

# FUNDAMENTALS OF DOCKER & KUBERNETES

## → Docker:

- SDLC cycle
- Challenges faced "Dockerless"
- Docker
- Handy on Session → ✓

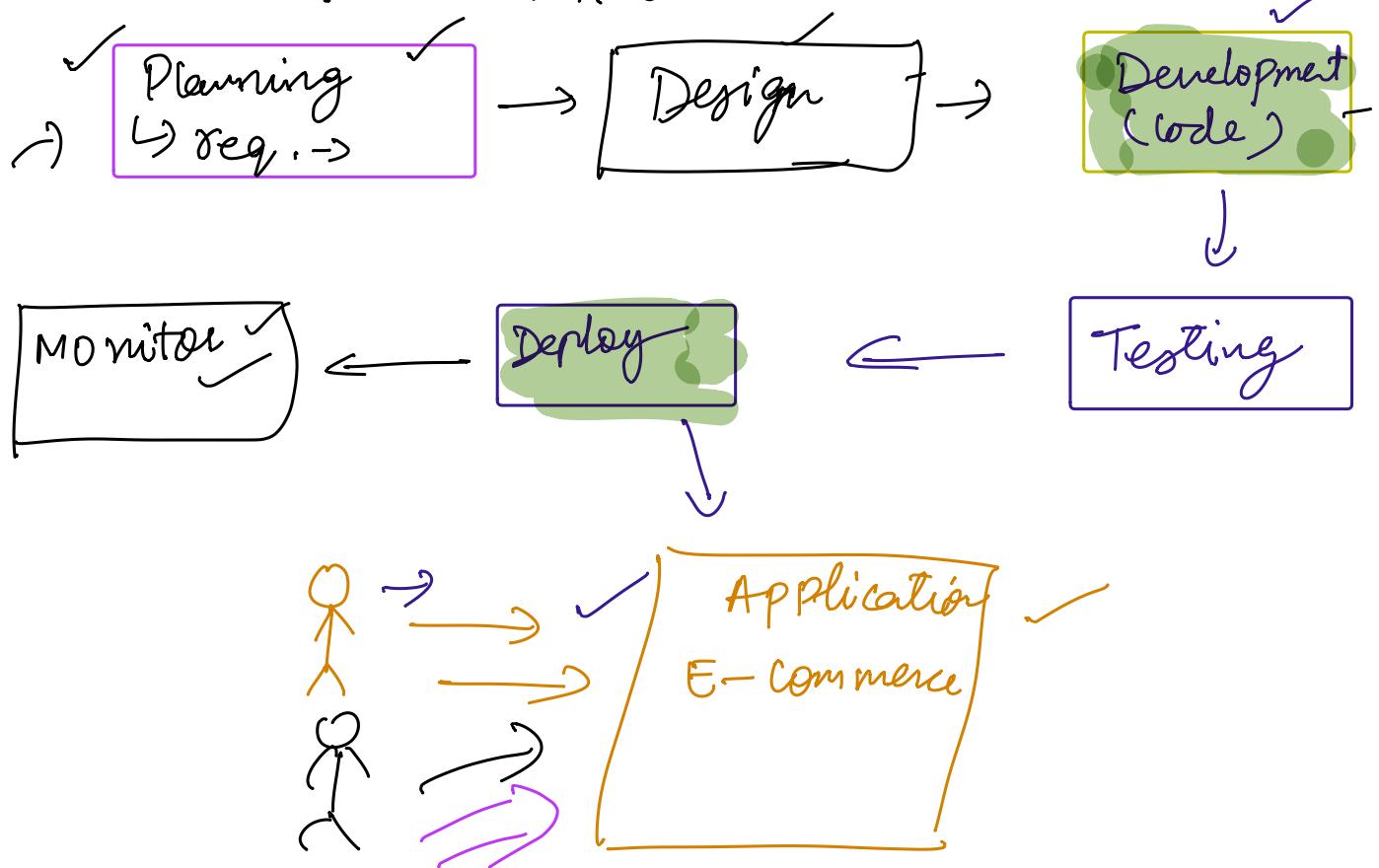
} 2W

## → Kubernetes:

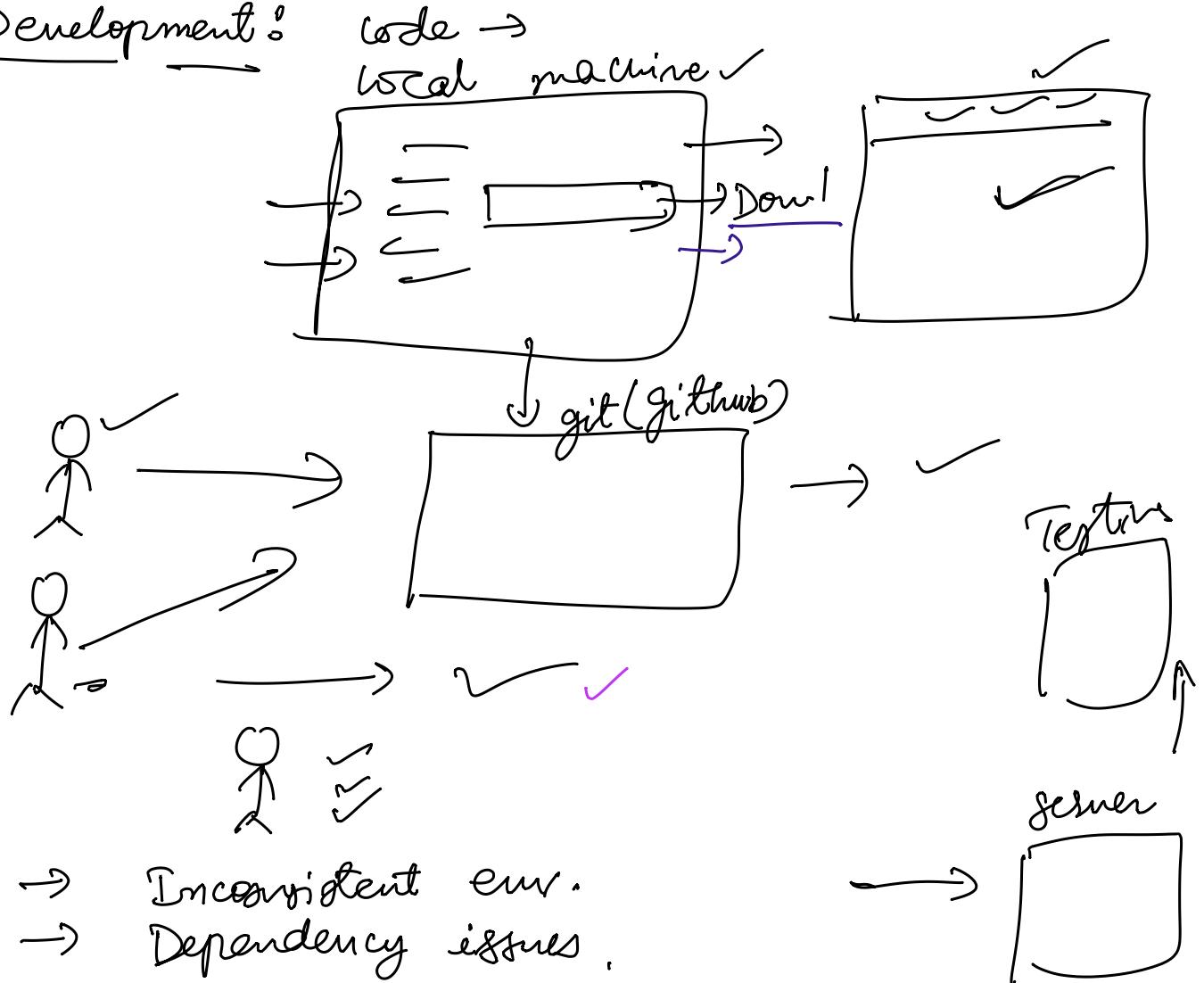
- Microservices
- Need for Orchestration
- Docker Compose ✓
- K8S ✓

} 3W

