

Video Interpreting White Paper

Introduction

No one would argue that modern technology has completely changed the way that businesses and government agencies manage and deliver services. E-mail and fax messages provide instant, permanent records of transactions and decisions; tools such as PowerPoint and Adobe Acrobat Reader allow for creative presentations and documents; and videoconferencing is providing effective, real-time communication among employees, consumers, and clients. For Deaf consumers, it is video interpreting technology that has suddenly provided an alternative system for communication with vocational rehabilitation counselors and others.

Video technology is designed to provide real-time communication between two or more users when distances separate them. Large corporations and universities regularly use this technology now for purposes such as meetings that would have previously required long travel periods for their employees. For the Deaf consumer, video interpreting provides even more benefits (i.e., access to real-time communication in their native signed language) thereby removing linguistic and cultural barriers, thus providing more equitable access to the hearing world.

It would seem that video interpreting could be an exciting solution, capable of solving the costly issues of time and travel for vocational rehabilitation staff, and also allowing for more “deaf-friendly” communication. However, before any agency chooses to pursue this technology as a means of providing services for Deaf consumers, a thorough review of the possible technology and services, as well as the obvious and hidden advantages and disadvantages, is necessary.

Terms and Definitions

As with any new technology system, an understanding of its common terms, definitions, and phrases is needed. The most common terms and concepts related to Video Interpreting services are listed below:

- **Video Relay Service (VRS):** A telecommunications relay service that allows people with hearing or speech disabilities who use sign language to communicate with voice telephone users through video equipment. The video link allows the Interpreter (also known as a Video Interpreter or VI) to view and interpret the party’s signed conversation and relay the conversation back and forth with a voice caller. (RID Video Interpreting Ad hoc Committee, July 05) VRS is an Internet-based

service that connects the Deaf consumer to an interpreter via a web cam or videophone. However, the hearing person does not see either the Deaf consumer or the interpreter and needs no special equipment other than a regular telephone.

Currently, under FCC regulations, VRS is free to the consumer for telephone communication. The FCC also mandates that interpreters must be qualified.

- **Video Remote Interpreting (VRI):** Typically provided between two parties who may or may not be located in the same room or location. VRI is another delivery model for traditional interpreting services covered by the Americans with Disabilities Act (ADA). This is a billable service, charged on a per-minute or per-hour basis.
- **Video Interpreting:** This is the term used for any form of remote interpreting involving the use of video technology. This can include VRS or VRI.
- **Video conferencing:** This is a set of interactive telecommunication technologies, which allow two or more locations to interact via two-way video and audio transmission simultaneously. This process has also been called **visual collaboration** and is a type of groupware. It differs from the video interpreting process using a videophone, in that it is expected to serve a group conference rather than individuals.

Technology Basics

VRS providers must be able to accept calls from any video phone equipment. Any equipment distributed must be able to place a call to any other VRS provider. This is known as “interoperability”. The advantage of most VRS providers is that there are interpreters working 24 hours a day/7 days a week. At peak times during the day, there may be short delays in connecting with a VRS provider.

With **VRI**, three possible interpreter locations exist:

- 1) the interpreter can be at a different location from both the Deaf and hearing individuals who are in the same location; or
- 2) the interpreter is physically located with the Deaf consumer and the hearing person is a different location; or
- 3) The interpreter is physically located with the hearing person and the Deaf consumer is different location.

VRI services are arranged by an individual contacting a VRI provider and requesting an interpreter. Typically the same type of equipment and connectivity requirements are used for VRI as for VRS. However, unlike equipment distributed by a VRS provider, a VRI provider may use equipment that is exclusively used with their service. There is no requirement for interoperability of VRI.

Usually VRI providers require that the interpreter requests be made in advance in order to ensure availability of the video interpreter. Most VRI providers charge a per-minute or per-hour user fee to the person or business requesting the interpreting session.

Although the computer and a webcam can be used to deliver video interpreting, there is a growing trend to use both videophones and televisions for the same purpose.

