Interview Tips Day 6: AWS for DevOps – 12 Common Basic Questions. (Part-1)

1. What is cloud computing ?

- **Definition**: Cloud computing refers to the delivery of computing services—including servers, storage, databases, networking, software, and more—over the internet, allowing users to access these resources remotely without owning or managing physical infrastructure.

2. **Service Models**:

   - **Infrastructure as a Service (IaaS)**: Offers virtualized computing resources like virtual machines, storage, and networking.
   - **Platform as a Service (PaaS)**: Provides a platform for developing, running, and managing applications without dealing with underlying infrastructure.
   - **Software as a Service (SaaS)**: Delivers software applications over the internet on a subscription basis, eliminating the need for local installation.

3. **Characteristics**:

   - **On-Demand Service**: Resources can be provisioned and accessed instantly, allowing users to scale services based on demand.
   - **Resource Pooling**: Cloud providers offer a shared pool of resources for multiple users, ensuring cost efficiency and optimal utilization.
   - **Elasticity**: Easily scale resources up or down based on workload fluctuations.
   - **Measured Service**: Pay-as-you-go or subscription-based model, allowing users to pay only for the resources they consume.

4. **Benefits**:

   - **Flexibility**: Users can access services from anywhere with an internet connection.
   - **Scalability**: Ability to easily adjust resources to match changing needs.
   - **Cost Savings**: Eliminates the need for owning and maintaining physical hardware, reducing capital expenses.
   - **Efficiency**: Improved productivity and faster deployment of services and applications.

5. **Examples of Cloud Providers**:

- **Amazon Web Services (AWS)**
- **Microsoft Azure**
- **Google Cloud Platform (GCP)**
- **IBM Cloud**
- **Oracle Cloud**

6. **Impact**:

- **Business Transformation**: Enables innovation, agility, and faster time-to-market for products and services.
- **Data Accessibility**: Facilitates easier access and sharing of data across various locations and devices.
- **Global Reach**: Allows companies to reach a global audience by deploying services in multiple regions.

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2. Why should I use Aws for DevOps?

➔ **Comprehensive Services:** AWS provides diverse services covering all DevOps needs, from computing and storage to security and automation, facilitating efficient application management.

2. **Scalability and Adaptability:** Easily scale resources up or down as needed, ensuring peak performance and cost-effectiveness while supporting various application structures.
3. **Automation Tools:** Services like AWS CloudFormation, Elastic Beanstalk, CodeDeploy, and CodePipeline automate DevOps tasks, streamlining workflows and simplifying orchestration.
4. **Seamless Integration:** AWS services seamlessly integrate with third-party tools, fostering a cohesive DevOps environment and enhancing productivity within existing toolchains.
5. **Robust Security Measures:** With features like IAM, KMS, and stringent compliance certifications, AWS maintains data security and integrity, ensuring a secure DevOps ecosystem.
6. **Monitoring and Analytics:** AWS offers tools like CloudWatch, X-Ray, and Config for monitoring, troubleshooting, and optimizing application performance, aiding DevOps teams in efficient management.

7. **Global Infrastructure:** With data centers worldwide, AWS enables deploying applications closer to users, reducing latency and improving user experience through its global presence.
8. **Cost-Effective Options:** AWS provides flexible pricing models like pay-as-you-go and reserved instances, coupled with tools such as Cost Explorer and Budgets, assisting in efficient expense monitoring and management for DevOps operations.

3.Which services are mostly used in AWS and which services have you worked on?

- **Amazon EC2 (Elastic Compute Cloud):** Provides resizable compute capacity in the cloud, allowing users to launch and manage virtual servers, known as instances.

