

docker

SHUO ZHAO

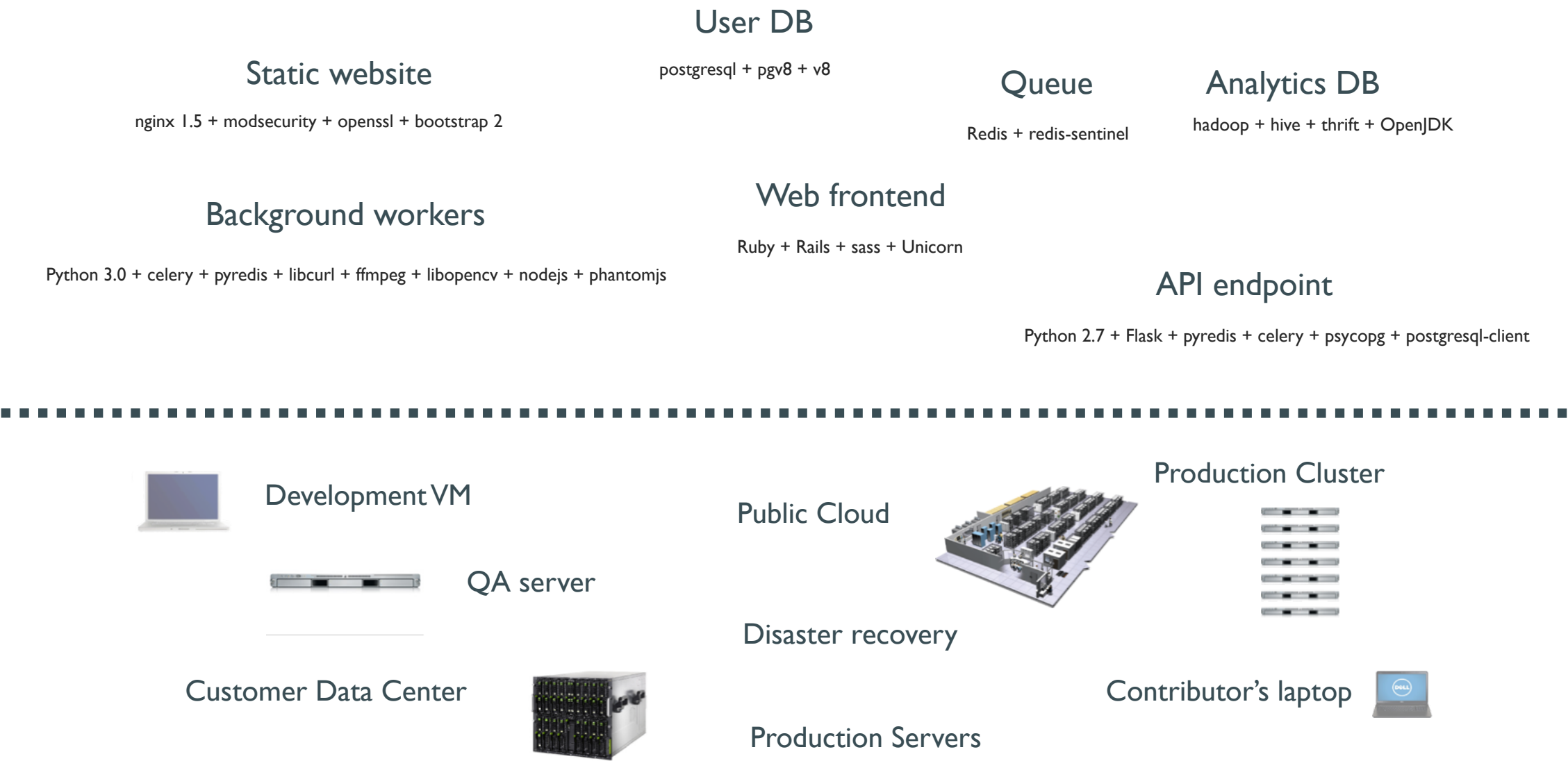
INTRODUCTION TO DOCKER

Dependency hell





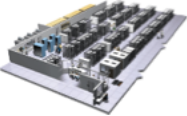


Dependency hell is a colloquial term for the frustration of some software users who have installed software packages which have dependencies on specific versions of other software packages.

