An introduction to Docker

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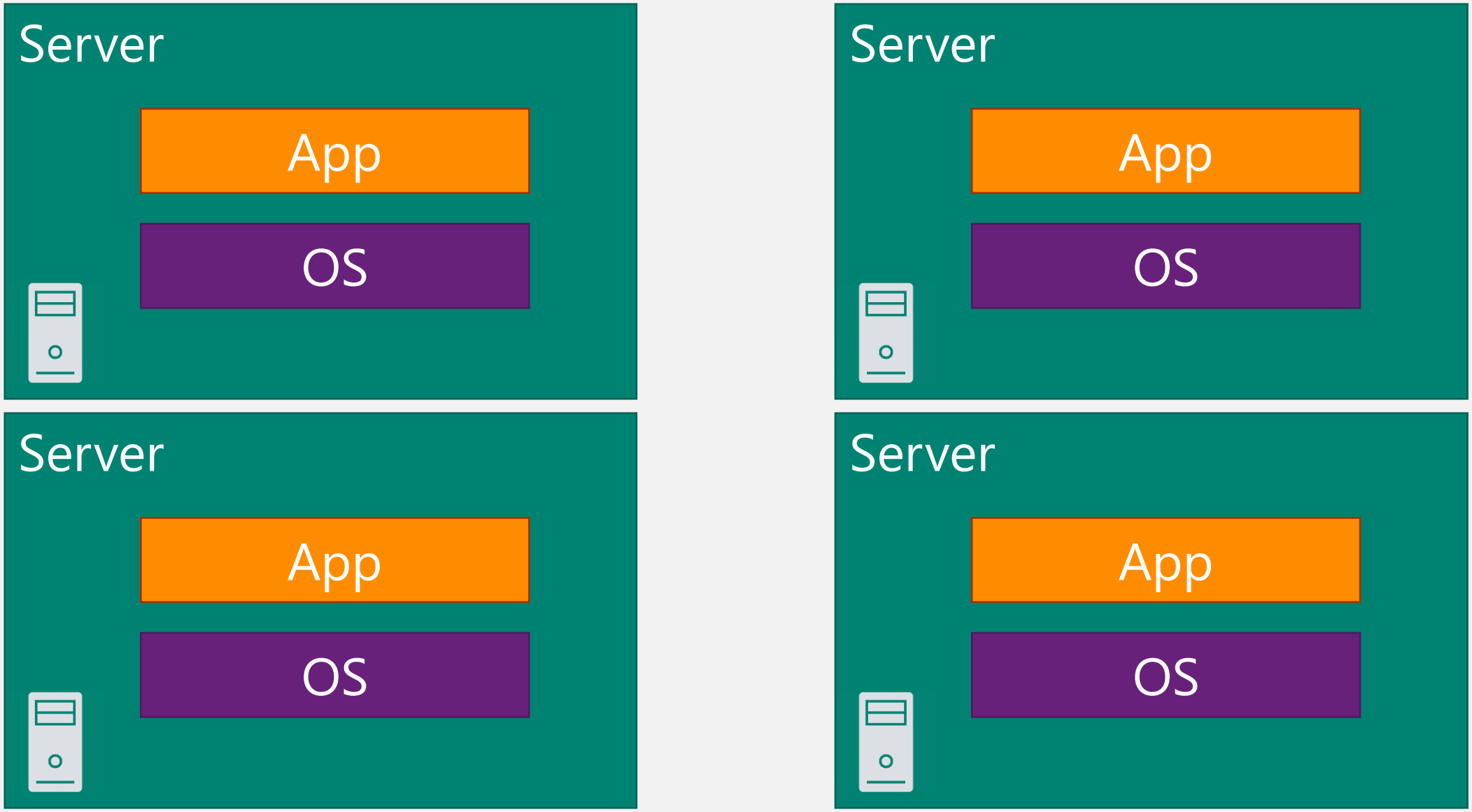
