Exercises:

1) Deploy a Kubernetes cluster with any number of nodes.

2) Install Weavenet as a CNI plugin for the K8s cluster.

3) Deploy a containerized Jenkins on the Kubernetes cluster in the namespace **jenkins**.

4) Jenkins will save its data in case the pod has been deleted.

5) Create a Kubernetes deployment of the bulletin board app provided in the namespace **demo** with the following characteristics:

- The pods result of the deployment must not as run as root user.
- The pods may use the capability **CAP_CHOWN**.
- The pods need to run on **x86_64** machines.
- A **NodePort** service will expose the deployment.
- Traffic will only be permitted into the pod when the service running on the bulletin board is active.

6) Create a Jenkins pipeline that has the following stages:

- Execute the commands that changes the bulletin board code using attached script provided named **change.sh**.
- Build a docker image with the new code.
- Push the image into docker hub.
- Run the new image into the existing deployment of the bulletin board app in the namespace demo.

Deliverables:

Provide all the below requirements:

1) Export all Kubernetes objects in the namespaces **jenkins**, **demo**, and **kube-system** into YAML files.

2) Export Jenkins job to an XML file or attach the **Jenkinsfile**.

3) Provide a video showing each pipeline stage being executed, and show the dashboard through the browser before, and after the pipeline run is finished.