

Centra/Cisco ECDN Integration



Introduction

This paper discusses the integration between the Cisco Enterprise Content-Delivery Network (ECDN) and the Centra Symposium virtual collaboration solution. Details on the various products are provided, as well as how to integrate the two systems.

Cisco Content-Delivery Network Technology

Cisco ECDNs make it possible for enterprises to increase the use of high-bandwidth (live and on-demand) content for learning and corporate communications, while alleviating strain on the network. The Cisco ECDN solution makes this possible by taking advantage of intelligence in the network to augment raw bandwidth.

The key products include the Cisco Content Distribution Manager (CDM), Cisco Content Engine(s) (CE[s]), and the Cisco IP/TV® Broadcast Server. Together, these products enable:

- A multimedia-rich online learning environment
- A dramatic reduction of network congestion and WAN usage
- Central enterprise-wide management and distribution of content
- Anytime, anywhere access to learning for every employee
- Easy administration via “plug-and-play appliances”

Enterprises can integrate Cisco ECDNs with key learning applications such as Centra, Saba, Ninth House, and gForce as part of a blended, end-to-end e-learning ecosystem.

Cisco Content Distribution Manager

The Cisco CDM is the policy manager of the learning network. It enables network administrators to configure bandwidth and distribution settings such that content will not interfere with other network traffic, even if the receiving office has only a 56K (constant) connection to the Internet.

Through a graphical Web-browser-based user, the network administrator can enable content providers across the company to import and distribute rich learning or communications using the network settings held by the CDM.

The CDM enables the administrator to monitor the health of the entire delivery network, including all the Cisco Content Engines located at end-user sites.



Cisco Content Engine

The Cisco Content Engines stream live or on-demand content to the learner's desktop. The learner simply logs on to a Web page or application such as a Learning Management System or Virtual Collaboration system and accesses all the high-bandwidth media over the local-area network.

Cisco CEs work in conjunction with the existing network infrastructure to localize traffic, rather than pull rich files over the WAN. By streaming rich media locally, enterprises can now deliver higher-bandwidth and subsequently higher-impact information to the learner. Content engines can also be used to cache static or streaming Web content from sites such as Yahoo.com or CNN.com for better network performance, and even to block or filter nonproductive, nonbusiness Web sites for improved productivity.

