CLOUDBEES UNIVERSITY

CLOUDBEES JENKINS PLATFORM

Pipeline with Docker (Day 2)

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CLOUDBEES UNIVERSITY

DOCKER INTRODUCTION (DAY 2)

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REVIEW OF DAY 1 CONCEPTS AND EXERCISE

- CD flow
- Older solutions
- Build Flow plugin
- CloudBees Pipeline Plugin
- Create Pipeline jobs & use the Snippet Generator
- Exercise

IN THIS UNIT: YOU WILL LEARN

- How to prepare the environments
- Docker containers
- Docker use cases
- Docker tools

IN THIS UNIT: YOU WILL BE ABLE TO

- Prepare the CD flow environments
- Understand Docker containers and use cases
- Have A Working Knowledge Of Docker Tools

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DOCKER CONTAINERS

- Self-sufficient
- Isolated
- Immutable
- Reliable
- Scalable

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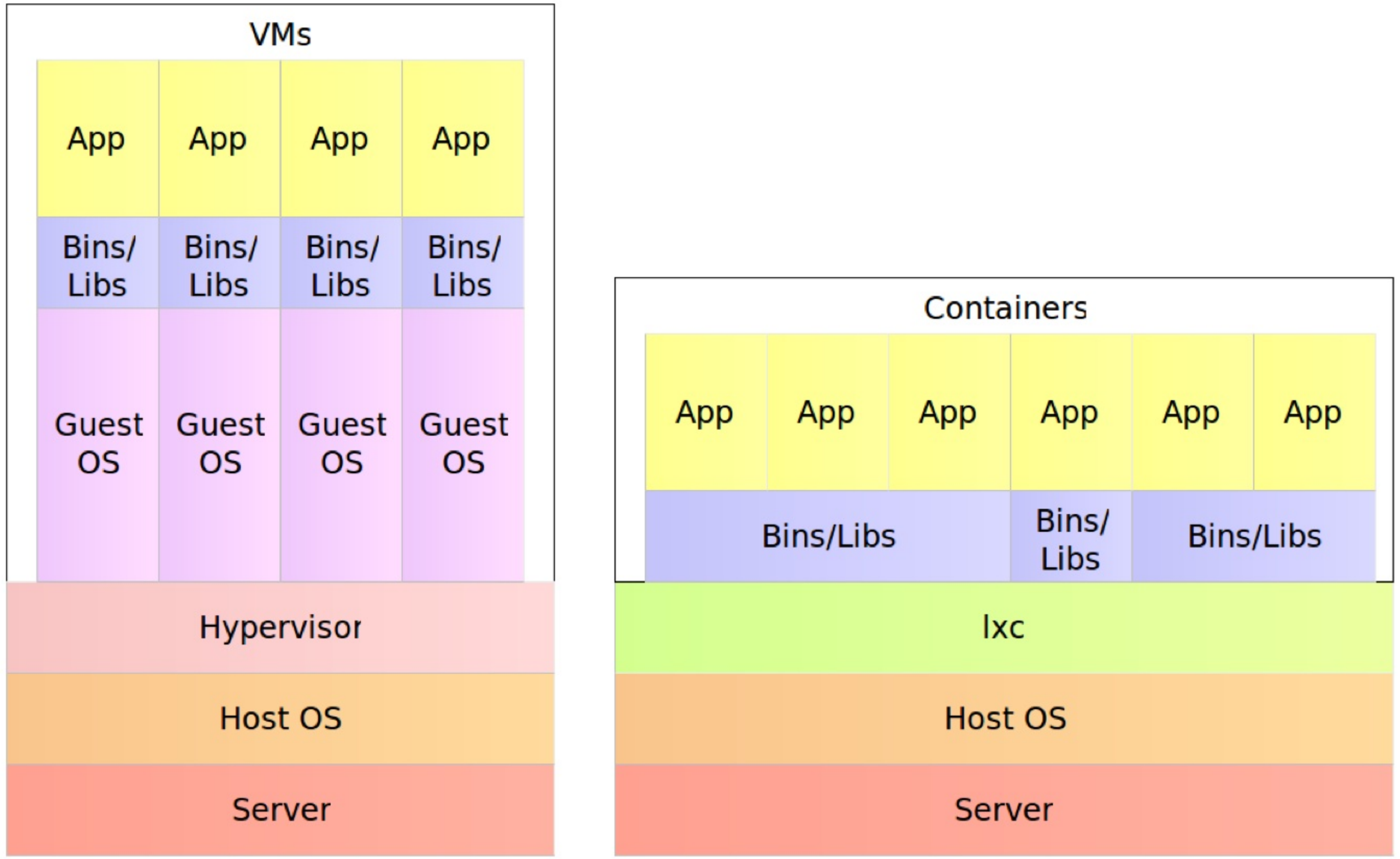
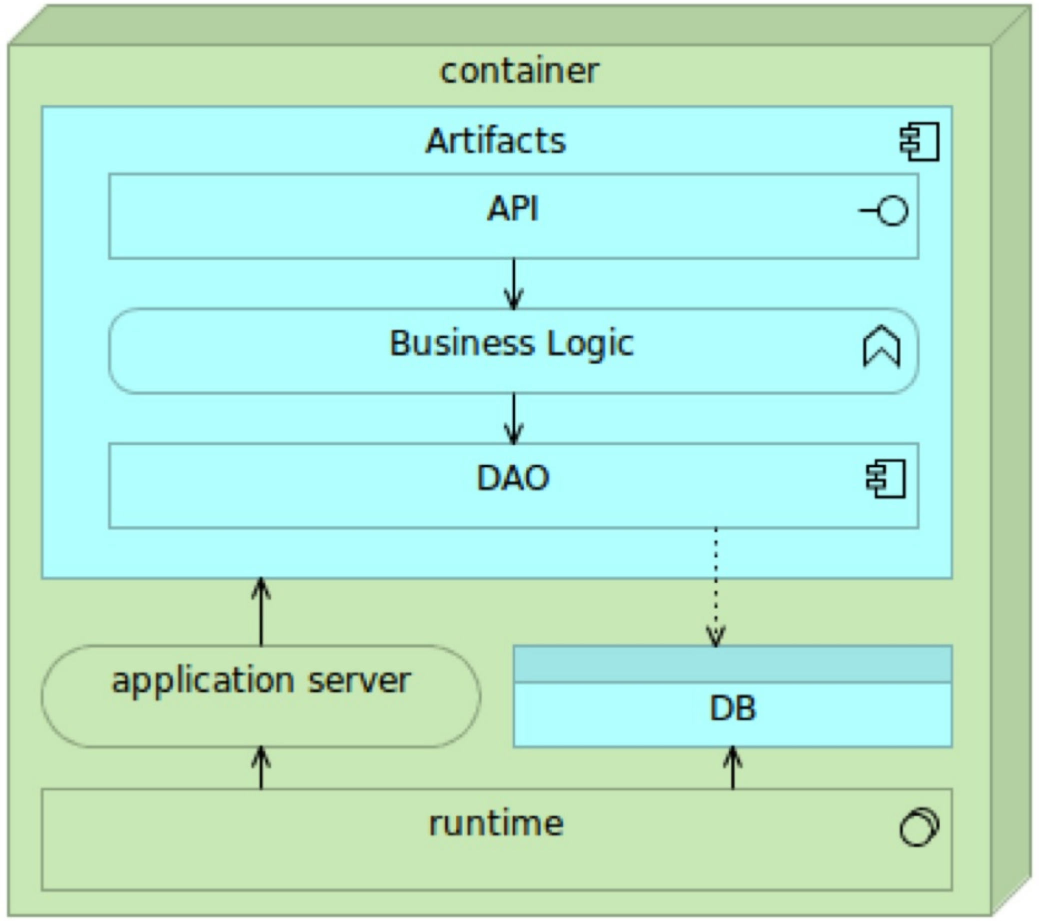
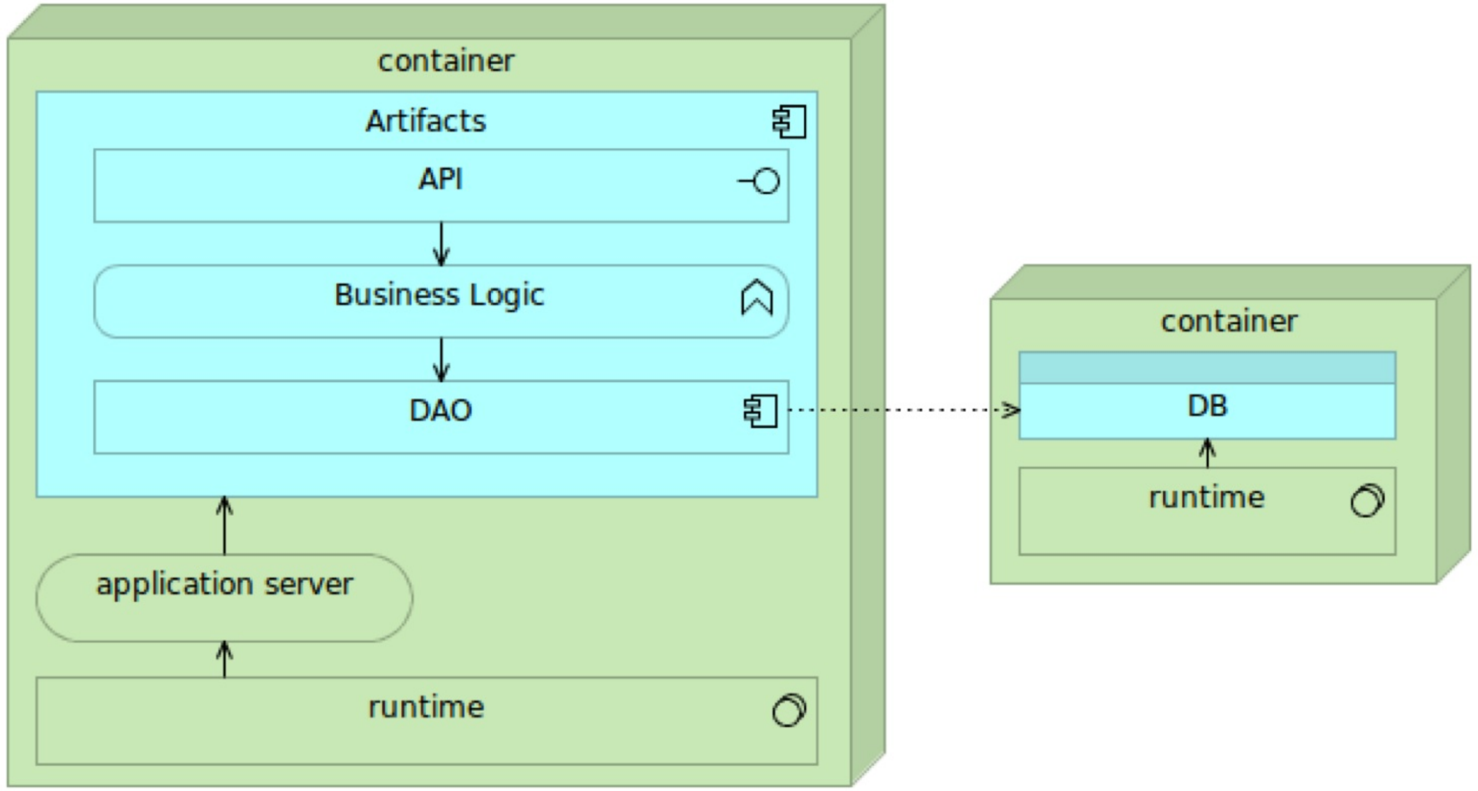
VMS VS DOCKER CONTAINERS



