Cloud Capstone Project

(Option 1): CI/CD, Github & Code Quality - Criteria

- 1. The project demonstrates an understanding of CI and Github:
 - Github repository: https://github.com/igomezgithub/udacity-recipes-social-network
 - Travis CI: https://app.travis-ci.com/github/igomezgithub/udacity-recipes-social-network
- 2. The project has a proper documentation:
 - You can see the **README.md** where I describe the steps to deploy the development environment, as well as the testing from Postman and, finally, a valid username and password is shown to see the final result of the project in AWS.
- 3. The project use continuous deployments (CD):
 - I use the **travis-ci** to build, testing my code and registry my docker containers in **dockerhub**. Travis CI: https://app.travis-ci.com/github/igomezgithub/udacity-recipes-social-network
 - In **Dockerhub** I have registered 6 containers to help me to deploy 6 microservices in the AWS platform.

(Option 1): Container

- 1. The app is containerized. Each microservice in the repo has a Dockerfile. For example:
 - api-gateway:

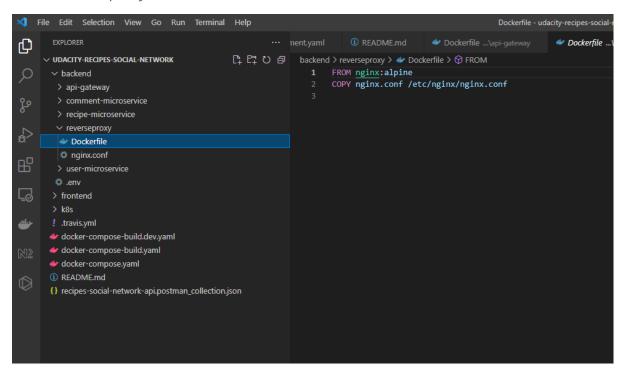
```
✓ UDACITY-RECIPES-SOCIAL-NETWORK
                                               [ 라 다 O backend > api-gateway > 🐡 Dockerfile > ...

√ backend

√ api-gateway

                                                                         WORKDIR /usr/src/app
   > test
   .dockerignore
                                                                        # package.json and pac
COPY package*.json ./
                                                                       # Clean and install dependencies RUN npm ci
     gitignore.
   {} nest-cli.json
   {} package-lock.json
                                                                  # Define the Docker image's behavior at runtime
CMD ["npm", "run", "start:prod"]
   (i) README.md
   {} tsconfig.build.json
   stsconfig.json
  > comment-microservice
  > recipe-microservice
  reverseproxy
   Dockerfile
   nginx.conf
  > user-microservice
```

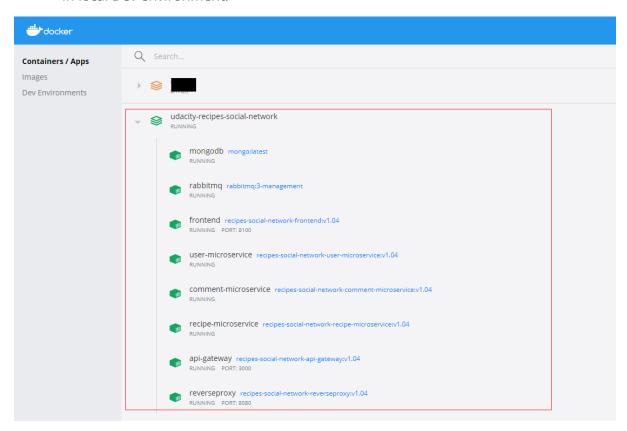
- reverseproxy:



2. The project have public docker images:

- In **Dockerhub** the URLs public are:
 - igomezdockerhub/recipes-social-network-frontend:
 https://hub.docker.com/r/igomezdockerhub/recipes-social-network-frontend
 - igomezdockerhub/recipes-social-network-user-microservice:
 https://hub.docker.com/r/igomezdockerhub/recipes-social-network-user-microservice
 - igomezdockerhub/recipes-social-network-comment-microservice: https://hub.docker.com/r/igomezdockerhub/recipes-social-network-comment-microservice
 - igomezdockerhub/recipes-social-network-recipe-microservice:
 https://hub.docker.com/r/igomezdockerhub/recipes-social-network-recipe-microservice
 - igomezdockerhub/recipes-social-network-api-gateway:
 https://hub.docker.com/r/igomezdockerhub/recipes-social-network-api-gateway
 - igomezdockerhub/recipes-social-network-reverseproxy:
 https://hub.docker.com/r/igomezdockerhub/recipes-social-network-reverseproxy