## Phases of SWE Project:

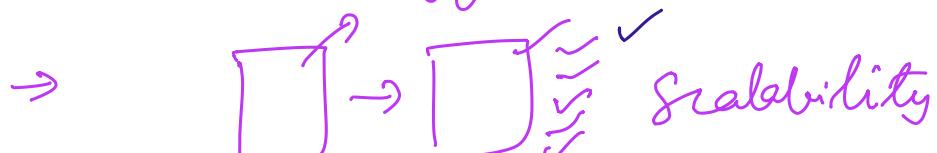


## Development:



## Deployment:

→ Manual configurations →



→

→ Manager :

↓  
Process →

→ Install Python

→

→

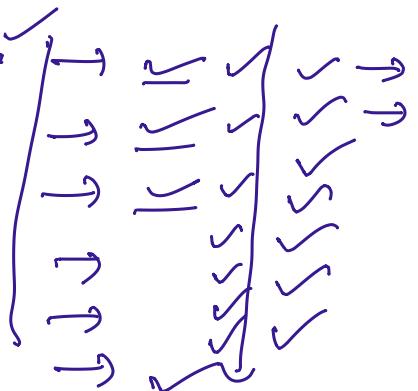
→

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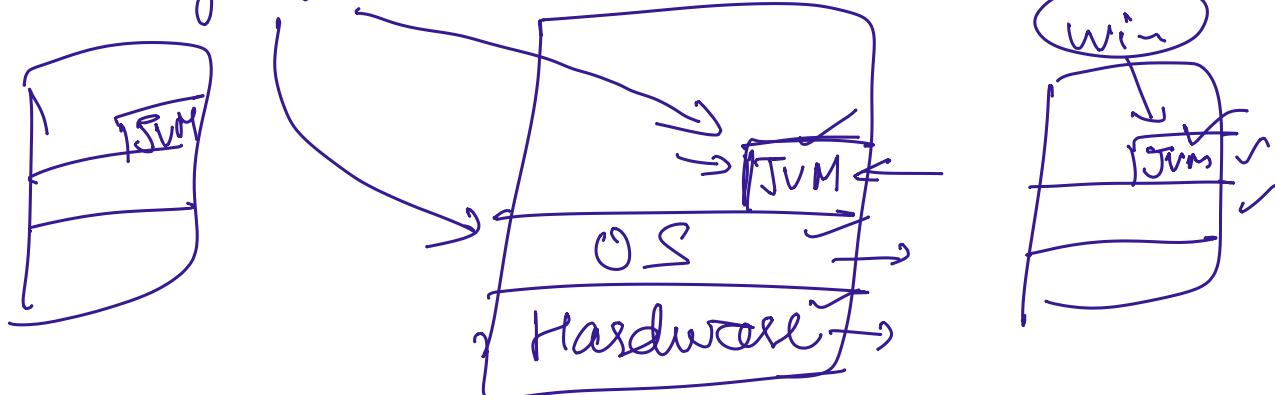
→ ~~Code~~ → local machine → ↴



