Managing Docker Containers with Ansible

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What is Docker

- Operation System Level Virtualization

- Imaged based Containers

- Wraps up code, system libraries, software in Containers

- Uses isolation features from the kernel

  - Cgroups

  - Kernel Namespace

  - Etc.

- Solaris Containers/Zones

- LXC (Linux Containers)
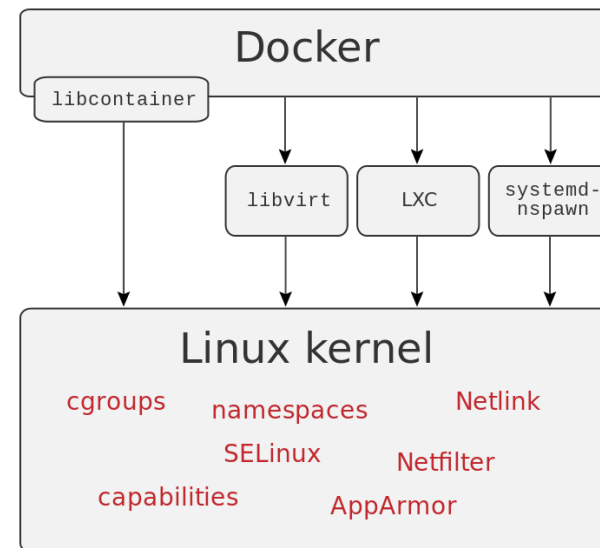
What is Docker

- Container ID

- Image

- Command

- Time Stamps

- Ports

- Name

```
[perle@ansible_meetup ~]$ docker ps
CONTAINER ID        IMAGE               COMMAND                 CREATED             STATUS              PORTS                           NAMES
c33666cb4324        owncloud            "/entrypoint.sh apach"  5 minutes ago       Up 5 minutes        80/tcp                          owncloud
64931d581162        wordpress           "/entrypoint.sh apach"  5 minutes ago       Up 5 minutes        80/tcp                          Web
cbf55cea7300        mysql               "docker-entrypoint.sh"  5 minutes ago       Up 5 minutes        3306/tcp                        MySQL
29dde02f8013        jwilder/nginx-proxy "/app/docker-entrypoi"  5 minutes ago       Up 5 minutes        0.0.0.0:80->80/tcp, 443/tcp     RVP
[perle@ansible_meetup ~]$ 
```

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Challenges operating Docker

- Orchestration of Docker Container

- Technology matuarity

- Automation of Docker Enviroments

- Size of Docker Enviroments

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Approaches – Docker Module

- Docker Module < 2.1
  - Requirements
    - python >= 2.6
    - docker-py >= 0.3.0
    - The docker server >= 0.10.0

- Docker Python Version really Buggy

```
1    ---
2     - name: run Reverse Proxy
3       docker:
4         name: RVP
5         image: jwilder/nginx-proxy
6         ports:
7           - 80:80
8         volumes:
9           - /var/run/docker.sock:/tmp/docker.sock:ro
```

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Approaches – Docker-Compose

- Docker Orchestration Tool
  - Requirements
    - Docker Python Latest

- Copy Files to Remote Server

- Runs Docker-Compose

```
1 ∨ nginx:
2    image: "jwilder/nginx-proxy"
3    ports:
4      - "80:80"
5    volumes:
6      - "/var/run/docker.sock:/tmp/docker.sock:ro"
7   MySQL
```

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Approaches – Docker_Services

- Consumes Docker-Compose Files

- Available > Ansible 2.1

- Scaling Docker Containers

```yaml
1  ---
2  - name: copy docker-compose
3    template:
4      src: docker-compose.yml.j2
5      dest: /docker-compose.yml
6      force: yes
7  - name: run docker-compose file with Scaling
8    docker_service:
9      project_src: /tmp/
10     state: present
11     scale:
12       Web: 6
13       owncloud: 6
14
```

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Demo