Figure 1 Basic CDN Deployment

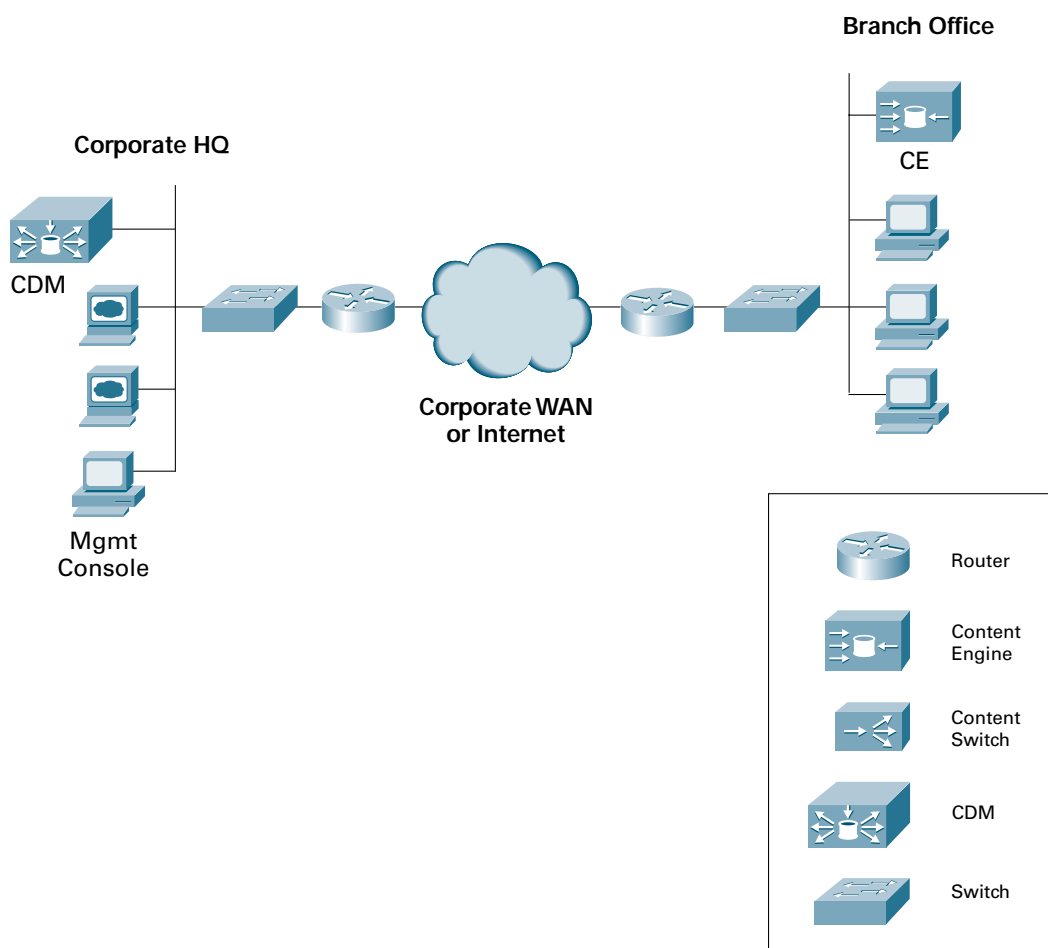
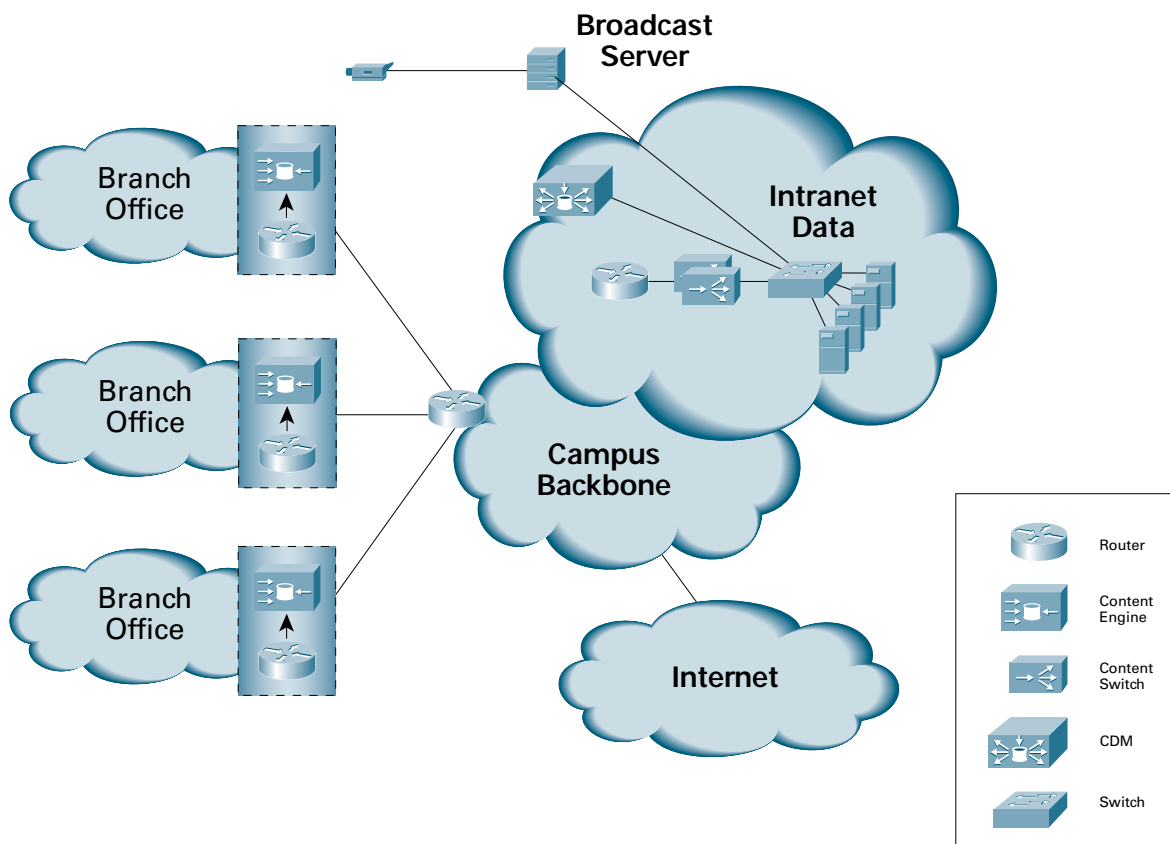




