Cloud Engineering – Infrastructure 2022 Challenge

Introduction

This challenge will test your knowledge on AWS and terraform regarding re-usable IaC deployments on a basic test architecture. It will touch basic services like S3, Autoscaling, EC2, Route53. Most of the decisions regarding the architecture are not locked or specified to allow some freedom designing the later.

Overview

We require:

1. A Terraform module that will be used to deploy 2 different environments (development and staging).
2. Deployment stacks using the previous module to launch the infrastructure and application.

Details

Each environment must:

1. have a web server with a different static page.
2. all traffic must be encrypted end to end.
3. must be accessible via DNS.
4. service can only be accessible from within the VPC.
5. custom static page to be deployed/cached on each EC2 instance, which should be stored on an S3 bucket.
6. have a Load Balancer:
   o must be internal.
   o expose the service over https using a valid certificate.
   o Use health checks to monitor instances availability and replacement if necessary.
7. have an Auto Scaling Group:
   o with a variable number of EC2 instances.
   o keep a minimum of 2 instances up.
   o use different availability-zones.
8. EC2 instances
   o must have a web server with a valid certificate, which cannot be self-signed),
   o must access the bucket to fetch the static page and only the specified s3 Bucket
   o access to instances console must be done through SSM and SSH must be blocked.
9. Have the S3 bucket be only available to the instance and nothing else.