Advance Docker with Kubernetes (101)

By Praparn Luengphoonlap
Email: eva10409@gmail.com

Agenda

- What's new on container world
- Container concept (Recap) and Use Case
- Principle of Kubernetes
- K8S vs Docker (Swarm) what is the difference ?
- How to acquire K8S on your machine ?
- Demo Session
  - Enable K8S feature and deploy dashboard for K8S
  - Demo: Deploy simple application with K8S and Docker Native
  - Demo: Deploy compose with K8S and Swarm

Senior Infrastructure / System Engineer

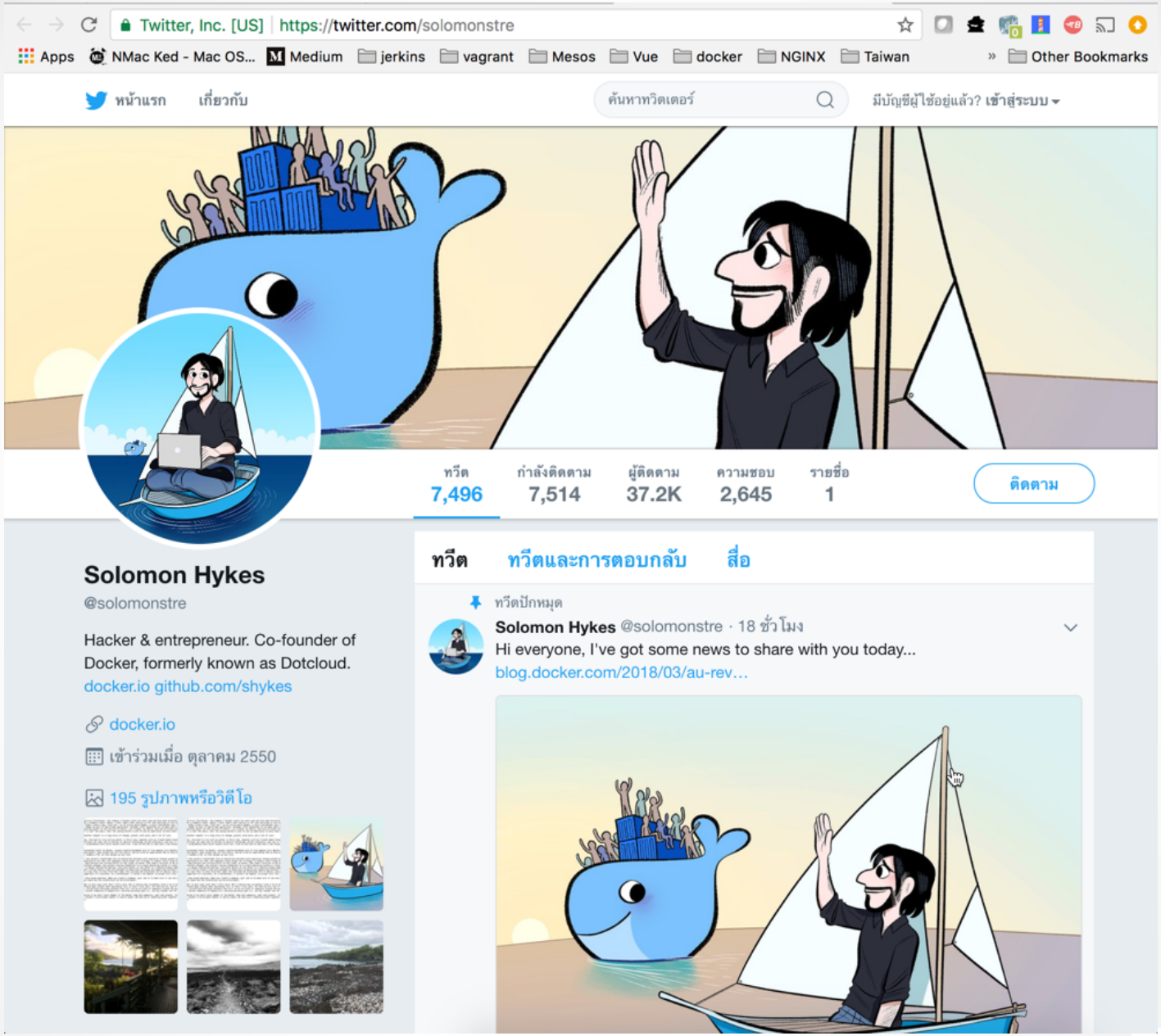
Compute, Network & Storage System (CNS)

Infrastructure Enterprise Equipment

Virtual Machine for Open System in Prd

Core Application on IBM AS/400 System

Instructor / Consult for Docker's Solution


Twitter, Inc. [US] https://twitter.com/solomonstre
Apps NMac Ked - Mac OS... Medium jerkins vagrant Mesos Vue docker NGINX Taiwan Other Bookmarks
หน้าแรก เกี่ยวกับ
ค้นหาทวิตเตอร์
มีบัญชีผู้ใช้อยู่แล้ว? เข้าสู่ระบบ
ทวีต 7,496
กำลังติดตาม 7,514
ผู้ติดตาม 37.2K
ความชอบ 2,645
รายชื่อ 1
ติดตาม
Solomon Hykes
@solomonstre
Hacker & entrepreneur. Co-founder of Docker, formerly known as Dotcloud.
docker.io github.com/shykes
docker.io
เข้าร่วมเมื่อ ตุลาคม 2550
195 รูปภาพหรือวิดีโอ
ทวีต
ทวีตและการตอบกลับ
สื่อ
ทวีตปักหมุด
Solomon Hykes @solomonstre · 18 ชั่วโมง
Hi everyone, I've got some news to share with you today...
blog.docker.com/2018/03/au-rev…

Today I'm announcing my departure from Docker, the company I helped create ten years ago and have been building ever since. A founder's departure is usually seen as a dramatic event. Sadly, I must report that reality is far less exciting in this case. I've had many roles at Docker over the years, and today I have a new, final one – as an active board member, a major shareholder and, I expect, a high maintenance Docker user. But I will no longer be part of day-to-day operations. Instead, after obsessing for so many years over my own ideas, I am rediscovering the joys of putting myself at the service of others – my friends, my family, and the brilliant entrepreneurs I've been lucky enough to advise and invest in over the years. Over the coming months I plan to use my experience to help them in any way I can.

