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1. Service Oriented Architecture with a diagram
2. Explain SaaS, PaaS, IaaS with its features
3. Explain Elastic compute cloud (EC2)
4. Explain the concept of on demand computing
5. Sketch the cloud architecture.
6. Explain virtualization in cloud.

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1. Virtualization

⇒ it is a process of creating a virtual environment which includes Hardware, storage, os, Network resources etc.

⇒ It is the ability which allows sharing the physical instance of a single application or resources among multiple organization or users

⇒ the main usage of virtualization technology is to provide the applications with the standard versions to their cloud users,

Types of virtualization

1. Hardware virtualization

⇒ When the virtual machine software or virtual machine manager (VMM) is directly installed on the hardware system is known as hardware virtualization

⇒ the main job of hypervisor is to control and monitoring the processor, memory and other hardware resources.

⇒ usage

Hardware virtualization is mainly done for the server platforms, because controlling virtual machines is much easier than controlling a physical server.

2. Operating system virtualization

* When the virtual machine software or virtual machine manager (VMM) is installed on the Host operating system instead of directly on the hardware system is known as OS virtualization.

usage

* OSV is mainly used for testing the applications on different platforms of OS.

3. Server virtualization

* When the virtual machine software or virtual machine manager (VMM) is directly installed on the server system is known as SV

usage

* SV is done because a single physical server can be divided into multiple servers on the demand basis and for balancing the load

4. Storage virtualization

* Storage virtualization is the process of grouping the physical storage from multiple network storage devices so that it looks like a single storage device.

→ storage virtualization is also implemented by using software applications.

Usage.

→ storage virtualization is mainly done for back-up and recovery purposes.

Advantages

1. Security
2. Flexible operations
3. Economical
4. Eliminates the risk of system failure
5. Flexible transfer of data

Disadvantages

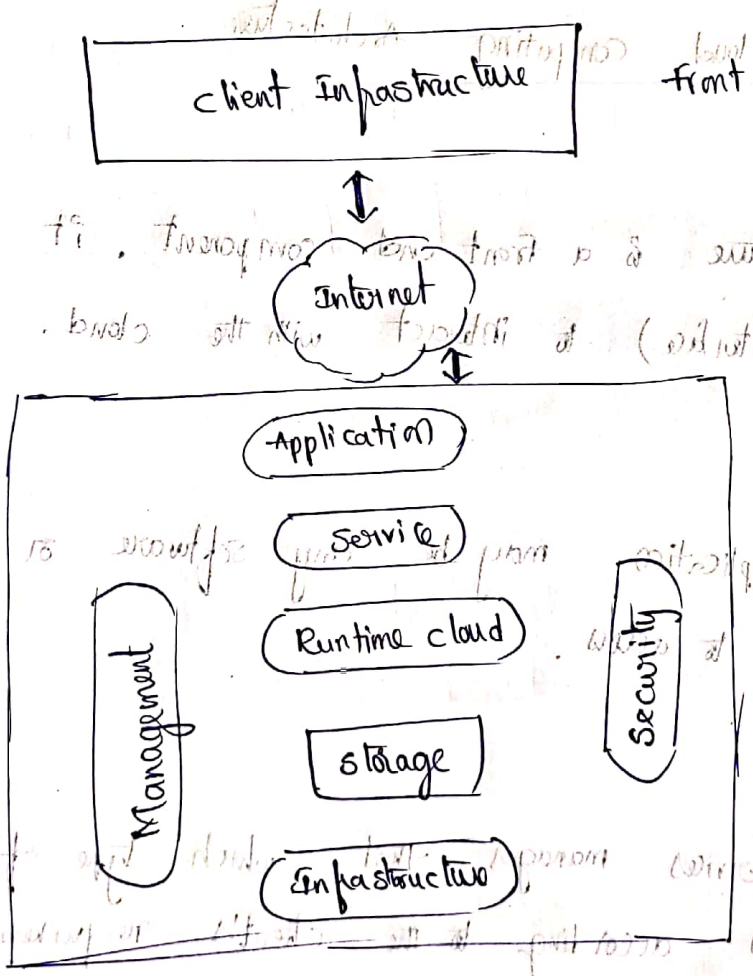
1. Data can be at Risk
2. Learning new Infrastructure
3. High initial Investment.

2. Cloud Computing Architecture

⇒ Cloud computing technology is used by both small and large organizations to store the information in cloud and access it from anywhere at anytime using internet connection.

⇒ Cloud computing Architecture is a combination of service-oriented and event-driven architecture

⇒ it is divided into 2 parts 1. Front End
2. Back End



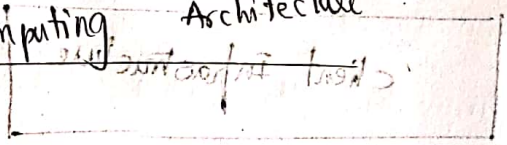
Front End

- The front end is used by the client.
- It contains client-side interfaces and applications that are required to access the cloud computing platforms.

Back End

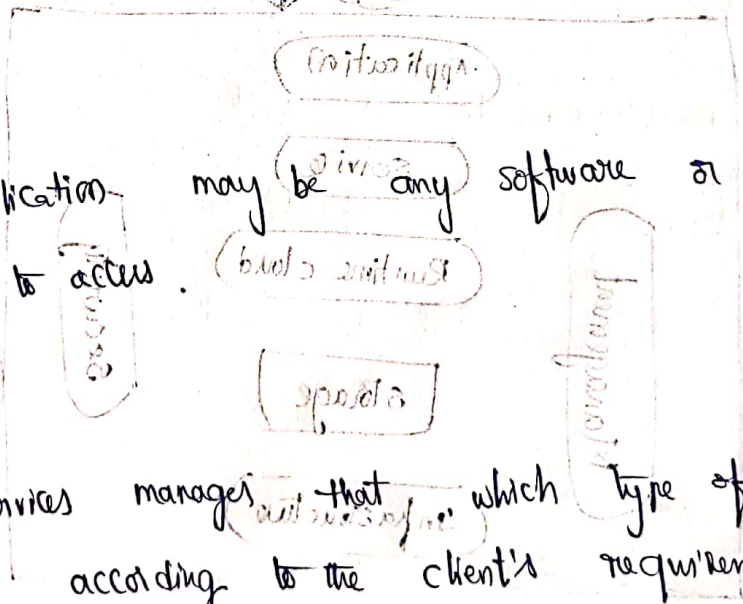
- The back end is used by service provider.
- It includes a huge amount of data storage, security machanism, virtual machines, servers, etc.

Components of cloud computing Architecture



Client Infrastructure

- Client Infrastructure is a front end component. It provides GUI (Graphical user interface) to interact with the cloud.



Application

- The application may be any software or platform that a client wants to access.

Service

- A cloud services manages that which type of service you access according to the client's requirement.

a) Software as a Service (SaaS)

b) Platform as a Service (PaaS)

c) Infrastructure as a Service (IaaS)

storage

- storage is one of most important components of cloud computing, it provides a huge amount of storage capacity in the cloud to store and manage data.

Infrastructure

- it provides services on the host level, application level, and network level.
- it includes hardware and software components such as servers, storage, network devices etc.

Management

- Management is used to manage components such as application, service, runtime cloud, storage, infrastructure and other security issues in the backend. and establish coordination b/t them.

Security

- Security is a in-built back end component of cloud computing. it implements a security mechanism in the backend

Internet

- Internet is medium through which front end and back end can interact and communicate with each other.

Runtime cloud

→ Runtime cloud provides the execution and runtime environment to the virtual machines.