

JON BONSO

AWS CERTIFIED
**CLOUDOPS
ENGINEER
ASSOCIATE**
VERSION 3.0



Tutorials Dojo Study Guide



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INTRODUCTION

Today, we live in a world of fast-paced innovation and the invention of new technologies, where competitors race to develop the next disruptive product in the market. Companies with on-premises resources are quickly shifting to the cloud, such as AWS, for the many advantages that it brings. Furthermore, AWS has been the leading cloud service provider for the past few years and is continually releasing brand-new offerings. Millions of users and businesses have already adopted the AWS platform for their operations, but not all can capitalize on the benefits that AWS brings to its customers. It takes well-trained individuals to operate on the AWS cloud platform effectively.

AWS is built and managed by highly experienced engineers who offer their expertise to deliver the best products and solutions. That is why you can almost always find a function or service in AWS that would fulfill whatever need or requirement you have. A lot of the heavy lifting is offloaded from you as the customer so that you can dedicate your efforts and resources to your business operations. Another significant benefit of the AWS cloud is that it is extremely cost-effective and offers a way to expedite the launch of your products and services compared with the traditional methods. Resources can be quickly provisioned for a very low price and can be decommissioned quickly once you don't need them anymore. The cloud is an essential infrastructure piece in most companies, as you can quickly spin up or tear down test environments with just a push of a button. It can simplify deployment processes that are usually difficult and expensive to do in traditional data center setups.

The AWS Certified CloudOps Engineer Associate (SOA-C03) is a well-recognized certificate in the IT industry and is a major booster for career opportunities and salary increases. Having this certificate under your belt means that you indeed have the relevant knowledge and skills in deployment, management, and operations on AWS. Once you have gained more experience with AWS, you can also aim for higher-level certifications, such as the AWS Certified DevOps Engineer Professional certificate. The Professional and Specialty level certification exams in AWS are quite difficult and require extensive hands-on experience in order to ensure a pass. So if you are planning to pursue a career in Cloud DevOps, passing the AWS Certified CloudOps Engineer Associate is a great way to start the journey.

Note: We took extra care to come up with these concise articles and cheat sheets; however, this is meant to be just a supplementary resource when preparing for the exam. We highly recommend doing these [hands-on lab sessions](#), [video course](#), and [practice exams](#) to expand your knowledge further and improve your test-taking skills.



AWS CERTIFIED CLOUDOPS ENGINEER ASSOCIATE EXAM OVERVIEW

In 2013, Amazon Web Services (AWS) began the Global Certification Program with the primary purpose of validating the technical skills and knowledge for building secure and reliable cloud-based applications using the AWS platform. By successfully passing the AWS exam, individuals can prove their AWS expertise to their current and future employers. The AWS Certified Solutions Architect - Associate exam was the first AWS certification that was launched, followed by two other role-based certifications: Systems Operations (SysOps) Administrator and Developer Associate later that year.

As of September 2025, the AWS Certified SysOps Administrator - Associate exam has been renamed and updated. The new version is AWS Certified CloudOps Engineer - Associate (SOA-C03), reflecting evolving industry terms and the broader scope of modern cloud operations. This new title applies exclusively to individuals who pass the updated SOA-C03 exam. Those who previously earned the AWS Certified SysOps Administrator - Associate will retain that original designation; the change will not be applied retroactively.