Currently the most popular videophone is the D-link, which retails at about \$200 (Mar 2007). In those cases, the TV and the video set top device replace the computer and its peripherals but require the same broadband (high speed) cable or DSL line. Many of the VRS service providers give videophones to Deaf consumers at no charge.

There is also a “stand-alone” videophone on the market called the ”OJO” (manufactured by Worldgate Communications, Inc). No TV or computer is required for this product, as the screen is built into the unit. It is portable and requires less bandwidth than the videophone and the webcam computer setup. The Ojo videophone currently sells for about \$249 (Mar 2007).

Equipment Comparison



D-Link Video Phone

PROS	CONS
<ol style="list-style-type: none"> 1. Utilizes 13-21” Television – (\$150 or less) 2. Utilizes stand alone DSL, T1, cable or other broadband connection 3. Can use DSL number or IP address to call 4. Plug & Play installation 5. D-Link can be purchased for under \$200 6. Many VRS/VRI providers provide this equipment to consumers at no charge 7. No software installation required 8. No security risks to PCs 	<ol style="list-style-type: none"> 1. No onsite technical support 2. Clarity of picture will depend on size of Television screen and connection speeds 3. Agencies/individuals may need to purchase televisions 4. Requires space for television in office/home

<ol style="list-style-type: none"> 9. D-Link/TV picture is larger – clearer for signing 10. Range of camera can include 2-3 persons 11. Lens can be removed for wide angle lens 12. Can be moved with cart to another location 13. Free technical support from D-Link or VRS provider 14. D-Link/Television combination usually offers better picture than the Webcam/PC combination (less freezing) 15. Television can be used for other purposes 16. DSL line can be installed on TTY line 17. D-Link connects via video/audio jacks 18. Has built in microphone for audio 19. Operates like a telephone/dial/rings 20. Can add a flashing signaling device 	
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Web Camera

PROS	CONS
<ol style="list-style-type: none"> 1. Utilizes stand-alone PC – dual use 2. Can utilize stand-alone DSL, T1, cable or other broadband connection 3. Software is free – downloadable 4. Saves office space due to use on PC 5. Network Information Technology (IT) support can be utilized 6. Can be used with laptop or desktop PC 7. Camera connects via USB port 	<ol style="list-style-type: none"> 1. Software may require network IT support for installation 2. Cannot be used with Virtual Desktop 3. There may be security issues for stand alone PC - connected to the network 4. Multi-tasking is difficult 5. If on a Network there are firewall issues. Ports must be open. 6. Picture is smaller than D-Link used with television 7. Quality of picture depends on monitor/memory/video card and connection speed

	<ol style="list-style-type: none"> 8. Many report inability to connect with D-Link devices 9. Many report picture will freeze frequently 10. Picture quality for signing may be less than optimal due to pixilation. 11. Range of camera is limited – single person use 12. Desktop PC and camera are more difficult to move 13. Requires appropriate video card installed on PC 14. Users report web camera is more time-consuming 15. Needs sound card/speakers on PC to operate audio 16. Some VRS/VRI providers may not be Mac compatible
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PC minimal requirements: Internet Explorer 6.0 or higher, and NetMeeting software, Pentium III - 800 Mhz or higher, 8MB video card (16 MB video card is recommended) , 16K color (minimum), 256 MB RAM , 20 MB free disk space, USB based web cam, Cable, DSL, or other broadband Internet connection

For Mac: iChat AV 2.1 or later, Mac OS v10.3 or later, G5, G4, or 800 Mhz or faster processor, iSight or any FireWire or USB based video camera, Cable, DSL, or other broadband Internet connection (Note: not all providers are Mac compatible)

Web-cam requirements: Web-cams must be equipped with a CCD sensor—a “Charge Coupled Device” that creates superior image resolution through an electronic pixilation process.

Note: Specific vendor requirements may vary.



