There Are Clouds In Your Future

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My Goals For This Talk

- Introduce you to cloud computing

- Show you what others are already doing

- Alert you to the possibilities

- Get you to start thinking about it

- Start some conversations

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Introduction

- Based in Seattle, Washington, USA
- Lifetime technologist
- Career path:
  - Startups
  - Microsoft
  - Consultant to VCs and startups
  - Amazon Web Services
    - Senior Developer
    - Web Services Evangelist
    - Technology Strategist

What is Cloud Computing?

- New model for resource delivery
- IaaS - Infrastructure As A Service
- Programmable data center
- Over the internet
- Flexible
- On-demand
- Pay-as-you-go

What Problems Does It Solve?

- Reduce IT friction:
  - Contract negotiations
  - Bandwidth management
  - Power/cooling management
  - Purchasing decisions
  - Physical growth
  - Disaster recovery

- Fix broken economic model:
  - Capital expenses become operating expenses
  - Costs track actual usage
  - No more up-front provisioning
  - Address the "Prediction Problem"

Predictions Cost Money
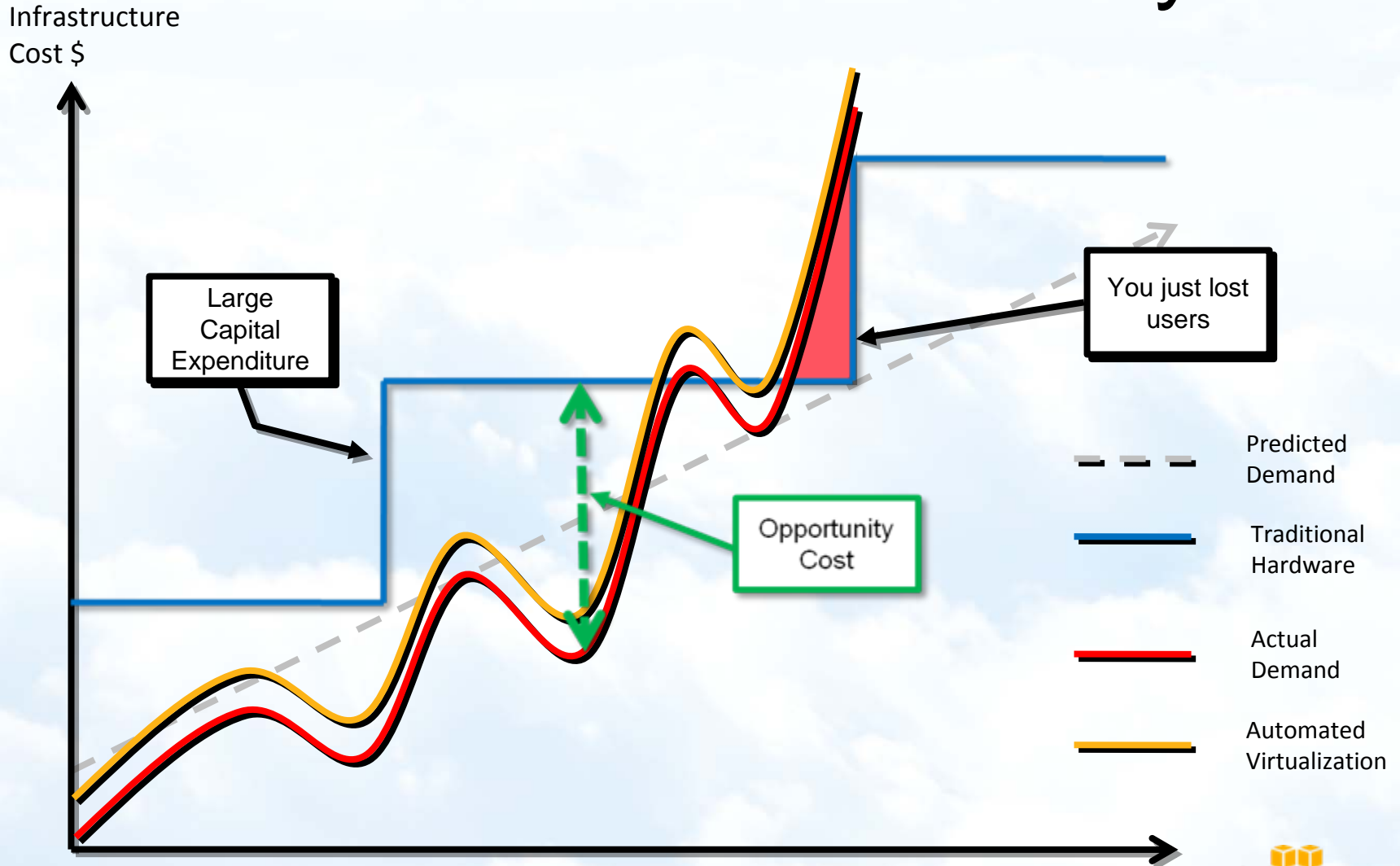
Amazon Has Three Parts

