

Cloud Computing Fundamentals

Assignment 1

Each Question is of 2.5 marks

Total marks: 20

Last Date of Submission: 27th Nov, 2023

Q1: Differentiate how modern infrastructure like cloud infrastructure is better than traditional IT infrastructure?

Q2: Describe Virtualization, its benefits and features:

- Sharing • Aggregation • Emulation • Isolation

Q3: Describe the Machine Reference model in detail. Discuss the importance of API, ABI and ISA in design of hypervisors in context of Machine Reference model.

Q4: Define Virtual Machine Monitor (VMM)/Hypervisors. Enumerate and differentiate between different types of Hypervisors. Also, give an example of each case.

Q5: Enumerate different types of Execution level Virtualizations and compare Full Virtualization, para Virtualization and Partial Virtualization

Q6: Define Cloud Computing? Explain Cloud Reference model in detail with the help of suitable diagrams.

Q7: Define Storage Virtualization. Explain Block, File and Object Storage provided by cloud environment.

Q8: Discuss absence of Hypervisor in OS Level Virtualization.

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Assignment 2

Q1 to Q5 are of 3 marks. Q6 is of 5 marks.

Total Marks: 20

Last Date of Submission: 27th Nov, 2023

Q1: Enumerate and explain the characteristics of Cloud Computing

Q2: Explain Xen Hypervisor and VMware Hypervisor architecture with the help of diagram

Q3: Elaborate VPN? Classify and explain its types.

Q4: Explain the various delivery and deployment models for cloud. Also, compare them.

Q5: Why Workload Categorization is important in Cloud Computing Environment? Explain the various categories of Workloads suitable for cloud environment.

Q6:

- a. ABC Corporation is planning to migrate its IT infrastructure to the cloud to improve efficiency and scalability. They are evaluating different cloud service models for various aspects of their business operations.

Scenario: Service Model Selection

ABC Corporation's development team is working on a new application, and the IT leadership needs to decide on the appropriate cloud service model for hosting the application.

Question:

Based on the scenario, explain the key characteristics and advantages of each of the following cloud service models: IaaS, SaaS, and PaaS. Recommend one of these models for hosting ABC Corporation's new application, providing justification for your choice. Consider factors such as scalability, maintenance, and development flexibility.

- b. XYZ Tech, a growing startup, is evaluating cloud deployment and delivery models to optimize its IT infrastructure. Consider the following scenarios:

Scenario: Deployment Decision

XYZ Tech is deciding between using a public cloud or a private cloud for hosting its web application. The development team prefers the flexibility of a public cloud, while the management team is concerned about data security.

Question:

Given the scenario, outline one advantage of choosing a public cloud for hosting XYZ Tech's web application, and one challenge associated with data security in a public cloud. How might XYZ Tech address the security concern while still leveraging the benefits of a public cloud?