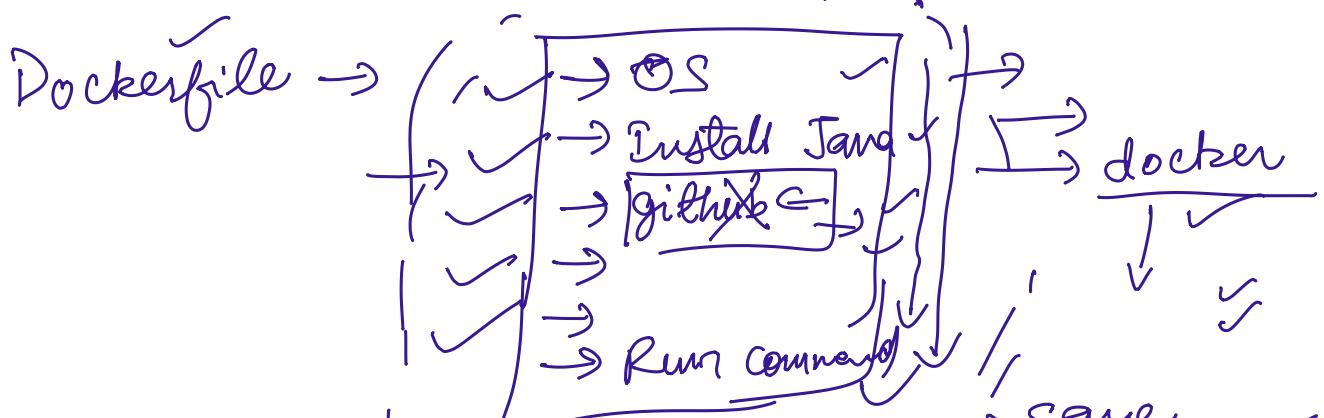
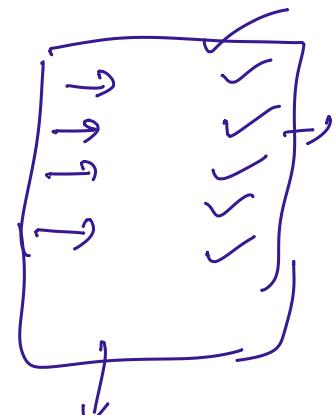
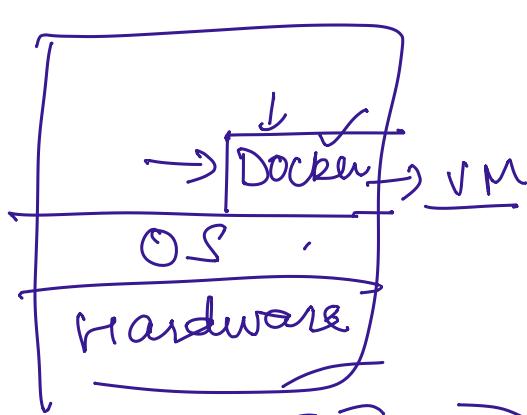
"W O R A" → "Write once, Run anywhere"

Java Virtual Machine ✓  
(class)

↳ → bytecode



↳ Docker



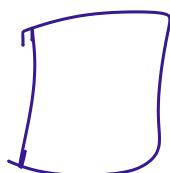
Dockerfile → Docker → Docker image



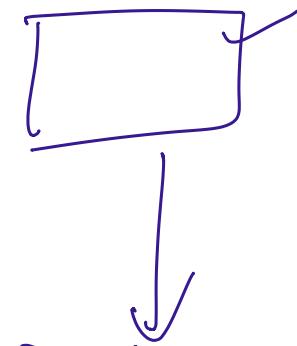
Recipe

- Boil ✓
- ↙
- ↙
- ↙
- ↙
- ↙

Dockerfile



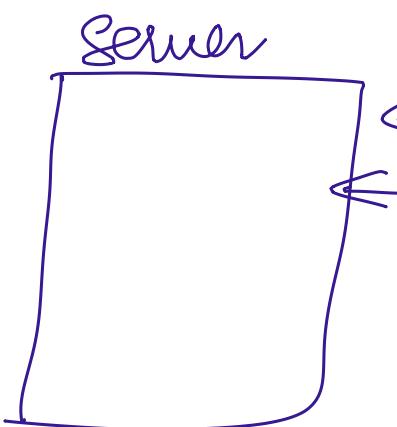
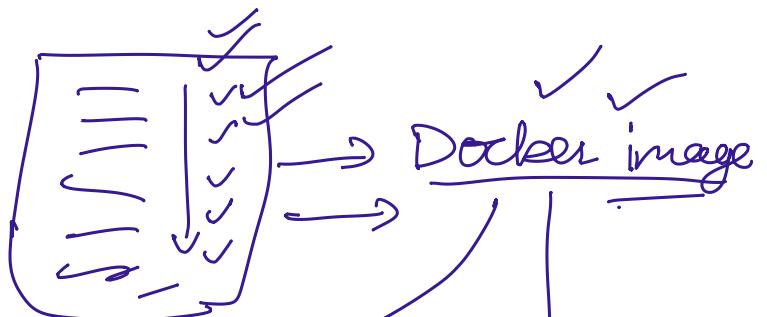
Ready to foods