—— wikipedia

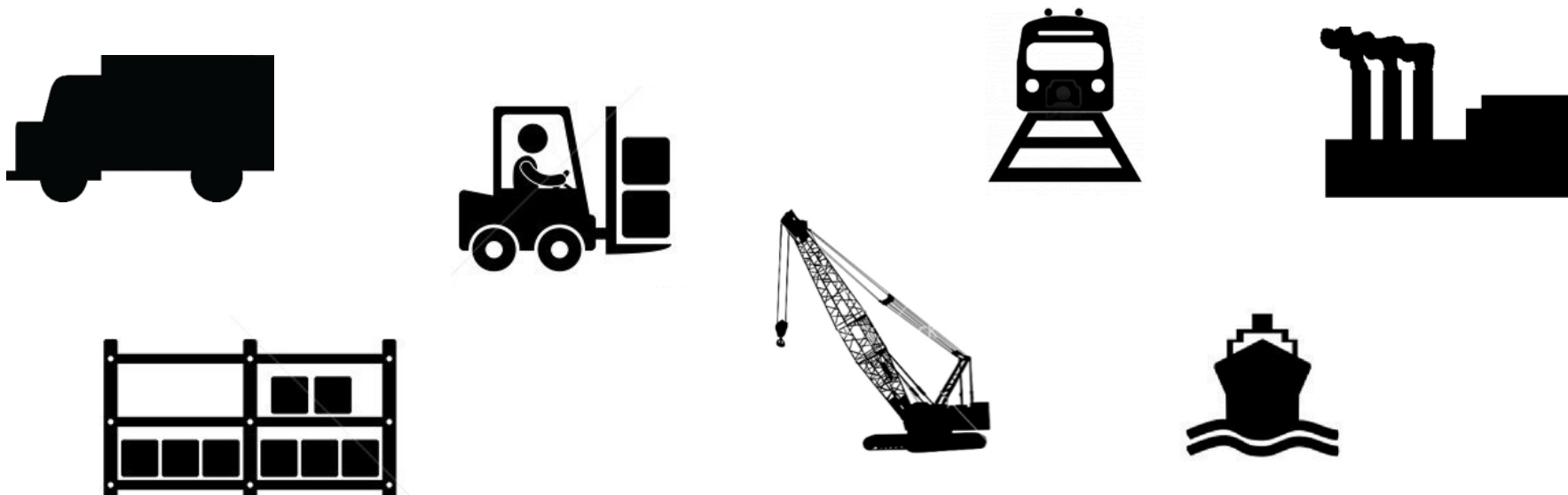
Dependency hell
















Dependency hell

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

Dependency hell: Delivery System



Dependency hell: Delivery System

| | | | | | | | |
|---|---|---|---|---|---|---|---|
|  | ? | ? | ? | ? | ? | ? | ? |
|  | ? | ? | ? | ? | ? | ? | ? |
|  | ? | ? | ? | ? | ? | ? | ? |
|  | ? | ? | ? | ? | ? | ? | ? |
|  | ? | ? | ? | ? | ? | ? | ? |
|  | ? | ? | ? | ? | ? | ? | ? |
| |  |  |  |  |  |  |  |

Container!

