Docker

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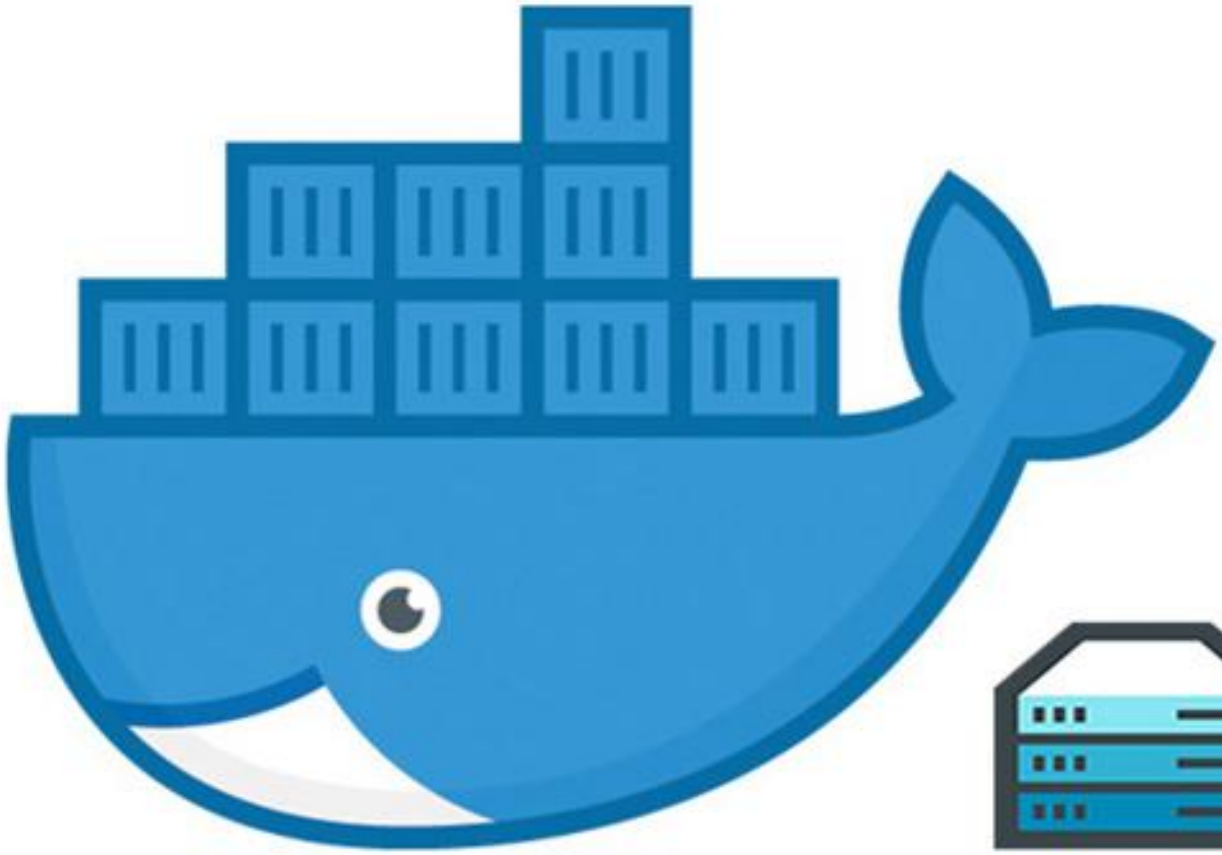
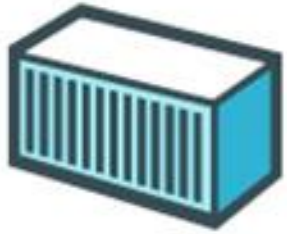


