

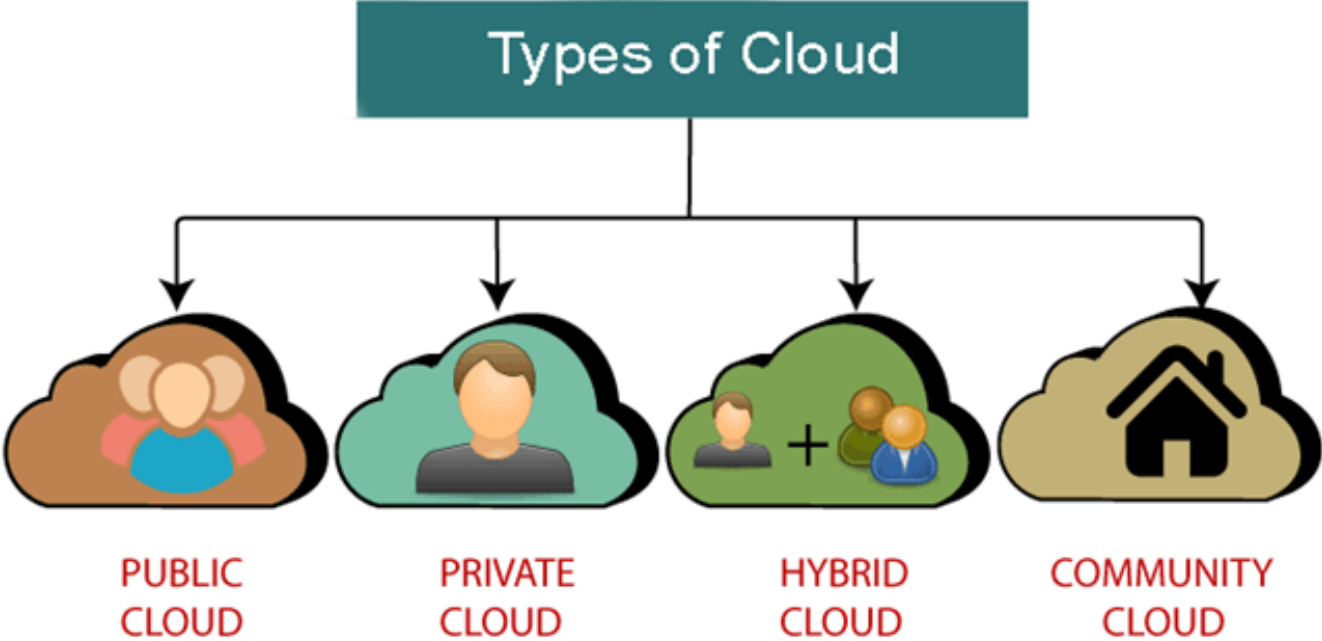


Introduction to Cloud Computing

Dr. Rastgoo

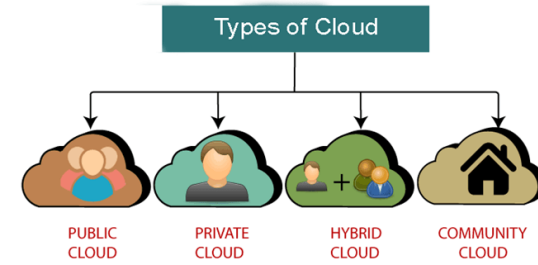
Types of Clouds

There are **four** different cloud models that you can subscribe according to business needs.



