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AWS
Fundamentals

2022

AWS Global Cloud Infrastructure

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AWS Global Cloud Infrastructure

26 Launched Regions

Each with multiple Availability Zones (AZ's)

84 Availability Zones

17 Local Zones

28 Wavelength Zones

For ultralow latency applications

8 Announced Regions

32 Announced Local Zones

2x More Regions

With multiple AZ's than the next largest cloud provider

245 Countries and Territories Served

108 Direct Connect Locations

410+ Points of Presence

400+ Edge Locations and 13 Regional Edge Caches

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Availability zone - isolated locations within data centre regions from which public cloud services originate and operate.

Regions are geographic locations in which public cloud service providers' data centres reside

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AWS Services

AWS Services

Amazon Elastic Compute Cloud (Amazon EC2) Amazon Elastic Compute Cloud (Amazon EC2) is a web service that provides resizable compute capacity in the cloud. It allows organizations to obtain and configure virtual servers in Amazon's data centers. Organizations can select from a variety of operating systems and resource configurations (memory, CPU, storage, and so on) that are optimal for the application profile of each workload.

Auto Scaling Auto Scaling allows organizations to scale Amazon EC2 capacity up or down automatically according to conditions defined for the particular workload. Not only can it be used to help maintain application availability and ensure that the desired number of Amazon EC2 instances are running, but it also allows resources to scale in and out to match the demands of dynamic workloads. Instead of provisioning for peak load, organizations can optimize costs and use only the capacity that is actually needed.

Elastic Load Balancing Elastic Load Balancing automatically distributes incoming application traffic across multiple Amazon EC2 instances in the cloud. It enables organizations to achieve greater levels of fault tolerance in their applications, seamlessly providing the required amount of load balancing capacity needed to distribute application traffic.

Amazon Virtual Private Cloud (Amazon VPC) Amazon Virtual Private Cloud (Amazon VPC) lets organizations provision a logically isolated section of the AWS Cloud where they can launch AWS resources in a virtual network that they define. Organizations have complete control over the virtual environment, including selection of the IP address range, creation of subnets, and configuration of route tables and network gateways. In addition, organizations can extend their corporate data centre networks to AWS by using hardware or software virtual private network (VPN) connections or dedicated circuits by using AWS Direct Connect.

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Amazon Route 53 Amazon Route 53 is a highly available and scalable Domain Name System (DNS) web service. It is designed to give developers and businesses an extremely reliable and cost-effective way to route end users to Internet applications by translating human readable names, such as www.example.com, into the numeric IP addresses, such as 192.0.2.1, that computers use to connect to each other. Amazon Route 53 also serves as domain registrar, allowing you to purchase and manage domains directly from AWS.

Amazon Simple Storage Service (Amazon S3) Amazon S3 provides developers and IT teams with highly durable and scalable object storage that handles virtually unlimited amounts of data and large numbers of concurrent users. Organizations can store any number of objects of any type, such as HTML pages, source code files, image files, and encrypted data, and access them using HTTP-based protocols. Amazon S3 provides cost-effective object storage for a wide variety of use cases, including backup and recovery, nearline archive, big data analytics, disaster recovery, cloud applications, and content distribution

Amazon Glacier Amazon Glacier is a secure, durable, and extremely low-cost storage service for data archiving and long-term backup. Organizations can reliably store large or small amounts of data for a very low cost per gigabyte per month. To keep costs low for customers, Amazon Glacier is optimized for infrequently accessed data where a retrieval time of several hours is suitable. Amazon S3 integrates closely with Amazon Glacier to allow organizations to choose the right storage tier for their workloads.

Amazon Elastic Block Store (Amazon EBS) Amazon Elastic Block Store (Amazon EBS) provides persistent block-level storage volumes for use with Amazon EC2 instances. Each Amazon EBS volume is automatically replicated within its Availability Zone to protect organizations from component failure, offering high availability and durability. By delivering consistent and low-latency performance, Amazon EBS provides the disk storage needed to run a wide variety of workloads.

