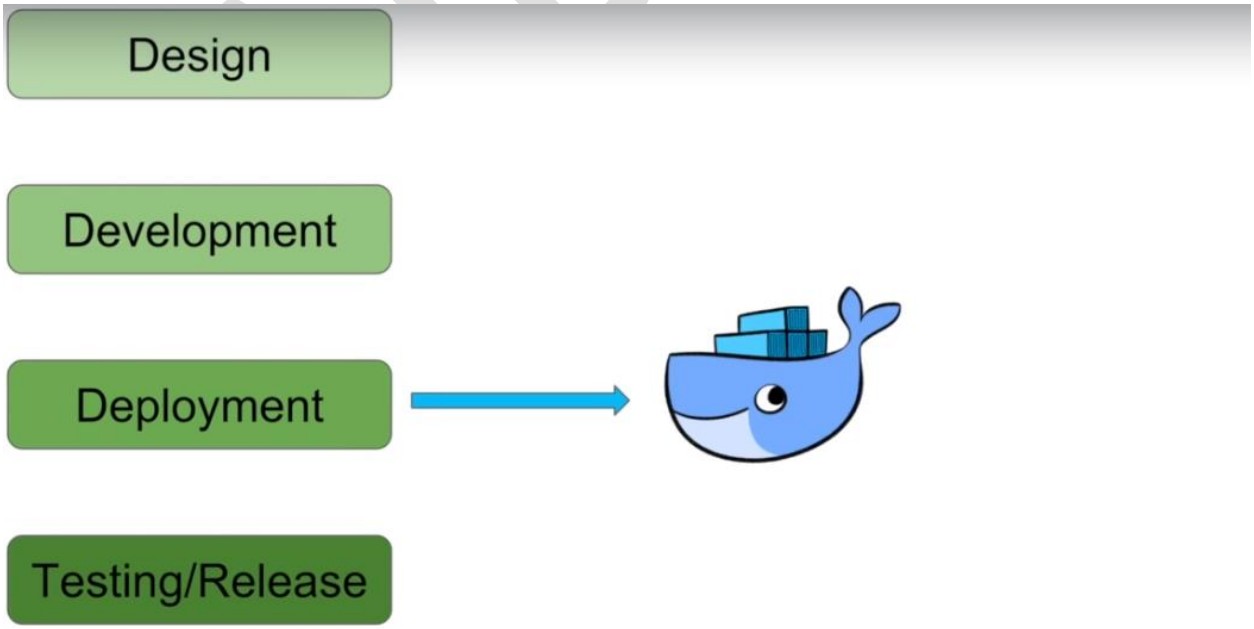
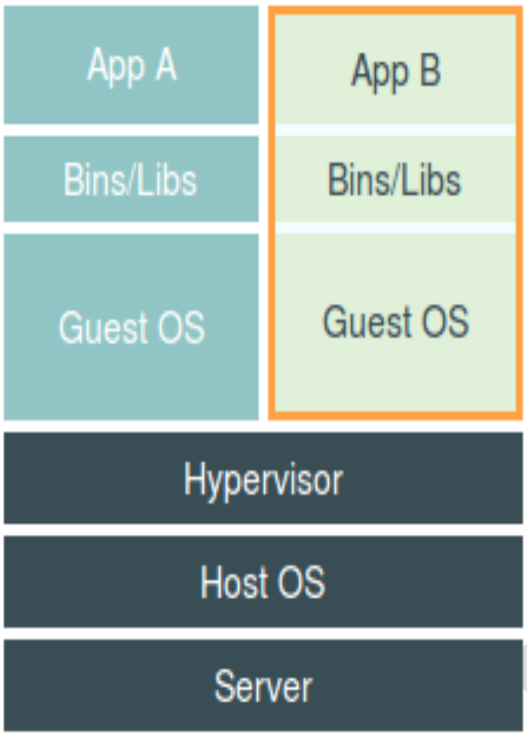
Docker

- **Container** : A container like a virtual machine
- **Docker** : Docker is a tool to create those virtual machines

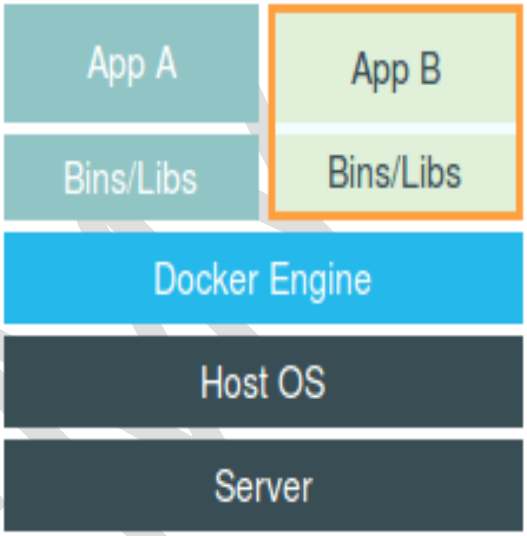
What is Docker??

- Docker is a tool that performs operating-system-level virtualization, also known as "containerization". It was first released in 2013 and was developed by Docker, Inc
- Docker is tool used to create virtual machines called "containers".
- Took from shipping containers.
- Docker is a tool designed to make containers in which we can deploy any type of applications easily.
- Docker uses union file system (layered)
- Docker performs os-level virtualization





VMware



Docker

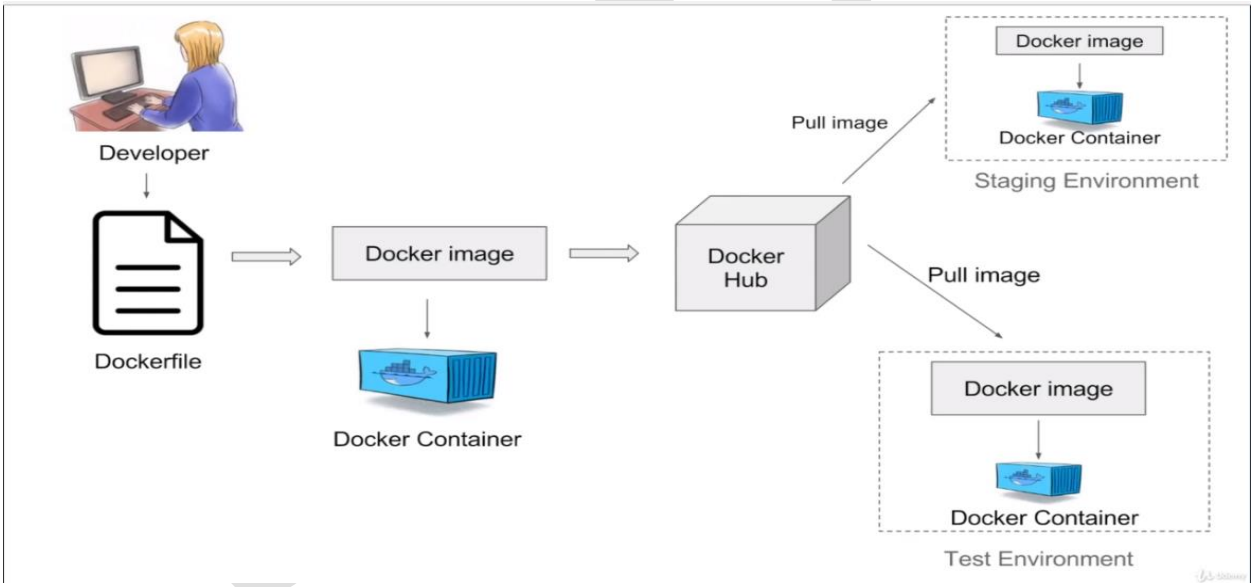
Docker benefits

- Containerization (OS level virtualization)(No need guest OS)
- No pre-allocation of RAM
- Can replicate same environment
- Less cost
- Less weight (MB's in size)
- Fast to fire up
- Can run on physical/virtual/cloud
- Can re-use(same image)
- Can create machines in less time.

Docker components

- Docker image: Contains OS(very small)(almost negligible) + soft wares
- Docker Container: Container like a machine which is created from Docker image.
- Docker file: Describes steps to create a docker image.
- Docker hub/registry: Stores all docker images publicly.
- Docker daemon: Docker service

Docker work flow



Ways to create Docker Images

- Take image from Docker hub
- Create image from existing docker containers
- Create image from docker file

Dockerfile

Dockerfile :

- A text file with instructions to build image
- Automation of Docker Image Creation
    - FROM
    - RUN
    - CMD
- Step 1 : Create a file named Dockerfile
- Step 2 : Add instructions in Dockerfile
- Step 3 : Build dockerfile to create image
- Step 4 : Run image to create container

Volumes

- Volume is a directory inside your container
- First declare directory as a volume and then share volume
- Even if we stop container, still we can access volume
- Volume will be created in one container
- You can declare a directory as volume only while creating container
- You can't create volume from existing container
- You can share one volume across any no of containers
- Volume will not be included when you update an image
- Map volumes in two ways
- Share host – container
- Share container - container