

# AWS Cloud Practitioner Essentials – Hyland

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*Senior Partner Instructor*  
September 21-22, 2022



# Course Overview



# Agenda



**Introduction:** Course Overview

**Module 1:** Introduction to Amazon Web Services

**Module 2:** Compute in the Cloud

**Module 3:** Global Infrastructure and Reliability

**Module 4:** Networking

**Module 5:** Storage and Databases

**Module 6:** Security

**Module 7:** Monitoring and Analytics

**Module 8:** Pricing and Support

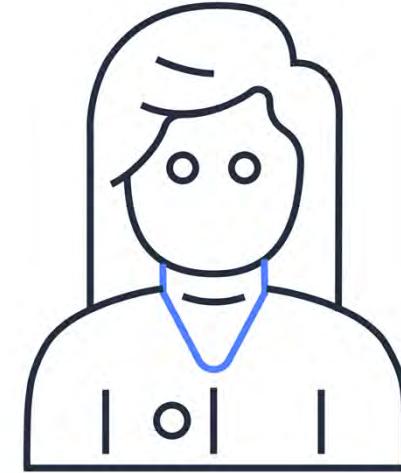
**Module 9:** Migration and Innovation

**Module 10:** AWS Certified Cloud Practitioner Basics

# Introductions



- Name
- What you do for work
- What you hope to learn in this course
- What you like to do in your leisure time



Module 1

# Introduction to Amazon Web Services

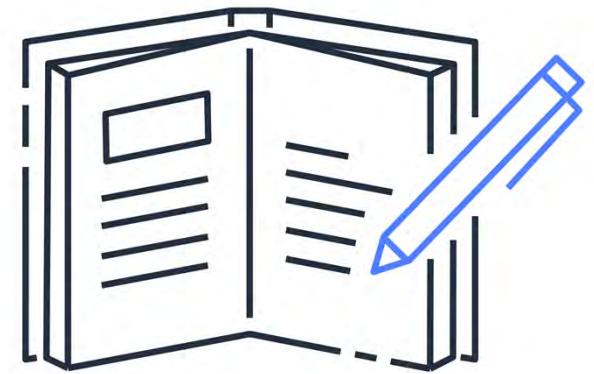


# Module 1 objectives



In this module, you will learn how to:

- Describe three cloud computing deployment models
- Describe six benefits of cloud computing



# Client and server model



Client



A client makes a request.

Server

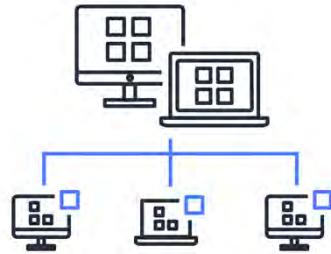


A server fulfills the client's request.

# Cloud computing



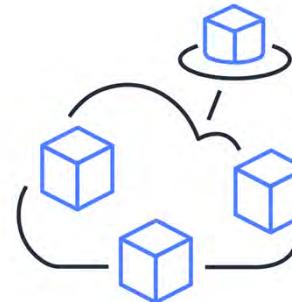
## What is cloud computing?



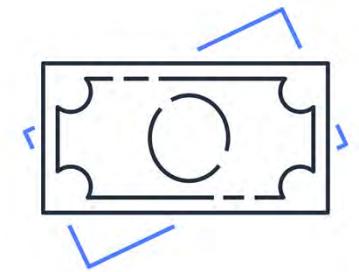
Access services  
on demand



Avoid large upfront  
investments



Provision computing  
resources as needed



Pay only for what  
you use

*The on-demand delivery of IT resources and applications  
through the internet.*

# Cloud computing deployment models



Cloud



On premises

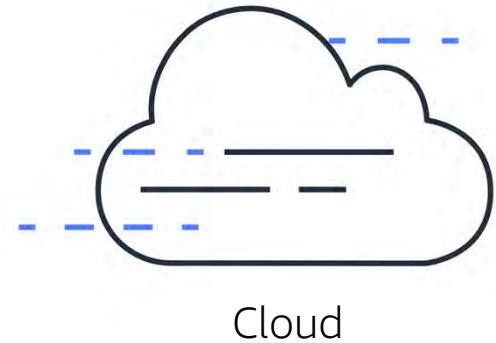


Hybrid

# Cloud-based deployment



- Run all parts of the application in the cloud
- Migrate existing applications to the cloud
- Design and build new applications in the cloud



Cloud

# On-premises deployment



- Use virtualization and resource management tools to deploy resources
- Use application management and virtualization technologies to increase resource usage

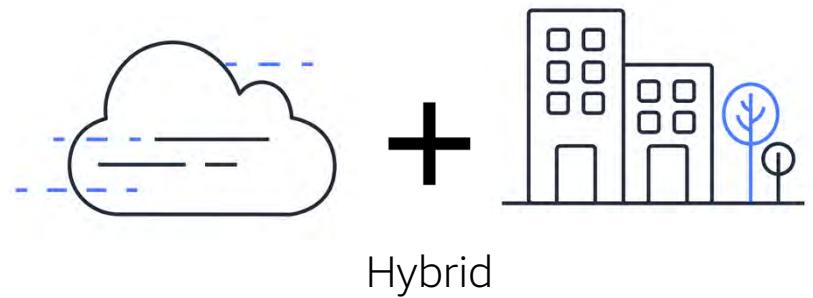


On premises

# Hybrid deployment



- Connect cloud-based resources to on-premises infrastructure
- Integrate cloud-based resources with legacy IT applications



# AWS Cloud



Salesforce is a cloud-based customer relationship management (CRM) system. It provides tools for sales, service, marketing, and operations. The platform integrates with various third-party applications and offers mobile access.

The AWS Cloud interface is shown below:

**All services**

- Compute**
  - EC2
  - Lightsail
  - Lambda
  - Batch
  - Elastic Beanstalk
  - Serverless Application Repository
  - AWS Outposts
  - EC2 Image Builder
- Containers**
  - Elastic Container Registry
  - Elastic Container Service
  - Elastic Kubernetes Service
- Storage**
  - S3
  - EFS
  - FSx
  - S3 Glacier
  - Storage Gateway
  - AWS Backup
- Database**
  - RDS
  - DynamoDB
- Quantum Technologies**
  - Amazon Braket
- Management & Governance**
  - AWS Organizations
  - CloudWatch
  - AWS Auto Scaling
  - CloudFormation
  - CloudTrail
  - Config
  - OpsWorks
  - Service Catalog
  - Systems Manager
  - AWS AppConfig
  - Trusted Advisor
  - Control Tower
  - AWS License Manager
  - AWS Well-Architected Tool
  - Personal Health Dashboard
  - AWS Chatbot
  - Launch Wizard
  - AWS Compute Optimizer
  - Resource Groups & Tag Editor
  - Amazon Grafana
  - Amazon Prometheus
  - AWS Proton
- Security, Identity, & Compliance**
  - IAM
  - Resource Access Manager
  - Cognito
  - Secrets Manager
  - GuardDuty
  - Inspector
  - Amazon Macie
  - AWS Single Sign-On
  - Certificate Manager
  - Key Management Service
  - CloudHSM
  - Directory Service
  - WAF & Shield
  - AWS Firewall Manager
  - Artifact
  - Security Hub
  - Detective
  - AWS Audit Manager
  - AWS Signer
- AWS Cost Management**
  - AWS Cost Explorer
  - AWS Budgets
  - AWS Marketplace Subscriptions

**Explore AWS**

- Amazon Redshift**

Fast, simple, cost-effective data warehouse that can extend queries to your data lake.

[Learn more](#)
- Run Serverless Containers with AWS Fargate**

AWS Fargate runs and scales your containers without having to manage servers or clusters.

[Learn more](#)
- Scalable, Durable, Secure Backup & Restore with Amazon S3**

Discover how customers are building backup & restore solutions on AWS that save money.

[Learn more](#)
- AWS Marketplace**

Find, buy, and deploy popular software products that run on AWS.

[Learn more](#)

**Have feedback?**

# Cloud computing benefits

# Variable expenses



## Upfront expenses



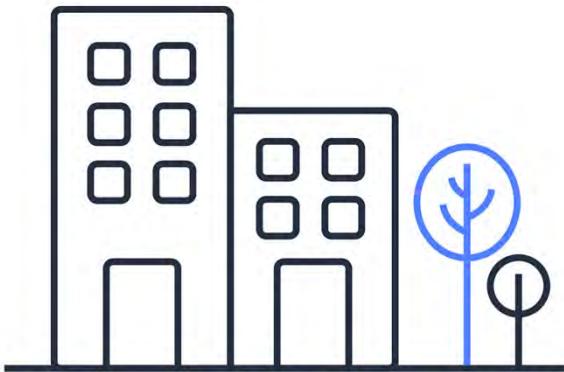
Invest in technology resources before using them

## Variable expenses

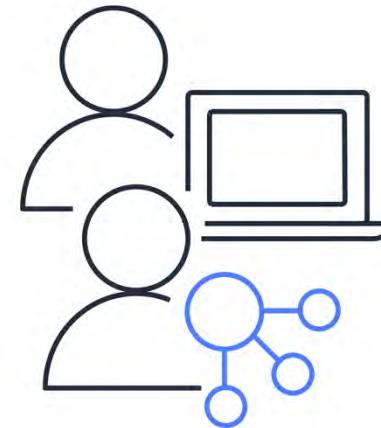


Pay only for what you use

# Cost optimization



Run data centers



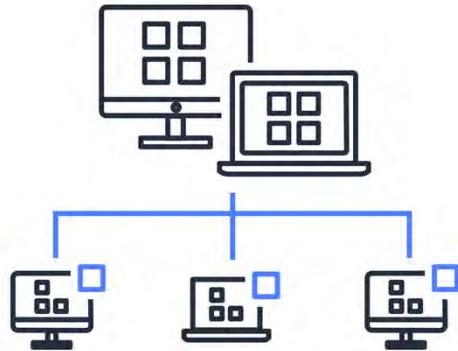
Focus on applications and  
customers

Investment

# Capacity



Stop guessing on your infrastructure capacity needs



Scale in and scale out as needed

# Economies of scale

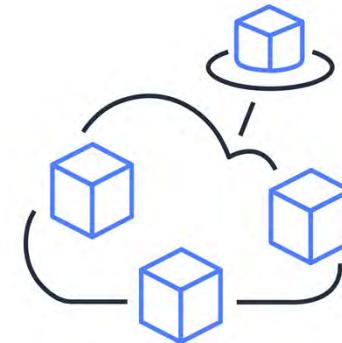


## Smaller scale



Pay higher prices based on  
only your own usage

## Economies of scale

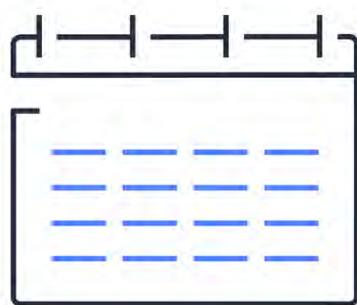


Benefit from customers'  
aggregated usage

# Speed and agility



## Data centers



**Weeks** between wanting resources and having resources

## Cloud computing

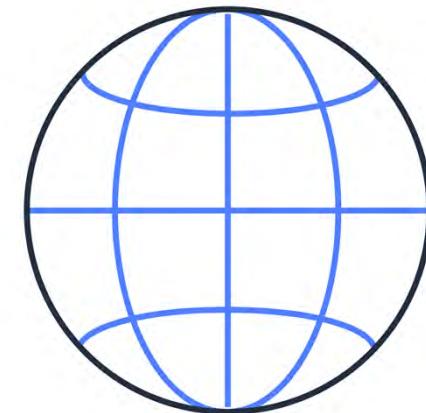


**Minutes** between wanting resources and having resources

# Global in minutes

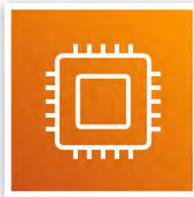


Quickly deploy applications worldwide



Use the AWS global infrastructure.

# AWS core service categories



Compute



Networking and  
Content Delivery



Storage



Database



Security, Identity,  
and Compliance



Management  
and Governance

Module 1

# Knowledge check

# Knowledge check question 1



## What is cloud computing?

- A. Backing up files that are stored on desktop and mobile devices to prevent data loss
- B. Deploying applications that are connected to an on-premises infrastructure
- C. Using on-demand delivery of IT resources and applications through the internet
- D. Running code without needing to manage or provision servers

# Knowledge check answer 1



24



## What is cloud computing?

- A. Backing up files that are stored on desktop and mobile devices to prevent data loss
- B. Deploying applications that are connected to an on-premises infrastructure
- C. **Using on-demand delivery of IT resources and applications through the internet (correct)**
- D. Running code without needing to manage or provision servers

## Knowledge check question 2



25

**What is another name for on-premises deployment?**

- A. Cloud-based application
- B. Hybrid deployment
- C. Private cloud deployment
- D. AWS Cloud

## Knowledge check answer 2



**What is another name for on-premises deployment?**

- A. Cloud-based application
- B. Hybrid deployment
- C. **Private cloud deployment (correct)**
- D. AWS Cloud

# Knowledge check question 3



27



## How does the scale of cloud computing help you save costs?

- A. You do not have to invest in technology resources before using them.
- B. The aggregated cloud usage from a large number of customers results in lower pay-as-you-go prices.
- C. Accessing services on-demand helps prevent excess or limited capacity.
- D. You can quickly deploy applications to customers and provide low latency.

# Knowledge check answer 3



## How does the scale of cloud computing help you save costs?

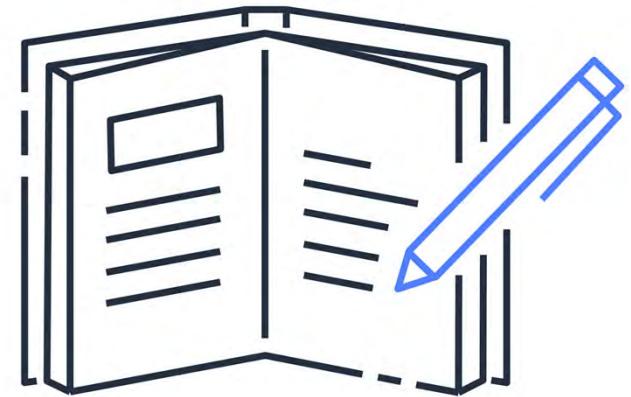
- A. You do not have to invest in technology resources before using them.
- B. **The aggregated cloud usage from a large number of customers results in lower pay-as-you-go prices. (correct)**
- C. Accessing services on-demand helps prevent excess or limited capacity.
- D. You can quickly deploy applications to customers and provide low latency.

# Module 1 summary



In this module, you learned about:

- Three cloud computing deployment models
- Six benefits of cloud computing



Module 2

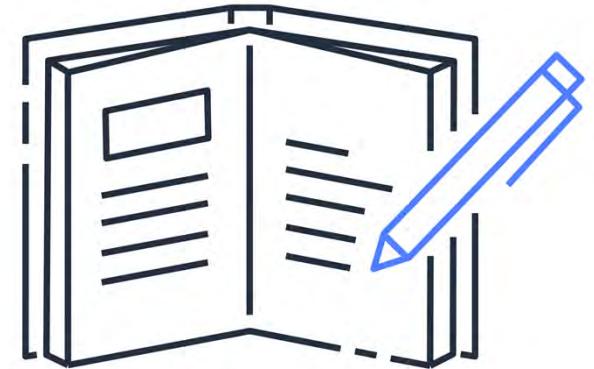
# Compute in the Cloud

# Module 2 objectives

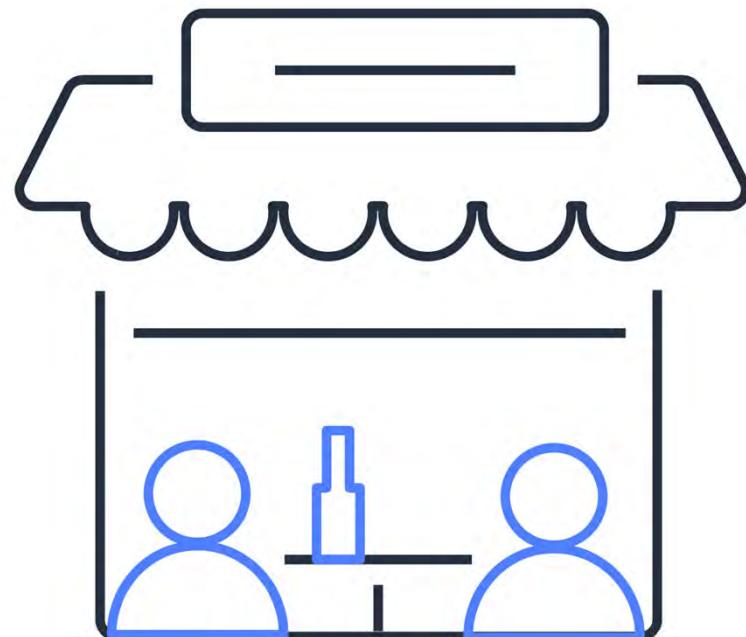


In this module, you will learn how to:

- Describe Amazon EC2 benefits
- Identify the Amazon EC2 instance types
- Differentiate among Amazon EC2 billing options
- Summarize Amazon EC2 Auto Scaling benefits
- Summarize Elastic Load Balancing benefits
- Provide examples of Elastic Load Balancing uses
- Describe differences between Amazon SNS and Amazon SQS
- Summarize additional AWS compute options



# Client and server model



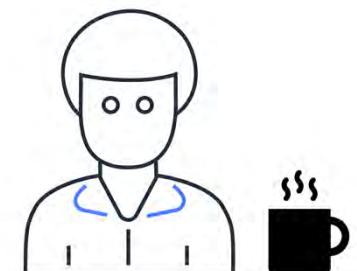
Customer



A customer makes a request.



Barista



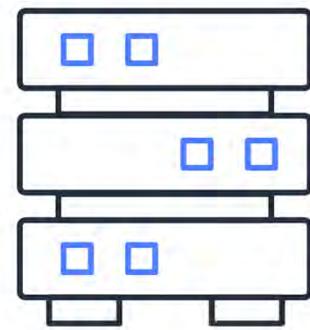
A barista fulfills the customer's request.

# Amazon Elastic Compute Cloud (Amazon EC2)

# How Amazon EC2 works



Launch an instance



Connect to the instance

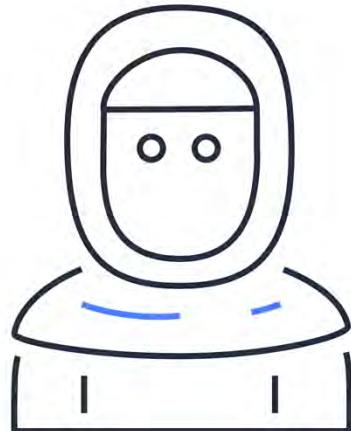


Use the instance

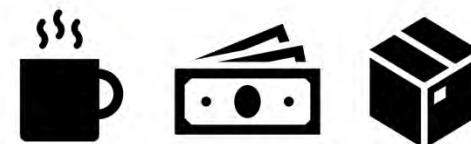
# Amazon EC2 instance types

# Coffee shop tasks

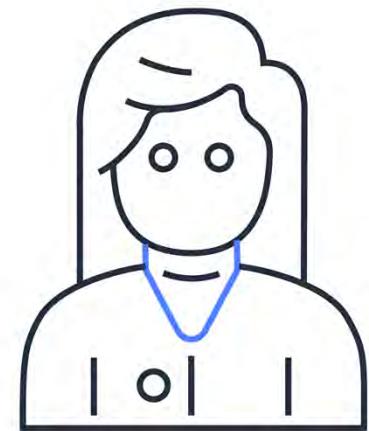
Employee 1



Employee 2



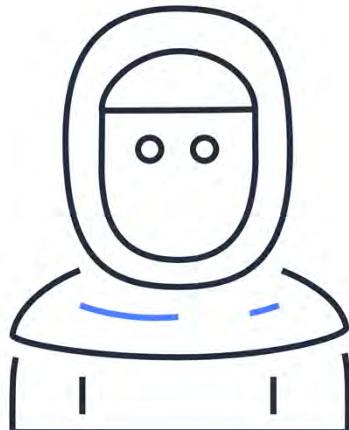
Employee 3



# Coffee shop task specialization



Employee 1



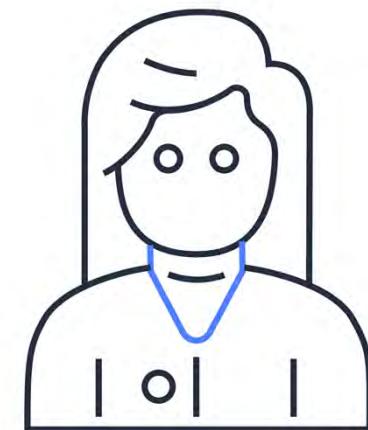
Make coffee

Employee 2



Process transactions

Employee 3



Order supplies

# Amazon EC2 instance types



## General purpose

- Balances compute, memory, and networking resources
- Suitable for a broad range of workloads

## Compute optimized

- Offers high-performance processors
- Ideal for compute-intensive applications and batch processing workloads

## Memory optimized

- Delivers fast performance for memory-intensive workloads
- Well suited for high-performance databases

# Amazon EC2 instance types (cont.)



## Accelerated computing

- Uses hardware accelerators to expedite data processing
- Ideal for application streaming and graphics workloads

## Storage optimized

- Offers low latency and high input/output operations per second (IOPS)
- Suitable for workloads such as distributed file systems and data warehousing applications

# Match: Amazon EC2 instance types



1. Ideal for high-performance databases
2. Suitable for data warehousing applications
3. Balances compute, memory, and networking resources
4. Offers high-performance processors

A. General purpose

B. Compute optimized

C. Memory optimized

D. Storage optimized

# Match: Amazon EC2 instance types



1. Ideal for high-performance databases
2. Suitable for data warehousing applications
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A. General purpose

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C. Memory optimized

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4. Offers high-performance processors

A. General purpose

B. Compute optimized

C. Memory optimized

D. Storage optimized

# Amazon EC2 pricing

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# Amazon EC2 instance pricing options



## On-Demand

- No upfront costs or minimum contracts
- Ideal for short-term, irregular workloads

## Spot

- Ideal for workloads with flexible start and end times
- Offers savings over On-Demand prices

# Amazon EC2 instance pricing options



## Reserved

- Provides a billing discount over On-Demand pricing
- Requires a 1-year or 3-year term commitment

## Compute Savings Plan

- Offers up to 72% savings over On-Demand costs for a consistent amount of compute usage
- Requires a 1-year or 3-year term commitment

## Dedicated Instance

- An EC2 *instance* that runs in a VPC on hardware for a single customer
- Higher cost compared to standard Amazon EC2 instances

## Dedicated Host

- A *physical server* with EC2 instance capacity for a single customer
- Most expensive Amazon EC2 option

# Knowledge check question



What is the difference between Compute Savings Plans and Spot Instances?

# Knowledge check answer



50



- Compute Savings Plans are ideal for workloads that involve a consistent amount of compute usage over a 1-year or 3-year term.
- Spot Instances are ideal for workloads with flexible start and end times, or that can withstand interruptions.

# Amazon EC2 Auto Scaling

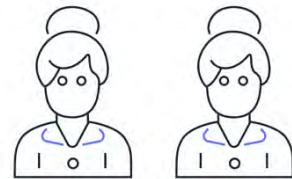
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# Manual scaling



Low demand



Customers

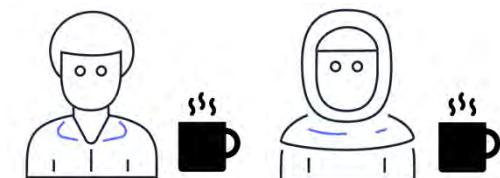


Barista

High demand



Customers

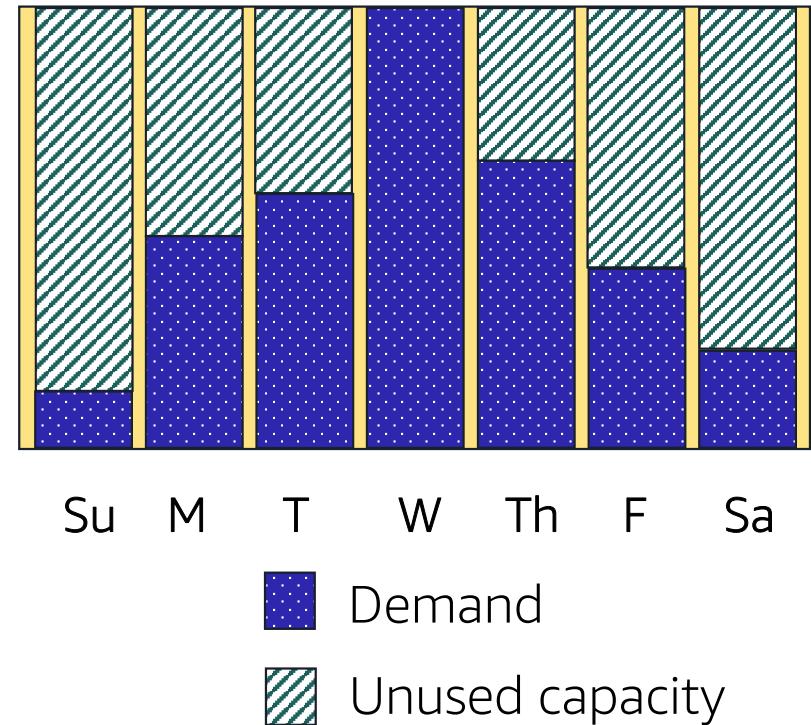


Baristas

# Amazon EC2 Auto Scaling



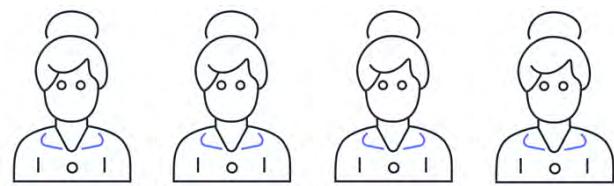
- Scale capacity as computing requirements change
- Use dynamic scaling and predictive scaling



# Amazon EC2 Auto Scaling (cont.)



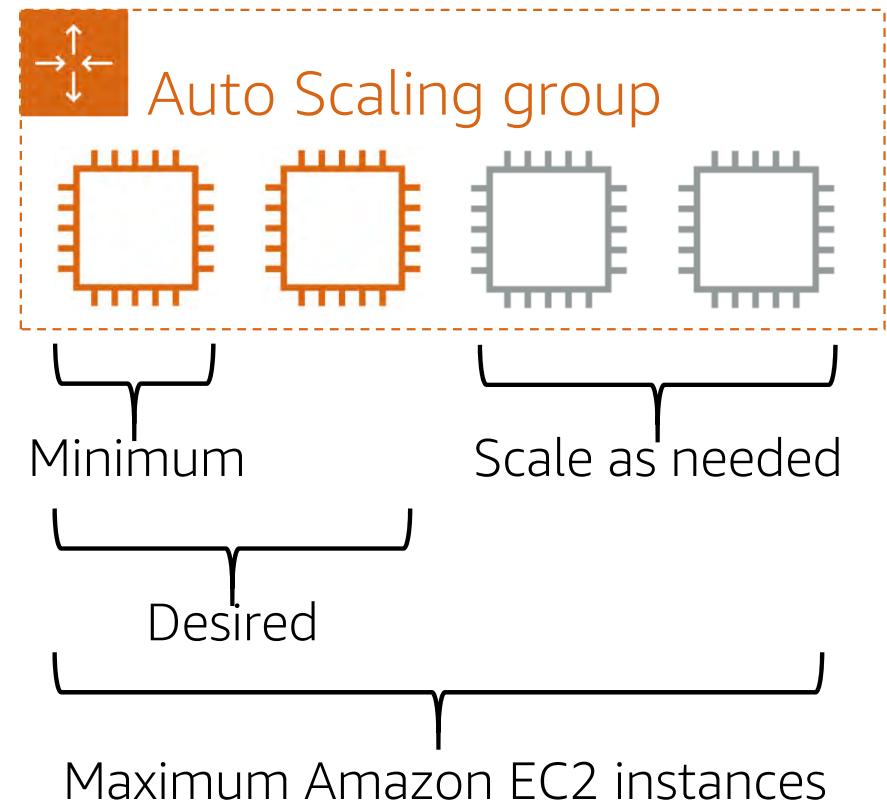
High demand



Customers



Baristas



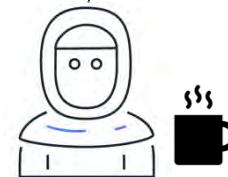
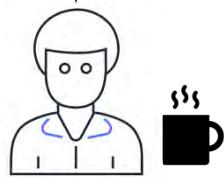
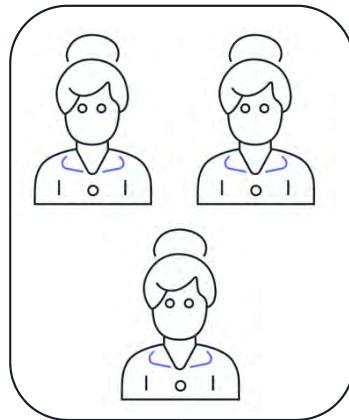
# Elastic Load Balancing

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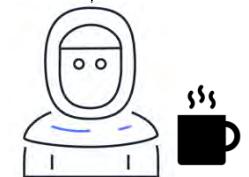
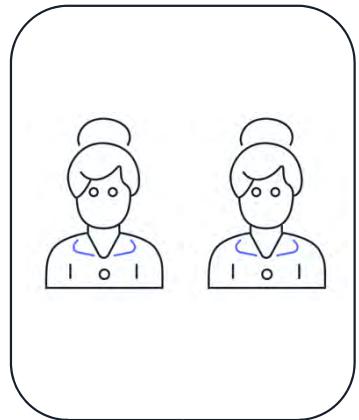
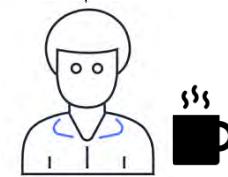
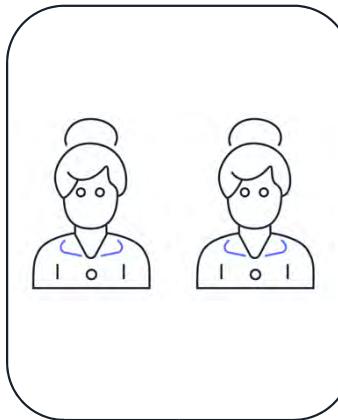


# Load balancing

## Unbalanced workload



## Balanced workload



# Elastic Load Balancing



- Automatically distributes traffic across multiple resources
- Provides a single point of contact for your Auto Scaling group

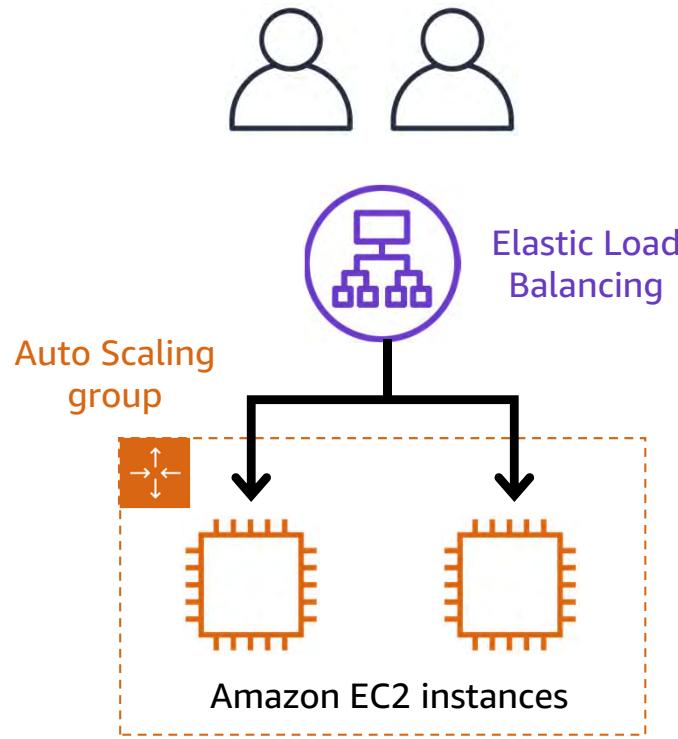


Elastic Load Balancing

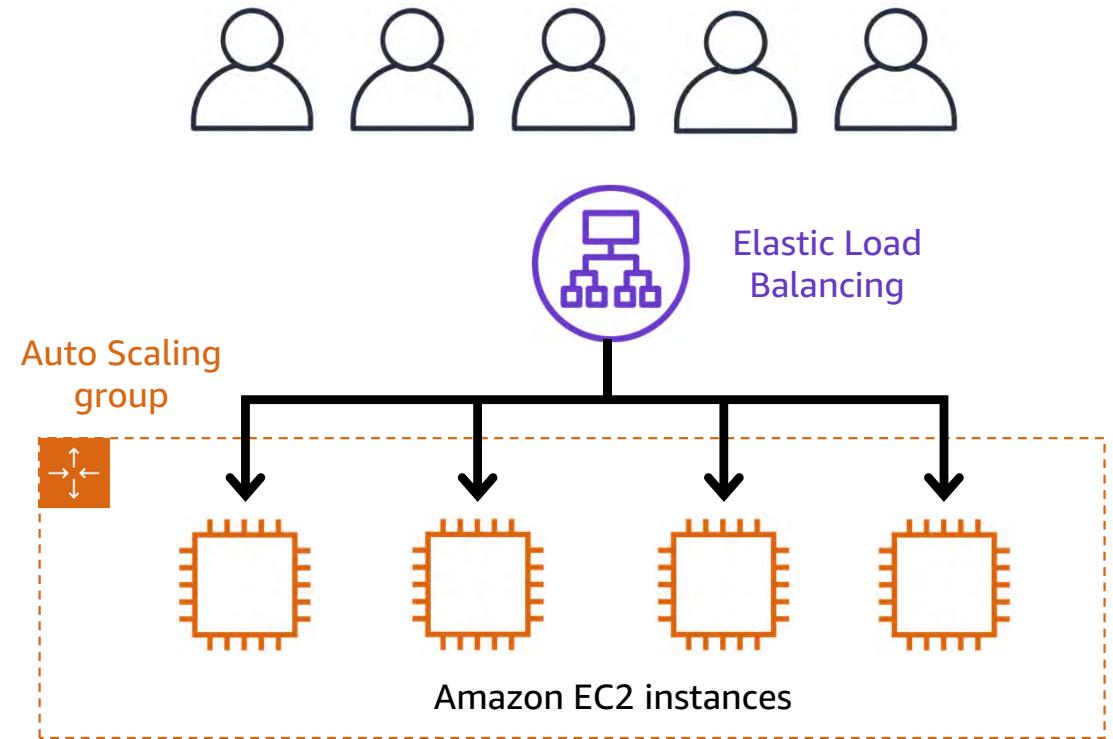
# Scalability and load balancing



Low-demand period



High-demand period



# Auto Scaling and Elastic Load Balancing



Are these examples of **Auto Scaling** or **Elastic Load Balancing**?