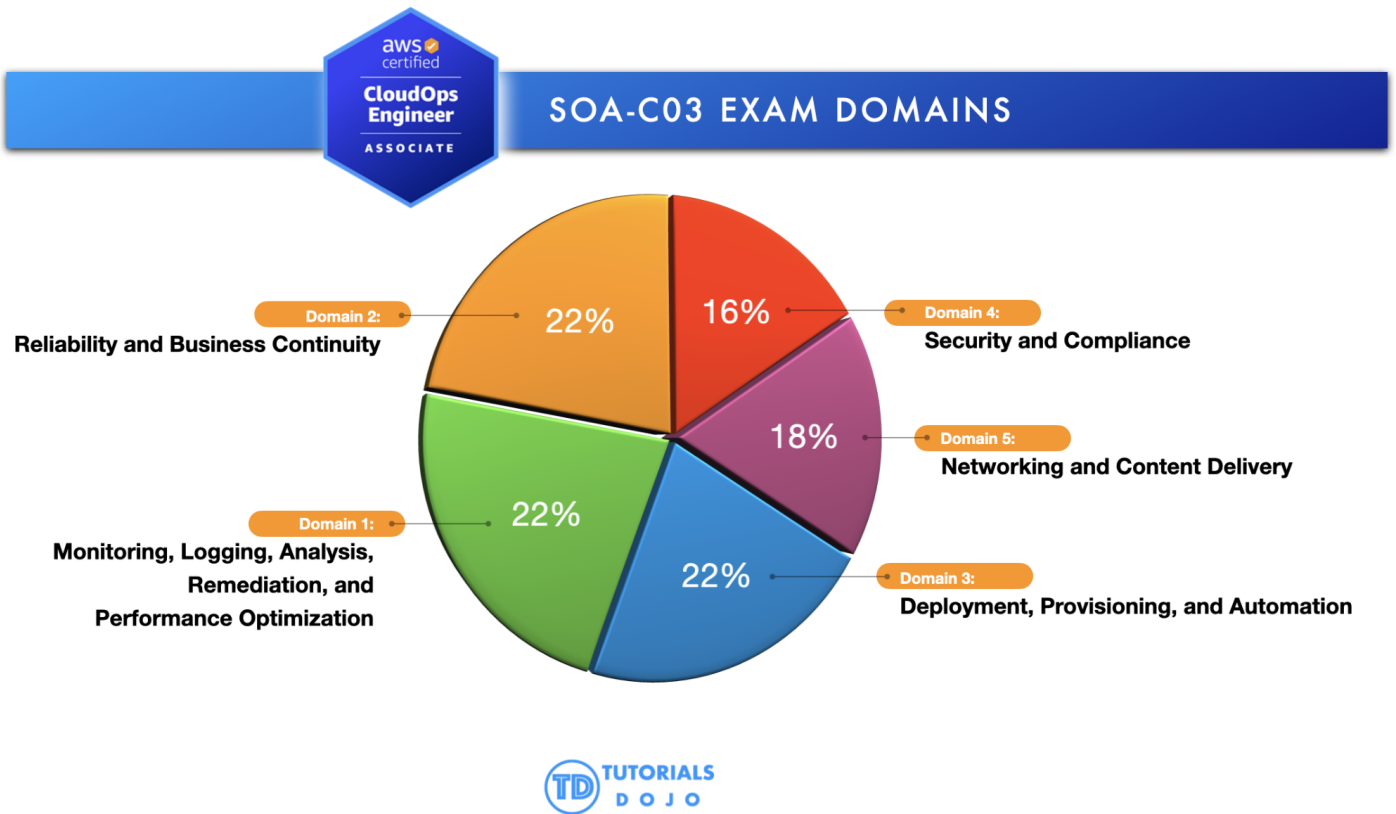
Exam Details

The AWS Certified CloudOps Engineer - Associate examination is intended for CloudOps engineers with at least one year of experience in deployment, management, troubleshooting, networking, and security on AWS. The number of questions varies, depending on the exam.

Exam Code:	SOA-C03
No. of Questions:	65
Score Range:	100/1000
Passing Score:	720/1000
Time Limit:	130 minutes
Format:	Multiple choice/multiple response questions
Delivery Method:	Testing center or online proctored exam

Exam Domains

The AWS Certified CloudOps Engineer - Associate exam has five (5) different domains, each with corresponding weight and topic coverage. The domains are: Monitoring, Logging, Analysis, Remediation, and Performance Optimization (22%), Reliability and Business Continuity (22%), Deployment, Provisioning, and Automation (22%), Security and Compliance (16%), and Networking and Content Delivery (18%).



Domain 1: Monitoring, Logging, Analysis, Remediation, and Performance Optimization (22%)

- 1.1 Implement metrics, alarms, and filters by using AWS monitoring and logging services
- 1.2 Identify and remediate issues by using monitoring and availability metrics
- 1.3 Implement performance optimization strategies for compute, storage, and database resources

Domain 2: Reliability and Business Continuity (22%)

- 2.1 Implement scalability and elasticity
- 2.2 Implement highly available and resilient environments
- 2.3 Implement backup and restore strategies

Domain 3: Deployment, Provisioning, and Automation (22%)

- 3.1 Provision and maintain cloud resources
- 3.2 Automate the management of existing resources



Domain 4: Security and Compliance (16%)

- 4.1 Implement and manage security and compliance tools and policies
- 4.2 Implement strategies to protect data and infrastructure

Domain 5: Networking and Content Delivery (18%)

- 5.1 Implement and optimize networking features and connectivity
- 5.2 Configure domains, DNS services, and content delivery
- 5.3 Troubleshoot network connectivity issues

Exam Scoring

You can get a score from 100 to 1,000 with a minimum passing score of **720** when you take the AWS Certified CloudOps Engineer Associate exam. AWS uses a scaled scoring model to associate scores across multiple exam types that may have different levels of difficulty. Your complete score report will be sent to you by email about 3 to 5 business days after your exam.