Types of Clouds

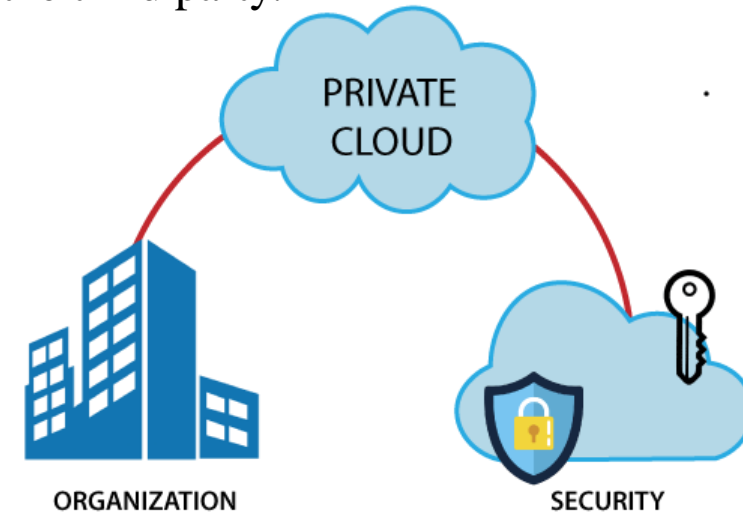
Private Cloud



Private cloud is also known as an **internal cloud** or **corporate cloud**.

It is used by organizations to build and manage their own data centers internally or by the third party.

It can be deployed using Opensource tools such as Openstack and Eucalyptus.

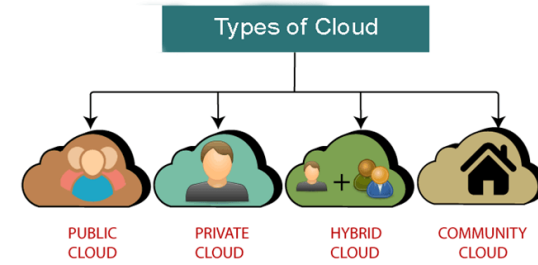


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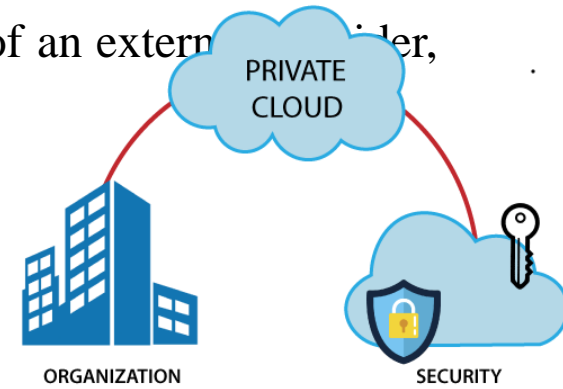
Types of Clouds



Private Cloud

Based on the location and management, National Institute of Standards and Technology (NIST) divide private cloud into the following two parts-

- **On-premise private cloud:** An on-premises private cloud is one that you can deploy on your **own resources** in an **internal data center**. You must purchase the resources, maintain and upgrade them, and ensure security. On-premises private cloud management is **expensive** and requires heavy initial investment and ongoing expenses.
- **Outsourced private cloud:** The Private Cloud may be hosted exclusively in the data center of an external provider, then referred to as outsourced Private Cloud.

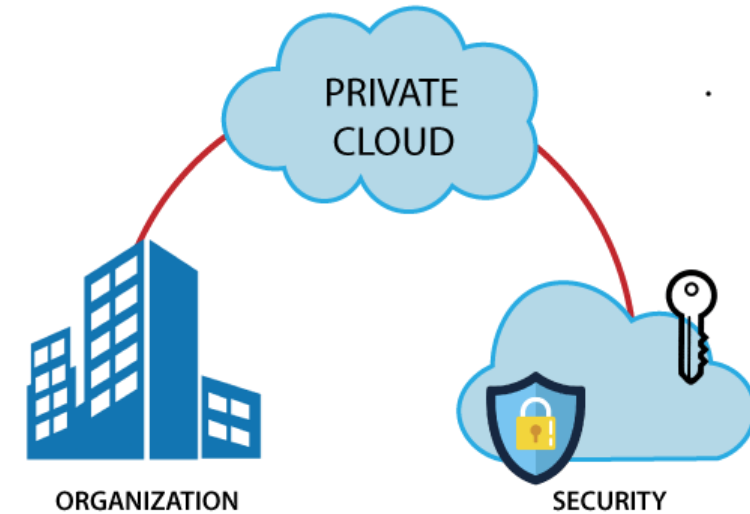
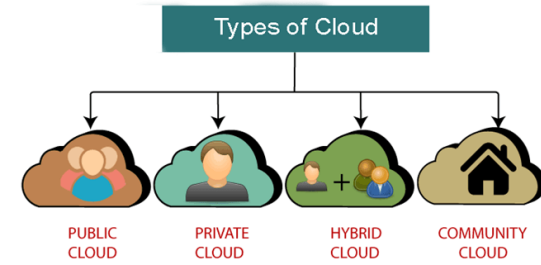


