AWS Cloud Practitioner

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Module 1: Introduction to AWS

1. Cloud Computing Deployment Models
    1. Cloud-based
    2. On-premises
    3. Hybrid
2. Benefits of Cloud-Computing
    1. Trade upfront expense for variable expense
    2. Stop spending money to run and maintain data centres
    3. Stop guessing capacity
    4. Benefit from massive economies of scale
    5. Increase speed and agility
    6. Go global in minutes

Module 2: Compute in the Cloud

1. Amazon Elastic Compute Cloud (Amazon EC2)
2. Amazon EC2 instance types
    a. General Purpose Instance
    b. Compute Optimised Instance
    c. Memory Optimized Instance
    d. Accelerated Computing Instance
    e. Storage Optimized Instance
3. Amazon EC2 pricing
    a. On-Demand Pricing
    b. Amazon EC2 Savings Plan
    c. Reserved Instance
    d. Spot Instance
    e. Dedicated Hosts
4. Scaling Amazon EC2 -> Amazon EC2 Auto Scaling
5. Directing traffic with Elastic Load Balancing
6. Messaging and Queuing
    a. Monolithic - tightly coupled
    b. Microservices - loosely coupled
    c. Amazon Simple Notification Service (Amazon SNS)
    d. Amazon Simple Queue Service (Amazon SQS)
7. Other Computer Services
    a. AWS Lambda
    b. Amazon Elastic Container Service (Amazon ECS)
    c. Amazon Elastic Kubernetes Service (Amazon EKS)
    d. AWS Fargate

Module 3: Global Infrastructure and Reliability

1. Selecting Region
    a. Compliance with data governance and legal requirements
    b. Proximity to your customers
    c. Available services within a Region
    d. Pricing
2. Availability Zones
3. Edge Locations
    - a site that Amazon CloudFront uses to store cached copies of your content
4. Ways to interact with AWS services
    a. AWS Management Console
    b. AWS Command Line Interface (AWS cli)
    c. Software Development Kits (SDKs)
5. AWS Elastic Beanstalk
    - Deploys necessary resources, clients only need provide codes and config setting
    a. Adjust capacity
    b. Load balancing
    c. Automatic scaling
    d. Application health monitoring
6. AWS Cloud Formation
    - build an environment by writing lines of code

Module 4: Networking

1. Amazon Virtual Private Cloud (Amazon VPC)
    a. Internet gateway
    b. Virtual private gateway
2. AWS Direct Connect
3. Subnets and network access control lists
    a. Subnets - public subnets & private subnets
    b. Network Traffic in a VPC - request sent as a packet
    c. Network access control lists (ACLs)
    d. Stateless packet filtering
    e. Stateful packet filtering
    f. Security groups - perform stateful packet filtering
4. Global networking
    a. Domain Name System(DNS)
    b. Amazon Route S3

Module 5: Storage and Databases

1. Instance Stores - ***block level***
2. Amazon Elastic Block Store (EBS) - ***block level***
    a. EBS Snaposhot
3. Amazon Simple Storage Service (Amazon S3)
    a. Amazon S3 storage classes
    b. Amazon S3 Standard
    c. Amazon S3 Standard-Infrequent Access (S3 Standard-IA)
    d. Amazon S3 One Zone-Infrequent Access (S3 One Zone-IA)
    e. Amazon S3 Intelligent-Tiering
    f. Amazon S3 Glacier Instant Retrieval
    g. Amazon S3 Glacier Flexible Retrieval
    h. Amazon S3 Glacier Deep Archive
    i. Amazon S3 Outposts
4. Amazon Elastic File System (Amazon EFS)
5. Amazon Relational Database Service (Amazon RDS)
    a. Amazon Aurora
6. Amazon DynamoDB
7. Amazon Redshift
8. AWS Database Migration Service
9. Additional database services
    a. Amazon DocumentDB
    b. Amazon Neptune
    c. Amazon Quantum Ledger Database (Amazon QLDB)
    d. Amazon Managed Blockchain
    e. Amazon ElastiCache
    f. Amazon DynamoDB Accelerator

Module 6: Security

1. Shared responsibility model
    a. Customers: Security in the cloud
    b. AWS: Security of the cloud
2. AWS Identity and Access Management (IAM)
    a. AWS account root user
    b. IAM users
    c. IAM policies
    d. IAM groups
    e. IAM roles
    f. Multi-factor Authentication
3. AWS Organizations
4. Compliance
    a. AWS Artifact
        - AWS Artifact Agreements
        - AWS Artifact Reports
    b. Customer Compliance Center
5. Denial-of-service attacks (DoS attacks)
    a. AWS Shield
        - AWS Shield Standard
        - AWS Shield Advanced
6. Additional security services
    a. AWS Key Management Service (AWS KMS)
    b. AWS WAF
    c. Amazon Inspector
    d. Amazon GuardDuty

Module 7: Monitoring and Analytics

1. Amazon CloudWatch
    a. CloudWatch alarms
    b. CloudWatch dashboard
2. Amazon CloudTrail
3. AWS Trusted Advisor

Module 8: Pricing and Support

1. AWS Free Tier
    a. Always Free
    b. 12 Months Free
    c. Trials
2. AWS Pricing Concept
    a. Pay for what you use
    b. Pay less when you reserve
    c. Pay less with volume-based discounts when you use more.
3. AWS Pricing Calculator
4. AWS EC2
5. AWS S3
6. AWS Billing & Cost Management dashboard
7. Consolidated billing
8. AWS Budget
9. AWS Cost Explorer
10. AWS Support plans
    a. Basic
    b. Developer
    c. Business
    d. Enterprise On-Ramp
    e. Enterprise
11. Technical Account Manager (TAM)
    - Included in Enterprise On-Ramp and Enterprise Support plans
12. AWS Marketplace

Module 9: Migrating and Innovation

1. AWS Cloud Adoption Framework (AWS CAF)
    a. Business
    b. People
    c. Governance
    d. Platform
    e. Security
    f. Operations
2. Migrating Strategies
    a. Rehosting
    b. Replatforming
    c. Refactoring/re-architecting
    d. Repurchasing
    e. Retaining
    f. Retiring
3. AWS Snow Family
    a. AWS Snowcone
    b. AWS Snowball
    c. AWS Snowmobile

Module 10: The Cloud Journey

1. The AWS Well-Architected Framework
    a. Operational excellence
    b. Security
    c. Reliability
    d. Performance efficiency
    e. Cost optimization
    f. Sustainability
2. Advantages of cloud computing
    a. Trade upfront expense for variable expense.
    b. Benefit from massive economies of scale.
    c. Stop guessing capacity.
    d. Increase speed and agility.
    e. Stop spending money running and maintaining data centers.
    f. Go global in minutes.