

## ***More Bang for Your Buck***

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### **Abstract**

In today's technologically fast-paced world of Deaf and Hard of Hearing services, we are constantly being asked to provide more with less. This presentation will focus on advances in technology that can help us provide quality training to our staff and resources to our consumers while saving money. Not all technology is economical or efficient. We will talk about the pros and cons of various systems and techniques that are being used in communication and service delivery.



Technology has become an essential part of doing business and daily living. Because advances in technology occur so quickly it is difficult to keep up with what resources are available. This paper will discuss four main areas in technology: communication, organization/administration, distance learning, and accommodations. The goal is to provide information that will help service providers and coordinators utilize the technology that will best help them serve their clients and increase their own productivity.

### **Communication Tools**

Technology has made great advances in enhancing communication. There are many online services which allow users to make computer-to-computer calls free of charge. All that is needed is to download a simple program and to purchase a computer headset with microphone. Once the program is installed the user can then begin making calls to others who have the same program. Some of the programs which provide this service are: Skype, ooVoo, Gizmo, Ventrilo, PC-Telephone.com, Yahoo Voice, Mediarling Talk, and Google Talk. Computer-to-computer chats do not require a high speed Internet connection. Most of these programs will function well over a dial-up connection. However, they will not work over a satellite Internet connection due to the delayed ping rate. If calls are being made from a government office or university, then it is best to check with the IT department to be sure that the institution's firewall will allow the connection.

Most of the computer-to-computer voice chat programs include additional features such as video calls and computer-to-landline calls. These companies charge a fee to make calls from a computer to a landline or cell phone. The fee is usually much less than calls through a traditional phone company. Video calls can add a visual component to a chat. The user will need a webcam along with the headset. In addition the computer must have a high speed Internet connection since the video requires more bandwidth to transmit. The video quality can vary greatly depending on the amount of bandwidth available. However, the video is normally not high enough quality to conduct a conversation in sign language alone. Whether using a computer to chat, video chat, or call a

landline the technology can help reduce the cost of communicating with colleagues nationally or internationally.

Instant messaging (IM) is another mode of communication which has really taken off. In fact some people prefer to instant message instead of using email. The benefit of instant messaging is that it allows for immediate written communication if both parties are online. Many cell phones such as Blackberry and Sidekicks have become popular in the deaf community because they allow instant messaging as well as email. Some of the most popular IM programs are: AOL IM, MSN, ICQ, Yahoo, Google Talk, Bonjour, and Windows Live Messenger.

Two IM programs which offer some additional beneficial features are Trillian and Meebo. Trillian is a free downloadable program that allows the user to log into multiple IM programs simultaneously. This means one window is open to access multiple accounts instead of having various windows cluttering up the desktop. Meebo also offers the same service from a web application so there is nothing to download. This program can be helpful for anyone traveling since their IM accounts can be accessed from any computer.

Instant messaging is an inexpensive way to increase communication access. Students with a hearing loss can communicate with their instructors and support services office as easily as their hearing peers. It is also an effective way for colleagues to work collaboratively without incurring large phone bills.

#### **Organization/Administration Tools**

Organization is another important aspect of an efficient work environment. If used properly, technology can provide many tools to help increase organization. Learning any new technology or system takes time but once it is learned, it can become a time saver. One tool that can become a time-saver is having an online calendar. Online calendars can be accessed from any computer, which is helpful when traveling. They also can be set up to share calendars between multiple users. This means that each person in an office can upload his/her calendar and then the entire office has access to know when everyone will be in the office. This can save time when trying to schedule meetings or appointments. When working with students on organization, a case manager can ask the student to maintain an online calendar and thus help the student stay on schedule with tasks. Some popular online calendars are run by Google, Yahoo, and MSN.

In addition to sharing online calendars, colleagues may want to share files online when they are collaborating on projects. In the new age of technology, many professionals collaborate with others across the nation and may never actually meet face-to-face to work on projects. Online file sharing allows individuals to upload files to an Internet server and then access them from any computer. Many services offer a free amount of file storage and after that limit is reached, they begin to charge a fee. These services allow the user to password-protect the files and to decide who will have access to them. The following is a list of just a few companies which provide this service: xDrive, Flipdrive, 4shared.com, MediaMax, MyDataBus.

