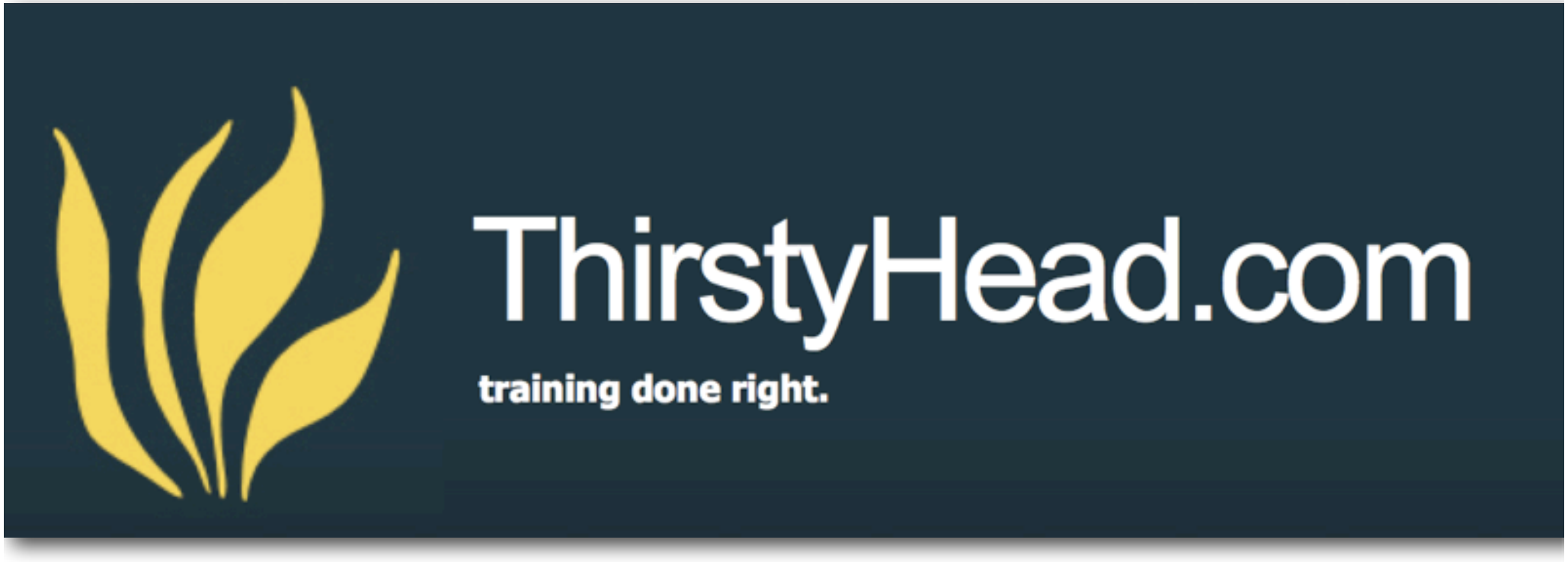
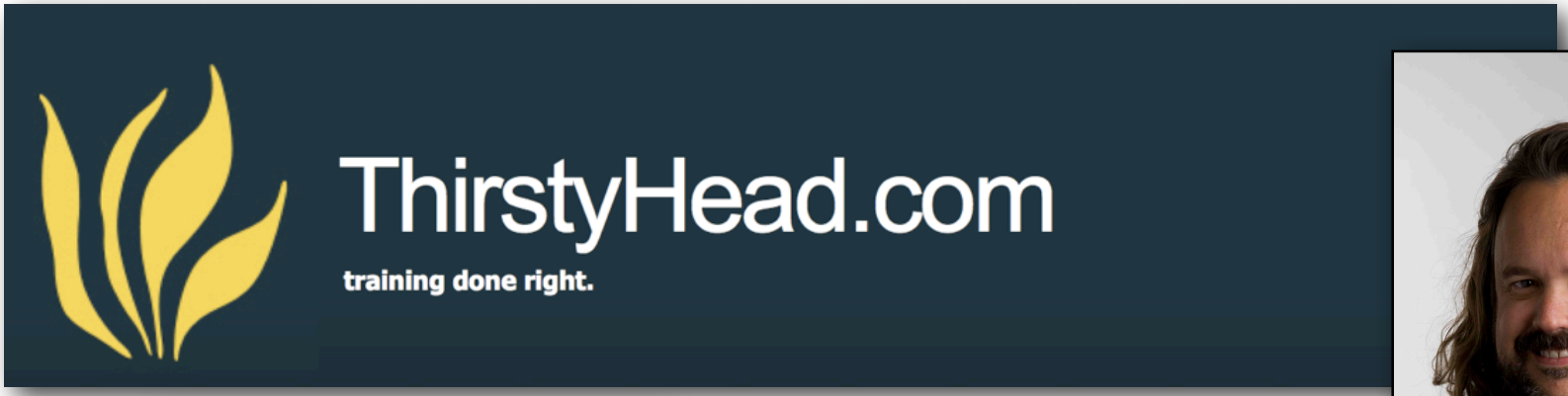
What's up with HTML5 Video?

Scott Davis
ThirstyHead.com

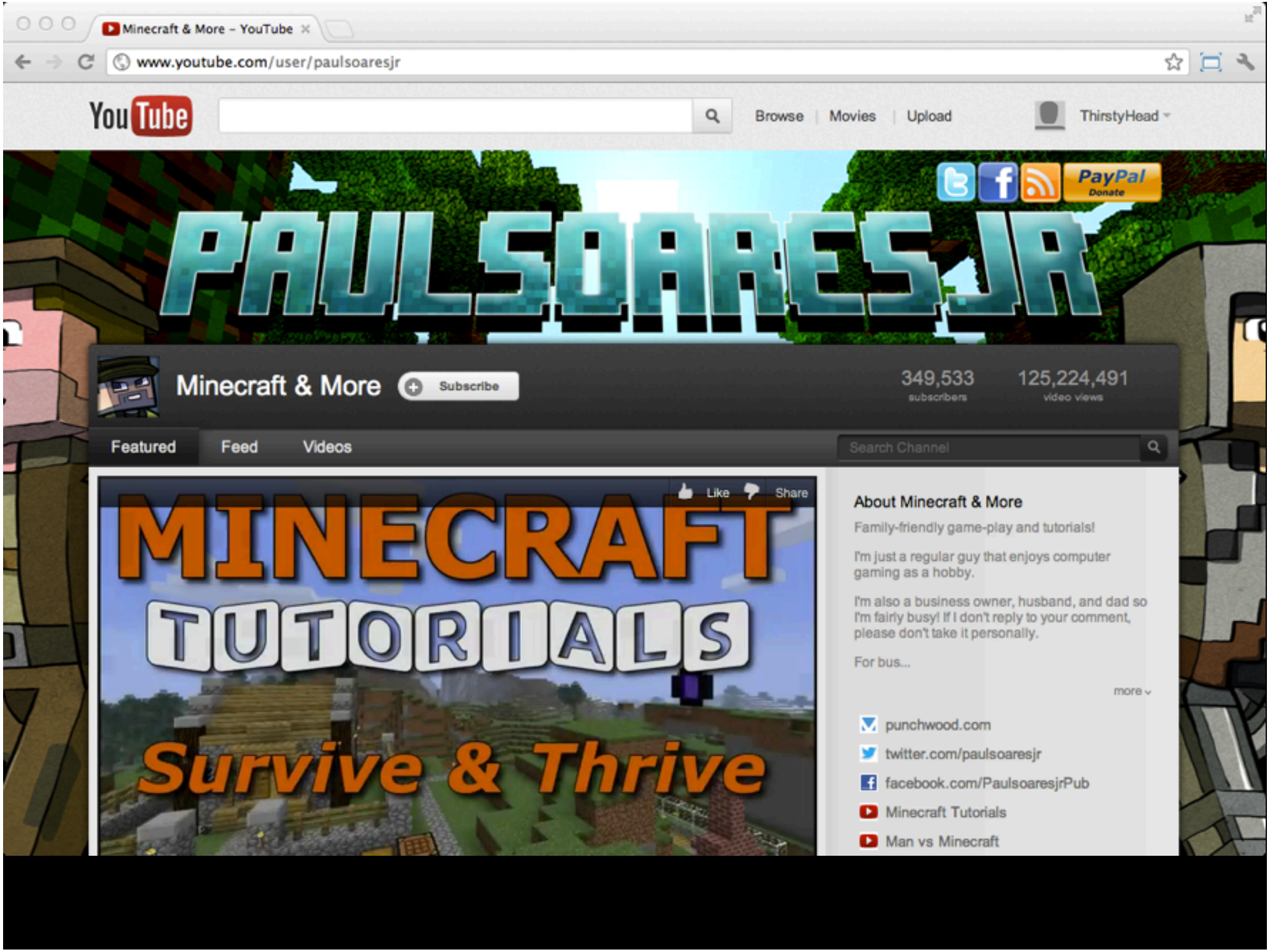

ThirstyHead.com
training done right.