Amazon Web Services

- AWS - Amazon Web Services
  - Thought leader in cloud computing space
  - Scalable
  - Cost-effective
  - Reliable
  - Secure
  - Large -scale
- Long-term effort – Now 4 years old
- Third major business

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Amazon Web Services are Building Blocks

Infrastructure As a Service

- Amazon Simple Storage Service
- Amazon Elastic Compute Cloud
- Amazon Simple Queue Service
- Amazon SimpleDB
- Amazon CloudFront

People As a Service

- Amazon Mechanical Turk

Payments As a Service

- Amazon Flexible Payments Service
- Amazon DevPay

Fulfillment and Associates

- Amazon Fulfillment Web Service
- Amazon Associates Web Service

Cloud Computing Success Stories

- Batch Processing – New York Times

- Rapid Scaling – Animoto

- Agility – Washington Post

- Scale - SmugMug

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The New York Times

Monday, March 16, 2009

"All the News
That Was Fit to Print"

Welcome to
Times Machine

Browse 70 years of New York Times archives

🔗 SHARE | 🖨 PRINT | ✉ E-MAIL

1850s
1860s
1870s
1880s
1890s
1900s
1910s
1920s

Welcome. TimesMachine can take you back to any issue from Volume 1, Number 1 of The New-York Daily Times, on September 18, 1851, through The New York Times of December 30, 1922. Choose a date in history and flip electronically through the pages, displayed with their original look and feel.
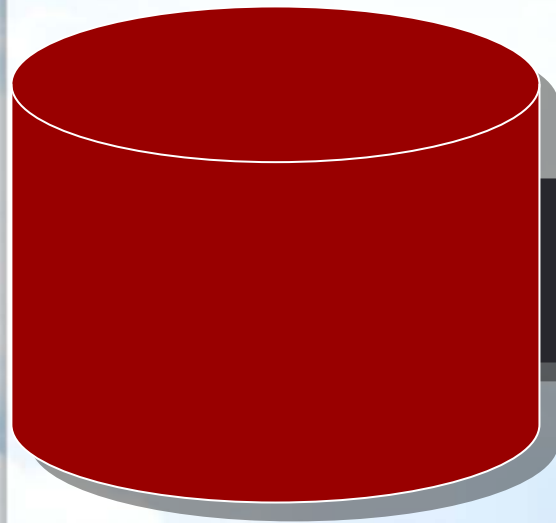
TUESDAY
APRIL 16, 1912
The Titanic Sinks

