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, Hyper-V)
  – Management suite software

Elasticity

• Similar to scalability

Cloud Deployment Models
What services are offered in the Cloud?

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

aaS

- as a Service
Where does GIS fitaaS?

• Brainstorm...

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

• Brainstorm
• 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...
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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 for not using the cloud
  - Security
  - Service Level Agreement
Questions?