



Introduction to Amazon Web Services

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AWS Introduction

Why is Education choosing AWS?

What is Education using AWS for?

How are Education institutions getting started with AWS?

Q&A

How did Amazon... get into cloud computing?



What is Cloud Computing?

Cloud Computing is...

...the on-demand delivery of IT resources and applications via
the Internet with pay-as-you-go pricing.

What is Amazon Web Services?



A broad and deep platform helping customers build sophisticated and scalable applications

AWS provides broad and deep services to support any cloud workload

Enterprise Applications



Virtual Desktops



Collaboration and Sharing

Platform Services

Analytics



Hadoop



Real-time Streaming Data



Data Warehouse



Data Pipelines

App Services



Queuing & Notifications



Workflow



App streaming



Transcoding



Email



Search

Deployment & Management



One-click web app deployment



Dev/ops resource management



Resource Templates

Mobile Services



Identity



Sync



Mobile Analytics



Push Notifications

Administration & Security



Identity Management



Access Control



Usage Auditing



Key Storage



Monitoring and Logs

Core Services



Compute
(VMs, Auto-scaling
and Load Balancing)



Storage
(Object, Block
and Archival)



CDN



Databases
(Relational, NoSQL, Caching)



Networking
(VPC, DX, DNS)

Infrastructure



Regions



Availability Zones



Points of Presence

AWS Global Infrastructure

11 Regions

28 Availability Zones

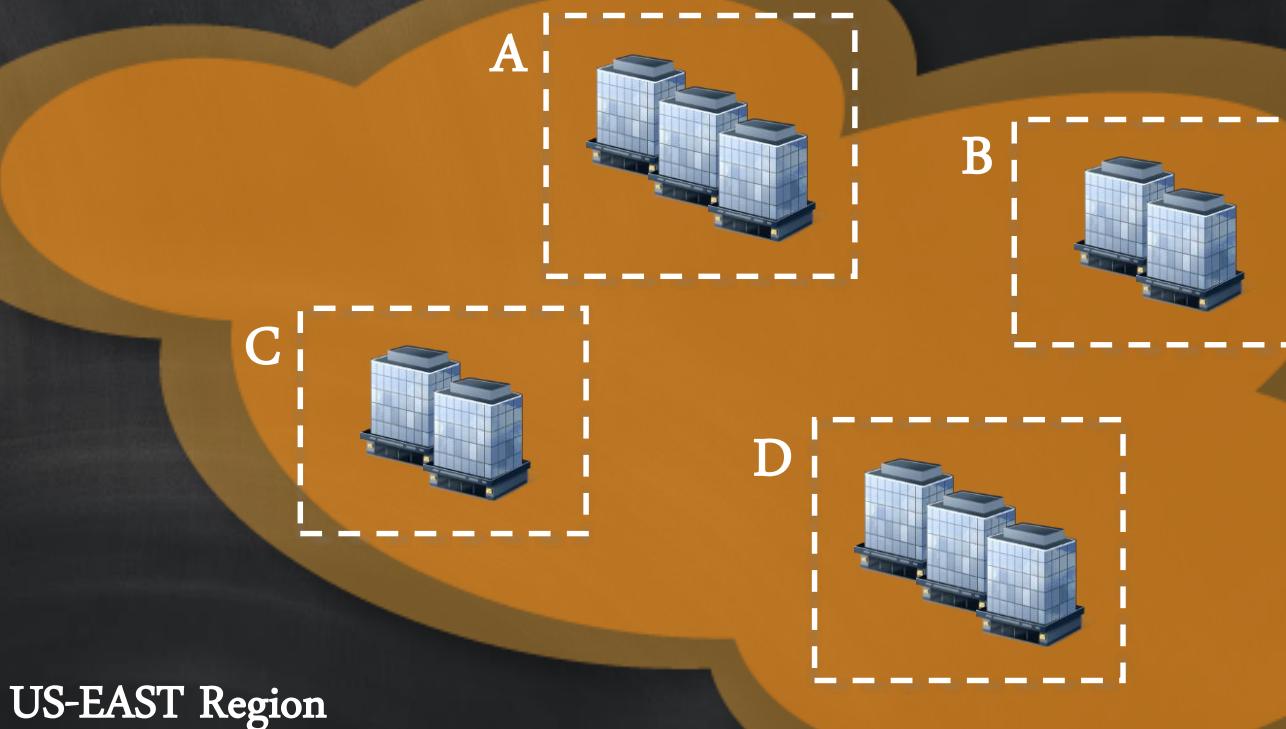
52 Edge Locations



You choose where your apps and data go!

