

A Working Definition of Cloud Computing

- Cloud computing is a model for enabling convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction.
- This cloud model promotes availability and is composed of five essential **characteristics**, three **delivery models**, and four **deployment models**.

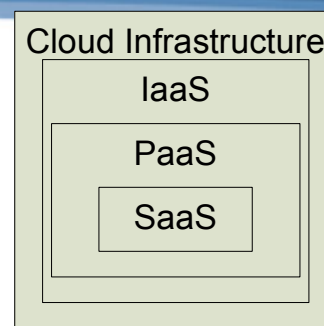
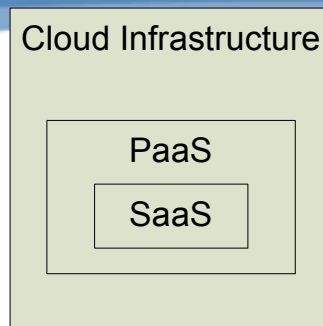
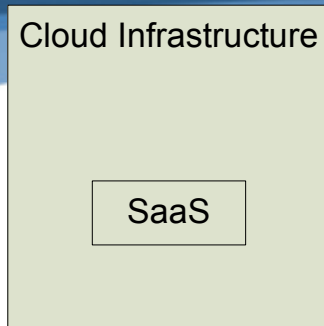
5 Key Cloud Characteristics

- On-demand self-service
- Ubiquitous network access
- Location independent resource pooling
- Rapid elasticity
- Measured service

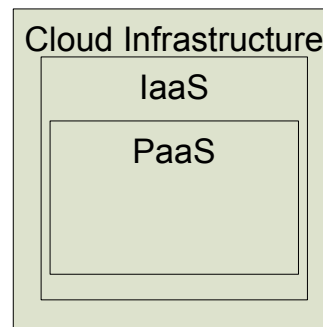
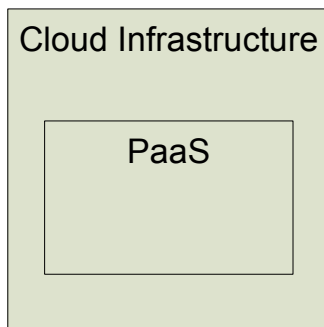
3 Cloud Delivery Models

- Cloud Software as a Service (SaaS)
 - Use provider's applications over a network
- Cloud Platform as a Service (PaaS)
 - Deploy customer-created applications to a cloud
- Cloud Infrastructure as a Service (IaaS)
 - Rent processing, storage, network capacity, and other fundamental computing resources
- To be considered “cloud” they must be deployed on top of cloud infrastructure that has the key characteristics

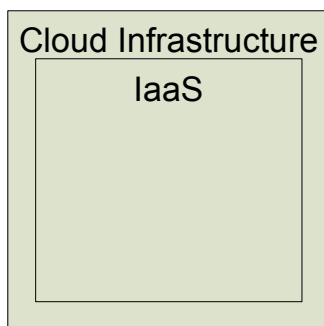
Delivery Model Architectures



Software as a Service
(SaaS)
Architectures



Platform as a Service (PaaS)
Architectures



Infrastructure as a Service (IaaS)
Architectures

4 Cloud Deployment Models

- Private cloud
 - enterprise owned or leased
- Community cloud
 - shared infrastructure for specific community
- Public cloud
 - Sold to the public, mega-scale infrastructure
- Hybrid cloud
 - composition of two or more clouds
- Two types: internal and external

Common Cloud Characteristics

- Cloud computing often leverages:
 - Massive scale
 - Virtualization
 - Free software
 - Autonomic computing
 - Homogeneity
 - Geographically distributed systems
 - Advanced security technologies
 - Service oriented software