

# SHUO ZHAO

# INTRODICTION TO DOCKER

# **Dependency hell**

Dependency hell is a colloquial term for the frustration of some software users who have installed software packages which have dependencies on specific versions of other software packages.

--- wikipedia

# **Dependency hell**

User DB

postgresql + pgv8 + v8

Static website

nginx 1.5 + modsecurity + openssl + bootstrap 2

Queue

Analytics DB

Redis + redis-sentinel

hadoop + hive + thrift + OpenJDK

Background workers

Python 3.0 + celery + pyredis + libcurl + ffmpeg + libopencv + nodejs + phantomjs

Web frontend

Ruby + Rails + sass + Unicorn

API endpoint

Python 2.7 + Flask + pyredis + celery + psycopg + postgresql-client

**Production Cluster** 



Customer Data Center



Public Cloud



Disaster recovery

Contributor's laptop



**Production Servers** 

# **Dependency hell**

	Develop ment VM	QA Server	Single Prod Server	Onsite Cluster	Public Cloud	Contribu tor's laptop	Custome r Servers
Queue	?	?	?	?	?	?	?
Analytics DB	?	?	?	?	?	?	?
User DB	?	?	?	?	?	?	?
Background workers	?	?	?	?	?	?	?
Web frontend	?	?	?	?	?	?	?
Static website	?	?	?	?	?	?	?















# Dependency hell: Delivery System





# Dependency hell: Delivery System

?	?	?	?	?	?	?
?	?	?	?	?	?	?
?	?	?	?	?	?	?
?	?	?	?	?	?	?
?	?	?	?	?	?	?
?	?	?	?	?	?	?
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#### **Container!**

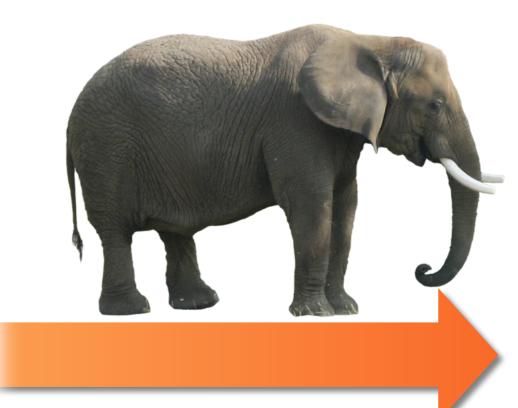


A standard, consistent way of shipping just about anything.

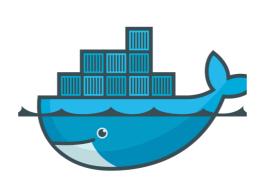
# Container!







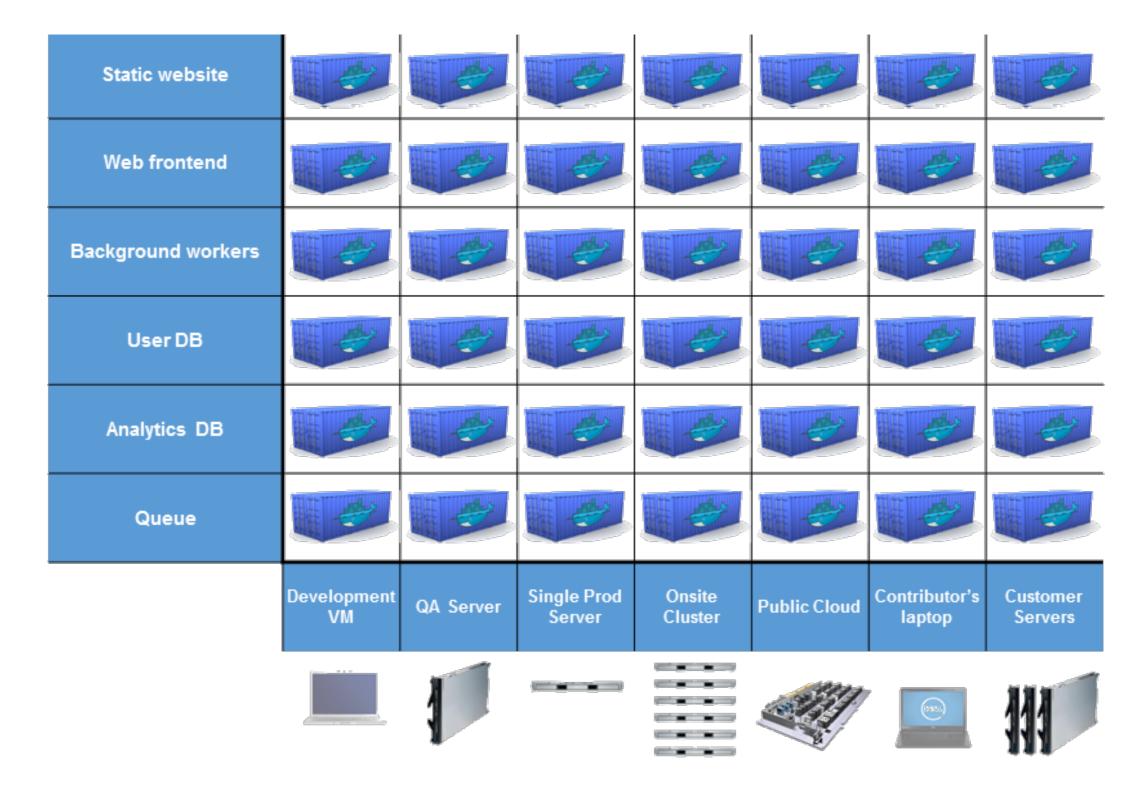
# Container!







