



## Real-time Closed Captioning in Video Conferences

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### **What is Closed Captioning?**

Closed captioning displays spoken words as text on the screen during your video conference. The captions are hidden as data in the video signal, so users can choose to turn them on or off as needed.

During the conference, the captioner listens to the conference and types every word on a special stenographic keyboard. While the captioner can be present in the conference room, the captioner most often works at a remote location and joins the conference as a voice-only participant. The captioner's computer sends the captions to the video conferencing system.

Polycom Real-time Closed Captioning is based on the CEA-608-B standard. This is the same format used for the captioning in the television industry. A Polycom system using closed captioning sends the captions to all other participants in the video conference, including third-party systems that support T.140 over H.224.

### **Who Needs Closed Captions?**

Adding closed captions to your conference allows deaf or hard-of-hearing users to participate more fully. Closed captions can also be used to supply translations or to reinforce learning and understanding.

#### **Deaf and hard-of-hearing users**

It is estimated that there are 26 million Americans that are deaf or hard-of-hearing\*. As the number of older American population ages, the number of people experiencing hearing challenges is increasing. To ensure accessibility for these persons, the federal government requires that all federal government offices and agencies comply with Section 508, an enhanced series of regulations surrounding the original Telecommunications Act of 1972.

Adding real-time captioning to video conferences and webcasts makes these events compliant with Section 508 requirements that relate to deaf and hard-of-hearing needs. However, since Section 508 also applies to blind and other challenges, a captioned event should not be considered fully Section 508 compliant.

#### **Non-native speakers**

In video conferences where some participants are non-native speakers, captioning can help these participants better understand the dialogue. In many cases, people can understand material in another language more easily by reading it than by hearing it.

#### **International users**

Multinational companies that use video conferencing to conduct world-wide business or employee meetings can provide real-time language translation support using captioning. Participants in all locations can see translations in their local languages. For example, an English-speaking CEO can address employees in several countries using

videoconferencing. Translated captions can be provided for the locations where English is not the primary language, allowing everyone to participate fully.

### **Educational users**

In schools, teachers can use captioning to reinforce learning concepts. University studies show that learning is enhanced and retention is improved when students can read as well as hear a lecture.

### **How Are Real-time Closed Captions Produced?**

Closed captions are created by a captioner listening to the video conference and keystrokes every word using a special stenographic machine attached to a computer. The captioner can be added to the conference as a voice-only participant, listen by telephone, or can be present in the room with the conference. As the words are captioned, the computer translates the keystrokes into readable text and sends them to the video conferencing system by modem. The conferencing system adds the captions to the video signal, and the captions and video are sent simultaneously to all participants in the video conference. Individual sites can choose whether to display the closed captions on their screens.

Typically, a stenographer captions approximately 225 words per minute. Since the average person speaks only about 140-160 words per minute during the normal conversation, the captioner can easily record every word. In most cases, the text appears on the screen 2-4 seconds after the words are spoken, which is about the same latency as television captioning.

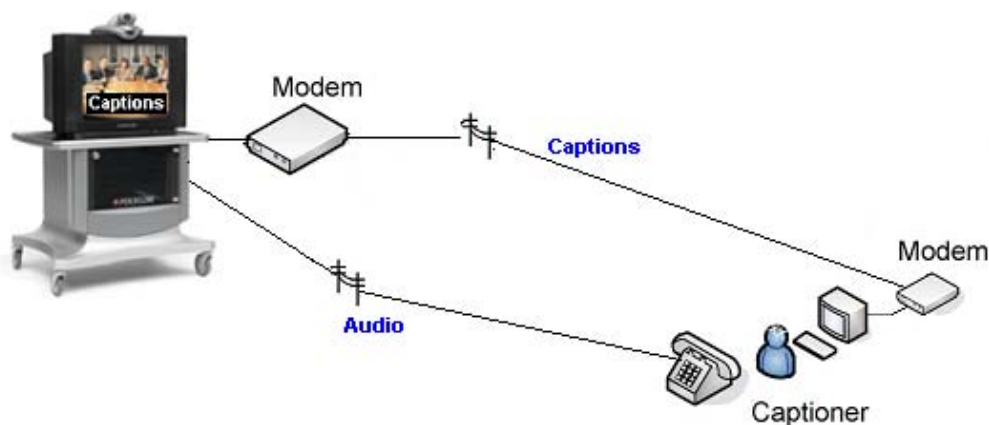
Note that the number of participants in the conference does not affect how quickly the closed captions appear on the screen.

