Amazon Web Services Demo
Tech Exchange

Slides: http://goo.gl/Mwz0es

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INDIANA UNIVERSITY

IU Emergency Information

For immediate emergency assistance dial 9-1-1. For non-emergency assistance call (812)-855-4111.

Select Campus

During an emergency timely, accurate and continuous information is vital to the well-being of students, staff and faculty. Initially these messages will be provided via IU Notify through the use of text messaging, emails and telephone calls. The messages will be limited in detail due to the lack of information in the initial stages of the incident. As soon as possible, IU will begin providing more detailed information and updates to this site.

Additional Information

IU Emergency Management and Continuity

Like 2,772

IU Emergency Management and Continuity

October 23 at 12:36pm

A letter from President McRobbie regarding IU's preparedness for Ebola. Included in the letter is a link to http://ebola.iu.edu/ for more information.

An Important Message Regarding IU's Ebola Preparedness

LESC.IU.EDU

$ dig +short emergency.iu.edu

emergency.iu.edu.s3-website-us-east-1.amazonaws.com.

s3-website-us-east-1.amazonaws.com.

54.231.14.220

“I can't say for one specific notice but, I believe we took the site live around August 1st and we have not had a bill over $.10 in that time.

During one testing period we did over 22 million GET requests and the cost was less than $10.00. “

Play for Free

AWS provides new account holders with many hours of time on tiny VM instances (see AWS for details)

All it takes is a credit card to experiment with the AWS cloud (and most other public cloud providers)

AWS is a Public Cloud

Anyone can use AWS

It’s a blend of IaaS, PaaS, and SaaS, the demo will focus on IaaS (Infrastructure as a Service)

Other major public cloud players include:

Rackspace, Google, Microsoft

Flavors of Storage

- EBS (Elastic Block Storage)
  - EBS-Backed AMI's are durable & fast to launch
  - can be configured as disk volumes
  - OS can encrypt volume
  - more durable than disks drives
  - can be configured as software RAID via OS

Flavors of Storage

- S3 (aka web-based object storage)
  - URI points to object
  - highly durable (99.999999999)
  - Reduced Redundancy Storage (less costly/durable 99.99)
  - may contain snapshots of EBS-volumes
  - server-side encryption available
  - S3 alone can be your scalable website!!! (100,000 100K web page loads == $1)

