

Replace Your Iron With a Cloud

Clouds are like cotton candy, and irons
... make shirts flat?

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Who Am I?





Agenda

- What is “the cloud”?
- Different approaches of cloud services
- Pros and cons of using the cloud
- AWS components
- How Mentor migrated to the cloud
- The AWS us-east-1 outage of April 20th

What is “The Cloud”?

- Cloud is a class of services, not technologies
- Non-hardware resources
 - Compute
 - Storage
 - Scaling
- Cloud != virtualization

Approaches to Cloud Services

- Amazon Web Services (AWS)
 - Cloudy hardware-ish resources
 - Good for migration
- Google App Engine (GAE)
 - Pure cloud resources
 - Bad for migration
- Heroku
 - GAE-style services atop AWS



Pros and Cons

THE GOOD

- Horizontal scaling
- No initial investment (\$\$)
- IT-free
- Playtime!

THE BAD

- No custom hardware
- Requires new skills
- IT-free
- Net/Info Sec



Major Issues

- Backups
- Appliances
- Sending email
- No private internal network
- No balancing on IP addresses

Migrating to AWS

- Hardware-ish resources
- Minimal code impact
- Easier migration path
- Allows gradual expansion



AWS Organization

- AWS
- 5 Regions
- 2-4 Availability Zones per region



AWS Components

- EC2 – Elastic Compute Cloud
- ELB – Elastic Load Balancer
- EBS – Elastic Block Store
- S3 – Simple Storage Service



AWS Components

- EC2
- ELB
- EBS
- S3
- Route 53
- Elastic Beanstalk
- AutoScaling
- SES
- RDS
- SimpleDB



How We Migrated: Code

- Moved MS SQL -> MySQL
- Moved Windows -> Windows/Linux
- Upgraded ColdFusion 8 -> 9
- Scripts for stock AMIs

How We Migrated: Infrastructure

- Expanded DB cluster to include AWS
- Expanded App cluster to include AWS
- Contracted App cluster to exclude RS
- Moved DNS from RS load balancer to ELB
- Contracted DB cluster to exclude RS

How We Migrated: Aftermath

- I/O constraints
 - Build parallel cluster, tested, and switched over
- Background processing
 - Launched another app server
 - no user traffic / all background tasks

The April 20th Outage

- One AZ's EBS freaked
- No launching EBS-rooted instances in any AZ
- No new volumes in any AZ
- We lost ~40% of our instances
 - manually repointed DNS for our GSA cluster
 - No other user-facing failure
- Multi-AZ is simply required. Period.

Cloud-Based Software Evals

- User requests eval
- Spin up evaluation environment
- RDP and run through tests
- Tear down
- Retain tests for later “reanimation”

Soapbox*

- If you're not using version control, start. Before you write another line of code.
- If you don't use a Front Controller framework, start. (I like FB3Lite, but then I wrote it)
- Learn about your tools. They're all **far** more powerful than you believe.

* I'm going to read this one verbatim. Sorry.

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