
1. Introduction to Cloud Computing

Q1: What is cloud computing?

A: Cloud computing is the delivery of computing services like servers, storage, databases, networking, software, over the internet (“the cloud”).

Q2: What are the characteristics of cloud computing?

A: On-demand self-service, broad network access, resource pooling, rapid elasticity, and measured service.

Q3: What are the pros of cloud computing?

A: Cost savings, scalability, flexibility, disaster recovery, and accessibility.

Q4: What are the cons of cloud computing?

A: Downtime, limited control, potential security risks, and dependency on internet connectivity.

Q5: What is the seven-step model of cloud migration?

A: Assessment, Planning, Pilot, Migration, Validation, Optimization, and Operation.

Q6: What are current trends in computing?

A: Serverless computing, edge computing, AI integration, hybrid cloud, and increased automation.

2. Cloud Service Models

Q7: What is IaaS?

A: Infrastructure as a Service provides virtualized computing resources over the internet.

Q8: What is PaaS?

A: Platform as a Service provides a platform allowing customers to develop, run, and manage applications.

Q9: What is SaaS?

A: Software as a Service provides access to application software and databases over the cloud.

Q10: What is cloud storage?

A: A model where data is stored on remote servers accessed via the internet.

3. Cloud Architecture

Q11: What is logical cloud computing architecture?

A: It includes user interface, application services, platform services, and infrastructure services.

Q12: What are the deployment models of cloud computing?

A: Public, Private, Hybrid, and Community clouds.

4. Data Storage

Q13: What is Direct Attached Storage (DAS)?

A: Storage directly attached to a computer or server, not accessible over a network.

Q14: What is a Storage Area Network (SAN)?

A: A network that provides access to consolidated, block-level storage.

Q15: What is Network Attached Storage (NAS)?

A: A file-level storage server connected to a network, accessible to clients.

Q16: What are cloud data stores?

A: Storage systems that provide scalable and distributed data management in the cloud.

5. Cloud Storage and Distributed Data

Q17: What is provisioning in cloud storage?

A: Allocating storage resources as needed by the cloud user or application.

Q18: What is distributed data storage?

A: Data stored across multiple physical locations for redundancy and performance.

6. Virtualization

Q19: What is virtualization?

A: Creating a virtual version of hardware, OS, storage, or network resources.

Q20: What are the types of virtualization?

A: Hardware, Software, Network, Storage, and Desktop virtualization.

Q21: What is virtual clustering?

A: Combining multiple virtual machines into a cluster for improved performance and reliability.

Q22: What is CPU virtualization?

A: It allows multiple OS instances to run on a single CPU.

Q23: What are the pitfalls of virtualization?

A: Security risks, resource contention, complexity, and licensing issues.

7. Grid and Cloud Virtualization

Q24: How is virtualization used in grid computing?

A: It enables efficient resource sharing across the grid.

Q25: How is virtualization related to cloud computing?

A: Virtualization is the foundational technology that powers cloud computing by allowing resource abstraction and pooling.

8. Amazon Web Services (AWS)

Q26: What is Amazon EC2?

A: Elastic Compute Cloud offers resizable compute capacity in the cloud.

Q27: What is Amazon S3?

A: Simple Storage Service provides scalable object storage for data backup and archiving.

Q28: What is DynamoDB?

A: A fully managed NoSQL database service by AWS.

9. Microsoft Azure

Q29: What is SQL Azure?

A: A cloud-based relational database service by Microsoft.

Q30: What is Windows Azure Platform Appliance?

A: A pre-configured platform for building private clouds using Azure technologies.

10. Cloud Computing Applications

Q31: How is cloud computing used in healthcare?

A: For storing and analyzing ECG data, managing patient records, and enabling telemedicine.

Q32: How is cloud computing used in biology?

A: For protein structure prediction using high computational resources.

Q33: How is cloud used in business?

A: Cloud-based CRM, ERP solutions help manage business operations efficiently.

Q34: What is Google App Engine?

A: A platform as a service (PaaS) offering by Google for hosting web applications.

11. OpenStack

Q35: What is OpenStack?

A: An open-source cloud computing platform for public and private clouds.

12. Cloud Risks and Security

Q36: What are the types of risks in cloud computing?

A: Data breaches, account hijacking, insecure APIs, and data loss.

Q37: What is confidentiality, integrity, and availability?

A: These are the three pillars of cloud security—ensuring data privacy, accuracy, and accessibility.

Q38: What is secure cloud software testing?

A: It involves verifying that cloud software is secure against known and unknown threats.

13. Future Trends and Technologies

Q39: What is mobile cloud computing?

A: Using cloud services and mobile apps in tandem to deliver data and services to mobile devices.

Q40: What is Comet Cloud?

A: A cloud computing engine that supports autonomic cloud computing.

Q41: What is Jungle computing?

A: Integration of various types of computational resources (cloud, grid, clusters) to form a unified infrastructure.

Q42: What is the difference between distributed cloud and edge computing?

A: Distributed cloud spans multiple locations, while edge computing processes data closer to the source.

Q43: What is Docker?

A: A platform for developing, shipping, and running applications in containers.

Q44: What is Kubernetes?

A: An open-source system for automating deployment, scaling, and managing containerized applications.

Q45: What is DevOps?

A: A set of practices that integrates development and operations to improve collaboration and productivity.

14. IoT and Cloud

Q46: How is cloud computing used in IoT for homes?

A: It helps manage smart home devices via centralized cloud platforms.

Q47: How is cloud used in IoT for automobiles?

A: Enables vehicle tracking, remote diagnostics, and real-time alerts.

Q48: How is IoT used in healthcare with cloud?

A: To monitor patient vitals in real-time, store medical data, and enable remote consultations.
