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Introduction To Docker

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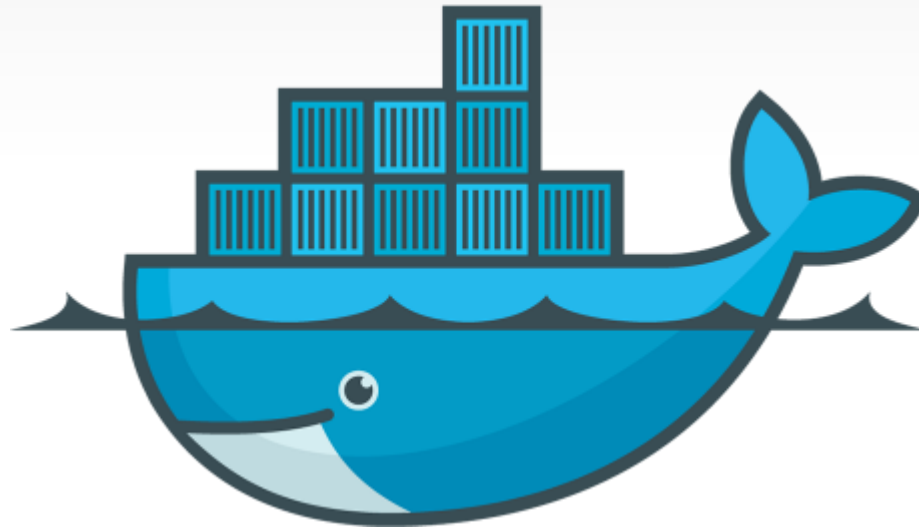
The Challenge

The Matrix From Hell

	Development VM	QA Server	Single Prod Server	Onsite Cluster	Public Cloud	Contributor's laptop	Customer Servers
Static website	?	?	?	?	?	?	?
Web frontend	?	?	?	?	?	?	?
Background workers	?	?	?	?	?	?	?
User DB	?	?	?	?	?	?	?
Analytics DB	?	?	?	?	?	?	?
Queue	?	?	?	?	?	?	?

docker

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The Solution

Docker eliminates the matrix from Hell
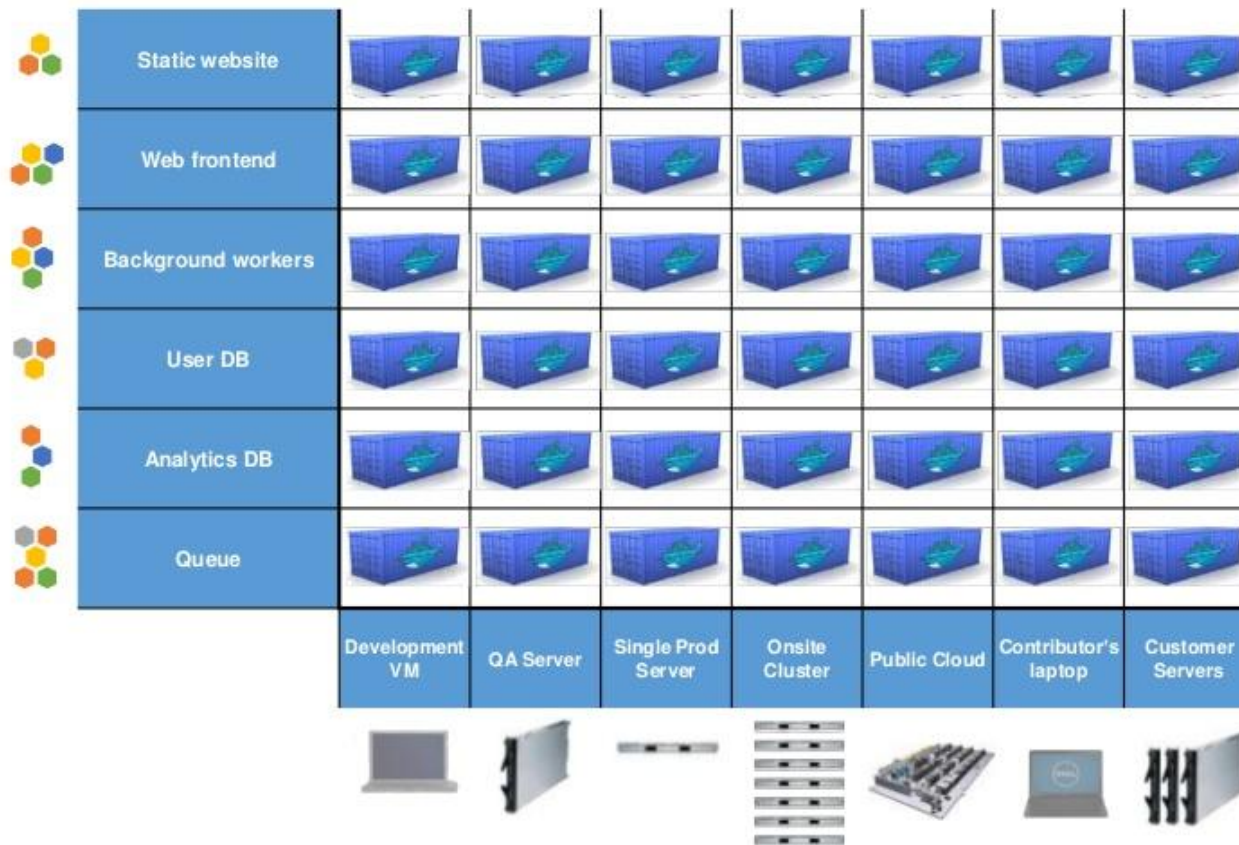
Why Docker?

