Fog and cloud Computing

SITA1503

UNIT 1

PART A

2 Mark Questions and Answers

1. On demand delivery of IT resources via the internet – how it is functioning? Give justifications.

- Cloud services can be delivered publicly or privately using the internet and can also remain within a company's network when delivered over an intranet. Sometimes, organizations make use of a combination of both.

- No matter where the actual "cloud" is—a company's own data center or a service provider's data center, cloud computing uses networking to enable convenient, on - demand access to a shared pool of computing resources like networks, storage, servers, services, and applications.

- By using virtualization, these assets can be provisioned and released quickly and easily as necessary.

2. What are the service models available in cloud computing?

There are the following three types of cloud service models -

- Infrastructure as a Service (IaaS)

- Platform as a Service (PaaS)

- Software as a Service (SaaS)

3. List the similarity and differences between Public & hybrid cloud computing.

- Similarities between public and hybrid:

A. High scalability and flexibility

B. Potential for high TCO

C. Flexible pricing and policy-driven deployment

- Differences between public and hybrid:

Public cloud computing	Hybrid cloud computing
No maintenance costs	Policy-driven deployment
Reduced complexity	Added complexity
Decreased security and availability	Improved security

4. How utility computing helps in cloud computing?

- Companies that have large demand peaks followed by much lower normal usage periods particularly benefit from utility computing.

- Utility computing is a precursor to cloud computing.

- Utility computing helps eliminate data redundancy, as huge volumes of data are distributed across multiple servers or back-end systems.
- The most advantage of utility computing is its convenience. The client doesn't have to buy the software and licenses needed to do business. Instead, the client depends on another party to provide these services.

5. Discuss the difference between web 2.0 and cloud? Why? How?

Cloud Computing	Web 2.0
It is more specific and definite	Programming and business models
It is a way of searching through data.	It is sharing entire pieces of data between different websites.
Cloud computing is about computers.	Web 2.0 is about people.
The internet as a computing platform	Attempt to explore and explain the business rules of that platform
Google apps are considered in Cloud computing.	A web-based application is considered in Web 2.0.
It is a business model for hosting these services.	It is a technology which allows webpages to act as more responsive applications

6. Briefly discuss about service management in cloud computing.

The management of cloud infrastructure products and services is cloud management.

Public clouds are operated by public cloud service providers, which provide the

servers, storage, networking and data centre operations of the public cloud

environment. With a third-party cloud management tool, users can also choose to

manage their public cloud services.

7. Discuss briefly about cloud resource management.

It can be explained as the process of allocating computing, storage and networking resources to a set of applications in a manner that intends to fulfil the performance objectives of the applications,

8. Adding more resources to a single computation unit will make impact? Justify?*

Yes, Adding more resources to a single computation unit will make impact. It is known as scaling. Vertical scaling refers to adding more resources (CPU/RAM/DISK) to your server (database or application server is still remains one) as on demand. Scaling horizontally involves adding more processing units or phyiscal machines to your server or database.

9. SaaS is useful in case of applications where extremely fast processing of real time data is needed. Discuss and justify.

SaaS (software-as-a-service). WAN-enabled application services (e.g., Google Software as a Service (SaaS) This is a public cloud service model where the application is 100% managed by the cloud provider. SaaS removes the need for organizations to install and run applications on their own computers or in their own data centers. This eliminates the expense of hardware acquisition, provisioning and maintenance, as well as software licensing, installation and support.

10. What is the use of Virtualization in Cloud Computing?

- Virtualization plays a significant role in cloud technology and its working mechanism. Usually, what happens in the cloud - the users not only share the data that are located in the cloud like an application but also share their infrastructures with the help of virtualization.

- Virtualization is used mainly to provide applications with standard versions for the cloud customers & with the release of the latest version of an application the providers can efficiently provide that application to the cloud and its users and it is possible using virtualization only.

- By the use of this virtualization concept, all servers & software other cloud providers require those are maintained by a third-party, and the cloud provider pays them on a monthly or yearly basis.

