

# Reaching Out to IT Professionals with Webcasting

*The CREN TechTalks target the needs of campus IT professionals by disseminating technology developments quickly and efficiently*

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One driving force of the information age is — no surprise — information. Information surrounds and reaches us everywhere. In a new book, *Next: The Future Just Happened*,<sup>1</sup> Michael Lewis noted that “it is wildly disruptive to speed up information.” If this is true, the need for information services to help make sense of the information flood is greater than ever.

Yet, learning takes time, and time is scarce for most professionals. When and how do professionals stay up-to-date? What are practical ways for professionals to incorporate learning into their work styles?

CREN is a nonprofit organization that supports IT professionals with strategic knowledge services and communications tools. The CREN TechTalks series of Webcasts, now in its fifth year, addresses the needs of campus IT professionals for practical information services. Back in 1997, the CREN board of trustees thought that it was important to provide services to disseminate technology developments and case studies more quickly and efficiently to a larger set of information technology campus professionals than in the past. (See the sidebar “About CREN.”)

The first attempts at capturing and disseminating the knowledge of higher education IT professionals were called Virtual Seminars. These high-quality, professionally produced tutorials used an interactive CD for-

## About CREN

CREN is a nonprofit member organization of more than 220 universities, colleges, and research organizations governed by a 12-member board of trustees. CREN’s mission is to support higher education and research organizations with strategic IT knowledge services and communication tools. In addition to the TechTalks, CREN provides a set of services supporting the knowledge of and use of digital certificates, including the CREN Institutional Certificate and Web server certificates and live seminars <<http://www.cren.net>>.

mat. Pilot deployments showed that learning materials in this static format simply did not fit most IT professionals’ learning styles or work styles. These same pilots showed that the costs of producing the CDs were high, as were the distribution and support costs. Finally, the browser technology was a moving target, causing the tutorials to behave differently — and often not to behave at all — in specific browser and operating system environments.

## Analysis of the Need

Obviously, a new approach was needed. A more formal instructional design analyzed the lifestyle of the audience we wanted to reach, the technologies available to this audience, and the costs and suitability of the available technologies.

The analysis focused on four components:

- Who is the audience? What knowledge and skills do they already have?
- What knowledge or skills do they want to acquire?
- What technologies can support and deliver the learning experience? Are the members of the audience likely to have easy, convenient and cost-effective access to these technologies?
- Where, when, and with whom is most of their learning done? What makes an effective experience surrounding the content to be learned?

The answers to these questions clarified how we could meet our goal of delivering structured and informal learning to a large group of geographically dispersed IT professionals. The analysis also suggested evaluating an emerging technology that could deliver timely content to IT professionals whatever their location. That emerging technology in 1997 was Webcasting.

Selecting Webcasting as the core delivery technology had the added

benefit of making it easy to incorporate asynchronous elements that would address the professionals' diverse learning and work styles. From this analysis emerged the 360-degree multimedia format (see Figure 1) that includes a preview announcement, a supporting Web site, archived transcripts in both audio and video format, and a live TechTalk event with an interactive, real-time, question-and-answer capability.

The TechTalks share characteristics of tried and true formats for learning favored by IT professionals. The TechTalks have elements of a live stand-up seminar in that the featured expert is articulate, knowledgeable, and effective at explaining complex ideas clearly and succinctly. Also, the content isn't scripted. The content, although prepared, remains open to spontaneity and participants' questions. Unlike seminars, the TechTalks don't include a prepared set of slides. In fact, slides are generally discouraged, as they are visual rather than auditory. Rather, the expert, technology anchor, and host collectively agree on the event's focus, then prepare a pool of interview questions used in the dynamic of an informal, but informative, interview discussion format.

The TechTalks also share characteristics of radio and television talk shows. The question-and-answer e-mail capability supports spontaneous participant interaction and introduces an interesting unpredictability to the questions. The Webcast is scheduled at a regular time and place, and the TechTalk series features a regular technology anchor — Howard Strauss from Princeton University. We also have a regular show host to assist in framing the session. The show host handles introductions, provides some give-and-take discussion, and assists in monitoring and posing the incoming questions. The role of the show host is often filled by former IT guest experts.

While the format of the TechTalks is still evolving, the goals of the Webcasts are clear. They provide a medium for IT professionals to tap into the expertise of national professionals who specialize in higher education IT needs and challenges. Better still, they offer a way to do this learning conveniently, economically, and with minimal disruption to one's work schedule.

