Mid Semester Assignment (Spring - 2020)
Cloud Computing

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Instructor: M Omer Rauf

Note: Attempt all Questions. Answers should be in your own words. Plagiarism will not be tolerated, if detected, it will lead to failure.

Question No. 1: (10)

1)Explain essential characteristics of cloud computing.

Ans:

a) On-demand self-service:

It's one of the valuable features of Cloud Computing. The Consumer have feature like continuously monitoring the server uptime, capabilities, allotted network storage, also can monitor the computing capabilities.

b) **Broad network access**:

All capabilities are available over the network and can be accessed on different platforms like workstations mobile phones laptops tablets,

c) Resource pooling:

It uses the Multi-tenant model. The computing resources are pooled to serve multiple consumers. Different physical and virtual resources are dynamically assigned on consumer demand.

d) Rapid elasticity:

You can be set and change Capabilities and sometime it done automatically it can be rapidly scale outward and inward on demand.

e) Measured service:

It records the resource utilization and analyze it and charge-per-use capabilities. Resource usages which can be either virtual server instances

that are running in the cloud are monitored measured and reported to the provider

2) Explain in detail the key properties of cloud computing.

Ans:

a) **Cloud Computing Is User Centric:**

Once you are connected to the cloud you can access whatever is stored there (images application documents) and it can be shared other over cloud.

b) **Cloud Computing Is Task-Centric:**

All focus is on the task what you what to do and effetely the application has no importance

c) **Cloud Computing Is Powerful:**

In cloud computing thousands of computers are connected together it creates large among of computing power as compare to single computer

d) **Cloud Computing Is Accessible:**

Your data is stored on cloud computer you can access it over network from anywhere on any devise.

e) **Cloud Computing Is Intelligent:**

In cloud have millions of users every user has on data we need intelligent ways to access data faster on cloud so we apply data mining to that data it makes its essay to access

f) **Cloud Computing Is Programmable:**

Question No. 2: (10)

1) Explain in detail different service models of cloud computing.

Ans:

a) Infrastructure as a Service (IaaS):

IaaS software can be an entire development or deployment environment within the cloud. It provides a platform on which software are often developed and deployed. The platform handles the complexity around operating systems and servers

Example: Amazon EC2, Windows Azure, Rackspace, Google Compute Engine.

b) Platform as a Service (PaaS):

PaaS delivers the infrastructure and middleware components that enable developers, IT administrators, and end users to create, integrate, migrate, deploy, secure, and manage mobile and web applications.

Developer point of view

Examples: AWS Elastic Beanstalk, Windows Azure, Heroku, Force.com, Google App Engine, Apache Stratos.

c) **Software as a Service (SaaS)**:

Software as a service (SaaS) is s model for the distribution of software where customers access software over the web. In SaaS, a service provider hosts the appliance at its data center and a customer accesses it via a typical browser

End user point of view

Examples: Google Apps, Microsoft Office 365.

2) Explain in detail different deployment models of cloud computing.

Ans:

a) Public Cloud:

its name implies, available for use by those in the general public. it can also be less secure due to its openness.

Example: Gmail, Google docs and Google drive

b) Private Cloud:

Wiz Machin is a private cloud it only accessible to use. Private Cloud are accessible within the organization. It has better security then public clouds.

c) Community Cloud:

l that provide a complete cloud solution for specific business communities. each business has its own private cloud space that is built to meet the security, privacy and compliance needs that are common in the community. Community clouds are an attractive option for companies in the health, financial or legal spheres that are subject to strict regulatory compliance

d) **Hybrid Cloud (Combined Cloud**):

It the hybrid of public and private cloud infrastructure. Sensitive data remains within the private cloud where high security standards can be maintained. Operations that do not make use of sensitive data are carried out in the public cloud where infrastructure can scale to meet demands and costs are reduced

Question No. 3: (10)

a. **Explain in detail roles and boundaries in cloud**.

Ans:

Common roles associated with cloud-based interaction and relationships include the cloud provider, cloud consumer, cloud service owner, and cloud resource administrator.

An organizational boundary represents the physical scope of IT resources owned and governed by an organization. A trust boundary is the logical perimeter that encompasses the IT resources trusted by an organization.

Cloud Provider:

The organization that provides cloud-based IT resources

Cloud Consumer:

A cloud consumer is an organization (or a human) that has a formal contract or arrangement with a cloud provider to use IT ‘resources made available by the cloud provider

Cloud Service Owner:

The person organization that legally owns a cloud service is called a cloud service owner

Cloud Resource Administrator:

A cloud service administrator is the person or organization responsible for administering a cloud-based IT resource (including IT services).

b. **Explain in detail cloud risk and challenges**.

Ans:

Cloud Migration:

Moving data from one desktop computer or to other cloud it difficult. Incompatibility: Cloud migration is a big challenge as many companies when they require to migrate from on-premises to cloud or from one cloud to another, they partner with experienced cloud service provider.

Incompatibility:

During moving workloads from on-premises to the cloud, the common issue the incompatibility between on-premises infrastructure and the services which are companies going to buy from the public cloud providers. In last current years, most CSPs tried to create "connectors of sort" to make practices more standardize and homogenous.

Data security:

Securing data is a big change in cloud computing. hacker stole data when its transmitting. You would have no Knowledge until they revile it

Lack of expertise:

Downtime:

Businesses suppose complete data accessibility and availability when their data is stored on cloud anytime from anywhere. The main challenge most organizations face is they can access their data from cloud only through internet connection. So, poor internet connection can disrupt cloud services and higher risks of data accessibility.

Bandwidth Cost:

Though organizations and businesses can save money on hardware using cloud, but they have to pay extra for the bandwidth they use to access their workloads. However, it doesn't charge much for smaller apps, but data-intensive apps need more bandwidth which can costs higher.