Online file storage can also benefit the professional on the go. Important files can be saved online so that they can be accessed when away from the office. This can ensure that there are backup copies as well.

Online file transfer is another beneficial service when working with very large files. It is no longer safe to assume that a file can be sent via email. Many email programs limit the size of a file that can be sent. Online file transfer companies allow the user to upload a file and then email the recipient(s) a URL where the file can be downloaded. This avoids having the file sent through

email. Some companies which provide this service are: [sendspace.com](http://sendspace.com), [transferbigfiles.com](http://transferbigfiles.com), [yousendit.com](http://yousendit.com), [accellion](http://accellion.com), [sendthisfile.com](http://sendthisfile.com), and [weboffice.com](http://weboffice.com).

Another useful service is remote desktop. This simply means that the user can access a computer remotely. It can be used by IT professionals to troubleshoot problems for a user, or by a person who is traveling to access his/her computer back in the office. This is becoming more and more popular as people are away from their offices more. Many services charge a fee such as "Go To My PC" but others such as "LogMeIn" have fee-based and free versions. In addition Windows XP has this feature built in.

(<http://www.microsoft.com/windowsxp/using/mobility/getstarted/remotefirst.msp>)

Online collaboration is similar to the remote desktop feature. These programs allow multiple users to log on and view a single computer. In this way, remote training can occur. The trainer would be the "host" computer and all other users would view what is on his/her computer screen. In this way the trainer can show a PowerPoint or take users to various websites. Some of the programs have a built-in voice component while others use phone lines or other programs such as Skype to send the audio information. Some of the popular programs for online collaboration are: [yugma](http://yugma.com), [zoho](http://zoho.com), [showmyPC](http://showmyPC.com), and [webex](http://webex.com).

Jott is an online service which uses voice recognition software to allow the user to send text messages via a voice message. The user will set up an account with Jott and create an address book. Then the user can use a voice phone to call the Jott number. The user will specify to whom the message will go and then speak a short message such as "meeting tomorrow at 9." Jott converts the message to text and can deliver it as a text message, and IM, or an email. This is a quick way to send reminders to oneself or others without actually typing it in.

### **Distance Learning Tools**

Technology is also being used to increase opportunities for learning. Some of the programs previously discussed make individual and small group collaboration and learning possible. However, schools and universities are increasingly turning to forms of distance learning to meet the demands of the ever-increasing "non-traditional" student.

"The definition of distance education would be an educational situation in which the instructor and students are separated by time, location, or both. Education or training courses are delivered to remote locations via synchronous or asynchronous including written correspondence, text, graphics, audio, and videotape, CD-ROM, online learning, audio and video conferencing, interactive TV and fax. Distance education does not preclude the use of traditional classroom. The definition of distance education is broader than and entails the definition of eLearning. Distance education and distance learning are often used interchangeably." (ASTD, 2008)

Unfortunately, most distance learning is not accessible to deaf and hard of hearing individuals. Great strides have been made in technology and the arena of distance learning, but accessibility still seems to be lagging behind. Institutions are left trying to play catch-up and be creative in their provision of access and accommodations. While vendors adhere to ADA and 508 guidelines, there is not a standard approach for the inclusion of sign language interpreters and/or captioning. Another issue that arises with providing accommodations depends upon whether the course is being delivered through either synchronous or asynchronous means. Institutions utilizing content management systems such as BlackBoard, Wimba, or Elluminate Live should explore options for providing accommodations within the platform the institution is using. Can video be incorporated into the system so that an interpreter can be provided as an accommodation? What about

incorporating captions? Bloomsburg University has been providing distance education courses through Wimba and has provided a video for an interpreter and captions through the text chat area (<http://campustechnology.com/articles/56259/>). There are institutions that utilize Elluminate Live and are incorporating captions through the use of speech-to-text software. Content management systems are also beneficial to Disability Services in that service providers are also given access to course content which enables them to prepare for the course before each session.

