Kubernetes

Kubernetes is like robotic manager for running many apps (containers) automatically safely and efficiently.

It :-

Starts your apps
Restarts them if they crash.
Distributes them across computers
Scales them (more/less copies)
Heals if somethings break.

Think of it like a small traffic controller for apps running in containers.

Real-life Analogy : Restaurant Manger.

Item	Kubernetes	Meaning
Chef	Docker	Prepare containers (apps in boxes)
Kitchen Manager	Kubernetes	Manges chefs, orders and resources.
Recipe Book	YAML files	Instruction for what and how to cook apps.

Kitchen staff — Nodes — computers that run the app containers.

meal orders — Pods — One or more containers running together.

Basic parts of Kubernetes.

→ Cluster :- A group of computers (nodes) running apps.

→ Node :- A single machine (master or worker).

→ Pod :- Smallest unit; runs 1+ containers.

→ Deployment :- Tells K8s How many pods to run and manages.

→ Service :- Gives network access to pods.

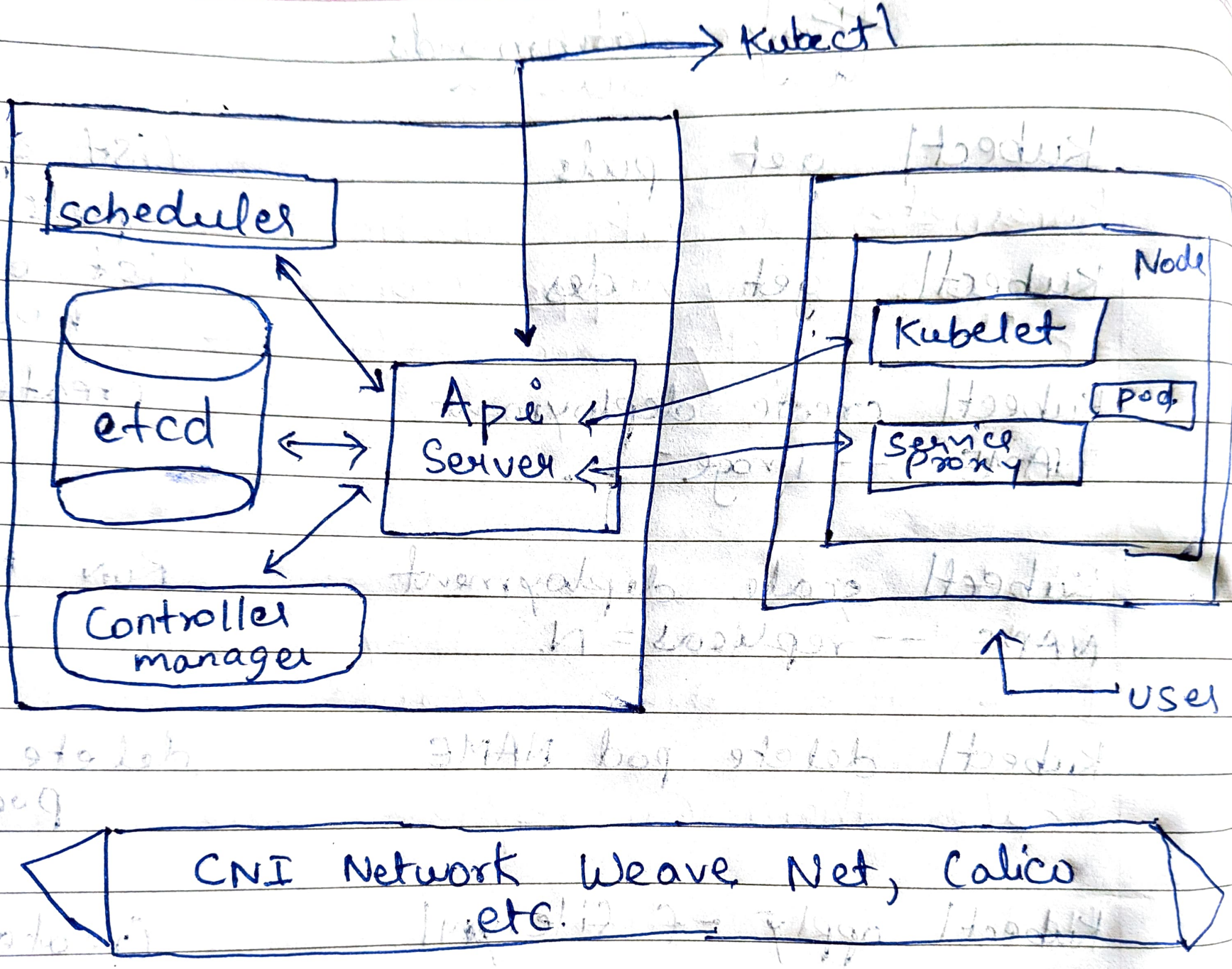
→ YAML FILE :- writing instructions for Kubernetes.

Kubernetes setup :- Two Main parts :-

1. Master node Controller :-
   → Decides what runs where
2. Worker Node :- Muscles.
   • Actually runs the app (pods).

Key Commands

Kubectl get pods	List of all pods.
Kubectl get nodes	List all nodes.
Kubectl create deployment NAME -- image= ..	create app.
Kubectl scale deployment NAME -- replicas = N	Run N copies.
Kubectl delete pod NAME	delete a pod.
Kubectl apply -f file.yaml	Create a yaml file.
Kubectl exposes deployment	Make app public


Kubectl
scheduler
etcd
Api Server
Controller manager
Node
Kubelet
Pod
service proxy
User
CNI Network Weave Net, Calico etc.