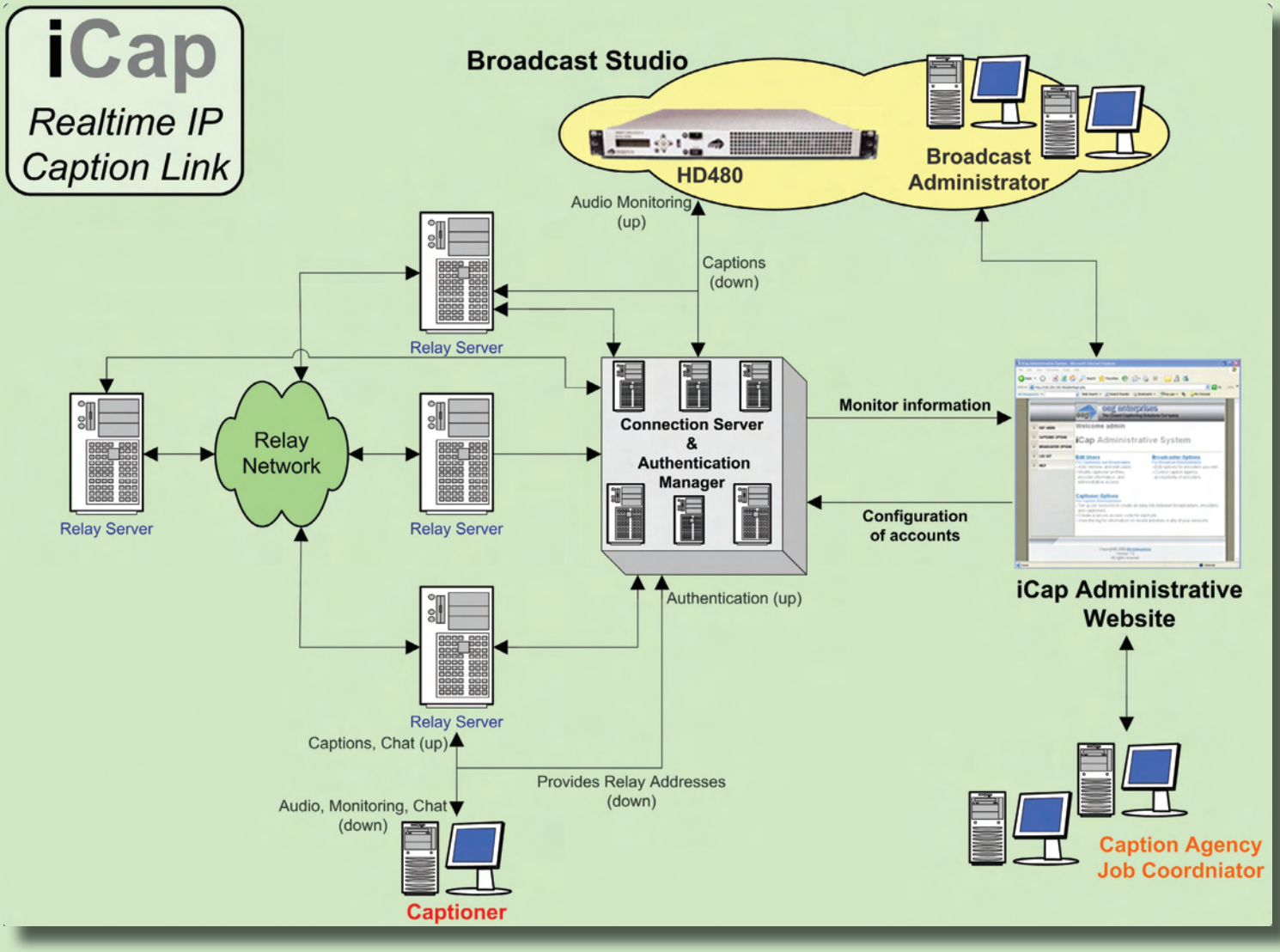
Opening Up Services with Closed Captioning



by David Weiss

Everyone who's been to a noisy restaurant or the home of an elderly relative has probably seen closed captioning lately on the television there - it's the text version of the spoken words from the TV show or movie that's being broadcast. Today, the world of closed captioning is opening up to houses of worship, providing them with an additional avenue for reaching an even wider audience.

It's obvious why the system is called "captioning", but why "closed"? The reason is that closed captioning (CC) information is encoded within the video signal, residing on line 21 of the vertical blanking interval (VBI). A decoder built into the viewer's television or set-top box is required to make that text visible, and in most cases can be turned on or off via onscreen menus or other controls - hence, "closed". The opposite is open captions, which are integral to a transmission and can't be turned off.

According to Philip McLaughlin, President of EEG (www.eegent.com), a manufacturer of CC encoders, decoders and software, houses of worship are increasingly interested in how to integrate CC into their workflow for local broadcasting, live on-site video presentation, and even distribution of DVD content. "There's a very significant number of the population in general - and certainly among the population of house of worship members and viewers of religious broadcasts - that have a tremendous amount of difficulty in hearing dialogue," he says. "The primary users of CC are not necessarily deaf people, but those who are elderly and hard of hearing.

"This is very much an underserved population. If CC is made available to them, however, it allows them to follow sermons and services word-for-word and be connected to the message that they were previously having trouble hearing. The effect it has is to allow families to be in the same room and share a broadcast. If a house of worship is not doing CC, however, then a major portion of the dialogue will not be picked up by the whole audience."

While the familiar plain white text and black background of CC is simple in appearance, it belies the complexities of the myriad scenarios by which CC makes it to the screen. In fact, the nature of a specific situation's workflow determines how the captioning needs to be done. If the workflow is set up correctly, it will give the house of worship the most flexibility in deciding how to provide CC to the widest variety of media. There are different environments in which CC appears, and different ways to approach CC within each.

