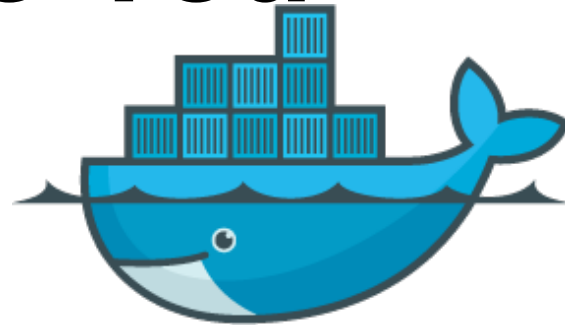


who

Do You



docker

Thomas Hansen  
CEO & Co-Founder  
whoGloo, Inc.



# Introduction

---

Thomas Hansen

CEO & Co-Founder of whoGloo, Inc.

- Working with OpenEdge since 1995
- Working with Docker since 2014 :-)
  - Using Docker to build the nodeGloo platform
  - Using Docker for internal and customer OpenEdge environments



# What is Docker?

---

## Docker Engine

- CLI
- Docker Daemon
- Docker Registry



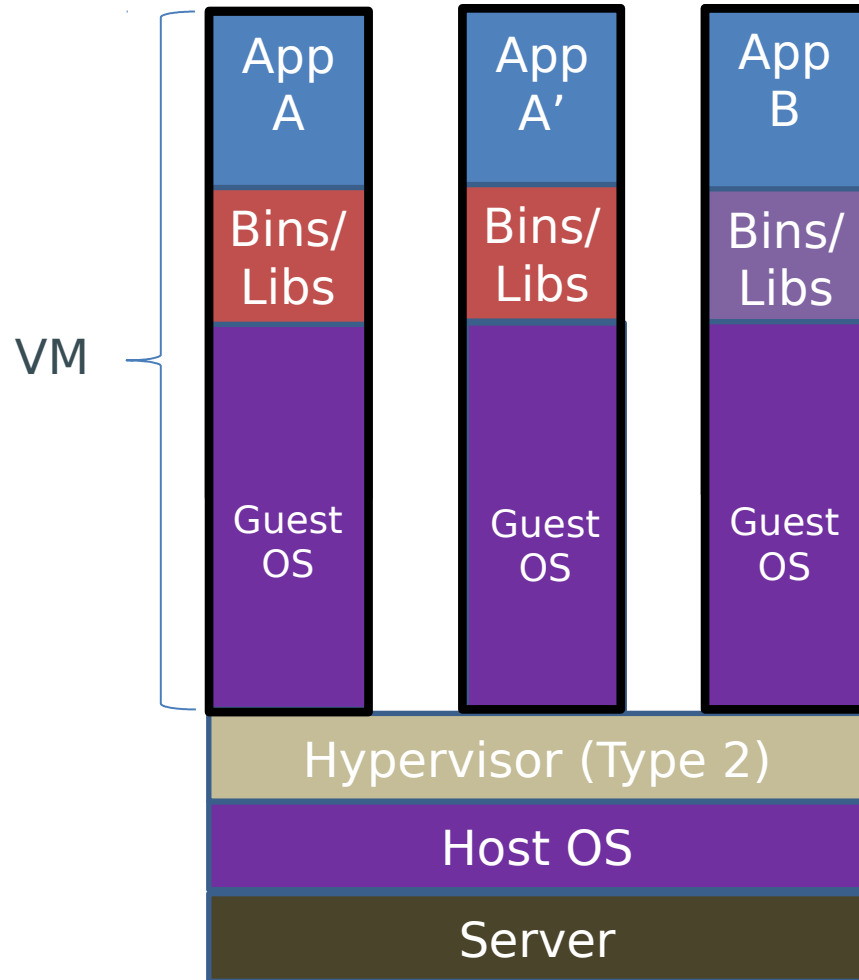
docker

## Docker Hub

- Cloud service (registry)
- Share Applications
- Automate workflows
- Assemble apps from components

