Exam Prep: AWS Certified Cloud Practitioner Foundations

Course outline

In this course, we will discuss the following:

- Domain 1: Cloud Concepts
- Domain 2: Security and Compliance
- Domain 3: AWS Technology
- Domain 4: Billing and Pricing

Learning goals

This course is designed to help you with the following objectives:

- Assess your readiness for the exam
- Structure your studies

Cloud Concepts

Domain 1

Domain 1: Outline

In this domain, we will cover the following:

- Domain 1.1: Benefits of the AWS Cloud
- Domain 1.2: Aspects of AWS Cloud Economics
- Domain 1.3: Cloud Architecture Design Principles

Benefits to the AWS Cloud

Domain 1.1: Introduction

Focus area

Define the AWS Cloud and its value proposition.

Define the AWS Cloud and its value proposition

To define AWS Cloud, you should understand the following:

- Security services, features, and benefits of using AWS
- AWS benefits in the area of high availability

For the AWS value proposition, you should understand the following:

- How to shift from on-premises infrastructure management
- How to optimize resources in the cloud

Benefits to the AWS Cloud

Domain 1.1: Question Walkthrough

Question walkthrough format

- Read the stem
- Identify key words
- Read the responses
- Identify the key

Domain 1.1: Stem

Q

The ability to horizontally scale Amazon EC2 instances based on demand is an example of which concept in the AWS Cloud value proposition?

Domain 1.1: Key words

Q

The ability to horizontally scale Amazon EC2 instances based on demand is an example of which concept in the AWS Cloud value proposition?

Domain 1.1: Responses

Q

The ability to horizontally scale Amazon EC2 instances based on demand is an example of which concept in the AWS Cloud value proposition?

A Economy of scale

B Elasticity

C High availability

D Agility

Domain 1.1: Key

Q

The ability to horizontally scale Amazon EC2 instances based on demand is an example of which concept in the AWS Cloud value proposition?

A Economy of scale

B Elasticity

C High availability

D Agility

Aspects of AWS Cloud Economics

Domain 1.2: Introduction

Total cost of ownership (TCO) concepts

1. Operational expenses, or opex
2. Capital expenses, or capex
3. Labor costs associated with on-premises operations
4. Impact of software licensing costs

Key concepts to remember

- **Opex**: Day-to-day costs to your organization, such as services and items that get used up
- **Capex**: Costs associated with creating the longer-term benefits
- **Labor costs**: Costs incurred in order to handle on-premises operations
- **Impact of software licensing costs**: How might software licenses that you're currently using be affected by a move to the cloud?

Aspects of AWS Cloud Economics

Domain 1.2: Question Walkthrough

Domain 1.2: Stem

Q

Which on-premises expense will be reduced if the company migrates their application to Amazon EC2?

Domain 1.2: Key words

Q

Which on-premises expense will be reduced if the company migrates their application to Amazon EC2?

Domain 1.2: Responses

Q

Which on-premises expense will be reduced if the company migrates their application to Amazon EC2?

A Server hardware costs

B Amazon EBS storage costs

C Storage backup costs

D Costs of transferring data out to the internet

Domain 1.2: Key

Q

Which on-premises expense will be reduced if the company migrates their application to Amazon EC2?

A Server hardware costs

B Amazon EBS storage costs

C Storage backup costs

D Costs of transferring data out to the internet

Cloud Architecture Design Principles

Domain 1.3: Introduction

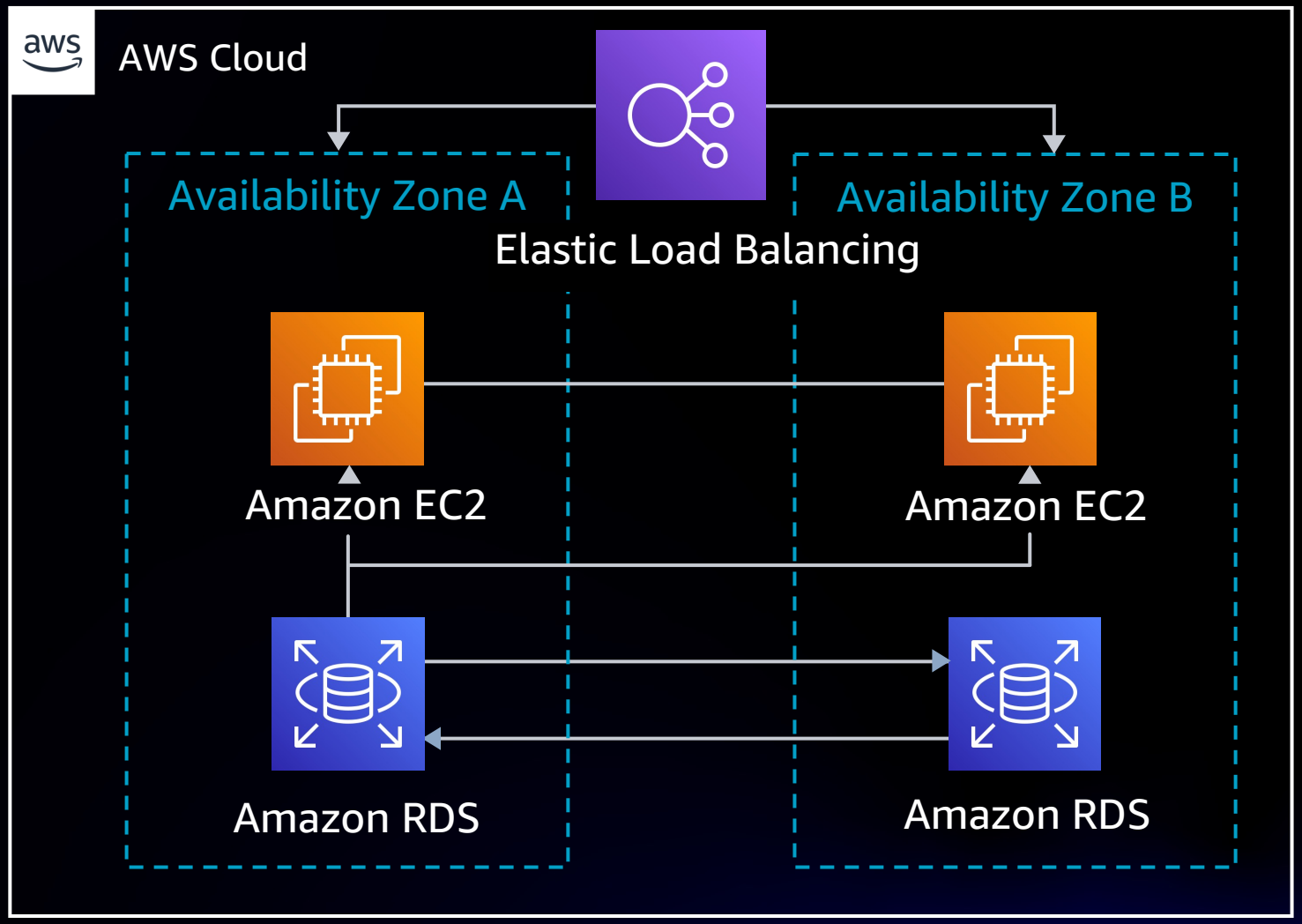
Design principles

The four design principles of focus:

1. Design for failure
2. Monolithic architectures vs. decoupled architectures
3. Implement elasticity in the cloud vs. on-premises
4. Think parallel

