

Cloud Computing

Unit-1 [History and evolution of cloud computing]

Q.1 Define cloud computing? Give 2 major pros & cons?

Ans-

Cloud computing means on demand delivery of IT resources via the internet with pay-as-you-go pricing.

2 major advantages of cloud computing are :-

- 1.) Less cost
- 2.) Security.

2 Major disadvantages of cloud computing are :-

- 1.) Downtime
- 2.) Vulnerability to attack.

Q.2 Give few characteristics of cloud computing?

Ans- The characteristics of cloud computing are given below.

- 1.) Agility
- 2.) High availability and reliability
- 3.) High scalability
- 4.) Multi-sharing
- 5.) Device and location independence
- 6.) Maintenance
- 7.) Low cost
- 8.) Services in pay-per-use mode.

Q.3 What are challenges to cloud computing.

Ans-

- 1.) Security issues
- 2.) Cost Management
- 3.) Lack of resources
- 4.) Performance
- 5.) Multiple Management

Q.4 Give the applications of cloud computing?

- Ans- 1.) Online file storage 7.) Word processing
 2.) Photo editing software 8.) Spreadsheets
 3.) Digital video software 9.) Presentation software
 4.) Twitter related applications 10.) Finding a way on map
 5.) Creating image album 11.) E-commerce Software
 6.) Web application for antivirus 12.) Miscellaneous apps

Q.5 Define SMTP?

Ans- SMTP stands for Simple Mail Transfer Protocol.
 It is used when e-mails are delivered from clients to servers and from servers to other servers.

Q.6 Define POP3 server?

Ans-

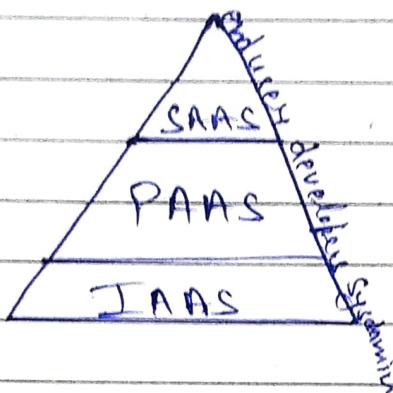
POP3 is an acronym for Post office Protocol.
 When you download e-mails to your e-mail program that program will connect to a server on the net that is known as POP3 server.

Type 2 IP			
4ms			

Unit -2 [Cloud Computing Service Model]

Q.1 Explain cloud computing service models with their advantages and disadvantages?

Ans:-



Cloud Computing service models are of three types:-

- 1.) IaaS [Infrastructure as a Service]
- 2.) PaaS [Platform as a Service]
- 3.) SaaS [Software as a Service]

1.) IaaS \Rightarrow It stands for infrastructure as a service.
It was earlier known as Hardware as a service [HaaS]. It eliminates the need of every organization to maintain the IT infrastructure.

Advantages:-

- 1.) You can easily access the vast computing power available on IaaS cloud platform.
- 2.) You can eliminate the need of investment in rarely used IT hardware.

Disadvantages:-

1.) Data risk

2.) Dependent on virtualization services

2.) PaaS \Rightarrow It stands for platform as a service.
 It is a developer programming platform which is created for the programmer to develop, test run and manage the application.

Advantages

- 1.) Simplified development
- 2.) Lower risk.

Disadvantages

- 1.) Vendor lock-in
- 2.) Data privacy

3.) Software as - a service (SaaS) \Rightarrow It is defined as Software contribution model that is developed on internet in which applications are provided by cloud service providers.

Advantages:

- 1.) Easy to buy
- 2.) Low Maintenance

Disadvantages:

- 1.) Security
- 2.) Latency issue.

Q.2 Explain cloud deployment models? Give its two advantages and disadvantages?

Ans- Cloud deployment models are of four types-

- 1.) Public cloud.

- 2.) Private cloud
- 3.) Hybrid cloud
- 4.) Community cloud

1.) Public cloud → It is a type of cloud hosting that allows the accessibility of system and its services to its clients/ users easily. Some companies which provide public cloud are IBH, Google, Amazon, Microsoft etc.

- Advantages

 - 1.) Low Cost
 - 2.) Reliable

- Disadvantages

 - 1.) Low security
 - 2.) Less Customizable

2.) Private cloud : It is also known as 'Internal cloud'; which allows the accessibility of systems and services within a specific boundary or organization.

- Advantages

 - 1.) Highly private
 - 2.) Control oriented.

- Disadvantages

 - 1.) Restriction
 - 2.) More Cost

Page No.	
Date	

3.) Hybrid cloud → It is another cloud computing type, which is integrated, i.e. it can be a combination of two or more cloud services, i.e. private, private or ^{community} organization combined as one architecture.

. Advantages -

- 1.) Highly private : Scalable
- 2.) Control oriented . Cost effective

. Disadvantages

- 1.) Restriction . Networking issues
- 2.) More cost : Security Compliance.

