Infrastructure as Code Problem

practical assessment for infrastructure roles at ThoughtWorks

Objective

This practical assessment is intended to:

- show you can quickly pick up and deploy software stacks
- show off your infrastructure as code skills
- show you can make pragmatic technical trade offs given a deadline
- take around 4-6 hours

Background

ThoughtWorks has been engaged by a client to build a new website to revolutionise online newsfeeds. Working with ThoughtWorks, the client's developers have produced an MVP (minimal viable product) based on a microservices architecture.

At present the MVP is deployed to the client's on-premise test infrastructure, which has now gone down. There has been a flood in the datacenter where the system is hosted and there is no estimate for how long it will be until the system is available again.

Deploying the MVP to the cloud is now a priority for the client's CIO. Your task, using an Infrastructure as Code approach, is to provision a basic execution environment to run the MVP, which the team can then extend and build upon.

The client's CIO has asked for your advice about which cloud platform and services to use, she suggested that you use whichever cloud platform you are most familiar with so the MVP can be deployed quickly. The client's CIO would like you to explain the benefits and drawbacks of the cloud platform and services you have used.

The Problem

The developers of the system have made the source code available to you on this URL:

> https://github.com/ThoughtWorksInc/infra-problem

The system is written in Clojure and consists of three microservices: a UI and two backend services.

- `quotes` which serves a random quote
- `newsfeed` which aggregates several RSS feeds together
- `front-end` which calls the two previous services and displays the results

The team's BA has given you the following user story card. Imagine your response will be evaluated by the developers who wrote this user story.

Basic cloud test environment

As a developer on the project,
I need some infrastructure code to provision an environment on the cloud,
And deploy the microservices,
And configure the system so we can test changes
So that I can test the system,
And get on with adding features

Acceptance criteria:

- **Given** that I have deployed the application to a cloud provider
  when I load the application in a web browser
  Then the front end application should be displayed
- Should include good documentation so we can run script from one of our dev laptops

Notes on 'future work'

- In future, we may need to extend these scripts via the CI server to build a deployment pipeline
- we need to add environments and extend and harden into a production system later on

You can target a cloud vendor of your choice. The cloud environment can be based on Windows or Linux. You should assume developers are able to make use of any Linux, Windows or OSX tooling.

Outputs

When you are done, you should submit the following items via file upload to the recruiter who sent you this assessment.

- A zipped repository containing infrastructure as code which is capable of setting up the required components without manual intervention.
  Please make sure that your submission **does not** contain any credentials or secrets.
  You can assume that we have credentials for the cloud provider of your choice.
- A README or similar file which gives guidance to developers on any necessary dependencies, tools, setup of API keys and/or cloud credentials etc.
- Make some brief recommendations about your approach to 'future work'. I.e. how would you extend what you have done to a continuous delivery pipeline and a productionised system. This could take the form of a document or diagrams. Mention how you would engage with the team.