

# AWS Cloud – Complete Content

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## 1. Cloud Computing Fundamentals

- What is Cloud Computing?
  - On-Premise vs Cloud
  - Types of Cloud
    - Public
    - Private
    - Hybrid
  - Cloud Service Models
    - IaaS
    - PaaS
    - SaaS
  - Advantages & Disadvantages of Cloud
  - Shared Responsibility Model
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## 2. AWS Global Infrastructure

- AWS Regions
  - Availability Zones (AZ)
  - Edge Locations
  - Regional vs Global Services
  - Choosing the right Region
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## 3. AWS Account & IAM (VERY IMPORTANT)

### AWS Account Setup

- AWS Free Tier
- Root User vs IAM User
- AWS Management Console
- AWS CLI
- AWS SDK

### IAM – Identity and Access Management

- Users
- Groups
- Roles
- Policies (Managed & Inline)

- IAM Best Practices
  - MFA
  - Assume Role
  - IAM vs Resource-based policies
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## 4. Compute Services

### Amazon EC2

- What is EC2?
- Instance Types
- AMI
- Key Pairs
- Security Groups
- Elastic IP
- User Data
- Auto Scaling
- EC2 Pricing Models
  - On-Demand
  - Reserved
  - Spot

### AWS Lambda (Serverless)

- What is Serverless?
  - Lambda Architecture
  - Triggers
  - Lambda Limits
  - Use Cases
  - Pricing
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## 5. Storage Services

### Amazon S3 (VERY IMPORTANT)

- Buckets & Objects
- Storage Classes
- Versioning
- Lifecycle Policies
- Encryption
- Bucket Policies
- S3 vs EBS vs EFS

### Block & File Storage

- EBS
    - Volume Types
    - Snapshots
  - EFS
    - Use cases
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## 6. Database Services

### RDS

- Supported Engines
  - MySQL
  - PostgreSQL
  - Oracle
  - SQL Server
- Multi-AZ
- Read Replicas
- Backups & Snapshots

### DynamoDB

- NoSQL basics
- Tables, Items, Attributes
- Primary Keys
- Indexes
- Capacity Modes

### Other Databases

- Aurora
  - Redshift (Data Warehouse)
  - ElastiCache (Redis)
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## 7. Networking Services (VERY IMPORTANT)

### VPC

- What is VPC?
- CIDR
- Subnets (Public & Private)
- Route Tables
- Internet Gateway
- NAT Gateway
- Security Groups vs NACL

## Load Balancers

- Application Load Balancer (ALB)
- Network Load Balancer (NLB)
- Classic Load Balancer (CLB)

## DNS

- Route 53
  - Hosted Zones
  - Routing Policies
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## 8. Security & Compliance

- Shared Responsibility Model
  - Encryption at Rest & In Transit
  - KMS
  - Secrets Manager
  - WAF
  - Shield
  - CloudTrail
  - GuardDuty
  - Inspector
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## 9. Monitoring & Logging

- CloudWatch
    - Metrics
    - Logs
    - Alarms
  - CloudTrail
  - AWS Config
  - X-Ray
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## 10. Deployment & Management

### Infrastructure as Code

- CloudFormation
- Terraform (Overview)

### Deployment Services

- Elastic Beanstalk
  - CodeCommit
  - CodeBuild
  - CodeDeploy
  - CodePipeline
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## 11. Containers & Orchestration

- Docker on AWS
  - ECS
  - ECR
  - EKS (Kubernetes Overview)
  - Fargate
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## 12. Messaging & Integration

- SNS
  - SQS
  - EventBridge
  - Step Functions
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## 13. Serverless Architecture

- API Gateway
  - Lambda
  - DynamoDB
  - S3
  - Real-time serverless use cases
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## 14. High Availability & Scalability

- Auto Scaling
- Load Balancing
- Multi-AZ vs Multi-Region
- Disaster Recovery Strategies
  - Backup & Restore
  - Pilot Light
  - Warm Standby
  - Multi-Site

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## 15. Cost Management

- AWS Pricing Models
- Free Tier
- Cost Explorer
- Budgets
- Savings Plans
- Best Practices to reduce cost

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## 16. DevOps on AWS

- CI/CD pipelines
- Blue-Green Deployment
- Canary Deployment
- Monitoring deployments

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## 17. Real-Time AWS Architectures

### Example Architectures

1. Web Application Architecture
2. Microservices Architecture
3. Serverless Application
4. Data Analytics Pipeline

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## 18. AWS for Developers

- Hosting Spring Boot apps
- Hosting Angular / React apps
- Connecting RDS from EC2
- S3 for static websites

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## 19. AWS Certifications (Optional)

- AWS Cloud Practitioner
- AWS Solutions Architect – Associate
- AWS Developer – Associate

- AWS DevOps Engineer
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## **20. AWS Interview Questions**

- EC2 vs Lambda
  - S3 vs EBS
  - Security Group vs NACL
  - ALB vs NLB
  - IAM Role vs User
  - RDS vs DynamoDB
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## **21. Best Practices**

- Least privilege access
  - Use Multi-AZ
  - Automate everything
  - Monitor & alert
  - Regular backups
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## **22. Tools & Utilities**

- AWS Console
- AWS CLI
- SDKs
- CloudShell