OSG Site Admin Meeting 2009

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Introduction to IaaS Clouds
Infrastructure as a Service
IaaS Services
Nimbus Clouds

Cloud Security
Cloud Users
Cloud Providers

Hands on Demonstration
Wispy
Demo

Outline
Introduction to IaaS Clouds
Cloud Security
Hands on Demonstration

Infrastructure as a Service
IaaS Services
Nimbus Clouds

- ▶ Features of IaaS
    - ▶ Network Connectivity
    - ▶ Remote storage
    - ▶ Virtualization
    - ▶ A remote control interface

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Infrastructure as a Service
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People Offering IaaS

- Amazon's EC2
- Linode/Slicehost
- Flexiscale
- Rackspace's Mosso

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Infrastructure as a Service
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Nimbus Clouds

Nimbus-based Science Clouds

- ▶ A Globus service implementing Infrastructure as a Sevice (IaaS)
- ▶ Uses certificates for authentication
- ▶ Provides both a WSRF and an EC2 interface
- ▶ Supports Xen VM technology, soon KVM as well
- ▶ Has hooks to integrate into a site's normal scheduler

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Infrastructure as a Service
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Implications of running in the Cloud

▶ Hardware and Networking abstracted away

▶ Oversubscription

▶ Service availability

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Cloud Users
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- ▶ Lack of data security
- ▶ Network-based authentication
- ▶ Potential flaws in the base virtualization technology
- ▶ Rogue site administrators

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Cloud Users
Cloud Providers

- ▶ Users with root running on the network
- ▶ Random services running in your IP space
- ▶ User's knowingly or unknowingly DoS'ing resources
- ▶ User's bringing protected data onto your systems

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Wispy
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Wispy: The Purdue VM Cloud

- ▶ Hardware
  - ▶ Several hosts
  - ▶ Dual processor (2.8GHz)
  - ▶ 16GB of memory
  - ▶ Native networking for guests, IP space on the Teragrid
- ▶ Software
  - ▶ Xen 3.0.3
  - ▶ Standard kernel released by XenSource, modules and source readily available

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Wispy: A Demo