

EXPERIMENT No. 1

Aim:

To study cloud computing concepts and architecture

Objective:

To understand the architecture of cloud computing deployment models like public, hybrid, community and private, services and components of cloud.

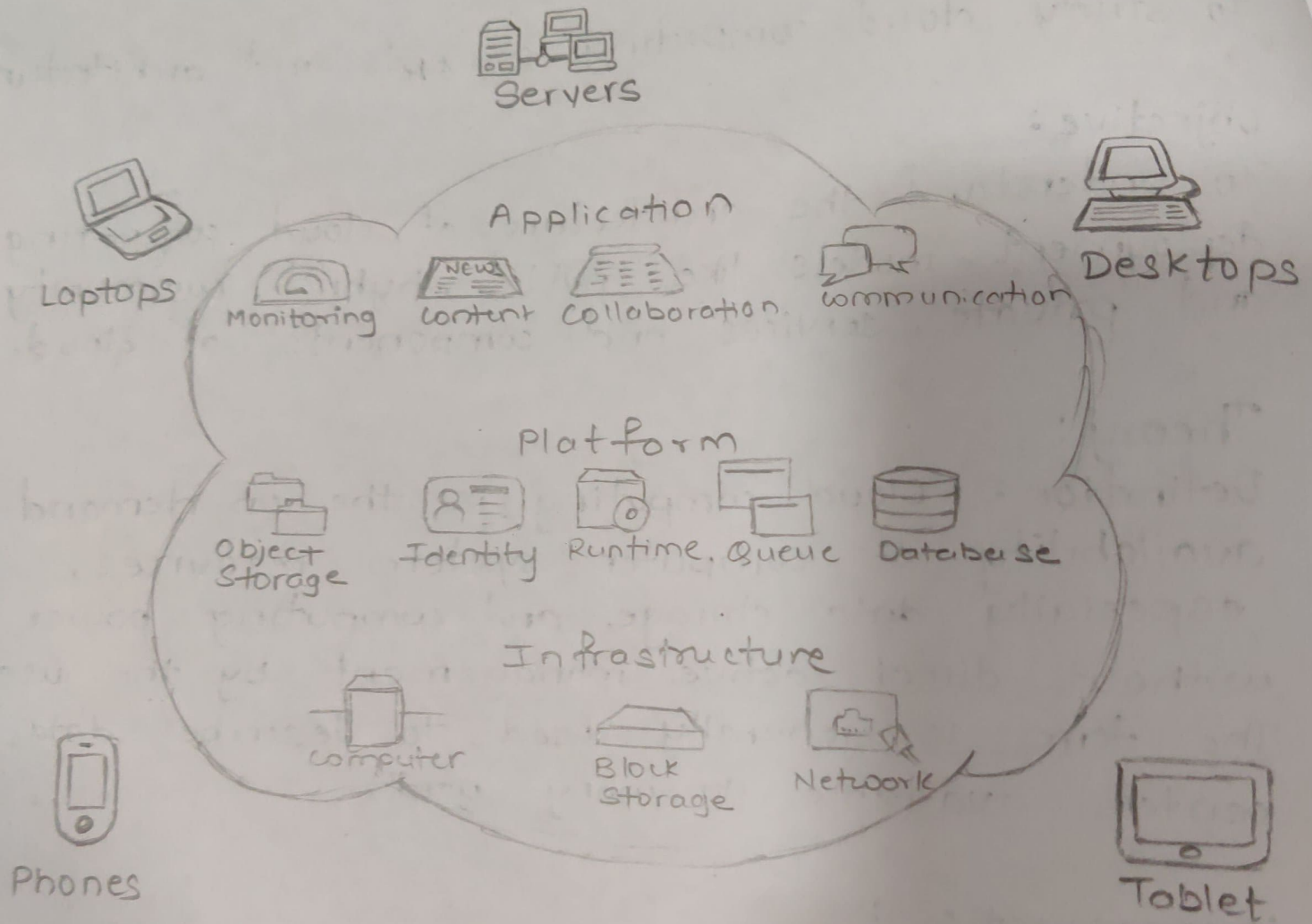
Theory:

Definition: Cloud computing is the on-demand availability of computer system resources, especially data storage and computing power, without direct active management by the user. The term is generally used to describe data centers available to many users.

Characteristics:

- 1) **Resources Pooling:** It means that the cloud provider pulled the computing resources to provide services to multiple customers with the help of multi-tenant model.
- 2) **On-Demand Self-Service:** Through this user can continuously monitor the server uptime, capabilities and allotted network storage.
- 3) **Easy Maintenance:** The servers are easily maintained and downtime is also very low.

Cloud computing Architecture:



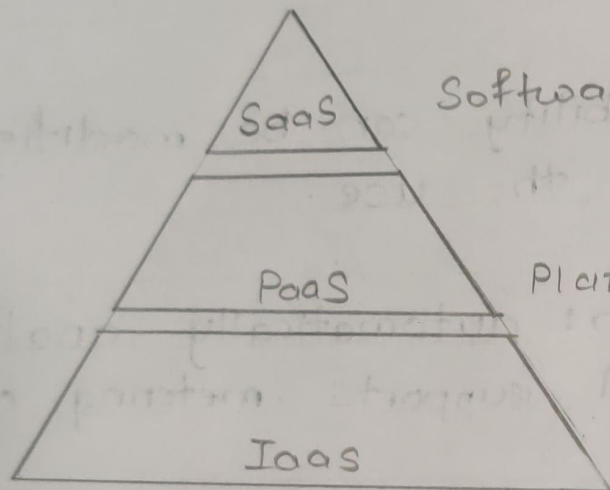
Cloud Computing

- 4) Large Network Access: The user can access the data of the cloud or upload the data to the cloud from anywhere with a device and internet connection.
- 5) Availability: Capability can be modified and extended as per the use.
- 6) Automatic System: automatically analyzes the data needed and supports metering capabilities.
- 7) Economical: one time investment and only amount spent is on maintenance.
- 8) Security: The data stored cannot be hacked and utilized by any other person.
- 9) Pay as you go: No hidden charges or extra charges, users only pay for storage & services.
- 10) Measured Service: cloud computing resources used to monitor and the company uses it for recording.

components of cloud:

- 1) Storage-as-a-Service: we can use or request storage like as we do it physically using the remote site.