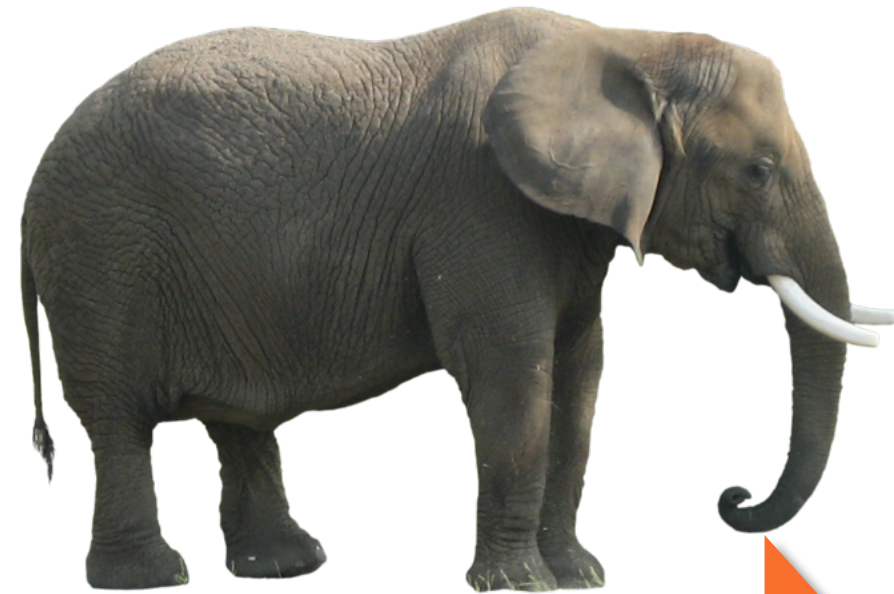


A standard, consistent way of shipping just about anything.

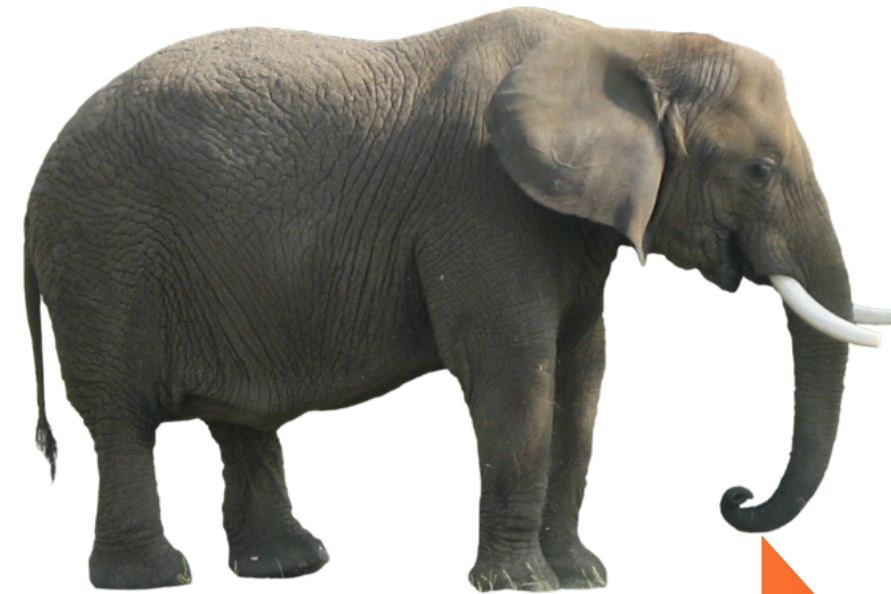
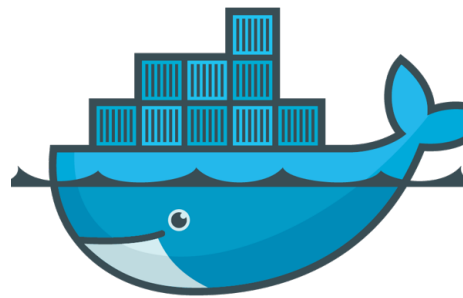
Container!



?




















































Container!



