Kubernetes Day-4

Volumes - are used to persist data on the host or external storage so that even if a pod is terminated, the data remains available and is not lost. And for this we need:

PV - Persistent Volume

PVC - Persistent Volume Claim

vi PersistentVolume.yml

```
ubuntu@ip-172-31-9-81:~/Kubernetes-Manifest-Files$ cat persistentVolume.yml
kind: PersistentVolume
apiVersion: v1
metadata:
  name: local-pv
  labels:
    app: local
spec:
  capacity:
    storage: 1Gi
  accessModes:
  - ReadWriteOnce
  persistentVolumeReclaimPolicy: retain
  storageClassName: local-storage
  hostPath:
    path: /mnt/data
```

PVC (Persistent Volume Claim) — Is used to claim the amount of storage we requested from our host system.

vi PersistentVolumeClaim.yml

```
kind: PersistentVolumeClaim
apiVersion: v1
metadata:
  name: local-pv
spec:
  accessModes:
    - ReadWriteOnce
  resources:
    requests:
      storage: 1Gi
  storageClassName: local-storage
~
```

```
ubuntu@ip-172-31-12-22:~/kubernetes-in-one-shot/nginx$ kubectl get pvc
NAME           STATUS    VOLUME      CAPACITY    ACCESS MODES    STORAGECLASS    VO
LUMEATTRIBUTESCLASS    AGE
local-pvc      Bound     local-pv    1Gi         RWO             local-storage   <u
nset>                    29s
```

Services

To make deployment accessible to external world we use services/to expose group of pods to external world we use service.

Type of services

- **LoadBalancer:** exposes your application to the external world by provisioning cloud provider.
- **NodePort:** Expose services on a static port on each node in the cluster.
- **Cluster IP:** Exposes the service within the cluster only.
- **Ingress Controllers:** to manage external access to services in k8s cluster.

```yaml
kind: Service
apiVersion: v1
metadata:
  name: nginx-service
  namespace: nginx
spec:
  selector:
    app: nginx
  ports:
    - protocol: TCP
      port: 80
      targetPort: 80
  type: ClusterIP
~
~
~
~
```

- To do Port-forwarding

$ kubectl port-forward service/nginx-service <local-port>:<target-port> -n nginx --address=0.0.0.0

Ingress- Ingress exposes HTTP and HTTPS routes from outside the cluster to services within the cluster.

Is an resource that allows us to manage traffic and routes, it is used to re-route traffic in the cluster Expose multiple services through a single IP address.

Ingress controller — helps us in routing traffic at cluster-level

In the below eg if I say /nginx it should go to nginx and if I say /notes-app it should go to notes-app for that we use ingress
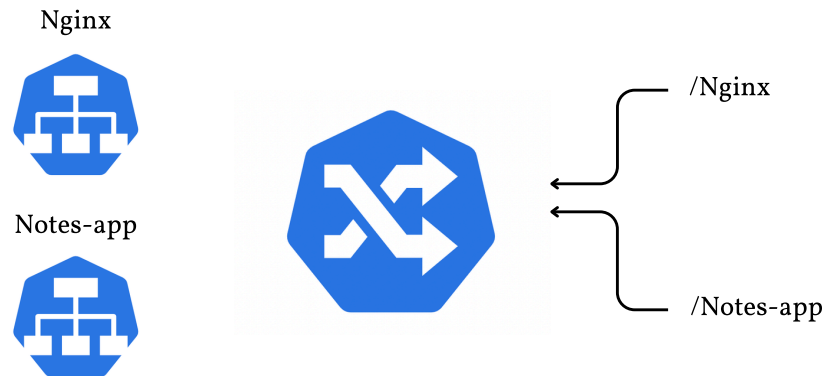
To install nginx ingress controller (install it before yaml file)

kubectl apply -f https://kind.sigs.k8s.io/examples/ingress/deploy-ingress-nginx.yaml