Multimedia is defined by [www.webopedia.com](http://www.webopedia.com) as the use of computers to present texts, graphics, video, animation and sound in an integrated way. Within the realm of multimedia are: webcasting, podcasting, and video/webconferencing. Definitions for these three formats can be found on [www.webopedia.com](http://www.webopedia.com) as well. The main challenge with multimedia is ensuring that it is accessible.

Typically with webcasting, a pre-registration process is not established for individuals to request specific accommodations. Therefore, it is necessary to provide both an interpreter and captioning so that it is fully accessible. With video/webconferencing, it is also necessary to provide an interpreter in meetings, trainings, etc., where there is a mixed audience of deaf, hard of hearing, and hearing individuals. Video/webconferencing is becoming more popular with the effect of the economy and reduced travel funds for states and institutions. Both webcasting and video/webconferencing can prove to be very effective methods of delivery of multimedia when accommodations are thought through before the event occurs. An important step is working with the IT Department on campus and explaining the needs before the event occurs.

Webcasting and streaming video can be achieved through a number of software programs available such as QuickTime, RealMedia, windows Media encoder, Flash, Accordent Video Streaming, and MediaSite. Regarding accessibility, not all software programs at this point incorporate captioning as an accessibility feature. Currently, only Flash and QuickTime have this feature incorporated/built-into their software. RealMedia, Windows Media Encoder, Accordent Video Streaming, and MediaSite have not incorporated this feature. When an institution is utilizing a software program that does not have captioning built in, creativity may be required on the part of the Office of Disability Services and/or the institution providing the live webcast or streaming video.

Captioning online streaming and digital media is a two-part process: a) creation of the transcript and b) creation of the time-code file to synchronize the captions with the media file. MAGpie is one option for creating time-code files that quite a number of institutions are encouraging faculty/staff to utilize because it is a free download from NCAM. Hi-Caption is another option for creating those time-code files and the cost is between \$400 to \$500. The Hi-Caption product has more features than the MAGpie product. Regardless of the product utilized, it's important to remember that creating time-code files for captioning is not a quick or easy process. It takes time and users should adhere to guidelines from the Described and Captioned Media Program (DCMP).

There are a number of online video/webconferencing services now available. Some of those include ooVoo and e/pop. For a video/webconference to be effective, users will experience a higher level of satisfaction if they are on a high speed internet connection that is equal to or greater than broadband. There is not a perfect solution for video over IP (or the internet) and a video/webconference will only be as good as the amount of bandwidth as well as their connection speeds (upload and download).

## Accommodations

Technology has helped to enhance access to services needed by individuals who are deaf and hard of hearing. In this section we will highlight some of the technologies available, as well as providers who offer the service.

Most institutions experience problems in finding sign language interpreters. The need for qualified interpreters is overwhelming, particularly in the rural areas. One possible solution to meet the communication needs of students is video remote interpreting (VRI). Video remote interpreting can be more cost-effective than hiring an interpreter, particularly in situations such as in a rural area where the interpreter is paid for mileage and drive time, when less than 24-hours notice is given, or for short meetings and classes. VRI is a service who is paid per minute; during a 50-minute class, the interpreter would only be paid for 50 minutes, and not a two-hour minimum. This option is perfect for a short meeting with the instructor or academic advising.

The technology needed to set up VRI services varies from company to company, but generally all require a high-speed Internet connection. There are several agencies which offer video remote interpreting; a few are listed below:

- Birnbaum Interpreting Services (BIS)
- SignOn VRI
- AccessAmerica VRI
- Sorenson VRI
- MEJ Personal Business Solutions, Inc.

Many universities face the issue of what to do when an interpreter calls in sick. The disability service office scrambles to find a replacement but often the student must go without services for that day. If the university already had services set up with one of these companies, it could easily still provide access using VRI.

Suppose there is a student in a graduate program who is taking some upper-level courses such as statistics. Interpreters who are not familiar with statistics would most likely have a difficult time interpreting this class. It may not be possible to find a local interpreter who has a background in the particular subject area. Statistics classes can be very difficult; it's not unusual for any student in the class to have a hard time understanding the concepts. Imagine trying to get it through an interpreter who is transliterating the information because she/he does not understand the concept trying to be conveyed. Many VRI companies will match an interpreter who has a background in the subject matter, as well as with the communication modality of the person. Educational packages are sometimes available that will give a fee based on an entire semester and the number of hours their service is used. This is something that would be would need to be discussed up front.

