



Cloud Computing

Presentation by: Engr. Robin E. Valenzuela



Intended Learning Outcomes

- Analyze the advantages and disadvantages of cloud services
- Evaluate different Cloud deployment and service models
- Create a workflow to install and configure OpenStack based services using Ansible as documentation and execution.



**What do you think is the
cloud?**

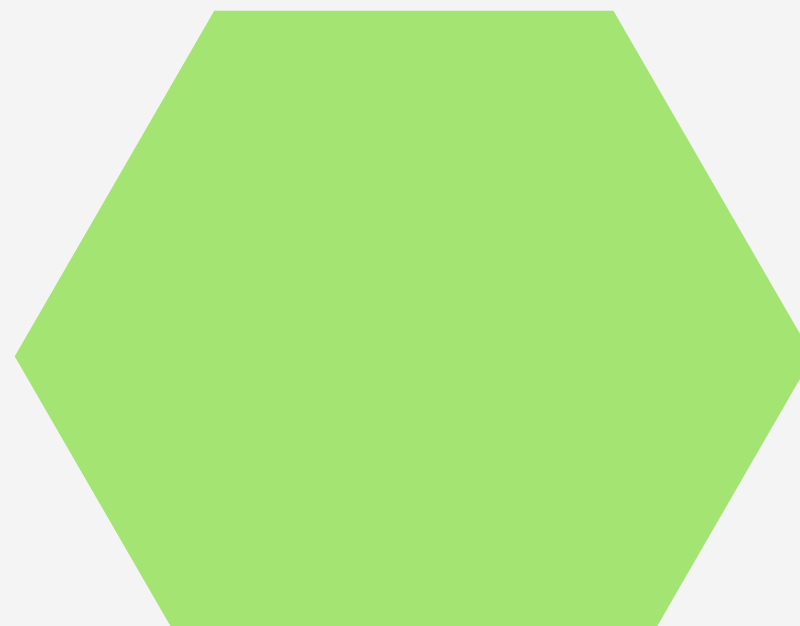




What is cloud computing?

Three hexagons are arranged in a triangular pattern at the bottom left. The leftmost hexagon is teal, the middle one is white, and the rightmost one is light green.

- Cloud computing is the delivery of on-demand IT resources like storage, power, computing, and applications over the internet with a pay-as-you-go pricing. Meaning, you are charged with what you buy/use only. Instead of actually buying or 'owning', you are 'renting' these services and they are paid for depending on the vendor. AWS, for example, charges you based on your resource usage.



Examples:



NETFLIX



Google Drive

Canva

Cloud computing Service Models





On-Premises



IaaS

Infrastructure as a Service



PaaS

Platform as a Service



SaaS

Software as a Service

	Applications	Applications	Applications	Applications
	Data	Data	Data	Data
	Runtime	Runtime	Runtime	Runtime
	Middleware	Middleware	Middleware	Middleware
	O/S	O/S	O/S	O/S
	Virtualization	Virtualization	Virtualization	Virtualization
	Servers	Servers	Servers	Servers
	Storage	Storage	Storage	Storage
	Networking	Networking	Networking	Networking



You Manage



Other Manages

IaaS

Infrastructure as a service

- Infrastructure as a service offers a standardized way of acquiring computing capabilities on demand and over the web. Such resources include storage facilities, networks, processing power, and virtual private servers. These are charged under a “pay as you go” model where you are billed by factors such as how much storage you use or the amount of processing power you consume over a certain timespan. In this service model, customers do not need to manage infrastructure, it is up to the provider to guarantee the contracted amount of resources and availability. According to Gartner, this service model is forecasted to grow by 35.9% in 2018[2]. IaaS services offered today, include Google Cloud Platform and Amazon EC2.

Examples:



Microsoft Azure

PaaS

Platform as a service

- Platform as a Service is halfway between Infrastructure as a Service (IaaS) and Software as a Service (SaaS). It offers access to a cloud-based environment in which users can build and deliver applications without the need of installing and working with IDEs (Integrated Development Environments, which are often very expensive. Additionally, users can often customize the features they want included with their subscription. According to Gartner, PaaS has the smallest market share of the three service models, with a projected revenue of 27 billion USD by the year 2021. In today's market, PaaS providers offer applications such as Microsoft Azure (also IaaS), Google App Engine, and Apache Stratos.

Examples:



Firebase



HEROKU

SaaS

Software as a Service

- Software as a Service offers applications that are accessed over the web and are not managed by your company, but by the software provider. This relieves your organization from the constant pressure of software maintenance, infrastructure management, network security, data availability, and all the other operational issues involved with keeping applications up and running. SaaS billing is typically based on factors such as number of users, usage time, amount of data stored, and number of transactions processed. This service model has the largest market share in cloud computing; according to Gartner, its sales will reach 117 billion USD by the year 2021. Current applications for SaaS include Field Service solutions, system monitoring solutions, schedulers and more.

Cloud computing Deployment models

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Public Cloud

The icon for Public Cloud features a light blue rectangular box with an orange border, hanging from two black lines with circular fasteners. Below the box is a stylized, multi-layered white and light blue cloud.



Private Cloud

The icon for Private Cloud features a light blue rectangular box with an orange border, hanging from two black lines with circular fasteners. Below the box is a stylized, multi-layered white and light blue cloud.



Hybrid Cloud

The icon for Hybrid Cloud features a light blue rectangular box with an orange border, hanging from two black lines with circular fasteners. Below the box is a stylized, multi-layered white and light blue cloud.

Public Cloud

Decorative geometric shapes on the left side of the slide, including a large dark teal hexagon, a smaller teal hexagon above it, a teal hexagon below it, and a light green hexagon to the right.

A type of cloud hosting that allows the accessibility of systems & its services to its clients/users easily.

Provider companies offer resources as a service both free of charge or on a pay-per-use basis via the Internet connection. Users can scale resources when required.

AWS, Azure

Private Cloud



A type of cloud hosting that allows the accessibility of systems & its services to its clients/users easily.

The same features as Public cloud, however it is not accessible to the public

Vmware Vsphere, OpenStack

Hybrid Cloud

Decorative geometric shapes on the left side of the slide, including a large dark teal hexagon, a smaller teal hexagon above it, a teal hexagon below it, and a light green hexagon to the right of the bottom teal one.


A type of cloud hosting that allows the accessibility of systems & its services to its clients/users easily.

The difference between a hybrid, private, and public cloud is that Hybrid has both of these for increased Flexibility.

AWS Outposts

Advantages and Disadvantages of Cloud Computing

Advantages	Disadvantages
Cost	Technical Issues
Scalability	Downtime
Control	Security Threats
Reliability	Internet Connection
Quick Deployment	Performance Variance

The background features abstract geometric shapes. A large, dark teal shape occupies the bottom-left and middle-left portions of the frame. A bright teal hexagon is positioned in the upper-middle section, partially overlapping the dark teal shape. The right side of the image is a plain white background.

Do you have
any questions?