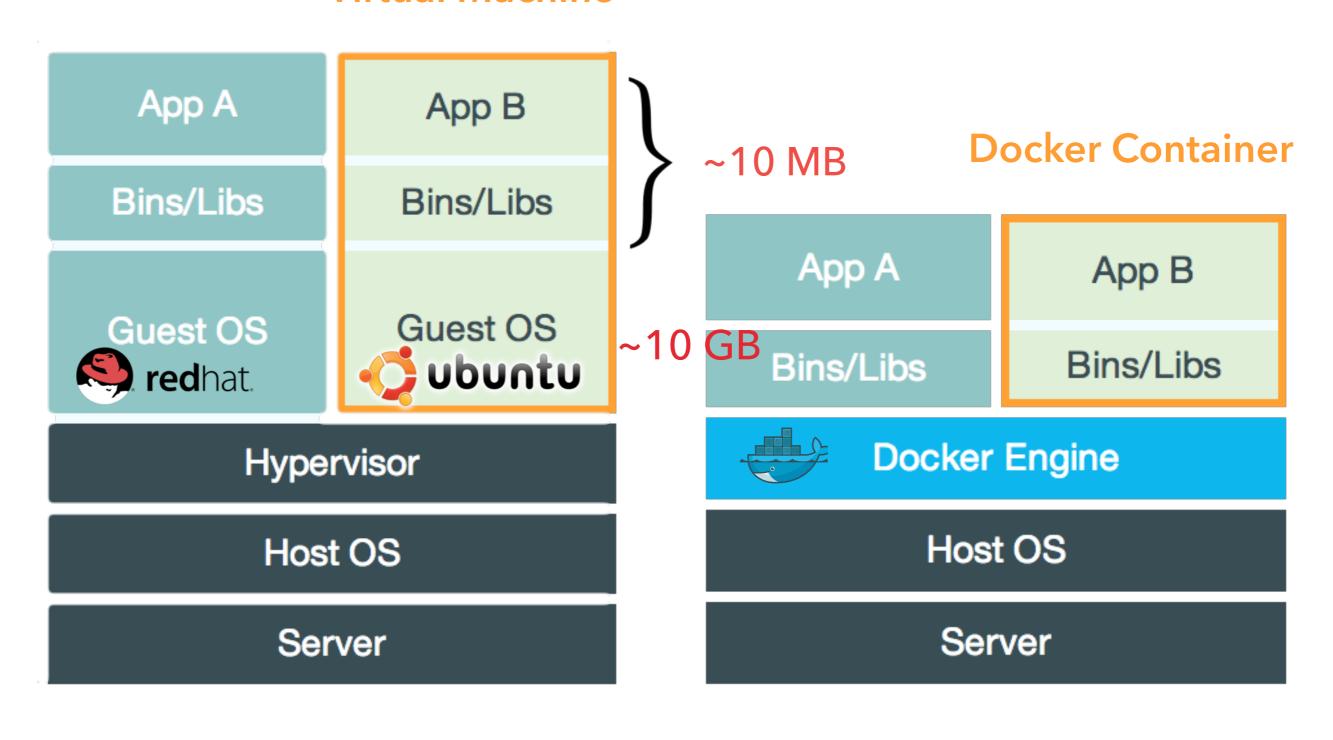
#### Life Saver



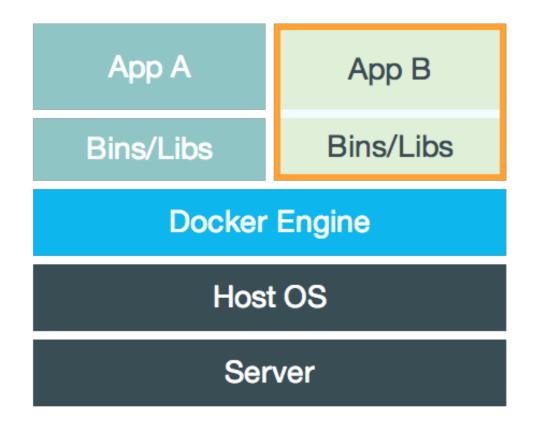
#### What is Docker

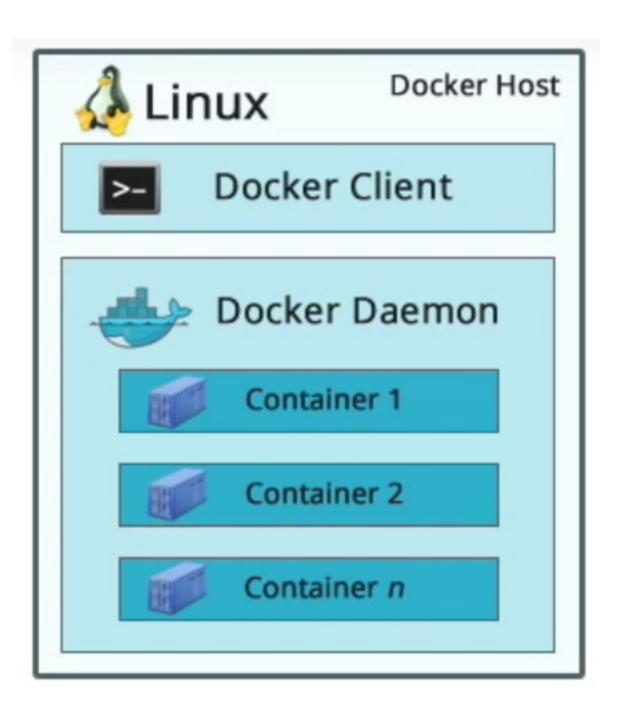
an open source project to pack, ship and run any application as a lightweight container.