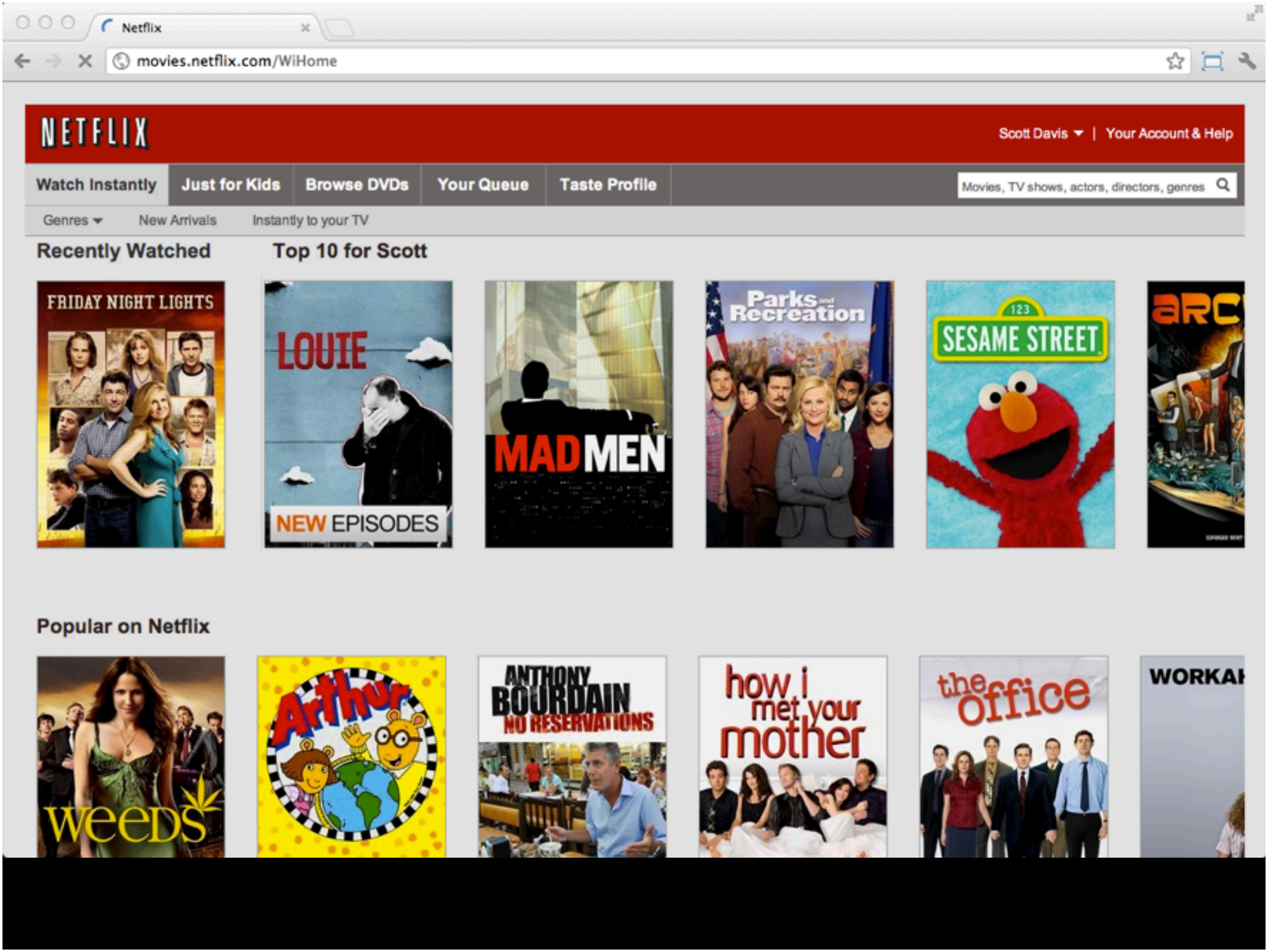

ThirstyHead.com
training done right.


Scott Davis
@scottdavis99


The Pragmatic Programmers
GIS For Web Developers
Adding Where to Your Web Applications
The Pragmatic Programmers
Groovy Recipes
Greasing the Wheels of Java
Scott Davis
Jason Rudolph
Getting Started with Grails Second Edition
A modern web framework for the Java platform
ENTERPRISE SOFTWARE DEVELOPMENT SERIES
InfoQ


HTML


Minecraft & More - YouTube
www.youtube.com/user/paulsoaresjr
YouTube
Browse
Movies
Upload
ThirstyHead
PAULSOARESJR
PayPal
Donate
Minecraft & More
Subscribe
349,533
subscribers
125,224,491
video views
Featured
Feed
Videos
Search Channel
Like
Share
MINECRAFT
TUTORIALS
Survive & Thrive
About Minecraft & More
Family-friendly game-play and tutorials!
I'm just a regular guy that enjoys computer gaming as a hobby.
I'm also a business owner, husband, and dad so I'm fairly busy! If I don't reply to your comment, please don't take it personally.
For bus...
more
punchwood.com
twitter.com/paulsoaresjr
facebook.com/PaulsoaresjrPub
Minecraft Tutorials
Man vs Minecraft


Netflix
movies.netflix.com/WiHome
NETFLIX
Scott Davis | Your Account & Help
Watch Instantly
Just for Kids
Browse DVDs
Your Queue
Taste Profile
Movies, TV shows, actors, directors, genres
Genres
New Arrivals
Instantly to your TV
Recently Watched
Top 10 for Scott
FRIDAY NIGHT LIGHTS
LOUIE
NEW EPISODES
MAD MEN
Parks and Recreation
123
SESAME STREET
Popular on Netflix
weeds
Arthur
ANTHONY BOURDAIN
NO RESERVATIONS
how i met your mother
the office

PixelTarget: Learning Unlock

www.pixeltarget.com

PixelTarget Home Watch News About Contact

PixelTarget
Learning Unlocked

Sometimes the best way to learn a new technology is to watch an expert. Sit back (or lean forward) and watch a video or two.

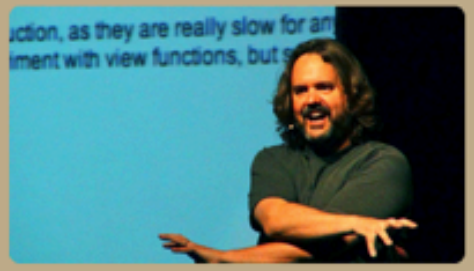
Learn more »

Now Playing: See All »

Watch Now »

Introduction to Clojure and ClojureScript

by Tim Berglund



Watch Now »

