Containers

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Disclarimer!

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Introduction

Container engines

Docker

Summary



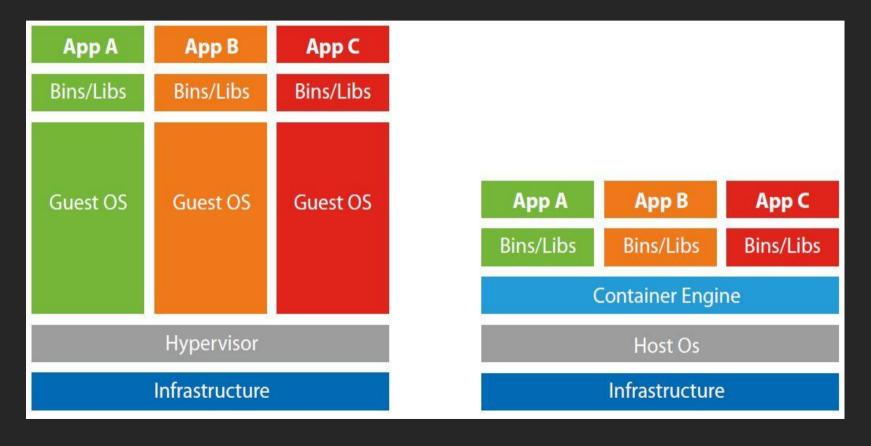
Introduction: Purpose I (resource utilization)

LXC

From Wikipedia, the free encyclopedia

LXC (**Linux Containers**) is an operating-system-level virtualization method for running multiple isolated Linux systems (containers) on a control host using a single Linux kernel.

Introduction: Purpose I (resource utilization)



Introduction: Purpose II (packaging & shipping)



What are Linux containers?

Linux containers are technologies that allow you to package and isolate applications with their entire runtime environment—all of the files necessary to run. This makes it easy to move the contained application between environments (dev, test, production, etc.) while retaining full functionality.

Introduction: Purpose II (packaging & shipping)

The Matrix From Hell

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Container engines

- Key comparison factors
 - -Security
 - -Ease of use
 - –Productivity tools
 - -Community adoption
 - **—..**.
- ❖ Docker is currently the De facto!







A security-minded, standards-based container engine



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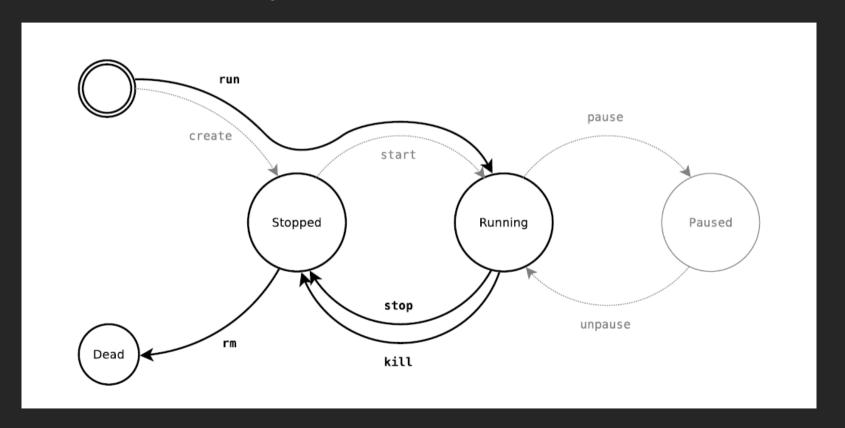
Docker: Basic concepts

- ❖ Docker engine
 - A container runtime
 - —Needs sudo rights by default
- *Images: incrementally updated templates starting from a "base-os"
- Container: running instances based on images
- ❖ Docker file: for building images
- Dockerhub: a cloud service for sharing docker images and recopies

Docker: Getting started

- Installation (https://docs.docker.com/install/)
 - \$ sudo apt install docker.io (or equivalent)
- Easy runs
 - \$ docker search 'something' #searches dockerhub by default
 - \$ docker run hello-world
 - \$ docker images
 - \$ docker ps -a

Docker: Life cycle of a container



Docker: More . . .

```
interactive
$ docker run -t -i debian bash
$ whoami
inspection
$ docker ps [-a]
```

garbage collection

```
$ docker ps -a
$ docker rm $(docker ps -aq) - caution!
$ docker images
$ docker rmi image:name
```

*dig more . . . (http://people.irisa.fr/Anthony.Baire/docker-tutorial.pdf)

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