Docker image ✓

container ✓

→ Dockerfile ✓ →  
add a feature ✓



Web → abc

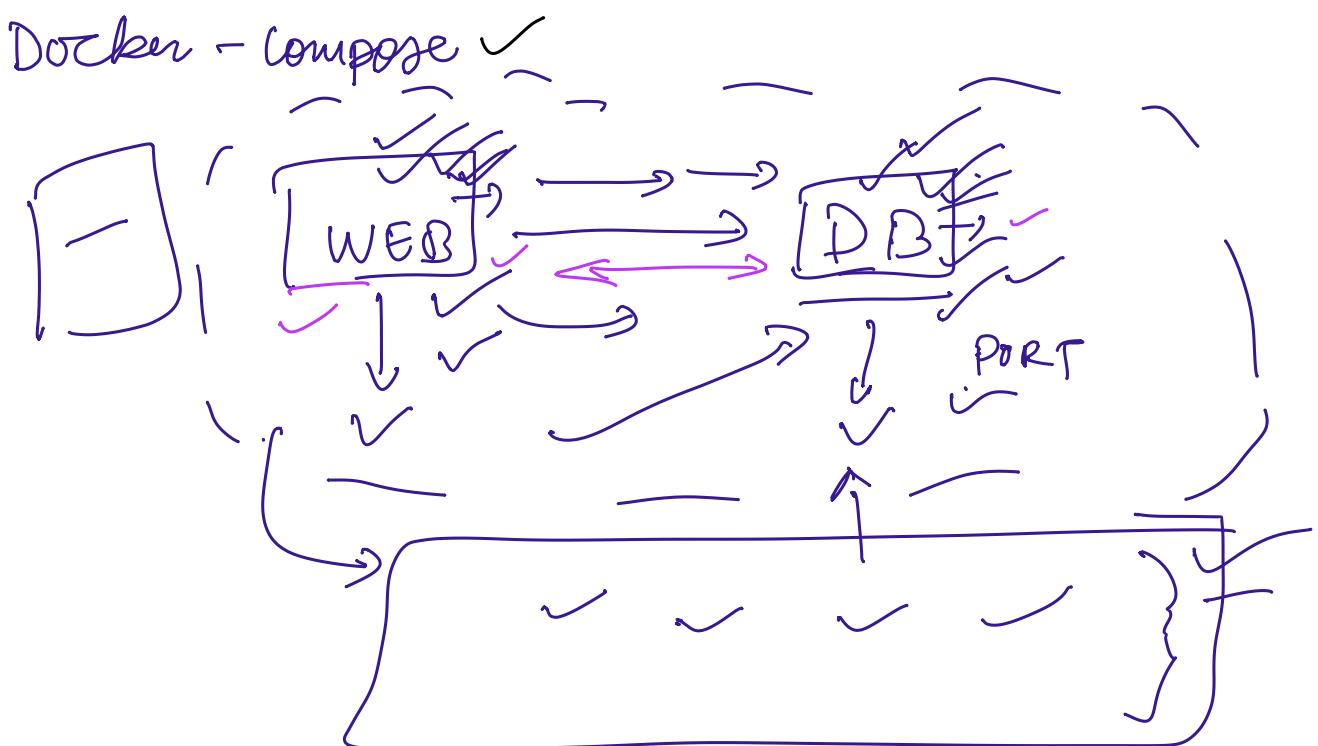
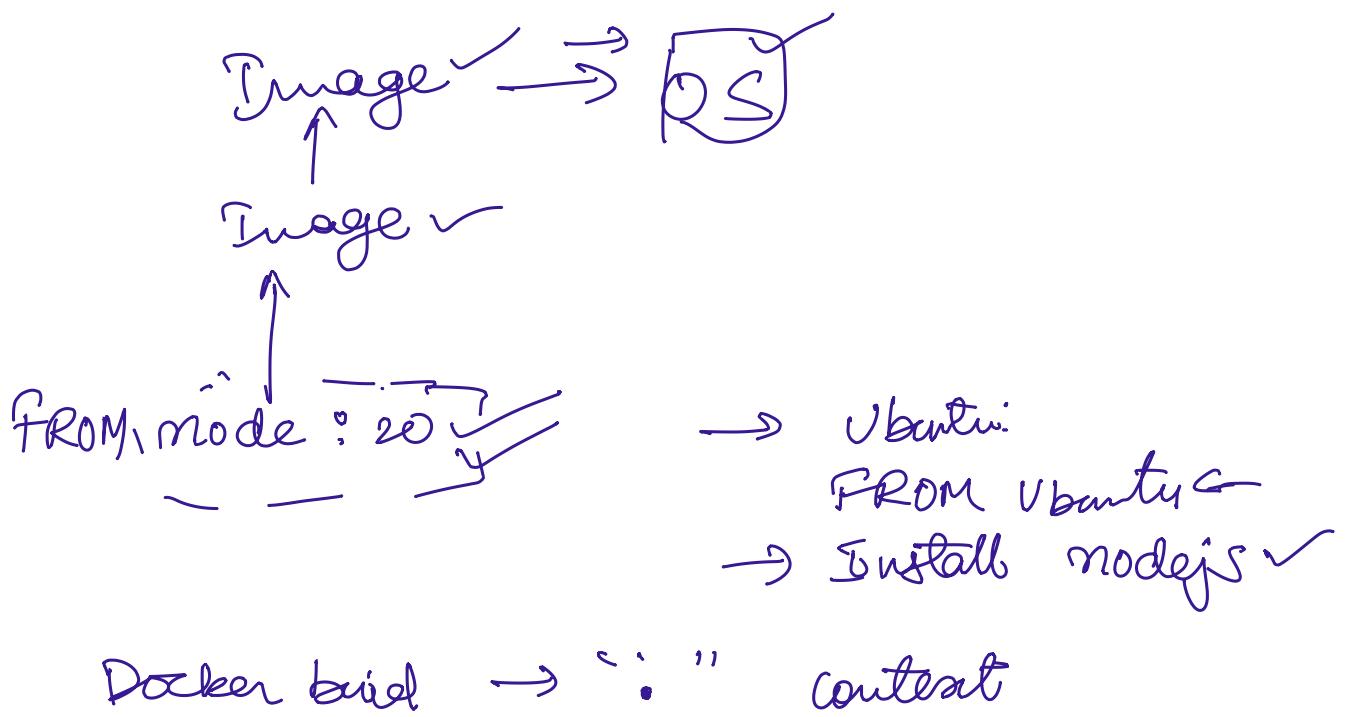
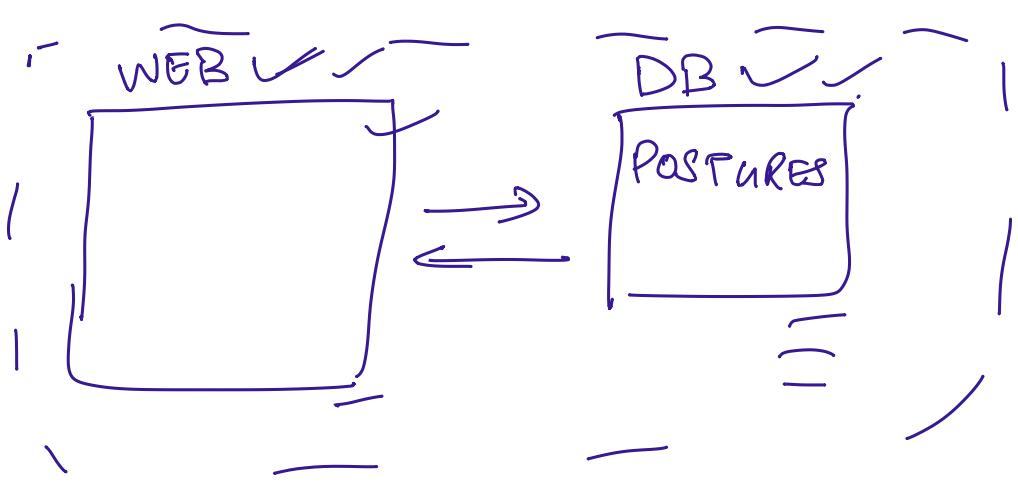
Docker Registry

