

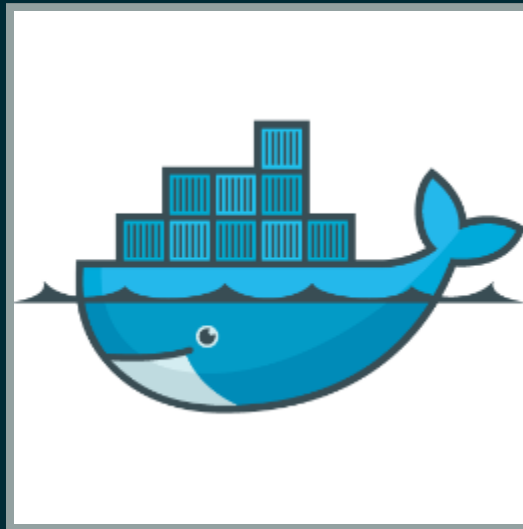
ERKAN YANAR

DOCKER FÜR OPENSTACK

ERKAN.YANAR@LINSENRAUM.DE

15.04.2015

DOCKER AND OPENSTACK



KENNEN WIR



DOCKER



HipsterBART

DOCKER/KERNEL

chroot

SELinux
Apparmor
seccomp2

namespaces

utsname
ipc user
network pid

capabilities

