Report on the Availability of High-Speed and Advanced Telecommunications Services" *FCC News* (3 August 2000), online: U.S. Federal Communication Commission Homepage <http://www.fcc.gov/Bureaus/Common_Carrier/News_Releases/2000/nrcc0040.html> (date accessed: 1 September 2000). [here in after Availability of High-Speed and Advanced Telecommunications Services"]

[267] *Ibid.*

[268] See U.S. Federal Communication Commission, "Federal Communications Commission Action to Accelerate Availability of Advanced Telecommunications Services for Residential and Small Business Consumers: Line Sharing to Lower Cost and Increase Availability of Broadband Services used for High Speed Access to the Internet", (18 November 1999), online: U.S. Federal Communication Commission Homepage <http://www.fcc.gov/Bureaus/Common_Carrier/News_Releases/1999/nrcc9092.html> (date accessed: 8 August 2000).

[269] U.S. FCC, "Availability of High-Speed and Advanced Telecommunications Services", *supra* note 266.

and apply the *Telecommunications Act*. In doing so, the FCC will accomplish its duty and will follow the goals and objectives of the *Telecommunications Act*, which definitely will be in the best interest of all Americans.

- **The *AT&T* v. *City of Portland Case*. The final decision of the Court of Appeal for the Ninth Circuit**

Special attention will now be given to the Court of Appeal for the Ninth Circuit's decision[270] on the broadband open access case because of its relevance to the current debate.

The decision primarily analyzes whether or not a local cable franchising authority may condition the transfer of a cable franchise on the cable operator's granting of open access to its broadband facilities to unaffiliated ISPs. In response to that question, the Court of Appeal concluded that the *Telecommunications Act* prohibits a franchising authority from doing so; therefore, the Court reversed the judgement of the district court.[271]

In order to arrive at that conclusion, the first issue the Court considered was whether @Home's services were cable services as defined by the *Telecommunications Act*. The conclusion of the Court was that those services could not be classified as cable services

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[270] See *AT&T* v. *City of Portland*, *supra* note 228.

[271] See *ibid.*

because cable service, the Court said, is a one-way transmission of programming to subscribers generally. Contrasting this definition, the Court pointed out:

> Internet access is not one-way and general, but interactive and individual beyond the "subscriber interaction" contemplated by the statute. Accessing Web pages, navigating the Web's hypertext links, corresponding via e-mail, and participating in live chat groups involve two-way communication and information exchange unmatched by the act of electing to receive a one-way transmission of cable or pay-per view television programming. Thus, the communication concepts are distinct in both a practical and a technical sense. Surfing cable channels is one thing; surfing the Internet over a cable broadband connection is quite another.[272] Further, applying the carefully tailored scheme of cable television regulation to cable broadband Internet access would lead to absurd results, inconsistent with the statutory structure. For example, cable operators like AT&T may be requires by a franchising authority to set aside cable channels for public, educational or governmental use, see 47 U.S.C. S. 531, designate some of their channels for commercial use by persons unaffiliated with the operator, see 47 U.S.C. S 532, and must carry signals of local commercial and non-commercial educational television stations, see 47 U.S.C. SS 534 & 535. **We cannot rationally apply these cable television regulations to a non-broadcast interactive medium such as the Internet...**" "...Thus because the Internet service AT&T provides through @Home cable modem access are not "cable services" under the Communications Act. Portland may not directly regulate them through its franchising authority.[273]

Having concluded that Internet services are not cable services and therefore are not regulated under the cable television service provisions, the second subject the Court analyzed was under which provisions of the *Telecommunications Act* Internet service must be regulated. The first point the Court explained was that an Internet service provided through conventional telephone lines is a telecommunications service. According to the *Telecommunications Act*, the Court stated, the connection a telephone

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[272] See *ibid.*

[273] *Ibid.* [emphasis added].

service generates between the user and the ISP is classic telecommunications.[274] Since a provider of telecommunications services is considered by the *Telecommunications Act* as a telecommunications carrier, which the Act treats as a common carrier, the Court concluded that telecommunications services must be regulated under the common carrier provisions.[275]

However, the situation is different when an ISP leases a telephone line through which it transmits the Internet service. According to the Court, when an ISP leases a telephone line it is transporting an Internet service or an information service via telecommunications to its subscribers, but it is not providing a telecommunications service. In this case, ISPs are themselves users of telecommunications services; they are not telecommunications services providers.[276] Therefore, they cannot be regulated under the *Act* as telecommunications carriers.

