



**aws** training and certification

ATP logo

# AWS Discovery Day



ATP logo

# Overview of AWS Services



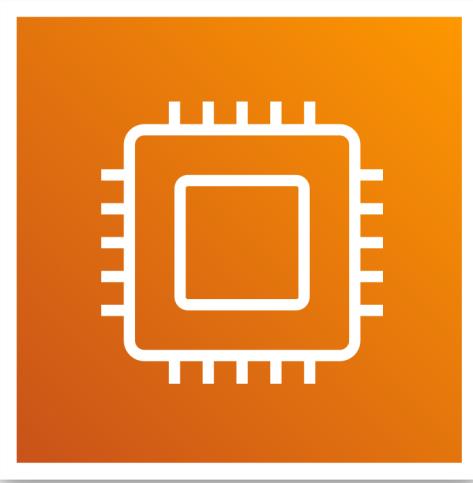
# Agenda

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- AWS service domains:
  - Compute
  - Storage
  - Database
  - Networking and Content Delivery
- How to access AWS services

# AWS service domains

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Compute



Storage



Database



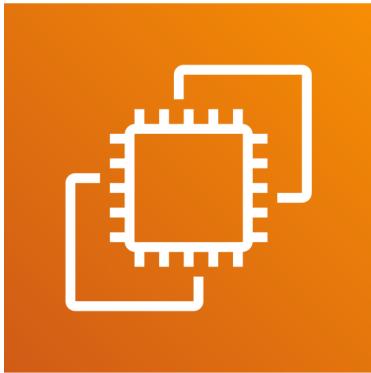
Networking and  
Content Delivery

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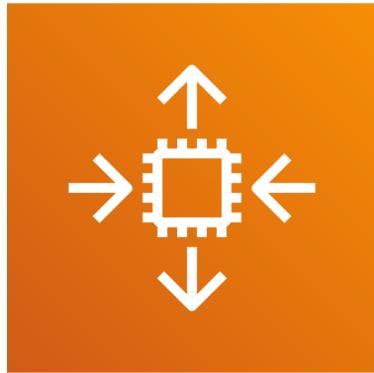
Compute

# AWS compute services

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Amazon Elastic  
Compute Cloud  
(Amazon EC2)



Amazon EC2  
Auto Scaling



Elastic Load  
Balancing



Amazon Elastic  
Container  
Service  
(Amazon ECS)

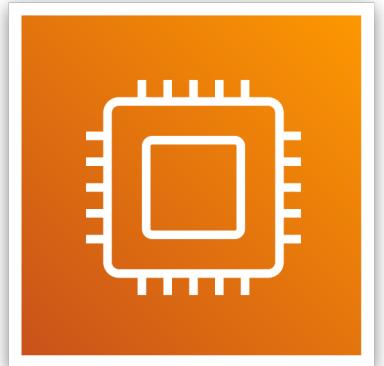


AWS Lambda

# Compute: Use cases

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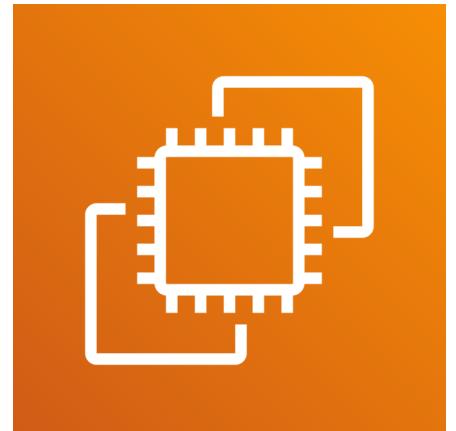
- High-performance computing
- Big data and analytics
- Bare metal
- Attached storage
- Enhanced networking



# Amazon EC2

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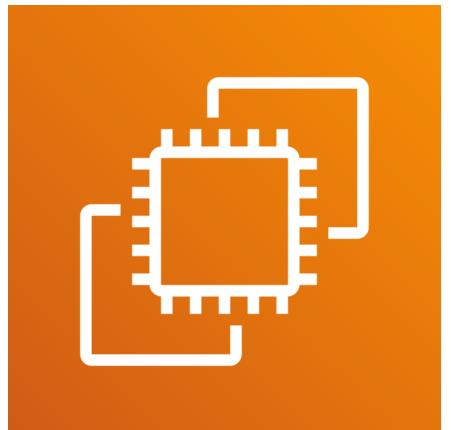
- Secure, sizable compute capacity
- Enables you to:
  - Boot server instances in minutes
  - Scale capacity up and down as computing requirements change
  - Multiple pricing options to minimize cost



# Amazon EC2

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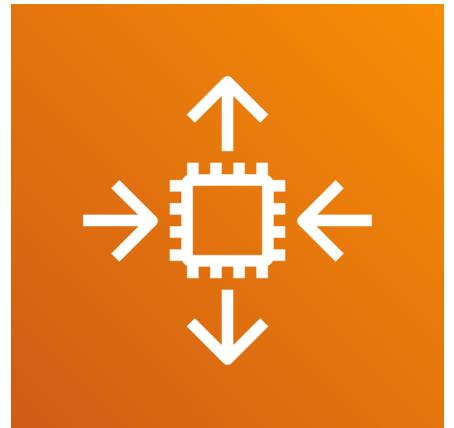
- On-Demand instances
- Spot instances
- Reserved instances



# Amazon EC2 Auto Scaling

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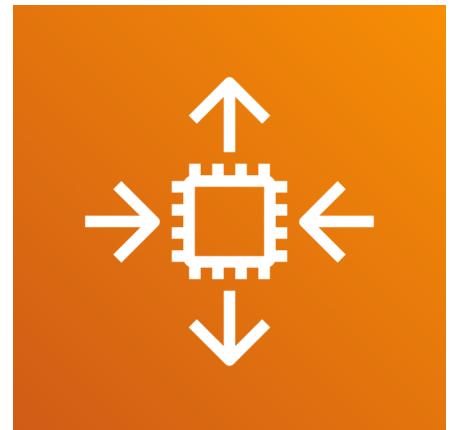
- Automatically add or remove EC2 instances according to conditions you define
- Maintain application availability
- Benefit from dynamic and predictive scaling



