UNIT – III CLOUD INFRASTRUCTURE

1. List the design goals for generic cloud?

- *Scalability*
- *Virtualization*
- *Efficiency*
- *Reliability*
- *Security*

2. List the cloud enabling technologies?

- *Fast platform Deployment*
- *Virtual clusters on demand*
- *Multitenant techniques*
- *Massive data processing*
- *Web-scale communication*
- *Distributed storage*
- *Licensing and billing services*

3. What are the QoS factors in cloud?

- *Service request such as time and cost*
- *Reliability*
- *Trust/Security*

4. Define hardware virtualization?

System virtualization software is a special kind of software which simulates the execution of hardware and runs even unmodified operating systems. Cloud computing systems use virtualization software as the running environment for legacy software such as old operating systems and unusual applications.

5. What are the network attacks in traditional and cloud environments?

In traditional network environments

Buffer overflows, DoS attacks, spyware, malware, rootkits, Trojan horses and worms

In cloud environments

Hypervisor malware, guest hopping and hijacking or VM rootkits

6. Explain the storage virtualization?

It is the process of grouping the physical storage from multiple network storage devices so that it looks like a single storage device. he process involves abstracting and covering the internal functions

of a storage device from the host application, host servers or a general network in order to facilitate the application and network-independent management of storage.

7. Define VM cloning?

        The idea is to make a clone VM on a remote server for every running VM on a local server. Among all the clone VMs, only one needs to be active. The remote VM should be in a suspended mode. A cloud control center should be able to activate this clone VM in case of failure of the original VM, taking a snapshot of the VM to enable live migration in a minimal amount of time.

8. Name the five layers of cloud services.
- *Software as a Service (Saas)*
- *Platform as a Service (Paas)*
- *Infrastructure as a Service (Iaas)*
- *Location as a Service (Laas)*
- *Network as a Service (Naas)*

9. Explain runtime support service?

        Runtime support is software needed in browser-initiated applications applied by thousands of cloud customers. It has monitoring and scheduling capability. Cluster monitoring is used to collect the runtime status of the entire cluster. The scheduler queues the tasks submitted to the whole cluster and assigns the tasks to the processing nodes according to node availability.

10. What are the runtime support services?

        Cluster monitor- collect runtime status about the whole cluster
        Scheduler- queues the tasks submitted to the whole cluster and assigns the tasks to the processing nodes according to node availability.

11. Define software stack?

        It is a collection of layers. Each layer has its own purpose and provides the interface for its upper layers. The platform for running cloud computing services can be either physical servers or virtual servers. The software layer on top of the platform is the layer for storing massive amounts of data Other layers running on top of the file system are the layers for executing cloud computing applications.

12. Define dynamic resource deployment?

        Cloud uses VMs as building blocks to create an execution environment across multiple resource sites. It let the user to create execution environments. To achieve scalability in performance, dynamic resource deployment can be implemented.

13. Define the provisioning of compute resources?

        It refers to the computing resources (VMs) needed for processing client's request. Cloud service providers supply cloud services by signing SLAs with end users. The SLAs must commit sufficient resources such as CPU, memory, and bandwidth that the user can use for a preset period.

14. Name the resource provisioning methods
- *Demand driven method*
- *Event driven method*
- *Popularity driven method*

15. Define cloud exchange (CEx)

Cloud Exchange (CEx) acts as a market maker for bringing together service producers and consumers. It aggregates the infrastructure demands from application brokers and evaluates them against the available supply currently published by the cloud coordinators.

16. Mention the role of IGG (InterGrid Gateway) in cloud exchange.

The InterGrid aims to provide a software system that allows the creation of execution environments for various applications on top of the physical infrastructure provided by the participating Grids (c). The allocation of resources from multiple Grids to fulfill the requirements of the execution environments is enabled by peering arrangements established between gateways by IGG.

17. What is Service level agreement (SLA)?

SLA is a contract between a service provider and a customer which specifies what services the service provider will furnish to customer.

PART B

12 Marks questions
1. Explain the cloud architecture with suitable block diagram?
2. Explain the layered cloud architecture development?
3. Explain the virtualization support and disaster recovery?
4. Explain the architectural design challenges?
5. Explain the cloud service tasks and trends?
6. Explain the different methods of resource provisioning?
7. Explain the platform deployment in detail?
8. Explain the provisioning of storage resources in detail?

1. Can you select the QoS factors applicable in cloud?
   Performance, cost and security
   Performance –computation time, response time, CPU load
   Cost- resource cost, price, scalability cost
   Security – data, authentication
   General- availability, reliability, efficiency, reusability
2. Analyze is provisioning important in compute resources?
   Yes, because resource provisioning is a performance factor in cloud computing with the objective
   maximizing the utilization of cloud resources in minimum cost
3. Express platforms which are used for large scale cloud computing?
   a. Hadoop , mapreduce, cloudify, cloud foundry
4. Relate the approach would you use to deploy models in cloud computing?
5. Show the examples you find for large cloud providers and databases?
6. Analyze the relationship between "EUCALYPTUS" and cloud computing?
7. which of the open source cloud computing platform databases are popular today?
   MongoDB, CouchDB, LucidDB
8. Can you assess different layers which define cloud architecture?
9. Assess the function of resource management in cloud?
10. How would you plan the use of resources in IaaS?

Resource Pooling, Upgrade Domain: Capacity Plan: Reserve Capacity, Cost Model: Health Model