



AWS Cloud Practitioner Notes

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Cloud Service Provider (CSP)

- provides multiple Cloud Services (10-1,000+)
- Cloud Services can be chained together to create cloud architectures
- Services can be accessible through single API
- Metered billing
- Rich monitoring
- Offers IaaS

The most common IaaS cloud services:

- Compute
 - EC2 (Virtual Machines)
- Networking
 - VPC (Private Cloud Network)
- Storage
 - EBS (Virtual Hard Drives)
- Databases
 - RDS SQL databases

AWS Services Notes

- Amazon DynamoDB is a fully managed NoSQL database service that provides fast and predictable performance with seamless scalability. (serverless, non-relational,

key-value)

- Amazon Glacier is a long-term, low-cost archival storage service with retrieval times ranging from minutes to hours.
- Amazon EBS (Elastic Block Storage) is a easy-to-use, scalable, high-performance block storage services designed for Amazon EC2.
- AWS SNS (Simple Notification Service) is a fully managed messaging service that enables applications, services, and systems to send and receive notifications from various sources in different formats.
- AWS Cloudwatch collects and visualizes real-time logs, metrics, and event data in automated dashboards. (like a monitoring service)
- AWS Cloudtrail monitors and records account activity across your AWS infrastructure. (records API activity)
- AWS SQS (Simple Queue Service) lets you send, store, and receive messages between software components at any volume, without losing messages or requiring other services to be available.
- AWS Lambda
- AWS RDS (Relational Database Service, not serverless)
 - Aurora
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- AWS Shield is a managed DDOS protection service
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Brush Up:

- AWS Trusted Advisor
- Amazon Config

- AWS Cloudformation
- AWS Inspector — vulnerability management service, vulnerability scanning service
- Amazon RedShift — data warehousing, data processing and analytics
- Access keys
- What are calls? (API)

Instance Types

AWS EC2 Instance Types:

Reserved - 1 or 3 years, upfront, partial, no upfront — good for stable predictive workload

- Standard
- Convertible
- Scheduled

Spot — most cost effective, request unused EC2 instances. best for interrupted workload which can be resilient for failure.

On-Demand - you decide when to start or stop, no long-term commitment.

Dedicated Host — physical server that is completely for your use. Best for strong regulatory requirements.

Dedicated Instances

AWS Elastic Beanstalk

AWS Direct Connect

Amazon Machine Images

AWS Becoming a Cloud Practitioner Part 2 Notes

WAF - Web Application Firewall

- A service that filters incoming HTTP traffic between your application and the internet.

Edge location

- A site that CloudFront uses to cache copies of your content for faster deliver to users at any location.

Regions

- Physical data centers in different parts of the world.
- Regions usually comprise of multiple availability zones which usually contain at least one data center in each zone.

Considerations when selecting a region:

- Compliance
- Latency
- Cost
- Services and features

Authentication - who you are

Authorization - what you can/can't do

Shared Responsibility Model

AWS - security “of” the cloud

Customers- security “in” the cloud

Assign permissions to IAM groups in order to assign permissions to multiple users inside the group efficiently.

Use the principle of least privilege

IAM role is an identity for temporary access to permissions.

AWS Organizations

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OU - Organizational Unit

SCP - service control policies (permissions)

Allows for centralized billing. One bill for multiple accounts.

Volume pricing

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Amazon Inspector - automated security assessments on your applications

Amazon GuardDuty provides threat detection for AWS products and services.

Storage

Amazon EBS - elastic block store, used to scalable, easy-to-use block storages for EC2

- EBS volumes store data in a single AZ

AWS EFS - elastic file system

- EFS file systems store data across multiple AZs

EC2 (Elastic Compute Cloud)

Amazon Elastic Compute Cloud (EC2) is a web service that provides resizable compute capacity in the cloud. It enables customers to launch and manage virtual servers (known as instances) in the cloud.

For the AWS Cloud Practitioner Exam, it's important to know the following key points about EC2:

1. Instance Types: EC2 instances come in different types, each optimized for different use cases, such as general-purpose computing, memory-intensive applications, or compute-intensive workloads. You should be familiar with the different instance types and their characteristics.
2. Pricing: EC2 pricing is based on a variety of factors, including the instance type, the region, and the usage time. It's important to understand how pricing works and how to estimate the cost of running EC2 instances.
3. Security: EC2 instances can be secured through various means, such as using security groups and access control lists (ACLs) to control network traffic, encrypting

data at rest and in transit, and using identity and access management (IAM) to manage user permissions.

4. **Scalability:** EC2 instances can be easily scaled up or down to match the needs of the workload. This allows customers to easily adjust the amount of compute resources they need and pay only for what they use.
5. **Availability and Fault Tolerance:** EC2 instances can be launched in multiple Availability Zones (AZs) within a region to provide fault tolerance and high availability. You should be familiar with how to design and deploy EC2 instances for fault tolerance and high availability.
6. **Amazon Machine Images (AMIs):** AMIs are pre-configured virtual machine images that can be used to launch EC2 instances. You should know how to create and use AMIs.
7. **Elastic Block Store (EBS):** EBS is a block-level storage service that can be attached to EC2 instances to provide persistent storage. You should understand how to create and manage EBS volumes and how to attach them to EC2 instances.
8. **Placement Groups:** Placement groups are used to control how EC2 instances are placed within an AZ. You should know how to create and use placement groups to optimize network performance and reduce latency.
9. **Auto Scaling:** Auto Scaling is a feature that automatically adjusts the number of EC2 instances in a group based on the workload. You should understand how to use Auto Scaling to ensure that your application can handle variable workloads.
10. **Load Balancing:** Elastic Load Balancing (ELB) is a service that can be used to distribute incoming traffic across multiple EC2 instances. You should be familiar with how to configure and use ELB to ensure that your application can handle high traffic loads.

Overall, EC2 is a fundamental building block of the AWS cloud and an important service to understand for the AWS Cloud Practitioner Exam.

AWS Becoming a cloud practitioner part 3

AWS Cloud Adoption Framework (CAF)

6 Perspectives:

Business capabilities:

- Business
- People
- Governance

Technical capabilities:

- Platform
- Security
- Operations

Well-Architected Framework (WAF)

Six Pillars:

- Operational excellence
- Security
- Reliability
- Performance efficiency
- Cost optimization
- Sustainability

Serverless computing

Customer is not in charge of managing or configuring servers.

Relational and Non relational databases

API calls (Cloud Trail)

AWS Trusted Advisor gives recommendations on:

- Cost optimization
- Security
- Performance
- Fault tolerance

- Service limits

Cloud Computing Fundamentals:

- Understand the basic concepts of cloud computing, such as the different cloud deployment models (public, private, and hybrid) and the different cloud service models (IaaS, PaaS, and SaaS).
- Learn about the benefits and challenges of cloud computing, including scalability, elasticity, cost-effectiveness, and security.
- Familiarize yourself with cloud computing terminology and key concepts, such as virtualization, containers, microservices, and serverless computing.
- Understand the difference between on-premises infrastructure and cloud infrastructure, and the advantages of using cloud infrastructure.

AWS Core Services:

- Understand the key AWS services, such as Amazon EC2, Amazon S3, Amazon RDS, and Amazon VPC.
- Learn about the basic functions and use cases of each service, including storage, compute, database, networking, security, and analytics.
- Familiarize yourself with AWS management and deployment tools, such as AWS Management Console, AWS Command Line Interface (CLI), AWS CloudFormation, and AWS Elastic Beanstalk.
- Understand the difference between AWS Regions and Availability Zones, and how to select the best region for your workload.

AWS Security:

- Understand the shared responsibility model of security in the cloud, which outlines the responsibilities of AWS and the customer for securing the cloud infrastructure.
- Learn about the different security features and services offered by AWS, such as IAM, KMS, AWS Certificate Manager (ACM), AWS WAF, and AWS Shield.
- Familiarize yourself with the best practices for securing your AWS infrastructure, including network security, access management, data protection, and compliance.

- Understand the importance of monitoring and logging in AWS, and the tools and services available for this purpose, such as AWS CloudTrail, AWS Config, and Amazon CloudWatch.

AWS Pricing and Billing:

- Understand the different pricing models and billing options offered by AWS, including pay-as-you-go, reserved instances, spot instances, and dedicated instances.
- Learn about the factors that affect your AWS costs, such as instance types, usage patterns, data transfer, and storage.
- Familiarize yourself with the AWS Cost Explorer and AWS Trusted Advisor tools, which can help you monitor and optimize your AWS costs.
- Understand the different pricing tiers and free usage options available with AWS, such as AWS Free Tier, which allows you to try out many AWS services for free for a limited time.

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- Understand the different AWS service levels and response times associated with each support plan, and how to select the best support plan for your needs.

AWS Global

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1. AWS Global Infrastructure: Regions, Availability Zones, Edge Locations, and Services.

2. AWS Compute Services: EC2, ECS, EKS, Lambda, and Batch.
3. AWS Storage Services: S3, EFS, and Glacier.
4. AWS Networking and Content Delivery: VPC, CloudFront, Route 53, and Direct Connect.
5. AWS Database Services: RDS, DynamoDB, and Redshift.
6. AWS Management and Governance: CloudTrail, CloudWatch, Config, and Organizations.
7. AWS Security: IAM, KMS, WAF, and Shield.
8. AWS Cost Management: Cost Explorer, Budgets, and Trusted Advisor.