



IQRA National University
SESSIONAL ASSIGNMENT
CLOUD COMPUTING

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BSSE 8th SEC “A”

Last Date: 8 June 2020

Q1: Explain in detail Service Oriented Architecture (SOA) in cloud computing.

Ans: Service Oriented Architecture SOA is an architecture pattern that guides business solution to create, organize and reuse its computing components. SOA allow application components to provide services to other components via communications protocols.

The existing Cloud computing architectures both the academia and industry have been active on cloud computing research and proposed several architectures.

The problem issues with the current cloud implementations are

- Lack of interoperability among cloud providers.
- Lack of Multi-tenancy support/
- Application development across multiple clouds.

The SOA based Cloud Infrastructure steps. The enterprises that intend to harness cloud computing must consider the following steps

- Analysis and Strategy
- Planning
- Implementation
- Value-driven

Q2: Explain in detail prominent security threads to the cloud computing.

Ans: The past decade has seen an explosion in the popularity of cloud-computing and cloud-based storage solutions with consumers and businesses. However while moving to the cloud offers a number of benefits to businesses, many have concerns regarding security.

While this is no reason to avoid using cloud-based solutions, it is important to be aware of them especially when choosing a supplier. Below are some of the most prominent security threats and concerns facing businesses moving to the cloud.

- The move to cloud will inevitably lead to some loss of control of your organization's data as it is stored on the cloud provider servers. Issues such as the geographic location of your data, specific backup processes and the

steps taken to ensure your data is private and secure are no longer in your control.

- Regardless of where and how your data is stored, the permanent loss of data is likely a major concern. Data loss can have a huge impact financially, operationally and even legally as data loss may result in the failure to meet compliance policies or data protection requirements.
- Data breach threats exist regardless of whether data is stored internally or on cloud. Some cloud services may be more vulnerable to potential attacks and the hijacking of data due to new methods of attack such as Man-in-the-Cloud. This takes advantage of synchronization services to access and extract data, compromise files or attack end-users.
- Hackers or even authorized users may potentially attack and abuse cloud storage for illegal activities. This can include the storing and spread of copyrighted materials, pirated software, malware or viruses. This can occur when individuals directly attack the service or take over the cloud service's resources.

Q3: Explain in detail Cloud Infrastructure Mechanisms.

Ans: Cloud infrastructure mechanisms are foundational building blocks of cloud environments that establish primary artifacts to form the basis of fundamental cloud technology architecture.

Logical Network Perimeter

Defined as the isolation of a network environment from the rest of a communications network, the logical network perimeter establishes a virtual network boundary that can encompass and isolate a group of related cloud-based IT resources that may be physically distributed.

Virtual Server

A virtual server is a form of virtualization software that emulates a physical server. Virtual servers are used by cloud providers to share the same physical server with

multiple cloud consumers by providing cloud consumers with individual virtual server instances.

Cloud Storage Device

The cloud storage device mechanism represents storage devices that are designed specifically for cloud-based provisioning. Instances of these devices can be virtualized, similar to how physical servers can spawn virtual server images. Cloud storage devices are commonly able to provide fixed-increment capacity allocation in support of the pay-per-use mechanism.

Cloud Usage Monitor

The cloud usage monitor mechanism is a lightweight and autonomous software program responsible for collecting and processing IT resource usage data.