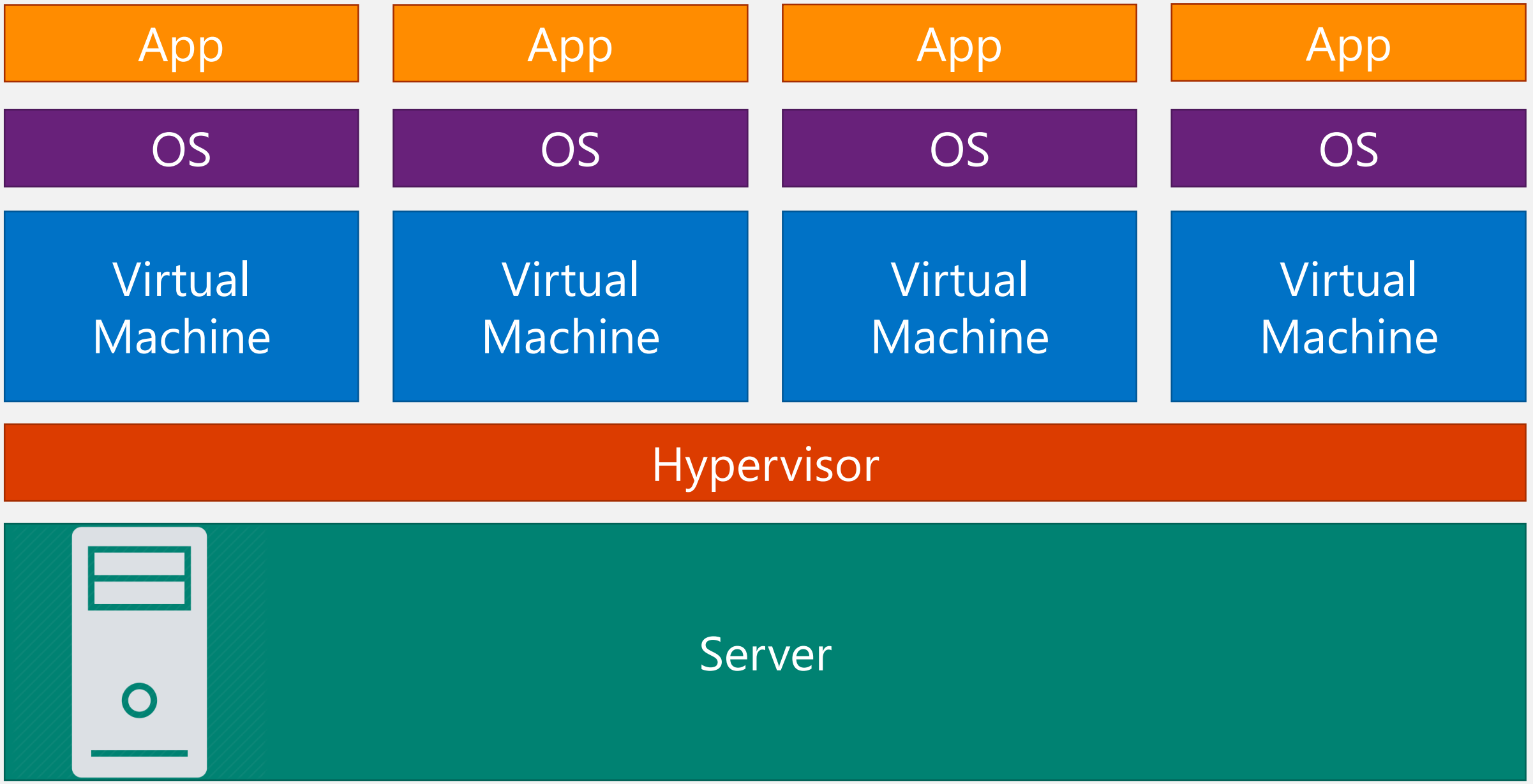
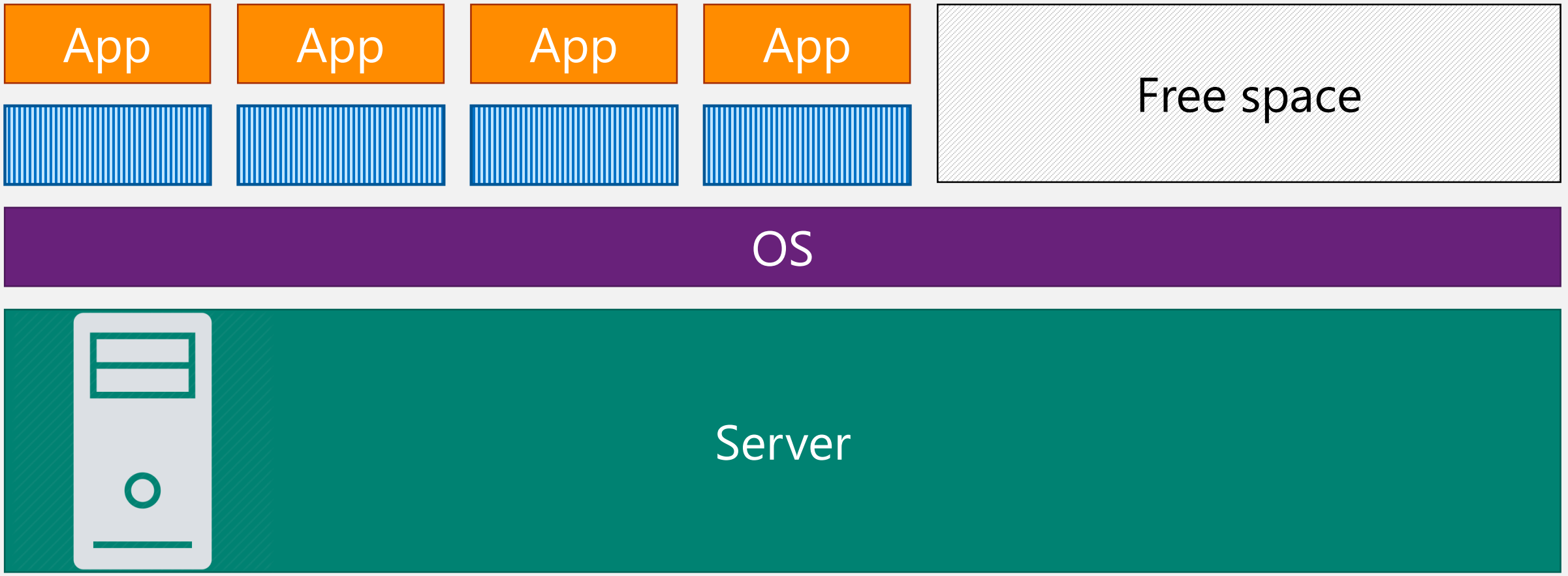
Bad old days



