HEAD IN THE CLOUD
“Kinda like a cloud I was up way up in the sky. And I was feeling some feelings you wouldn't believe.”
-Trent Reznor, Allegheny Alum
Josh Tysiachney

@joshtys
Enrollment Video

35,000+ People

Your challenge is get your video to everyone quickly and economically
Expand Your Infrastructure!
Buy new hardware, software costs, networking, data center, power, backups, cooling, diesel generators, trained staff, 24/7/365 99.999% support and uptime, on-call rotations.
Look to the Cloud!
Pay for only the bandwidth and server resources you need. When your push is done, turn it off and stop paying.
The Cloud Has Many Names

Grid Computing
Distributed Computing
Utility Computing
Hardware as a Service
Software as a Service
Use external infrastructure to solve internal technology issues
Pay for only what you use

It can cost less to take advantage of existing infrastructure than building your own from scratch, especially for short term projects
Why Now?
The Current Way is Hard
ROI Baby!

The cost is way down and will only go lower

Often we overspend for tech and don’t end up using the metal to its potential

Already seeing results from apps like Salesforce.com

The little guys can play with the big boys
The Big Players Are In The Game

Sun Microsystems

amazon.com

Google

Dell
Lots of Smaller Players Too

- flexiscale™
- nirvanix™
- GoGrid beta
- MOSSO the hosting system
- Joyent
- (mediatemple)
It’s Big Business

By 2011 the volume of cloud computing market opportunity would amount to $160bn, including $95bn in business and productivity apps (email, office, CRM, etc.) and $65bn in online advertising.

- Merrill Lynch May 2008 Investor Note
You may already be using it
You may already be using it
Welcome to Amazon Web Services

Amazon Web Services provides developers with direct access to Amazon’s robust technology platform. Build on Amazon’s suite of web services to enable and enhance your applications. We innovate for you, so that you can innovate for your customers. Browse developer innovations in our Solutions Catalog to see the possibilities!

What's New?

Cloud Architectures White Paper (PDF)  (July 16, 2008)
In this white paper, AWS Technical Evangelist Jinshu Varia outlines the benefits of building architectures in the cloud, documents a Hadoop-run application (GrepTheWeb) with architecture diagrams, and discovers best practices for using Amazon S3, EC2, SQS, and SimpleDB. View the two-part HTML version: Cloud Architectures and AWS Best Practices.

Using Amazon SQS to Scale EC2 Applications  (July 1, 2008)
The Amazon SQS team have released several new resources to showcase the value of using their message queuing service in the cloud with Amazon EC2-powered applications. This white paper outlines high-level benefits of incorporating asynchronous message queuing with Amazon EC2; a new developer article focuses on implementing auto-scaling with Amazon SQS; and a sample application to get you started.

JBoss on Amazon EC2  (June 17, 2008)
Red Hat has announced their second offering on Amazon EC2 - JBoss Enterprise Application Platform. Now available on EC2’s flexible, pay-as-you-go computing
Elastic Computing Cloud

- Servers on Demand
- Pay only for what you use
- Small servers to monster servers
- Start at $0.10/hr + bandwidth
Elastic Computing Cloud

- Control Your Servers
  - Command Line
  - Stand-alone program
    - Jollat
  - Browser Plugin
    - EC2Fox
  - 3rd Party Platform
    - RightScale
4TB of TIFF files
11 million stories that needed to be organized, scaled and transcoded into PDF
Used Amazon EC2 and Hadoop
Created 11 million PDFs in 24 hours using 100 virtual servers

$240 + bandwidth
Simple Storage Service (S3)

- Storage and Bandwidth Solution
- Only pay for what you use
- USA and EU Data Centers
- Seamless for your users
Accessing S3

- From your web application
  - REST and SOAP
- Browser Plug-Ins
  - S3Fox
- FTP Programs
  - Transmit, Interarchy
SmugMug

- SmugMug is a photo and video sharing and hosting site
- Product demand meant adding infrastructure, which costs $$$
- Moved image storage to Amazon S3
- In the first year, they saved $1 million on hardware alone (and saved over $100k in taxes by not buying hard drives)
- Source: [http://is.gd/jqo](http://is.gd/jqo)
How do we use this stuff in higher ed?
Marketing Efforts
Marketing Efforts

- Allegheny moved all their podcasts and videos to S3 in 2007
- Served admissions videos, political videos for partnership with NY Times
- Online Tour Media

<table>
<thead>
<tr>
<th>Month</th>
<th>Bandwidth</th>
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<tbody>
<tr>
<td>Jan 2007</td>
<td>12.89 GB</td>
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<tr>
<td>Feb 2007</td>
<td>21.35 GB</td>
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<tr>
<td>Mar 2007</td>
<td>21.95 GB</td>
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<td>Apr 2007</td>
<td>20.98 GB</td>
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<td>May 2007</td>
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<td>Jun 2007</td>
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<td>Jul 2007</td>
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<td>Aug 2007</td>
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<td>Sep 2007</td>
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<td>Oct 2007</td>
<td>6.56 GB</td>
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<td>Nov 2007</td>
<td>2.47 GB</td>
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<tr>
<td>Dec 2007</td>
<td>8.09 GB</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>207.90 GB</strong></td>
</tr>
</tbody>
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Publicity--Good and Bad
Back-Ups

Enterprise storage solution
Dell AX150 Fibre Channel Array
9TB of storage, $14,158

Storing 10.5TB at S3 costs $392.11 per month including moving all the data to S3

In this space:
IronMountain, EMC
School Cycles

Registration Period

Raw Power for Academic Uses
- Library
- Computer Science
- Humanities
Email Outsourcing

• Google and Microsoft are in this space
• Size doesn’t matter
  – Arizona State
  – University of Texas San Antonio
  – Hofstra University
  – Central Piedmont Community College
Crisis Communications
• Over 24 hours, they served **432GB** of traffic
• Provisioned Extra Servers
Scalable Emergency Site

4 Large Servers
(8 cores, 15GB RAM, 64-bit each)

432 GB of Bandwidth

Computing Costs: $90
Bandwidth Costs:  $85

$175
Some Downsides

If your provider goes down, so will you.

Some services don’t offer SLAs and Uptime Guarantees

Data security could be a possible issue
What Can You Do Today?
Learn More About the Cloud

http://aws.amazon.com
http://code.google.com/appengine
http://del.icio.us/awsbuzz
Peep Our Slides

www.highedwebtech.com/cloud

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