AWS Global Infrastructure

Availability Zones (AZs)



Powering the most popular internet businesses



LinkedIn

Pinterest

airbnb

Dropbox

foursquare

tumblr.

SmugMug

TinyCo™

Etsy

yelp

Spotify

shazam

Flipboard

heroku

AdRoll

reddit

thismoment

MAILBOX

ROVIO

SUP
DRG
ELL

SONOS

EVE
ONLINE

Homicide
Fiction

viddy

twilio

DISTR.

hungama

dropcam

Parse

ANIMOTO

FUNPLUS

AVERAIL
Getting Ready for Fall

ooya.la

STITCHER
SMART RADIO

chute

The Motley Fool

has offers

HAIL

ccp

diffbot

BrightRoll

TRUGOLF

RED
5
STUDIOS

ARTSY

Swipely

ScribbleLIVE

banjo

Public Sector on AWS



Gartner Magic Quadrant for Cloud Infrastructure as a Service



Gartner "Magic Quadrant for Cloud Infrastructure as a Service." Lydia Leong, Douglas Toombs, Bob Gill, Gregor Petri, Tiny Haynes, May 28, 2014. This Magic Quadrant graphic was published by Gartner, Inc. as part of a larger research note and should be evaluated in the context of the entire report. The Gartner report is available at <http://www.amazon.com/resources/analyst-reports/>. Gartner does not endorse any vendor, product or service depicted in its research publications, and does not advise technology users to select only those vendors with the highest ratings. Gartner research publications consist of the opinions of Gartner's research organization and should not be construed as statements of fact. Gartner disclaims all warranties, expressed or implied, with respect to this research, including any warranties of merchantability or fitness for a particular purpose.

A simple chalk-drawn figure stands on the left side of the frame. The figure has a large, hollow circular head and a body made of two vertical lines meeting at a horizontal line. It holds a rectangular sign in front of its body. The sign has a blue background with white borders. On the sign, the letters 'I' and a red heart are written above a white cloud icon.

Why are education institutions adopting cloud computing and AWS so quickly?

Lower costs with AWS up-front and increase savings as your usage grows

1

Replace up-front capital expense
with low variable cost

2

Economies of scale allow us to
continually lower costs

3

Pricing model choice to support
variable & stable workloads

4

Save more money as you grow
bigger

**“Average of 400 servers
replaced per customer”**

**47 Price
Reductions**

**On-demand
Reserved
Spot**

**Tiered Pricing
Volume Discounts
Custom Pricing**



Source: IDC Whitepaper, sponsored by Amazon, “The Business Value of Amazon Web Services Accelerates Over Time.”
July 2012

Agility

The primary reason education is moving so quickly to AWS
and the cloud



Why does **agility** matter?

Websites

UNIVERSITY OF
NOTRE DAME

Library Systems



*Gibraltar Area
Schools*

Faculty Pilots



HPC



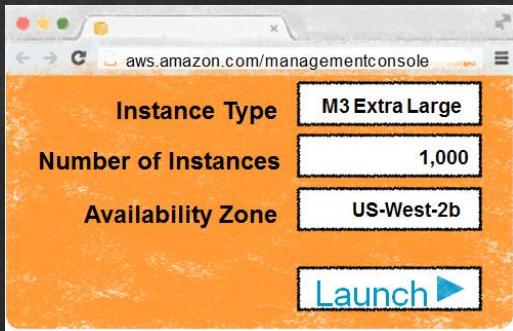
NEW YORK UNIVERSITY

AWS enables Campus IT



Old World: Infrastructure
in weeks

AWS enables Campus IT



AWS: Infrastructure in
Minutes

- Add New Test/Dev Environment**
- Add 50 Servers for Student Labs**
- Add New DR Environment on West Coast**
- Add 1,000 Servers for Enrollment**
- Remove 1,000 Servers after Enrollment**
- Deploy a 10,000 Core HPC Cluster**
- Shut Down a 10,000 Core HPC Cluster**

A Culture of Innovation: Experiment Often & Fail Without Risk



What is education using AWS for?



Education use cases on AWS



Development and Test
University and Departmental Websites
Learning / Course Management Systems
Distance Learning
Massive Open Online Courses (MOOCs)
High Performance Computing (HPC)
Storage / Backup - Data Archival / Collaboration
Disaster Recovery
Student Information System Software
Virtual Desktops
Data Center Migrations
Student Lab Environments
Campus Mapping Applications
Disparate Systems / Data Analytics

Gibraltar Area School District Cuts Costs by 25% with AWS



WE'RE SAVING 25% OVER THE NEXT 5 YEARS- IT'S HAD A HUGE IMPACT ON OUR DISTRICT'S BUDGET.

