Streaming ahead

Philip Roy looks at streaming QuickTime online

When I'm asked to describe the difference between traditional video on the net and streaming video, I tend to talk about household kitchenware. Imagine that a video you request is sitting in a cup on a server (where web pages and such like are traditionally stored) and that you, sitting at your computer, also have a cup. You request to see the video and effectively what happens is that the video is 'poured' across the Internet, from one cup to the other

With video streaming, instead of a cup, you've been given a teaspoon. As the video pours out of the cup on the server, it comes to your computer to view. You get to see the video as it comes in, but it then drains away and you're left with nothing.

Nothing ventured

It may seem unusual that a strength of video streaming is that you can send video to the user for them to be left with nothing – but it has many advantages. Firstly, the user isn't left with a final copy of the video. This is good from a company's point of view for copyright reasons (eg: CNN might want you to view a news item but not retain an electronic copy) and also from a user's point of view, in that your computer isn't clogged up with large files.

Of course, the downside is that in order to see the video clip at another time, you're going to have to go on-line and access it again.

For a five-minute video clip, you might be more than happy to end up with a large file on your Mac, rather than having to connect to the Internet again, but there's the issue… with streaming, we're not always talking about video 'snippets'; it could be live feeds from sporting events or the complete Steve Jobs' keynote at a MacWorld Expo. And these can last a long time!

What is Quicktime?

People often see QuickTime as a file format. We are used to movies or files that end in '.mov', so we associate QuickTime with that. By doing so, we are not seeing the incredible power of what it really is. QuickTime should be seen more as a technology than anything else. Think of QuickTime as two things: an application (The QuickTime player and other associated applications that let us view multimedia) and a 'container' for content.

So QuickTime has the capability of playing AIFF sound files, displaying JPEG images, letting us hear MP3 files and view VR movies. The 'content' side of QuickTime allows these formats to embedded in it. But that's not all. QuickTime also has the capability of being interactive. It's possible to make movies which allow the user to click on them and interact with them. Simple examples are where they have a screen size or volume control actually on the movie screen itself.

I for one would love to have a machine with enough space to store all these clips as they come in, but somehow I don't think I can afford it.

Back and forth

Perhaps the greatest strength of stored clips that are set up as streaming video is the ability to move forward and backwards in the stream. This means that you can start watching a prerecorded clip and jump ahead (or backwards) in time… five, ten, 15 minutes into the video depending on its overall length. There is no need to download all the video in between that you decided not to watch. From a user's point of view, it gives far greater control and freedom over what is viewed, and allows close to instant access to segments of a video.

But perhaps the biggest problem with video streaming over the Internet is, well, the Internet. Because of the way it works, 'pockets' of information come to your machine in such a way that there is no guarantee that they will arrive as a continuous stream of information.

This makes showing a continuous video clip a tremendous challenge for the QuickTime

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Player. Add to this the fact that the Internet does slow down (especially on this side of the planet) through things such as high-demand on a wet Sunday afternoon, or demand for one site in particular that everyone seems to be accessing; the experience can be a frustrating, if
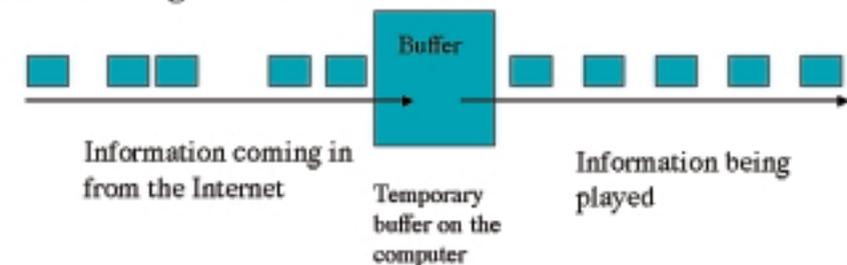

00:00:01   Buffering…5.0s

BUFFING UP: The buffer smooths out the irregular flow of video and audio from the Internet Without buffering, your video would be almost unwatchable

not unpleasant one. To try to overcome this, streaming servers such as the QuickTime Streaming Server (QTSS) and QuickTime Player employ the use of a 'buffer'.

You'll see the buffer in operation when you

Overcoming how the Internet works

Information coming in from the Internet

Buffer

Temporary buffer on the computer

Information being played

TUBBY TELLY: There are tons of streaming QuickTime sources on the net - see www.apple.com/quicktime for a full list

first connect to a video stream. Let's try it by using the QuickTime Player to view a channel on QuickTime TV. Connect to the Internet and launch Player (we to assuming you're using QuickTime 5.0.2).

Tune in
Click on the 'TV' button near the bottom-right of the player. A range of companies that offer QuickTime streaming feeds should appear. Choose one by clicking on it and you should

see the player begin the process of connecting to the QTSS for that company.

What a buffer does is allow your computer to receive enough information from the video stream (and store it) until such time that the player feels it has enough of the clip to begin showing it to you. At the same time, it will continue to receive the (slightly irregular) stream coming in off the net. In theory, with a few seconds of buffer stashed away, you shouldn't notice any inconsistencies in the stream.

In a rose coloured world, this negotiation the player does with the server would be perfect and you'd be sitting there thinking the connection to the Internet was lovely and smooth.

Sadly, it doesn't always work out that way and the QuickTime Player is forced to make some decisions. Usually, it drops the quality of the image, so that it can concentrate on trying to get the sound to come through. If the connection is poor, it may be forced to renegotiate with the server and establish a new buffer on your machine.

What are the options?
QuickTime Streaming Server has been developed to run on Mac OS X Server (www.apple.com/quicktime/products/qtss/) but Apple has also taken the bold decision to release the source code for it. The open source version, known as the "Darwin Streaming Video Server" is available to download and

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can be installed on other platforms like Linux, Solaris and Windows 2000 servers (www.publicsource.apple.com/projects/streaming/).

Does that leave older Mac users out? Probably. A group of Brazilian developers were working on an OS9 version of QTSS, but 'The Marlin Project', as it was known, seems to have disappeared off the net, with no web site currently available. There are also some interesting shareware options available for OS 9 users, such as the one at http://www.evological.com/coolstream.html

Stay serious
But let's not forget that we're talking about setting up a server to stream video to the net, and aren't just playing around on our Macs. My recommendation would be to stick with OS X Server and a machine capable of running it and running QTSS. If all this seems a lot to take in before even looking at the setting up of a server, you're right. Bear in mind that the main intention of establishing a server is to produce movie clips that stream well and look good. Begin from the point of view of what you want the end user to experience. Your emphasis should be on the quality of the content on the server, and that's what we'll look at next issue, and we can go about setting up our server, ready to broadcast to the world!

Next issue... Preparing your clips – understanding compression codecs for QuickTime and setting up a server to screen QuickTime – and much more…