OJO

PROS	CONS
<ol style="list-style-type: none"> 1. Independent/stand-alone, does not require a computer, webcam or TV 2. Since the OJO is a stand-alone unit, there is no security risk to the user’s PC 3. Clear video picture using advanced H.264 video compression*, 30 fps, without audio or video disruption 4. Low bandwidth requirement (max of 250 kps) 5. Uses DSL, T1, Cable or FiOS** 6. Has wireless capability through the 	<ol style="list-style-type: none"> 1. Cannot dial an IP address at this time (expected compatibility by early Spring 2007) 2. OJO is not currently compatible (interoperable) with other videophones, i.e. D-links (software to allow for compatibility is promised by early Spring 2007) 3. Requires a monthly service fee from \$9.95-\$14.95 (unless included by VRI/VRS provider)

<p>use of an adapter</p> <ol style="list-style-type: none"> 7. Built-in microphone, video display, and speaker phone 8. Built-in video and audio mail 9. No software requirement 10. Uses traditional telephone number dialing schema 11. Able to make and receive both traditional wireline telephone calls and internet audio/video calls. 12. Hearing aid compatible handset 13. Portable, weighing 2.5lbs. 14. Picture-based caller ID 15. A fold-down, travel unit is being tested and should be available in mid 2007 16. Free customer and technical support provided by WorldGate Communications 17. As the OJO is pre-provisioned for Deaf consumers, the unit is direct plug and play 	
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***H.264:** also known as MPEG-4 AVC (Advanced Video Coding) is a video compression standard that offers significantly greater compression than its predecessors. The standard is expected to offer up to twice the compression of the current MPEG-4 ASP (Advanced Simple Profile), in addition to improvements in perceptual quality. The H.264 standard can provide DVD-quality video at under 1 Mbps, and is considered promising for full-motion video over wireless, satellite, and ADSL Internet connections.

****FiOS** is a type of fiber-to-the-premise service offered by Verizon, currently available in select locations only. Using Verizon's fiber optic network, this broadband service is designed to provide Internet access with maximum connection speeds of up to 30 Mbps downstream and 5 Mbps upstream, depending on the service selected.

Costs

Although VRS service is currently free to consumers, there are variations in costs of telephone connections, cable lines, computers and their peripherals. It is impossible to provide an exact cost of the set-up of the hardware and software needed for Video Interpreting capabilities. The cost of VRI services will vary and is typically charged on a per-minute or a per-hour rate.

VRS Providers

The FCC maintains a list of licensed providers at:
http://www.fcc.gov/cgb/dro/trs_providers.html .

Technical Issues

Video interpreting demands that a large amount of data be transmitted in a short period of time. As such, the recommended amount of bandwidth is from 200-384 kbps (depending on the equipment used). The primary consideration for any video interpreted session is how many frames per second are being transmitted. Good quality requires a minimum of 30 frames per second. Without high speed bandwidth, the signed communication, and potentially the spoken communication, will lag, causing choppy signs and/or irregular pauses in communication.

Dedicated ISDN, DSL, Cable or T1 lines provide a clearer picture, as it will not be subject to the amount of traffic on the lines being shared by other systems.

Within a business network there are security concerns. As such, most businesses and agencies maintain firewalls that limit what type of telecommunications interactions can occur within their closed networks. Often, the ports which allow video interpreting to occur are not opened within these networks, thus preventing access to the service. Users of video interpreting have to request that the ports be opened and remain open. Thus it is wise to build strong working relationships with the IT staff members who oversee firewall policy and maintenance. Education should be provided to them regarding the importance and the advantages of this technology for Deaf consumers.

Addressing Confidentiality and Privacy (VRS)

The FCC issued a public notice clarifying that doctors, counselors and other professionals could communicate with patients through videoconferencing and relay services without violating the Health Insurance Portability and Accountability Act of 1996 (HIPAA). HIPAA was instituted to protect patient and consumer privacy. Counselors, consumers, and interpreters need to realize that the two most common standards of connectivity (H.320 and H.323***) are *not* considered secure by default. Organizations and companies that offer video based communication for Deaf consumers are required to maintain appropriate technical and physical security measures to ensure confidentiality of the information and material transmitted.

