MODEL QUESTIONS AND

PART A

1. _____ is the software that provides the environment in which the VMs operate

A VM~~ware~~ Monitor.

2 _____ is the key technology behind cloud computing

A. Virtualization.

3. List any two types of Virtualization

A i) Network Virtualization
ii) Application Virtualization

4. List any two advantages of Network Virtualization

A i) Resource optimization
ii) Flexibility

5. List any two tools used for Application Virtualization

A i) VMware ThinApp
ii) Microsoft App-V

6 List any two benefits of cloud computing

A i) cost Efficiency
ii) Scalability and Flexibility

7. List any two vendors of cloud computing

A i) Amazon Web Services
ii) Microsoft Azure

8. List any two cloud service models

i) Infrastructure as a Service (IaaS)
ii) Software as a Service (SaaS)

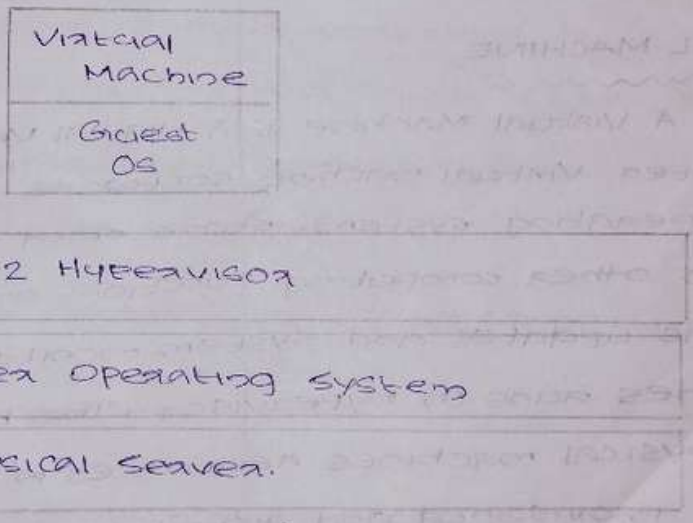
A i) Private cloud
ii) Public cloud.

PART - B

1. What is Type-II Hypervisor

A TYPE II - HYPERVISOR

* A Type 2 hypervisor is a software based virtualization technology that runs on top of an existing operating system.
* Type 2 Hypervisor are easy to install and deploy because much of the hardware configuration work, such as networking and software storage has already been covered by the operating system.
* Type 2 Hypervisor are not as efficent as Type 1 hypervisor because of this extra layer b/w the hypervisor itself and the hardware.



2. Define server, Desktop and Application Virtualization

A SERVER VIRTUALIZATION

This form of virtualization enables the partitioning of a physical server into multiple virtual machines (VMs). Each VM operates as an independent server with its own operating system / Applications & resources.

Benefits of server Virtualization

* Resource consolidation
* cost savings.

DESKTOP VIRTUALIZATION

Desktop Virtualization also known as Virtual desktop Infrastructure (VDI) is a technology that allows users to access and use virtual desktop remotely typically over a network or the internet

Benefits

* Centralised Management
* Resource Efficiency

APPLICATION VIRTUALIZATION

* Application Virtualization is a method of deploying software applications in way that decouples them from the underlying operating system and hardware

3. ~~explain the types of hyp~~ Define Virtual Machine

A VIRTUAL MACHINE

A Virtual Machine is a digital version of a physical computer Virtual machine software can run programs and operating system, store data connect to networks and do other computing functions and requires maintance such as updates and system monitoring. Virtual machines runs on hypervisor. The hypervisor abstracts the physical machines resources in into a pool that can be provisioned and distributed as needed enabling multiple VMs to run on a single physical machine.

4 What is Virtual LAN

A VIRTUAL LAN

A Virtual LAN is a logical overlay network that groups together a subset of devices that

Virtual LAN (VLAN) is a technology used in network virtualization to partition a physical network into multiple logical segments, allowing you to create isolated network within a single physical infrastructure.

VLANs are primarily used to enhance

* network security
* improve network management
* optimize bandwidth usage.

5 List any three needs of cloud computing

A NEEDS OF CLOUD COMPUTING

* cloud computing offers services to users for storing software and files distantly, instead of on a server or a hard drive at their workplace
* cloud computing is fast and simple to operate
* cloud maintain everything up to date
* cloud is cheaper as well.

6 List any three benefits of cloud computing

A BENEFITS OF CLOUD COMPUTING

1. Reduced cost

- cloud computing services can minimize the updating requirements of software and hardware because expenses of maintances and upgradation are handled by the cloud co providers.

2. Scalability

- one of the biggest advantages of cloud computing is that a business pay only for the services

3. Remoat Access

- Through cloud very easy synchronize data access between international offices.

4. Ease of Implementation

7. What is SaaS

A SOFTWARE AS A SERVICE

* Also known as on-demand service
* is an Application that can be accessed from any where on the world as long as you can have an computer with an internet connection
* We can access this cloud hosted application without any additional hardware or software
* eg:- Gmail, Yahoo mail, Hotmail etc.

8 What is Hybrid cloud

A HYBRID CLOUD

The hybrid cloud is a combination of a private and public cloud which is mutually dependent on one another. In this model, cloud users are supplied with information on the public cloud, in spite of the reality that the cloud supplier has to maintain the company significant services and information in a few instructions.

PART C

1. Explain types of Virtualizations

A TYPES OF VIRTUALIZATION

1. SERVER VIRTUALIZATION

This form of virtualization enables the partitioning of a physical server into multiple virtual machines (VMs). Each VM operates as an independent server with its own operating system application and resources.

Benefits

* Resource consolidation
* cost savings
* Isolation and security
* Disaster Recovery and Backup.
* Testing and Development.