Build



Ship

Run

Overview

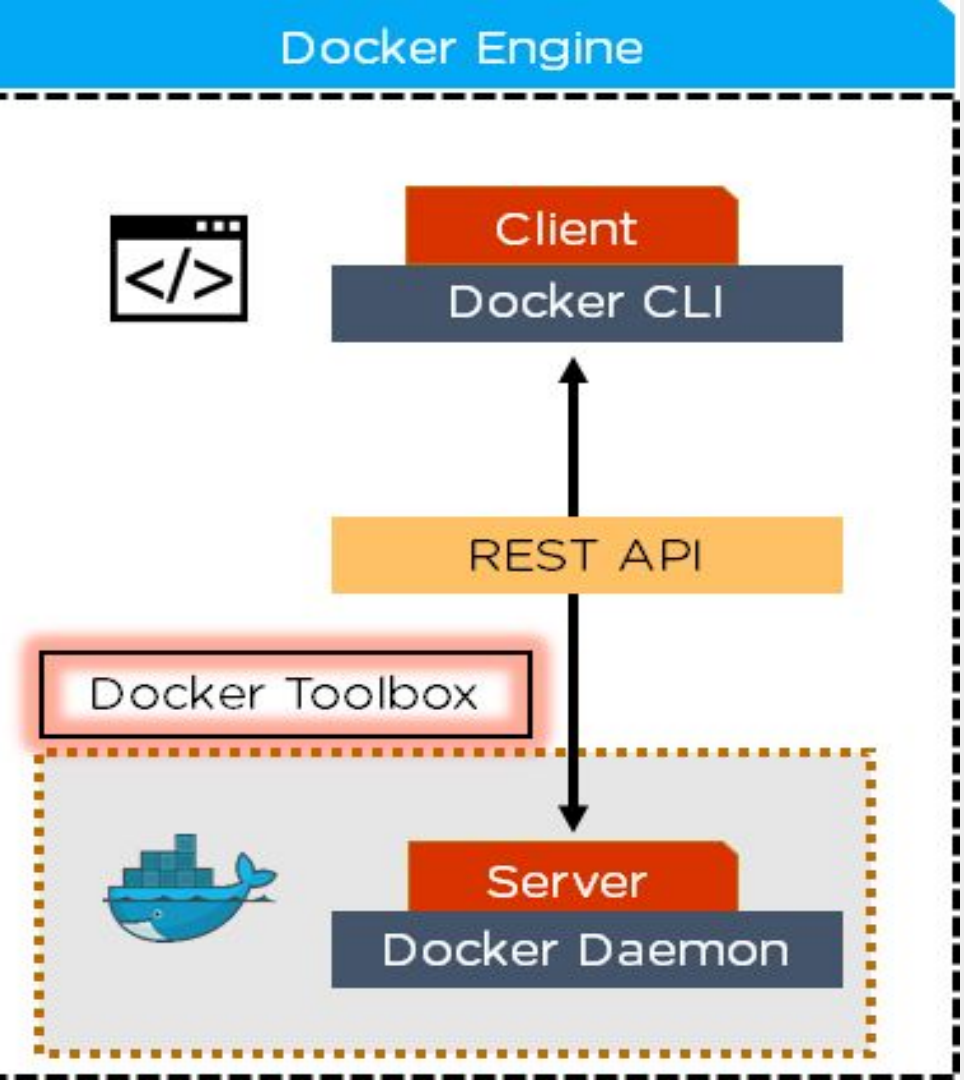
- Docker Architecture
- Docker images and containers
- Docker networking
- Docker Storage
- Docker Compose
- Docker Swarm

About Docker

Docker is a tool designed to make it easier to create, deploy, and run applications by using containers. Containers include with all the application dependencies package.