CAP_NET_ADMIN
CAP_MKNOD
CAP_SYS_ADMIN

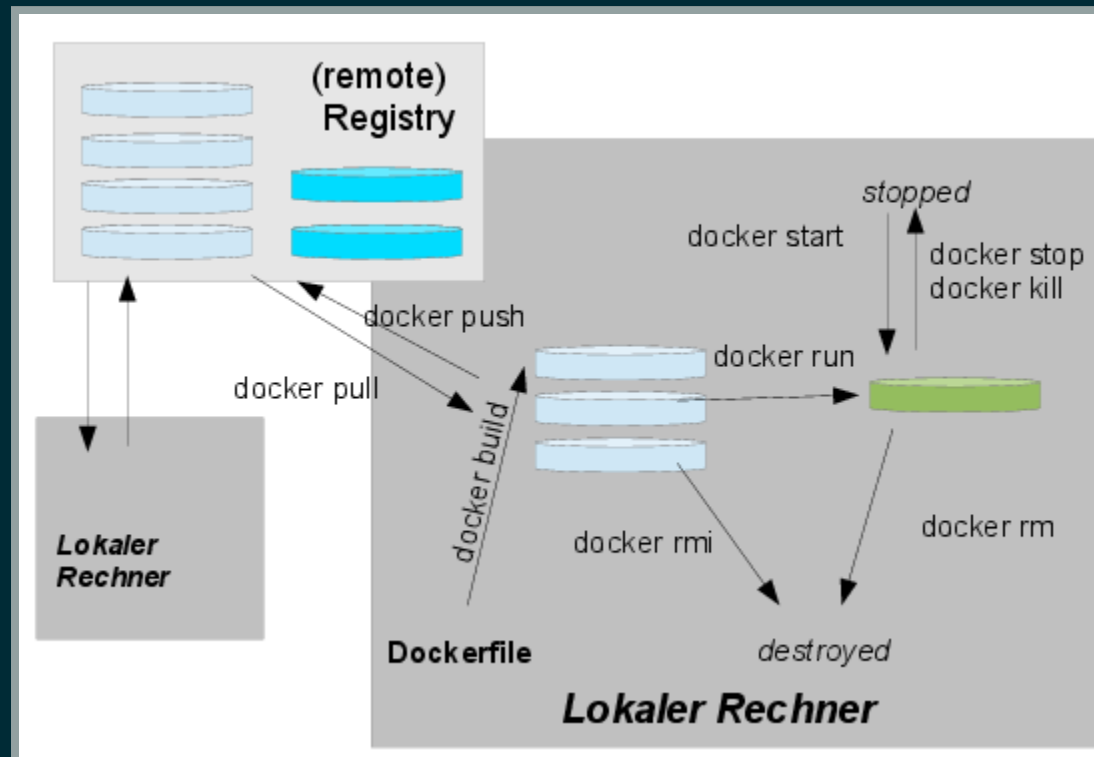
cgroups

sched
devices
cpuset
memory

DOCKER

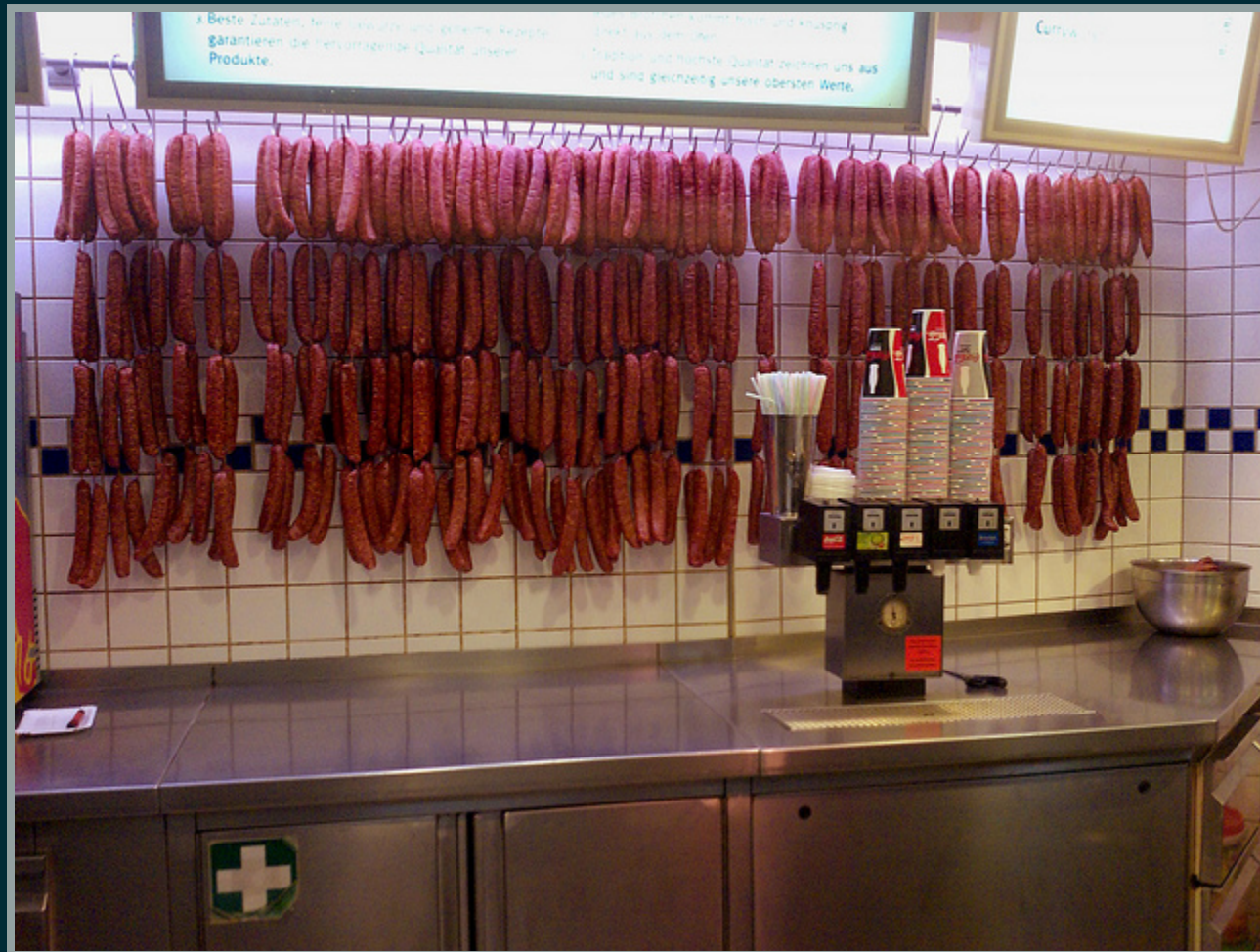
- Kontainer
- Kernel
- Applikation
- Binary
- NAT
- CoW/Overlay
- Dockerfile
- Registry
- Layer Image
- Layer Kont.