- Build

- Ship

- Run

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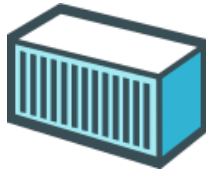
Docker vs Virtual Machines

VM	Docker

VM side:
- App A
- Bins/Libs
- Guest OS
- App B
- Bins/Libs
- Guest OS
- Hypervisor
- Host OS
- Server

Docker side:
- App A
- Bins/Libs
- App B
- Bins/Libs
- Docker Engine
- Host OS
- Server

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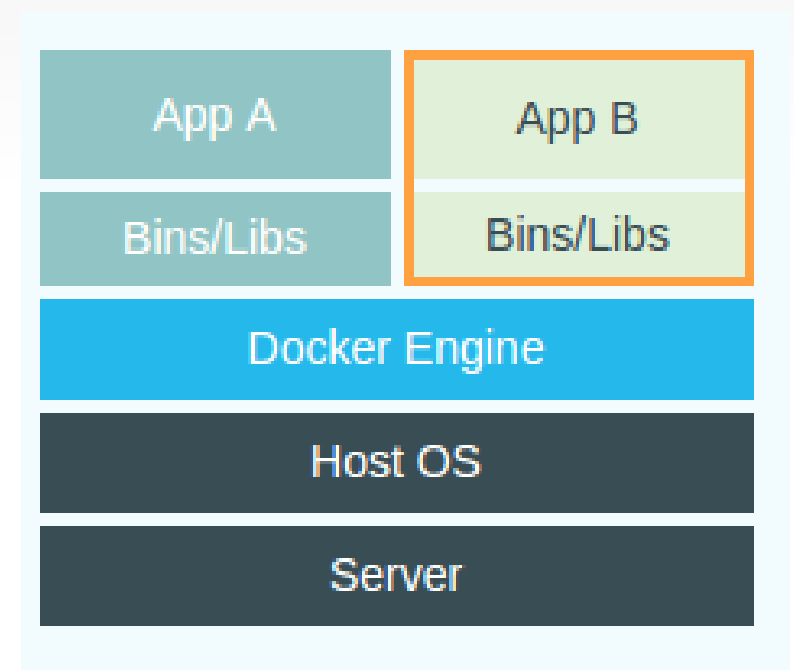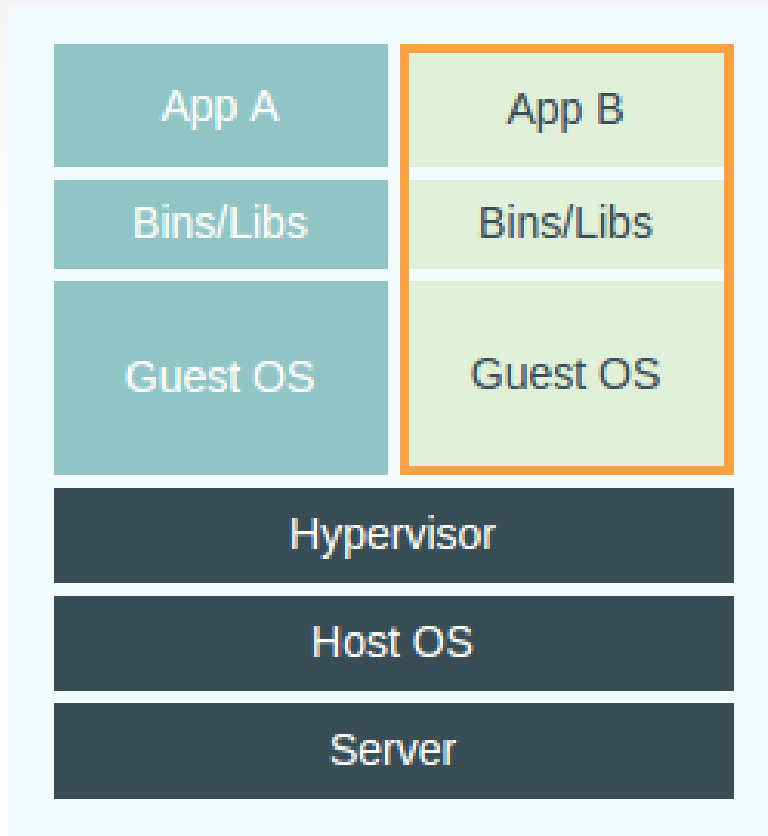
Process vs Container

- Linux kernel features

→ Kernal namespaces

→ Control groups (cgroups)

