

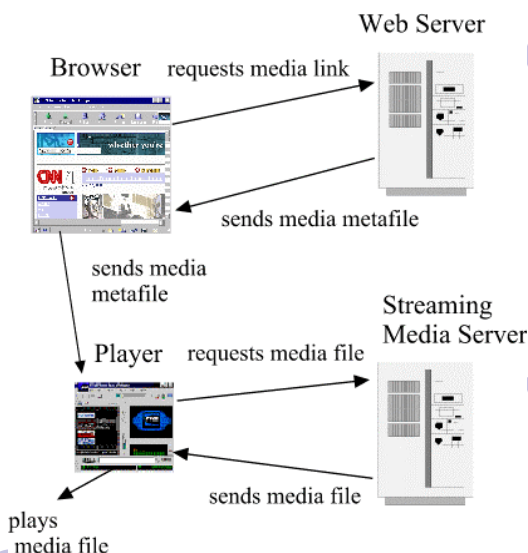
Chapter VII

Developing a Class Session Using Audio and Video Streaming

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The objective of this chapter is to describe the process of creating audio and video streaming content for an on-line class session¹. An overall model of audio and video streaming is described, together with the media streaming process, in the introduction. The next parts of the chapter discuss how to create a class session with audio streaming only, audio and graphics, and audio and video. The chapter ends with a discussion on how to set up a streaming media server.

Figure 1: audio and video streaming model



INTRODUCTION

Figure 1 shows how a streaming media (audio or video) file is played when a user selects a media link in a Web page. A viewer selects a media link and the browser issues a request to a Web Server, which replies to the browser with a media metafile. The browser then sends the media metafile to a local audio and video streaming player. Finally, the player requests from a Media Server the media file, receives it back from the Media Server and plays the audio and video streaming media file in the computer of the viewer.

This simple model lets us identify what needs to be created and where it should be placed. The starting point is

a class session Web page or pages where links to streaming media are part of the Web page design. We will cover both the design decisions related to this page and how to implement these decisions. The session Web page or pages is/are stored in the Web Server. The second element in the creation process is to develop a metafile describing the media files to be accessed when a link is selected, and to place this metafile in a Web Server.

The remaining steps — the Web Server sending the metafile information to the browser, the browser sending the information to the Player, the Player sending a request to the Streaming Media Server, and the Streaming Media Server sending the media file to the Player, which finally plays the media file, do not require any creative effort. Of course, creating the streaming file B audio or video B is also part of the process. The media file should be placed in the Streaming Media Server. We will cover, again, both the design decisions regarding what media files to create and how to do so. Finally, we will see how to install and set up a free Streaming Media Server.

There are two major players in media streaming: Real Networks (<http://www.real.com>) and Microsoft (<http://www.microsoft.com/windows/windowsmedia/>). Both provide basic streaming media players, content development tools and servers for free. At the time of this writing Real Networks is the market leader and we will use its products as an example whenever necessary in this chapter, but the audio and video streaming model shown in Figure 1 is the same for both.

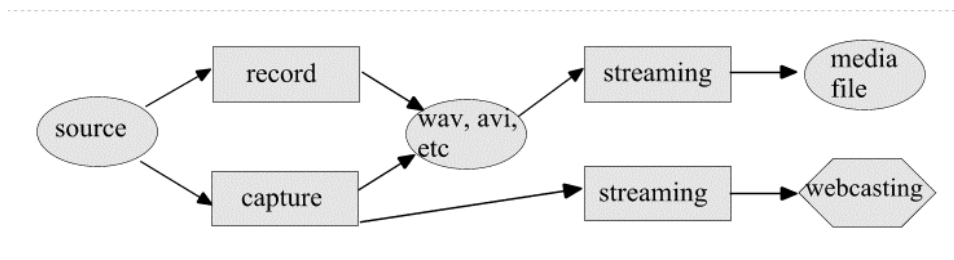
The process of creating media streaming content is shown in Figure 2. A source produces a sound or image. The sound or image is either recorded or captured as a sound or video file (wav, avi, etc), or is directly streamed. The sound or video file is streamed as a media file to be played later asynchronously. The sound or video image which was streamed directly is played synchronously on the Web (webcasted). Since an on-line class session is asynchronous, this chapter will not describe how to do webcasting.

Media streaming content for an on-line class session can be created at three different levels: (a) audio only, (b) audio and graphics, and (c) audio and video. Complexity, system and bandwidth requirements increase exponentially along this continuum. This chapter will present and discuss the process of creating streaming media, starting with audio only and ending with audio and video.

AUDIO STREAMING ONLY

The two most common types of sounds are voice and music². Although music is used sometimes as part of an on-line class session, generally (unless it is a music session) it is only

Figure 2: media streaming process



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