Figure 2 CDN and IP/TV Integration



Cisco IP/TV Broadcast Server

The IP/TV Broadcast Server is used by enterprises to capture and deliver high-quality video broadcasts to desktops or meeting rooms using multicast technology. Multicast technology makes it possible for enterprises to deliver live Motion Picture Experts Group (MPEG)-1 and MPEG-2 streams on the local-area network, while achieving optimal network performance. Enterprises use the IP/TV Broadcast Server in conjunction with the CDM and CEs, thereby enabling CxOs or other key presenters to deliver information live and record these sessions for on-demand viewing later. The CDM takes the recorded file and distributes it to the CEs, which stream media as requested, locally.

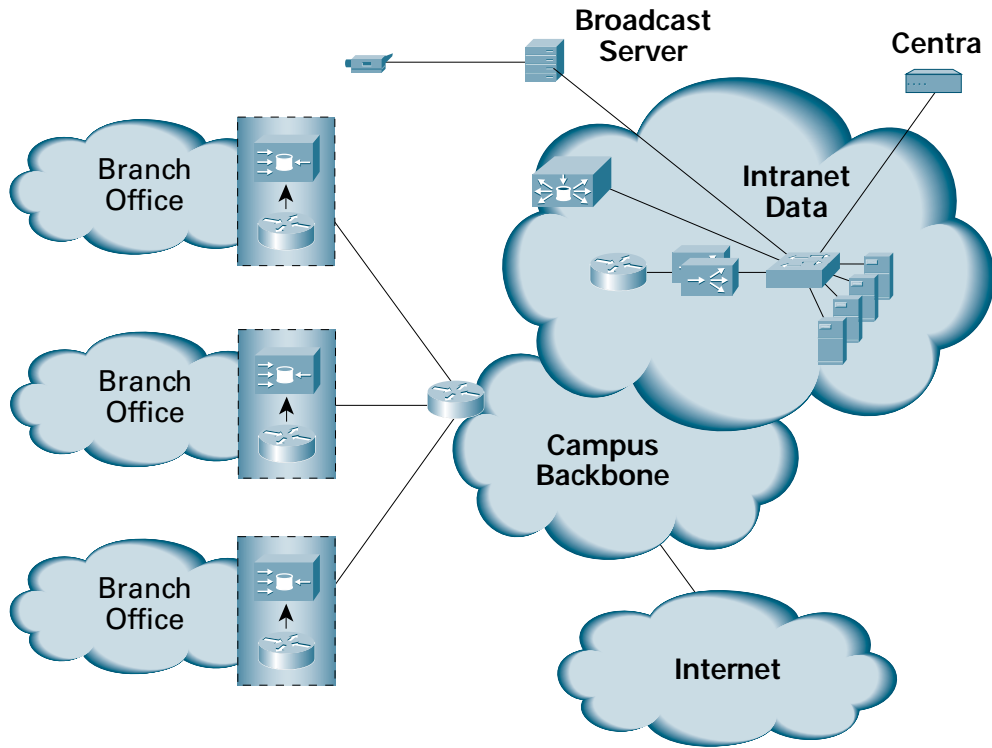
Integrating Cisco ECDNs and Centra Symposium

By integrating Centra Symposium with the Cisco CDN solution, companies can optimize bandwidth usage and add rich multimedia to their live virtual classrooms.

