Dockerizing a Web App in the AWS Cloud

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Five Steps

1. Set up an AWS Elastic Compute Cloud (EC2) instance:

   https://aws.amazon.com/ec2

2. Install Docker client:

   https://docs.docker.com/install/

3. Install application files

4. Build a Docker image

5. Run a Docker container

Docker

- What is Docker?
  - Docker is a platform to develop, deploy, and run applications within containers:

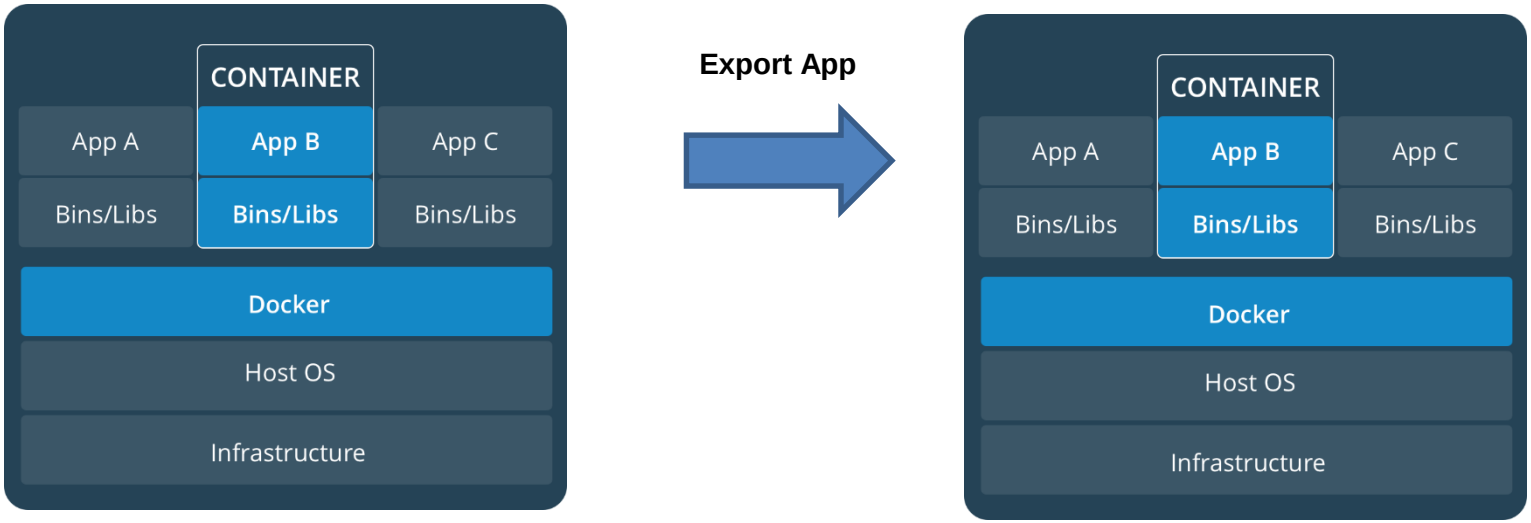
    https://docs.docker.com/get-started

- What is a Docker Image?
  - An image is an executable package that includes everything needed to run an application--the code, a runtime, libraries, environment variables, and configuration files.

- What is a Docker Container?
  - A container is a runtime instance of a Docker image.

Docker Background

- Why use Docker?
  - Flexible: Complex applications can be containerized.
  - Lightweight: Containers leverage and share the host kernel.
  - Portable: Build images locally, deploy to the cloud, and run anywhere.
  - Distributed: Access Docker Hub registry for pre-built and tested images: https://hub.docker.com



Local Host **Remote Host**

Install & Build Application

- PHP app to install: http://www.heliodocs.com
- Install application files from Git Hub https://github.com/dzarro/xdoc

```
git clone https://github.com/dzarro/xdoc.git
```

- Create a Docker (instruction) file

```
FROM php:7.2-apache  # load PHP/Apache image from Docker Hub
COPY xdoc/ /var/www/html/  # copy app files into image
EXPOSE 8080                # expose application port
```

- Build a Docker image

```
docker build -t  dzarro/xdoc .  # image name dzarro/xdoc
```

Run & Deploy Application

- Run image in a container

```
docker run –d –p 8080:8080 –-name dzarro/xdoc xdoc

-d     # run in detached/background mode
-p     # forward internal Docker port to external server port
```

- Test application

http://52.61.137.34:8080

- Deploy to Docker Hub

```
docker login
docker push dzarro/xdoc
```