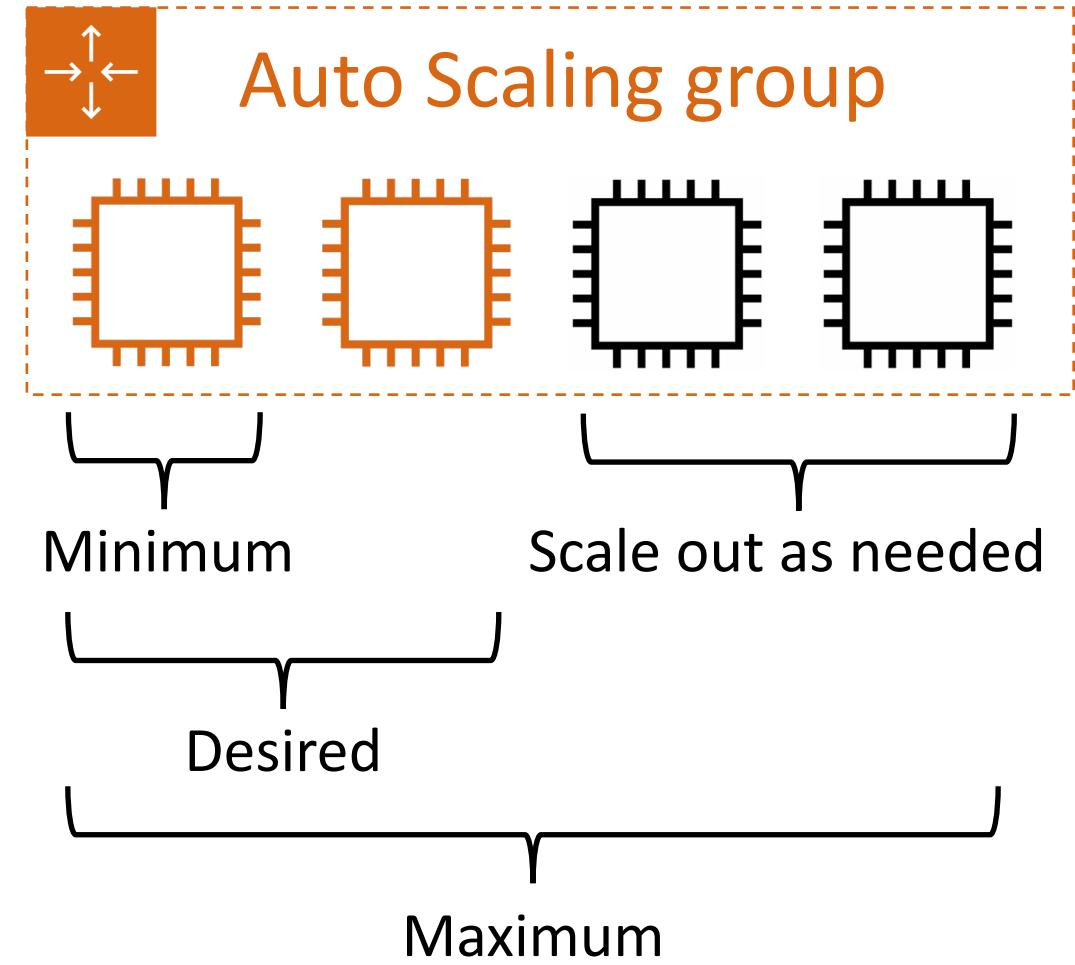
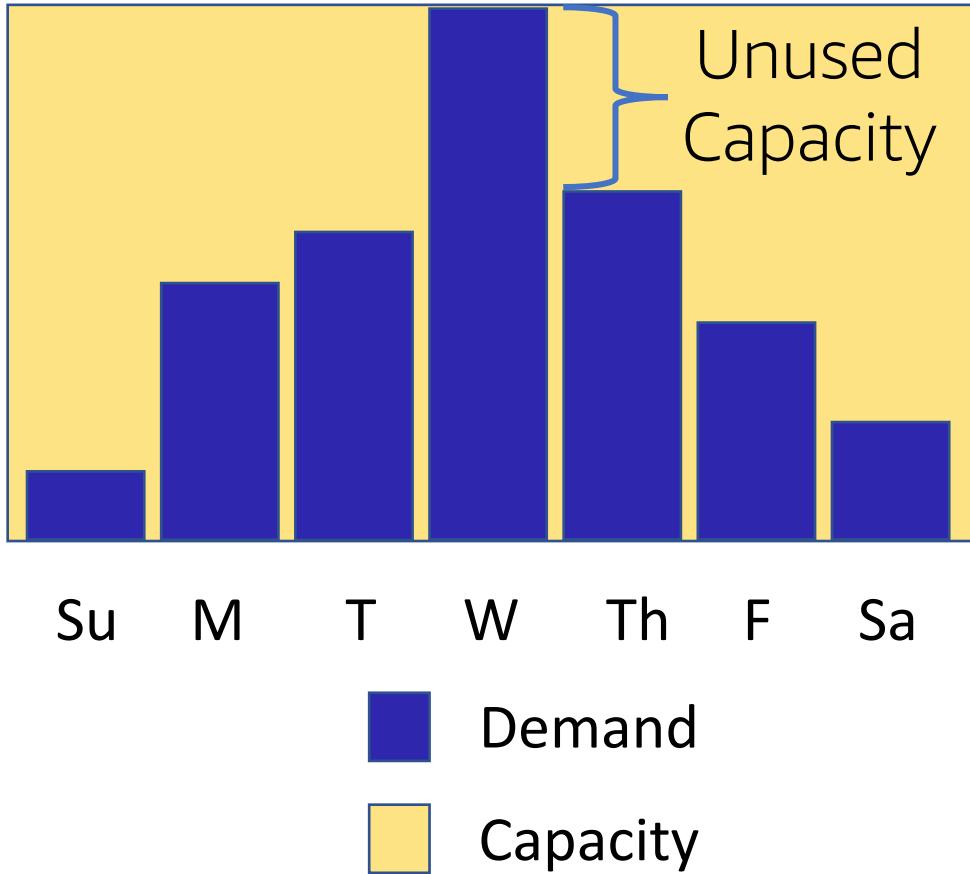
# Amazon EC2 Auto Scaling

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- Add new instances only when necessary
- Remove unneeded instances when traffic is low
- Pay only for what you use