2. **Amazon S3 (Simple Storage Service)**: Offers scalable object storage for data backup, archival, and application hosting, with high durability and availability.
3. **Amazon RDS (Relational Database Service)**: Manages relational databases in the cloud, supporting various database engines like MySQL, PostgreSQL, Oracle, SQL Server, etc.
4. **AWS Lambda**: Enables serverless computing by running code in response to events, eliminating the need to manage servers, ideal for microservices and event-driven architectures.
5. **Amazon SNS (Simple Notification Service)** and **Amazon SQS (Simple Queue Service)**: Messaging services for event-driven architectures and decoupling components in distributed systems.
6. **Amazon VPC (Virtual Private Cloud)**: Offers a logically isolated section of the AWS cloud, allowing users to launch AWS resources in a virtual network.
7. **AWS IAM (Identity and Access Management)**: Manages user permissions and access control to AWS services and resources.
8. **Amazon CloudWatch**: Monitors AWS resources and applications in real-time, providing metrics, logs, and alarms for monitoring and troubleshooting.
9. **AWS CloudFormation**: Provides infrastructure as code, allowing users to create and manage AWS resources via templates.
10. **Amazon DynamoDB**: A fully managed NoSQL database service known for its scalability and low-latency performance.

4. Describe the purpose of Amazon S3 (Simple Storage Service).

Answer: Amazon S3 is an object storage service designed to store and retrieve any amount of data from anywhere. It's ideal for a wide range of data types, including backups, media files, and application data.

Example: "A mobile app might use S3 to store user-uploaded images or videos. This data can be accessed securely from anywhere, allowing users to view or share their media files."

5. Differentiate between EBS (Elastic Block Store) and S3 storage in AWS.

Answer: EBS provides block-level storage volumes for EC2 instances and is used for persistent storage. S3, on the other hand, is object-based storage used for storing and retrieving data over the internet.

Example: "Consider an enterprise application. It might use EBS for storing its critical database files, ensuring consistent and low-latency access, while using S3 for backup and archival purposes."

6. What does VPC (Virtual Private Cloud) mean in AWS?

Answer: VPC allows users to create a logically isolated section of the AWS cloud where they can launch AWS resources in a virtual network defined by themselves.

Example: "A company can set up multiple VPCs to segregate its development, testing, and production environments, ensuring network isolation and security."

7. How does AWS Lambda function and what is its purpose?

Answer: AWS Lambda is a serverless compute service that runs code in response to events without the need to provision or manage servers. Its purpose is to execute code in a scalable and cost-effective manner.

Example: "An application might use Lambda functions to process uploaded files. When a new file is added to an S3 bucket, a Lambda function could automatically trigger, resize images, and store them back in S3."

8. Explain the term "Auto Scaling" in AWS and its advantages.

Answer: Auto Scaling in AWS allows automatic adjustment of resources to maintain performance and cost optimization. It adds or removes instances based on demand to ensure consistent performance.

Example: "A web application using Auto Scaling can dynamically adjust server capacity during traffic spikes, ensuring the application remains responsive without over-provisioning resources."

9. What is AWS CloudFormation, and why is it important?

Answer: AWS CloudFormation is an infrastructure as code (IaC) service used for defining and deploying AWS infrastructure in a declarative manner. It helps in automating and replicating infrastructure setups consistently.

Example: "CloudFormation templates can define an entire architecture, including EC2 instances, S3 buckets, and security groups. Deploying the template ensures consistent infrastructure across different environments."

10. Discuss the differences between scalability and elasticity in AWS.

Answer: Scalability refers to the ability to handle increased workload by adding resources. Elasticity is the capability to automatically provision and de-provision resources based on demand.

Example: "A scalable system can add more servers when the load increases. Elasticity allows those additional servers to be automatically removed when the load decreases, optimizing costs."

11. Explain the key features of AWS RDS (Relational Database Service).

Answer: AWS RDS is a managed relational database service offering easy setup, scaling, and management of relational databases. It supports various database engines like MySQL, PostgreSQL, etc.

Example: "An e-commerce application might utilize RDS to store product information in a scalable and fault-tolerant manner, ensuring high availability during high traffic periods."

12. Define AWS Elastic Beanstalk and its role in deployment.

Answer: AWS Elastic Beanstalk is a PaaS (Platform as a Service) offering that simplifies application deployment and management. It automatically handles infrastructure provisioning, deployment, and load balancing.

Example: "An organization deploying a new web application can use Elastic Beanstalk to upload their code, and it will automatically handle the deployment, scaling, and monitoring of the application."