SE 4455 – Cloud Computing

Linux Containers with Docker

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Docker Setup with Debian-Jessie

- Docker packages installed from "dockerproject.org" ('/etc/apt/sources.list')

- Guide:"Get Docker for Debian or Raspbian" from docker.com

    - Be careful with online guides

    - <u>Due diligence: Understand purpose of each command as well as all the parameters</u>

    - Note: "sudo" is not setup. Login as root and run commands without 'sudo' part

Setting Up Docker – Overview

1. Use a kernel version that supports Docker

2. Install Docker and dependencies

3. Add users to 'docker' group

4. Run containers with 'docker run …'

Docker Command Basics

- Use '`docker …`' command to manage
  - Use '`docker info`' command to see file path
  - Docker daemon manages the containers
  - Hacking files inside /var/lib/docker is unwise (but, peeking is great fun!)
- Append '`--help`' after a command for help
  - `docker --help`
  - `docker container --help`
  - `docker container ls --help`
  - More help with `man docker-container`
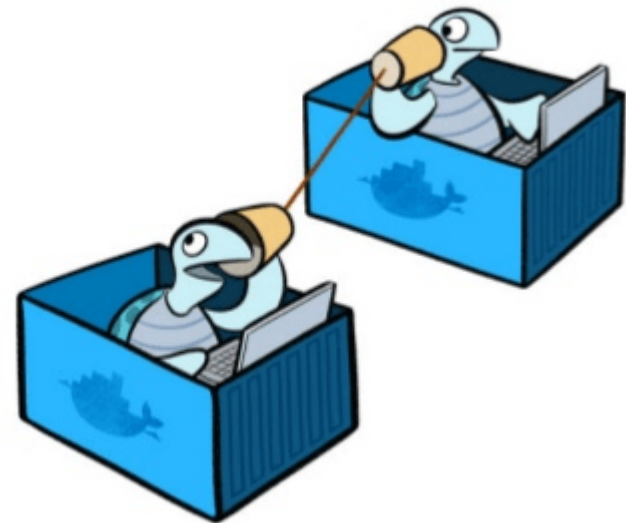
Demo – Getting Started

- Install Docker and examine configuration
- Configure for non-root users
- Run 'hello-world' container as non-root
- Create new container image
- Run containers based on this image
  - Compare image name vs container name
- Manage containers (ls, rm)
- Inspect containers

Demo – Port forwarding

- Run Nginx web server using a docker image and forward port 80 to host

- Stop and restart container

- Inspect network parameters

- Peek inside container file system

- Modify files using 'docker cp'

- Run multiple web servers

Demo – Networking

- Inspecting network parameters
- Creating a new network bridge
- Adding containers to multiple networks

Referenes

- https://docs.docker.com/engine/getstarted/
- https://docs.docker.com/engine/userguide/networking/work-with-networks/
- http://www.dasblinkenlichten.com/docker-networking-101-user-defined-networks/
- https://github.com/wsargent/docker-cheat-sheet