Types of Clouds

Advantages of Private Cloud

There are the following advantages of the Private Cloud:

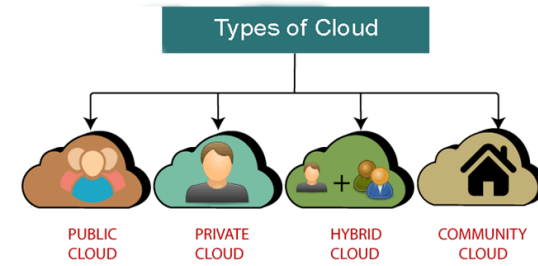
- Private cloud provides a high level of security and privacy to the users.
- Private cloud offers better performance with improved speed and space capacity.
- It allows the IT team to quickly allocate and deliver on-demand IT resources.



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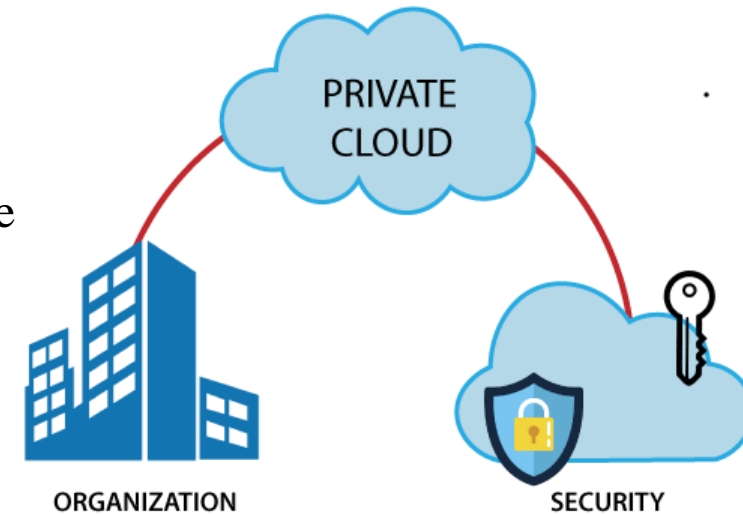
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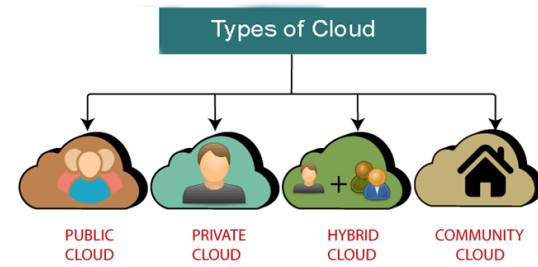
Advantages of Private Cloud

There are the following advantages of the Private Cloud:

- The organization has **full control** over the cloud because it is managed by the organization itself.
- So, there is no need for the organization to depends on anybody.
- It is suitable for organizations that require a separate cloud for their personal use and data security is the first priority.



