

Test Project

Cloud Computing

Day three

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Contents

This Test Project consists of the following documentation/files:

1. WSC2022SE_TP53_MainDocument_actual_en
2. WSC2022SE_TP53_Day1_actual_en
3. WSC2022SE_TP53_Day2_actual_en
- 4. WSC2022SE_TP53_Day3_actual_en**
5. WSC2022SE_TP53_Day4_actual_en

Description of project and tasks

Today's Test Project is 6.5 hours (until 15:30).

The goal this Test Project is further test specific cloud computing skills through a series of unique modules. There will be nine jam challenges for you to complete in any order that you choose.

Tasks

1. Log into the AWS Provided testing platform using the same credentials you've used previously
2. Read the documentation thoroughly (Outlined below)
3. Continue until the Test Project day has completed (6.5 hours)

Technical Details

AWS Jam – Challenge 1

Summary

Last night the logging system cracked and some changes were made for fun. As a result, no one was able to access the OpenSearch domain, which is the core of the logging system.

Quickly repair your system log collection infrastructure to normal operation with secure access!

Inventory

- OpenSearch Domain
- Use checkip.amazonaws.com to identify your CIDR currently in use

AWS Jam – Challenge 2

Summary

You have joined as a new team member to development team, this team is working on web application development

Development team has installed and configured the web application on an Amazon EC2 Linux Instance. This Amazon EC2 instance runs behind the AWS Application Load Balancer (ALB).

Development team is experiencing issues while accessing web application, they were sure web application configured absolutely correct and they might have missed configuration on AWS Management Console

Your objective is to identify the root cause of the problem and apply the solution to this challenge. Good luck!

Inventory

- EC2
- RDS
- ALB

AWS Jam – Challenge 3

Summary

The DevOps Engineer has setup a demo pipeline using AWS CodePipeline that uses AWS CodeCommit for source code, AWS CodeBuild for running the build, and AWS CodeDeploy to deploy the application to EC2 instances. However, the pipeline is failing at the source stage and the Devops Engineer is on leave due to a personal emergency. The team is counting on you to find the problem and fix the pipeline issue.

Inventory

A single Web server hosting the application. Its address is in output properties.

- AWS CodePipeline pipeline: JAMPipeline
- AWS CodeCommit repository: CDSources
- AWS CodePipeline Service Role: JAMCodePipelineServiceRole

AWS Jam – Challenge 4

Summary

You have taken over the operation and maintenance of a system that runs on the AWS EKS service. Someone accidentally deleted the EKS Cluster. The previous operation and maintenance staff has left their jobs, leaving only one yaml file to deploy the EKS Cluster. Your manager wants you to restore the EKS cluster and have the node's information available in the AWS console.

Inventory

- Amazon EC2 ^{1}_{SEP}
- Amazon Elastic Kubernetes Service (EKS) ^{1}_{SEP}
- AWS Systems Manager

AWS Jam – Challenge 5

Summary

A Company has multiple internal application that were served on one EC2 instance using virtual hosting. One of the websites was having high traffic due to which they had to keep vertically scaling the EC2 instances manually.

Another problem was that other applications were facing issues due to load on one application. To solve this problem permanently, they reached out to an AWS Architect.

Taking into account the performance of other application degrading due to one application, the architect asked them to -

1. Use separate EC2 instances for separate applications.
2. Use AutoScaling Group for applications with high and unpredictable load.

Company has chosen 2 applications for solving the problem - App1 and App2.

- For App1 he has created an Autoscaling group.
- For App2 he has created an EC2 instance.

Instead of using Virtual hosting, customer is ready to explore path-based application routing.

If these two work as expected, they might also want to port other applications.

Inventory

- Application Load Balancer, Target Groups, AutoScaling Group, EC2 Instances, Security Groups.
- The whole list of inventory can be found in the outputs section.

AWS Jam – Challenge 6

Summary

In December 2021 an important security threat caused panic around the globe. The Log4Shell breach.

In this challenge we play with the main security tools offered by AWS to protect from this threat. In particular, in this challenge, we focus on the compliance of the account and the protection from incoming traffic. Of course, other actions can be performed on the outgoing traffic and on other aspects (networking, permissions, detection, filtering ...).

In this challenge you are part of the security team, you try to limit the exposure of your AWS account while waiting for a patch from the development team.

Inventory

- A public ALB serving the company website is already present in your account
- CloudFront
- AWS WAF rule

AWS Jam – Challenge 7

Summary

You lead a team of network architects. Everyone in your organization is a star performer and set-up the network with best controls in place. One day you notice that some AWS accounts have security groups open to the internet and you think "Dang! I did not expect that from my star performers." You decide to implement automation so that you can detect early and remediate before it is too late.

Inventory

- Amazon EC2 Security Groups
- AWS Config
- AWS Systems Manager Document
- AWS IAM Role

AWS Jam – Challenge 8

Summary

You are the Cloud Architect for ACME company. Your manager has asked you to run a Annual Recovery Scenario. However, the instances that you create from the AMI are getting shut down immediately for reasons unknown.

To make matters worse, there is a surprise audit happening where you need to prove that your team is well prepared for a Recovery scenario.

We need your help by running a successful Annual Recovery Scenario and proving that your company is good from the audit perspective. Else, there could be hefty fines for being non-compliant. Can you save the day?

You will be leveraging IAM roles, policies and KMS keys to solve this challenge.

Inventory

- EC2 Application Server
- AMI image
- IAM user

AWS Jam – Challenge 9

Summary

MegaShop is a global e-commerce website selling products from many different categories. It allows its online customers to provide product reviews for all the items in their inventory. Since MegaShop is operating globally, its users come from many different countries and write reviews in various languages. It is a priority for MegaShop to sell only these products which have good reviews and meet very high quality requirements of its customer base.

Head of Analytics at MegaShop asked you for help in analyzing customers' reviews. He would like to check which reviews express negative sentiment in order to identify products that do not meet customers' expectations. However, this task is challenging because reviews are made in many different languages. Moreover, the number of reviews is too high to be reviewed manually.

Your task is to identify the language of each review, and next to perform semantic analysis to identify products with were evaluated negatively by customers.

Inventory

- S3 bucket (lost-in-translation-...)
- SageMaker notebook instance with a Jupyter notebook template