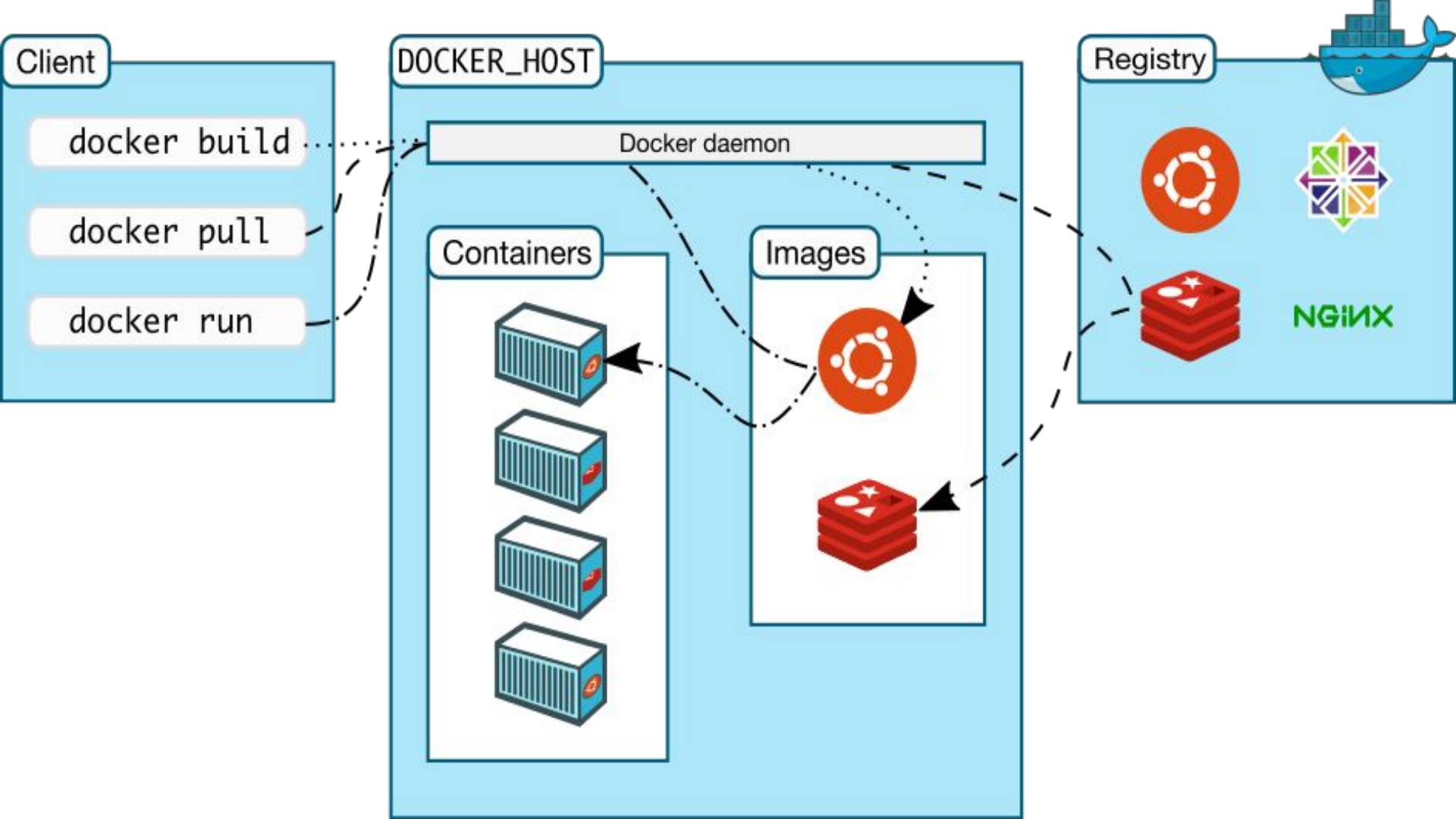
Advantages

- Multiple containers can run on the same hardware.
- High Productivity.
- Maintain isolated environment.
- Quick and easy deployment and configuration.
- Can release application version quickly.
- It has an important role play in the DevOps Concept.



Docker Architecture

- It works client and server architecture model
- Docker CLI and Docker daemon can talk each other using Docker Rest API.
- Docker registry store all docker images.


Client
docker build
docker pull
docker run
DOCKER_HOST
Docker daemon
Containers
Images
Registry
NGINX

Docker images and containers

Dockerfile
(Build)

Docker Image
(Ship)

Containers
(Run)