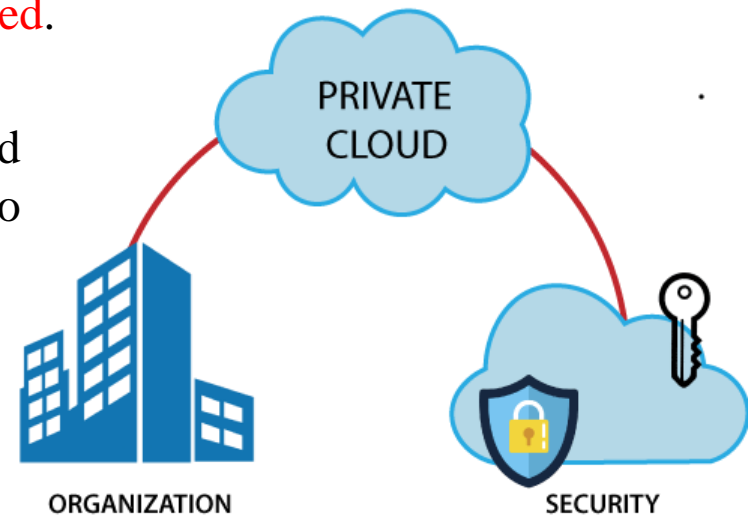
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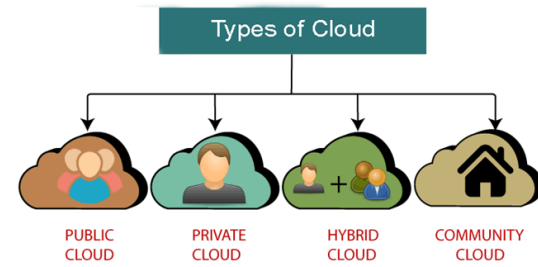
Disadvantages of Private Cloud

There are the following disadvantages of the Private Cloud:

- **Skilled people** are required to manage and operate cloud services.
- Private cloud is accessible within the organization, so **the area** of operations is **limited**.
- Private cloud is not suitable for organizations that have a high user base, and organizations that do not have the prebuilt infrastructure, sufficient manpower to maintain and manage the cloud.



Types of Clouds



Public Cloud

Public cloud is open to all to store and access information via the Internet using the pay-per-usage method.

In public cloud, computing resources are managed and operated by the Cloud Service Provider (CSP).

A CSP (Cloud Service Provider) is a third-party company that provides scalable computing resources that businesses can access on demand over a network, including cloud-based compute, storage, platform, and application services.

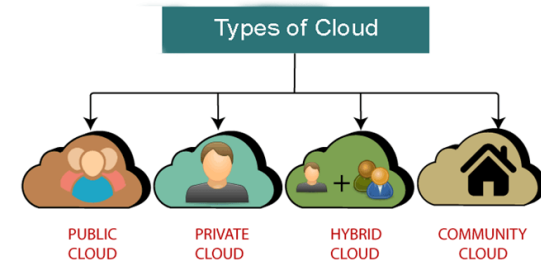


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Types of Clouds



Public Cloud

Example: Amazon elastic compute cloud (EC2), IBM SmartCloud Enterprise, Microsoft, Google App Engine, Windows Azure Services Platform.

Public Cloud

- Highly Flexible
- PAYG or Pay as you use
- Maintained and Monitored by others

Public

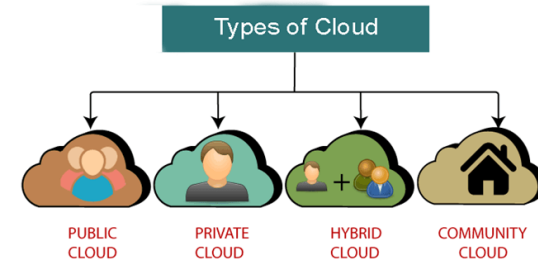
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Types of Clouds

Advantages of Public Cloud



There are the following advantages of Public Cloud:

- Public cloud is owned at a **lower cost** than the private and hybrid cloud.
- Public cloud is **maintained** by the **cloud service provider**, so do not need to worry about the maintenance.
- Public cloud is **easier to integrate**. Hence it offers a **better flexibility** approach to consumers.



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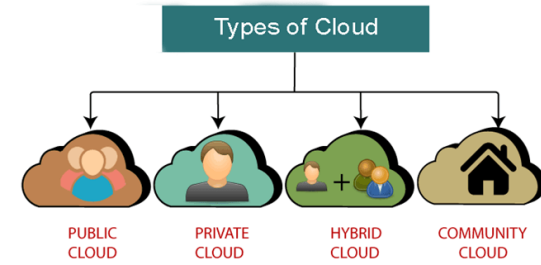
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Advantages of Public Cloud

There are the following advantages of Public Cloud:

- Public cloud is **location independent** because its services are delivered through the internet.
- Public cloud is **highly scalable** as per the requirement of computing resources.
- It is accessible by the general public, so there is **no limit** to the **number of users**.