WHY WE NEED DOCKER

Life Saver

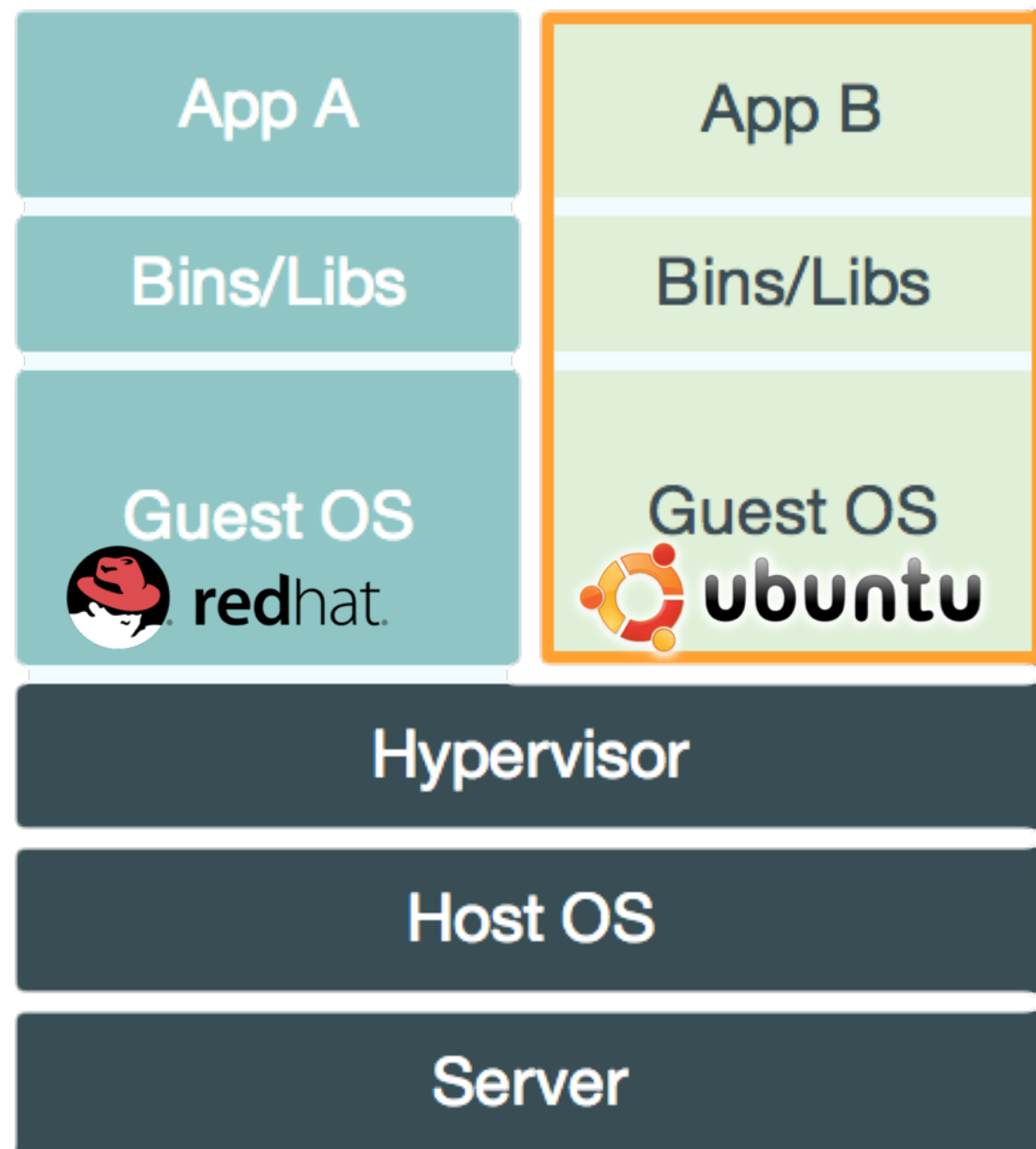
| | | | | | | | |
|--------------------|---|---|---|---|---|---|---|
| Static website |  |  |  |  |  |  |  |
| Web frontend |  |  |  |  |  |  |  |
| Background workers |  |  |  |  |  |  |  |
| User DB |  |  |  |  |  |  |  |
| Analytics DB |  |  |  |  |  |  |  |
| Queue |  |  |  |  |  |  |  |
| | Development VM | QA Server | Single Prod Server | Onsite Cluster | Public Cloud | Contributor's laptop | Customer Servers |
| |  |  |  |  |  |  |  |

