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Cloud Computing Concepts

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Agenda

- Cloud Computing Overview
- Advantages and Disadvantages
- Cloud Computing Strategies
- Demo and Practice
- Review Assignment 2

Cloud computing is the on-demand delivery of compute power, database storage, applications, and other IT resources through a cloud services platform via the internet with pay-as-you-go pricing. ^{[1][2]}

[1] What is Cloud Computing, <https://aws.amazon.com/what-is-cloud-computing/>

[2] What is Cloud Computing: A Beginner's Guide. <https://azure.microsoft.com/en-us/overview/what-is-cloud-computing/>

Where does term “Cloud” come from?

(Unverified) Wikipedia statement: Early drawing of network services are in cloud shape.

Cloud Computing Deployment Models:

- Infrastructure-as-a-Service
- Platform-as-a-Service
- Function-as-a-Service (Serverless)
- Software-as-a-Service
- Or, Everything-as-a-Service

Technology Dependency:

- Virtualization
- Web 2.0
- Distributed Storage
- Distributed Computing
- Network Evolvment

Advantages

- Cost
 - Reduce maintenance cost
 - Pay-per-usage pricing
 - Eliminate initial infrastructure investment
 - Save time for infrastructure development
- Flexibility
 - Business flexibility
 - Access flexibility
 - Capability flexibility

Advantages

- High Scalability
 - Elastic computing
 - Easy replication
 - Unlimited on-demand resources
- High Reliability
 - Shift risks to cloud provider (experts)
- High Availability
- Improve resource usage ratio
- Achieve new technology sooner
- Environmental Friendly

Disadvantages

- Security Concern
- Privacy Concern
- Provider Reliability
 - Cloud Provider
 - Network Provider
- Migration Cost
 - Lift and Shift

- Public Cloud
 - Single Cloud
 - Multi Cloud
 - Reliability
 - Cost
- Private Cloud
 - Two different implementation
- Hybrid Cloud
 - Privacy Concern

Practice 1:

Create a GCP project.

Practice 2:

Create a GCP VM and play with the VM via SSH.

Practice 3:

Create a wordpress blog via Marketplace.

A view of Cloud Computing. Michael Armbrust, Armando Fox, Rean Griffith, Anthony D. Joseph, Randy Katz, Andy Konwinski, Gunho Lee, David Patterson, Ariel Rabkin, Ion Stoica, Matei Zaharia.

The rise of cloud computing systems. Jeff Dean.