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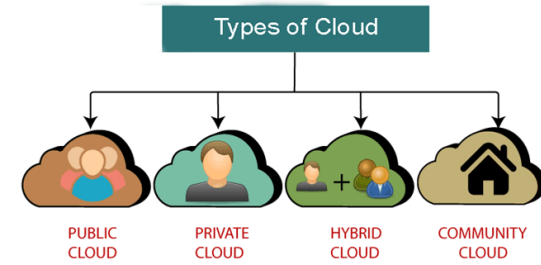
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Disadvantages of Public Cloud

There are the following disadvantages of Public Cloud:

- Public Cloud is **less secure** because resources are shared publicly.
- Performance depends upon the high-speed internet network link to the cloud provider.
- The Client has **no control** of data.



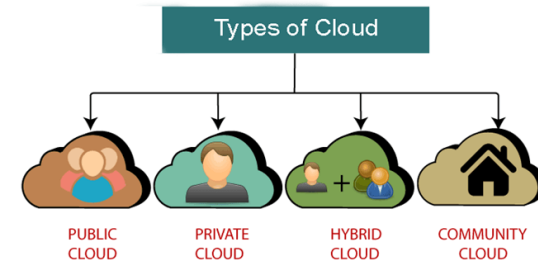
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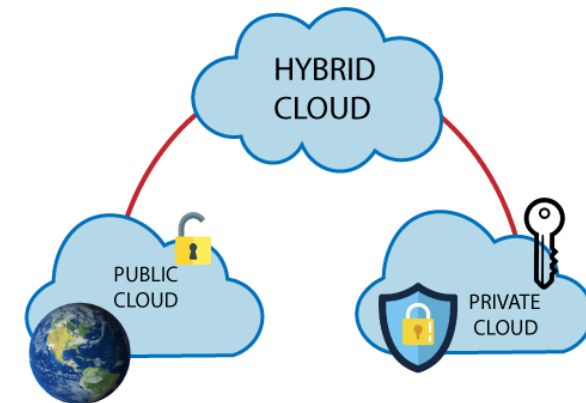
Hybrid Cloud



- Hybrid Cloud is a combination of the public cloud and the private cloud. we can say:

Hybrid Cloud = Public Cloud + Private Cloud

- Hybrid cloud is partially secure because the services which are running on the public cloud can be accessed by anyone, while the services which are running on a private cloud can be accessed only by the organization's users.

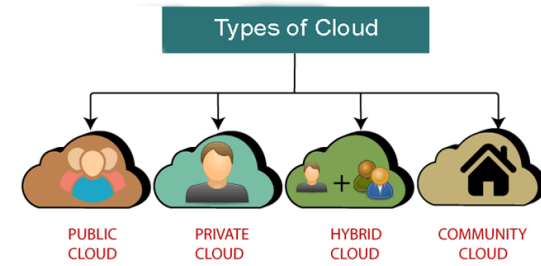


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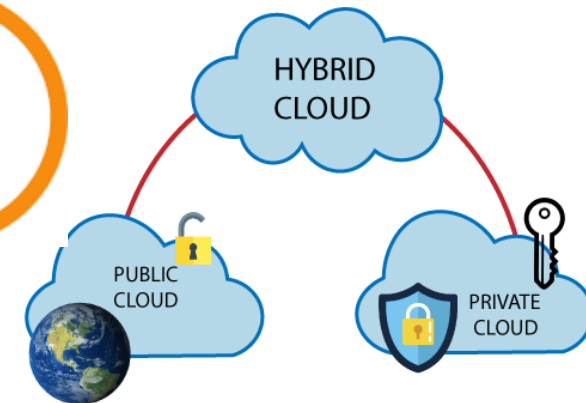
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Hybrid Cloud

- Example: Google Application Suite (Gmail, Google Apps, and Google Drive), Office 365 (MS Office on the Web and One Drive), Amazon Web Services.

