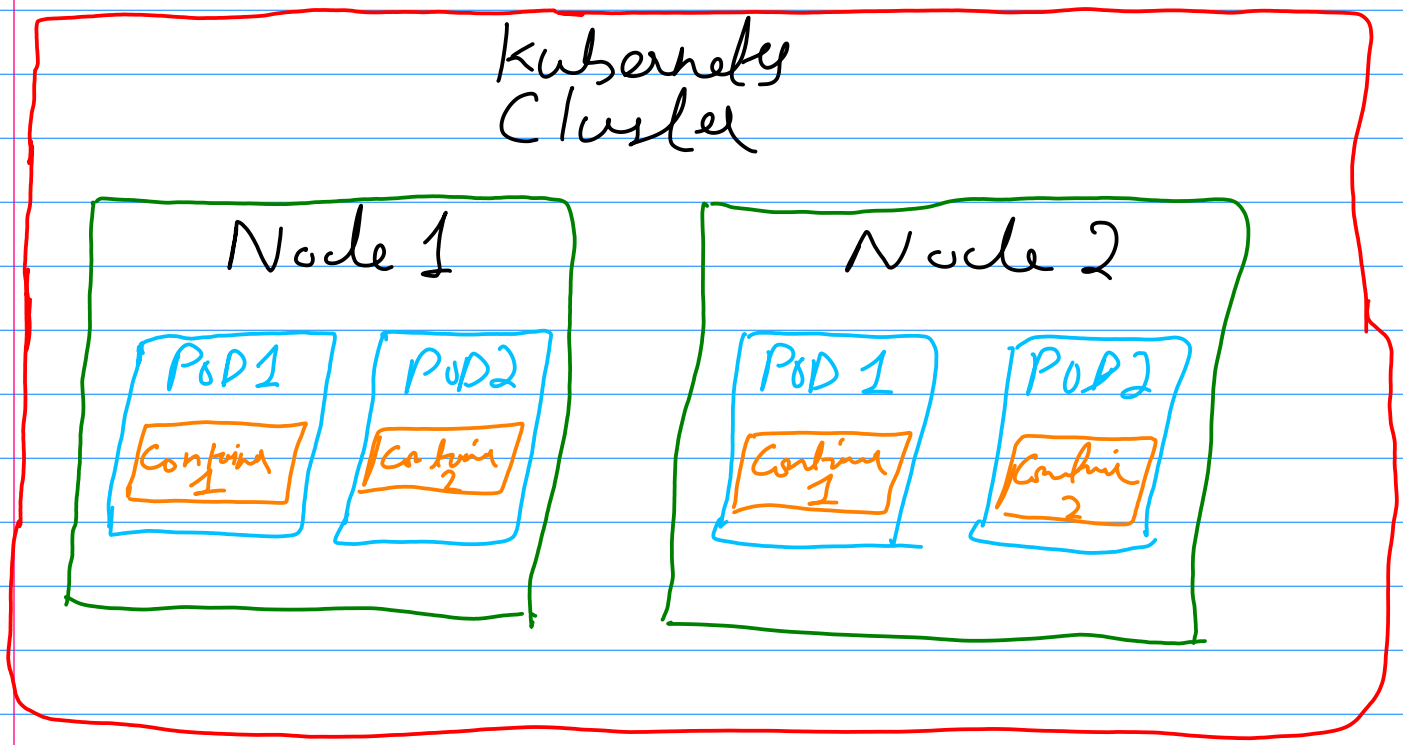
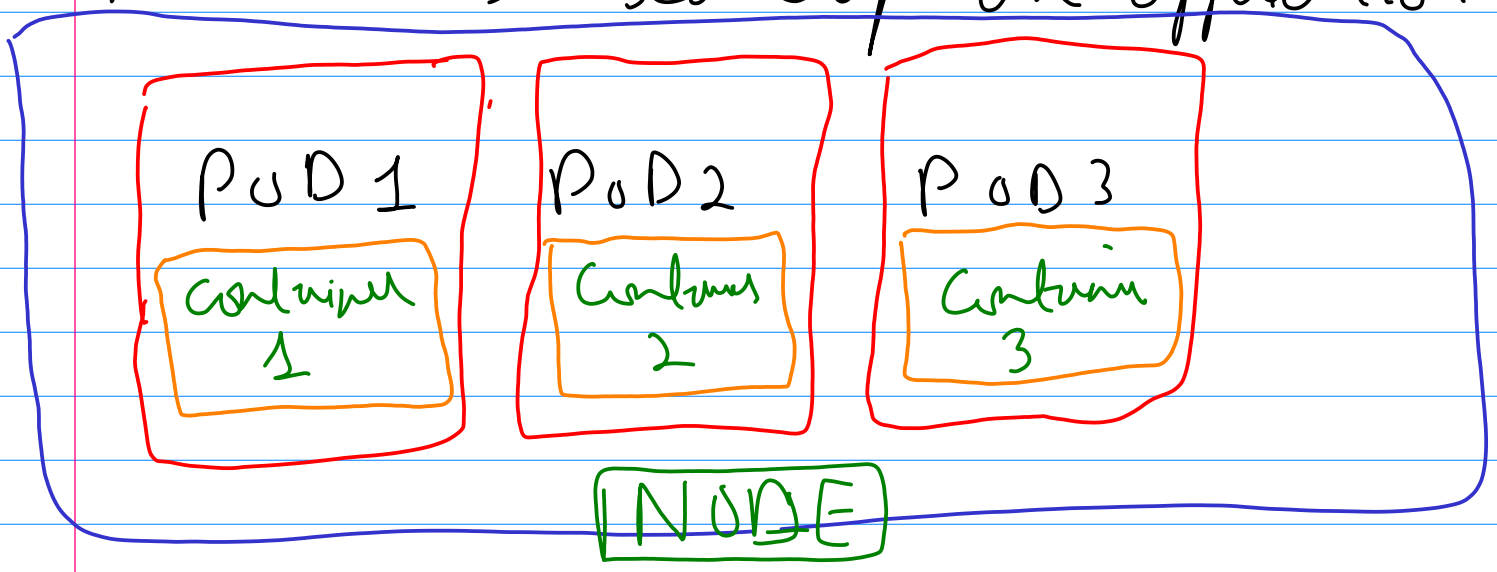
POD :-

