Executive review of the project

Introduction
The motivation of this project is to identify the utilities of Google Cloud API and how to interact with a managed Kubernetes stack, the kubernetes cluster is hosting a Demo Application that is setup through Helmfile and then visualize it in the web browser.

Requirements
The project deploys a *Kubernetes* stack using Terraform and the modules available to interact with the Google Cloud Platform API, *Helmfile* tool is responsible to deploy the Nginx-demo application in the different environments *Dev* and *Stage*.
The pods have an environment variables setup to use when requires, plus a secret value inserted through helm-secrets in the environment.
The Helmfile commands required for the deployment:

- helmfile -e dev apply
- helmfile -d stage apply

Architecture
Terraform
The Kubernetes stack is spread within the region us-central-01, us-central-02, and us-central-03 in each region runs 1 instance into a managed node pool that enables the project to make more customizable in the future allowing add more resources to specific nodes if it is required.
Following the make targets into the project and in order builds the Kubernetes cluster.

Helm
The application is deployed using the a *service object* that turns on a load balancer with the annotation GCK to let know the Google Cloud Plataform that a load balancer is required to present the application.
The *deployment objec*t creates three replicas within the stack, the environment variables are introduced in the spect.template section of the object and are passed with the help of the Helmfile abstraction of Helm.

Cost per month
The cost of the a running cluster is a peace to take decisons related with the infrastructure and the amount of resoureces needed. The project considers that high availability is an importan key to present the application.

Resources	Amount/720h	Cost	Total per month
Kubernetes cluster	1	0.01	$72
Nodes	3	0.0475	$102.6
Load Balancer	1	0.025	$18

The amount to invest for the cluster has a cost of *$192.6* per month.
This value does not consider the ingress traffic and the disk space.

Conclusions

The infrastructure created enables a High Availbility cluster where the Nginx-demo app is deployed succesfully with a load balancer (service object) that makes accesible the demo application throuh an IP assined by google.