The Court concluded that the above interpretation cannot be applied in the case of @Home, since it is an ISP that controls and operates its own broadband network. Like others ISPs, the Court explained that @Home's service consists of two elements: a pipeline (that is, a cable broadband instead of a telephone line), and the Internet service transmitted through that pipeline.[277] Thus, to the extent that @Home provides its

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[274] See *ibid.*

[275] See *ibid.*

[276] See *ibid.*, citing 47 U.S.C. s. 153(20). The Court also cites Federal-State Joint Board on Universal Service, 13 F.C.C.R 11501, PP BM, CB (1998) (Report to Congress); *Child Online Protection Act*, Pub. L. No. 105-277, s. 1403(e)(4).

subscribers' Internet transmission over its cable broadband facility, it is providing a telecommunications service as defined in the *Telecommunications Act*.

Even though, the Court also determined that the cable broadband Internet service provided by @Home was also an advanced telecommunication service. In the *Telecommunications Act*, advanced telecommunications capability 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."[278]

The Court stated that the above definition was consistent with its view of what cable broadband high-speed Internet access was, and with the view of the FCC, since it regulated DSL service, as an advanced telecommunication service subject to common carrier regulation. Thus, the Court concluded that the cable broadband Internet access provided by @Home should be regulated as an advanced telecommunication service subject to the common carrier regulation.

In saying that the @Home service was subject to the common carrier regulation, the Court subjected @Home to all the duties of common carriers, among which the most important is interconnection. Regarding this point, the *Telecommunications Act*

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[277] See *ibid.*

[278] *Telecommunications Act, supra* note 8, s. 706 (c) (1) (codified as 47 U.S.C. s. 706 (c)(1)).

establishes that "[e]ach telecommunications carrier has the duty to interconnect directly or indirectly with the facilities and equipment of other telecommunications carriers."[279]

Evidently the Court clearly concluded that a provider of cable broadband Internet service that operates its own network is a provider of advanced telecommunication services, and should be subject to common carrier regulation. Therefore, such provider is obligated to provide open access to its network to other competitors.

The decision of the Court is extremely relevant to the open access debate, particularly because the Court determined that franchising authorities did not have competence to impose a mandatory open access condition on a cable operator when it is providing broadband Internet service, since this is not a cable service. The interpretation of the Court is in accordance with the goal of the *Telecommunication Act* of constructing a broader telecommunication market where all competitors can be interconnected. However, unfortunately the FCC has not yet adopted the decision of the Court to solve the broadband open access debate. Indeed, it has not yet been determined how cable broadband Internet access should be regulated, as it previously did to determine the regulation of DSL.

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[279] *Ibid.*, citing 47 U.S.C s. 251(a)(1).

4. How have the market forces driven the broadband open access debate: Business Convergence

Business convergence is the last implication of the convergence process. Business convergence has consolidated industries that were previously separated. Thanks to business convergence, the telephone and the cable industries, along with the information industry, are now able to merge.

However, the *Telecommunications Act* imposes some limitations on cable operators and telephone carriers' mergers. According to the *Act,* a cable operator cannot acquire more than a 10% percent financial interest in a local telephone carrier that provides service in the cable operator's franchise area, while a local telephone carrier cannot acquire more than a 10% percent financial interest in a cable operator providing service in the telephone carrier's service area.[280] Direct mergers and joint ventures between cable operators and telephone carriers are prohibited in the same area. However, the ban on joint ventures is limited to the provision of video programming and telecommunications services. A joint venture for different purposes, such as the construction of physical facilities for providing video programming and services, would be permitted. [281]

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[280] See *ibid.*, citing *Telecommunication Act*, *supra* note 8, ss. 302 & 652(a)-(b), 110 Stat. 125 (47 U.S.C. s 652(a)-(b)).

[281] See Meyerson, *supra* note 187 at 276.

Since the *Telecommunications Act* allows mergers between cable operators and telephone carriers, the major telephone carriers and unaffiliated ISPs have started to merge with cable operators in order to access the broadband network of the latter. The main merger cases have been the already consolidated merger between AT&T and TCI, and the proposed mergers between AT&T-MediaOne and AOL-Time Warner.

