**A Hands-On**

# Introduction to Docker

Year  2018
By Oudam Chea – Group Software Architecture

# Agenda

**Introduction to Docker**

**Docker CLI**

**Assignments & Group Activities**

**Questions & Answers**

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# I. Introduction/Review

1. What is Docker? Why docker?
2. What is the advantage of Docker over hypervisors?
3. What is Docker image?
4. What is Docker container?
5. What is Docker hub?
6. What is Docker Swarm?
7. What is Docker compose?
8. What is Dockerfile used for?

# Why Docker?

**Docker is light weight and more efficient in terms of resource uses because it uses the host underlying kernel rather than creating its own hypervisor**
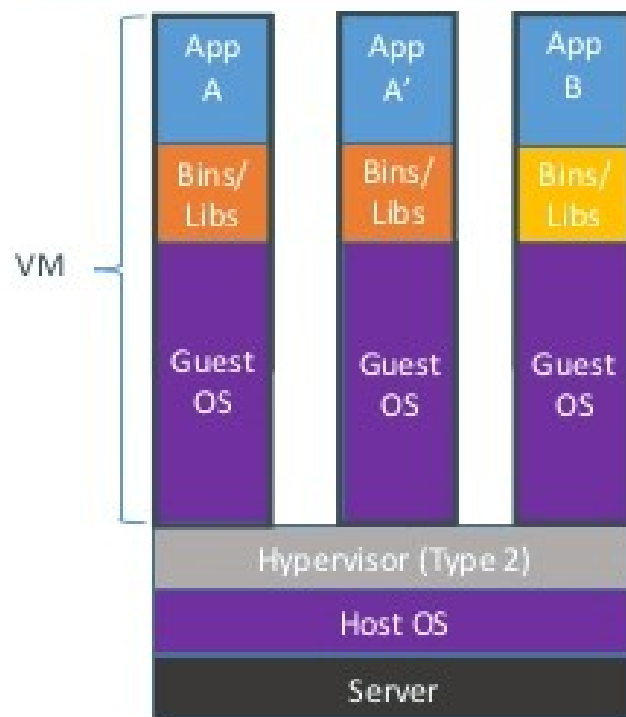


Containers are isolated, but share OS and, where appropriate, bins/libraries

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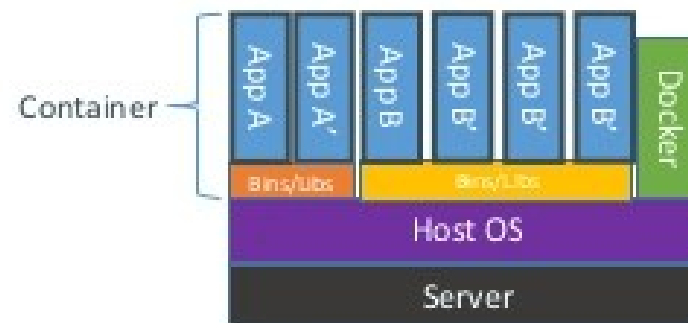
# Q. Can I use JSON instead of YAML for my compose file in Docker?

YES, you can very comfortably use JSON instead of the default YAML for your Docker compose file. In order to use JSON file with compose, you need to specify the filename to use as the following:

**docker-compose -f docker-compose.json up**

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# Installation

**Ubuntu**

**https://docs.docker.com/install/linux/docker-ce/ubuntu/**

**CentOS**

**https://docs.docker.com/install/linux/docker-ce/centos/**

**Windows**

**https://docs.docker.com/docker-for-windows/install/**

**Mac**

**https://docs.docker.com/docker-for-mac/install/**

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# II. Docker CLI

**Getting Help**

# docker --help

# docker COMMAND --help


**Pull docker OS template from docker repo**

# docker run hello-world

# docker run ubuntu

# docker run debian

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# Working with network

**Show docker network interface**

**# docker network ls**

**Remove network**

**# docker network rm NETWORK_NAME**

**Create docker network**

**# docker network create --driver bridge --subnet 200.0.0.0/24 -o "com.docker.network.bridge.name=docker2" docker2**

**Create host with network**

**# docker run -itd --net NETWORKNAME --ip IPADDRESS**

**# docker run -itd --net docker2 --ip 200.0.0.12**

# Working with template

**Show images**

**# docker images**

**Remove image**

**# docker rmi IMAGE**

**Create image template from container**

**# docker commit ubuntu ubuntu-template**

**Create container from template**

**# docker run -itd ubuntu-template**

**Save/Restore Images**

**# docker save -o ubuntu-save ubuntu-template**

**# docker load -i save-template**

# Working with container

# docker ps

# docker ps -a

# docker start|stop|restart CONTAINER

# docker rm CONTAINER

# docker cp

## Full example

# docker run -itd --name=wildfly201 -h wildfly201 --privileged -p 2000:2000 -p 2200:22 -v /opt/container-data/wildfly201:/opt  --net docker2 --ip 200.0.0.2 --add-host wildfly201.gl-f.com:200.0.0.2 --add-host db201.gl-f.com:200.0.0.3 ubuntu-template
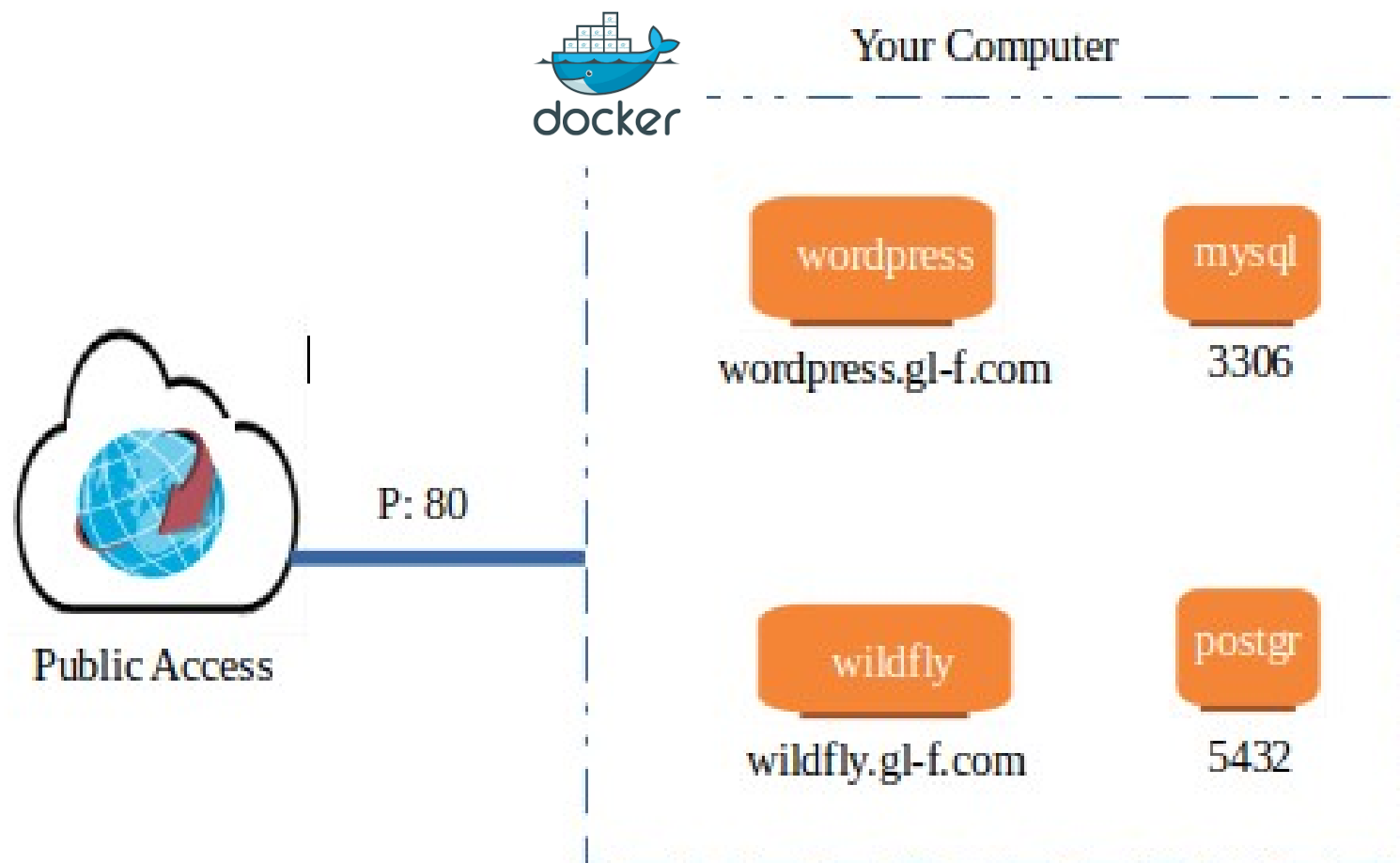
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# III. Assignments & Activities

1. **Deploy wordpress with separated mysql database**
2. **Deploy efinance (wildfly) with separated postgres database**

**Domain**

| | |
|---|---|
| **Wordpress** | **wordpress.gl-f.com** |
| **Efinance** | **efinance.gl-f.com** |

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# Questions

# Thanks!

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