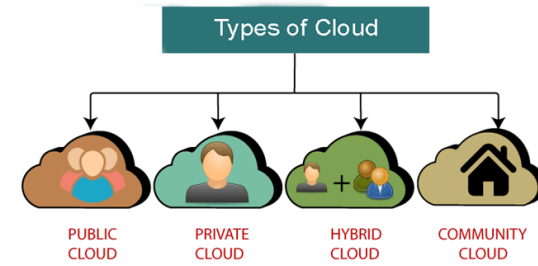


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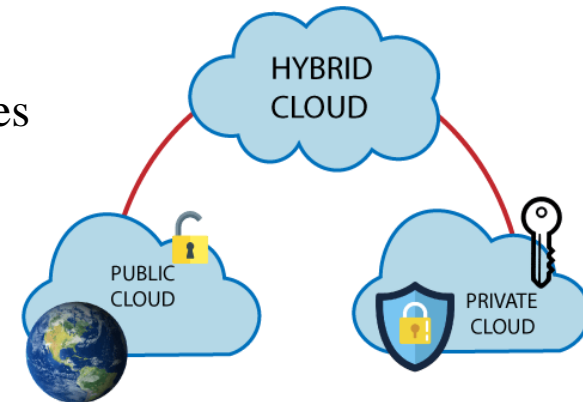
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Advantages of Hybrid Cloud

There are the following advantages of Hybrid Cloud -

- Hybrid cloud is suitable for organizations that require **more security** than the public cloud.
- Hybrid cloud helps you to deliver new products and services more **quickly**.
- Hybrid cloud provides an excellent way to reduce the **risk**.
- Hybrid cloud offers flexible resources because of the public cloud and secure resources because of the private cloud.

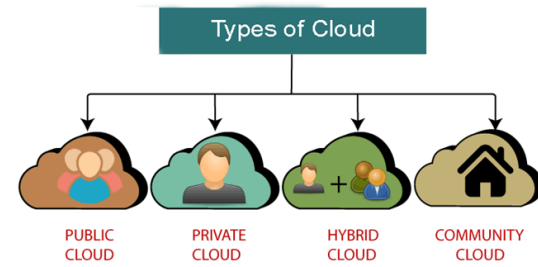


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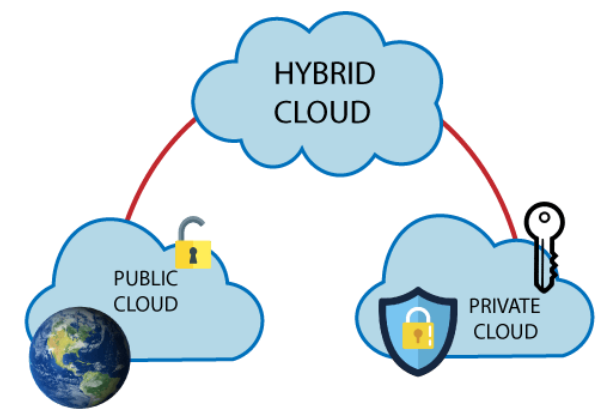
Types of Clouds



Disadvantages of Hybrid Cloud

There are the following advantages of Hybrid Cloud:

- In Hybrid Cloud, security feature is not as good as the private cloud.
- Managing a hybrid cloud is complex because it is difficult to **manage** more than one type of deployment model.
- In the hybrid cloud, the **reliability** of the services depends on cloud service providers.

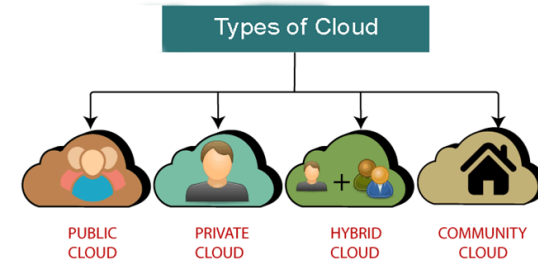


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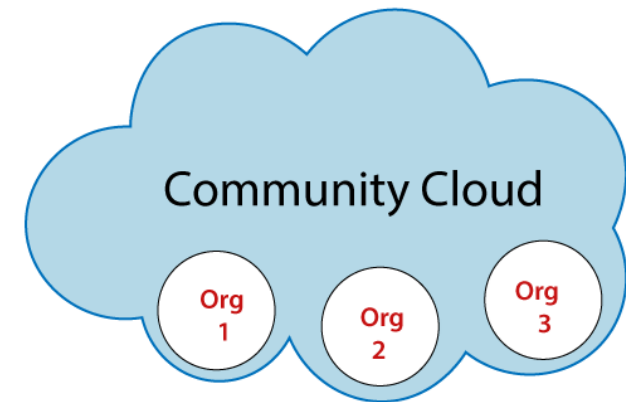
Types of Clouds