***Technical description: H.320 is an International Telecommunications Union (ITU) standard that: enables interoperability among videoconferencing equipment from different manufacturers over circuit-switched services such as ISDN, thus making desktop Video interpreting viable; establishes the common formats necessary to make audio and video inputs and outputs compatible and defines a protocol that makes it possible for a multimedia terminal to use audio/visual communications. H.323 is a protocol for the

transmission of real-time audio, video and data information over packet switching-based networks, such as the Internet. It is applied to multipoint-multimedia communications which can be used in consumer, business and entertainment applications. Session Initiated Protocol (SIP) is a signaling protocol for Internet conferencing, telephony, presence, event notification and instant messaging. This is what Voice-Over IP (VoIP) uses typically.

Environmental Concerns

When preparing offices, conference rooms, or other workspaces for video interpreting, there are specific environmental and/or physical concerns that have to be addressed. Quality lighting and acoustics are the foundation of a successful video interpreting session. Without proper lighting and sound, difficulty in signing, hearing, speaking, and responding will arise, leading to user frustration and possible miscommunication. Thus, as discussed above, the need for equipment that can match the needed sound and video quality of video interpreting technology is required.

Another consideration is the visual “noise.” Open windows; calendars, pictures, and other wall hangings as well as any background movement can distract the users and disrupt the communication flow. Higher-end cameras will have controls, such as zoom, that can be used to adjust the images to reduce or eliminate some of these visual “noises.” Just as visual “noise” can be distracting for all users, auditory noise can be distracting for hearing users.

Fatigue: Studies have shown that, when compared to face-to-face interpreting, video interpreters experience a decline in performance after 15-18 minutes as opposed to the decline after 30 minutes for in-person interpreting. (Moser-Mercer May, 2003) Remote interpreters should have shorter time periods of interpreting with more frequent breaks.

Implications for Vocational Rehabilitation

As video interpreting technologies and services grow and are more commonly understood by practitioners and consumers, the request for these services will also grow. Just as the term “PC” (personal computer) entered our daily jargon about 15 years ago and “IM” (instant messaging) entered it a little over 5 years ago, so too, will VRS and VRI become daily abbreviations we use without giving them a second thought. Anticipating this growth, vocational rehabilitation providers need to consider how the technology will impact the way in which services are delivered via long-distance, e.g., video interpreting.

Cost Savings

The Kentucky Deaf Access Consortium’s research found that eight (8) staff interpreters who work for the Office of Vocational Rehabilitation (OVR) traveled 41,878 miles between October 1, 2004 and December 31, 2004 equaling a travel cost expenditure of

\$17,728. Looking at the purposes for the travel, researchers see that it was primarily for the provision of interpreting services to Rehabilitation Counselors for the Deaf (RCD) and Deaf consumers. Providing the interpreters with video interpreting capabilities at their home OVR site could eliminate much of that travel.

The savings realized through decreased travel makes video interpreting appealing to many, especially in a time of dwindling resource dollars. However, it should be noted that the most sensitive of topics are still best addressed in face-to-face meetings; these would include courtroom cases, certain medical situations, psychological evaluations and certain educational situations.

That being said, what are the most appropriate uses of this technology for vocational rehabilitation (VR) settings? In Georgia and Utah, and many other states the RCDs and other internal staff are already using this system as a tool for daily communication, as well as for trainings and meetings. These and other states have also used video interpreting on a more limited basis to provide mental health counseling and VR counseling. Studies are currently being conducted to determine the value of reduced travel cost for both staff and interpreters.

Questions for VRI vendors:

As your vocational rehabilitation program considers providing Video Remote Interpreting (VRI) services it is suggested that you ask the following questions:

1. What is the hourly rate for your VRI service? Do you bill in 15-minute increments?
2. What, if any, equipment do you provide? If you provide equipment, who pays for shipping? Who owns that equipment and who is responsible for repair?
3. Is technical support included in your service provision? If so, is there a charge?
4. Will you provide training for VR staff? If so, is there a charge?
5. How much advance notice is needed in order to fill a VRI service request?
6. Do you provide "on-demand" service? Is there a higher rate for "last-minute" VRI requests?
7. What is your cancellation policy?
8. What credentials do your video interpreters hold?
9. What training is provided to your VIs regarding this delivery model?
10. Can you provide three references from agencies/individuals that have used your service?
11. What opportunities do consumers have to provide feedback about their experiences?
12. Does your state's licensure law allow for or apply in this situation?