For individuals who unfortunately did not pass their exams, they must wait for 14 days before they are allowed to retake the exam. There is no hard limit on the number of attempts you can retake an exam. Once you pass, you'll receive various benefits, such as a 50% discount coupon, which you can use for your next AWS exam.

Once you receive your score report via email, the result should also be saved in your AWS Certification account already. The score report contains a table of your performance on each domain, and it will indicate whether you have met the level of competency required for these domains.

Take note that you do not need to achieve competency in all domains for you to pass the exam. At the end of the report, there will be a score performance table that highlights your strengths and weaknesses, which will help you determine the areas you need to improve on.



Exam Benefits

If you have successfully passed any AWS exam, you will be eligible for the following benefits:

- **Exam Discount** - You'll get a 50% discount voucher that you can apply for your recertification or any other exam you plan to pursue. To access your discount voucher code, go to the "Benefits" section of your AWS Certification account and apply the voucher when you register for your next exam.
- **Certification Digital Badges** - You can showcase your achievements to your colleagues and employers with digital badges on your email signatures, LinkedIn profile, or social media accounts. You can also show your Digital Badge to gain exclusive access to Certification Lounges at AWS re:Invent, regional Appreciation Receptions, and select AWS Summit events. To view your badges, simply go to the "Digital Badges" section of your AWS Certification Account.
- **Event Recognition** - You can receive invitations to regional Appreciation Receptions and use your digital badge for exclusive access to AWS Certification Lounges at AWS re:Invent and select AWS Summit events.

You can visit the official AWS Certification FAQ page to view the frequently asked questions about getting AWS Certified and other information about the AWS Certification: <https://aws.amazon.com/certification/faqs/>.



AWS CERTIFIED CLOUDOPS ENGINEER ASSOCIATE EXAM - STUDY GUIDE AND TIPS

If you are a Systems Administrator or a DevOps Engineer, then this certification will test your knowledge on various knowledge areas in the AWS Cloud platform. Your experience will come in handy in passing the exam, but this should be complemented by actual experience in working with your cloud workloads. Doing several hands-on labs is quite helpful, too, as it will give you that much-needed experience and insight into how the different AWS services work.

The AWS Certified CloudOps Engineer Associate exam will verify your ability to perform the following:

- Deploy, manage, and operate workloads on AWS
- Support and maintain AWS workloads according to the AWS Well-Architected Framework
- Perform operations by using the AWS Management Console and the AWS CLI
- Implement security controls to meet compliance requirements
- Monitor, log, and troubleshoot systems
- Apply networking concepts (for example, DNS, TCP/IP, firewalls)
- Implement architectural requirements (for example, high availability, performance, capacity)
- Perform business continuity and disaster recovery procedures
- Identify, classify, and remediate incidents

You should also be knowledgeable about the AWS Well-Architected Framework, AWS Deployment Options. Having prior knowledge of fundamental networking and security will also be very valuable. This guide aims to provide you with a straightforward guide when reviewing for this exam.

Study Materials

There are many study resources that you can use to prepare for the AWS Certified CloudOps Engineer - Associate (SOA-C03) exam; however, your source of truth should always be the [official exam guide](#). You should also know the latest exam code of the CloudOps exam, which is SOA-C03, so you can ensure that the study materials you are using is not for the previous exam version (e.g. SOA-C02). Use the official exam guide to know the relevant exam topics of the test and verify if the resources you are using adequately cover the required knowledge areas.

- [AWS Certified SysOps Administrator - Associate video course](#)
- [AWS Certified CloudOps Engineer - Associate SOA-C03 Practice Exams](#)
- [AWS Cheat Sheets](#)
- [AWS Hands-On Labs](#)



Recommended Whitepapers

The whitepapers listed below are arranged in such a way that you will learn the concepts first, before proceeding to application and best practices. If you need a refresh on your AWS fundamentals, go check out our guide on the [AWS Certified Cloud Practitioner Exam](#) before proceeding below.

1. [Amazon Virtual Private Cloud Connectivity Options](#) - Study how you can connect different VPCs together, your VPCs to your on-premises network, and vice versa.
2. [How AWS Pricing Works](#) - Study the fundamental drivers of cost in AWS, the pricing models of commonly used services in compute, storage, and database, and how to optimize your costs.
3. [AWS Well-Architected Framework](#) - This whitepaper is one of the most important papers that you should study for the SOA-C03 exam. It discusses the different pillars that make up a well-architected cloud environment.
4. [Overview of Deployment Options on AWS](#) - This is an optional whitepaper that you can read to be aware of your deployment options in AWS. There is a chance that this might come up in the exam.
5. [AWS Disaster Recovery Plans](#) - As a CloudOps Engineer, you should be familiar with your DR options when outages occur. Having knowledge of DR will determine how fast you can recover your infrastructure.