AT&T is the largest domestic and international long distance telecommunications carrier in the U.S.[282] The company offers communications services to residential, business, and government customers, and operates in more than 250 countries around the world.[283] AT&T also provides local business exchange services to residential and business customers. In order to expand its local exchange service AT&T acquired Teleport Communications Group Inc., the nation's largest competitive local exchange carrier. In addition, AT&T also offers wireless services in numerous metropolitan markets in the U.S.

TCI, a cable company that is a diversified corporation, holds three main subsidiaries: TCI Communications (TCI-C), Liberty Media Group (Liberty Media), and TCI Venture Group (TCI Venture). Through TCI-C, the corporation offers video programming, local, regional, and national cable television service, local broadcast stations, premium movies and pay-view channels, and finally sports programming services to homes and businesses

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[282] See *Application for Consent to the Transfer of Control of Licenses and Section 214*, CS Docket No 98-178 in *U.S. Federal Communications Commission Memorandum Opinion and Order* (18 February 1999), online: U.S. Federal Communications Commission Homepage <www.fcc.gov/Bureaus/Cable.html> (date accessed: 8 September 2000) [hereinafter "Memorandum Opinion and Order"].

[283] See *ibid.*

nationwide. Liberty Media is an investor in and manager of entities engaged in the production, acquisition, and distribution of entertainment and informational programming and software, including multimedia products.[284] Finally, through TCI Venture Group, TCI holds its non-cable, non-programming, and international assets, including its investment in @Home, through which it offers high-speed Internet services.

MediaOne was one of the largest cable television operators in the U.S. The company also provided broadband Internet access through its affiliated ISP, Road-Runner. AT&T acquired MediaOne in order to enhance its service of broadband Internet access's through Road-Runner. This merger will be analyzed further later in this Chapter.

AOL is a worldwide provider of interactive services, webpage brands, Internet technologies, and electronic commerce services. AOL offers its services through two lines of business, Interactive Online Services and Enterprise Solutions. [285]

Time Warner is a worldwide media and entertainment company. Time Warner's principal businesses are classified into different segments, such as cable networks, publishing, music, filmed entertainment and cable and digital media.[286]

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[284] See *ibid.*

[285] See U.S. Federal Communication Commission, *Public Interest Statement: A document submitted by AOL and Time Warner before the FCC in the matter of Applications of both companies for transfer control* (11 February 2000), online: U.S. Federal Communication Commission Homepage <http://www.fcc.gov.csb.html> (date accessed: 8 September 2000).

[286] See "Memorandum Opinion & Order", *supra* note 282.

4.1 AT&T mergers

- AT&T-TCI merger

On 24 June 1998 AT&T announced its agreement to merge with TCI.[287] Under this agreement AT&T planned to consolidate its telecommunications business with TCI's cable networks and therefore build a facilities-based local residential telecommunications network.[288] Through the new facility AT&T is able to offer broadband Internet access and local telephone service in competition with ILECs.[289] The enhanced AT&T-TCI can provide two-way voice and data communications service, along with the already upgraded high-capacity broadband network. Both companies aired as one of the most relevant advantages of the merger that it will give consumers an "[u]nprecendented choice of communications, entertainment and advanced information services from one company with one easy connection."[290]

On 14 September 1998, AT&T and TCI filed joint applications under Sections 214(a) and 310(d) of the *Telecommunications Act* requesting FCC approval of the transfer of control to AT&T of the licenses and authorizations controlled by TCI,

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[287] See *ibid.*

[288] See *ibid.*

[289] See *ibid.*

[290] *Ibid.*

and its affiliates and subsidiaries. After the applications were filed, competing ILECs, large ISPs such as AOL, and consumers groups, alarm at the potential monopoly that might result from deploying broadband services, made their concerns to the FCC.[291] The group asked that i) the merger should be conditioned on the provisions of Section 224 of the *Telecommunications Act* regarding the utility's duties. Ameritech Inc. (Ameritech) was the first company to propose that AT&T and TCI should be required to comply with Section 224 wherever the company acts as a LEC, and therefore as a "utility" within the statutory definition.[292] Section 224 of the *Telecommunications Act* states that "a utility shall provide a cable system or any telecommunications carrier with nondiscriminatory access to any pole, duct, conduit, or right of way owned or controlled by it."[293] According to Ameritech, the term "utility" includes LECs that own or control such facilities or rights-of-way and use them to any extent for wire communications.[294] The fact that the merged company use cable facilities to offer telephone service does not alter the content of Section 224 of the *Telecommunications Act*. Finally, Ameritech highlighted that there is nothing in the plain language of the statute to suggest that the use of cable facilities to provide telephone services would exempt a LEC from the requirements of Section 224.[295]

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[291] See Feld, *supra* note 220at 26.

