CLOUD

Chapter 1: CLOUD COMPUTING

Engineering Cycle
Level 2

EPI

Academic Year 2025/2026

Cloud: Definitions & Basic Concepts

- "Cloud" is an English term which means Remote Data Processing in IT field.
- In computing process, the cloud refers to a set of remote online storage systems.

Cloud: Definitions & Basic Concepts

- It is a system that allows data to be stored on remote computers (i.e. servers)
- and which are accessible only via Internet Network.

Cloud: Definitions & Basic Concepts

- The cloud computing remains a set of solutions

→ Which allow the provision of **various services** "on demand" via the Internet.

Cloud: Definitions & Basic Concepts

- The data is stored on a remote server
- instead of being stored on personal computer's.

Cloud: The operating principle

- A **set of equipment** consisting of servers on which customer data is stored
- the connectivity : *cables or optical fiber* through which customers have access to it.

Cloud: The operating principle

- It remains the property of a **service provider** who sells cloud services to the customers

→Google Cloud, Microsoft Azure and Amazon Web Services (AWS) are considered recognized leaders

Cloud: The operating principle

Features

- This remote server is a large computer with high performance
- With multiple processors
- Many RAM memories
- And, High security systems

Cloud: The operating principle

Features

- Works with a powerful operating system,
- applications and software that are regularly updated.

Types of CLOUD

Types of Cloud Computing

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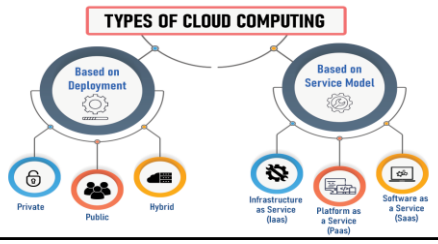
- Cloud computing can either be classified based on the deployment model or the type of service.



Types of Cloud Computing

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- Based on the specific deployment model, we can classify cloud as
- **public** ,
- **private** ,
- and **hybrid** cloud.

Types of Cloud Computing

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- It can be classified as
  - Infrastructure-as-a-service (**IaaS**),
  - Platform-as-a-service (**PaaS**),
  - Software-as-a-service (**SaaS**)

  → based on the service the cloud model offers

Cloud: The different types

- There are different types of Cloud.
- **Public**
  - An infrastructure that allows data to be stored online on servers
  - which also remain accessible to other users.

Cloud: The different types

- Microsoft Azure, Google Cloud, Amazon Web Services (AWS) and IBM Cloud
- are the leading public cloud providers .

Cloud: The different types

- **The cloud private**
  - As the name suggests, it remains the property of an entity/usr/company.
  - Most often, this is the type of cloud suitable for businesses

Cloud: The different types

- **The cloud private**
  - who want to have complete control over their data , software and applications which are stored on their own servers.

Cloud: The different types

- **The cloud private**
  - Setting up this type of server requires significant **financial** and logistical resources.
  - This powerful and secure cloud remains completely under the user's **control** .

Cloud: The different types

- **The cloud hybrid**
  - Is the combination of private and public cloud.
  - If we have two types of data (confidential data and non-confidential data).

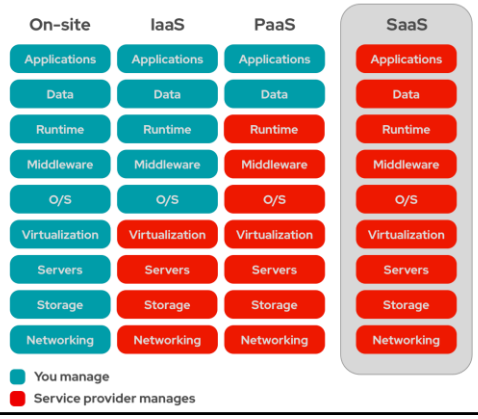
Cloud: The different types

- **The cloud hybrid**
  - Sensitive data remains stored on the private cloud and other data remains on the public cloud where anyone can access it.

Saas / Paas / Iaas

Cloud: The different types

- It is possible to differentiate the different types of cloud according to the type of layers used.
- **SaaS (Software as a Service)** : SaaS software is software hosted and executed in the cloud .



Cloud: The different types

- **SaaS**
  - Benefit from the **computing power** of remote servers
  - to run programs and applications

  + without impacting our computer resources.

Cloud: The different types

- **SaaS**
- SaaS software is therefore accessible from anywhere
- which makes them practical in the context of remote working
- or in the case of multinational companies that have agencies all over the world.

Cloud: The different types

- **Examples**
- **Microsoft Office 365**
- Microsoft productivity applications such as Word, Excel, and PowerPoint are essential parts of the workplace,
- but the cloud significantly expands the settings of the Office suite.

Cloud: The different types

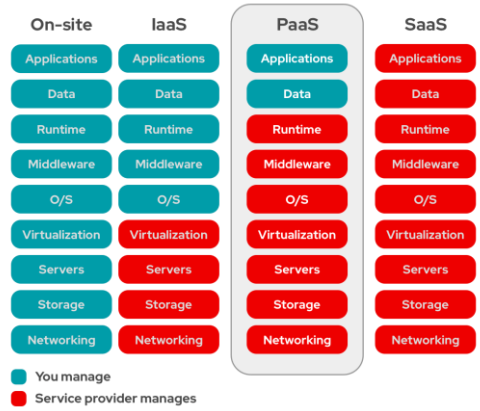
- **Google Apps**
- to provide businesses with a complete suite of productivity tools.
- includes personalized professional messaging (with anti-spam protection),
- shared

Cloud: The different types

- **Google Apps**
- video conferences with Google Drive.
- Google Drive lets employees access files from any device
- and share them instantly with colleagues,

Cloud: The different types

- **PaaS (Platform as a Service)** : platform as a service
  - Google Azure,
  - Google Cloud
  - or AWS (Amazon service).



Cloud: The different types

- **The Paas (Platform as a Service) :**
- Allows a user to deploy applications using programming languages
- and tools supported by the service provider.

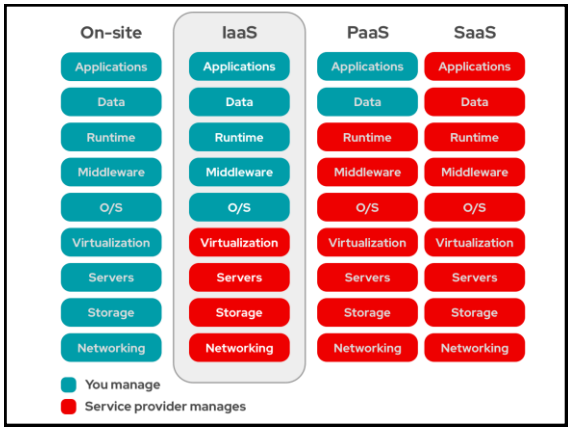
Cloud: The different types

- **The Paas (Platform as a Service) :**
- User controls deployed applications and configurations

Cloud: The different types

- But it does not manage or control the cloud infrastructure ,

→ including the network, servers, operating systems or storage.



Conclusion

- The cloud computing has emerged the IT field and its differents sides,
- providing infinite scalability in enterprise application delivery
- and software as a service (SaaS).

Conclusion

- Amazon Cloud , Microsoft Azure, Google App Engine …
- give users the ability to deploy their applications in a system of infinite computing power
- with modest operating costs proportional to actual use.