

# GOVERNMENT VIDEO IN THE CLOUD

## Distribution of Government- Owned Video from the Cloud

**Adam Powers**

adam.powers@v2solutions.com

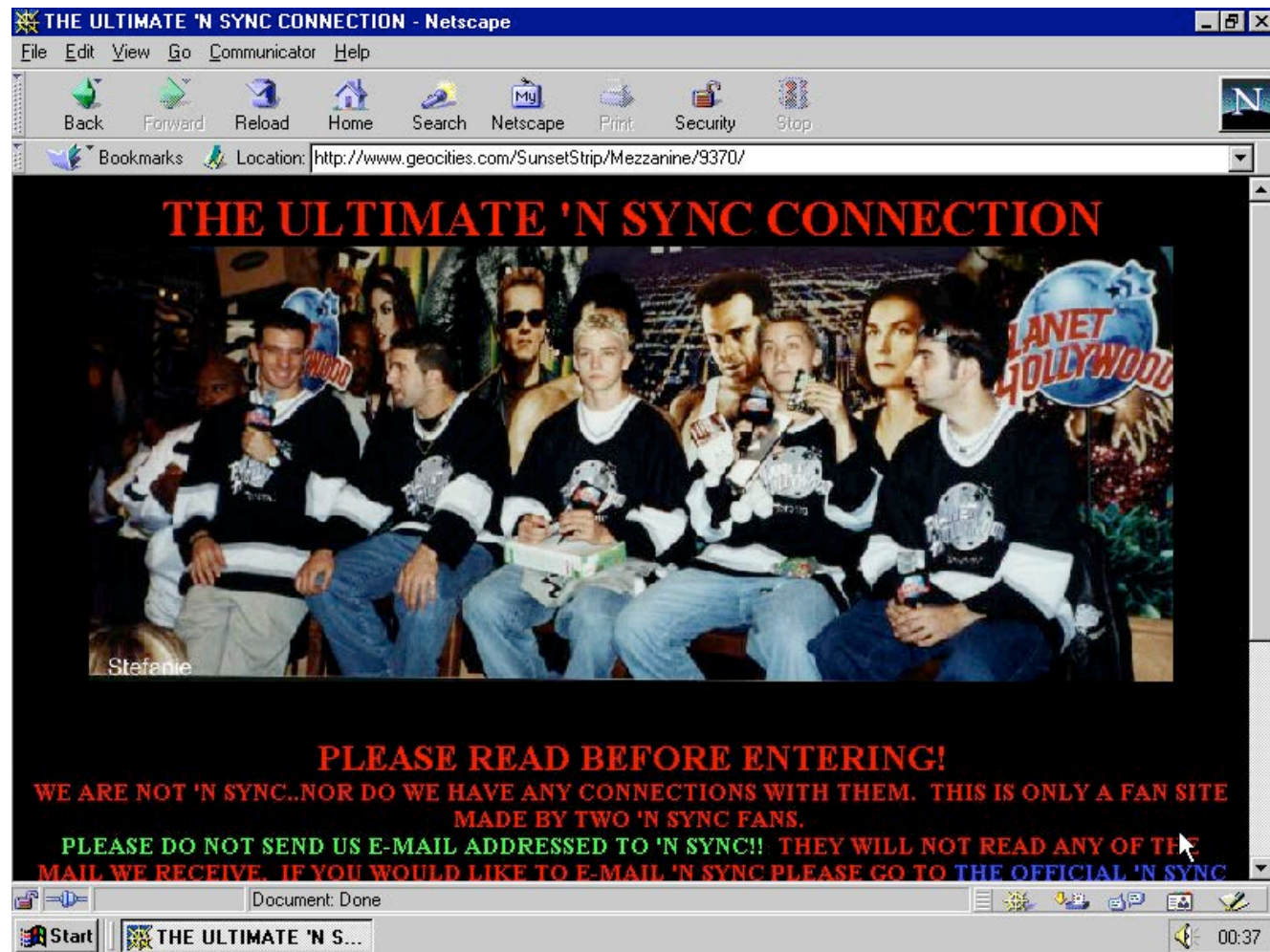


**DCIA Conference at PMC@GVE  
December 4, 2013**

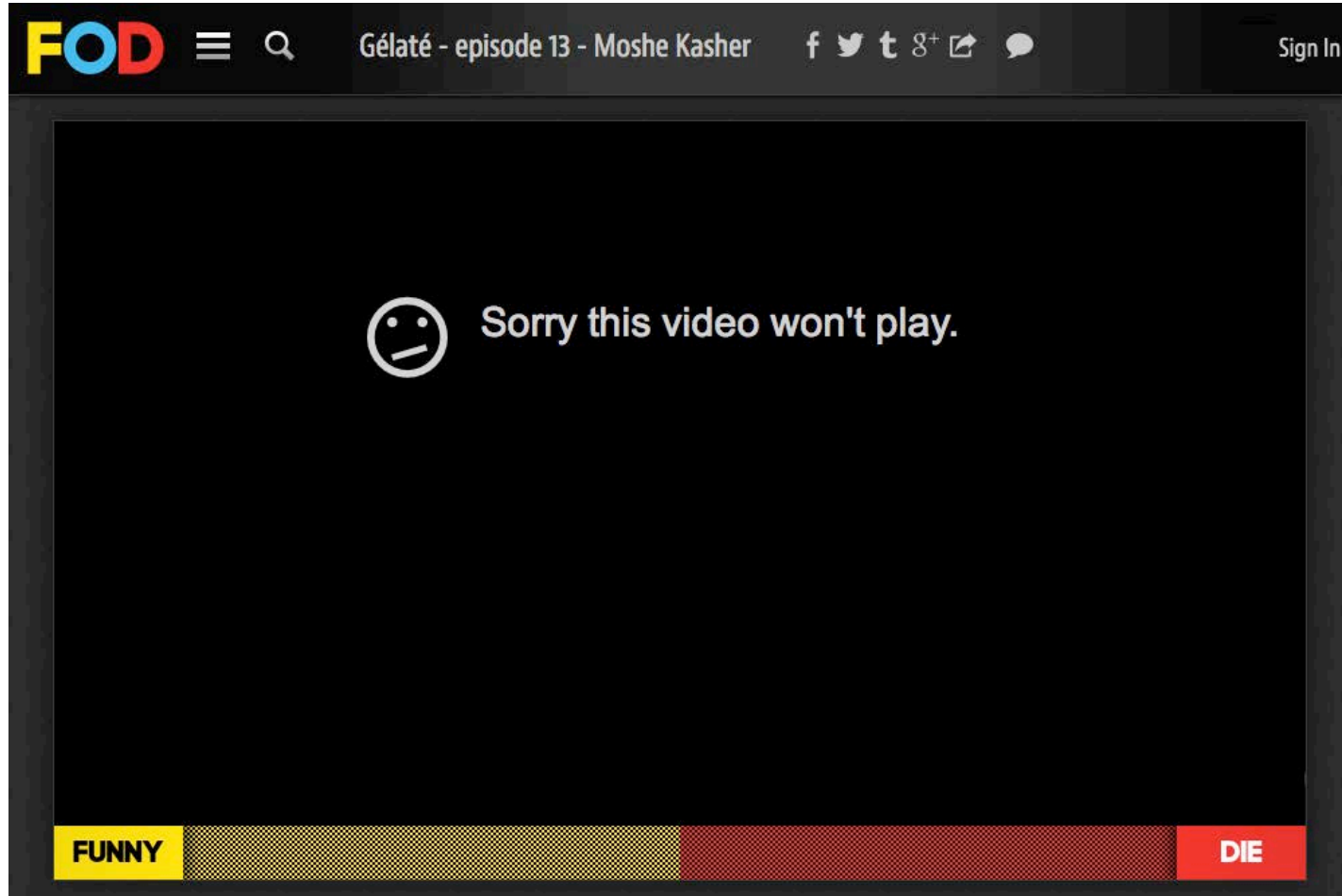
# Video and the Internet: 101

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# Once upon a time...



