

# **Cloud Security Essentials**

## **1. How to configure, develop and maintain Security and Privacy in cloud?**

**ANS:** Cloud security and privacy are ensured through a combination of **technical controls, policies, and continuous monitoring**.

### **A. Configure Security:**

- Use **Identity and Access Management (IAM)** to control user access
- Apply **least privilege principle**
- Configure **firewalls / security groups / network ACLs**
- Enable **encryption at rest and in transit**
- Enable **logging and monitoring**

### **B. Develop Security:**

- Secure application development (DevSecOps)
- Use secure APIs and authentication mechanisms
- Implement secure key management (KMS)
- Design private networks (VPC, subnets)

### **C. Maintain Security:**

- Regular **patching and updates**
- Continuous **monitoring and auditing**
- Vulnerability scanning and penetration testing
- Backup and disaster recovery planning
- Compliance with regulations (GDPR, ISO, SOC)

## **2. What is Portability in cloud?**

**ANS:** Portability in cloud refers to the ability to **move applications, data, or workloads from one cloud platform to another** with minimal changes.

### **Examples:**

- Moving an application from AWS to Azure
- Running containers on any cloud using Docker and Kubernetes

### **Benefits:**

- Avoids vendor lock-in
- Increases flexibility
- Improves disaster recovery options

## **3. What is Reliability and high Availability in cloud?**

**ANS:**

### **Reliability:**

Reliability ensures that **cloud services perform consistently without failure**.

- Achieved through fault-tolerant systems
- Automatic failure detection and recovery

### **High Availability (HA):**

High Availability ensures **services remain available even during failures.**

#### **Techniques:**

- Multiple servers (redundancy)
- Load balancing
- Multiple availability zones
- Automatic scaling

#### **Example:**

If one server fails, traffic is redirected to another without downtime.

## **4. Describe Mobility Cloud Computing**

**ANS: Mobility Cloud Computing** allows users to **access cloud services from mobile devices** such as smartphones, tablets, and laptops.

#### **Key Features:**

- Anywhere, anytime access
- Internet-based service delivery
- Device independence

#### **Examples:**

- Google Drive
- Microsoft OneDrive
- Cloud-based mobile apps

#### **Benefits:**

- Increased productivity
- Real-time data access
- Supports remote work

## **5. Describe AWS, Azure, Google cloud Platforms**

### **ANS:**

#### **Amazon Web Services (AWS):**

- Market leader in cloud computing
- Offers compute, storage, networking, AI, security services
- Global infrastructure with many regions

#### **Microsoft Azure:**

- Strong integration with Microsoft products
- Popular in enterprise environments
- Supports hybrid cloud solutions

#### **Google Cloud Platform (GCP):**

- Known for data analytics and machine learning
- High-performance networking
- Used heavily for big data workloads

## **6.Accessing AWS, Azure and Google cloud Platforms (any one portal )**

**ANS:**

### **Steps to Access AWS:**

1. Go to AWS Management Console
2. Create an AWS account
3. Login using email and password
4. Access services like EC2, S3, VPC from the dashboard

### **Access Methods:**

- Web Console
- Command Line Interface (CLI)
- SDKs (Python, Java, etc.)

## **7.Create compute, create network, create storage on AWS , Azure and GCP**

**ANS:**

### **A. AWS:**

- **Compute:** EC2 instance
- **Network:** VPC, Subnets, Security Groups
- **Storage:** S3 (object), EBS (block)

### **B. Azure:**

- **Compute:** Virtual Machine (VM)
- **Network:** Virtual Network (VNet)
- **Storage:** Blob Storage, Disk Storage

### **C. Google Cloud:**

- **Compute:** Compute Engine
- **Network:** VPC Network

## **8.Compare Cloud pricing of resources and services on all platform Amazon Web Services (AWS):**

**ANS:**

Feature	AWS	Azure	GCP
<b>Pricing Model</b>	Pay-as-you-go	Pay-as-you-go	Pay-as-you-go
<b>Free Tier</b>	12 months	12 months	\$300 credit
<b>Compute Pricing</b>	Instance-based	VM-based	Per-second billing
<b>Storage Cost</b>	Moderate	Moderate	Slightly lower
<b>Discounts</b>	Reserved Instances	Reserved VMs	Sustained Use Discounts
<b>Best For</b>	General purpose	Enterprise	Data analytics