

BUILDING AN ONLINE VIDEO PLAYER

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- ▶ Understanding the Streaming Landscape
- ▶ Understanding Formats
- ▶ Desktop Options Today
- ▶ Off the shelf Providers
- ▶ Building it yourself
- ▶ Finding the Right Fit
- ▶ Summary
- ▶ Questions

AGENDA

- ▶ Senior Consultant at Digital Primates
 - ▶ Building next generation client applications
- ▶ Built video applications for many of the most watched live broadcasts
- ▶ Developing Internet applications for 20 years
- ▶ Author of 12 books on Internet technologies

WHO AM I?



WHO ARE YOU?

- ▶ There has been a vast proliferation of devices onto which people want streaming video
- ▶ Wide variety of Codecs available
- ▶ Wide variety of streaming protocols to choose from
- ▶ Browsers beginning to remove support for some plugins
- ▶ Browsers native support for streaming video varies

UNDERSTANDING THE STREAMING LANDSCAPE

- ▶ Real Time Protocols
 - ▶ RTP, RTMP, RTSP, etc.
- ▶ HTTP Streaming Protocols
 - ▶ HLS
 - ▶ Smooth Streaming
 - ▶ HDS
 - ▶ MPEG-DASH

UNDERSTANDING FORMATS

Benefits

- ▶ Very Low Latency

Liabilities

- ▶ Requires Additional Server Infrastructure
- ▶ Doesn't scale well to ultra high volume

UNDERSTANDING FORMATS:
REAL TIME PROTOCOLS

Benefits

- ▶ Very network efficient
- ▶ Easily cacheable
- ▶ Utilizes internet standard transport (HTTP)
- ▶ Works with any web server

Liabilities

- ▶ Requires packaging before delivery
- ▶ Higher latency

UNDERSTANDING FORMATS: HTTP STREAMING PROTOCOLS

- ▶ Created and maintained by Microsoft
- ▶ Works well with SilverLight, Xbox, Windows 8, and more
- ▶ DRM possible via PlayReady

UNDERSTANDING FORMATS: SMOOTH STREAMING

- ▶ HTTP Dynamic Streaming
- ▶ Created and maintained by Adobe
- ▶ Works well with Flash
- ▶ DRM possible via Primetime DRM (formerly known as Adobe Access)

UNDERSTANDING FORMATS: HDS

- ▶ HTTP Live Streaming
- ▶ Created and maintained by Apple
- ▶ Works well with many devices (iOS, Safari, Roku, etc)
- ▶ DRM possible (varies based on platform)

UNDERSTANDING FORMATS: HLS

- ▶ Dynamic Adaptive Streaming over HTTP
- ▶ Open Standard maintained by MPEG
- ▶ Works well with many devices (Connected TVs, HTML 5 Browsers (MSE), Android, etc.
- ▶ DRM Agnostic
- ▶ Extremely flexible format

UNDERSTANDING FORMATS: MPEG-DASH

- ▶ Silverlight
- ▶ Flash
- ▶ HTML5 (MSE / EME)

DESKTOP OPTIONS TODAY

- ▶ Once a dominant player
- ▶ Native Support for Smooth Streaming / Playready
- ▶ Relies on NSAPI
- ▶ Faltering Market share today

DESKTOP OPTIONS TODAY: SILVERLIGHT

- ▶ Currently the dominant player for desktop delivery
- ▶ Native Support for RTMP, HDS
- ▶ Relies on PAPI
- ▶ Remains Strong, but world seems to be moving to plugin-less delivery

DESKTOP OPTIONS TODAY:
FLASH

- ▶ Expected dominant player of the future
- ▶ No plugins necessary
- ▶ Native Support for Progressive Download
- ▶ MSE / EME supports streaming to supported browsers

DESKTOP OPTIONS TODAY:
HTML5

Feature	Chrome	Firefox	Internet Explorer	Safari (mac and ios)	Safair (Windows and others)
Media Source Extensions	Yes	No	Yes**	Yes (MacOS Only)	No
H264	Yes	Yes	Yes	Yes	Yes
Vp8/9	Yes	Yes	No	No	No
HLS	No*	No	No*	Yes	No
DASH	Yes*	No	Yes*	No	No