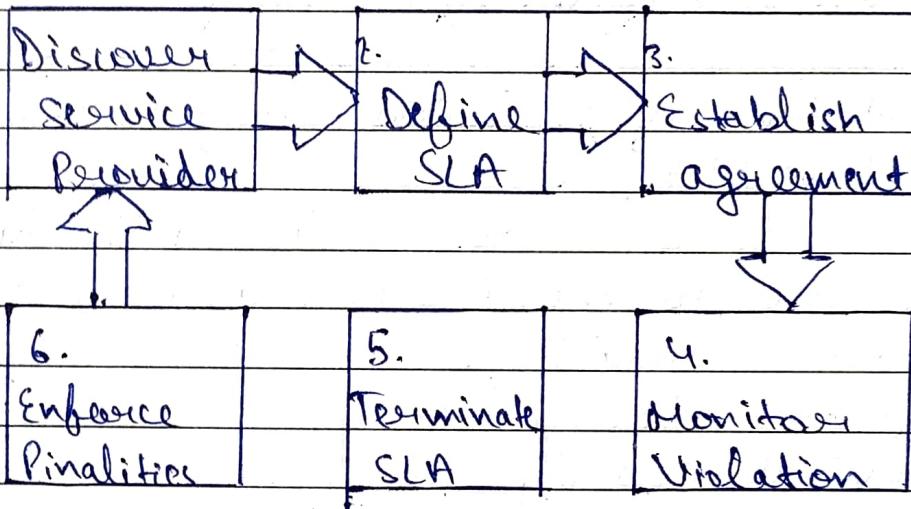
4.) Community cloud → A community cloud is a cloud service model that provides a cloud computing solution to limited number of individuals or organizations that is governed, managed and serviced commonly by all the participating organizations or a third party managed service provider.

Unit-3 (Service Level Agreement Management)

Q. 1 What do you mean by SLA?

Ans-

SLA stands for service level Agreement. It usually refers to the contract between an end-user and a service provider.



Q. 2 Give the aspects that the standard SLA aim to satisfy.

- Ans-
 1.) A complete and concise description of services and maintenance.
 2.) Responsiveness of requests for service.
 3.) Reliability of the particular product.
 4.) An established problem reporting procedure.
 5.) Guidelines pertaining to who will be responsible for monitoring performance and collected information.
 6.) Ensure there is a clear understanding of limitations and the potential causes for termination of the SLA.

Page No.	
Date	

Q.3 Give the key Components of SLA?

Ans- Various key components of SLA are-

- 1) Agreement Overview
- 2) Goals and objectives
- 3) Stakeholders
- 4) Service Agreement
- 5) Service assumptions
- 6) Service Management.

Q.4 What kind of metrics should be monitored during SLA?

Ans- Depending on the service, the types of metric to monitor may include:

- 1) Service availability
- 2) Defect rates
- 3) Technical quality
- 4) Security
- 5) Business results.

Q.5 What should I consider when selecting metrics for my SLA?

Ans- 1) choose measurements that motivate the right behaviour.

2) ensure that metrics reflect factors within the service provider's control.

3) choose measurements that are easily collected.

4) Less is more.

5) Set a proper baseline.

6) Define with care.

Unit-4 (Virtualization Concepts)

Q.1 What is virtualization? what are its benefits?

Ans- Virtualization is the creation of virtual version of something such as a server, a desktop, a storage device, an operating system or network resources.

• Benefits of virtualization.

- 1) Reduction in costs.
- 2) Efficient utilization of resources
- 3) Better accessibility and minimization of risk among them.

Q.2 Explain the different types of virtualization?

Ans- Different types are:-

1.) Hardware virtualization:- It is also known as server virtualization, runs on the concept that an individual independent segment of hardware, may be made up of multiple smaller hardware servers.

2.) Software virtualization:- It also involves the creation an operation of multiple virtual environments on the host machine. It creates a computer system complete with hardware that lets the guest operating system to run.

- 3.) Memory Virtualization: Physical memory across different servers are aggregated into a single virtualized memory pool. It provides the benefit of an enlarged contiguous working memory.
- 4.) Storage Virtualization \rightarrow Multiple physical storage devices are grouped together, which then appear as a single storage device.
- 5.) Data Virtualization \rightarrow It lets you easily manipulate data as the data is presented as an abstract layer completely independent of data structure and database systems.
- 6.) Network Virtualization \rightarrow In this multiple sub-networks can be created on the same physical network.
- 7.) Desktop Virtualization \rightarrow The user's desktop is stored on a remote server, allowing the user to access his desktop from any device or location.

Page No.	
Date	

Q.3 Compare pre-copy and post copy techniques?

Ans-

Pre-copy technique

Post-Copy technique

- 1.) It includes transferring any remaining dirty page. Another minimal execution state.
- 2.) Transfer number of pages during preportion time period Transfer number of pages during resume time period.
- 3.) Total migration time is more Total migration time is less.

Unit - 5 (Cloud Security)

Q.1 Define data links?

Ans-

Data in the cloud is exposed to the same threats as treatment traditional infrastructure as a service provider. Data leaks can lead to a chain of unfortunate events for IT companies and infrastructure as a service provider.

Q.2 what is API?

Ans- Application programming interface, which is a software intermediary that allows two applications to talk to each other.

Q.3 Name some privacy and legal issues in cloud computing?