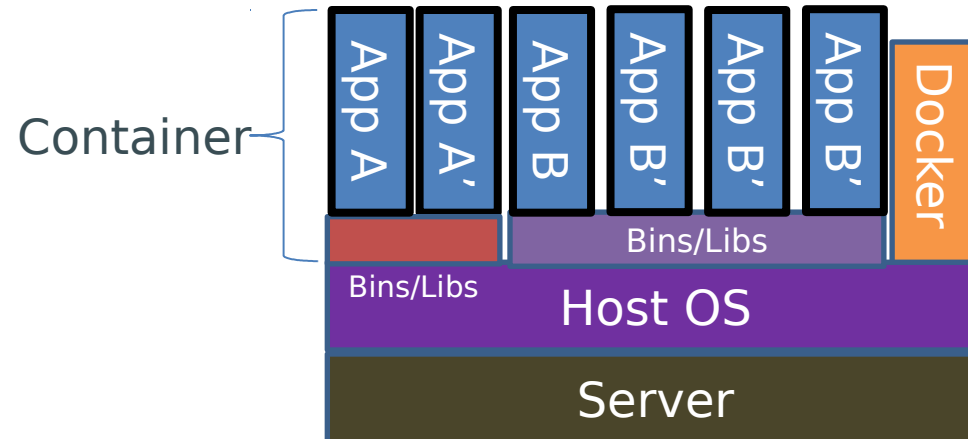


# Containers vs. VMs



Containers are isolated, but share OS and, where appropriate, bins/libraries

...result is significantly faster deployment, much less overhead, easier migration, faster restart



# Docker - shipping container system for code

Static website   User DB   Web frontend   Queue   Analytics DB

Multiplicity of Stacks

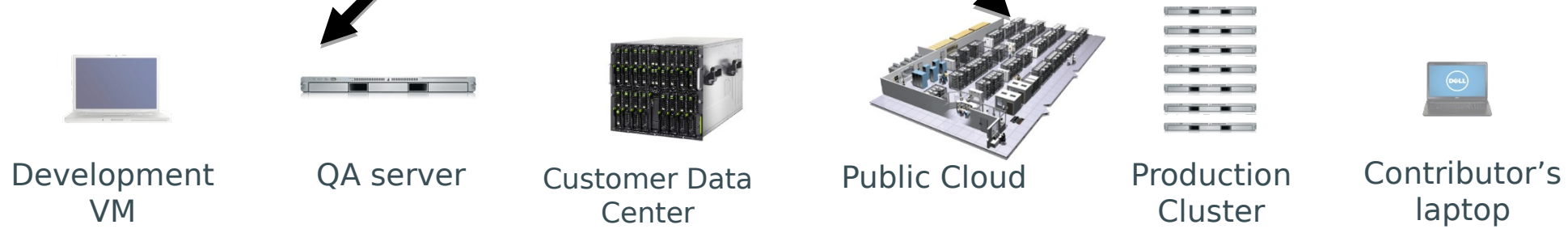
An engine that enables any payload to be encapsulated as a lightweight, portable, self-sufficient container...



Do services and apps interact appropriately?

...that can be manipulated using standard operations and run consistently on virtually any hardware platform

Can I migrate smoothly and quickly



Multiplicity of hardware environments



# Getting started

---

- Start with supported OS (linux)
- Install Docker
- Build or pull the images you need
- Configure, create and run single containers or clusters of containers



# Docker Container & Image lifecycle

---

BUILD an **Image** from a **Dockerfile**

PUSH an **Image** to repository

PULL an **Image** from repository

RUN (create+start) a **container**

COMMIT (persist) a **container** to a new **image**



# Docker Container & Image lifecycle...

---

STOP a running **container**

START a stopped **container**

RM (delete) a stopped **container**

RMI delete a **image** from the local image cache





# Dockerfile

---

- Like a Makefile (shell script with keywords)
- Extends from a Base Image
- Results in a new Docker Image
- Many pre-built images publicly available