# Auto scaling example



# Elastic Load Balancing

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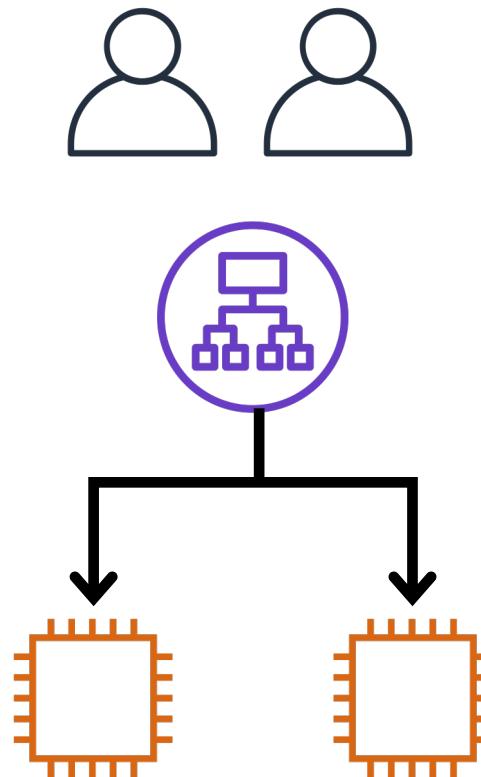
- Automatically distributes traffic across multiple resources
- Acts as a single point of contact for your Auto Scaling group
- Distributes traffic across multiple Availability Zones



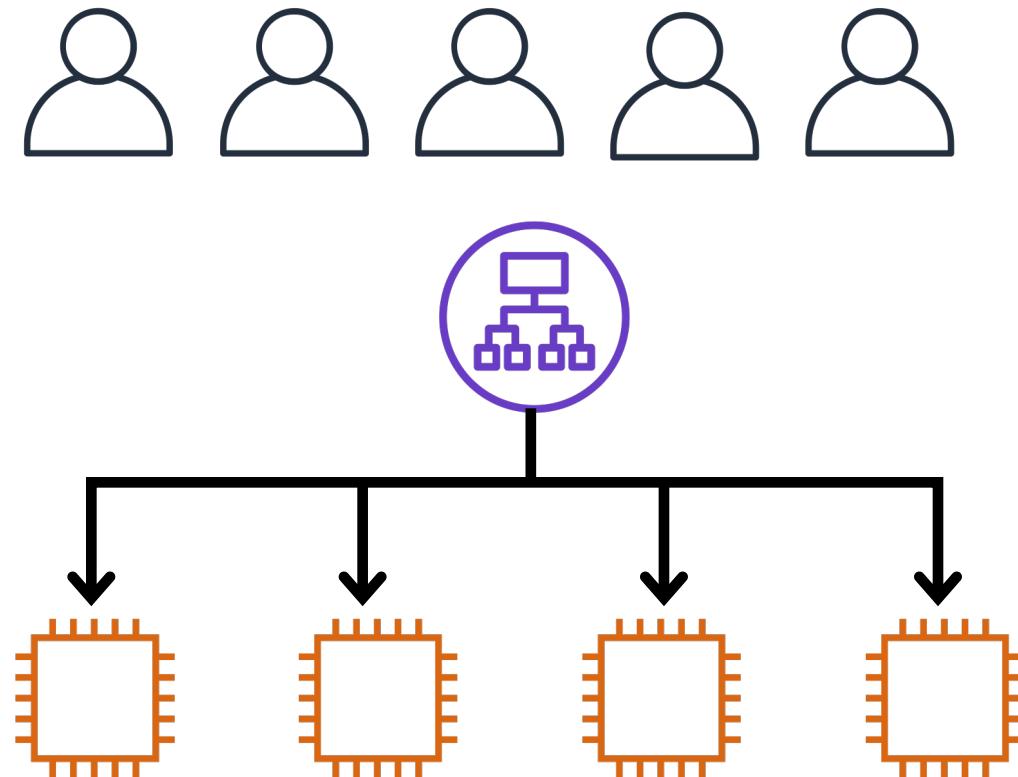
# Elasticity with EC2

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Low Demand Period



High Demand Period



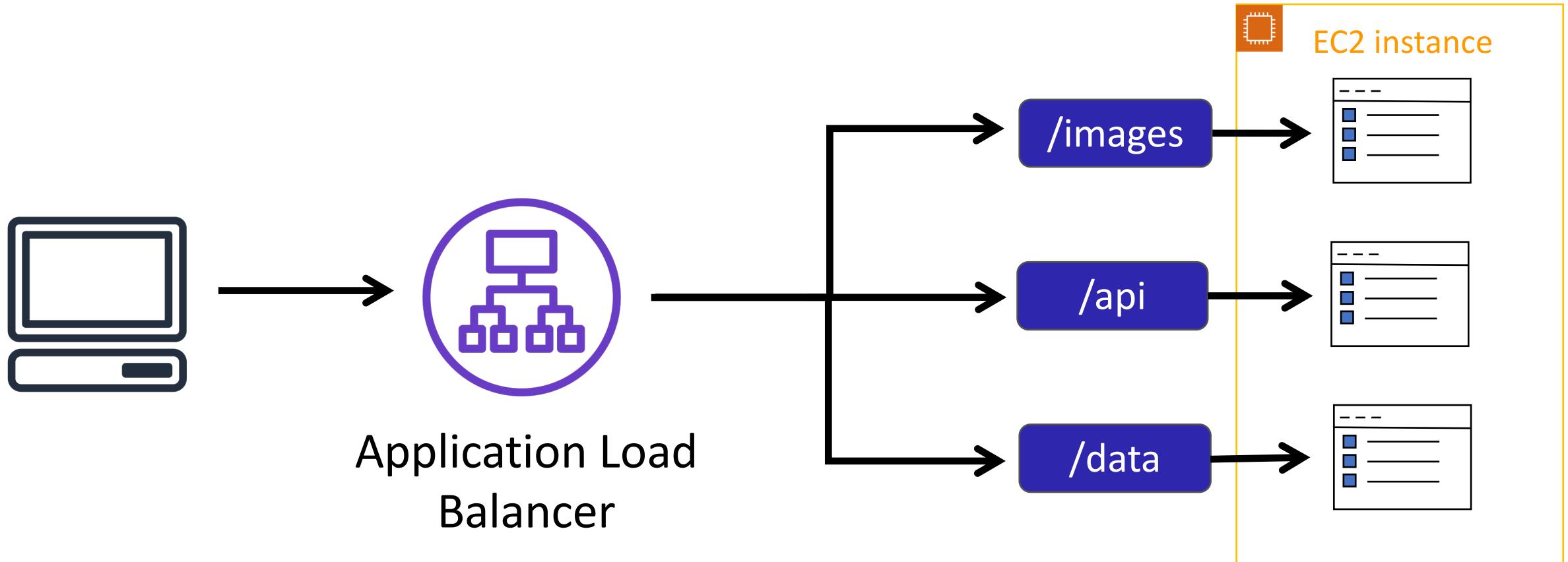
# Application Load Balancers

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- Used for load balancing HTTP and HTTPS traffic
- Operate at the individual request level (Layer 7)
- Route traffic based on the content of a request



# Application Load Balancer example



# Network Load Balancers

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- Used for load balancing TCP, UDP, and TLS traffic
- Optimized to handle sudden and volatile traffic patterns
- Operate at the connection level (Layer 4)



# Classic Load Balancers

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- Used for load balancing across multiple EC2 instances
- Operate at both the request level and connection level
- Used with applications that were built within the EC2-Classic network



# Amazon Elastic Container Service (ECS)

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Amazon ECS is a highly scalable, high-performance container orchestration service.