Community Cloud

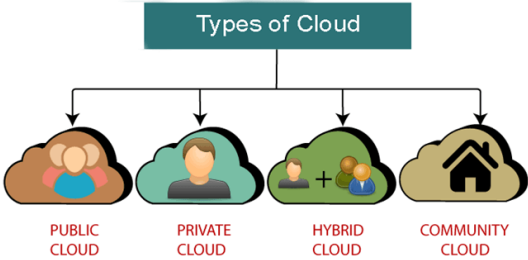
Community cloud allows systems and services to be accessible by a **group of several organizations** to share the information between the organization and a specific community.

It is owned, managed, and operated by one or more organizations in the community, a third party, or a combination of them.

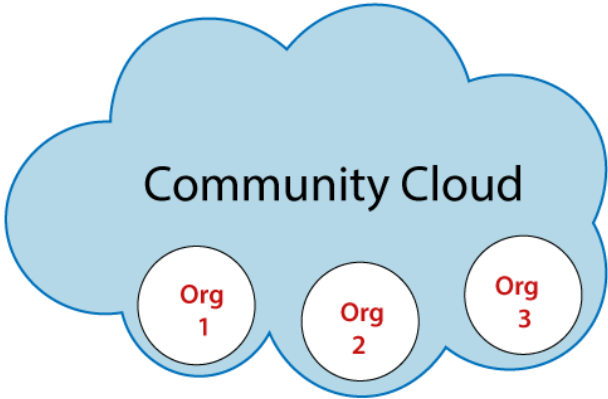


Types of Clouds

Community Cloud



Example: Health Care community cloud



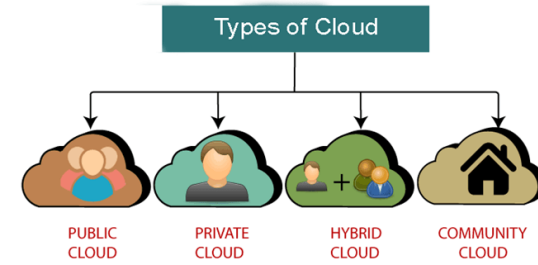
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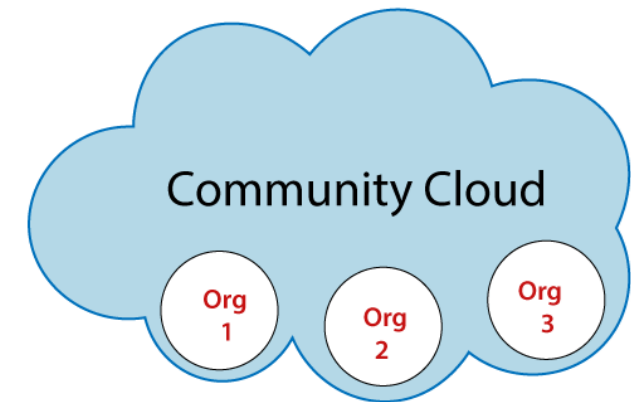
Advantages of Community Cloud



There are the following advantages of Community Cloud:

Community cloud is **cost-effective** because the whole cloud is being shared by several organizations or communities.

Community cloud is suitable for organizations that want to have a collaborative cloud with **more security** features than the public cloud.