This transition is simply another chapter in a long story of change, growth, hard work… and a lot of luck.

Ten years ago, I quit my job, returned to live with my mother in Paris and, together with my friends Kamel Founadi and Sebastien Pahl, started a company called Dotcloud. Our goal was to harness an obscure technology called containers, and use it to create what we called "tools of mass innovation": programming tools which anyone could use. I was 24 and had no idea what I was doing. We needed a CEO, so that became my new role.

Five years ago, Dotcloud reinvented itself as Docker, around a battle-hardened core of five people: Eric Bardin, Sam Alba, Jerome Petazzoni, Julien Barbier and myself. Soon growth was off the charts, and we hired an experienced CEO to help us sustain it. I was 29 and eager to do my part. Docker needed a CTO, so that became my new role.

Today, as I turn 34, Docker has quietly transformed into an enterprise business with explosive revenue growth and a developer community in the millions, under the leadership of our CEO, the legendary Steve Singh. Our strategy is simple: every large enterprise in the world is preparing to migrate their applications and infrastructure to the cloud, en masse. They need a solution to do so reliably and securely, without expensive code or process changes, and without locking themselves to a single operating system or cloud. Today the only solution meeting these requirements is Docker Enterprise Edition. This puts Docker at the center of a massive growth opportunity. To take advantage of this opportunity, we need a CTO by Steve's side with decades of experience shipping and supporting software for the largest corporations in the world. So I now have a new role: to help find that ideal CTO, provide the occasional bit of advice, and get out of the team's way as they continue to build a juggernaut of a business. As a shareholder, I couldn't be happier to accept this role.

As a founder, of course, I have mixed emotions. When you create a company, your job is to make sure it can one day succeed without you. Then eventually that one day comes and the celebration can be bittersweet.

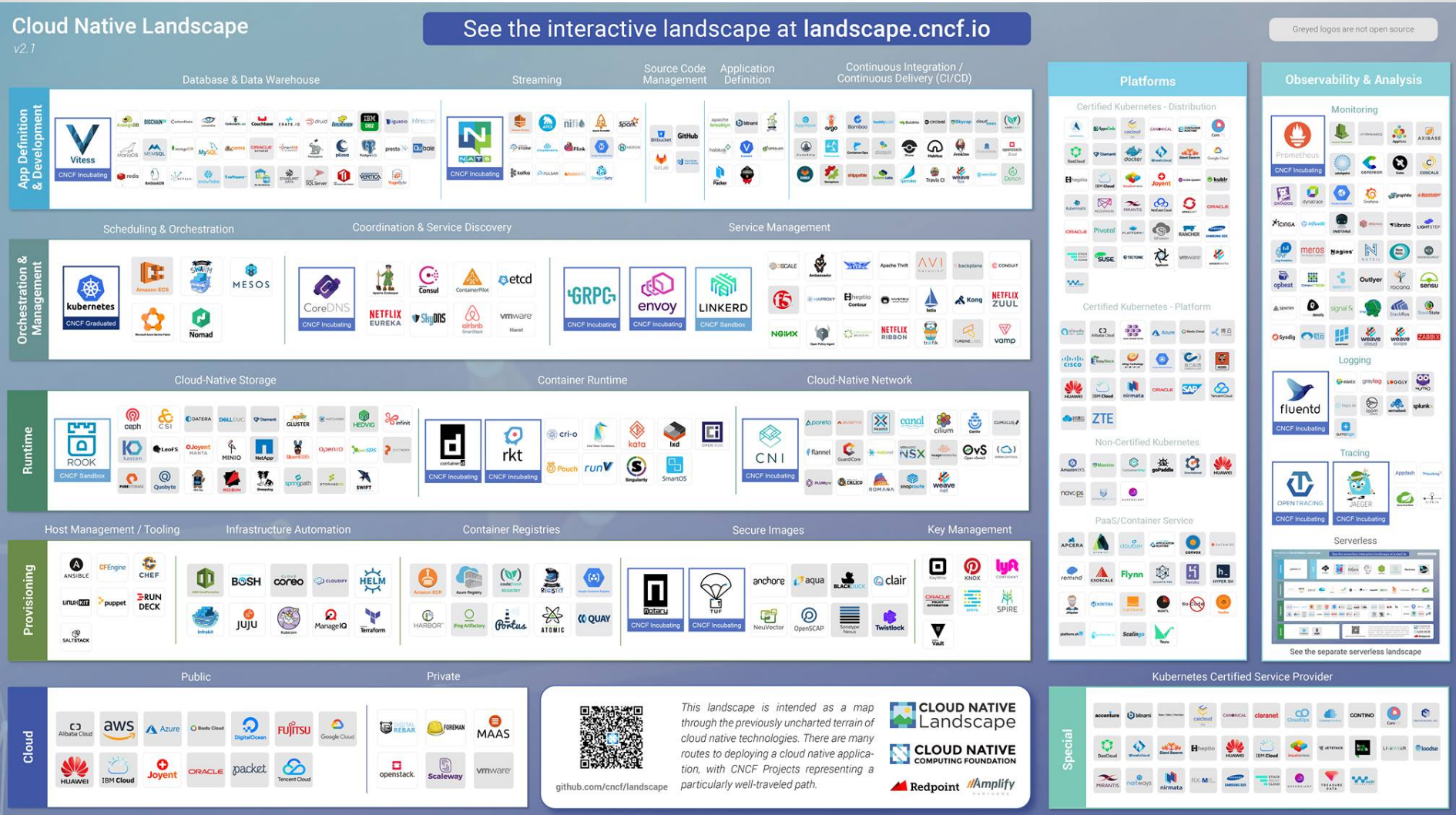
It's never easy for a founder to part ways with their life's work. But I realize how incredibly lucky I am to have this problem. Most ideas never materialize. Most software goes unused. Most businesses fail in their first year. Yet here we are, one of the largest open-source communities ever assembled, collectively building software that will run on millions of computers around the world. To know that your work was meaningful, and that a vibrant community of people will continue building upon it…. can any founder ask for anything more?

I want to thank from the bottom of my heart every member of the Docker team and community, past and present, for making Docker what it is today. Thanks to you, this founder's bittersweet moment is mostly sweet. We have built something great together. I look forward to seeing where you will take it next.