### **How Are the Systems Connected?**

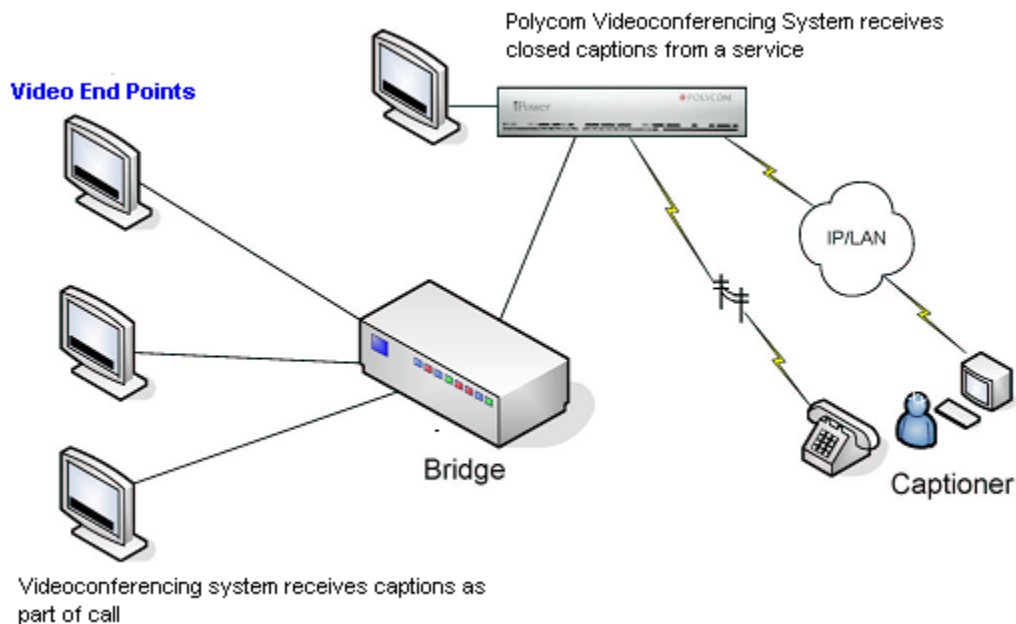
Most often, the captioner's computer is connected to the video conferencing system using a 1200 baud modem. Captioned text has a low bandwidth demand and so it has a low overhead requirement for sending the text. Captioners can also connect to the video conferencing system over an IP network (LAN or WAN), but this is less common.

Polycom video conferencing systems support both modem and IP connections, and both types of connections perform equally well. The connection method can be chosen according to the requirements of the captioning provider.

#### **Modem Connection**



## IP Connection



## How Do I Work with a Closed Captioning Provider?

There are many local providers of captioning and court reporting services, but there are only a handful of national providers. The larger national captioning providers include Caption Colorado, VITAC, NCI and WGBH. These companies represent nearly 90% of the real-time captioning for television and the government.

When developing Polycom Real-time Closed Captioning, Polycom worked with Caption Colorado and other providers of standards-based captioning to ensure compatibility.

### Optimizing Closed Captioning Quality

Real-time closed captions are provided by live (steno) captioners. These professionals often have many years of experience and have established captioning dictionaries of 50,000 words or more. To ensure that the captioner's dictionaries contain the specific terms used in your conference, you can send the captioner a list of speakers, proper names, special terms, industry jargon, acronyms, or any other type of reference material. This way, the captioner build(s) a dictionary for the session ahead of time.

### Ad-hoc Meetings

If you need to add closed captions to a video conference with little or no notice, you can contact a service that is pre-configured to work with Polycom video conferencing systems. This option is available worldwide from Polycom as a fee-based service.

Caption Colorado extends preferred pricing, guaranteed availability on short notice, and complimentary captioning of demos and other high profile events for Polycom users.

### Billing and Scheduling:

Captioning is billed on an hourly rate and is considered an on-demand service. You can arrange for just those events or sessions where you need captioning. No contracts are necessary and no advance arrangements are required. If you call 24 hours before the conference, service is guaranteed with Caption Colorado. If you call less than 24 hours

before the conference, Caption Colorado will always try to accommodate your request. In addition to real-time and post-event captioning, other services are available including foreign language translation transcript service and more.

### **Contact Information**

If you have a sales or technical question on this, please visit Polycom Inc., website <http://www.polycom.com/> or call 800.POLYCOM, or 408.526.9000

To set-up an appointment for free captioning for demos, or for more information, please contact Randy Holyfield, Caption Colorado at 800.775.7838. Also visit their website <http://www.captioncolorado.com/>

\* Gallaudet University study, 1996 – This is widely accepted among government and education circles as the current count of Deaf and hard-of-hearing individuals in the country.