Does VRI answer every single limitation or barrier to providing services? No, but it can be an effective tool to use for accommodation purposes. Although VRI has been successful in many situations, it is not for every situation. There are some situations that require an on-site interpreter, so making a decision to provide VRI goes back to the individualized accommodations needs of student. For interactive and hands-on classes, an in-person interpreter would be preferable. Perhaps video remote interpreting could be used for two or three classes, and then a live interpreter for the one class that requires a lot more face-to-face interaction. For more information about VRI, visit <http://pepnet.org/training/train070522/>.

Another technology that could be used to provide accommodations is remote captioning (RC). The captionist is located at a remote location and then transmits to the captions to a screen where the program is taking place. In this scenario, the captioner listens to the presenter through a telephone

or microphone that is set-up in the room and captions the spoken language that is sent through the Internet using special software. There are several methods of delivery will contracting for RC services. Communications Access Realtime Translation (CART) is a service that uses a stenotype machine to translate spoken language into a word-for-word transcription. More information about CART can be found at <http://www.cartinfo.org/>. In addition to CART, there are remote C-Print and Typewell Services available. Both C-Print and Typewell provide a translation that is meaning-for-meaning.

The technology needed to set-up RC services varies from company to company, but generally all require a high-speed Internet connection. There are several agencies that offer remote captioning; a few are listed below:

- QuickCaption
- Communiqú Interactive Solutions
- Alternative Communication Solutions
- 20/20 Captioning & Reporting
- Caption First

Remote captioning can be a cost-effective alternative to providing communication accommodations. It is clear from population statistics that there are a lot more hard-of-hearing students than signing deaf students. These students could greatly benefit from having captioning services. Also, as universities begin to implement universal design, they will start to see the benefit of captioning for all students, whether or not they have a disability.

PEPNet hosted a teletraining on remote captioning in November of 2007. There is a lot of good information that may answer questions about remote captioning. The archived version of that training can be found on the PEPNet website at <http://pepnet.org/training/train071025/>.

Telecommunications technology is rapidly changing. Most people do not use TTYs any longer. Today one rarely thinks of the TTY when discussing relay services. Most popular today is Video Relay Services, Relay Conference Captioning, and Internet Relay.

Video Relay Service (VRS) is a telecommunication service that allows a deaf person to communicate with hearing individuals through the telephone. The FCC regulates VRS so there are federal guidelines that VRS companies must follow to maintain compliance with federal law. This service is provided through the use of a videophone and high speed Internet. Sorenson provides free videophones for deaf individuals, but other videophones such as D-Link i2eye videophone, the OJO videophone and coming soon is VideoSign 3.0 and VPad. Listed below are VRS providers that can be used to provide telecommunication access for your deaf consumers.

VRS Provider	Website	IP Address/Phone number for VP or others
AT&T, Inc.	<a href="http://www.attvrs.com/">http://www.attvrs.com/</a>	attvrs.tv
Communication Access for the Deaf and Hard of Hearing, Inc.	<a href="http://www.cacvrs.org/">http://www.cacvrs.org/</a>	cacvrs.tv
CSDVRS, LLC	<a href="http://www.csdvrs.com/">http://www.csdvrs.com/</a>	csdvrs.tv
Hamilton Telecommunications, Inc.	<a href="http://www.hamiltonrelay.com/">http://www.hamiltonrelay.com/</a>	hamiltonvrs.tv

