

Kubernetes

LAB_5

- 1- create a namespace iti-devops

```
controlplane $ k create namespace iti-devops
namespace/iti-devops created
```

- 2- create a service account iti-sa-devops under the same namespace

```
apiVersion: v1
kind: ServiceAccount
metadata:
  name: iti-sa-devops
  namespace: iti-devops
controlplane $ k apply -f sa.yaml
serviceaccount/iti-sa-devops created
```

- 3- create a clusterRole which should be named as cluster-role-devops to grant permissions "get","list","watch","create","patch","update" to "configMaps","secrets","endpoints","nodes","pods","services","namespaces","events","serviceAccounts".

```
apiVersion: rbac.authorization.k8s.io/v1
kind: ClusterRole
metadata:
  name: cluster-role-devops
rules:
- apiGroups: [""]
  resources: ["configMaps","secrets","endpoints","nodes","pods","services","namespaces","events","serviceAccounts"]
  verbs: ["get","list","watch","create","patch","update"]
controlplane $ k apply -f cl_rulr.yaml
clusterrole.rbac.authorization.k8s.io/cluster-role-devops created
```

- 4- create a ClusterRoleBinding which should be named as cluster-role-binding-devops under the same namespace. Define roleRef apiGroup should be rbac.authorization.k8s.io . Kind should be ClusterRole, name should be cluster-role-devops and subjects kind should be ServiceAccount: name should be iti-sadevops and namespace should be iti-devops

```
apiVersion: rbac.authorization.k8s.io/v1
kind: ClusterRoleBinding
metadata:
  name: cluster-role-binding-devops
  namespace: iti-devops
subjects:
- kind: ServiceAccount
  name: iti-sa-devops
  namespace: iti-devops
roleRef:
  kind: ClusterRole
  name: be cluster-role-devops
  apiGroup: rbac.authorization.k8s.io
controlplane $ k apply -f crb.yaml
clusterrolebinding.rbac.authorization.k8s.io/cluster-role-binding-devops created
```

5- What is the difference between statefulSets and deployments?

- *Deployment manages multiple pods by automating the creation, updating, and deletion of ReplicaSet. Deployment, on the other hand, is suitable for stateless workloads that use multiple replicas of one pod, such as web servers like Nginx and Apache*
- *StatefulSet helps orchestrate stateful pods by guaranteeing the ordering and uniqueness of pod replicas. StatefulSet is better suited to stateful workloads that require persistent storage on each cluster node, such as databases and other identity-sensitive workloads*

6- Set up Ingress on Minikube with the NGINX Ingress Controller play around with paths , you can create more than 2 deployments if you like <https://kubernetes.io/docs/tasks/access-application-cluster/ingress-minikube/>