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Amazon CloudFront Amazon CloudFront is a content delivery web service. It integrates with other AWS Cloud services to give developers and businesses an easy way to distribute content to users across the world with low latency, high data transfer speeds, and no minimum usage commitments. Amazon CloudFront can be used to deliver your entire website, including dynamic, static, streaming, and interactive content, using a global network of edge locations. Requests for content are automatically routed to the nearest edge location, so content is delivered with the best possible performance to end users around the globe.

Amazon Relational Database Service (Amazon RDS) provides a fully managed relational database with support for many popular open source and commercial database engines. It's a cost-efficient service that allows organizations to launch secure, highly available, fault tolerant, production-ready databases in minutes. Because Amazon RDS manages time-consuming administration tasks, including backups, software patching, monitoring, scaling, and replication, organizational resources can focus on revenue-generating applications and business instead of mundane operational tasks.

Amazon DynamoDB Amazon DynamoDB is a fast and flexible NoSQL database service for all applications that need consistent, single-digit millisecond latency at any scale. It is a fully managed database and supports both document and key/value data models. Its flexible data model and reliable performance make it a great fit for mobile, web, gaming, ad-tech, Internet of Things, and many other applications.

Amazon Redshift Amazon Redshift is a fast, fully managed, petabyte-scale data warehouse service that makes it simple and cost effective to analyze structured data. Amazon Redshift provides a standard SQL interface that lets organizations use existing business intelligence tools. By leveraging columnar storage technology that improves I/O efficiency and parallelizing queries across multiple nodes, Amazon Redshift is able to deliver fast query performance. The Amazon Redshift architecture allows organizations to automate most of the common administrative tasks associated with provisioning, configuring, and monitoring a cloud data warehouse.

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Amazon CloudWatch Amazon CloudWatch is a monitoring service for AWS Cloud resources and the applications running on AWS. It allows organizations to collect and track metrics, collect and monitor log files, and set alarms. By leveraging Amazon CloudWatch, organizations can gain system-wide visibility into resource utilization, application performance, and operational health. By using these insights, organizations can react, as necessary, to keep applications running smoothly.

AWS CloudFormation AWS CloudFormation gives developers and systems administrators an effective way to create and manage a collection of related AWS resources, provisioning and updating them in an orderly and predictable fashion. AWS CloudFormation defines a JSON-based templating language that can be used to describe all the AWS resources that are necessary for a workload. Templates can be submitted to AWS CloudFormation and the service will take care of provisioning and configuring those resources in appropriate order.

AWS CloudTrail AWS CloudTrail is a web service that records AWS API calls for an account and delivers log files for audit and review. The recorded information includes the identity of the API caller, the time of the API call, the source IP address of the API caller, the request parameters, and the response elements returned by the service.

AWS Identity and Access Management (IAM) AWS Identity and Access Management (IAM) enables organizations to securely control access to AWS Cloud services and resources for their users. Using IAM, organizations can create and manage AWS users and groups and use permissions to allow and deny their access to AWS resources.