What is Docker

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

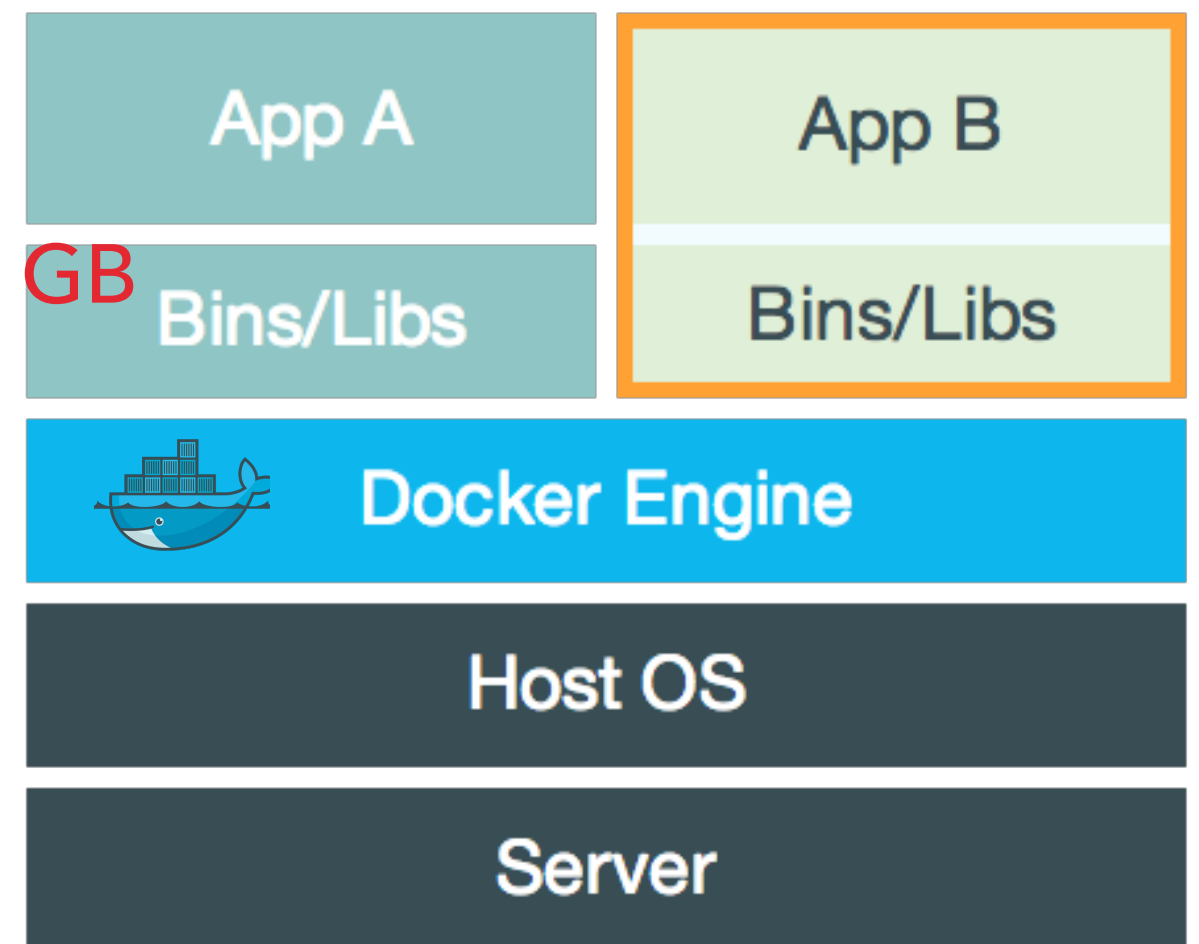
WHAT IS DOCKER

Virtual Machine



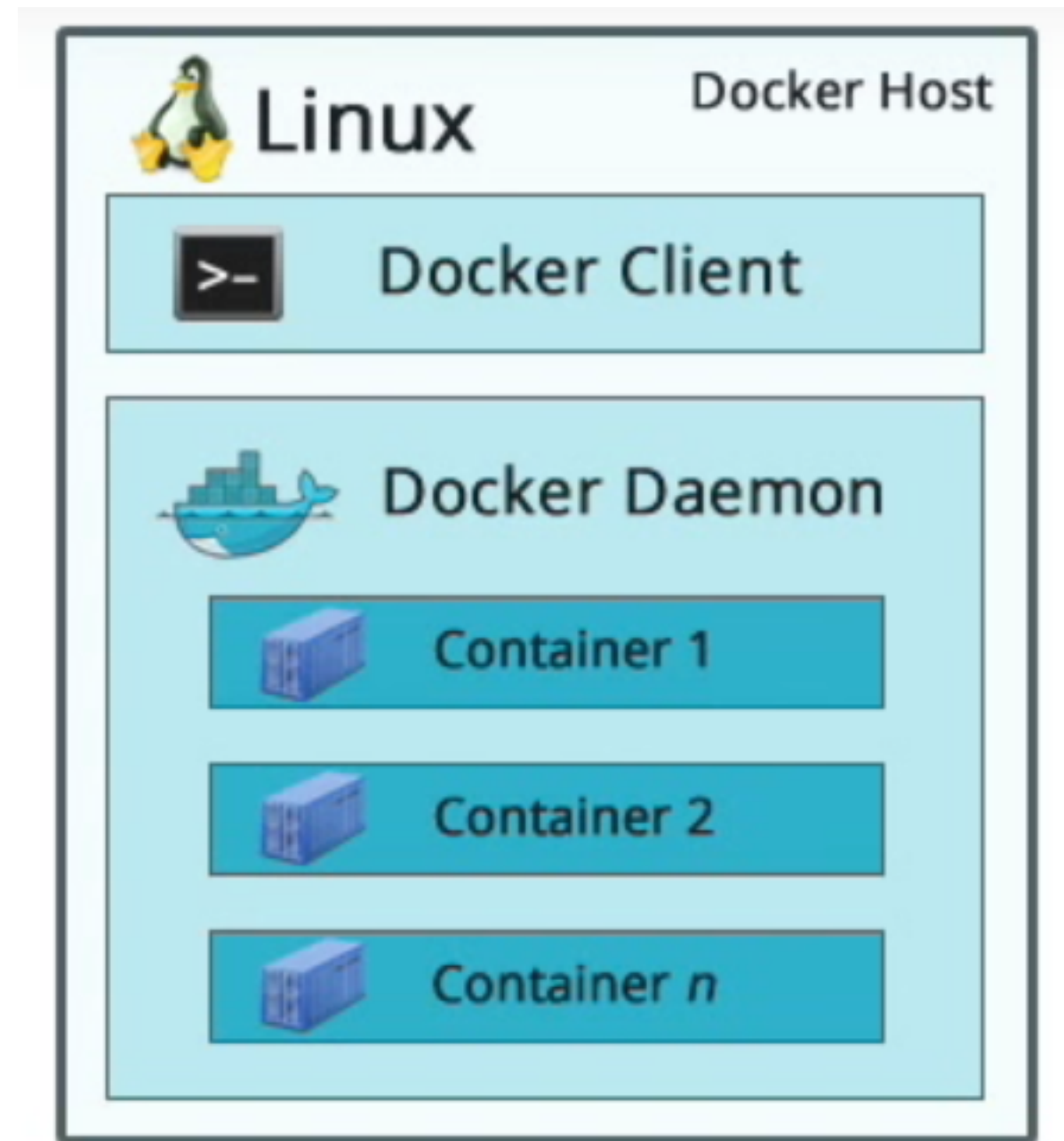
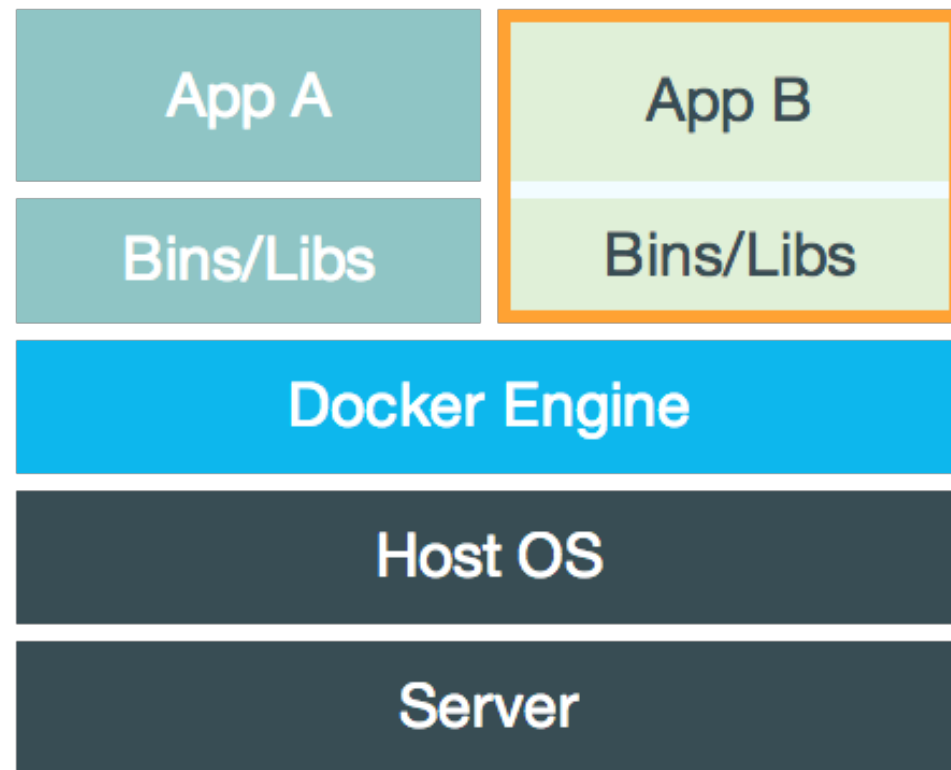
~10 MB