Cloud Service Models:



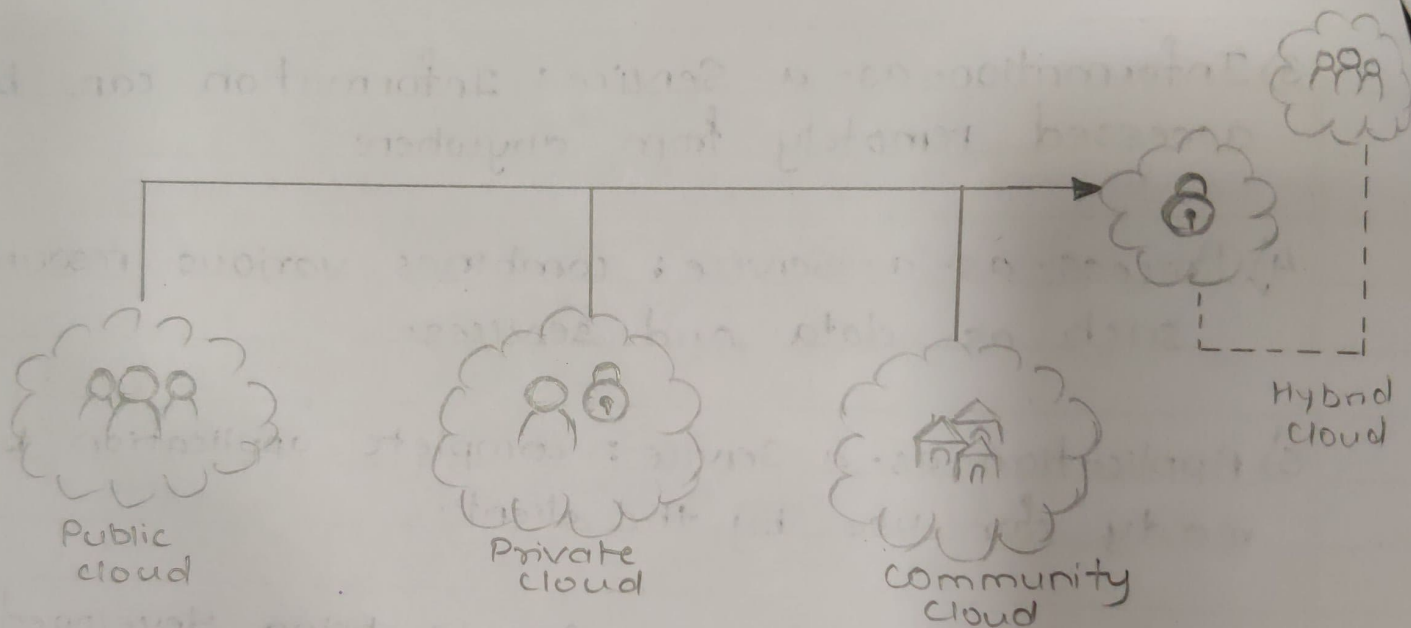
Software as a Service

Platform as a Service

Infrastructure as a Service

- 2) Database-as-a-Service: Component acts as a live database.
- 3) Information-as-a-Service: Information can be accessed remotely from anywhere.
- 4) Process-as-a-Service: combines various resources such as data and services.
- 5) Application-as-a-Service: complete application built ready for use by the client.
- 6) Platform-as-a-Service: App is being developed and the database is created, implemented & tested.
- 7) Integration-as-a-Service: components of an application that has been built and must be integrated.
- 8) Security-as-a-Service: main component.
- 9) Management-as-a-Service: mainly useful for management of the cloud.
- 10) Testing-as-a-Service: testing of application that are hosted remotely.
- 11) Infrastructure-as-a-Service: nearly as possible the taking of all the hardware, software, servers and networking that is virtual.

cloud Deployment Models:



Cloud Service models:

1) SaaS:

Software as a service is a model that gives quick access to cloud-based web applications. These applications run on the cloud and you can use them by a paid licensed subscription or for free with limited access.

2) IaaS:

Infrastructure as a Service is a virtual provision of computing resources over the cloud. An IaaS cloud can give you the entire range of computing infrastructure such as storage, server, networking hardware etc.

3) PaaS:

Platform as a Service is a cloud base where you can develop test & organize the different applications. This simplifies the process of enterprise software development.

Cloud Computing Deployment Models:

- 1) Public cloud
- 2) Private cloud
- 3) Community cloud
- 4) Hybrid cloud

List of Cloud Computing Research Topics:

These are the following Trending cloud Computing Research Topics :

- 1) Green cloud computing
- 2) Edge Computing
- 3) cloud cryptography
- 4) Load Balancing
- 5) Cloud cryptography
- 6) cloud Scalability
- 7) Service Model

Conclusion:

Thus, we successfully implemented the case study on cloud computing concepts and architecture.