CLOUD COMPUTING AND M4D

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CLOUD CLASSIFICATIONS
Cloud Classification

• **Service model based**
  – Depends on the cloud services being offered
    • Infrastructure as a Service (IaaS), e.g., AWS EC2
    • Platform as a Service (PaaS), e.g., Google App Engine
    • Software as a Service (SaaS), e.g., Salesforce.com

• **Deployment model based**
  – Depends on how a cloud is setup/deployed
    • Private \( \rightarrow \) Operated by and for an individual entity
    • Public \( \rightarrow \) Available to general public like a utility
    • Hybrid \( \rightarrow \) Private and public connected together
    • Community \( \rightarrow \) Setup by and for a group having shared goals
Logical View of Cloud Computing
Logical View of Cloud Computing

- **SaaS**
  - Web based applications and services, e.g., Google Apps, Salesforce.com, Twitter APIs.

- **PaaS**
  - Virtual hosting. Allows custom software stack e.g., LAMP, Ruby on Rails, Apache Tomcat etc.

- **IaaS**
  - A preconfigured OS can be rented, and user can add own applications to it, e.g., mail server.
  - Rent a VM with a preconfigured software stack or custom one.
  - Storage, compute cluster, e.g., HPC grid.

- **Applications and Services**
- **Middleware**
- **Operating System**
- **Virtual Machines**
- **Physical Servers**
Characteristics Common To All Variants

- Programmatic and Self-service provisioning of resources
- Multi-tenancy $\rightarrow$ Shared underlying computing infrastructure
- Lack of absolute control/custody of data and computing assets
- Computing as a utility accessible over the network
- Measured service
- Political/legal/geographic location can be transparent to clients
- Different structure for software licensing
- Potential to abuse the relative anonymity behind registration and usage models
Various Stakeholders In Cloud

Contemporary computing platforms

have stakeholders

Cloud providers

has types

Private, Community, Public and Hybrid

SaaS, PaaS and IaaS vendors

e.g. Salesforce.com

AWS

Google Apps

Data center specialists

Enterprise-level decision makers

Solution architects

Enterprise support and operations staff

Software programmers

Infrastructural component providers

Virtualization software providers

has types

IaaS framework providers

e.g. KVM

Xen

Linux LXC

PaaS component providers

e.g. Nimbus

OpenNebula

Eucalyptus

Drupal

PHP

MySQL

MOOC on M4D 2013
THANK YOU