[292] See "Memorandum Opinion and Order", *supra* note 282.

[293] *Telecommunications Act*, *supra* note 8, s. 224(a)(1) (47 U.S.C. s. 224(a)(1)).

[294] See Ameritech Inc. Comments in Memorandum Opinion and Order, *supra* note 282.

The FCC rejected the argument, and refused to impose Section 224 of the *Telecommunication Act* as a condition of the AT&T-TCI merger because the Commission determined that the merged company would not act as a "utility" within the meaning of Section 224 when it was only providing cable services.

ii) In a second argument, companies such as Ameritech, EchoStar, Direct TV, and U.S.West urged the FCC to impose the Commission's program access rules with respect to the AT&T-TCI merger because of TCI's investments in cable-affiliated programming vendors through its subsidiary Liberty Media. The FCC denied the petition on the ground that the rules were adopted to minimize the incentive and ability of vertically integrated programming suppliers to favor affiliated cable operators over nonaffiliated cable operators or other multi-channel video provider distributors in the sale of satellite cable and satellite broadcast programming.[296] The FCC was clear when said that it would not apply the rules to terrestrially delivered programming distributed by the merged company. However, if the Commission were to notice that, as a trend, vertically integrated programmers were switching from satellite delivery to terrestrial delivery for the purpose of evading the FCC's rules, it would find an appropriate solution to that issue.[297] AT&T and TCI added that the condition of imposing the open access

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[295] See *ibid.*

[296] *Ibid.*

[297] See *ibid.*, citing *Implementation of the Cable Television Consumer Protection and Competition Act of 1992. Petition for Rulemaking of Ameritech New Media, Inc. Regarding Development of Competition and Diversity in Video Programming Distribution and Carriage*, Cs Docket No. 97-248.

rules was unnecessary since there was nothing in the open access rules forbidding them from entering into exclusive arrangements with programming vendors not vertically integrated and not covered by the rules.[298] Hence, the open access rules shall be applied to the agreement between Liberty Media and the new merged company since they are vertically integrated, but they cannot be imposed as a condition of the merger of AT&T and TCI.

iii) The third argument was related to how the merged company should be treated: as LEC or as an ILEC. The FCC refused to regulate the merged company as an ILEC. Thus, the merged company can not be obligated by the duties the *Telecommunications Act* imposes over ILECs, among which interconnection is the most important. It seems that the merged company will be regulated depending on the services it offers. This means that the merged company will be subject to Section 251(a) only to the extent that it provides telecommunications services. To the extent that the merged firm provides local exchange service, it will be subject to Section 251(b). However, these Sections will not be applied when the merged company provides Internet access service or any other service delivered over cable lines. Pursuant to the opinion of AT&T and TCI, Internet access and other information services provided over cable facilities shall be regulated as cable services. The Commission determined that AT&T-TCI could not be classified as a "comparable carrier" subject to the unbundling, resale, and other requirements of Section 251(c) when it provided broadband Internet

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[298] See *ibid.*

services.[299] Regarding to the transmission of voice over the Internet, a service better know as Internet telephony, the FCC did not decide the issue at the moment it authorized the merger, since the merged company would not initially provide this service. The FCC said that it would decide how to regulate such transmission when merged company initiated.

In the final decision of the FCC regarding the AT&T-TCI merger, it stated that:

> [w]e conclude noting about the proposed merger would deny any customer (including AT&T-TCI customers) the ability to access the Internet content or portal of his or her choice. We further conclude that the open access issues would remain equally meritorious (or non-meritorious) if the merger were not occur. Moreover, as we observed in the Advanced Services Report, multiple methods of providing high-speed Internet access appear to be emerging, and the Commission will monitor broadband deployment closely. Therefore, we find that the equal access issues raised by parties to this proceeding do not provide a basis for conditioning, denying, or designating for hearing any of the requested transfers of licenses and authorizations.

