**Public Cloud vs Private Cloud vs Hybrid Cloud**

Cloud computing is a type of remote computer network hosting, where massively distributed computers are connected to the Internet and made available through Internet Protocol networks such as the Internet. Cloud computing involves providing a service over the Internet, on-demand and utility computing, distributed systems, and data processing for resource pooling, scalability, rapid elasticity, and rapid recovery from failure.

**Public Cloud**

A Public Cloud is Cloud Computing in which the infrastructure and services are owned and operated by a third-party provider and made available to the public over the internet. The public can access and use shared resources, such as servers, storage, and applications and the main thing is you pay for what you used. . Examples of public cloud providers – are Amazon Web Services (AWS), Microsoft Azure, and Google Cloud Platform (GCP)

**Advantages**

* **Cost Efficient**: In the public cloud, we have to pay for what we used. So it is more cost-efficient than maintaining the physical servers or their own infrastructure.
* **Automatic Software Updates**: In the public cloud, there are automatic software updates. we don’t have to update the software manually.
* **Accessibility**: Public clouds allow users to access their resources and applications from anywhere in the world. We just need an internet connection to access it.

**Private Cloud**

A Private Cloud is a cloud computing environment in which the infrastructure and services are owned and operated by a single organization, for example, a company or government, and it is accessed by only authorized users within that organization. Private Cloud organizations have their own data center. private cloud provides a higher level of security. Examples – HPE, Dell, VMware, etc.

**Advantages**

* **Security Status**: Private clouds provide a higher level of security. as the organization has full control over the cloud service. They can customize the servers to manage their security.
* **Customization of Service**:  Private clouds allow organizations to customize the infrastructure and services to meet their specific requirements. and also can customize the security.
* **Privacy**: Private clouds provide increased privacy as the organization(company or government ) has more control over who has access to their data and resources.

**Hybrid Cloud**

A hybrid cloud is a combination of both public and private cloud environments that allows organizations to take advantage of the benefits of both types of clouds. It manages traffic levels during peak usage periods  It can provide greater flexibility, scalability, and cost-effectiveness than using a single cloud environment. Examples – IBM, DataCore Software, Rackspace, Threat Stack, Infinidat, etc.

**Advantages**

* **Flexibility**: Hybrid cloud stores its data (also sensitive) in a private cloud server. While public server provides Flexibility and Scalability.
* **Scalability**: Hybrid cloud Enables organizations to move workloads back and forth between their private and public clouds depending on their needs.
* **Security**: Hybrid cloud controls over highly sensitive data. and it provides high-level security. Also, it takes advantage of the public cloud’s cost savings.

**Difference between Public Cloud vs Private Cloud vs Hybrid Cloud**

| **Factors** | **Public Cloud** | **Private Cloud** | **Hybrid Cloud** |
| --- | --- | --- | --- |
| Resources | Resources are shared among multiple customers | Resources are shared with a single organization | It is a  combination of public and private clouds. based on the requirement. |
| Tenancy | Data of multiple organizations is stored in the public cloud | Data of a single organization is stored in a clouds the public cloud | Data is stored in the public cloud, and provide security in the public cloud. |
| Pay Model | Pay what you used | Have a variety of pricing models | It can include a mix of public cloud pay-as-you-go pricing, and private cloud fixed pricing. It has other pricing models such as consumption-based, subscription-based, etc. |
| Operated by | Third-party service provider | Specific  organization | Can be a combination of both |
| Scalability and Flexibility | It has more scalability and flexibility, | It has predictability and consistency | It has scalability and flexibility by allowing organizations to use a combination of public and private cloud services. |
| Expensive | less expensive | More expensive | Can be more expensive, but it can also be less expensive , depending on the specific needs and requirements of the organization. |
| Availability | The general public (over the internet) | Restricted to a specific organization | Can be a combination of both. |