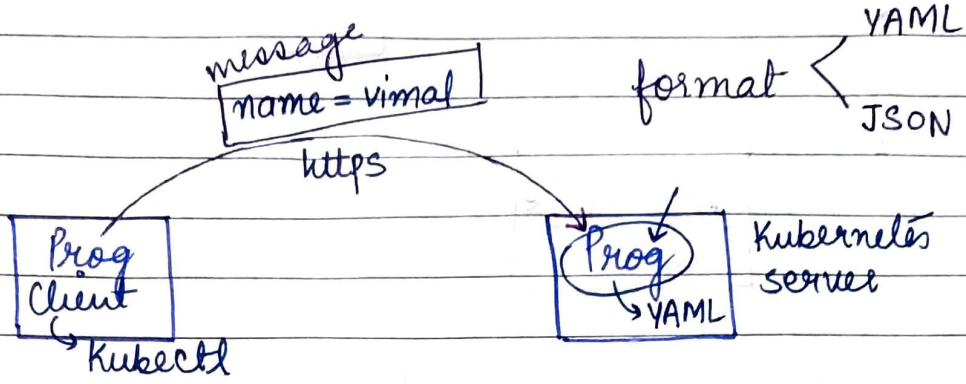
DAY-13

▷ YAML



(sometimes, list start with 3 ---)
↘ --- extension of YAML file → .yml

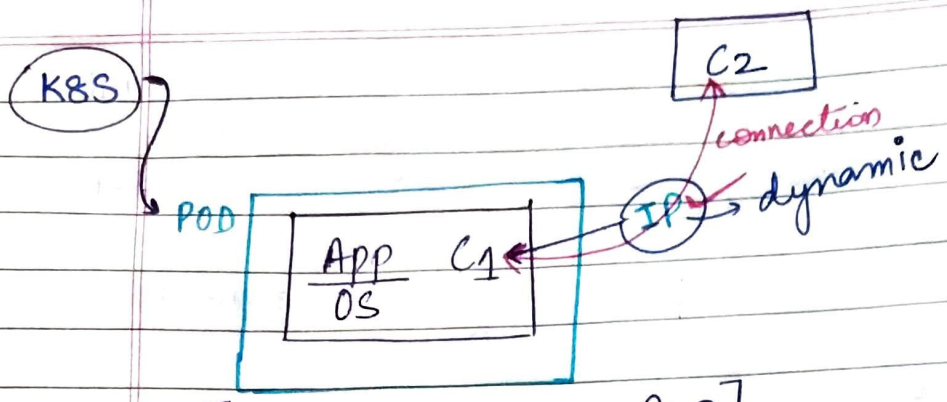
θ "name": → List in YAML
- "Vimal" → Indentation is required in
- "POP" YAML
- "Krish" (4spaces)

→ YAML validator - to validate YAML code, syntax, indentation.

Eg:- "name": "Ankita"
"number": "13256

→ lots of program gets information in yaml format. or [Kubernetes program] gets info from Kubectl client in YAML format.

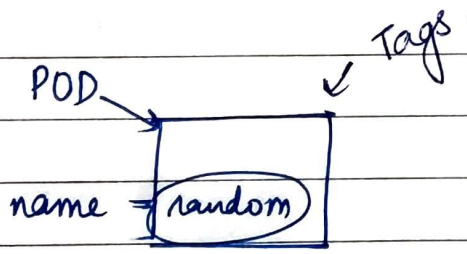
▷ POD - Inside POD we have containers
- Kubernetes have eye on pods, and if pods fail then relaunch the pods with containers.

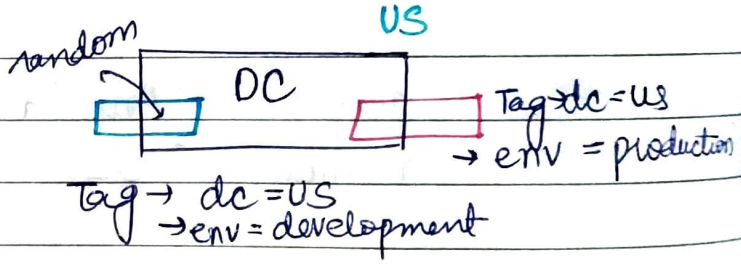


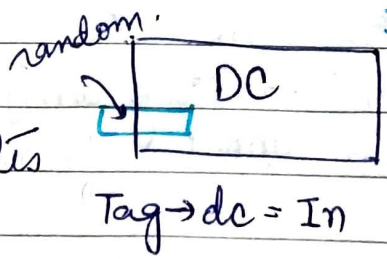
[Single Container POD]

▷ When two OS connect we need IP address to connect but we should not depend on IP we need a concept called Host Name

→ When you launch POD they are given random names.
We can give 'unique tag' to the POD.







