QuickTime on the Web

Jim Heid
Jim Heid Productions
jim@jimheid.com

Get these slides and samples at:
www.jimheid.com/quicktime/

What I'll Cover

- The many flavors of QuickTime content
- The production process: from raw content to Web page
- Web-optimizing techniques and tips
- Essential HTML for QuickTime
- QuickTime serving strategies

Why QuickTime?

- Versatile
  - audio, video, photographic VR, MIDI, interactivity, 3D vector graphics, Flash
  - Supports true streaming or “fast-start” pseudo streaming; latter can provide much higher quality at the expense of download speeds
- Extremely popular
  - more than 150 million downloads of QuickTime 4
  - 1.5 million downloads of QuickTime 5 in its first week
  - Most downloads are for Windows; QuickTime bundled with Mac OS
  - Also bundled with many Windows products: games, CD titles, application programs, digital cameras
- Extremely economical
  - Lots of free or nearly free authoring tools
  - Free streaming server (for multiple platforms)
- Lots of slick features in QuickTime 5

Why Not QuickTime?

- Installed base is smaller
  - Though not as small as MediaMetrix data would have you believe
- Supporting multiple bandwidths is cumbersome
  - No equivalent to Real's SureStream technology
- Codecs arguably inferior to the competitions'
  - Getting best possible audio or video quality requires extra-cost "developer editions"
- Windows production tools aren't as plentiful

What You Need

- Production hardware—the faster, the better
  - Audio capture: Windows or Mac computer with sound-in (third-party add-on for current Macs)
  - Video-capture: FireWire is ideal
  - Storage: additional hard drive and backup device
  - The Mac is the preferred platform for QuickTime authoring: more tools
- Production software
  - Audio and video editors: for assembling clips, fixing flubs, adding transitions and effects
  - Compression software: for crunching your content into final format (some editors can do this directly)
- Back-end software: server
  - For progressive download and VR, ordinary HTTP server
  - For true streaming, QuickTime Streaming Server

Production Software

- Audio editor
  - Mac OS: Bias Peak (www.bias-inc.com)
  - Windows: Sonic Foundry's SoundForge, Syntrillium's CoolEdit
- Video editor
  - Apple Final Cut Pro, Adobe Premiere (Mac or Win), Apple iMovie
- Encoder or compression utility
  - QuickTime Pro and QuickTime Player ($29), for miscellaneous tasks
  - Cleaner 5 (Media 100; $599)
  - Sorenson Squeeze for Mac OS X (www.sorenson.com, later this year)
  - Apple's MakeRefMovie (free; www.apple.com/quicktime/developers/tools.html)
- Free stuff! www.icanstream.com
  - EditDV, Media Cleaner EZ

The Production Process

- Capture content
  - scenes from videotape; audio narration
- Edit
  - audio editor; video editor
- Save in high-quality native format
  - Audio: WAV or AIFF format
  - Video: QuickTime
- Compress the clip
  - optional: compress multiple versions, each for a different destination bandwidth
- Place clip on server, create links

Fast Start or True Streaming?

- Fast-start movies are delivered via conventional HTTP servers
- QuickTime's fast-start feature enables them to begin playing before they've downloaded
- Pros:
  - Potentially much higher quality
  - No streaming server required
- Cons:
  - User gets a copy of the movie
  - Delays possible (even likely) during downloading
  - User can't "fast-forward"
- You can actually do both
  - With reference movies, you can automatically deliver one or the other depending on connection speed

QuickTime's Built-in Web Codecs

- Audio
  - For music, QDesign Music 2
    - » $395 Pro version provides more compression controls and superior quality (www.qdesign.com)
  - For speech, Qualcomm TrueVoice
- Video
  - Sorenson Video
    - » $499 Developer Edition provides more controls and superior quality
    - » New Sorenson 3 codec improves quality, but doesn't work with older QuickTime versions
  - Or, for progressive-download delivery, H.263 or even Photo JPEG

QuickTime Audio Quality Tips

- Start with high-quality originals
  - Good microphone, good mic placement, good recording environment
- Voice content: use Qualcomm PureVoice
  - excellent voice quality
  - remember: low bit rates also help your bandwidth budget
- Music content: use QDesign Music 2
- Avoid stereo when possible
  - it boosts your bandwidth requirements
- Consider equalizing, normalizing, compressing, limiting (see handout)