- 3. The applications runs in a container without errors:
 - In local Dev environment:



- The containers in AWS EKS cluster:
 - o Pods:

```
ivang@DESKTOP-RRSSCDF MINGW64 /d/Learning/0_platforms/Udacity/01.Cloud Developer/06.Capstone/udacity-recipes-social-netwo
rk/k8s (10-frontend-recipes)
$ kubectl get pods
                                      READY
                                             STATUS
                                                       RESTARTS AGE
api-gateway-56bc64894b-zhf4v
                                             Running
                                     1/1
                                                                  22h
                                                       0
comment-microservice-94d6c98b8-jbrbn
                                                       0
                                              Running
                                                                  22h
comment-microservice-94d6c98b8-nrc9n
                                              Running
                                                                  22h
frontend-64b4df4b6-61mkc
                                      1/1
                                              Running
                                                                  20h
                                              Running
mongodb-57bff75dcb-6ckvk
                                      1/1
                                                                  22h
rabbitmq-65c67c6b5-v778m
                                      1/1
                                              Running
                                             Running
recipe-microservice-69986c9989-hn9h7
                                                       0
                                                                  22h
                                     1/1
recipe-microservice-69986c9989-vbdgc
                                             Running
                                      1/1
                                                       0
                                                                  22h
reverseproxy-55b76644d7-r79b5
                                              Running
                                                       0
                                                                  20h
user-microservice-75c6fd86db-k7p6r
                                      1/1
                                              Running
                                                                  15h
user-microservice-75c6fd86db-wxc5b
                                              Running
                                                                  15h
```

Deployments

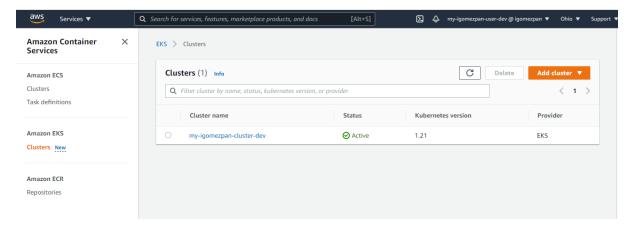
```
ivang@DESKTOP-RRSSCDF MINGW64 /d/Learning/0 platforms/Udacity/01.Cloud Developer/06.Capstone/udacity-recipes-social-netwo
rk/k8s (10-frontend-recipes)
$ kubectl get deployments
                              UP-TO-DATE AVAILABLE AGE
NAME
                       READY
api-gateway
                                                        22h
comment-microservice
                       2/2
                                                        22h
frontend
                                                        20h
mongodb
                       1/1
                                                        22h
rabbitmq
                       1/1
                                                        22h
recipe-microservice
                                                        22h
reverseproxy
                       1/1
                                                        20h
user-microservice
                       2/2
                                                        22h
```

Services

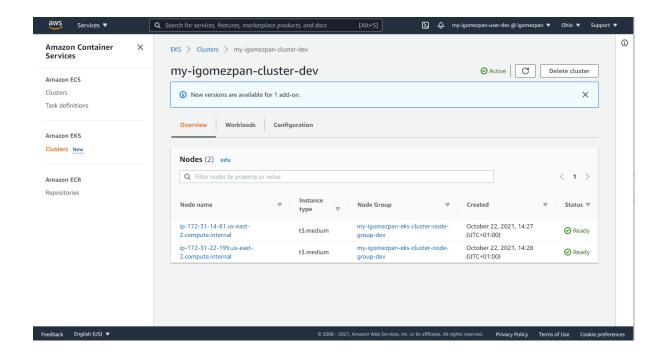


(Option 1): Deployment

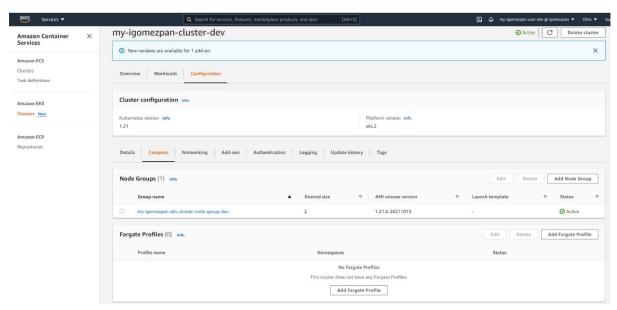
- 1. The application runs on a cluster in the cloud:
 - This is the cluster deployed in EKS with name my-igomezpan-cluster-dev:



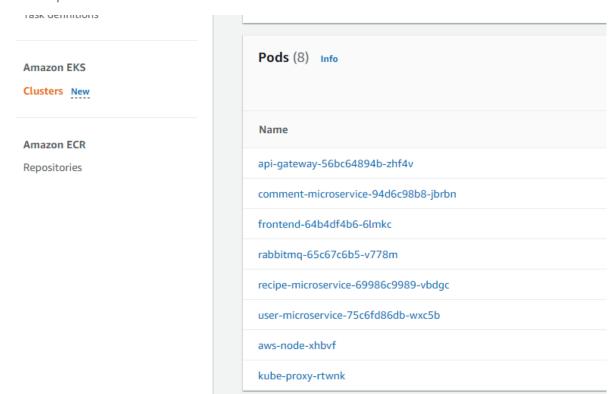
The nodes:



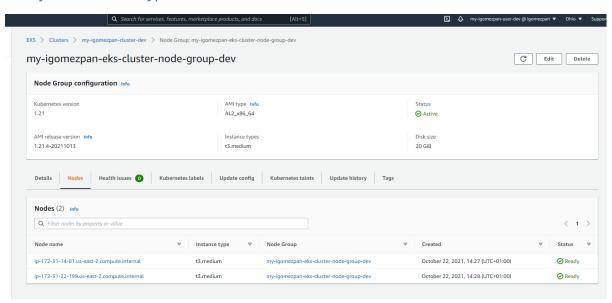
The Nome Group is my-igomezpan-eks-cluster-node-group-dev, with Status="Active":



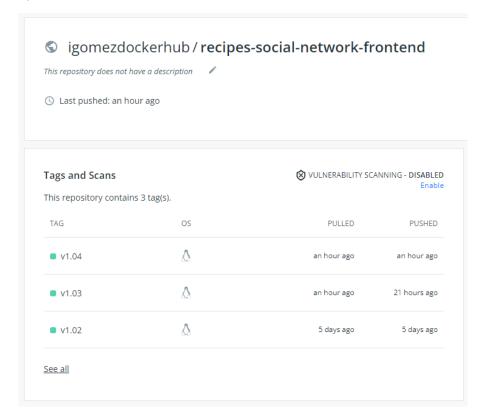
Several pods:



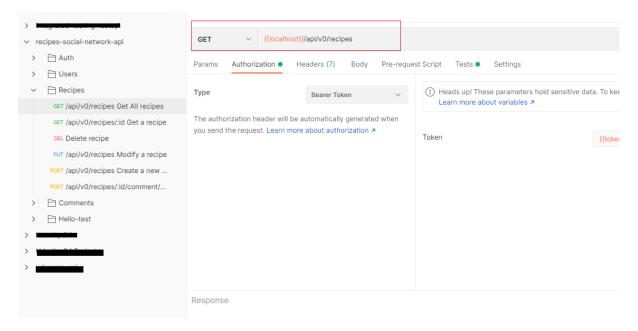
Finally, 2 Nodes with type of instance "t3.medium":



- 2. The app can be upgraded via rolling-update:
 - Each microservice has different versions (tags) that can be deployed separately. For example:



- The Rest API is prepared to configure different versions. Currently the web app is redirected by default to version 0:



3. A/B deployment of the application → (Not implemented)

4. Monitoring:

How I can use logs to capture metrics. This can help us with debugging:

kubetcl get pods

```
SKTOP-RRSSCDF MINGW64 /d/Learning/0_platforms/Udacity/01.Cloud Developer/06.Capstone/udacity-recipes-social-network/k8s (10-frontend-recipes)
$ kubectl get pods
                                                                               RESTARTS AGE
0 23h
                                                      READY
                                                                STATUS
                                                                 Running
      nent-microservice-94d6c98b8-jbrbn 1/1
nent-microservice-94d6c98b8-nrc9n 1/1
                                                                                              23h
23h
                                                                 Running
                                                                 Running
frontend-64b4df4b6-61mkc
mongodb-57bff75dcb-6ckvk
                                                                 Running
                                                                 Running
                                                                                              23h
rabbitmq-65c67c6b5-v778m
recipe-microservice-69986c9989-hn9h7 1/1
                                                                                              23h
                                                                 Running
recipe-microservice-09986c9989-vbdgc
reverseproxy-55b76644d7-r79b5
user-microservice-75c6fd86db-k7p6r
user-microservice-75c6fd86db-wxc5b
                                                                                              21h
                                                                 Running
```