AWS Services to Focus On

AWS offers extensive documentation and well-written FAQs for all of their services. These two will be your primary source of information when studying. Furthermore, as an AWS CloudOps Engineer, you need to be well-versed in a number of AWS products and services since you will almost always be using them in your work. I recommend checking out [Tutorials Dojo's AWS Cheat Sheets](#) which provides a summarized but highly informative set of notes and tips for your review of these services.

Core AWS Services to focus on:

1. [EC2](#) - As the most fundamental computing service offered by AWS, you should know about EC2 inside out.
2. [Elastic Load Balancer](#) - Load balancing is very important for a highly available system. Study the different types of ELBs and the features each of them supports.
3. [Auto Scaling](#) - Study what services in AWS can be auto-scaled, what triggers scaling, and how auto-scaling increases/decreases the number of instances.
4. [Elastic Block Store](#) - As the primary storage solution of EC2, study the types of EBS volumes available. Also study how to secure, backup, and restore EBS volumes.
5. [S3 / Glacier](#) - Study what the S3 storage types are and the differences between them. Also review the capabilities of S3, such as hosting a static website, securing access to objects using policies, lifecycle policies, etc. Learn as much about S3 as you can.



6. VPC - Study every service that is used to create a VPC (subnets, route tables, internet gateways, nat gateways, VPN gateways, etc). Also, review the differences between network access control lists and security groups and during which situations they are applied.
7. Route 53 - Study the different types of records in Route 53 and the various routing policies. Know what hosted zones and domains are.
8. RDS - Know how each RDS database differs from one another, and how they are different from Aurora. Determine what makes Aurora unique, and when it should be preferred from other databases (in terms of function, speed, cost, etc). Learn about parameter groups, option groups, and subnet groups.
9. DynamoDB - Consider how DynamoDB compares to RDS, ElastiCache, and Redshift. This service is also commonly used for serverless applications along with Lambda.
10. ElastiCache - Familiarize yourself with ElastiCache Redis and its functions. Determine the areas/services where you can place a caching mechanism to improve data throughput, such as managing the session state of an ELB, optimizing RDS instances, etc.
11. SQS - Gather info on why SQS is helpful in decoupling systems. Study how messages in the queues are being managed (standard queues, FIFO queues, dead letter queues). Know the differences between SQS, SNS, SES, and Amazon MQ.
12. SNS - Study the function of SNS and what services can be integrated with it. Also, be familiar with the supported recipients of SNS notifications.
13. IAM - Services such as IAM Users, Groups, Policies, and Roles are the most important to learn. Study how IAM integrates with other services and how it secures your application through different policies. Also, read on the best practices when using IAM.
14. CloudWatch - Study how monitoring is done in AWS and what types of metrics are sent to CloudWatch. Also read upon CloudWatch Logs, CloudWatch Alarms, and the custom metrics made available with CloudWatch Agent.
15. CloudTrail - Familiarize yourself with how CloudTrail works, and what kinds of logs it stores as compared to CloudWatch Logs.
16. Config - Be familiar with the situations where AWS Config is useful.
17. CloudFormation - Study how CloudFormation is used to automate infrastructure deployment. Learn the basic makeup of a CloudFormation template, stack, and stack set.
18. KMS - Familiarize how KMS integrates with other services in storing encryption keys.
19. Secrets Manager - Understand how Secrets Manager stores secrets and how you can use them with other AWS services.
20. Parameter Store - Know when to use Parameter store and how compute services like EC2, ECS, and Lambda utilize it.
21. DataSync - Familiarize yourself with which AWS services can be used to migrate data from an on-premises data center.