2. DESKTOP VIRTUALIZATION

* Desktop virtualization also known as virtual desktop infrastructure (VDI) a technology that allows users to access and use virtual desktop remotely typically over a network or the internet.
* Desktop virtualization is widely used in businesses educational institutions and industries where secure access to desktop environments is essential for productivity and data security.

Benefits

* centralized Management
* security and Data protection
* Flexibility and Mobility
* Resource Efficiency
* Legacy Application support

3. STORAGE VIRTUALIZATION

* Storage Virtualization combines physical storage devices into a single virtual storage unit
* It simplifies management improves data availability and facilitate efficient storage allocation and utilization
* TWO Types
  - Block Virtualization
  - File Virtualization.

Benefits

* Simplified Management
* Improved Utilization
* Enhanced Flexibility
* Non- disruptive Migration
* Reduced Downtime
* cost Efficiency.

4. NETWORK VIRTUALIZATION

* Network Virtualization is a process of logically grouping physical networks and making them operates as single or multiple independent networks called virtual network.
* Network Virtualization (NV) refers to abstracting network resources that were traditionally delivered in hardware to software
* There are 2 types of network Virtualization internel and external Virtualization

Benefits

* Resource utilization
* Flexibility and Agility
* cost effectiveness
* Isolation and Security
* Network management.

5. APPLICATION VIRTUALIZATION

* Application Virtualization is a method of deploying software applications in way that decouples them from the underlying operating system and hardware.
* When a user wants to run a virtualized application, a client or agent software on their computer interacts with a centralized server or a local cache that stores the virtualized applicatio
* Examples of Application Virtualization
  * VMware ThinApp
  * Microsoft AppV
  * citrix & Xen App
  * Docker.

6. HARDWARE VIRTUALIZATION

* Hardware Virtualization also known as platform virtualization is a technology that allows multiple virtual machines (VMs) or guest operating system to run on a single physical host machine.

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2. Explain Advantages and limitations of Application layer

A ADVANTAGES OF APPLICATION

i) ISOLATION

* Application are isolated from each other and the underlying operating system, preventing conflicts b/w applications and reducing the risk of conflicts b/w applications and reducing the risk of compatibility issues.

ii) Simplified Deployment and Management

* Application Virtualization simplifies the process of deploying and managing applications.

iii) Centralized Management

* Administrators can centrally manage and update applications from a single console
* This reduces the need to visit each endpoint individually for maintance tasks making updates and patches more efficient.

iv) Reduced Foot Print

* Application Virtualization often results in a smaller footprint on the endpoint device
* Since Application are encapsulated and shared resource are used efficiently there is less disk space and memory consumption compared to traditional installation.

v) Rapid provisioning and scalability

vi) Reduced Depesdency on local Resources.

LIMITATIONS OF APPLICATION LAYER

i) Resource overhead

Application Virtualization introduces a layer of abstraction b/w the application and the underlying operating system

ii) compatibility issues

Some Application especially those that interact closely with the operating system or hardware may not work well in a virtualized environment

iii) Performance impact

While virtualization technology has improved over the years, there can still be a performance impact when running application in a virtualized environment.

iv) Limited Access to Hardware

Application virtualization typically abstracts the underlying hardware, which means that applications might not have direct access to certain hardware components on a device.

4

6. Compare the techniques used for desktop virtualization.

1. Virtual Desktop Infrastructure

* Individual VM for every user
* More custom user experience
* Less issues with application compatibility
* More complex to design
* More costly to implement

2. Remote Desktop Services

* One OS and set of apps is shared by multiple users
* could have application compatibility issues.
* users cannot customize their desktops and in some cases, their apps
* Not all applications are supported by their vendors
* Less expensive and less costly to implement.

5. Summarize the limitations of cloud computing

A LIMITATIONS OF CLOUD COMPUTING

* Availability of Services – As services are a primary concern of consumers, they sometimes need to discard all the data from cloud, while sometimes recover the data.

* Data Lock-in - shifting od data application from one platform to another
* Data segregation - Data segregation is the process of separating certain sets of data from other data sets so that different access policies can be applied to those different data sets.
* Paivillage neglect - companies sometimes take advantages and libaxy given to them, they disclose others for somebenefits, threat occur.
* Scaling resources - Single to multitanent, mismatch of data
* Data location - geographical sites of data is impo atant
* Offline cloud
* Unpredictable performance.

Q Compare type 1 and type 2 Hypervisor.

A

Type 1	Type 2.
Directly runs on server hardware	Runs on top of the supported OS.
It is more efficient than type 2 Hypervisor	Not as efficient as type 1 Hypervisor.
More secure due to hardware based hypervisor	Less secure due to software based hypervisor.
Hard to setup	Easy to setup.
Provide better hardware resource utilization	Provide less hardware resource utilization.
eg: Vsphere, Xen Server	eg: Vmware workstation Vmware Player.

Q Explain VMclone, Snapshot and templates.

A VMclone

* VM clones refers to exact duplicates of existing Virtual Machines
* Allowing you to replicate a VMs entire state including its operating system installed software data and configuration
* A clone of Virtual machine can be created when the Virtual machine is powered on.
* Two type - Full clone, linked clone.

Snapshot

* Snapshots is capturing of a VMs state at a particular point in the time
* A snapshot preserves the state of a VM, its data and its hardware configuration.

Templates

* A template is a mold, a pre configured pre loaded virtual machine that is used to stampout copies of a commonly used server.
* Template is an image that typically include guest os application and specific virtual machine configuration

PART-B

Q What is Type 1 Hypervisor.

A TYPE 1 HYPERVISOR

* ~~The~~ TYPE 1 or Hypervisor is software that runs directly on the physical hardware of computer server
* It is also known as bare metal Hypervisor
* Type 1 Hypervisor are also considered to be more secure than type 2 hypervisor