The Flash Guide to AWS

A succinct but comprehensive Study Companion for
AWS Practitioner and Associate level examinations

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Cloud Computing

Variations of this Simpsons meme are extremely popular among Cloud engineers in Reddit, Discord and other online spaces.

The development, testing, and deployment of digital products require extensive hardware and software resources. Cloud computing provides a solution by allowing individuals and organizations to lease IT infrastructure, platforms, and software from third-party providers over the internet. This model often utilizes pay-as-you-go pricing, enabling flexible and cost-effective access to computing resources.

Cloud computing services are typically categorized into three main types:

1. **Infrastructure as a Service (IaaS):** Provides virtualized computing resources for the operation of digital applications/products, such as virtual machines, storage, and networks.

2. **Platform as a Service (PaaS):** Offers hardware and software tools, typically used for application development and/or testing.

3. **Software as a Service (SaaS):** Delivers software applications, often on a subscription basis.
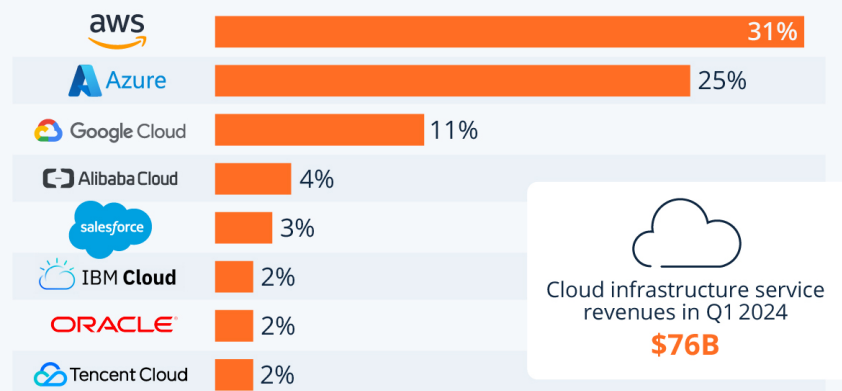
The Big Three

Though there are actually many cloud providers, the cloud computing market is mostly dominated by three large players, namely: Amazon Web Services (AWS), Microsoft Azure and Google Cloud Platform (GCP) with AWS having a little more than 30% of the market all to itself at the time of writing.

Amazon Maintains Cloud Lead as Microsoft Edges Closer

Worldwide market share of leading cloud infrastructure service providers in Q1 2024*

Provider	Share
aws	31%
Azure	25%
Google Cloud	11%
Alibaba Cloud	4%
salesforce	3%
IBM Cloud	2%
ORACLE	2%
Tencent Cloud	2%

Cloud infrastructure service revenues in Q1 2024
$76B

* Includes platform as a service (PaaS) and infrastructure as a service (IaaS) as well as hosted private cloud services
Source: Synergy Research Group

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AWS

Amazon Web Services is, put it simply, the largest and most widely adopted cloud provider in the world, used by everyone from the smallest of startups and hobbyists to well, the United States government and 90% of Fortune 500 companies.

It is a behemoth of a platform with over 200 services (most of which are fully-featured and quite comprehensive in and of themselves) and global geographical presence, with infrastructure in all the seven continents serving 245 countries and territories.

Safe to say, it is a pretty big deal and diving into the AWS ecosystem, especially if you are not from an IT background may be a psychologically daunting task. But do not worry, for I am here to help.

After all, it is precisely to make that daunting task easy that I prepared these resources.

Types of AWS Services

With over 200 different AWS Services, it might seem intimidating to start learning AWS. After all, where to start?

To make this task seem less insurmountable, the services have been divided into the following broad sections:

Compute Services

Compute services provide the processing power required to run various applications and manage servers. These services are crucial for tasks that need high computational power, scalability, and flexibility. They enable businesses to run their applications without needing to maintain physical hardware, allowing for more efficient resource management and cost-effectiveness. Compute services also support a variety of architectures and environments, ensuring compatibility with different types of workloads.

- Amazon EC2 (Elastic Compute Cloud)
- AWS Lambda
- Amazon ECS (Elastic Container Service)

Storage Services

Storage services offer scalable and durable storage solutions to meet the needs of data-intensive applications and workloads. These services provide secure and reliable storage for data of all types and sizes, including structured and unstructured data. They ensure data availability and integrity, supporting various use cases such as backup and recovery, data archiving, and content distribution.

Storage services also facilitate efficient data management and retrieval, enabling users to access their data from anywhere at any time.

- Amazon S3 (Simple Storage Service)

- Amazon EBS (Elastic Block Store)

- Amazon EFS (Elastic File System)

- AWS Glacier

Database Services

Database services provide managed database solutions for storing and managing data. These services include support for relational, NoSQL, and in-memory databases, catering to a wide range of applications and use cases. Database services offer high availability, scalability, and security, ensuring optimal performance for database operations. They also simplify database management tasks, such as backups, patching, and monitoring, allowing users to focus on their application logic rather than database administration.

- Amazon RDS (Relational Database Service)

- Amazon DynamoDB

- Amazon Aurora

- Amazon Redshift

Networking and Content Delivery

Networking and content delivery services enhance the performance, security, and availability of applications. These services enable efficient communication between different components of an application and optimize the delivery of content to users worldwide. They also provide tools for managing network traffic, securing data in transit, and ensuring high availability through global distribution and load balancing.

- Amazon VPC (Virtual Private Cloud)

- Amazon CloudFront

- AWS Direct Connect

- AWS Elastic Load Balancing (ELB)

Security, Identity, and Compliance

Security, identity, and compliance services help protect AWS resources and data. These services provide tools for managing access to resources, encrypting data, and ensuring compliance with regulatory requirements. They enable users to implement security best practices, monitor security events, and respond to security incidents, ensuring the integrity and confidentiality of their data.

- AWS IAM (Identity and Access Management)

- AWS KMS (Key Management Service)

- AWS Shield

- AWS WAF (Web Application Firewall)

Management and Governance

Management and governance services provide tools for monitoring, managing, and optimizing AWS environments. These services help users gain visibility into their resources, automate management tasks, and ensure compliance with organizational policies. They support efficient resource allocation, cost management, and performance optimization, enabling users to maintain control over their AWS environments.

- AWS CloudFormation

- AWS CloudTrail

- AWS Config

- AWS CloudWatch

Machine Learning

Machine learning services provide tools and frameworks for building, training, and deploying machine learning models. These services enable users to leverage advanced machine learning techniques for various applications, such as predictive analytics, natural language processing, and image recognition. Machine learning services simplify the process of developing and deploying models, allowing users to focus on creating innovative solutions without needing extensive machine learning expertise.

- Amazon SageMaker

- Amazon Comprehend

- Amazon Rekognition

Analytics

Analytics services provide tools for analyzing and processing large volumes of data. These services support various data analytics tasks, such as data warehousing, real-time analytics, and big data processing. They enable users to gain insights from their data, make data-driven decisions, and improve business outcomes. Analytics services also offer scalable and cost-effective solutions for managing and analyzing data, ensuring optimal performance and reliability.

- Amazon EMR (Elastic MapReduce)

- Amazon Kinesis

- AWS Glue

- Amazon QuickSight

Application Integration

Application integration services facilitate communication and data exchange between different applications and systems. These services enable users to build complex workflows, automate processes, and integrate various applications seamlessly. They support various integration patterns, such as messaging, event-

driven architecture, and service orchestration, ensuring reliable and efficient application integration.

- Amazon SQS (Simple Queue Service)

- Amazon SNS (Simple Notification Service)

- AWS Step Functions

- Amazon MQ