Hands On Video Relay Service, Inc.	<a href="http://www.hovrs.com/">http://www.hovrs.com/</a>	hovrs.tv
Hawk Relay, LLC	<a href="http://www.hawkrelay.com/">http://www.hawkrelay.com/</a>	hawkrelay.tv
GoAmerica Communications, Corp. (i711.com)	<a href="http://www.i711.com/">http://www.i711.com/</a>	i711vrs.tv
LifeLinks, LLC	<a href="http://www.lifelinksvrs.com">http://www.lifelinksvrs.com</a>	69.18.207.166
NXi Communications, Inc.	<a href="http://www.nxicom.com/">http://www.nxicom.com/</a>	Go to <a href="http://www.nextalk.net">http://www.nextalk.net</a> to download video software
Snap Telecommunications, Inc.	<a href="http://www.snapvrs.com/">http://www.snapvrs.com/</a>	call.snapvrs.com
Sorenson Communications, Inc.	<a href="http://www.sorensoncommunications.com/">http://www.sorensoncommunications.com/</a>	18663278877 (i2eye) or SVRS.tv (vp100 or vp200)
Sprint Nextel, Corp.	<a href="http://www.sprintvrs.com/">http://www.sprintvrs.com/</a>	sprintvrs.tv
Viable, Inc.	<a href="http://www.viable.net/">http://www.viable.net/</a>	viablevrs.tv

Relay Conference Captioning (RCC) provides real-time captioning and voice relay calls for conference calls and is a service offered by Sprint. In many states it's free! If training is being provided through a teleconference then individuals can access online captioning provided by RCC. All that is needed is a computer that has Internet access and an access code to log into the captioned site. RCC must be set-up with at least 48 hours in advance. PEPNet used it for several teleconferences it sponsored, and individuals were able to have access to the training through captions.

There are limitations to RCC, so using remote captioning may be a better option in some situations. For more information go to: [http://www.nextel.com/en/solutions/relay\\_services/relay\\_conference\\_captioning.shtml](http://www.nextel.com/en/solutions/relay_services/relay_conference_captioning.shtml).

Internet relay is basically telecommunications access over the Internet. By having one of these Instant Messenger services on a computer, deaf consumers could use IP-relay to call hearing individuals. There are several ways to access IP relay, through instant messenger, from a downloadable videophone based software, and by using web CapTel. Listed below are several relay companies that use instant messenger to provide relay services.

- Sprint: "SprintIP" (AOL)
- HOVRS: "hovrsIM" (iChat & AOL)
- Hamilton: "ThatsHamilton" (AOL & Google)
- Sorenson: "siprelay" (AOL)
- Verizon: "myiprelay" (AOL or MSN)
- i711: "i711relay" (AOL)
- National Relay: "nrsiprelay" (MSN & AOL)

Another way to use IP Relay is by downloading videophone software to a computer. A webcam and high speed Internet connection are needed. The quality of the video will depend on the upload and download speed of the Internet connection. There are several companies that provide this service for PC users. MAC users are out of luck. Currently, there are not any software programs that are compatible with MAC. MAC users have the option of using XMeeting with Viable and HOVRS. Listed below are several companies that provide this service.

- Sprint: <http://www.sprintvrs.com/download.htm>
- HOVRS: <https://secure.hovrs.com/videosign/videosign.aspx>
- Sorenson: [http://www.sorensonvrs.com/options/envision\\_info.php](http://www.sorensonvrs.com/options/envision_info.php)
- Viable: <http://www.viable.net/product/vv>
- i711: <http://www.i711.com/vrs/comparison.php>

Several companies also offer VRS through a web browser interface; a few of them are listed below. This is a viable option where firewalls may prevent the downloading of VRS software to a computer.

- Sprint: <https://www.sprintip.com/index.jsp>
- HOVRS: [https://www.hovrs.com/VRS\\_SSL/hovrs.aspx](https://www.hovrs.com/VRS_SSL/hovrs.aspx)
- Hamilton: <http://www.hamiltonrelay.com/inspirechat/index.htm>
- Verizon: <http://www.ip-vrs.com/index.jsp>

Web CapTel is a service that allows a person to have a voice to voice telephone over the internet that is captioned. This is the perfect option for individuals who prefer to speak for themselves but need captions to make sure communication is clear and understandable. To access this free service, log onto the websites listed below.

- Sprint: <https://www.sprintcaptel.com/index.asp>
- Hamilton: <https://web.hamiltoncaptel.com/>

Technology can greatly enhance productivity and services when used correctly. However, remember that all technologies require time to learn. It is important to allow oneself the time necessary to become familiar with technology so that it can become a time saver not a time trap.

## References

ASTD. (2008). *Learning circuits*. American Society for Training & Development website. Retrieved on October 1, 2008 from <http://learningcircuits.org>