- Run and scale containerized applications on AWS
- Use simple API calls to launch and stop Docker-enabled applications



# Amazon Elastic Container Service (ECS)

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- Manage long-running applications and services
- Automatically recover containers that become unhealthy
- Support applications with only healthy containers



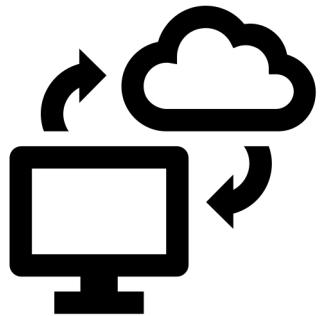
# AWS Lambda

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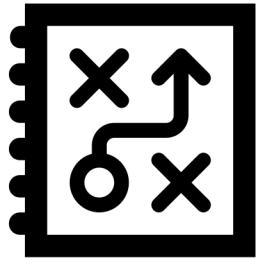
- Run code without provisioning or managing servers
- Pay only for compute time while code is running
- Use other AWS services to automatically trigger code



# AWS Lambda



Upload code  
to Lambda



Set code to trigger  
from an event source



Code runs only  
when triggered



Pay only for the  
compute time you use

# AWS Lambda

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- Isolated environments for functions
- Built-in fault tolerance
- Scalability for multiple requests



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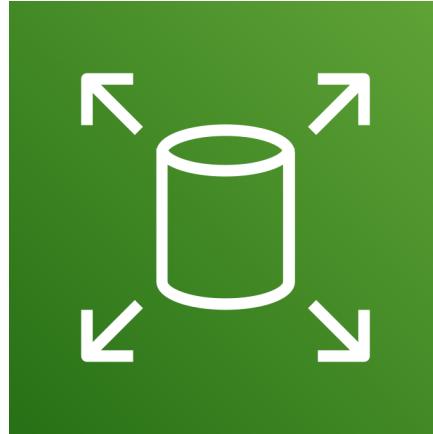
Storage

# AWS Storage Services

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Amazon Simple  
Storage Service  
(Amazon S3)



Amazon Elastic  
Block Store  
(Amazon EBS)



Amazon Elastic File  
System  
(Amazon EFS)

# Amazon Simple Storage Service (S3)

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- You can store and access any type of data over the Internet
- It is 99.99999999% durable
- It includes a wide range of cost-effective storage classes



# Amazon Simple Storage Service (S3)

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- Store files in buckets
- Support a variety of use cases
- Keep track of multiple variants of an object through versioning
- Prevent accidental object deletions



# Amazon S3 Demo

# Amazon Elastic Block Store (EBS)

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- High performance block storage
- Replicated within an Availability Zone for 99.999% availability
- Scale up or down in minutes
- Four volume types to optimize price and performance



# Amazon Elastic Block Store (EBS)

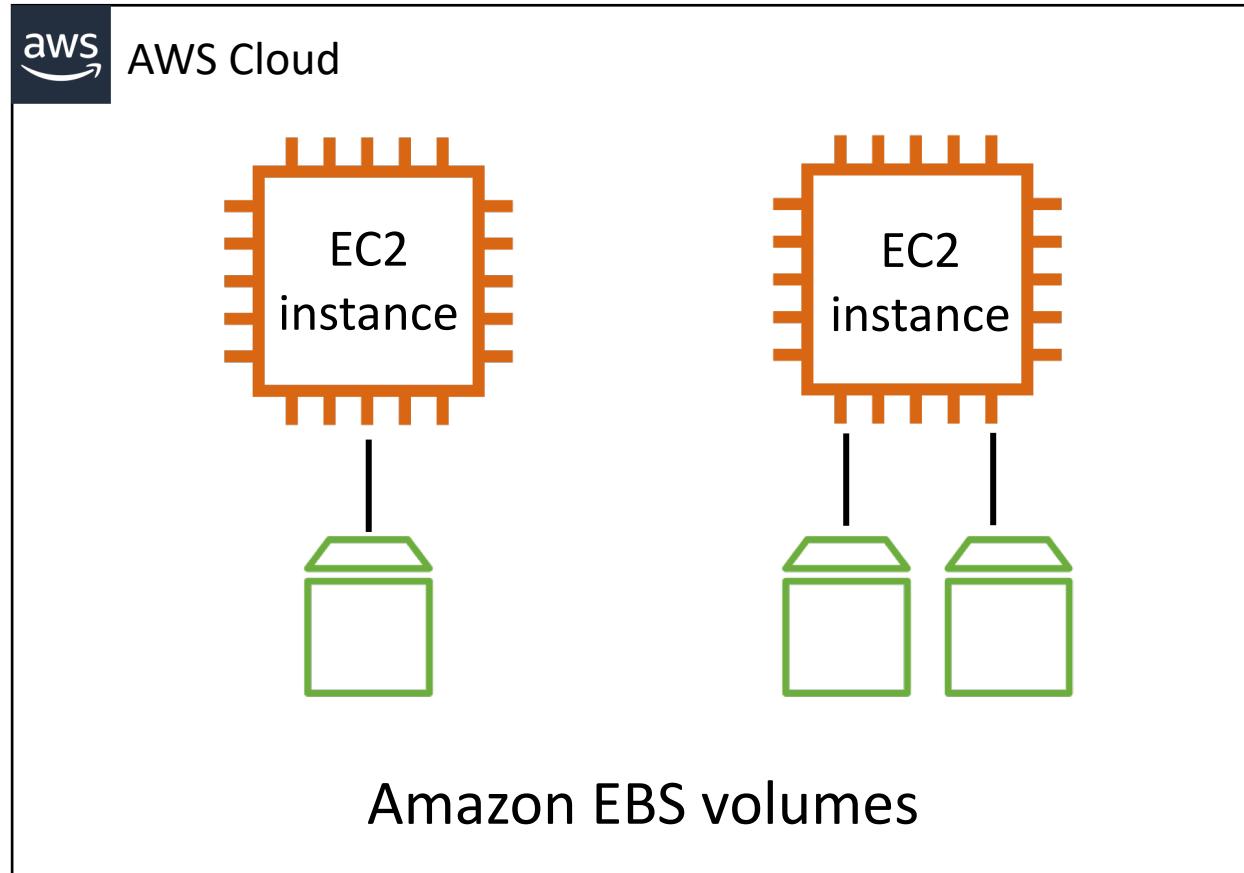
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- General Purpose SSD
- Provisioned IOPS SSD
- Throughput Optimized HDD
- Cold HDD



