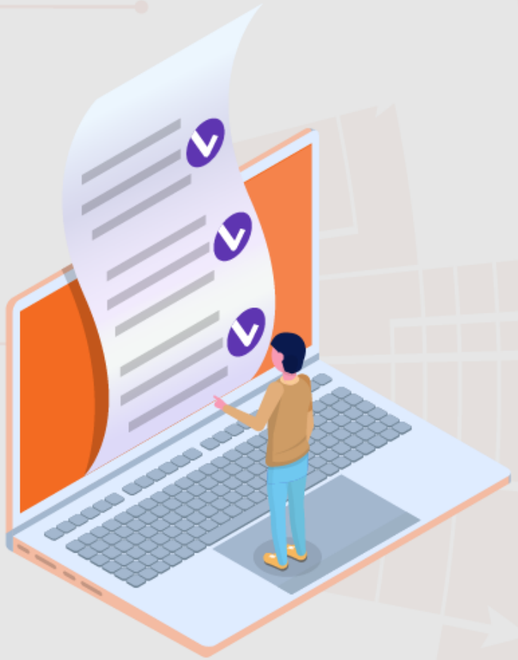
Container Orchestration using Kubernetes

Course-end Project

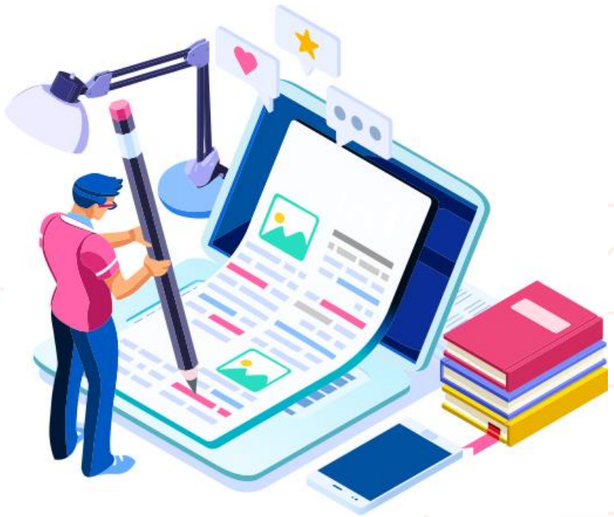
Backing up the Etcd Cluster Data

Objectives

To take the backup of an etcd cluster in a file.

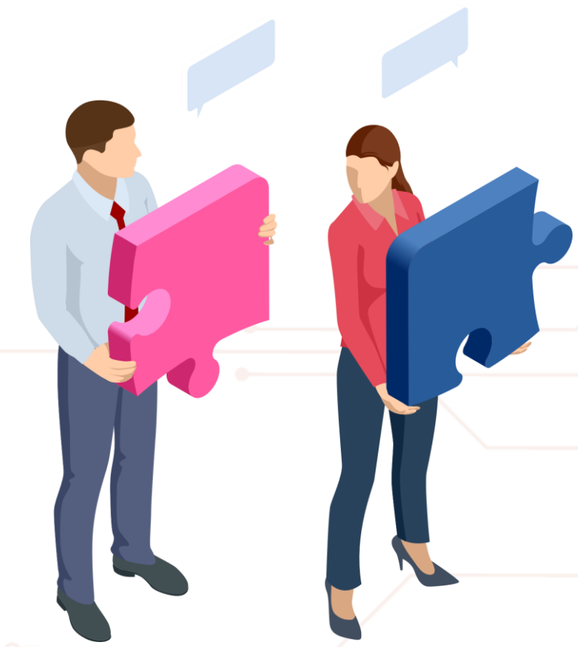


Prerequisites



- Kubeadm
- Kubectl
- Kubelet
- Docker

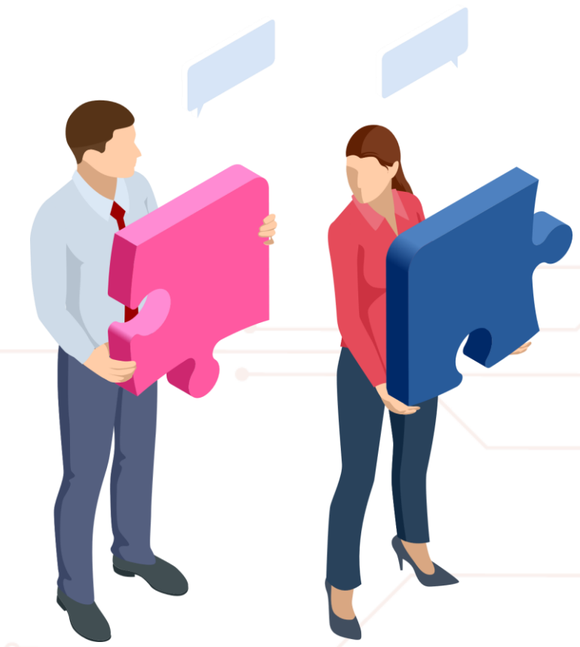
Problem Statement and Motivation



Problem Statement:

In this project, you should be able to backup an etcd to a file called /tmp/myback and create a namespace called cep-project2 with a network policy that allows all the Pods in the same namespace to access one another.

Problem Statement and Motivation



Real-World Scenario:

As an infrastructure admin in the organization, you need to take the backup of an etcd in a file called /tmp/myback. Make sure to have a namespace called cep-project2 with a network policy configured in such a way that all the Pods in the same namespace should access each other. Any other Pods from the non cep-project2 should not access the Pods. Configure a Kubernetes client on worker node 3 in such a way that user4 should have only view access to cep-project2. Update the master with the latest version of the Kubernetes.

Industry Relevance

Skills used in the project and their usage in the industry are given below:

- **Kubeadm –** It is a tool that provides best practice "fast paths" for building Kubernetes clusters with kubeadm init and kubeadm join.
- **Kubectl -** It is just a command-line tool for running commands on Kubernetes clusters.
- **Kubelet -** It is the technology that applies, creates, updates, and destroys containers on a Kubernetes node.
- **Docker –** It delivers software as containers.

Task (Activities)

1. Backing up the etcd cluster data
2. Creating and verifying the namespaces
3. Generating a certificate and private key in the worker node
4. Upgrading the Kubernetes cluster with the latest version

Project Reference

- **Task 1:** To back up the etcd cluster data, refer to the lesson 3; demo 9
- **Task 2:** To create and verify the namespaces, refer to the lesson 3; demo 8
- **Task 3:** To generate a certificate and private key in the worker node, refer to the lesson 3; demo 8
- **Task 4:** To upgrade the Kubernetes cluster with the latest version, refer to the lesson 3; demo 11

Output Screenshot

```
labsuser@worker-node2:~$ kubectl get pods --kubeconfig=myconfig
NAME                     READY   STATUS    RESTARTS   AGE
mydep-666f767c78-6dgqs   1/1     Running   0          55s
labsuser@worker-node2:~$ kubectl get deployment  --kubeconfig=myconfig
NAME    READY   UP-TO-DATE   AVAILABLE   AGE
mydep   1/1     1            1           63s
labsuser@worker-node2:~$
```

```
labsuser@worker-node-1:~$ kubectl get nodes --kubeconfig=myconfig
Error from server (Forbidden): nodes is forbidden: User "user4" cannot list resource "nodes" i
n API group "" at the cluster scope
```

Thank you