dockerhub, nexus, jfrog

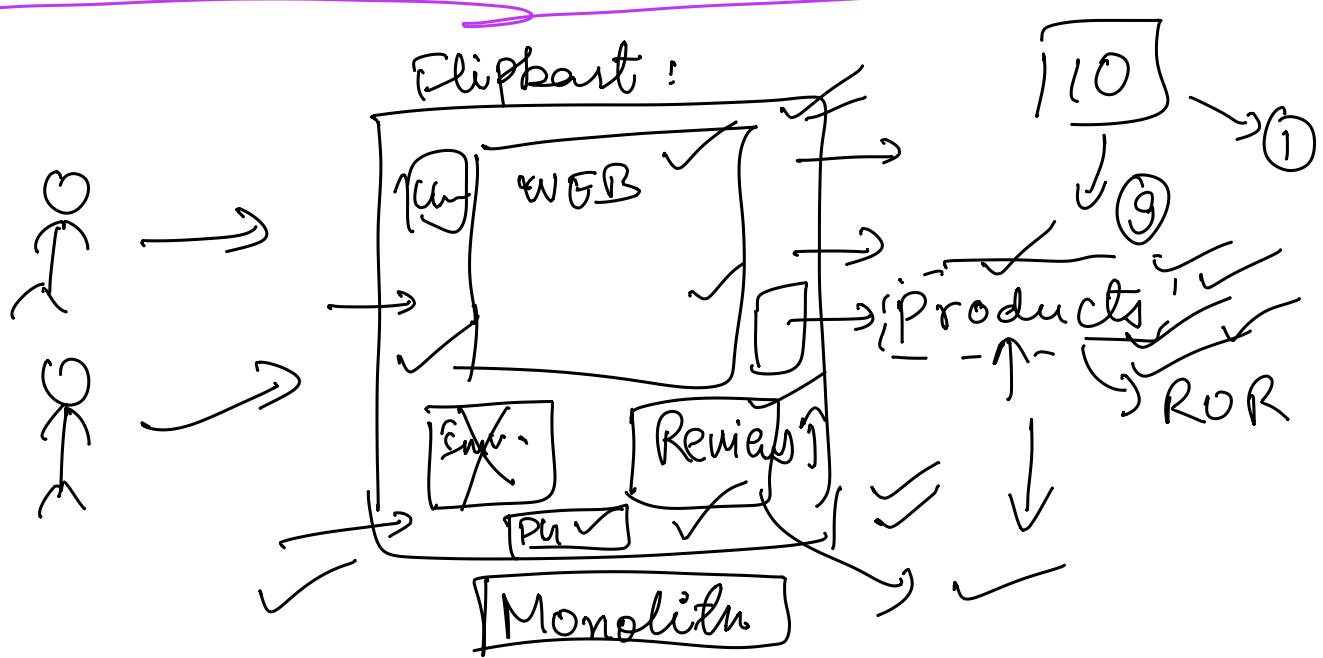
name : tag

abc : 1.0.0 ✓

abc : 1.1.1 ✓



## ORCHESTRATOR: Docker compose



## → Challenges:

① Scaling: Scale up whole application  
cost ↑ ↑

② SPoF

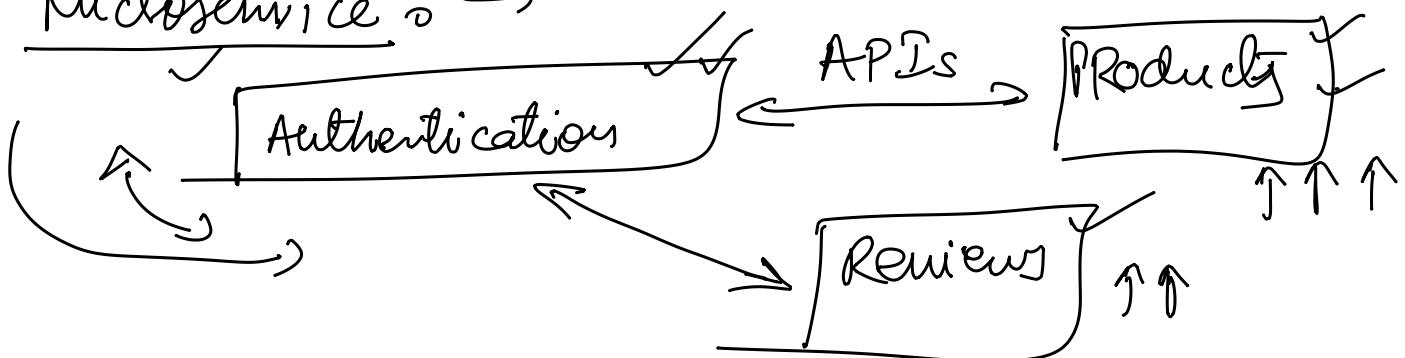
③ Godbase: → ↗ ↗ ↗ ↗ ↗

④ Tech → locked X

⑤ Netflix: ✓

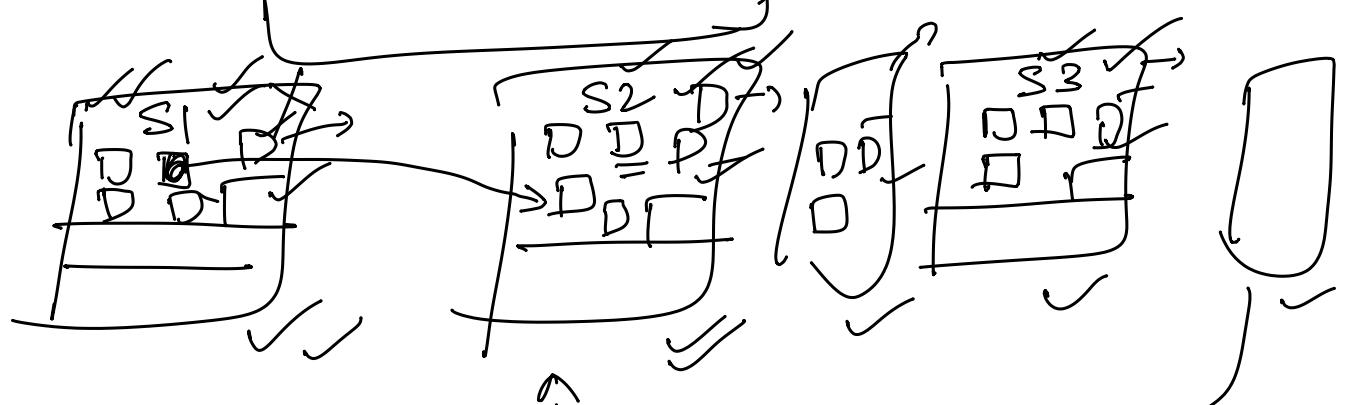
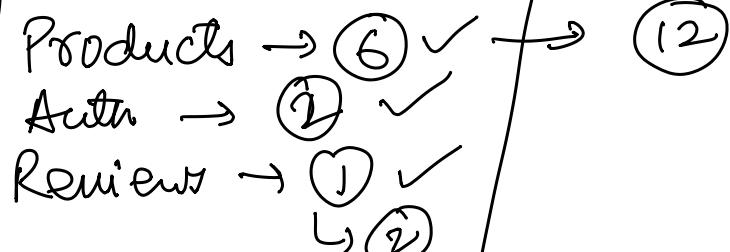
Deployment → 100's of deployment

