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THE POWER OF PERSPECTIVE

**Java MUG**  
*Introduction to Amazon Elastic Cloud Computing*  
Dallas, TX – September 2009

# Agenda

- What is Cloud Computing
- Advantages and Disadvantages
- Walkthrough
- Pricing
- Other Amazon Services
- Other Cloud Service Providers
- Q & A

## What is Cloud Computing

- **Cloud computing** is a style of computing in which dynamically scalable and often virtualized resources are provided as a service over the Internet. Users need not have knowledge of, expertise in, or control over the technology infrastructure in the "cloud" that supports them. – Wikipedia
- The key terms are ***virtualized*** and ***dynamically scalable***
- Makes use of massive data centers and virtualization software such as Xen Hypervisor and VMWare
- It is really ***Infrastructure On Demand!***

## Amazon Elastic Cloud Computing (EC2)

- Built on Amazon's world class data centers
- Two data centers in the US and one in Europe
- Uses Xen Hypervisor for virtualization
- Allows Windows and Linux Virtual Machines (with many flavors of Linux)
- Provides a number of options for memory and CPU
- Each VM gets an internal and external IP address
- Virtual firewall is available
- You can create your own Amazon Machine Image (AMI)
- There is a public API and Web Console to control VM infrastructure

## Advantages of using Cloud Computing

- 3 data centers (E, W, Eur)
- Infrastructure on demand
- Flexible
- Scalable
- Only pay for what you use
- Relatively inexpensive depending on needs
- Other great services are available such as CDN, Queue Service, Data Storage and Backup, etc.

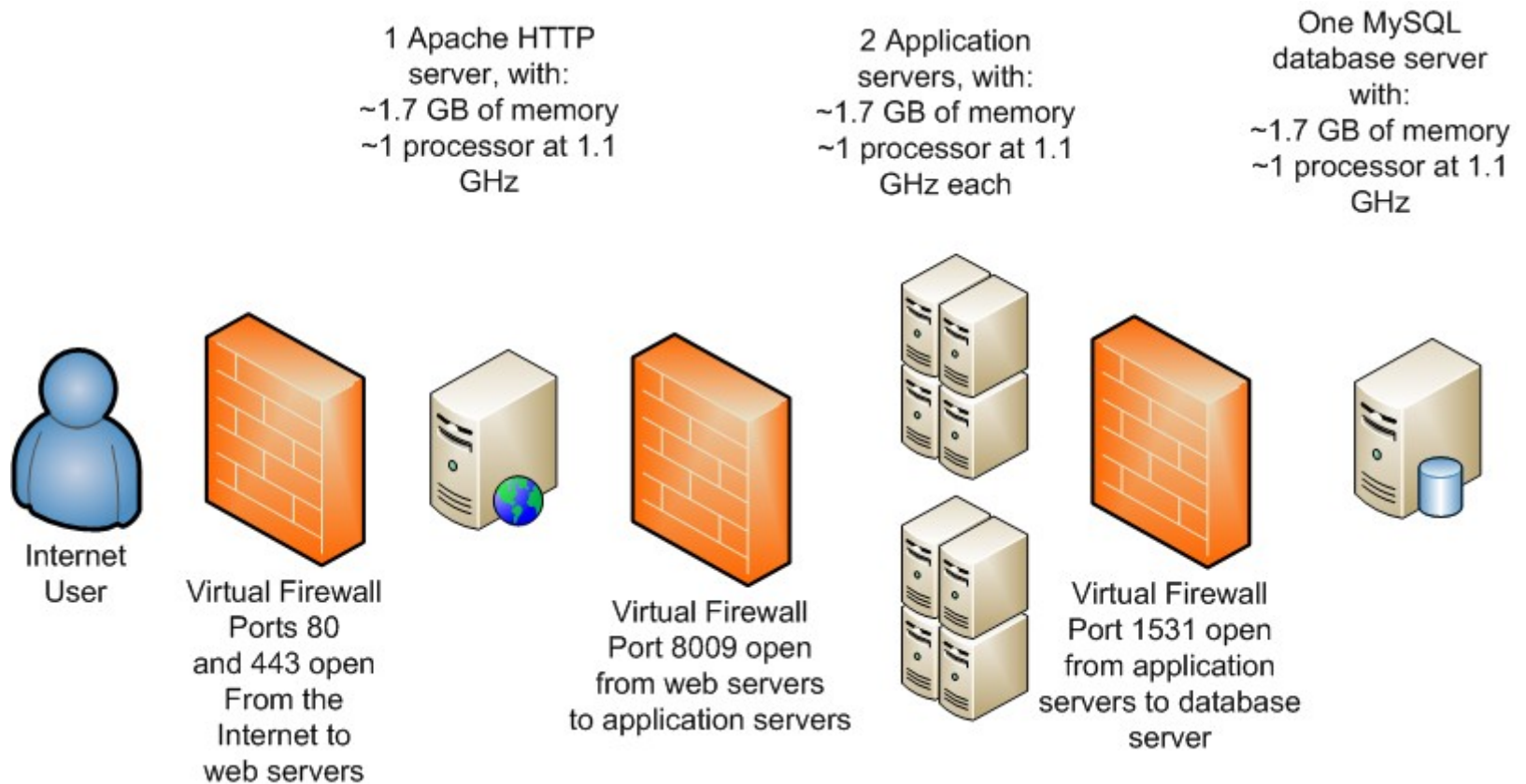
## Disadvantages of using Cloud Computing