Design for failure

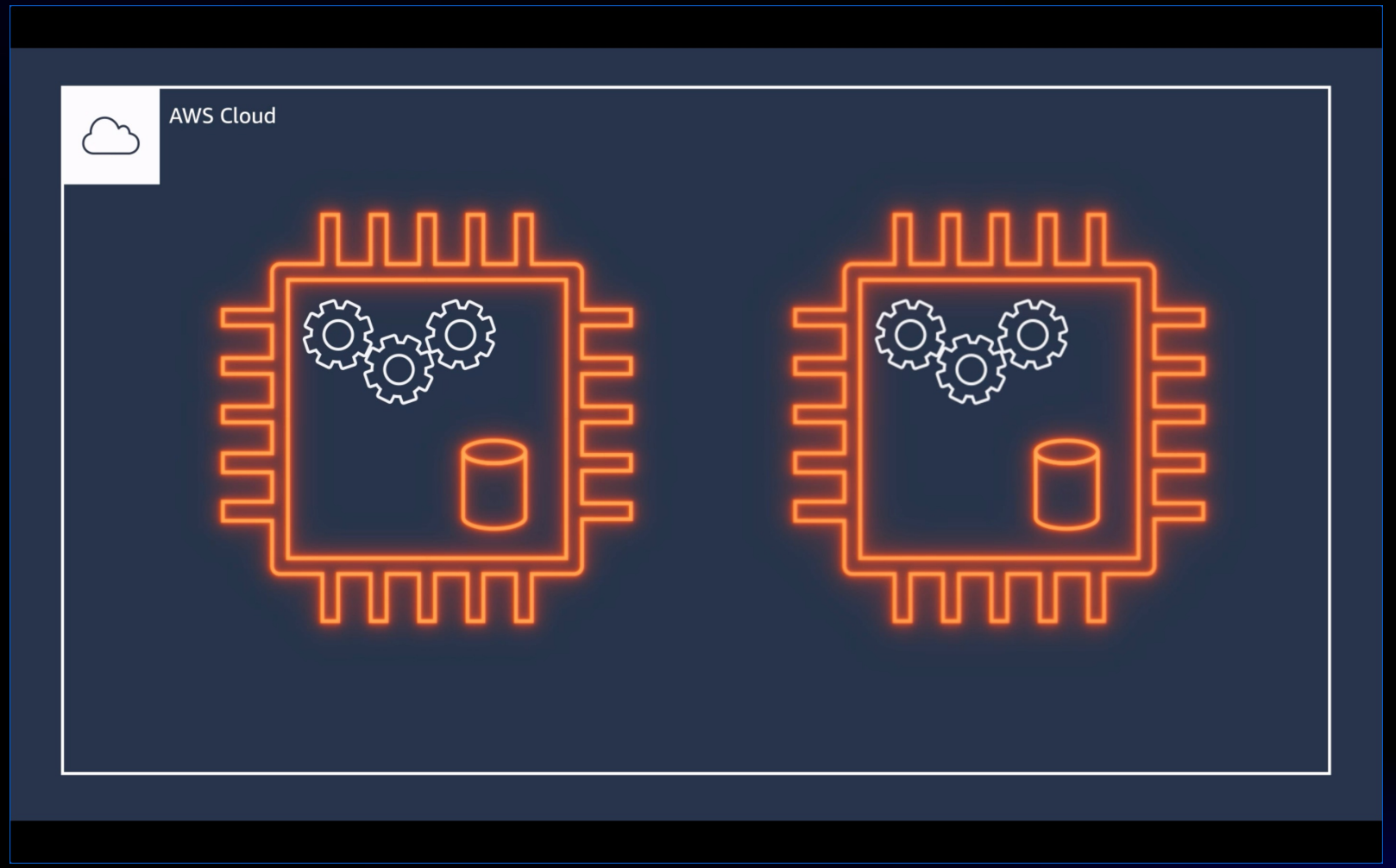
Understand how components fail, and how you can architect around them.



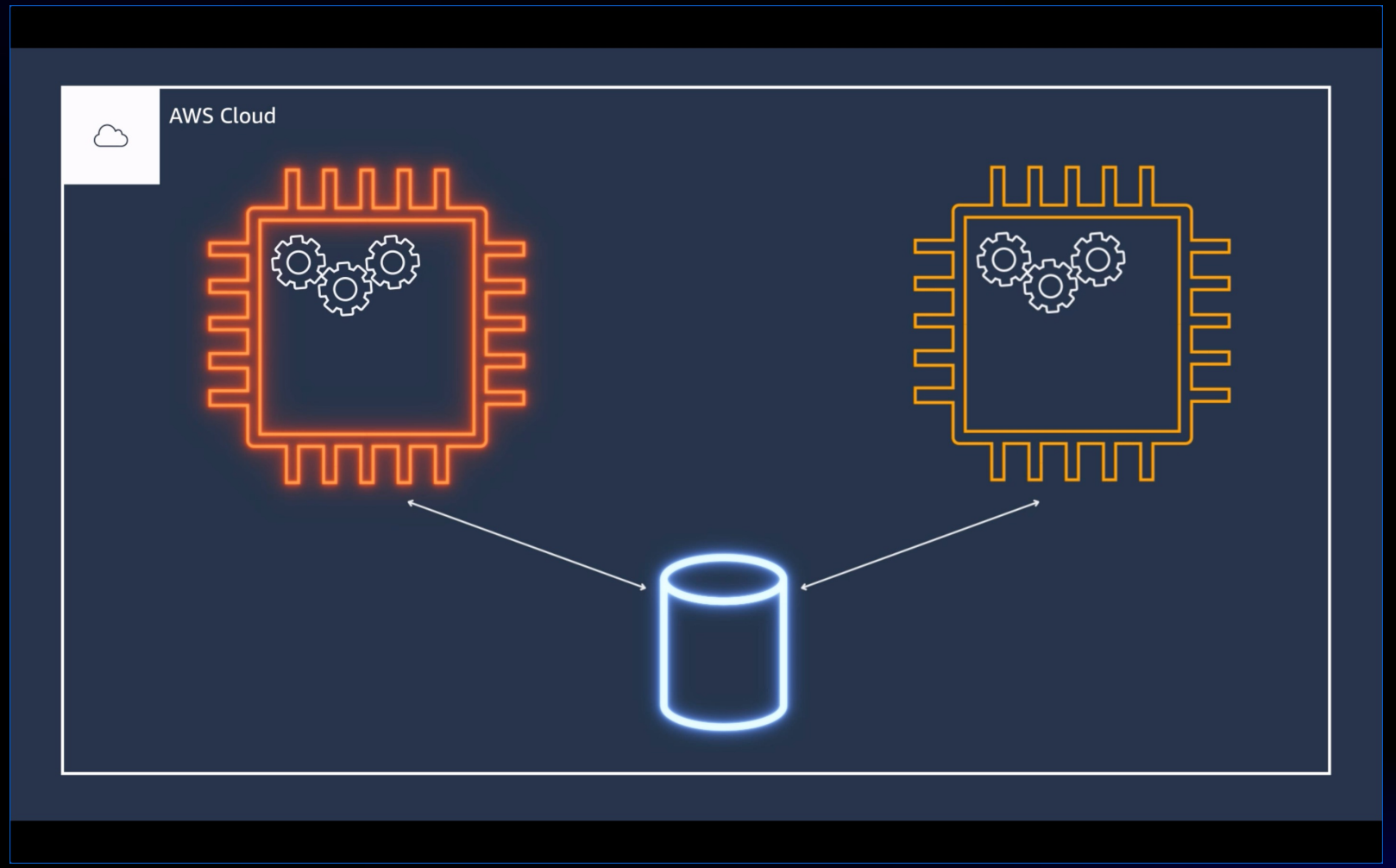
Monolithic architecture vs. decoupled architecture

- **Monolithic architecture** refers to tightly-coupled resources, processes, or components of a solution.
- **Decoupled architecture** lets computing components perform tasks independently.