# Dockerfile example

---

```
FROM centos
```

```
MAINTAINER Thomas Hansen (thomas@whogloo.com)
```

```
RUN yum -y install openssh-server
```

```
EXPOSE 22
```

```
ADD start.sh /start.sh
```

```
CMD /start.sh
```



# Docker Registry

---

- 
- Public and private registries
- Public and private images



# Docker Hub

[Browse Repos](#)[Documentation](#)[Community](#)[Help](#) [asthomas](#) ▼

## Official Repositories



redis

ubuntu  The Official Ubuntu base image



WordPress is a free and open source blogging tool and a content management system



Popular open-source relational database management system



Document-oriented NoSQL database



Official CentOS base image



High performance reverse proxy server



Relational database management system



Node.js is a platform for scalable server-side and networking applications



# Docker Hub

[Browse Repos](#)[Documentation](#)[Community](#)[Help](#)[asthomas](#) [whogloo](#) [Repositories](#)

## Your Repositories

[+ Add Repository](#)

Show:



Sort by:

**whogloo/appserver115**

6 days ago

OpenEdge AppServer 11.5 with built in TomCat



0



13

**whogloo/openedge115**

8 days ago

OpenEdge 11.5 Standard build from whogloo/supervisor image



0



23



# Using Docker

---



# docker run

---

```
$ docker run -it --rm ubuntu bash
```

```
$ docker run
```

```
-d
```

```
-p 9000:9000
```

```
--privileged
```

```
-v /var/run/docker.sock:/var/run/docker.sock
```

```
dockerui/dockerui
```



# docker run...

---

```
$ docker ps
```

```
$ docker ps -a
```

```
$ docker inspect
```

```
$ docker logs <container name>
```





# docker stop and start

---

```
$ docker stop <container name>  
$ docker start <container name>
```



# Removing containers and images

---

```
$ docker rm <container name>
```

```
$ docker rmi <image name>
```



# docker exec

---

Launch a process inside a running container:

```
$ docker exec -it <container name> bash
```

```
$ docker exec -it <container name> ls /opt/app
```



# Need OpenEdge?

---

- Need OpenEdge to run database, AppServer, WebSpeed?
  - Install Docker
  - Pull image
  - Configure
  - Run



# OpenEdge & Docker

---

- Quickly pull and use OpenEdge on any supported platform
  - **No installation required!**
- Run & maintain databases
- Run AppServers
- Run WebSpeed
- Execute ad-hoc OpenEdge jobs



# OpenEdge 11.5 - Dockerfile

---

```
FROM whogloo/centos
MAINTAINER Thomas Hansen (whoGloo)

ENV OE_VERSION=115
ENV DLC=/usr/openedge${OE_VERSION}
ENV PROCFG=/license/progress.cfg
ENV OEM_HOME=/usr/oemgmt${OE_VERSION}
ENV WRKDIR=/usr/wrk/${OE_VERSION}
ENV OEMWRKDIR=/usr/wrk/${OE_VERSION}
ENV PATH=$DLC:$DLC/bin:$PATH

# Copy the OE installation into the image
COPY /tmp/usr/openedge115 /usr/openedge115
COPY /tmp/usr/oemgmt115 /usr/oemgmt115
COPY /scripts /opt/scripts
COPY license /license

...
Install apache, tomcat, ...
...
```



# AppServer 11.5 - Dockerfile

---

```
FROM whogloo/openedge115
```

```
MAINTAINER Thomas Hansen (thomas@whogloo.com)
```

```
# supervisor base configuration
```

```
COPY supervisor/conf /etc/supervisor/conf.d/
```

```
COPY tomcat /opt/tomcat
```

```
COPY adminservice-config /usr/openedge115/properties
```

```
COPY scripts /opt/scripts
```

```
COPY properties /opt/properties
```

```
RUN chmod +x /opt/tomcat/bin/*.sh
```

```
ENV AdminServicePropsDir /opt/adminservice-config
```

```
ENV CATALINA_HOME /opt/tomcat
```

```
ENV CATALINA_BASE /opt/tomcat
```

```
WORKDIR /usr/wrk/115
```

```
EXPOSE 8080 9090
```