- Containers are not directly deployed inside node
- The containers are encapsulated inside objects called Pods.
- Single Instance of an application
  - (POD)
- Smallest object in kubernetes

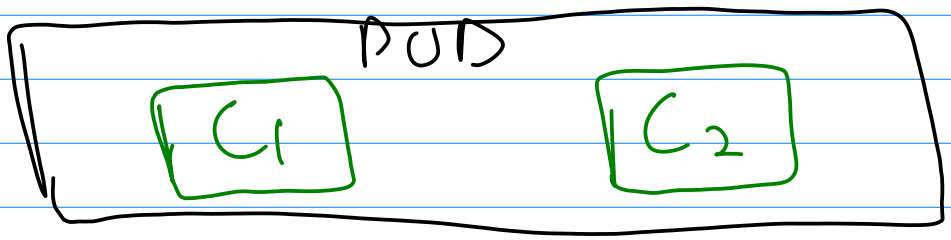


- When number of users increases we need to scale up an application



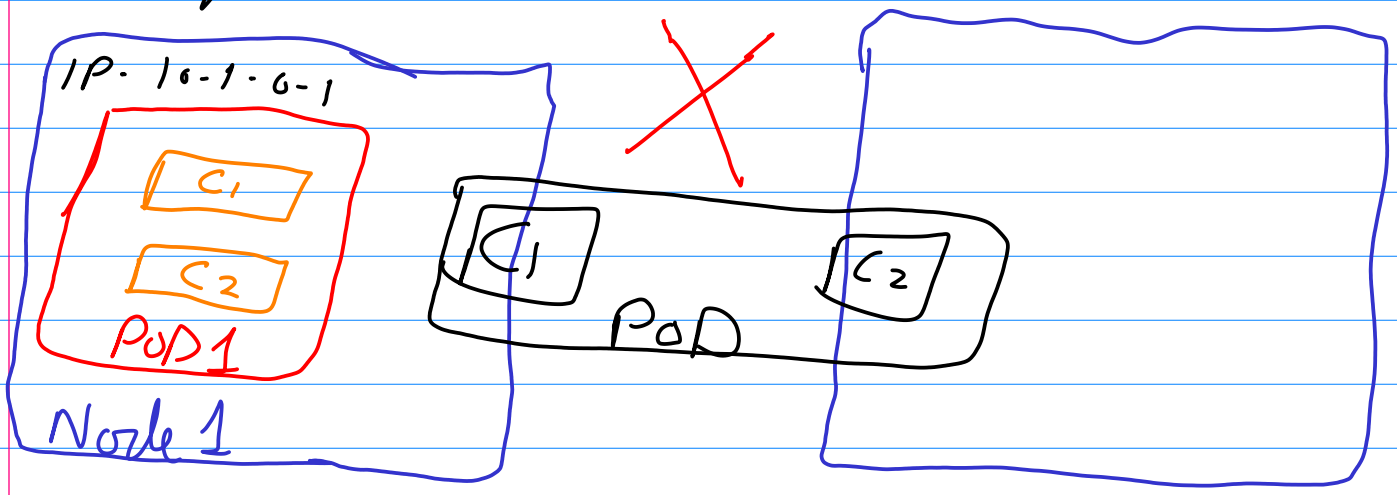
- We can deploy new pod on an additional cluster when load increases & the capacity of a node is no further able to run multiple PODS.