Microservice: →

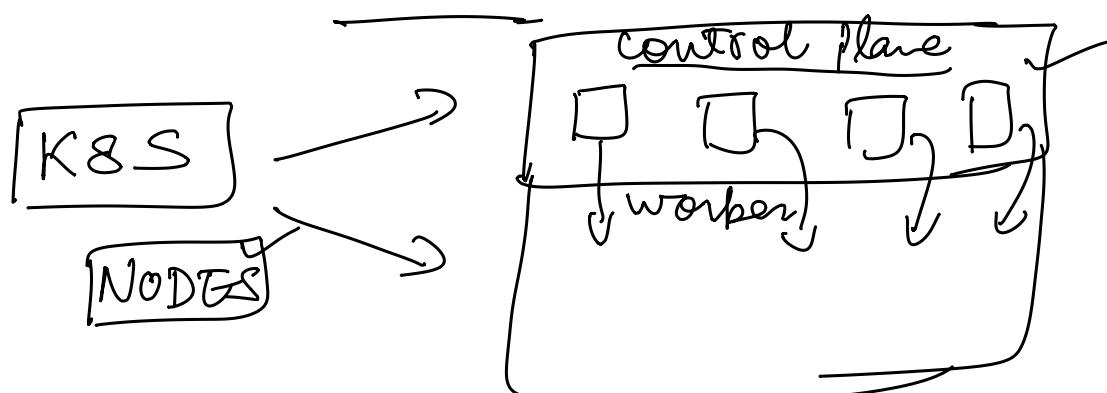


Microservices

Docker



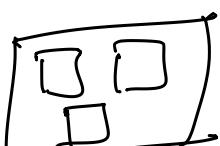
Docker ← → K8S ← orchestrator

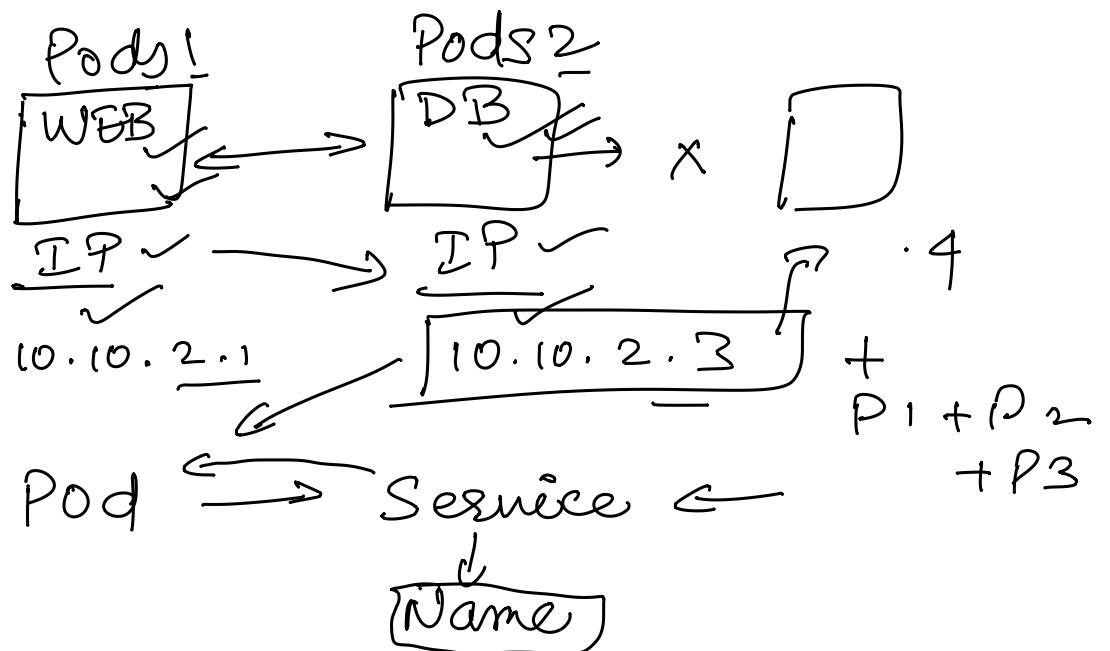
