

Serverless Data Processing (CSCI 5410)

Dr. Saurabh Dey

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Outline

- Cloud Deployment Models
- Cloud Delivery Models

Cloud Deployment Models

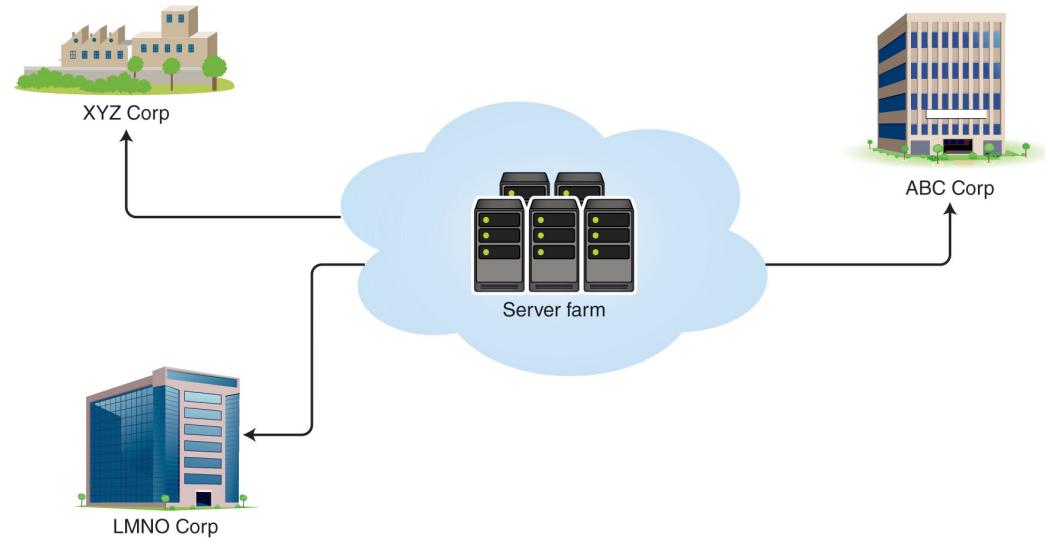
Cloud computing simultaneously adds convenience while reducing control

- Must rely on someone else's hardware to host applications, data, and network infrastructure
- May create security and privacy concerns

Citation: Dan C. Marinescu. (2018) *Cloud Computing Theory and Practice*, Second Ed

Cloud Deployment Models (Public Cloud)

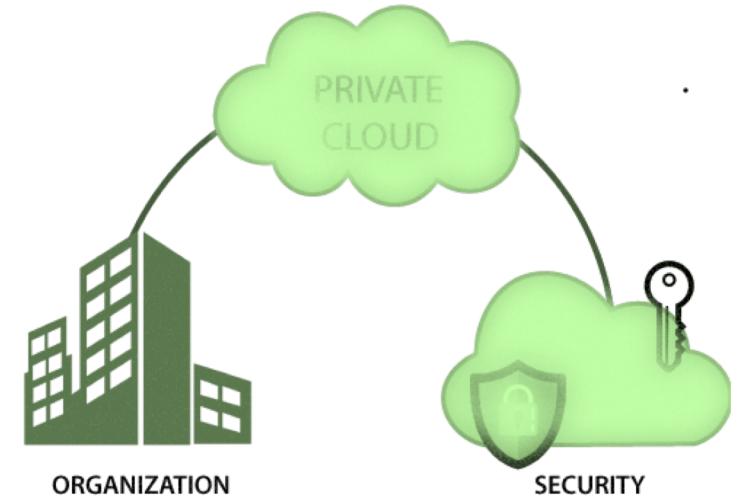
- Shared and flexible data storage, applications, or service
- Managed centrally by service providers
- Services hosted on hardware resources at cloud service provider's (CSP) location
- Physical resources shared with other customers



A public cloud is hosted on hardware shared by multiple customers.

Cloud Deployment Models (Private Cloud)

- Flexible data storage, applications, or services
- Managed centrally by an organization or service provider
- Hardware dedicated to that one organization
- Increases security!