Docker Container

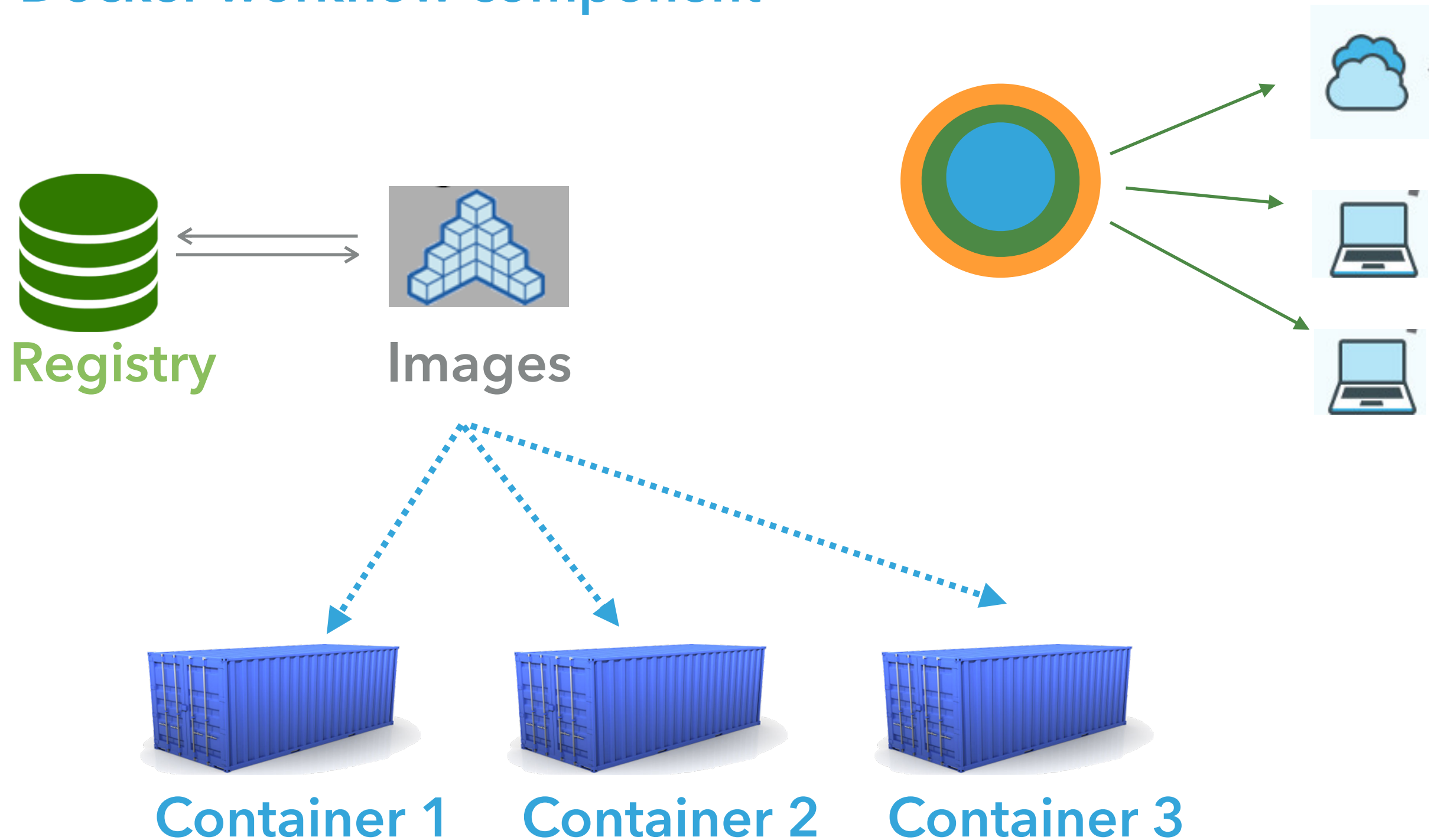


~10 GB

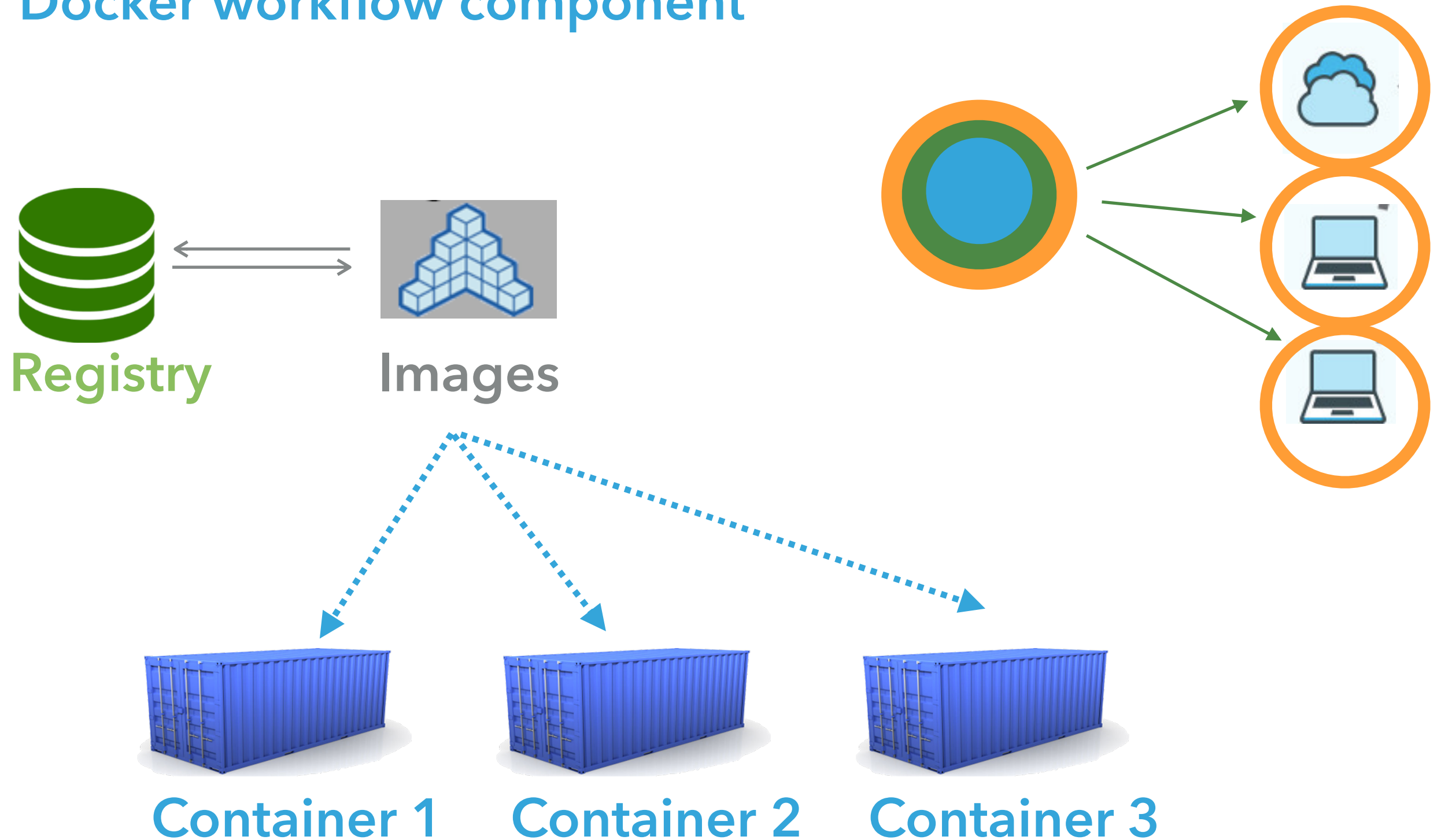
Docker core component



Docker workflow component



Docker workflow component



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>

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THANK YOU!