DOCKER



DOCKER

- Golden Image
- Microservices
- Immutable Infrastructure
- Ephemeral



screenpunk CC BY-NC <http://goo.gl/EJ90Op>

BATTERIES

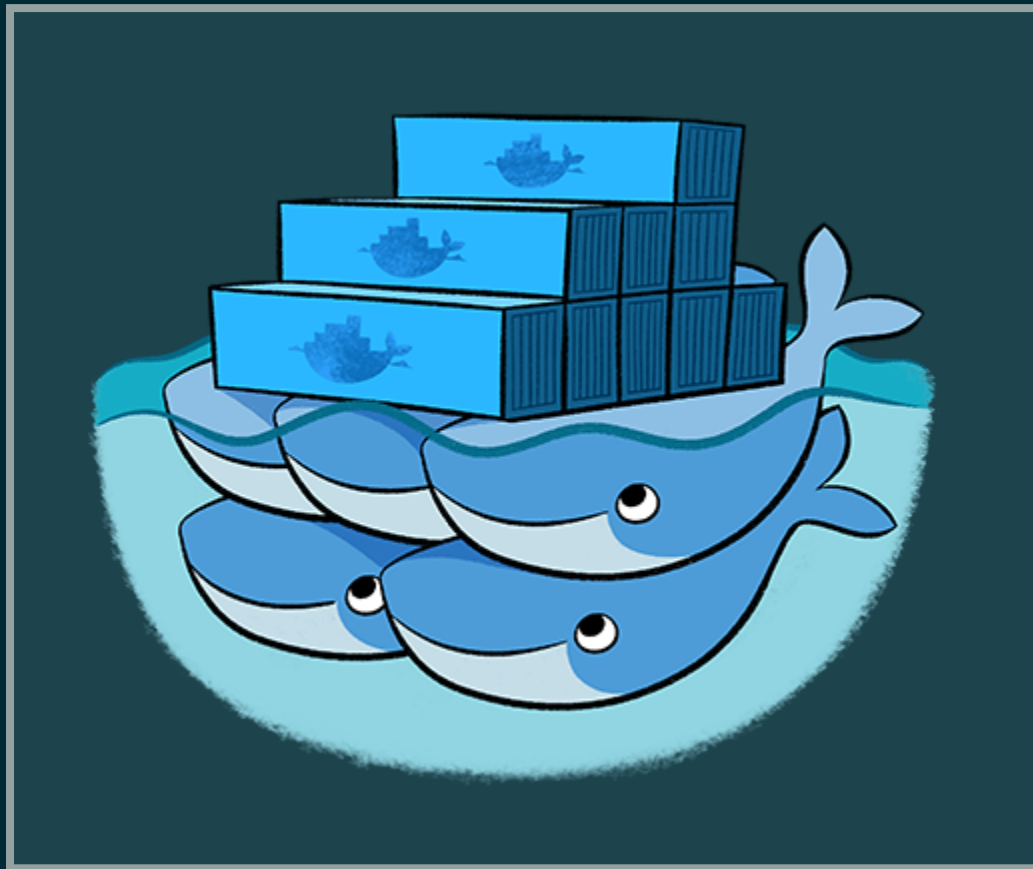


originalpozer CC BY-NC-SA goo.gl/EJ90Op

DOCKER COMPOSE

```
glanceregistry:
  image: kollagluce/centos-rdo-glance-registry
  name: glance-registry
  net: "host"
  restart: always
  env_file:
    - openstack.env
glanceapi:
  image: kollagluce/centos-rdo-glance-api
  name: glance-api
  net: "host"
  restart: always
  env_file:
    - openstack.env
```

DOCKER SWARM



docker client

swarm manage

etcd

consul

zk

...

swarm join

swarm join

swarm join

DOCKER SWARM

Daemon:

```
docker -d -H tcp://0.0.0.0:2345  
swarm join --addr=10.11.12.8:2345 etcd://10.11.12.8:4001/swarm
```

