

# MAX 2007

## Integrating Flex and Video

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## Session Outline



- OVERVIEW
- DEMOS
  - mx.controls.VideoDisplay
  - Implementing Full Screen
  - H.264 (aka MPEG4)
  - ReviewTube
  - Flash FLVPlayback
  - Flex Video Conference
  - Adobe Premiere Express
  - Adobe Media Player
  - VroomVideo.com
- Q&A

*Note: Links in presentation online at:*  
<http://halcyonsolutions.net/presos/07/max/>

# OVERVIEW



## Welcome to the Revolution!

- Rich Internet Applications
  - Flex leading the charge
  - Flash lead the way
  - AIR joining the fray
  - AJAX (note: AJAX has no video support)
- Video on the Web
  - Flash come from no where in 2002 to dominating video on the web today
  - Mobile devices now in the offing

- Playback
  - Primary Use Case
- Live Broadcast & Record
  - Limited Quality (Sorenson Spark)
  - Appropriate for "Social Networking" use cases, e.g. video chat
  - Non-Flex webcast solutions from Adobe for use cases requiring higher quality (Flash Media Encoder, Visual Communicator)

## Video Playback in Flex – Options

- Flex Framework Component
  - `mx.controls.VideoDisplay`
- Flash CS3 FLVPlayback Component using the Flex Component Kit for Flash CS3
- Custom Development
- Third Party / Community / Open Source (not yet)

# DEMOS



## Demos Overview

- Goal: Use publicly available sources
- Walk through examples
- Put the examples in context
- Homework: You review on your own as needed

## Yes Source Available

- mx.controls.VideoDisplay
- ReviewTube
- Flash FLVPlayback using Flex Component Kit for Flash CS3
- Video Conference with Flex & FMS

## No Source Available

- Adobe Premiere Express – Flex w/ Flash Media Server
- Adobe Media Player – Flex/AIR
- VroomVideo.com – Flex w/ Flash Media Server

# DEMO #1

## mx.controls.VideoDisplay

- Flex 2 Component Explorer
  - <http://examples.adobe.com/flex2/inproduct/sdk/explorer/explorer.html>
  - Visual Components > Loader Controls > VideoDisplay > VideoDisplay Control Example
- Video File Hosting Options
  - Progressive using HTTP
  - Streaming using RTMP
    - Flash Media Server (aka FMS)
    - Flash Video Streaming Service (FVSS)
      - provided by Content Delivery Network Providers (CDNs)

## Video File Hosting Options

- Progressive using HTTP
  - No content protection (video files are downloaded to browser cache)
  - Seek dependent on percent of file downloaded
  - Example: YouTube
- Streaming using RTMP
  - Content protection results from absence of video file caching
  - Seek 100% on load
  - Dynamic bandwidth switching during playback
  - Examples: NBC.com, FOX.com
- Embed not supported

# DEMO #2

## Implementing Full Screen



## Implementing Full Screen

- Creating full-screen Flex applications  
by Pete deHaan

<http://blog.flexexamples.com/2007/08/07/creating-full-screen-flex-applications/>

- Flex/ActionScript Code
- HTML Wrapper Code (required!)
- Sample file:
  - [http://labs.adobe.com/technologies/flashplayer9/fullscreendemo/backcountry\\_bombshells\\_4min\\_HD\\_1500\\_96.flv](http://labs.adobe.com/technologies/flashplayer9/fullscreendemo/backcountry_bombshells_4min_HD_1500_96.flv)

- Full Screen is a major emphasis in current Flash Player development!

- Full-screen mode with hardware scaling. Probably the biggest new feature in the Flash Player Update 3. This leverages DirectX on Windows and OpenGL on OSX. Source, Tinic Uro, Software Engineer:

[http://www.kaourantin.net/2007/08/what-just-happened-to-video-on-web\\_20.html](http://www.kaourantin.net/2007/08/what-just-happened-to-video-on-web_20.html)

- Full-Screen mode with hardware scaling

[http://labs.adobe.com/wiki/index.php/Flash\\_Player:9:Update:Full-Screen\\_Mode\\_HW](http://labs.adobe.com/wiki/index.php/Flash_Player:9:Update:Full-Screen_Mode_HW)



# Video Codecs Supported



Codec	Flash Player Version Introduced	Primary Uses
Sorenson Spark	6	Video Conferencing, Social Media
On2 VP6	8	Our current best quality "Web Video" (low/medium/high bandwidth)
ON2 VP6 – Simple Profile	8	"HD Video" with optimized performance w/ high bitrate (e.g. from local disk)
H.264 / AAC	9.0.60	"HD Web Video" using standard codec w/ medium/high bandwidth

See <http://www.flashvideofaq.com/> to compare Sorenson Spark vs On2 VP6

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## H.264 (aka MPEG4)



- Requires Flash Player 9.0.60
- No Flex or ActionScript specific syntax!
  - Just specify URL to a valid MP4 file
  - Flash Player reads the file specified
    - Flash Player 9.0.60 and higher plays H.264 format
- Sample file:
  - [http://labs.adobe.com/technologies/flashplayer9/fullscreendemo/backcountry\\_bombshells\\_4min\\_HD\\_H264.mp4](http://labs.adobe.com/technologies/flashplayer9/fullscreendemo/backcountry_bombshells_4min_HD_H264.mp4)

