ABI Cloud Automation Assessment

What should you bring ?

- Good knowledge of Linux administration (RHCSA-RHCSE)
- Good knowledge of Networking Fundamentals (CCNA)
- Git Experience
- Basic SQL knowledge and database administration
- Cloud Computing knowledge on any platform (AWS - Azure - Gcloud)
- Scripting using Bash or python
- Good knowledge of configuring pipelines for any opensource applications (Jenkins - Github workflows - Gitlab Devops)
- Basic Knowledge in any monitoring tool
- Basic Knowledge using docker - kubernetes
- Basic Knowledge using cloud automation tools (Ansible - Terraform - Cloud CLI Interfaces)
- Critical thinking and details oriented
- Basic knowledge in web servers configuration (nginx or apache)
- Regular follow up with open source and technology trends

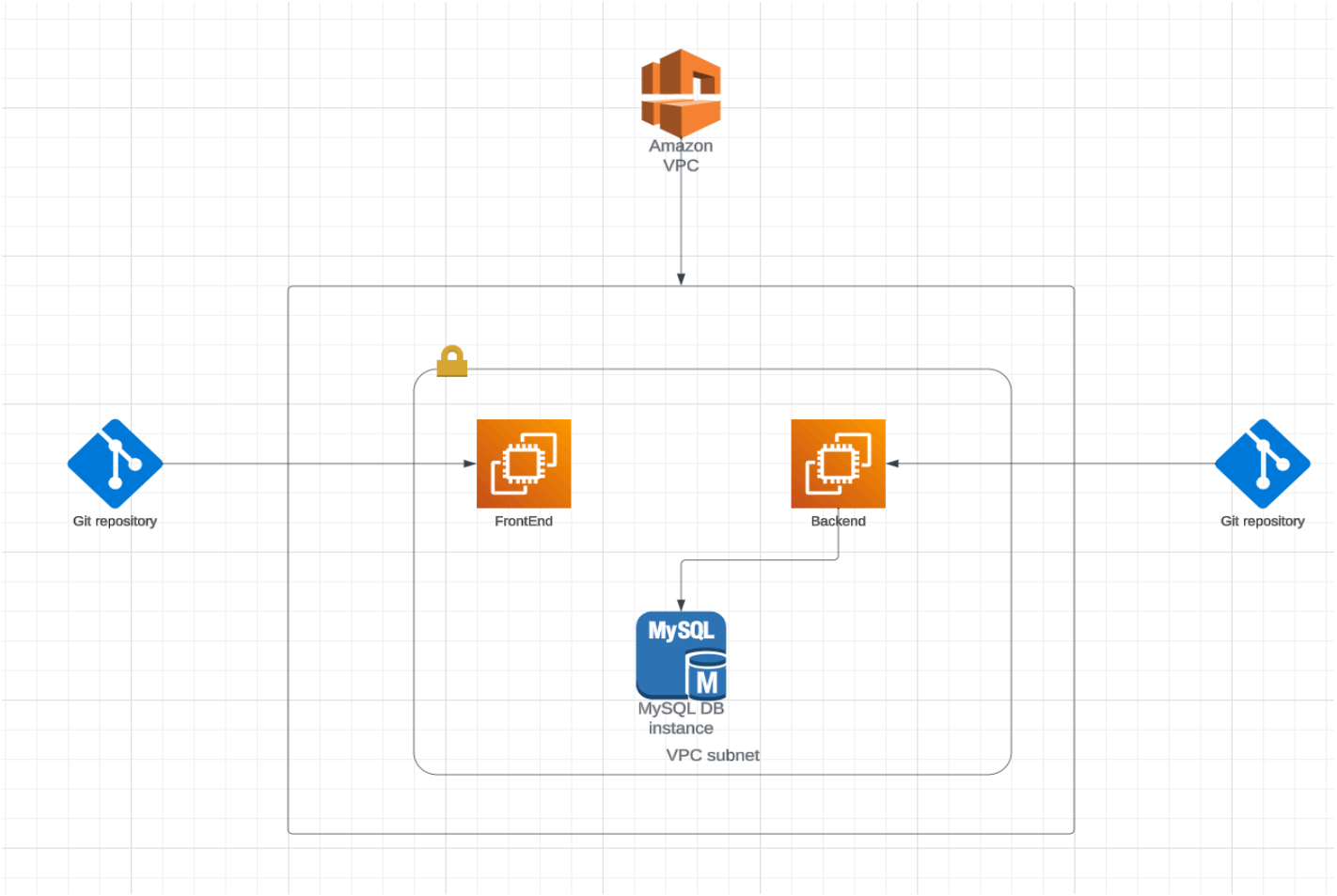
Task

This following task is designed to test the experience and knowledge of the candidate in multiple required areas and his/her ability to solve complex problems

- Scenario:

A company working in ecommerce has an application architecture as follows

- NodeJs app as Frontend
- Laravel php app as backend
- mysql database



Task group A

Write a terraform script to create the following resources in the default VPC (or new vpc), within the same region-AZ

a- backend machine with 1 core - 1 GB RAM - 8 GB disk with public ip (ubuntu 22.04)
b- frontend machine with 1 core - 1 GB RAM - 8 GB disk with public ip (ubuntu 22.04)
c- mysql community rds with the lowest plan(with no internet exposure)

Task group B

In an attempt to automate the deployment of the application we need to configure github actions to do the following

1- any update on main branch in the frontend repo must initiate a build step then a deployment step to Ubuntu 22.04 machine (the build step can be any command “ex #echo building…..”)

2- any update on the main branch in the laravel php app repo must initiate an automatic deployment that accesses an ubuntu 22.04 server machine to execute a shell script that does the following

a- pull the new changes
c- run "php artisan migrate" to apply schema changes automatically

3- configure alerting on the machines for the CPU utilization to be sent to your mail if CPU utilization is above 50%

Task group C: (Optional)

The company decided to move to a new account on Azure and your mission is replicating the infrastructure created in task groups A-B on **another cloud platform** , considering that you will need to migrate the database and application assets (product images - PDFs - etc)

- Write a detailed plan from your experience on how are you going to achieve this task within the minimal time frame possible and minimal down time

Consider

For frontend app please fork the following repo

https://github.com/louislam/uptime-kuma

for backend app please fork the following repo

https://github.com/laravel/laravel

- Please note that both repos are for demo purposes and they are totally independent projects
- It is an excellent practice to provide recommendations and introduce solutions that can improve and optimize the workflow.

Expected output

- Delivery within 7 days max.
- Repo with configured workflow on github for the frontend app.
- Repo with configured workflow on github for the Backend app.
- Repo for terraform script .

Assessment criteria

Delivery speed	5 points
Organized code with comments	5 points
Task group a	5 points
Task group b	5 points
Task group c	5 points

Recommendations

Using AI chatbots is allowed but be aware to understand what you copy.
Using the free tier machines is strongly recommended .
Using docker to deploy the frontend and backend is a lot faster and easier.
Registration on google cloud gives you 300$ credit
Registration on aws gives you 730 hrs of free tier machines
Registration on azure gives you 200$ free credit
You execute the task on any cloud platform (aws - gcp - azure)