Some additional services we recommend to review:

1. Trusted Advisor
2. Systems Manager



3. [CodeDeploy](#)
4. [CodePipeline](#)
5. [CloudFront](#)
6. [Cost and Billing Management Console](#)
7. [Direct Connect](#)
8. Amazon FSx for Windows File Server and Amazon FSx for Lustre
9. AWS Backup
10. EC2 Image Builder
11. S3 Transfer Acceleration
12. AWS Global Accelerator
13. RDS Proxy
14. IAM Access Analyzer

Common Exam Scenarios

Scenario	Solution
Monitoring, Logging, Analysis, Remediation, and Performance Optimization	
You need to set up an alert that notifies the IT manager about EC2 instances service limits.	Use Amazon Eventbridge to detect and react to changes in the status of Trusted Advisor checks
You need to track the deletion and rotation of KMS keys.	Use AWS CloudTrail to log AWS KMS API calls
You need to investigate if the traffic is reaching the EC2 instance.	Use VPC flow logs
You need to ensure that the SSH protocol is always disabled on private servers.	Use AWS Config Rules
You need to retrieve the instance metadata of an EC2 instance.	http://169.254.169.254/latest/
You have to monitor the CPU usage of a single process in your EC2 instance.	Use the CloudWatch Agent procstat plugin to monitor system utilization.
You need to generate a report on the replication and encryption status of all of the objects stored in the S3 bucket.	Use S3 Inventory
Metric to use to alarm when all instances behind an ALB becomes unhealthy	<code>AWS/ApplicationELB HealthyHostCount <= 0</code>



Monitor restricted CIDR changes on a security group and remove them automatically.	Use AWS Config to evaluate the security group and AWS Systems Manager Automation document to remove the unwanted CIDR range.
Monitor CreateUser API call via email	Utilize Amazon EventBridge, declare CloudTrail as a source, and CreateUser as an event pattern. Create an SNS topic and set it as an event target on Amazon EventBridge.
You have to automate the process of patching managed instances with security-related updates.	Use AWS Systems Manager Patch Manager
You need to analyze the data hosted in Amazon S3 using standard SQL.	Use Amazon Athena
Improving the site speed of a static S3 web hosting with customers around the globe	Create a CloudFront web distribution and set Amazon S3 as the origin.
You need to implement a solution to enforce the tagging of all instances that will be launched in the VPC.	Use AWS Service Catalog TagOption library
You need to get billing alerts once it reaches a certain limit.	Enable billing alerts in Account Preferences of the AWS Console.
Resize an Amazon ElastiCache for Redis cluster.	Use online resizing for Amazon ElastiCache Redis cluster
No sharing of Reserved Instance (RI) discounts between AWS accounts in the Organization	Disable RI discount sharing via management account and provision instances using individual AWS accounts.
Reliability and Business Continuity	
When the incoming message traffic increases, the EC2 instances fall behind and it takes too long to process the messages.	Create an Auto Scaling group that can scale out based on the number of messages in the queue.
You need to log the client's IP address, latencies, request paths, and server responses that go through your Application Load Balancer.	Enable access logging in ALB and store the logs on an S3 bucket.
You need to determine which cipher is used for the SSL connection in your ELB.	Enable Server Order Preference
You need to monitor the total number of requests or connections in your load balancer.	Monitor the <code>SurgeQueueLength</code> metric



You need to ensure that the backups of an Amazon Redshift cluster are always available.	Configure the Amazon Redshift cluster to automatically copy snapshots of a cluster to another region.
Highly available File Server that supports SMB and manages file permissions using Windows Access Control List (A).	Multi-AZ Amazon FSx for Windows File Server
Slow load time when uploading objects to S3	S3 Transfer Acceleration
PercentIOLimit metric hits 100% on EFS	Create a new Max I/O performance mode EFS file system and migrate data to the new file system using AWS DataSync.
Must ensure data integrity when performing EBS backups	Build a Lambda function that uses CreateImage API to generate AML of the EC2 instance and include a reboot parameter. Create an Amazon EventBridge rule to execute the Lambda function daily.
An online retail application hosted on EC2 must remain available during peak sales. In case of an Availability Zone failure, the system must be restored and accessible within 30 minutes (Recovery Time Objective (RTO) = 30 minutes).	Deploy in Multi-AZ with Auto Scaling and ELB for rapid failover.
A healthcare system stores patient records in Amazon RDS. During a regional outage, the business requires that recovery ensures no more than 15 minutes of data loss (Recovery Point Objective (RPO) = 15 minutes).	Enable cross-region replication and point-in-time recovery.
A company requires objects uploaded to a destination S3 bucket in another AWS Region to replicate within a predictable time frame for compliance requirements.	Enable Amazon S3 Replication Time Control (S3 RTC) for the cross-Region replication configuration.
A company needs newly uploaded objects in an Amazon S3 bucket to automatically replicate to another AWS Region immediately for disaster recovery purposes.	Configure Amazon S3 Live Replication using Cross-Region Replication (CRR) between the source and destination S3 buckets.
Deployment, Provisioning, and Automation	



You must remotely execute shell scripts and securely manage the configuration of EC2 instances.	Use Systems Manager Run Command
You need to identify the configuration changes in the CloudFormation resources.	Use drift detection
Requires a CloudFormation template that can be reused for multiple environments. If the template has been updated, all the stack that is referencing it will automatically use the updated configuration.	Use Nested Stacks
You need to automate the process of updating the CloudFormation templates to map to the latest AMI IDs.	Use CloudFormation with Systems Manager Parameter Store
The eviction count in Amazon ElastiCache for Memcached has exceeded its threshold.	Scale the cluster by increasing the number of nodes.
You need to provide each department a new AWS account with governance guardrails and a defined baseline in place.	Set up AWS Control Tower
An S3 bucket must be configured to move the objects older than 60 days to the Infrequent Access storage class.	Set up a lifecycle policy
You need to monitor all the COPY and UNLOAD traffic in the Redshift cluster.	Enable Enhanced VPC routing on the Redshift cluster.
TLS certificate should be renewed automatically	Request a public certificate via AWS Certificate Manager (ACM)
Get cost expenses of each AWS user account	Enable the createdBy tag in the Billing and Management console
Provisioning instances on ASG takes time because of software dependencies installed via the UserData script.	EC2 Image Builder
Get cost expenses of each AWS user account	Enable the createdBy tag in the Billing and Management console
Security and Compliance	



You have to rotate an existing KMS key with imported key material every 6 months	Create a new KMS key with imported key material and update the key ID to point to the new KMS key
A company needs to restrict access to the data in an S3 bucket.	Use S3 ACL and bucket policy
Mitigate malicious attacks such as SQL injection and DDoS attacks from unknown origins.	Use AWS WAF and Shield
You need to define an IAM policy to enable the user to pass a role to an AWS service.	Define iam:PassRole in the IAM policy
You need to create a solution that allows multiple EC2 instances in a private subnet to use AWS KMS and the traffic must not pass through the public Internet.	Configure a VPC endpoint
You need to encrypt all the objects at rest in your S3 bucket	Use S3-S3, AWS KMS keys (SSE-KMS) or SSE-C
Enable authentication to AWS services using Active Directory Federation Services.	Amazon Cognito user pool
Create a bucket policy to only allow AWS accounts in the organization to access an S3 bucket.	Set principal to (*) and create a condition for PrincipalOrgId
Read, update, delete messages from SQS queues from an instance.	Create a policy with sqs:SendMessage, sqs:ReceiveMessage, sqs:DeleteMessage, and attach the policy to a new role that can perform API calls to AWS. Associate the new role to the instance.
RDS credentials should not be hardcoded on Lambda functions	Use Secrets Manager to store credentials
Networking and Content Delivery	
You need to allow the EC2 instances in your VPC that support IPv6 to connect to the Internet but block any incoming connection.	Set up an egress-only Internet gateway
You have to establish a dedicated connection between their on-premises network and their Amazon VPC.	Set up a Direct Connect connection



You need to increase the cache hit ratio for a CloudFront web distribution.	Add a <code>Cache-Control max-age</code> and increase the TTL by specifying the longest value for max-age
You need to ensure that users are consistently directed to the AWS region nearest to them.	Set up a Route 53 Geoproximity routing policy
A company plans to implement a hybrid cloud architecture. You need to allow your resources on AWS the connectivity to external networks.	Assign an Internet Gateway to the VPC Create a Virtual Private Gateway
Users being served desktop version on mobile phones	Add a <code>User-Agent</code> header to the list of origin custom header on CloudFront.
DNS record at the apex domain	ALIAS record

Validate Your Knowledge

Once you have finished your review and you are more than confident of your knowledge, test yourself with some practice exams available online. AWS offers a practice exam that you can try out at their aws.training portal. [Tutorials Dojo](#) also offers a top-notch set of [AWS Certified CloudOps Engineer Associate practice tests](#). Each test contains unique questions that will surely help verify if you have missed out on anything important that might appear on your exam. You can pair our practice exams with this study guide eBook to further help in your exam preparations.