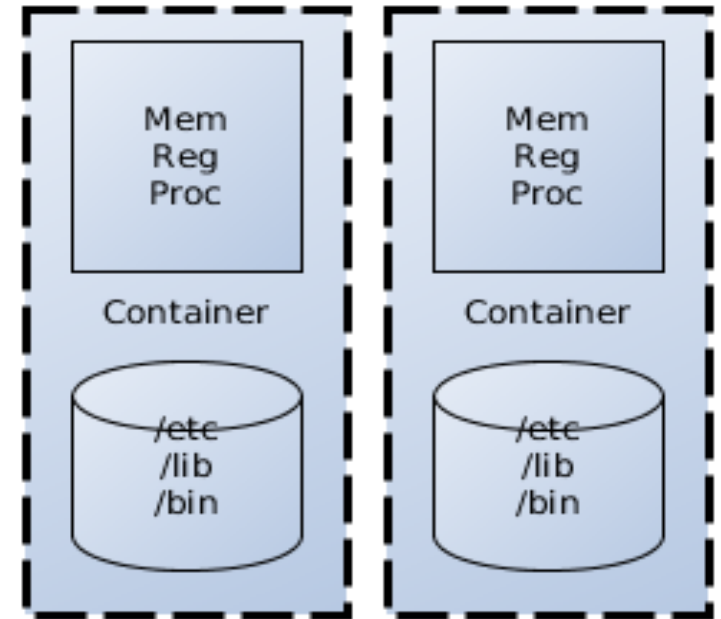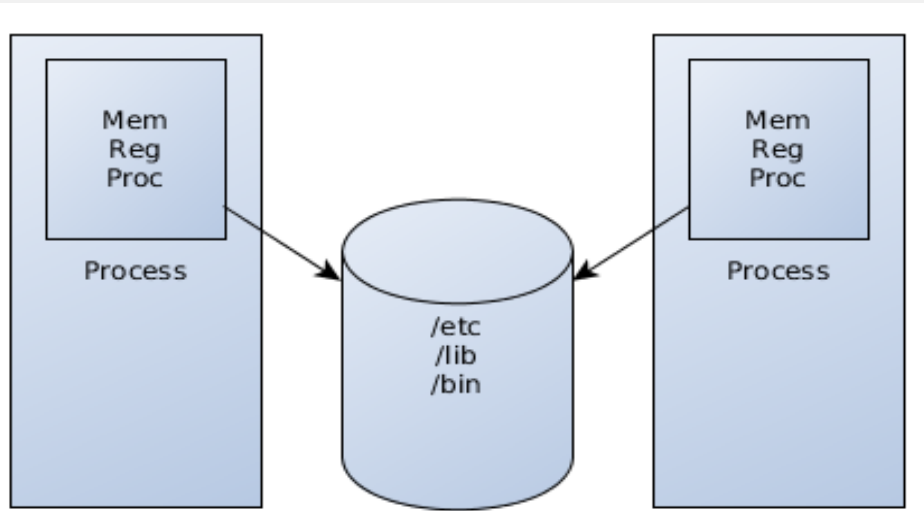