# Amazon EBS example

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# Amazon Elastic File System (EFS)

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- Simple, scalable, fully managed file system
- Scales on demand to petabytes without disrupting applications
- Stores data within and across multiple Availability Zones



# Amazon Elastic File System (EFS)

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- Dynamic elasticity
- Shared file storage
- Cost-effective



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# Database

# AWS database services

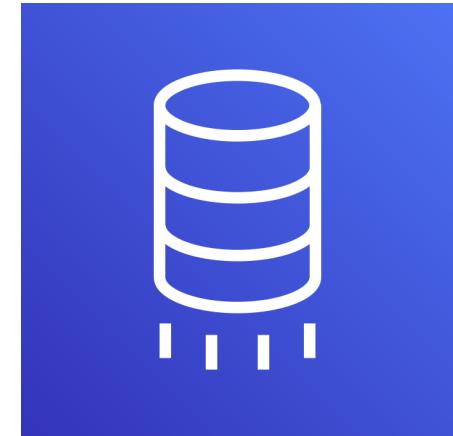
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Amazon Relational  
Database Service  
(Amazon RDS)



Amazon DynamoDB



AWS Database  
Migration Service  
(AWS DMS)

# Amazon Relational Database Service (Amazon RDS)

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Amazon RDS is a fully managed relational database service.

- Automates time-consuming administration tasks
- Secure and compatible
- Easy to administer



# Amazon RDS engine types

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Engine types are optimized for memory, performance, or I/O

- Amazon Aurora
- PostgreSQL
- MySQL
- MariaDB
- Oracle Database
- SQL Server



# Amazon RDS: Provisioning

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- Multi-AZ deployment for built-in automated fail-over
- High availability and reliability
- Use Read Replicas for read-heavy database workloads



# Amazon DynamoDB

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- Fast and flexible NoSQL key-value and document database
- No servers to manage
- Single-digit millisecond performance at any scale



# Amazon DynamoDB use cases

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- Serverless web applications
- Mobile backends
- Gaming
- Internet of Things (IoT)

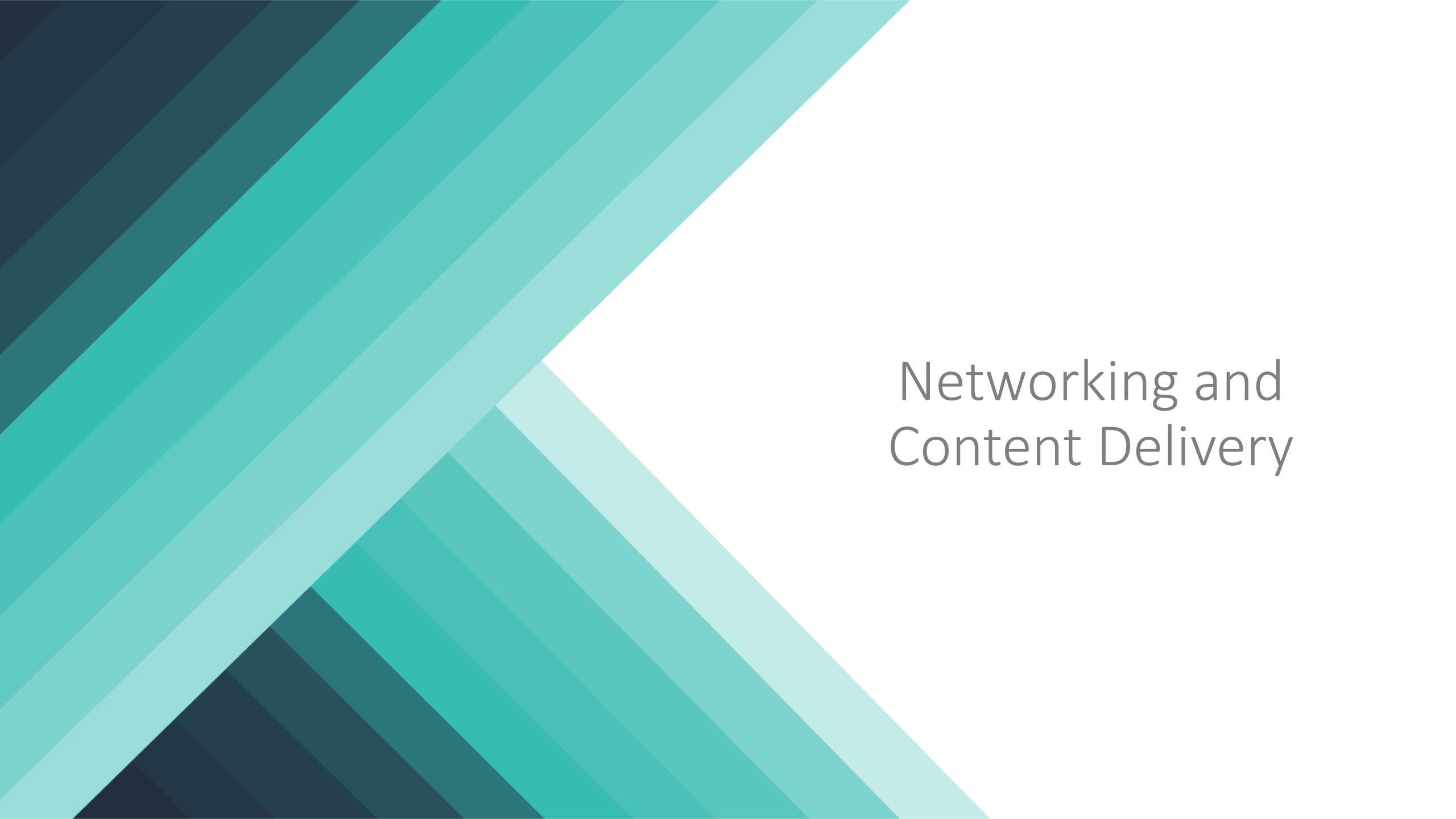


# AWS Database Migration Service (DMS)

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- Migrate databases to AWS quickly and securely
- Migrate data to and from most widely-used databases
- Maintain full operation of source databases during the migration