The experts in these sessions focus on core IT concepts, plus technical trends and issues. Topics are selected for their strategic importance to the campus infrastructure, and the questions focus on the practical and possi-

ble. One of the experts suggested that the best way of describing these Web events was like National Public Radio's "CarTalk" for techies in IT.

## Webcasting as a Technology

When the first TechTalks began, the technologies to enable Webcasts were just being developed. In the five years since, Webcasts have grown to "more than one thousand 24-hour Webcast broadcast channels."<sup>2</sup>

Webcasting is most simply defined as the delivery of audio and video signals over the Internet. In her 1998 book on Webcasting,<sup>3</sup> Miles defined Webcasting very broadly, encompassing broadcasting, videoconferencing, and even one-to-one communications. This definition of Webcasting has narrowed some since then; Webcasting now generally refers to the delivery of audio or video content to large groups, either locally or globally distributed.

Over time, the term Webcasting has evolved, now referring primarily to live events. Webcast events are frequently archived for availability on demand as well.

The development of streaming technologies has served as the catalyst for the proliferation of Webcasts. Streaming technologies solve the problem of the real-time nature of broadcasting audio and video signals. These technologies, such as those available from RealNetworks and Microsoft, convert audio or video signals into digital information continuously delivered over the Internet. Streaming technologies use compression-decompression software and hardware (codecs) to convert and compress analog signals, such as voices, to digital data packets that are then streamed out to viewers/participants in real time.

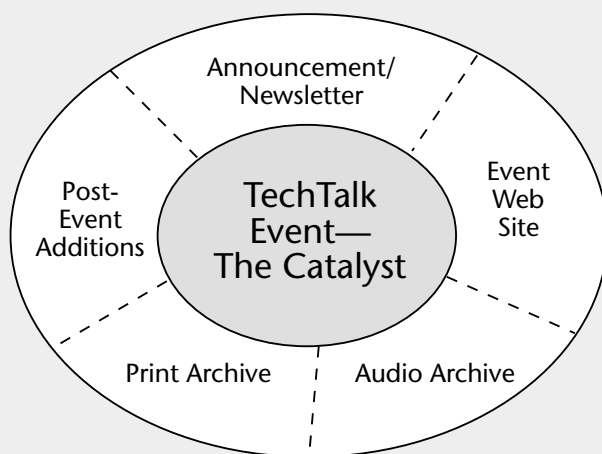
## Audio Webcasting

An audio Webcast involves the following production steps in broadcasting the audio signal:

1. Generate the signal. In the TechTalks series, this is the audio signal of the conversation on the telephone bridge connecting the

**Figure 1**

### TechTalk 360-Degree Format: Synchronous and Asynchronous



technology anchor, the expert, and the show host.

2. Capture a quality analog signal into a sound card. With the TechTalk Webcasts, the audio signal is captured from the phone conference using TeleHybrid<sup>4</sup> equipment, which interfaces the telephone to the encoding sound card in the PC. This device ensures a good signal match between the telephone and the sound card. A streaming audio engineer oversees this process.
3. Convert the signal to digital with encoding and compression software. For the TechTalk Webcasts, we use RealProducer Plus from RealNetworks.<sup>5</sup> This software encodes the audio input from the sound card into a format that can be sent to a streaming media server, such as RealServer.
4. Send the digitized data stream to a streaming media server that then sends the stream to individual users' computers in real time over the Internet.

Prior to the Webcast, the audio engineer has prepared a file name to be associated with the digitized media stream. Also prepared ahead of time is the URL that appears on the Webcast event page and that becomes active at the time of the Webcast. This URL is a link to the live stream and will launch the user's RealMedia Player, which then begins receiving the RealMedia file.

This same file is then archived and available for on-demand Webcasting in Real and MP3 formats after the event.

## Webcast Operations

The TechTalk Webcasts resemble radio and television news programs. Webcasts for the general public or a large audience require producers, writers, anchors, guests, and distribution mechanisms. Webcasts also need marketers, to ensure that word gets out about the program. Webcasts can be done quite inexpensively compared to radio and television, but to ensure predictability, quality, and consistency requires a team of professionals with built-in backups and redundancies.



