

COMMUNICATIONS FOR ALL

THE ONGOING EFFORT TO MAKE TELEPHONE AND INTERNET TECHNOLOGY ACCESSIBLE FOR PEOPLE WITH DISABILITIES

STORY BY JAN TEGLER

In the last half-century, various pieces of legislation have been passed to increase access for people with disabilities to specific areas of modern life. For instance, the Architectural Barriers Act of 1968 mandated that federally funded facilities incorporate accommodations for those with disabilities, and the Education for All Handicapped Children Act of 1975 (now known as IDEA – the Individuals with Disabilities Education Act) guarantees a free appropriate public education to those with disabilities. But inaccessibility remained an issue in one area: communications technology.

Thankfully, passage of the Americans with Disabilities Act (ADA) in 1990, specifically Title IV of the act, kicked open the barn door of telephone communication access to the community of people who are deaf, hard of hearing, or have speech disabilities. Less than a decade later, a 1998 amendment to the Rehabilitation Act included Section 508, a mandate that federal agencies and contractors must make their electronic and information technology accessible to the disability community; Section 508 is particularly relevant to accessibility to resources online for people who are blind or have low vision. While Title IV of the ADA and Section 508 affirmed

the need and the duty to ensure communications accessibility for people with disabilities, work remains to be done to make that accessibility a reality for all.

Title IV of the ADA

Two-and-a-half decades have come and gone since the passage of the ADA. Over those years, the landmark legislation has literally and figuratively changed the landscape for the disability community.

Title IV is a prime example. Enacted to ensure access to telecommunications for people who are deaf, hard of hearing, or who have speech disabilities, this section of the ADA has successfully expanded and improved a vein of communication for individuals with disabilities that most Americans take for granted. From spurring the creation and adoption of new technologies to aid individuals who are deaf, hard of hearing, or have speech disabilities in making direct telephone calls to fostering new business

opportunities for firms serving this community, Title IV has undeniably had a positive impact.

But it takes time for the mandates of any major legislation to fully manifest themselves. Like a pebble dropping into a pond, the initial splash from the passage and application of Title IV created ripples that are only now reaching some segments of the deaf, hard-of-hearing, and speech disability communities.

“The promise of the ADA is still evolving,” said Bruce Peterson, senior director of marketing for CaptionCall®, a firm that provides captioned telephone services for people with hearing loss throughout the United States.

“Often people think that because the ADA was passed in 1990 and there have been visible architectural changes for the disabled like wheelchair ramps, a big effort was made and now we’re sort of done with it,” he explained. “The growth of IP CTS illustrates that we’re still figuring out how to deliver on the promise of the ADA.”

Internet Protocol Captioned Telephone Service, or IP CTS, is one of the technologies used for telecommunications relay services (TRS) under Title IV for the disability community. To get a feel for the continuing impact of Title IV, it’s useful to look at the service and technologies it prompted.





Opposite page: A TTY featuring an acoustic coupler for standard telephone handsets and a mini printer (seen on the top of the machine) that records the conversation.

This page: A videophone by Sorenson Communications, pictured at left, and a graphic (below) explaining how the videophone and video relay service (VRS) work. VRS has been a huge step forward in telecommunications for sign language users.



Before the ADA

Prior to the passage of the ADA, the primary telecommunications mechanism for individuals with hearing and speech disabilities was the teletypewriter, or TTY. First fielded in the late 1960s, the TTY was simply an electronic device enabling text communication over a traditional analog telephone line. TTY devices with acoustic couplers could be joined to AT&T® standard telephones, allowing vocal communications to be converted to text.

TTYs were a success almost immediately, rapidly adopted by the hearing/speech-impaired communities. But for the next two-and-a-half decades, little progress was made in improving on the technology “because there was no incentive to invest in it,” said Peterson.

“One of our VPs who is deaf and is in his 70s who’s been an educator and academic remembers the years of the TTY before the ADA,” he added. “He testified before

Congress that a conversation that used to take him 20 minutes on the TTY took him 2 minutes now.”

VRS and IP CTS

With the passage of the ADA by Congress, legal requirements took hold that led to technical innovations – but change didn’t come overnight.

The Federal Communications Commission (FCC) was charged with the sizeable challenge of implementing Title IV. Rules for application of the legislation were vital, as was a budget to compensate the telecommunications firms who would be required to provide “functionally equivalent” services.

The legacy telecoms tasked with meeting the requirement made investments to provide Title IV-mandated services, but Peterson notes that the majority viewed the new responsibility as an expense with little to no return in profit. Thus,

the incentive to create new technologies to serve individuals with hearing and speech disabilities was missing.

