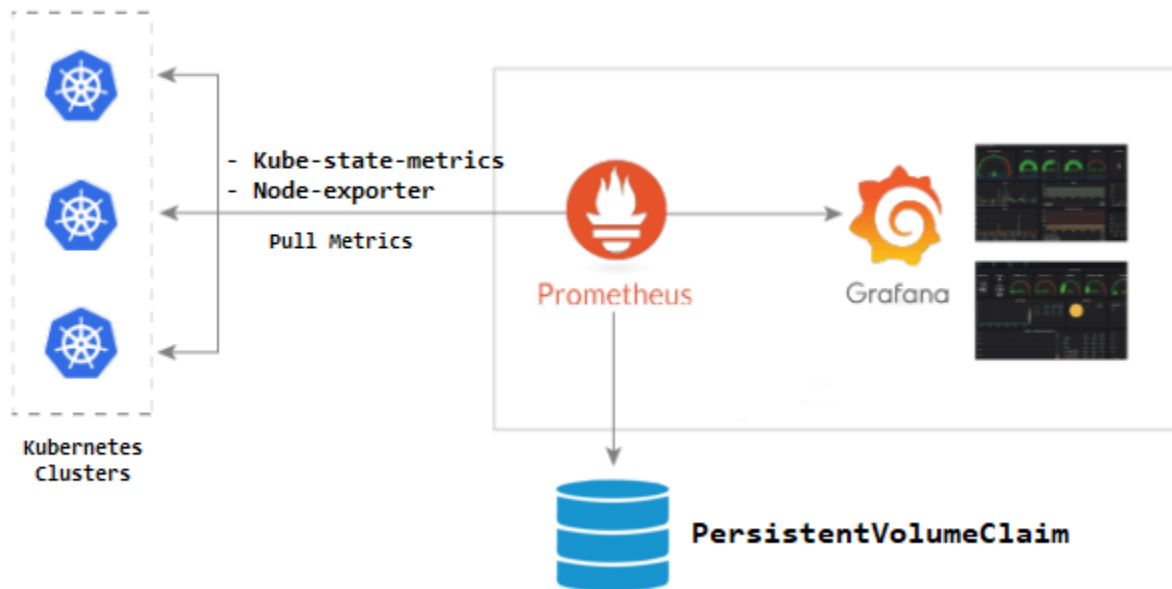


## DevOps Task 5-: RUNNING GRAFANA AND KUBERNETES ON TOP OF KUBERNETES WITH PERSISTENT STORAGE



This project makes the data of Prometheus and Grafana Persistent using PVC. In this project, I have created a multi-container pod in which two pods (Grafana and Prometheus ) have been launched using images pre-uploaded on DOCKER HUB. We can also create our own image using Dockerfile and the upload it our repository to use it.

Step 1-: Create the folder and save all the following required files for this task.

This file creates a deployment with two containers inside pod using the images.

both - Notepad

File Edit Format View Help

```
apiVersion: apps/v1
kind: Deployment
metadata:
  name: env
spec:
  selector:
    matchLabels:
      pod: both

  replicas: 1
  template:
    metadata:
      labels:
        pod: both

    spec:
      containers:
        - name: prometheus
          image: prom/prometheus

          ports:
            - containerPort: 9090

          volumeMounts:
            - name: prom-vol
              mountPath: /data/

        - name: grafana
          image: grafana/grafana


          ports:
            - containerPort: 3000

          volumeMounts:
            - name: graf-vol
              mountPath: /var/lib/grafana/


      volumes:
        - name: prom-vol
          persistentVolumeClaim:
            claimName: prometheus-pvc

        - name: graf-vol
          persistentVolumeClaim:
            claimName: grafana-pvc
```

Create PVC files for PVC claims for Grafana.