# It didn't always work...



# But Flash worked well

YouTube  Search Browse

## Cowboys & Aliens - Trailer

UniversalPictures 80 videos



00:12 -02:17

 Upgrade to Flash Player 10 for improved playback performance. [Upgrade Now](#) or [More Info.](#)

298,793

Uploaded by UniversalPictures on Nov 17, 2010

# Until mobile



# So add a few more formats

## Pages in category "Video formats"

---

The following 46 pages are in this category, out of 46 total. This list may not reflect recent changes ([learn more](#)).

### 1

- 1080i
- 1080p

### 2

- 2160p
- 24p

### 4

- 4320p
- 480i
- 480p

### 5

- 576i
- 576p

### 7

- 720p

### A

- CCIR System A
- A-MAC

### D cont.

- D2-MAC
- DVB-T

### E

- Effio

### G

- CCIR System G
- CCIR System H

### H

- High frame rate

### I

- CCIR System I
- IFrame (video format)
- Interlaced video
- IRE (unit)

### J

- Joint Level Interface Protocol

### L

### N cont.

- NTSC
- NTSC-C

### P

- PAL
- PAL region
- PAL-M
- PALplus

### S

- SECAM
- Short Play (VCR format)
- SMPTE 292M
- Sound-in-Syncs

### U

- Ultra high definition television

### V

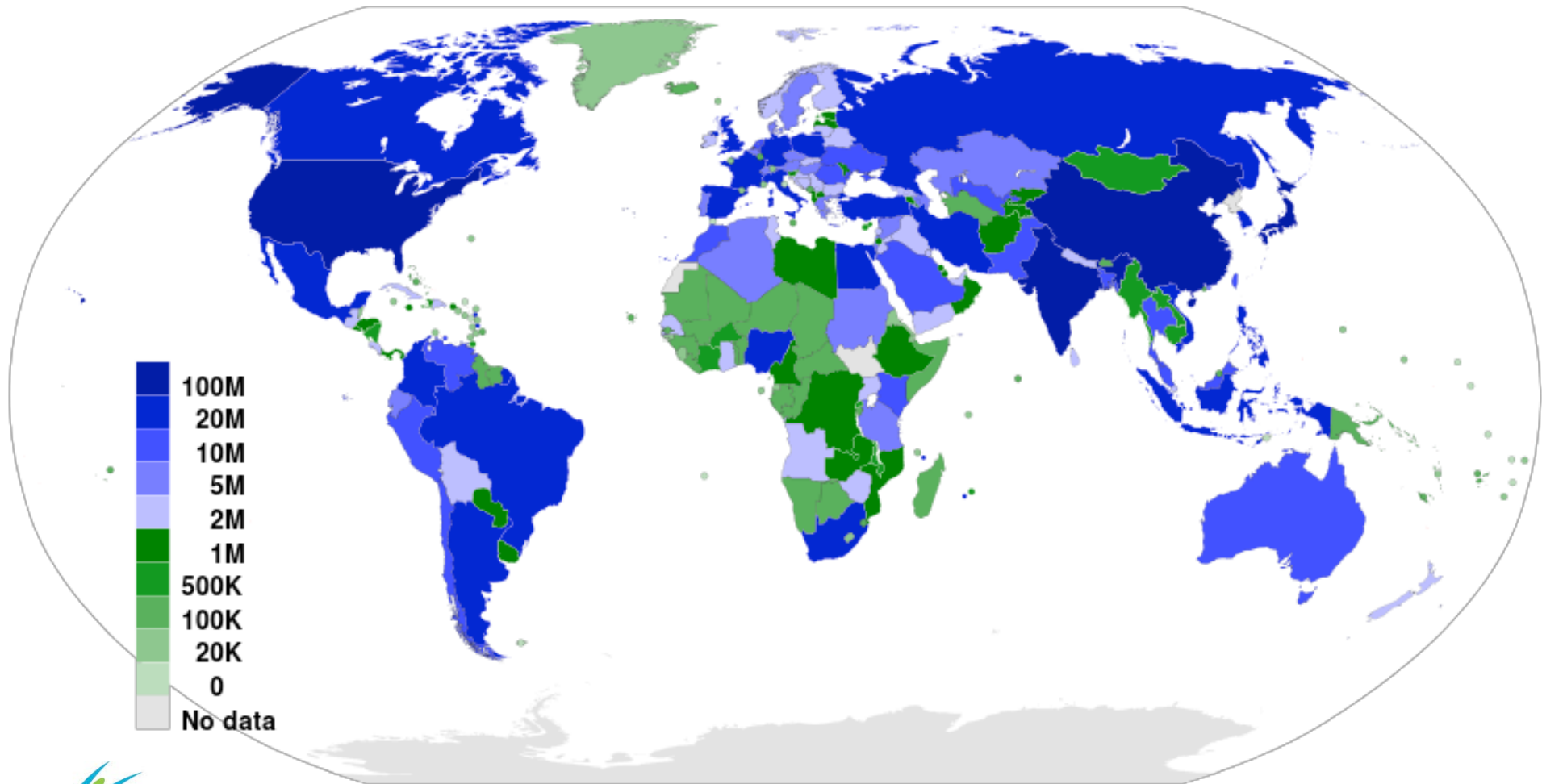
- VF bandwidth
- Video
- Video compression format