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# Networking and Content Delivery

# AWS networking and content delivery services

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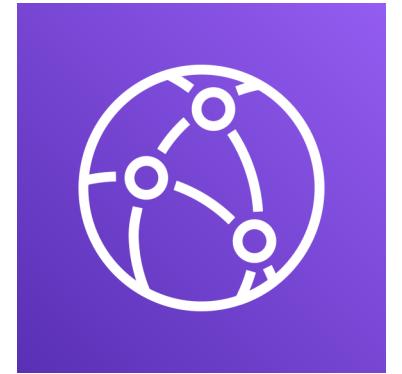
Amazon Virtual  
Private Cloud  
(VPC)



Amazon Route  
53



AWS Direct  
Connect



Amazon CloudFront

# Amazon Virtual Private Cloud (VPC)

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- Launch AWS resources in a virtual network that you define
- Have complete control over your virtual networking environment
- Create subnets and leverage multiple layers of security



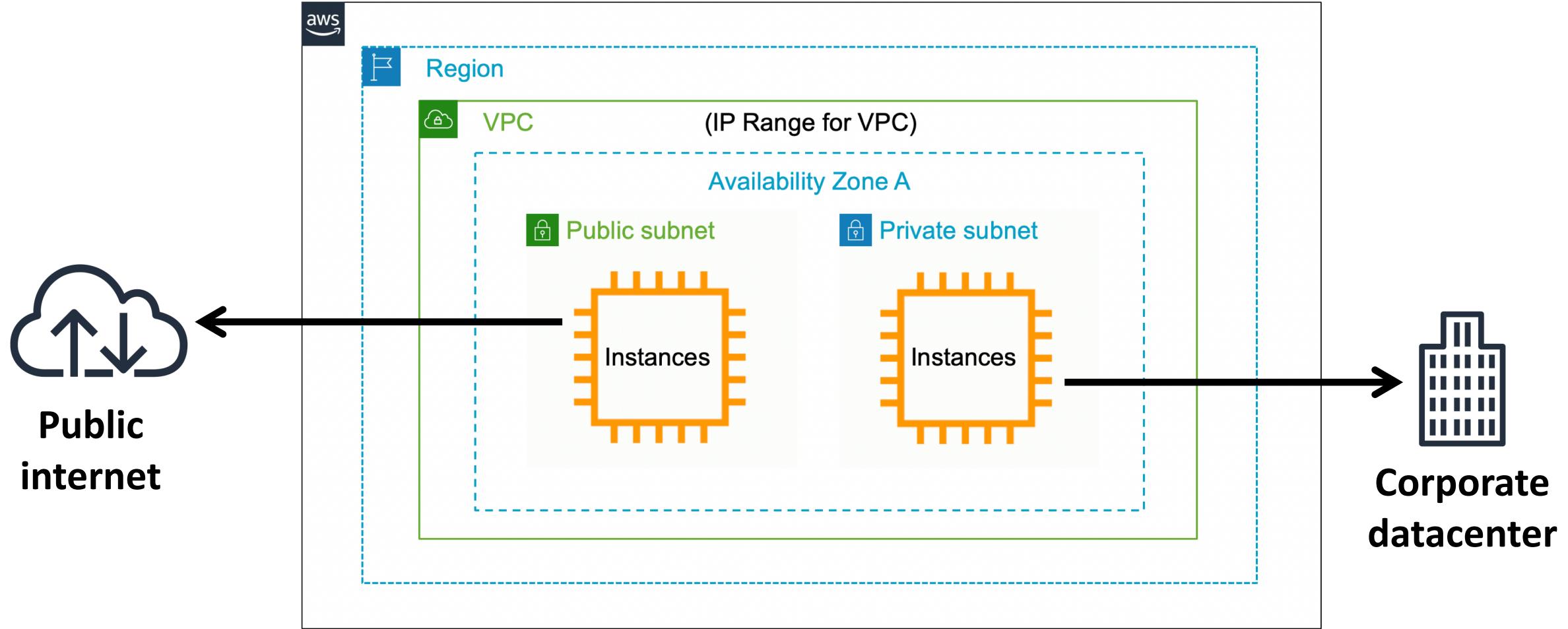
# Amazon Virtual Private Cloud (VPC)

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- Quickly and easily begin working with the default VPC
- Use other AWS services with the default VPC
- Benefit from advanced networking features



# Amazon Virtual Private Cloud (VPC)



# Amazon VPC Demo

# Amazon Route 53

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Amazon Route 53 is a highly available and scalable DNS web service.

- Translates domain names to numeric IP addresses
- Connects user requests to infrastructures within and outside of AWS
- Routes traffic to healthy endpoints