Monolithic architecture

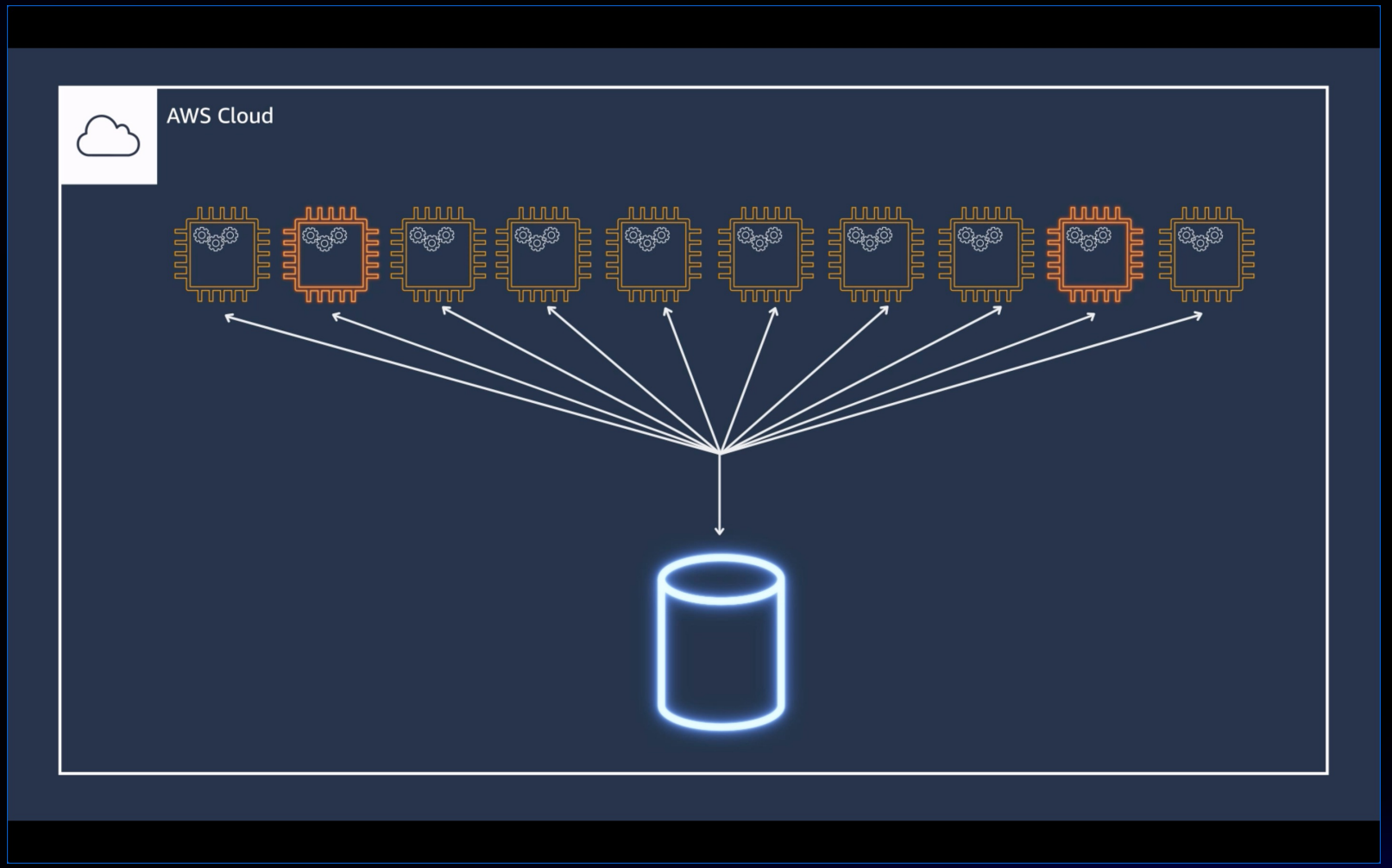


Decoupled architecture



Elasticity in the cloud: Scale out

Scale your needs to meet a demand.



Elasticity in the cloud: Scale in

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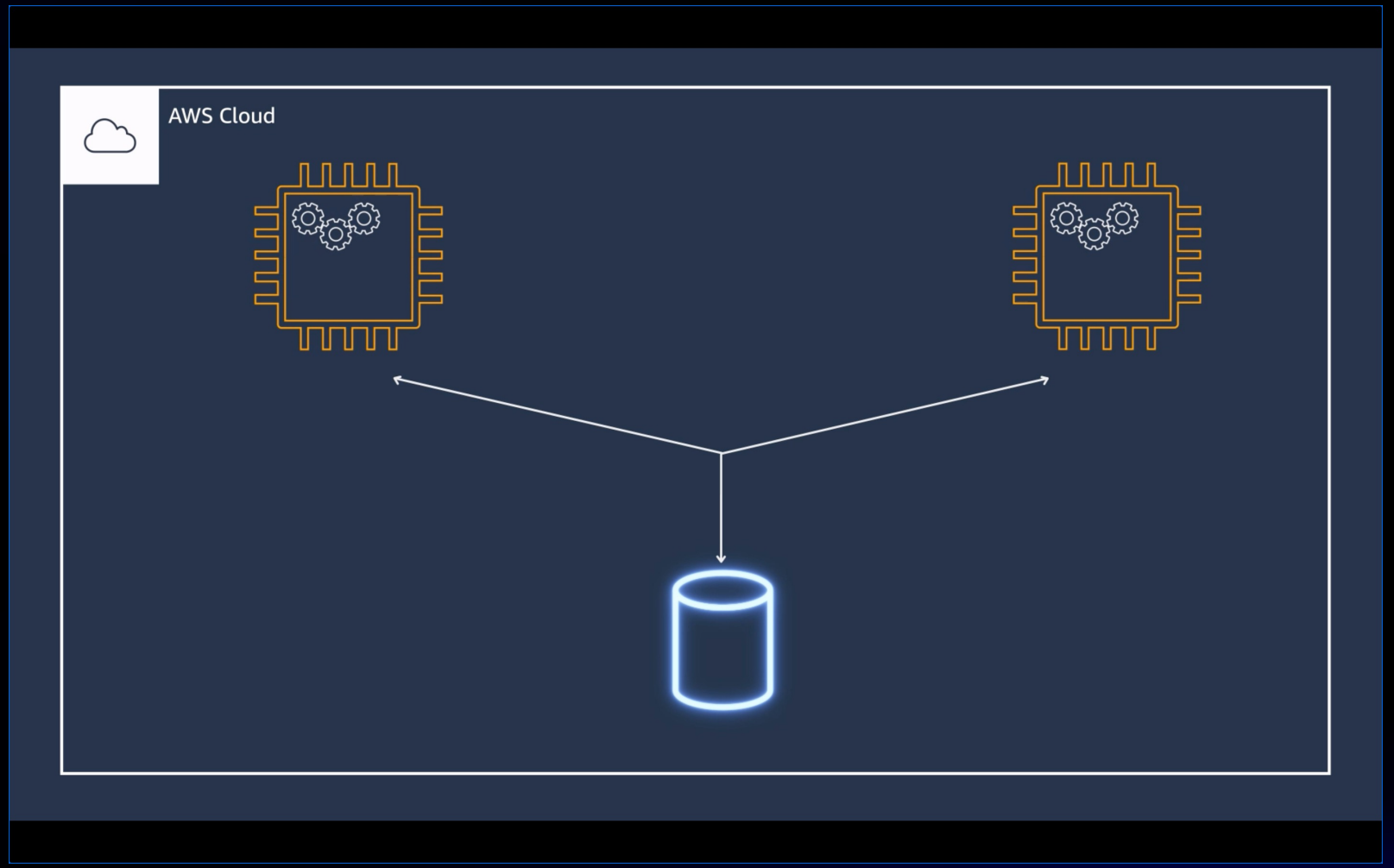


Parallel thinking

Thinking parallel is looking at how you can divide a task into parts that you can run simultaneously instead of sequentially.

