

## Multimedia Basics – Incorporating Video on Your Web Site

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A **CrystalVision** WHITE PAPER

### Why use video on the web?

With technology always changing and continually advancing, the Internet is no longer just a resource for tremendous volumes of text and image content – it now is also where people buy music, download television programs and even rent movies. More and more, people of all ages are learning how easy it is to access multimedia on the web, and almost everyone with a fast Internet connection – cable or broadband – have begun watching video on news web sites, such as YouTube and Google Video.

This shift from text and images to more exciting video content has transformed corporate philosophy regarding web site content. The best way to make a lasting impact on web site visitors is to produce and deliver your own video content. Whether these videos are virtual tours of facilities, commercials for services or product demonstrations, well-developed Internet video makes a huge impression on potential clients. While a “picture is worth a thousand words,” moving pictures speak uncountable volumes. As a result, industry leaders are moving away from image galleries and long pages of text, trading in such antiquated ideas for short, professionally-produced web videos that succinctly deliver a visual and auditory message.

While just about everyone now watches at least some kind of video on the web, very few people understand the processes in place that make it work. What follows is a brief look at how video works on the web, what formats are available, and what requirements are needed for the various types.

### How does an end user watch video?

Video is like anything else you see on the Internet: a file that’s being pulled from a remote computer or server. Video files can be “linked” just the way one would link to a web page, an MP3 or a .PDF document. When an end user clicks on a video link, a number of things can happen depending on how the user’s computer is set-up to handle that file. It could be downloaded to the user’s machine and played back in a media player such as Quicktime or Windows Media Player, or it can be opened right inside the user’s web browser using a media player “plug-in.”

Plug-ins also come into play when web developers “embed” video into web sites. If you’ve ever been to YouTube.com, you’ve seen the most popular example of “embedded” video. Instead of opening up in a media player on the user’s computer, the file plays right inside the web page. This is the preferable interface for video delivery on the web right now as it’s intuitive to end users. They click and watch.

### How is video delivered on the web?

Generally speaking, there are two main ways to present video on the web: streaming and progressive downloading.

- 1.) Streaming – While all web video is often referred to as “streaming,” this is often an incorrect statement. Streaming video means the video is being hosted on a special video web server that stores and plays the video remotely. Most noticeable to an end user is the ability to jump to chapters programmed within the video, much the way you can with a DVD. Additionally, the end user doesn’t have to wait for video to download – the video plays almost immediately and providing that there’s plenty of bandwidth on the remote server, it will play without interruption even if the user skips ahead to other parts of the video. Live video served on the web is always streamed.
- 2.) Progressive Downloading - Most web video is delivered from the same kind of web server that delivers web page code, images and other common files. This means that the video has to be downloaded on a user’s machine (usually in a hidden directory) before it can begin playing. More often than not, user machines are configured to allow users to watch the video as the file is downloading – usually because their Internet browser is equipped with plug-ins to play video. If a user’s connection is good, the web site isn’t bogged down with traffic, and the running time is short (3 minutes max) the video will play seamlessly from start to finish. Users cannot, however, “fast forward” through the video until it has fully downloaded. Unless there’s a significant amount of complicated programming going on behind the scenes, chances are users also would not be able to skip ahead to “chapter points” as they would in a streaming file.

### **What are the differences between the various formats and which one is the “best?”**

There are about a dozen different file types for video currently on the web, and within those file types are various “codecs” that define how the video data will be read by a player. So while two video files might have the same extension (.avi for instance), it’s possible an end user will be able to play one and not the other because of the codecs being used.

The “which is the best format” argument is mostly based on two criteria: how easy is it for an end user to play the file type and how good the picture quality (resolution) is of the video.

The most common video files used today on the web are Quicktime files (.mov), Windows Media Player files (which can have a variety of extensions, but generally end in .wmv), Realplayer files (.ram or .rm), MPEG files (.mpg or .mpeg) and Flash Video Files (.flv).

Because of the huge success of YouTube, the prevalence of the Flash plug-in for all web browsers, and a very reasonable file-size-to-running-time ratio, Flash Video has become the most popular and widely used web video format. Unfortunately, Flash Video files that download progressively sometimes lack the sharpness of other file types. So while it is very easy for end users to play through their web browsers, the resolution can suffer. If you start out with good enough source video, however, Flash Video can certainly yield very good results.

Because it can be played in almost every video player available and, when programmed correctly can be abundantly clear, many video producers still like to use the old mainstay, MPEG – a file type that was often used in other applications like PowerPoint Presentations and interactive CD-Roms. The downside to MPEG is that to get a clear image, the file size is significant, at least double and sometimes triple the file size of other formats.

All other file types face the issue of usability on end users’ machines. People with Macs have a hard time playing Windows Media files. Quicktime files are often encoded with codecs that require special downloads and most recent versions of the Quicktime player. .AVI files are either so large that they take forever to download or, like Quicktime files, are created with codecs that end users need to download and install.

In a world where the fastest and easiest win the day, Flash Video is really the best answer to almost every company’s video formatting needs. And, except for rare instances, progressive downloading (like YouTube and Google Video) is the best delivery method.

## Window Size, Frame Rate, Resolution, Running Time and File Size

Once a file type has been decided on, video content managers have to decide how best to visually present video on the web. For this, a single rule applies: sharp image quality, long running times, a larger window size and a higher frame rate makes for big files and longer downloading times for end users. Somewhere you need to make a decision about what's most important for your business.

While an architectural design firm may want crystal clear video to show off the details of their plans and their finished product, they may only need a running time of a minute or so to make their impression. Thus their file size will be determined more by the window size and overall clarity of the video rather than the length of it. Conversely, a series of speeches at a convention won't demand maximum clarity or even a large window size so much as it will demand a longer running time.

Understand your audience and what your audience wants to see. Also understand that internet video is still best when delivered short and sweet. If you have a person standing at the podium delivering a long speech, resolution won't be as big a demand for you as running time, but you still shouldn't go much beyond 5 minute running times if you want people to watch the complete video. The best bet is to edit the long speech into clear "chapters" and have those available for viewing as separate files with captions that explain what topics each clip covers.

Window size means just how big the video will display on a monitor. Typically videos on the web are 360 pixels wide by 240 pixels tall, but YouTube goes slightly larger with their windows - their videos coming in at 425 pixels wide by 355 pixels tall. Often this is why many YouTube videos look a little blurry since the source of much of what ends up on YouTube begins at a smaller window size and is "blown up" to be larger. So a key bit of information to remember about Internet video is "bigger isn't always better" While it's nice to provide end users with a large window to watch video, if you go too big you'll sacrifice clarity.

Depending on your hosting agreement, there's no "limit" to the file size of your web videos, but it's always best to keep them somewhere in a range of 5MB per minute of video. So if you have a 3 minute video, the video should really only be 15MB or lower in size. Generally speaking, at such a file size, you can give end users a video playing in a standard size window of 360 pixels wide by 240 pixels with pretty sharp clarity. These are popular specifications that are commonly used for web video.

## In Summary

Internet video isn't just the future of the web... it's the present. Embracing current technologies and creating more exciting content for your web site will greatly enhance your web site viewers of today and tomorrow.

If you want to learn more about how to produce video content for the web, or if you have any additional questions about multimedia, please do not hesitate to contact CrystalVision.