MONDAY
NOVEMBER 11, 1918
World War I Ends

TUESDAY
MARCH 16, 1909
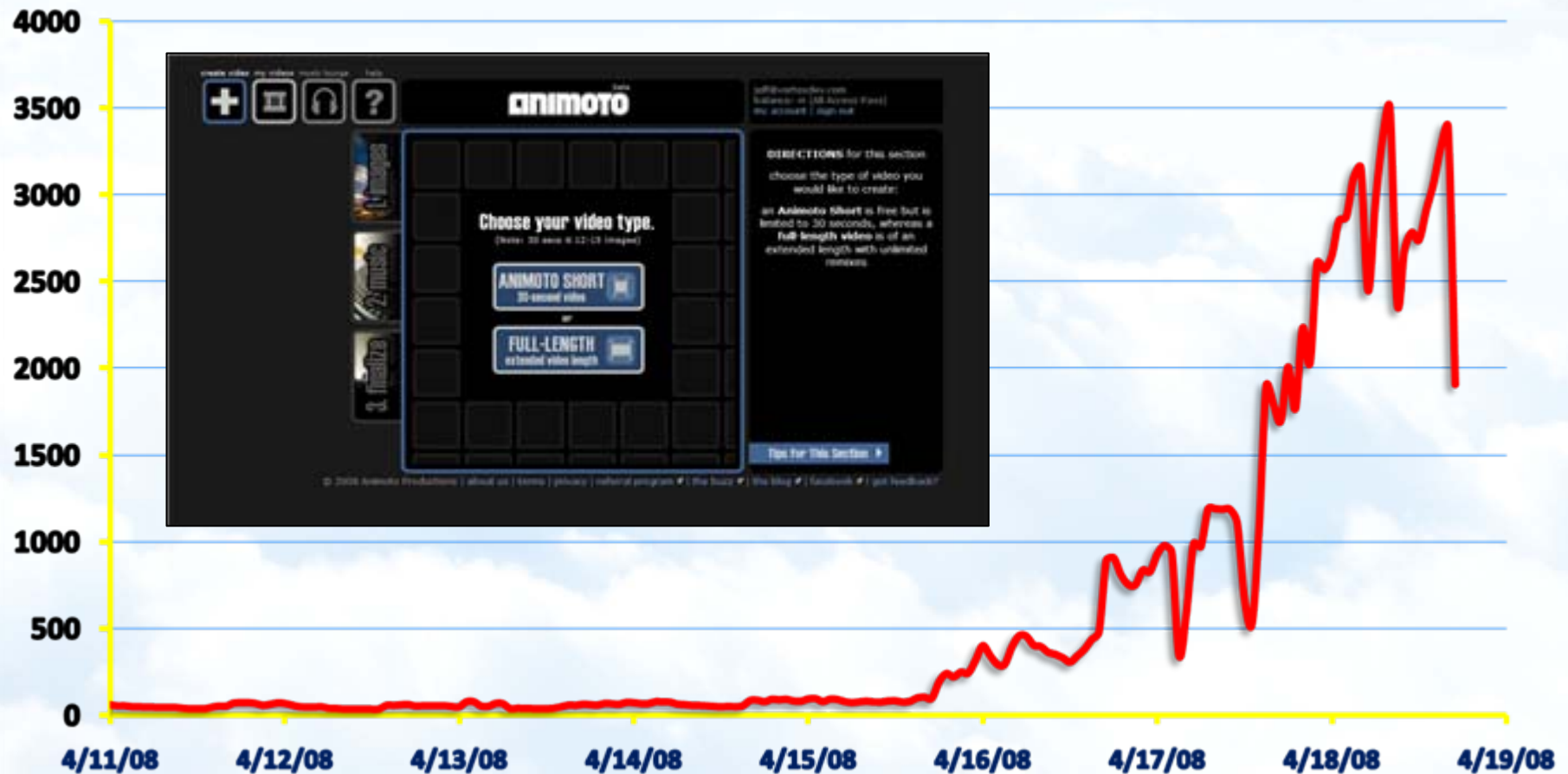*100 Years Ago Today*

50 Servers to 3500 Servers in 3 Days

The Washington Post

Clinton's Schedule   Hillary Clinton's activities as First Lady, 1993-2001

The William J. Clinton Presidential Library on Wednesday, March 19, released more than 11,000 pages of former first lady Hillary Rodham Clinton's official schedule during her husband's two terms in the White House. The records offer the most comprehensive public record to date of her daily activities throughout President Clinton's eight years in office, including private meetings, public speeches, social engagements and trips.

The records were released in response to Freedom of Information requests filed by a half-dozen journalists and organizations, including Judicial Watch, the watchdog group that spent much of the Clinton years probing various controversies and scandals.

SEARCH CLINTON'S SCHEDULE

Enter word(s): boston   [Search]

Disclaimer: This data was machine-generated, and it represents a rough searchable transcription of original PDF files that were released on March 19. Because the original documents were low-quality PDF files, the search results here should not be treated as 100 percent inclusive; individual results should be manually verified with the original PDF files.

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The Washington Post

- Hillary Clinton's public record about to be released

- How to process 17K page PDF?