Traditional Virtualisation



Docker



Docker Demo
Hello World!

Lab 04 - Hello World! in Docker

10 minutes

Docker Container registries

Explore Official Repositories

nginx official	9.9K STARS	10M+ PULLS	DETAILS
alpine official	4.4K STARS	10M+ PULLS	DETAILS
busybox official	1.4K STARS	10M+ PULLS	DETAILS
redis official	5.9K STARS	10M+ PULLS	DETAILS
httpd official	2.1K STARS	10M+ PULLS	DETAILS
mongo official	5.1K STARS	10M+ PULLS	DETAILS
ubuntu official	8.5K STARS	10M+ PULLS	DETAILS
postgres official	5.6K STARS	10M+ PULLS	DETAILS
node official	6.4K STARS	10M+ PULLS	DETAILS

Important Docker commands

Docker pull <image name>
Docker images
Docker build
Docker run
    -d <detatched mode>
    --name <Name of run>
Docker ps
Docker stop <run name>
Docker rmi <image name> -f

Docker Cheat Sheet

ORCHESTRATE

Initialize swarm mode and listen on a specific interface
```
docker swarm init --advertise-addr 10.1.0.2
```

Join an existing swarm as a manager node
```
docker swarm join --token <manager-token> 10.1.0.2:2377
```

Join an existing swarm as a worker node
```
docker swarm join --token <worker-token> 10.1.0.2:2377
```

List the nodes participating in a swarm
```
docker node ls
```

Create a service from an image exposed on a specific port and deploy 3 instances
```
docker service create --replicas 3 -p 80:80 --name web nginx
```

List the services running in a swarm
```
docker service ls
```

Scale a service
```
docker service scale web=5
```

List the tasks of a service
```
docker service ps web
```

BUILD

Build an image from the Dockerfile in the current directory and tag the image
```
docker build -t myapp:1.0 .
```

List all images that are locally stored with the Docker engine
```
docker images
```

Delete an image from the local image store
```
docker rmi alpine:3.4
```

SHIP

Pull an image from a registry
```
docker pull alpine:3.4
```

Retag a local image with a new image name and tag
```
docker tag alpine:3.4 myrepo/myalpine:3.4
```

Log in to a registry (the Docker Hub by default)
```
docker login my.registry.com:8000
```

Push an image to a registry
```
docker push myrepo/myalpine:3.4
```

RUN

```
docker run
          --rm remove container automatically after it exits
            -it connect the container to terminal
     --name web name the container
      -p 5000:80 expose port 5000 externally and map to port 80
-v ~/dev:/code create a host mapped volume inside the container
     alpine:3.4 the image from which the container is instantiated
        /bin/sh the command to run inside the container
```

Stop a running container through SIGTERM
```
docker stop web
```

Stop a running container through SIGKILL
```
docker kill web
```

Create an overlay network and specify a subnet
```
docker network create --subnet 10.1.0.0/24
--gateway 10.1.0.1 -d overlay mynet
```

List the networks
```
docker network ls
```

List the running containers
```
docker ps
```

Delete all running and stopped containers
```
docker rm -f $(docker ps -aq)
```

Create a new bash process inside the container and connect it to the terminal
```
docker exec -it web bash
```

Print the last 100 lines of a container's logs
```
docker logs --tail 100 web
```

Docker Demo
From an image

Creating an image from scratch

Creating an image from scratch

Base image

Dockerfile

Application code

Any libs, data, dependencies

Docker Demo/Lab
From scratch

Lab 5 - Deploying a container in to Docker

15 minutes

Lab 06 - Deploying your model

15 minutes