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**Past and Present: Making the Case for a Regulatory Approach to
Addressing Disability Discrimination in the Provision of Emerging
Broadband and Cable Technologies**

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OVERVIEW

As a society, few would question that we have an obligation to ensure that people with disabilities have the same opportunity to access evolving broadband and cable technologies as the mainstream public. These technologies are rapidly and dramatically changing our methods of communication and information gathering, and offering a plethora of new ways to be educated and entertained, become and stay employed, and fulfill our daily and civic responsibilities. Internet-based technologies have already proven to be liberating for millions of Americans, and can offer greater independence, enhanced productivity and greater access to the marketplace for people with disabilities. However, if these technologies are not designed and implemented to take into account the accessibility needs of this population, they can instead turn into tools of isolation and alienation, much as the basic telephone did for people who are deaf and hard of hearing during its first 100 years, and as television did during its first 50 years. As an expanding number of essential services, such as employment applications, car registration renewals, and instructional coursework go on-line, it is increasingly critical to provide access to these services to enable individuals with disabilities to remain independent and self-sufficient.

To date, the accessibility track record on broadband technologies and applications is mixed. Many new capabilities for communication and information have benefited people with disabilities, but gaping holes in accessibility still persist (and continue to emerge), with different groups of people with disabilities experiencing varying benefits and barriers. To achieve equality, it is critical that federal policies be put into place to require accessible features to be built-in to these technologies and services as they are being designed, when the costs and feasibility of incorporating such access are manageable. If too much time passes,

the costs and burdens of retrofitting such products and services to make them usable by people with disabilities will be far greater. Moreover, the need for accessibility safeguards will only intensify in the coming years, as the nation's growing senior citizen population contributes to the expanding the number of people with vision, hearing, cognitive and mobility disabilities who need such access in order to remain independent.

History shows that market forces alone will not be sufficient to safeguard the communications access needed by people with disabilities. It was for this reason that, during the 1980s and 1990s, Congress and the Federal Communications Commission (FCC) repeatedly intervened with regulatory policies designed to ensure that telecommunications technologies were accessible to Americans with disabilities. For example, in its very first law addressing telecommunications accessibility, the Telecommunications for the Disabled Act of 1982,¹ Congress justified the continued cross subsidization of specialized telephone equipment with telephone revenues (while banning such offsets for mainstream devices) because competition by the disability market would not be strong enough to constrain the high prices of this specialized equipment:

For most ratepayers, deregulation may indeed ensure a competitive market in telephone sets and eliminate subsidies for such sets from local rates. For the disabled, however, the ban on cross-subsidization could mean unregulated price increases on the costly devices that are necessary for them to have access to the telephone network.²

Similar reasoning justified the imposition of accessibility mandates on telecommunications providers and manufacturers and video programming distributors in the

¹ P.L. 97-410, codified at 47 U.S.C. §610.

² H. Rep. No. 888, 97th Cong. 2d Sess. at 3.

1996 amendments to the Communications Act, when other changes contained in these amendments largely deregulated these industries.³

Unfortunately, the laws passed in the latter part of the twentieth century have not kept pace with twenty-first century broadband technologies. New federal measures are now needed to fill the gaps that have been created, to ensure that people with disabilities are not left behind as our society's reliance on emerging Internet-based technologies continues to grow.

³ These amendments added Section 255 (47 U.S.C. §255), creating new accessibility requirements for telecommunications products and services, and Section 713 (47 U.S.C. §713), creating new closed captioning obligations.

Past and Present: Making the Case for a Regulatory Approach to Addressing Disability Discrimination in the Provision of Emerging Broadband and Cable Technologies

I. Introduction: The Population

Approximately 14.9 percent of all Americans over the age of five have a disability severe enough to limit their ability to perform certain activities.⁴ Approximately 36 million of these individuals (17 percent) have hearing loss⁵ and 25.2 million experience difficulties with vision.⁶ While estimates of the number of deaf-blind individuals in the United States vary depending on the extent of hearing and vision loss defining this disability, this population is estimated to fall anywhere from 42,000 to 700,000.⁷ An estimated 2.6 million people have difficulty speaking, with 610,000 of these individuals reporting this difficulty as severe.⁸

People with disabilities are represented in every demographic, especially those that have historically been identified as vulnerable populations, such as low income, minority, and

⁴ Erickson, W., & Lee, C. (2008), *2007 Disability Status Report: United States*. Ithaca, NY: Cornell University Rehabilitation Research and Training Center on Disability Demographics and Statistics, at http://www.ilr.cornell.edu/edi/disabilitystatistics/StatusReports/2007-PDF/2007-StatusReport_US.pdf?CFID=7676403&CFTOKEN=73912389&jsessionid=f030ad698d2ccb1a9bcc34517277762361b1 at 3, 44 (“2007 Disability Status Report”).

⁵ National Institute on Deafness and Other Communication Disorders, *Quick Statistics*, <http://www.nidcd.nih.gov/health/statistics/quick.htm>; See also, Schoenborn, Charlotte and Heyman, Kathleen, *Health Disparities Among Adults with Hearing Loss: United States, 2000-2006* at <http://www.cdc.gov/nchs/data/hestat/hearing00-06/hearing00-06.pdf>, citing Pleis JR, Lethbridge-Cejku M, *Summary Health Statistics for U.S. Adults: National Health Interview Survey, 2006*, National Center for Health Statistics, Vital Health Stat 10 (235) (2007).

⁶ Centers for Disease Control and Prevention, *Summary Health Statistics for U.S. Adults: FastStats*, cited at: <http://www.cdc.gov/nchs/fastats/disable.htm>.

⁷ Turkington, Carol, and Allen E. Sussman, eds. (2000), *The Encyclopedia of Deafness and Hearing Disorders*, second edition, New York: Facts on File, Inc., at 62. See also Miles, Barbara, *Overview on Deaf-Blindness* ((2000) at <http://www.tr.wou.edu/dblink/>).

