

# Docker Introduction

Arun Gupta, @arungupta

# What is Docker?

- Open source project and company



- Used to create containers for software applications
- Package Once Deploy Anywhere (PODA)

## Docker Contributors by employers/hackers

 [gistfile1.txt](#)

1	Top changeset contributors by employer	
2	(Unknown)	4520 (47.9%)
3	"Docker"	3821 (40.5%)
4	"Red Hat"	685 (7.3%)
5	"IBM"	232 (2.5%)
6	"Google"	119 (1.3%)
7	"Cisco"	49 (0.5%)
8	"Amadeus"	4 (0.0%)
9	"VMWare"	2 (0.0%)
10	"CoreOS"	1 (0.0%)
11		

<https://gist.github.com/arun-gupta/7d5a373099ff831d7213>

<http://www.infoworld.com/article/2925484/application-virtualization/look-whos-helping-build-docker-besides-docker-itself.html>



## Build

Develop an app using Docker containers with any language and any toolchain.



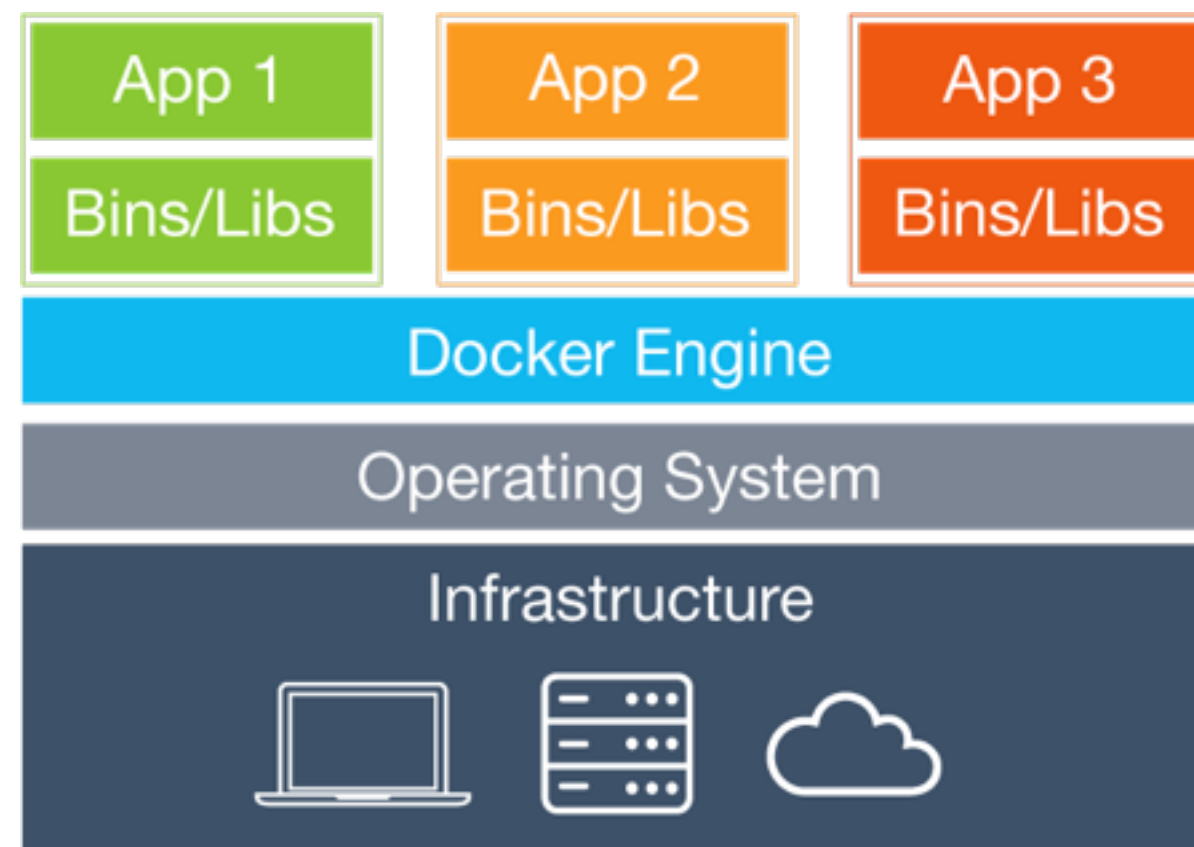
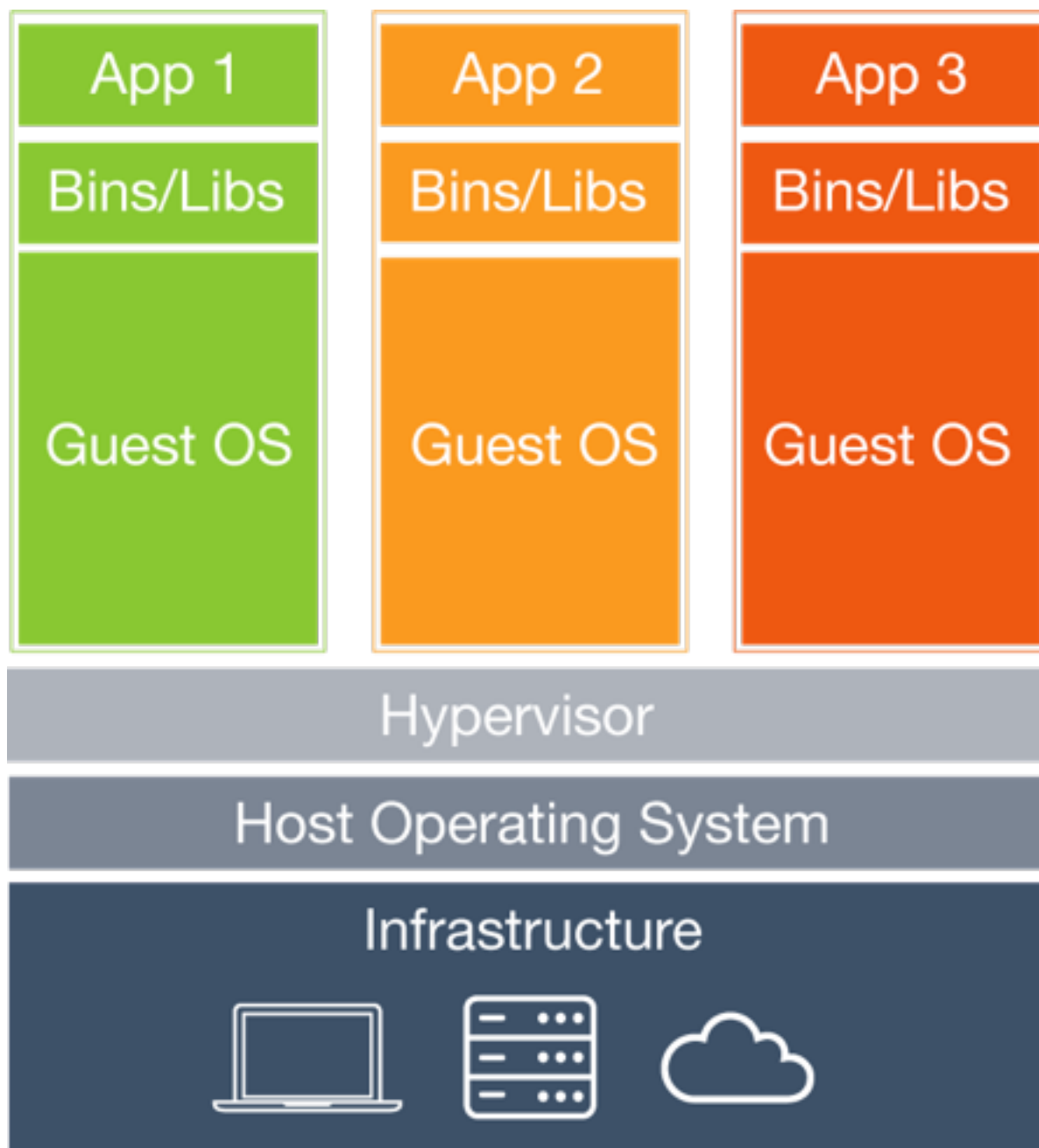
## Ship

Ship the “Dockerized” app and dependencies anywhere - to QA, teammates, or the cloud - without breaking anything.

