

1. What is AWS?

Amazon Web Services (AWS) is a cloud computing platform provided by Amazon. It offers a wide range of on-demand computing resources, such as storage, databases, networking, and analytics, over the internet. This allows businesses to access scalable and flexible computing power without the need to invest in physical infrastructure.

2. Describe what AWS is and its significance in cloud computing.

AWS is one of the leading cloud computing platforms globally. It enables companies to rent computing resources and services on a pay-as-you-go basis. AWS is significant because it democratizes access to high-level computing, allowing companies of all sizes to deploy applications and services quickly, scale up or down based on demand, and only pay for what they use. It has transformed the way businesses operate, making it easier to innovate, reduce costs, and improve performance.

3. Explain the key components of AWS architecture.

- **Regions and Availability Zones:**
- **Elastic Compute Cloud (EC2):** Virtual servers for running applications.
- **Simple Storage Service (S3):** Scalable object storage service.
- **Relational Database Service (RDS):** Managed relational databases.
- **Identity and Access Management (IAM):** Securely manage access to AWS services.
- **VPC (Virtual Private Cloud):** Allows users to create isolated networks within AWS.

4. Discuss services like EC2, S3, RDS, and IAM.

- **EC2 (Elastic Compute Cloud):** A service that provides resizable virtual servers, known as instances. Users can choose the instance type, operating system, and scale capacity based on their needs.
- **S3 (Simple Storage Service):** A scalable object storage service that allows users to store and retrieve any amount of data at anytime from anywhere. It's commonly used for data backup, content storage, and archival.
- **RDS (Relational Database Service):** A managed service for relational databases like MySQL, PostgreSQL, and Oracle. RDS handles database setup, patching, backups, and scaling.
- **IAM (Identity and Access Management):** A service that allows users to manage access to AWS services and resources securely. It enables you to create and manage AWS users and groups, and assign permissions.

5. What are the benefits of using cloud computing with AWS?

- **Scalability:** Easily scale resources up or down based on demand.
- **Flexibility:** Support for a wide range of operating systems, databases, and programming models.
- **Cost-Efficiency:** Only pay for the resources you use, reducing capital expenditures.

- **Security:** AWS offers robust security features, including data encryption, access controls, and compliance certifications.

6. Focus on scalability, flexibility, cost-efficiency, and security.

- **Scalability:** AWS allows automatic scaling of resources, ensuring applications can handle varying levels of traffic without manual intervention.
- **Flexibility:** AWS supports multiple operating systems and programming environments, allowing developers to use the tools they are most comfortable with.
- **Cost-Efficiency:** With AWS's pay-as-you-go model, you only pay for the resources you use, avoiding the need for large upfront investments in infrastructure.
- **Security:** AWS provides a secure environment with features like encryption, network firewalls, identity management, and compliance with global security standards.

7. How does AWS pricing work?

AWS pricing is based on a pay-as-you-go model, which means you pay only for the resources you use. There are also options for **Reserved Instances**, where you can commit to using a specific amount of computing power for a longer term (like 1 or 3 years) in exchange for a lower rate. AWS also offers a **Free Tier** for new users, allowing them to explore and use certain services for free within certain limits.

8. Explain the pay-as-you-go model, reserved instances, and free tier.

- **Pay-as-you-go model:** Charges based on actual usage, allowing you to scale up or down without any long-term commitments.
- **Reserved Instances:** Offers a discount in exchange for a one- or three-year commitment to use specific services, providing cost savings for predictable workloads.
- **Free Tier:** Allows new users to use certain AWS services for free up to specified limits for a year, helping them explore and get familiar with AWS.

9. Explain cloud computing models.

- **IaaS (Infrastructure as a Service):** Provides virtualized computing resources over the internet (e.g., AWS EC2).
- **PaaS (Platform as a Service):** Offers a platform allowing customers to develop, run, and manage applications without the complexity of building and maintaining infrastructure (e.g., AWS Elastic Beanstalk).
- **SaaS (Software as a Service):** Delivers software applications over the internet, on a subscription basis (e.g., AWS Work Spaces).

10. Explain AWS Snowball.

AWS Snowball is a data transfer service that enables users to move large amounts of data into and out of AWS using physical devices, rather than over the internet. This service is particularly

useful when dealing with terabytes or petabytes of data, offering a more efficient and secure way to transfer data to the AWS cloud.

11. Explain Load Balancing.

Load Balancing in AWS refers to distributing incoming application traffic across multiple instances to ensure no single instance becomes overwhelmed. AWS offers Elastic Load Balancing (ELB), which automatically distributes incoming traffic across multiple targets, such as EC2 instances, containers, or IP addresses, improving fault tolerance and availability.

12. Explain Auto Scaling.

Auto Scaling in AWS automatically adjusts the number of EC2 instances based on current demand. It helps maintain application performance by adding or removing instances as needed, ensuring that you only use the necessary resources, which can save costs and improve efficiency.

13. Explain AWS Lambda Service.

AWS Lambda is a serverless computing service that lets you run code without provisioning or managing servers. You can execute code in response to triggers such as changes in data, shifts in system state, or user actions. AWS Lambda automatically scales your application by running code in response to each trigger, handling thousands of concurrent executions. This service is ideal for building applications that respond quickly to new information and scaling them as needed.