review

review questions

Amazon EC2 Auto Scaling
V1.02

Course title

BackSpace Academy
AWS Certified Associate

This "learning by quizzes" exercise will be based upon the course videos and the following reference material:

Section: What Is Amazon EC2 Auto Scaling?

Reference: Amazon EC2 Auto Scaling User Guide

https://docs.aws.amazon.com/autoscaling/ec2/userguide/what-is-amazon-ec2-auto-scaling.html

Question

Autoscaling is accessed using:

- AWS Command Line Interface (CLI)
- Auto Scaling Command Line Interface (CLI) Tools
- AWS Tools for Windows PowerShell
- Launch Configurations from Console

Answers

A. True
B. False

A
See: https://docs.aws.amazon.com/autoscaling/ec2/userguide/what-is-amazon-ec2-auto-scaling.html#access-as

Question

As with most AWS services, cost for Auto Scaling is per usage with no upfront cost.

Answers

A. True
B. False

B
There are no additional fees with Auto Scaling, so it's easy to try it out and see how it can benefit your AWS architecture.

See: https://docs.aws.amazon.com/autoscaling/ec2/userguide/what-is-amazon-ec2-auto-scaling.html#as-pricing

Question

You create the _____ by providing information about the image you want Auto Scaling to use to launch EC2 instances.

Answers

A. Group
B. Launch Configuration
C. Scaling Plan
D. Auto Scaling Policy
E. None of the above

B
Your group uses a launch configuration as a template for its EC2 instances. When you create a launch configuration, you can specify information such as the AMI ID, instance type, key pair, security groups, and block device mapping for your instances.

See: https://docs.aws.amazon.com/autoscaling/ec2/userguide/what-is-amazon-ec2-auto-scaling.html#as-component-intro

Question

You create an Auto Scaling _____ by defining the minimum, maximum, and, optionally, the desired number of running EC2 instances the _____ must have at any point in time.

Answers

A. Group
B. Launch Configuration
C. Plan
D. Policy
E. None of the above

D
An autoscaling policy defines min and max EC2 instances. An autoscaling group defines the desired number of EC2 instances. An autoscaling group includes an autoscaling policy.

See: https://docs.aws.amazon.com/autoscaling/ec2/userguide/AutoScalingGroup.html

Question

The auto scaling system can temporarily exceed the specified maximum capacity of a group by a 10 percent margin (or by a 1-instance margin, whichever is greater) during a rebalancing activity.

Answers

A. True
B. False

A
Because Auto Scaling attempts to launch new instances before terminating the old ones, being at or near the specified maximum capacity could impede or completely halt rebalancing activities. To avoid this problem, the system can temporarily exceed the specified maximum capacity of a group by a 10 percent margin (or by a 1-instance margin, whichever is greater) during a rebalancing activity. The margin is extended only if the group is at or near maximum capacity and needs rebalancing, either because of user-requested rezoning or to compensate for zone availability issues. The extension lasts only as long as needed to rebalance the group typically a few minutes.

See: https://docs.aws.amazon.com/autoscaling/ec2/userguide/auto-scaling-benefits.html#arch-AutoScalingMultiAZ

This "learning by quizzes" exercise will be based upon the course videos and the following reference material:

Section: Scaling the Size of Your Auto Scaling Group

Reference: Amazon EC2 Auto Scaling User Guide

https://docs.aws.amazon.com/autoscaling/ec2/userguide/scaling_plan.html

Question

The following are scale out events:

- You manually chose to increase the number of instances, either by setting a new minimum number of instances, or by configuring the desired capacity for the Auto Scaling group.
- You created an Amazon CloudWatch alarm to monitor your application.
- You created a schedule-based policy to scale out your application at a specific time.
- An existing instance fails a required number of health checks, or you manually configure an instance to have an Unhealthy status.
- The AMI used in the launch configuration is changed.

Answers

A. True
B. False

B
You manually chose to increase the number of instances, either by setting a new minimum number of instances, or by configuring the desired capacity for the Auto Scaling group.You created an Amazon CloudWatch alarm to monitor your application.You created a schedule-based policy to scale out your application at a specific time.An existing instance fails a required number of health checks, or you manually configure an instance to have a have an Unhealthy status.

See: https://docs.aws.amazon.com/autoscaling/ec2/userguide/scaling_plan.html

Question

Auto Scaling provides you with several ways to scale your Auto Scaling group.

