

Current Trends in Software Engineering

IT4010



Group: 2022-REG_31

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ABC Company – Product Microservice

ABC Company sells a range of exclusive products across Sri Lanka online. In this existing system, my component is managing products. In this component, there are four main functionalities.

1. Add Products
2. View Products (Single by Id or All)
3. Update Product Information
4. Delete Product

Product microservice is an independent microservice that runs on the docker container. MongoDB is the database used in this microservice and it works on a separate MongoDB Atlas database. Finally, this microservice is connected to a CI/CD pipeline which works real time with the changes of the master branch of product service.

Task 1

Docker Hub Link: https://hub.docker.com/r/sandun01/it19362854_api

Docker Pull Command: docker pull sandun01/it19362854_api

```
FROM node:14-alpine

WORKDIR /usr/src/app

COPY package*.json ./

RUN npm ci

COPY . .

EXPOSE 5000

CMD ["npm", "run", "dev"]
```

Task 2

product_pod.yml

```
apiVersion: v1
kind: Pod
metadata:
  name: product-app-pod
  labels:
    name: product-app-pod
    app: demo-abc-app
spec:
  containers:
    - name: product-app
      image: sandun01/it19362854_api
      ports:
        - containerPort: 5000
```

product_service.yml

```
apiVersion: v1
kind: Service
metadata:
  name: product-service
  labels:
    name: product-service
    app: demo-abc-app
spec:
  type: LoadBalancer
  ports:
    - port: 5000
      targetPort: 5000
  selector:
    name: product-app-pod
    app: demo-abc-app
```

Google Cloud Platform My First Project

Kubernetes Engine 1 Kubernetes cluster selected

OVERVIEW COST OPTIMIZATION

Filter Enter property name or value

Status	Name	Location	Number of nodes	Total vCPUs	Total memory	Notifications	Labels
<input checked="" type="checkbox"/>	cluster-1	asia-southeast1-a	3	6	12 GB		

Use "gcloud config set project [PROJECT_ID]" to change to a different project.
 ayodhyaratnayake7001@cloudshell:~ (flash-spark-333823) \$ gcloud container clusters get-credentials cluster-1 --zone asia-southeast1-a --project flash-spark-333823
 Fetching cluster endpoint and auth data.
 kubeconfig entry generated for cluster-1.
 ayodhyaratnayake7001@cloudshell:~ (flash-spark-333823) \$ kubectl get pods

NAME	READY	STATUS	RESTARTS	AGE
employee-app-pod	1/1	Running	0	127m
people-app-pod	1/1	Running	0	34m
product-app-pod	1/1	Running	0	89m

ayodhyaratnayake7001@cloudshell:~ (flash-spark-333823) \$ kubectl get services

NAME	TYPE	CLUSTER-IP	EXTERNAL-IP	PORT(S)	AGE
employee-service	LoadBalancer	10.116.1.218	34.87.188.231	5000:31031/TCP	118m
kubernetes	ClusterIP	10.116.0.1	<none>	443/TCP	10h
people-service	LoadBalancer	10.116.4.149	34.126.100.227	5000:30902/TCP	35m
product-service	LoadBalancer	10.116.4.236	34.142.171.248	5000:32384/TCP	83m

ayodhyaratnayake7001@cloudshell:~ (flash-spark-333823) \$

Task 3

Github Action Yml

```
name: product microservice deployment

on:
  push:
    branches: [ master ]
  workflow_dispatch:

env:
  DOCKER_USER_NAME: ${secrets.DOCKER_USER_NAME}
  DOCKER_TOKEN: ${secrets.DOCKER_TOKEN}
  PRODUCT_REPO_NAME: ${secrets.PRODUCT_REPO_NAME}

jobs:
  product-service:
    runs-on: ubuntu-latest
    steps:
      - uses: actions/checkout@v2
      - name: Work Dir
        run: |
          echo $DOCKER_USER_NAME
          echo $DOCKER_TOKEN
          echo $PRODUCT_REPO_NAME
      - name: Docker login
        run: |
          docker login -u $DOCKER_USER_NAME -p $DOCKER_TOKEN
```

```

- name: Build product service docker image
  run: docker build . --file Dockerfile -t
"$DOCKER_USER_NAME/$PRODUCT_REPO_NAME:latest"
- name: Push product service docker image
  run: docker push "$DOCKER_USER_NAME/$PRODUCT_REPO_NAME:latest"

deploy:
  needs: [product-service]
  runs-on: ubuntu-latest
  steps:
  - uses: actions/checkout@master
  - name: kubectl - Google Cloud GKE cluster.
    uses: ameydev/gke-kubectl-action@master
  env:
    PROJECT_ID: ${ secrets.PROJECT_ID }
    APPLICATION_CREDENTIALS: ${ secrets.GOOGLE_APPLICATION_CREDENTIALS }
    CLUSTER_NAME: ${ secrets.CLUSTER_NAME }
    ZONE_NAME: asia-southeast1-a
  with:
    args: apply -f deployment/

```

Logs

Workflows

New workflow

All workflows

product microservice deploy...

All workflows

Showing runs from all workflows



Filter workflow runs


5 workflow runs

Event	Status	Branch	Actor
<div>Added final changes</div> <div>product microservice deployment #5: Commit d8e363e pushed by Sandun01</div> <div>master</div>	<div>2 hours ago</div> <div>2m 44s</div>	...	
<div>Added Ci?Cd deployment</div> <div>product microservice deployment #4: Commit 39e0e1c pushed by Sandun01</div> <div>master</div>	<div>2 hours ago</div> <div>2m 58s</div>	...	
<div>updated workflow yml 2</div> <div>product microservice deployment #3: Commit d0499c6 pushed by Sandun01</div> <div>master</div>	<div>3 hours ago</div> <div>1m 16s</div>	...	
<div>update 2</div> <div>product microservice deployment #2: Commit 2d29855 pushed by Sandun01</div> <div>master</div>	<div>4 hours ago</div> <div>1m 1s</div>	...	
<div>initial commit</div> <div>product microservice deployment #1: Commit 2ed2d14 pushed by Sandun01</div> <div>master</div>	<div>4 hours ago</div> <div>22s</div>	...	

 **Added final changes** product microservice deployment #5



[Re-run all jobs](#) [...](#)


-  Summary
- Jobs
-  product-service


 deploy


product-service


succeeded 2 hours ago in 54s





>  Set up job


>  Run actions/checkout@v2


>  Work Dir

>  Docker login

>  Build product service docker image

>  Push product service docker image

>  Post Run actions/checkout@v2

>  Complete job

1s

1s

0s

0s

35s

14s

0s

0s