# And a few more locations

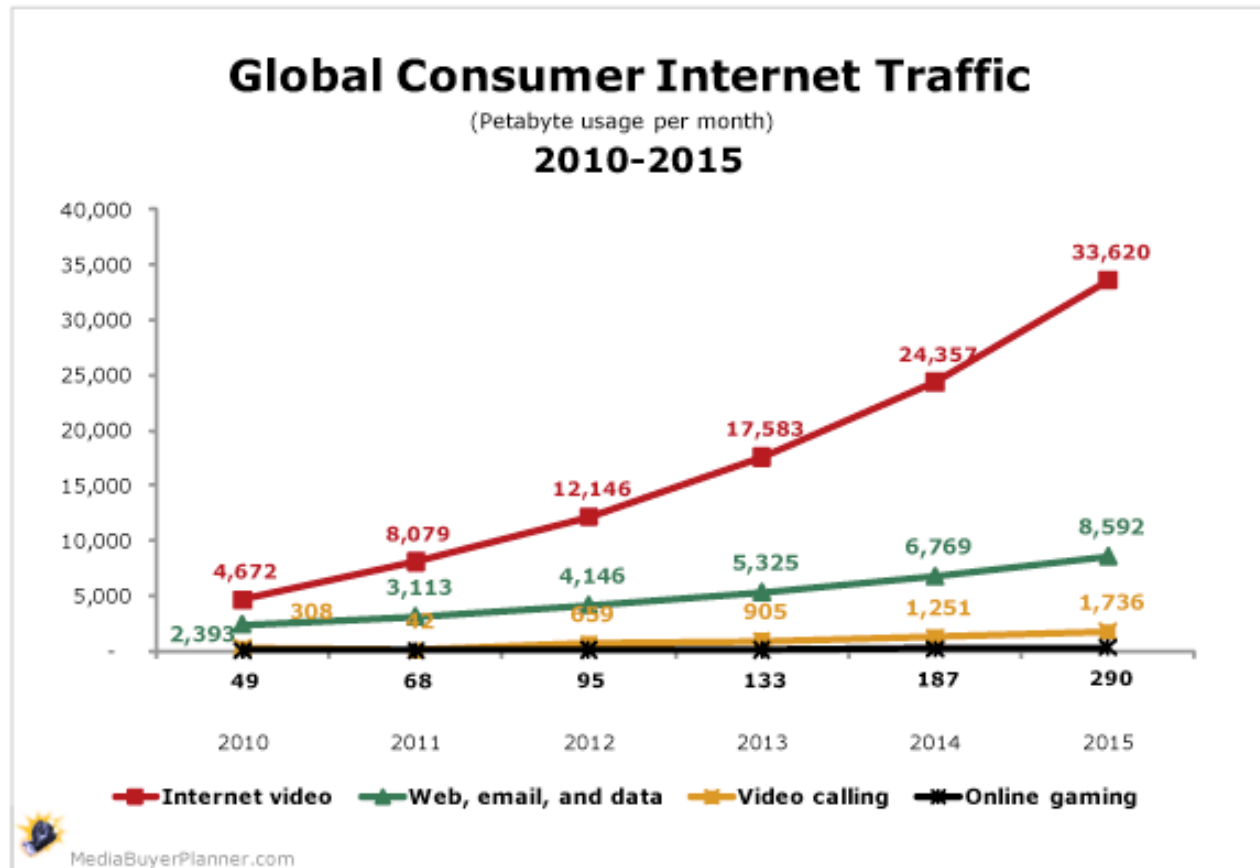




# And a few more people

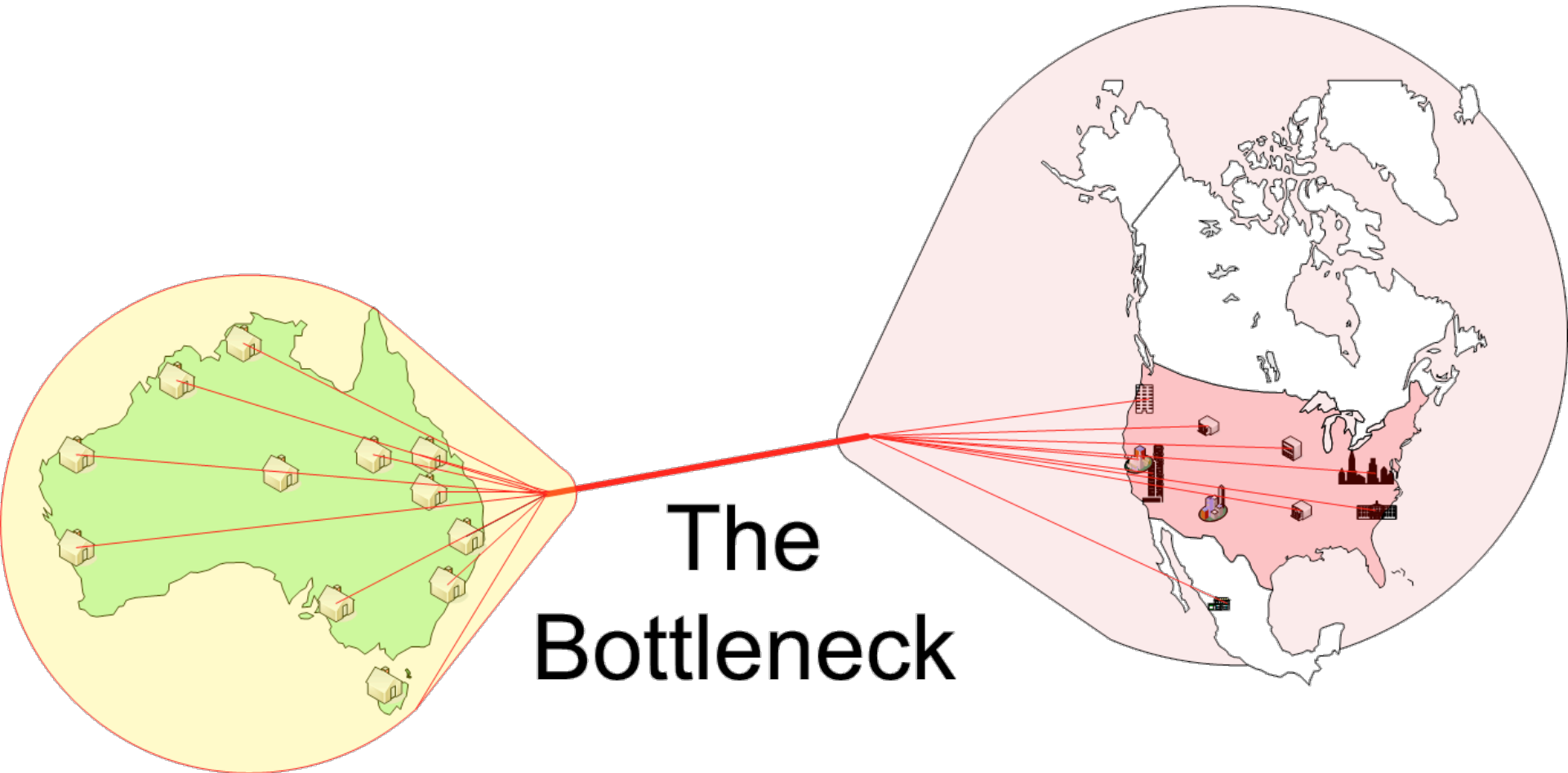


# And video really took off



Source: Cisco

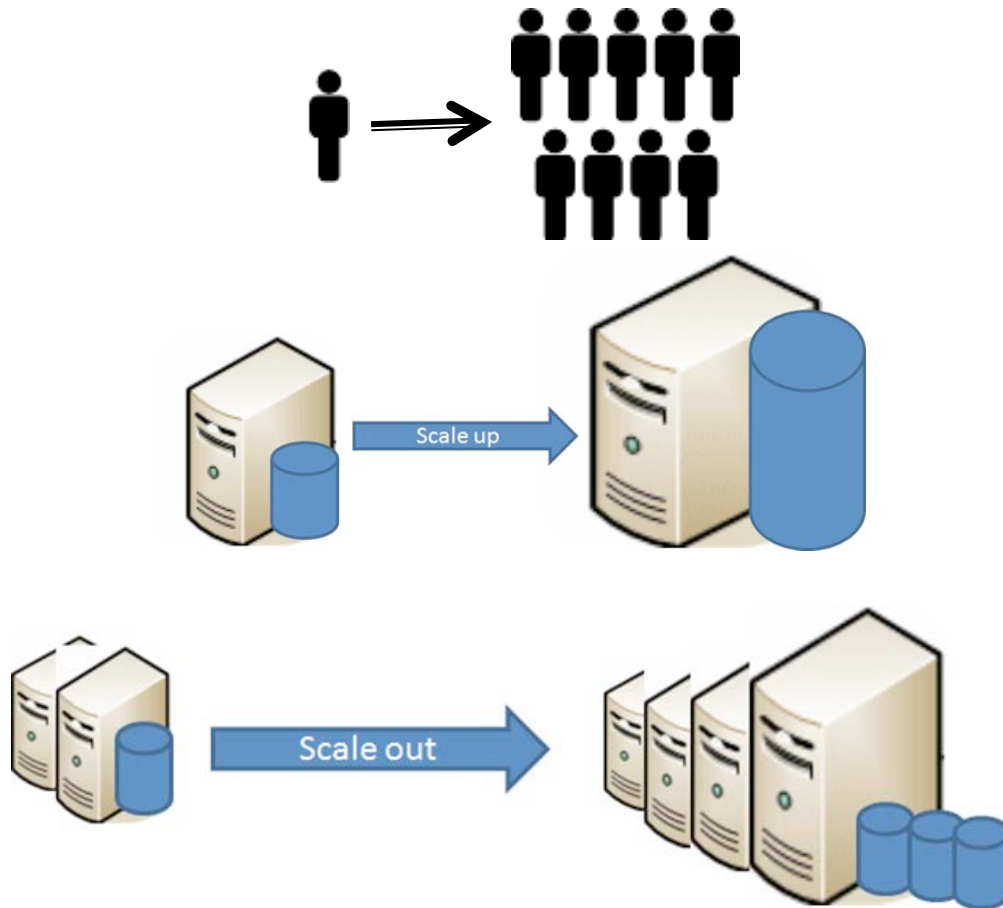
# Creating scale challenges



# Solved in part by CDNs



# Think horizontally



Rule #1:  
Scale Horizontally

# Beyond Playback: Discovery

---

# Welcome to the haystack

“It would take an individual over **5 million years** to watch the amount of video that will cross global IP networks **each month** in 2017.”

- Cisco Visual Networking Index: Forecast and Methodology, 2012–2017



# Don't be the needle

- Browse
- Search
- Recommend

# Browse

## Browse videos

### Editorial Picks

- Videos
- Trailers
- HD Trailer Gallery
- TV Episodes & Clips

### Browse All Videos By Type

- Full-Length Movies
- Full-Length TV Episodes
- Trailers
- Clips
- Indie Films and Shorts

## Full-length Movies

Below you'll find a list of full-length movies that you can watch right now on IMI our [featured content](#) for the latest TV episodes, popular clips, and trailers.

**All** | # | A | B | C | D | E | F | G | H | I | J  
| N | O | P | Q | R | S | T | U | V | W | X

10488 Results

#	F	P
1 Phone, 2 Phone, 3 Phone, 4 (2006)	Friends of Independence (2007)	P.O