Sample Practice Test Questions:

Question 1

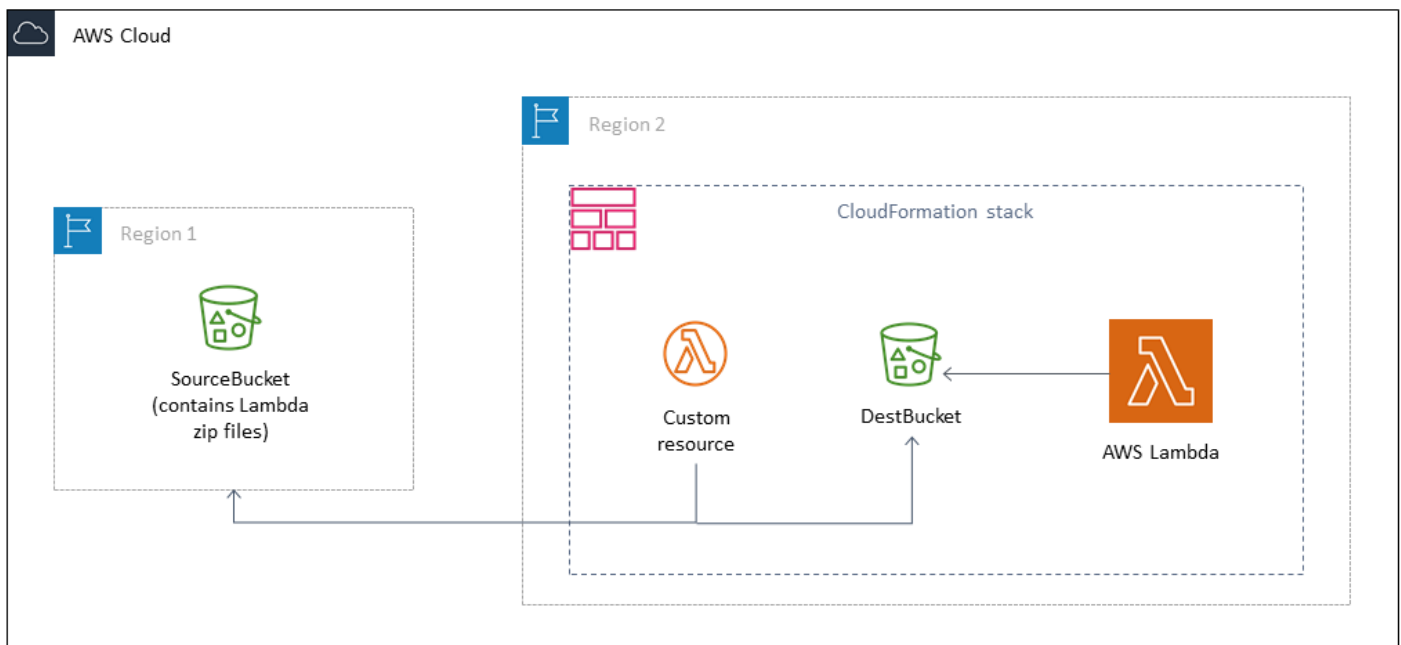
A company is heavily using AWS CloudFormation templates to automate the deployment of their cloud resources. The CloudOps Engineer needs to write a template that will automatically copy objects from an existing S3 bucket into the new one.

Which of the following is the most suitable configuration for this scenario?

1. Set up an AWS Lambda function and configure it to perform the copy operation. Integrate the Lambda function to the CloudFormation template as a custom resource.
2. Configure the CloudFormation template to modify the existing S3 bucket to allow cross-origin requests.
3. Configure the CloudFormation template to set up an AWS Step Functions state machine to orchestrate the copy process from the existing S3 bucket to the new one.
4. Configure the CloudFormation template to enable cross-region replication on the existing S3 bucket and select the new S3 bucket as the destination.

Correct Answer: 1

AWS CloudFormation gives you an easy way to model a collection of related AWS and third-party resources, provision them quickly and consistently, and manage them throughout their lifecycles, by treating infrastructure as code. A CloudFormation template describes your desired resources and their dependencies so you can launch and configure them together as a stack. You can use a template to create, update, and delete an entire stack as a single unit, as often as you need to, instead of managing resources individually. You can manage and provision stacks across multiple AWS accounts and AWS Regions.



In an AWS CloudFormation template, you can specify a Lambda function as the target of a custom resource. Use custom resources to process parameters, retrieve configuration values, or call other AWS services during stack lifecycle events. When you associate a Lambda function with a custom resource, the function is invoked whenever the custom resource is created, updated, or deleted. AWS CloudFormation calls a Lambda API to invoke the function and to pass all the request data (such as the request type and resource properties) to the function. The power and customizability of Lambda functions in combination with AWS CloudFormation



enable a wide range of scenarios, such as dynamically looking up AMI IDs during stack creation, or implementing and using utility functions, such as string reversal functions.

The requirement for this scenario is to copy all the objects from an existing S3 bucket to a new S3 bucket created by the CloudFormation template. To accomplish this requirement, you need to create a custom Lambda function that can copy the objects from the source bucket to the new S3 bucket. You can also define the options you want Amazon S3 to apply during replication, such as server-side encryption, replica ownership, and transitioning replicas to another storage class.