 graf-pvc - Notepad  
File Edit Format View Help  
|apiVersion: v1  
kind: PersistentVolumeClaim  
metadata:  
 name: grafana-pvc  
 labels:  
 name: graf-pvc  
  
spec:  
 accessModes:  
 - ReadWriteOnce  
 resources:  
 requests:  
 storage: 1Gi

Create PVC files for PVC claims for Prometheus.

 prom-pvc - Notepad  
File Edit Format View Help  
apiVersion: v1  
kind: PersistentVolumeClaim  
metadata:  
 name: prometheus-pvc  
 labels:  
 name: prompvc  
  
spec:  
 accessModes:  
 - ReadWriteOnce  
 resources:  
 requests:  
 storage: 1Gi

Create a service file two expose both the pods to the outside world.

```
service - Notepad
File Edit Format View Help
apiVersion: v1
kind: Service
metadata:
  name: svc
spec:
  type: NodePort
  selector:
    pod: both

  ports:
    - port: 9090
      protocol: TCP
      name: prom-port
    - port: 3000
      protocol: TCP
      name: graf-port|
```

Create a Kustomization file so that all these files can be run using a single command.



kustomization - Notepad

File Edit Format View Help

```
apiVersion: kustomize.config.k8s.io/v1beta1
kind: Kustomization
resources:
- graf-pvc.yml
- prom-pvc.yml
- both.yml
- service.yml
```

Now, start minikube and run the the command –

***kubectl apply -k .***

Command Prompt

C:\Users\Dell\OneDrive\Desktop\DevOpstask5>kubect1 get all

NAME	READY	STATUS	RESTARTS	AGE
pod/env-5dc8bd6cdc-v6kzg	2/2	Running	0	4m36s

NAME	TYPE	CLUSTER-IP	EXTERNAL-IP	PORT(S)
service/kubernetes	ClusterIP	10.96.0.1	<none>	443/TCP
service/svc	NodePort	10.98.222.102	<none>	9090:30710/TCP,3000:32193/

NAME	READY	UP-TO-DATE	AVAILABLE	AGE
deployment.apps/env	1/1	1	1	4m36s

NAME	DESIRED	CURRENT	READY	AGE
replicaset.apps/env-5dc8bd6cdc	1	1	1	4m36s

C:\Users\Dell\OneDrive\Desktop\DevOpstask5>kubect1 get pvc

NAME	STATUS	VOLUME	CAPACITY	ACCESS MO
grafana-pvc	Bound	pvc-7fb57706-0b9e-4d44-acaf-281de056922c	1Gi	RWO
myclaim	Bound	pvc-8ec4df11-b522-43ad-bedd-d5400a1684fa	5Gi	RWO
mysql-pv-claim	Bound	pvc-1033b868-8d79-43c8-856c-5b107fdbbc60e	20Gi	RWO
prometheus-pvc	Bound	pvc-9a2f0d0a-94e4-41e2-836c-afbc9b7b7357	1Gi	RWO
wp-pv-claim	Bound	pvc-345f3a0e-ca0d-448d-a09e-4fbe1abb51d7	20Gi	RWO

C:\Users\Dell\OneDrive\Desktop\DevOpstask5>\_

When we run the exposed file we get the following Output.

docker rm | Docker Documenta... X multicontainerpod/service.yml al... X Prometheus Time Series Collectio... X Grafana X kubernetes prometheus grafana X +

← → ↻ ⓘ Not secure | 192.168.99.104:30710/graph

Apps Maps YouTube Gmail Cricket Score, Sche... Dr. A.P.J. Abdul Ka... YouTube 7:05 Now playing K... How To Fix Window... WhatsApp Google Drive Hybrid Multi Cloud... IIEC rise 1.0 data -...

Prometheus Alerts Graph Status ▾ Help

☐ Enable query history

Expression (press Shift+Enter for newlines)

Execute - insert metric at cursor - ▾

Graph Console

⏪ Moment ⏩

Element	Value
no data	

Add Graph

DevOps Task 4 (1).docx DevOps Task 4.docx ssyadav.jpg