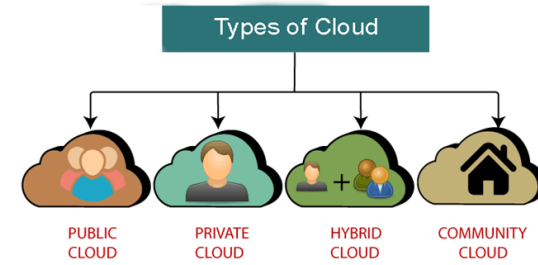


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Advantages of Community Cloud

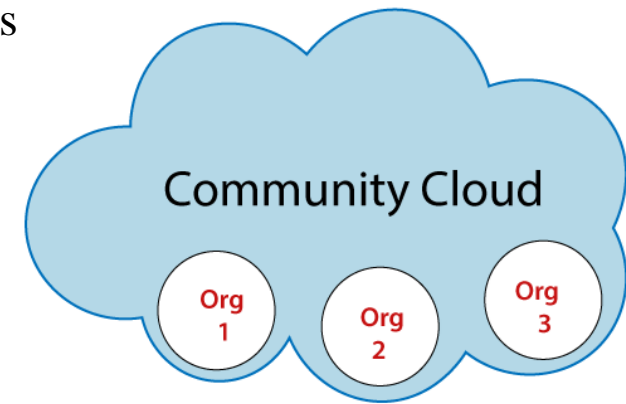


There are the following advantages of Community Cloud -

It provides **better security** than the public cloud.

It provides collaborative and distributive environment.

Community cloud allows us to **share** cloud resources, infrastructure, and other capabilities among various organizations.



Types of Clouds

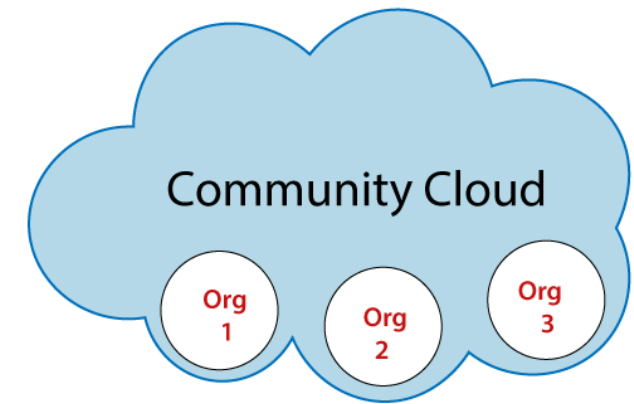
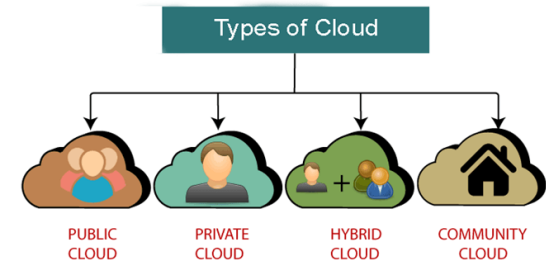
Disadvantages of Community Cloud

Community cloud is not a good choice for every organization.

Security features are not as good as the private cloud.

It is not suitable if there is no collaboration.

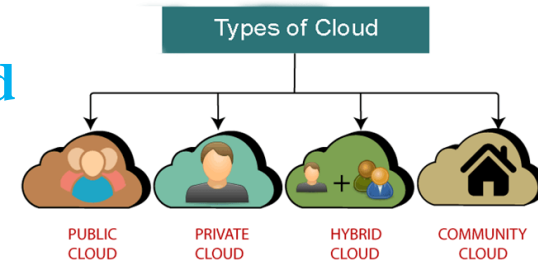
The fixed amount of data storage and bandwidth is shared among all community members.



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Difference between public cloud, private cloud, hybrid cloud, and community cloud



Parameter	Public Cloud	Private Cloud	Hybrid Cloud	Community Cloud
Host	Service provider	Enterprise (Third party)	Enterprise (Third party)	Community (Third party)
Users	General public	Selected users	Selected users	Community members
Access	Internet	Internet, VPN	Internet, VPN	Internet, VPN
Owner	Service provider	Enterprise	Enterprise	Community

Enterprise cloud computing allows businesses to access resources like servers, storage, networking, databases, and analytics as services delivered over the internet, rather than provisioning and installing their own hardware, software, and computing infrastructure on-premises.





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