- AT&T-MediaOne merger

On 7 and 15 July 1999 AT&T and MediaOne filed joint applications before the FCC requesting the authorization and transfer of MediaOne's licenses to AT&T. On 5 June 2000 the FCC granted conditioned approval to the proposed merger. Like the one between AT&T and TCI, the FCC found that the merger benefited

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[299] See U.S.Federal Communications Commission News, "Citing Pro-Competitive Benefits to Consumers, Commission Approves AT&T-TCI Merger", online: U.S.Federal Communication Commission Homepage <http://www.fcc.gov/Bureaus/Cable/News_Releases/html> (date accessed: 4 August 2000) [hereinafter "Citing Pro-competitive Benefits to Consumers"].

the public interest and the local phone competition since the merged company would be able to compete successfully against ILECs. In fact, the FCC added that the AT&T-Media One merger would enable a new company to provide local telephony competition more effectively than either company would provide independently or through joint ventures.[300]

Regarding the broadband open access issue, the FCC refused to impose conditions. In its opinion, the merged company would be able to offer high-speed Internet access over a vast cable infrastructure.[301] Despite these issues, the FCC found that approving of the AT&T-MediaOne merger without a divestiture condition would violate the FCC's horizontal ownership rule, which prohibits a single cable company from serving more than 30 percent of the nation's multi-channel video programming distribution subscribers, who are principally served by cable operators and direct broadcast satellites providers. The FCC determined that if it approved the merger without imposing any divestiture condition, AT&T would dominate 41.8 percent of the nation's video market. For this reason, it conditioned the merger and gave AT&T the alternative of choosing among three divestiture choices. The one elected has to be completed by 19 March 2001.[302] If

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[300] See U.S. Federal Communications Commission News, "FCC grants Conditioned Approval of AT&T and MediaOne Merger; Divestitures Ordered for Compliance with FCC 30% Subscriber CAP", online: U.S. Federal Communication Commission Homepage <www.fcc.gov/Bureaus/Cable/News_Releases/html> (date accessed: 1 September 2000).

[301] See *ibid.*

[302] See *ibid.*

AT&T does not meet the deadline, it must designate its assets to an irrevocable trust to be sold so as to complete the elected divestiture option.[303]

4.2 AOL-Time-Warner merger

On 10 January 2000, AOL and Time Warner reached an agreement to merge both companies into a new one holding company called AOL Time Warner.[304] On 11 February 2000 both companies filed joint applications before the FCC in order to obtain approval to transfer the licenses from Time Warner and AOL to AOL Time Warner. The FCC has not yet given it approval to the merger, because it is still considering whether or not the merger will benefit the public interest, competition in the telecommunications market, and consumers. The AOL-Time Warner merger has been described as one of the most relevant for the telecommunications market. Before reaching the agreement AOL served 20 million subscribers who were receiving service through slow telephone lines. AOL's merger with Time Warner represents an upgrade in service, since they will be able to get a high-speed Internet service from Time Warner's broadband network.[305]

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[303] See *ibid.* See also C. Grice, "FCC approves AT&T MediaOne merger" CNTE News, June 5 2000, online: CNET News Homepage <http://www.news.cnet.com/news/0-1004-202-2021110.html> (date accessed: 9 September 2000).

[304] See "AOL Acquires Time Warner for $156 Billion" *SatNews* (10 January 2000), online: SatNews Homepage <http://www.satnews.com.html> (date accessed: 15 January 2000). See also "Fusion AOL-Time Warner revela signos de la nueva economia" *El Nacional* (15 January 2000), online: El Nacional Homepage <http://www.el-nacional.com.html> (date accessed: 15 January 2000).

[305] See Staff Writer & M. Masterson, "You've Got Broadband: AOL-Time Warner Could Offer Fast Access, Varied Features for Net Users" *CNN* (14 January 2000), online: CNN Homepage <http://cnnfn.com/200/01/14/technology/broadband/html> (date accessed: 5 September 2000).

