Amazon Web Services



Agenda

- Introduction to Amazon's Cloud
- How ArcGIS users adopt Amazon's Cloud
- Why ArcGIS users adopt Amazon's Cloud
- Examples



How did Amazon Get into Cloud Computing?



On-Premise Infrastructure is Costly & Complex

Large Capital Expenditures

Patching Software

Scaling down as needed

Contract negotiation



Underutilized IT Assets

Out of Datacenter Space

Slow IT Deployments

Scaling up quickly

Prices too high for IT products

Managing physical growth

"IT spends 80% of its time and resources keeping the lights on"



Gartner Press Releases

AWS Platform

Your Applications						
Management & Administration						
Administration Console	Identity & Access		Deployment		Monitoring	
Application Platform Services						
Content Distribution	Messaging		Parallel Processing		Libraries & SDKs	
Foundation Services						
Compute	Storage		Database		Networking	
Availability Zones Edge Locations						
		Regions				

Amazon's Global Infrastructure



AWS Edge Locations

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AWS Regions and Availability Zones



Customer Decides Where Applications and Data Reside

AWS is Built for Enterprise Security Standards

Certifications

SOC 1 Type 2 (formerly SAS-70)

ISO 27001

PCI DSS for EC2, S3, EBS, VPC, RDS, ELB, IAM

FISMA Moderate Compliant Controls

HIPAA & ITAR Compliant Architecture

Physical Security

Datacenters in nondescript facilities

Physical access strictly controlled

Must pass two-factor authentication at least twice for floor access

Physical access logged and audited

HW, SW, Network

Systematic change management

Phased updates deployment

Safe storage decommission

Automated monitoring and selfaudit

Advanced network protection

Large Partner Ecosystem



How ArcGIS users adopt Amazon's cloud



ArcGIS on Amazon's Cloud

ArcGIS Online	Global site Create, share & store content Realize cloud benefits
Web maps & apps	Web & Mobile Maps Web & Mobile Apps ArcGIS for Server sites
Map caching, geoprocessing & analytics	Distributed computing & clusters Large scale batch processing Tools for big data analysis
Disaster recovery & archive	Backup & Recovery Disaster Recovery Archive

Archive

Why ArcGIS users adopt Amazon's Cloud



Why ArcGIS Users Adopt Amazon's Cloud





Low Cost



Pay Only for What You Use



Self-Service Infrastructure



Easily Scale Up and Down



Improve Agility & Elasticity





No Up-Front Capital Expense





Low Cost

Scale & Innovation ...



... Drive Costs Down

Apr 22, 2008: <u>AWS Lowers Data Transfer Costs</u>
Oct 09, 2008: <u>New Tiered Pricing for Amazon S3 Storage</u>
Jan 28, 2009: <u>New Lower Pricing Tiers for Amazon CloudFront</u>
Aug 20, 2009: <u>New Lower Prices for Amazon EC2 Reserved Instances</u>
Sep 30, 2009: <u>New Lower Price for Windows Instances with Auth Services</u>
Oct 27, 2009: <u>Announcing Lower Amazon EC2 Instance Pricing</u>
Dec 08, 2009: <u>New Lower S3 and EC2 Pricing, Free Inbound Data Transfer</u>
Feb 01, 2010: <u>New Lower Pricing for Outbound Data Transfer</u>
Jun 07, 2010: <u>Amazon CloudFront Lowers Prices with HTTPS Support</u>
Sep 01, 2010: <u>New Lower Prices for High Memory 2x and 4x XL Instances</u>
Oct 05, 2010: <u>Lower High Memory DB Instance Prices for Amazon RDS</u>
Nov 01, 2010: <u>Amazon S3 Reduces Storage Pricing</u>
Jan 06, 2011: <u>New Plans, Lower Pricing in AWS Premium Support</u>
May 18, 2011: <u>New Lower Prices for Amazon CloudWatch Monitoring</u>
June 1, 2011: <u>Free Inbound Data Transfer and Lower Outbound Tiers</u>

"TCO savings inherent in a cloud provider's environment relative to that of a tradition enterprise datacenter may be as high as 60%." MorganStanley

Morgan Stanly Research, Cloud Computing Takes Off



Pay Only for What You Use





Self-Service Infrastructure

On-Premise

Build new environments can be complex and slow



Cloud Computing

New infrastructure is always a few clicks away







New Test Environment



New Environment in Japan



Add 1,000 Servers



Remove 1,000 Servers

Source: PTS Data Center Solutions





"The single biggest benefit of AWS is flexibility. It is so easy to spin up a server of any kind. This allows us to provide improved services more quickly because testing is painless and doesn't cost much at all. This makes updating simpler and allows us to experiment with new solutions."

> Michael Schonlau, GIS Coordinator Douglas Co. Nebraska

Examples



ArcGIS Online

- Easily create, store & share content
- Low friction move into the cloud
- Realize benefits of cloud computing



Douglas Co GIS



- All ArcGIS Environments & Cityworks on AWS
- The single biggest benefit of AWS is flexibility
- Easily able to scale so we can expand our data storage quickly and easily
- Easy for us to understand the cost-effectiveness of the pricing

AWS Case Study

http://aws.amazon.com/solutions/case-studies/douglas-county/

Omaha and Douglas County Put Cityworks in the Cloud http://www.cityworks.com/2012/07/omaha-and-douglas-county-put-cityworks-in-the-cloud/

Thank you