⁸ Steinmetz, Ericka (2002), *Current Population Reports: Household Economic Studies*, U.S. Census Bureau, Table 2 (May 2006), at: <http://www.census.gov/prod/2006pubs/p70-107.pdf>

rural communities. Moreover, the percentage of Americans with disabilities is on the rise, with growing numbers of senior citizens who have declining vision, hearing, mobility and cognitive functions living far longer than ever before. The prevalence of disabilities in adults ages 75 and older is as high as 52.9 percent, compared to 12.8 percent of adults ages twenty-one to sixty-four.⁹ This means that in the years to come, the need for disability safeguards to broadband and cable technologies will continue to intensify, as people remain active and employed well into their senior years.

II. Benefits of Evolving Broadband and Cable Technologies

Broadband technologies offer remarkable benefits for people with disabilities. With high-speed access to the Internet, these individuals can have the same instant access to communication, information, and video programming as everyone else. Armed with such capabilities, people with disabilities can enjoy new opportunities for career and educational advancement, access to the marketplace, the ability to manage their medical treatment plans, and expanded access to civic and entertainment activities. New broadband technologies also enable people with disabilities to converse in the communication modes – voice, text, or video – that best meet their needs, using a selection of end user devices. For example, high-speed Internet access has revolutionized the way that deaf people who are sign language users communicate; for the first time in history, these individuals are able to converse over distances in their native or primary language using broadband-based video communications. This allows conversations to occur naturally and in real time, using emotional context and other non-verbal information that are not easily conveyed through text communications; in

⁹ *2007 Disability Status Report* at 3. The tendency of older Americans to have disabilities actually begins as early as age 65: 29.7 percent of American adults ages 65 to 74 were reported to have a disability. *Id.*

other words, for the first time, people who communicate by signing are experiencing the equivalent of voice telecommunications. Similarly, Internet-based captioned telephone relay services have enhanced communication for people with hearing loss who can use their own voices to speak directly to another party, and read responses (in captions) from the other party while listening to what that person is saying.¹⁰ Finally, while not yet highly in use, in the future, broadband-based video services can also facilitate communication for people with speech disabilities, who can supplement their speech with gestures and facial expressions.

In addition, broadband technologies provide an “always on” connection that allows its users to be fully integrated into societal affairs, regardless of their physical ability to get around. For example, video streaming of government-related meetings, hearings, and legislative events can significantly enhance civic participation and provide a greater understanding of how our government works for people with disabilities who otherwise are unable to attend such events in person. Similarly, job seekers with disabilities have the ability to search the web for new opportunities from home computers to the same extent as their non-disabled colleagues. Finally, school children with vision disabilities can use educational and instructional websites (when these are accessible to screen readers) to keep up with their sighted classmates on homework and research assignments.

III. An Unserved and Underserved Population

Unfortunately, historically, lower incomes, employment, and educational levels, along with the lack of accessibility features in broadband products and services, have prevented and discouraged people with disabilities from using the Internet to the same extent as their non-

¹⁰ IP-based captioned telephone works by having the relay operator re-voice everything that the person responding says and then using a speech recognition program to automatically convert the operator’s speech into text, which appears on the user’s computer or other Internet-enabled device.

disabled peers.¹¹ For example, a study in 2003 revealed that fewer than 30 percent of people with disabilities over the age of 15 had Internet access, compared to more than 60 percent of people without disabilities.¹² In 2008, people with disabilities in non-metropolitan areas were reported to have had the lowest rate of Internet use – only 46 percent, compared to 63 percent adoption rate for all Americans.¹³

The FCC repeatedly has acknowledged the discrepancy in the broadband adoption rate by people with disabilities. In a Public Notice released on November 10, 2009, the Commission noted that one of the primary reasons for not adopting broadband services appears to be “an inability to use existing technology and applications due to physical or mental disabilities.”¹⁴ Similarly, in 2002, the FCC’s Third Report assessing the deployment of broadband access acknowledged that this population faces “significant impediments” in

¹¹ See generally, *Statement of Coalition of Organizations for Accessible Technology*, presented at Roundtable on Underserved Areas and Reaching Vulnerable Populations, hosted by the National Telecommunications and Information Administration, U.S. Department of Commerce (March 19, 2009) at: <http://www.coataccess.org/node/3419>.

¹² Enders, Alexandra, *Ruralfacts: Disability and the Digital Divide: Comparing Surveys with Disability Data*, Research and Training Center on Disability in Rural Communities, The University of Montana Rural Institute, Missoula, MT (June 2006), at <http://rtc.ruralinstitute.umt.edu/TelCom/Divide.htm>. See also Dobransky, Kerry and Hargittai, Eszter, *The Disability Divide in Internet Access and Use*, Information, Communication and Society, 9(3): 313-334 (June 2006) at <http://eszter.com/research/a18-disabilitydivide.html>.

¹³ The Advanced Communications Law & Policy Institute, New York Law School, *Barriers to Broadband Adoption: A Report to the Federal Communications Commission* (October 2009) at http://www.nyls.edu/user_files/1/3/4/30/83/ACLP%20Report%20to%20the%20FCC%20-%20Barriers%20to%20BB%20Adoption.pdf, (“*Barriers to Broadband Adoption Report*”) at 23, citing John Horrigan, *Home Broadband Adoption 2009*, Pew Internet & American Life Project (June 2009) at 16-17, at <http://www.pewinternet.org/~media/Files/Reports/2009/Home-Broadband-Adoption-2009.pdf> at 16-17 (“*Home Broadband Adoption*”).

¹⁴ *Comment Sought on Broadband Adoption*, National Broadband Plan Public Notice #16, GN Dkt Nos. 09-47, 09-51, 09-137, DA 09-2403 (November 10, 2009) at 2.

gaining access to broadband services.¹⁵ Two years earlier, in its Second Report of this kind, the Commission noted that people with disabilities “are particularly vulnerable to not having access to advanced services.”¹⁶

There are a number of reasons for the discrepancy in broadband use between the general population and people with disabilities. First, physical barriers to emerging broadband, cable and other communication technologies make using these technologies difficult for people with disabilities. For example, broadband equipment and multi-media applications often require vision and/or hearing to manipulate functions and controls, creating barriers for people who do not have one or both of these senses. In addition, touch screens and soft-buttons, whose functions change with each press of a button or icon, are virtually impossible to use for people who have vision loss. Not only can such individuals not feel the location of each button, if the button is dynamic – that is, if its function changes each time it is pressed – the individual cannot figure out what it controls at any given time. Additionally, people who have cognitive or manual dexterity limitations, including many older Americans, sometimes have difficulty navigating increasingly complex or miniaturized panels and menus on electronic products.

Web content and design that are not accessible to screen readers and cannot be navigated via a keyboard (i.e., must be navigated with a mouse) can also create endless problems for people who are blind or have low vision. Similarly, when closed captions and

¹⁵ *Deployment of Advanced Telecommunications Capability to all Americans in a Reasonable and Timely Fashion*, CC Dkt. No. 98-146, Third Report, FCC 02-33 (2002) at ¶103.

¹⁶ *Deployment of Advanced Telecommunications Capability to all Americans in a Reasonable and Timely Fashion*, Second Report, CC Dkt. No. 98-146, 15 FCC Rcd 20913 (2000) at ¶234.

video description are not included on web-based video programming, people without hearing or sight, respectively, are denied access.¹⁷

Even when assistive technologies exist to make broadband equipment or services usable by people with disabilities, obstacles remain. To begin with, many people with disabilities are simply unaware of the existence of such adaptive devices or software. And even when they are aware, many, if not most, individuals do not know where to find adaptive devices or know which specific adaptive features are best suited to their needs. The difficulties that these individuals encounter when attempting to use even basic computer and IP-based functions are often enough to discourage them from making broadband services a part of their lives.¹⁸

As much of a deterrent are the higher unemployment and lower income and educational levels of people with disabilities.¹⁹ A 2007 study revealed that the employment rate of working age people with disabilities was only 36.9 percent, compared to 79.7 percent for people without disabilities, a whopping gap of 42.8 percentage points.²⁰ Similarly, the median incomes of households with working age people with disabilities was only \$38,400, while households without people with disabilities had median incomes of \$61,000.²¹ And the poverty rate of working age people with disabilities was 24.7 percent compared to 9 percent for those without disabilities.²² Low incomes have been equated with the failure to adopt

¹⁷ Video description is the insertion of verbal descriptions of on-screen visual elements during natural pauses in a program's audio content.

¹⁸ See generally, *Barriers to Broadband Adoption Report* at 24.

¹⁹ See generally, *Labor Force Statistics from the Current Population Survey, New monthly data series on the employment status of people with a disability*, Bureau of Labor Statistics, Table 1 (2009), at <http://www.bls.gov/cps/cpsdisability.htm>; See also Kochkin, S. Ph.D., *MarkeTrak VII: Hearing Loss Population Tops 31 Million People*, *The Hearing Review*, 16-29 (July 2005).

²⁰ *2007 Disability Status Report* at 24.

²¹ *Id.* at 32.

²² *Id.* at 34.

broadband services. For example, individuals with incomes under \$20,000 per year have been shown to be the least likely to have adopted broadband technologies.²³

In addition to being under or unemployed, only 12.5 percent of people with disabilities have attained a bachelor's degree from college, compared to 30.8 percent of the mainstream U.S. population.²⁴ Less access to broadband services in the work and school environment means less exposure to the benefits that these services can provide for people with disabilities.²⁵ But even more troublesome is that the lower incomes of this population make it difficult, if not impossible, to afford costly assistive hardware and software. For instance, screen readers needed to enable a person with vision loss to read by listening to synthetic speech of the text on a web page can cost over \$1,000.²⁶ Similarly, specialized equipment for people who are both deaf and blind carries a price tag of \$6-10,000, prohibitively high for this population. Installation, maintenance and upkeep of such specialized technologies add to these high costs and complicate their ownership; when a device breaks down, the person who relies on that device cannot use the Internet. Individuals with low or no incomes simply do not have the financial ability to pay these exorbitant costs, which are in addition to the high monthly charges for broadband services.

IV. Market Forces are Insufficient to Spur Disability Access

While competitive market pressures are typically enough to spur effective technology solutions for the mainstream public, history shows that the marketplace has been ineffective

²³ *Barriers to Broadband Adoption* at 26, citing *Home Broadband Adoption 2009* at 14.

²⁴ *2007 Disability Status Report* at 42.

²⁵ *Barriers to Broadband Adoption* at 25.

²⁶ *Comments of the Coalition of Organizations for Accessible Technology*, GN Docket No. 09-51 (June 8, 2009), at 7-8.

in addressing the accessibility barriers confronted by people with disabilities.²⁷ This is because, although when combined, people with disabilities make up a large segment of the population, each individual disability group (e.g. people who are deaf, people who have low vision, etc.) is much smaller, and has its own distinct accessibility needs. It has been difficult for any one of these individual disability groups, because of their small size and lower incomes, to create enough competitive market pressure to encourage technology companies to incorporate accessible design into their products and services as these are rolled out to the general public. In addition, as noted, some people with disabilities hesitate to purchase communications products at all because the adaptive equipment needed to make these devices work for them is too expensive. As a consequence, often engineers and developers within companies are unaware of these populations or what needs to be done to provide accessibility.

The failure to be able to influence the inclusion of access in new products and services has meant that all too often, the introduction of exciting and novel communications and video programming technologies for the general public has created new barriers for people with disabilities. For example, in the 1980s, the increased use of graphical interfaces for computers, which was eagerly received by the general public, blocked access to text documents that had previously been accessible to blind people with the use of screen readers. Similarly, in the mid-1990s, the replacement of analog wireless services with digital technologies severely limited mobile communications for hearing aid users because digital wireless companies had not first assessed the ability of these new innovations to meet the accessibility needs of this population.

