

Alscient AWS Delivery Engineer Assignment

Scenario

A Fictional Organisation (Imagination Web) are considering a move to public cloud for the purposes of hosting their web-based services and applications. They are new to AWS and are currently experiencing issues with the launch of a newly developed web application in a Proof of Concept (PoC) environment.

The initial aim of the PoC is to present a static web page to end users, but testing shows the web test page is not accessible. The long-term goal for the solution is to generate dynamic content from an infrastructure that is resilient and scalable.

The organisation would like you to:

- a) Review and correct the existing CloudFormation template for the web application deployment for deployment of a successful PoC.
- b) Provide a second CloudFormation template that can be used to expand on the PoC deployment based on the following requirements:
 - I. The solution should contain a highly available front-end web tier
 - II. The front-end should be auto-scaling based on the following parameters:
 - Desired Instance Count: 2
 - Maximum Instance Count: 4
 - Scale-up if CPU > 90% for 10 minutes
 - Scale-down if CPU < 70% for 10 minutes
 - III. Provision an Application Load Balancer to distribute web traffic across the available front-end web servers
 - IV. Provision a back-end secure RDS (MySQL) implementation with a Read Replica in a different Availability Zone to the Master
 - V. Provision a Bastion Host for management access with access to the web servers and RDS instances that is scheduled to only run in business hours
 - VI. Access to the bastion host should be limited to known IP addresses
 - VII. The solution should follow the principal of least privilege with traffic flow restricted to the necessary ports

Instructions

In order to complete the assignment, please take the following steps:

- 1) If you do not have an existing AWS Account, please create one. The resource requirements for this assignment will fall under the Free Tier of usage where applicable if available to you. If not, any costs that are incurred will be minimal.
- 2) For **a)** you should launch the CloudFormation template provided in the **eu-west-1 (Ireland)** region. Once the stack is successfully launched, identify why the website is not contactable when connecting via the Load Balancer's host name (provided in the Output tab of the stack). Please note that you will **not** be required to log onto the web server as part of your investigations. You should Identify and correct the errors in this CloudFormation template.
- 3) For **b)** you should provide a new CloudFormation template to meet the requirements listed.

Please submit your completed CloudFormation templates to recruitment@alscient.com ahead of your face to face interview. We will review and test the scripts and you should be prepared to discuss them as part of your interview.

Important Note: Please remember to delete any CloudFormation Stacks you may have provisioned on completion of your updated templates to avoid any unnecessary cost. You do not need to maintain stacks for your interview.