- Steve Minten
IT Director

- Gibraltar Area School District is a Wisconsin school district serving 681 students
- The district needed a cost-effective way to replace 8 campus servers without going to the voters for funding
- The 25% cost savings realized with AWS will be used to buy laptops for students and build out an on-campus wireless network

University of Notre Dame Uses AWS to Scale Up for a 500% Increase in Traffic on BCS Game Day

UNIVERSITY OF
NOTRE DAME



USING AWS ENABLED US TO HANDLE UNEXPECTED TRAFFIC RELIABLY—EVEN WHEN WE GREW FROM 38,000 TO MORE THAN 150,000 VISITORS IN A DAY.

- Mike Chapple
Senior Director for Enterprise Support Services
Notre Dame

- The University of Notre Dame is an independent Catholic university in Notre Dame, IL. Which enrolls approximately 12,125 students
- Notre Dame wanted to be sure that its systems could handle big bursts of traffic whenever the university was in the news. The university also wanted to be prepared in terms of disaster response
- The university chose AWS to host its website, scaling to handle a 500% increase in site visits during the BCS National Championship football game—and costing 40% less than the university's on-premise infrastructure

AWS Offers Seton Hall a Secure and Flexible Cloud Platform While Saving \$30,000 Per Year



1 8 5 6

WITH AWS, WHAT
USED TO TAKE
MONTHS NOW
TAKES A FEW DAYS.

- Michael Soupios
Associate Director

- Provider of technology services to university faculty
- Needed a platform to provide additional infrastructure for faculty projects
- Using AWS cut fixed costs by \$30,000 and improved time to market from months to days

AWS Service Overview

Networking Services

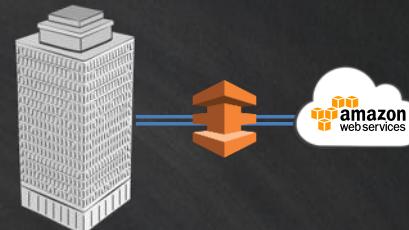
Amazon VPC

Private, isolated
section of the AWS
Cloud



AWS DirectConnect

Private connectivity
between AWS and your
datacenter



Amazon Route 53

Domain Name System
(DNS) web service.



Compute Services

Amazon EC2

Elastic **Virtual servers**
in the cloud



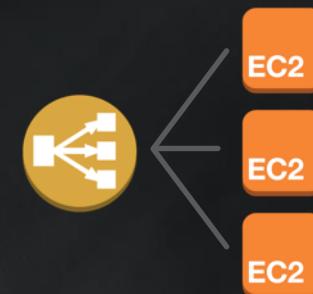
Auto Scaling

Automated scaling
of EC2 capacity



Elastic Load Balancing

Dynamic **traffic distribution**



Storage Services

Amazon EBS

Block storage for use with Amazon EC2



Amazon S3

Internet scale storage via API



Images
Videos
Files
Binaries
Snapshots

Amazon Glacier

Storage for **archiving** and **backup**



Images
Videos
Files
Binaries
Snapshots

AWS Storage Gateway

Integrates on-premises IT and AWS storage



Database Services

Amazon RDS

Managed relational
database service



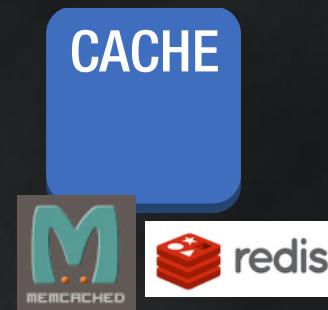
Amazon DynamoDB

Managed **NoSQL**
database service



Amazon ElastiCache

In-Memory **Caching**
Service



Application Services

Amazon CloudFront

Distribute content
globally



Amazon CloudSearch

Managed search
service



Amazon Elastic Transcoder

Video transcoding
in the cloud



WorkSpaces: Desktop Virtualization the AWS Way

No hardware or virtualization software

Access through any tablet device

Monthly pricing—no long-term commitments

Pre-installed software or bring your own licenses

Easy integration with MS Active Directory



Big Data Services

Amazon EMR (Elastic Map Reduce)

