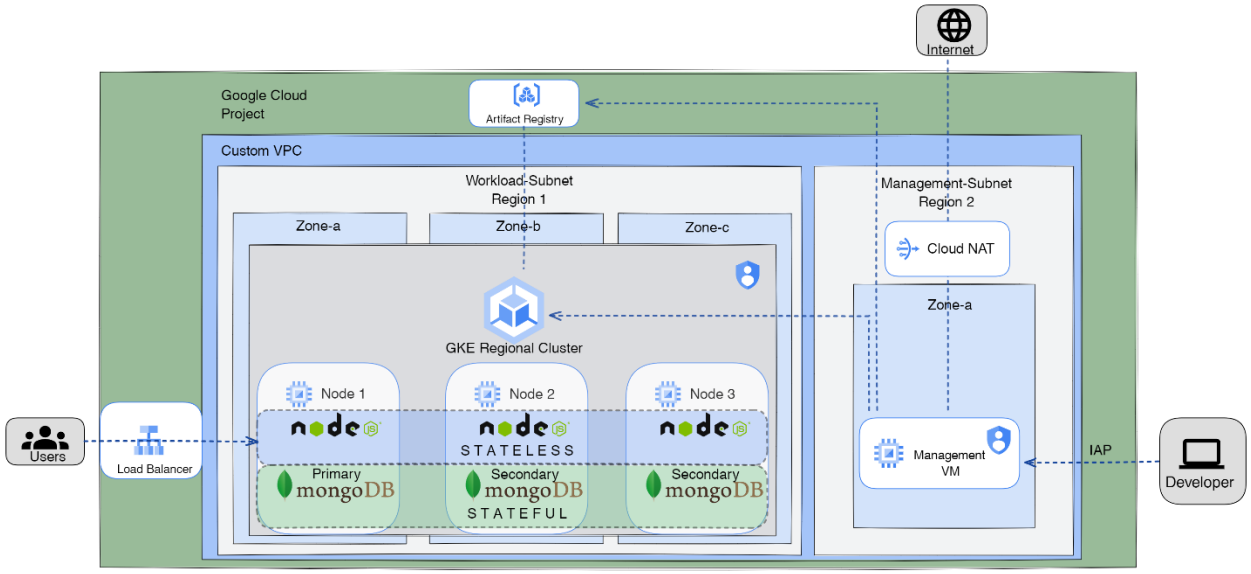
GCP ITI Project

This project will assess your Google Cloud, Networking, DB, Development, Terraform, Docker, and Kubernetes skills.

In this project you will deploy a simple Node.js web application (stateless) that interacts with a highly available MongoDB (stateful) replicated across 3 zones and consisting of 1 primary and 2 secondaries.



1. Develop and use your own Terraform modules to build the required infrastructure on GCP:
    a. IAM: 2 service accounts - N roles.
    b. Network: 1 VPC – 2 subnets – N firewall rules – 1 NAT.
    c. Compute: 1 private VM – 1 GKE standard cluster across 3 zones.
    d. Storage: Artifact Registry repository to store the images.
2. Deploy the MongoDB replicaset across the 3 zones.
3. Dockerize and Deploy the Node.js web app that will connect to the 3 DB replicas.
4. Expose the web app using ingress/load balancer.
5. (Bonus) Enable IAP on the load balancer to accept traffic from allowed users only.

Notes:

1. Only the management VM (private) will have access to internet through the NAT.
2. The GKE cluster (private) will NOT have access to the internet.
3. The VM will be used to manage the cluster and build/push images to the Artifact Registry.
4. All deployed images must be stored in Artifact Registry.
5. Avoid using default service accounts and basic roles, and use predefined only if needed.
6. Avoid extra open ports and permissions.