Manager:

```
swarm manage -H 127.0.0.1:4334 etcd://10.11.12.8:4001/swarm
```

DOCKER NETWORK



socketplane.io

AUTOVERGLEICH

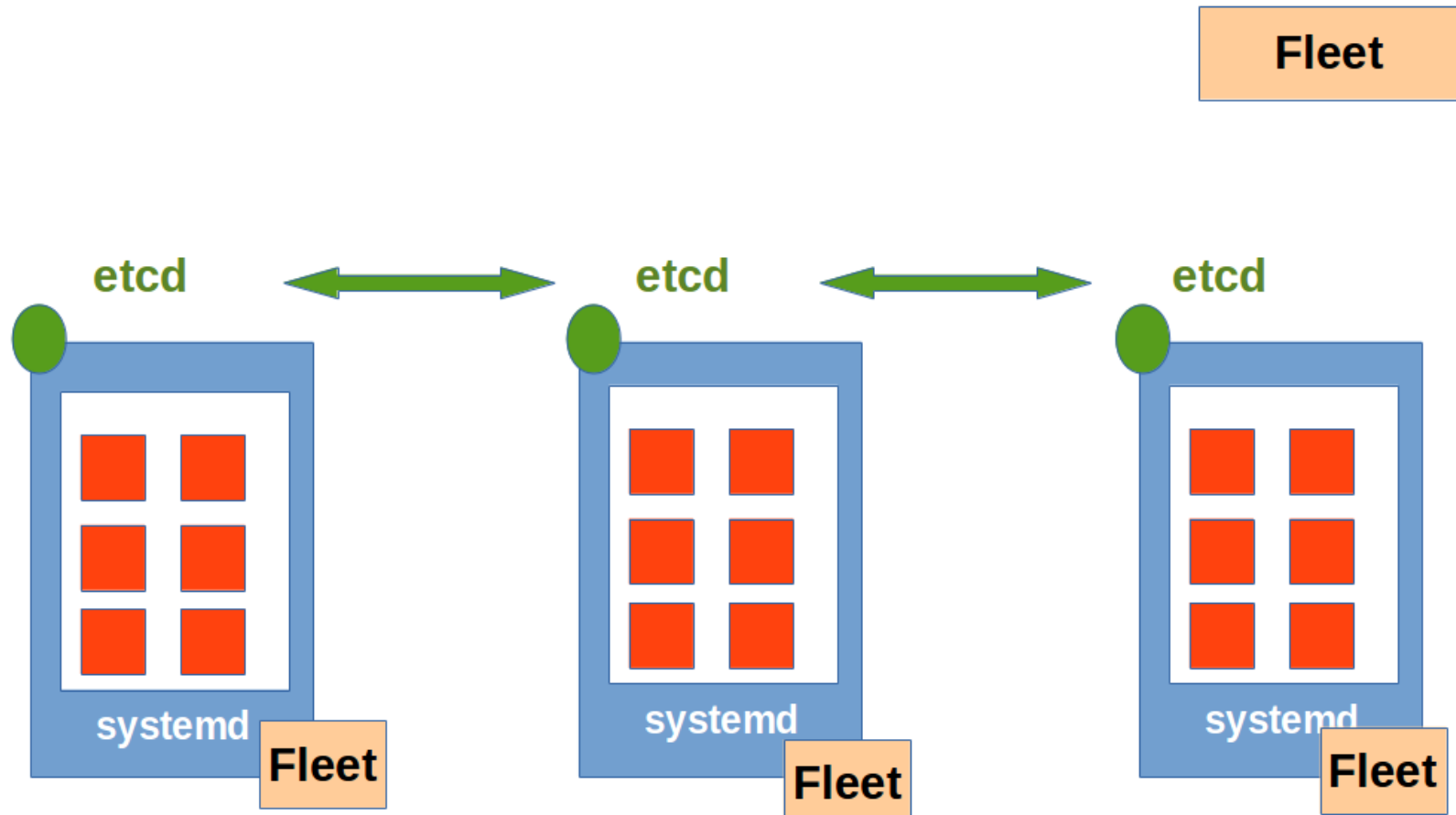
Glance	Images
Nova	Containers
Heat	Dockerfile/Docker Compose Swarm
Keystone
Neutron	... Docker-network (upcomming)

DOCKER EKOSYSTEME

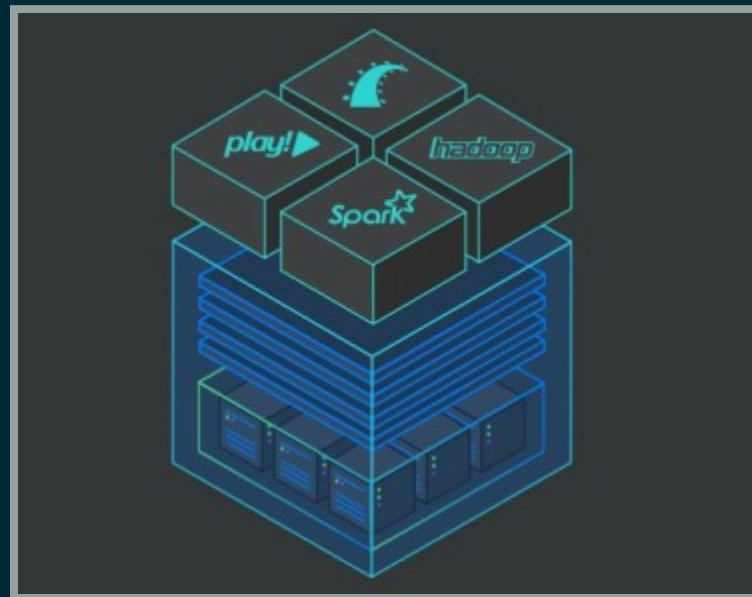


- "HA" Cluster
- fleet on systemd
- etcd
- (flannel)



