

AWS Syllabus Outline

Slide 1: Introduction to AWS

What is AWS?

- Amazon Web Services (AWS) is a secure cloud services platform.
- Provides computing power, storage, databases, networking, and more.

Global Infrastructure

- Regions: Physical locations worldwide
- Availability Zones (AZs): Isolated data centers in a region
- Edge Locations: For content delivery (CloudFront)

Advantages of Cloud Computing

- Scalability
- Cost-effective (Pay-as-you-go)
- Reliability & Security
- Global reach

Slide 2: AWS Core Services Overview

Compute

- EC2: Virtual servers
- Lambda: Serverless compute
- Elastic Beanstalk: App deployment

Storage

- S3: Object storage
- EBS: Block storage
- Glacier: Archival storage

Networking

- VPC: Virtual private cloud
- Route 53: DNS
- CloudFront: CDN

Databases

- RDS: Relational DB

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- DynamoDB: NoSQL
- Aurora: MySQL/PostgreSQL-compatible

Slide 3: Step-by-Step EC2 Setup

1. Launch EC2 from AWS Console
2. Select AMI (Amazon Linux, Ubuntu, etc.)
3. Choose Instance Type (e.g., t2.micro)
4. Configure Instance Settings
5. Create Security Group (open port 22)
6. Create Key Pair
7. Launch instance
8. Connect via SSH
9. Monitor with CloudWatch

Slide 4: Step-by-Step S3 Bucket Creation

1. Open S3 in AWS Console
2. Create Bucket (name, region)
3. Configure Options (encryption, versioning)
4. Set Permissions
5. Upload Files
6. Enable Logging and Lifecycle Policies

Slide 5: IAM & Security

What is IAM?

- Identity and Access Management

Create:

- Users, Groups, Roles

Permissions:

- Attach policies (JSON format)

Best Practices:

- Enable MFA

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- Use IAM Access Analyzer
- Rotate access keys

Slide 6: Monitoring and Logging

CloudWatch:

- Metrics, Alarms, Dashboards

CloudTrail:

- Logs API calls (who, what, when)

AWS Config:

- Monitors resource configurations
- Detects changes, non-compliance

Slide 7: Networking & VPC

VPC Overview:

- Isolated virtual cloud network

Components:

- Subnets, Route Tables
- Internet/NAT Gateways

Security:

- Security Groups vs NACLs

Advanced:

- VPC Peering
- VPN Connection

Slide 8: Serverless Architecture

Lambda Overview:

- Run code without servers

Steps:

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1. Open Lambda Console
2. Create Function
3. Configure Runtime, Role
4. Add Code
5. Set Trigger (S3, DynamoDB)

API Gateway:

- Create RESTful APIs

Slide 9: Database Services

RDS:

- Supports MySQL, PostgreSQL, etc.
- Automatic backup, scaling

Steps:

1. Choose Engine
2. Configure instance
3. Set credentials
4. Set network and security

DynamoDB:

- NoSQL, scalable
- Supports DAX for caching

Slide 10: Billing & Cost Management

Pricing:

- Pay-as-you-go
- Reserved Instances
- Spot Instances

Tools:

- AWS Pricing Calculator
- Cost Explorer
- Budgets

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- Use Tags for tracking