- Maintain current instance levels at all times
- Manual scaling
- Scale based on a schedule
- Scale based on demand

Answers

A. True
B. False

A
See: https://docs.aws.amazon.com/autoscaling/ec2/userguide/scaling_plan.html

Question

The _____ termination policy helps you run your Auto Scaling group in a cost-effective manner.

Answers

A. OldestInstance
B. NewestInstance
C. OldestLaunchConfiguration
D. ClosestToNextInstanceHour
E. Default
F. None of the above

D
Amazon EC2 Auto Scaling supports the following custom termination policies:

- OldestInstance. Terminate the oldest instance in the group. This option is useful when you're upgrading the instances in the Auto Scaling group to a new EC2 instance type. You can gradually replace instances of the old type with instances of the new type.
- NewestInstance. Terminate the newest instance in the group. This policy is useful when you're testing a new launch configuration but don't want to keep it in production.
- OldestLaunchConfiguration. Terminate instances that have the oldest launch configuration. This policy is useful when you're updating a group and phasing out the instances from a previous configuration.
- ClosestToNextInstanceHour. Terminate instances that are closest to the next billing hour. This policy helps you maximize the use of your instances and manage your Amazon EC2 usage costs.
- Default. Terminate instances according to the default termination policy. This policy is useful when you have more than one scaling policy for the group.

See: https://docs.aws.amazon.com/autoscaling/ec2/userguide/as-instance-termination.html#custom-termination-policy

Question

Auto scaling has two instances in az-a and one instance in az-b. The instance in az-b is closest to the next billing hour of all the instances. Both instances in az-a use the same launch configuration. Which instance will be terminated when scaling down?

Answers

A. Instance in az-a closest to the next billing hour
B. Instance in az-a furthest from the next billing hour
C. Instance in az-b
D. None of the above

A
The default termination policy is designed to help ensure that your network architecture spans Availability Zones evenly. With the default termination policy, the behavior of the Auto Scaling group is as follows:

- If there are instances in multiple Availability Zones, select the Availability Zone with the most instances and at least one instance that is not protected from scale in. If there is more than one Availability Zone with this number of instances, select the Availability Zone with the instances that use the oldest launch configuration.
- Determine which unprotected instances in the selected Availability Zone use the oldest launch configuration. If there is one such instance, terminate it.
- If there are multiple instances that use the oldest launch configuration, determine which unprotected instances are closest to the next billing hour. (This helps you maximize the use of your EC2 instances and manage your Amazon EC2 usage costs.) If there is one such instance, terminate it.
- If there is more than one unprotected instance closest to the next billing hour, select one of these instances at random.

See: https://docs.aws.amazon.com/autoscaling/ec2/userguide/as-instance-termination.html

Question

At any time, you can manually change the size of an existing Auto Scaling group.

Answers

A. True
B. False

A
At any time, you can change the size of an existing Auto Scaling group. Update the desired capacity of the Auto Scaling group, or update the instances that are attached to the Auto Scaling group.

See: https://docs.aws.amazon.com/autoscaling/ec2/userguide/as-manual-scaling.html

Question

Auto Scaling supports the following adjustment types:

- ChangeInCapacity
- ExactCapacity
- PercentChangeInCapacity

Answers

A. True
B. False

A
Amazon EC2 Auto Scaling supports the following adjustment types for step scaling and simple scaling:

- ChangeInCapacity—Increase or decrease the current capacity of the group by the specified number of instances. A positive value increases the capacity and a negative adjustment value decreases the capacity. Example: If the current capacity of the group is 3 instances and the adjustment is 5, then when this policy is performed, there are 5 instances added to the group for a total of 8 instances.

- ExactCapacity—Change the current capacity of the group to the specified number of instances. Specify a positive value with this adjustment type.
  Example: If the current capacity of the group is 3 instances and the adjustment is 5, then when this policy is performed, the capacity is set to 5 instances.

- PercentChangeInCapacity—Increment or decrement the current capacity of the group by the specified percentage. A positive value increases the capacity and a negative value decreases the capacity. If the resulting value is not an integer, it is rounded as follows:
  - Values greater than 1 are rounded down. For example, 12.7 is rounded to 12.
  - Values between 0 and 1 are rounded to 1. For example, .67 is rounded to 1.
  - Values between 0 and -1 are rounded to -1. For example, -.58 is rounded to -1.
  - Values less than -1 are rounded up. For example, -6.67 is rounded to -6.