QuickTime Video Quality Tips

- Sadly, minimize motion
  - talking heads compress best
  - use a tripod
  - avoid excessive panning and zooming
  - in editing, avoid excessive transitions and cuts
- Start with a high-quality original
  - light well and shoot in a high-quality format
  - less noise yields better compression
- Use your compression program's noise-reduction features
- When repurposing analog video content, crop the bottom several rows of pixels
- Avoid highly saturated colors, especially red
  - Sorenson Video codec has trouble with these

Delivering Bandwidth-Tuned Movies

- You can deliver movies targeted to various connection speeds
- The process:
  1. Compress a separate movie for each target bandwidth
  2. Use Apple's free MakeRefMovie to create a reference movie that points to each (see binder)
     - » The QuickTime browser plug-in will choose the appropriate movie based on the user's QuickTime preferences settings
  - – Or, use Cleaner's "make alternates" feature

Other Ways to Use Reference Movies

- Deliver audio-only soundtrack to modem users and full video to broadband users
- Deliver true-streamed video to broadband users and progressive download video to modem users
- Deliver different movies depending on a user's system language setting

Going Live: QuickTime Live Webcasts

- With Sorenson Vision's Sorenson Broadcaster, you can do live webcasts
- In unicast mode, working with QuickTime Streaming Server
  - traditional one-to-many streaming model
- In multicast mode, no server software required
  - Great for LAN-based webcasts
- Sorenson Broadcaster downsides
  - Rotten docs (the Web site's FAQ is better)
  - Need multiple Macs to encode for multiple bandwidths

Essential HTML

- QuickTime movies are usually embedded
  - (as opposed to being played by the QuickTime Player helper app)
- QuickTime's <embed> tag has dozens of attributes that enable you to control most aspects of playback
  - Full documentation at http://www.apple.com/quicktime/authoring/embed.html
- QuickTime embed extensions available for Dreamweaver and GoLive
  - But they're only so-so
- A book you must have: "QuickTime for the Web" (Morgan Kaufman, 2000)
    - » http://developer.apple.com/techpubs/quicktime/qtdevdocs/QT4WebPage/QT4WebBook.htm

Controlling Movie Playback with Poster Movies

- A “poster movie” is a QuickTime movie containing a single frame
- You embed the poster movie, and when a user clicks on it, the actual movie plays in its place.
- This enables the page containing the movie to load faster.

Steps for Poster Movies

1. Copy desired frame from movie
2. Paste into new Movie Player document
3. Delete audio track of the new single-frame movie
4. Choose Export from the File menu
    1. Choose “Movie to QuickTime Movie”
    2. Specify compression settings
    3. Name the movie
5. Use this style of <embed> tag:

```
<embed src=“myposter.mov” height=“196”
    width=“240” href=“mymovie.mov”
    target=“myself” controller=“false”>
```

Detecting QuickTime and Preventing Hijacking

- Problem: Under some circumstances, Windows Media Player or RealPlayer will try to play a QuickTime movies
  - These players don't support most of QuickTime's advanced features, from streaming to VR to sprites
- Solution: By using the QTSRC attribute in the movie's <embed> tag, you can *force* the QuickTime plug-in to handle playback
- Also works as a JavaScript-free method of detecting QuickTime
- See http://developer.apple.com/techpubs/quicktime/qtdevdocs/QT4WebPage/corrections.htm

Preventing Saving (Or at Least Making it Tough)

- Download Plug-In Helper (Mac or Windows)
  - developer.apple.com/quicktime/quicktimeintro/tools/

1. Open movie with Plug-In Helper
2. Check the “Disallow saving from plug-in” box
3. Save movie *under different name*
   (you won’t be able to save changes to the movie)

- For additional protection, add cache=false and kioskmode=true to your <embed> tag
  - Cache=false prevents movie from being cached
  - Kioskmode=true disables drag-and-drop from browser and the QuickTime plug-in pop-up menu

Something Completely Different: QuickTime VR

- Allows for 360-degree panoramic photos and objects
- Great for real-estate, tourism, e-commerce, and a spice of something cool
- Good coolness-to-bandwidth ratio
  - Files can easily be under 100K
  - Progressive downloading gives good user feedback and near-immediate gratification
- “Wired” features enable directional sound, clickable hotspots, and other advanced goodies

Panorama Production: An Overview

- Mount camera on panoramic head (www.kaidan.com)
- Shoot a set of images, rotating camera after each
- Move images to the computer
- Stitch and optimize for Web
  - Multiple bandwidth techniques work here, too: you can deliver large panoramas to broadband users and small ones to modem users

Kaidan's KiWi+ Pan Head ($279)

Camera-mounting plate (with adjustable slots for nodal point accuracy)

Dual bubble levels for accurate leveling

Calibrated pan head with click stops

Optimizing Panoramas

- After stitching, use Photoshop to reduce the source PICT's dimensions by a factor of two or three or even more
  - The smaller the source PICT, the smaller the final download
  - Downside: details break up sooner under zooming (but most users don't zoom)
- Choose your codec
  - Sorenson is generally the preferred codec
  - JPEG also works well, but can yield stuttering panning on slower computers
- Create a streaming low-resolution preview in QuickTime Player using the QTVR Flattener extension
  - http://developer.apple.com/quicktime/quicktimeintro/tools/

Two Ways to Deliver Panoramas

- As QuickTime movies, for playback via QuickTime
  - Pros: Best quality; support for all QuickTime VR features (hot spots, directional sound, sprites, bandwidth switching)
  - Cons: Users may not have installed full QuickTime
- Via Java
  - Pros: Reliability greatly improved; no plug-in or full QuickTime install needed
  - Cons: Reduced image quality; fewer advanced features; no ability to deliver bandwidth-tuned movies
  - Java delivery tools
    - Cylpan (www.nemeng.com/java/) -- $48
    - IBM's HotMedia (www.ibm.com/hotmedia) -- free

Making Object Movies

- Place object on calibrated turntable
  - www.kaidan.com (or www.rubbermaid.com)
- Grab a video frame, rotate object, and repeat
- Convert video movie into object movie
  - VRObjectWorx (www.vrtoolbox.com)
  - QuickTime VR Authoring Studio (www.apple.com)
  - Make QTVR Object (free; www.apple.com)
- Optional: add hotspots

Serving QuickTime Content

- With your existing Web (http) server
  - cheap and easy – can serve from any ISP account (assuming proper MIME-type configuration)
  - For progressive-download movies, QuickTime VR movies, small audio files
  - Cons: no random access; no live Webcasts; harder to copy-protect your content
- RTSP delivery: just better streaming
  - More immediate gratification
  - Supports random access; provides better copy protection
  - support for live Webcasts via $199 Sorenson Broadcaster (www.sorenson.com)
  - Cons: Potentially inferior quality; increased complexity

QuickTime Streaming Options

- Apple's QuickTime Streaming Server
  - Included with Mac OS X Server
- Open Source version: Darwin Streaming Server
  - Runs under Mac OS X, Red Hat Linux, FreeBSD 3.5, Solaris 7, Windows NT/2000
  - http://www.opensource.apple.com/projects/streaming/
- Both are at version 3
  - Browser-based admin, "skip protection" for greatly increased video reliability (requires QuickTime 5)
- RealServer 8 from RealNetworks
  - From free to $$$$$
- Hosting or content-distribution network
  - Akamai

Beyond the Basics: Wired Movies

- Wired movies and LiveStage Professional (www.totallyhip.com)
- Control QuickTime playback through scripting
- Integrate Flash content into QuickTime movies
- Create advanced interactive movies that play on the Web and in any QuickTime-savvy application
- Downside: Expensive ($899) and fairly steep learning curve
- Download trial version for Mac (Windows coming soon)
  - If you can stand the site…

A Quick Look at QuickTime 5

- Shipped in April for Mac OS and Windows
  - "Skip protection" for video
  - Elegant player design: no billboards here
  - Cubic panoramas: ability to "look" straight up and straight down
  - Flash 4 support: More sophisticated wired movies
  - Media skins: wrap your movies in custom graphics
    - » But skinned movies don't play back in QuickTime 4.
  - MPEG streaming, MP3 support, and much more
    - » See http://developer.apple.com/quicktime/

Summing Up QuickTime

- Pros:
  - Unmatched versatility: everything from audio to movies to VR to interactivity, with option for true streaming or progessive download
  - Popular: More than 150 million downloads of version 4, plus all the other distribution methods
  - Economical: Lots of free tools, including servers
- Cons:
  - Less popular on the Windows platform than RealSystem G2 and Windows Media
  - Less sophisticated streaming: supporting multiple bandwidths is more work for you

Thanks!

Jim Heid
jim@jimheid.com

Get these slides and samples at:
www.heidsite.com/quicktime/