# WebSpeed 11.5- Dockerfile

---

```
FROM whogloo/openedge115
MAINTAINER Thomas Hansen (thomas@whogloo.com)

RUN yum install -y apache2

# Add scripts
COPY cgi-bin /usr/lib/cgi-bin/
COPY scripts /opt/scripts/

# Set scripts permissions and create necessary directories
RUN chmod +x /opt/scripts/*.sh && \
    cp /usr/openedge115/bin/cgiip /usr/lib/cgi-bin/ && \
    mkdir -p /var/log/supervisor /var/lock/apache2 /var/run/apache2 /opt/config && \
    chmod +x /usr/lib/cgi-bin/*

# Expose the ports we need - port 80 for apache and 9090 for OE Admin Server
EXPOSE 80 9090
```





# OpenEdge Demo

---



# OpenEdge 11.5 in Docker examples

---



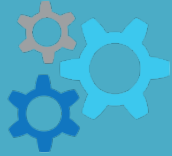
# Example – Roundtable Cluster

---

- **rtb-demo-db** (database)
- **whogloo/openedge115**
- **nodeable/roundtable:11.4** (rtb application code)
- **rtb-ws** (data container with workspaces - rw)  
Mounted with host directory – also needs external access
- **whogloo/appserver115**



# Roundtable TSMS Server



RTB TSMS Server



```
#Roundtable TSMS Server Core image
```

```
FROM busybox
```

```
MAINTAINER Thomas Hansen (whogloo) "thomas@whogloo.com"
```

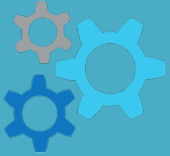
```
VOLUME /opt/apps/roundtable
```

```
COPY /roundtable/114 /opt/apps/roundtable
```

- Data container with core RTB server
- Encrypted source & r-code
- Built from RTB 11.4 installation on Linux



# Roundtable Repository



RTB Repository



```
#Roundtable TSMS Server Core image
```

```
FROM busybox
```

```
MAINTAINER Thomas Hansen "thomas@whogloo.com"
```

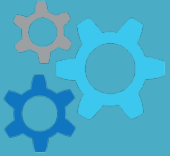
```
VOLUME /opt/db/roundtable
```

```
COPY /db/roundtable /opt/db/roundtable
```

- Data container with RTB repository
- (OpenEdge database)
- 2 base versions:
  - Empty schema only repo
  - RTB Demo



# Roundtable OpenEdge AppServer



## AppServer



```
$ docker pull whogloo/openedge114



$ docker run -d
  --volumes-from rtb-tsms-server
  --link rtb-db:db
  ...
whogloo/openedge114
```

- Using standard whogloo/openedge114 docker image
  - Using appserver config from rtb-tsms-server
  - Using database from rtb-db




# Roundtable TSMS in Docker



RTB Clients





appserver115:latest





Openedge115:latest



rtb-db-demo:11.4



rtb114:11.4



# Docker Pros

---

- Fast, flexible & scalable
- Huge traction – changes and tools coming out all the time
- Abstraction of services into micro services
- Image layers
- Runs on many platforms – even Raspberry Pi!
- Content and hardware agnostic
- Separation of duties





# Docker Cons

---

- Keep an eye on disk space!
- Concepts can be complicated to start with
- Lack of graphical tools – command line
- Lack of dynamic port exposure
- Many containers to keep track of
- Not available on Windows - yet



# Example – nodegloo

---

- Complete OpenEdge enabled cloud based development environment
- Containers
  - **whogloo/nodegloo-oe-cloud**
    - Node.js
    - OpenEdge
  - **nodegloo-dev-data**
  - **openedge-data**
  - **mongodb**



# Questions?

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[thomas@whogloo.com](mailto:thomas@whogloo.com)



# References

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- <https://www.docker.com/>
- <http://docs.docker.com>
- <https://github.com/docker/machine>
- <https://github.com/docker/swarm>
- <https://github.com/docker/docker/issues/9694>