²⁷ See generally, *Comments of the Rehabilitation Engineering Research Center on Telecommunications Access*, GN Dkt No. 09-51 (July 21, 2009).

V. The Past: A Federal Regulatory Response

The failure of competitive market forces to safeguard disability access has prompted Congress and the FCC, over the past 25 years, to adopt a string of regulatory mandates protecting such access.²⁸ These laws can be summarized as follows:

Telecommunications for the Disabled Act of 1982²⁹ – Under this statute, Congress allowed states to continue permitting local telephone companies to use their telephone service revenues to subsidize the cost of specialized customer premises equipment (SCPE) used to facilitate telecommunications by people with disabilities. The law also created a mandate for “essential telephones” to be hearing aid compatible, defining such phones as telephones provided for emergency use, coin-operated phones telephones, and telephones frequently needed for use by people with hearing aids.

Hearing Aid Compatibility Act of 1988³⁰ – This law expanded the hearing aid compatibility requirements in the 1982 Act to all telephones manufactured or imported for use in the United States after August 1989. FCC rules implementing this section require all wireline and cordless telephones, and a percentage of wireless phones, to provide the acoustic and inductive connections necessary to help hearing aid users distinguish voice telephone conversations.³¹

Telecommunications Accessibility Enhancement Act of 1988³² – This law provided the authority for the development of a federal relay service for calls to, from, and within the federal government, and contains a general requirement for the federal government to have an accessible telecommunications system.

Americans with Disabilities Act³³ – Titles I, II, and III of the Americans with Disabilities Act (ADA), require private employers (with fifteen or more employees), state and local governmental programs (e.g., courts, public schools, transportation authorities), and places of public accommodation (e.g., businesses, professional offices, private schools), respectively, to provide effective communication to employees, participants, and beneficiaries of these covered entities as part of their overall obligations not to discriminate on the basis of disability.

²⁸ A comprehensive summary of these accessibility laws can be found in Strauss, Karen Peltz, *A New Civil Right: Telecommunications Equality for Deaf and Hard of Hearing Americans* (Washington, D.C.: Gallaudet Press), 2006.

²⁹ P.L. 97-410, codified at 47 U.S.C. §610.

³⁰ P.L. 100-394, codified at 47 U.S.C. §610.

³¹ 47 C.F.R. §§68.112 (wireline); 20.19 (wireless).

³² P.L. 100-542, codified at 40 U.S.C. §762a-d.

³³ P.L. 101-336, codified at 42 U.S.C. §12101 *et. seq.*

Section 225 of the Communications Act/Title IV of the Americans with Disabilities Act³⁴ – Under this provision, common carriers must provide nationwide telecommunications relay services, which use operators (communications assistants) to facilitate telephone calls by people who are deaf, hard of hearing, and speech disabled. For example, a relay operator reads or interprets into sign language what the person with a disability types or signs to a hearing person, and types or signs responses back from the hearing party.

Section 255 of the Telecommunications Act of 1996³⁵ – Under this section, telecommunications manufacturers and service providers must make their equipment and services accessible to people with disabilities if readily achievable. If not readily achievable, these companies must make their products and services compatible with adaptive equipment used by people with disabilities when it is readily achievable to do so. Products covered under this section include, but are not limited to, wireline and wireless telephones, pagers and fax machines, and software integral to this equipment. Services that are covered include, but are not limited to, basic telephone services, interconnected voice over Internet Protocol (VoIP) services, call waiting, call forwarding, Caller ID, return call, speed dialing, repeat dialing, call tracing, interactive voice response systems, and voice mail. Section 251(a) of the Communications Act, prohibits telephone companies from installing network features that are inconsistent with Section 255.³⁶

Rehabilitation Act of 1973, as amended – Various sections of this Act require federal agencies to provide accessible telecommunications and information services as part of their overall obligation not to discriminate against federal employees and members of the general public who have disabilities. Section 501 directs federal agencies to provide reasonable accommodations, including access to telecommunications and information services, as needed, for individual qualified employees with disabilities to perform the essential functions of their jobs, unless doing so would impose an undue hardship on the agency.³⁷ Section 504 requires programs and activities that receive federal financial assistance to provide auxiliary aids and services needed to achieve effective communication and telephone access to those programs, unless doing so would impose an undue burden.³⁸ Section 508 directs federal agencies to develop, procure, maintain, and use accessible electronic and information technology, so that the access provided to federal employees and members of the general public with disabilities is comparable to the access available to people who do not have disabilities, unless the agency would experience an undue burden in doing so.³⁹ When compliance would impose an undue burden under Section 508, agencies must provide alternative forms of access.

Television Decoder Circuitry Act of 1990⁴⁰ – This legislation requires all televisions manufactured or imported into America with screens at least 13 inches diagonally to have the

³⁴ P.L. 101-336, codified at 47 U.S.C. §225.

³⁵ P.L. 104-104, codified at 47 U.S.C §255.

³⁶ P.L. 104-104, codified at 47 U.S.C §251(a).

³⁷ 29 U.S.C. §791.

³⁸ 29 U.S.C. §794.

³⁹ P.L. 105-220, Title IV, §408(b), codified at 29 U.S.C.§794d.

⁴⁰ P.L. 101-431, codified at 47 U.S.C. §§303(u); 330(b).

capability to display closed captions. The FCC also has required such capability on computers that have television circuitry when these are sold with monitors that have viewable pictures at least thirteen inches in diameter,⁴¹ digital televisions (DTVs) that have screens measuring at least 7.8 inches vertically,⁴² and stand-alone DTV tuners and set top boxes, regardless of the screen size with which these are marketed or sold.⁴³

Closed Captioning Obligations – Section 713 of the Communications Act⁴⁴ – This legislation directed the FCC to promulgate rules requiring closed captioning on television. As of January 2010, 100 percent of new English and Spanish language television shows must be captioned, with only a few exemptions, including exceptions for overnight programming, advertisements, and some local programming.