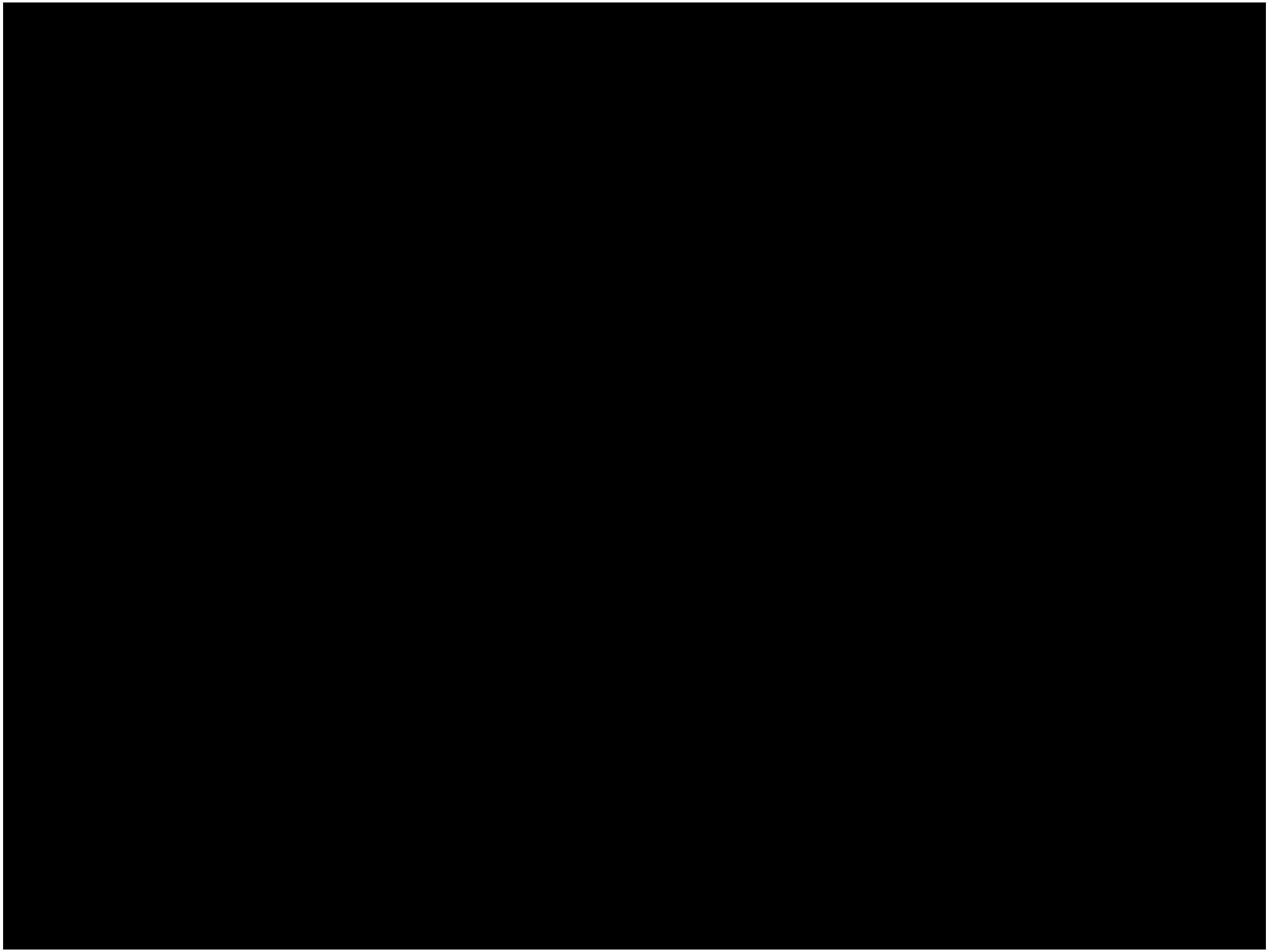
CouchDB: HTTP and JSON Persistence

by Scott Davis

Watch Now »

CSS Media Queries and Media Feature Expressions

by Jordan McCullough



<video>

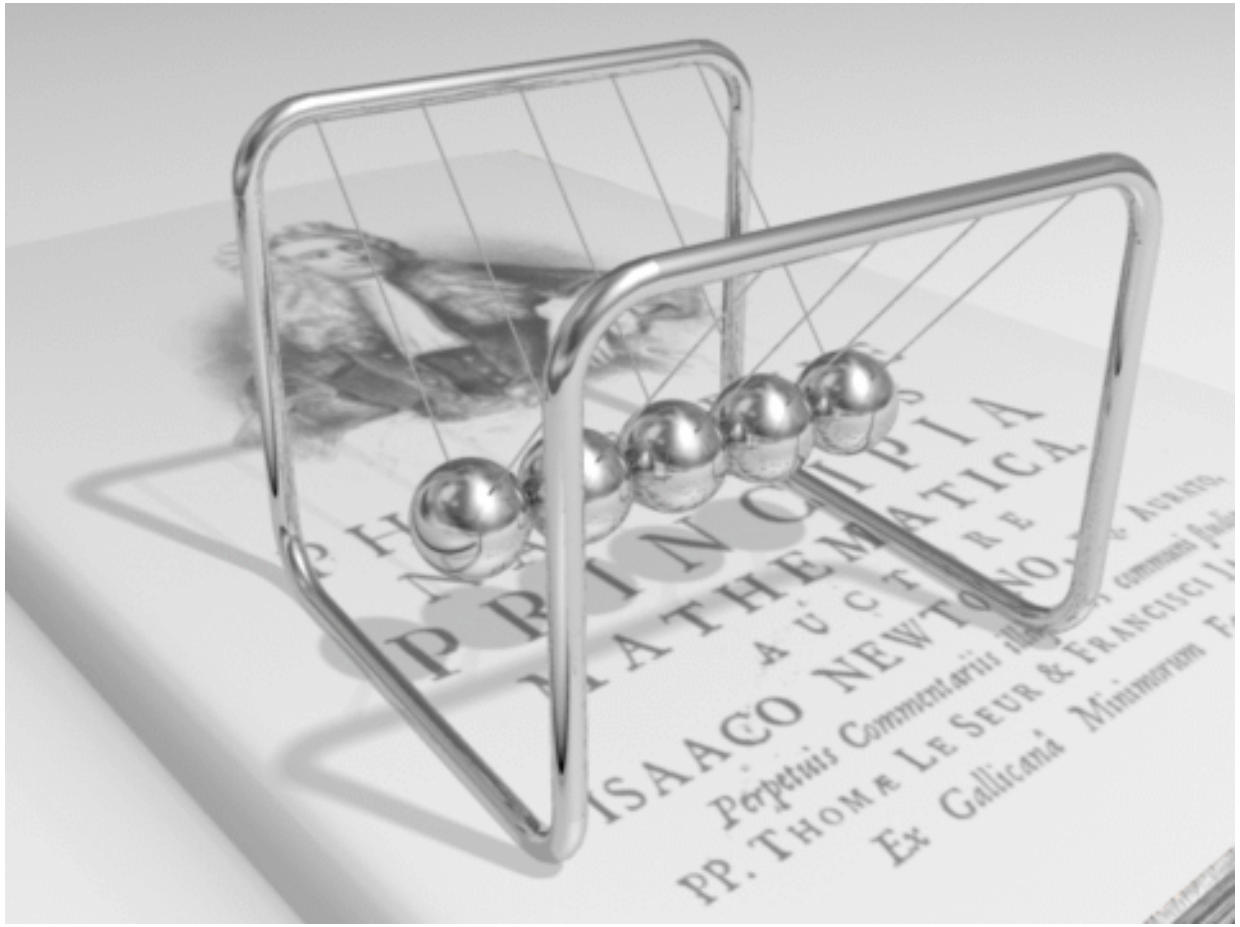
Containers and Codecs

HTTP Live Streaming

<video>

Containers and Codecs

HTTP Live Streaming



Newtons_cradle_animation_book_2.gif
(image/gif, 302 KB, looped, 36 frames, 0.8s)

Animated GIF

GIF is designed to allow users to define new blocks. In the 1990s, Netscape designed the Netscape Application Block,[10] which indicates that a GIF file is an animation instead of a static image. Support for these animations first appeared in Netscape Navigator version 2.0, then spread to other browsers.[11]

High-definition video

From Wikipedia, the free encyclopedia

(Redirected from HD video)

For high-definition video in broadcasting, see High-definition television.

For other uses, see High-definition.

High-definition video or **HD video** is any video system of higher resolution than standard-definition (SD) video, and most commonly involves display resolutions of 1,280×720 pixels (720p) or 1,920×1,080 pixels (1080i/1080p). This article discusses the general concepts of high-definition video, as opposed to its specific applications in television broadcast (HDTV), video recording formats (HDCAM, HDCAM-SR, DVCPRO HD, D5 HD, AVC-Intra, XDCAM HD, HDV, and AVCHD), the Blu-ray Disc, and the D-VHS video tape format.

Standard-definition television

From Wikipedia, the free encyclopedia

(Redirected from SD video)

Standards that support digital SDTV broadcast include DVB, ATSC and ISDB. The last two were originally developed for HDTV, but are more often used for their ability to deliver multiple SD video and audio streams via multiplexing, than for using the entire bitstream for one HD channel.[*clarification needed*]

In ATSC Standards, SDTV can be broadcast in 720 pixels × 480 lines with 16:9 aspect ratio (40:33 rectangular (unsquare) pixel), 720 pixels × 480 lines with 4:3 aspect ratio (10:11 rectangular pixel) or 640 pixels × 480 lines with 4:3 ratio. The refresh rate can be 24, 30 or 60 frames per second.