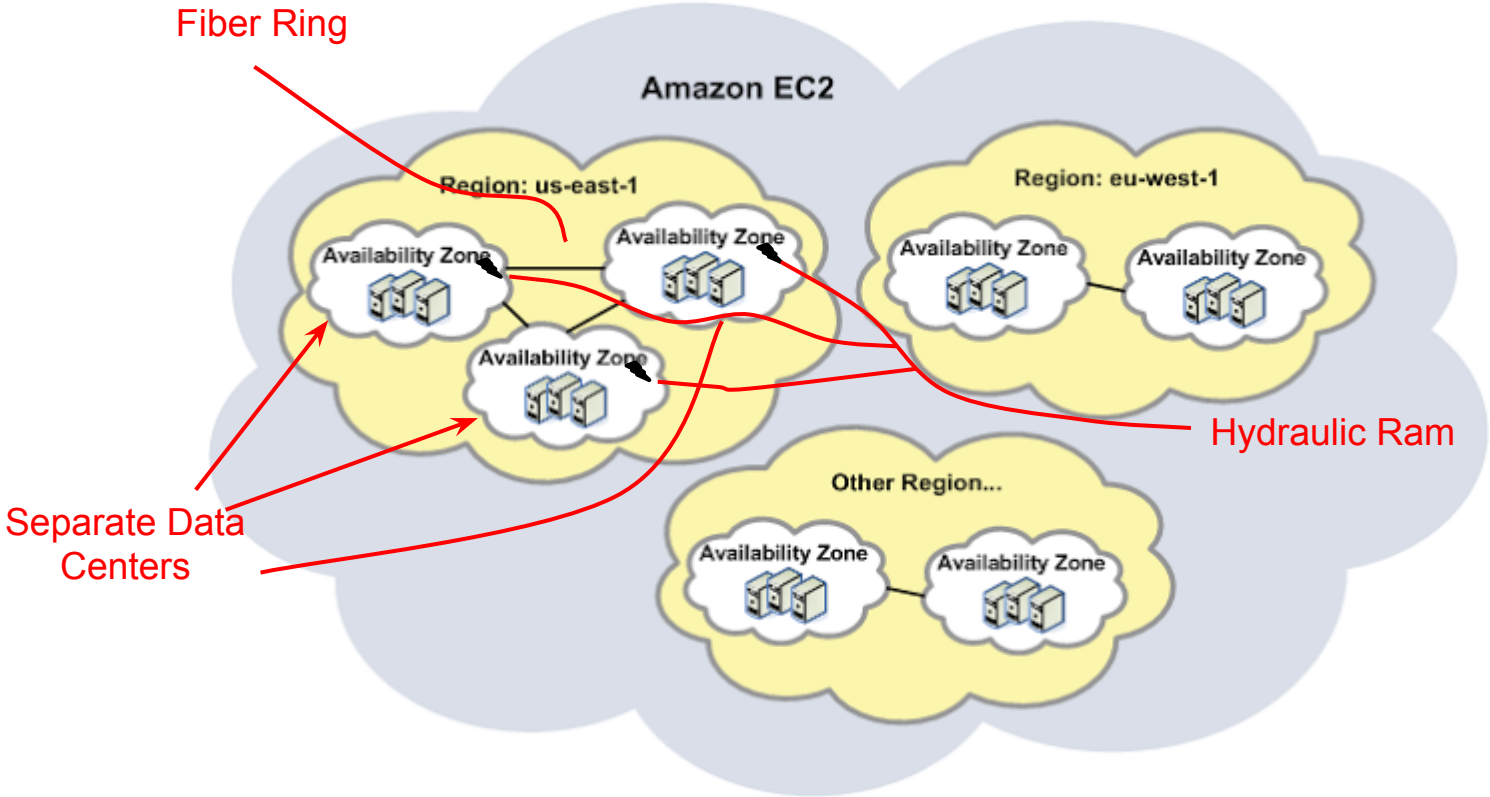
try it!