- Developer suggests EC2

- 12 hour development time

- 200 instance EC2 job

- 9 hours to OCR and index

- First to market

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SmugMug 😀
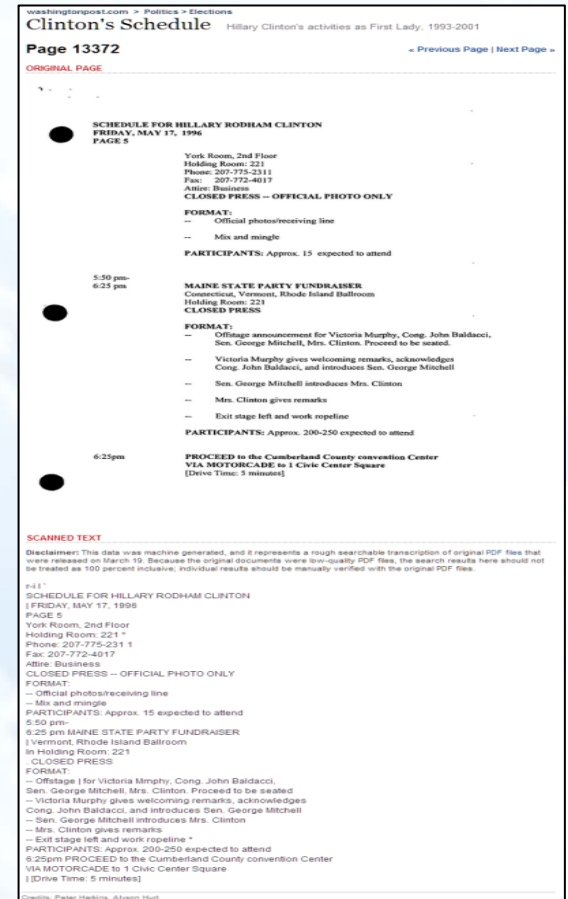
- Consumer / Professional photo storage
- Family business
- No venture capital
- Moved to Amazon S3
- Saved $1MM in first year of operation
- Storing about 1 PetaByte (10^{15}) of data

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Amazon Elastic Compute Cloud (Amazon EC2)

- Resizable compute capacity in the cloud
  - Boot Linux or Windows server instances in minutes
  - Scale capacity, up or down, as requirements change
  - Open source and commercial application stacks
- Full administrator access to a virtual machine
- Pay-as-you-go:
  - CPU hour: - $0.10 - $0.80
  - Bandwidth: $0.10/GB inbound, $0.17/GB outbound
  - Persistent disk storage: $0.10/GB/month
- AWS Management Console

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Amazon Simple Storage Service (Amazon S3)

- Highly scalable data storage in-the-cloud
- Programmatic access via web services API
- Highly available and durable
- Pay-as-you-go:
  - Storage: $0.15 / GB / month, ($0.12 @ 500TB)
- Data Transfer:
  - Inbound to cloud $0.10 / GB
  - Outbound: $0.17 / GB, ($0.10/GB @ 150 TB)
- Requests: nominal charges

AWS Public Data Sets

Public Data Sets on AWS

Federal Contracts from the Federal Procurement Data Center (USASpending.gov)

🖨 Printer Friendly ▪ Save to del.icio.us

A data dump of all federal contracts from the Federal Procurement Data Center found at USASpending.gov.

Submitted By:	Santiago@AWS
US Snapshot ID (Linux/Unix):	snap-e91fec80
Size:	180GB
Creation Date:	04/24/2009
Last Updated:	04/24/2009
License:	Other
Source:	USASpending.gov

Browse by Category

📁 **By Category**
- 📁 **Biology**
- 📁 **Chemistry**
- 📁 **Economics**
- 📁 **Encyclopedic**
- 📁 **Geographic**
- 📁 **Mathematics**

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Reliability, Security & Certification

- SLAs for availability
- Managed by Amazon NOC

- Default deny-all firewall
- Network security groups

- Certifications:
  - SOX
  - SAS 70 Type II (underway)

- White papers available:
  - Overview of Security Processes
  - Creating HIPAA-Compliant Apps

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Amazon Web Services:
Overview of Security Processes

September 2008
(Please consult http://aws.amazon.com/ for the latest version of this paper)

Amazon Web Services (AWS) delivers a highly scalable cloud computing platform with high availability and dependability, and the flexibility to enable customers to build a wide range of applications. The issues of end-to-end security and end-to-end privacy within the cloud computing world are more sophisticated than within a single data center not facing the Internet. Ensuring the confidentiality, integrity, and availability of customer's systems and data is of the utmost importance to AWS, as is maintaining trust and confidence. This document is intended to answer customer questions such as "How does AWS help me ensure my data is secure?" Specifically, AWS physical and operational security processes are described for network and infrastructure under AWS' management, as well as service-specific security implementations.