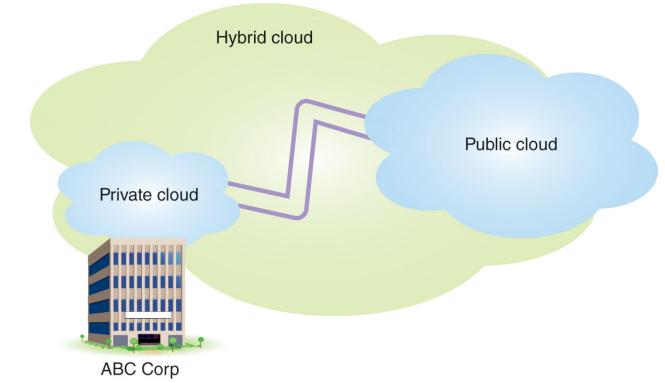


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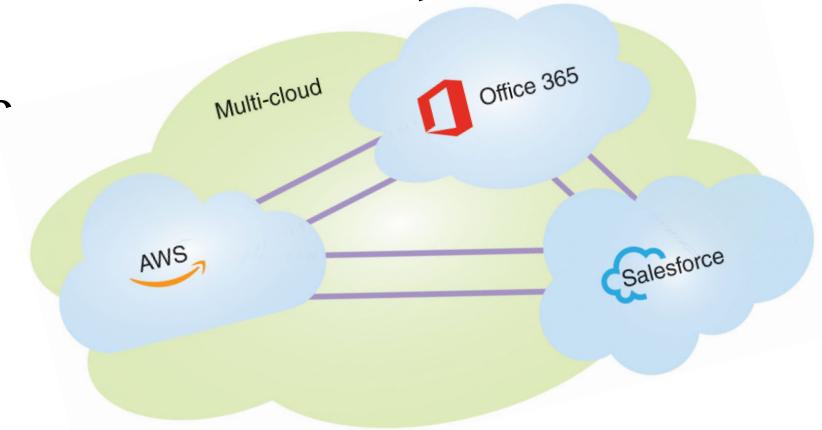
Cloud Deployment Models (Hybrid Cloud)

- Most common cloud deployment
- Mix of public and private cloud components
- Combination of cloud and traditional on-premise services
- Cloud-first approach
 - Transition every reasonable application and service to cloud
- Cloud bursting
 - Privately hosted application temporarily relies on cloud resources to accommodate spikes in demand



Cloud Deployment Models (Multi Cloud)

- Uses cloud services from multiple vendors at one time
- Can commit to a single-cloud environment
 - Cloud services filtered through that one CSP
- Best-in-breed
 - Results as cloud services mature and demand for cross-environment functionality increases
- Multiple CSPs involved
 - Even if services do not directly interact with each other

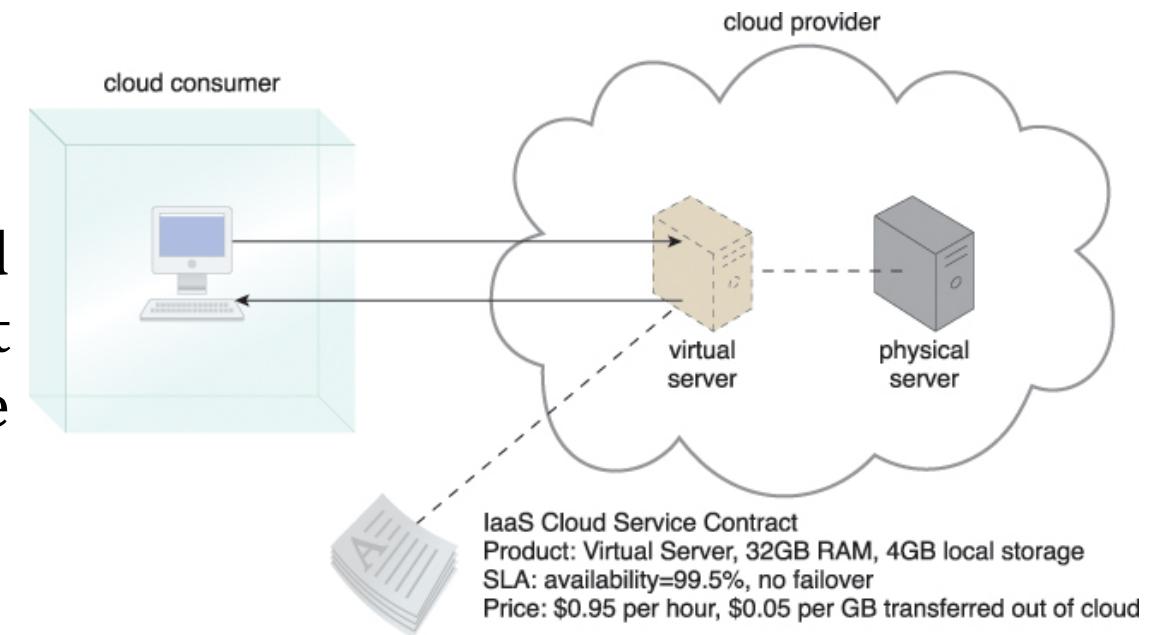


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Cloud Delivery Models

Infrastructure-as-a-Service (IaaS)

- IT resources are typically virtualized and packaged into bundles that simplify up-front runtime scaling and customization of the infrastructure.

