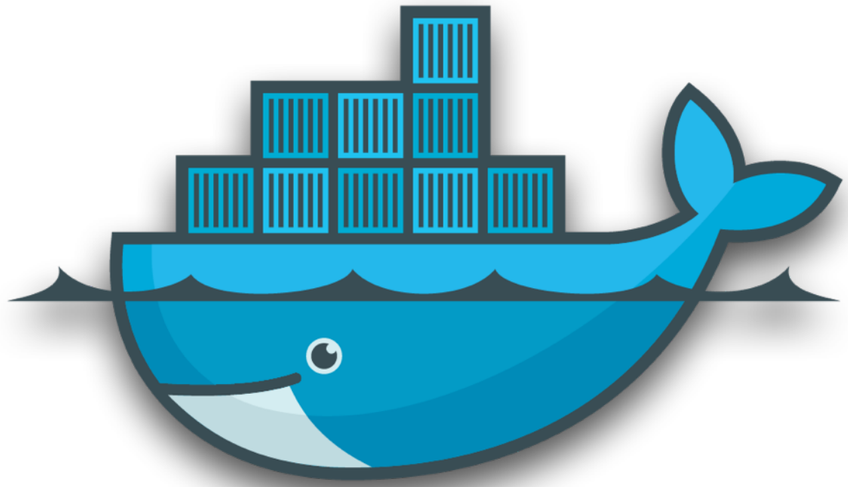


docker

WAJUG

Gildas Cuisinier

[sfeir]

Gildas Cuisinier

[≡] Sfeir Benelux

@gcuisinier

spring by Pivotal

amazon web services™

docker

DEVOPS

<YAJUG>

https://voxxeddays.com/luxembourg/

VOXXED DAYS LUXEMBOURG

22 Juin

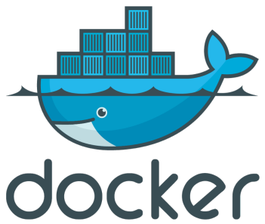
CFP-voxxed-lux.yajug.org

[sfeir]

Happy 3rd

Birthday Docker

2013 2014 2015 2016



0.1
2013-03-23
Première release publique

1.0.0
2014-06-09
Production ready

1.9.0
2015-11-03
Networking
Volume

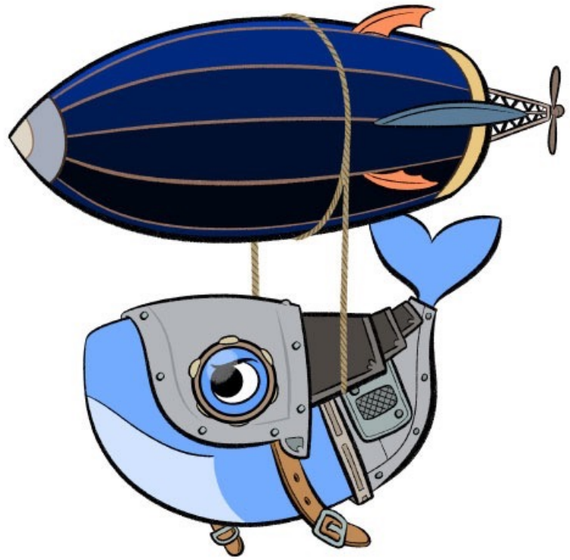
1.10
2016-02-04
Seccomp
User Namespaces

1.0.0
2014-10-16
Fig devient Docker-Compose

1.6.0
2016-01-15
Compose file 2.0

1.0.0
2015-10-13
Production Ready

1.1.0
2016-02-04
Production Ready



Pourquoi Docker ?

« Chez moi, ça marche ! »

IT avant

Monolithique

une grosse application, une technologie

Scalabitité verticale

Plus gros serveur

Cycle de vie très long

Grosse mise en production, peu fréquente

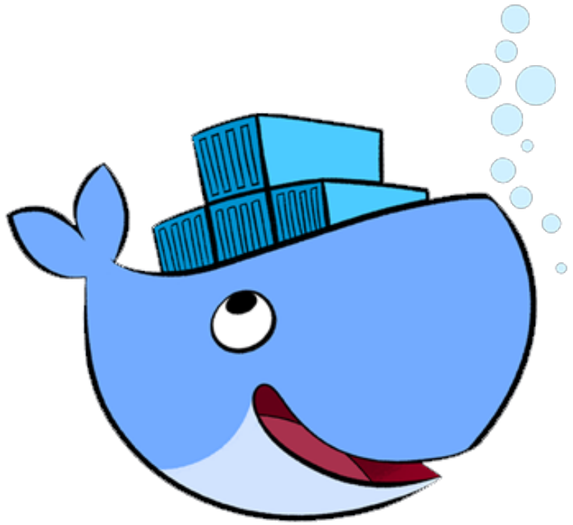
Et maintenant ?

Micro-Services, SOA, Distribuée

Plein de petites applications spécialisées

Plusieurs languages

Utilisation du plus adapté pour une tâche



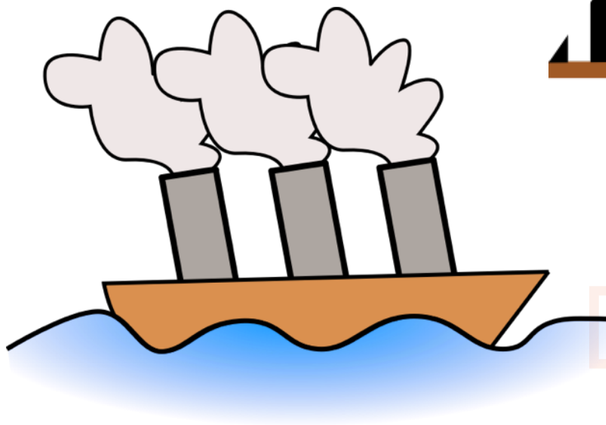
Scalabitité horizontale

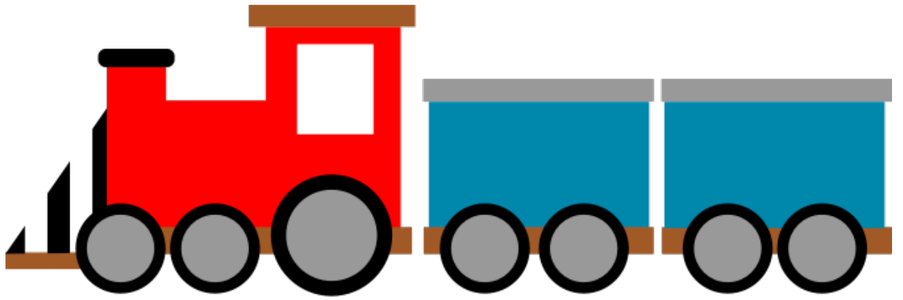
Plus de serveur en //

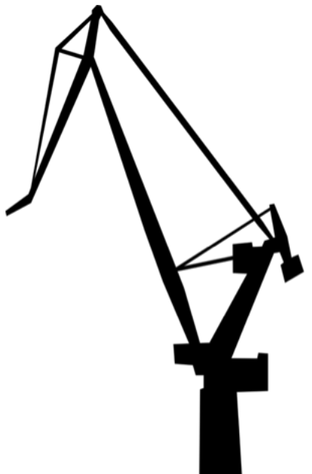
Cycle de vie court, itératif

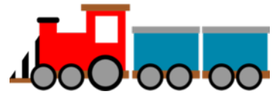
			vmware	amazon web services™
Java	?	?	?	?
php	?	?	?	?
RAILS	?	?	?	?
python	?	?	?	?

Analogie

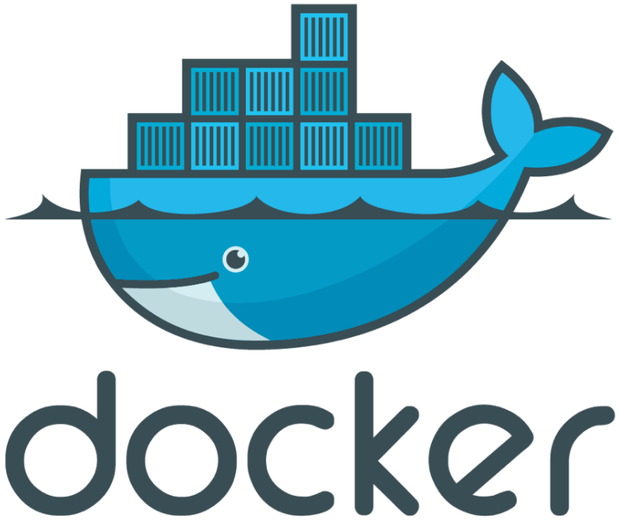






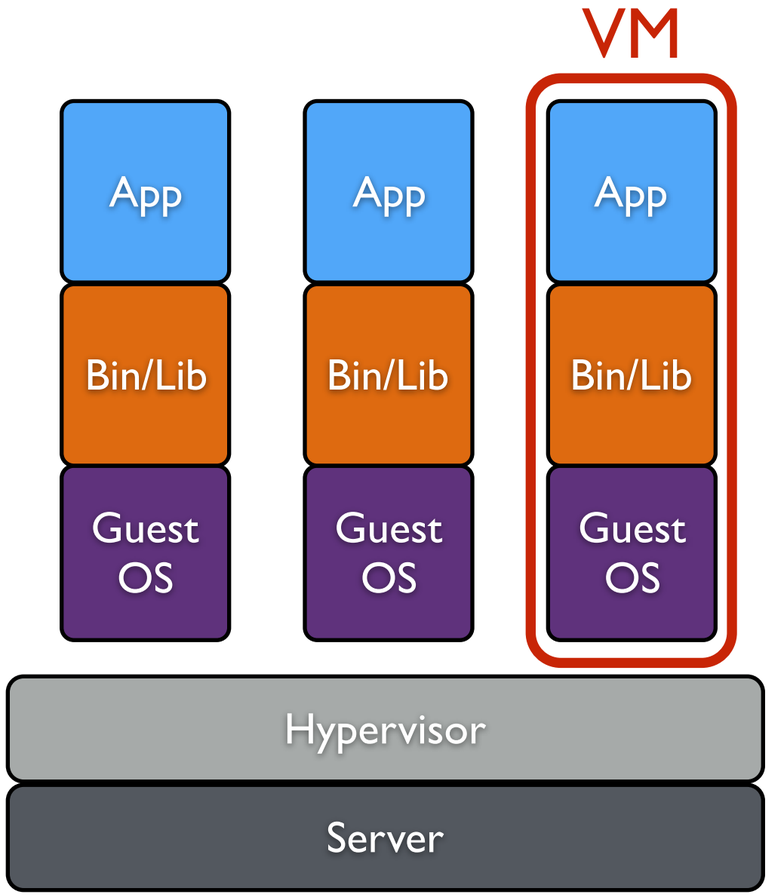
Java				
php				
RAILS				
python				

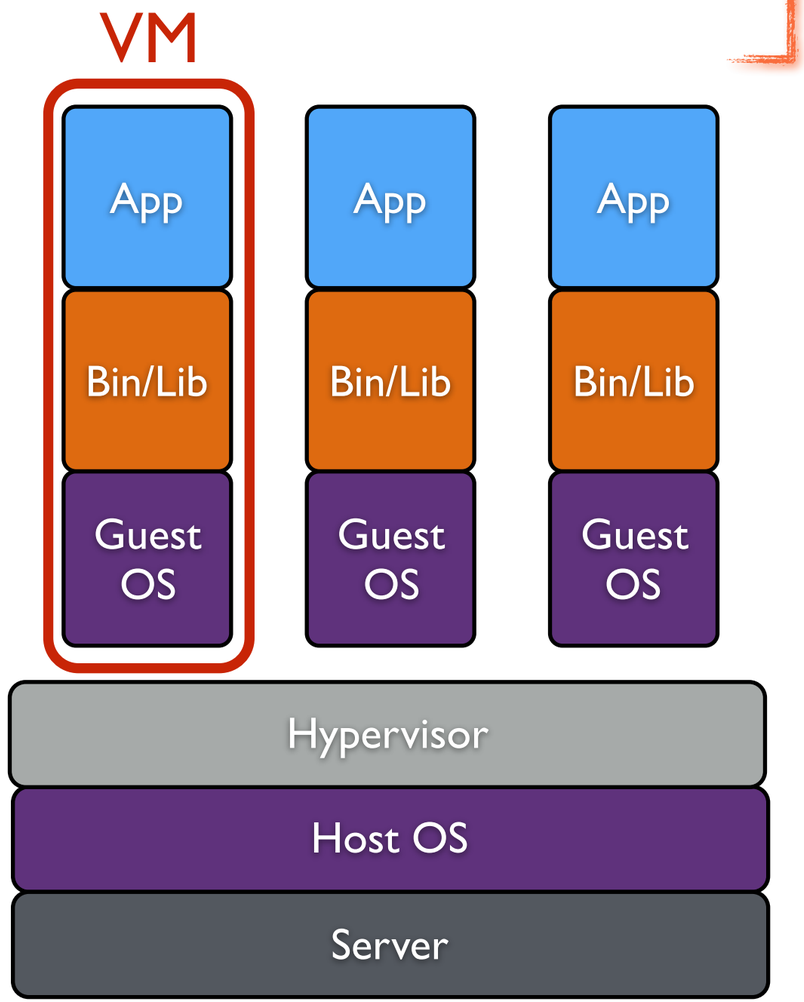


Qu'est-ce que Docker?

Container vs VM

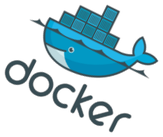
Virtual Machine

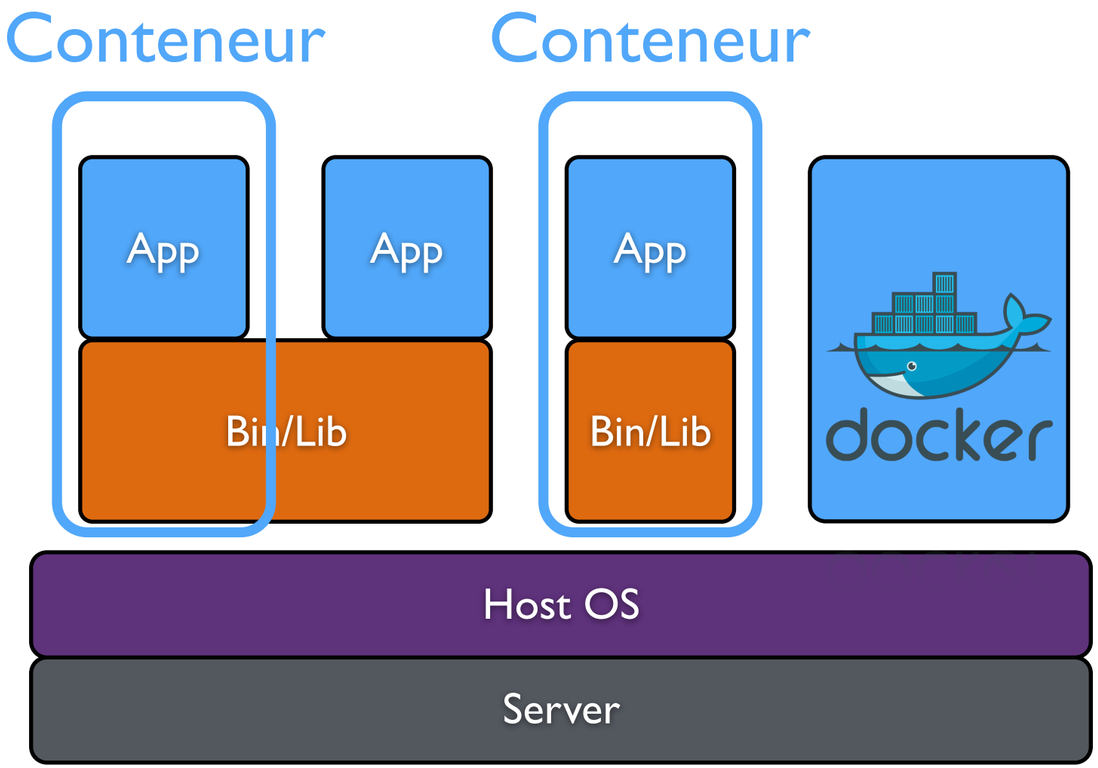




Container

avec des vrais morceaux de





Container

Léger

Taille(Container) < Taille(VM)
—> Transfert réseau plus rapide
Démarre plus rapidement

Performance

Pas d'overhead mémoire
Léger overhead réseau*

Isolation

* Utilisation de NAT dans le mode de réseau par défaut

Mais

Partage du Kernel

Uniquement Linux->Linux

Faille Kernel non isolée

Container = 1 process*

Attention aux dépendances sur syslog, cron, logrotate, ...

* Il est possible de lancer plusieurs processus fils

Docker ?
Une révolution ?!

Container

Concept pas vraiment neuf

Solaris Zone, BSD Jails, LXC

Orienté SysAdmin

Donc complexe ;-)

Docker

Orienté « Développeur »

Mécanisme de packaging, versioning

Partage / Ré-utilisation

import/export, registry, Docker Hub

API

Extension / Integration, Ecosystème

Docker

Linux

Engine

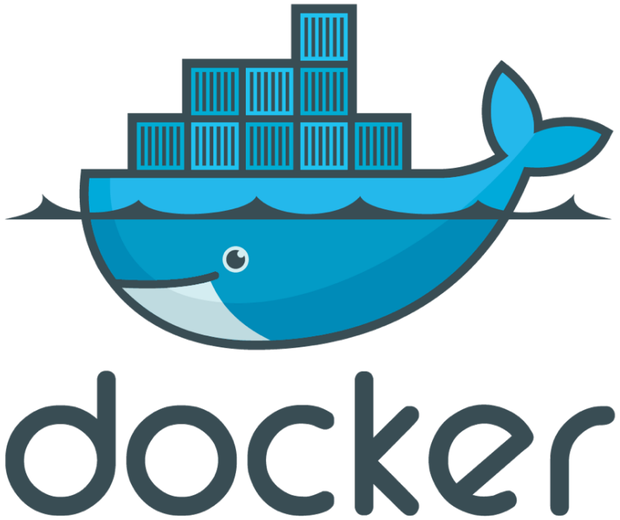
Windows

boot2docker + cli

Microsoft/Docker, work in progress -> Windows 10

OSX

boot2docker + cli



Les concepts

Fonctions du Kernel

CGroup + Namespaces

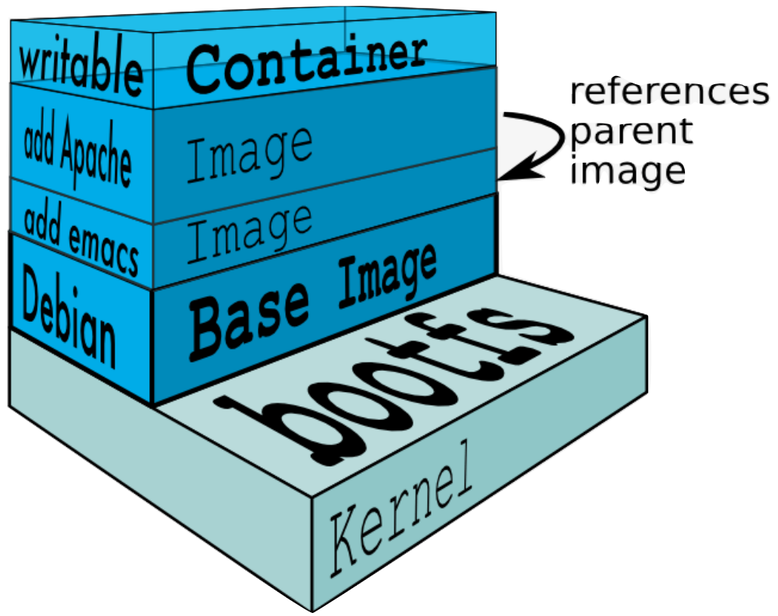
Contrôle des resources (CPU, Mémoire)
Isolation

Layers

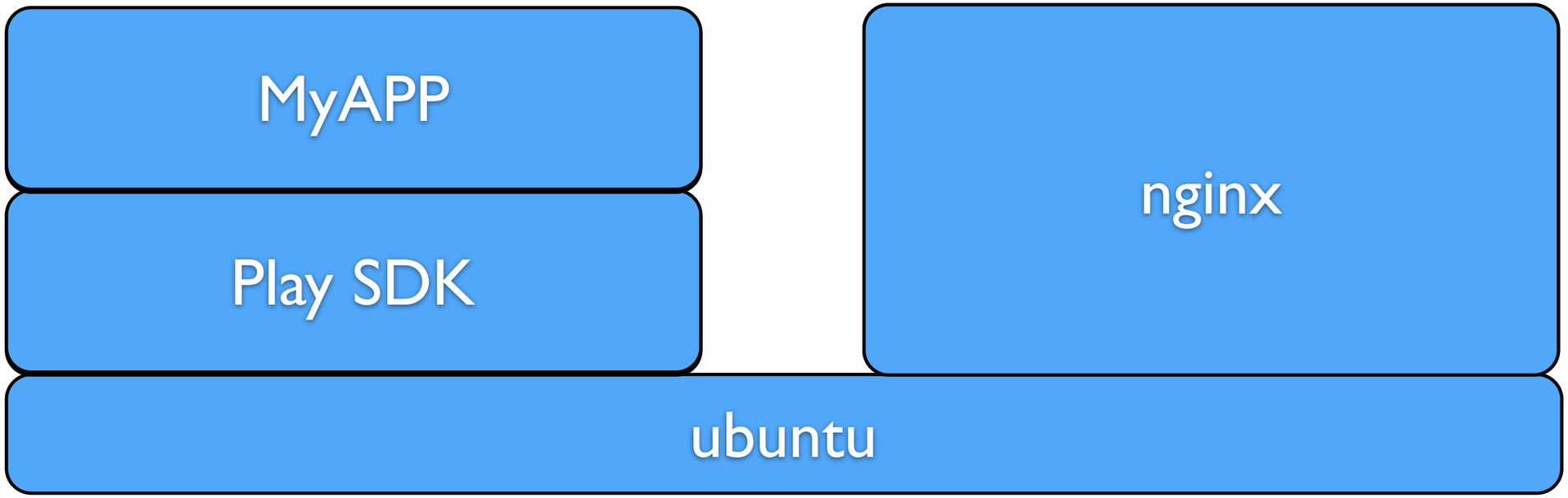
Copy on Write

AuFS, Device Mapper, BTRFS, Overlayfs

Permet des démarrages rapides

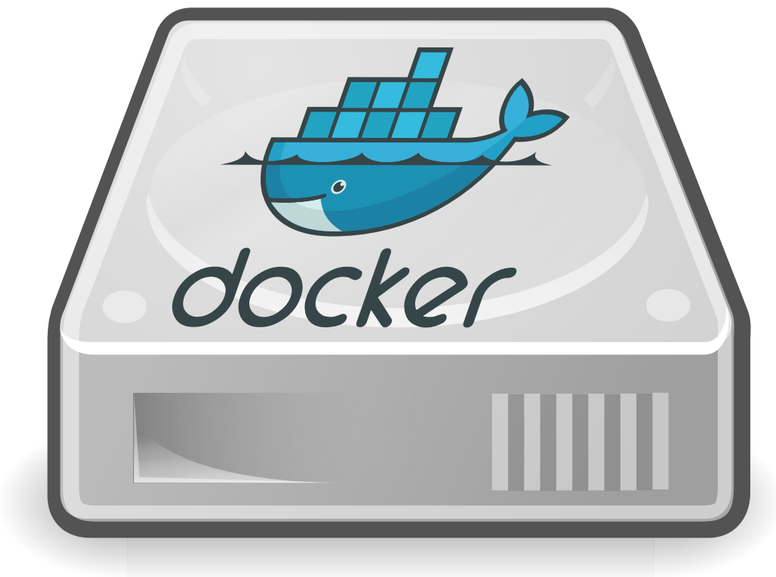


Layers



Volume

- Filesystem externe au conteneur
  Permet la persistance des données
- Partageable entre plusieurs conteneurs
- Extensible par des plugins
  NFS, AWS EBS, ...

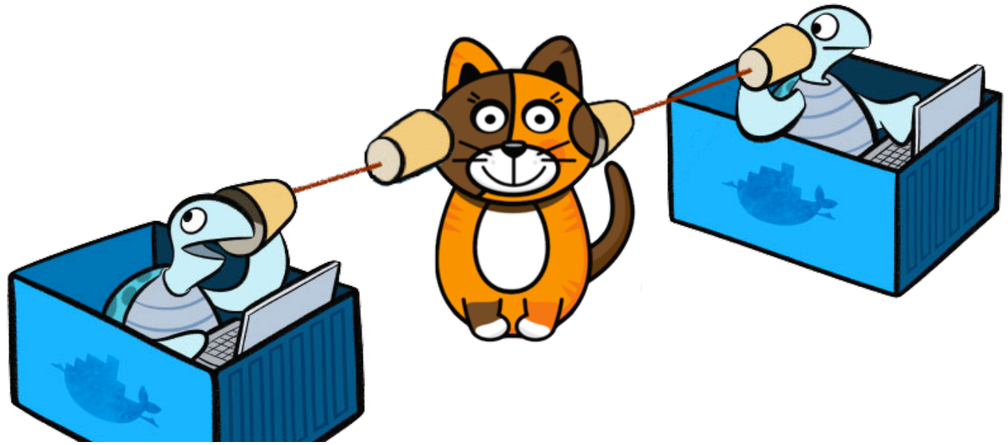


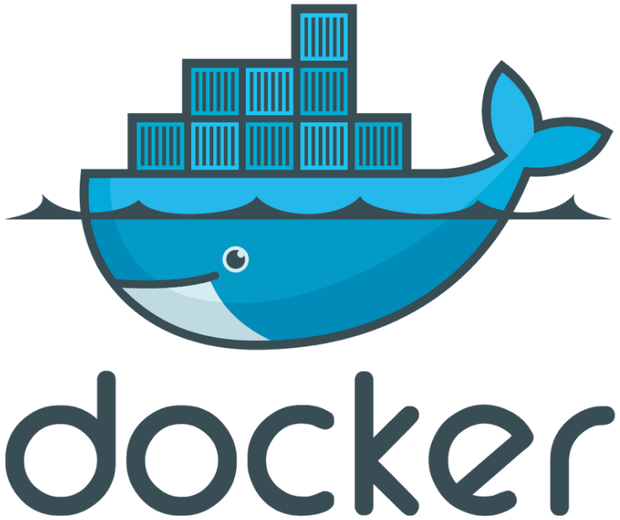
Network

- Réseau dédié
  Permet l'isolation d'un groupe de conteneur

- Out of the box : Host / Overlay
  Host : Réseau propre à un engine
  Overlay : Réseau accessible entre plusieurs nodes

- Extensible par des plugins
  Weave, Calico, ..





Dockerfile

Request-an-Inbox Dockerfile

```
FROM java:8-jdk
MAINTAINER Gildas Cuisinier<cuisinier.g@sfeir.lu>

RUN useradd -d "/opt/rai" -u 1000 -m rai
ADD request-an-inbox-0.0.1.jar ./

WORKDIR /opt/rai
USER rai

EXPOSE 8080

CMD java -jar request-an-inbox-0.0.1-SNAPSHOT.jar
```

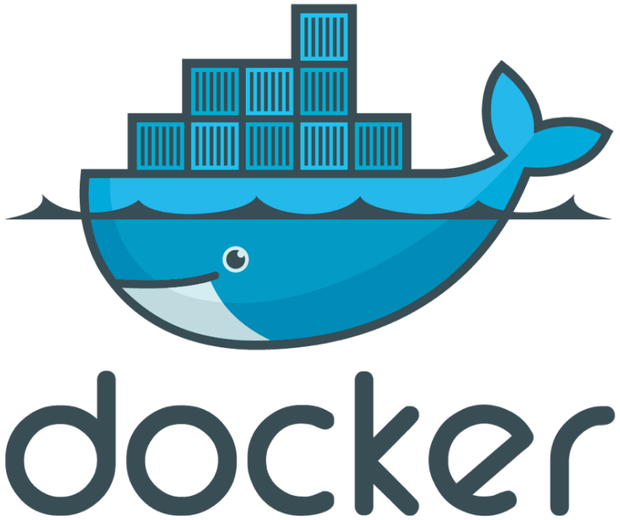
Docker Compose

anciennement
Fig

Request An Inbox

```
web:
  build: .
  ports:
   - "8080:8080"
  links:
   - db
  environment:
  - REDIS_HOSTNAME=db
  - SPRING_REDIS_HOST=db

db:
  image: redis
  command: redis-server
  volumes:
  - /Users/gcuisinier/Devel/opensource/
request.an.inbox/data:/data
```



Partage

DockerHub

Repository d'images

Modèle GitHub

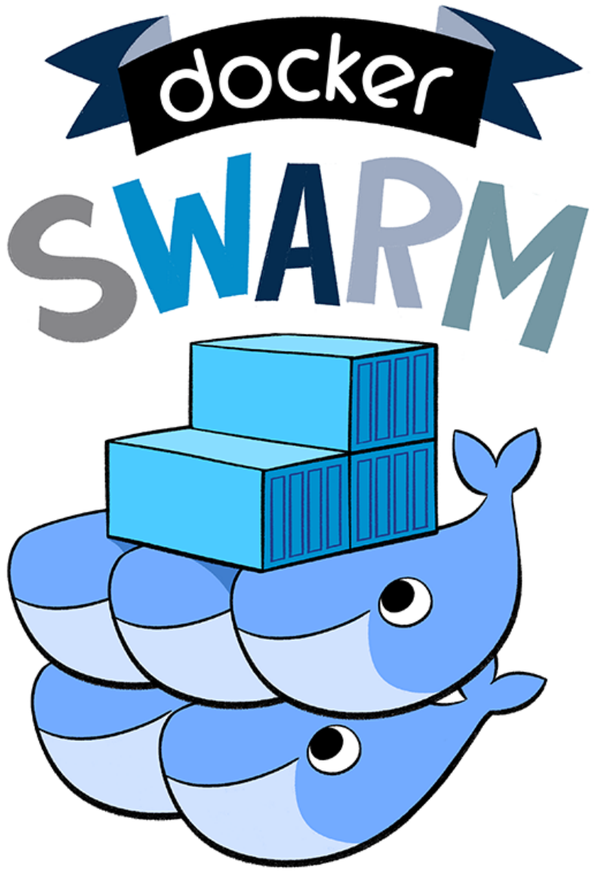
Automated Build

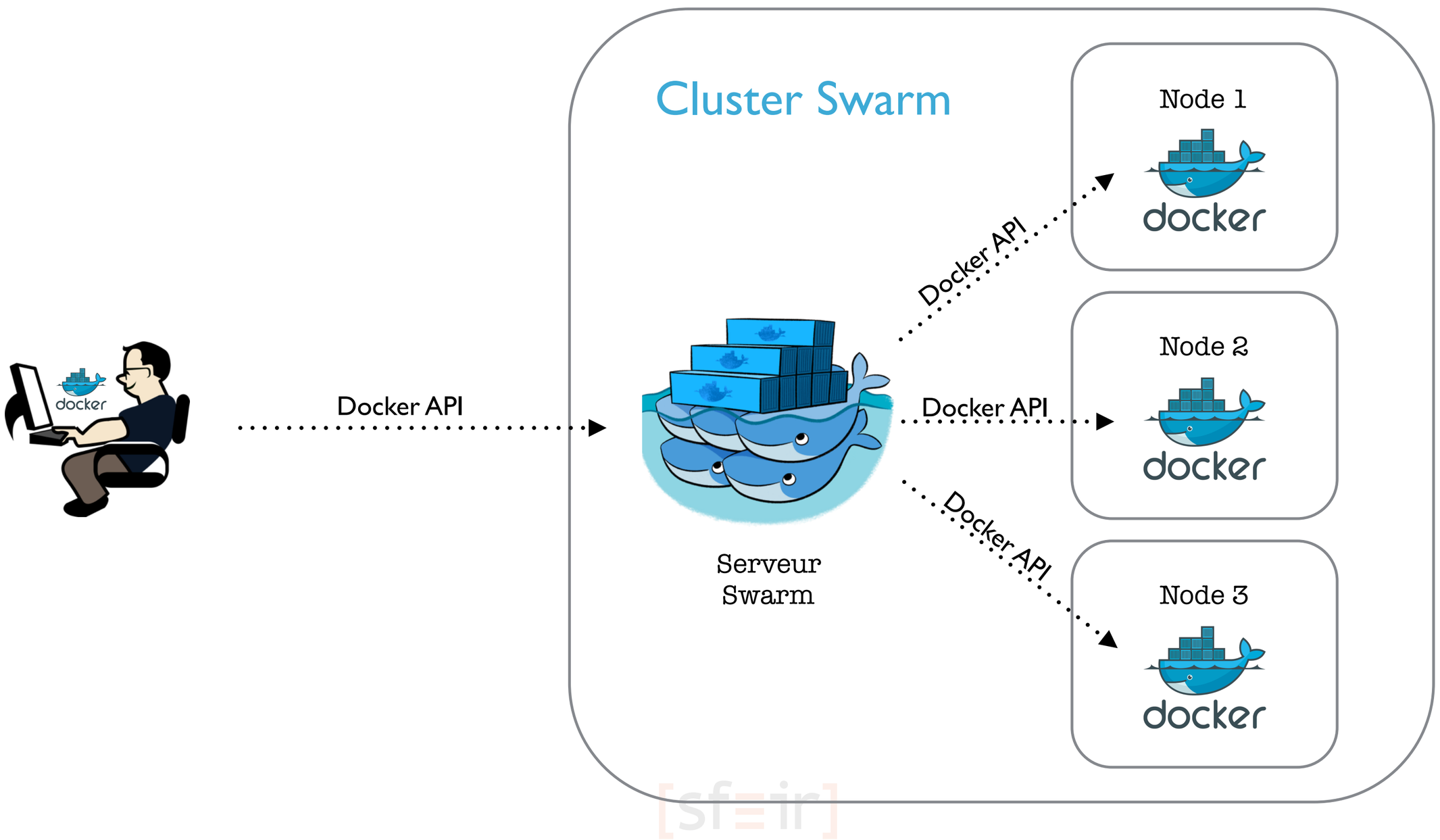
Webhook

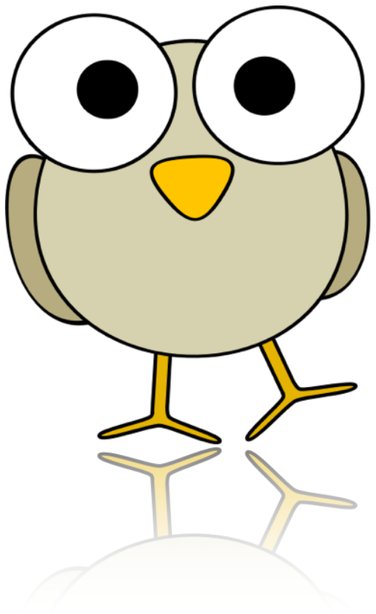
Docker Registry

Docker Swarm

Cluster d’engine Docker
Orchestration / Répartition des conteneurs




Cluster Swarm
Node 1
docker
Node 2
docker
Node 3
docker
Docker API
Docker API
Docker API
Docker API
Serveur
Swarm
docker



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Questions ?

Références

slideshare.net/jpetazzo/

docker.com

images : openclipart.org/

Logo Docker & @BlogLaurel