Apple – iPhone 4S – Technic

www.apple.com/iphone/specs.html

Display

- Retina display
- 3.5-inch (diagonal) widescreen Multi-Touch display
- 960-by-640-pixel resolution at 326 ppi
- 800:1 contrast ratio (typical)
- 500 cd/m2 max brightness (typical)
- Fingerprint-resistant oleophobic coating on front and back
- Support for display of multiple languages and characters simultaneously

Camera, Photos, and Video

- 8-megapixel iSight camera
- Autofocus
- Tap to focus
- Face detection in still images
- LED flash
- Video recording, HD (1080p) up to 30 frames per second with audio
- Video stabilization

Progressive download

From Wikipedia, the free encyclopedia

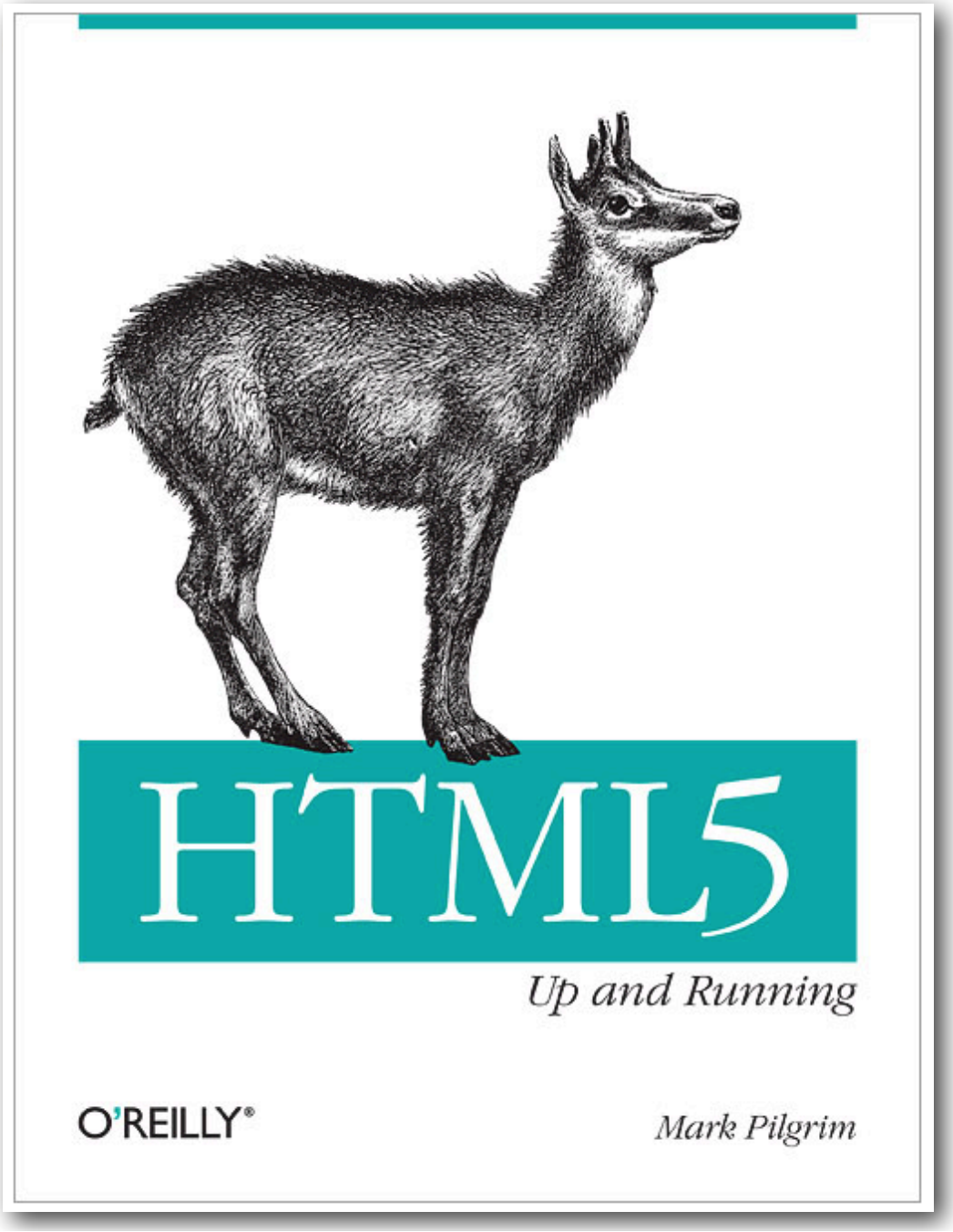
Progressive download is a term used to describe the transfer of digital media files from a server to a client, typically using the HTTP protocol when initiated from a computer. The consumer may begin playback of the media before the download is complete. The key difference between streaming media and progressive download is in how the digital media data is received and stored by the end user device that is accessing the digital media.


HTML
MP4
Flash
WebM
h.264
Ogg

HTML5: Up and Running

Dive into the Future

By Mark Pilgrim
Publisher: O'Reilly Media
Released: August 2010
Pages: 224



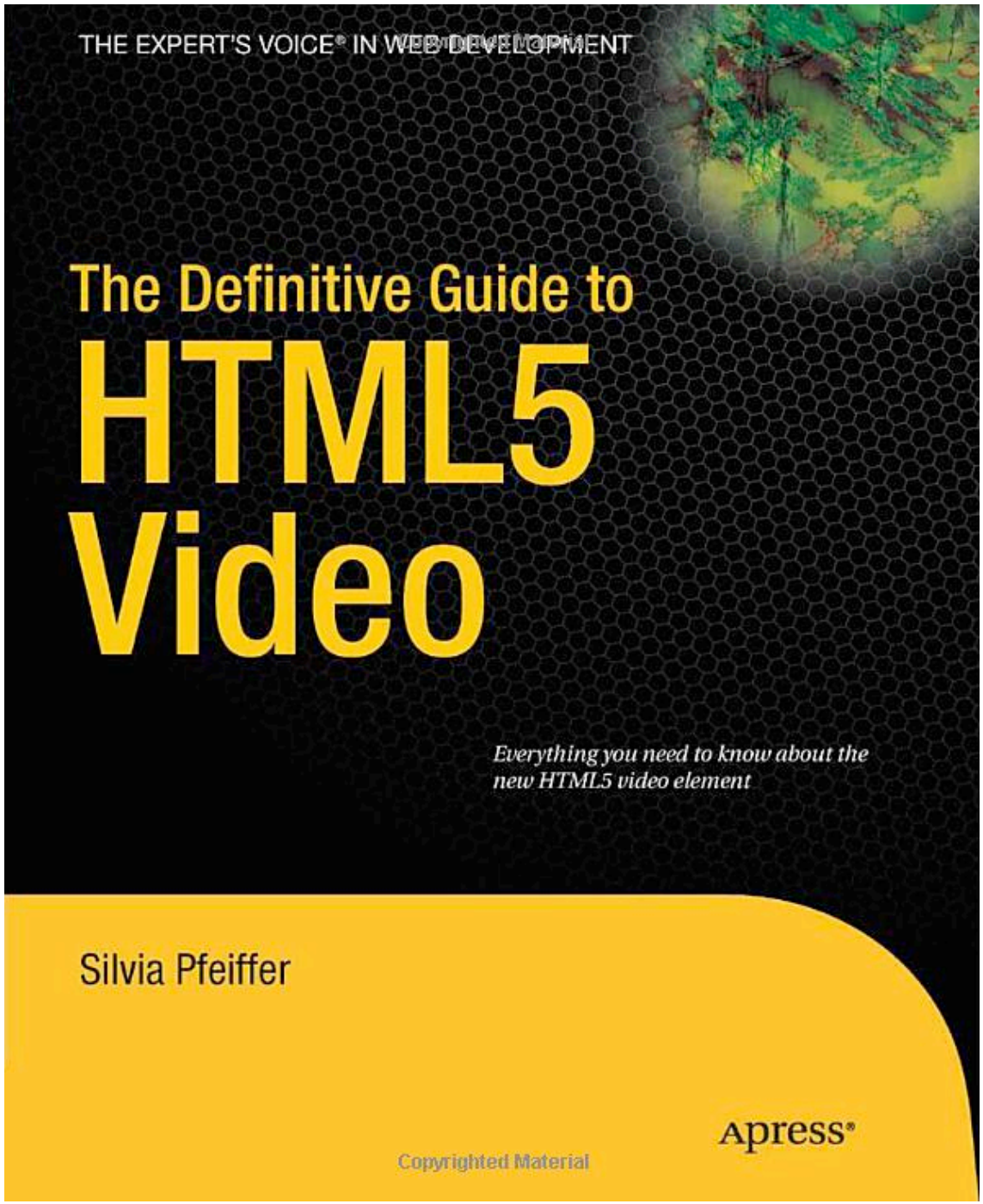
http://diveintohtml5.info/

DIVE INTO HTML5

BY

MARK PILGRIM

WITH ILLUSTRATIONS FROM THE PUBLIC DOMAIN


THE EXPERT'S VOICE® IN WEB DEVELOPMENT
The Definitive Guide to
HTML5
Video
Everything you need to know about the new HTML5 video element
Silvia Pfeiffer
Apress®
Copyrighted Material