vi ingress.yml

```yaml
apiVersion: networking.k8s.io/v1
kind: Ingress
metadata:
  name: nginx-notes-ingress
  namespace: nginx
spec:
  rules:
  - http:
      paths:
      - pathType: Prefix
        path: /nginx
        backend:
          service:
            name: nginx-service
            port:
              number: 80
      - pathType: Prefix
        path: /app
        backend:
          service:
            name: notes-app-service
            port:
              number: 8000
```

```
ubuntu@ip-172-31-12-22:~/kubernetes-in-one-shot/nginx$ kubectl get ing -n ng
inx
NAME                  CLASS      HOSTS   ADDRESS   PORTS   AGE
nginx-notes-ingress   <none>     *                 80      10s
```
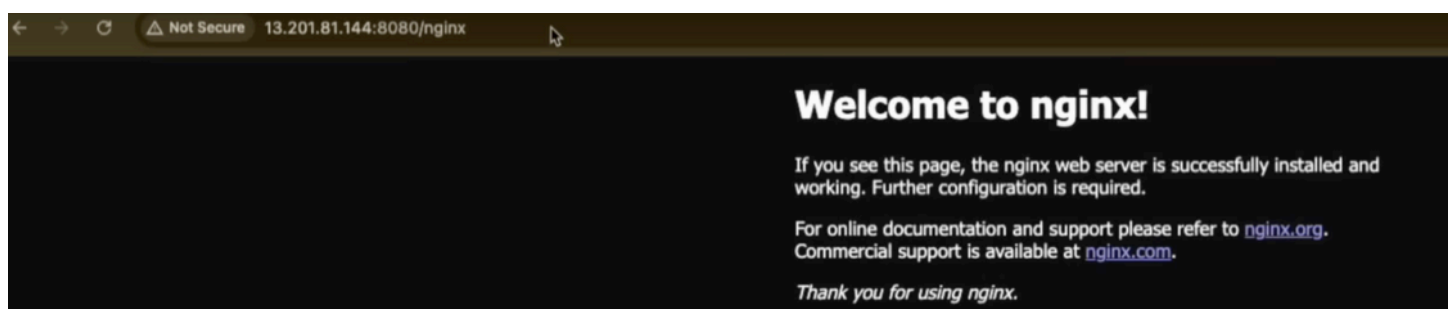
Annotations

You can add these Kubernetes annotations to specific Ingress objects to customize their behavior.

Files

⌥ master

🔍 Go to file

📄 README.md
📄 annotations.yml
📄 cron-job.yml
📄 deamonsets.yml
📄 deployment.yml
📄 ingress.yml
📄 job.yml
📄 namespace.yaml
📄 persistentVolume.yml
📄 persistentVolumeClaim.yml
📄 pod.yml
📄 replicaset.yaml
📄 services.yml

Kubernetes-Manifest-Files / **annotations.yml**

⬤ **Ubuntu** annotations.yml file

Code   Blame   25 lines (25 loc) · 525 Bytes

```
 1    apiVersion: networking.k8s.io/v1
 2    kind: Ingress
 3    metadata:
 4      name: nginx-notes-ingress
 5      namespace: nginx
 6      annotations:
 7        nginx.ingress.kubernetes.io/rewrite-target: /
 8    spec:
 9      rules:
10      - http:
11          paths:
12          - pathType: Prefix
13            path: /nginx
14            backend:
15              service:
16                name: nginx-service
17                port:
18                  number: 80
19          - pathType: Prefix
20            path: /app
21            backend:
22              service:
23                name: notes-app-service
24                port:
25                  number: 8000
```

We I keep /nginx will be running

← → C ⚠ Not Secure 13.201.81.144:8080/nginx

Welcome to nginx!

If you see this page, the nginx web server is successfully installed and
working. Further configuration is required.

For online documentation and support please refer to nginx.org.
Commercial support is available at nginx.com.

Thank you for using nginx.

If I remove / notes-app will be running

My Notes

☰ Notes   5

Note #5
Does the time not update or something? tests
21/01/2023

Note #4
Looks like everything is working so far This is a test update ok
ev...
20/01/2023

Note #3
This a new note now REACT is integrated with Django!
20/01/2023

Note #2
This is a new note XD
20/01/2023

Note #1
- One - Two - Three
20/01/2023

+