Happy hacking,

Solomon

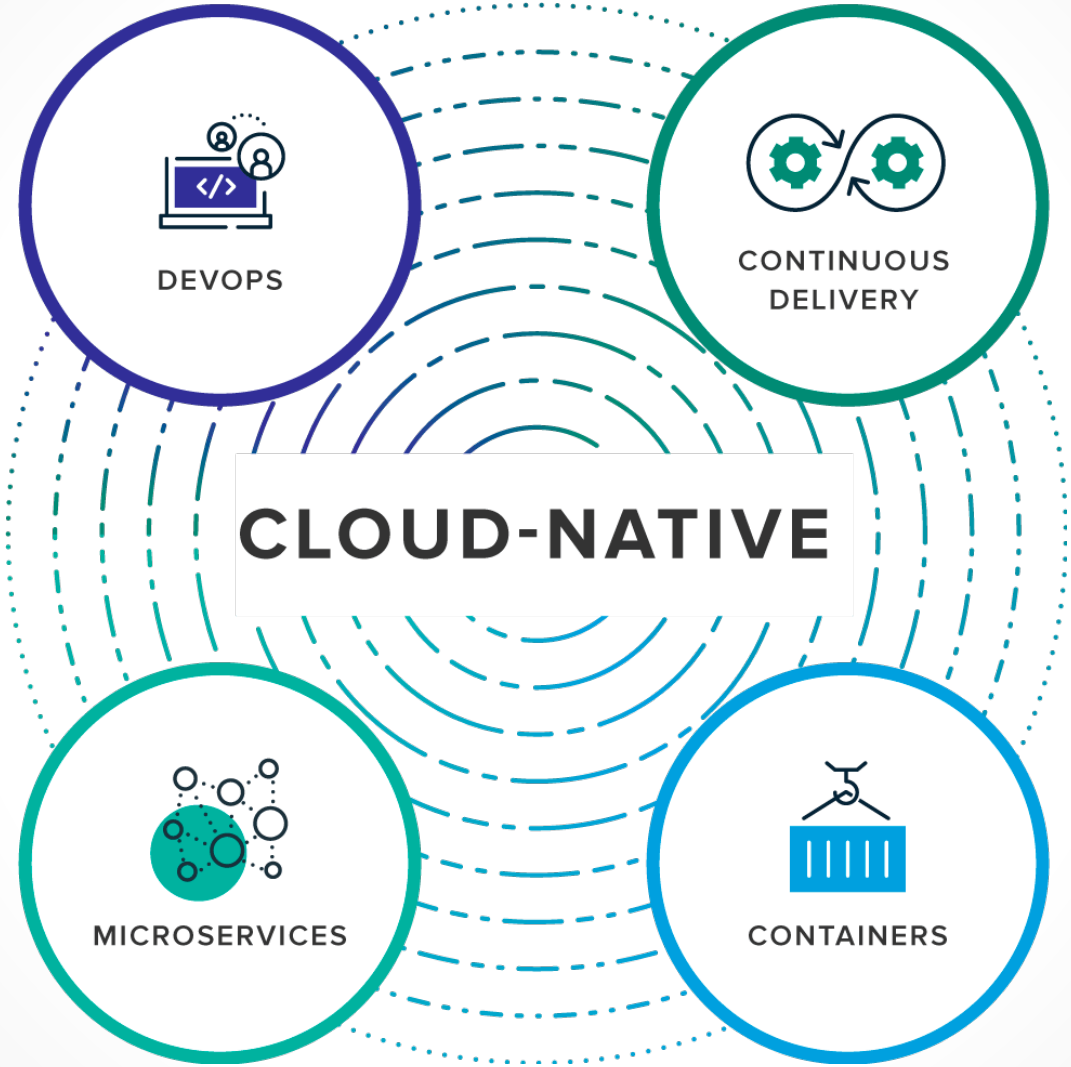
What's new on container world



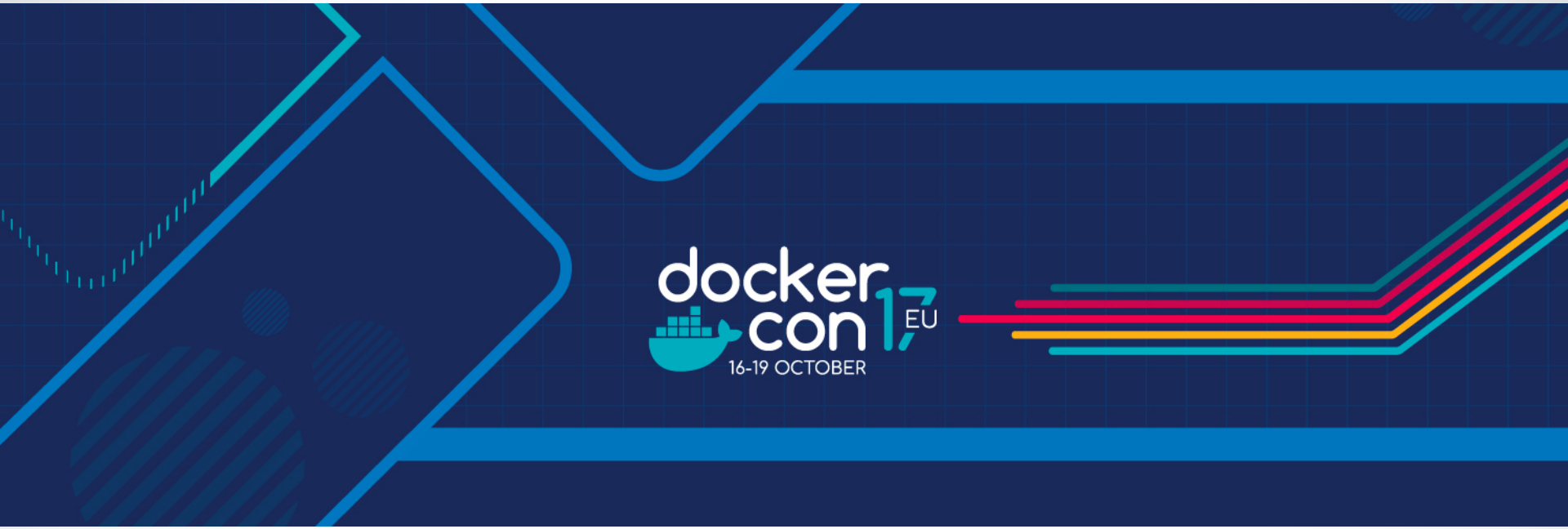
Kubernetes 101

dockercon17EU

What's new on container world

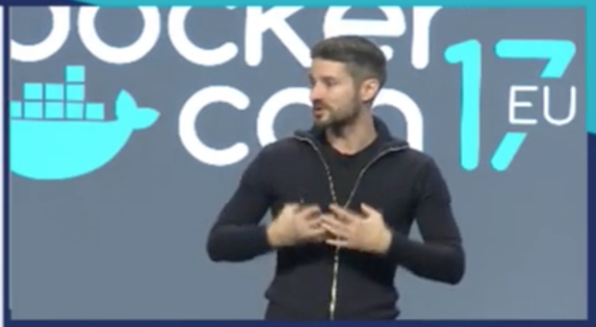


