Agenda

• Why Private Cloud?

• Understanding Esri’s Cloud offerings

• Implementation Aspects
  - Templates
  - Desktop Virtualization
Infrastructure: A key problem in IT

Organizational Resources

CRM  ERP  GIS
IT Infrastructure and Cloud Features

Organizational Resources

CRM  ERP  GIS
Dynamic Resource Allocation

Organizational Resources

CRM  ERP  GIS
Instant Planned Recovery

GIS

Production  Staging  Development & QA
Instant Planned Recovery

GIS

Production

Staging

Development & QA
Geocentric Patterns and Alignment

Data Management
- Collect, Organize, & Exchange Data

Planning & Analysis
- Transform Data Into Actionable Information

Field Mobility
- Get Information Into and Out of the Field

Visualization
- Disseminate Information Where and When it is Needed

Constituent Engagement
- Get Feedback and Make Informed Decisions

A Complete Integrated System

ArcGIS Aligns Value with Business
Cloud Computing Categories

- **Infrastructure As A Service (IaaS)**
- **Platform As A Service (PaaS)**
- **Software As A Service (SaaS)**

**Web Browser (ex: YouTube, ArcGIS online)**

**Framework API (ex: Azure, ArcGIS online web services)**

**Web Services API (ex: Amazon)**
Leveraging the Cloud

Public Cloud

Private Cloud

LESS

Security & Control

MORE
Leveraging the Cloud

Hybrid

Public Cloud

Private Cloud

LESS Security & Control MORE
Cloud Flavors

Public Cloud

Private Cloud

Off-Premise

On-Premise

Appliance

s/w stack

Hybrid
Productivity in the Cloud

- Data & Application Loading
- Software Setup
- IT Setup
- Hardware Setup
- Procurement
- Data & Application Loading
- Launch a VM from Vendor Image
- Infrastructure Management
- Launch a VM from Custom Image
Security in the Cloud

- Shared responsibility

- General Concepts:
  - Network overlays
  - Private Cloud isolation

- Federal Certifications
ArcGIS in the Cloud
ArcGIS runs on all cloud categories

**Infrastructure As A Service (IaaS)**
- ArcGIS on Amazon EC2, ArcGIS on Private Cloud

**Platform As A Service (PaaS)**
- ArcGIS Online web services, ArcGIS Server Web APIs

**Software As A Service (SaaS)**
- ArcGIS Online, CrimeView Dashboard
ArcGIS on Public Cloud

- Amazon Web Services, Pioneers IaaS

- IT Consumerization
  - Buy resources based on an hourly rate and per GB
  - Monthly bill
  - Get started in 5 mins using your credit card

- Geographically controlled cloud
Amazon Instance types

- Sizes
  - Standard
  - High CPU
  - High Memory
  - HPC / Clusters

Standard Large
- 7.5 GB of memory, 4 EC2 Compute Units (2 virtual cores with 2 EC2 Compute Units each)

High CPU Extra Large
- 7 GB of memory, 20 EC2 Compute Units (8 virtual cores with 2.5 EC2 Compute Units each)

High Memory Quadruple Extra Large
- 68.4 GB of memory, 26 EC2 Compute Units (8 virtual cores with 3.25 EC2 Compute Units each)
Amazon Machine Images (AMIs)

• A virtual image that works in the Amazon Cloud
• A cookie-cutter approach for configuring servers
  • OS + Software + Data
• ESRI provided AMIs 10.0

**ArcGIS Server 10 AMI**
- Windows 2008 64 bit
- ArcGIS Server GIS Services
- Microsoft SQL Server Express (ArcSDE enabled)
- ArcGIS Desktop
- 100Gb of storage (optional)

**Enterprise Geodatabase AMI**
- Windows 2008 64 bit
- PostgreSQL 8.3.0 (ArcSDE enabled)
- 100Gb of storage (optional)
ArcGIS for Server on AWS AMIs 10.1

**ArcGIS Server 10.1 AMI**
- Windows 2008 R2 64 bit
- ArcGIS Server GIS Services
- Microsoft SQL Server Express or Microsoft SQL Server Standard - ArcSDE enabled (Optional)
- ArcGIS Desktop
- 100Gb of storage (optional)