#### **Virtual Machine**

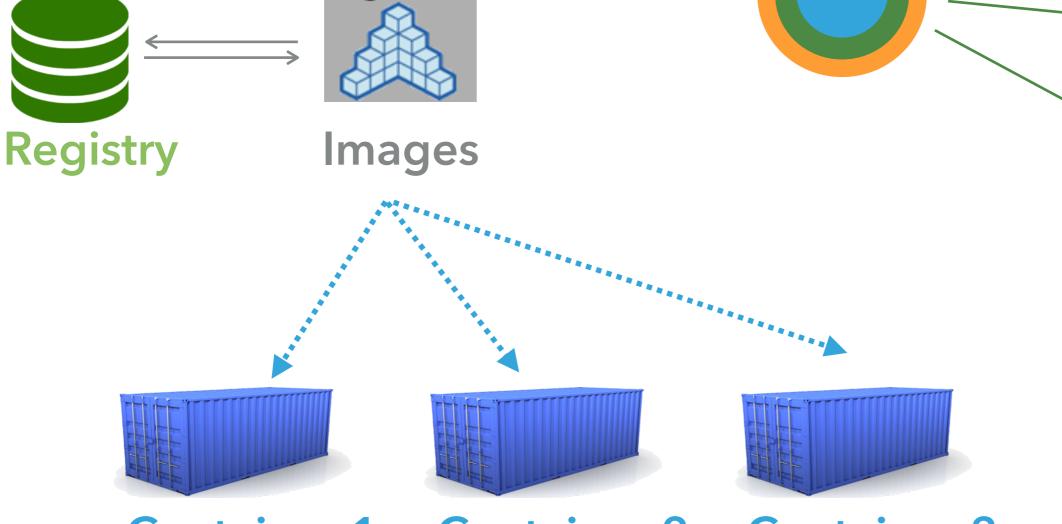


### Docker core component

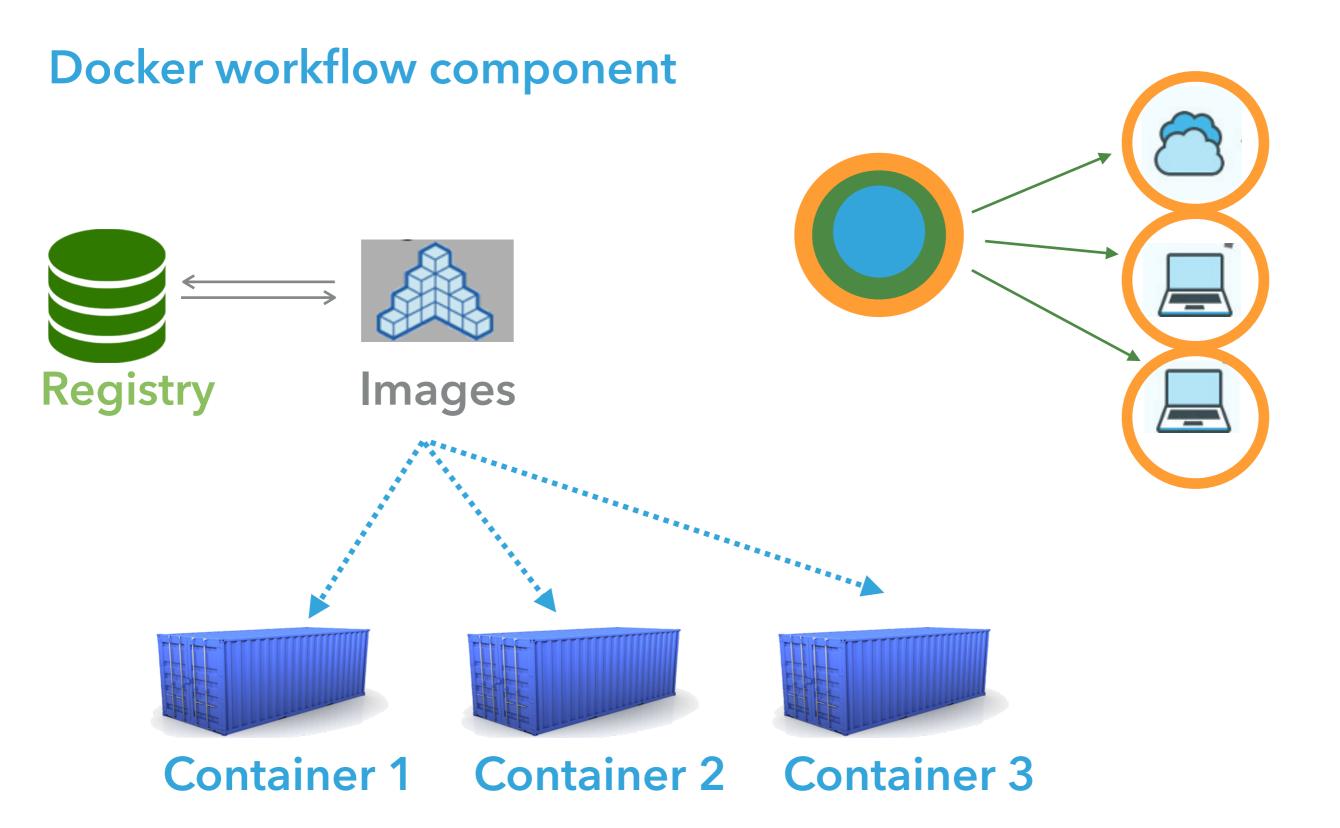




# Docker workflow component



Container 1 Container 2 Container 3



# **SUMMARY**

Faster: CPU instructions are executed natively

Lightweight: Containers share operating system

and some libraries

Portable: As portable as virtual machine

# **SUMMARY**

#### **Further Reading**

- [1] https://docs.docker.com/
- [2] http://blog.scottlowe.org/2014/03/11/a-quick-introduction-to-docker/
- [3] https://www.youtube.com/watch?v=Q5POuMHxW-0
- [4] https://github.com/docker/docker

# **THANK YOU!**