Cloud Architecture Design Principles

Domain 1.3: Question Walkthrough

Domain 1.3: Stem

Q

Which of the following is an AWS Cloud architecture design principle?

Domain 1.3: Responses

Q

Which of the following is an AWS Cloud architecture design principle?

A Implement single points of failure

B Implement loose coupling

C Implement monolithic design

D Implement vertical scaling

Domain 1.3: Key

Q

Which of the following is an AWS Cloud architecture design principle?

A Implement single points of failure

B Implement loose coupling

C Implement monolithic design

D Implement vertical scaling

Security and Compliance

Domain 2

Domain 2: Outline

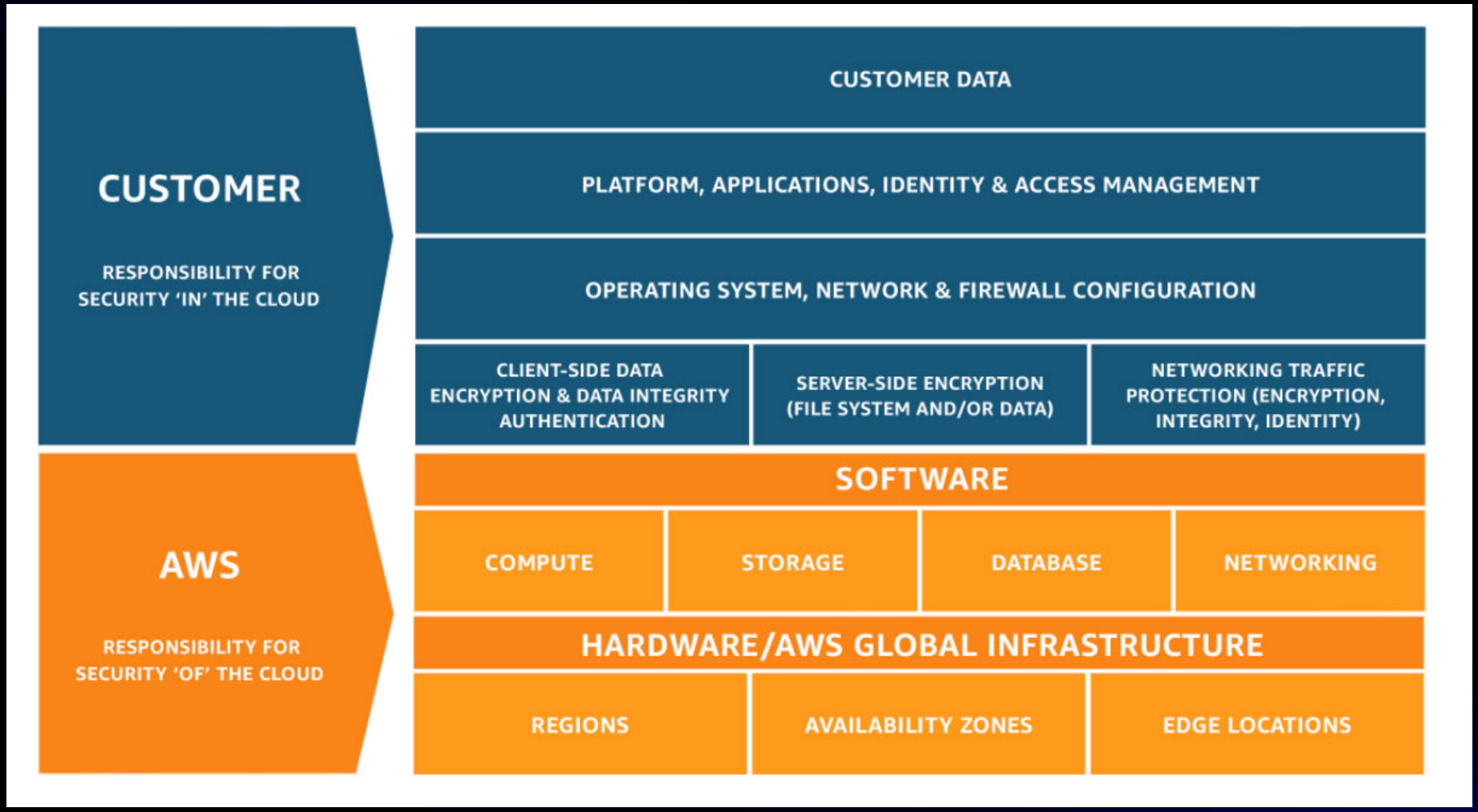
In this domain, we will discuss the following:

- Domain 2.1: AWS Shared Responsibility Model
- Domain 2.2: AWS Cloud and Compliance Concepts
- Domain 2.3: AWS Access Management Capabilities
- Domain 2.4: Resources for Security Support

AWS Shared Responsibility Model

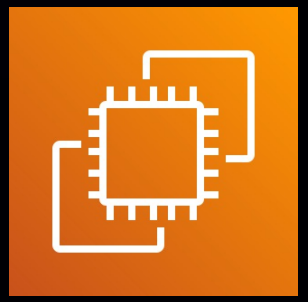
Domain 2.1: Introduction

AWS shared responsibility model



Customer responsibility varies per service

Amazon Relational Database Service (Amazon RDS)



Amazon Elastic Compute Cloud (Amazon EC2)

Amazon DynamoDB

AWS Lambda

AWS Shared Responsibility Model

Domain 2.1: Question Walkthrough

Domain 2.1: Stem

Q

Which of the following is the customer's responsibility under the AWS shared responsibility model?

Domain 2.1: Key words

Q

Which of the following is the customer's responsibility under the AWS shared responsibility model?

Domain 2.1: Responses

Q

Which of the following is the customer's responsibility under the AWS shared responsibility model?

A Patching underlying infrastructure

B Physical security

C Patching Amazon EC2 instances

D Patching network infrastructure

Domain 2.1: Key

Q

Which of the following is the customer's responsibility under the AWS shared responsibility model?