Starting with the realm of broadcast video, two primary CC scenarios are presented. First is a live broadcast, where a church service or sermon, for example, would be streamed live to air immediately and would be accompanied by what is known as realtime CC. The second possibility is with scripted material, where a program with a well-defined script is recorded and does not go to air immediately, allowing for what is known in CC as offline flow.

In most cases, the generation of realtime CC depends on one or

more highly-trained stenograph operators, working either on-site or remotely via a communications link, to listen to what is said in the programming and then type it out as fast as humanly possible. "The operators have specialized software that will convert the stenograph input into ordinary English," McLaughlin explains, "It also formats it for the encoder, which is the hardware -- such as the EEG HD480 or EN530 Smart Encoders -- that generates captioning. Onsite, the data travels via a serial port connection to the encoder. Remotely, it can go over a modem link, or increasingly it is being done with new systems such as EEG's iCap, which is a secure realtime Internet-enabled caption link."

Today's CC encoders are actually task-specific servers, with the vast majority of new systems being strictly digital in operation to accommodate the growing number of HDTV plants at local stations and networks, as well as the legacy SDTV infrastructures that were previously served by analog CC systems. CC encoders serve several key functions, including CEA-608/708 encoding and upconversion and realtime caption relocation. Just as importantly, they ensure that the program audio is streamed securely to the captioner, and that the data the captioner generates is delivered securely, in the rare but plausible - and precedented - event that mischievous forces want to hack the captioning stream and interrupt it or worse.

As above, most investigations into CC will eventually include mention of CEA-608 and CEA-708, which are the two closed captioning standards in use in the U.S. CEA-608 is an older standard that is used for analog (i.e. NTSC) television broadcast, and can also be encoded on a standard definition DVD. CEA-708 is a newer CC standard that is mandated by the FCC for use on high definition, as well as standard definition, digital television. Although it is much more complex, CEA-708 provides many additional features and formatting options. It is often necessary to convert captioned programs or caption files from one of these formats to the other, but fortunately higher-end encoders and encoding software products automatically and seamlessly convert between these coding standards as necessary.

Realtime caption creation is also evolving from the development of IP caption links. Instead of using the traditional analog approach of a dial-up modem, these systems allow captioners to work via a software client that is installed on their computers. Captioners can use the client to connect over the Internet to receive the audio feed and send data back to the broadcaster's encoder, a fast and efficient approach that allows for superior audio quality, vastly reduced delay times

EEG's HD480 is an example of today's closed captioning server, offering secure IP delivery of real-time caption data

(key to ensuring that the text keeps pace with the spoken words), and improved administrative oversight and management of the captioning process.

Increasingly, houses of worship are investigating the means to develop offline CC for their programming, in the cases where their services can be broadcast later in the week or month, or distributed via DVD or other media. While setting up a system in-house to produce CC is an option, houses of worship may certainly want to investigate the route that most major broadcasters take, which is to employ one of the myriad caption agencies available to handle the task.

"If the video is going to be post-produced and doesn't have to go to air immediately, that leaves you time to handle CC offline," says McLaughlin. "Caption agencies are specialists in providing this service, and they handle it very efficiently."

Once a house of worship has made the decision to work with a caption agency -- such as Caption Max, Media Captioning, CCS Closed Captioning Service, US Captioning, VITAC, and National Captioning Institute to name a few - the first thing the agency will request is a copy of the video that needs captioning with time code, either on the audio channel or embedded on the video.

From there, the process provides a good overview of how offline captioning works, whether it's done by an outside agency or in-house. If a script is available, the agency will also request that to be sent. In the event that there is no script, then the agency's captioners will create one, breaking up the video into individual captions and using special captioning software to mark where in the video those captions should appear. Depending on the program material, the captioners can also position the captions in different places on the screen besides simply on the bottom. Placing them around the screen is more effective because it allows the viewers to perceive the different people who are speaking as the captions appear, although this additional step can also be more expensive.

Once the captioning file is complete, it will be emailed from the captioning agency to whoever is duplicating the video. Using a CC encoder, the captioning file is applied to the original master video, matching up the time code and inserting the captions into the video at the appropriate point. The result is a caption master that is created in the VTR, which then goes on to be the source of duplicate tapes or DVDs.

As McLaughlin notes, the CC process is one that requires knowledge and experience to pull off correctly. "Every religious or corporate broadcaster that talks about doing CC automatically assumes that they want to do all their captioning in-house," he says. "But there are so many details to consider if they're going to go that route. For example, will they hire another person to do this, or if their services will only be needed for two hours a week, will they train someone to do it? It's a very labor-intensive process. As well, the equipment investment is not necessarily exorbitant, but they should be sure to get industry-standard gear that will smooth the way for communication when dealing with post houses, duplicators and the like.

"However, if a house of worship really wants to give in-house captioning a go, our recommendation is for them to get their feet wet: Create a piece of material and have it done professionally by an agency a few times to see what a professional result is, and then you have a benchmark for yourself. In terms of the expense, if you're going to work with a captioning agency to do a one-hour show once a week for a year, you'll get a much better deal from them."

For houses of worship with video displays that may want to display captioning to their in-house audience, they have the option of either having a captioner onsite or listening in via an audio coupler that leads to an IP or modem connection going offsite.

With increasing demand from congregations' elderly and hard-of-hearing memberships for CC as a part of their worship experience, knowledge of captioning and how to move forward with it is becoming an essential component of the video production knowledge base. "Tapping into closed captioning, and getting it right, is more important to religious, corporate and even online entities than ever before," Philip McLaughlin concludes. "For houses of worship, closed captioning is a strong reinforcement to their message at many, many levels." ◆

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