Auto Scaling

1. Removes unneeded Amazon EC2 instances when demand is low

Elastic Load Balancing

3. Distributes a workload across several Amazon EC2 instances

Auto Scaling

5. Automatically adjusts the number of Amazon EC2 instances to match demand

2. Adds a second Amazon EC2 instance during an online store's popular sale

Auto Scaling

4. Ensures that no single EC2 instance has to carry the full workload on its own

Elastic Load Balancing

6. Provides a single point of contact for traffic into an Auto Scaling group

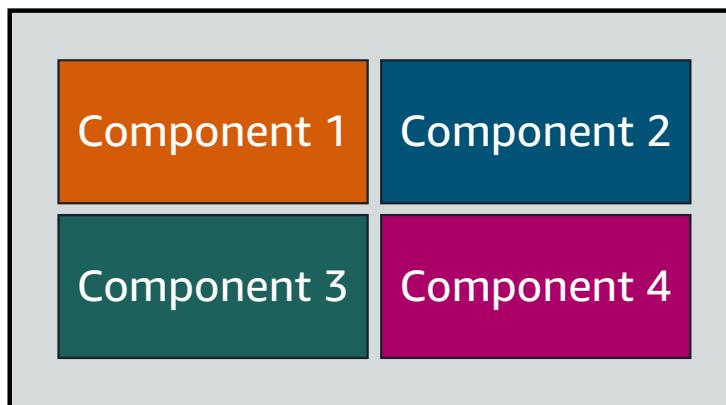
Elastic Load Balancing

# AWS messaging services

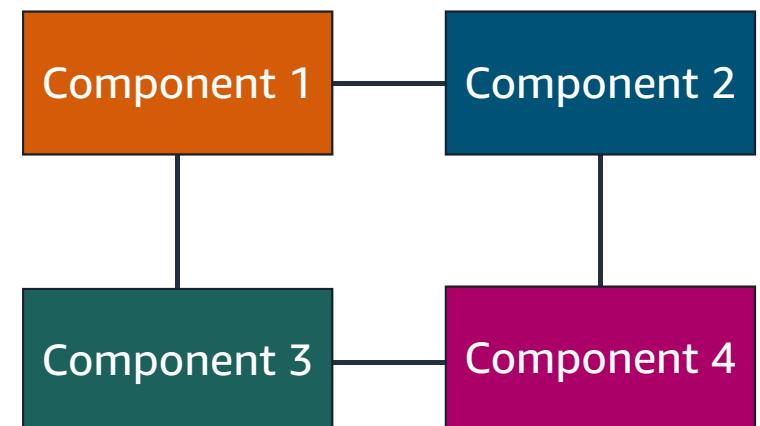
# Application architecture



Monolithic application



Microservices



# Amazon Simple Notification Service



- Messages are published to topics.
- Subscribers immediately receive messages for their topics.

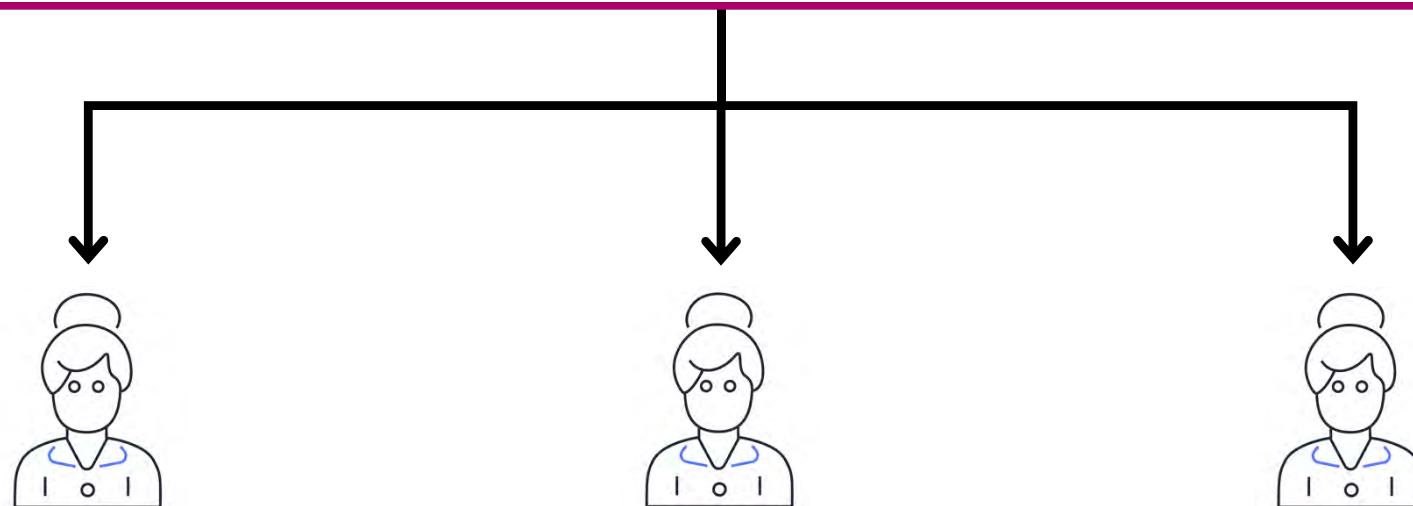


Amazon Simple  
Notification Service  
(Amazon SNS)

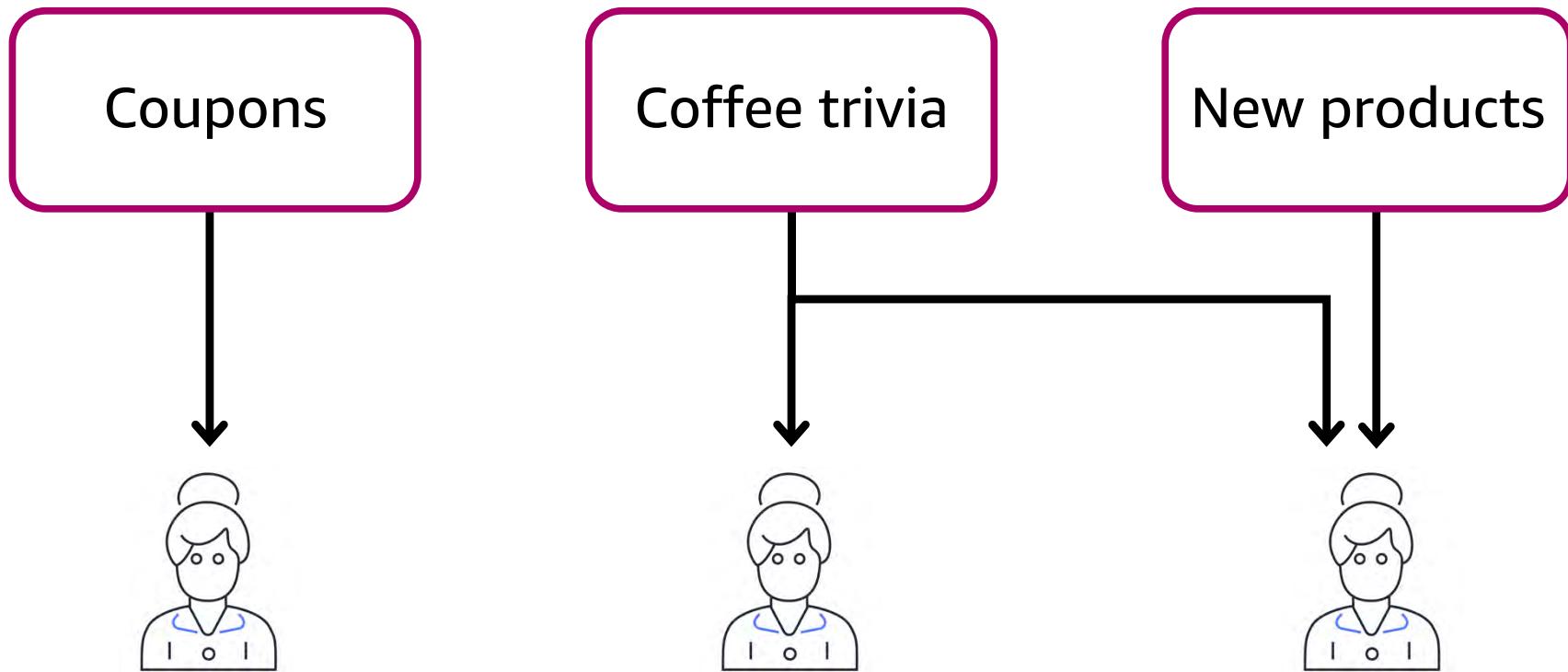
# Publish updates from a single topic



Coupons, coffee trivia, and new products



# Publish updates from multiple topics



# Amazon Simple Queue Service

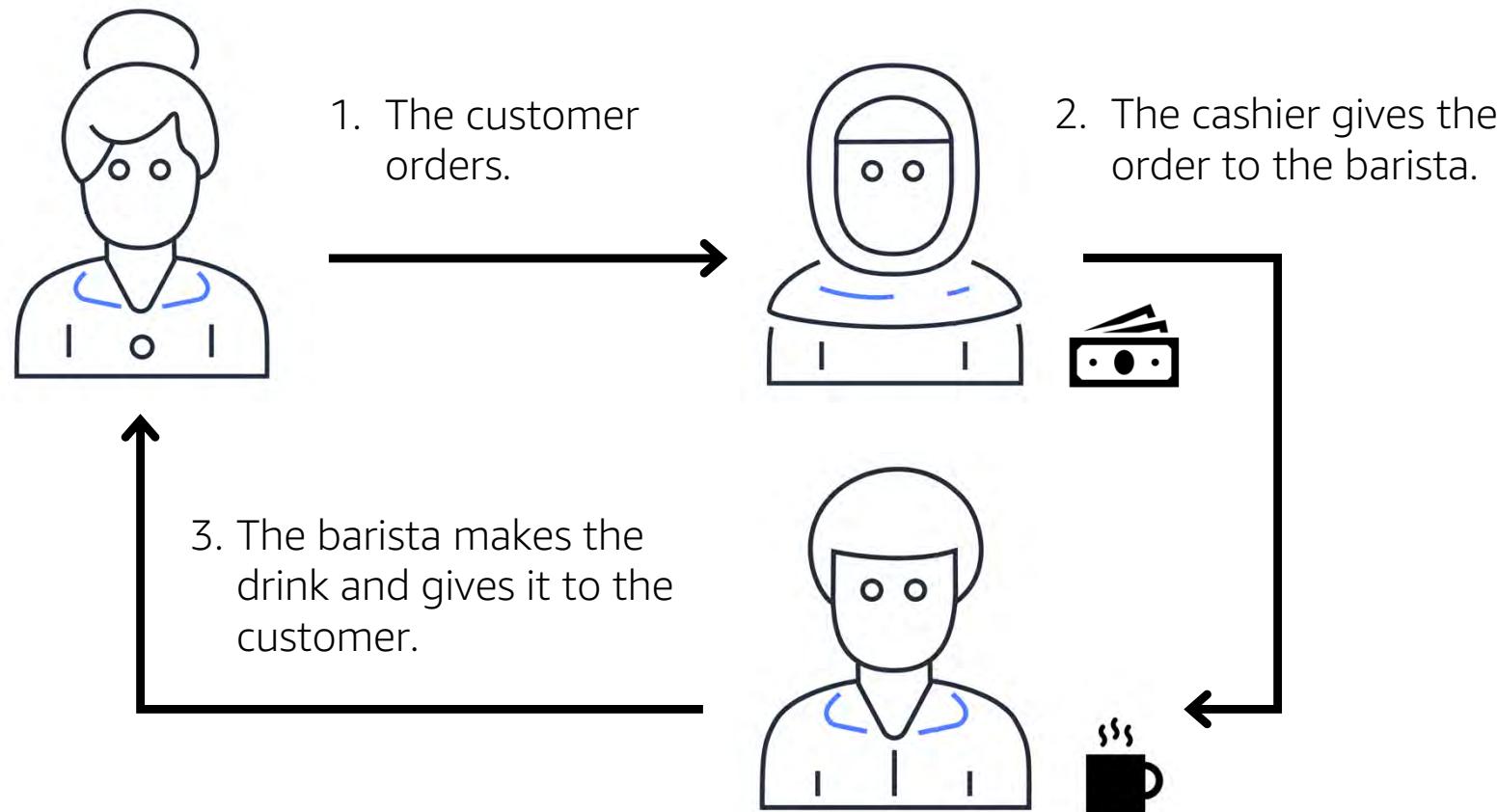


- Send, store, and receive messages between software components
- Queue messages without requiring other services to be available

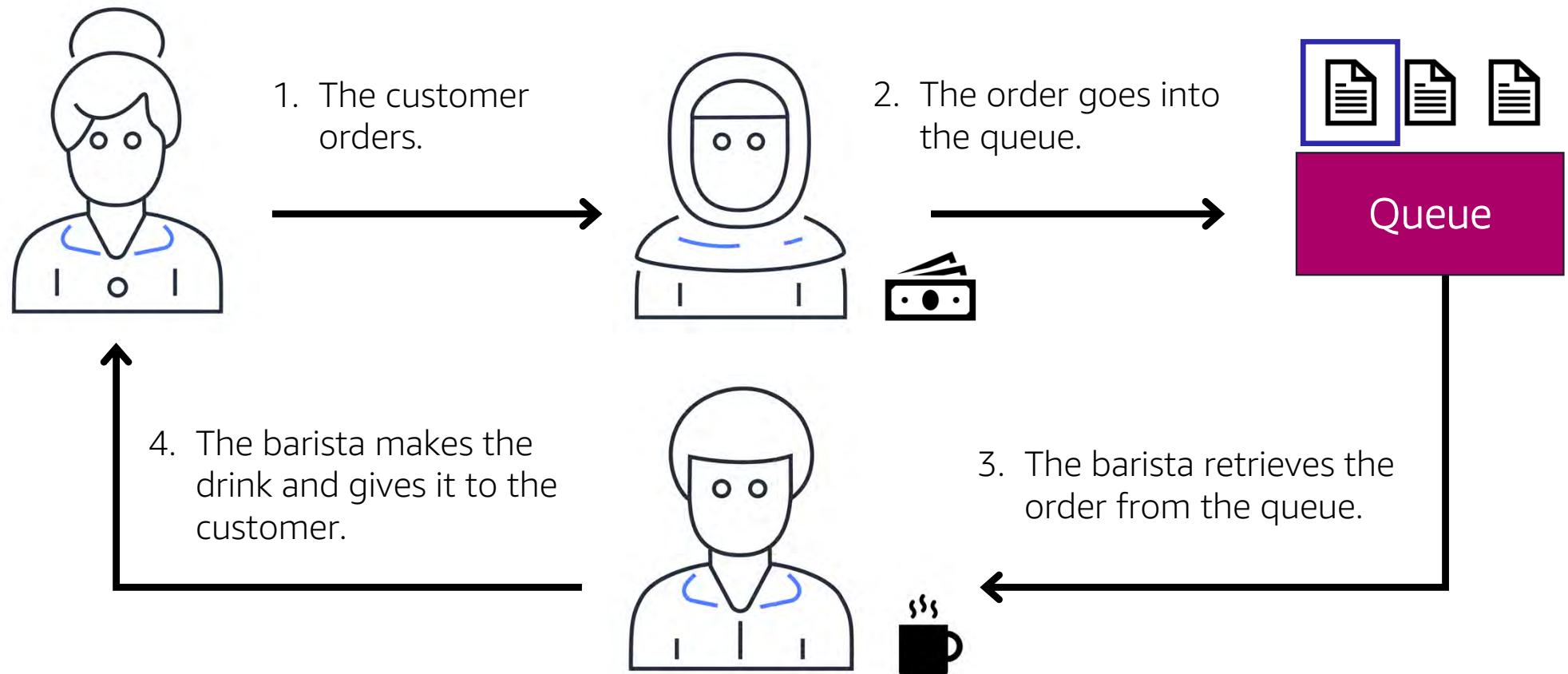


Amazon Simple  
Queue Service  
(Amazon SQS)

# Example: Fulfill an order



# Example: Orders in a queue



# Serverless compute services

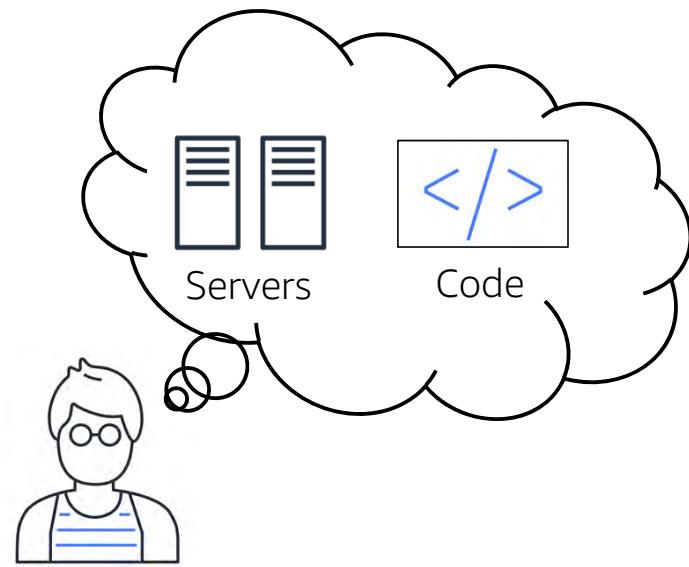
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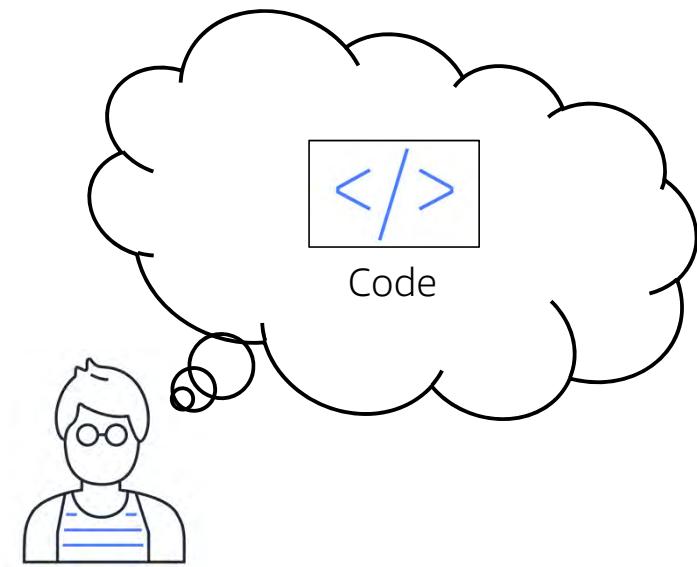
# Serverless computing



## Computing with virtual servers



## Serverless computing



# AWS Lambda



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

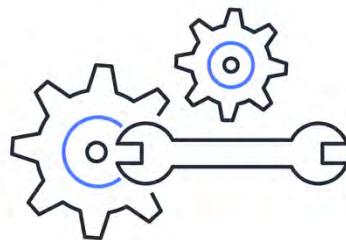


AWS Lambda

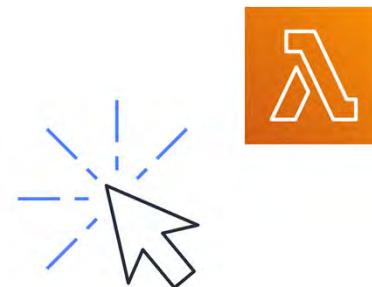
# How AWS Lambda works



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 container services

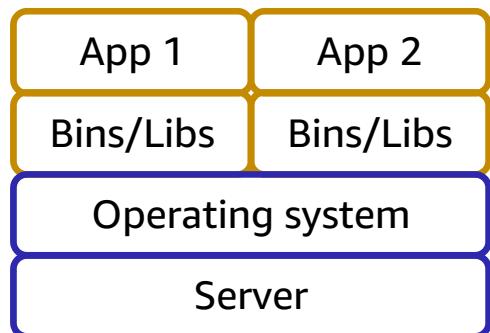
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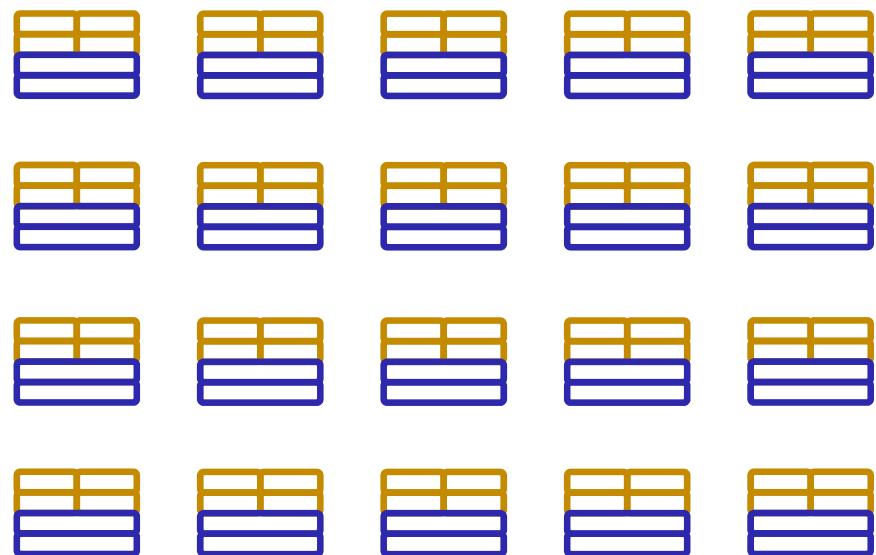
# Containers



One host with multiple containers



Tens of hosts with hundreds of containers



# AWS container orchestration services



**Amazon Elastic  
Container Service  
(Amazon ECS)**

- Run and scale containerized applications
- Use simple API calls to control Docker-enabled applications



**Amazon Elastic  
Kubernetes Service  
(Amazon EKS)**

- Run and scale Kubernetes applications
- Readily update applications with new features

# AWS Fargate



- Run serverless containers with Amazon ECS or Amazon EKS
- Pay only for the resources you use



AWS Fargate

Module 2

# Knowledge check

# Knowledge check question 1



A customer wants to use an Amazon EC2 instance for a batch processing workload. Which Amazon EC2 instance type should they use?

- A. General purpose
- B. Compute optimized
- C. Memory optimized
- D. Storage optimized

# Knowledge check answer 1



A customer wants to use an Amazon EC2 instance for a batch processing workload. Which Amazon EC2 instance type should they use?

- A. General purpose
- B. **Compute optimized (correct)**
- C. Memory optimized
- D. Storage optimized

## Knowledge check question 2



What are the contract length options for Amazon EC2 Reserved Instances? (Select TWO.)

- A. 1 year
- B. 2 years
- C. 3 years
- D. 4 years
- E. 5 years

# Knowledge check answer 2



What are the contract length options for Amazon EC2 Reserved Instances? (Select TWO.)

- A. 1 year (correct)
- B. 2 years
- C. 3 years (correct)
- D. 4 years
- E. 5 years

# Knowledge check question 3



81



A customer has a workload that will run for a total of 6 months and can withstand interruptions. What would be the most cost-efficient Amazon EC2 instance purchasing option?

- A. Reserved Instance
- B. Dedicated Instance
- C. On-Demand Instance
- D. Spot Instance

# Knowledge check answer 3



82



A customer has a workload that will run for a total of 6 months and can withstand interruptions. What would be the most cost-efficient Amazon EC2 instance purchasing option?

- A. Reserved Instance
- B. Dedicated Instance
- C. On-Demand Instance
- D. **Spot Instance (correct)**

## Knowledge check question 4



A customer wants to give users messages for the specific topics to which they have subscribed. Which service should they use?

- A. Amazon Simple Notification Service (Amazon SNS)
- B. AWS Lambda
- C. Amazon Simple Queue Service (Amazon SQS)
- D. Amazon Elastic Kubernetes Service (Amazon EKS)

# Knowledge check answer 4



A customer wants to give users messages for the specific topics to which they have subscribed. Which service should they use?

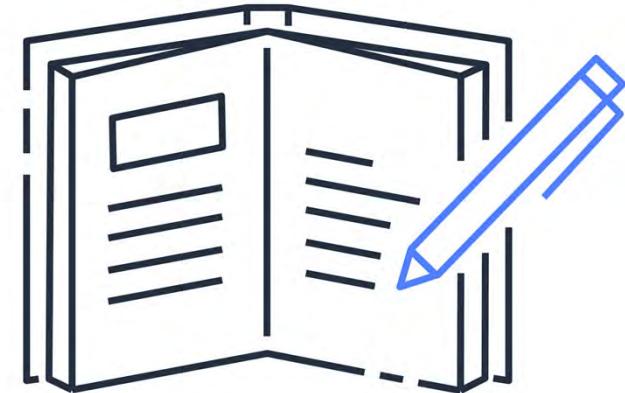
- A. **Amazon Simple Notification Service (Amazon SNS) (correct)**
- B. AWS Lambda
- C. Amazon Simple Queue Service (Amazon SQS)
- D. Amazon Elastic Kubernetes Service (Amazon EKS)

# Module 2 summary



In this module, you learned how to:

- Describe Amazon EC2 benefits
- Identify the Amazon EC2 instance types
- Differentiate among Amazon EC2 billing options
- Summarize Amazon EC2 Auto Scaling benefits
- Summarize Elastic Load Balancing benefits
- Provide examples of Elastic Load Balancing uses
- Describe differences between Amazon SNS and Amazon SQS
- Summarize additional AWS compute options



Module 3

# Global Infrastructure and Reliability

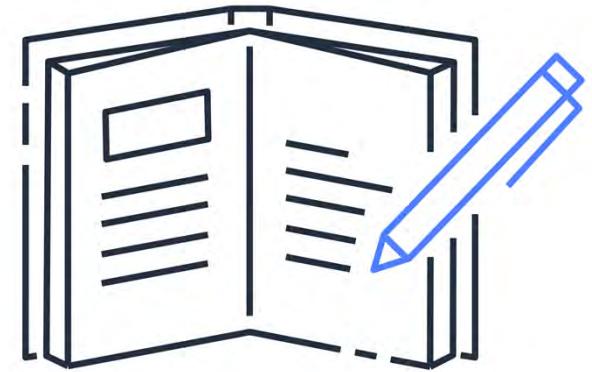


# Module 3 objectives

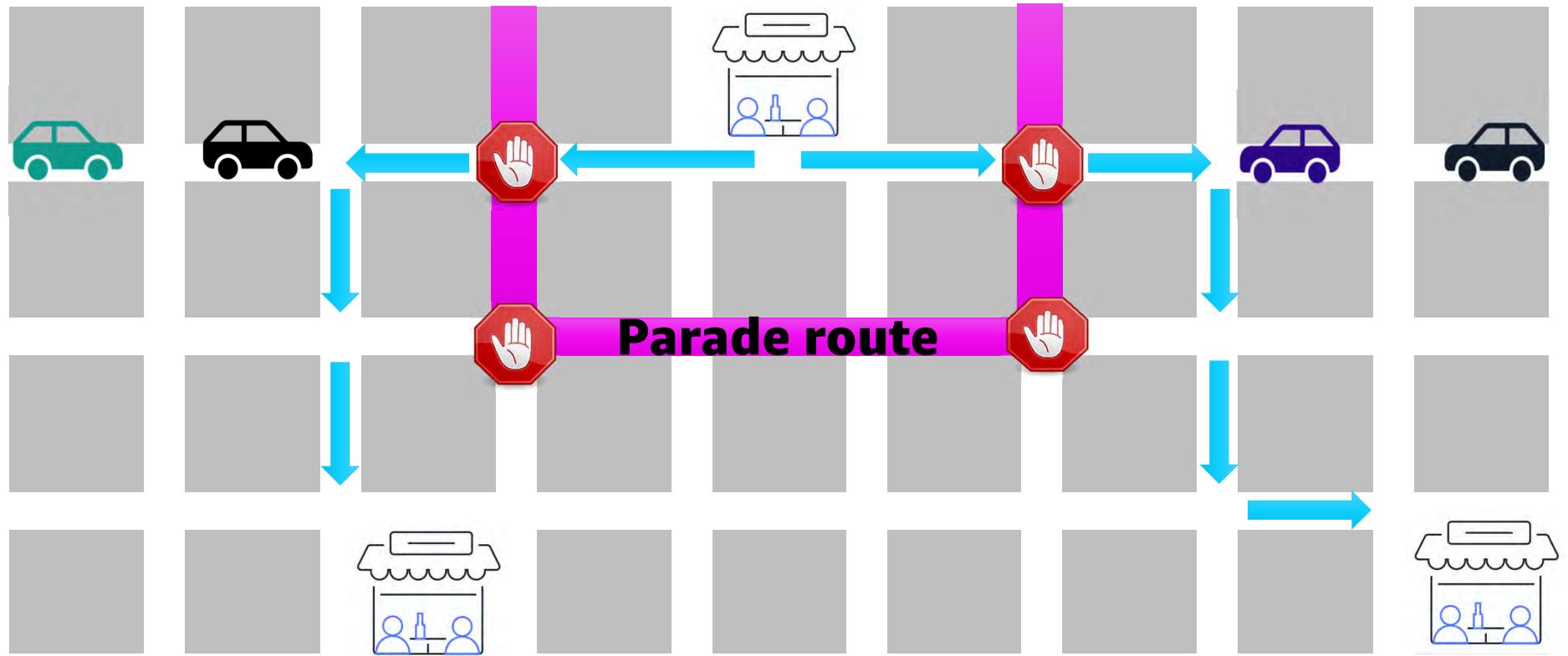


In this module, you will learn how to:

- Summarize the AWS Global Infrastructure benefits
- Describe Availability Zones
- Describe the benefits of Amazon CloudFront and edge locations.
- Compare methods for provisioning AWS services.