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- Advantages

- Encode once to support multiple distribution targets
  - Note: When targeting multiple bandwidths, multiple encodings are still required
- Exploring Flash Player support for high-definition H.264 video and AAC audio

[http://www.adobe.com/devnet/flashplayer/articles/hd\\_video\\_flash\\_player.html](http://www.adobe.com/devnet/flashplayer/articles/hd_video_flash_player.html)

- Hardware decoding

- Especially important on mobile devices!
- Possible future in PCs/Macs too:

[http://www.pbs.org/cringely/pulpit/2007/pulpit\\_20070308\\_001806.html](http://www.pbs.org/cringely/pulpit/2007/pulpit_20070308_001806.html)



- Video in context of a complex Flex application.
- <http://www.joeberkovitz.com/reviewtube/>
  - A site that allows users to create, edit, and view time-based comments for videos hosted by YouTube.com
- Companion article:
  - "An architectural blueprint for Flex applications"  
<http://www.adobe.com/devnet/flex/articles/blueprint.html>
  - Article details a high-level architecture for building Flex applications
  - Architecture called the "Model-View-Controller-Service" approach, or MVCS for short

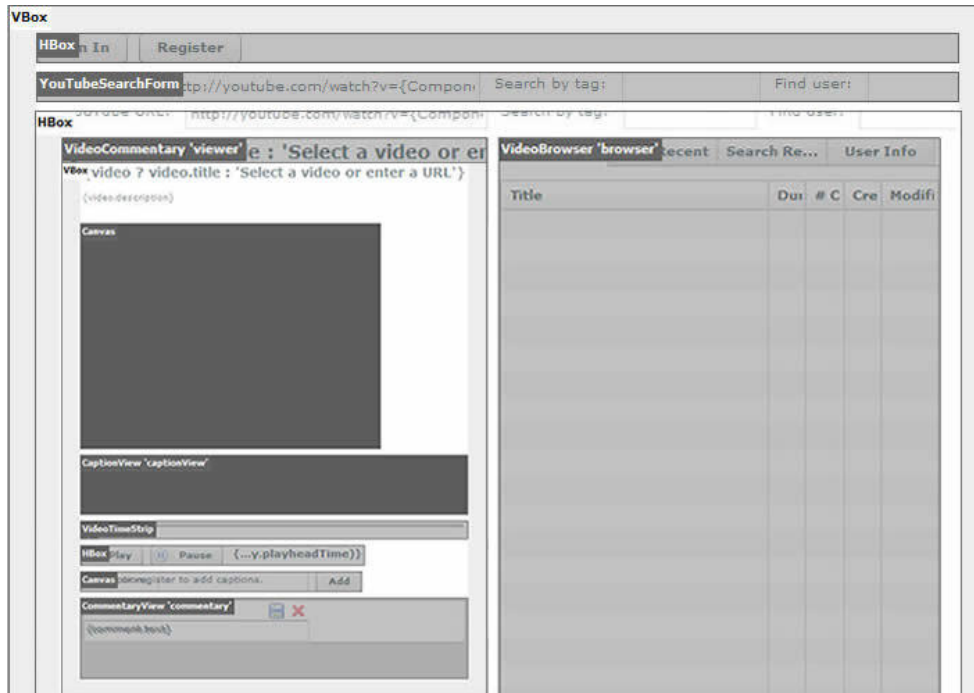
## Review Tube UI

The screenshot displays the ReviewTube user interface. On the left, a video player shows a hand-drawn diagram with a red arrow pointing down and a blue box containing a red 'X'. Below the video, a comment by 'joe' reads 'this is where the simulation takes off'. The video player includes a play/pause button and a progress bar at 0:50. Below the video, there is a 'New caption' field and a list of existing captions with their timestamps and authors.

Search results table:

Title	Duration	# Comme	Created	Modified
Britney Spears - Slave	3:24	21	10/17/2006	10/18/2006
Extra 2 - Super Kim	2:02	8	11/01/2006	11/02/2006
Chihuahua S. Root Be	2:02	5	10/07/2006	11/12/2006
David Hasselhoff - Hoc	3:31	5	10/12/2006	11/11/2006
How to Wheele Drop	4:29	5	10/12/2006	11/09/2006
Panning Sunset	0:16	4	10/16/2006	10/17/2006
VDUCE	0:36	4	10/18/2006	11/12/2006
The Creation of Sam	6:13	3	10/31/2006	10/31/2006
sodium in the class room	0:47	2	10/07/2006	10/09/2006
= 600 =	3:33	2	10/11/2006	10/11/2006
MIT sketching	4:42	2	10/16/2006	10/17/2006
Hyderabad! Phakuan	4:05	2	10/17/2006	10/17/2006
Ayla Brakes (Fixed Ge	2:28	1	10/12/2006	10/12/2006
Just sayin what up!	4:37	1	10/15/2006	10/18/2006
Britney spears Crosses	3:02	1	10/17/2006	10/17/2006
Linerider Jumps the SH	1:23	1	10/21/2006	10/21/2006
Roykoppo - Remind M	4:15	1	10/29/2006	11/02/2006