However, the major telecoms or “common carriers” are still involved in that they fund relay services technically. They are assessed what’s called a “contribution factor” by the FCC that requires them to pay a percentage of their revenue into a fund for Title IV-related services annually. The FCC generally sets the contribution factor based on its projections of what it will need to fund these services. While interstate telecommunications carriers are not allowed to place a TRS surcharge on customer bills, state telephone companies often do.

“Initially, Title IV said that telecommunications companies were charged with responsibility of providing services that were functionally equivalent for those who are deaf or hard of hearing,” Peterson explained. “And there were some providers who played in this area – AT&T, Verizon, and others

- but over the years, the provision of the service was assumed by companies like Sorenson [Communications] and others."

Communication Service for the Deaf, for example, was the very first company to offer video relay service (VRS), working through the Sprint Corporation. VRS providers today include the aforementioned Sorenson Communications, Purple, ZVRS, Convo, CAAG, and ASL Services. Similarly, Hamilton, Sprint®, Purple, and Miracom USA provide captioned telephoned services today.

Sorenson Communications was started in 2003 to provide VRS to the American deaf community. Founder Jim Sorenson was involved in video compression technology, a portion of which became Apple's QuickTime multimedia framework. Sorenson's brother-in-law happened to be deaf.

According to Peterson, Sorenson began to understand sign language and "just how disconnected a deaf person could be because they had no way of calling anybody with hearing." With the needs of deaf individuals in mind, he searched for a way to use video communications to benefit the community.

His work led to the founding of Sorenson Communications and the launch of the company's first videophone, the VP-100®. Employing video compression technology, the VP-100 provided an endpoint that could distribute video to a television of any size, rather than the restrictive 3-inch windows others had begun to offer. As Peterson points out, the new videophone was a leap forward for those trying to communicate in sign language.

Additionally, Sorenson offered its products to the deaf marketplace for free.

"One of the great promises of the ADA was to deliver the ability to communicate this way to people

who previously did not have it," Peterson said. "Some of the innovations Sorenson brought allowed video relay services to be a tremendous success."

Successive iterations of Sorenson's videophone built on the basic premise of VRS, wherein the phones connected to customers' televisions, which in turn connected via Internet to video interpreters. The video interpreters would communicate via American Sign Language (ASL) with the deaf person, then would use regular telephone service to call any hearing party and relay the deaf person's conversation.

VRS has great market penetration and is widely used by a "very high proportion" of the tight-knit American deaf community, Peterson observes.

"Demand for the service is in large amount satiated on the deaf side. You can look at the penetration of VRS and say that it's a great success story - a combination of regulators and private industry figuring out how to serve a group of people and deliver on the promise of the ADA."

But the promise of Title IV has yet to be fulfilled for the much larger hard-of-hearing population in the United States. Nearly 20 percent of Americans, or about 48 million, report some degree of hearing loss, according to the Hearing Loss

Association of America. The figures are evidence that the ADA is still evolving, Peterson says. He adds that for the hard of hearing, "relay services are one of the best-kept secrets of the ADA."

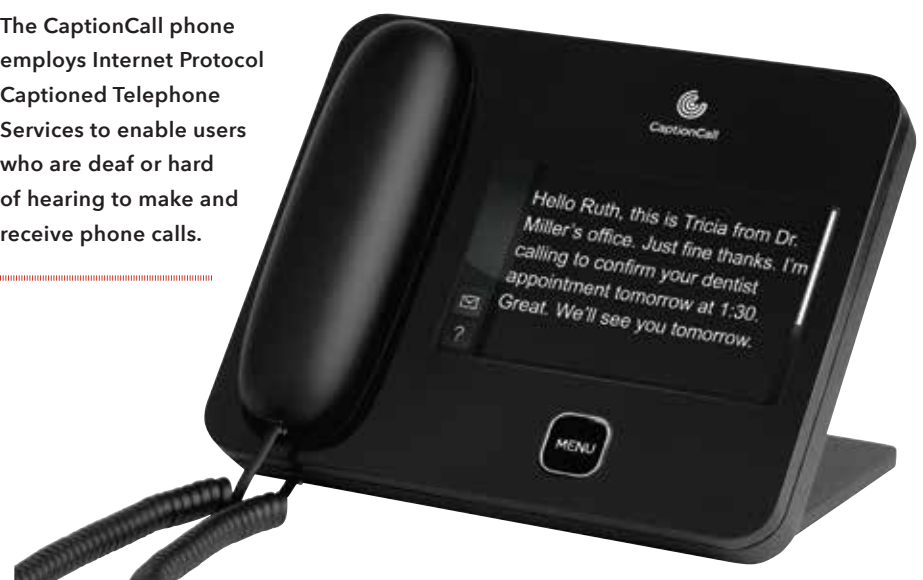
The need for and relative obscurity of relay services for the hard-of-hearing population led to FCC approval in 2008 of IP CTS for this group as a "compensable service." Simply put, those with verifiable hearing loss would be eligible for IP CTS free of charge.