1 Stoneybatter (2008)	Friends, and Love (2006)	P.S
1,000 Lux (2009)	Friendship (on a Painting by Jim Palmer) (2008)	P2 Pac

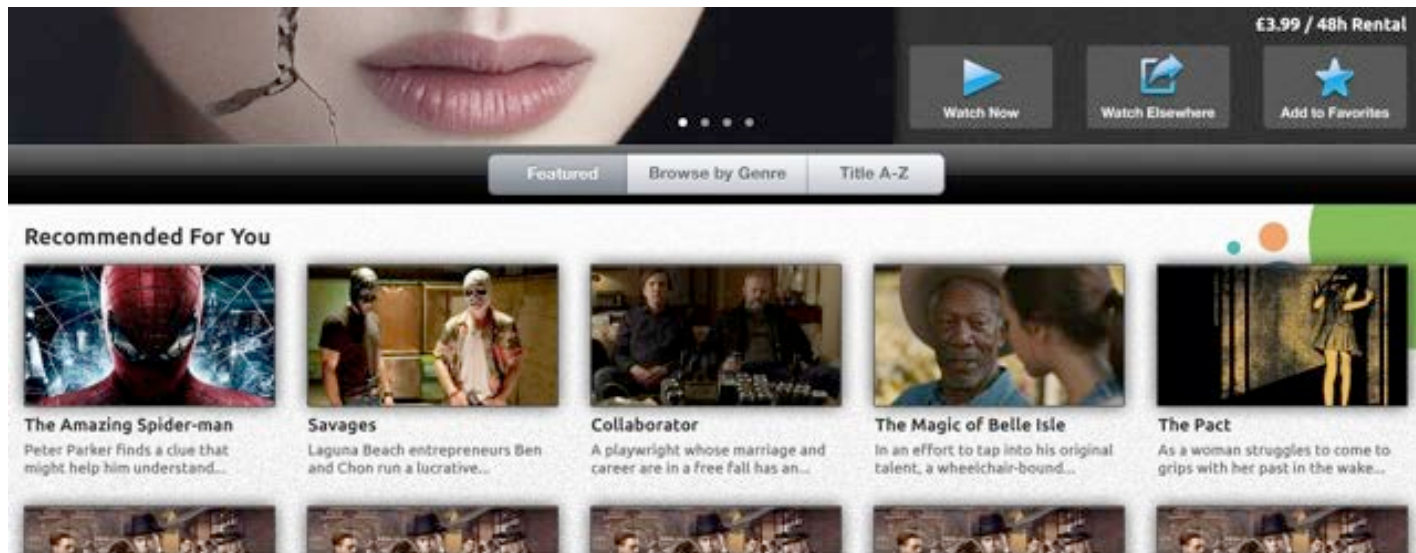
# Search



Google Search

I'm Feeling Lucky

# Recommend



The screenshot shows a video player interface. At the top, there is a close-up image of a person's lips. To the right of the image, the text "£3.99 / 48h Rental" is displayed. Below this, there are three buttons: "Watch Now" (with a play icon), "Watch Elsewhere" (with a share icon), and "Add to Favorites" (with a star icon). Below the buttons, there are three tabs: "Featured", "Browse by Genre", and "Title A-Z".

**Recommended For You**

- The Amazing Spider-man**  
Peter Parker finds a clue that might help him understand...
- Savages**  
Laguna Beach entrepreneurs Ben and Chon run a lucrative...
- Collaborator**  
A playwright whose marriage and career are in a free fall has an...
- The Magic of Belle Isle**  
In an effort to tap into his original talent, a wheelchair-bound...
- The Pact**  
As a woman struggles to come to grips with her past in the wake...

Below the recommended list, there is a row of five small, identical movie thumbnails showing a group of people in a room.