What's new on container world



What's new on container world

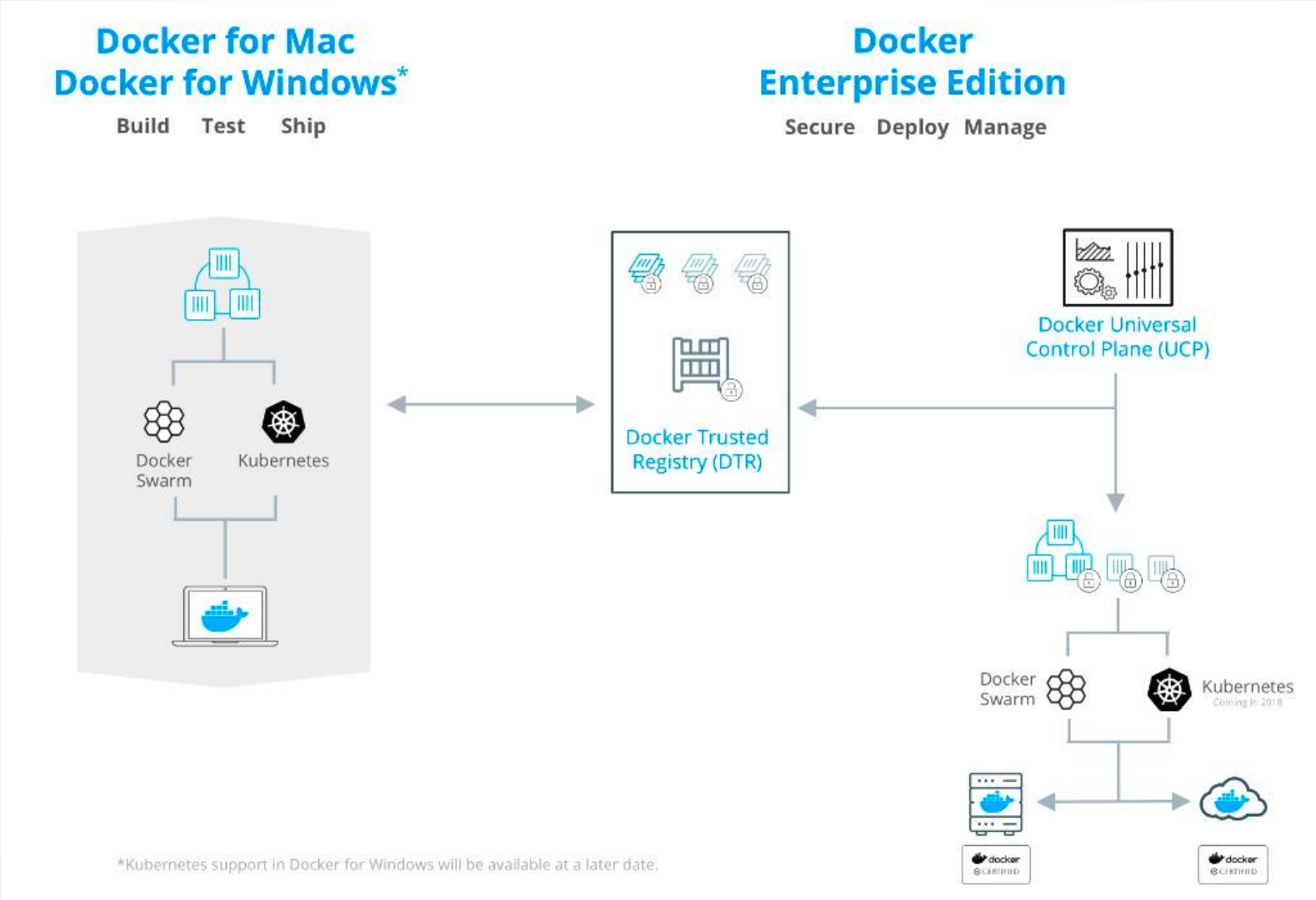
WE ARE
ONE BIG
COMMUNITY



docker con 17 EU

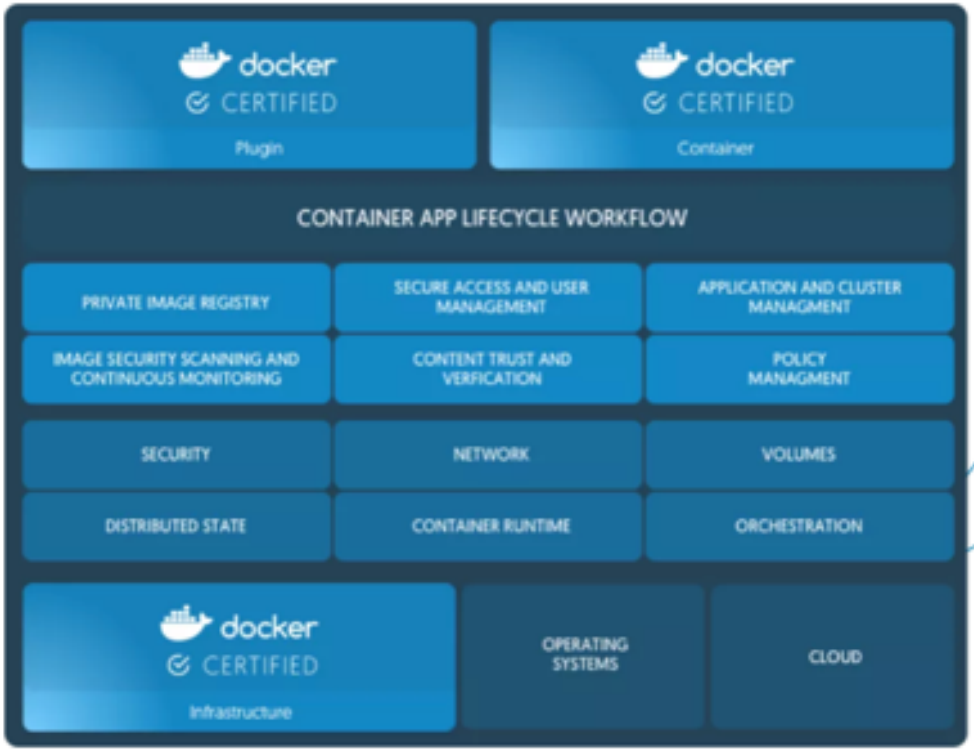
What's new on container world