# Review Tube UI – Container View



## Video Specific Elements

- Namespace
  - `xmlns:video="com.joeberkovitz.reviewtube.video.*"`
- `ReviewTube.mxml > MainView.mxml > VideoCommentary.mxml >`
  - **YouTubeVideoDisplay.mxml**
  - `VideoTimeStrip.mxml`
  - `<mx:Label text="{...(videoDisplay.playheadTime)}"/>`
  - `<mx:Button ... label="Play" ... />`
  - `<mx:Button ... label="Pause" ... />`
- Value Object
  - `import com.joeberkovitz.reviewtube.model.VideoInfo;`

# DEMO #5

## Flash FLVPlayback



## Flash FLVPlayback Component

- Using Flash FLVPlayback in Flex 2.01

<http://www.flashcomguru.com/index.cfm/2007/7/18/flvplayback-in-flex>

- Requires

- Flash CS3

- Flex

- Flex 2.01

- Flex Component Kit for Flash CS3

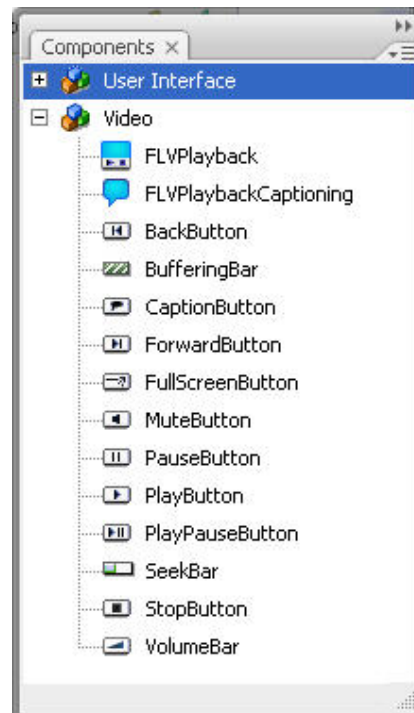
[http://labs.adobe.com/wiki/index.php/Flex Component Kit for Flash CS3](http://labs.adobe.com/wiki/index.php/Flex_Component_Kit_for_Flash_CS3)

- Flex 3

- See Chapter 32 in Flex 3 Developer's Guide

[http://livedocs.adobe.com/labs/flex/3/html/swf9\\_040\\_01.html](http://livedocs.adobe.com/labs/flex/3/html/swf9_040_01.html)

- Prebuilt, fully functional components for FLVPlayback
- Very thorough documentation of all functionality
  - <http://livedocs.adobe.com/flash/9.0/main/00000552.html>
- Includes a collection of predesigned *skins* for quickly and easily customizing the appearance of playback controls
- Super easy customization of predesigned skins through configuration of color and alpha values
- Allows advanced users to create their own skins
- Supports:
  - HTTP Progressive and RTMP Streaming
  - Full screen
  - Closed captions
  - Cue points (events that enable synchronization with outside text, graphics, etc.)
  - SMIL support (cases w/ multiple streams, each optimized for different bandwidths)



# DEMO #6

## Flex Video Conference

- A sample application that accompanies the Web Developer's & Designer's Journal article:
  - Video Conference with Flex & FMS  
By: Renaun Erickson  
<http://mxdj.sys-con.com/read/295379.htm>  
Source downloadable from:  
<http://renaun.com/blog/2006/10/28/139/>
- Uses Flex client side w/ Flash Media Server on server side

## Flex Video Conference

- Does not use mx.controls.VideoDisplay
- Demonstrates video acquisition using Flash Player
- Uses classes in the flash packages:
  - flash.media.Video
  - flash.media.Camera
  - flash.media.microphone
  - flash.net.NetConnection
  - flash.net.NetStream

# DEMO #7

## Adobe Premiere Express



## Adobe Premiere Express

- <http://www.adobe.com/products/premiereexpress/>
- Licensed application
  - MTV.com
  - YouTube.com
  - Photobucket.com
- Hosted Service
- Application uses Flex client side w/ Flash Media Server on server side
- <http://remix.mtv.com/>

# DEMO #8

## Adobe Media Player



### Adobe Media Player

- AIR application that uses Flex client side
- Video via HTTP progressive download or RTMP streaming
- Progressively downloaded videos thereafter stored locally for replay
- AIR application manages local files and user selected RSS feeds
- Developer customization of feed downloads (not the player itself)

# DEMO #9

## VroomVideo.com



## VroomVideo.com

- Video record application
- Uses Flex client side w/ Flash Media Server on server side
- Similar to YouTube's Quick Capture which uses Flash authored SWF for video record

# Q&A



## Session Link & Email Contact

- Note: Links in presentation online at:  
[http://halcyonsolutions.net/presos/07/flexvideo\\_vegasflex.org](http://halcyonsolutions.net/presos/07/flexvideo_vegasflex.org)
- Email: [g@halcyonsolutions.net](mailto:g@halcyonsolutions.net)

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**THE END**  
**THANKS!** 😊