kubetcl logs recipe-microservice-69986c9989-hn9h7

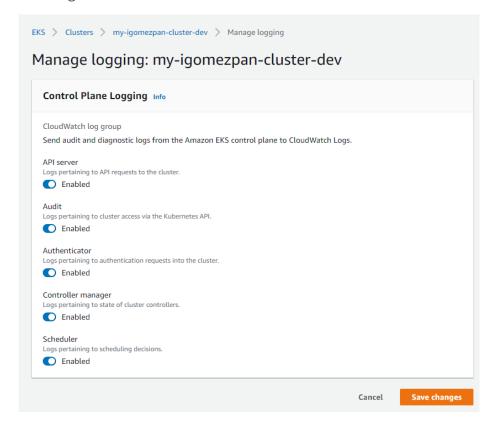
```
| Subsect | lags recipe aicroservice@0.0.1 start:prod | Assr/ser/app | recipe aicroservice@0.0.1 start:prod | Assr/ser/app | recipe aicroservice@0.0.1 start:prod | Assr/ser/app | recipe aicroservice@0.0.1 probable | recipe | r
```

How to access into any container:

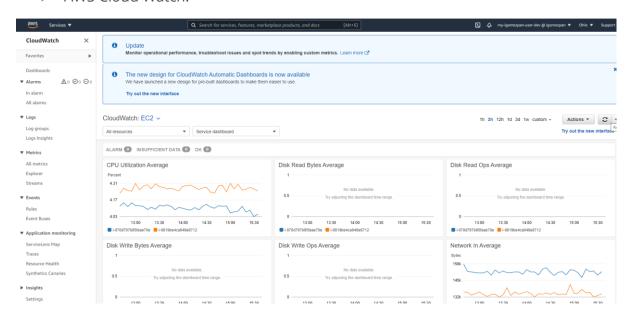
kubectl exec -it user-microservice-75c6fd86db-k7p6r bash

Also, the application is monitored in Amazon CloudWatch:

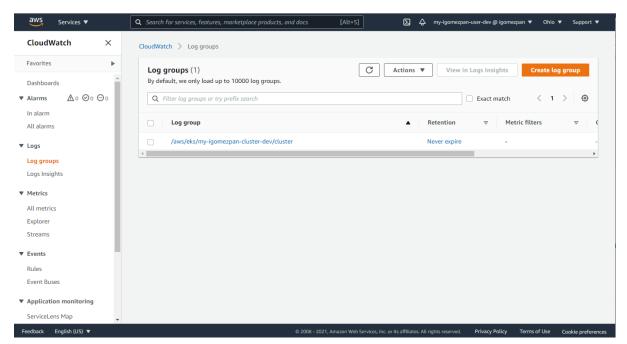
> Enabled logs in EKS:

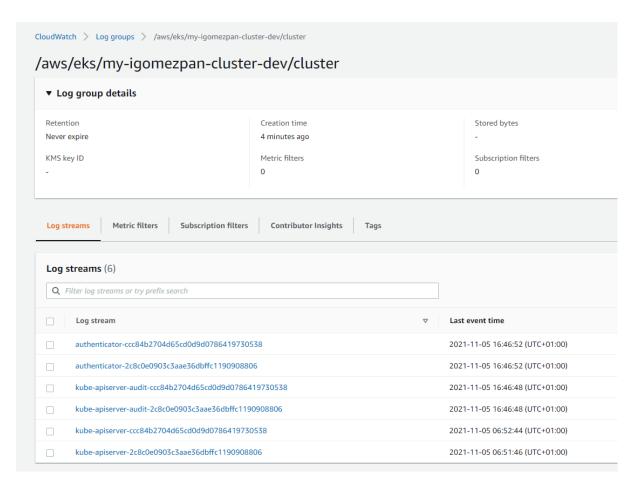


> AWS Cloud Watch:



Logs groups:





Logs events:

