

University Question Bank

A comprehensive compilation of important questions

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Questions and Answers

1. Explain how cloud computing provides solution for On-Demand and Dynamic Scaling

Cloud computing provides on-demand and dynamic scaling by allowing resources to be provisioned and de-provisioned quickly and easily. This is achieved through the use of virtualization and resource pooling, which enables resources to be dynamically allocated and reallocated as needed. This scalability is provided by the cloud's ability to:

- Provision resources automatically based on demand
- Scale up or down quickly to meet changing workloads
- Adjust resource allocation in real-time

This on-demand and dynamic scaling provides numerous benefits, including:

- Improved agility and competitiveness

- Reduced capital and operating expenses
- Enhanced user experience and satisfaction

2. Explain Distributed system

A distributed system is a system that consists of multiple remote components or nodes that communicate with each other to achieve a common goal. These nodes can be located in different physical locations and are connected through a communication medium, such as a network. In a distributed system, each node may perform a specific function or task, and may communicate with other nodes to coordinate their activities.

The benefits of distributed systems include:

- Improved scalability and fault tolerance
- Increased processing power and memory
- Enhanced flexibility and adaptability

Examples of distributed systems include:

- Cloud computing platforms
- Grid computing systems
- Data banks and social media platforms

3. Explain different Types of Hardware Virtualization Techniques.

Hardware virtualization is a technique used to create multiple virtual environments on a single physical machine. There are several types of hardware virtualization techniques, including:

1. **Paravirtualization: The virtual machine is modified to communicate directly with the hypervisor, bypassing the need for emulation.**

2. **Full Virtualization:** The virtual machine is presented with a virtualized environment that mimics a physical machine, including hardware devices and peripherals.
3. **Operating System Virtualization:** The virtual machine is presented with a virtualized operating system environment, allowing multiple operating systems to run on a single physical machine.
4. **Emulation:** The virtual machine is presented with a simulated environment, using emulation to mimic the behavior of physical hardware.

4. Explain different types of Cloud Deployment Models.

Cloud deployment models refer to the different ways in which a cloud computing infrastructure is deployed and managed. There are several types of cloud deployment models, including:

1. **Public Cloud:** The cloud infrastructure is owned and managed by a third-party provider, and is made available to the general public.
2. **Private Cloud:** The cloud infrastructure is owned and managed by a single organization, and is not shared with other organizations.
3. **Hybrid Cloud:** The cloud infrastructure combines public and private cloud deployment models, allowing for greater flexibility and scalability.
4. **Community Cloud:** The cloud infrastructure is shared by multiple organizations with similar interests or goals.

5. Briefly discuss about cloud computing Platforms and Technologies

Cloud computing platforms and technologies are designed to enable the deployment and management of cloud computing services. Some common cloud computing platforms and technologies include:

- AWS (Amazon Web Services)
- Azure (Microsoft)
- Google Cloud Platform
- OpenStack

These platforms and technologies provide a range of features and functions, including:

- Virtualization and resource pooling
- Scalability and on-demand provisioning
- Data storage and management
- Security and compliance

6. Explain Machine Reference Model of Virtualizing an Execution Environment

The Machine Reference Model (MRM) is a framework used to describe the virtualization of an execution environment. The MRM is based on the following components:

1. **Virtual Hardware: The virtualized hardware environment, including CPU, memory, and I/O devices.**
2. **Virtual Machine Monitor (VMM): The software component that manages the virtualization of the hardware environment.**
3. **Guest Operating System: The operating system that runs on the virtual hardware environment.**

The MRM provides a framework for understanding the virtualization of an execution environment, and is used to describe the interactions between the virtual hardware, VMM, and guest operating system.

7. Explain Service Oriented Computing 1

Service-Oriented Computing (SOC) is a paradigm that enables the integration and coordination of services from different organizations and systems. SOC is based on the following principles:

- Services are independent, self-describing, and modular
- Services are accessible through standardized interfaces
- Services are discoverable and usable
- Services are scalable and configurable

SOC enables organizations to create and integrate services that can be used to support a wide range of applications and systems. This includes cloud computing services, such as compute, storage, and network services.