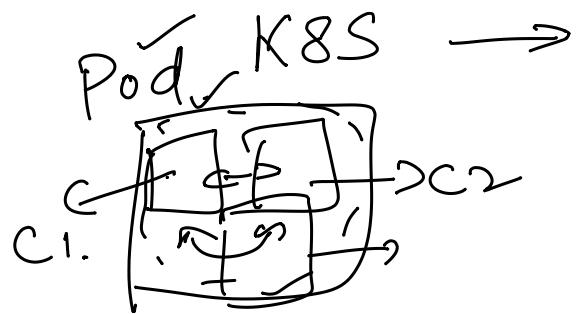
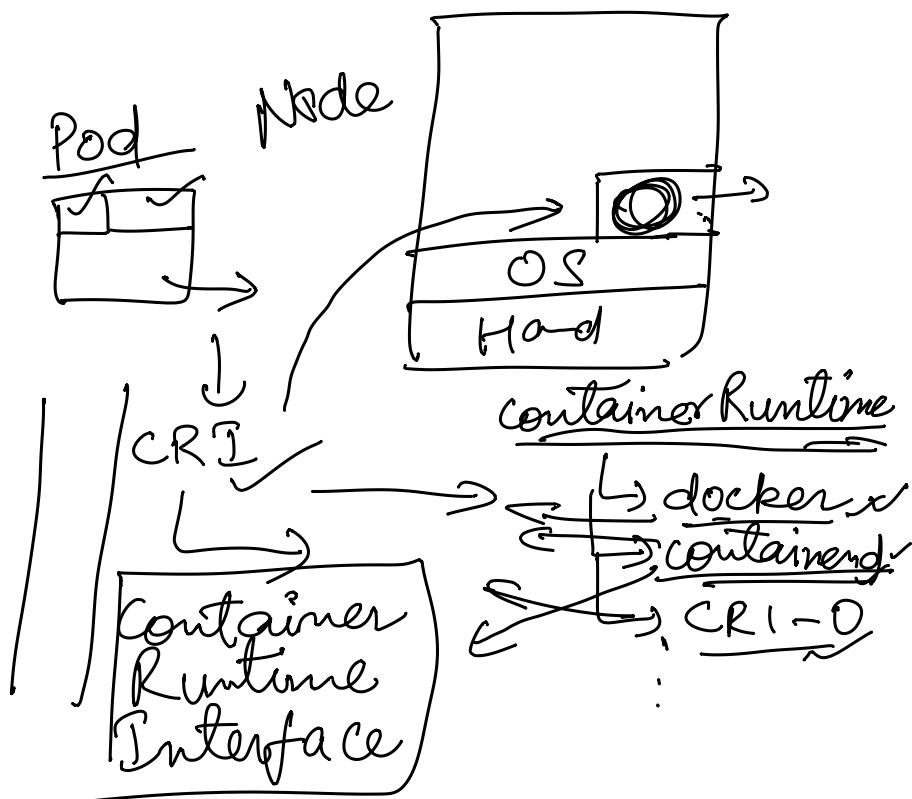
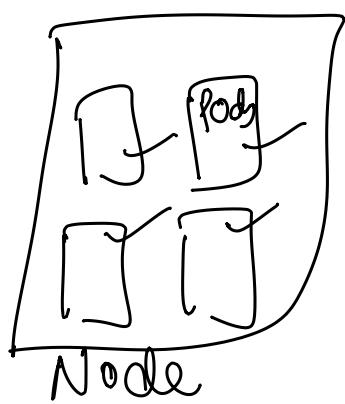
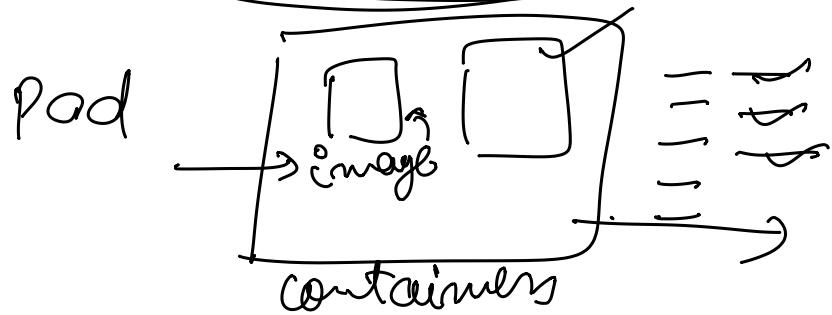