- PCI compliance and security concerns
  - Real and Perceived
  - HIPAA compliance is achievable
- Physical data storage is not controlled by the owner of the data
- Expensive for some applications?
- Transient VM on Amazon's EC2
  - Rackspace's offering is not transient

## Getting Started with EC2

- Set up an EC2 account with Amazon at <http://aws.amazon.com/ec2/>
- Log in to the management console at <http://aws.amazon.com/console/>
- If desired, download API  
<http://developer.amazonwebservices.com/connect/entry.jspa?externalID=351&category=>
- If using the API generate X.509 Certificate or use Access Keys
- Create a security group
- Launch an instance
- Install software and start using resources as desired
- Configure firewall

# Demo and Walkthrough



## Shameless Marketing Slide

- Powered by Broadleaf Commerce!



the enterprise open source  
eCommerce solution

## Uses of Cloud Infrastructure

- Production Environments
- QA Environments
- Staging Environments
- Dev / Prototyping Environments
- Load Farms
- Grid Computing
- Variable Computing Requirements
- Data storage and backup
- Data Warehousing and Business Intelligence
- Etc...!

## Reference Price of Demo

- 4 Small Linux Instances
  - ~ \$0.10 / instance / hour
- 100 GB Elastic Block Storage
  - ~ \$0.10 / GB / Month + \$0.10 / 1 Million I/O requests
- Bandwidth Usage (Assume 100 GB / Month in and out)
  - ~ \$0.10 - \$0.17 / GB / Month

~ \$0.41 - \$0.48 / Hour

OR

~ \$300.00 – \$350.00 / Month

## Additional Amazon Cloud Services

- Simple Storage Service (S3)
- SimpleDB
- Cloudfront
- Simple Queue Service (SQS)
- Elastic MapReduce
- Virtual Private Cloud
- Mechanical Turk
- E-Commerce and Fulfillment Services

## Other Cloud Service Providers

- Rackspace Cloud
  - A little bit cheaper than Amazon's EC2 for certain offerings
  - Different memory and processor sizes
  - Multiple Data Centers
  - Persistent VMs
  - API and Web Console are available
  - No virtual firewall
  - SSH access via username and password (no key pair)
- Terremark's vCloud
- VMWare and SpringSource
- Force.com
- Google Apps

## Questions ...

- ???



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