https://s3.amazonaws.com/uits-S3-bucket/slides/Thing1-and-thing2.jpg

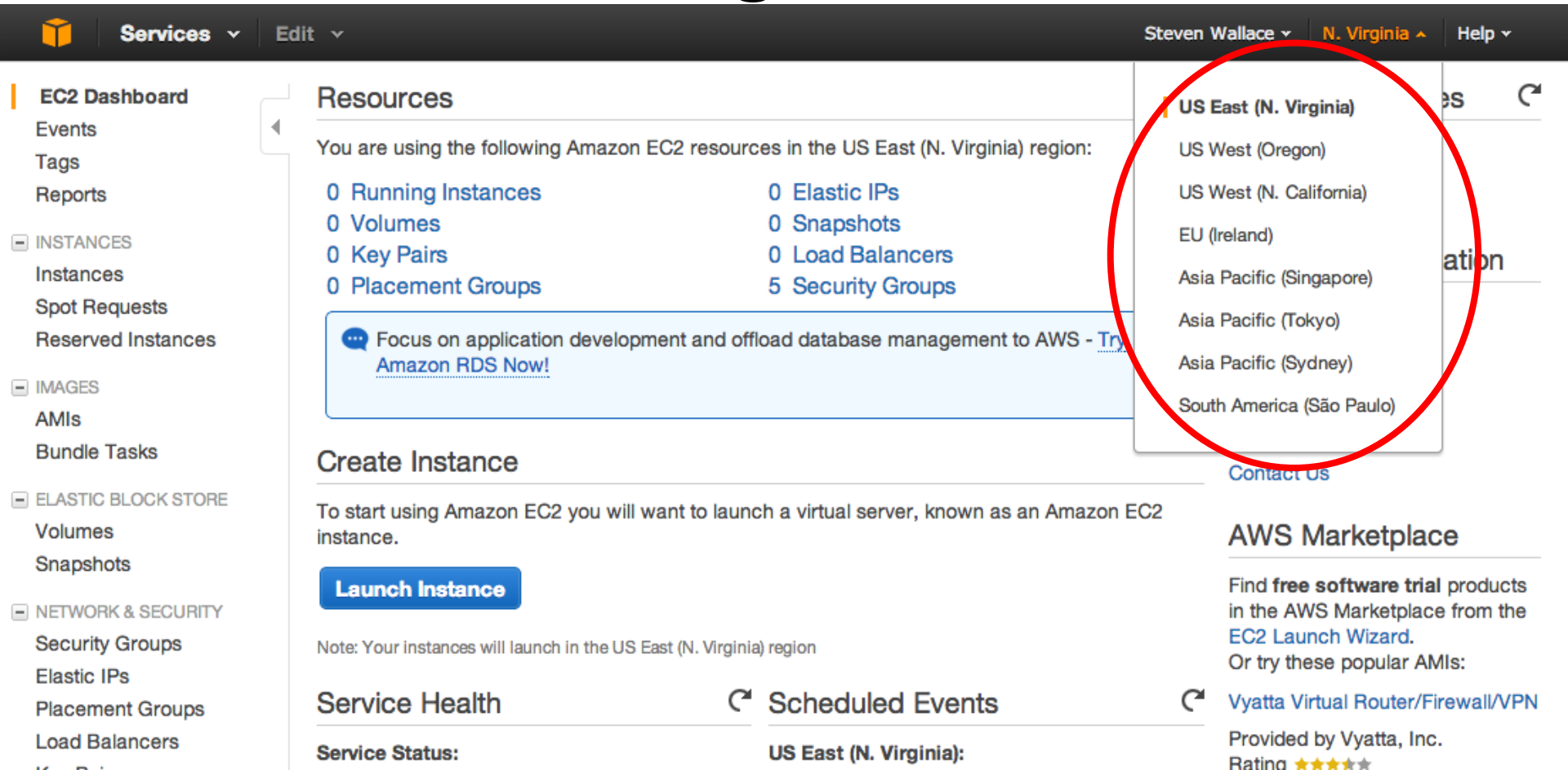
Flavors of Storage

- Glacier (low-cost, sloooow object storage)
  - highly durable
  - very cheap, unless you want the data back
  - files are “Archives” contained in “Vaults”
  - data encrypted
  - fast data in, slow data out (retrieval of an archive can take hours)

Q: Where oh where are my data?
A: Always in the region you select!



Regions


Services
Edit
Steven Wallace
N. Virginia
Help
EC2 Dashboard
Events
Tags
Reports
INSTANCES
Instances
Spot Requests
Reserved Instances
IMAGES
AMIs
Bundle Tasks
ELASTIC BLOCK STORE
Volumes
Snapshots
NETWORK & SECURITY
Security Groups
Elastic IPs
Placement Groups
Load Balancers
Resources
You are using the following Amazon EC2 resources in the US East (N. Virginia) region:
0 Running Instances
0 Volumes
0 Key Pairs
0 Placement Groups
0 Elastic IPs
0 Snapshots
0 Load Balancers
5 Security Groups
Focus on application development and offload database management to AWS - Try Amazon RDS Now!
US East (N. Virginia)
US West (Oregon)
US West (N. California)
EU (Ireland)
Asia Pacific (Singapore)
Asia Pacific (Tokyo)
Asia Pacific (Sydney)
South America (São Paulo)
Create Instance
To start using Amazon EC2 you will want to launch a virtual server, known as an Amazon EC2 instance.
Launch Instance
Note: Your instances will launch in the US East (N. Virginia) region
Service Health
Service Status:
Scheduled Events
US East (N. Virginia):
Contact Us
AWS Marketplace
Find free software trial products in the AWS Marketplace from the EC2 Launch Wizard.
Or try these popular AMIs:
Vyatta Virtual Router/Firewall/VPN
Provided by Vyatta, Inc.
Rating

Getting Data [in to|out of] AWS...