### During the Webcast the anchor and the host monitor the e-mail as it comes in.

Key personnel for the TechTalk operations include technology anchor Howard Strauss of Princeton University; Webcast Web site producer Terry Calhoun of the Society for College and University Planning; the Merit staff, particularly audio engineer Jason Russell; and the CREN staff. Merit, the contractor for the RealProducer Plus software, manages the distribution of the streaming audio signal during the Webcasts and also for the archives.

## Content and Guest Preparation

Selecting and preparing the expert guests for the TechTalks is a critical step in preparing for Webcasts, taking place over a period of two to three months prior to each Webcast. To prepare for the interview, Strauss, in collaboration with the expert, generates a set of questions on the selected topic. In the preparation session Strauss, the show host, and the expert(s) discuss the pool of questions with the host and determine what's really important and what's not. This session also determines the best strategies for talking about the key issues and introduces the expert to the unique quali-

ties of the Webcast talk show format.

On the day of the Webcast, the production team calls into the conference bridge 15 minutes before Webcast time for a final check that everything will be ready to go on schedule. Sometimes these 15 minutes are uneventful (that's good!); sometimes they are quite frantic. Even with all the preparation, we did have to cancel one session at the last minute due to equipment failure. Fortunately, a message posted on the Web site provided almost instant communication about the cancellation, and we rescheduled that session for the following week.

## Supporting Technology

Supporting live e-mail communication during the Webcasts is straightforward. An e-mail account is set up, and prior to each Webcast the account administrator links the account to the e-mail addresses of the expert, the anchor, and the show host. During the Webcast the anchor and the host monitor the e-mail as it comes in, then evaluate and pose the incoming questions to the expert.

The Web event page has grown significantly in importance over time — the Webcast site now serves as a mini-portal for the selected topics. It offers a good place to start if an IT professional wants a quick look at a technology and what others in higher education are doing with it.

## Technology and Format

The technology seems to be working reasonably well. The plug-in audio player is freely available from RealNetworks on the Web, and most IT professionals are comfortable with the technology. Also, the audio signal does not demand a lot of bandwidth and thus can accommodate hundreds of participants.

The experts seem to enjoy the TechTalk format. They find it less onerous than preparing a stand-up conference presentation, and the only travel involved is to anywhere with a phone and a computer. The anchor and the show host generally require both phone access and Internet access.

## Lessons Learned

The participants in the early Webcasts gave us clear feedback on one issue — predictability. They wanted to know well in advance when the Webcast would occur. The TechTalks moved to a regular day and a regular time starting in the fall of 1998: Thursday afternoon at 4:00 p.m. Eastern time, every two weeks.

Something else that didn't work well with the initial Webcasts was having an open telephone line for anyone to call in at any time. Taking questions by e-mail provides important control over the timing and pertinence of the questions.

## Cost of the Webcasts

Each Webcast costs between \$2,200 and \$7,500 to produce, depending on varying charges and rates.

The budgeted costs include charges for the conference telephone bridge, encoding engineer's services, time of the show hosts and the experts, preparation of the script and the pool of questions, transcription of the event, development of the announcement and the Webcast event site, and editing and archiving of the Webcasts.

The TechTalks are a community service for IT professionals and are supported by CREN member institutions and other sponsors. Some of the production work is also contributed by volunteers from the IT community.

## Common Questions

Three questions come up frequently about the TechTalk Webcasts. In answering them here, we can also address some common misconceptions.

### ■ Why only audio?

The suggestion to "go video" is monitored and reevaluated every year. For now, the recommendation continues to be "stay audio," mainly for reasons of cost and convenience.

The production costs for audio Webcasts are significantly less than those for video, as are the distribution costs. From the experts' and hosts' perspectives, also, it's much more convenient for the Webcasts to be

audio only. The only technology they need is a good land phone connection to dial into the conference bridge. This means that the experts, the anchor, and the show host can be, and most often are, in different cities and occasionally different continents. Not being able to see each other during the Webcast occasionally results in contention for the voice space, but no more than what most of us experience in a lively conversational setting. Most of the experts are accustomed to a high level of spontaneity and just continue. Most of the conflicts are edited out or cleaned up in the transcriptions.

The amount of technology and bandwidth for good audio is also much less than for video. While participants like to get a sense of an expert's personality, they can consult a picture and a bio on the event Web site. Combined with the expert's voice, the personality comes through.