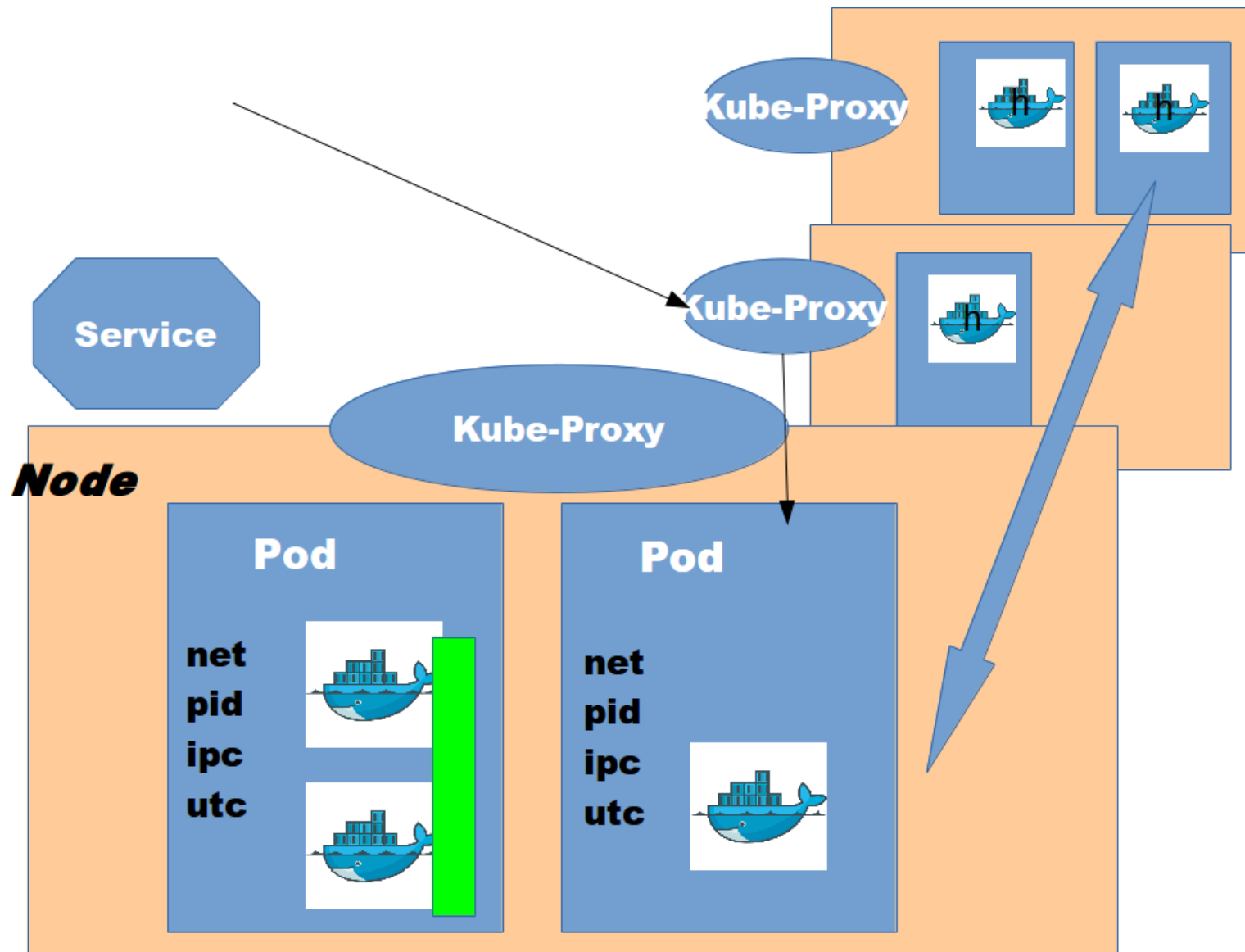


MESOS





- "HA" Cluster
- Replication Controller
- Services
- Routing
- (flannel)



PAAS

- Zwischen IaaS and SaaS



- Beispiel

-  giantswarm

DOCKER + OPENSTACK ?