Virtually all of the above laws were premised on two basic principles: (1) *universal service*, the Communications Act’s directive for the FCC to ensure that all Americans have equal and affordable access to our nation’s public wire and radio communication services,⁴⁵ and (2) *universal design*, the goal of designing and developing products that are accessible to the greatest range of individuals, regardless of their ability or disability, “out of the box” and without the need for any adaptation. This latter concept recognizes that adaptive products that are not built into mainstream offerings are often more expensive and stigmatizing, difficult to find in retail stores, and frequently not as effective as products designed for the general

⁴¹ *Closed Captioning Requirements for Computer Systems Used as Television Receivers*, FCC Public Notice, DA 95-581 (March 22, 1995), 60 Fed. Reg. 16055 (March 29, 1995).

⁴² *Closed Captioning Requirements for Digital Television Receivers*, Report and Order, ET Dkt. No. 99-254, MM Dkt. 95-176, FCC 00-259, 15 FCC Rcd 16788 (July 31, 2000), codified at 47 C.F.R. §15.122 (DTV Order).

⁴³ *Id.* FCC rules governing digital television sets allow for the manipulation of the size, font, color and background of captions, offering viewers an enhanced television experience that takes advantage of digital capabilities. *Id.*

⁴⁴ 47 U.S.C. §713, implemented at 47 C.F.R. §79.1.

⁴⁵ The universal service obligation, contained at Section 1 of the Communications Act of 1934, directs the FCC to “make available, so far as possible to all the people of the United States . . . a rapid, efficient, Nation-wide, and world-wide wire and radio communication service with adequate facilities at reasonable charges . . .” 47 U.S.C. §151.

public. In addition, the swift pace of technological change typically outpaces the utility and functionality of external devices.⁴⁶

Conversely, when products and services are designed to be accessible from the outset, it costs less to incorporate access features and the resulting technologies typically are more effective for people with disabilities. Moreover, the end products of such efforts are often enjoyed by the general population. For example, although closed captioning was originally a technology developed to enable people with hearing loss to understand television content, this has become a benefit for television viewers in restaurants, gyms, offices, and other locations where it is either too noisy or inappropriate to play the audio portion of video programming. Archives of captioned programs are also used by companies and news organizations for data mining of spoken content. Similarly, hearing persons wishing to not have their dinners interrupted with phone calls now make use of “talking caller ID,” a service that was created for people who are blind, but also allows anyone to screen calls from an adjacent room.

VI. The Future: The Case for New Federal Policies to Close Gaps in Existing Laws

The comprehensive nondiscrimination laws passed in the 1980s and 1990s signified efforts by Congress to ensure that people with disabilities would have equal access to evolving technologies as these become integrated into our daily affairs. However, all of these laws were enacted prior to the introduction of Internet technologies; as such, they have been unable to keep pace with the ever-expanding variety of innovative broadband-based products

⁴⁶ See generally, National Council on Disability, *Design for Inclusion: Creating a New Marketplace* (Washington D.C.: 2004) at 20-24; see also Deborah Kaplan, John DeWitt, and Maud Steyaert, *Telecommunications and Persons with Disabilities, Laying the Foundation, A Report of the First Year of the Blue Ribbon Panel on National Telecommunications Policy* (November 1992), at <http://park.org/Guests/Trace/pavilion/foundatn.htm>; *Telecommunications and Persons with Disabilities: Building the Framework, The Second Report of The Blue Ribbon Panel on National Telecommunications Policy* (1994), at <http://trace.wisc.edu/docs/framework/framework.htm>

and services being introduced to the general public. Because the vast array of newly available on-line, digital, and electronic applications did not exist when these original laws were conceived, there is now a widening gap between the products and services that are usable by the general public and those that are accessible by people with disabilities.

In part, the chasm between technologies and legal mandates has occurred as a result of regulatory classifications by Congress and the FCC that, over time, have drawn distinctions between telecommunications and information services. Specifically, under FCC rulings, Internet-based services – whether provided over cable modem or telephone wireline facilities – have been deemed “information” rather than “telecommunications” services,⁴⁷ and therefore, not subject to legacy regulations that otherwise apply to common carriers under Title II of the Communications Act.⁴⁸ The consequences of such rulings has been to remove nearly all such services from the reach of the disability mandates, including Section 255.⁴⁹

⁴⁷ The Communications Act defines “information services” as “the offering of a capability for generating, acquiring, storing, transforming, processing, retrieving, utilizing, or making available information via telecommunications.” 47 USC § 153(20). “Telecommunications” are defined as “the transmission, between or among points specified by the user, of information of the user’s choosing, without change in the form or content of the information as sent and received.” 47 U.S.C. § 153(43). Finally, “telecommunications service” is defined as “the offering of telecommunications for a fee directly to the public, or to such classes of users as to be effectively available directly to the public, regardless of the facilities used.” 47 USC § 153(46).

⁴⁸ See *Inquiry Concerning High-Speed Access to the Internet Over Cable and Other Facilities*, GN Dkt. No. 00-185, CS Dkt No. 02-52, Declaratory Ruling and Notice of Proposed Rulemaking, 17 FCC Rcd 4798 (2002); *Appropriate Framework for Broadband Access to the Internet over Wireline Facilities*, Report and Order and Notice of Proposed Rulemaking, CC Dkt. No. 02-33, FCC 05-150 (September 23, 2005) at ¶¶ 1,3,5.