**Enterprise Geodatabase AMI (Created Automatically)**
- Windows 2008 R2 64 bit
- Microsoft SQL Server Standard (ArcSDE enabled)
- 100Gb of storage (optional)

**ArcGIS Server 10.1 AMI**
- Ubuntu 64 bit
- ArcGIS Server GIS Services
- 100Gb of storage (optional)
- Postgres SQL - ArcSDE enabled (Optional)

**Enterprise Geodatabase AMI**
- Ubuntu 64 bit
- PostgreSQL (ArcSDE enabled)
- 100Gb of storage (optional)
ArcGIS Cloud Builder for Amazon Web Services
Custom AMIs
ArcGIS on Public Clouds

• IBM Smart Cloud Enterprise

• Microsoft Azure

• Others
## ArcGIS and Public Cloud Deployment Compatibility

<table>
<thead>
<tr>
<th>Public Cloud Vendors</th>
<th>Esri Certification</th>
<th>Vendor Self Certification</th>
<th>Esri testing</th>
<th>User testing</th>
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<tbody>
<tr>
<td>Amazon Web Services</td>
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<td>Microsoft Azure</td>
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<tr>
<td>IBM Smart Cloud Enterprise</td>
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<tr>
<td>Other clouds</td>
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</table>
ArcGIS compatibility with Cloud Stack

- Management Tools
- ArcGIS
- Operating System (Windows, Linux)
- Virtualization Platform (VMWare vSphere)
- Hardware
ArcGIS on Private Cloud
# ArcGIS and Private Cloud Deployment Compatibility

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<td>VCE vBlock</td>
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<tr>
<td>VMWare vCloud</td>
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<td>IBM Federal Cloud</td>
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<td>Microsoft Private Cloud</td>
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<td>✔</td>
<td>✔</td>
</tr>
</tbody>
</table>

* ArcGIS is certified on vSphere 4.x and 5.x
ArcGIS online and ArcGIS Server Compliment each other
ArcGIS in the Cloud

ArcGIS Online

Catalogue

Users

Groups

ArcGIS for Server in Cloud

ArcGIS Online Services
ArcGIS cloud product spectrum

- ArcGIS Server On Private Cloud
- ArcGIS Server On Amazon Web Services
- ArcGIS Server With Managed Services
- ArcGIS Online

Manage it Yourself

High

Low
ArcGIS in the Cloud Road Map

- ArcGIS is Cloud Agnostic
- More growth in features that are cloud specific
- Work with different cloud providers to address opportunities
Building your ArcGIS 10.1 for Server templates

- New features in 10.1

- Building templates
  - Base
  - Custom

- ArcGIS Server Admin API
References

- ArcGIS for server on VMWare white paper
- Using ArcGIS for Server in IBM cloud Developer Works magazine
- Resources and Blogs
Questions
Sample User Screens Layout

- **Underground Utilities**: Texas
- **Utility Network**: Germany
- **University**: Pennsylvania
- **Building/Room**: Panama
- **Railroads**: Switzerland
- **Oil Platform**: Norway
ArcGIS 10.1 Themes

- Online
- Desktop
- Server
- Mobile
- Developer
- Solutions
Arrows

Arrows for Connecting Items

Arrows for Connecting Large Concepts
Shapes for Diagrams

Quick Style: Subtle Effect  Quick Style: Moderate Effect

ArcGIS  ArcGIS
ArcGIS  ArcGIS
ArcGIS  ArcGIS
ArcGIS  ArcGIS
ArcGIS  ArcGIS
ArcGIS  ArcGIS

DON’T APPLY EFFECTS from the Design tab
Shapes for Diagrams (continued)

Cloud optimized for use behind diagrams

Cloud for general diagram

Circle behind a group of objects

Content box for each tier (see sample diagrams)

Optional: Use as a frame around showcased screenshots
Access the Entire Icon Library

Over 110 items added in 2011
- 535 total icons available for Esri use
- Browse and search from any Microsoft Office application

New! Read-me PDF with complete instructions
\pizzabox.esri.com\space\•Diagrams\Elements\
A Selection of Frequently Used Icons