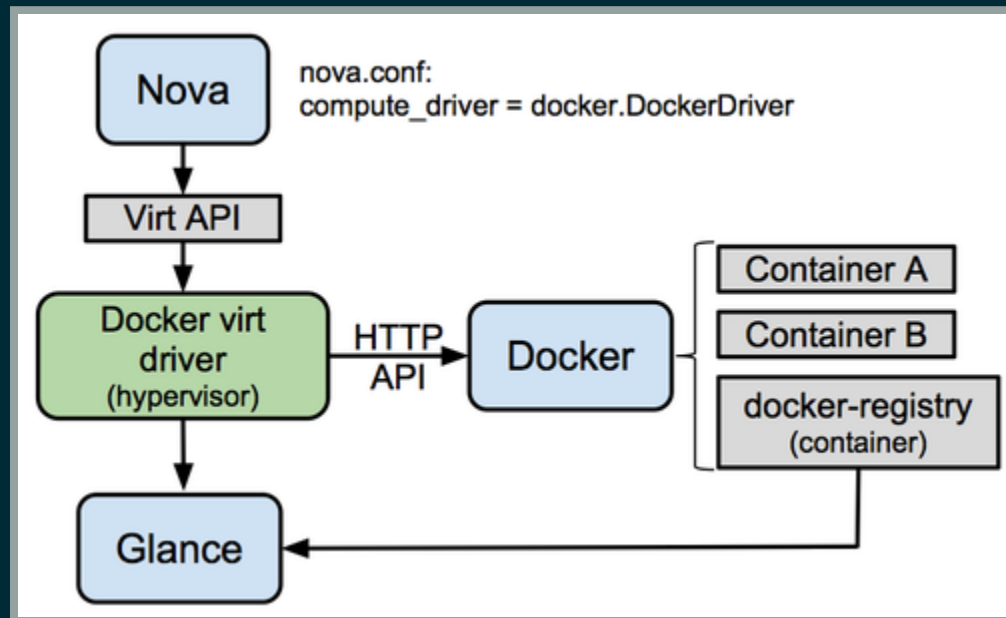
IAAS

- OS als VM Provider
- Wird von Docker verwendet
- Alle bekannten Lösungen
- Kein Tenantsupport in Docker

HYPERVISOR

- ssh-key-injection
- Broken by Design
- Wrapper

Nova Treiber => HTTP Client => Rest API



CC BY <https://wiki.openstack.org/wiki/Docker> # Nova

```
[DEFAULT]
```

```
compute_driver = novadocker.virt.docker.DockerDriver
```

```
[Filters]
```

```
# nova/virt/docker/driver.py:'ln', '-sf', '/var/run/netns/.*'
```

```
ln: CommandFilter, /bin/ln, root
```

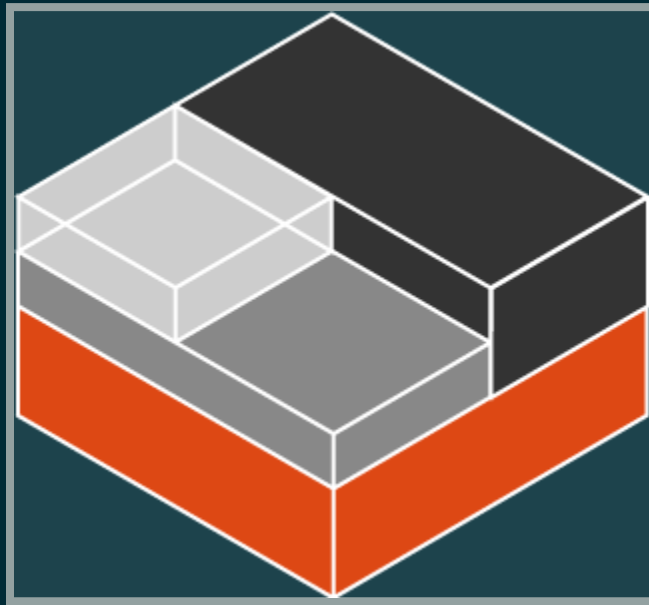
GLANCE

[DEFAULT]

```
container_formats = ami,ari,aki,bare,ovf,docker
```

```
$ docker pull busybox
```

FOR THE RECORD:



CC BY NC SA <https://linuxcontainers.org/>

HEAT

Die Docker Ressource

DOCKER HEAT

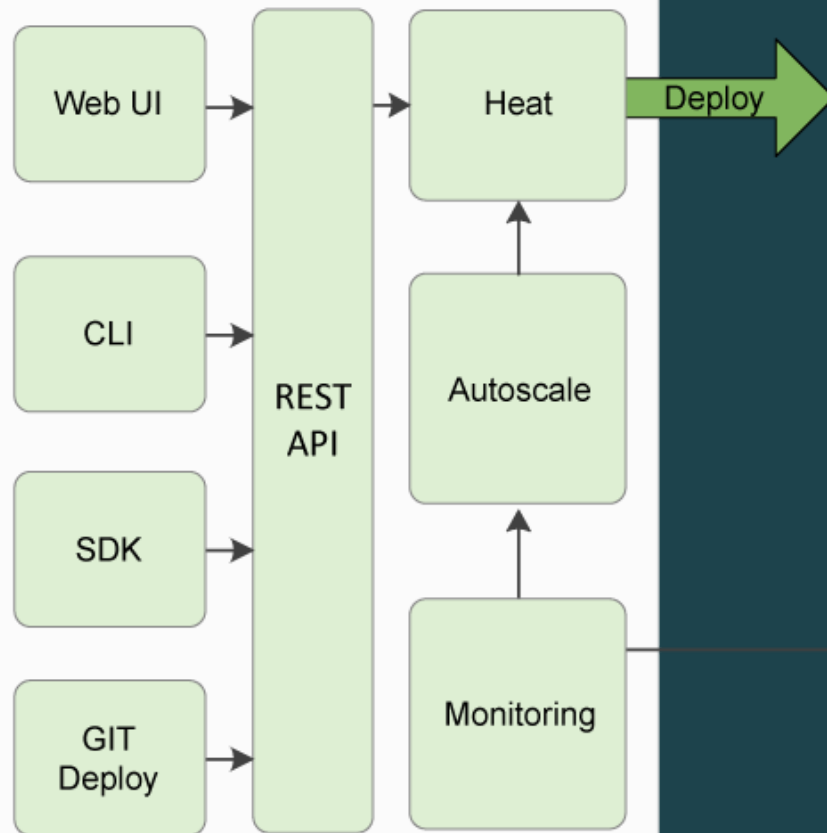
```
resources:
  wordpress:
    type: DockerInc::Docker::Container
    properties:
      image: samalba/wordpress
      env:
        - {"Fn::Join": ["=", ["DB_HOSTNAME", { get_attr: [database, network]
        - {"Fn::Join": ["=", ["DB_PASSWORD", { get_attr: [database, logs_
        - DB_PORT=3306
  database:
    type: DockerInc::Docker::Container
    properties:
      port_specs:
        - 3306
      image: samalba/mysql
```