№ 5.
VIDEO ON THE WEB

‹VIDEO› ELEMENT SUPPORT

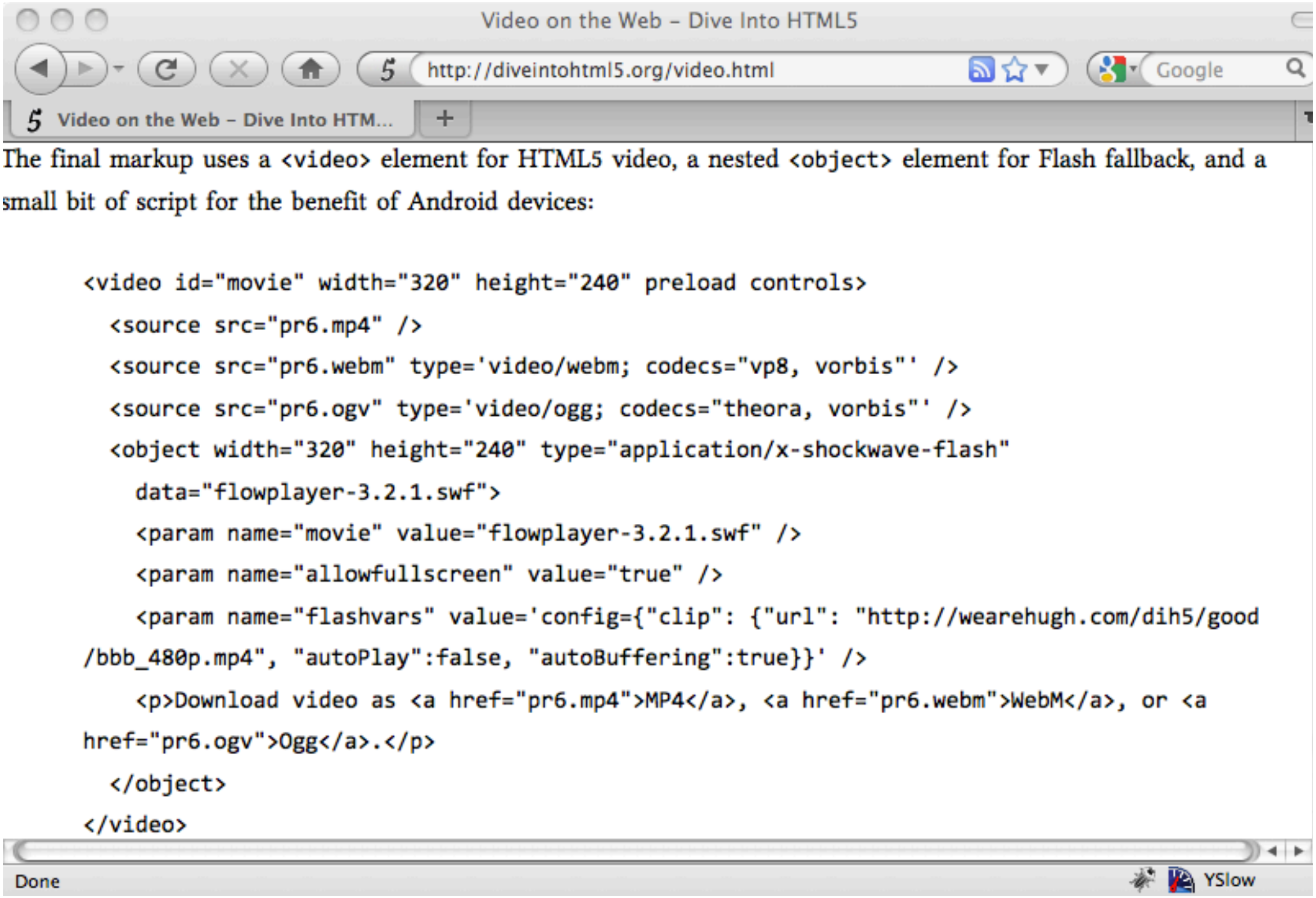
IE	FIREFOX	SAFARI	CHROME	OPERA	IPHONE	ANDROID
9.0+	3.5+	3.0+	3.0+	10.5+	1.0+	2.0+

```
<img src='file.png'
     width='300'
     height='200'>

<video src='file.mp4'
     width='300'
     height='200'>
```

```
<video src="NewOrleans2006.ogv"
       width="320"
       height="240"></video>
```

```
<video width="320" height="240" controls autoplay>
  <source src="NewOrleans2006.ogv" type='video/ogg; codecs="theora, vorbis"'>
  <source src="NewOrleans2006.mp4" type='video/mp4; codecs="avc1.42E01E, mp4a.40.2"'>
</video>
```


Video on the Web – Dive Into HTML5
http://diveintohtml5.org/video.html
Google
Video on the Web – Dive Into HTM...
The final markup uses a <video> element for HTML5 video, a nested <object> element for Flash fallback, and a small bit of script for the benefit of Android devices:
<video id="movie" width="320" height="240" preload controls>
<source src="pr6.mp4" />
<source src="pr6.webm" type='video/webm; codecs="vp8, vorbis"' />
<source src="pr6.ogv" type='video/ogg; codecs="theora, vorbis"' />
<object width="320" height="240" type="application/x-shockwave-flash"
data="flowplayer-3.2.1.swf">
<param name="movie" value="flowplayer-3.2.1.swf" />
<param name="allowfullscreen" value="true" />
<param name="flashvars" value='config={"clip": {"url": "http://wearehugh.com/dih5/good
/bbb_480p.mp4", "autoPlay":false, "autoBuffering":true}}' />
Download video as MP4, WebM, or <a
href="pr6.ogv">Ogg.
</object>
</video>
Done
YSlow

<video>

Containers and Codecs

HTTP Live Streaming

Search

YouTube HTML5 Video Player

This is an opt-in trial of HTML5 video on YouTube. If you are using a supported browser, you can choose to use the comments will help us improve and perfect the mixtures we're working on. So jump in, play around, and send your f

Supported Browsers

We support browsers that support both the video tag in HTML5 and either the h.264 video codec or the WebM forma

- Firefox 4 (WebM, Beta available here)
- Google Chrome (WebM)
- Opera 10.6+ (WebM, Available here)
- Apple Safari (h.264, version 4+)
- Microsoft Internet Explorer 9 (h.264, Beta available here)
- Microsoft Internet Explorer 6, 7, or 8 with Google Chrome Frame installed (Get Google Chrome Frame)

http://youtube.com/html5

Containers

Zip (file format)

From Wikipedia, the free encyclopedia

(Redirected from Zip file)

Zip is a file format used for data compression and archiving. A zip file contains one or more files that have been compressed, to reduce file size, or stored as is. The zip file format permits a number of compression algorithms. The format was originally created in 1989 by Phil Katz, and was first implemented in

Zip

Filename extension	`.zip` `.zipx` (newer compression algorithms)
Internet media type	`application/zip`[1]
Uniform Type Identifier	com.pkware.zip-archive
Magic number	none, though `PK\003\004` , `PK\005\006` (empty archive), or `PK\007\008` (spanned archive) are common.

VIDEO CONTAINERS

You may think of video files as "AVI files" or "MP4 files." In reality, "AVI" and "MP4" are just container formats. Just like a ZIP file can contain any sort of file within it, video container formats only define *how* to store things within them, not *what* kinds of data are stored. (It's a little more complicated than that, because not all video streams are compatible with all container formats, but never mind that for now.)

A video file usually contains multiple *tracks* — a video track (without audio), plus one or more audio tracks (without video). Tracks are usually interrelated. An audio track contains markers within it to help synchronize the audio with the video. Individual tracks can have metadata, such as the aspect ratio of a video track, or the language of an audio track. Containers can also have metadata, such as the title of the video itself, cover art for the video, episode numbers (for television shows), and so on.