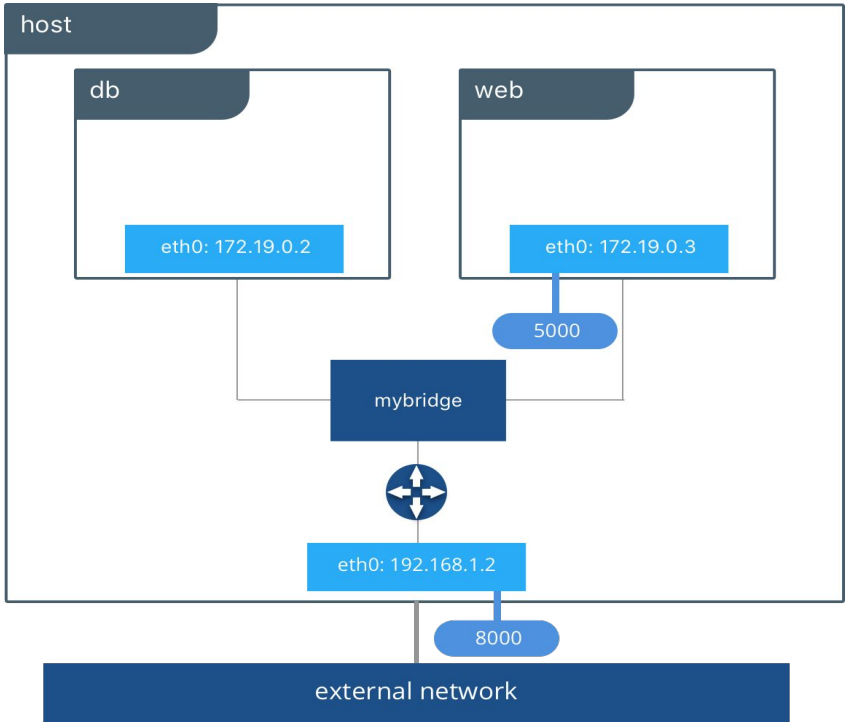
Dockerfile

```
1  #Docker image
2  FROM ubuntu:16.04
3
4  #Docker install applications
5  RUN apt-get update && apt-get install apache2 -y \
6  nano
7
8  EXPOSE 80
9
10 # start Apache2 on image start
11 CMD ["/usr/sbin/apache2ctl","-DFOREGROUND"]
```

Docker containers

Docker Networking

Docker Networking



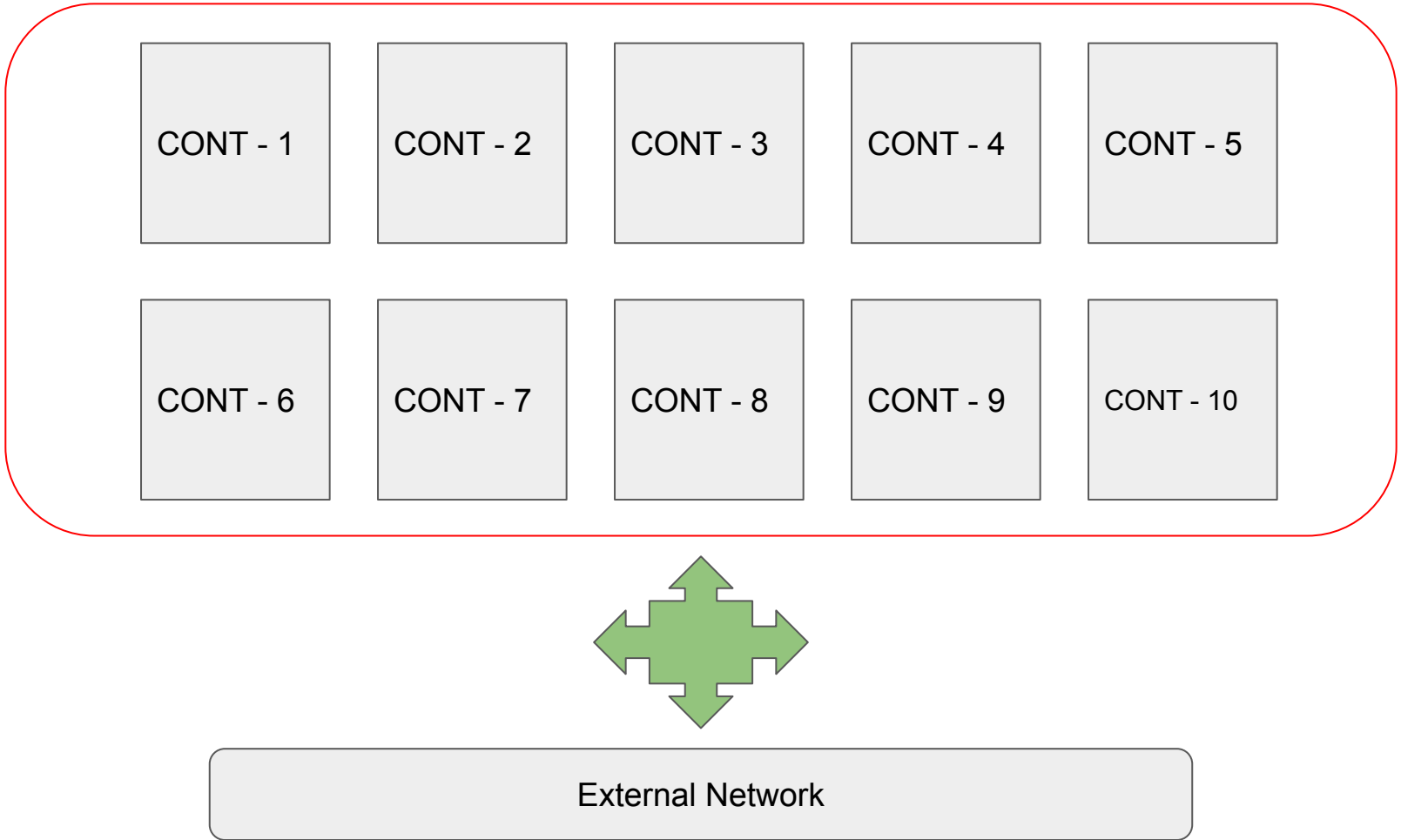
Docker network is used to communicate between the host machine and docker containers.