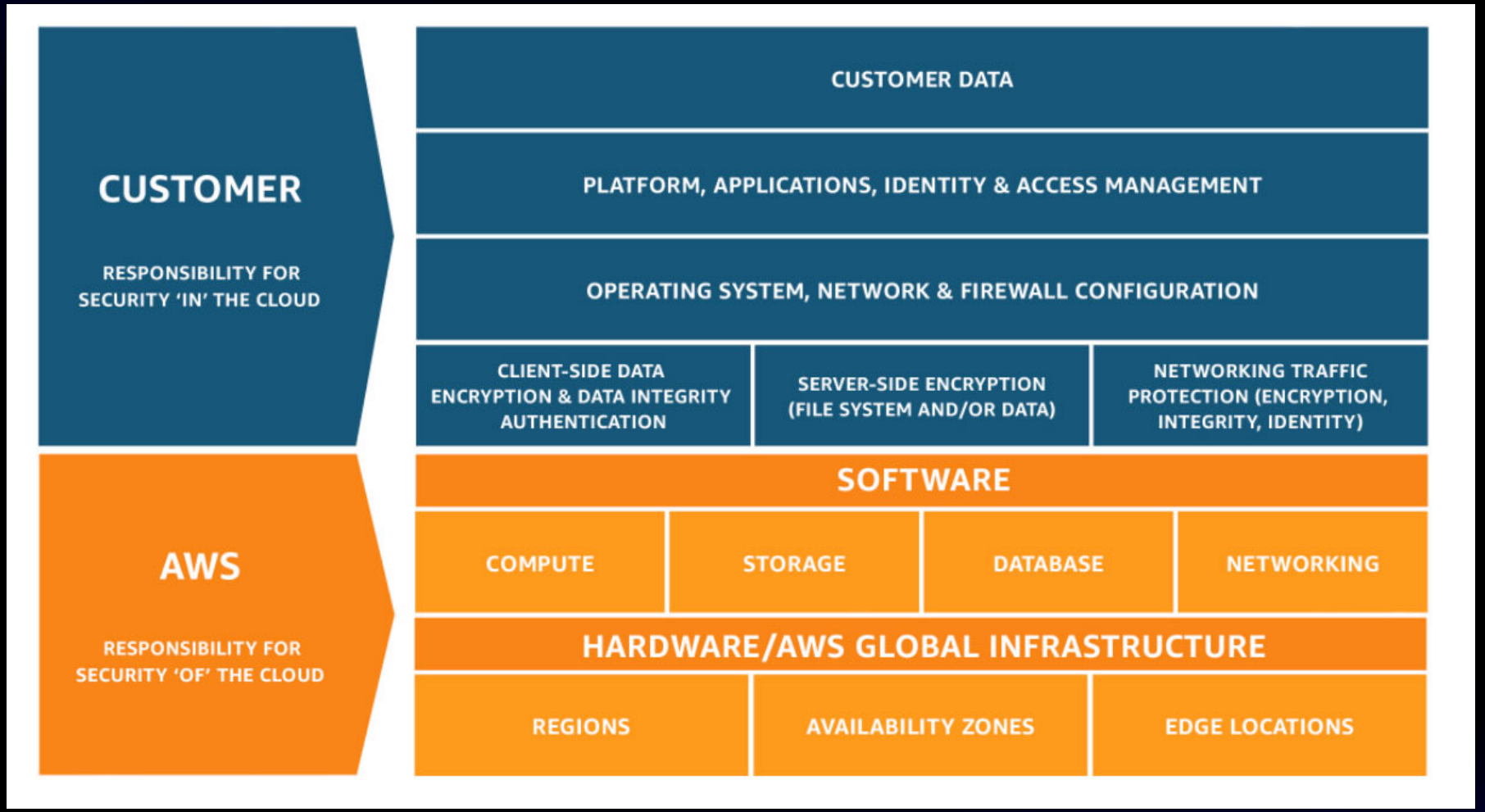
A Patching underlying infrastructure

B Physical security

C Patching Amazon EC2 instances

D Patching network infrastructure

Domain 2.1: Shared responsibility model



AWS Cloud Security and Compliance Concepts

Domain 2.2: Introduction

Compliance knowledge check: Question 1

Where can I find compliance information?

Compliance knowledge check: Question 2

How can I achieve compliance and security on AWS?

AWS Cloud Security and Compliance Concepts

Domain 2.2: Question Walkthrough

Domain 2.2: Stem

Q

Which service enables risk auditing by continuously monitoring and logging account activity, including user actions in the AWS Management Console and AWS SDKs?

Domain 2.2: Key words

Q

Which service enables risk auditing by continuously monitoring and logging account activity, including user actions in the AWS Management Console and AWS SDKs?

Domain 2.2: Responses

Q

Which service enables risk auditing by continuously monitoring and logging account activity, including user actions in the AWS Management Console and AWS SDKs?

A Amazon CloudWatch

B AWS CloudTrail

C AWS Config

D AWS Health

Domain 2.2: Key

Q

Which service enables risk auditing by continuously monitoring and logging account activity, including user actions in the AWS Management Console and AWS SDKs?

A Amazon CloudWatch

B AWS CloudTrail

C AWS Config

D AWS Health

AWS Access Management Capabilities

Domain 2.3: Introduction

User and identity management

Understand AWS Identity and Access Management (IAM).

Explain how the root user differs from other types of users within the AWS account, and how you can create other IAM users to carry out daily tasks.

Study the different ways you can lock your AWS account root user to protect it, and the limited number of tasks that require a root user.

Review different features of IAM: Users, groups, roles, and policies.

AWS Access Management Capabilities

Domain 2.3: Question Walkthrough

Domain 2.3: Stem

Q

Which of the following can limit Amazon Simple Storage Service (Amazon S3) bucket access to specific users?

Domain 2.3: Key words

Q

Which of the following can limit Amazon Simple Storage Service (Amazon S3) bucket access to specific users?

Domain 2.3: Responses

Q

Which of the following can limit Amazon Simple Storage Service (Amazon S3) bucket access to specific users?

A Public and private key pair

B Amazon Inspector

C AWS Identity and Access Management (IAM) policies

D Security Groups

Domain 2.3: Key

Q

Which of the following can limit Amazon Simple Storage Service (Amazon S3) bucket access to specific users?

A Public and private key pair

B Amazon Inspector

C AWS Identity and Access Management (IAM) policies

D Security Groups

Resources for Security Support

Domain 2.4: Introduction

Network security

Security groups

Network access control lists (network ACLs)

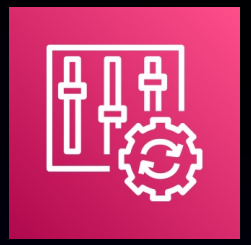
AWS WAF

AWS security services

Amazon Inspector

AWS Trusted Advisor

Amazon CloudWatch



AWS Config

For third-party software and tools

AWS Marketplace

Resources for Security Support

Domain 2.4: Question Walkthrough

Domain 2.4: Stem

Q

Which AWS service or feature can be used to prevent SQL injection attacks?

Domain 2.4: Key words

Q

Which AWS service or feature can be used to prevent SQL injection attacks?

Domain 2.4: Responses

Q

Which AWS service or feature can be used to prevent SQL injection attacks?

A Security groups

B Network ACLs

C AWS WAF

D IAM policy

Domain 2.4: Key

Q

Which AWS service or feature can be used to prevent SQL injection attacks?

A Security groups

B Network ACLs

C AWS WAF

D IAM policy

AWS Technology

Domain 3

Domain 3: Outline

In this domain, we will cover the following:

- Domain 3.1: Methods of deploying and operating
- Domain 3.2: AWS global infrastructure
- Domain 3.3: AWS core services
- Domain 3.4: Resources for technology support

Methods of Deploying and Operating

Domain 3.1: Introduction

Methods to communicate to the AWS Cloud

- Application programming interfaces (APIs) and AWS software development kits (SDKs)
- AWS Command Line Interface (AWS CLI)
- AWS Management Console
- Infrastructure as Code (IaC)

Cloud deployment models

- Cloud native, or all-in with cloud
- Hybrid
- On-premises

Connectivity options

VPN gateway

AWS Direct Connect

Internet gateway

Methods of Deploying and Operating

Domain 3.1: Question Walkthrough

Domain 3.1: Stem

Q

Which components are required to build a successful Site-to-Site VPN connection on AWS? (Select TWO.)

Domain 3.1: Key words

Q

Which components are required to build a successful Site-to-Site VPN connection on AWS? (Select TWO.)

