Cloud Computing and GIS

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Goal of this presentation

• Describe and demystify “The Cloud”
  – What is it?
  – How is it different from web services?
  – ROI and TCO case studies

What is The Cloud

• Once upon a time...
  – Sam the server man discovered his servers were underutilized
  – To optimize their utilization rate, he made his servers available to others
  – This was really nothing new, as ISP’s had been around for decades
But...

- Sam’s Servers did more than just host HTML pages, they also:
  - Provided infrastructure solutions
  - And hosted services that his customers were not capable of hosting
  - Essentially, they were “servers for rent”
- This commercialization of web service hosting became known as...

Cloud Computing
By Definition

- Cloud computing is...
  - On-demand
  - Self-service services
  - Delivered in a metered fashion via a network (i.e., the Internet)
- Cloud computing follows...
  - A multi-tenancy model
  - Within a virtualized, elastic environment

TERMS

Multi-tenancy

- Virtualized servers are used by many
Virtualization

• Similar to logical hard drives, virtualization converts one physical server into many (virtual) servers
• Doing this requires:
  – Physical host server
  – Host OS + Virtualization software (e.g., Hypervisor)
  – Management suite software

Elasticity

• Similar to scalability

Cloud Deployment Models
The Hybrid Model

What services are offered in the Cloud?

• If it's not HTML hosting, what services are offered?

aaS

• as a Service
Where does GIS fit as a Service (aaS)?

- Software as a Service:
  - ArcLogistics Online
  - Business Analyst Cloud
  - ArcGIS Explorer Online
- Platform as a Service:
  - ArcGIS.com / ArcGIS Online
  - ArcGIS Web Mapping
  - ArcGIS Server with Cloud Infrastructure
- Managed Services

How does The Cloud differ from Web Services we already learned about?

- Brainstorm
- By definition cloud computing is...
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- Cloud computing follows...
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Let’s Compare

Cloud Servers
- On-demand
- Self-service
- Delivered in a metered fashion
- Multi-tenancy
- Virtualized
- Elastic

Virtualized Servers
- On-demand
- Self-service
- Delivered in a metered fashion
- Multi-tenancy
- Virtualized
- Elastic
ROI and TCO Scenarios

- TCO?
- ROI...
  - Case study #1, a small Idaho county wants to make GIS maps of the county available via the web
  - Case study #2, large research university wants to make GIS maps available via the web

The Partly Cloudy Approach

- Own the base, rent the spike

Considerations

- Reasons people are not using the cloud
- Security
- Service Level Agreement
Questions?