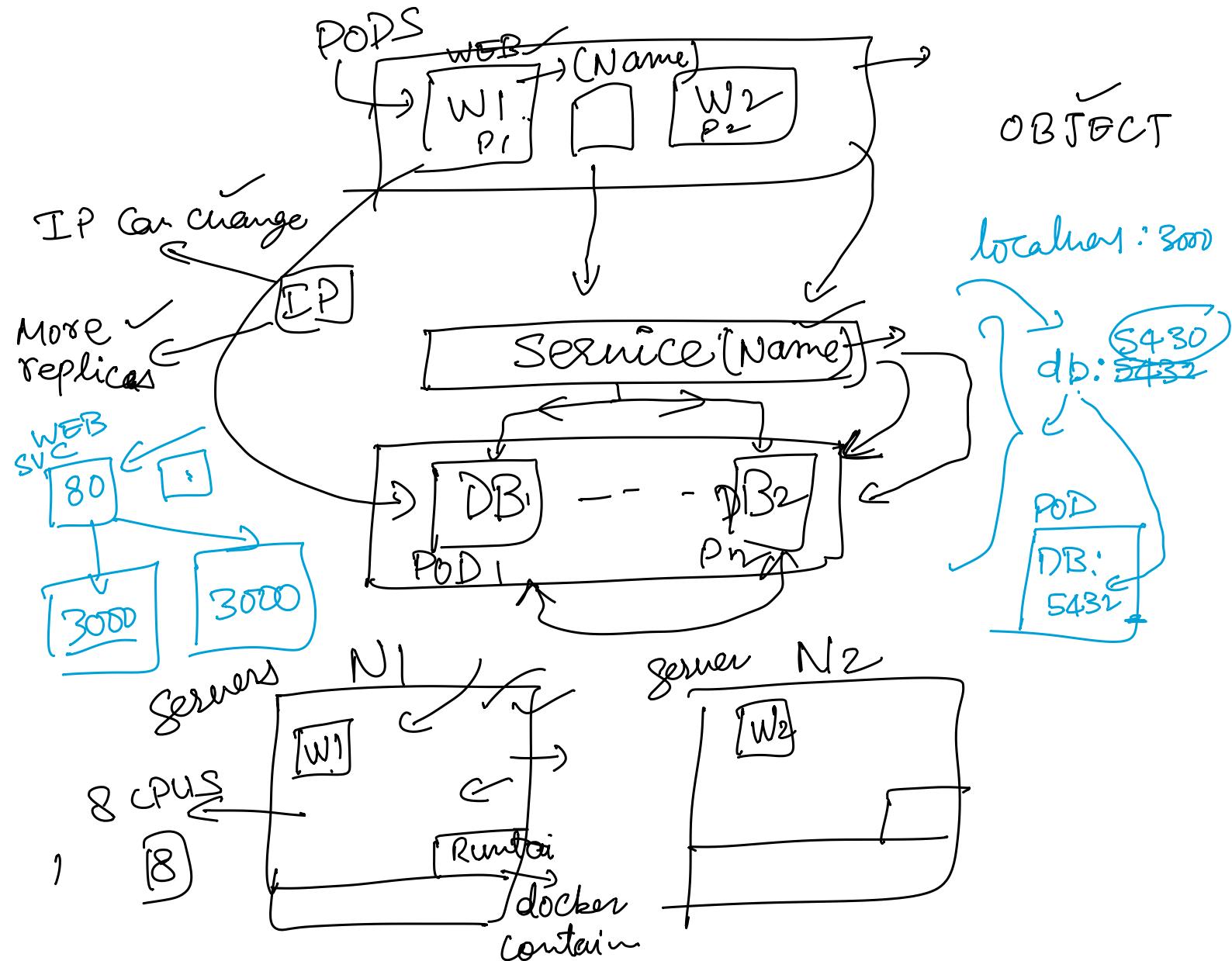
K8S → Deploying an app^n

Smallest deployment → Pod ✓

Pod →







K8S → Master Nodes → control plane

- apiVersion :
- kind :
- metadata :
- Spec :