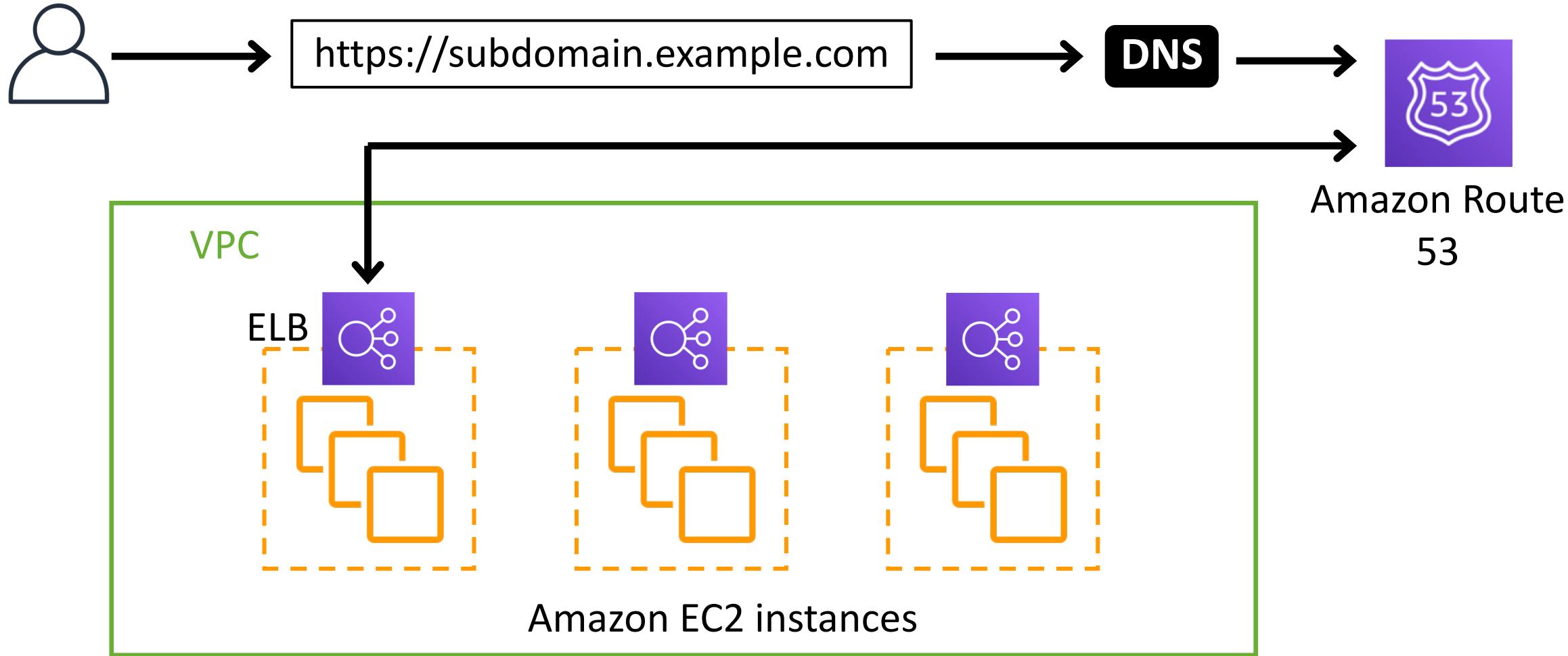
# Amazon Route 53

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- Transfer DNS records for existing domain names
- Register new domain names
- Ensure a high level of availability with multiple name servers



# Routing traffic



# AWS Direct Connect

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AWS Direct Connect is a dedicated network connection from your premises to AWS.

- Reduce network costs and increase bandwidth throughput
- Partition the connection into multiple virtual interfaces



# Amazon CloudFront

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- Quickly delivers content to customers globally
- Seamlessly integrates with AWS services
- Incurs no charges for data transferred between AWS origins and CloudFront



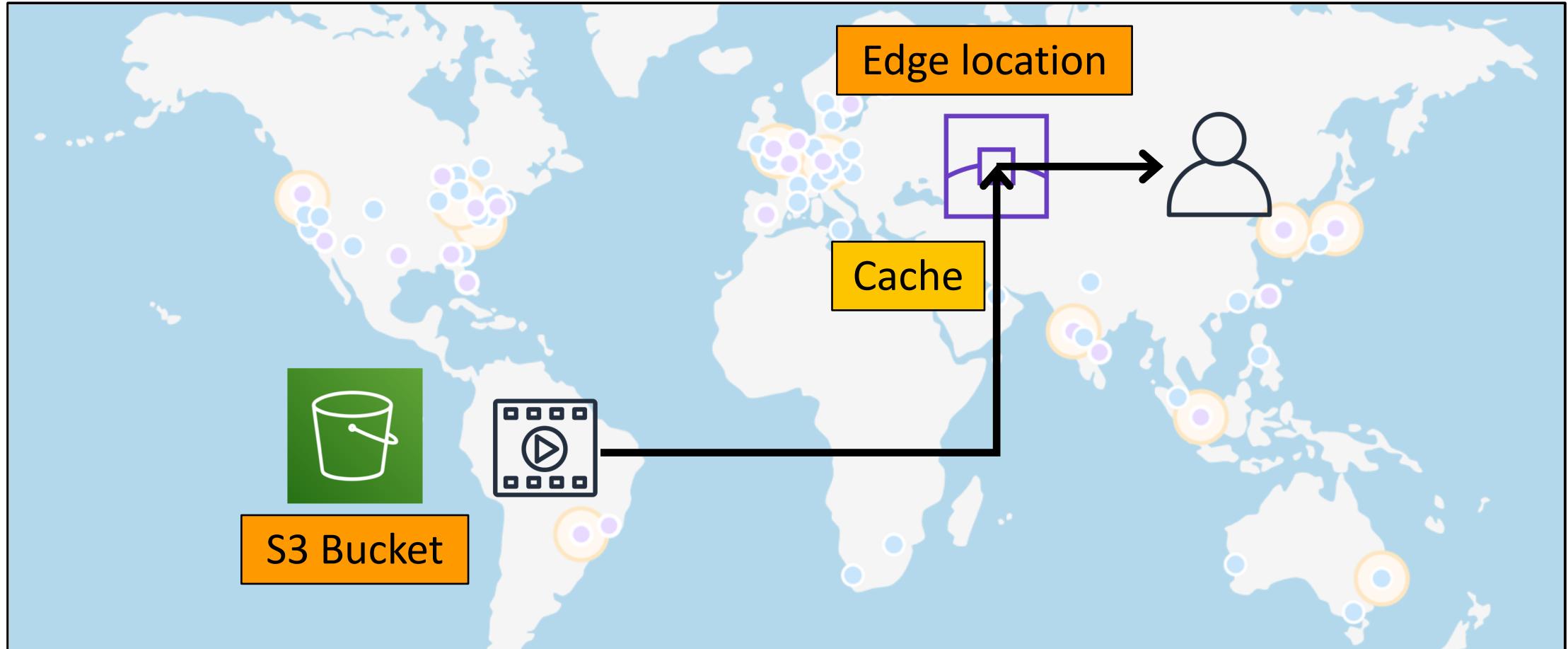
# Amazon CloudFront

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- No minimum commitments
- Pay only for what you use
- Wide variety of use cases:
  - Static asset caching
  - Video streaming
  - Software distribution



