Persistent Volumes In Kubernetes

The Nautilus DevOps team is working on a Kubernetes template to deploy a web application on the cluster. There are some requirements to create/use persistent volumes to store the application code, and the template needs to be designed accordingly. Please find more details below:

1. Create a PersistentVolume named as pv-nautilus. Configure the spec as storage class should be manual, set capacity to 4Gi, set access mode to ReadWriteOnce, volume type should be hostPath and set path to /mnt/itadmin (this directory is already created, you might not be able to access it directly, so you need not to worry about it).
2. Create a PersistentVolumeClaim named as pvc-nautilus. Configure the spec as storage class should be manual, request 1Gi of the storage, set access mode to ReadWriteOnce.
3. Create a pod named as pod-nautilus, mount the persistent volume you created with claim name pvc-nautilus at document root of the web server, the container within the pod should be named as container-nautilus using image nginx with latest tag only (remember to mention the tag i.e nginx:latest).
4. Create a node port type service named web-nautilus using node port 30008 to expose the web server running within the pod.

Note: The kubectl utility on jump\_host has been configured to work with the kubernetes cluster.

SOLUTION

1.

apiVersion: v1

kind: PersistentVolume

metadata:

name: pv-datacenter

spec:

storageClassName: manual

capacity:

storage: 4Gi

accessModes:

- ReadWriteOnce

hostPath:

path: "/mnt/data"

2.

apiVersion: v1

kind: PersistentVolumeClaim

metadata:

name: pvc-datacenter

spec:

storageClassName: manual

accessModes:

- ReadWriteOnce

resources:

requests:

storage: 2Gi

3.

apiVersion: v1

kind: Pod

metadata:

name: pod-datacenter

spec:

volumes:

- name: pv-datacenter

persistentVolumeClaim:

claimName: pvc-datacenter

containers:

- name: container-datacenter

image: nginx:latest

ports:

- nodePort: 30008

name: web-datacenter

volumeMounts:

- mountPath: "/usr/share/nginx/html"

name: pv-storage