⁴⁹ One exception is a requirement imposed by the FCC, in 2007, for interconnected VoIP service providers to comply with the accessibility mandates of Section 255 pursuant to the Commission’s ancillary jurisdiction. This jurisdiction allows the Commission to exercise its authority over matters that are not expressly within a particular statutory mandate but that are sufficiently related to the underlying purposes of that mandate. *IP-Enabled Services, Implementation of Sections 255 and 251(a)(2) of The Communications Act of 1934, as Enacted by The Telecommunications Act of 1996: Access to Telecommunications Service*,

Gaps in existing nondiscrimination laws, as well as the failure of these statutes to stay abreast of emerging technologies, have left people with disabilities at risk of being denied access as our society becomes increasingly reliant on new broadband and cable methods of communicating and receiving information. In response, consumers with disabilities around the country have begun mobilizing in a coordinated effort to get Congress and the FCC to adopt new policies that will safeguard their accessibility needs. Some have begun talking about a new national effort to build access accommodations directly into the nation's infrastructure – through a new *National Public Inclusive Infrastructure (NPII)* – so that basic access is available to everyone, on any computer regardless of its location. This solution, being advanced by a group of researchers, companies and consumer groups, would require financial support for the development of a basic infrastructure that would include tools and resources to support the distribution and availability of both commercial assistive technologies, and free and open source, built-in access features. The objective of the NPII would be to encourage a rich, lower cost set of both commercial and free public access features so that people with disabilities, regardless of their individual resources or socioeconomic status, could invoke the access features they need on any computer they

Telecommunications Equipment and Customer Premises Equipment by Persons with Disabilities, Telecommunications Relay Services and Speech-to-Speech Services for Individuals with Hearing and Speech Disabilities, Report and Order, WC Dkt. No. 04-36, WT Dkt. No. 96-198, CG Dkt. No. 03-123, CC Dkt. No. 92-105, FCC 07-110 (June 15, 2007) (“VoIP Accessibility Order”) at ¶16. This disability ruling was consistent with prior Commission rulings in which the FCC had decided to impose various other social obligations on interconnected VoIP providers, including obligations to provide enhanced E-9-1-1 services, contribute to the Universal Service Fund, and make their systems available for electronic surveillance by law enforcement authorities.

encountered, including public computing sites – most of which currently lack the assistive features needed by people with disabilities.⁵⁰

Others have focused on efforts to bring existing nondiscrimination laws up to date.⁵¹ These latter efforts have been largely driven by a relatively new coalition called the Coalition of Organizations for Accessible Technology (COAT), which is working to get Congress to enact H.R. 3101, the 21st Century Communications and Video Accessibility Act of 2009, introduced by Congressman Edward Markey (D. MA) in June 2009.⁵² The proposed legislation is designed to apply the existing accessibility mandates that consumers already have to new communication and video programming technologies, and to close any accessibility gaps that might otherwise remain. H.R. 3101 is divided into two sections, one devoted to communications, and the other to video programming. Each of these is summarized below:

A. Communications Access

1. Access to Advanced Telecommunications Products and Services

Americans have a wide range of options for how they communicate. At present, however, Section 255's guarantees of communication access only apply to traditional landline and wireless networks. The ability of a person with a disability to communicate over distances should not depend on the type of transmissions method used. In this vein, H.R.

⁵⁰ See *Comments of the Rehabilitation Engineering Research Center on Telecommunications Access*, submitted in *Broadband Accessibility for People with Disabilities – Workshop II Barriers, Opportunities, and Policy Recommendations*, GN Dkt Nos. 09-47, 09-51, 09-137 (October 6, 2009) at 17, 20.

⁵¹ See generally, National Council on Disability, *The Need for Federal Legislation and Regulation Prohibiting Telecommunications and Information Services Discrimination* (December 19, 2006) at <http://www.ncd.gov/newsroom/publications/2006/discrimination.htm>

⁵² COAT was started in March 2007 and now reports that it has over 270 national, regional, and local affiliate members dedicated to ensuring access to emerging Internet-based and digital communication and video programming technologies. See www.coataccess.org.

3101 creates a new category of communications – “advanced communications,” encompassing both interconnected and non-interconnected VoIP service, electronic messaging, and video conferencing, which would have to be accessible to people with disabilities. To achieve this, the bill adds a new section 716 to the Communications Act requiring advanced communications service providers and manufacturers to make their services and equipment accessible to and usable by people with disabilities, unless doing so would result in an undue burden. Where an undue burden would result, covered entities must make their equipment and services compatible with peripheral devices or specialized customer premises equipment commonly used by people with disabilities, unless compliance would result in an undue burden. Network features, functions, and capabilities must also comply with these accessibility requirements.

Among other things, this section will require products used with emerging broadband technologies to offer redundant interfaces and controls, to allow their use by people with varying types of disabilities. For example, when equipment requires data entry with speech, it would have to offer individuals a text option; when it requires sight, it would have to have an audio option. Similarly, H.R. 3101 directs that to the extent advanced communications devices are used to access telephone-like voice communication services, they would need to be hearing aid compatible. As noted above, the time to incorporate these and other access features is now, as these technologies are being designed, so that the costs of incorporating access remain a mere fraction of the cost of producing the product for the general public, and so that the access can effectively benefit a universal audience from its initial deployment.

In order to ensure compliance with these new provisions, H.R. 3101 also adds a new section 717 that contains measures to improve the accountability and enforcement of covered

entities, including reporting obligations for industry and the FCC, directives for new FCC complaint procedures (with deadlines for FCC resolutions), the creation of a federal clearinghouse of information on accessible products and services, a study on accessibility compliance by the Comptroller General, directives for enhanced outreach and education by the FCC, and clarification of FCC penalties for non-compliance. Individuals who are aggrieved do not have a direct private right of action, but may go to federal court to appeal FCC decisions on consumer complaints.

2. Real-Time Text

In recent years, TTYs – previously the only tool of telecommunications for people who are deaf and hard of hearing – have been largely replaced with text and video services carried over broadband and wireless data services. While these newer forms of communication allow for the transmission of text, they generally require parties to first complete their typed message before sending that message, rather than allow for real-time communication – i.e., character-by-character – over IP data networks. What this means is that in the IP and data environment, people with hearing loss no longer have the same ability to use text to communicate in real-time to the same extent that hearing people have this ability to communicate by voice. The need for this type of communications is especially critical in emergency situations, when a real-time connection can provide the instantaneous exchange needed to respond immediately to a life-threatening situation. Although various standards bodies have explored standards for real-time text communications, to date, they have not agreed upon a common, reliable, and interoperable protocol for use across the industry.

H.R. 3101 directs the FCC to create an advisory committee to identify and make recommendations for protocols and technical requirements for the transmission of reliable,

interoperable real-time text communication, as well as the communications devices and equipment that can receive such text, and the receipt of such text by 9-1-1 public safety answering points. The bill also gives the FCC authority to adopt regulations, standards and protocols to implement these recommendations.

3. Universal Service

The FCC's Universal Service Fund (USF)'s Link-up and Lifeline programs are currently used to support telephone access by low-income subscribers, by offering free or discounted telephone connection charges to new telephone subscribers and discounts on monthly phone charges, respectively. However, at present, neither of these programs offer assistance to individuals needing to communicate via Internet-based technologies. To remedy this, H.R. 3101 would give the FCC authority to make such communications, when used by people with disabilities, eligible to receive Link-up and Lifeline support. This is particularly important for low-income individuals in deaf and hard of hearing communities who now rely exclusively on broadband technologies for text, video relay services and point-to-point video communications. Without financial assistance, such populations are being denied universal service, because their lower earnings and the higher price of broadband prevent them from receiving the functionally equivalent of basic telephone service.

A separate section of the proposed legislation would also allow the FCC to designate as eligible for universal service federal support (up to \$10 million per year) for the distribution of specialized equipment used to make telecommunications, Internet access services and advanced communications accessible to individuals who are deaf-blind. While some states already have specialized equipment distribution programs that provide the free or discounted distribution of specialized end user communications equipment to their residents with

disabilities, most of these programs limit their scope to traditional telephone access, and few are willing to incur the high expenses associated with communications equipment needed by people who are deaf-blind. The thousands of Americans who have these dual disabilities are amongst the least served of all Americans with regard to communications services. Federal support is essential to provide this very small but underserved population with the equipment they need to have equal communications access.

4. Telecommunications Relay Services

The ADA's requirement for nationwide relay services imposes an obligation on all common carriers to support interstate relay calls by annually contributing a percentage of their interstate and international revenues to a federal Interstate Relay Fund.⁵³ Originally, this Fund was used exclusively to support relay services carried over the public switched telephone network (PSTN). However, since the turn of the century, there has been substantial growth in the use of Internet-based relay text and video services, with a corresponding decline in PSTN-based relay services. In order to make contributions to the Fund more equitable, in 2007, the FCC directed interconnected voice over Internet Protocol (VoIP) providers to begin making similar contributions to support relay services.⁵⁴ H.R. 3101 takes this one step further by also requiring *non-interconnected* VoIP providers to make these annual contributions, to help maintain the viability of this Fund and level the playing field for VoIP services.

⁵³ 47 C.F.R. §64.604(c)(5)(iii)(A). These include companies that provide “cellular telephone and paging, mobile radio, operator services, personal communications service (PCS), access (including subscriber line charges), alternative access and special access, packet-switched, WATS, 800, 900, message telephone service (MTS), private line, telex, telegraph, video, satellite, intraLATA, international and resale services.”

⁵⁴VoIP Accessibility Order at ¶16, *supra* n. 49.

The relay section of H.R. 3101 also clarifies that relay services are intended to ensure that people who have hearing or speech disabilities can use these services to engage in functionally equivalent telephone communication with other users of these services. This section is needed because some have interpreted the ADA's mandate for relay services to only allow compensation from the Interstate Relay Fund for services between a person with a hearing or speech disability and a person without a disability. This made sense back when Congress first created a mandate for relay services in the ADA in 1990, when there was only one type of relay service – text (used by people with a disability) to speech (used by people without a disability). Now, however, a variety of relay options exist, including services that use sign language interpreters to interpret between the parties to a call (video relay services), the relay of conversations by people who are trained to understand and relay “difficult-to-understand” speech (speech-to-speech relay services), and relay services that use speech recognition to convey text while allowing the pass-through of voice for people with some residual hearing (captioned telephone relay services). The new provision would clarify that calls between relay users of two or more different types of relay services are also reimbursable through the Interstate Fund.

B. Video Programming Access

1. Video Equipment

The “traditional” television, positioned in a corner of our living rooms, has given way to a plethora of stationary and portable devices that receive video programming, including computers, mobile phones, PDAs, and MP3 players, that could not have been envisioned when, in 1990, Congress adopted its mandate for television sets with screens thirteen inches or larger to display closed captions. A wide variety of set-top boxes used to

receive cable or satellite signals, as well as devices for video recording and playback, add to the mix of new appliances that are now used to capture and display television shows. With FCC mandates for nearly all programming to be closed captioned now in place, it makes little sense for deaf and hard of hearing viewers not to be able to watch those captions on the full selection of these new consumer products. H.R. 3101 would eliminate the thirteen-inch limitation so that all such devices would be required to receive and display captions. The proposed law would also require interconnection mechanisms used to connect video programming devices with each other to allow the pass-through of closed captions.⁵⁵

As the types of equipment used for watching television have multiplied, so has the complexity of these devices. The three-dimensional knob physically located on a TV set that used to be used for switching channels has been replaced with complicated navigational tools operated through multi-level on-screen menus, electronic program guides, and intricate remote controls. Figuring out how to summon closed captioning features through this maze of options is typically a difficult, if not insurmountable, challenge for people with hearing loss. Yet the need to access captions by people who cannot hear is no different than the need to access volume control by people who can hear. H.R. 3101 would remedy the discrepancy by requiring a button on TV remote controls (where these are otherwise provided) to enable easy access for turning captions on and off, along with first level menu access for controlling digital captioning appearance features.