# Build a global footprint





# Demo: Explore the AWS Global Infrastructure

# Select a Region



Determine the right Region for your services, data, and applications based on:



Compliance with data governance and legal requirements



Proximity to your customers

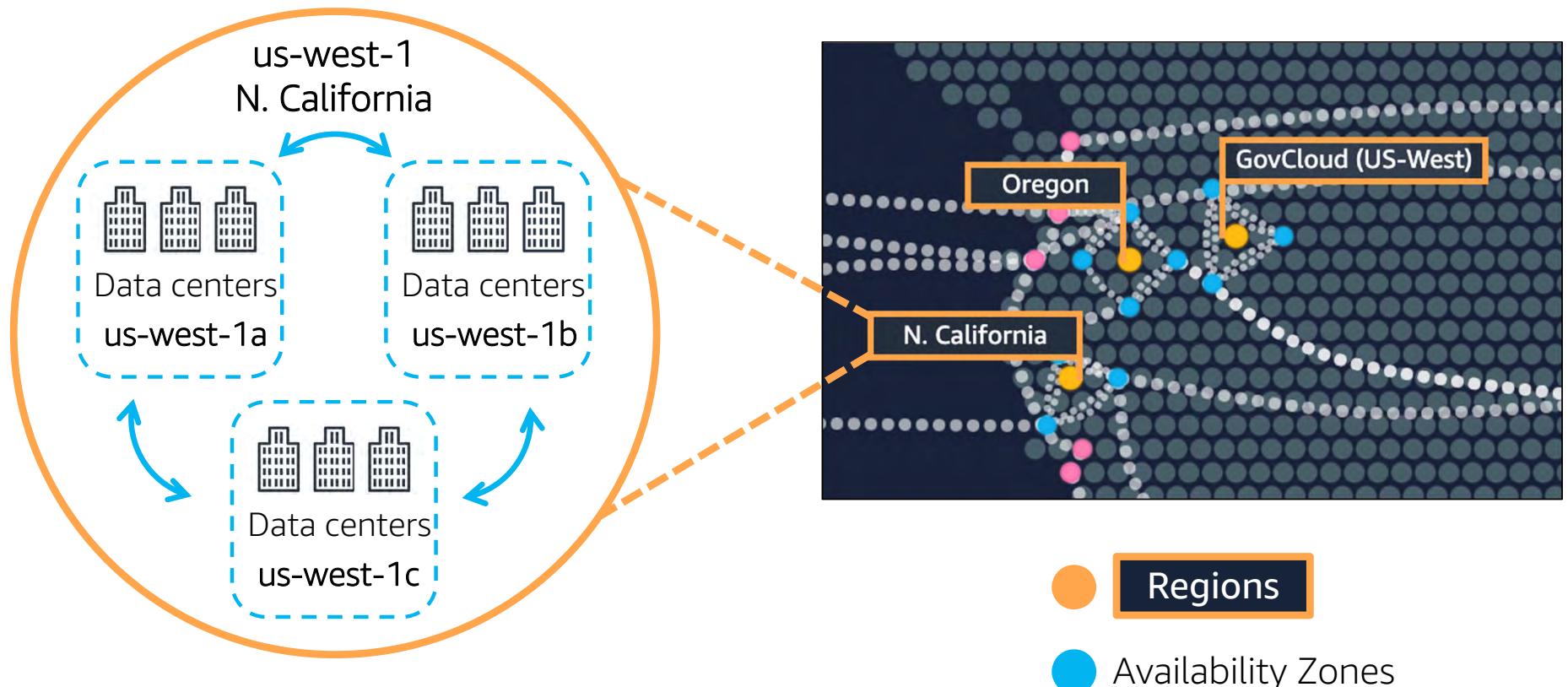


Available services within a Region

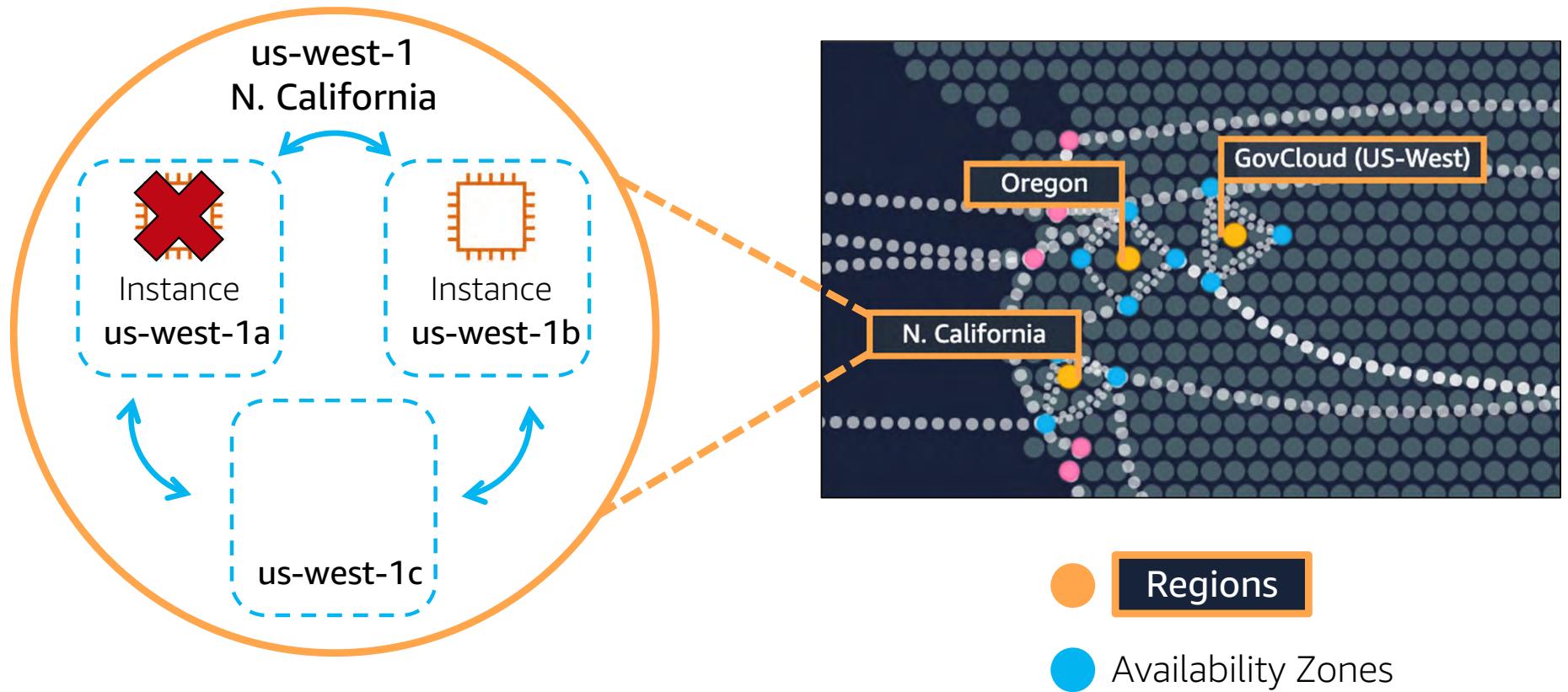


Pricing

# Availability Zones



# Amazon EC2 instances in multiple AZs



# Discussion



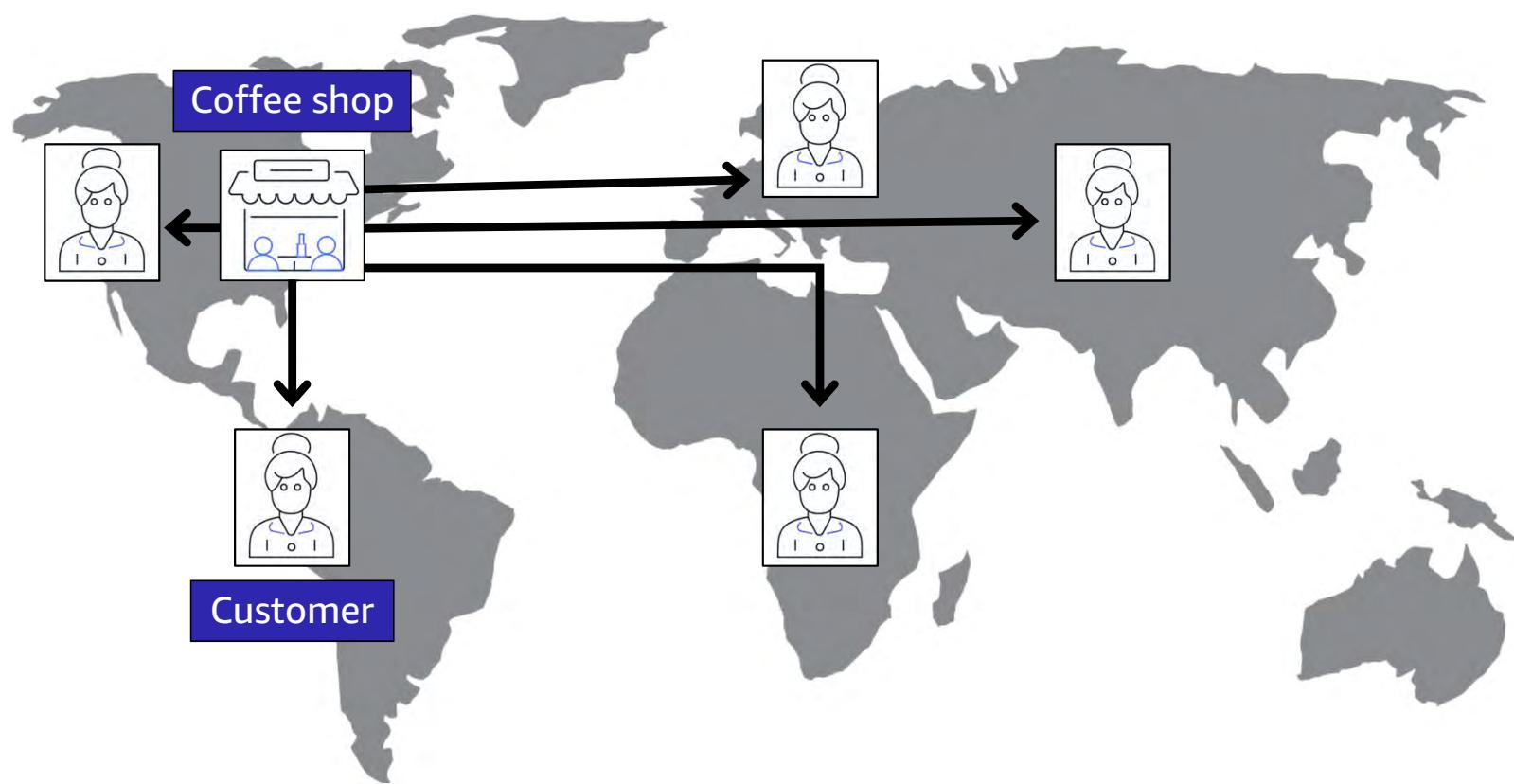
What is the relationship between Regions and Availability Zones?

# Get closer to your customers

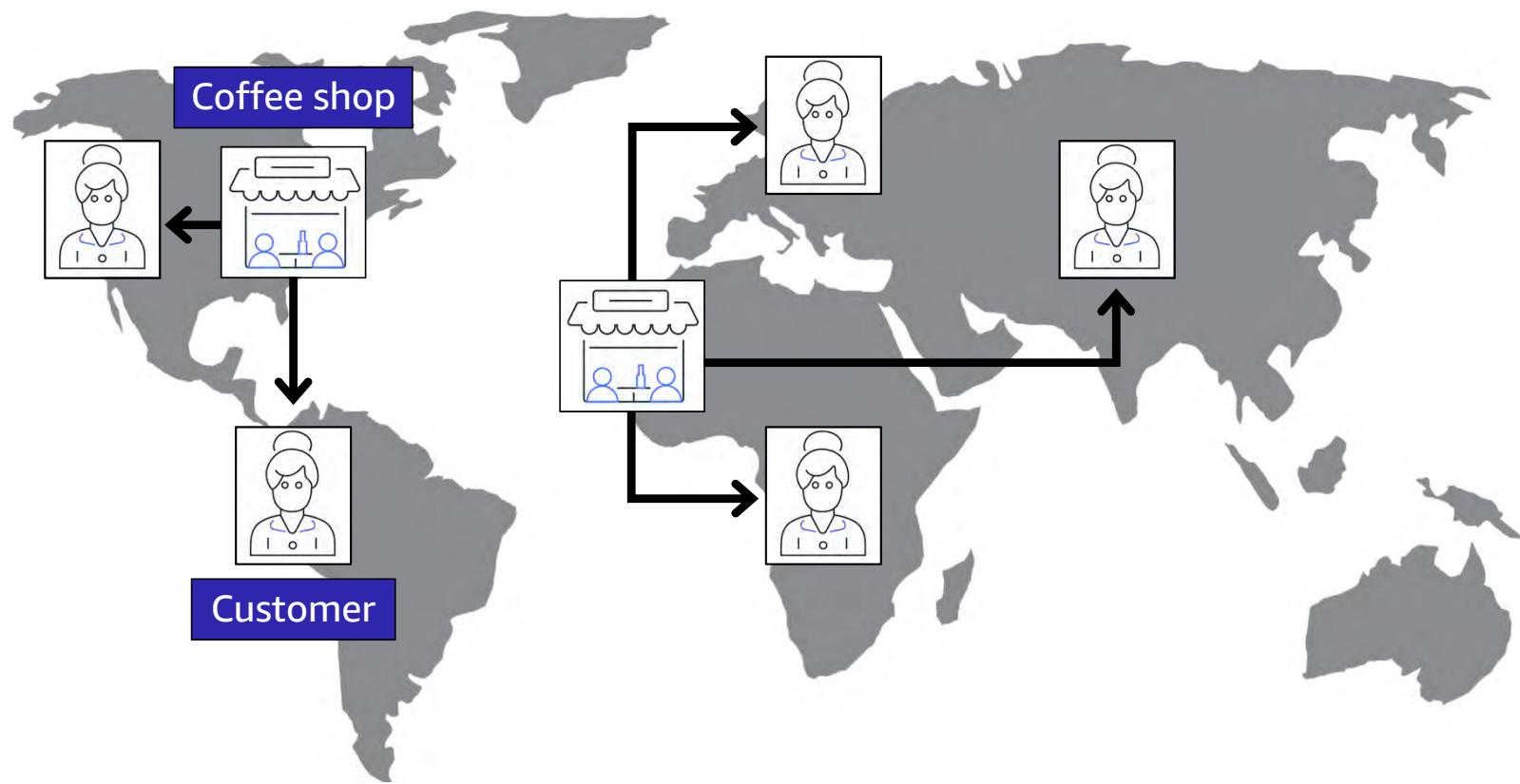
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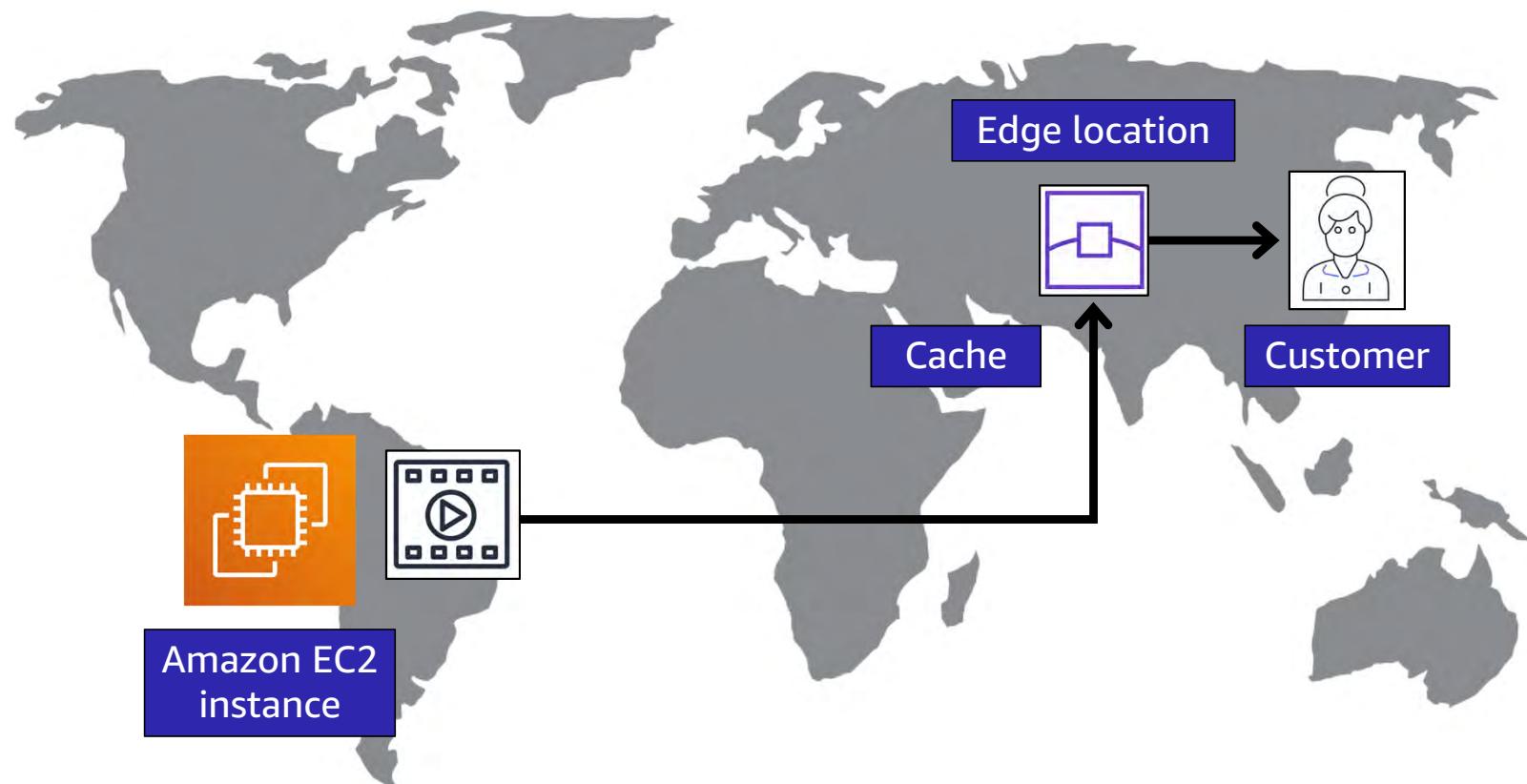
# Global content delivery



# Global content delivery



# Amazon CloudFront delivers content

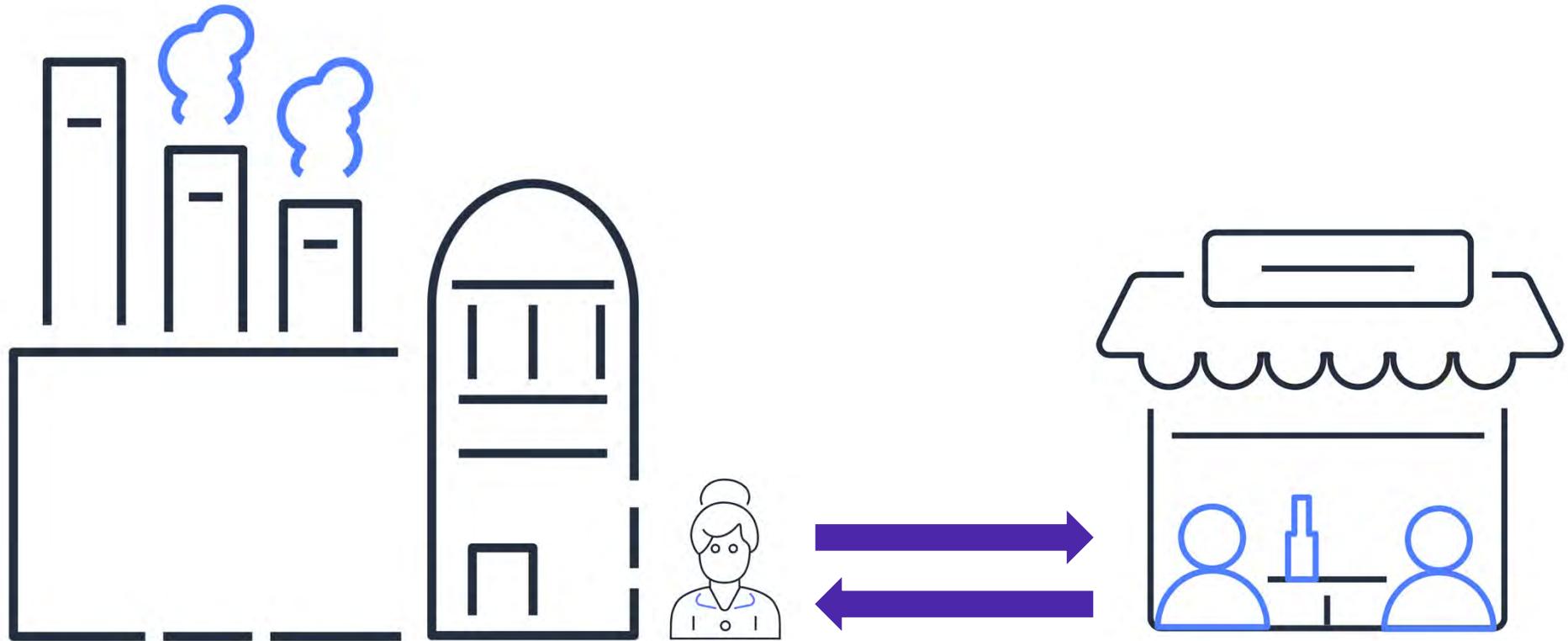


# AWS Outposts

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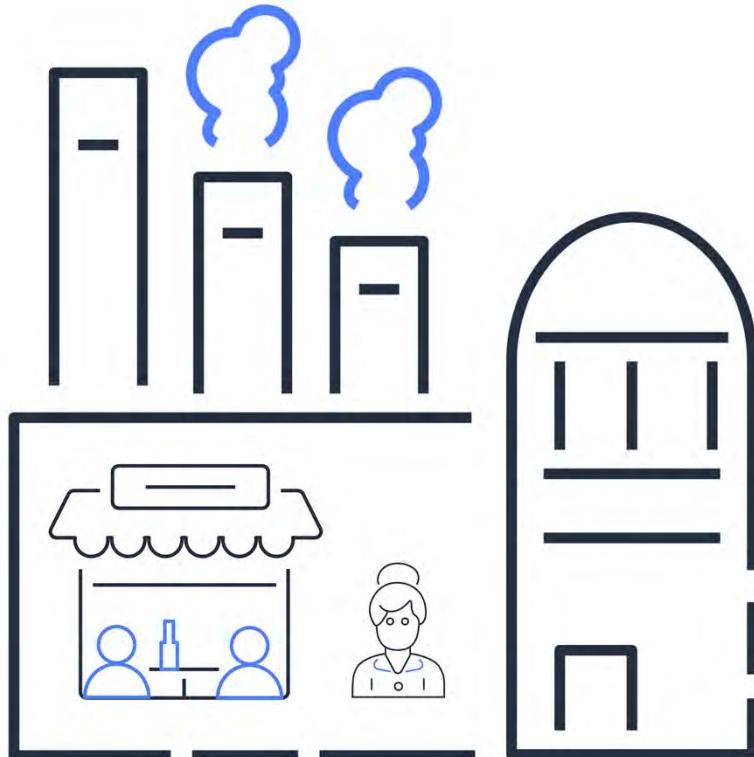
# Get products from the coffee shop



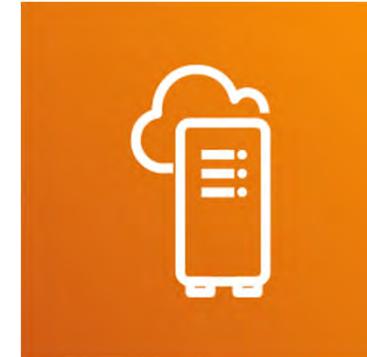
# Get products from the coffee shop



# AWS Outposts



## AWS Outposts



Extend AWS infrastructure and services to your on-premises data center

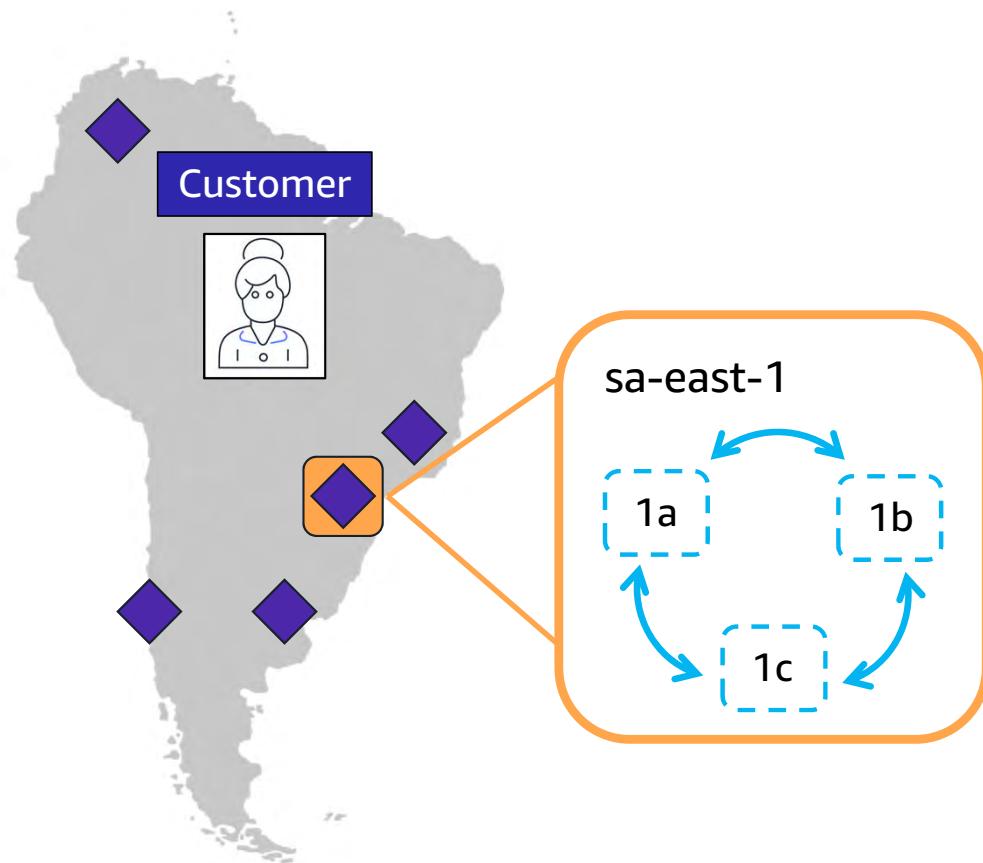
# Discussion

102



When choosing an AWS Region for your services, data, and applications, why should you consider a Region's proximity to your customers?

# Review: AWS Global Infrastructure



## Region:

- São Paulo



## Availability Zones:

- sa-east-1a
- sa-east-1b
- sa-east-1c



## Edge locations

# Interact with AWS services

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# Perform actions through API requests



Order a cup of coffee.

Ask for a refill.

Check your rewards balance.



Launch an Amazon EC2 instance.

Create a load balancer.

Invoke an AWS Lambda function.

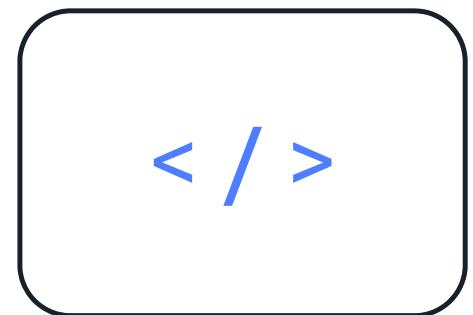
# Interact with AWS services



AWS Management Console



AWS Command Line  
Interface (AWS CLI)



Software development kits  
(SDKs)



# Demo: AWS Management Console

Module 3

# Knowledge check

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# Knowledge check question 1



Which of the following is TRUE for the AWS Global Infrastructure?

- A. An Availability Zone consists of a single Region.
- B. An Availability Zone consists of two or more Regions.
- C. A Region consists of a single Availability Zone.
- D. A Region consists of two or more Availability Zones.

# Knowledge check answer 1



110

Which of the following is TRUE for the AWS Global Infrastructure?

- A. An Availability Zone consists of a single Region.
- B. An Availability Zone consists of two or more Regions.
- C. A Region consists of a single Availability Zone.
- D. **A Region consists of two or more Availability Zones. (correct)**

## Knowledge check question 2



111



Which factors should be considered when selecting a Region? (Select TWO.)

- A. Compliance with data governance and legal requirements
- B. Proximity to your customers
- C. Access to 24/7 technical support
- D. Ability to assign custom permissions to different users
- E. Access to the AWS Command Line Interface (AWS CLI)

## Knowledge check answer 2



112

Which factors should be considered when selecting a Region? (Select TWO.)

- A. **Compliance with data governance and legal requirements (correct)**
- B. **Proximity to your customers (correct)**
- C. Access to 24/7 technical support
- D. Ability to assign custom permissions to different users
- E. Access to the AWS Command Line Interface (AWS CLI)

# Knowledge check question 3



Which statement best describes Amazon CloudFront?

- A. A service that allows you to run infrastructure in a hybrid cloud approach
- B. A serverless compute engine for containers
- C. A service that allows you to send and receive messages between software components through a queue
- D. A global content delivery service

# Knowledge check answer 3



114

Which statement best describes Amazon CloudFront?

- A. A service that allows you to run infrastructure in a hybrid cloud approach
- B. A serverless compute engine for containers
- C. A service that allows you to send and receive messages between software components through a queue
- D. **A global content delivery service (correct)**

## Knowledge check question 4



115



Which site does Amazon CloudFront use to cache copies of content for faster delivery to users at any location?

- A. Edge location
- B. Region
- C. Availability Zone
- D. Origin

# Knowledge check answer 4



116



Which site does Amazon CloudFront use to cache copies of content for faster delivery to users at any location?

- A. Edge location (correct)
- B. Region
- C. Availability Zone
- D. Origin

# Knowledge check question 5



117



Which actions can you perform with AWS Outposts?

- A. Automate actions for AWS services and applications through scripts
- B. Access wizards and automated workflows to perform tasks in AWS services
- C. Extend AWS infrastructure and services to your on-premises data center
- D. Develop AWS applications in supported programming languages

# Knowledge check answer 5



Which actions can you perform with AWS Outposts?

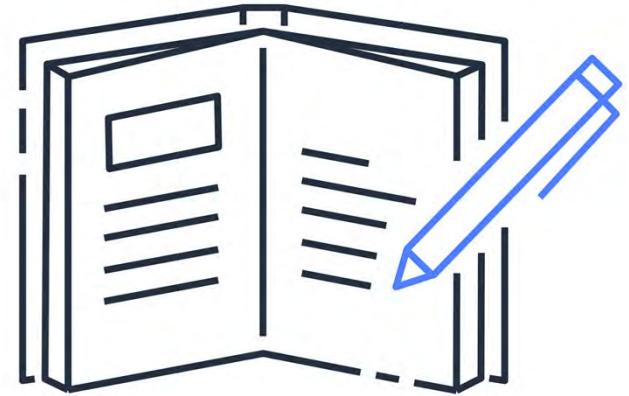
- A. Automate actions for AWS services and applications through scripts
- B. Access wizards and automated workflows to perform tasks in AWS services
- C. Extend AWS infrastructure and services to your on-premises data center (correct)
- D. Develop AWS applications in supported programming languages

# Module 3 summary



In this module, you learned about:

- Three aspects of the AWS Global Infrastructure
- Four factors to consider when selecting an AWS Region
- Three ways to interact with AWS services



Module 4

# Networking

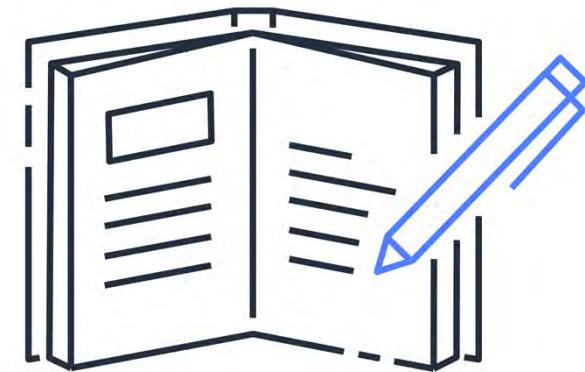


# Module 4 objectives

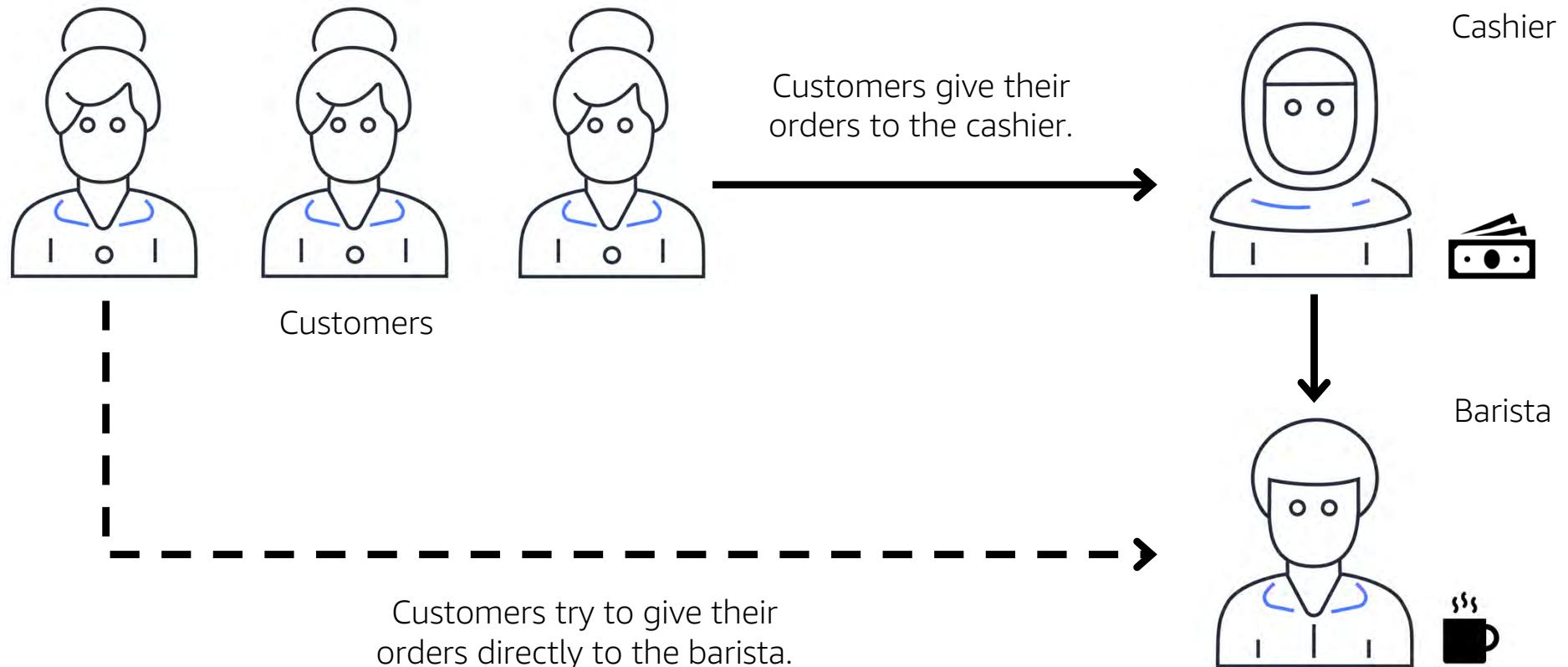


In this module, you will learn how to:

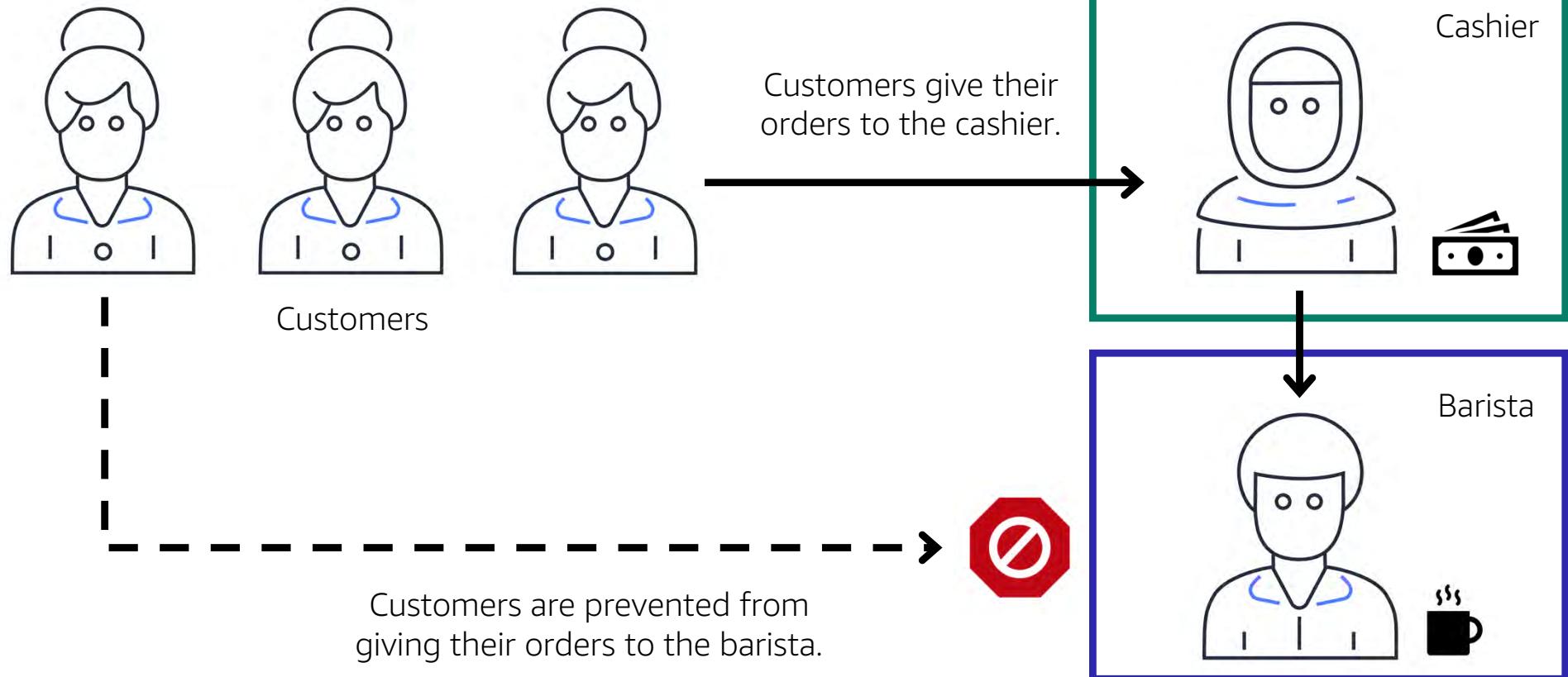
- Describe basic networking concepts
- Describe the differences between public and private networking resources
- Explain a virtual private gateway using a real-life scenario
- Explain a VPN using a real-life scenario
- Describe AWS Direct Connect benefits
- Describe hybrid deployment benefits
- Describe the layers of security in an IT strategy
- Describe the services customers use to interact with the AWS global network



# Traffic in the coffee shop



# Traffic in the coffee shop



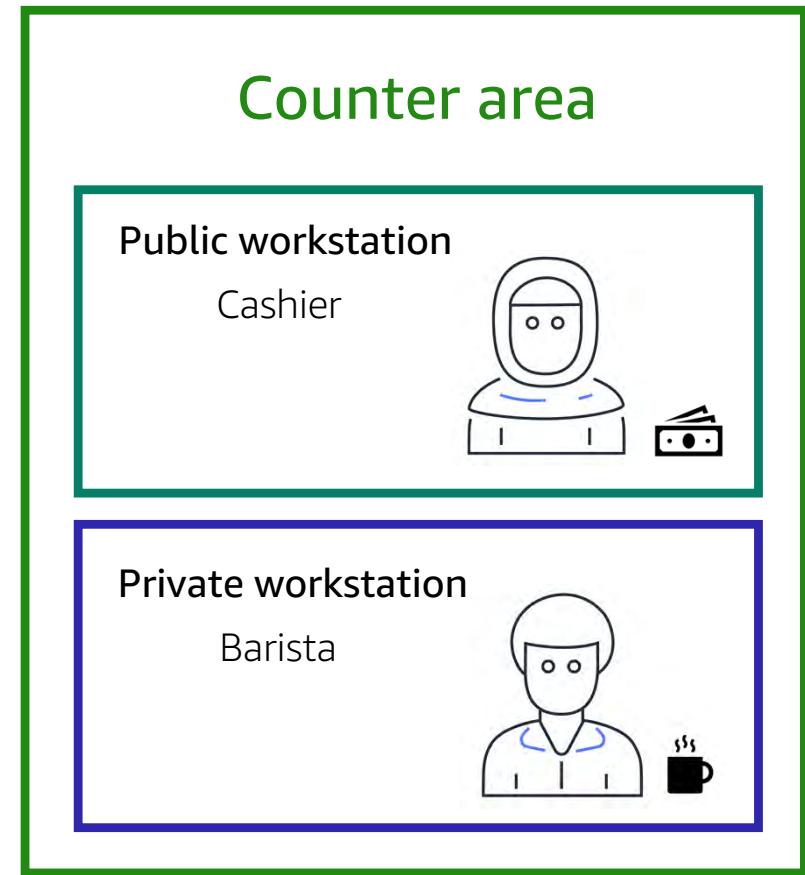
# Amazon Virtual Private Cloud (Amazon VPC)

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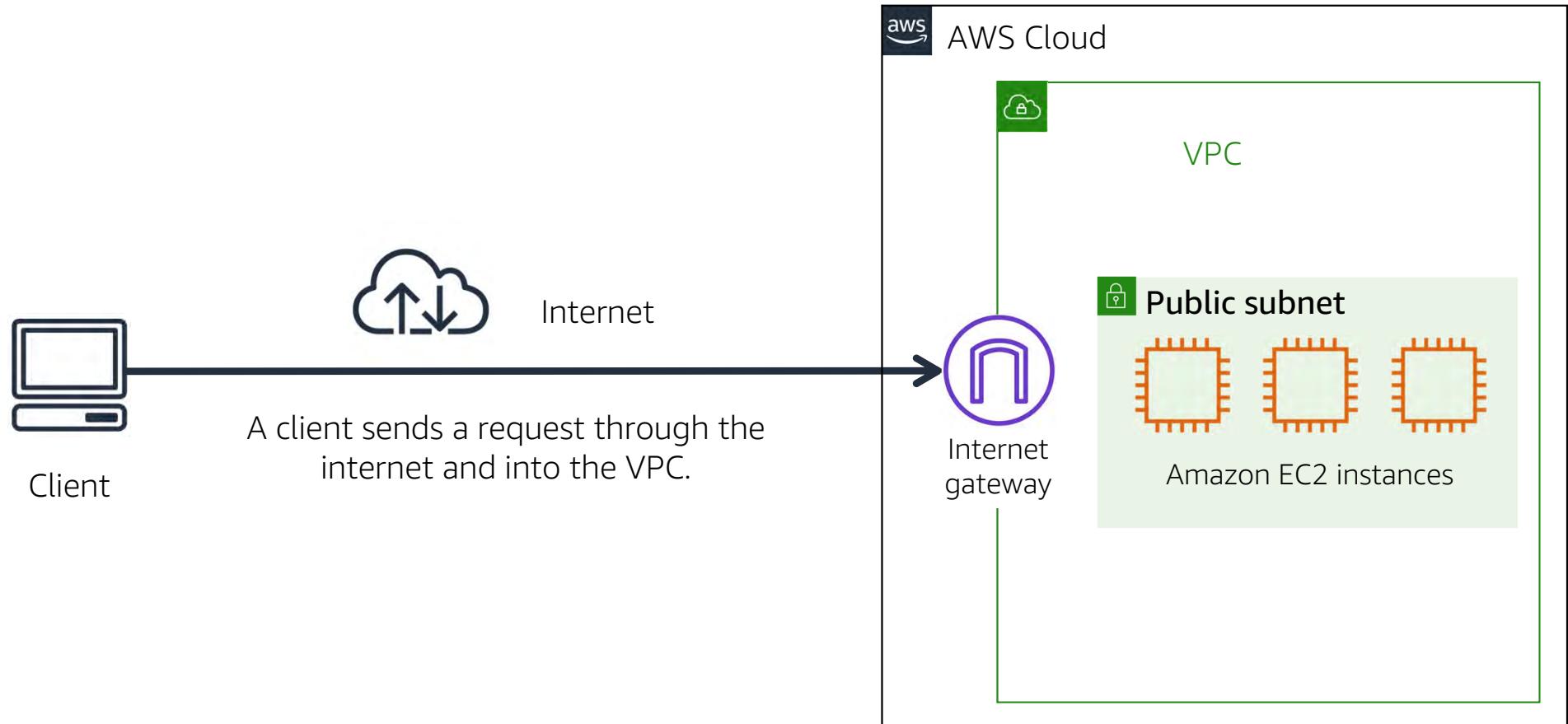




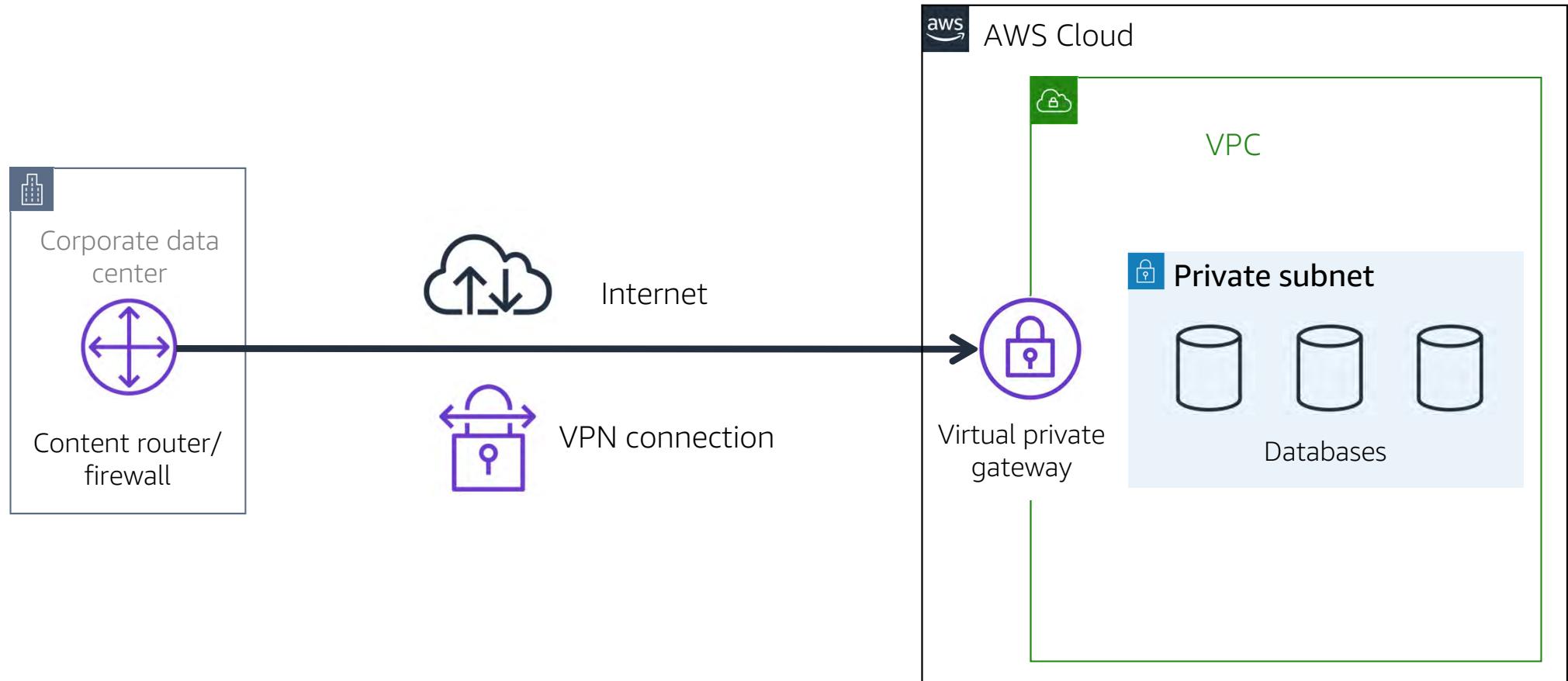
**Amazon Virtual Private Cloud (Amazon VPC)** enables you to launch resources in a virtual network that you define.



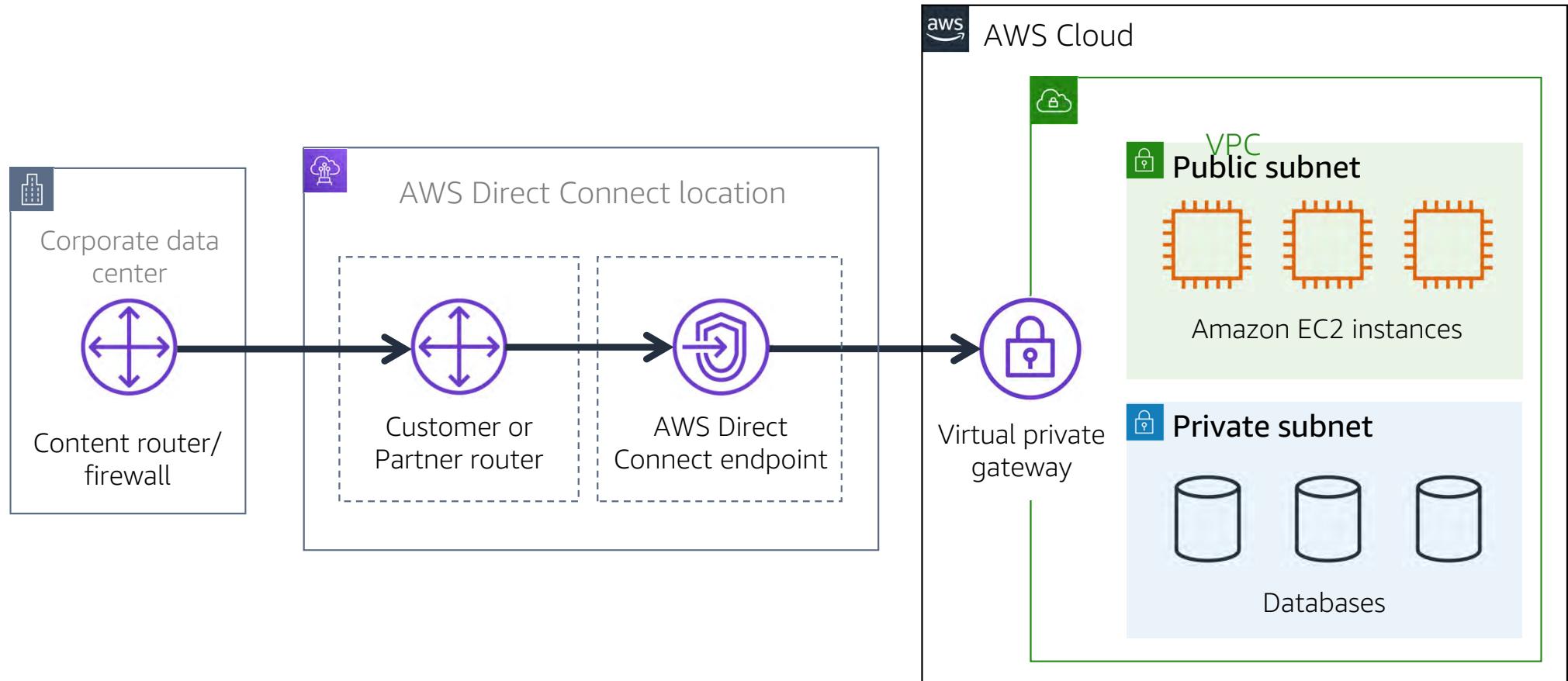
# Internet gateway



# Virtual private gateway



# AWS Direct Connect



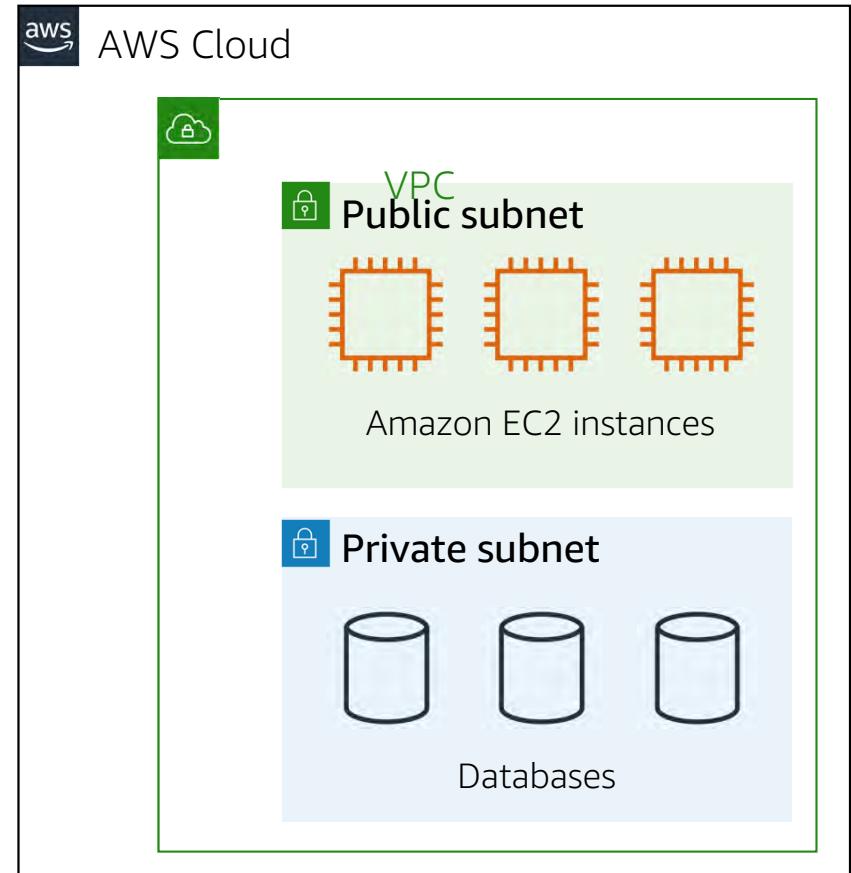
# Subnets



## A **subnet**

is a section in a VPC in which you can place groups of isolated resources.

A subnet can be public or private.



# Match: VPC components



1. Isolate databases containing customers' personal information
2. Create a VPN connection between the VPC and the internal corporate network
3. Support a customer-facing website
4. Establish a dedicated connection between an on-premises data center and the VPC

A. Public subnet

B. Private subnet

C. Virtual private gateway

D. AWS Direct Connect

# Match: VPC components



1. Isolate databases containing customers' personal information

A. Public subnet

2. Create a VPN connection between the VPC and the internal corporate network

B. Private subnet

3. Support a customer-facing website

C. Virtual private gateway

4. Establish a dedicated connection between an on-premises data center and the VPC

D. AWS Direct Connect

# Match: VPC components



1. Isolate databases containing customers' personal information

A. Public subnet

2. Create a VPN connection between the VPC and the internal corporate network

B. Private subnet

3. Support a customer-facing website

C. Virtual private gateway

4. Establish a dedicated connection between an on-premises data center and the VPC

D. AWS Direct Connect

# Match: VPC components



1. Isolate databases containing customers' personal information

A. Public subnet

2. Create a VPN connection between the VPC and the internal corporate network

B. Private subnet

3. Support a customer-facing website

C. Virtual private gateway

4. Establish a dedicated connection between an on-premises data center and the VPC

D. AWS Direct Connect

# Match: VPC components

1. Isolate databases containing customers' personal information

A. Public subnet

2. Create a VPN connection between the VPC and the internal corporate network

B. Private subnet

3. Support a customer-facing website

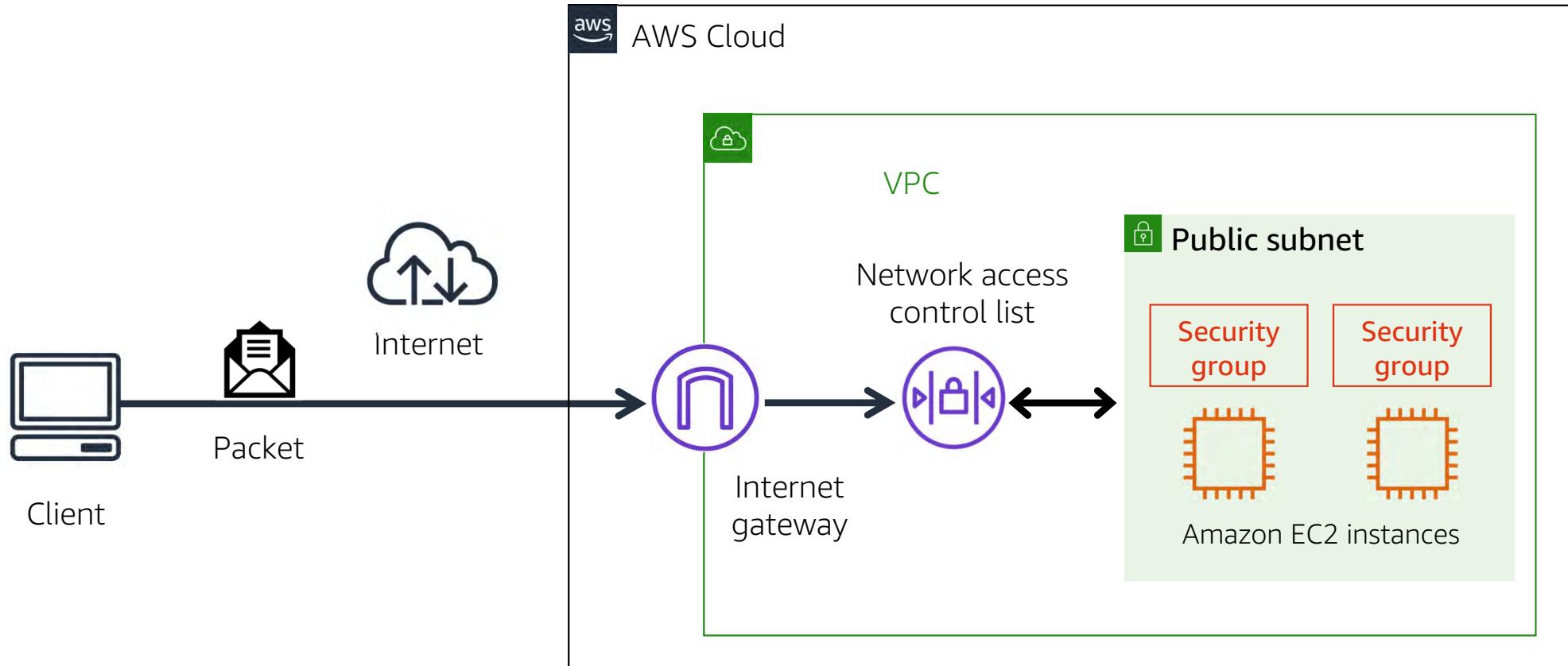
C. Virtual private gateway

4. Establish a dedicated connection between an on-premises data center and the VPC

D. AWS Direct Connect

# Network access control lists and security groups

# Network traffic in a VPC

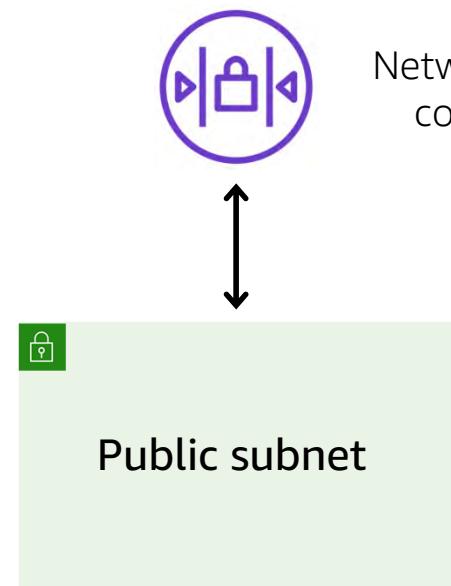


# Network access control lists



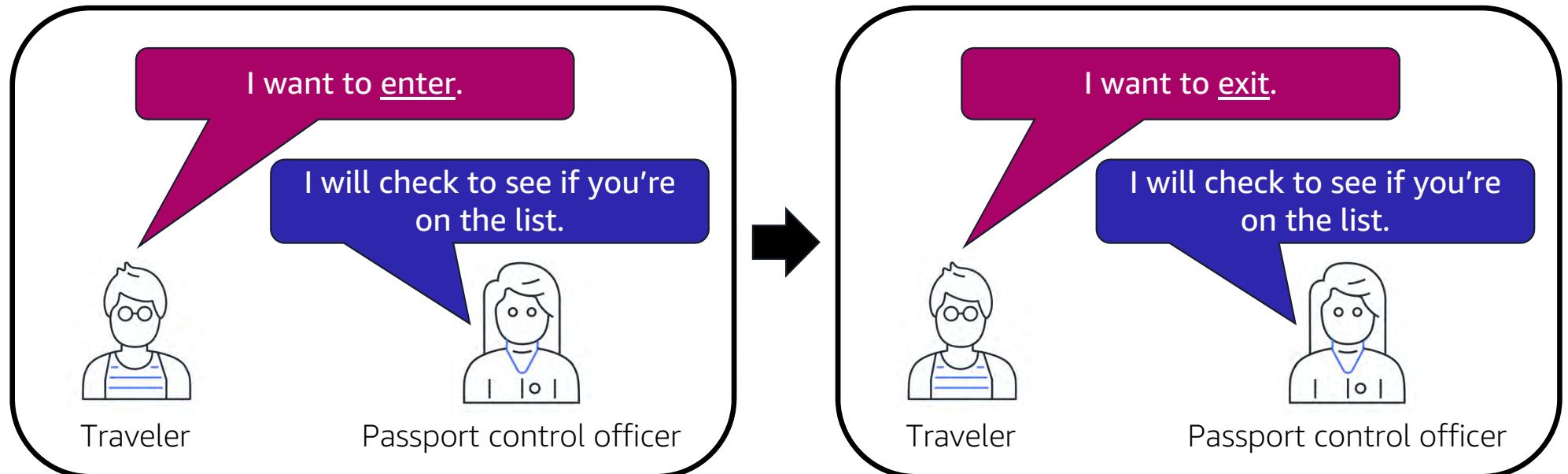
A **network access control list (network ACL)** is a virtual firewall for a subnet. By default:

- The default network ACL allows all inbound and outbound traffic.
- Custom network ACLs deny all inbound and outbound traffic.



# Stateless packet filtering

- Network ACLs perform **stateless** packet filtering.
- Before a packet can exit a subnet, it must be checked against the outbound rules.



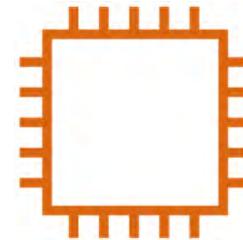
# Security groups



A **security group** is a virtual firewall for an Amazon EC2 instance.

By default, a security group denies all inbound traffic and allows all outbound traffic.

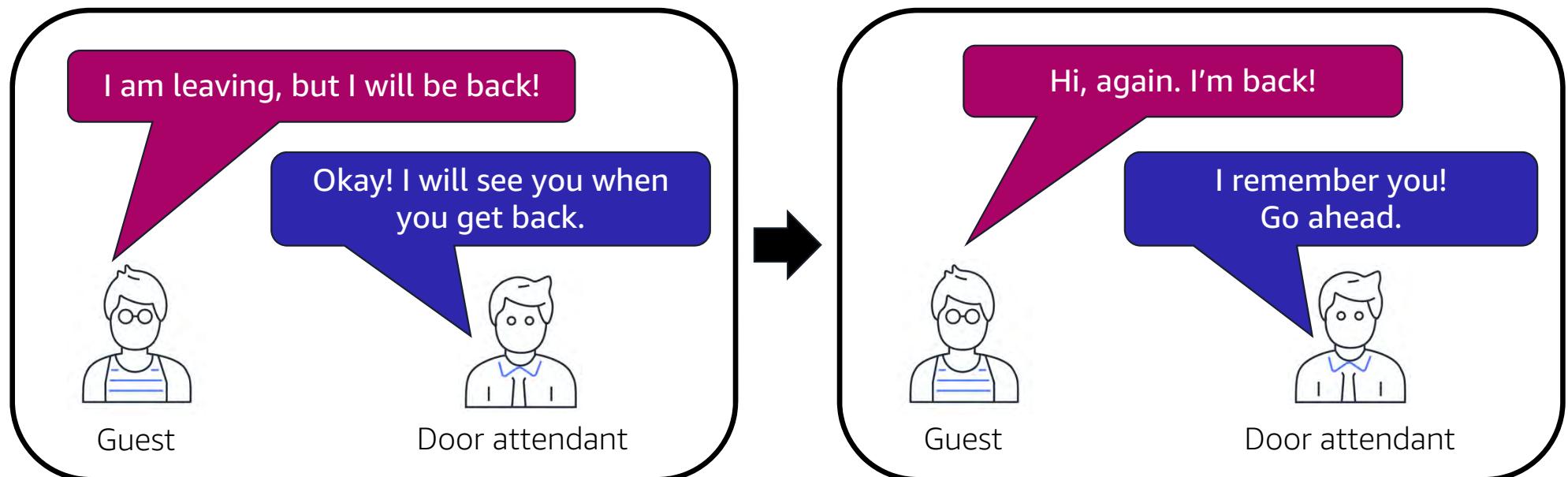
**Security group**



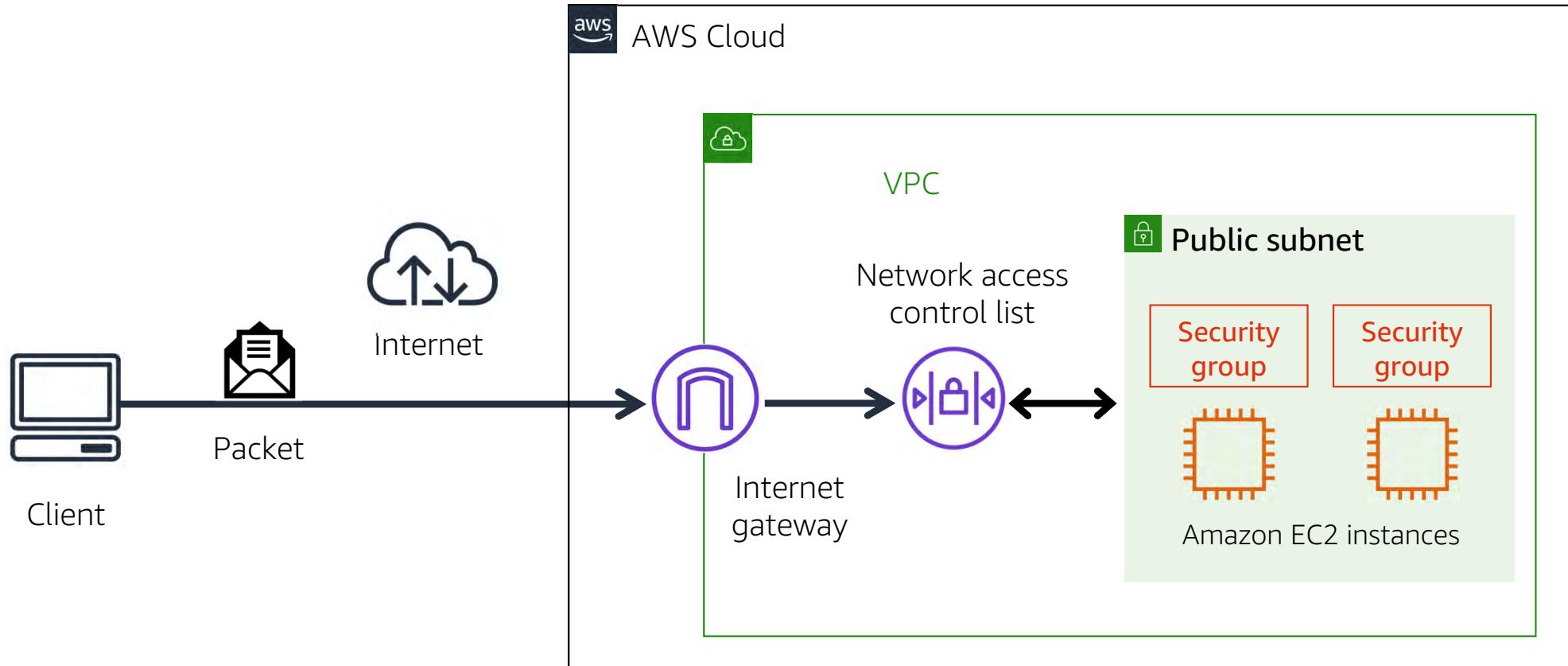
Amazon EC2 instance

# Stateful packet filtering

- Security groups perform **stateful** packet filtering.
- They remember previous decisions that were made for incoming packets.



# Network traffic in a VPC



# Knowledge check



What are the differences between network access control lists and security groups?

# Knowledge check

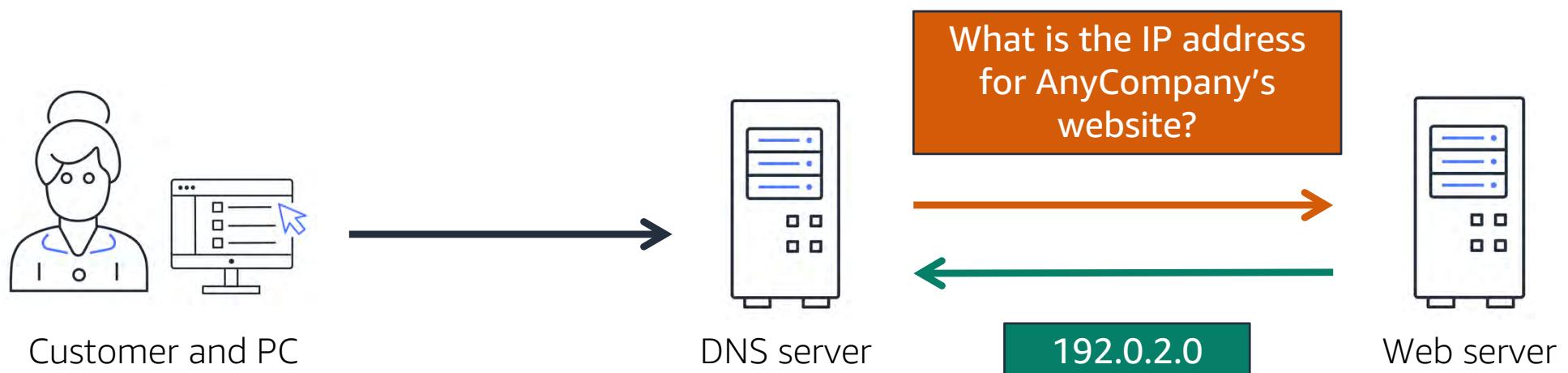


143

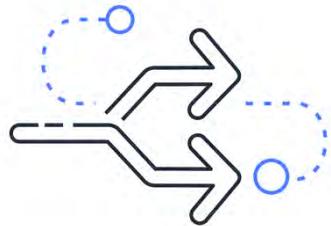
- Network access control lists are virtual firewalls for subnets. They perform stateless packet filtering.
- Security groups are virtual firewalls for Amazon EC2 instances. They perform stateful packet filtering.

# Interact with the AWS global network

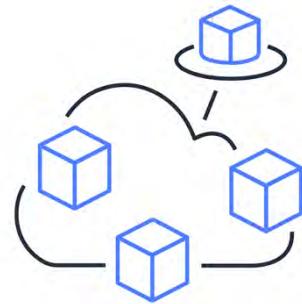
# Domain Name System (DNS)



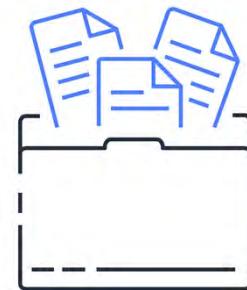
# Amazon Route 53



Route users to internet applications

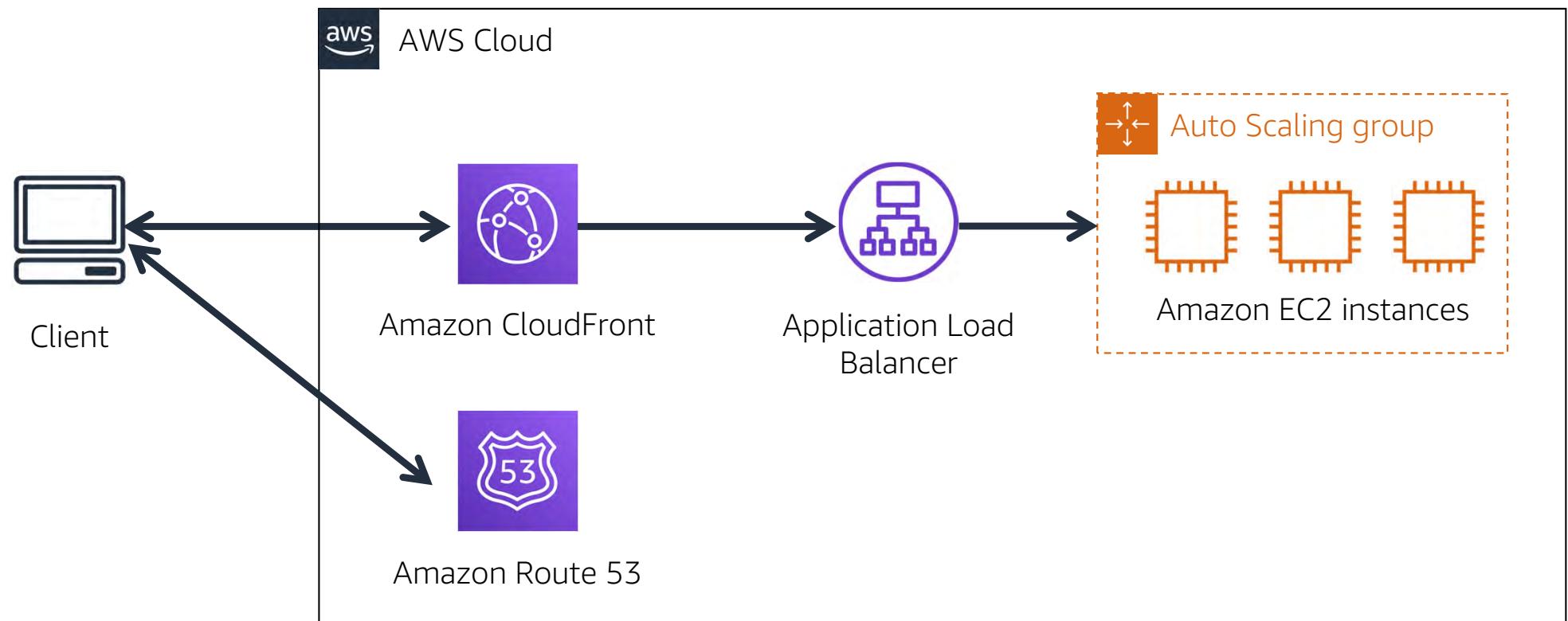


Connect user requests to infrastructure in AWS and outside of AWS



Manage DNS records for domain names

# Amazon Route 53 and CloudFront



Module 4

# Knowledge check

# Knowledge check question 1



149

Which component can be used to establish a private dedicated connection between a company's data center and AWS?

- A. Private subnet
- B. DNS
- C. AWS Direct Connect
- D. Virtual private gateway

# Knowledge check answer 1



150

Which component can be used to establish a private dedicated connection between a company's data center and AWS?

- A. Private subnet
- B. DNS
- C. **AWS Direct Connect (correct)**
- D. Virtual private gateway

## Knowledge check question 2



151

Which statement describes security groups?

- A. They are stateful and allow all inbound traffic by default.
- B. They are stateful and deny all inbound traffic by default.
- C. They are stateless and allow all inbound traffic by default.
- D. They are stateless and deny all inbound traffic by default.

# Knowledge check answer 2



152



Which statement describes security groups?

- A. They are stateful and allow all inbound traffic by default.
- B. **They are stateful and deny all inbound traffic by default. (correct)**
- C. They are stateless and allow all inbound traffic by default.
- D. They are stateless and deny all inbound traffic by default.

## Knowledge check question 3



Which component is used to connect a VPC to the internet?

- A. Internet gateway
- B. Public subnet
- C. Edge location
- D. Security group

# Knowledge check answer 3



154

Which component is used to connect a VPC to the internet?

- A. **Internet gateway (correct)**
- B. Public subnet
- C. Edge location
- D. Security group

## Knowledge check question 4



155



Which service is used to manage the DNS records for domain names?

- A. Amazon Virtual Private Cloud
- B. AWS Direct Connect
- C. Amazon CloudFront
- D. Amazon Route 53

## Knowledge check answer 4



156

Which service is used to manage the DNS records for domain names?

- A. Amazon Virtual Private Cloud
- B. AWS Direct Connect
- C. Amazon CloudFront
- D. **Amazon Route 53 (correct)**

# Knowledge check question 5



157



Which statement describes DNS resolution?

- A. Launching resources in a customer-defined virtual network
- B. Storing local copies of content at edge locations around the world
- C. Connecting a VPC to the internet
- D. Translating a domain name to an IP address

# Knowledge check answer 5



158



Which statement describes DNS resolution?

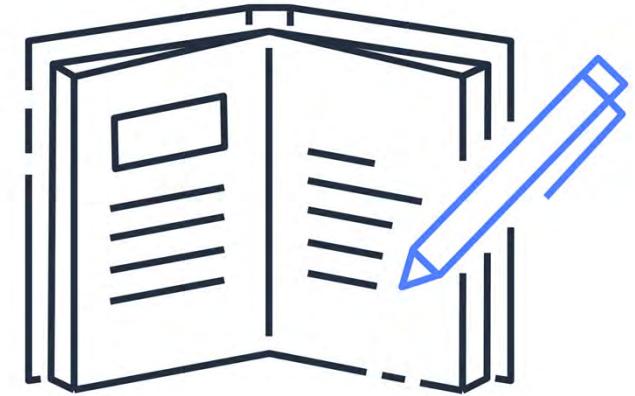
- A. Launching resources in a customer-defined virtual network
- B. Storing local copies of content at edge locations around the world
- C. Connecting a VPC to the internet
- D. **Translating a domain name to an IP address (correct)**

# Module 4 summary



In this module, you learned about:

- Structuring and connecting to a VPC
- Securing VPC resources with network access control lists and security groups
- Using Amazon Route 53 and Amazon CloudFront to deliver content



Module 5

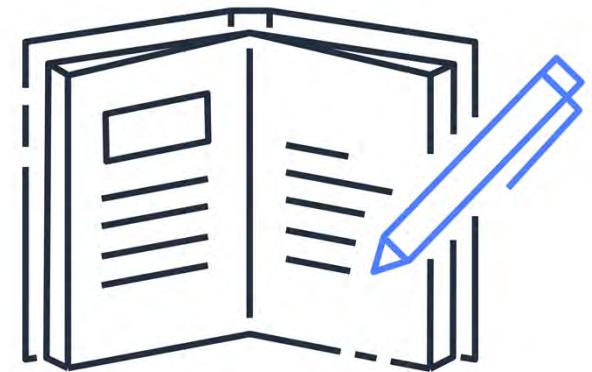
# Storage and Databases



# Module 5 objectives

In this module, you will learn how to:

- Summarize the basic concept of storage and databases
- Describe Amazon Elastic Block Store (Amazon EBS) benefits
- Describe Amazon Simple Storage Service (Amazon S3) benefits
- Describe Amazon Elastic File System (Amazon EFS) benefits
- Summarize various storage solutions
- Describe Amazon Relational Database Service (Amazon RDS) benefits
- Describe Amazon DynamoDB benefits
- Summarize various database services

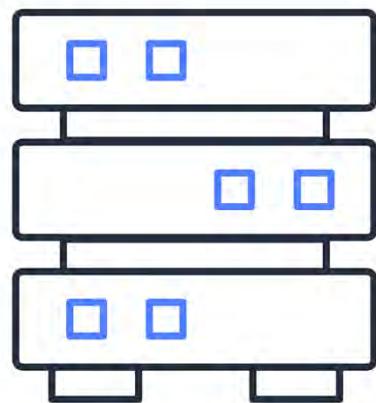


# AWS storage

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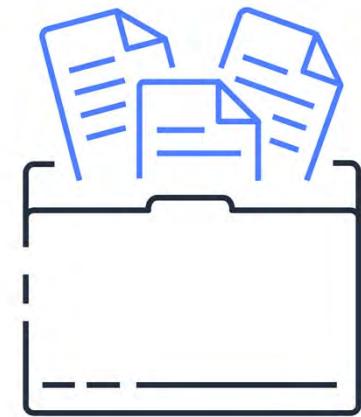
# AWS storage types



Block storage



Object storage

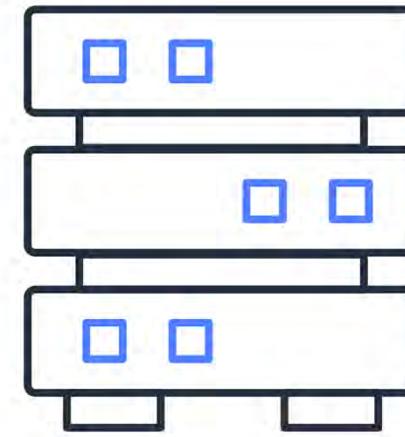


File storage

# Block storage



- In **block storage**, files are separated into equal-sized pieces (blocks) of data.
- Block storage is used for applications that run on Amazon EC2 instances.



Block storage

# Instance store



An Amazon EC2 instance  
with an attached  
instance store is running.

The instance is stopped or  
terminated.

All data on the attached  
instance store  
is deleted.

# Amazon EBS volumes



An Amazon EC2 instance  
with an attached  
EBS volume is running.

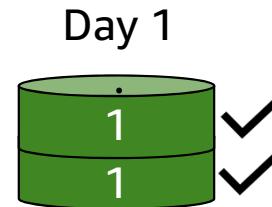
The instance is stopped or  
terminated. (If terminated, the  
EBS volume is removed by  
default.)

All data on the attached  
EBS volume remains  
available.

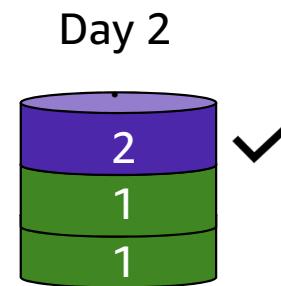
# Amazon EBS snapshots



EBS volume  
(source data)

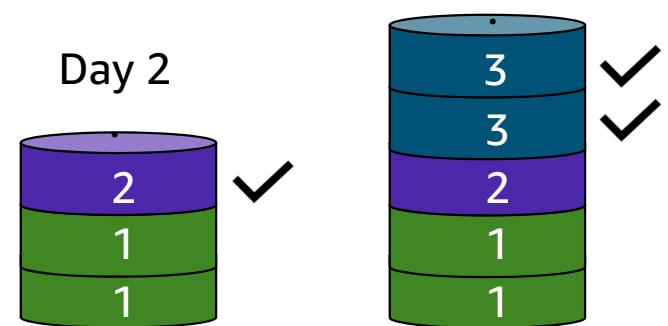


All data is backed up.



EBS snapshots

Day 2



Only data that has changed since the most recent snapshot is backed up.

# Knowledge check



What are the differences between instance stores and Amazon EBS volumes?

# Knowledge check

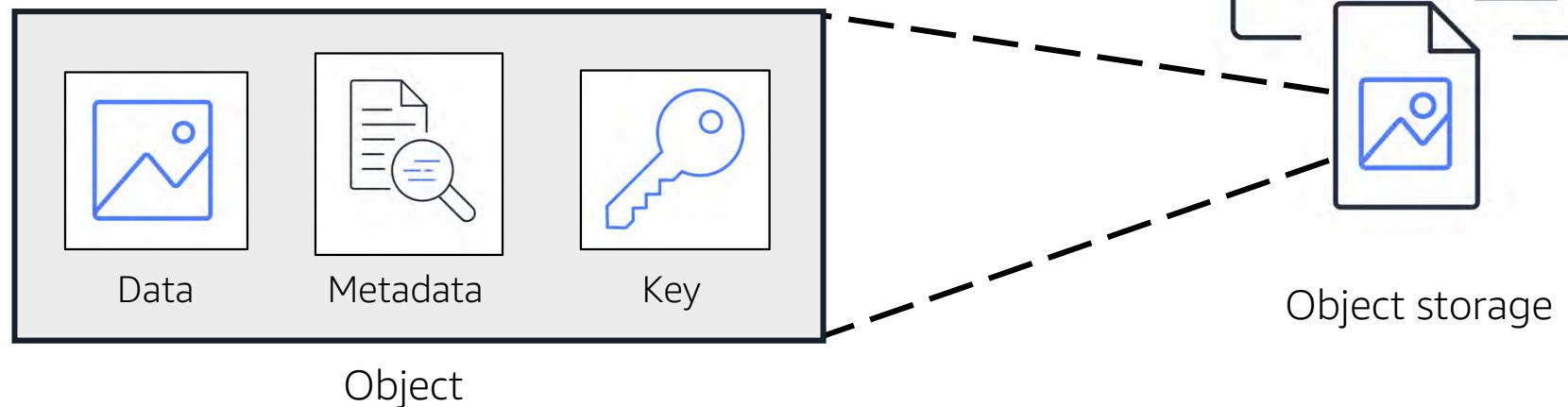


- Instance stores are ideal for temporary data not kept long term.
- Amazon EBS volumes are ideal for data that requires retention.

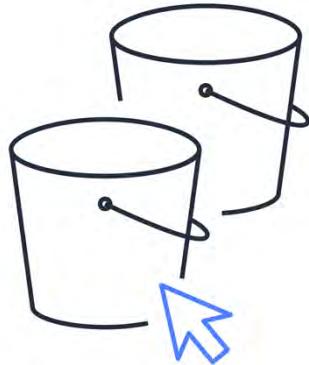
# Object storage



In **object storage**, each object consists of data, metadata, and a key.



# Amazon Simple Storage Service



Store objects in buckets



Set permissions to control  
access to objects



Choose from a range of  
storage classes for  
different use cases

# Amazon S3 storage classes



## S3 Standard

- Designed for frequently accessed data
- Stores data in a minimum of three Availability Zones

## S3 Standard-IA

- Ideal for infrequently accessed data
- Similar to S3 Standard but has a lower storage price and higher retrieval price

## S3 One Zone-IA

- Stores data in a single Availability Zone
- Has a lower storage price than S3 Standard-IA

# Amazon S3 storage classes



## S3 Intelligent-Tiering

- Ideal for data with unknown or changing access patterns
- Requires a small monthly monitoring and automation fee per object

## S3 Glacier

- Low-cost storage designed for data archiving
- Able to retrieve objects within a few minutes to hours

## S3 Glacier Deep Archive

- Lowest-cost object storage class
- Able to retrieve objects within 12 hours

# Knowledge check



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You want to store data that is infrequently accessed but must be immediately available when needed. Which Amazon S3 storage class should you use?

- A. S3 Intelligent-Tiering
- B. S3 Glacier Deep Archive
- C. S3 Standard-IA
- D. S3 Glacier

# Knowledge check

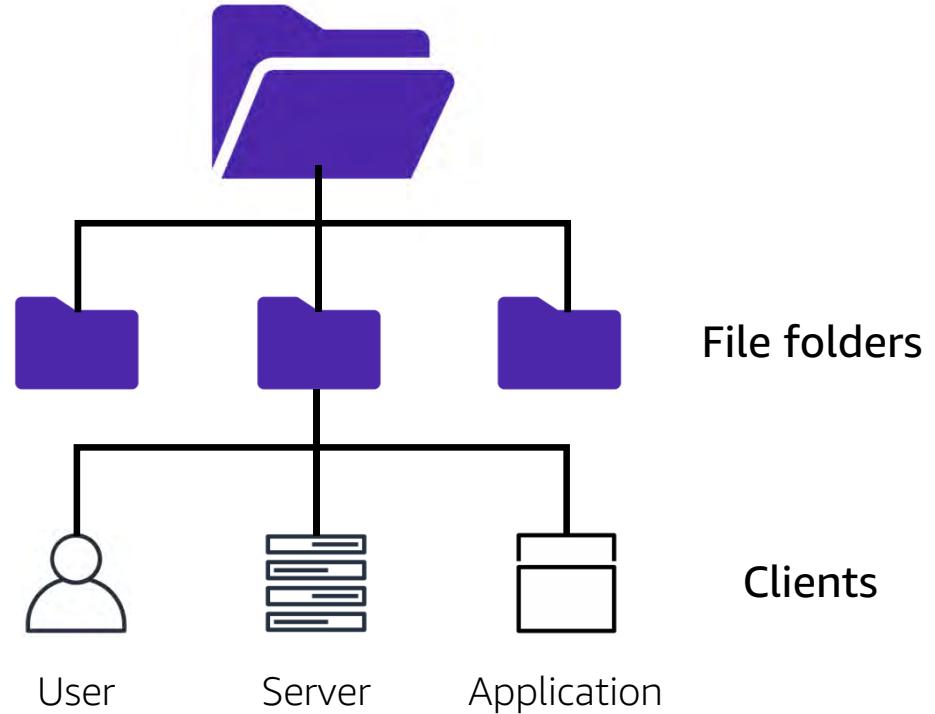


You want to store data that is infrequently accessed but must be immediately available when needed. Which Amazon S3 storage class should you use?

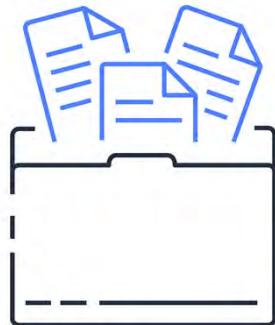
- A. S3 Intelligent-Tiering
- B. S3 Glacier Deep Archive
- C. **S3 Standard-IA (correct)**
- D. S3 Glacier

# File storage

In **file storage**, multiple clients can access data that is stored in shared file folders.



# Amazon Elastic File System



Store data in a scalable  
file system



Provide data to thousands  
of Amazon EC2 instances  
concurrently



Store data in and across  
multiple Availability  
Zones

# AWS databases

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# Database types



## Relational database

ID	Product name	Size	Price
1	Medium roast ground coffee	12 oz.	\$5.30
2	Dark roast ground coffee	20 oz.	\$9.27

## Nonrelational database

Key	Value
1	<b>Name:</b> John Doe <b>Address:</b> 123 Any Street <b>Favorite drink:</b> Medium latte
2	<b>Name:</b> Mary Major <b>Address:</b> 100 Main Street <b>Birthday:</b> July 5, 1994

# Relational databases

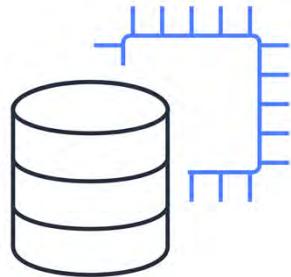


- In a **relational database**, data is stored in a way that relates it to other pieces of data.
- Relational databases use **structured query language (SQL)** to store and query data.

ID	Product name	Size	Price
1	Medium roast ground coffee	12 oz.	\$5.30
2	Dark roast ground coffee	20 oz.	\$9.27

Example of data in a relational database

# Amazon Relational Database Service



Operate and scale a relational database in the AWS Cloud



Automate time-consuming administrative tasks



Store and transmit data securely

# Amazon RDS database engines



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



Amazon RDS

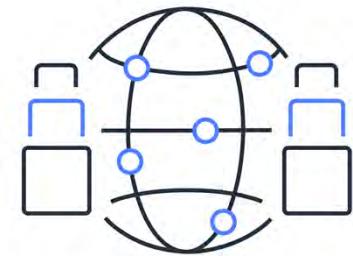
# Amazon Aurora



Store data in an enterprise-class relational database



Reduce database costs by eliminating unnecessary input/output (I/O) operations



Replicate six copies of data across three Availability Zones

# Discussion

184



One of the employees at the coffee shop has an idea for the new inventory management system.

They believe they should maintain data in a text file in Amazon S3.

Do you agree with their suggestion?

Why or why not?

# Nonrelational databases

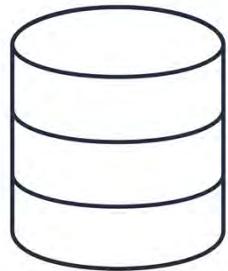


- A **nonrelational database** uses structures other than rows and columns to organize data.
- For example, with **key-value pairs**, data is organized into items (keys), and items have attributes (values).

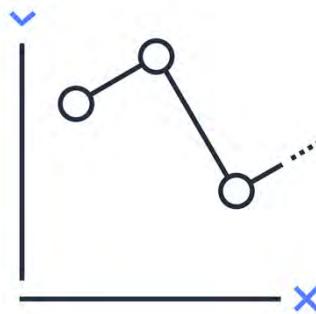
Key	Value
1	Name: John Doe Address: 123 Any Street Favorite drink: Medium latte
2	Name: Mary Major Address: 100 Main Street Birthday: July 5, 1994

Example of data in a nonrelational database

# Amazon DynamoDB



**Amazon DynamoDB** is a serverless key-value database.



It automatically scales to adjust for capacity changes and maintain consistent performance.



It is designed to handle over 10 trillion requests per day.

# AWS Database Migration Service



Migrate relational databases, nonrelational databases, and other types of data stores

## Example



MySQL database  
**(Source)**

AWS Database  
Migration Service  
(AWS DMS)

Amazon Aurora  
**(Target)**

# Amazon RDS and Amazon DynamoDB



For each scenario, should you use **Amazon RDS** or **Amazon DynamoDB**?

Amazon RDS

1. Storing data in a relational database

DynamoDB

2. Running a serverless database

DynamoDB

3. Storing data in a key-value database

Amazon RDS

4. Using SQL to organize data

DynamoDB

5. Scaling up to 10 trillion requests per day

Amazon RDS

6. Storing data in an Amazon Aurora database

# Additional database services

# Additional database services



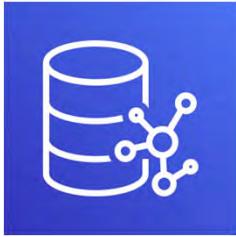
## Amazon Redshift

Query and analyze data across a data warehouse



## Amazon DocumentDB

Run MongoDB workloads in a document database service



## Amazon Neptune

Run applications that use highly connected datasets



## Amazon QLDB

Review a complete history of changes to your application data

# Additional database services



## Amazon Managed Blockchain

Run a decentralized ledger database



## Amazon ElastiCache

Add caching layers to improve database read times



## Amazon DynamoDB Accelerator

Improve DynamoDB response times from single-digit milliseconds to microseconds

Module 5

# Knowledge check

# Knowledge check question 1



193



Which Amazon S3 storage classes  
are optimized for archival data?  
(Select TWO.)

- A. S3 Standard
- B. S3 Glacier
- C. S3 Intelligent-Tiering
- D. S3 Glacier Deep Archive
- E. S3 Standard-IA

# Knowledge check answer 1



Which Amazon S3 storage classes are optimized for archival data?  
(Select TWO.)

- A. S3 Standard
- B. **S3 Glacier (correct)**
- C. S3 Intelligent-Tiering
- D. **S3 Glacier Deep Archive (correct)**
- E. S3 Standard-IA

## Knowledge check question 2



Which option is TRUE about Amazon EBS volumes and Amazon EFS file systems?

- A. EBS volumes store data in a single Availability Zone. Amazon EFS file systems store data across multiple Availability Zones.
- B. EBS volumes store data across multiple Availability Zones. Amazon EFS file systems store data in a single Availability Zone.
- C. EBS volumes and Amazon EFS file systems both store data in a single Availability Zone.
- D. EBS volumes and Amazon EFS file systems both store data across multiple Availability Zones.

# Knowledge check answer 2



196



Which option is TRUE about Amazon EBS volumes and Amazon EFS file systems?

- A. EBS volumes store data in a single Availability Zone. Amazon EFS file systems store data across multiple Availability Zones. (correct)
- B. EBS volumes store data across multiple Availability Zones. Amazon EFS file systems store data in a single Availability Zone.
- C. EBS volumes and Amazon EFS file systems both store data in a single Availability Zone.
- D. EBS volumes and Amazon EFS file systems both store data across multiple Availability Zones.

# Knowledge check question 3



197



A customer wants to store data in an object storage service. Which AWS service should the customer use for this type of storage?

- A. Amazon Managed Blockchain
- B. Amazon Elastic File System (Amazon EFS)
- C. Amazon Elastic Block Store (Amazon EBS)
- D. Amazon Simple Storage Service (Amazon S3)

## Knowledge check answer 3



A customer wants to store data in an object storage service. Which AWS service should the customer use for this type of storage?

- A. Amazon Managed Blockchain
- B. Amazon Elastic File System (Amazon EFS)
- C. Amazon Elastic Block Store (Amazon EBS)
- D. **Amazon Simple Storage Service (Amazon S3) (correct)**

# Knowledge check question 4



199



Which statement describes Amazon DynamoDB?

- A. A service that allows customers to run relational databases in the AWS Cloud
- B. A serverless key-value database service
- C. A service that customers can use to migrate relational databases, nonrelational databases, and other types of data stores
- D. An enterprise-class relational database

# Knowledge check answer 4



200



Which statement describes Amazon DynamoDB?

- A. A service that allows customers to run relational databases in the AWS Cloud
- B. **A serverless key-value database service (correct)**
- C. A service that customers can use to migrate relational databases, nonrelational databases, and other types of data stores
- D. An enterprise-class relational database

# Knowledge check question 5



201



Which service is used to query and analyze data across a data warehouse?

- A. Amazon Neptune
- B. Amazon DocumentDB
- C. Amazon ElastiCache
- D. Amazon Redshift

# Knowledge check answer 5



202

Which service is used to query and analyze data across a data warehouse?

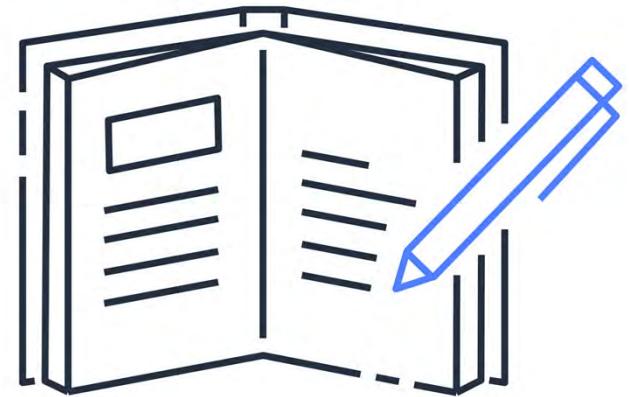
- A. Amazon Neptune
- B. Amazon DocumentDB
- C. Amazon ElastiCache
- D. **Amazon Redshift (correct)**

# Module 5 summary



In this module, you learned about:

- AWS storage services and resources
- Amazon S3 storage classes
- AWS database services



Module 6

# Security

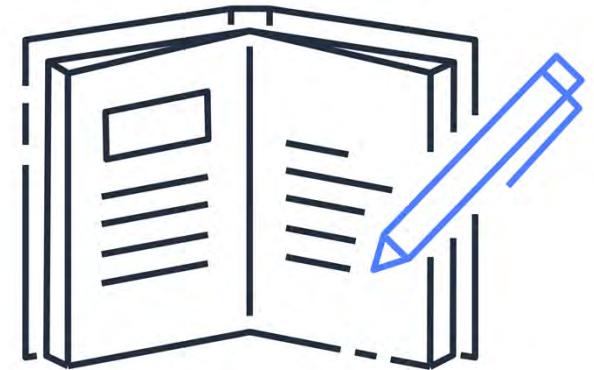


# Module 6 objectives



In this module, you will learn how to:

- Explain the benefits of the shared responsibility model
- Describe multi-factor authentication (MFA)
- Differentiate among the AWS Identity and Access Management (IAM) security levels
- Explain AWS Organizations benefits
- Describe security policies
- Summarize the benefits of compliance with AWS
- Explain additional AWS security services



# Shared responsibility model

# Shared responsibility model



Customers	Customer Data		
	Platform, Applications, Identity and Access Management		
	Operating Systems, Network and Firewall Configuration		
	Client-side Data Encryption	Server-side Encryption	Networking Traffic Protection

AWS	Software				
	Compute	Storage	Database	Networking	
	Hardware/AWS Global Infrastructure				
	Regions		Availability Zones	Edge Locations	

# Customers: Security IN the cloud



Customers	Customer Data		
	Platform, Applications, Identity and Access Management		
	Operating Systems, Network and Firewall Configuration		
	Client-side Data Encryption	Server-side Encryption	Networking Traffic Protection

Examples of customer responsibilities include:

- Instance operating system
- Applications
- Security groups
- Host-based firewalls
- Account management

# AWS: Security OF the cloud



AWS	Software			
	Compute	Storage	Database	Networking
	Hardware/AWS Global Infrastructure			
	Regions		Availability Zones	
	Edge Locations			

Examples of AWS responsibilities include:

- Physical security of data centers
- Hardware and software infrastructure
- Network infrastructure
- Virtualization infrastructure

# Review: Shared responsibility model



Are these tasks the responsibilities of **customers** or **AWS**?

Customers

1. Configuring security groups on Amazon EC2 instances

AWS

3. Implementing physical security controls at data centers

AWS

5. Maintaining servers that run Amazon EC2 instances

AWS

2. Maintaining network infrastructure

Customers

4. Patching software on Amazon EC2 instances

Customers

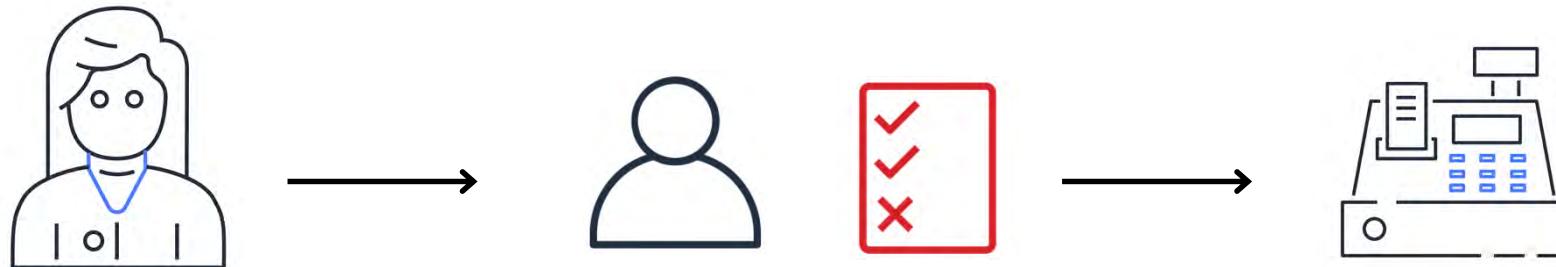
6. Setting permissions for Amazon S3 objects

# AWS Identity and Access Management (IAM)

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# Security in the coffee shop



A new cashier begins working at the coffee shop.

The cashier is given an account that has permission to access the point of sale system.

The cashier uses their account to access the point of sale system.



AWS Identity and Access Management (IAM) allows you to manage access to AWS services and resources.

## IAM features



IAM user



IAM policy



IAM group

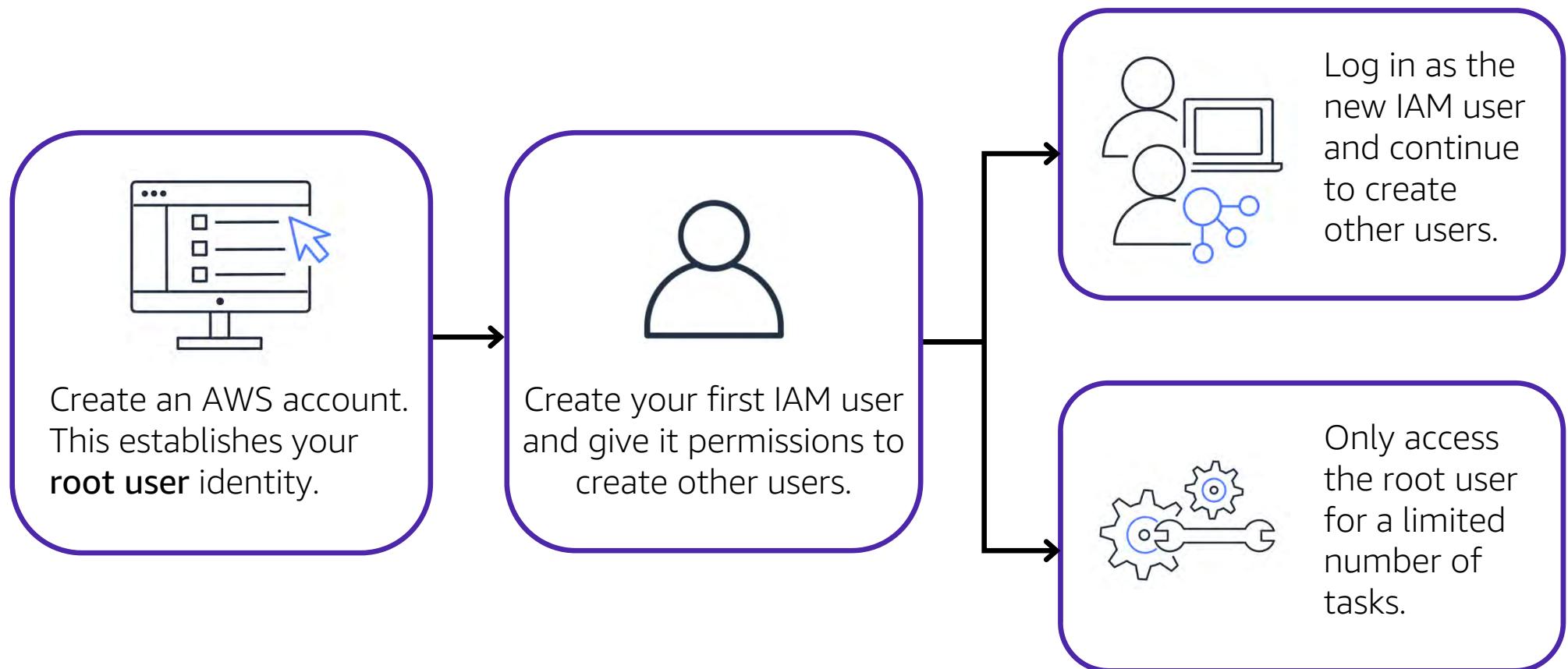


IAM role



Multi-factor authentication

# AWS account root user



# IAM users



An **IAM user** is an identity that represents a person or application that interacts with AWS services and resources.

**Best practice:** Create individual IAM users for each person who needs to access AWS.



IAM user

# IAM policies



An **IAM policy** is a document that grants or denies permissions to AWS services and resources.

**Best practice:** Follow the security principle of least privilege.



IAM policy

# Example: IAM policy



This sample IAM policy allows permission to access the objects in the Amazon S3 bucket with ID:  
*awsdoc-example-bucket*.

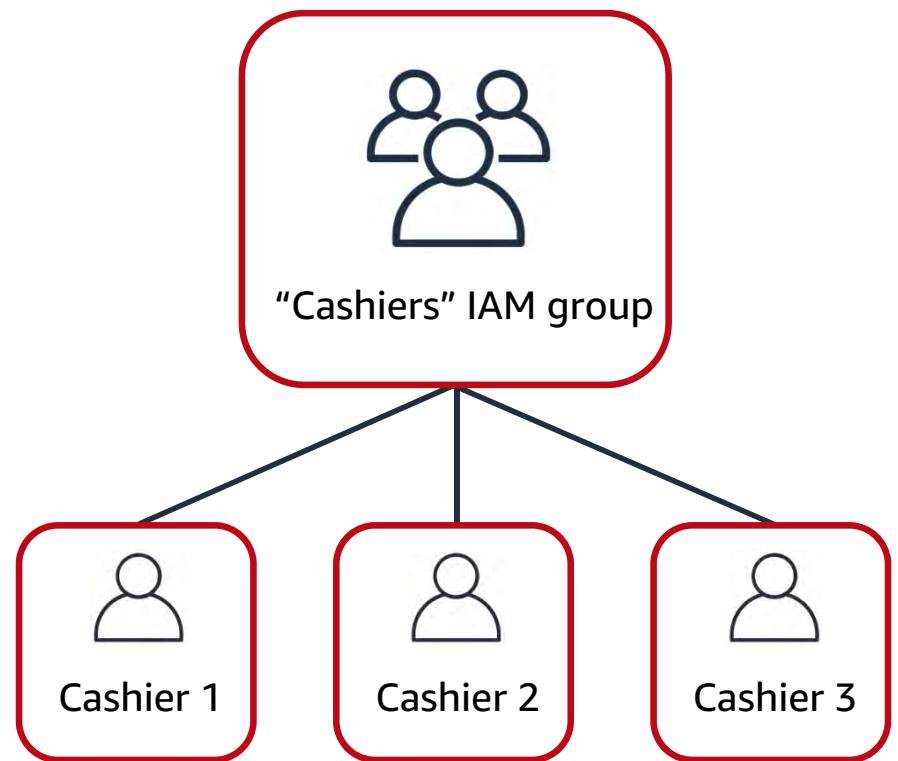
```
{  
  "Version": "2012-10-17",  
  "Statement": {  
    "Effect": "Allow",  
    "Action": "s3>ListObject",  
    "Resource": "arn:aws:s3:::  
awsdoc-example-bucket"  
  }  
}
```

# IAM groups

An **IAM group** is a collection of IAM users.

**Best practice:** Attach IAM policies to IAM groups, rather than to individual IAM users.

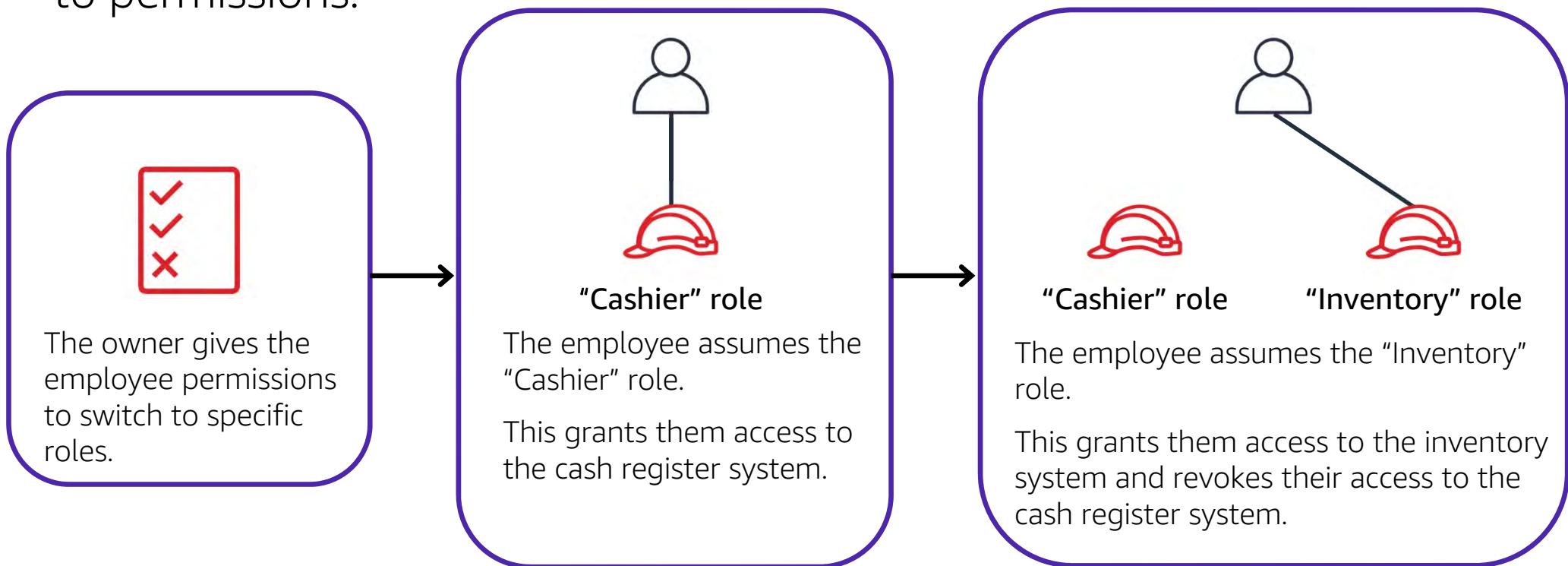
Members inherit the policies assigned to the group.



# IAM roles



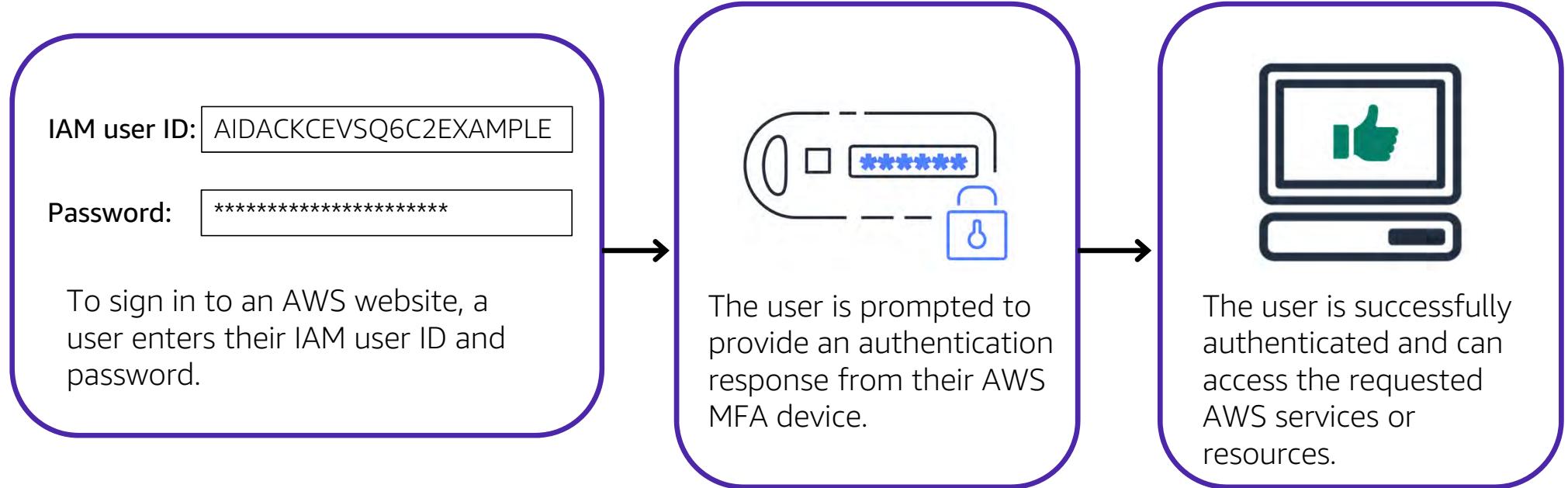
An **IAM role** is an identity that you can assume to gain temporary access to permissions.



# Multi-factor authentication



**Multi-factor authentication** provides an extra layer of protection for your AWS account.



# AWS Organizations

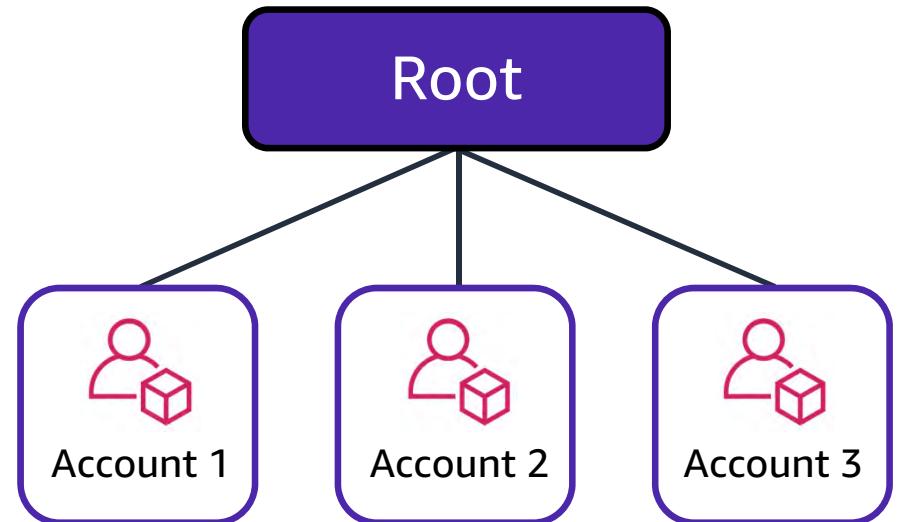
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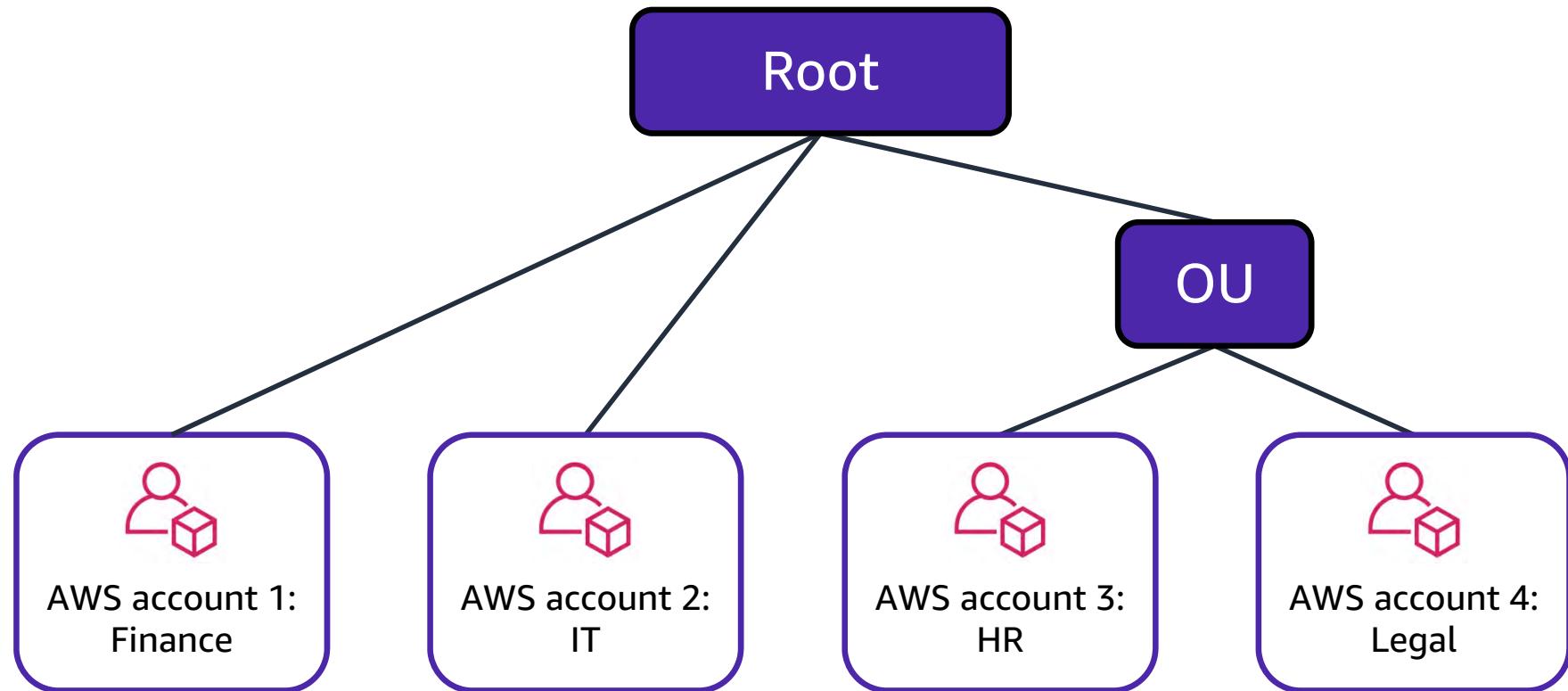
# AWS Organizations



- **AWS Organizations** helps customers consolidate and manage multiple AWS accounts in a central location.
- Use **service control policies (SCPs)** to centrally control permissions for the accounts in your organization.



# Example: Organizational units



# Knowledge check



224



A customer is configuring service control policies (SCPs) in AWS Organizations. Which identities and resources can SCPs be applied to? (Select TWO.)

- A. IAM users
- B. IAM groups
- C. An individual member account
- D. IAM roles
- E. An organizational unit (OU)

# Knowledge check



225



A customer is configuring service control policies (SCPs) in AWS Organizations. Which identities and resources can SCPs be applied to? (Select TWO.)

- A. IAM users
- B. IAM groups
- C. An individual member account (correct)
- D. IAM roles
- E. An organizational unit (OU) (correct)

# Compliance

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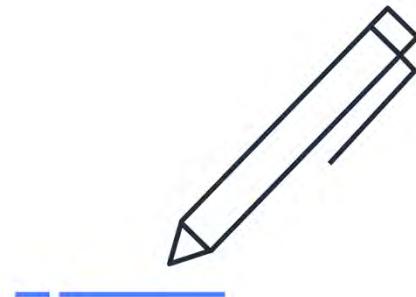
# AWS Artifact



**AWS Artifact** provides on-demand access to security and compliance reports and select online agreements.



Access AWS compliance  
reports on demand



Review, accept, and manage  
agreements with AWS



Access compliance reports  
from third-party auditors

# Assurance programs



## Global



## USA



## Europe



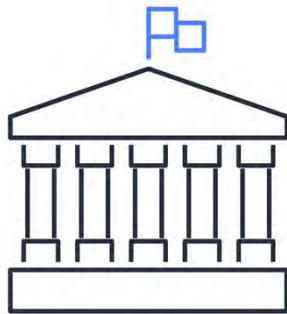
## Asia Pacific



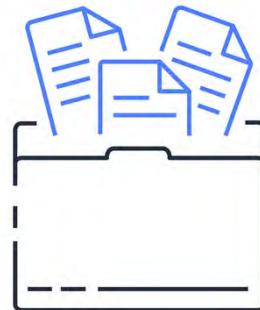
# Customer Compliance Center



The **Customer Compliance Center** contains resources to help you learn more about AWS compliance.



Discover compliance stories from companies in regulated industries



Access compliance technical papers and documentation



Complete the auditor learning path

# Knowledge check



230



Which tasks can you complete in AWS Artifact? (Select TWO.)

- A. Access AWS compliance reports on-demand
- B. Consolidate and manage multiple AWS accounts in a central location
- C. Create users to allow people and applications to interact with AWS services and resources
- D. Set permissions for accounts by configuring service control policies
- E. Review, accept, and manage agreements with AWS

# Knowledge check



231



Which tasks can you complete in AWS Artifact? (Select TWO.)

- A. Access AWS compliance reports on-demand (correct)
- B. Consolidate and manage multiple AWS accounts in a central location
- C. Create users to allow people and applications to interact with AWS services and resources
- D. Set permissions for accounts by configuring service control policies
- E. Review, accept, and manage agreements with AWS (correct)

# Application security

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## Request from a customer

I would like to access the application.

You are coming from an IP address that is NOT blocked. You may enter!



Packet



AWS WAF

## Malicious request from a hacker

I would like to access the application.

You are coming from an IP address that IS blocked. You cannot enter.



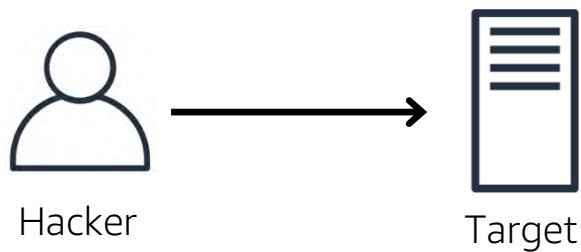
Packet



AWS WAF

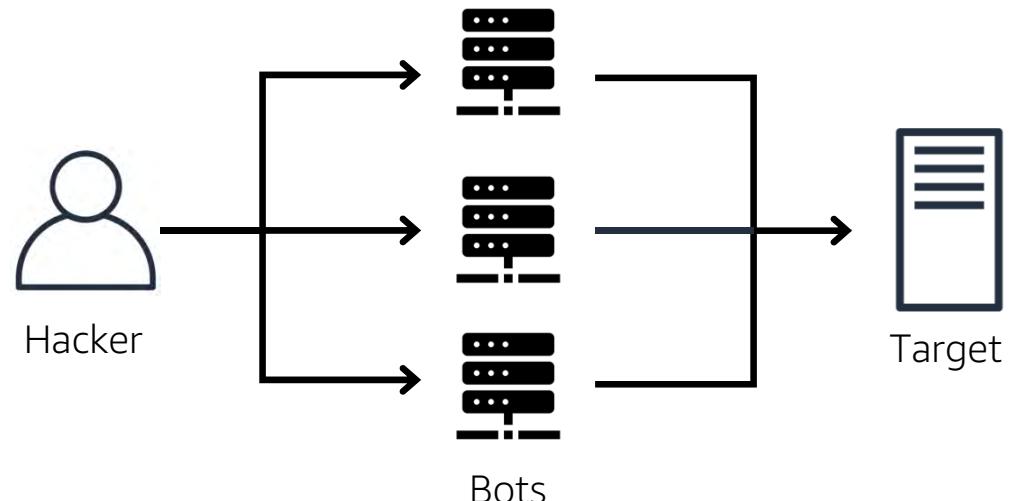
# DoS and DDoS attacks

## Denial of service attack



The attack originates from a **single** source.

## Distributed denial of service attack



The attack originates from **multiple** sources.

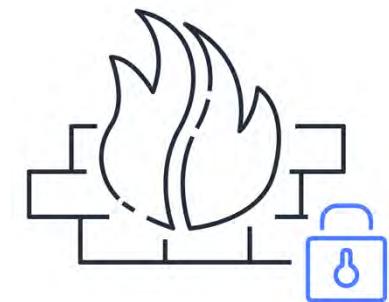
**AWS Shield** provides protection against distributed denial of service (DDoS) attacks.



Protect applications  
against DDoS attacks



Integrate AWS Shield  
Advanced with other  
AWS services



Write custom web ACL  
rules with AWS WAF to  
mitigate complex  
DDoS attacks

# Amazon Inspector



**Amazon Inspector** allows you to perform automated security assessments on your applications.



Automatically conduct application security assessments



Identify security vulnerabilities and deviations from best practices



Receive recommendations for how to fix security issues

# Additional security services

# AWS Key Management Service



- **AWS Key Management Service (AWS KMS)** helps customers perform encryption operations through the use of cryptographic keys.
- You can choose the specific levels of access control that you need for your keys.

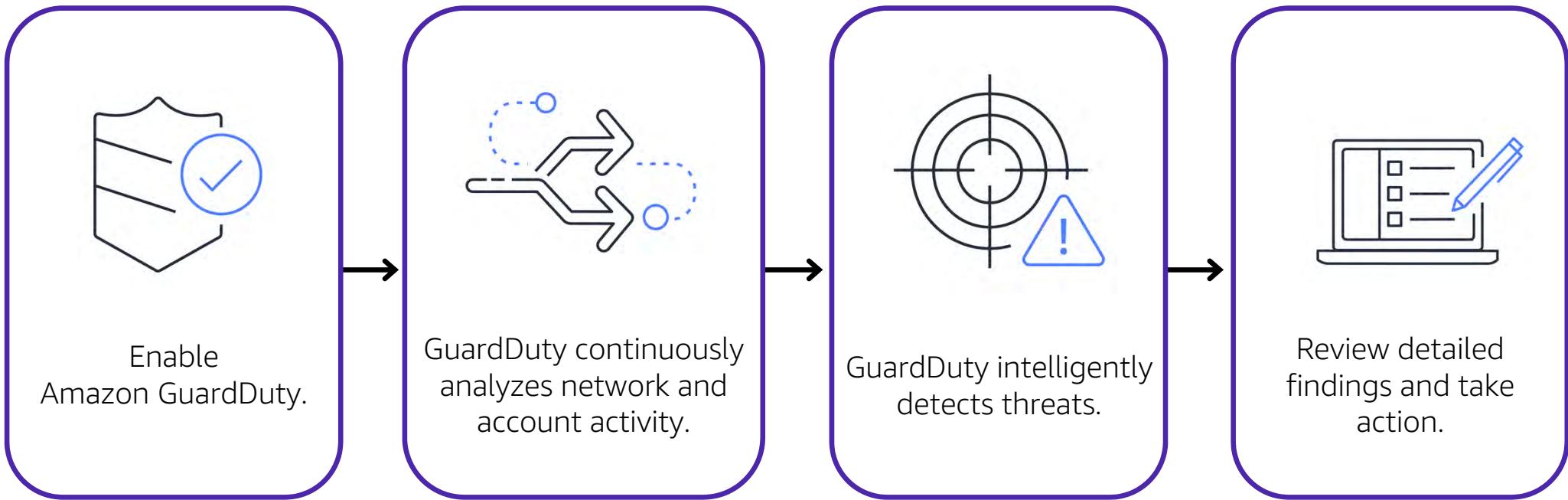


AWS KMS

# Amazon GuardDuty



**Amazon GuardDuty** provides intelligent threat detection for AWS products and services.



Module 6

# Knowledge check

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# Knowledge check question 1



241



Which statement describes an IAM policy?

- A. An authentication process that provides an extra layer of protection for your AWS account
- B. A document that grants or denies permissions to AWS services and resources
- C. An identity that you can assume to gain temporary access to permissions
- D. The identity that is established when you first create an AWS account

# Knowledge check answer 1



242

Which statement describes an IAM policy?

- A. An authentication process that provides an extra layer of protection for your AWS account
- B. A document that grants or denies permissions to AWS services and resources (correct)
- C. An identity that you can assume to gain temporary access to permissions
- D. The identity that is established when you first create an AWS account

## Knowledge check question 2



243



An employee requires temporary access to create several Amazon S3 buckets. Which option should be used for this task?

- A. AWS account root user
- B. IAM group
- C. IAM role
- D. Service control policy

## Knowledge check answer 2



An employee requires temporary access to create several Amazon S3 buckets. Which option should be used for this task?

- A. AWS account root user
- B. IAM group
- C. **IAM role (correct)**
- D. Service control policy

# Knowledge check question 3



245



Which option describes the concept of least privilege?

- A. Adding an IAM user into at least one IAM group
- B. Granting only the permissions that are needed to perform specific tasks
- C. Checking a packet's permissions against an access control list
- D. Performing a denial of service attack that originates from at least one device

# Knowledge check answer 3



Which option describes the concept of least privilege?

- A. Adding an IAM user into at least one IAM group
- B. **Granting only the permissions that are needed to perform specific tasks (correct)**
- C. Checking a packet's permissions against an access control list
- D. Performing a denial of service attack that originates from at least one device

## Knowledge check question 4



247



Which service helps protect your applications against distributed denial of service (DDoS) attacks?

- A. Amazon GuardDuty
- B. Amazon Inspector
- C. AWS Artifact
- D. AWS Shield

# Knowledge check answer 4



Which service helps protect your applications against distributed denial of service (DDoS) attacks?

- A. Amazon GuardDuty
- B. Amazon Inspector
- C. AWS Artifact
- D. **AWS Shield (correct)**

# Knowledge check question 5



249



Which task can AWS Key Management Service (AWS KMS) perform?

- A. Configure multi-factor authentication (MFA)
- B. Update the AWS account root user password
- C. Create cryptographic keys
- D. Assign permissions to users and groups

# Knowledge check answer 5



250

Which task can AWS Key Management Service (AWS KMS) perform?

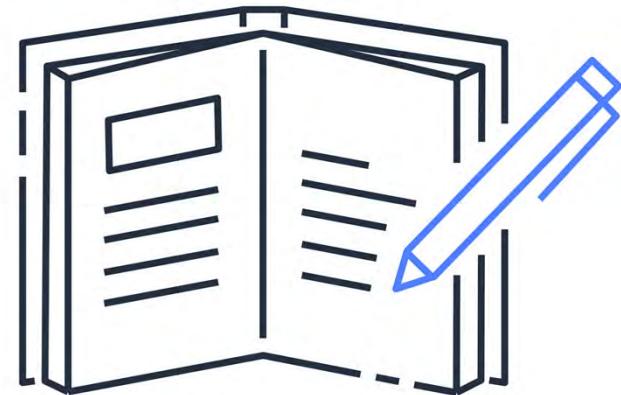
- A. Configure multi-factor authentication (MFA)
- B. Update the AWS account root user password
- C. **Create cryptographic keys (correct)**
- D. Assign permissions to users and groups

# Module 6 summary



In this module, you learned about:

- Shared responsibility model
- AWS Identity and Access Management features
- Methods of managing multiple accounts in AWS Organizations
- AWS services for application security and encryption
- AWS compliance resources



Module 7

# Monitoring and Analytics



# Module 7 objectives



In this module, you will learn how to:

- Summarize approaches to monitoring in AWS
- Describe Amazon CloudWatch benefits
- Describe AWS CloudTrail benefits
- Describe AWS Trusted Advisor benefits

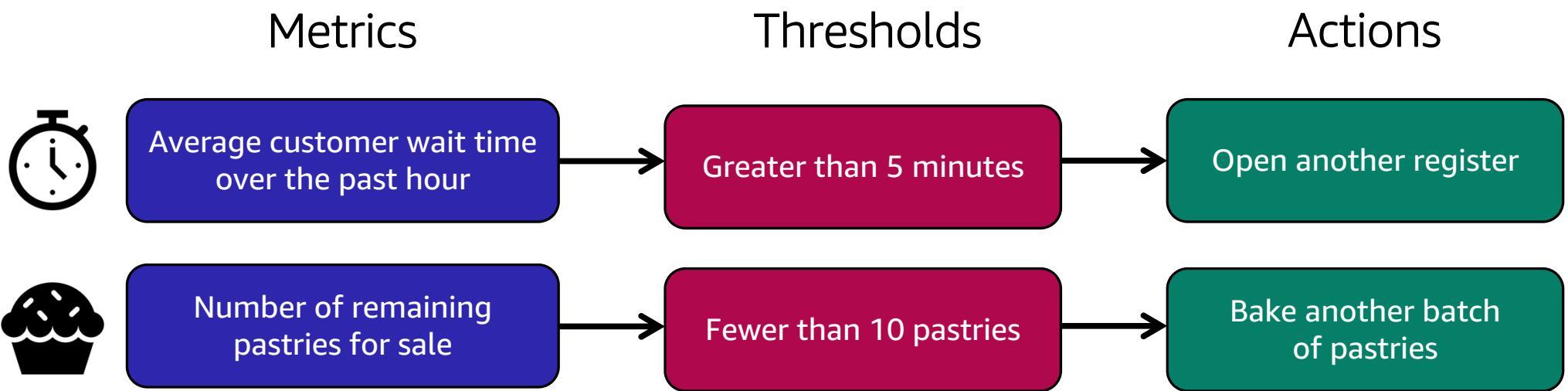


# Amazon CloudWatch

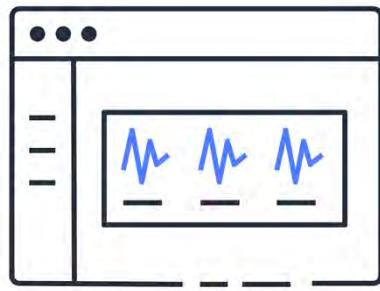
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# Coffee shop metrics



# Amazon CloudWatch



Monitor your AWS and on-premises infrastructure and resources in real time



Access all of your metrics from a single location



Configure automatic alerts and actions in response to metrics

# Amazon CloudWatch dashboard

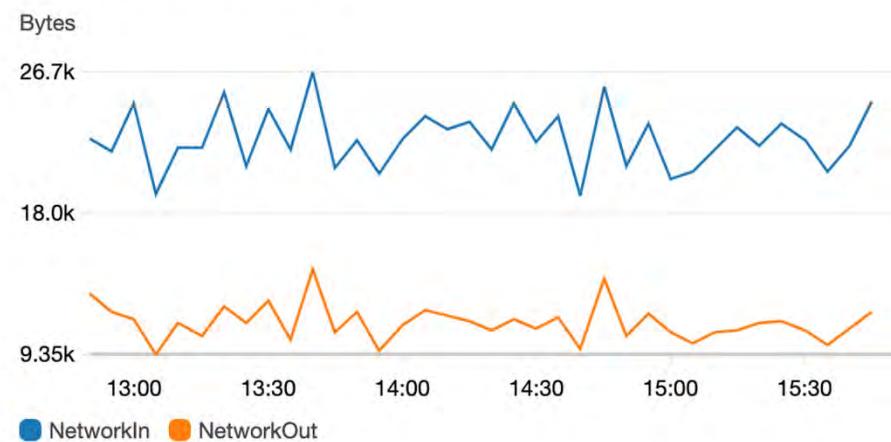


## Amazon RDS metrics

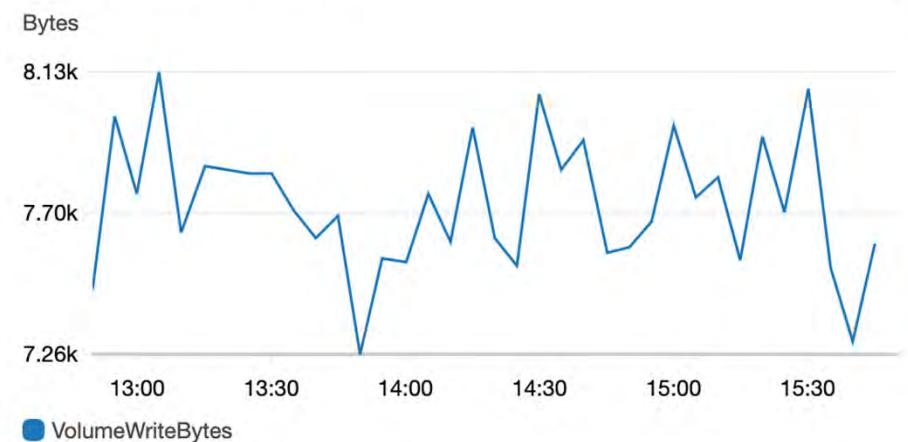
2.06 %      20.1 GB      0.38 /s      0.23 /s

CPUUtilization      FreeStorageSpace      WriteIOPS      ReadIOPS

## Amazon EC2 metrics



## Amazon EBS metrics



# AWS CloudTrail

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# Coffee shop events



3 days ago



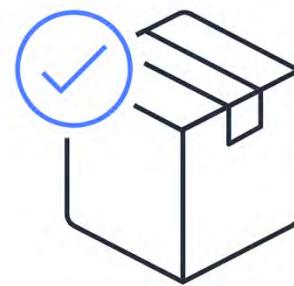
The cashiers process a large number of transactions.

2 days ago



To avoid running out of supplies, the inventory specialist places an extra order.

Today



A shipment of coffee beans is delivered to the coffee shop.

# AWS CloudTrail



Track user activities and API requests throughout your AWS infrastructure



Filter logs generated by API calls to assist with operational analysis and troubleshooting



Automatically detect unusual account activity

# AWS CloudTrail event



*What happened?*

New IAM user (Mary) created



*Who made the request?*

IAM user John



*When did this occur?*

January 1, 2021 at 9:00 AM



*How was the request made?*

Through the AWS Management Console



# Knowledge check question



262



Which tasks can you perform using AWS CloudTrail? (Select TWO.)

- A. Monitor your AWS infrastructure and resources in real time
- B. Track user activities and API requests throughout your AWS infrastructure
- C. View metrics and graphs to monitor the performance of resources
- D. Filter logs to assist with operational analysis and troubleshooting
- E. Configure automatic actions and alerts in response to metrics

# Knowledge check answer



263



Which tasks can you perform using AWS CloudTrail? (Select TWO.)

- A. Monitor your AWS infrastructure and resources in real time
- B. **Track user activities and API requests throughout your AWS infrastructure (correct)**
- C. View metrics and graphs to monitor the performance of resources
- D. **Filter logs to assist with operational analysis and troubleshooting (correct)**
- E. Configure automatic actions and alerts in response to metrics

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# AWS Trusted Advisor

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# Coffee shop improvements



The consultant observes the coffee shop.

The owners implement the suggested changes.

The consultant makes recommendations for improvement.

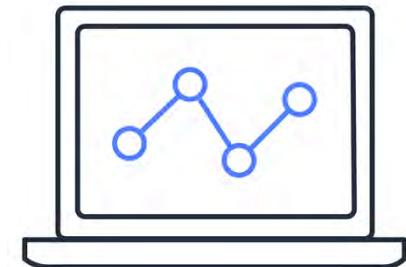
# AWS Trusted Advisor



Receive real-time  
guidance for improving  
your AWS environment



Compare your  
infrastructure to AWS best  
practices in five categories



Evaluate and implement  
guidance at all stages of  
deployment

# AWS Trusted Advisor dashboard



Number of items for which **no problems** have been detected

Number of recommended **investigations**

Number of recommended **actions**

## Cost Optimization



0 9 0

\$7,516.85

Potential monthly savings

## Performance



3 7 0

## Security



2 4 11

## Fault Tolerance



0 15 5

## Service Limits



37 0 1

Module 7

# Knowledge check

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# Knowledge check question 1



269



Which actions can you perform using Amazon CloudWatch? (Select TWO.)

- A. Monitor your resources' usage and performance
- B. Receive real-time guidance for improving your AWS environment
- C. Compare your infrastructure to AWS best practices in five categories
- D. Access metrics from a single dashboard
- E. Automatically detect unusual account activity

# Knowledge check answer 1



270



Which actions can you perform using Amazon CloudWatch? (Select TWO.)

- A. Monitor your resources' usage and performance (correct)
- B. Receive real-time guidance for improving your AWS environment
- C. Compare your infrastructure to AWS best practices in five categories
- D. Access metrics from a single dashboard (correct)
- E. Automatically detect unusual account activity

## Knowledge check question 2



271



Which service can you use to review the security of your Amazon S3 buckets by checking for open access permissions?

- A. Amazon CloudWatch
- B. AWS CloudTrail
- C. AWS Trusted Advisor
- D. Amazon GuardDuty

# Knowledge check answer 2



Which service can you use to review the security of your Amazon S3 buckets by checking for open access permissions?

- A. Amazon CloudWatch
- B. AWS CloudTrail
- C. **AWS Trusted Advisor (correct)**
- D. Amazon GuardDuty

# Knowledge check question 3



273



Which categories are included in the AWS Trusted Advisor dashboard? (Select TWO.)

- A. Reliability
- B. Performance
- C. Scalability
- D. Elasticity
- E. Fault tolerance

# Knowledge check answer 3



274

Which categories are included in the AWS Trusted Advisor dashboard? (Select TWO.)

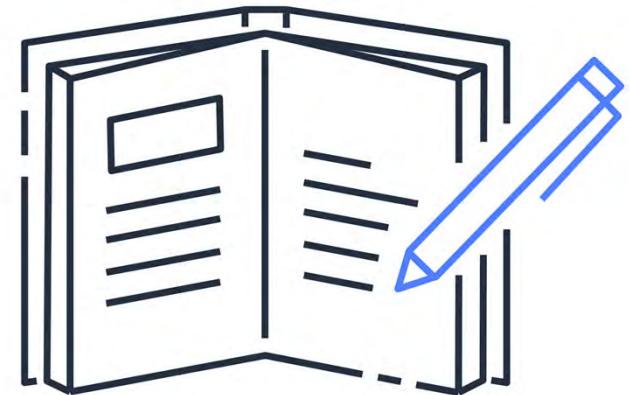
- A. Reliability
- B. Performance (correct)
- C. Scalability
- D. Elasticity
- E. Fault tolerance (correct)

# Module 7 summary



In this module, you learned about:

- Amazon CloudWatch
- AWS CloudTrail
- AWS Trusted Advisor



Module 8

# Pricing and Support

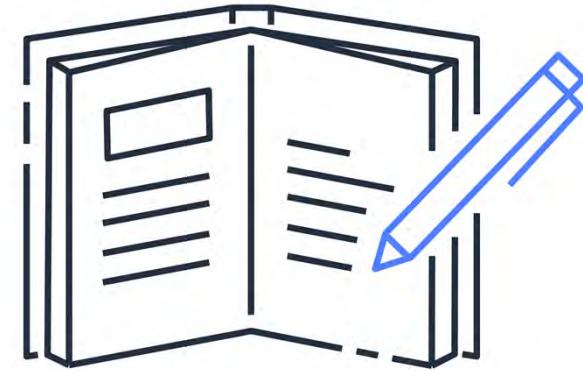


# Module 8 objectives



In this module, you will learn how to:

- Describe AWS pricing and support models
- Describe the AWS Free Tier
- Describe key benefits of AWS Organizations and consolidated billing
- Explain AWS Budgets benefits
- Explain AWS Cost Explorer benefits
- Explain AWS Pricing Calculator benefits
- Distinguish among the AWS Support plans
- Describe AWS Marketplace benefits

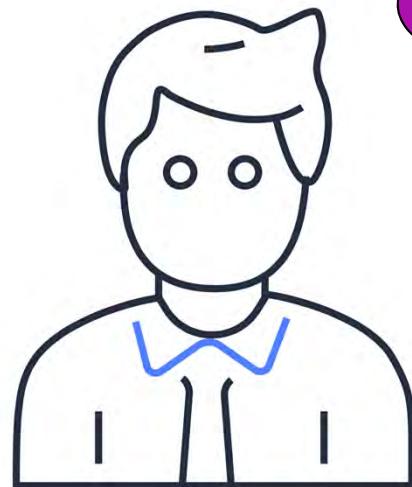


# AWS pricing and support



How can I budget  
and pay for AWS  
services?

Where can I find  
support and third-  
party software?

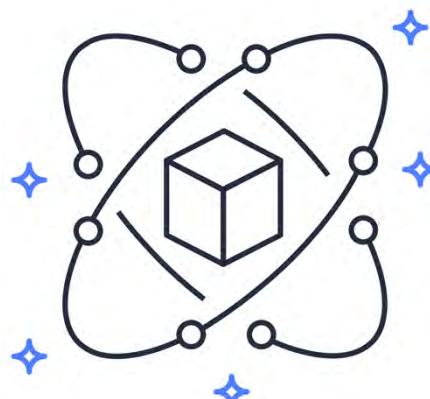


# AWS pricing

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# AWS Free Tier categories



Always free



12 months free



Trials

## Pay as you go

Pay only for the resources that you use without provisioning capacity in advance

## Pay less when you reserve

Reduce costs by reserving capacity in services such as Amazon Elastic Compute Cloud (Amazon EC2) and Amazon Relational Database Service (Amazon RDS)

## Pay less with volume-based discounts

Receive savings through volume-based discounts as your usage increases

# AWS Pricing Calculator



AWS pricing calculator

Feedback English Contact Sales

AWS Pricing Calculator > My Estimate > Add Amazon EC2

Step 1 Select service

Step 2 Configure Amazon EC2

## Configure Amazon EC2 Info

**Region**

US East (Ohio)

Quick estimate  
Choose this option for fast and easy route to a ballpark estimate based on minimum requirements or a specific instance search. The estimate assumes consistent utilization.

Advanced estimate  
Choose this option for a more detailed estimate that accounts for workload, data transfer costs, additional storage options, and other, less common instance requirements. For example, you know that you get a lot of traffic on Mondays but not much traffic throughout the rest of the week, and you want an estimate that takes this workload into account.

**EC2 instance specifications Info**

**Operating system**  
Choose which operating system you'd like to run Amazon EC2 instances on.

Linux

# AWS Lambda pricing



- Pay only for the compute time you use
- Pay for the number of requests for your functions
- Save by signing up for a Compute Savings Plan



AWS Lambda

# Example: AWS Lambda service charges

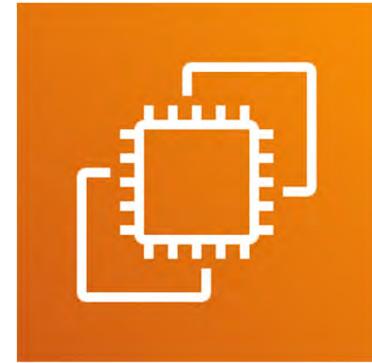


▼ Lambda		\$0.00
▼ US East (N. Virginia)		\$0.00
AWS Lambda Lambda-GB-Second		\$0.00
AWS Lambda - Compute Free Tier - 400,000 GB-Seconds - US East (Northern Virginia)	254.575 seconds	\$0.00
AWS Lambda Request		\$0.00
AWS Lambda - Requests Free Tier - 1,000,000 Requests - US East (Northern Virginia)	680.000 Requests	\$0.00

# Amazon EC2 pricing



- Pay only for the time that your On-Demand Instances run
- Reduce costs by using Spot Instances for recommended use cases
- Save by signing up for a Compute Savings Plan
- Amazon EC2 pricing:  
<https://aws.amazon.com/ec2/pricing>
- 



Amazon Elastic Compute  
Cloud

# Example: Amazon EC2 service charges



▼ Elastic Compute Cloud		\$0.00
▼ US East (N. Virginia)		\$0.00
Amazon Elastic Compute Cloud running Linux/UNIX		\$0.00
\$0.00 per Linux t2.micro instance-hour (or partial hour) under monthly free tier	106.512 Hrs	\$0.00
EBS		\$0.00
\$0.00 per GB-month of General Purpose (SSD) provisioned storage under monthly free tier	11.294 GB-Mo	\$0.00
Elastic Load Balancing - Application		\$0.00
\$0.00 per Application LoadBalancer-hour (or partial hour) under monthly free tier	268.000 Hrs	\$0.00

# Amazon S3 pricing



Amazon S3 pricing is based on four factors:

- Storage
- Requests and data retrievals
- Data transfer
- Management and replication



Amazon Simple Storage  
Service

# Example: Amazon S3 service charges



▼ Simple Storage Service		\$0.00
▼ US East (N. Virginia)		\$0.00
Amazon Simple Storage Service Requests-Tier1		\$0.00
\$0.00 per request - PUT, COPY, POST, or LIST requests under the monthly global free tier	185.000 Requests	\$0.00
Amazon Simple Storage Service Requests-Tier2		\$0.00
\$0.00 per request - GET and all other requests under the monthly global free tier	923.000 Requests	\$0.00
Amazon Simple Storage Service TimedStorage-ByteHrs		\$0.00
\$0.000 per GB - storage under the monthly global free tier	0.159 GB-Mo	\$0.00
▼ US East (Ohio)		\$0.00
Amazon Simple Storage Service USE2-Requests-Tier2		\$0.00
\$0.00 per request - GET and all other requests under the monthly global free tier	4.000 Requests	\$0.00
Amazon Simple Storage Service USE2-TimedStorage-ByteHrs		\$0.00
\$0.000 per GB - storage under the monthly global free tier	0.000001 GB-Mo	\$0.00



# Demo: Billing dashboard in the AWS Management Console

# Knowledge check question



290

The AWS Free Tier includes offers that are available to new AWS customers for a certain period of time following their AWS sign-up date. What is the duration of this period?

- A. 3 months
- B. 6 months
- C. 9 months
- D. 12 months

# Knowledge check answer



The AWS Free Tier includes offers that are available to new AWS customers for a certain period of time following their AWS sign-up date. What is the duration of this period?

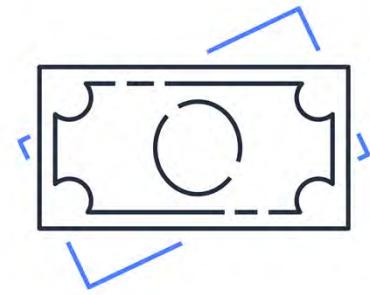
- A. 3 months
- B. 6 months
- C. 9 months
- D. **12 months (correct)**

# Consolidated billing

# Consolidated billing



Receive a single bill  
for all the AWS  
accounts in your  
organization

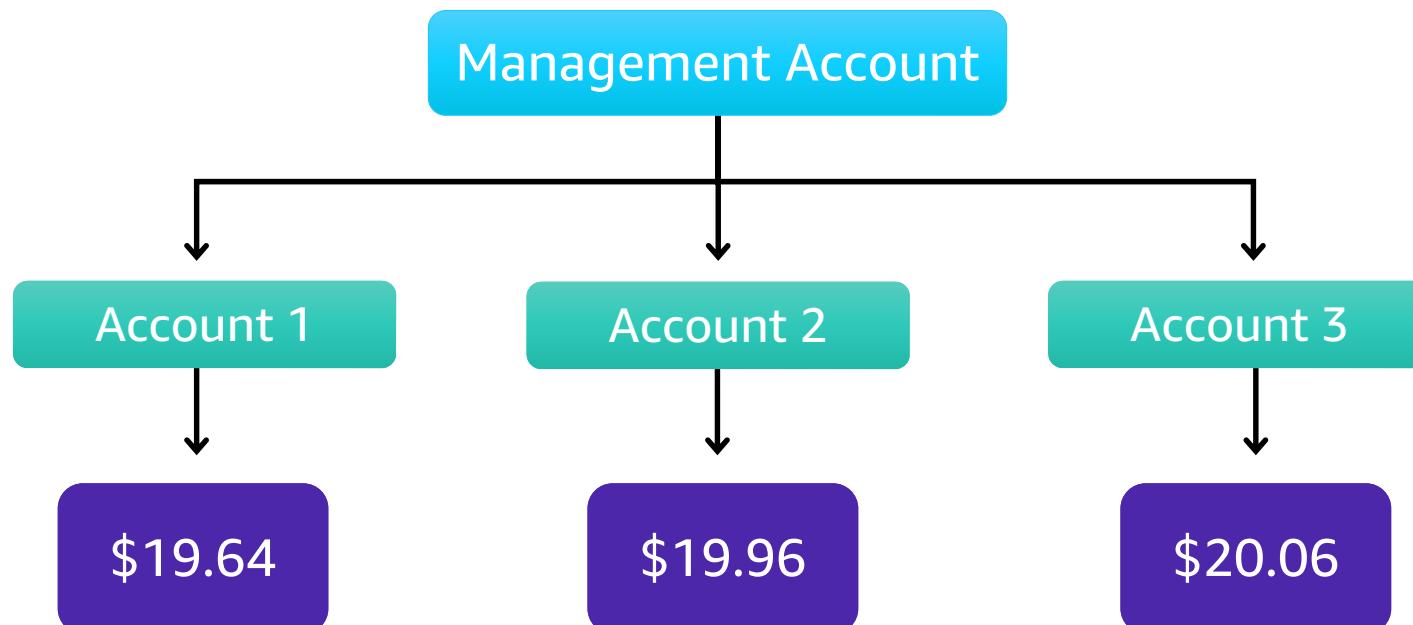


Review itemized  
charges that have been  
incurred by each  
account



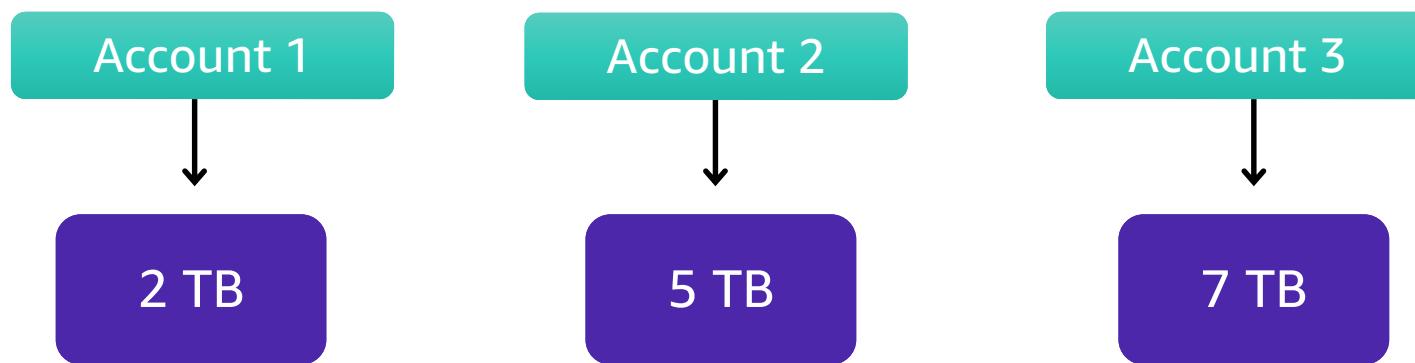
Share savings across  
the accounts in your  
organization