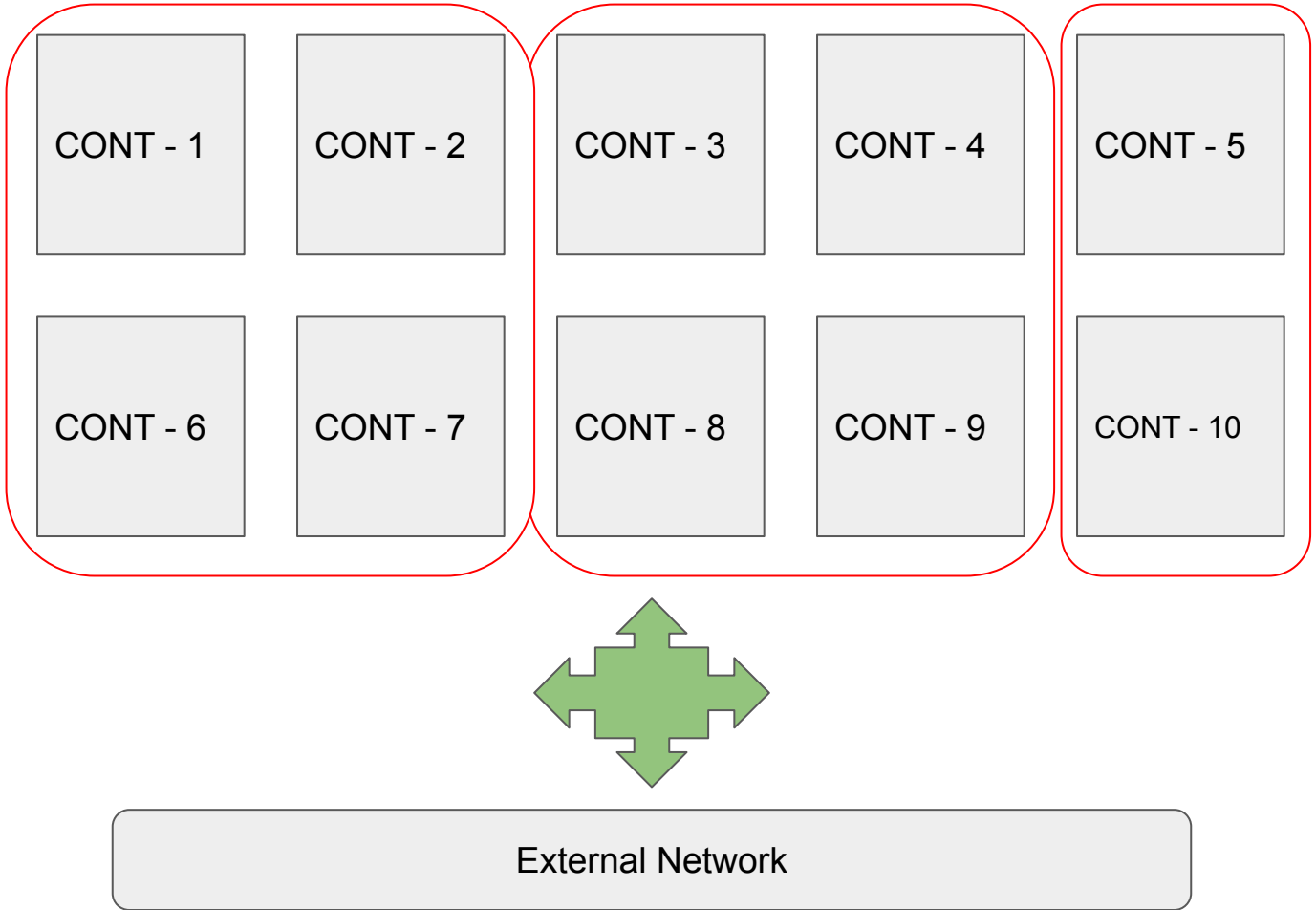
Host Network

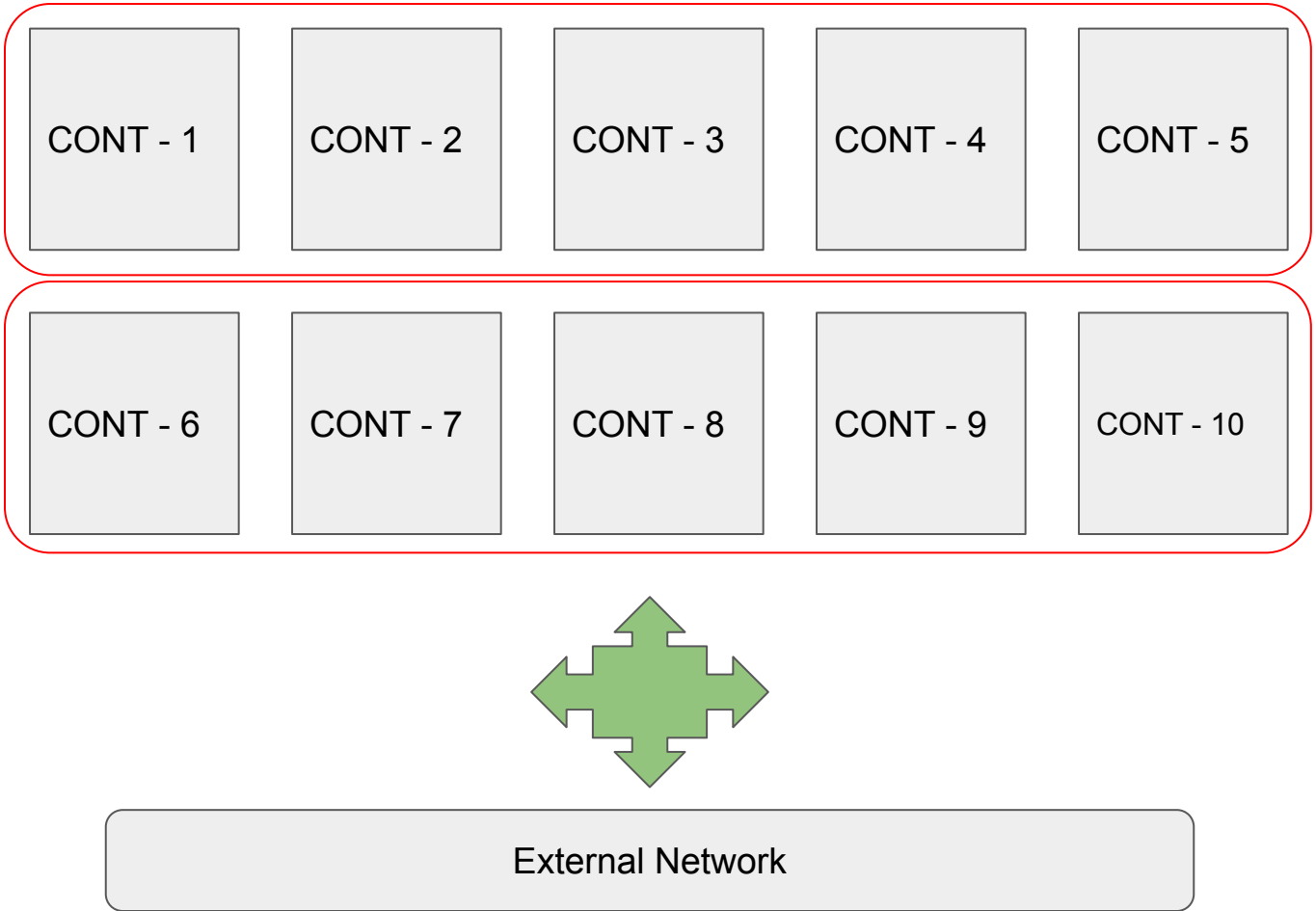
Bridge Network

Overlay Network

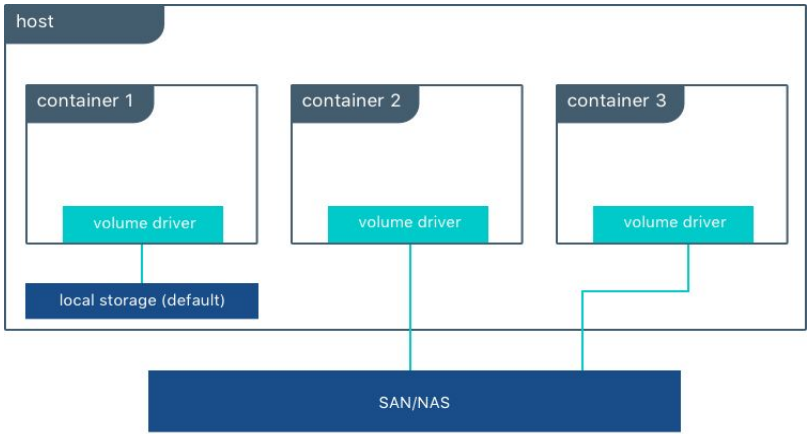
None Network


CONT - 1
CONT - 2
CONT - 3
CONT - 4
CONT - 5
CONT - 6
CONT - 7
CONT - 8
CONT - 9
CONT - 10
External Network


CONT - 1
CONT - 2
CONT - 3
CONT - 4
CONT - 5
CONT - 6
CONT - 7
CONT - 8
CONT - 9
CONT - 10