Ans - 1) Data breaches

- 2) Network Security
- 3) Data locality
- 4) Data access
- 5) DDoS attacks
- 6) System vulnerabilities
- 7) Account hijacking
- 8) Malicious insiders
- 9) The APT parasite
- 10) Permanent Data loss
- 11) Shared technology, shared dangers
- 12) Compromised Credentials and broken authentication
- 13) Hacked interfaces and APTs.

Q.4 What do you mean by abuse of cloud service?

Ans -

When cloud is used by illegal business, it is known as abuse of cloud service. The purpose of the latter is to use cloud resources for legal process and ignoring criminal activities via the cloud service.

Q.5 Define Vulnerabilities?

Ans - A common mistake when using cloud-based solutions in the IaaS model is paying to a little attention to the security of application and the vulnerabilities of applications becomes a bottleneck in enterprise infrastructure security.

Q.6 What are the protection methods of a cloud.

Ans -

- 1) Regular software update scheduling
- 2) Patching procedures.
- 3) Monitoring and audit requirements
- 4) Regular testing and vulnerability analysis

Q.6 what are the protection methods of a cloud?

Ans -

X

2)

- Q.7 Explain CASB?

Ans-

CASB stands for Cloud Access security broker. It is a unified security tool that allows administrator to identify potential data loss risks and ensure a high level of protection.

- Q.8 Define DoS attack?

Ans-

DoS attack can cause business critical services to slow down or even stop. They consume a large amount of computing power that comes with a hefty bill.

Unit-6 (Cloud Storage)

Q.1 What do you mean by storage as a service?

Ans-

Storage as a service is a business model in which a company leases or rents its storage infrastructure to another company or individual to store data. A company providing SaaS may be called as a storage service provider (SSP).

Q.2 Give some cloud storage use cases?

Ans-

In general, the available cloud storage services fall one of the following categories:

- 1.) File sync and share
- 2.) Backup and disaster recovery
- 3.) Simplified management
- 4.) Speed of deployment
- 5.) Scalability
- 6.) Availability
- 7.) Security.

Q.3 List some cloud storage management challenges?

Ans- challenges are -

- 1.) Security
- 2.) Compliance
- 3.) Cost
- 4.) Cloud storage Management Complexity
- 5.) Interoperability
- 6.) Vendor lock-in
- 7.) Connectivity
- 8.) Migration

Q.4 Define SAN?

Ans-

SAN stands for storage Area Network. A storage area network is a private high speed data transfer network that provides access to consolidated block level storage.

Q.5 Define data Encryption?

Ans-

Encryption is the main and also the most popular method of data protection. Data when encrypted is safe and protected from hackers.

Q.6 Name some privacy and legal issues in cloud computing?

Ans- 1) Data Breaches

- 2) Network security
- 3) Data locality
- 4) Data Access
- 5) DoS Attacks
- 6) System Vulnerabilities
- 7) Account hijacking
- 8) Malicious insiders
- 9) The APT parasite
- 10) Permanent data loss
- 11) Shared technology
- 12) Compromised credentials and broken authentication.
- 13) Hacked interfaces and APTs.

Q.8 Define Threats?

Ans-

Threats are potentials for vulnerabilities to turn into attacks on computer systems, networks and more. Threats can include everything from viruses, trojans, back doors to outright attack from hackers.

Q.9 How an organization can prevent data leak?

Ans-

1) Identify Critical Area.

2) Monitor access & activity.

3) Utilize encryption.

Unit-7 (Scheduling in cloud)

Q.1 Explain scheduling problem in brief?

Ans-

Scheduling problem is the problem of matching elements from different sets, which is formally expressed as a triple $\{E, S, O\}$ where,

- E is the set of examples; each of which is an instance of problem.
- S is the set of feasible solutions for example
- O is the object of the problem.

Q.2 Explain dif types of scheduling?

Ans- Below are different categories:

1.) First Come First Serve [FCFS] \Rightarrow It is a basic scheduling technique used in cloud computing which works on the basis of the first process enters in queue and execute first.

2.) Priority Queue Scheduling - It avoids processes to go starve. It assigns priority to processes and highest priority process executes first and the lowest priority will execute in the last.

Page No.	
Date	

3.) Round Robin scheduling - Cloud Computing
 Use this method to transmit data. In this a time quantum is used and every process executes in the given quantum.

4.) Shortest Job first scheduling - It is the best where small size process needs to execute first. This is best to execute processes but as the scheduling depends on the basis of user requirement sometimes it is not suitable.

5.) Multi-level feedback queue - MLFQ have both advantages of Round Robin and First Come First Serve.

6.) Multi-level Queue - It uses multiple queue with having different priority assigned to each queue. In MLQ CPU utilization occurs maximum.

Q. 3 Compare static vs dynamic scheduling?
 Ans -

* Static -

- All user jobs, their arrival and execution times are known in advance, create a schedule and execute it.

- It is used in statically configured Systems.

* Dynamic -

- Jobs are not known in advance, scheduler must make online decision whenever job arrives or leaves.
- Execution time may or may not be known.
- Behaviour can be modelled by making assumptions.