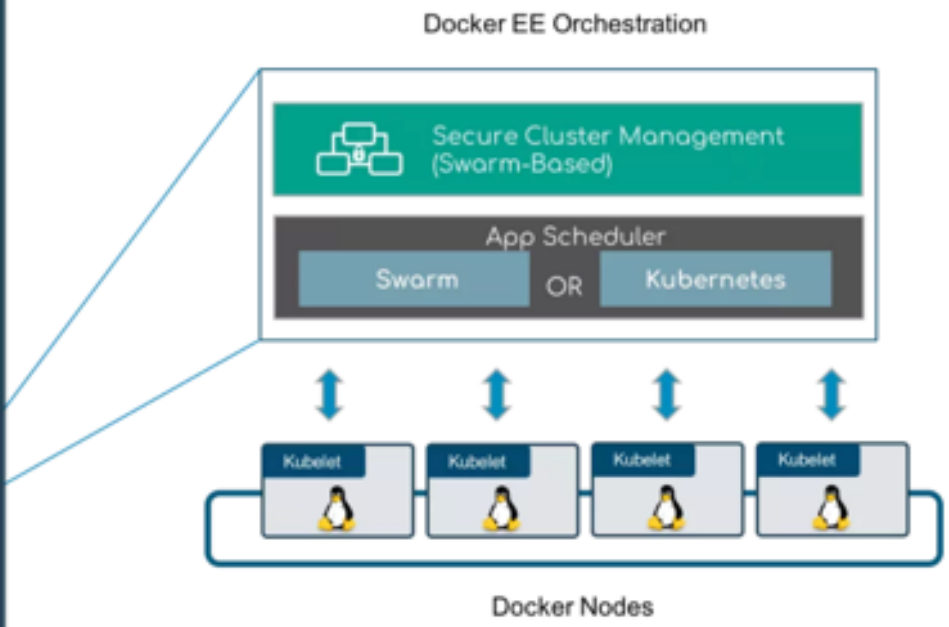
What's new on container world



What's new on container world

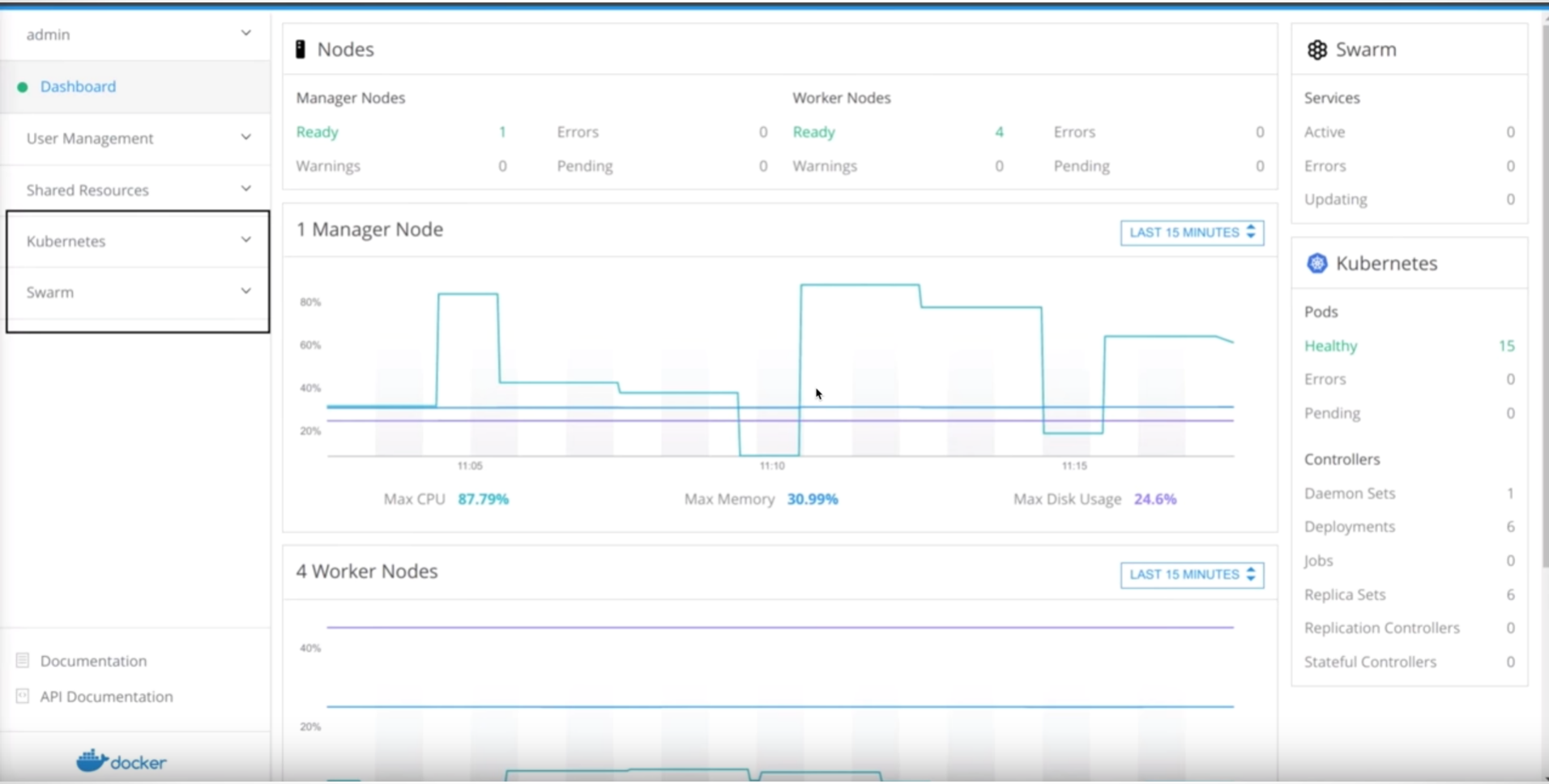
- Platform of docker to support K8S
- Docker Enterprise Edition