Domain 3.1: Responses

Q Which components are required to build a successful Site-to-Site VPN connection on AWS? (Select TWO).

- **A** Internet gateway
- **B** NAT gateway
- **C** Customer gateway
- **D** Transit gateway
- **E** Virtual private gateway

Domain 3.1: Keys

Q

Which components are required to build a successful Site-to-Site VPN connection on AWS? (Select TWO).

A Internet gateway

B NAT gateway

C Customer gateway

D Transit gateway

E Virtual private gateway

AWS Global Infrastructure

Domain 3.2: Introduction

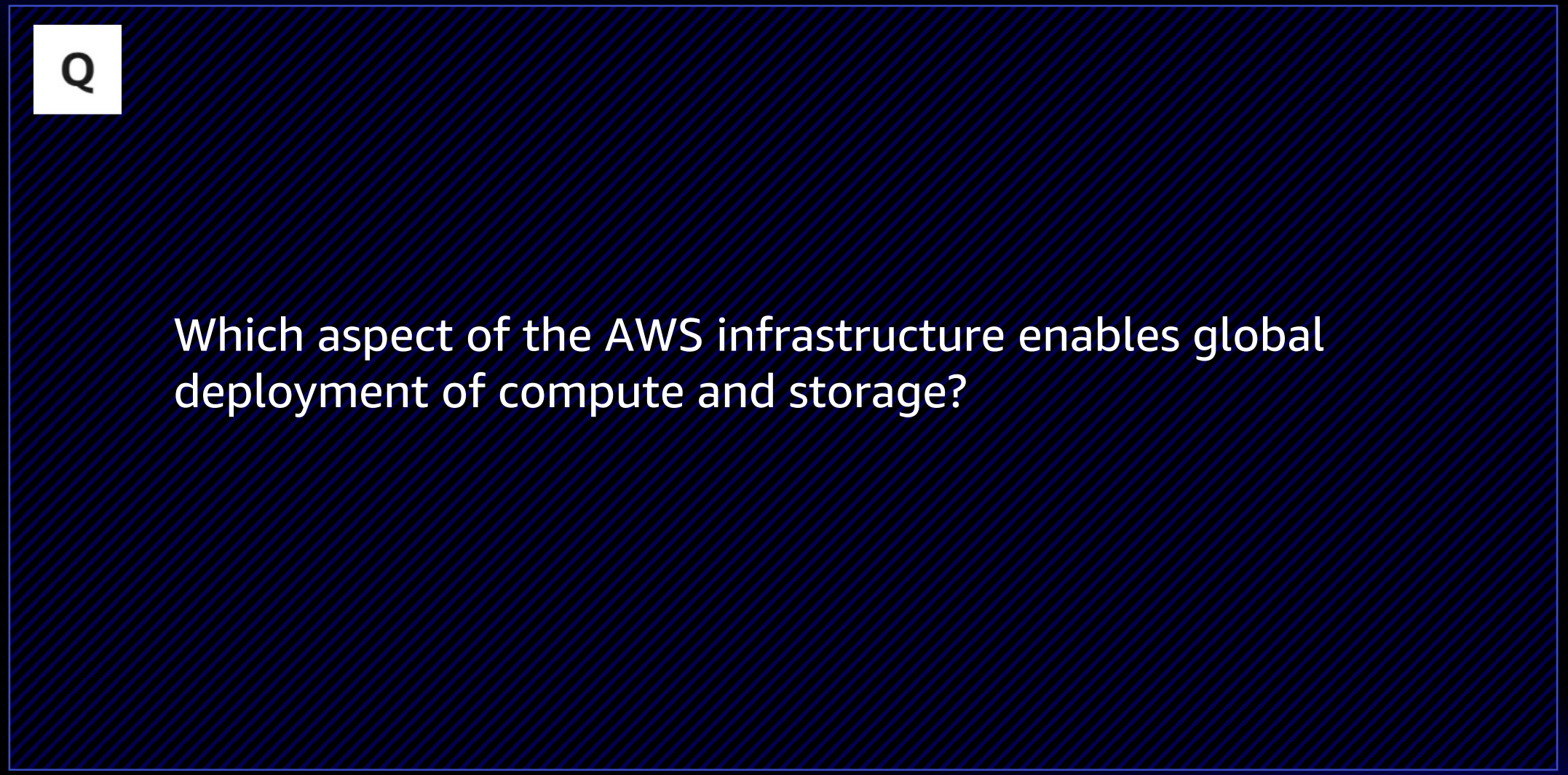
AWS Global Infrastructure

- Availability Zones
- Regions
- Edge locations

AWS Global Infrastructure

Domain 3.2: Question Walkthrough

Domain 3.2: Stem



Domain 3.2: Key words

Q

Which aspect of the AWS infrastructure enables global deployment of compute and storage?

Domain 3.2: Responses

Q

Which aspect of the AWS infrastructure enables global deployment of compute and storage?

A Availability Zones

B Regions

C Tags

D Resource groups

Domain 3.2: Key

Q

Which aspect of the AWS infrastructure enables global deployment of compute and storage?

A Availability Zones

B Regions

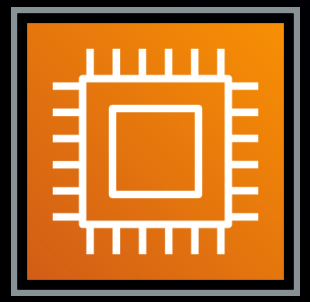
C Tags

D Resource groups

Core AWS Services

Domain 3.3: Introduction

Core AWS Services



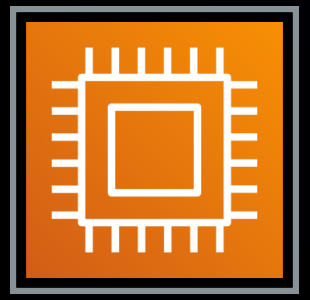
Compute

Storage

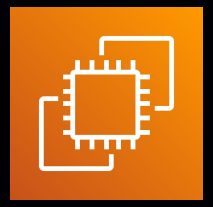
Networking

Database

Compute services



Compute



Amazon Elastic Compute Cloud (Amazon EC2)

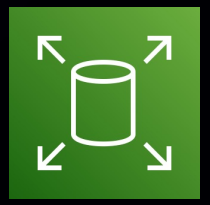
AWS Elastic Beanstalk

Amazon Elastic Container Service (Amazon ECS)

AWS Lambda

Storage services

Data storage



Amazon Elastic Block Store (Amazon EBS)

Amazon Simple Storage Service (Amazon S3)

Amazon Elastic File System (Amazon EFS)

Amazon Simple Storage Service Glacier

Networking services

Networking

Amazon Virtual Private Cloud (Amazon VPC)

AWS Direct Connect

Amazon Route 53

AWS Transit Gateway

Database services

Databases

Amazon Relational Database Service (Amazon RDS)

Amazon DynamoDB

Amazon Aurora

Amazon Neptune

Core AWS Services

Domain 3.3: Question Walkthrough

Domain 3.3: Stem

Q

Which AWS service can MOST efficiently import exabytes of data to the AWS Cloud from an on-premises environment?

Domain 3.3: Key words

Q

Which AWS service can MOST efficiently import exabytes of data to the AWS Cloud from an on-premises environment?

Domain 3.3: Responses

Q

Which AWS service can MOST efficiently import exabytes of data to the AWS Cloud from an on-premises environment?

A AWS Snowmobile

B AWS Storage Gateway

C AWS Snowball

D AWS Direct Connect

Domain 3.3: Key

Q

Which AWS service can MOST efficiently import exabytes of data to the AWS Cloud from an on-premises environment?

A AWS Snowmobile

B AWS Storage Gateway

C AWS Snowball

D AWS Direct Connect

Technology Support

Domain 3.4: Introduction

Support areas

1. Documentation
2. Account-specific support
3. AWS Partner Network (APN)
4. AWS Trusted Advisor

Technology Support

Domain 3.4: Question Walkthrough

Domain 3.4: Stem

Q

Which AWS Support plan provides access to architectural and operational reviews, as well as 24/7 access to senior cloud support engineers through email, online chat, and phone?

Domain 3.4: Key words

Q

Which AWS Support plan provides access to architectural and operational reviews, as well as 24/7 access to senior cloud support engineers through email, online chat, and phone?

Domain 3.4: Responses

Q

Which AWS Support plan provides access to architectural and operational reviews, as well as 24/7 access to senior cloud support engineers through email, online chat, and phone?

A Basic

B Business

C Developer

D Enterprise

Domain 3.4: Key

Q

Which AWS Support plan provides access to architectural and operational reviews, as well as 24/7 access to senior cloud support engineers through email, online chat, and phone?

A Basic

B Business

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D Enterprise

Billing and Pricing

Domain 4

Domain 4: Outline

In this domain, we will cover the following:

- Domain 4.1: Pricing Models for AWS
- Domain 4.2: Account Structures with AWS Billing and Pricing
- Domain 4.3: Resources Available for Billing Support

Pricing Models for AWS

Domain 4.1: Introduction

Amazon EC2 pricing models

On-Demand Instances

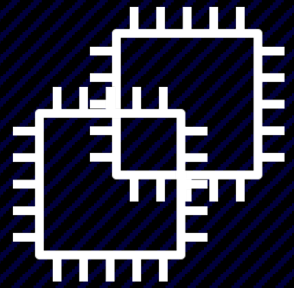
Reserved Instances

Savings Plans

Amazon EC2 Spot Instances

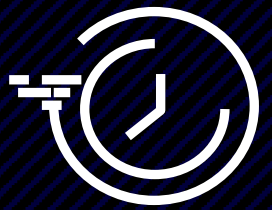
On-Demand Instance pricing model

On-Demand



Is the most-flexible pricing option

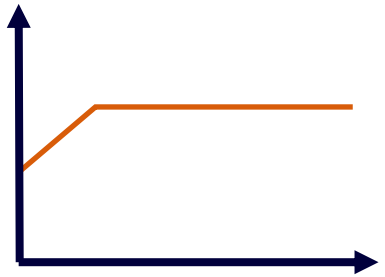
Costs more than other pricing options



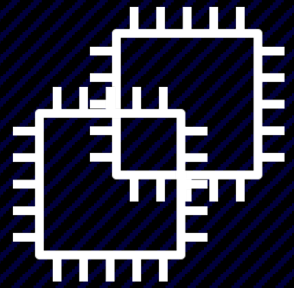
Has no time commitment

aws

Reserved Instance pricing model

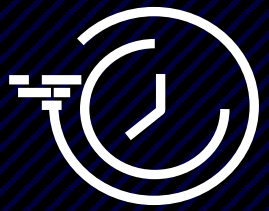


Reserved



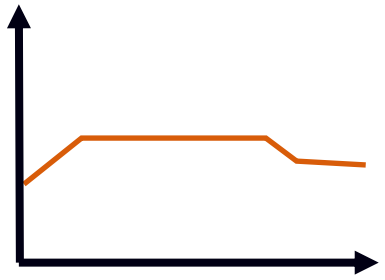
Requires reserving a minimum amount of resources

Offers discounts of up to 72%

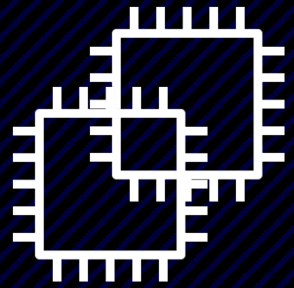


Requires a commitment of 1 year or 3 years

Savings Plans pricing model

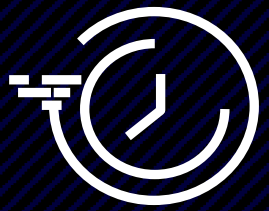


Savings Plans



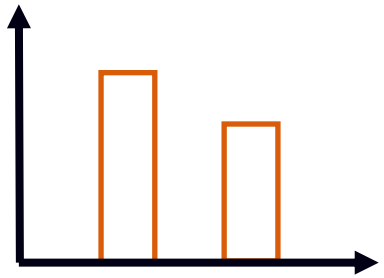
Provides increased flexibility and no management overhead

Offers discounts of up to 72%

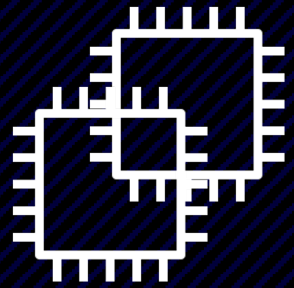


Requires a commitment of 1 year or 3 years

Spot Instance pricing model

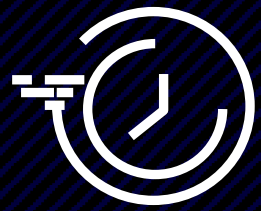


Spot Instance



Provides a 2-minute warning before EC2 capacity runs out

Offers discounts of up to 90% off On-Demand Instance prices



Has no time commitment

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Pricing Models for AWS

Domain 4.1: Question Walkthrough

Domain 4.1: Stem

Q

A company has an application that only needs to run for 2 hours at any time during a day. Which Amazon EC2 instance type will be MOST cost-effective for this application?

Domain 4.1: Key words

Q

A company has an application that only needs to run for 2 hours at any time during a day. Which Amazon EC2 instance type will be MOST cost-effective for this application?

Domain 4.1: Responses

Q

A company has an application that only needs to run for 2 hours at any time during a day. Which Amazon EC2 instance type will be MOST cost-effective for this application?

A Dedicated Instances

B On-Demand Instances

C Reserved Instances

D Spot Instances

Domain 4.1: Key

Q

A company has an application that only needs to run for 2 hours at any time during a day. Which Amazon EC2 instance type will be MOST cost-effective for this application?

A Dedicated Instances

B On-Demand Instances

C Reserved Instances

D Spot Instances

Account Structures with AWS Billing and Pricing

Domain 4.2: Introduction

AWS account structures

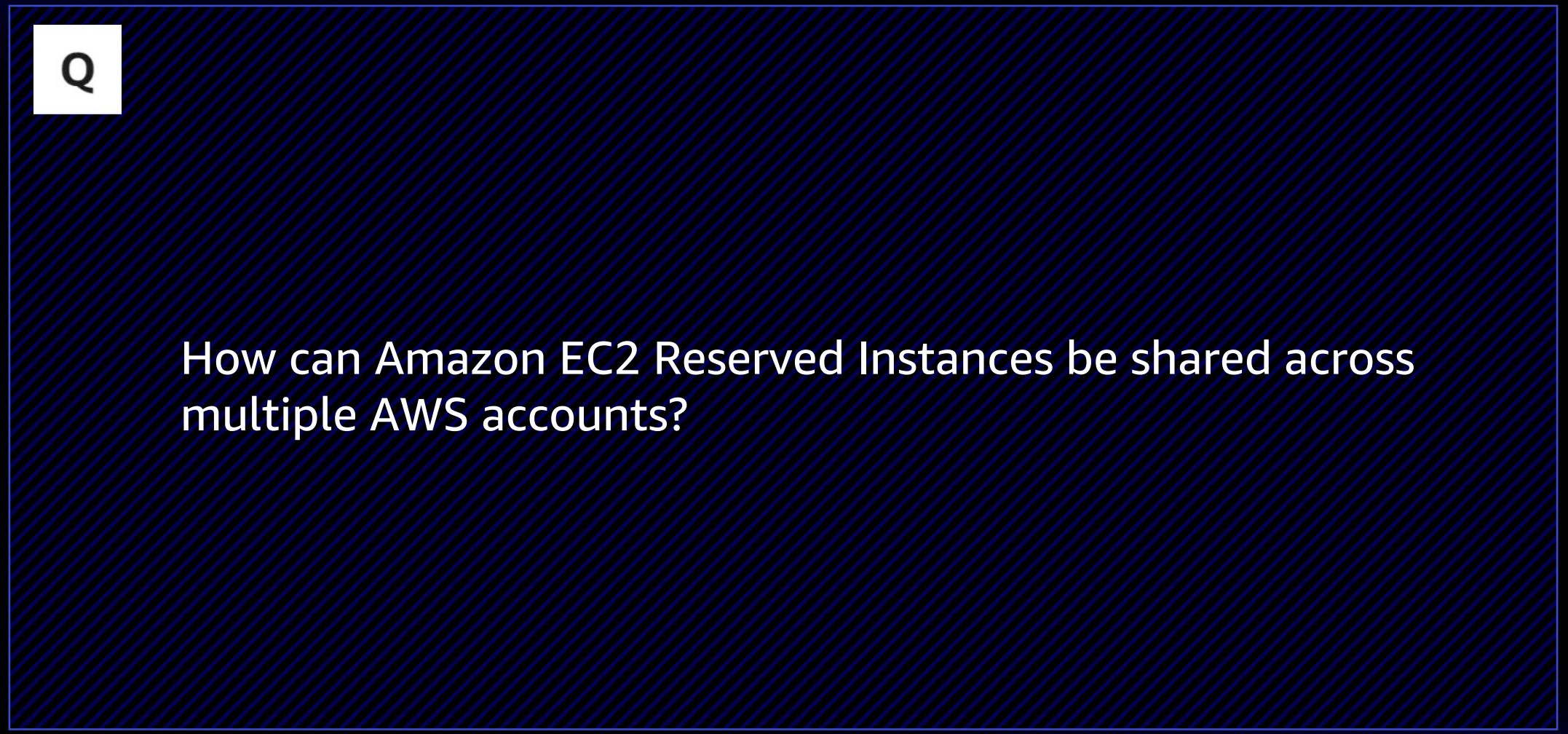
For this domain, you should know how to:

- Recognize the different AWS billing and pricing account structures.
- Use multiple accounts.
- Track costs by project, team, or department.
- Consolidate AWS bills to one parent AWS account.
- Use different billing features of AWS Organizations.

Account Structures with AWS Billing and Pricing

Domain 4.2: Question Walkthrough

Domain 4.2: Stem



Domain 4.2: Key words

How can Amazon EC2 Reserved Instances be shared across multiple AWS accounts?

Domain 4.2: Responses

Q

How can Amazon EC2 Reserved Instances be shared across multiple AWS accounts?

A AWS Cost Explorer activated on all AWS accounts

B AWS Organizations consolidated billing

C AWS Compute Optimizer activated on all AWS accounts

D IAM cross-account roles

Domain 4.2: Key

Q

How can Amazon EC2 Reserved Instances be shared across multiple AWS accounts?

A AWS Cost Explorer activated on all AWS accounts

B AWS Organizations consolidated billing

C AWS Compute Optimizer activated on all AWS accounts

D IAM cross-account roles

Resources Available for Billing Support

Domain 4.3: Introduction

AWS Cost Explorer

Cloud Financial Management | Solutions | Services | Customers | Resources | Blog | Pricing | FAQ

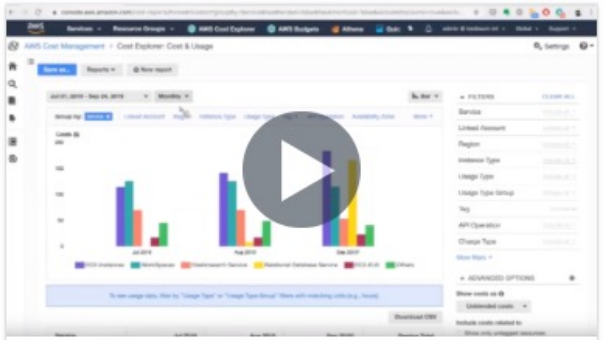
AWS Cost Explorer

Visualize, understand, and manage your AWS costs and usage over time

Get started with AWS Cost Explorer

AWS Cost Explorer has an easy-to-use interface that lets you visualize, understand, and manage your AWS costs and usage over time.

Get started quickly by creating custom reports that analyze cost and usage data. Analyze your data at a high level (for example, total costs and usage across all accounts) or dive deeper into your cost and usage data to identify trends, pinpoint cost drivers, and detect anomalies.



How can I use AWS Cost Explorer?

AWS Cost and Usage Report

AWS Cost & Usage Report | Overview | Features | FAQs | Cloud Financial Management

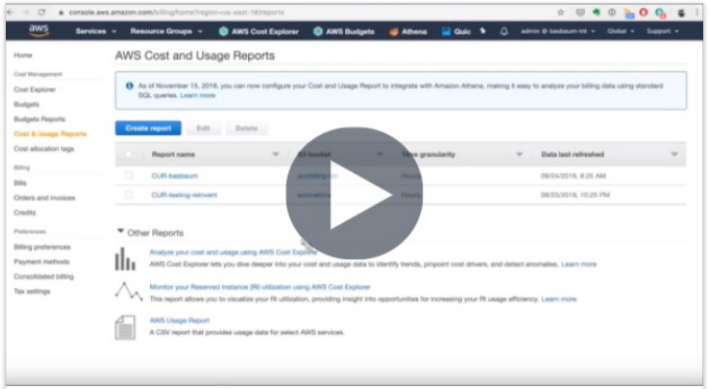
AWS Cost & Usage Report

Dive deeper into your AWS cost and usage data

Getting Started with AWS Cost & Usage Report

The AWS Cost & Usage Report contains the most comprehensive set of AWS cost and usage data available, including additional metadata about AWS services, pricing, credit, fees, taxes, discounts, cost categories, Reserved Instances, and Savings Plans.

The AWS Cost & Usage Report (CUR) itemizes usage at the account or Organization level by product code, usage type and operation. These costs can be further organized by Cost Allocation tags and Cost Categories. The AWS Cost & Usage Report is available at an hourly, daily, or monthly level of granularity, as well as at the management or member account level. With the right access, users can access CUR at management and member account level, which saves management account holders from having to generate CUR reports for member accounts.



AWS Cost & Usage Report Demo

Usage and cost services

Amazon QuickSight

AWS Marketplace

For more information about the AWS pricing, see: aws.amazon.com/pricing

Resources Available for Billing Support

Domain 4.3: Question Walkthrough

Domain 4.3: Stem

Q

Which AWS service or feature allows a company to visualize, understand, and manage AWS costs and usage over time?

Domain 4.3: Responses

Q

Which AWS service or feature allows a company to visualize, understand, and manage AWS costs and usage over time?

A AWS Budgets

B AWS Cost Explorer

C AWS Organizations

D Consolidated billing

Domain 4.3: Key

Q

Which AWS service or feature allows a company to visualize, understand, and manage AWS costs and usage over time?

A AWS Budgets

B AWS Cost Explorer

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D Consolidated billing