Together, these products enable enterprises to:

1. Record Centra classrooms and distribute them via the CDN for local streaming and less strain on the WAN
2. Add a pointer, or URL, to the Centra session, which can be launched by the instructor and played at the desktop by viewers; this link can provide Flash, Shockwave, or even TV-quality video to the learner

Figure 3 The Cisco/Centra Solution



Recording and Distributing Centra Classrooms

Version 5.0 of Centra’s server software, CentraOne 5.0, enables recorded Centra sessions to be delivered via a Cisco CDN. The first step is to capture the event.

The file formats are recorded in AVI, ASF, RM, or WMV formats using a dedicated Event Recorder Client or through the Centra Recorder available as part of the Centra Knowledge Objects Studio.

Figure 4 Centra

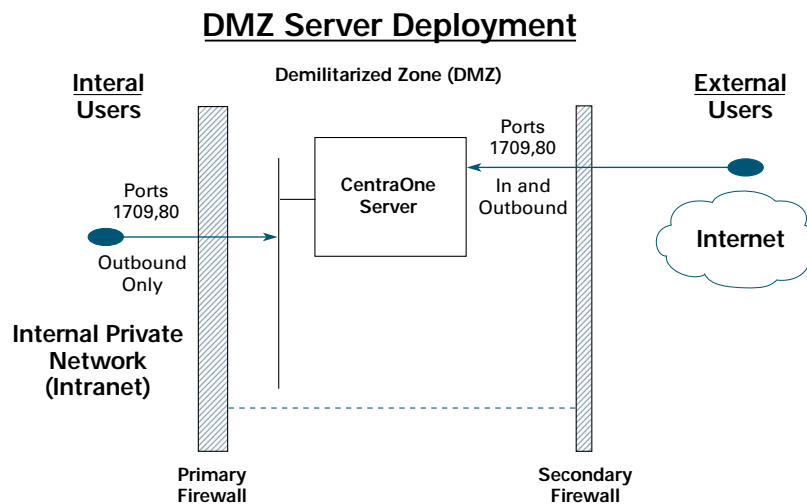
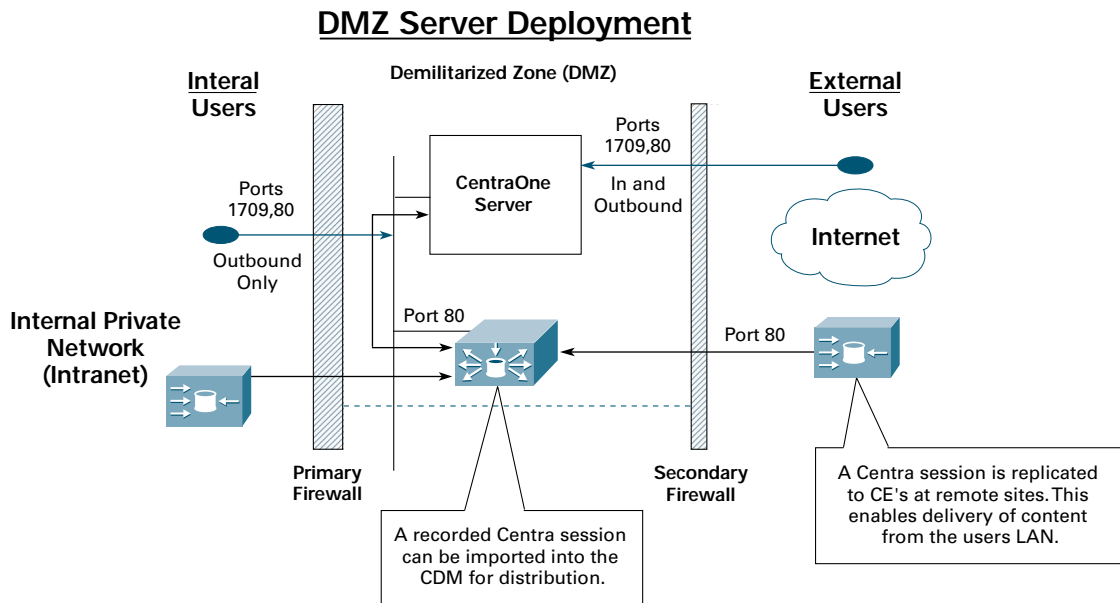