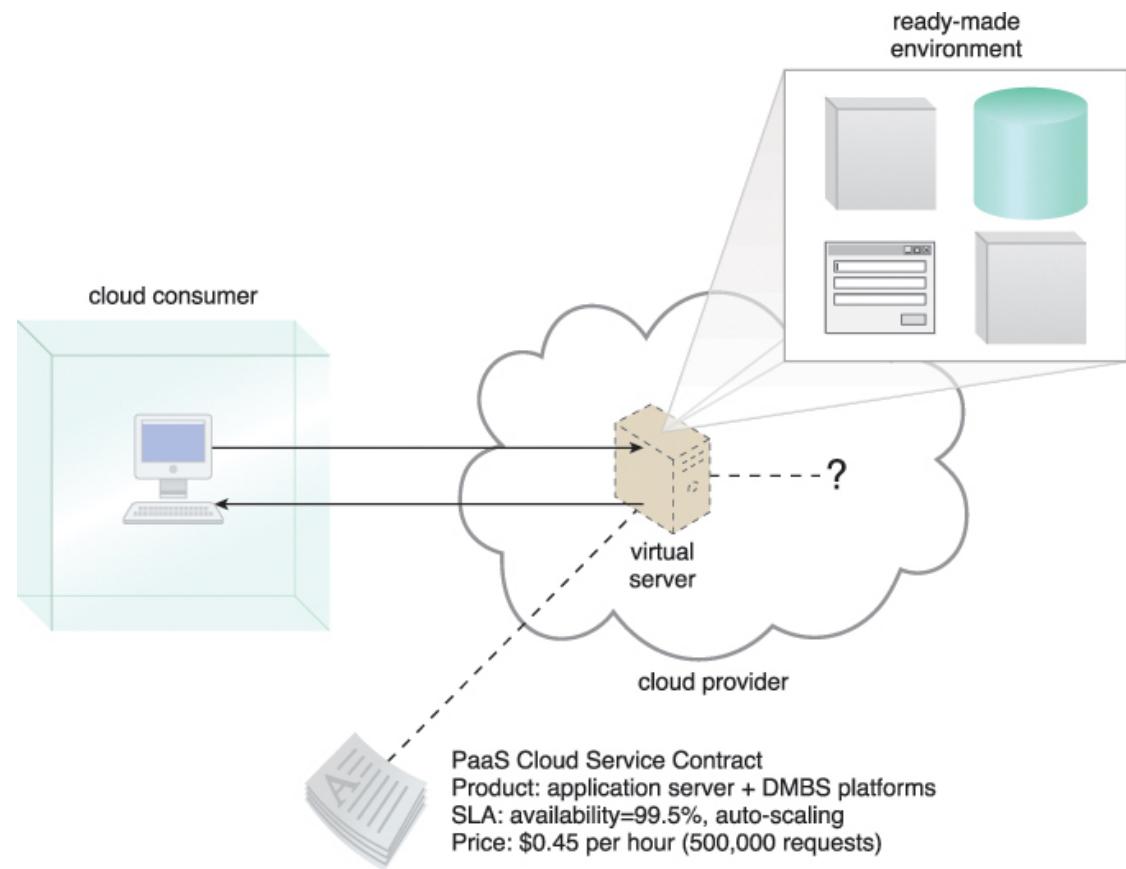


Citation: Erl, Thomas, Ricardo Puttini, Zaigham Mahmood. Cloud Computing.. [VitalSource Bookshelf].

Cloud Delivery Models

Platform-as-a-Service (PaaS)

- Pre-defined ready-to-use environment typically comprised of already deployed and configured IT resources.

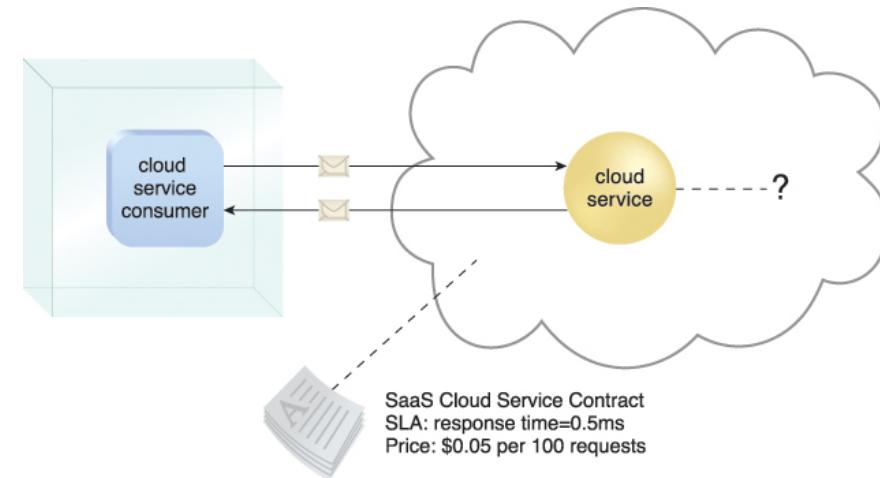


Citation: Erl, Thomas, Ricardo Puttini, Zaigham Mahmood. Cloud Computing.. [VitalSource Bookshelf].

Cloud Delivery Models

Software-as-a-Service (SaaS)

- Reusable cloud service, where the cloud consumer gets limited administrative control.
- Most often provisioned by the cloud provider, but legally owned by whichever entity assumes the cloud service owner role.



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Questions to Consider

- If you are building two applications –one for a financial institution, and another for a logistics company, will you use same cloud deployment model?
- Do you think multi-cloud can provide best possible solution from infrastructure and management point of view?