# Example: Consolidated billing

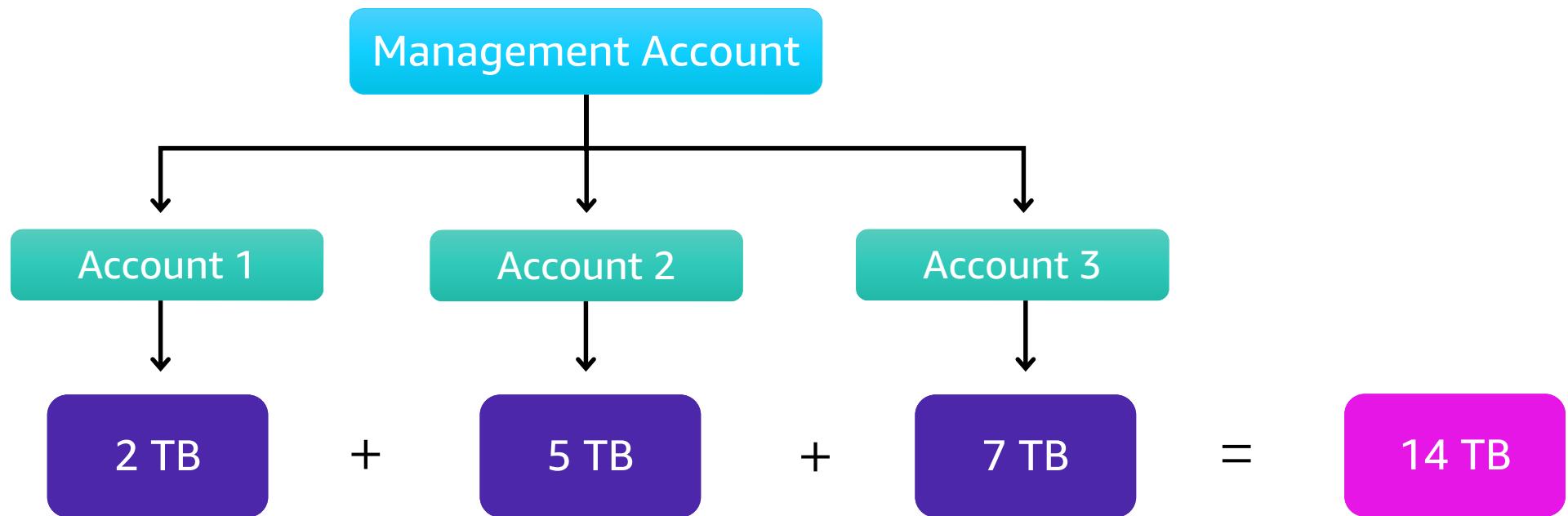


Monthly Consolidated Bill	
Management Account	\$14.14
Account 1	\$19.64
Account 2	\$19.96
Account 3	\$20.06
Total charged to paying account:	\$73.80

# Example: Volume pricing in Amazon S3



# Example: Volume pricing in Amazon S3



# AWS pricing tools

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# AWS Budgets



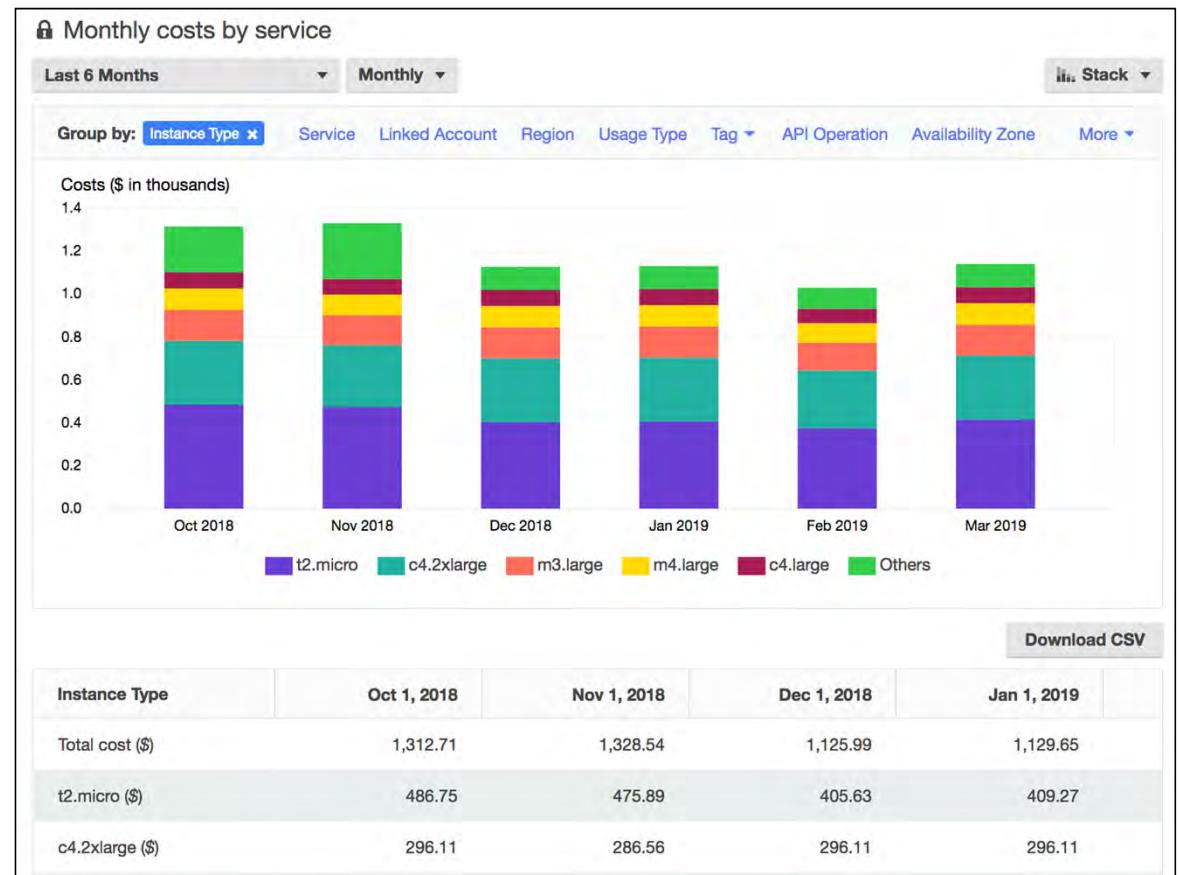
AWS Budgets is a tool that you can use to set thresholds for your AWS service usage and costs.

AWS Budgets							
All budgets (7)				Cost budgets (5)			
Budget name	Budget type	Current	Budgeted	Forecasted	Current vs. budgeted	Forecasted vs. budgeted	
Project Nemo Cost Budget	Cost	\$43.90	\$45.00	\$56.33	<div style="width: 97.55%; background-color: #0072bc; height: 10px;"></div> 97.55%	<div style="width: 125.17%; background-color: #e74c3c; height: 10px;"></div> 125.17%	...
Eastern US Regional Budget	Cost	\$85.21	\$100.00	\$125.28	<div style="width: 85.21%; background-color: #0072bc; height: 10px;"></div> 85.21%	<div style="width: 125.28%; background-color: #e74c3c; height: 10px;"></div> 125.28%	...
Total Monthly Cost Budget	Cost	\$141.50	\$175.00	\$187.00	<div style="width: 80.86%; background-color: #0072bc; height: 10px;"></div> 80.86%	<div style="width: 106.86%; background-color: #e74c3c; height: 10px;"></div> 106.86%	...
Total EC2 Cost Budget	Cost	\$136.90	\$200.00	\$195.21	<div style="width: 68.45%; background-color: #0072bc; height: 10px;"></div> 68.45%	<div style="width: 97.61%; background-color: #0072bc; height: 10px;"></div> 97.61%	...
S3 Usage Budget	Usage	3,601 Requests	5,500 Requests	4,675.75 Requests	<div style="width: 65.47%; background-color: #0072bc; height: 10px;"></div> 65.47%	<div style="width: 85.01%; background-color: #0072bc; height: 10px;"></div> 85.01%	...

# AWS Cost Explorer



**AWS Cost Explorer** is a tool that you can use to visualize, understand, and manage your AWS costs and usage over time.



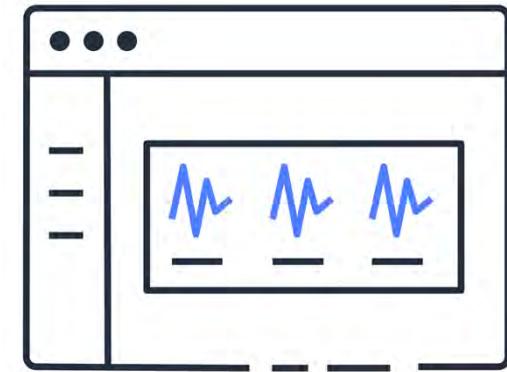
# AWS Support plans

# Basic Support



**Basic Support** is free for all AWS customers and includes access to:

- Technical papers, documentation, and support communities
- AWS Personal Health Dashboard
- Seven core AWS Trusted Advisor checks



# AWS Support plans



## Developer

- Best-practice guidance
- Client-side diagnostic tools
- Building-block architecture support

## Business

- Use-case guidance
- All AWS Trusted Advisor checks
- Limited support for third-party software

## Enterprise

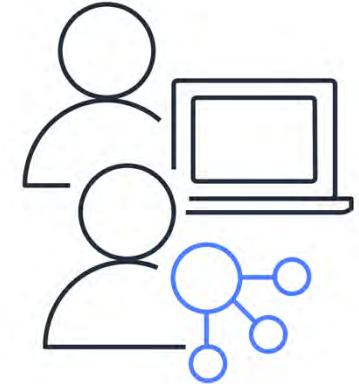
- Application architecture guidance
- Infrastructure event management
- Technical Account Manager (TAM)

# Technical Account Manager (TAM)



The **Technical Account Manager** is your primary point of contact at AWS.

- Technical Account Managers are included only with the Enterprise Support plan.
- They provide guidance, technical expertise, and best practices.



# Knowledge check question



304



Which of the following is the lowest-cost AWS Support plan that includes all AWS Trusted Advisor checks?

- A. Business
- B. Developer
- C. Enterprise
- D. Basic

# Knowledge check answer



305



Which of the following is the lowest-cost AWS Support plan that includes all AWS Trusted Advisor checks?

- A. Business (correct)
- B. Developer
- C. Enterprise
- D. Basic

# AWS Marketplace

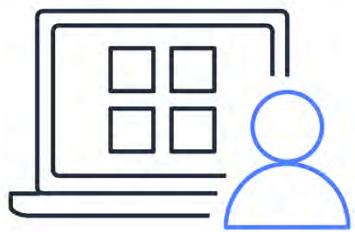
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# AWS Marketplace



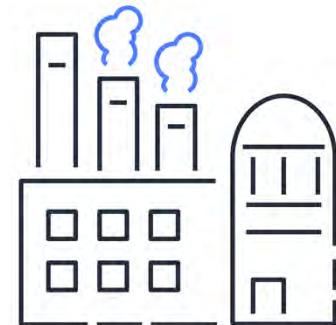
**AWS Marketplace** is a digital catalog that provides listings of third-party software that runs on AWS.



Discover thousands  
of software products  
that run on AWS



Access detailed  
information and  
reviews for each  
product listing



Explore software  
solutions by industry  
and use case

# AWS Marketplace categories



Business  
Applications



Data and  
Analytics



DevOps



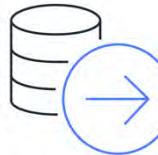
Infrastructure  
Software



Internet of  
Things (IoT)



Machine  
Learning



Migration



Security

Module 8

# Knowledge check

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# Knowledge check question 1



Which action can a customer perform with consolidated billing?

- A. Review how much cost predicted AWS usage will incur by the end of the month
- B. Create an estimate for the cost of use cases on AWS
- C. Combine usage across accounts to receive volume pricing discounts
- D. Visualize and manage AWS costs and usage over time

# Knowledge check answer 1



311

Which action can a customer perform with consolidated billing?

- A. Review how much cost predicted AWS usage will incur by the end of the month
- B. Create an estimate for the cost of use cases on AWS
- C. **Combine usage across accounts to receive volume pricing discounts (correct)**
- D. Visualize and manage AWS costs and usage over time

## Knowledge check question 2



312



Which pricing tool is used to visualize, understand, and manage AWS costs and usage over time?

- A. AWS Pricing Calculator
- B. AWS Budgets
- C. AWS Cost Explorer
- D. AWS Free Tier

# Knowledge check answer 2



313



Which pricing tool is used to visualize, understand, and manage your AWS costs and usage over time?

- A. AWS Pricing Calculator
- B. AWS Budgets
- C. **AWS Cost Explorer (correct)**
- D. AWS Free Tier

# Knowledge check question 3



314



Which pricing tool can a customer use to receive alerts when their service usage exceeds a customer-defined threshold?

- A. Billing dashboard in the AWS Management Console
- B. AWS Budgets
- C. AWS Free Tier
- D. AWS Cost Explorer

# Knowledge check answer 3



315



Which pricing tool can a customer use to receive alerts when their service usage exceeds a customer-defined threshold?

- A. Billing dashboard in the AWS Management Console
- B. **AWS Budgets (correct)**
- C. AWS Free Tier
- D. AWS Cost Explorer

## Knowledge check question 4



316

A company wants to receive support from an AWS Technical Account Manager (TAM). Which support plan should they choose?

- A. Developer
- B. Basic
- C. Enterprise
- D. Business

# Knowledge check answer 4



A company wants to receive support from an AWS Technical Account Manager (TAM). Which support plan should they choose?

- A. Developer
- B. Basic
- C. Enterprise (correct)
- D. Business

## Knowledge check question 5



318



Which service or resource is used to find third-party software that runs on AWS?

- A. AWS Marketplace
- B. AWS Free Tier
- C. AWS Support
- D. Billing dashboard in the AWS Management Console

# Knowledge check answer 5



319



Which service or resource is used to find third-party software that runs on AWS?

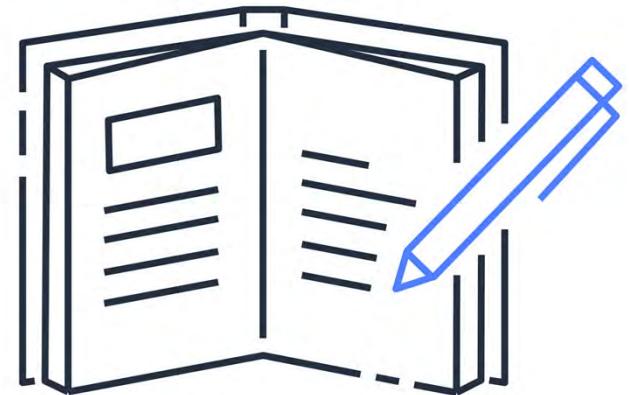
- A. **AWS Marketplace (correct)**
- B. AWS Free Tier
- C. AWS Support
- D. Billing dashboard in the AWS Management Console

# Module 8 summary



In this module, you learned about:

- AWS Free Tier
- Consolidated billing
- Tools for planning, estimating, and reviewing AWS costs
- AWS Support plans
- AWS Marketplace benefits



Module 9

# Migration and Innovation

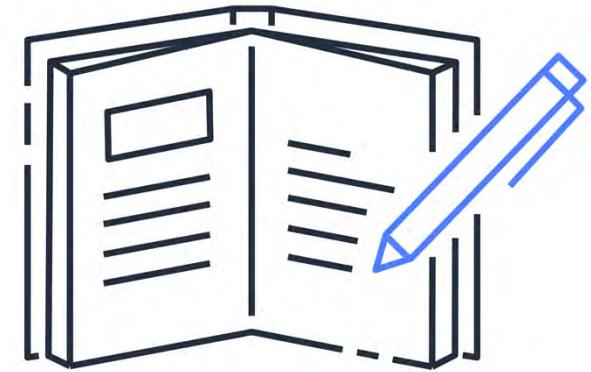


# Module 9 objectives



In this module, you will learn how to:

- Describe migration and innovation in the AWS Cloud
- Summarize the AWS Cloud Adoption Framework (AWS CAF)
- Summarize the six key factors of a cloud migration strategy
- Describe the benefits of AWS data migration solutions
- Summarize the broad scope of innovative solutions that AWS offers
- Summarize the five pillars of the AWS Well-Architected Framework



# AWS Cloud Adoption Framework

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# AWS Cloud Adoption Framework



- Provides advice to your company to enable a quick and smooth migration to AWS
- Organizes guidance into six areas of focus, called **perspectives**



# Perspectives



Business



People



Governance



Platform



Security



Operations



Business  
capabilities

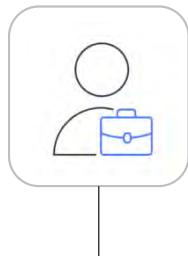


Technical  
capabilities

# Business perspective



## Business



## People



## Governance



## Platform



## Security



## Operations



### Goal

Ensures that IT aligns with business needs and IT investments link to key business results

### Common roles

- Business managers
- Finance managers
- Budget owners
- Strategy stakeholders

# People perspective



Business



People



Governance



Platform



Security



Operations



## Goal

Supports development of an organization-wide change management strategy for successful cloud adoption

## Common roles

- Human resources
- Staffing
- People managers

# Governance perspective



Business



People



Governance



Platform



Security



Operations



## Goal

Focuses on the skills and processes to align IT strategy with business strategy

## Common roles

- Chief information officer (CIO)
- Program managers
- Enterprise architects
- Business analysts
- Portfolio managers

# Platform perspective



Business



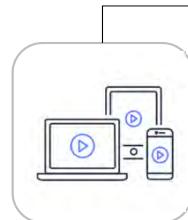
People



Governance



Platform



Security



Operations



## Goal

Includes principles and patterns for implementing new solutions in the cloud, and migrating on-premises workloads to the cloud

## Common roles

- Chief technology officer (CTO)
- IT managers
- Solutions architects

# Security perspective



Business



People



Governance



Platform



Security



Operations



## Goal

Ensures that the organization meets security objectives for visibility, auditability, control, and agility

## Common roles

- Chief information security officer (CISO)
- IT security managers
- IT security analysts

# Operations perspective



Business



People



Governance



Platform



Security



Operations



## Goal

Helps you to enable, run, use, operate, and recover IT workloads to the level agreed on with your business stakeholders

## Common roles

- IT operations managers
- IT support managers

# Knowledge check question



Which AWS Cloud Adoption Framework perspective helps customers design, implement, and optimize their AWS solution based on their business goals and perspectives?

- A. Business perspective
- B. Platform perspective
- C. Operations perspective
- D. People perspective

# Knowledge check answer



333

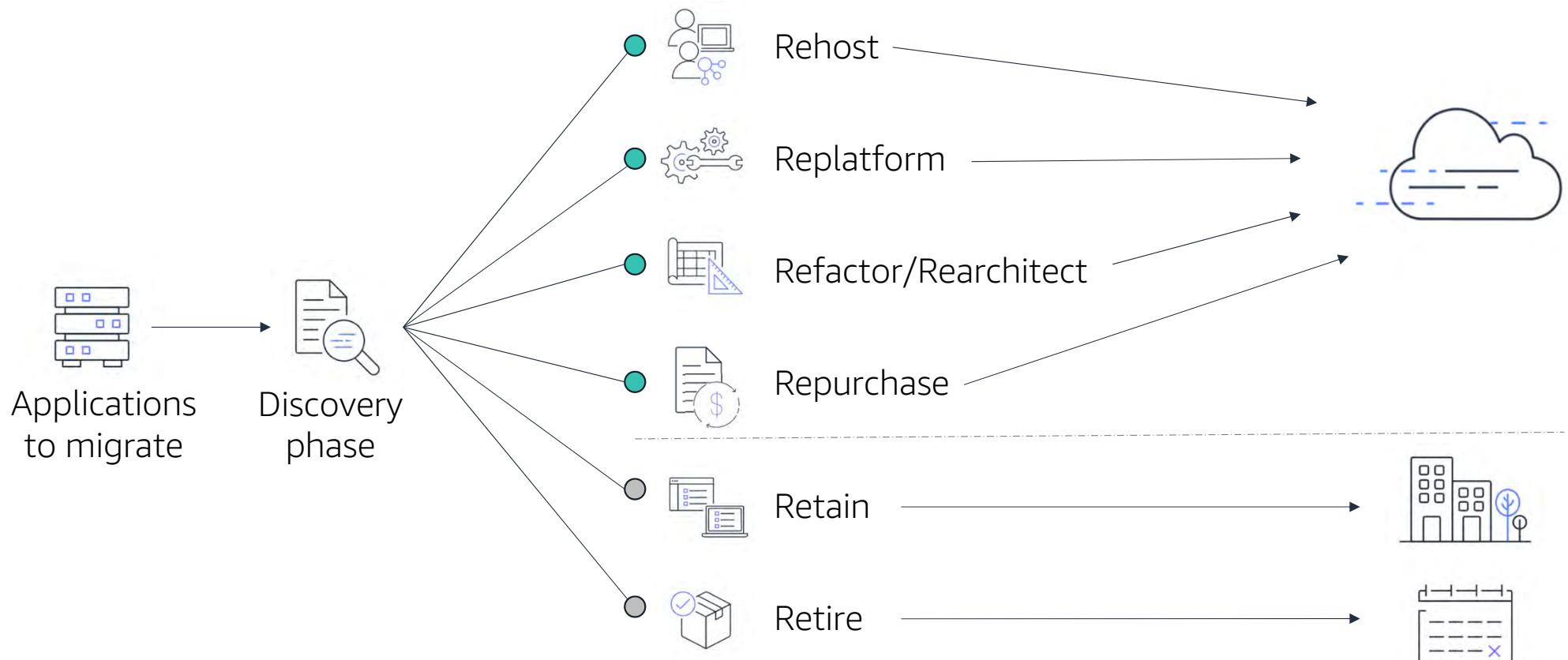


Which AWS Cloud Adoption Framework perspective helps customers design, implement, and optimize their AWS solution based on their business goals and perspectives?

- A. Business perspective
- B. **Platform perspective (correct)**
- C. Operations perspective
- D. People perspective

# Migration strategies

# Six migration strategies



# Knowledge check question



336



Which migration strategy involves moving from a traditional license to a software as a service model?

- A. Refactoring
- B. Retiring
- C. Replatforming
- D. Repurchasing

# Knowledge check answer



337



Which migration strategy involves moving from a traditional license to a software as a service model?

- A. Refactoring
- B. Retiring
- C. Replatforming
- D. Repurchasing (correct)

# AWS Snow Family

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# AWS Snow Family



## AWS Snowcone

- Small, rugged, and secure edge computing and data transfer device
- Features 8 TB of usable storage

## AWS Snowball devices

- AWS Snowball Edge Storage Optimized
- AWS Snowball Edge Compute Optimized

## AWS Snowmobile

- Exabyte-scale data transfer service for moving large amounts of data to AWS
- Transfers up to 100 PB of data

# Innovation with AWS

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# Innovation with AWS



Driving innovation in the cloud involves clearly articulating the following conditions:

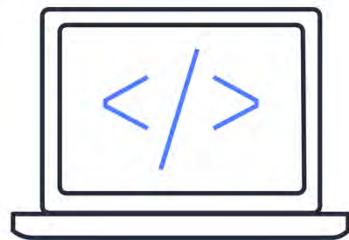
- Current state
- Desired state
- Problems you are trying to solve



# Innovation paths



Consider some of the following innovation paths as you continue on your cloud journey.



Serverless  
applications



Artificial intelligence  
(AI)



Machine learning  
(ML)

# AWS Well-Architected Framework

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# Well-Architected Framework



The **Well-Architected Framework** helps you understand how to design and operate reliable, secure, efficient, and cost-effective systems in the AWS Cloud.

It is based on five pillars:

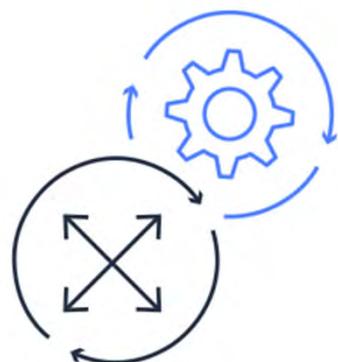
- Operational excellence
- Security
- Reliability
- Performance efficiency
- Cost optimization



# Operational excellence



Run and monitor systems to deliver business value and to continually improve supporting processes and procedures



- Perform operations as code
- Annotate documentation
- Anticipate failure
- Refine operations procedures frequently
- Make frequent, small, reversible changes

# Security



Protect information, systems, and assets while delivering business value through risk assessments and mitigation strategies



- Automate security best practices
- Apply security at all layers
- Protect data in transit and at rest

# Reliability



Test recovery procedures, scale horizontally to increase aggregate system availability, and automatically recover from failure



- Recover from infrastructure or service disruptions
- Dynamically acquire computing resources to meet demand
- Mitigate disruptions such as misconfigurations or transient network issues

# Performance efficiency



Use computing resources efficiently to meet system requirements and maintain that efficiency as demand changes and technologies evolve



- Experiment more often
- Use serverless architectures
- Go global in minutes

# Cost optimization



Run systems to deliver business value at the lowest price point



- Adopt a consumption model
- Analyze and attribute expenditure
- Use managed services to reduce cost of ownership

Module 9

# Knowledge check

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# Knowledge check question 1



351



Which AWS Cloud Adoption Framework perspective helps you structure the selection and implementation of permissions?

- A. Governance perspective
- B. Security perspective
- C. Operations perspective
- D. Business perspective

# Knowledge check answer 1



352



Which AWS Cloud Adoption Framework perspective helps you structure the selection and implementation of permissions?

- A. Governance perspective
- B. **Security perspective (correct)**
- C. Operations perspective
- D. Business perspective

## Knowledge check question 2



353



Which strategies are included in the six strategies for application migration? (Select TWO.)

- A. Revisiting
- B. Retaining
- C. Remembering
- D. Redeveloping
- E. Rehosting

# Knowledge check answer 2



354



Which strategies are included in the six strategies for application migration? (Select TWO.)

- A. Revisiting
- B. **Retaining (correct)**
- C. Remembering
- D. Redeveloping
- E. **Rehosting (correct)**

# Knowledge check question 3



355



What is the storage capacity of AWS Snowmobile?

- A. 40 PB
- B. 60 PB
- C. 80 PB
- D. 100 PB

# Knowledge check answer 3



356



What is the storage capacity of AWS Snowmobile?

- A. 40 PB
- B. 60 PB
- C. 80 PB
- D. 100 PB (correct)

# Knowledge check question 4



357



What is the storage capacity of Snowball Edge Storage Optimized?

- A. 40 TB
- B. 60 TB
- C. 80 TB
- D. 100 TB

# Knowledge check answer 4



358



What is the storage capacity of  
Snowball Edge Storage Optimized?

- A. 40 TB
- B. 60 TB
- C. **80 TB (correct)**
- D. 100 TB

# Knowledge check question 5



359



Which AWS Well-Architected Framework pillar includes the ability to recover from infrastructure or service disruptions?

- A. Cost optimization
- B. Operational excellence
- C. Performance efficiency
- D. Reliability

# Knowledge check answer 5



360



Which AWS Well-Architected Framework pillar includes the ability to recover from infrastructure or service disruptions?

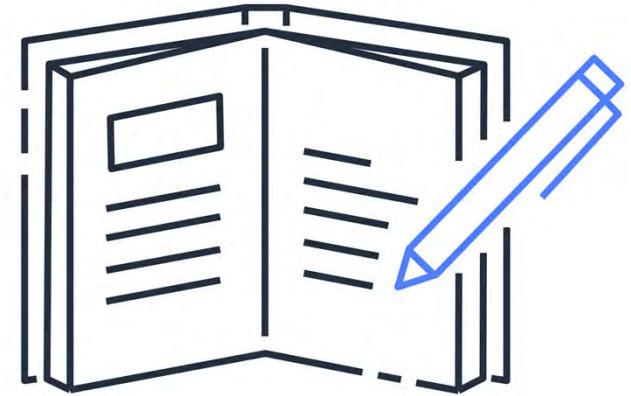
- A. Cost optimization
- B. **Operational excellence (correct)**
- C. Performance efficiency
- D. Reliability

# Module 9 summary



In this module, you learned about:

- AWS Cloud Adoption Framework
- Six strategies for migration
- AWS Snow Family
- Innovation with AWS services
- Five pillars of the AWS Well-Architected Framework



Module 10

# AWS Certified Cloud Practitioner Basics

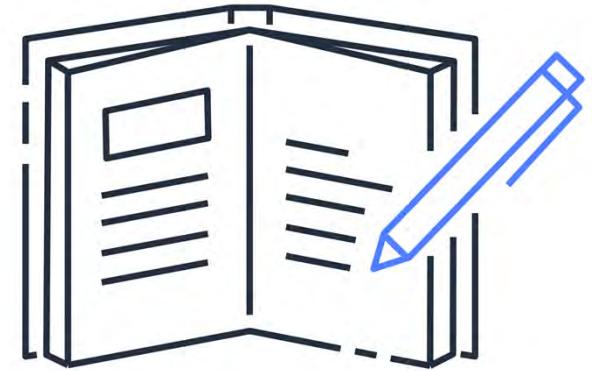


# Module 10 objectives



In this module, you will learn how to:

- Determine resources for preparing for the AWS Certified Cloud Practitioner exam
- Evaluate types of questions that are included on the AWS Certified Cloud Practitioner exam



# Exam details

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# Exam domains



Domain	% of Exam
Domain 1: Cloud Concepts	26%
Domain 2: Security and Compliance	25%
Domain 3: Technology	33%
Domain 4: Billing and Pricing	16%
Total	100%

Learn more at: <https://aws.amazon.com/certification/certified-cloud-practitioner>

# Recommended experience



For this exam, you should have:

- Basic understanding of IT services
- At least 6 months experience with the AWS Cloud



# Exam details



- You must complete the exam within 90 minutes.
- The minimum passing score is 700 (the maximum score is 1,000).
- The exam consists of multiple choice and multiple response questions.
- The exam is available in English, Indonesian (Bahasa), Japanese, Korean, and Simplified Chinese.
- A 30-minute time extension is available upon request to non-native English speakers who are taking an exam in English.



# Exam details



- There is no penalty for guessing.
- Unanswered questions are scored as incorrect.
- You can flag questions to review before submitting the exam.



# Technical papers and resources



We recommend that you review the following technical papers and resources:

- Overview of Amazon Web Services:  
<https://d1.awsstatic.com/whitepapers/aws-overview.pdf>
- Compare AWS Support Plans:  
<https://aws.amazon.com/premiumsupport/plans/>
- How AWS Pricing Works:  
[http://d1.awsstatic.com/whitepapers/aws\\_pricing\\_overview.pdf](http://d1.awsstatic.com/whitepapers/aws_pricing_overview.pdf)



# Exam strategies

# Exam strategies

1. Read the full question.
2. Predict the answer before looking at the response options.
3. Exclude incorrect response options.



# Sample question 1

## Multiple choice



372



AWS Certified Cloud Practitioner exam results are reported as a score from 100–1,000. What is the minimum passing score?

- A. 650
- B. 700
- C. 850
- D. 900

# Sample question 1

## Multiple choice



373



**AWS Certified Cloud Practitioner**  
exam results are reported as a score from 100–1,000. What is the **minimum** passing score?

- A. 650
- B. 700
- C. 850
- D. 900

# Sample question 1

## Multiple choice



374



**AWS Certified Cloud Practitioner**  
exam results are reported as a score from 100–1,000. What is the **minimum** passing score?

- A. 650
- B. 700 (correct)
- C. 850
- D. 900

## Sample question 2

### Multiple response



375



Which domains are included on the AWS Certified Cloud Practitioner exam? (Select TWO.)

- A. Security and Compliance
- B. Automation and Optimization
- C. Monitoring and Reporting
- D. Billing and Pricing
- E. Deployment and Provisioning

## Sample question 2

### Multiple response



376



Which **domains** are included on the **AWS Certified Cloud Practitioner** exam? (Select TWO.)

- A. Security and Compliance
- B. Automation and Optimization
- C. Monitoring and Reporting
- D. Billing and Pricing
- E. Deployment and Provisioning

## Sample question 2: Multiple response



377

Which **domains** are included on the **AWS Certified Cloud Practitioner** exam? (Select TWO.)

- A. **Security and Compliance (correct)**
- B. Automation and Optimization
- C. Monitoring and Reporting
- D. **Billing and Pricing (correct)**
- E. Deployment and Provisioning

# End of course assessment



Complete the end of course assessment to review your understanding of AWS Cloud concepts:

AWS Partners:

<https://partnercentral.awspartner.com/LmsSsoRedirect?RelayState=%2flearningobject%2fwbc%3fid%3d70046>

# Thank you

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