Complex user interfaces on video appliances – most of which rely on the ability to see – has created even greater difficulties for people who are blind or have low vision, for whom

⁵⁵ This requirement was added to address problems that have resulted from the inability of HDMI cables to pass through captions. It also applies to the pass-through of video description.

changing channels, controlling television settings, and selecting or recording programs has become a monumental chore that is often impossible to accomplish independently. To remedy this, H.R. 3101 would require all appliances used to receive, display and record video programming, including those used for IP-based programming, to provide audio output when on-screen text menus are used to manipulate television controls and video programming guides and menus.⁵⁶

2. Programming Content

Along with changes to the equipment used for video programming have come changes to the transmission methods of getting that programming into our homes. In addition to receiving programs via broadcast, cable, or satellite TV, now most video-capable devices can receive and display programming carried over the Internet. Web-based video shows have changed the way we think about television, from programming that is fixed in day, time and place, to programming that is available to us anytime, and anywhere. What is unclear, however, is the extent to which the FCC's current captioning rules, which apply to "multichannel video programming distributors," defined as entities "engaged in the business of making available for purchase, by subscribers or customers, multiple channels of video programming,"⁵⁷ apply to this new video distribution method. Most frustrating for consumers is that the very same programming that contains captions on television typically lack those captions when re-shown by on-line distributors. If passed, H.R. 3101 would redefine video programming (for purposes of the new legislation) to include programming distributed over

⁵⁶ WGBH's National Center for Accessible Media already offers a guide to creating talking menus for DVDs and set top boxes to facilitate such navigation by people who cannot see. See <http://ncam.wgbh.org/resources/talkingmenus/>.

⁵⁷ 47 U.S.C. §76.1000(e).

the Internet or by some other means,⁵⁸ and create specific requirements for closed captioning to be included on the following three types of video programming shown over the Internet:

- pre-produced video programming that was previously captioned for television viewing;
- live video programming; and
- video programming first published or exhibited after the effective date of the FCC's new rules implementing these requirements, if such programming is generally considered to be comparable to programming provided by multichannel programming distributors.

Some on-line video distributors have already begun adding captions to their programming, and efforts to create an industry-wide standard for achieving this are now underway by an Ad Hoc Working Group on Broadband Captioning of the Society for Motion Picture Television Engineers (SMPTE), which hopes to complete such standard by 2010.

3. Video Description

In addition to bringing new IP-based technologies under the umbrella of existing nondiscrimination laws, H.R. 3101 will fill a gap in disability laws that has left people who are blind or have low vision without equal access to television content through video description. When the 1996 amendments to the Communications Act authorized the FCC to conduct an inquiry on video description,⁵⁹ the FCC responded with a modest requirement for the top four commercial broadcast networks in the top 25 major national markets, and multi-video programming distributors with 50,000 or more subscribers in each of the top five national non-broadcast networks they carry, to provide video description on prime time and/or

⁵⁸ H.R. 3101 specifically proposes to define “video programming” as programming “provided by, or generally considered comparable to programming provided by, a television broadcast station, even if such programming is distributed over the Internet or by some other means.” 47 U.S.C. §713(g).

⁵⁹ 47 U.S.C. §713(f).

children's programming for 50 hours each calendar quarter (approximately four hours per week).⁶⁰ However, in 2002, a federal court overturned these rules in response to a challenge by the broadcast and cable television industries, which cited lack of FCC authority.⁶¹ As a consequence, currently there are no federal requirements to make television programming accessible through video description, nor is aural access to on-screen emergency information required for people who cannot see text.

H.R. 3101 would reinstate the FCC's minimal video description mandates, require the Commission to promulgate rules to ensure that televised emergency information is accessible to people who are blind or have low vision, and authorize the FCC to increase the amount of video described programming, if needed to provide access. In addition, it would require all devices that can deliver video programming, including devices used to receive web-based programming, to be capable of transmitting and delivering video description and conveying emergency information in a manner that is accessible to people who are blind and have low vision. Finally, it would require that viewers be able to activate and deactivate description features when these are played back on a screen of any size. This requirement, for the transmission and delivery of video description services, is easily attainable in a digital world, where significantly greater bandwidth (than had been available with analog televisions) can more easily and inexpensively accommodate this access feature. This mandate is also in keeping with recommendations adopted by the Advisory Committee on the Public Interest

⁶⁰ *Video Description of Video Programming*, Report and Order, MM Dkt. 99-339, FCC 00-258, 15 FCC Rcd 15230, amended in part at Memorandum Opinion and Order on Reconsideration, FCC 01-7, 16 FCC Rcd 1251 (2001). Other stations and channels that were affiliated with these entities were also required to pass through descriptions to the extent they had the technical capability to do so.

⁶¹ The rules were struck down by the U.S. Court of Appeals for the D.C. Circuit in *Motion Picture Association of America, Inc., et. al., v. Federal Communications Commission, et. al.*, 309 F. 3d 796 (November 8, 2002).

Obligations of Digital Broadcasters (the “Gore Commission”), which was tasked with developing public interest obligations for digital television broadcasters in the mid-1990s.⁶²

VII. Conclusion

As our nation changes the technologies that we use to communicate and obtain information, and these dramatic changes influence the blueprints for our employment, education, leisure activities, civic responsibilities, and daily affairs, we need to ensure that Americans with disabilities have the same opportunities to access and use these technologies as everyone else. With such access, people with disabilities can be productive, independent and active members of society. Without safeguards to protect this access, however, new obstacles will be created, forcing this population into second class status and turning back more than two decades of regulatory policy intended to achieve communications equality.

Access requirements should not be technology-specific, but rather should apply to all evolving technologies to provide people with disabilities with the same breadth of options as the general public. Fortunately, evolving digital and Internet-based technologies rely heavily on software, making the incorporation of access features far easier and flexible than ever before. Increased processing power, greater memory capacity, longer battery lives, and other technological advances can also facilitate access in new generations of products and services. Federal policy should demand such access, to ensure that people with disabilities are fully able to communicate and access information and video programming, regardless of the form

⁶² *Charting the Digital Broadcasting Future: Final Report of the Advisory Committee on Public Interest Obligations of Digital Television Broadcasters* (Washington, D.C.: December 18, 1998) at 62 stated: “We recommend that broadcasters allocate sufficient audio bandwidth for the transmission and delivery of video description in the digital age to make expanded use of this access technology technically feasible.”

(text, video, or voice) or the transmission media (IP, wireless, cable, satellite or successor technology) used for the flow of such information or communication.

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