  Example: If the current capacity is 10 instances and the adjustment is 10 percent, then when this policy is performed, 1 instance is added to the group for a total of 11 instances.

See: https://docs.aws.amazon.com/autoscaling/ec2/userguide/as-scaling-simple-step.html#as-scaling-adjustment

Question

PercentChangeInCapacity adjustment is set to 1.8. How many instances are added?

Answers

A. 1
B. 2
C. None

A
PercentChangeInCapacity—Increment or decrement the current capacity of the group by the specified percentage. A positive value increases the capacity and a negative value decreases the capacity. If the resulting value is not an integer, it is rounded as follows:

- Values greater than 1 are rounded down. For example, 12.7 is rounded to 12.
- Values between 0 and 1 are rounded to 1. For example, .67 is rounded to 1.
- Values between 0 and -1 are rounded to -1. For example, -.58 is rounded to -1.
- Values less than -1 are rounded up. For example, -6.67 is rounded to -6.

Example: If the current capacity is 10 instances and the adjustment is 10 percent, then when this policy is performed, 1 instance is added to the group for a total of 11 instances.

See: https://docs.aws.amazon.com/autoscaling/ec2/userguide/as-scaling-simple-step.html#as-scaling-adjustment

Question

PercentChangeInCapacity adjustment is set to 0.8. How many instances are added?

Answers

A. 1
B. 2
C. None

A
PercentChangeInCapacity—Increment or decrement the current capacity of the group by the specified percentage. A positive value increases the capacity and a negative value decreases the capacity. If the resulting value is not an integer, it is rounded as follows:

- Values greater than 1 are rounded down. For example, 12.7 is rounded to 12.
- Values between 0 and 1 are rounded to 1. For example, .67 is rounded to 1.
- Values between 0 and -1 are rounded to -1. For example, -.58 is rounded to -1.
- Values less than -1 are rounded up. For example, -6.67 is rounded to -6.

Example: If the current capacity is 10 instances and the adjustment is 10 percent, then when this policy is performed, 1 instance is added to the group for a total of 11 instances.

See: https://docs.aws.amazon.com/autoscaling/ec2/userguide/as-scaling-simple-step.html#as-scaling-adjustment

Question

Cooldown periods help to prevent Auto Scaling from initiating additional scaling activities before the effects of previous activities are visible.

Answers

A. True
B. False

A
After a scaling activity is started, the policy must wait for the scaling activity or health check replacement to complete and the cooldown period to expire before it can respond to additional alarms. Cooldown periods help to prevent the initiation of additional scaling activities before the effects of previous activities are visible. You can use the default cooldown period associated with your Auto Scaling group, or you can override the default by specifying a cooldown period for your policy.

See: https://docs.aws.amazon.com/autoscaling/ec2/userguide/as-scaling-simple-step.html

Question

Scaling based on a schedule allows you to scale your application in response to unpredictable load changes.

Answers

A. True
B. False

B
Scaling based on a schedule allows you to scale your application in response to predictable load changes. For example, every week the traffic to your web application starts to increase on Wednesday, remains high on Thursday, and starts to decrease on Friday. You can plan your scaling activities based on the predictable traffic patterns of your web application.

See: https://docs.aws.amazon.com/autoscaling/ec2/userguide/schedule_time.html

Question

Auto Scaling guarantees the order of execution for scheduled actions across groups.

Answers

A. True
B. False

B
The order of execution for scheduled actions is guaranteed within the same group, but not for scheduled actions across groups.

See: https://docs.aws.amazon.com/autoscaling/ec2/userguide/schedule_time.html

Question

If you attempt to schedule an activity at a time when another existing activity is already scheduled, the call is rejected with an error message noting the conflict.

Answers

A. True
B. False

A
A scheduled action must have a unique time value. If you attempt to schedule an activity at a time when another scaling activity is already scheduled, the call is rejected with an error message noting the conflict.

See: https://docs.aws.amazon.com/autoscaling/ec2/userguide/schedule_time.html#sch-actions_rules

Question

At a minimum, an Auto Scaling group must contain the following:

- Desired capacity.
- Availability Zones or subnets
- Launch configuration
- The maximum number of instances that can be in the Auto Scaling group
- The minimum number of instances that can be in the Auto Scaling group
- A name

Answers

A. True
B. False

B
The maximum number of instances that can be in the Auto Scaling group.
The minimum number of instances that can be in the Auto Scaling groupA name

Question

The following are additional configuration options that you should define to get the most out of your Auto Scaling group.

- Desired capacity.
- Availability Zones or subnets
- Launch configuration
- Metrics and health checks.

Answers

A. True
B. False

A

Question

An Auto Scaling lifecycle hook allows you to add custom events to instances as they launch or terminate. A custom event could be actions such as manually installing software, or retrieving log files.

Answers

A. True
B. False

A
Lifecycle hooks enable you to perform custom actions by pausing instances as an Auto Scaling group launches or terminates them. For example, while your newly launched instance is paused, you could install or configure software on it.

See: https://docs.aws.amazon.com/autoscaling/ec2/userguide/lifecycle-hooks.html

Question

At the conclusion of a lifecycle hook, an instance will have the following result

Answers

A. COMPLETE
B. ABANDON or CONTINUE
C. FINAL
D. None of the above

B
Lifecycle Action Result
At the conclusion of a lifecycle hook, the result is either ABANDON or CONTINUE.

If the instance is launching, CONTINUE indicates that your actions were successful, and that the instance can be put into service. Otherwise, ABANDON indicates that your custom actions were unsuccessful, and that the instance can be terminated.

If the instance is terminating, both ABANDON and CONTINUE allow the instance to terminate. However, ABANDON stops any remaining actions, such as other lifecycle hooks, while CONTINUE allows any other lifecycle hooks to complete.

See: https://docs.aws.amazon.com/autoscaling/ec2/userguide/lifecycle-hooks.html#lifecycle-hook-considerations

Question

Frequently, new instances need to warm up briefly before they can pass a health check. To provide ample warm-up time, set the _____ of the group to cover the expected startup period of your application. Auto Scaling waits until the _____ ends before checking the health status of the instance.

Answers

A. health check warm up period
B. health check grace period
C. health check boot period
D. None of the above

B
Health Check Grace Period
Frequently, an Auto Scaling instance that has just come into service needs to warm up before it can pass the Auto Scaling health check. Auto Scaling waits until the health check grace period ends before checking the health status of the instance. While the EC2 status checks and ELB health checks can complete before the health check grace period expires, Auto Scaling does not act on them until the health check grace period expires. To provide ample warm-up time for your instances, ensure that the health check grace period covers the expected startup time for your application. Note that if you add a lifecycle hook to perform actions as your instances launch, the health check grace period does not start until the lifecycle hook is completed and the instance enters the InService state.

See: https://docs.aws.amazon.com/autoscaling/ec2/userguide/healthcheck.html#health-check-grace-period

Question

An Auto Scaling group can contain EC2 instances that come from one or more regions.

Answers

A. True
B. False

B
Must be from same region.

Question

Auto Scaling provides you with an option to enable Auto Scaling for one or more EC2 instances by attaching them to your existing Auto Scaling group.

Answers

A. True
B. False

A
Amazon EC2 Auto Scaling provides you with an option to enable automatic scaling for one or more EC2 instances by attaching them to your existing Auto Scaling group. After the instances are attached, they become a part of the Auto Scaling group.

See: https://docs.aws.amazon.com/autoscaling/ec2/userguide/attach-instance-asg.html

Question

You can put instances that are currently in service into a standby state. Instances in this state do not actively handle application traffic, but remain a part of the Auto Scaling group.

Answers

A. True
B. False

A
You can put an instance that is in the InService state into the Standby state, update or troubleshoot the instance, and then return the instance to service. Instances that are on standby are still part of the Auto Scaling group, but they do not actively handle application traffic.

See: https://docs.aws.amazon.com/autoscaling/ec2/userguide/as-enter-exit-standby.html

Question

To merge separate single-zone Auto Scaling groups into a single Auto Scaling group spanning multiple Availability Zones you must:

Answers

A. Use the as-merge command and add the two groups as values.
B. Rezone one of the single-zone groups into a multi-zone Auto Scaling group, and then delete the other Auto Scaling groups.
C. Select the merge auto scaling group in the auto scaling group details in the console.
D. None of the above

B
To merge separate single-zone Auto Scaling groups into a single Auto Scaling group spanning multiple Availability Zones, rezone one of the single-zone groups into a multi-zone group, and then delete the other groups. This process works for groups with or without a load balancer, as long as the new multi-zone group is in one of the same Availability Zones as the original single-zone groups.