Recognizing the market for these services, Sorenson Communications launched CaptionCall in 2011 to capitalize on its experience with VRS and serve the larger population of those who have hearing loss and can't use the telephone.

Similarly, CaptionCall designed its own CaptionCall phone. The device connects customers who are hard of hearing with callers using IP CTS - a standard telephone line teamed with broadband Internet. The caller's voice is sent to the CaptionCall service via the Internet connection. A CaptionCall communications assistant rapidly converts the caller's words to text, employing voice-recognition technology. Then, captions are sent back to the CaptionCall phone display screen.

"We did some of the same things Sorenson pioneered: creating,

The CaptionCall phone employs Internet Protocol Captioned Telephone Services to enable users who are deaf or hard of hearing to make and receive phone calls.



designing, and engineering our own endpoint [phone]; providing our own communication assistant service; and - unique from what others were doing - provided our own sales and technical outreach team who go out and install these phones for people who need them," Peterson said.

Serving this market turned out to be harder than CaptionCall anticipated, with the company struggling to figure out how to contact people eligible for IP CTS according to the ADA. Working with audiologists and hearing health care providers to reach out to those who are hard of hearing, the firm "discovered that most people didn't know about our service - even audiologists didn't know about it," Peterson said.

As CaptionCall was able to locate people who needed its services, the company began to grow quickly, Peterson says. While the deaf population, numbering in the low hundreds of thousands, is well served, CaptionCall's senior director of marketing notes that a cross-section of the estimated 10 million Americans who use hearing aids are likely eligible for IP CTS under Title IV.

"This market is underserved from a hard-of-hearing standpoint. I'd say those who are served number in the low hundreds of thousands, probably less than 200,000 served by IP CTS services today."

Title IV and the Access Challenge

"Since its inception in 2010, CaptionCall has advocated giving access to its phone at no cost, ensuring that all those who need the service get it regardless of their ability to pay," said Peterson.

This position recently put CaptionCall at odds with the FCC. In January 2013, the Commission issued a new set of rules governing funding and eligibility for IP CTS services. Among the revised

regulations was a stipulation that those with hearing loss demonstrate eligibility for the service by paying at least \$75 for CaptionCall equipment.

"Cost is still an issue for many people," Peterson said. "The deaf, like other disabled communities, are economically disadvantaged."

With this chief concern in mind, CaptionCall challenged the FCC's orders in court, arguing that the FCC regulations violated the rights of those with hearing loss. This past June, the Washington, D.C. Circuit Court of Appeals ruled in favor of captioned telephone service. The ruling nullified all of the rules put forward in the FCC's 2013 order because the FCC "failed to follow due process."

Changes to the FCC's rules came late last summer. Surprisingly, however, the court did not rule on what eligibility requirements might be needed to qualify those with hearing loss for free IP CTS services. Thus, there are no current federal rules or guidelines for the use of captioned telephone service.

"There's a large debate about how you measure eligibility," Peterson said. "It ranges from setting a decibel hearing-loss level that might be appropriate to other measures."

According to Peterson, this leaves CaptionCall with no option but to "go down a path of professional certification of the eligibility requirement." Accordingly, CaptionCall requires that individuals seeking their IP CTS phones and services verify their hearing loss with professional certification from an audiologist or hearing health care provider.

"We have a strict list of professional titles that we allow to certify for a person," he added.

Title IV and the Business Challenge

One more challenge on the Title IV landscape is the issue of funding

for the relay services CaptionCall and other firms provide. As Peterson points out, firms in the business of serving the deaf and hard-of-hearing communities must have an incentive to perform.

As mentioned, the FCC sets the contribution factor for common carriers based on its projections of what it will need to fund these services. The FCC uses a cost-based model to set rates for different types of relay services. Peterson argues that the model the FCC uses is outdated, failing to account for many of the business and labor expenses that come with providing relay services.

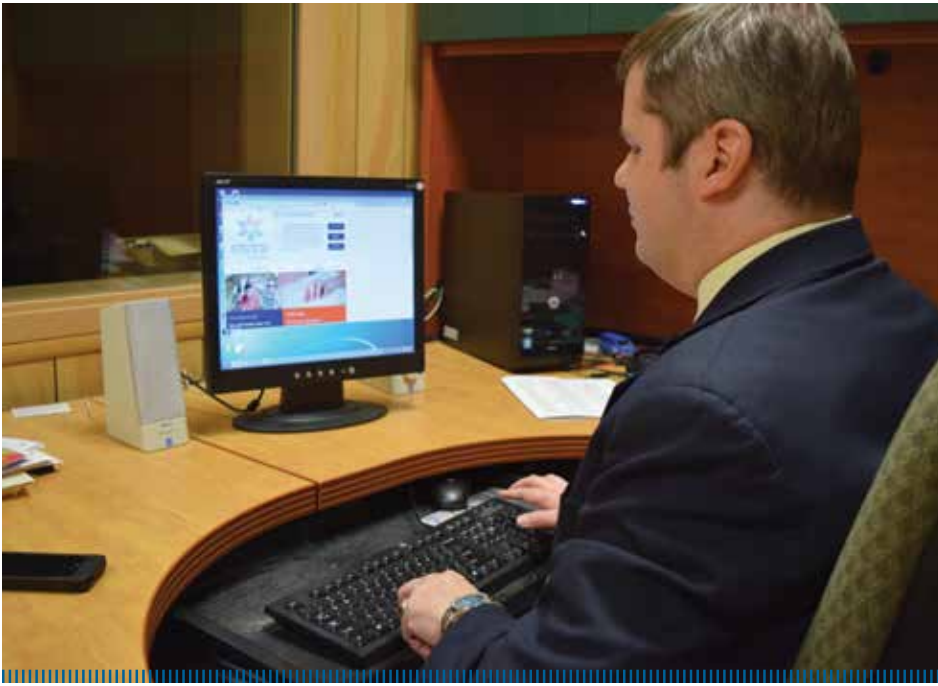
So out of balance is the model, says Peterson, that companies in the relay services sector are deciding that it's uneconomic and are therefore leaving the business. The real losers are the communities Title IV covers under the ADA.

"The FCC is not doing an appropriate job in setting a market-based rate that allows a provider like us to invest and have an incentive to perform," Peterson said. "Rate is one of the core drivers for us in terms of how we can serve our customers, but the FCC goes through a process of disallowing costs."

"They ask us to tell them how much it costs to provide relay services. We provide that information and then they say, 'We're not going to pay you for R&D, outreach, or taxes.' These are real business costs that the FCC has disallowed from their model over the years."

Section 508

Section 508 was added to the Rehabilitation Act in 1998 to require federal agencies and government contractors to make their electronic and information technology accessible to people with disabilities in the interest of eliminating barriers, making available new



opportunities, and encouraging development of technologies that will help achieve these goals.

Over the nearly 17 years since its inclusion in the act, progress has been made under Section 508. But as Chris Danielsen, director of public relations for the National Federation of the Blind (NFB) explains, success in making government websites truly accessible remains uneven.

"There are varying degrees of compliance at different federal agencies," Danielsen said. "Depending on who you ask, you can get widely differing opinions about how well the government is complying."

The importance of accessibility for people with disabilities, including those who are blind, to federal websites is much the same as it is for the broader population. Issues including user-friendliness, privacy, and liberty are among the main concerns for the individuals with disabilities.

"When you're talking about computers and the Internet, the issues surrounding non-visual access are most important," Danielsen said. "Can the

Chris Danielsen, director of public relations for the National Federation of the Blind (NFB), visits the Section 508-compliant website of the NFB.

technology present in websites function with text-to-speech screen readers and Braille displays?"

Danielsen himself is blind and provides personal illustration of the advantages of Section 508-compliant government websites and the disadvantages of those that are not.

"Technology can be very liberating when it's designed in a way that we [people with disabilities] can use it," he said. "Twenty years ago, we were in a world where, primarily, you had to fill out forms on paper, [and] the blind were at a disadvantage. Filling out forms like that is something blind people cannot do. But you can fill out a form on a website if it's designed to be accessible.

"To the extent that we can interact with our government," he continued, "and do all of the

'paperwork' ourselves online - without the need to share information with a third party in order to get help - gives us more liberty and, as importantly, privacy."

In early October, the NFB reached an agreement with the U.S. Department of Education to make student loan information accessible to blind Americans.

"This was a big concern," Danielsen said. "There were a lot of issues around the department's direct loan program for students with disabilities. The websites weren't accessible, they weren't getting information to blind students who wanted it in Braille or large print, for example."

Progress has been made on Section 508 agreements with government agencies including the Social Security Administration, says Danielsen. But other agencies have not been as receptive. The Internal Revenue Service is a prime example.

"We have many concerns about the IRS' processes as well because we're dealing with our private financial information," he said. "You would have thought they would be in compliance, but they are not. Like the rest of Americans, we want to be able to file our taxes independently."

Overall, the effect of Section 508 has been positive, but compliance is only enforced when complaints are filed, Danielsen says. What's more, the guidelines provided by Section 508 must keep pace with technology. According to Danielsen, the Section 508 "refresh process" to update the rule's requirements begun in 2010 has still not been completed.

"I think there has been progress due to Section 508 but characterizing how much is difficult," he concluded. "There's a lot of awareness in government of this, but levels of compliance vary and more can always be done." ■