External Network


CONT - 1
CONT - 2
CONT - 3
CONT - 4
CONT - 5
CONT - 6
CONT - 7
CONT - 8
CONT - 9
CONT - 10
External Network

Docker Storage

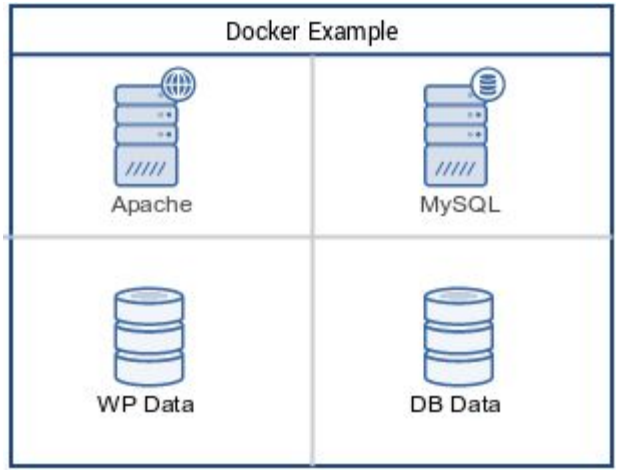


Volume drivers connect containers to storage solutions outside the host

Docker allow us to mount external storage into our docker containers. Which will help us to maintain our applications with high availability.

If some reason docker container get crashed, we can’t get data from container. So that we use mount the data to external storage.

Docker Compose



Docker compose is used to run a multiple containers as a single service.

Like if we run apache in one container and mysql run in another container. We can run those containers as a single service using docker compose.

Docker Swarm: