From Flash to HTML5: Development Implications

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WHO WE ARE

- RealEyes
- Specializing in Streaming Media Technologies and Development
- Client List: Oracle, Adobe, NBC, MLB
Flash Video Streaming (Pros/Cons)

- **PROS**
  - Industry Standard DRM Support
  - Adaptive Bitrate Streaming
  - Rich UI Customization
  - List goes on...

- **CONS**
  - No more browser support on Mobile
  - Requires plugin installation
  - Doesn't support HLS or DASH with encryption without Primetime

Flash → HTML5

<table>
<thead>
<tr>
<th>Technology</th>
<th>Flash Platform</th>
<th>HTML5</th>
</tr>
</thead>
<tbody>
<tr>
<td>DRM</td>
<td>Adobe Access</td>
<td>Google Widevine, MS PlayReady, Apple Fairplay, Adobe Access</td>
</tr>
<tr>
<td>Development Language</td>
<td>ActionScript/MXML</td>
<td>HTML/CSS/JavaScript</td>
</tr>
<tr>
<td>Streaming Protocol</td>
<td>RTMP, HDS, HLS</td>
<td>HLS, MPEG DASH</td>
</tr>
<tr>
<td>Client Player</td>
<td>Flash Player</td>
<td>&lt;video/&gt;</td>
</tr>
<tr>
<td></td>
<td>Adobe AIR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Access SDK (iOS, Android)</td>
<td></td>
</tr>
</tbody>
</table>
Flash - What about our investment?

- Keep Flash for Desktop Clients
  - Robust capabilities
  - Highly performant
  - Can benefit from Protected SWF Verification

- Use HTML5 for Mobile
  - Will allow to stream to iOS/Android
  - Not as feature rich, but getting there

- Use a Fallback Strategy
  - Continue recouping on existing investment
  - Best of both worlds
  - JWPlayer and REPlayer use this strategy. :)

New Skills for a New Platform

- New skills necessary for HTML5
  - HTML/CSS/Javascript
  - Decent cross-browser QA strategy
  - Knowledge of the various DRM providers and CDM libraries (Access, Widevine, Fairplay, PlayReady)
  - Knowledge of alternate streaming protocols: MPEG DASH
Format Conversions?

- You can keep your non-drm encrypted H.264 content (Unless previous encrypted - ex: Adobe Access)
- Will need to create renditions that are optimized for mobile networks

### 16:9 Aspect Ratio

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Frame Rate *</th>
<th>Total Bit Rate</th>
<th>Video Bit Rate</th>
<th>Audio Bit Rate</th>
<th>Audio Sample Rate</th>
<th>Keyframe**</th>
<th>Restrict Profile to:</th>
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</thead>
<tbody>
<tr>
<td>CELL 480x320</td>
<td>na</td>
<td>64</td>
<td>na</td>
<td>64</td>
<td>44.1</td>
<td>na</td>
<td>na</td>
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<tr>
<td>CELL 480x270</td>
<td>10 to 12</td>
<td>264</td>
<td>200</td>
<td>64</td>
<td>44.1</td>
<td>30 to 36</td>
<td>Baseline, 3.0</td>
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<td>WIFI 640x360</td>
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<td>1264</td>
<td>1200</td>
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<td>Main, 3.1</td>
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<td>WIFI 1920x1080</td>
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<td>8564</td>
<td>8500</td>
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<td>44.1</td>
<td>90</td>
<td>High, 4.0</td>
</tr>
</tbody>
</table>


Making the Transition

- The financial and monetary impact of a transition are based on the following factors:
  - Transcode existing media
  - Build the video player (HTML5/Native*X)
  - Deploy/Configure DRM server
  - Cross browser/platform support
  - Accounting for feature support: Ads, Analytics, DVR, Live/VOD, Non-DRM Security, DVR, Thumbnails, etc.

- Some considerations:
  - Use an off the shelf player if possible (JWPlayer, REPlayer)
  - Use a cloud-based transcoding service
  - Drop non-critical features for HTML 5 release 1.0, throw them into the backlog for future release.
Making the Transition

<video src="foo.webm" autoplay onneedkey="handleKeyNeeded(event)"></video>

When to Make the Jump?

- Based on current clients some thoughts:
  - How complex are your player features?
  - What systems does the player need to be integrated into?
  - How stringent are non-DRM security requirements?
  - What browsers/platforms need be supported?
- Based on the answers, in a simple system transition can happen now. With a complex system, may have to wait until the standards catch up.
Remember, it’s All About the Features

- Ads
- Enhanced playback
- Player Interface Customizations
- DVR
- Security
- CDN and delivery providers

Resources

- Media Source Extensions (MSE) W3C:

- Encrypted Media Extensions (EME) W3C:

- Great resource for video encoding:
  - http://www.streamingmedia.com/

- RealEyes (Blog/Consulting/Development):
  - http://www.realey.es.com/
CONTACT US

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