SINGLE-CONTAINER SERVICE



LINKED OR NETWORKED CONTAINERS



DOCKER USE CASES

- Local Development And Testing
- Continuous Integration, Delivery, Or Deployment
- Reliable And Repeatable Deployments

REALITY CHECK

- Questions About Containers?
- Examples Of Scalability In Your Current Use Of Containers?
- How Is CI Valuable In Your Environments?
- Are You Using Containers In Deployment Now?

DOCKER TOOLS

- Docker Hub/Registry
- Docker Engine
- Docker Compose
- Docker Swarm
- Docker Machine
- Kitematic

DOCKER HUB AND REGISTRY

- Docker Hub: Cloud hosted service that provides registry capabilities for public and private content.
- Docker Registry: An open source application dedicated to the storage and distribution of your Docker images.
- Docker Trusted Registry: Allows storing and managing Docker images on-premise. It supports security or regulatory compliance requirements.

DOCKER HUB AND REGISTRY: PULLING AND PUSHING CONTAINERS

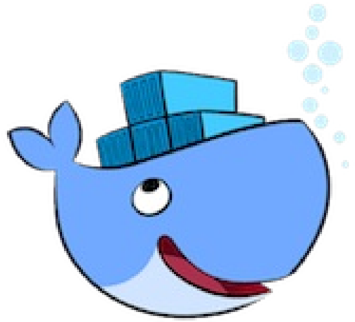
Please use the SSH client to connect to the server you were assigned.

```
docker pull cloudbees/training-books-ms-tests

docker tag cloudbees/training-books-ms-tests \
    localhost:5000/training-books-ms-tests

docker push localhost:5000/training-books-ms-tests
```

DOCKER ENGINE



- Docker Engine is a lightweight runtime and robust tooling that builds and runs Docker containers.

DOCKER ENGINE: RUNNING TESTS INSIDE CONTAINERS

```
cd /mnt/training-books-ms

docker run -it --rm \
    -v $PWD/client/components:/source/client/components \
    -v $PWD/client/test:/source/client/test \
    -v $PWD/src:/source/src \
    -v $PWD/target/scala-2.10:/source/target/scala-2.10 \
    --env TEST_TYPE=all \
    localhost:5000/training-books-ms-tests

ll target/scala-2.10/

docker ps -a | grep books
```

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DOCKER ENGINE: BUILDING CONTAINERS AND PUSHING THEM TO THE PRIVATE REGISTRY

```
cat Dockerfile

docker build -t localhost:5000/training-books-ms .

docker push localhost:5000/training-books-ms
```

MID-BREAK

(10) minutes for learner re-integration.

DOCKER ENGINE: RUNNING CONTAINERS

```
docker run -d --name books-ms-db mongo

docker run -d --name books-ms \
    -p 1234:8080 \
    --link books-ms-db:db \
    localhost:5000/training-books-ms

docker exec -it books-ms env | grep DB

docker ps

curl -I localhost:1234/api/v1/books
```

DOCKER ENGINE: LOGGING, STOPPING AND REMOVING CONTAINERS

```
docker logs books-ms

docker logs books-ms-db

docker stop books-ms-db books-ms

docker ps -a

docker rm books-ms-db books-ms

docker ps -a
```

