Webscale Computing
Mike Culver

Amazon Web Services
Ideas Meet Pagers
Scale as Fast as You Can
How Do You Survive This?
Don’t Do the Muck
Amazon Web Services Are...

Building block services that allow developers to innovate and make money

- **Infrastructure As a Service**
  - Amazon Simple Storage Service
  - Amazon Elastic Compute Cloud
  - Amazon Simple Queue Service
  - Amazon SimpleDB

- **Commerce As a Service**
  - Amazon Flexible Payments Service
  - Fulfillment Web Service

- **People As a Service**
  - Amazon Mechanical Turk

- **Alexa Web Services**
  - Alexa Web Information Service
  - Alexa Top Sites
  - Alexa Site Thumbnail
  - Alexa Web Search Platform
Amazon Simple Storage Service (Amazon S3)

- Highly scalable data storage in-the-cloud
- Programmatic access via web services API
- Simple to get going, simple to use
- Highly available and durable
- Pay-as-you-go:
  - Storage: $0.15 / GB / month
  - Data Transfer: starts at $0.18 / GB
  - Requests: nominal charges
Billions of Objects Stored

- August 06: 800 Million
- April 07: 5 Billion
- October 07: 10 Billion
- January 08: 14 Billion
Amazon S3 Namespace
Amazon S3 Namespace

Amazon S3

mculver-images
- Beach.jpg
- 2005/party/hat.jpg

media.mydomain.com
- img1.jpg
- img2.jpg

public.blueorigin.com
- index.html
- img/pic1.jpg
Internet Backup on a Stick
Or Stick Backed Up on the Net?

SanDisk Cruzer® Titanium Plus

The USB Flash Drive That Comes With A Backup Plan

The new Cruzer Titanium Plus USB flash drive offers an automatic and seamless online back up option with device password protection and hardware AES encryption so you can easily access your files on the device or online.

You can confidently store all your sensitive, important data without the fear of losing the device or accidentally deleting the files. Cruzer Titanium Plus is not only packaged in a rugged, crush resistant metal case, but also it provides you with added security by keeping the files on your device also backed up online, in case you ever need them.
Open Source Backup

Zmanda Internet Backup to Amazon S3

Zmanda’s mission is to ensure that our customers can always recover their data while making backup simple, secure and cost-effective. Amazon Simple Storage Service (S3) fits perfectly with this mission.

“ar biggest cost is not power, and it’s not the servers, and it’s not the people that maintain the data centers. The biggest cost is lack of utilization. It dominates all other costs.”

Download the new whitepaper!
Simply register, free of charge, at the Zmanda network to receive your whitepaper.

Buy Now
Store Gazillions of Terabytes
Amazon Elastic Compute Cloud (Amazon EC2)

- Resizable compute capacity in the cloud
  - Obtain and boot new server instances in minutes
  - Quickly scale capacity, up or down, as your computing requirements change
- Full root access to a blank Linux machine
- Simple Web service management interface
- Changes the economics of computing
Predictions Cost Money

Infrastructure Cost $

You just lost customers

Large Capital Expenditure

Opportunity Cost

Predicted Demand

Traditional Hardware

Actual Demand

Automated Virtualization

time
Three Flavors of Amazon Machine Images

- **Public AMIs:** Use pre-configured, template AMIs to get up and running immediately. Choose from Fedora, Movable Type, Ubuntu configurations, and more.

- **Private AMIs:** Create an Amazon Machine Image (AMI) containing your applications, libraries, data and associated configuration settings.

- **Paid AMIs:** Set a price for your AMI and let others purchase and use it (Single payment and/or per hour).
## Three Amazon EC2 Choices

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<td>I/O Performance</td>
<td>Medium</td>
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<td>Firewall</td>
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</tbody>
</table>
$5 or $30,000 For a Prototype?

$30,000 worth of in-house servers

DISA paid a total of $5
ElasticLive - Clustered Grid Server Web Hosting: Home - Windows Internet Explorer

Build Your Own Virtual ISP

INFINITELY SCALABLE UTILITY HOSTING PLATFORM

ElasticLive empowers you to increase or decrease web hosting capacity within minutes, not hours or days. You can commission one, hundreds or even thousands of server instances simultaneously. Because this is all Amazon Web Services APIs, your application can automatically scale itself up and down depending on your demands.

Turn Key Solution for Hosting Providers: Using the ElasticLive, hosting providers can easily automate the deployment of customizable services. Hardware resources usage is flexible and each user can be scaled with a single command, without affecting other customers.

Login to ElasticLive

Don't have an account? Sign up now Forget your password?
IMPACT LIKE CRASH OF GUNS.; Titanic's Collision with Iceberg Likened to Broadside of Battleships.
Scale From an Idea to 30 Million Users
Amazon Simple Queue Service (Amazon SQS)

- A distributed queue in the cloud
- Used for storing messages traveling between computers
- Reliable
  - Runs within Amazon's high-availability data centers
  - Messages are stored redundantly across multiple servers and locations
- Scalable to millions of messages a day
- Simple: Only 6 methods
- Platform agnostic
- Provides access control and message locking
You Can’t Count On the Other End Being Up and Running

BA bags are flown to America by FedEx for sorting after Terminal 5 chaos

By RAY MASSEY - More by this author

Last updated at 00:13am on 3rd April 2008

Comments (3)

British Airways is flying lost luggage from Heathrow's Terminal 5 to the U.S. for sorting.

It had already emerged that the airline is trucking bags to a warehouse in Italy to reduce the backlog after thousands of cases were not put on their owners' flights.

Scroll down for more...
Amazon SimpleDB

Limited Beta
Databases Should Just Work But They’d Better Scale…

- Easy: no administration
- Web Service API
- Flexible (no schemas)
- Scalable: create new domains as your data grows
  - Request throughput increases
- Durable
  - Multiple nodes
  - Replicated data centers
On a Low-Scale Budget

$0.14 per Machine Hour consumed (normalized to a circa 2007 1.7 GHz Xeon processor)

Data transfer

$0.10 per GB - all data transfer in

Data Transfer Out (per GB)

$0.18 \leq 10 \text{ TB} / \text{month}

$0.16 - next 40 \text{ TB} / \text{month}

$0.13 > 50 \text{ TB} / \text{month}

Storage - $1.50 per GB-month
<table>
<thead>
<tr>
<th>item</th>
<th>description</th>
<th>color</th>
<th>material</th>
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<tbody>
<tr>
<td>123</td>
<td>Sweater</td>
<td>Blue, Red</td>
<td></td>
</tr>
<tr>
<td>456</td>
<td>Dress shirt</td>
<td>White, Blue</td>
<td></td>
</tr>
<tr>
<td>789</td>
<td>Shoes</td>
<td>Black</td>
<td>Leather</td>
</tr>
</tbody>
</table>

PUT (item, 123), (description, Sweater), (color, Blue), (color, Red)
PUT (item, 456), (description, Dress shirt), (color, White), (color, Blue)
PUT (item, 789), (description, Shoes), (color, Black), (material, Leather)

**Query**

Domain = MyStore

[‘description’ = ‘Sweater’]
Learn More About AWS

Explore http://aws.amazon.com

Read our blog at http://aws.typepad.com

Email me at mculver@amazon.com