UNIT II

PART A

2 Mark Questions and Answers

1. "Cloud system is able to adapt to workload changes by provisioning and de-provisioning resources in an autonomic manner"-What is the key concept the above statement reveals?

The concept behind the statement is elasticity. In cloud computing, elasticity is defined as "the degree to which a system is able to adapt to workload changes by provisioning and de-provisioning resources in an autonomic manner, such that at each point in time the available resources match the current demand as closely as possible".

2. What do you mean by multitenancy?

In cloud computing, multitenancy means that multiple customers of a cloud vendor

are using the same computing resources. Despite the fact that they share resources,

cloud customers aren't aware of each other, and their data is kept totally separate.

Multitenancy is a crucial component of cloud computing; without it, cloud services

would be far less practical. Multitenant architecture is a feature in many types of

public cloud computing, including IaaS, PaaS, SaaS, containers, and serverless computing

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4. Elaborate about On Demand cloud computing.

On-demand computing (ODC) is a delivery model in which computing resources are made available to the user as needed. The resources may be maintained within the user's enterprise or made available by a cloud service provider.

5. Explain various types of cloud services with neat diagrams.

There are 4 main types of cloud computing: private clouds, public clouds, hybrid clouds, and multiclouds. There are also 3 main types of cloud computing services: Infrastructure-as-a-Service (IaaS), Platforms-as-a-Service (PaaS), and Software-as-a-Service (SaaS).
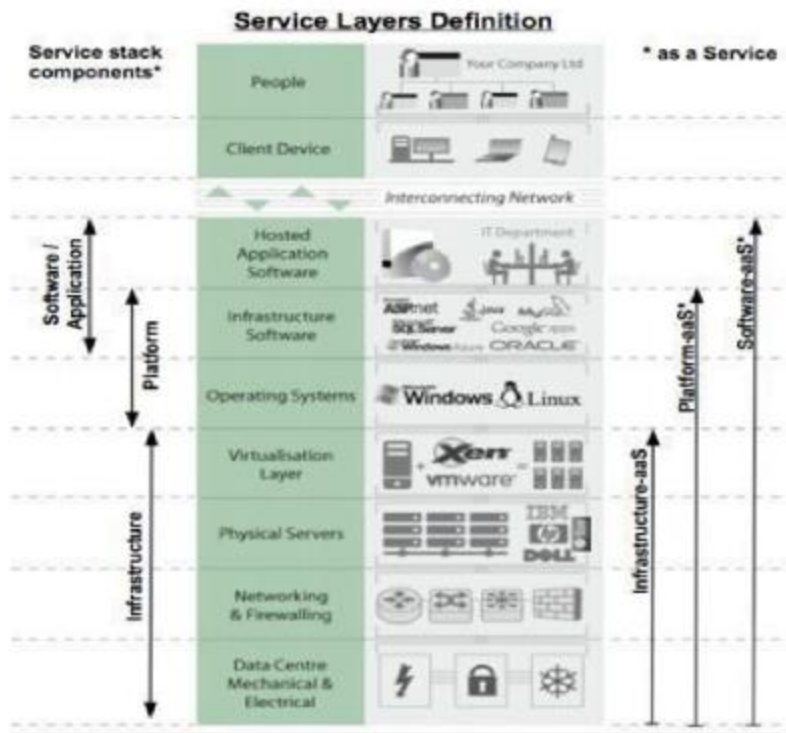
Fig 2.1 Cloud Services

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8. Which cloud deployment model is closely related to Infrastructure as a Service? Discuss *

VMware says that its software-defined data center concept is different from other cloud offerings, with a focus on Infrastructure as a Service (IaaS)

9. How Web Services build cloud applications?

Web services are XML-centered data exchange systems that use the internet for A2A

(application-to-application) communication and interfacing. These processes involve programs,

messages, documents, and/or objects.

10. How VPN and Private cloud computing provide secure services?

Cloud VPN securely connects your peer network to your Virtual Private Cloud (VPC) network through an IPsec VPN connection. Traffic traveling between the two networks is encrypted by one VPN gateway and then decrypted by the other VPN gateway. This action protects your data as it travels over the internet.