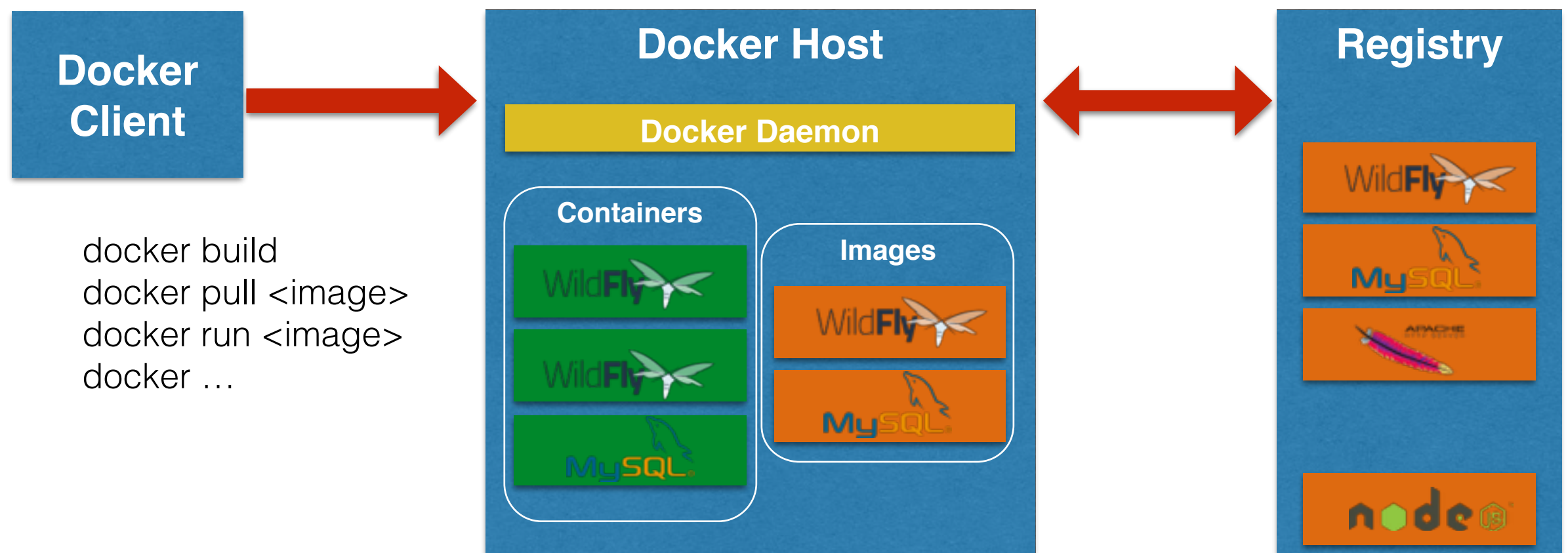


## Run

Scale to 1000s of nodes, move between data centers and clouds, update with zero downtime and more.



# Docker Workflow



**Container**

**Image**

**Image**

**Base Image**

**Bootfs/Kernel**

jboss/wildfly

jboss/base-jdk:8

jboss/base

centos:7

# Docker Machine



- Create Docker Host on computer or cloud provider

```
docker-machine create --driver=virtualbox  
myhost
```

- Configure Docker client to talk to host
- Create and pull images
- Start, stop, restart containers
- Upgrade Docker
- Not recommended for production yet



# Docker Compose

- Defining and running multi-container applications
- Configuration defined in a single file
- Great for dev, staging, and CI
- Not recommended for production yet

# docker-compose.yml

**mysql**db:

image: mysql

environment:

MYSQL\_DATABASE: sample

MYSQL\_USER: mysql

MYSQL\_PASSWORD: mysql

MYSQL\_ROOT\_PASSWORD: supersecret

**mywildfly**:

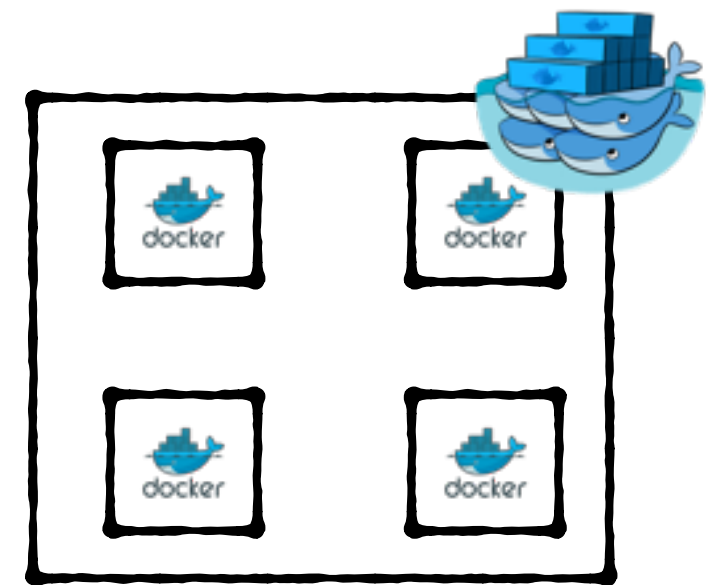
image: arungupta/wildfly-mysql-javaee7

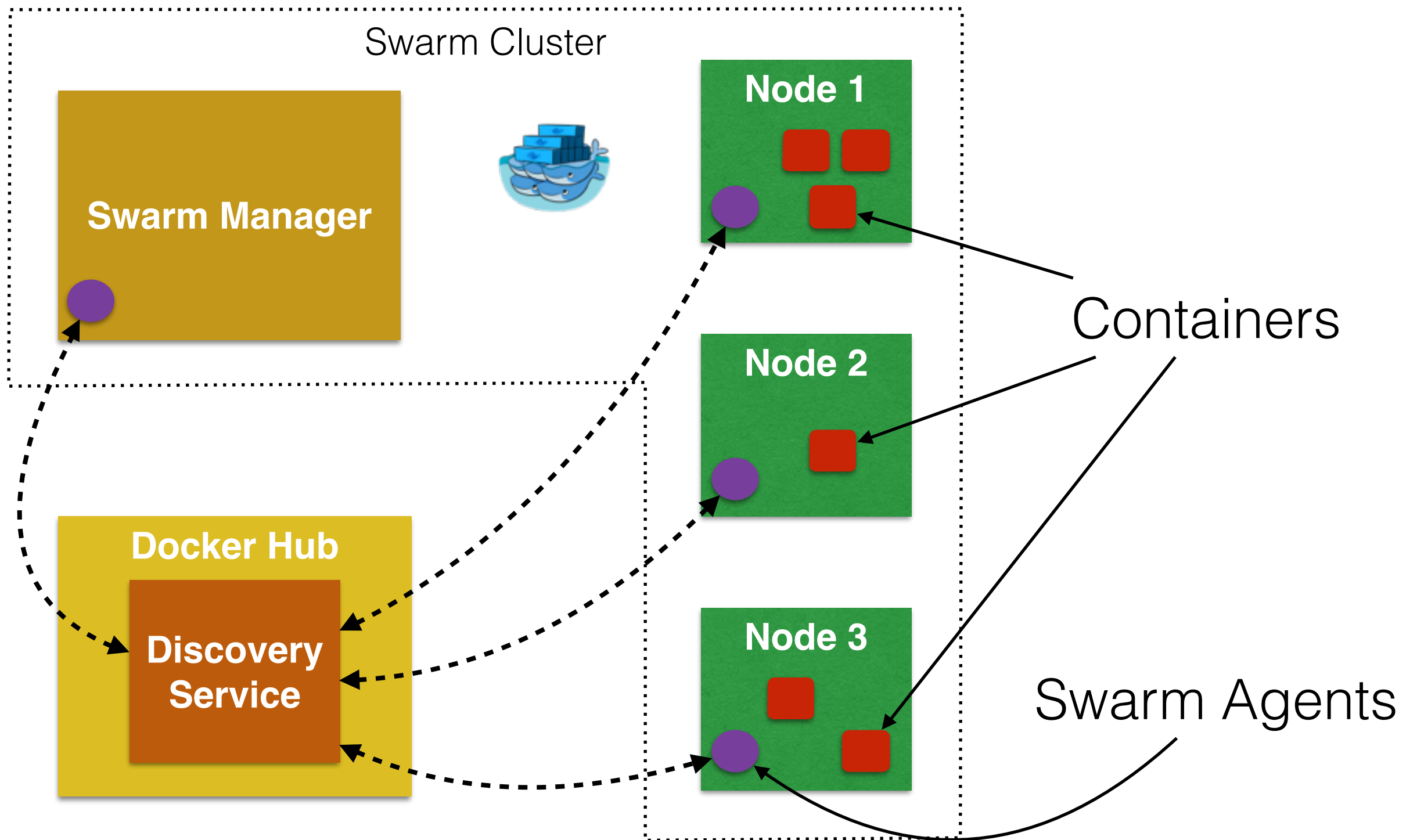
links:

- mysql

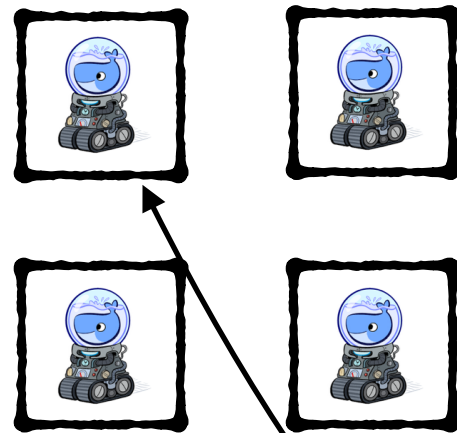
# Docker Swarm

- Native clustering for Docker
- Provides a unified interface to a pool of Docker hosts
- Fully integrated with Machine
- Serves the standard Docker API
- Partially integrated with Compose
- Not recommended for production yet

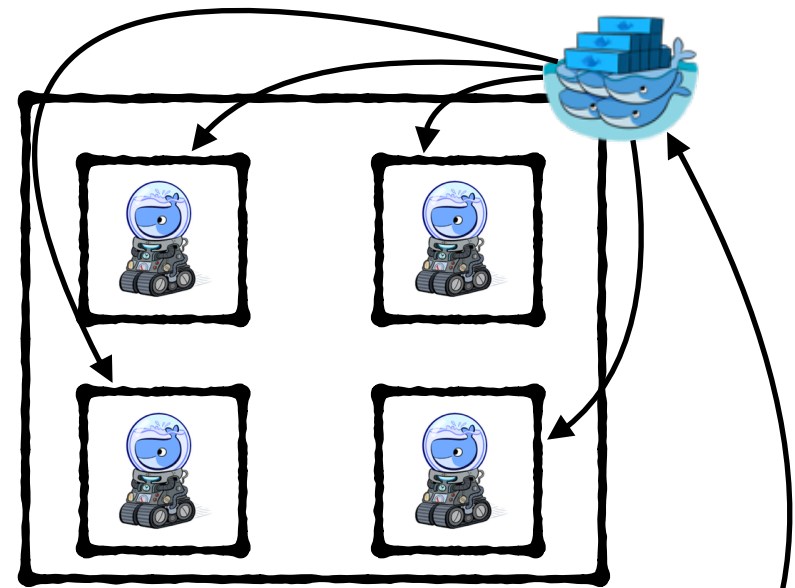




# Machine



# Swarm



YAML

# Compose

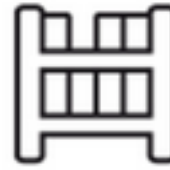
# Docker Toolbox

- Docker Client 1.8.0
- Docker Machine 0.4.0
- Docker Compose 1.4.0 (Mac only)
- Docker Kitematic 0.8.1
- Virtualbox 5.0.0





Engine



Registry



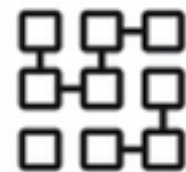
Kitematic



Machine



Swarm



Compose



Networking

# Advantages of Containers

- Immutability
- Reproducibility
- Isolation
- Faster deployments
- Portability - “it works on my machine”
- Snapshotting
- Security sandbox
- Limit resource usage
- Simplified dependency
- Sharing