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Overview	**Amazon EC2**	Amazon Elastic MapReduce

Navigation

Region: 🇺🇸 US-East ▾

> **EC2 Dashboard**

IMAGES & INSTANCES

> **Instances**

> **AMIs**

> **Bundle Tasks**

ELASTIC BLOCK STORE

> **Volumes**

> **Snapshots**

CONFIGURATION

> **Elastic IPs**

> **Key Pairs**

> **Security Groups**

My Instances

[Launch Instance] [Reboot] [Terminate] [Connect] [Output] [More Actions ▾] [Show/Hide] [Refresh] [Help]

Viewing: [All Instances ▾] [   ] ⏮ ◀ 1 to 1 of 1 Instances ▶ ⏭

	Instance	AMI ID	Security Groups	Type	Status	Public DNS	Key Pa
☑	🖥 i-aaba69c3	ami-2b5fba42	default, ssh_private	m1.small	🟢 running	ec2-75-101-154-199.compute-	gsg-key

1 EC2 Instance selected

🖥 **Instance:**   i-aaba69c3

AMI ID: ami-2b5fba42   **Zone:**   us-east-1a

Security Groups: default,ssh_private   **Type:**   m1.small

Status: running   **Owner:**   889279108296

Reservation: r-f1c90698   **Ramdisk ID:**   ari-a51cf9cc

Platform: -   **Key Pair Name:**   gsg-keypair

Kernel ID: aki-a71cf9ce   **AMI Launch Index:** 0

Elastic IP: -

Public DNS: ec2-75-101-154-199.compute-1.amazonaws.com

Private DNS: domU-12-31-38-00-A0-01.compute-1.internal

Launch Time: 2008-07-13 11:44 GMT+0800

State Transition Reason: -

Overview | Amazon EC2 | Amazon Elastic MapReduce

Navigation

Region: 🇺🇸 US-East ▼

> EC2 Dashboard

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EBS Volumes

Create Volume | Delete | Attach Volume | Detach Volume | Create Snapshot | Show/Hide | Refresh | Help

Viewing: All Volumes ▼ [   ] |◁ ◁ No EBS Volumes ▷ ▷|

Create Volume   Cancel ☒

Size: [500] [GiB ▼]

Availability Zone: [us-east-1a ▼]

Snapshot: [No Snapshot ▼]

-or enter snapshot id-

[   ]

[Create]

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Seattle Winter 2008

The WSDOT Blog
From the Washington State Department of Transportation

Web site
We reached 5.8 million page views yesterday. A new record for our site. Unfortunately we are experiencing internal network issues this morning. Pages may be slow to load or may not come up at all.

December 18, 2008...

1 p.m. update

So here is what we know so far. Our Web site is getting slammed with traffic and due to technical challenges are hearing that it has been difficult to access. We put a text page up on our homepage about half an hour ago so that you can get at least the basics of what is going on. Here is the rundown:
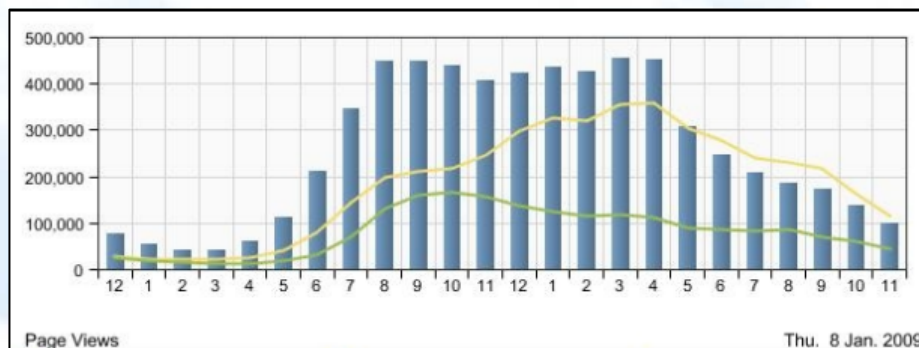
Washington State
Department of Transportation
WSDOT 2009

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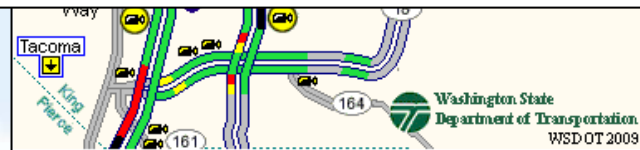
WSDOT Traffic (Page Views)
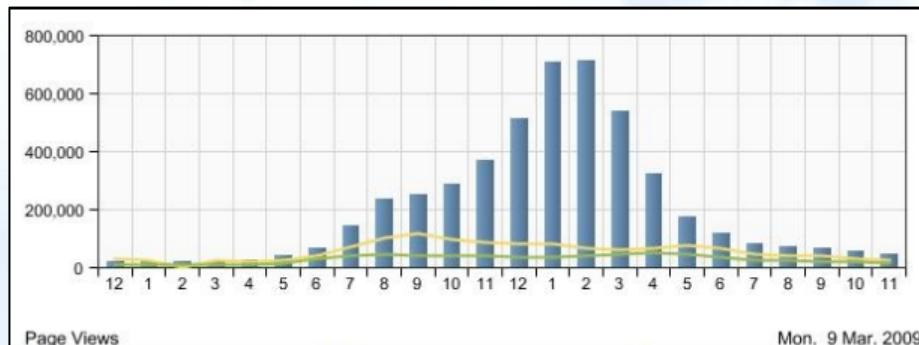
Normal Day:
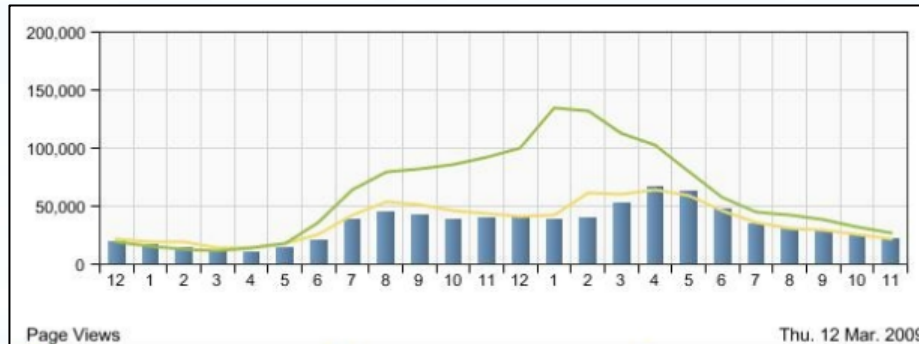
January Snow:

March Snow:

Selected Day

Previous Day

1 Week Prior

Challenges

- Emergency operating conditions
- Traffic 10-20x normal
  - Hard to simulate in advance
  - Expensive to provision
  - Stresses architecture in new ways
- Multiple bottlenecks:
  - Server
  - Connection
  - ISP issues

How The Cloud Helps

- Invest Up Front:
  - Architecture
  - Simulation
  - Stress testing
- Pay As You Go:
  - Servers
  - Bandwidth
  - Storage

BrowserMob
On-demand, low-cost load testing with real browsers

Using Cl[...]
simulatin[...]
said.

Home > Your Account > Account Activity

Welcome, Jeff @ AWS | Sign Out
Account Number 8892-7910-8296

Account Activity

View Previous Statement

Summary of This Month's Activity as of March 16, 2009

Billing Cycle for this Report: March 1 - March 31, 2009

Expand All | Collapse All

		Totals
AWS157 View/Edit Service		
	View Usage Report	0.00
Alexa Web Information Service View/Edit Service		
	View Usage Report	0.00
Amazon CloudFront View/Edit Service		
	View Usage Report	0.00
⊞ **Amazon Elastic Compute Cloud** View/Edit Service		
	View Usage Report	41.40
Amazon Simple Queue Service View/Edit Service		
	View Usage Report	0.00
⊞ **Amazon Simple Storage Service** View/Edit Service		
	View Usage Report	12.06
⊞ **Amazon SimpleDB** View/Edit Service		
	View Usage Report	0.00
Taxes Estimated Taxes (Due April 1, 2009)		0.00
Charges due on April 1, 2009+		53.46

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Final Thoughts

- Do more with less
  - Existing applications
  - New, on-demand applications

- Be more responsive to your audience
  - Focus on features, not on infrastructure
  - Control costs
  - Innovate

Let's Head to the Clouds!

More Info:
http://aws.amazon.com

Blog:
http://aws.typepad.com

Email:
jbarr@amazon.com

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Thank You!