Most of the time ⟹ there is a 1-1 relationship b/w pod & Container



PODS :- (Wrapper of Containers)

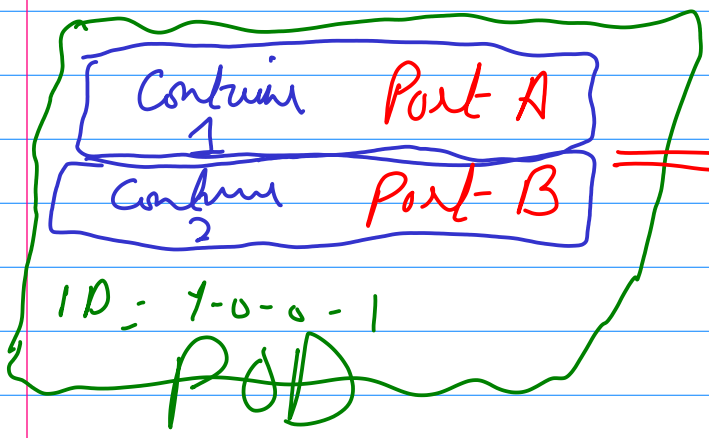
PODs with multiple containers will always run on a same worker node.



Why PODS ?

- Pods helps in grouping containers.
- There are situation where we need to use more than one container.

Example ⟹ Activity loging.



Port Numbers can not be same

But we can assign same port number of container in another POD.

Multi-tier Apps into Single POD

- Should we run multi-tier apps in a single pod.
- Yes, but its not a right way.

For Example:-

We have two-Node Cluster.

Single POD ⟹ Multiple-Containers

It will run on a single worker Node.

- A single worker node will be utilized.
- We are not taking advantages of computational resources.
- Resource Wastage.

⟹ Deploy your Application on Multiple PODs.

Kubernetes ⟹ { YAML files

For creating pods/ resources we need a yaml configuration file

We have to send YAML configuration file to kubernetes API server.

YAML Structure

(1) API Version

This refers to the API which is being used for creating K8s Object.

(2) Type of Resources

Kind: ⟹

1. Pod
2. Replica
3. Job
4. Deployment

(3) Metadata

- Name
- Namespace
- Labels

(9) Spec

- PODs Container → Image
- Port
- Volumes
  etc

We need to define & configure

Commonly -

1) sudo minikube start
2) sudo minikube status
3) kubectl get nodes
4) kubectl cluster info

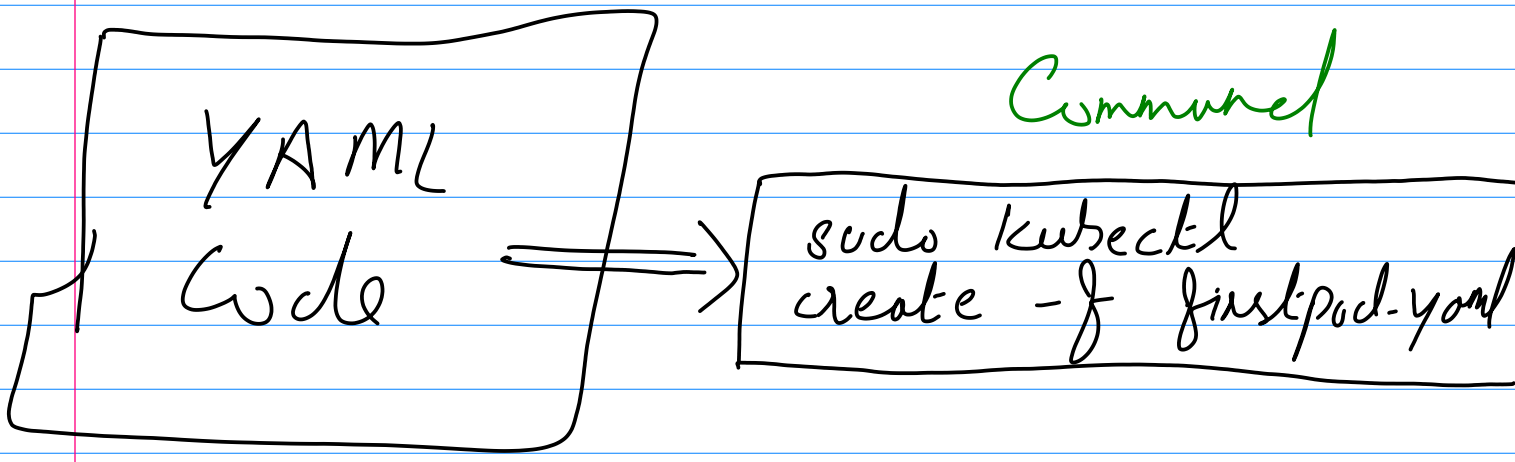
Minikube Cluster

One Master Node

One Worker Node

POD Creation :-

POD YAML File (1)



(2) kubectl get pods

POD 1 ~~~~~ Details

(3) kubectl describe pods mypod

Detail Specs-

Access for External User

Port-Forwarding

```
kubectl port-forward mypod
6500:80
```

localhost : 6500

127.0.0.1 : 6500