The following is a step by step guide to install and setup Kubernetes with Network Storage on your own hardware.

1. Install MicroK8s

Install a lightweight Kubernetes distribution:

```
sudo snap install microk8s --classic
```

Check the installation status and wait for the Kubernetes services to initialize:

```
microk8s status --wait-ready
```

2. Enable Required Add-ons in MicroK8s

List available and installed add-ons:

```
microk8s status
```

Enable necessary add-ons (replace [add-on name] with dns, hostpath-storage, ingress, or metallb):

```
microk8s enable [add-on name]
```

3. Configure MetalLB

Enable MetalLB:

```
microk8s enable metallb
```

Provide an IP range for the load balancer when prompted **for example:**

```
10.244.0.1-10.244.0.10
```

4. Install NFS CSI Driver

Add the NFS CSI driver Helm chart repository:

```
microk8s helm3 repo add csi-driver-nfs
https://raw.githubusercontent.com/kubernetes-csi/csi-driver-nfs/master/chart
s
microk8s helm3 repo update
```

Install the Helm chart for the NFS CSI driver:

```
microk8s helm3 install csi-driver-nfs csi-driver-nfs/csi-driver-nfs --
```

```
namespace kube-system
```

Wait for the NFS CSI driver pods to be ready:

```
microk8s kubectl wait --for=condition=ready pod -l
app.kubernetes.io/name=csi-driver-nfs --namespace kube-system
```

5. Create and Apply NFS Storage Class

Create a **storageclass.yaml** file with the following content:

```
apiVersion: storage.k8s.io/v1
kind: StorageClass
metadata:
  name: nfs-csi
provisioner: nfs.csi.k8s.io
parameters:
  server: <NFS_SERVER_IP>
  share: <NFS_EXPORT_PATH>
reclaimPolicy: Delete
mountOptions:
  - hard
  - nfsvers=4.1
```

Replace **<NFS_SERVER_IP>** and **<NFS_EXPORT_PATH>** with the actual server IP and export path.

Apply the StorageClass configuration:

```
microk8s kubectl apply -f storageclass.yaml
```

This will install Kubernetes and all the necessary configuration required for your cluster. Now the cluster is ready for any application you want to install and run on it.