DevOps Engineer Applicant Assessment

Programming Exercise

Objective

This exercise is to help assess your level of understanding AWS infrastructure services and problem solving. The following exercise is a small example of a deployment exercise for potential custom project the Engineering Architects team may engage in. We are interested in how effective you are in answering the question, the steps you took to answer the question and any additional insight to help with understanding AWS costs associated with each of the component in this infrastructure setup.

Setup

Build a CloudFormation template with the following resources:

- S3 bucket
- Lambda
- SNS Topic
- SQS
- DynamoDB
- VPC with subnets
- NAT Gateway
- API Stage with key and usage plan

Exercise:

- Send an email to an address subscribed to the SNS Topic whenever a file is delivered to the S3 bucket.
- Email should include bucket, key of file, number of lines in the uploaded file and the epoch timestamp the file was uploaded.

- After sending the email also store the parameters into a record in DynamoDB table with the filename as the key.
- Demonstrate functionality by deploying the template via AWS CLI and uploading a file to S3 using the CLI.

Requirements:

- S3 bucket need to implement AES256 Server-Side Encryption
- The outgoing IP needs to be static (elastic ip)
- DynamoDB needs to have SSE enabled
- DynamoDB needs TTL set on items for 1 day
- lifecycle policy on the S3 bucket should be 1 day
- All the AWS components provisioned should be part of a common VPC and accessible only within the VPC.

Extra Credits:

- Use nested stacks in CloudFormation
- DynamoDB table read/write auto scaling
- Providing an AWS cost breakup for the above setup.

Timeline

This exercise is intended to be completed over a period of 4 days. If you have any questions, you are encouraged to reach out to us for any clarity.

Verification

There will be a 60-minute code review video call where, you will first walkthrough the business use case and how did you approach to solve this problem followed by executing the code to review results and finally review the code.