Conclusion

Perhaps the best way to define and summarize potential uses for video interpreting is:

- 1) immediate communication
- 2) collaboration and
- 3) coordination

For example, as a thoroughfare to immediate communication, video interpreting technology allows for instant one-on-one communication between an RCD and a Deaf consumer, and Deaf RCDs with hearing staff members. The RCD can provide information or recommendations in the native signed language without any wait. This is especially true in the more rural areas where RCDs often have large service territories; in such situations, the technology means the Deaf consumer can have more frequent and effective contact without having to wait on the RCD to travel. Collaboration and coordination allow for training, perhaps of a new RCD who needs to quickly familiarize herself with fellow staff, agency protocol, required tasks, etc. In short, video interpreting can provide a timelier, cost-effective response, especially for those staff and consumers in rural locales where the availability of interpreters is most limited.

No doubt, video relay services and video remote interpreting services are spreading quickly across the nation. Video relay call centers are now opening at a rapid rate in many states. It is estimated that there are over 75 VRS call centers throughout the United States employing over 3,000 interpreters. As these centers open and interpreters are hired by the VRS providers, the shortage of available interpreters for on-site community and educational requests are even more dramatic. These services are definitely changing the way we all think in terms of accessibility to communication with this population. Historically, many areas of the country have experienced a shortage of qualified sign language interpreters. The shortage of qualified sign language interpreters to provide face-to-face services for vocational rehabilitation clients and staff in some areas is at a critical point. One solution appears to be to encourage more and more individuals to pursue training and consider interpreting as a career. This is not a “quick fix” but will allow for a way to assist in meeting future demands. Sadly, federal funds for interpreter training programs are being drastically cut at a time when the demands are the greatest for qualified sign language interpreters. It is crucial that agencies investigate ways to fund more training programs so that there will be qualified interpreters in the field to meet both the VR, community and VRS/VRI needs.

Title IV of the 1990 ADA was designed by Congress to provide Deaf and Hard of Hearing persons with access to the telephone system. At that time, telephone lines were configured as “pots” (plain old telephone service lines), and the technologies of the Internet, wireless environments, and video interpreting were not even on the telecommunications horizon. A closer look at Title IV identifies the key concept of “functionally equivalent,” meaning, in this case, that the service or device responsible for the telecommunication access must be as functionally accessible and equivalent as it is to

a hearing person. Applied to video interpreting, this concept requires that agencies and service providers research and provide service delivery mechanisms that are the timeliest, the most cost-effective, and the most deaf-friendly. Video interpreting should now be considered as the mechanism that can and will provide a larger and more effective array of services for Deaf and Hard of Hearing consumers, while quite possibly saving money. Thus, vocational rehabilitation agencies should consider purchase and use of this technology.

Recommendations

- 1) VR agencies should investigate the benefits of Video Interpreting as a way to meet communication needs of both VR staff and Deaf consumers.
- 2) VR agencies should develop relationships with local Information Technology (IT) staff in order to obtain the support and technical assistance needed within the network environment.
- 3) VR agencies should seriously consider the potential costs savings to their agency through the use of this technology.

The former Assistant Secretary of the Office of Special Education and Rehabilitative Services for the U.S. Department of Education, Judy Heumann, said, “For people without disabilities, technology makes things convenient, whereas for people with disabilities, it makes things possible” (2000).

In the face of critical interpreter shortages, video interpreting services holds great possibilities for provision of quality services to individuals who are Deaf.

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Video Interpreting Committee: Registry of Interpreters for the Deaf:

<http://www.rid.org/VideoInterpretingTalkingPoints.pdf>

(Disclaimer: This paper in no way is meant to be exhaustive or all inclusive of the technology, and vendor information required for quality video based interpreting services.)