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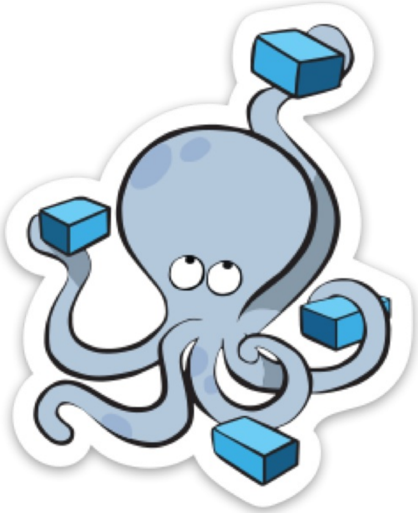
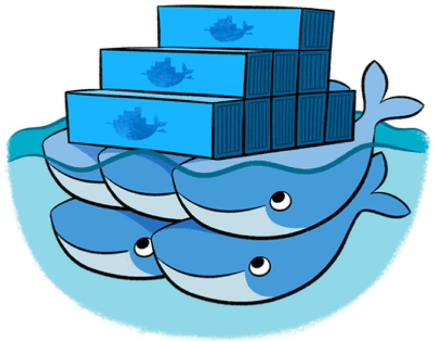
DOCKER COMPOSE



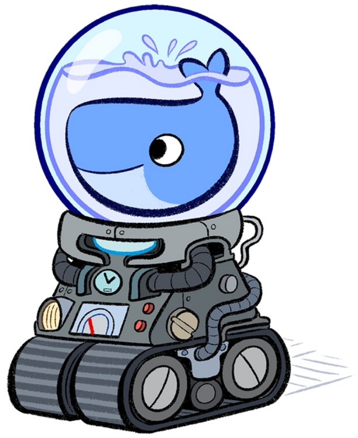
- Docker Compose allows defining multi-container application with all of its dependencies in a single file, then spin your application up in a single command.

DOCKER SWARM



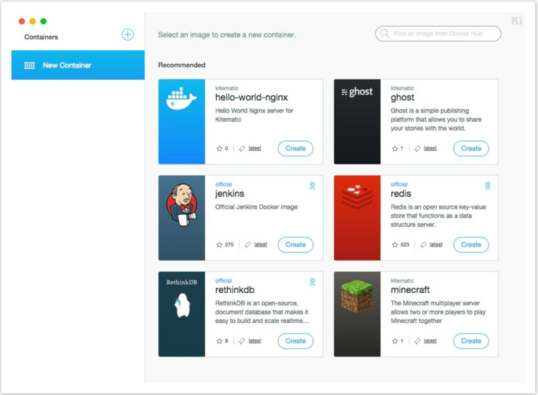
- Docker Swarm provides native clustering capabilities to turn a group of Docker engines into a single, virtual Docker Engine. With these pooled resources, you can scale out your application as if it were running on a single, huge computer.

DOCKER MACHINE



- Docker Machine automatically sets up Docker on your computer, on cloud providers, and inside your data center. Docker Machine provisions the hosts, installs Docker Engine on them, and then configures the Docker client to talk to the Docker Engines.

KITEMATIC



Select an image to create a new container.

kitematic
hello-world-nginx
Hello World Nginx server for Kitematic
☆ 0 | latest Create

kitematic
ghost
Ghost is a simple publishing platform that allows you to share your stories with the world.
☆ 1 | latest Create

official
jenkins
Official Jenkins Docker image
☆ 275 | latest Create

official
redis
Redis is an open source key-value store that functions as a data structure server.
☆ 523 | latest Create

official
rethinkdb
RethinkDB is an open-source, document database that makes it easy to build and scale realtime...
☆ 8 | latest Create

kitematic
minecraft
The Minecraft multiplayer server allows two or more players to play Minecraft together
☆ 1 | latest Create

- Kitematic is a completely automated process that installs and configures the Docker environment on your machine. Build and run containers through a simple, yet powerful graphical user interface (GUI).

DOCKER INTRODUCTION: REVIEW

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DOCKER INTRODUCTION: REVIEW

- Docker benefits & advantages
- Docker use cases
- Docker Hub and Registry, Engine, Compose, Swarm, Machine, Kitematic

DOCKER INTRODUCTION: EXERCISE

Docker Introduction: Exercise