# How Amazon CloudFront delivers content to users





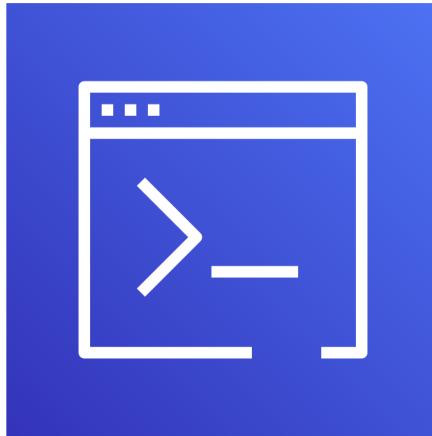
# How to Access AWS Services

# How to access AWS services

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AWS Management  
Console



Command Line  
Interface

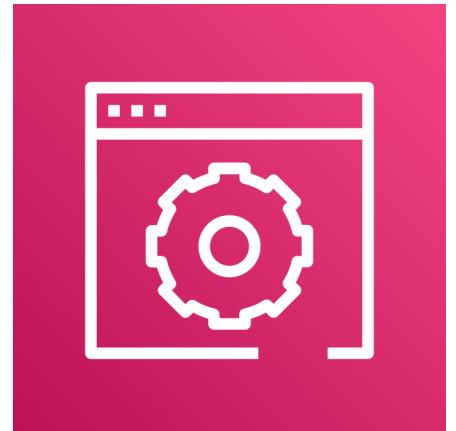


AWS Tools and SDKs

# AWS Management Console

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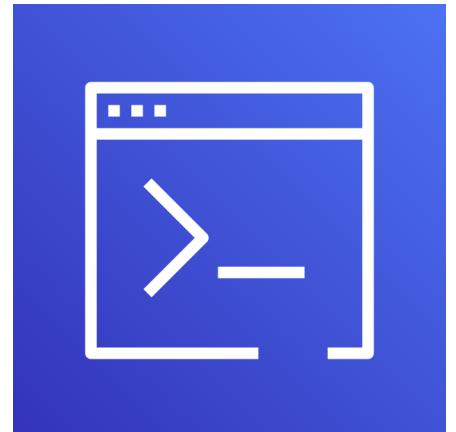
- A simple, intuitive user interface
- Access to simple wizards and automated workflows
- AWS Console mobile application



# AWS Command Line Interface (AWS CLI)

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- Unified tool to manage your AWS services
- Available on Windows, MacOS, and Linux
- Automate services through scripts



# Software development kits (SDKs)

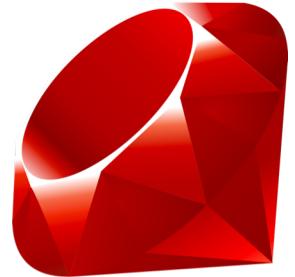
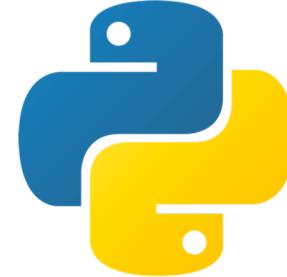
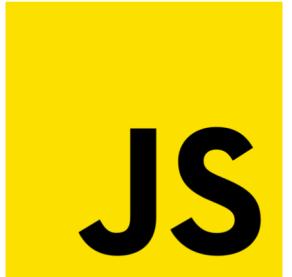
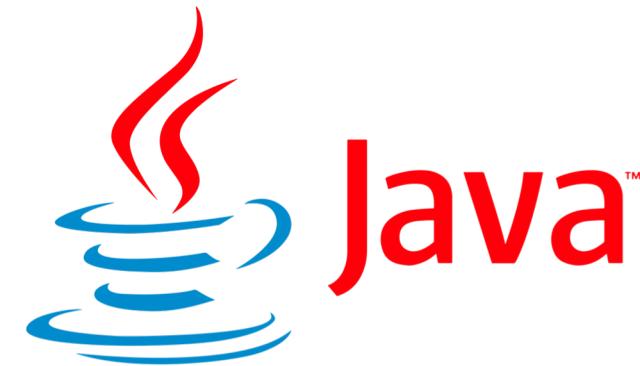
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- Tools for developing and managing applications on AWS
- Easily develop applications on AWS in the programming language of your choice



# Software development kits (SDKs)

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Ruby

# Other service domains

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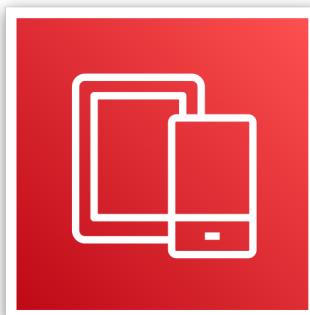
Analytics



Machine Learning



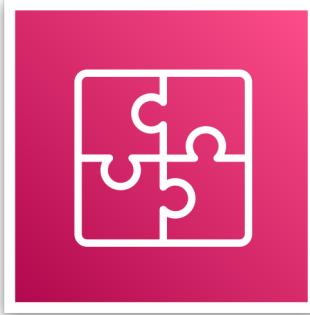
Media Services



Mobile



Customer Engagement



Application Integration



Migration and Transfer



Developer Tools

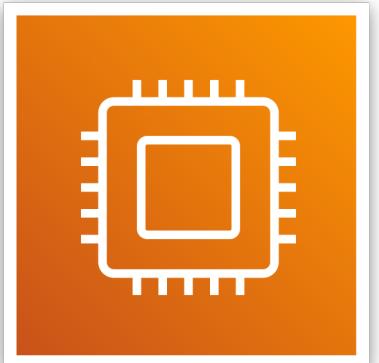
# Knowledge Check

# Knowledge check: Compute

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Which AWS service automatically distributes traffic across multiple resources and Availability Zones?

- Amazon EC2 Elastic Load Balancing
- Amazon EC2 Auto Scaling
- AWS Lambda

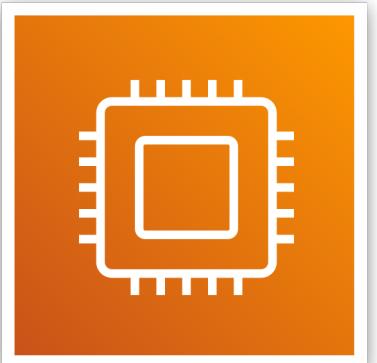


# Knowledge check: Compute

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True or false: Amazon EC2 is a service that provides highly scalable, high-performance container orchestration.

- True
- False



# Knowledge check: Storage

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Which AWS service is the best option to use if you need high-performance block storage?

- Amazon EBS
- AWS EC2
- Amazon S3



# Knowledge check: Storage

---

True or false: Amazon Elastic File System (EFS) can only store data within a single Availability Zone.

- True
- False



# Knowledge check: Databases

---

Which AWS service is the best option to use if you need a NoSQL database that is serverless?

- AWS DMS
- Amazon DynamoDB
- Amazon RDS



# Knowledge check: Databases

---

Which AWS database service supports multiple database engines, including Amazon Aurora, MySQL, and PostgreSQL?

- AWS RDS
- AWS Lambda
- Amazon S3



# Knowledge check: Network

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Which of the following AWS services is a highly available and scalable DNS web service?

- Amazon VPC
- Amazon Route 53
- AWS Direct Connect



# Knowledge check: Network

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Which AWS service is a fast content delivery network?

- AWS Direct Connect
- Amazon S3
- Amazon CloudFront



# Key takeaways

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- Broad selection of services and deep functionality
- Pay only for the services you use
- Trusted by millions of customers worldwide

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# Thank You