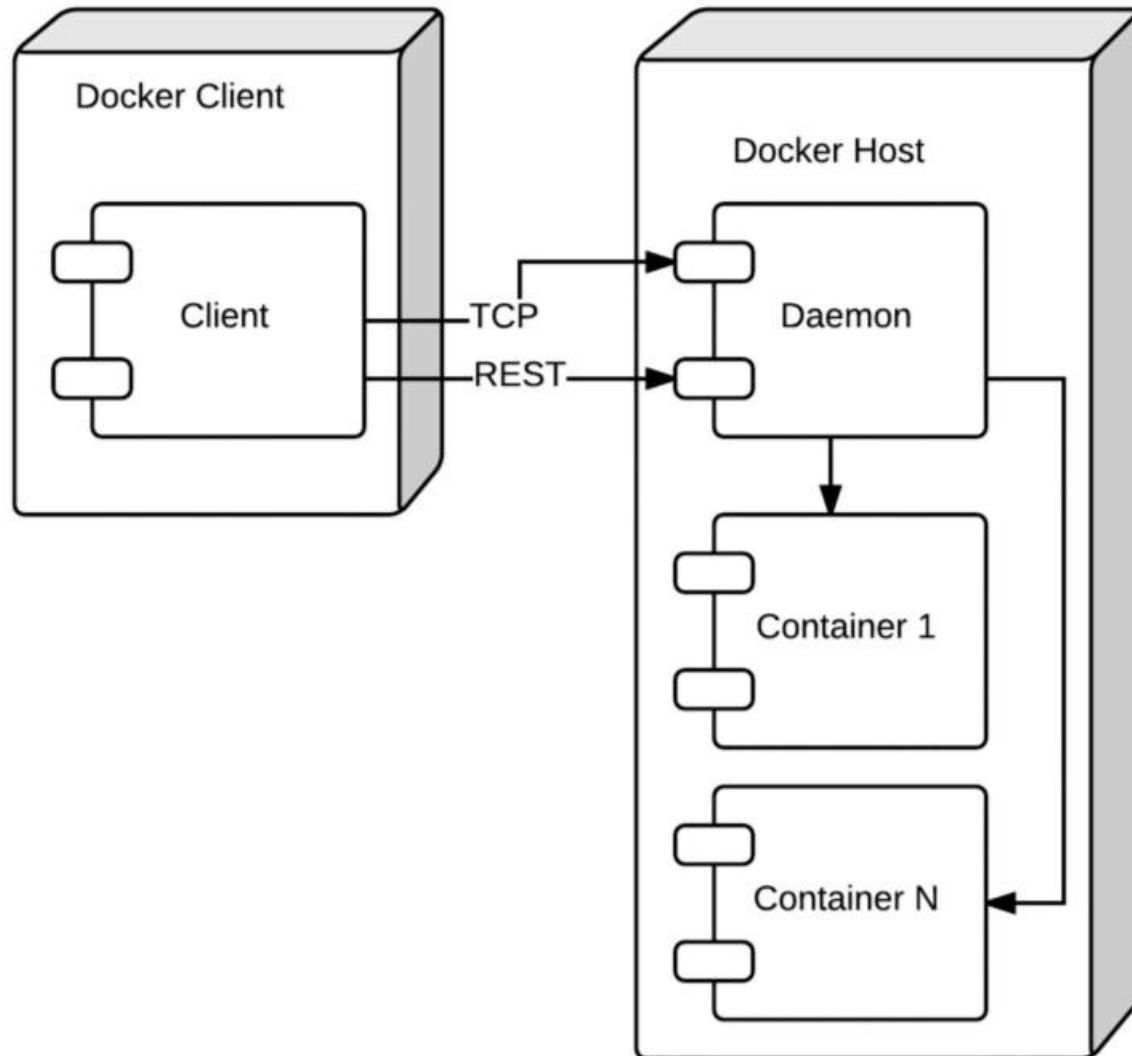# The Docker Architecture