SOURCE: http://diveintohtml5.info

Popular container formats:

MPEG 4 (.mp4, .m4v)

Quicktime (.mov)

Flash (.flv)

Ogg (.ogv)

WebM (.webm)

Audio Video Interleave (.avi)

Advanced System Format (.asf)

MPEG 4, usually with an `.mp4` or `.m4v` extension. The MPEG 4 container is based on Apple's older QuickTime container (`.mov`). Movie trailers on Apple's website still use the older QuickTime container, but movies that you rent from iTunes are delivered in an MPEG 4 container.

QuickTime and MPEG-4 [edit]

On February 11, 1998, the ISO approved the QuickTime file format as the basis of the MPEG-4 file format.[*citation needed*] The MPEG-4 file format specification was created on the basis of the QuickTime format specification published in 2001.[11] The MP4 (`.mp4`) file format was published in 2001 as

Flash Video, usually with an `.flv` extension. Flash Video is, unsurprisingly, used by Adobe Flash. Prior to Flash 9.0.60.184 (a.k.a. Flash Player 9 Update 3), this was the only container format that Flash supported. More recent versions of Flash also support the MPEG 4 container.

Monday, June 28, 2010

Pornographers next to dump Flash for HTML5

By Prince McLean

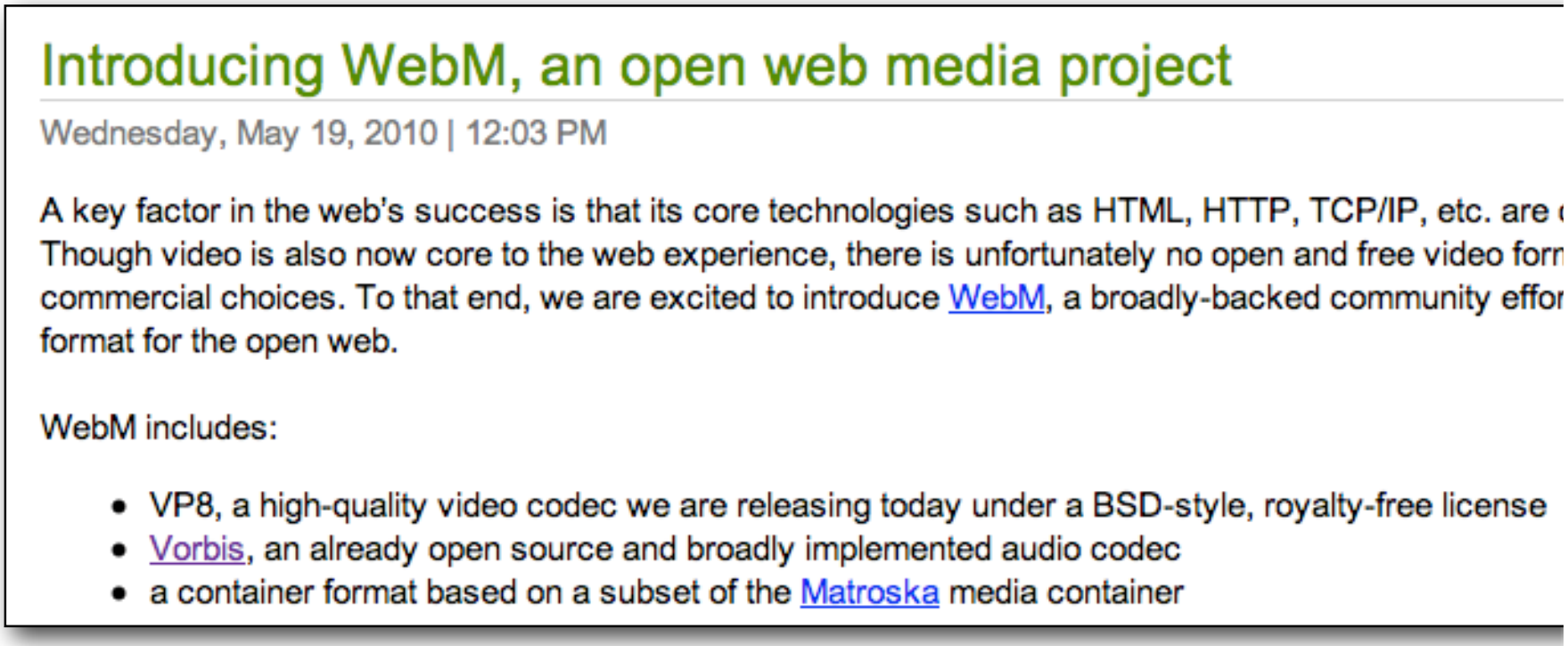
Published: 06:00 PM EST

Apple is finding an unlikely ally in its efforts to support HTML5 in preference to Adobe Flash as the platform for dynamic web content: pornographers.

According to a report by *ConceivablyTech*, leading adult film studio Digital Playground has announced its intentions to make the leap to HTML5, based in part upon needing to target HTML5 to reach Apple's iPhone users.

Ogg, usually with an `.ogv` extension. Ogg is an open standard, open source–friendly, and unencumbered by any known patents. Firefox 3.5, Chrome 4, and Opera 10.5 support — natively, without platform-specific plugins — the Ogg container format, Ogg video (called "Theora"), and Ogg audio (called "Vorbis"). On the desktop, Ogg is supported out-of-the-box by all major Linux distributions, and you can use it on Mac and Windows by installing the QuickTime components or DirectShow filters, respectively. It is also playable with the excellent VLC on all platforms.

WebM is a new container format. It is technically similar to another format, called Matroska. WebM was announced in May, 2010. It is designed to be used exclusively with the VP8 video codec and Vorbis audio codec. (More on these in a minute.) It is supported natively, without platform-specific plugins, in the latest versions of Chromium, Google Chrome, Mozilla Firefox, and Opera. Adobe has also announced that a future version of Flash will support WebM video.



Introducing WebM, an open web media project

Wednesday, May 19, 2010 | 12:03 PM

A key factor in the web's success is that its core technologies such as HTML, HTTP, TCP/IP, etc. are
Though video is also now core to the web experience, there is unfortunately no open and free video for
commercial choices. To that end, we are excited to introduce WebM, a broadly-backed community effo
format for the open web.

WebM includes:

- VP8, a high-quality video codec we are releasing today under a BSD-style, royalty-free license
- Vorbis, an already open source and broadly implemented audio codec
- a container format based on a subset of the Matroska media container

Codecs

When you "watch a video," your video player is doing at least three things at once:

1. Interpreting the container format to find out which video and audio tracks are available, and how they are stored within the file so that it can find the data it needs to decode next
2. Decoding the video stream and displaying a series of images on the screen
3. Decoding the audio stream and sending the sound to your speakers

SOURCE: http://diveintohtml5.info

Popular video codecs:

h.264

Theora

VP8

WMV

H.264

H.264 is also known as "MPEG-4 part 10," a.k.a. "MPEG-4 AVC," a.k.a. "MPEG-4 Advanced Video Coding." H.264 was also developed by the MPEG group and standardized in 2003. It aims to provide a single codec for low-bandwidth, low-CPU devices (cell phones); high-bandwidth, high-CPU devices (modern desktop computers); and everything in between.

Most non-PC devices that play H.264 video (including iPhones and standalone Blu-Ray players) actually do the decoding on a dedicated chip, since their main CPUs are nowhere near powerful enough to decode the video in real-time.

THEORA

Theora evolved from the VP3 codec and has subsequently been developed by the Xiph.org Foundation. **Theora is a royalty-free codec and is not encumbered by any known patents** other than the original VP3 patents, which have been licensed royalty-free. Although the standard has been "frozen" since 2004, the Theora project (which includes an open source reference encoder and decoder) only released version 1.0 in November 2008 and version 1.1 in September 2009.

VP8

VP8 is another video codec from On2, the same company that originally developed VP3 (later Theora). Technically, it produces output on par with H.264 High Profile, while maintaining a low decoding complexity on par with H.264 Baseline.

In 2010, Google acquired On2 and published the video codec specification and a sample encoder and decoder as open source. As part of this, Google also "opened" all the patents that On2 had filed on VP8, by licensing them royalty-free. (This is the best you can hope for with patents. You can't actually "release" them or nullify them once they've been issued. To make them open source–friendly, you license them royalty-free, and then anyone can use the technologies the patents cover without paying anything or negotiating patent licenses.) As of May 19, 2010, **VP8 is a royalty-free, modern codec and is not encumbered by any known patents**, other than the patents that On2 (now Google) has already licensed royalty-free.