Hence, the correct answer is: **Set up an AWS Lambda function and configure it to perform the copy operation. Integrate the Lambda function to the Cloudformation template as a custom resource.**

The option that says: **Configure the Cloudformation template to enable cross-region replication on the existing S3 bucket and select the new S3 bucket as the destination** is incorrect because this option won't be able to copy the existing objects to the new S3 bucket. For this configuration, you need to invoke Lambda first to copy the objects in the S3 bucket.

The option that says: **Configure the CloudFormation template to set up an AWS Step Functions state machine to orchestrate the copy process from the existing S3 bucket to the new one** is incorrect because AWS Step Function is primarily designed for orchestrating complex workflows. Using it for a simple file copy operation adds unnecessary complexity and overhead.

The option that says: **Configure the CloudFormation template to modify the existing S3 bucket to allow cross-origin requests** is incorrect because the scenario did not state anything about allowing cross-origin access to your Amazon S3 resources. Also, this option does not have the capability to copy all the objects from an existing S3 bucket to a new S3 bucket.

References:

<https://docs.aws.amazon.com/AWSCloudFormation/latest/UserGuide/template-custom-resources-lambda.html>

<https://aws.amazon.com/blogs/infrastructure-and-automation/deploying-aws-lambda-functions-using-aws-cloudformation-the-portable-way/>

<https://aws.amazon.com/blogs/devops/use-aws-cloudformation-to-automate-the-creation-of-an-s3-bucket-with-cross-region-replication-enabled/>

Check out this AWS CloudFormation Cheat Sheet:

<https://tutorialsdojo.com/aws-cloudformation/>



Question 2

An eCommerce company has a suite of microservices-based retail applications on a Kubernetes cluster using Amazon Elastic Kubernetes Service (Amazon EKS) in AWS.

The application suite has been running for a few months when the DevOps team notices a surge of application traffic whenever there's a scheduled promotion event. To avoid loss of revenue, the CloudOps Engineer must ensure an uninterrupted service and preempt any potential degradation of the service in the production environment.

Which combination of actions can provide the MOST operationally efficient solution that can meet the above requirement? (Select TWO.)

1. Enable the built-in Kubernetes Horizontal Pod Autoscaler option in Amazon EKS.
2. Set up a Kubernetes Metrics Server first in the Amazon EKS cluster and enable the Kubernetes Vertical Pod Autoscaler.
3. Integrate both Amazon CloudWatch Contributor Insights and Amazon CloudWatch Application Insights in the EKS cluster.
4. Install the Kubernetes Metrics Server in the Amazon EKS cluster and use the Kubernetes Horizontal Pod Autoscaler.
5. Configure the kubectl client to communicate with the Amazon EKS cluster.

Correct Answers: 4 & 5

Take note that the Kubernetes Horizontal Pod Autoscaler feature automatically scales the number of Pods in a deployment, replication controller, or replica set based on that resource's CPU utilization. The Horizontal Pod Autoscaler can help your applications scale out automatically to meet increased demand or scale in when resources are not needed, thus freeing up your nodes for other applications. When you set a target CPU utilization percentage, the Horizontal Pod Autoscaler scales your application in or out to try to meet that target.

```
apiVersion: autoscaling/v2
kind: HorizontalPodAutoscaler
metadata:
  name: tutorialsdajo-nginx
spec:
  scaleTargetRef:
    apiVersion: apps/v1
    kind: Deployment
    name: nginx
  minReplicas: 1
  maxReplicas: 10
  metrics:
  - type: Resource
    resource:
      name: cpu
      target:
        type: Utilization
        averageUtilization: 50
  - type: Resource
    resource:
      name: memory
      target:
        type: AverageValue
        averageValue: 100Mi
```

Horizontal Pod Autoscaler

Resource metrics for tracking

Hence, the correct answers are:

- Install the Kubernetes Metrics Server in the Amazon EKS cluster and use the Kubernetes Horizontal Pod Autoscaler.
- Configure the `kubectl` client to communicate with the Amazon EKS cluster.

The option that says: **Set up a Kubernetes Metrics Server first in the Amazon EKS cluster and enable the Kubernetes Vertical Pod Autoscaler** is incorrect. While setting up a Kubernetes Metrics Server is right, the use of a Kubernetes Vertical Pod Autoscaler (VPA) is not required at all. VPA is useful for optimizing resource utilization within individual pods as it involves more fine-tuning and requires a deeper understanding of the application's resource requirements. In contrast, Horizontal Pod Autoscaler (HPA) is more geared toward