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Let’s start

AWS

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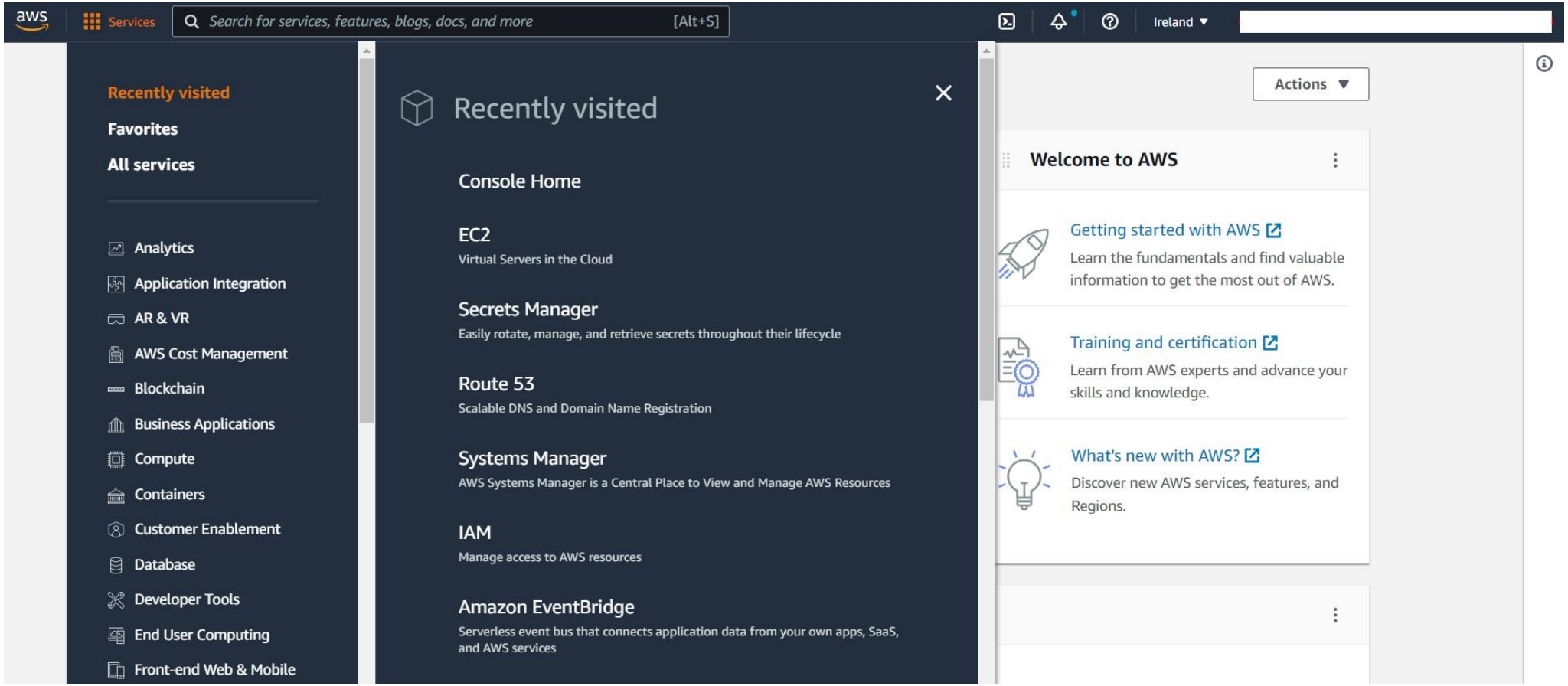
An AWS account is **a container for your resources**



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AWS CLI

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aws
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Description
***********

The AWS Command Line Interface is a unified tool to manage your AWS
services.


Synopsis
********

   aws [options] <command> <subcommand> [parameters]

Use *aws command help* for information on a specific command. Use *aws
help topics* to view a list of available help topics. The synopsis for
each command shows its parameters and their usage. Optional parameters
are shown in square brackets.


Options
*******
```


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Resources

https://youtu.be/RPis5mbM8c8

https://amzn.to/2FmY0NT

https://www.awsgeek.com/Periodic-Table-of-Amazon-Web-Services/Periodic-Table-of-Amazon-Web-Services.jpg

https://docs.aws.amazon.com/awsaccountbilling/latest/aboutv2/billing-free-tier.html

https://youtu.be/FRQ9fE4fd5g

https://docs.aws.amazon.com/cli/latest/userguide/cli-chap-welcome.html

https://aws.amazon.com/free

https://docs.aws.amazon.com/AmazonRDS/latest/UserGuide/Concepts.RegionsAndAvailabilityZones.html

https://docs.aws.amazon.com/cli/latest/userguide/cli-usage-output-format.html

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