Figure 5 Centra Technology with Cisco CDN

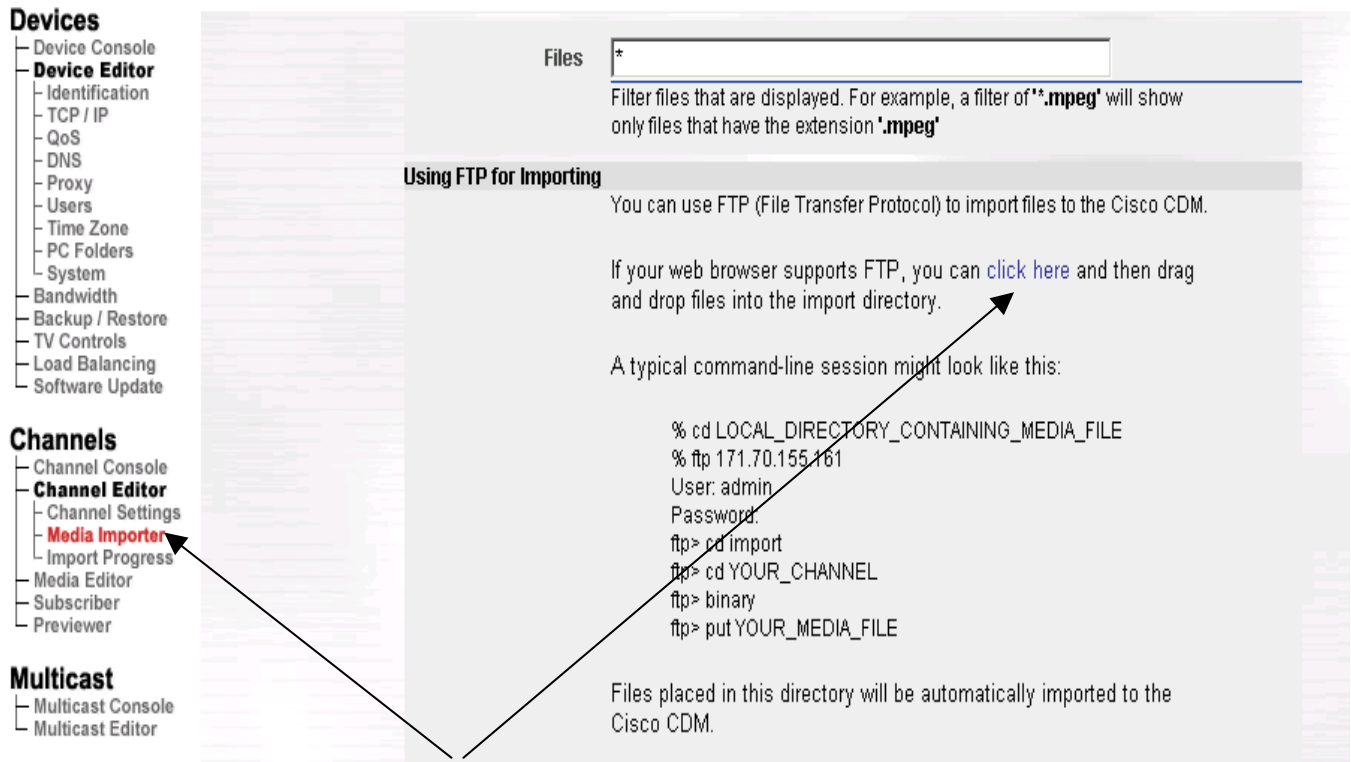


With the Event Recorder Client, the Event Leader has control over when the recording starts, pauses, and stops. The Event Recorder Client uses the WMV file format exclusively, which allows the recording to be indexed by tool change and agenda entry change. This gives the user a convenient way to fast forward through a recorded session. Also, the WMV format provides a relatively smaller file size, which can be streamed by either the CentraOne server or the Windows Media server embedded within the ECDN.

The *Event Listing* portion of the CentraOne Web interface can associate one recorded session with a Scheduled Event. This can be either a recorded session on the CentraOne server or a recorded session on the CDN.

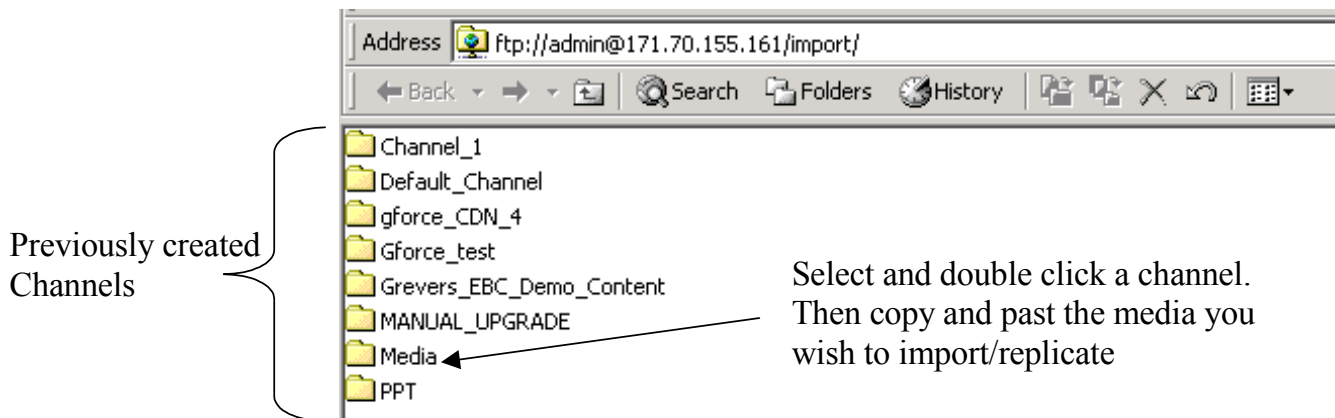
After the file has been recorded, the next step is to distribute the session via the CDN. The network administrator or leader simply imports the file into a “channel” in the CDM, which automatically distributes the content to any CE associated with that channel. (See Figure 6.)

Figure 6 Importing Option from the CDM GUI



If you select these options within the CDM GUI, the window shown in Figure 7 will appear. This window contains channels folders in which to import media.

Figure 7 Importing into Channels Folder



Adding Rich Media to a Live Centra Session

The second key interoperability point between the Cisco CDN and Centra Symposium lies in the Agenda Builder. Used to build a meeting and associate any files with that meeting, the Agenda Builder can feature recorded TV-quality video files or any other rich file formats for launching during the session.

All the assets added through the Agenda Builder can be stored on the CDN, such as videos, documents (such as PDFs), software, and previously recorded Centra sessions.

To insert a rich-media URL into a session, the instructor simply imports the content into the CDM and then takes the URL generated by the CDM and inserts it into the Agenda Builder (shown Figure 6). When activated, this URL enables the leader to activate the video or any other media associated with the URL during the session.

When the leader initiates the URL the, it is directed to the CDM from the client. The CDM then identifies the location from which the request was made, determines if the client is on a CDN-enabled network (same network as CE), and then redirects the request to the identified CE. Finally, the CE streams the content directly to the learner.