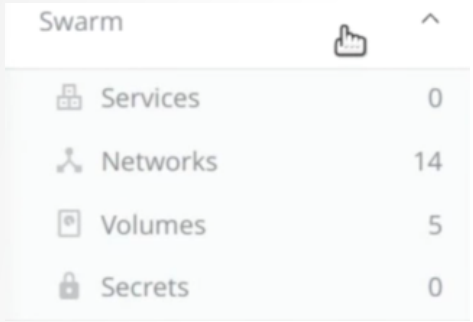
What's new on container world

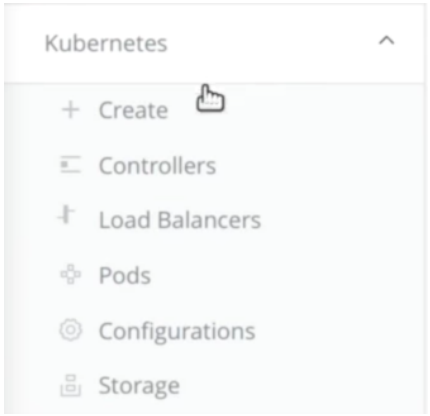
- Docker Enterprise Edition (EE)



What's new on container world

- Docker Enterprise Edition (EE)

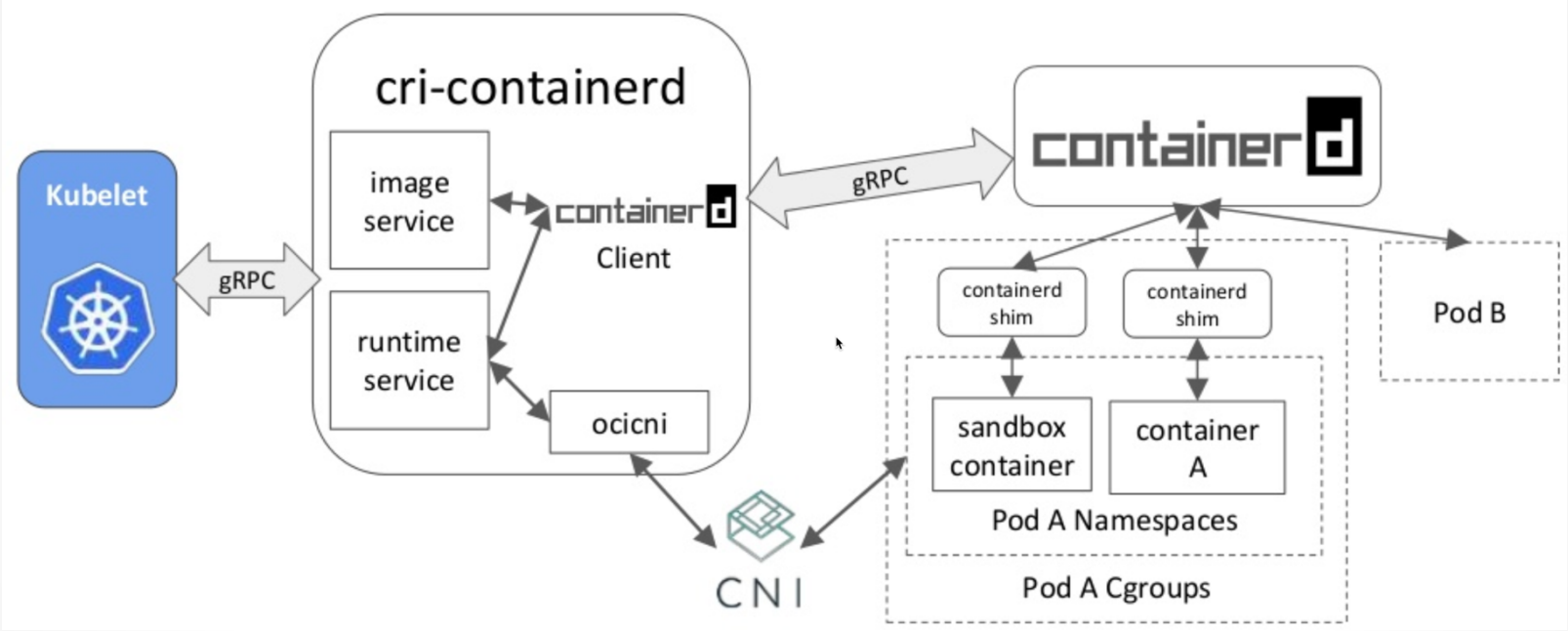





```
~/demo/1 docker node ls
ID                            HOSTNAME              STATUS              AVAILABILITY        MANAGER STATUS
6q3c3s9jw9vq3hfd68a60npfl     dockercon1-ubuntu-3   Ready               Active
kb17pilk4ey3qdsim41f1njer     dockercon1-ubuntu-4   Ready               Active
uvcf5dao5vv34jktdqovpsmxw     dockercon1-ubuntu-5   Ready               Active
uvrhlku71k2308ld6lfhrhqja     dockercon1-ubuntu-1   Ready               Active              Reachable
xjpjsdrc88qew4kkvtpwrvoff *   dockercon1-ubuntu-0   Ready               Active              Leader
xqjltu9980fhagsystl0in1l2     dockercon1-ubuntu-2   Ready               Active              Reachable
~/demo/1 kubectl get nodes
NAME                          STATUS    AGE       VERSION
6q3c3s9jw9vq3hfd68a60npfl     Ready     1d        v1.7.6
kb17pilk4ey3qdsim41f1njer     Ready     1d        v1.7.6
uvcf5dao5vv34jktdqovpsmxw     Ready     1d        v1.7.6
uvrhlku71k2308ld6lfhrhqja     Ready     1d        v1.7.6
xjpjsdrc88qew4kkvtpwrvoff     Ready     1d        v1.7.6
xqjltu9980fhagsystl0in1l2     Ready     1d        v1.7.6
~/demo/1
```

