

Box It Up!

Introduction to Docker

Goal

- Remove the mystery!
- Learn from use cases
- Introduce Docker basics
- Demo
- Short lab if time permits



Why Docker?

- Isolation
- Repeatability
- Installation Ease
- Cool Whale



Why Docker? Use Cases

- Learning!
 - Hadoop Cluster
 - ELK Stack
- Jupyter notebook server
- RabbitMQ
- Database server

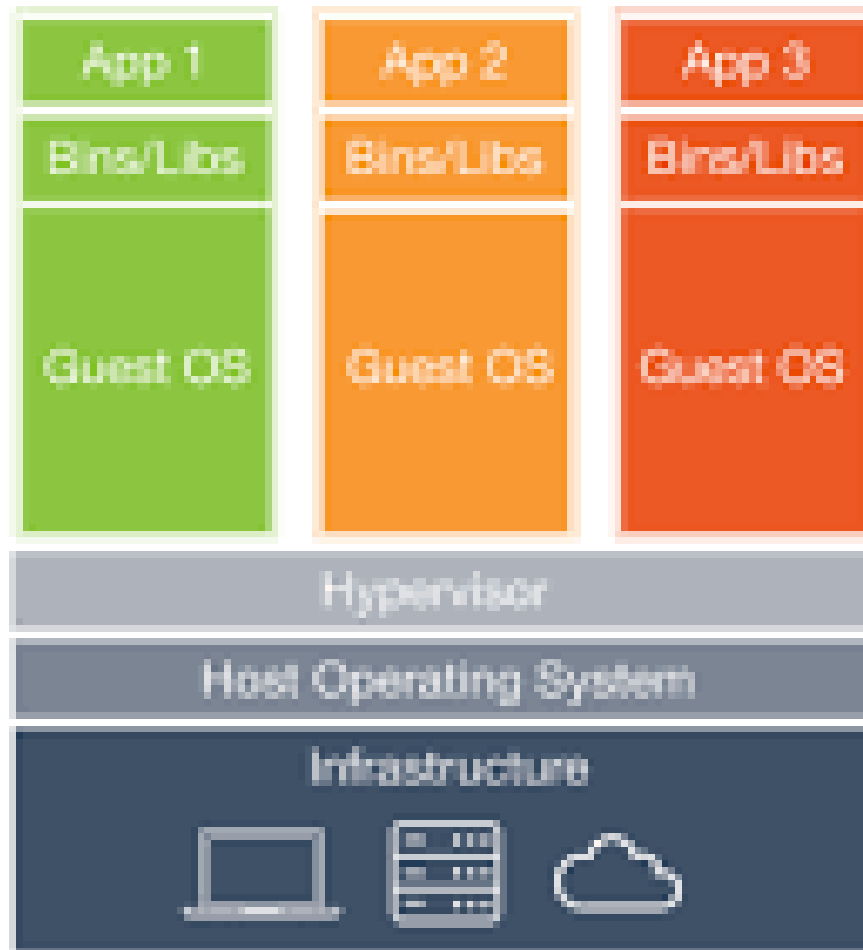


What is Docker?

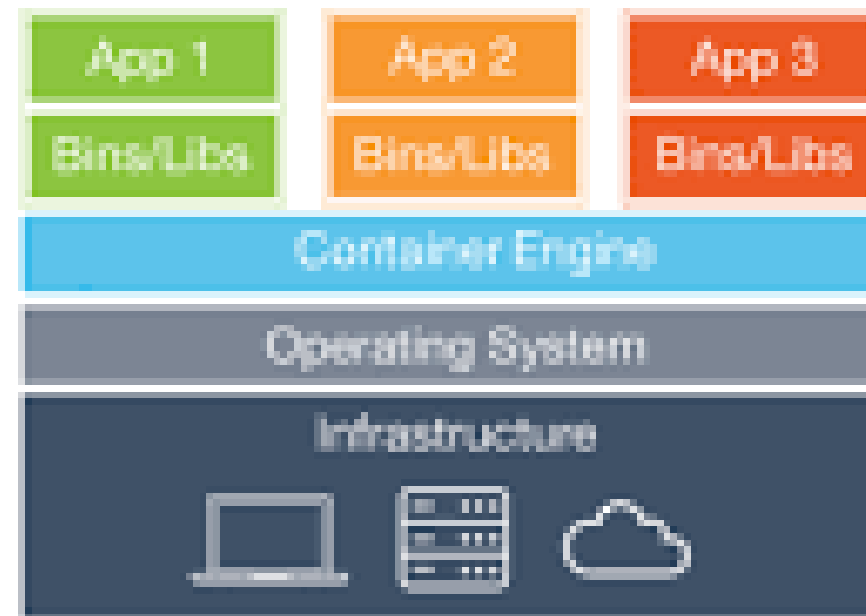
- A container platform
- Isolates application dependencies
- *Like* a lightweight VM (virtual machine) with everything you need already installed



Docker vs Virtual Machine



Hypervisor-based Virtualization



Container virtualization

cker

Basics: Image vs Container

A Container is an *Instance* of an Image

Image

- First part of every Dockerfile
- Can get from Docker Hub
- Can create from a container

Container

- Created from an Image
- Can enter it like a VM
- Can access exposed ports

Basics: Common Commands

Prefix with `docker`

- build - build an image from a Dockerfile
- run - create a container
- exec - execute new process within container
- images - list local images
- `ps -a` - list all containers
- rm, rmi – remove container or image



Basics: Docker Hub

- Like Git for Docker
- Repository for source code and images
- Has a Wealth of Official Repositories! (<https://hub.docker.com/explore/>)
- Docker Store introduced last year



Under the Hood: Hello World

- https://hub.docker.com/_/hello-world/
- Dockerfile:

```
FROM scratch  
COPY hello /  
CMD ["/hello"]
```
- Demo: `docker run hello-world`



Under the Hood: build our own

- Dockerfile:

```
FROM alpine:3.3
MAINTAINER carolyn.ownby@gmail.com
COPY dockerDemo.sh /
RUN chmod +x /dockerDemo.sh
RUN /bin/sh
RUN /dockerDemo.sh
```

- Demo:

```
docker build -t basic-image .
docker run --name=fcds basic-image
```



References

- <https://www.docker.com/what-docker>
- <https://docs.docker.com/docker-hub/>
- <http://stackoverflow.com/questions/23735149/docker-image-vs-container>
- <https://docs.docker.com/engine/reference/commandline/>
- <https://github.com/wsargent/docker-cheat-sheet>