Power of Label

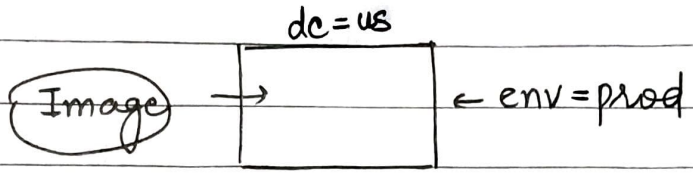
▷ Label - Tags in Kubernetes world

Label == Tags.

→ Increases security
→ Static Name / IP → management would be easier.

Therefore, label is Important

Whenever the POD launches, with name



label Practical

> minikube start
> mi
> Kubectl delete all --all
> Kubectl get pods
> Kubectl run myweb1 --image = V13/apache-web server-php
> Kubectl get pods.
> Kubectl get pods --show-labels.
> Kubectl label pods myweb1 dc = IN

> Kubectl run myweb2 --image = V13/apache-web server-php

> Kubectl label pods myweb2 dc = US

- Searching / filtering
  - selecting pods.

> get pods --selector env = prod } SAME
> get pods -l env=prod

Kubectl
> Kubectl get pods --show-labels. } show all pods.

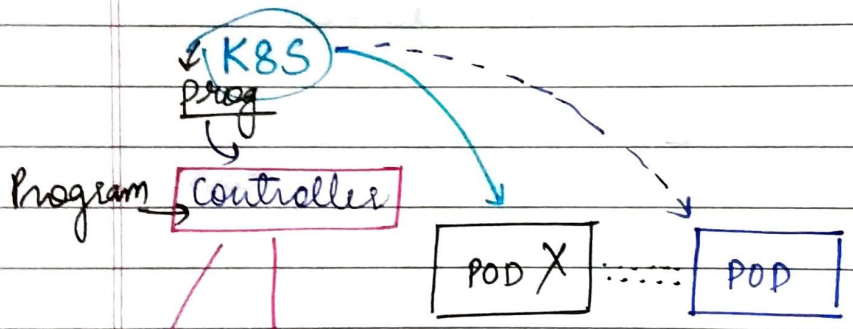
'AND operation'.

> Kubectl get pods -l dc=US,dc=IN -X
> Kubectl get pods -l "dc in (US, IN)" --show-labels

> Kubectl get pods -l "dc in (US,IN), env=prod" --show-labels.
↓
show production environment pods in US and India

- Deletion (of pods through label)

> Kubectl delete pods --selector env=dev
> Kubectl get pods.



→ They dont monitor POD with pod name. as it changes and so does IP.

→ We want POD monitoring with label.
→ We want this pod always running.
→ We want 3 copies of this POD (replica)

* otherwise if you delete pod Kubernetes wont launch for you, you need to specify it in program

- In Kubernetes when one POD (label) goes down, launch other POD in its place (IP and Name of POD will change) (label will be same) → fault tolerance

→ Do monitoring of POD's with labels.

Kubernetes
↓
Program — Program ~ Controller.
↓
(Controller)

Today ✓ Replication Controller (RC) — Replica Set
↓

> kubectl get rc ← replication controller to watch over pods. (replication monitors with the help of labels)

→ Tags are also there in AWS when launching EC2 (we can add more than one tag)

- Tags are very powerful when it comes to management

→ We want PODS with labels.
→ We want RC to monitor those PODS

(We want this)

Kubernetes (Platform)

Dashboard
WebUI → Tools (Program)

→ Interact with the Kubernetes

CLI
Kubectl
POD ✓
RC ✗

declarative language
Code → YAML
to write code in Kubernetes

Terraform → work on many platforms.

> kubectl -h -(help)
↓
→ no option to launch replication controller

• If you have requirement to only work on Kubernetes only learn → YAML

• Launch POD using YAML code

> cd Desktop
> mkdir workspace
> cd workspace
> notepad pod.yml
↓
(pod.yml) ~~Run~~ write code
↓
> kubectl create -f pod.yml

Resources of Kubernetes
↳ PODS
↳ RC
(....
(....

→ every resource have own duty.

YAML → only control kubernetes

Language to support everything → Terraform.

- Containers are specification of pods.

> Kubectl describe pods mypod1

> Kubectl delete pods mypod1 ← Port deleted as no one to watch (no RC)

- Kubernetes use YAML as Domain Specific language

again launch the POD with code.

> notepad rc.yml. (to create replication controller)

↓

code to create replication controller that will monitor a pod and filtered using selector.

Specification

replicas.

You have to tell your replication controller (RC)

↓

How many POD's you desire? Suppose 3

> Kubectl get rc
> Kubectl create -f rc.yml.
> Kubectl get rc
> Kubectl delete pods mypod1
> Kubectl get pods -- show-labels.
> Kubectl get rc

(Replication Controller vs replica-set)

→ If you create (replica file) again after creating the first replica file it will create error.

↓

> Kubectl get all.

Terraform Code

> notepad sc.tf
> terraform init
> terraform validate
> terraform apply

Then you can destroy the whole infrastructure in one go using

> terraform destroy