See: https://docs.aws.amazon.com/autoscaling/ec2/userguide/merge-auto-scaling-groups.html

Question

Changing the launch configuration for an Auto Scaling group updates any instances currently in service.

Answers

A. True
B. False

B
An Auto Scaling group is associated with one launch configuration at a time, and you can't modify a launch configuration after you've created it. To change the launch configuration for an Auto Scaling group, you can use an existing launch configuration as the basis for a new launch configuration and then update the Auto Scaling group to use the new launch configuration.

After you change the launch configuration for an Auto Scaling group, any new instances are launched using the new configuration options, but existing instances are not affected.

See: https://docs.aws.amazon.com/autoscaling/ec2/userguide/change-launch-config.html

Question

Auto Scaling enables you to suspend and then resume one or more of the Auto Scaling processes in your Auto Scaling group.

Answers

A. True
B. False

A
You can suspend and then resume one or more of the scaling processes for your Auto Scaling group. This can be useful when you want to investigate a configuration problem or other issue with your web application and then make changes to your application, without triggering the scaling processes.

See: https://docs.aws.amazon.com/autoscaling/ec2/userguide/as-suspend-resume-processes.html

Question

Auto Scaling marks an instance as unhealthy if the instance status is any state other than running, the system status is impaired, or Elastic Load Balancing reports the instance state as OutOfService.

Answers

A. True
B. False

A
By default, Auto Scaling health checks use the results of the EC2 status checks to determine the health status of an instance. Auto Scaling marks an instance as unhealthy if its instance fails one or more of the status checks.

See: https://docs.aws.amazon.com/autoscaling/ec2/userguide/healthcheck.html

Question

If an instance status changes to any state other than running is marked unhealthy because of an Amazon EC2 or Elastic Load Balancing health check, it is scheduled for replacement.

Answers

A. True
B. False

A
The health status of an Auto Scaling instance is either healthy or unhealthy. After an instance is fully configured and passes the initial health checks, it is considered healthy by Auto Scaling and enters the InService state. Auto Scaling periodically performs health checks on the instances in your Auto Scaling group and identifies any instances that are unhealthy. After Auto Scaling marks an instance as unhealthy, it is scheduled for replacement

See: https://docs.aws.amazon.com/autoscaling/ec2/userguide/healthcheck.html

This "learning by quizzes" exercise will be based upon the course videos and the following reference material:

Section: Troubleshooting Amazon EC2 Auto Scaling

Reference: Amazon EC2 Auto Scaling User Guide

https://docs.aws.amazon.com/autoscaling/ec2/userguide/CHAP_Troubleshooting.html

Question

To retrieve an error message from the description of Auto Scaling activities, use the describe-scaling-activities command.

Answers

A. True
B. False

A
To retrieve an error message from the description of scaling activities, use the describe-scaling-activities command as follows:

aws autoscaling describe-scaling-activities --auto-scaling-group-name my-asg

See: https://docs.aws.amazon.com/autoscaling/ec2/userguide/CHAP_Troubleshooting.html#RetrievingErrors

Question

You receive the following error message with Autoscaling: instance(s) are already running. Launching EC2 instance failed. What is the likely cause?

Answers

A. The specified instance does not exist in the VPC.
B. The Auto Scaling group has reached the limit set by the DesiredCapacity parameter.
C. At this time, Auto Scaling cannot support your instance type in your requested Availability Zone.
D. The architecture of the InstanceType mentioned in your launch configuration does not match the image architecture.

B
<number of instances> instance(s) are already running. Launching EC2 instance failed.
Cause: The Auto Scaling group has reached the limit set by the DesiredCapacity parameter.

Solution:

Update your Auto Scaling group by providing a new value for the --desired-capacity parameter using the update-auto-scaling-group command.

If you've reached your limit for number of EC2 instances, you can request an increase.

See: https://docs.aws.amazon.com/autoscaling/ec2/userguide/ts-as-capacity.html#ts-as-capacity-2

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