# You need descriptive metadata



# This is a video file



```
00000000 00 00 00 20 66 74 79 70 69 73 6f 6d 00 00 02 00
00000010 69 73 6f 6d 69 73 6f 32 61 76 63 31 6d 70 34 31
00000020 00 00 00 08 66 72 65 65 00 a6 f0 66 6d 64 61 74
00000030 00 00 02 9a 06 05 ff ff 96 dc 45 e9 bd e6 d9 48
00000040 b7 96 2c d8 20 d9 23 ee ef 78 32 36 34 20 2d 20
00000050 63 6f 72 65 20 31 31 34 20 72 31 39 31 33 20 35
00000060 66 64 33 64 63 65 20 2d 20 48 2e 32 36 34 2f 4d
00000070 50 45 47 2d 34 20 41 56 43 20 63 6f 64 65 63 20
00000080 2d 20 43 6f 70 79 6c 65 66 74 20 32 30 30 33 2d
00000090 32 30 31 31 20 2d 20 68 74 74 70 3a 2f 2f 77 77
000000a0 77 2e 76 69 64 65 6f 6c 61 6e 2e 6f 72 67 2f 78
000000b0 32 36 34 2e 68 74 6d 6c 20 2d 20 6f 70 74 69 6f
000000c0 6e 73 3a 20 63 61 62 61 63 3d 31 20 72 65 66 3d
000000d0 33 20 64 65 62 6c 6f 63 6b 3d 31 3a 30 3a 30 20
000000e0 61 6e 61 6c 79 73 65 3d 30 78 33 3a 30 78 31 31
000000f0 33 20 6d 65 3d 68 65 78 20 73 75 62 6d 65 3d 37
00001000 20 70 73 79 3d 31 20 70 73 79 5f 72 64 3d 31 2e
00001100 30 30 3a 30 2e 30 30 20 6d 69 78 65 64 5f 72 65
00001200 66 3d 31 20 6d 65 5f 72 61 6e 67 65 3d 31 36 20
00001300 63 68 72 6f 6d 61 5f 6d 65 3d 31 20 74 72 65 6c
00001400 6c 69 73 3d 31 20 38 78 38 64 63 74 3d 31 20 63
00001500 71 6d 3d 30 20 64 65 61 64 7a 6f 6e 65 3d 32 31
00001600 2c 31 31 20 66 61 73 74 5f 70 73 6b 69 70 3d 31
```

# This is descriptive metadata



- Title: Open Commission Meeting
- Date: December 12, 2013
- Room: TW-C305

# This is better



## Desperate Housewives

Television Series

★★★★☆ 7.2/10 - IMDb

★★★★★ 8.6/10 - TV.com

Desperate Housewives is an American television comedy-drama-mystery series created by Marc Cherry and produced by ABC Studios and Cherry Productions. It aired Sundays at 9 P.M. Eastern/8 P.M. Central, on ABC from October 3, 2004, until May 13, 2012. [Wikipedia](#)

**First episode:** October 3, 2004

**Final episode:** May 13, 2012

**Theme song:** Desperate Housewives Theme Song

### Episodes

Number	Episode	Air Date
S8, Ep23	<a href="#">Finishing the Hat</a>	May 13, 2012
S8, Ep22	<a href="#">Give Me the Blame</a>	May 13, 2012
S8, Ep21	<a href="#">The People Will Hear</a>	May 6, 2012
S8, Ep20	<a href="#">Lost My Power</a>	Apr 29, 2012
S8, Ep19	<a href="#">With So Little To Be Sure Of</a>	Apr 1, 2012

### Cast



**Eva Longoria**  
Gabrielle Solis



**Teri Hatcher**  
Susan Delfino



**Marcia Cross**  
Bree Van de Kamp



**Felicity Huffman**  
Lynette Scavo



**Nicollette Sheridan**  
Edie Britt



# Descriptive metadata

- The information humans need to understand what a video is without watching it.

Descriptive Metadata



Content



Rule #2:  
Enable Discovery

# Beyond Your Website

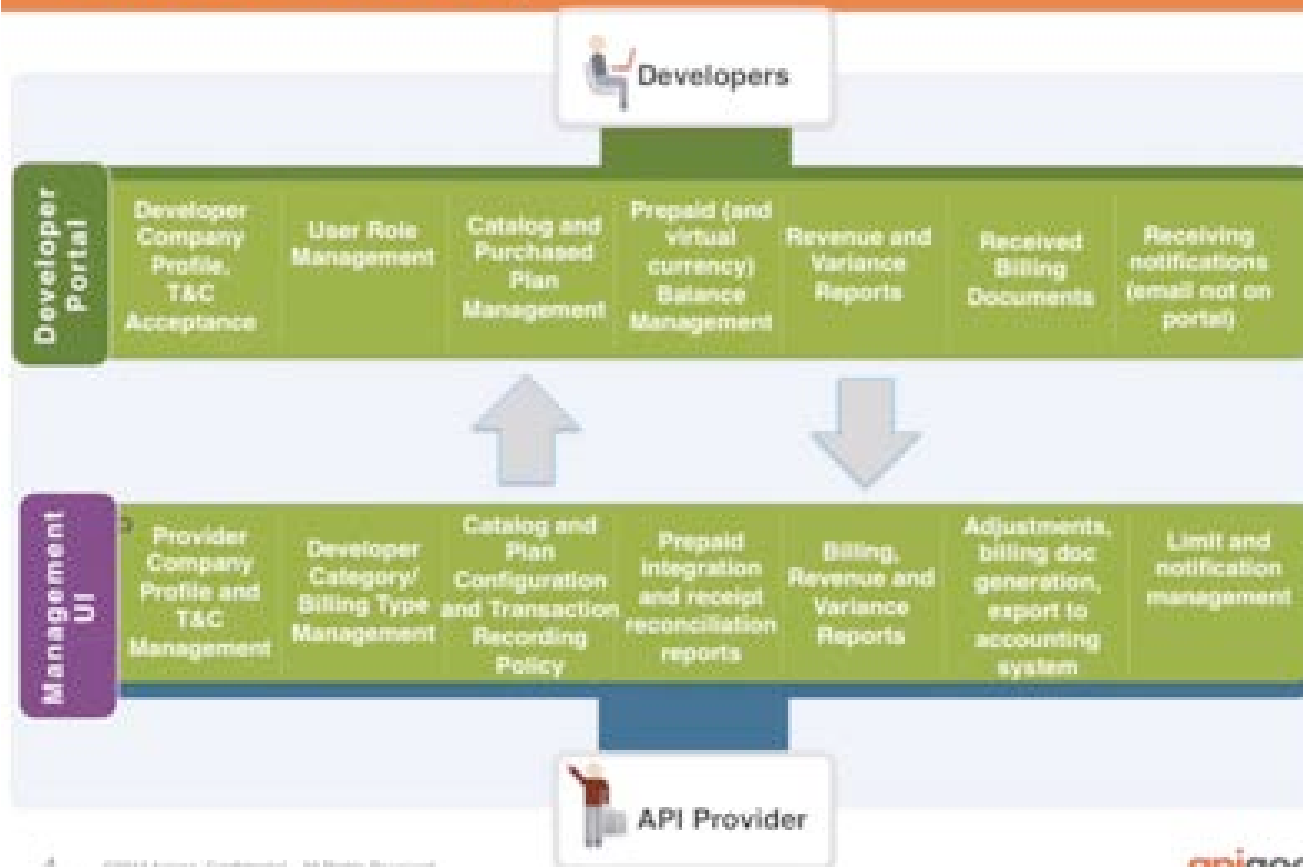
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# The cloud: More than scale



# Open APIs

## Overview of Functionality



# Syndication



Rule #3:  
Play Well With Others

# Thinking Operationally

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# Infrastructure As A Service

- AWS Reference Architectures**
- Amazon EC2
  - Amazon EC2 Spot
  - Auto Scaling
  - Elastic Load Balancing
  - Amazon Route 53
  - Amazon CloudFront
  - Amazon S3
  - Amazon RDS
  - Amazon SQS

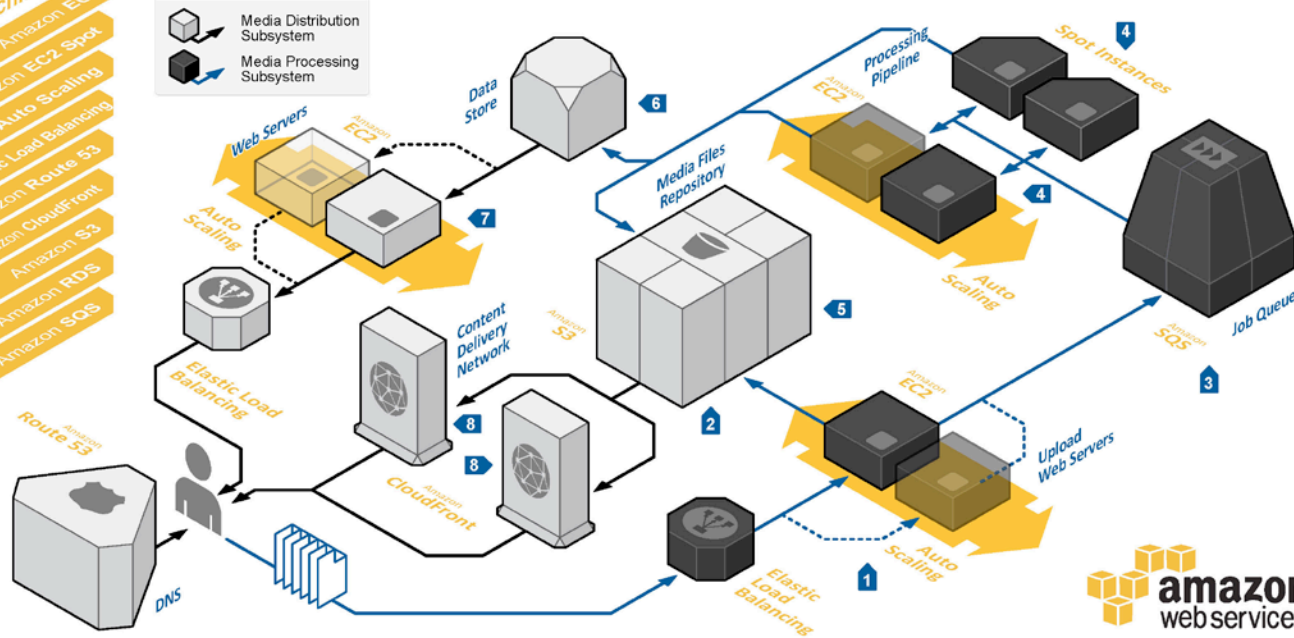
## MEDIA SHARING

Media sharing is one of the hottest markets on the Internet. Customers have a staggering appetite for placing photos and videos on social networking sites, and for sharing their media in custom online photo albums.

The growing popularity of media sharing means scaling problems for site owners, who face ever-increasing storage and bandwidth requirements and increased go-to-market pressure to deliver faster than the competition.

Since most businesses today have limited manpower, budget, and data center space, AWS offers a unique set of opportunities to compete and scale without having to invest in hardware, staff, or additional data center space. Utilizing AWS is not an all or nothing proposition. Depending on the project, different services can be used independently.

This diagram shows an example of a highly available, durable, and cost-effective media sharing and processing platform.



### System Overview

- Sharing content first involves uploading media files to the online service. In this configuration, an Elastic Load Balancer distributes incoming network traffic to upload servers, a dynamic fleet of Amazon Elastic Compute Cloud (Amazon EC2) instances. Amazon CloudWatch monitors these servers and an Auto Scaling group manages them, automatically scaling EC2 capacity up or down based on load. In this example, a separate endpoint to receive media uploads was created in order to off-load this task from the website's servers.
- Original uploaded files are stored in Amazon Simple Storage Service (Amazon S3), a highly available and durable storage service.
- To submit a new file to be processed, upload web servers push a message into an Amazon Simple Queue Service (Amazon SQS) queue. This queue acts as a communication pipeline between the file reception and file processing components.
- The processing pipeline is a dedicated group of Amazon EC2 instances used to execute any kind of post-processing task on the uploaded media files (video transcoding, image resizing, etc.). To automatically adjust the needed capacity, Auto Scaling manages this group. You can use Spot Instances to dynamically extend the capacity of the group and to significantly reduce the cost of file processing.
- Once processing is completed, Amazon S3 stores the output files. Original files can be stored with high durability. Processed files could use reduced redundancy.
- Media-related data can be put in a relational database like Amazon Relational Database Service (Amazon RDS) or in a key-value store like Amazon SimpleDB.
- A third fleet of EC2 instances is dedicated to host the website front-end of the media sharing service.
- Media files are distributed from Amazon S3 to the end user via Amazon CloudFront, a content delivery network. Amazon CloudFront offers low-latency delivery through a worldwide network of edge locations.

# Metadata Creation

http://search.everyzing.com/viewMedia.jsp?res=0&dedupe=1&col=en-all-public-ep&index=124&e=15 luckymauro I worked

**everyzing** TO FIND THE MEDIA YOU WANT, DONT JUST SEARCH FOR IT...ZING IT!

SEARCH:  Extreme Sports **ZING IT!**

AUDIO  VIDEO  BOTH

Sports News & Politics Lifestyle & Health 2008 Presidential Election Gaming Technology Business Food  
Youtube Videos Entertainment Finance Home Improvement Comedy Shows

**YouTube.com: luckymauro - AREA 51 understanding what's behind it. 4th part** Mar 19, 2008

enjoy



Key Terms: **"United States"** **"alien spacecraft"** **"UFO phenomenon"** **"civilian contractor"**

Full Text

▶ 0:00:04 Area 51 is only the best known secret base for the vast complex. They could council a lot of different things we don't know about it. But there's actually no fencing is that yet they know equals absolutely. It's simply marked by -- post every few hundred feet isn't it's easy to wonder process find this an easy to do and they're going to protect you know be right on you this -- a very harsh military borders place for tourists they have and military has never said there are no UFO's it's never directly denied any of the area 51 stories. It would have been so simple when these claims came out these proposed slate claims for the military to simply say. Look we have nothing there. It could take a few reporters to this area and show them nothing there military hasn't done the military is stop that has

Slashdot | del.icio.us | digg | StumbleUpon | Technorati

RSS XML [More from This Source](#)

# Content Management

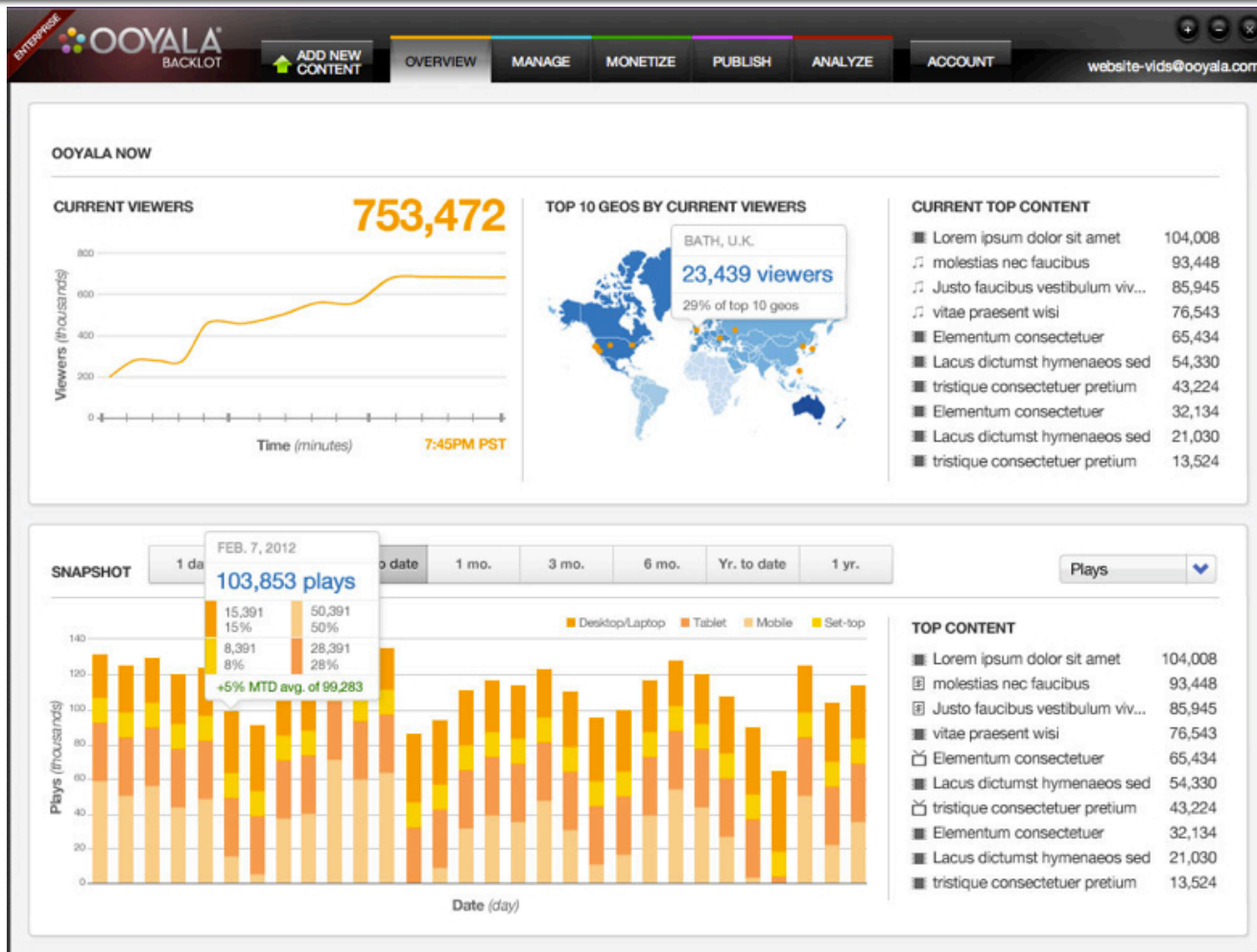
The screenshot displays the Ooyala Enterprise Content Management interface. The top navigation bar includes 'ADD NEW CONTENT', 'OVERVIEW', 'MANAGE', 'PUBLISH', 'ANALYZE', and 'ACCOUNT'. The main content area shows a table of video assets with columns for Description, Length, Size, Uploaded, and Status. A sidebar on the left lists various content types and sources. A video player is visible at the bottom, and an embed code editor is open on the right.

DESCRIPTION	LENGTH	SIZE	UPLOADED	STATUS
test	00:00:09	965 KB	Mon Aug 2 2010	LIVE
Jffjvgkqkvk	00:00:05	504 KB	Fri Aug 13 2010	LIVE
	0 KB	0 KB	Thu Oct 8 2009	LIVE
	00:04:10	94 MB	Mon Nov 30 2009	LIVE
	0 KB	0 KB	Fri Mar 12 2010	LIVE
CD Sound	0 KB	0 KB	Fri Mar 12 2010	LIVE
Weeks_Spielberg.mov	00:02:38	105 MB	Wed Jun 23 2010	LIVE
009-test-short.mpg	00:00:21	15 MB	Fri Jun 25 2010	LIVE
Testing	00:02:28	399 MB	Mon Nov 30 2009	LIVE
Alley Cat - April's Pet	00:00:53	6 MB	Tue Mar 24 2009	LIVE
Proudly presenting the Webkinz Alley Cat -- April's P	00:02:46	N/A	Tue Aug 31 2010	LIVE
on Magic Carpet.MC	00:04:03	165 MB	Sat Nov 21 2009	LIVE
o.flv	00:03:58	26 MB	Wed Feb 3 2010	LIVE
to the Doctor!	00:08:23	N/A	Tue Aug 31 2010	LIVE

The embed code editor shows the following HTML code:

```
<script
src="http://player.ooyala.com/player.js?width=640&h
eight=480&embedCode=pwcnBvMTmQ6JXXQ4Q0N
MRmcOfB epXXw"></script><noscript><object
classid="clsid:D27CDB6E-AE6D-11cf-96B8-
444553540000" id="ooyalaPlayer_3j3a1_gd2ydum"
width="640" height="480"
codebase="http://fpdownload.macromedia.com/get/fl
ashplayer/current/swflash.cab"><param
name="movie"
```

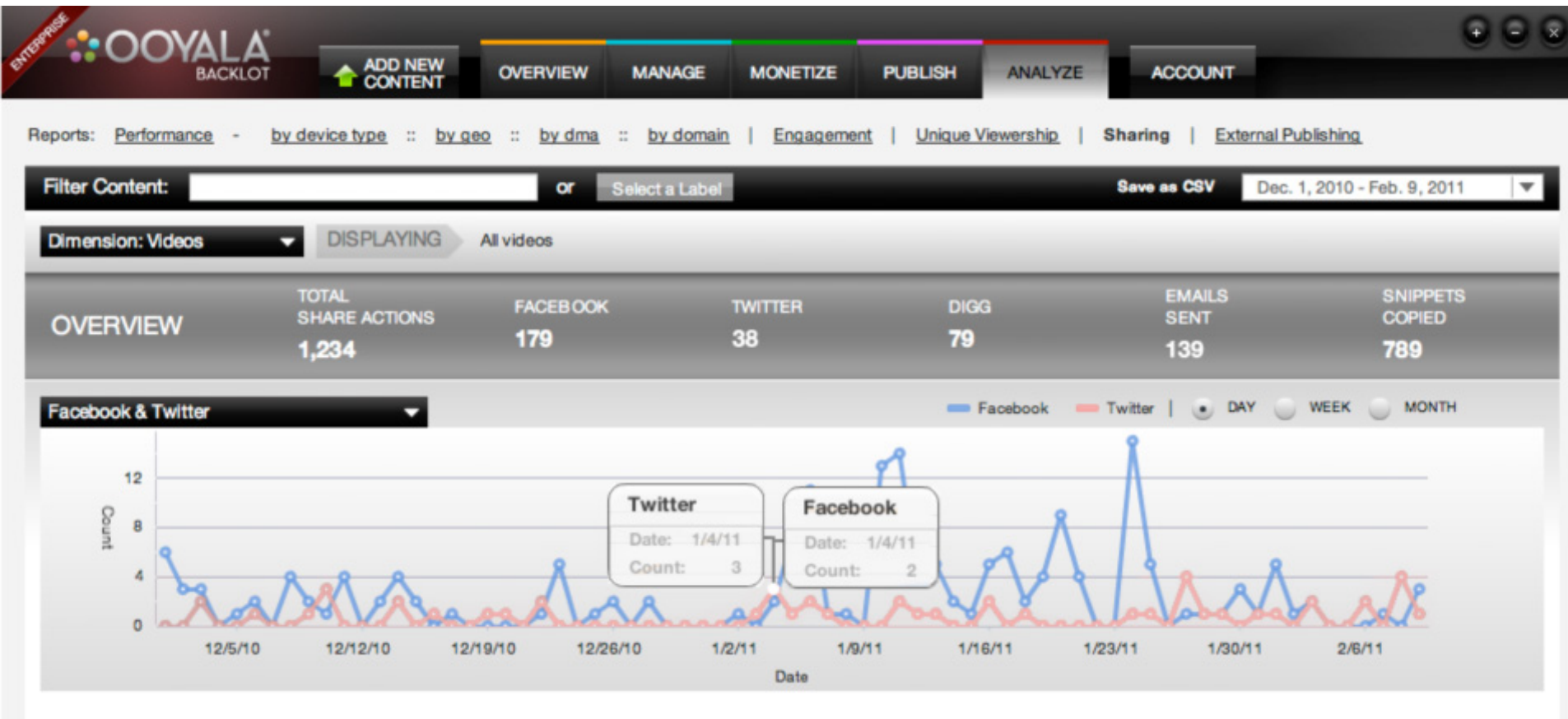
# Analytics...



# Analytics...



# Analytics...



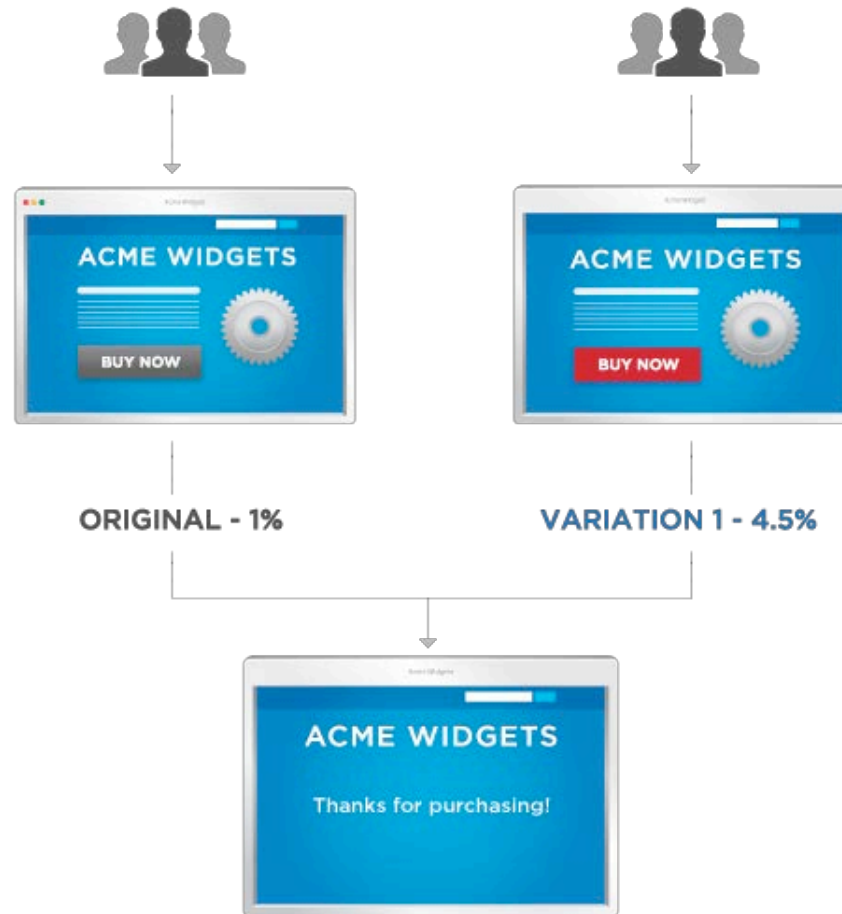
# And Social Analytics...



Adobe® Social  
Social marketing, simplified



# Evolution





Rule #4:  
Don't Reinvent the Wheel

**Think Bigger**

---

# Participation and Collaboration

My Administration is committed to creating an unprecedented level of openness in Government. We will work together to ensure the public trust and establish a system of transparency, public participation, and collaboration. Openness will strengthen our democracy and promote efficiency and effectiveness in Government.

– PRESIDENT OBAMA, 01/21/09

# Interact

**LIVE DISCUSSION**

Join the conversation. Watch live on Showtime and share reactions instantly, vote in polls and make predictions.  
[Connect on Facebook](#) to see friends' immediate feedback.

You are currently synced with **Showtime East**.  
Not right? Change to Showtime [West](#) in [Settings](#).

**SHO** You just reacted to Woods, Season 7, Episode 12  
**EXCITED**

**COMMENT ON WHAT'S HAPPENING NOW IN THE EPISODE.**

I AM... HAPPY SHOCKED SAD ANGRY

LIVE DISCUSSION  
Woods, Season 7, Episode 12

<b>INSTANT REACTIONS</b> <b>4 FOR THIS EPISODE</b> ADD ONE NOW	<b>TAKE THIS EPISODE POLL</b> <b>NANCY VS. SALLY WHO SHOULD WIN?</b> MAKE A SELECTION	<b>PREDICT THIS EPISODE</b> <b>WILL EN BIR SILEX HER CLIENTS?</b> SEE THE RESULTS	<b>TAKE THIS EPISODE POLL</b> <b>WHOSE SON SHOULD ANDY TAKE?</b> MAKE A SELECTION
--	---	---	---

**SHO** SEASON 7, EPISODE 12

# Cross-Promote

*\* Digital insertion products*

*\* Traffic entry and billing*

*\* Video Production*

*\* Local, regional, and national ad sales*



Rule #5:  
Be Engaging

# GOVERNMENT VIDEO IN THE CLOUD

**Thank You**

**Adam Powers**

adam.powers@v2solutions.com



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