[upload | download] it (ftp, scp, NSF, http, etc.)

AWS Import/Export

Ship drive to AWS, schedule transfer, AWS returns disk to customer

Cost to upload 25TB of data via AWS Import.

Assumptions: 1 device weighing 50 lbs.

Transfer time: 73 hours

Total cost: $261.77 + shipping to AWS

Operation Type		Import to EBS
Location	AWS Region	US Standard Region
AWS Import/Export Data Load	Total Terabytes to Load	25 TB
	Number of Devices	1
	Wipe Device After Import	No
Estimated Transfer Speed	Interface Type	eSATA
	Transfer Speed**	100.00 MB/sec
Return Shipping	Return Shipping Destination	United States
	Total Weight of Packages Shipped	50 lbs
	Expedited Shipping	No
Estimated AWS Import/Export Costs	Device Charges	$80.00 - 1 device(s)
	Data Loading Charges	$2.49 X 73 hour(s) = $181.77
	Data Wiping Charges	$0.00
	Return Shipping Charges***	$0.00
	Total Estimated Charges†	$261.77
		Calculate

Q: How does AWS assure you that it's safe to put your data in his cloud?

- Processes
- Procedures
- Conformance to Standards
- Audit
- Design

A: Security Controls

AWS is “Infrastructure as a Service”

AWS is providing safety and security from the dirt to the VM. From the OS on up, it’s the AWS customer’s responsibility.

Sorta like Boeing’s 777 is safe and secure, but fly at your own risk.

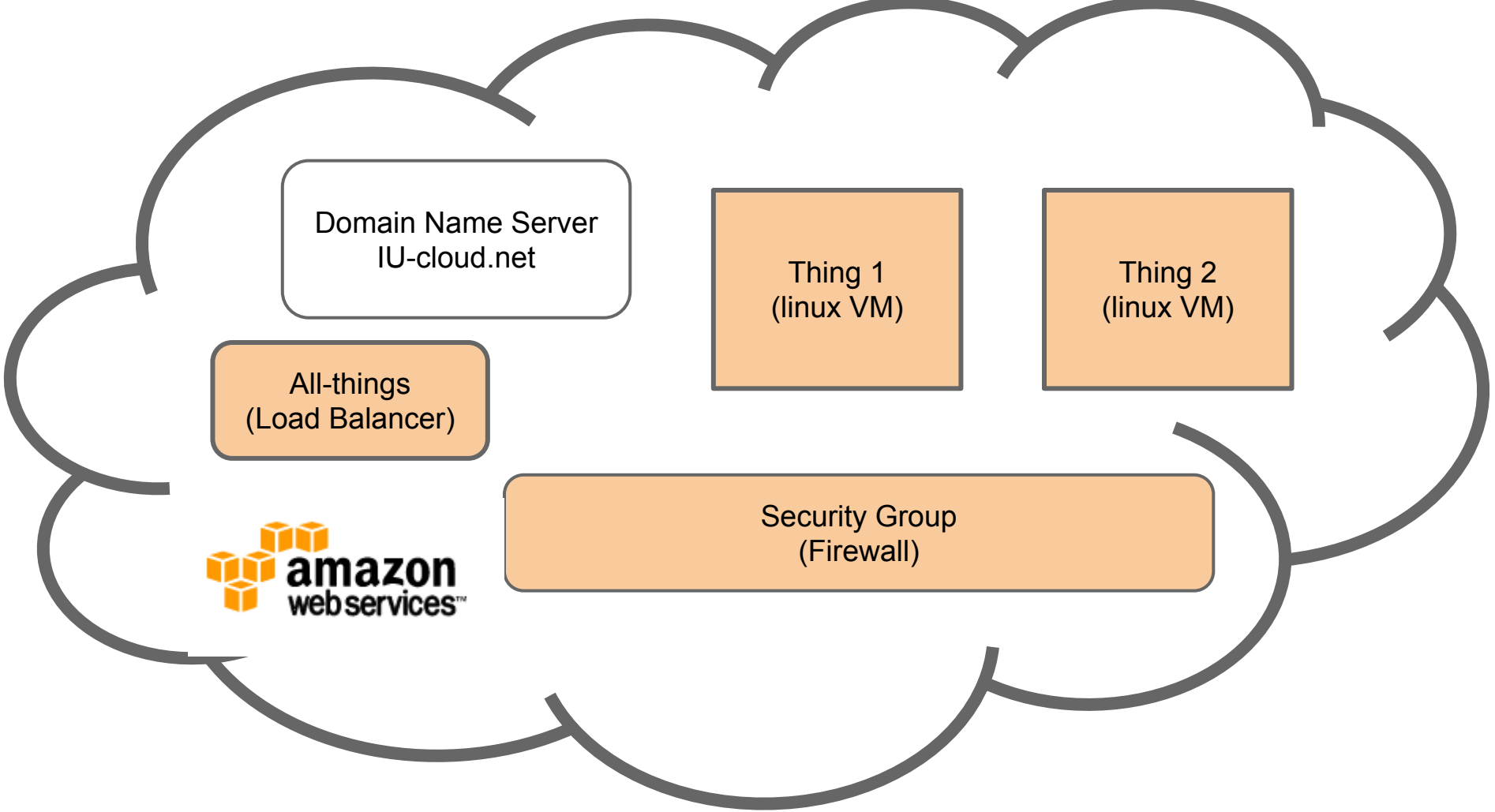
Piloting AWS requires:

- maintaining the OS (updates, configuration, etc.)
- maintaining the applications and software
- correctly, **expertly**, using AWS's features

Caveat Emptor*: The ability for AWS to support scalable unsecure, runaway applications is unsurpassed!*

Today’s demo

- Create a firewall
- Create two linux VMs running the Apache web server
- Create domain name records
- Create a network load balancer


Domain Name Server
IU-cloud.net
Thing 1
(linux VM)
Thing 2
(linux VM)
All-things
(Load Balancer)
Security Group
(Firewall)
amazon
web services

Log in to the AWS Management Console/EC2

- EC2 is Elastic Cloud 2 (aka Amazon's compute IaaS)
- Create a Security Group (aws-demo-firewall)
- Create a key pair (aws-demo-keys)
- chmod 400 aws-demo-keys.pem
- Launch two VMs
- Make note of the VMs domain names

Log in to the AWS Management Console/Route 53

- Route 53 is Amazon’s domain name service
- Create CNAME records for the two VMs

Log in to the VMs using their IU-Cloud.net names

- Login in using ssh (with the key pair) “ssh -i aws-demo-keys.pem ec2-user@thing1.iu-cloud.net”
- Install apache (sudo yum install httpd)
- Start apache (sudo service httpd start)
- Edit their default Web pages (sudo vi /var/www/html/index.html)
- Test the web servers (i.e., point web browser to thing1.IU-Cloud.net).

Log in to the AWS Management Console/EC2

- Select “Load Balancers”
- Create a load balancer that points to thing1 and thing2
- Make note of the load balancer domain name

Log in to the AWS Management Console/Route 53

Create CNAME record for the load balancer

Test by pointing browsers to the load balancer domain name.

Q: When is IaaS the right choice?

A: Only when SaaS and PaaS aren't suitable.

Need e-mail, use gmail.

Need web hosting, use a hosted CMS.

Need a resilient, scalable LAMP platform, use AWS CloudFormation.