By delivering the high-bandwidth content locally, the instructor can add TV-quality video, PDFs, Flash, Shockwave, and more to the classroom, thereby creating a much richer learning experience.

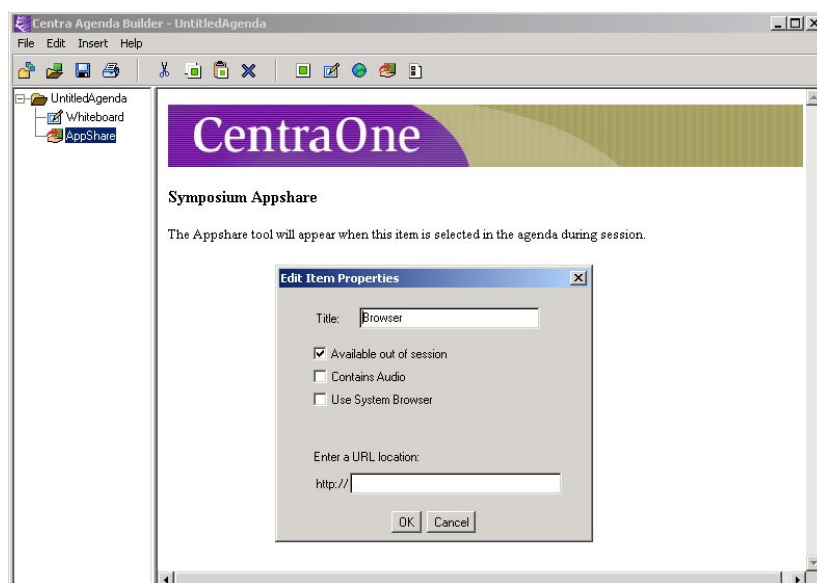
Serving Content to Learners without a CDN

Up until this point, this paper has discussed enriching the experience of the learner with a CDN solution. What happens if the learner is logging in from a remote network or dialup site that does not offer a content engine?

The CDN solution has an option within the CDM that accounts for these situations. During the media import process, the administrator can specify an alternate URL for delivery. If the CDM cannot resolve a redirect to the end user's LAN, the enterprise can use an alternate URL to redirect the user's request to a server that resides on the Internet. This server would then deliver an alternate selection of media, typically a lower-bit-rate file.

The alternate media feature enables any user to attend a Centra session that is CDN enabled, and still access content, albeit low bandwidth. The point is the user will not be pulling a rich file over his or her "skinny" connection.

Figure 8 Centra Agenda Builder



Using a CDN with the Web Safari Feature

Session leaders could also incorporate rich media into a live session through the use of Symposium's *Web Safari* feature. Web Safari allows an Event Leader to initiate a Web browser session inside an event. During this browser session, the Event Leader can access any Web assets, such as Web text (HTML), graphics, and multimedia. Any Hypertext Transfer Protocol (HTTP) destination can be visited during a Web Safari breakout.

Any of the files delivered via Web pages can come from a CDN. By importing the media into the CDM and pasting the URLs into the desired Web pages, the instructor can launch this content for all the event participants. This is accomplished by scheduling a Web Safari as an Agenda Item, so that the Web browser will execute on each user's PC and the URLs pointing to a CDM will result in a redirect from the client PC to the closest CE on the network for rich playback.

Conclusion

Cisco ECDNs enable businesses, schools, and government agencies to improve learning, communications, and productivity by delivering any rich media on the Web simply and affordably. Enterprises are able to deliver any streaming formats: MPEG, RealG2, QuickTime, Windows Media, PDFs, PowerPoint presentations, IP videoconferences, Shockwave, Flash, applications, and more.

By using Cisco ECDNs in conjunction with Centra Symposium, enterprises now have a solution that enables them to:

- Eliminate or minimize bandwidth bottlenecks
- Improve learner satisfaction and retention with rich media
- Centrally manage and distribute recorded classes



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