Setting up Docker

https://docs.docker.com/installation/

- Ubuntu 14.04

  - $ sudo apt-get update

  - $ sudo apt-get install docker.io

- Windows

  - Using Boot2Docker*

- Mac Osx

  - Using Boot2Docker*

-

  *Boot2Docker (~24Mb lightweight linux distribution)

Docker CLI Commands

- search

- run

- ps

- start

- stop

- restart

- rm

- rmi

- kill
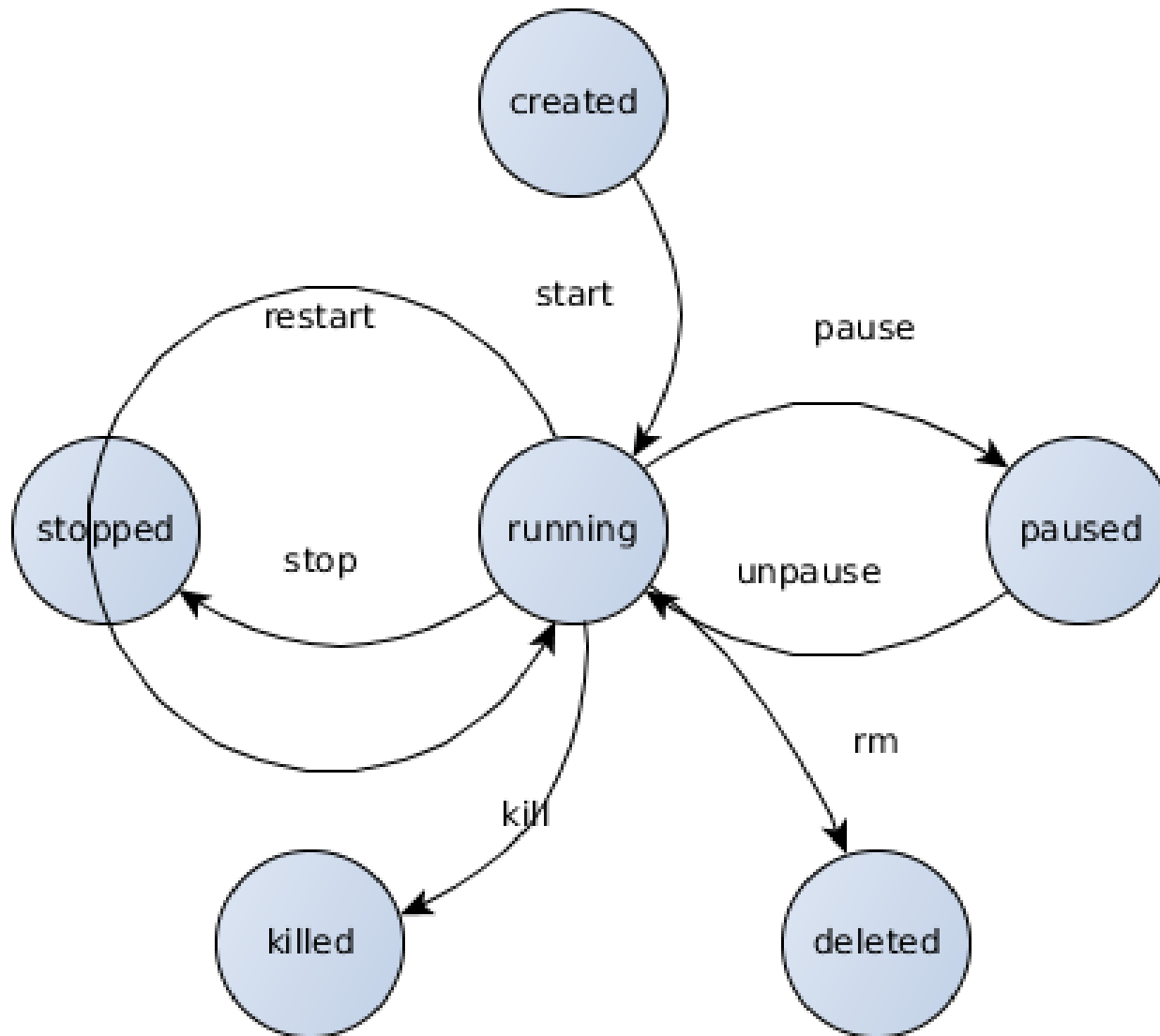
- commit

- pull

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Docker CLI Examples

