

Streaming Stored audio and Video

To download multimedia files from a Web server can be different from downloading other types of files. To understand the concept, let us discuss four approaches, each with a different complexity.

First Approach: Using a Web Server

A compressed audio/video file can be downloaded as a text file. The client (browser) can use the services of HTTP and send a GET message to download the file. The Web server can send the compressed file to the browser. The browser can then use a help application, normally called a media player, to play the file. See figure 1

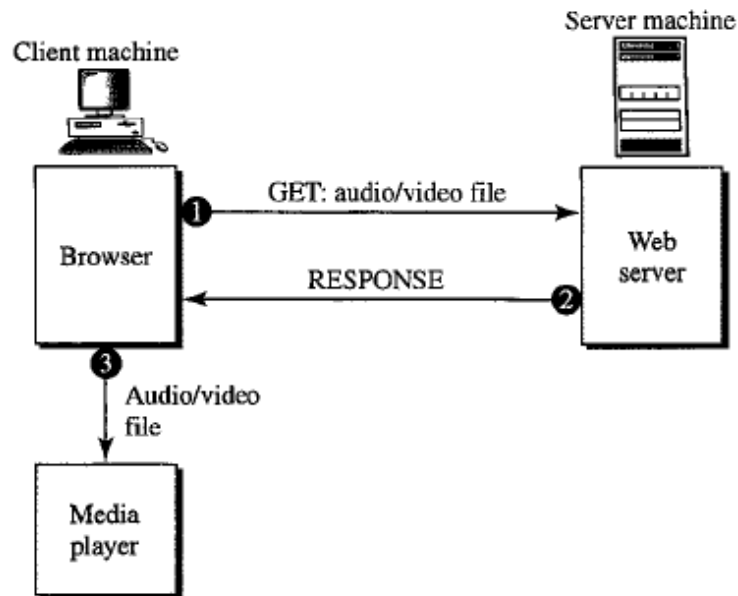


Figure Using a Web server

This approach is very simple and does not involve *streaming*. However, it has a drawback. An audio/video file is usually large even after compression. An audio file may contain tens of megabits, and a video file may contain hundreds of megabits. In this approach, the file needs to download completely before it can be played.

Second Approach: Using a Web Server with Metafile

In another approach, the media player is directly connected to the Web server for downloading the audio/video file. The Web server stores two files: the actual audio/video file and a metafile that holds information about the audio/video file. Figure 2 shows the steps in this approach.

1. The HTTP client accesses the Web server by using the GET message.
2. The information about the metafile comes in the response.

3. The metafile is passed to the media player.
4. The media player uses the URL in the metafile to access the audio/video file.
5. The Web server responds.

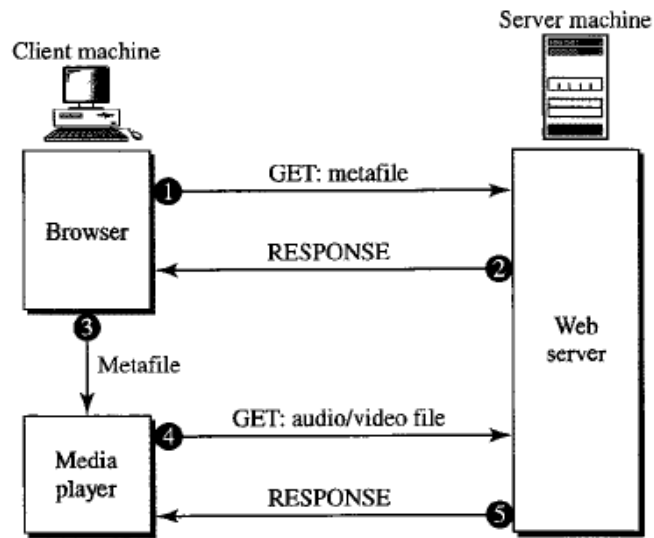


Figure 2 Using a Web server with a metafile

The drawback of this approach is both the browser and the media player used the services of HTTP. HTTP is designed to run over TCP. This is appropriate for retrieving the metafile, but not for retrieving the audio/video file. The reason is that TCP retransmits a lost or damaged segment, which is counter to the philosophy of streaming.

Third Approach: Using a Media Server

This approach uses the following steps:

1. The HTTP client accesses the Web server by using a GET message.
2. The information about the metafile comes in the response.
3. The metafile is passed to the media player.
4. The media player uses the URL in the metafile to access the media server to download the file. Downloading can take place by any protocol that uses UDP.
5. The media server responds.

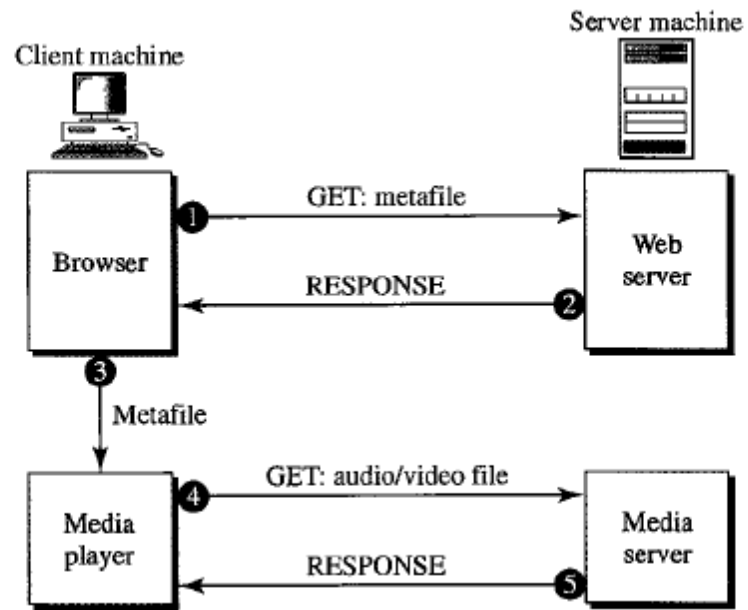


Figure 3 Using a media server