On 11 February 2000, AOL and Time Warner also submitted a Public Interest Statement[306] before the FCC in which both companies explained the benefits the merged company would provide to consumers and the market. The submitted document raised three points: i) "[T]he FCC's Public Interest Standard; ii) Together AOL and Time Warner will Spur the Rapid Development of the Next Generation of Broadband Services Content, and iii) the Merger will lead to a Marketplace Solution to the "Open Access" Issue". In the last two points of the document, the companies highlighted:

> [T]he merger company will commit to a policy of consumer choice among multiple ISPs available over a broadband networks. Just as we expect that our services and products will be directly available to subscribers of other delivery platforms on a commercially reasonable basis, likewise we intend to offer competing service providers' services on our systems. The merger therefore will directly advance the Commission's stated goal of providing expanded consumer choice through marketplace forces. Our driving vision is to make our content and services available to consumers through any and all means of access, including cable, DSL, satellite, and wireless. Nor will we deny our subscriber's ready access to content from other providers, an approach that has no place in today's Internet environment.[307]

Despite the benefits that AOL and Time Warner felt the proposed merger would represent to consumers, the announcement raised the concern of the Consumer's Union. In particular, the Union's members were worried about whether AOL and Time Warner's promises on the broadband open access issue would benefit the market's competence or if regulatory intervention would be needed.[308] Besides the Consumer's Union's concerns,

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[306] See AOL & Time Warner, *Public Interest Statement submitted before the FCC on 11 February 2000*, online: U.S. Federal Communication Commission Homepage <http://www.fcc.gov/Bureaus/Cable.html> (date accessed: 5 September 2000).

[307] *Ibid.*

the companies were also the targets of U.S. regulators, particularly the Federal Trade Commission (FTC), which was inspecting the antitrust implications of the deal. In response to those concerns, AOL's Chairman Stephen Case, a Time Warner's Chief Executive Officer Gerald Levin, appeared on 29 February 2000 before the Senate Judiciary Committee to promise that unaffiliated ISPs would be allowed access to the broadband networks of the AOL Time Warner.[309] The open access pledge was included in a Memorandum of Understanding[310] (MOU) presented to the members of the Judiciary Committee. Senators at the Judiciary Committee were not very optimistic about the open access promises made by AOL and Time Warner. However, the Chairman of the Committee said: "[T]he cable lines will have to be kept open, and I think this memorandum of understanding is a step in the right direction."[311] AOL's Chairman and Time Warner's Chief Executive Officer made a personal commitment to implement open access.[312]

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[308] See "AOL Pledges Open Access: CEOs on Capitol Hill, ISPs to Get Time Warner Cable Access After a Deal", online: CNN Homepage <http://cnnfn.com/2000/02/29/technology/aol_timewarner/html> (date accessed: 5 September 2000).

[309] See *ibid.*

[310] See AOL & Time Warner, "Memorandum Of Understanding: Regarding Open Access Business Practices" presented before the Senate Judiciary Committee on February 29, 2000 and submitted before the FCC on March 1, 2000", online: U.S. Federal Communication Commission Homepage <http://www.fcc.gov/csb/html> (date accessed: 8 September 2000). [here in after "Memo of Understanding AOL & Time Warner"]

[311] *Ibid.*

[312] See *ibid.*

The MOU sets out the commitments that AOL and Time Warner would make to provide open access to its broadband networks. The most relevant commitments outlined in the MOU are:

i) the parties will enter as quickly as possible into a binding agreement to provide broadband AOL service on Time Warner's cable systems;

ii) consumers will not be required to purchase the service from an ISP that is affiliated with AOL Time Warner in order to enjoy broadband Internet service over AOL Time Warner cable systems;

iii) AOL Time Warner will not place any fixed limit on the number of ISPs with which it will enter into commercial agreements to provide broadband services to consumers;

iv) AOL Time Warner will allow ISPs to provide video streaming;

v) AOL Time Warner will allow ISPs to connect to its broadband cable systems without purchasing broadband backbone transport from AOL Time Warner;

vi) AOL Time Warner will allow both the cable operator and the ISP to have the opportunity to have a direct relationship with the consumer;

vii) Time Warner and AOL will articulate the terms, conditions, and parameters under which a combined AOL Time Warner will offer consumers access to multiple ISPs on its broadband cable systems. It is the intention of the parties to continue to choose among multiple ISPs offering broadband service and the still-evolving nature of the cable infrastructure.