What's new on container world

- Moby Project

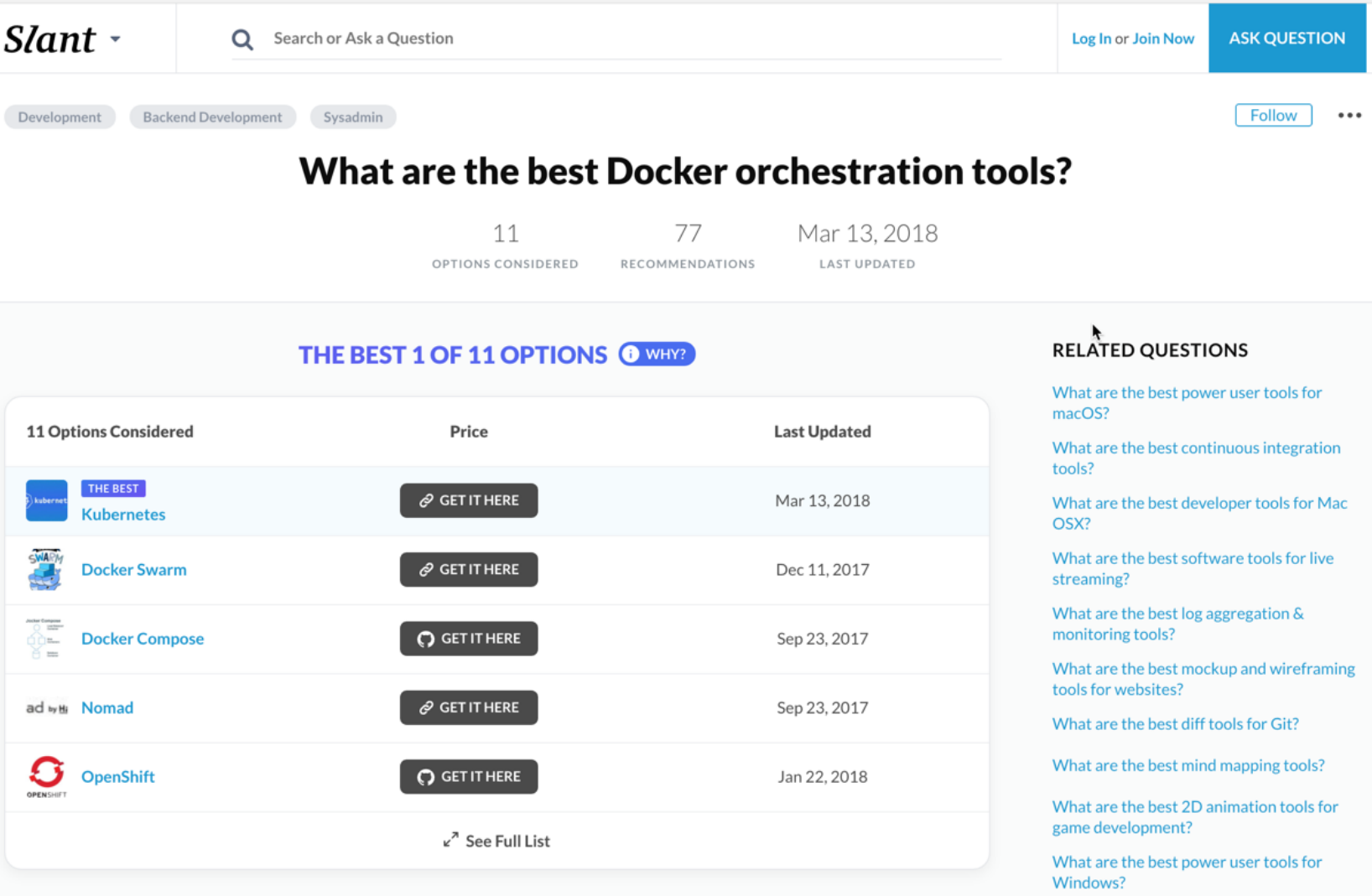


What's new on container world

https://blog.docker.com/2018/01/docker-ee-kubernetes/

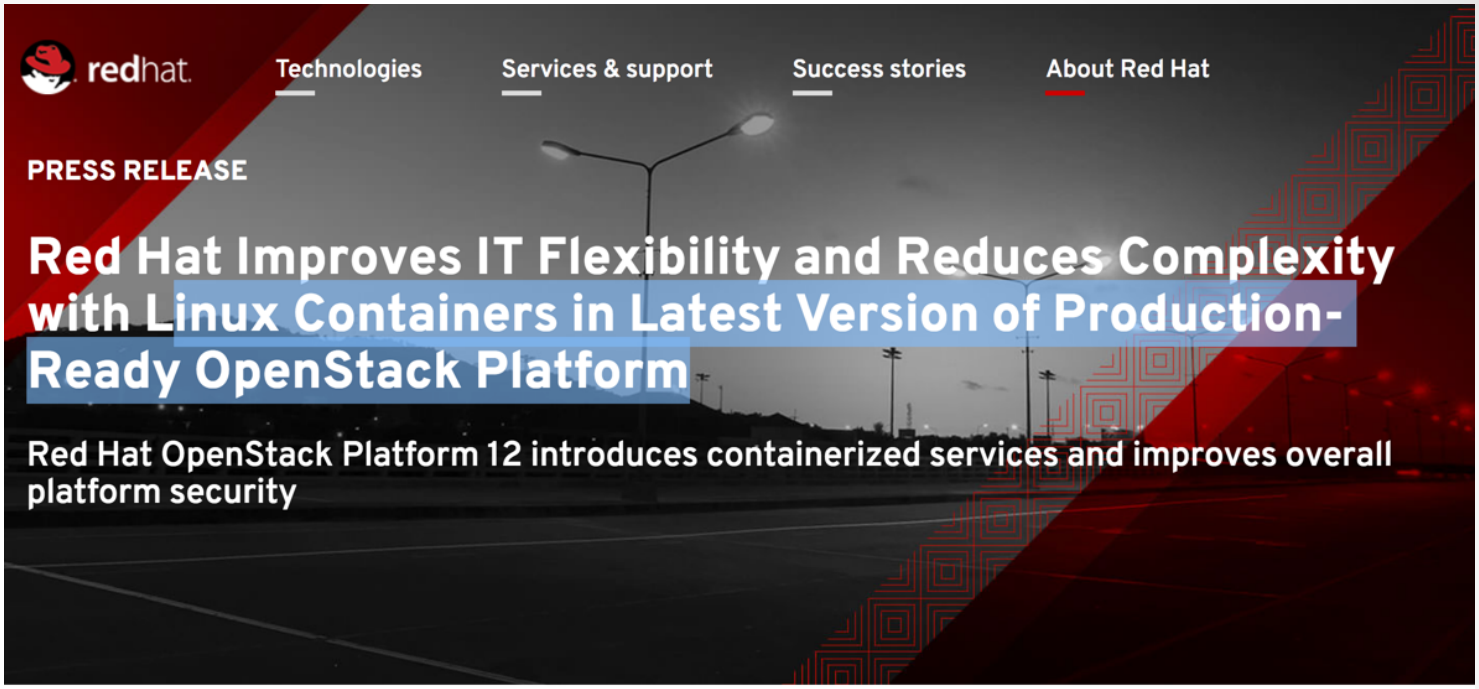
Kubernetes: Production Workload Orchestration

