


Cloud Networking

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Goals and Non-Goals

Goals of the Presentation:

- ◆ Describe the goals and characteristics of cloud computing
- ◆ Identify the what and the why of cloud networking & WAN Governance

Non-Goals:

- ◆ To review any technology in detail
- ◆ To read every bullet on every slide



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Agenda

- Cloud Computing
- Cloud Networking & WAN Governance
- Summary



So, what is cloud computing?

- **Definition:** Depends upon who you talk to.
- **Goal:** An order of magnitude improvement in the cost-effective, elastic provisioning of IT services.





Classes of Cloud Computing

Public

- ◆ Software as a Service (SaaS)
- ◆ Infrastructure as a Service (IaaS)
- ◆ Platform as a Service (PaaS)

Private

Hybrid



Movement to Cloud Computing

- **IDC stated that the Software as a Service (SaaS) market achieved worldwide revenues of \$13.1 billion in 2009. IDC predicts the SaaS market to reach \$40.5 billion by 2014.**
- **Half of all IT organizations have already deployed server virtualization.**
- **Within a year, 78% of IT organizations will have deployed server virtualization.**



Cloud Computing Proof Point: Cost Savings

**Geir Ramleth, CIO of Bechtel,
benchmarked his company:**

- ◆ The price that Amazon charges for storage is one fortieth his internal cost
- ◆ He estimated that YouTube spends between \$10 and \$15 per megabit/second of WAN bandwidth. He spends \$500.



Cloud Computing Proof Point: Elastic Provisioning

- **The traditional process to acquire new servers takes weeks or months from the original request to having the servers in production.**
- **In a virtualized environment, new virtual machines can be provisioned in seconds or minutes.**



Cloud: A Lot of Things Old

- Time sharing
- Virtualized computers
- Out-tasking
- Renting applications



Cloud: A Few Things New

- On demand provisioning of IT resources
- Dynamic movement of IT resources
- New implementation models





What Can Be Virtualized?

- Servers
- Switches
- Wide Area Networks
- Local Area Networks
- Desktops
- Storage
- Wireless LANs
- Application Delivery Controllers
- WAN Optimization Controllers
- I/O
- Firewalls
- Routers
- Users



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Cloud Networking

- **A cloud network has the same goals as cloud computing; e.g., improved agility and cost.**
 - ◆ **Management Challenge:** Need to manage at the VM level & support the dynamic creation and movement of services.
 - ◆ **LAN Challenge:** Reduce the cost and complexity of supporting virtualized data centers.
 - ◆ **WAN Challenge:** WAN traffic doubles every two to three years & WAN services don't follow Moore's LAW. More branch office traffic transits the WAN to multiple providers.



WAN Governance

Key Characteristics of WAN

Governance:

- ◆ Cost
- ◆ Control
- ◆ QoS
- ◆ Visibility

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Summary

- **Cloud computing offers significant benefits.**
- **Cloud computing introduces significant challenges.**
- **The traditional model of IT is severely stressed (and probably breaks) under the weight of cloud computing.**
- **IT organizations need to re-evaluate their management and network strategies – and need to do so in a holistic fashion that supports cloud computing.**