Another interesting point in favor of audio-only transmission is that the audio format resembles radio and suits the multitasking work style of IT professionals. The lower bandwidth requirements also mean that IT professionals worldwide can participate in the TechTalks. Questions in one broadcast came from Latvia (close to midnight there) and Hawaii (close to noon locally).

### ■ How many IT professionals participate?

First of all, it's quite difficult to get good estimates of the number of participants. One solid data point is the data from the RealAudio server software, which provides an estimate of the number of audio streams delivered during a Webcast.

This data only approximates the number of participants because we know that groups will sometimes gather to listen and pose questions, and to jointly discuss a topic. In these instances a group appears as one IP address.

Another data point is the number of questions that come in. Over time, from the data we are able to collect, it appears that the number of questions

represents about 10 percent of the audience. Obviously, this is a statistic that is virtually impossible to verify, so we continue to search for ways to get better data while respecting the privacy and anonymity of the participants.

The Webcasts appear to have stabilized in response to current marketing efforts at an average of about 140 participants for the live event. Of course, averages hide a lot of data. We had around 400 participants in the Webcast with Cliff Lynch on "Where Is the Digital Library?" on September 28, 2000.<sup>6</sup>

### ■ How does an institution get started in Webcasting?

Getting started using Webcasting technology resembles launching most technology projects. The best projects generally start small, with a specific need in mind. Many institutions are considering Webcasting for university-wide events, such as presidential chats or graduations, for example, or important cultural events. Of course, before any university-wide event, an institution will want to practice with smaller, less important events.

Other useful applications include delivery of instructional events. The event's size and purpose will dictate the amount of planning and investment needed for the Webcast.

Important issues include the time and effort required to ensure a quality production, the number of expected participants, the availability of the technology for encoding and delivery of the signal over the Internet, and the assignment of professionals to become knowledgeable in the technology. Contracting with streaming technology service providers such as Merit, HorizonLive, or others is also a good way to get started.

## What's Next in Webcasting?

Webcasting technologies continue to improve, and the next wave of streaming and compression technologies will reduce the bandwidth necessary for Webcasting. Work also continues on technologies such as

multicasting, which enables many users to receive the same stream of data. These developments ensure that more and varied applications will emerge.

Plans are also progressing for continued enhancement of the TechTalk 360-degree Webcast format. Soon we expect to make the audio files available in an MP3 format for downloading to mobile devices. That capability will let people listen to the TechTalks while in transit or when otherwise away from their computers.

Other signs of the future have already appeared with simulcasting. Simulcasts combine the passive act of watching television with active learning and browsing of Web sites. Users may watch the first 15 minutes of a program, launch a Web site, and watch both the Web and the television program simultaneously. For example, MTV is launching Webcasts that enhance and supplement television events and vice versa, and National

Public Radio has started listing Web sites during their programming <<http://www.npr.org>>.

## A Continuing Mission

If their feedback is an accurate indicator, IT professionals find the TechTalks format, with the Webcast as the central catalyst event, useful and accessible. The editorial mission continues to focus on identifying the strategic, cost-effective technologies and paradigms that will support delivering mission-critical services via an effective infrastructure.

Webcasting as a communication and delivery strategy demonstrates the exciting convergence of the Internet, the Web, audio and video streaming, and the older technologies of radio, television, videotapes, and telephones. No matter the technology, however, content is the key to quality. We invite you to join the TechTalks at <<http://www.cren.net>> and decide for yourself. *e*

## Acknowledgments

Other folks who have contributed to these Webcasts throughout the years include Greg Marks, one of the original co-designers; Laurel Erickson, editor; Julia O'Brien of Merit; and Susie Bernais, the transcriber. Acknowledgments also go to the vision of the CREN Board of Trustees for supporting these Webcasts.

## Endnotes

1. M. Lewis, *Next: The Future Just Happened* (New York: W.W. Norton & Company, 2001).
2. P. Miles, *Internet World Guide to Webcasting* (New York: John Wiley & Sons, Inc., 1998), p. vii.
3. Ibid.
4. See <<http://www.gentner.com>> under Products, Telephone Interface, for more information about the TeleHybrid product.
5. See <<http://www.realnetworks.com>>.
6. Available at <<http://www.cren.net/know/techtalk/events/digi-lib.html>>.

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