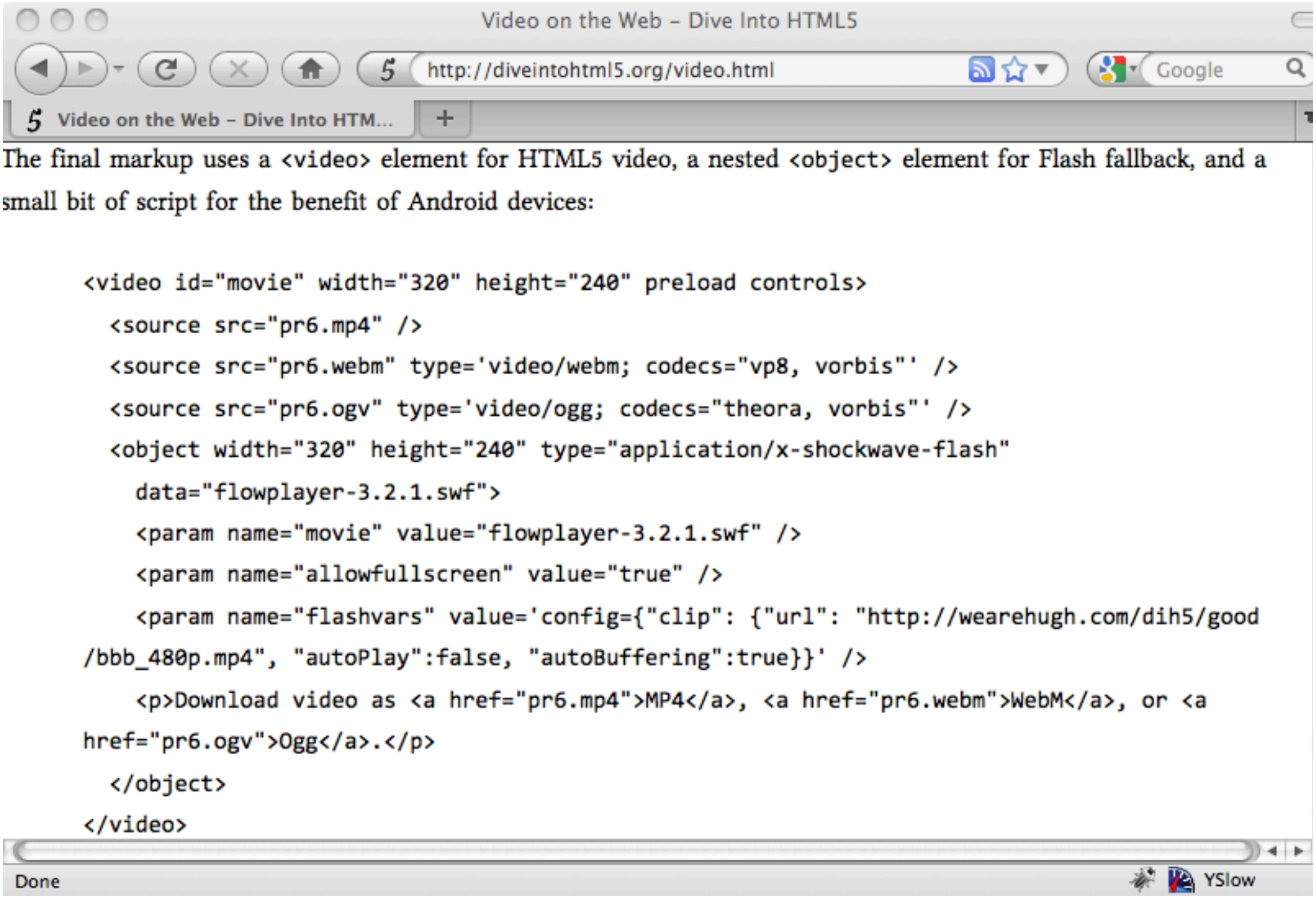
VIDEO CODEC SUPPORT IN UPCOMING BROWSERS

CODECS/CONTAINER	IE	FIREFOX	SAFARI	CHROME	OPERA	IPHONE	ANDROID
Theora+Vorbis+Ogg	·	3.5+	†	5.0+	10.5+	·	·
H.264+AAC+MP4	9.0+	·	3.0+	·	·	3.0+	2.0+
WebM	9.0+*	4.0+	†	6.0+	10.6+	·	2.3‡

* Internet Explorer 9 will only support WebM "when the user has installed a VP8 codec," which implies that Microsoft will not be shipping the codec themselves.

† Safari will play anything that QuickTime can play, but QuickTime only comes with H.264/AAC/MP4 support pre-installed.

‡ Although Android 2.3 supports WebM, there are no hardware decoders yet, so battery life is a concern.


Video on the Web – Dive Into HTML5
http://diveintohtml5.org/video.html
Google
Video on the Web – Dive Into HTM...
The final markup uses a <video> element for HTML5 video, a nested <object> element for Flash fallback, and a small bit of script for the benefit of Android devices:
<video id="movie" width="320" height="240" preload controls>
<source src="pr6.mp4" />
<source src="pr6.webm" type='video/webm; codecs="vp8, vorbis"' />
<source src="pr6.ogv" type='video/ogg; codecs="theora, vorbis"' />
<object width="320" height="240" type="application/x-shockwave-flash"
data="flowplayer-3.2.1.swf">
<param name="movie" value="flowplayer-3.2.1.swf" />
<param name="allowfullscreen" value="true" />
<param name="flashvars" value='config={"clip": {"url": "http://wearehugh.com/dih5/good
/bbb_480p.mp4", "autoPlay":false, "autoBuffering":true}}' />
Download video as MP4, WebM, or <a
href="pr6.ogv">Ogg.
</object>
</video>
Done
YSlow

<video>

Containers and Codecs

HTTP Live Streaming

Apple proposes HTTP streaming feature as IETF standard

By Chris Foresman | Last updated July 9, 2009 11:00 PM

When Apple discussed the new features of the forthcoming iPhone OS 3.0, SVP of iPhone Software Engineering Scott Forstall said that the iPhone would be capable of streaming video and audio directly over HTTP. Apple also advertised HTTP streaming as a feature of QuickTime X, the update of its media architecture coming in Snow Leopard. What it failed to explain, at least publicly, is how this streaming would be accomplished. Fortunately, Apple submitted its proposed protocol last month to the Internet Engineering Task Force (IETF) in the hopes that it will become a ubiquitous standard.

Photo CC Richard Masoner

Apple identified what it considers a few issues with standard streaming, which generally uses the Real Time Streaming Protocol originally developed by Netscape and Real in the late '90s. The biggest issue with RTSP is that the protocol or its necessary ports may be

Dynamic Adaptive Streaming over HTTP

From Wikipedia, the free encyclopedia

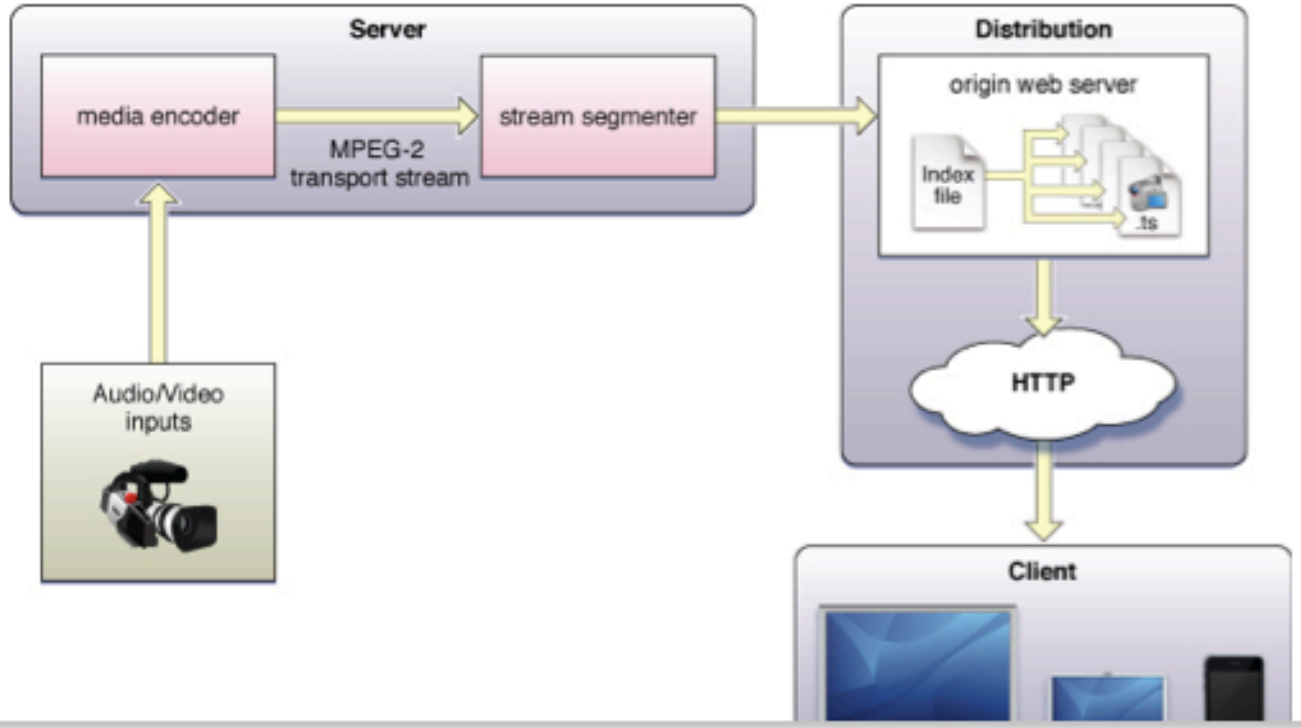
Dynamic Adaptive Streaming over HTTP (**DASH**) is a multimedia streaming technology currently being developed under MPEG. Work on DASH started in 2010; it became a Draft International Standard in January 2011, and an International Standard in November 2011.[1][2][3]