- Creating a simple container from an image
  - `docker run -i -t ubuntu:14.04 /bin/bash`
- Listing containers
  - `docker ps`
- Stop container
  - `docker stop <container hash>`
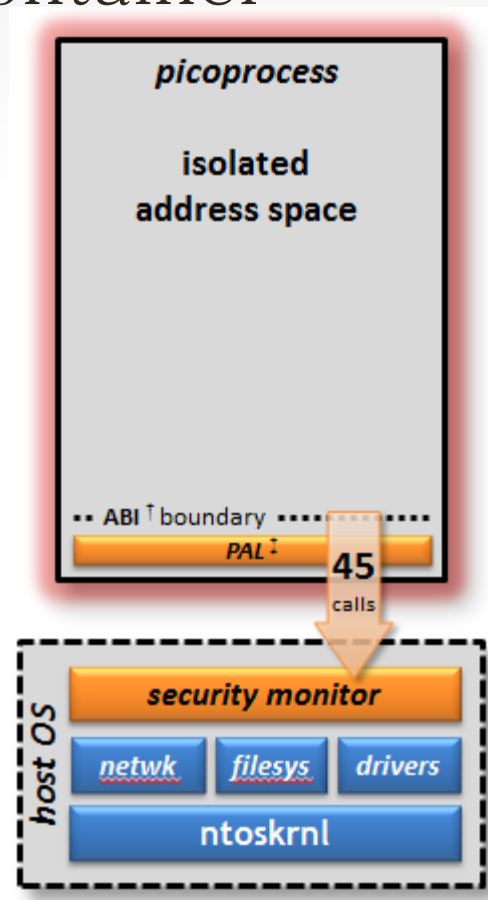- Remove container
  - `docker rm <container hash>`

Container Lifecycle

MS Native Alternatives

- Drawbridge – Still in research level
  - picoprocess = container

Use Cases

- Easy application deployment
- Continuous Integration
- Continuous Delivery

Q&A

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Demo