COMPARING BROWSERS TODAY

- ▶ MSE allow for pieces (segments) of media to be handed to the HTML5 video tag's buffer directly.
- ▶ This enables HTTP Streaming in HTML
- ▶ Not universally supported, yet.
- ▶ Currently (as of March 2015) a Candidate Recommendation to the HTML Working Group

MEDIA SOURCE EXTENSIONS (MSE)

- ▶ Adobe Primetime
- ▶ Brightcove's video.js
- ▶ DASH.js
- ▶ JWPlayer
- ▶ Kaltura
- ▶ Ooyala
- ▶ And many more...

OFF THE SHELF PROVIDERS

- ▶ Premium Video Provider, targeting programmers and operators.
- ▶ Support for Desktop, Mobile, Set Top Boxes, Gaming Consoles and more.
- ▶ HTML5 this summer
- ▶ Many Built in Features:
 - ▶ Ad Insertion and Ad Decisioning
 - ▶ Authentication (aka Adobe Pass)
 - ▶ DRM
 - ▶ Analytics
- ▶ HLS and MPEG-Dash
- ▶ Commercial B2B product

OFF THE SHELF PLAYERS:
ADOBE PRIMETIME

- ▶ Unrestricted Open Source solution (Apache 2.0)
- ▶ Provides HTML5 First solution with failover to Flash
- ▶ Support for RTMP, HDS, HLS and DASH
- ▶ Active Open Source Community
- ▶ Many plugins available for DRM, Advertising, Analytics and more
- ▶ Available fully featured for free
- ▶ Fully Managed solution available

OFF THE SHELF PLAYERS:
BRIGHTCOVE'S VIDEOJS

- ▶ Unrestricted Open Source solution (BSD3)
- ▶ Provides HTML5 only solution
- ▶ Support for DASH only
- ▶ Active Open Source Community
- ▶ Builtin support for DRM
- ▶ Available fully featured for free and open source
- ▶ Used for DASH support in many other players

OFF THE SHELF PLAYERS:
DASH.JS

- ▶ Free version available for non commercial use
- ▶ HTML5 and Flash
- ▶ Paid versions add support for:
 - ▶ HLS
 - ▶ Advertising
 - ▶ Analytics
 - ▶ Android and iOS native SDK

OFF THE SHELF PLAYERS: JWPLAYER

- ▶ Open Source solution (aGPL3)
- ▶ Cloud based player supports simple use cases
- ▶ Embedded player supports full Kaltura management functionality
- ▶ HTML5, Flash, iOS and Android
- ▶ Provides basic functionality for Free, Advanced Features require paid edition

OFF THE SHELF PLAYERS:
KALTURA

- ▶ HTML5, Flash and mobile SDKs
- ▶ Rich Player Plugin Framework across platforms
- ▶ Support for RTMP, HDS, and HLS.
- ▶ Supports VoD, DVR and Live content workflows and playback.
- ▶ Provides Rich Analytics, Ad, DRM, Discovery integrations out of box.
- ▶ Fully managed and customization solutions available.

OFF THE SHELF PLAYERS:
OOYALA

CODE SAMPLES OF EACH

- ▶ Most desktop solutions today will be built targeting either Flash or HTML (MSE)
- ▶ With Chrome discontinuing NSAPI, Silverlight is a less viable solution

BUILDING IT YOURSELF

- ▶ Many factors to consider including:
- ▶ Fully Managed vs Stand Alone
- ▶ Additional Services
- ▶ Formats needed
- ▶ Platforms needed
- ▶ Budget
- ▶ Customization

FINDING THE RIGHT FIT

- ▶ There have never been more good choices for video technology
- ▶ It has never been easier to build your own players from scratch
- ▶ There are many valid choices for off the shelf players
- ▶ Fully Managed Services vs Stand Alone Players
- ▶ Web vs Mobile vs OTT vs STB vs etc...

SUMMARY



QUESTIONS