Hosted **Hadoop** framework



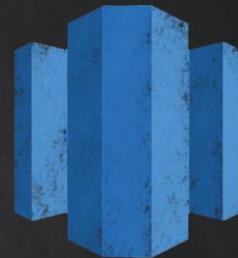
AWS Data Pipeline

Move data among AWS services and on-premises data sources



Amazon Redshift

Petabyte-scale **data warehouse** service



Amazon Kinesis

Real time processing of streaming data, at any scale



Deployment

AWS OpsWorks

Dev-Ops framework
for application
lifecycle management



AWS CloudFormation

Templates to deploy
& manage



AWS Elastic Beanstalk

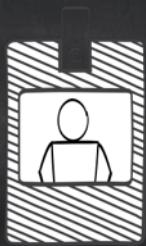
Automate resource
management



Administration

AWS IAM (Identity & Access Mgmt)

Manage **users, groups & permissions**



Amazon CloudWatch

Monitor resources



AWS CloudTrail

AWS API call **logging** for governance & compliance



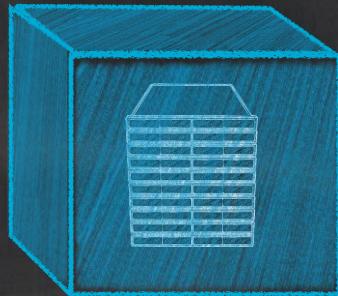
Certifications and Accreditations for Workloads That Matter



FISMA



Which Is the Better Path?



On-premises data center

Is it really the future for education?



Satisfy your isolation requirements

No upfront costs

Continued benefit of economies of scale

100s of new features & services every year

Build a new
'private' cloud

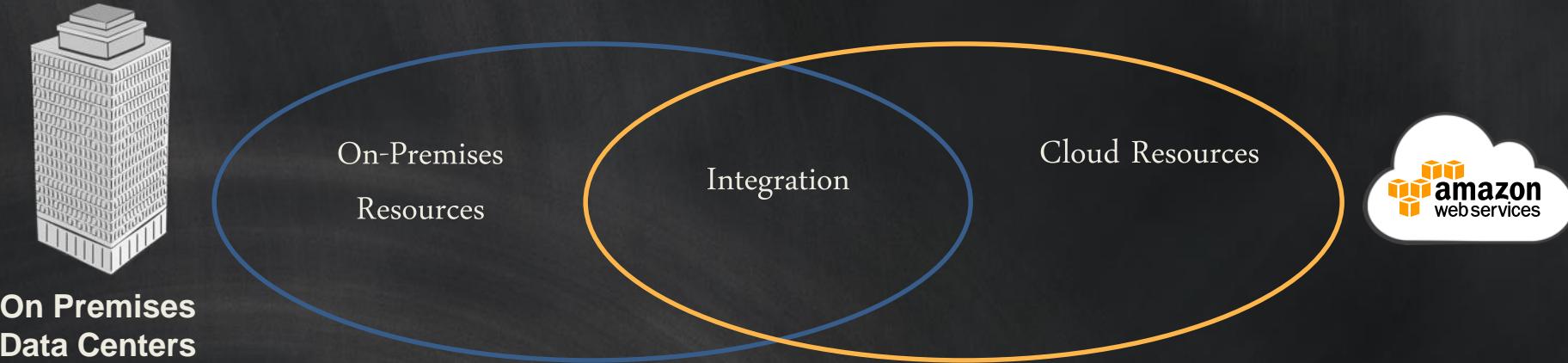


or



Rip everything out and
move to AWS

The good news is that cloud isn't an 'all or nothing' choice



Integration with On-premises Resources

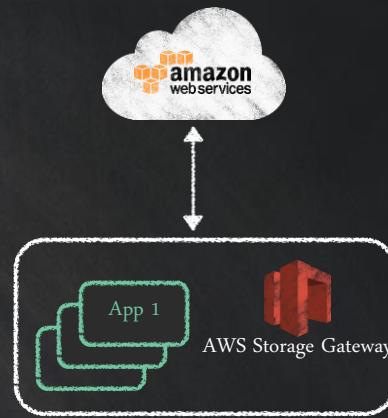
Integrated
networking



Integrated access
control



Integrated cloud
backups



Single pane of
glass



We want to hear from you

- aws.amazon.com/education
- aws.amazon.com/training
- run.qwiklab.com
 - 15 Free Introduction to AWS labs
- Thank you for joining us for Part 1 of our Series
- We hope you can join us for:
 - Getting Started with AWS – January 20th, 2015
 - Ease of AWS Deployment – January 27th, 2015