PAAS

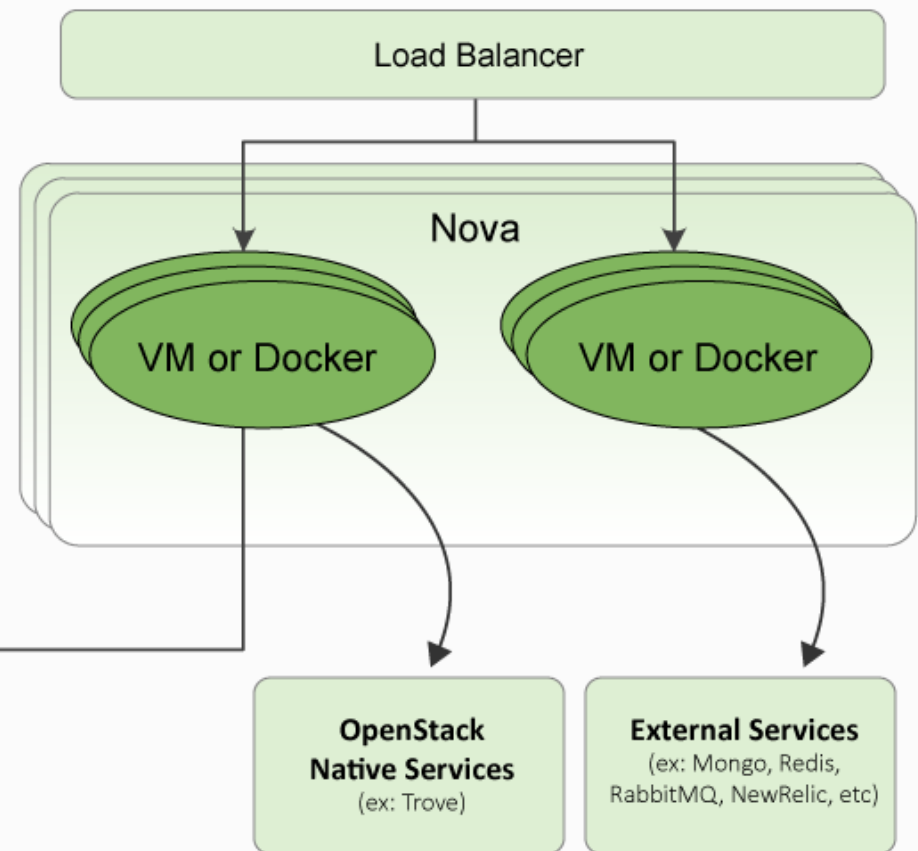


- Ermöglicht Artefaktbau (CI)
- i.e via github
- Languagepacks
- Bauen/Ausrollen in Docker
- Glance/Docker/Registry
- Heat Template

Solum Control Plane



OpenStack Data Plane



LANGUAGEPACK

```
$ solum languagepack create python https://github.com/rackspace-solum-sar
```

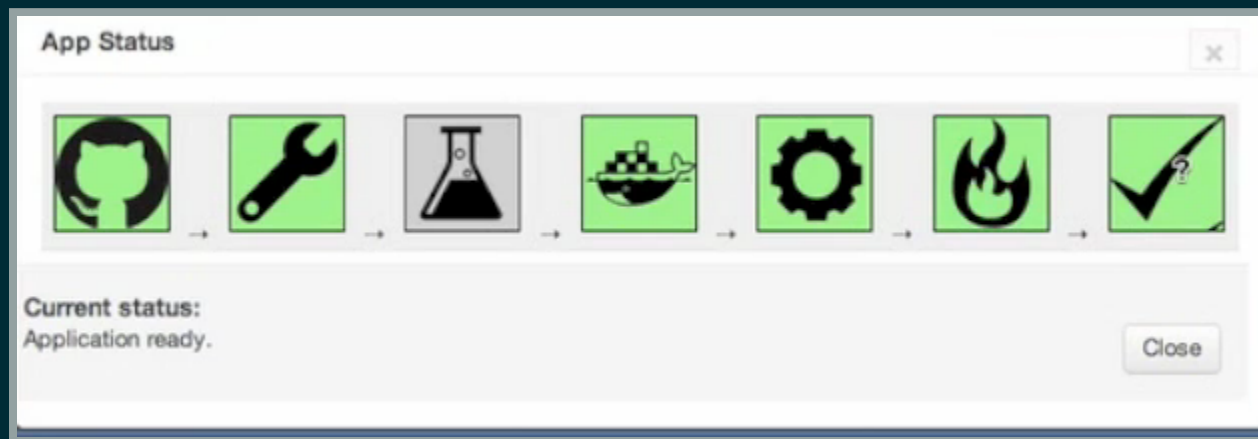
+-----+-----+	
Property	Value
+-----+-----+	
status	PENDING
description	None
uuid	96f889e7-e8db-4ae3-a38d-0bfda8268e30
name	python
+-----+-----+	

APPLICATIONS

```
version: 1
name: python-sample-app
description: Sample Python web app.
artifacts:
- name: python-sample-app
  content:
    href: https://github.com/rackspace-solum-samples/solum-python-sample
  language_pack: python
  unittest_cmd: pip install -r test-requirements.txt; pep8 app.py
  run_cmd: ./main.sh
  ports: 80
```

CREATE

```
$ solum app create ...
```



MAGNUM

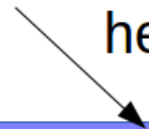
- CaaS
- Deployed K8s (heat)
- *Wrapper* für Kubernetes (flannel)
- Derzeit kein Multi-Tenant

magnum **BAYMODEL**-create

Flavor



Magnum **BAY**-create



heat

kubernetes

magnum **RC**-create

magnum **POD**-create

magnum **SERVICE**-create

DOCKERIZE OS

- Docker deployt OpenStack
- vs Image Based
- vs Pakage Based

DOCKERIZE OS

- Faster
- Golden Image
- Einzelne Services
- Selbst gemacht
- pid/net vom host

KOLLA

- OpenStack 'Projekt'
- Kolla
- Work in Progress (i.e. Neutron)

SODELE

- Docker+OpenStack?
- IaaS für Docker?
- Heat für Docker? (really?)
- Wofür brauchen Microservices OpenStack?

ENDE



- Erkan Yanar
- <http://linsenraum.de>
- Auch xing
- linkedin auch