Despite of the submission of the MOU and the appearance of the Chairman and CEO before the FCC last July, AOL and Time Warner have not obtained approval for the merger from the FCC. The FTC's lawyers are now trying to block the merger unless the companies agree to open their networks to competing companies.[313] In response to the

[313] "FTC Challenges AOL-Time: Antitrust Lawyers Could Ask that the Union be Blocked Unless Cable Lines are Opened", CNN Printer Friendly Output (4 September 2000), online: CNN Homepage <http://cnnfn.com/2000/09/04/deals/aol_ftc/html>. See also J. Grimaldi & A. Klein, "U.S. Puts Brakes on AOL-Time Warner Deal" *The [Montreal] Gazette* (5 September 2000) F5. See also P.S. Goodman, "FCC

FTC' stance, AOL's Chairman and Time Warner's and CEO have again highlighted that the position of the companies have intended since day one to permit open access to their networks. However, the FTC's lawyers hold that they have enough evidence to convince a federal judge that is better to impose such a condition on the AOL-Time Warner merger. A decision from the FTC is not expected soon, and neither is the FCC's approval. [314]

In comparing the AT&T-TCI and the AOL-Time Warner mergers, it is relevant to observe how the regulators have treated the open access issue. In the first case, the merger between AT&T and TCI was approved by both the FCC and the FTC without any major obstacles. In the case of AT&T-TCI's merger, the FCC found that it would not harm competition for the Internet services, and therefore it did not consider that it would necessary, at the time it was taking the decision, to condition the merger to an open access rule.[315] However, nowadays the FTC is using the open access issue as a main argument to block the merger to AOL and Time Warner.

Why is the FTC endeavoring to condition the merger when it did not impose the same rule on AT&T-TCI? Obviously, there is no difference from one case to the other. In both cases, the companies involved plan to provide Internet access through a broadband

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Enters Debate On Net Access" *Washington Post* (14 September 2000), online: Washington Post Homepage <http://www.washingtonpost.com/cgi-bin/gx.cgi/APPLog/html> (date accessed: 25 September 2000). But see P.S. Goodman & A. Klein, "FCC Offers AOL Terms" *Washington Post* (21 September 2000), online Washington Post Homepage <http://www.washingtonpost.com/cgi-bin/gx.cgi/APPLog/html> (date accessed: 25 September 2000).

[314] See "Memo of Understanding AOL & Time Warner", *supra* note 310.

[315] See "Citing Pro-competitive Benefits to Consumers", *supra* note 299.

network. However, unlike AT&T, which has always denied open access to competitive firms, AOL-Time Warner has agreed to allow it since they announced the merger.

If the FTC finally imposes a mandatory open access condition on the AOL-Time Warner merger, the FCC should do the same with AT&T-TCI, even though it has already given it approval without imposing such condition. Otherwise, competition will not be level in the market, since many ISPs that could be interconnected through AT&T-TCI broadband network will be frustrated simply because the company does not want to provide open access.

CONCLUSION

Technological convergence brought about the enactment of the *Telecommunications Act,* which regulates business convergence in the U.S. telecommunications market. Artificial regulatory distinctions encompassed in previous legislation no longer exist. Instead, they have been replaced by a single concept, "telecommunications service", which includes -among others- telephony and cable services. Therefore, the provisions of telecommunications service must be rendered in compliance with the *Telecommunications Act.*

Once broadband technology came into being, telephone carriers and unaffiliated ISPs were denied access to the cable operators' broadband networks. Since the *Telecommunications Act* does not insist on an interconnection duty on the part of cable operators, the FCC ruled that access to cable operators' broadband network should be driven by market forces rather than more regulation. Hence, the FCC created a barrier for telephone carriers and ISPs and, consequently, failed to apply and enforce the *Telecommunications Act.*

As telephone carriers and unaffiliated ISPs were prevented from interconnecting with cable operators' broadband networks, certain telephone carriers decided to circumvent that barrier by acquiring an equity interest in cable companies. As has become apparent, the merger of TCI with and into AT&T falls into this scenario. Furthermore, in this case,

AT&T has adopted the cable operators' position; that is, AT&T has denied access to its broadband network.

Based on the spirit and objectives of the *Telecommunications Act*, I am of the opinion that the FCC has to make interconnection mandatory for all providers of telecommunications service to implement broadband open access in the U.S. telecommunications market. Furthermore, so long as cable operators provide Internet and other related information services, the FCC should adopt the view of regulating such service as telecommunications service under the common carrier provisions set forth in Title II of the *Telecommunications Act*.

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