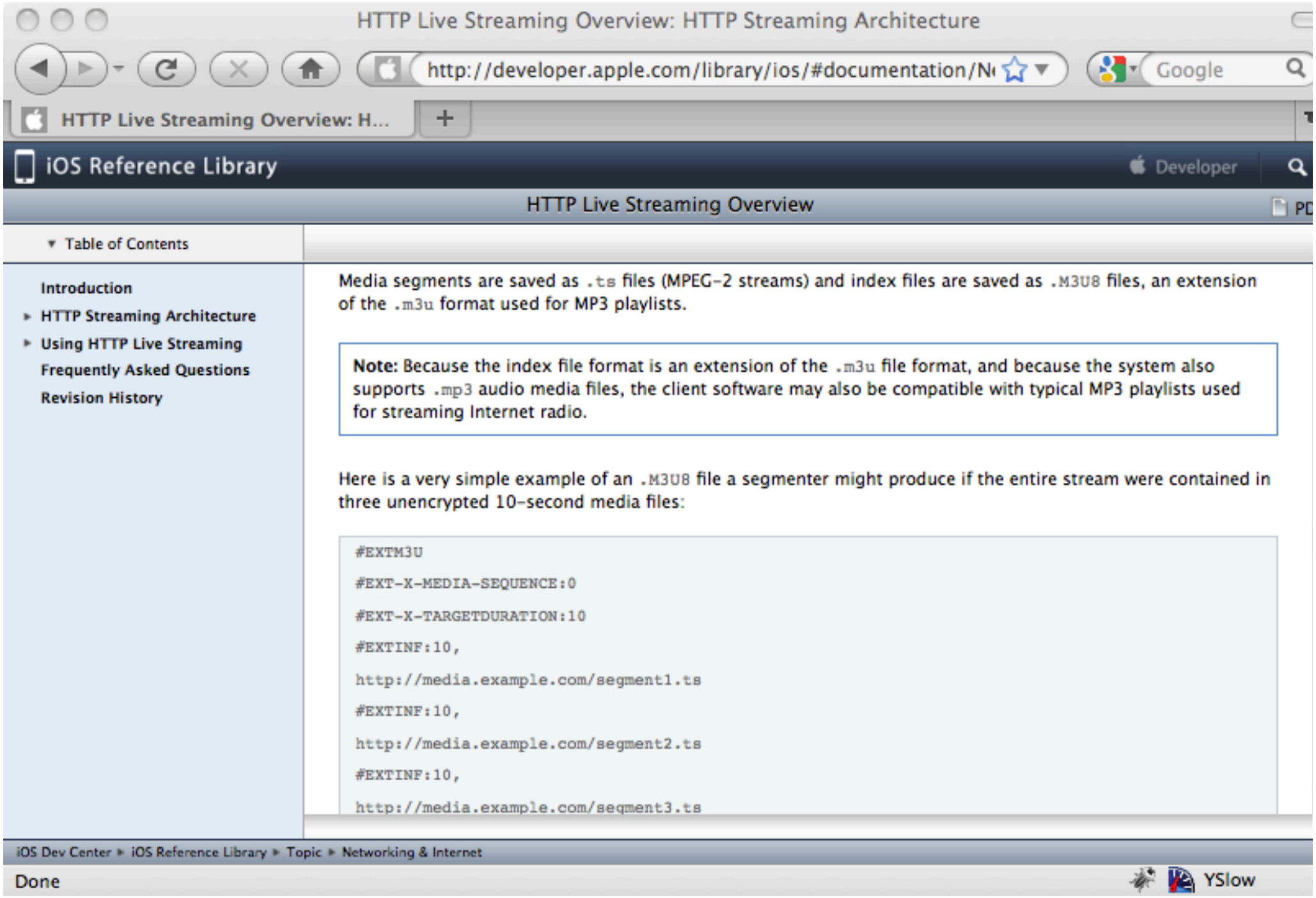
Overview [edit]

DASH is an adaptive bitrate streaming technology where a multimedia file is partitioned into one or more segments and delivered to a client using HTTP.[4] A media presentation description (MPD) describes segment information (timing, URL, media characteristics such as video resolution and bit rates).[5] Segments can contain any media data, however the specification provides specific guidance and formats for use with two types

An example of a simple HTTP streaming configuration is shown in "A basic configuration."

Figure 1-1 A basic configuration




HTTP Live Streaming Overview: HTTP Streaming Architecture
http://developer.apple.com/library/ios/#documentation/N
Google
HTTP Live Streaming Overview: H...
iOS Reference Library
Developer
HTTP Live Streaming Overview
Table of Contents
Introduction
HTTP Streaming Architecture
Using HTTP Live Streaming
Frequently Asked Questions
Revision History
Media segments are saved as .ts files (MPEG-2 streams) and index files are saved as .M3U8 files, an extension of the .m3u format used for MP3 playlists.
Note: Because the index file format is an extension of the .m3u file format, and because the system also supports .mp3 audio media files, the client software may also be compatible with typical MP3 playlists used for streaming Internet radio.
Here is a very simple example of an .M3U8 file a segmenter might produce if the entire stream were contained in three unencrypted 10-second media files:
#EXTM3U
#EXT-X-MEDIA-SEQUENCE:0
#EXT-X-TARGETDURATION:10
#EXTINF:10,
http://media.example.com/segment1.ts
#EXTINF:10,
http://media.example.com/segment2.ts
#EXTINF:10,
http://media.example.com/segment3.ts
iOS Dev Center ▸ iOS Reference Library ▸ Topic ▸ Networking & Internet
Done
YSlow


Apple to Provide Live Video Streaming of September 1 Event
http://www.apple.com/pr/library/2010/08/31alert.html
Google
Apple to Provide Live Video Strea...
Media Alert
Apple to Provide Live Video Streaming of September 1 Event
What:
Live video stream of Apple's September 1 event
When:
Wednesday, September 1, 2010, 10:00 a.m. PDT
Where:
www.apple.com
Live Video Streaming
Apple® will broadcast its September 1 event online using Apple's industry-leading HTTP Live Streaming, which is based on open standards. Viewing requires either a Mac® running Safari® on Mac OS® X version 10.6 Snow Leopard®, an iPhone® or iPod touch® running iOS 3.0 or higher, or an iPad™. The live broadcast will begin at 10:00 a.m. PDT on September 1, 2010 at www.apple.com.
Done
YSlow

<video>

Containers and Codecs

HTTP Live Streaming

What's up with HTML5 Video?

Scott Davis
ThirstyHead.com

scott@thirstyhead.com

Questions?
Thanks for your time.

source and slides:
http://scottdavis99.github.com/html5video/

Image Credits

http://commons.wikimedia.org/wiki/File:Bell_Howell_Filmo_2.jpg
http://commons.wikimedia.org/wiki/File:Barack_and_Michelle_Obama_looking_the_2009_Superbowl_with_3-D_glasses.jpg
http://commons.wikimedia.org/wiki/File:Eight_%28film_start%29.jpg