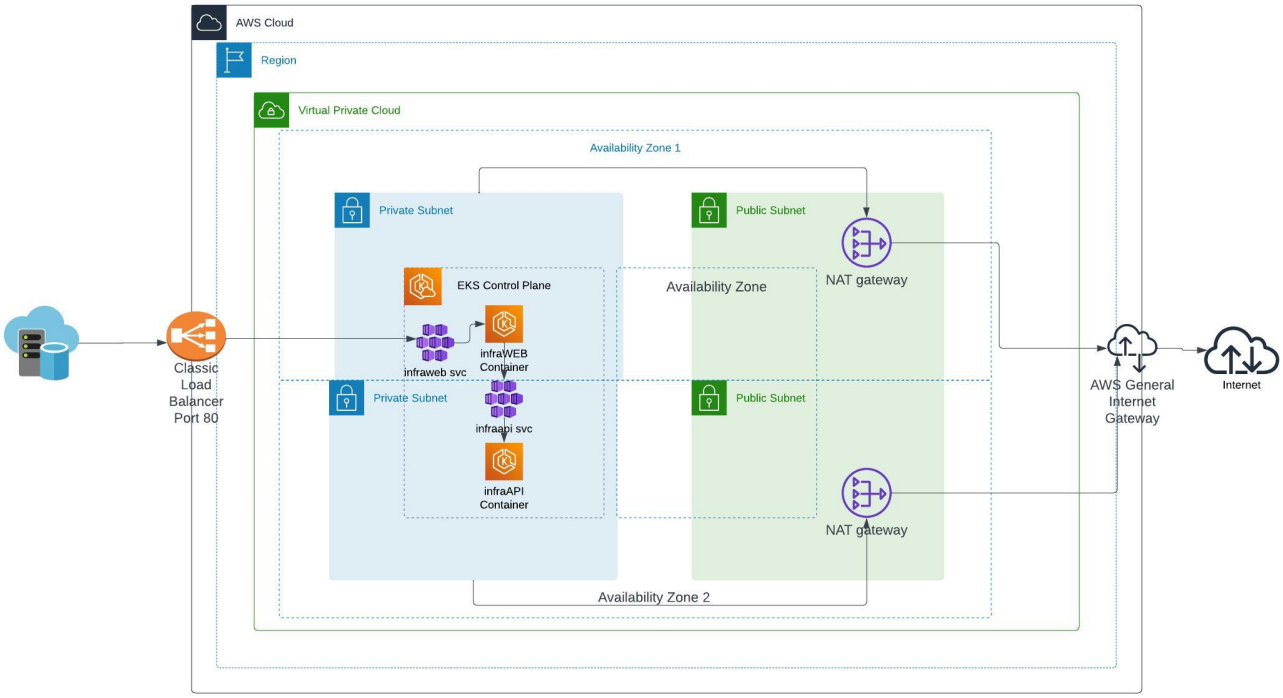
Weather App Documentation

High Level Architecture of Weather APP



Requirements

Assumed knowledge

- Basic overall knowledge of Kubernetes
- Basic knowledge of AWS and AWS EKS in particular
- Traversing among various objects in Kubernetes is good to have.

AWS Enviroinment Assumptions:

- The tool uses python to push the images to ecr so ecr permissions are required.
- The tool uses terraform to create the required infrastructure, such as vpc,subnets,natgws, eips,igw,routetable,eks,nodegroups, launch templates.
- The tool also creates the required IAM role for the cluster to use.
- thus the local environment must be configured with the right user/role which has sufficient IAM permissions.
- The tool depends on the configuration in the local environment, In case there is a rbac, the role needs to be assumed and the enviroiment needs to be set pre-deployment.

Local System

- Python 3.7 or higher
- Docker Desktop

Details of how to start Weather app Orchestrator

1. Run the requirement.txt file
    a. `pip3 install -r requirement.txt`

2. Run the python file "deploy-api.py".
    a. `python3 deploy-api.py`
3. Once the tool completes copy the "External-ip" and paste it in your browser, Make sure its http and it doesnt default to https.

```
NAME              TYPE           CLUSTER-IP       EXTERNAL-IP                                                               PORT(S)        AGE
infraweb-service  LoadBalancer   172.20.149.157   a761f1d3c63264c6db28ca8d9ace692c-435362475.us-east-1.elb.amazonaws.com   80:30415/TCP   10m
```

The tool also has a feature of destroy to clean up the infrastructure on AWS

1. a. `python3 deploy-api.py destroy`

> **Note**
>
> i. The Statefile is locally preserved, To reduce the foot print of my assesment on AWS, please make sure its not accidentally deleted.
> also, even though the networking components are spread across multiple AZs, I have used one replica-set and one node(nodegroup's asg is set to 1) to reduce the foot print.
> ii. This solution can be made highly available if required.
> iii. If the region and azs need to be modified, they are a part of variables.tf, make sure the region given in the terraform is same as the input in python,