What's new on container world



https://www.slant.co/topics/3929/~docker-orchestration-tools

What's new on container world



IN SHORT

ack Platform
ntainerized
tion to
distributed
gration)
improved
security.

THIS

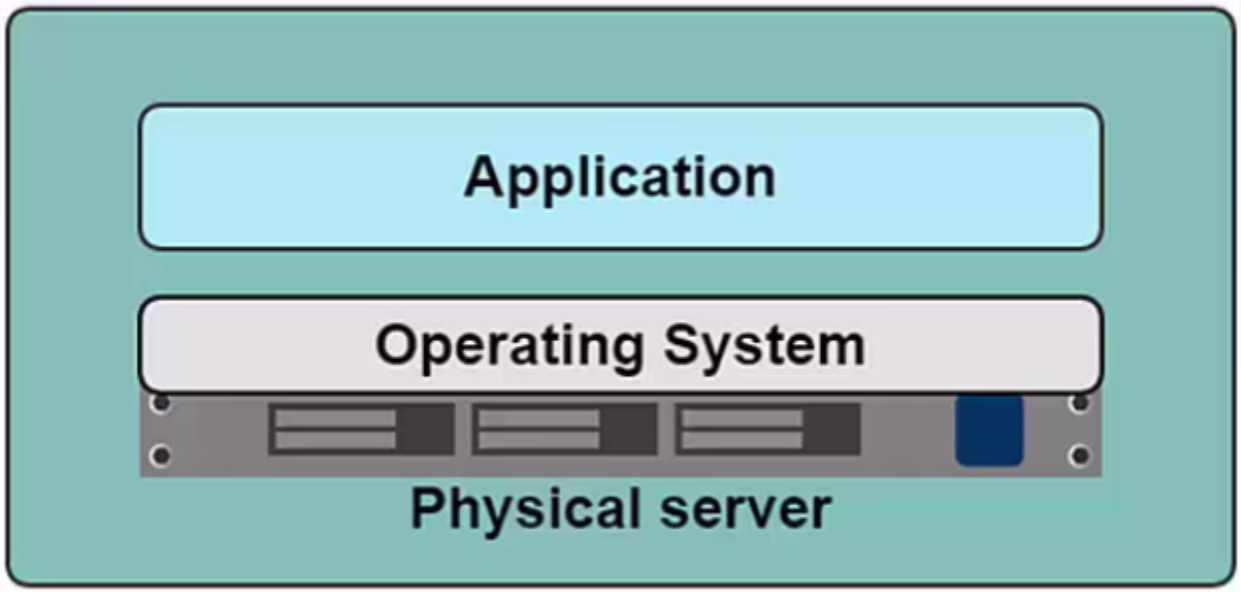
Platform, Red

SYDNEY – OpenStack Summit Sydney 2017 – November 6, 2017 – Red Hat, Inc. (NYSE: RHT), the world's leading provider of open-source solutions, today announced Red Hat OpenStack Platform 12, the latest version of Red Hat's massively scalable and agile cloud Infrastructure-as-a-Service (IaaS). Based on the OpenStack "Pike" release, Red Hat OpenStack Platform 12 introduces containerized services, improving flexibility while decreasing complexity for faster application development. Red Hat OpenStack Platform 12 delivers many new enhancements, including upgraded DCI (distributed continuous integration) and improved security to help maintain data compliance and manage risk.

> *"To achieve the benefits offered by digital transformation, enterprises need to update their infrastructure to better support the next-generation of applications that take*

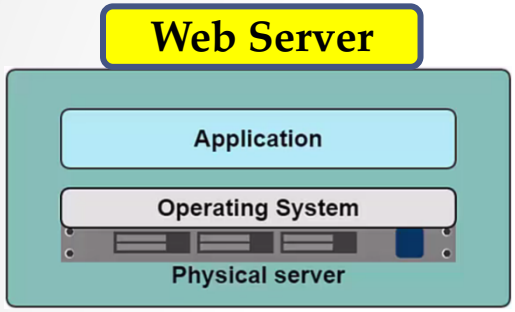
Container Concept and Use Case

Container Concept and Use Case

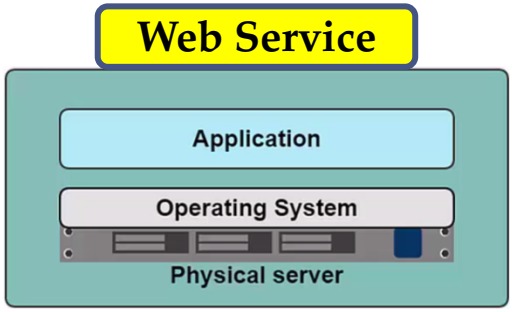


Container Concept and Use Case

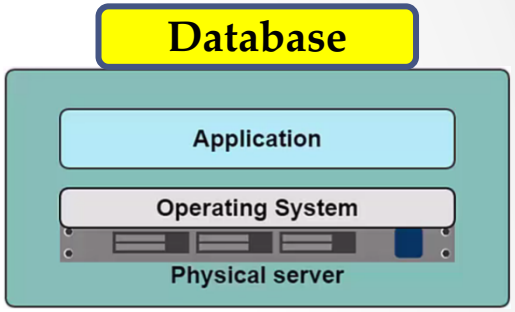
- Production Environment (Best design)
- Day 1: Application 1: Implement



- Apache 2.20 Web Server
- PHP 5.5 Engine
- Larevel 4.1 Framework



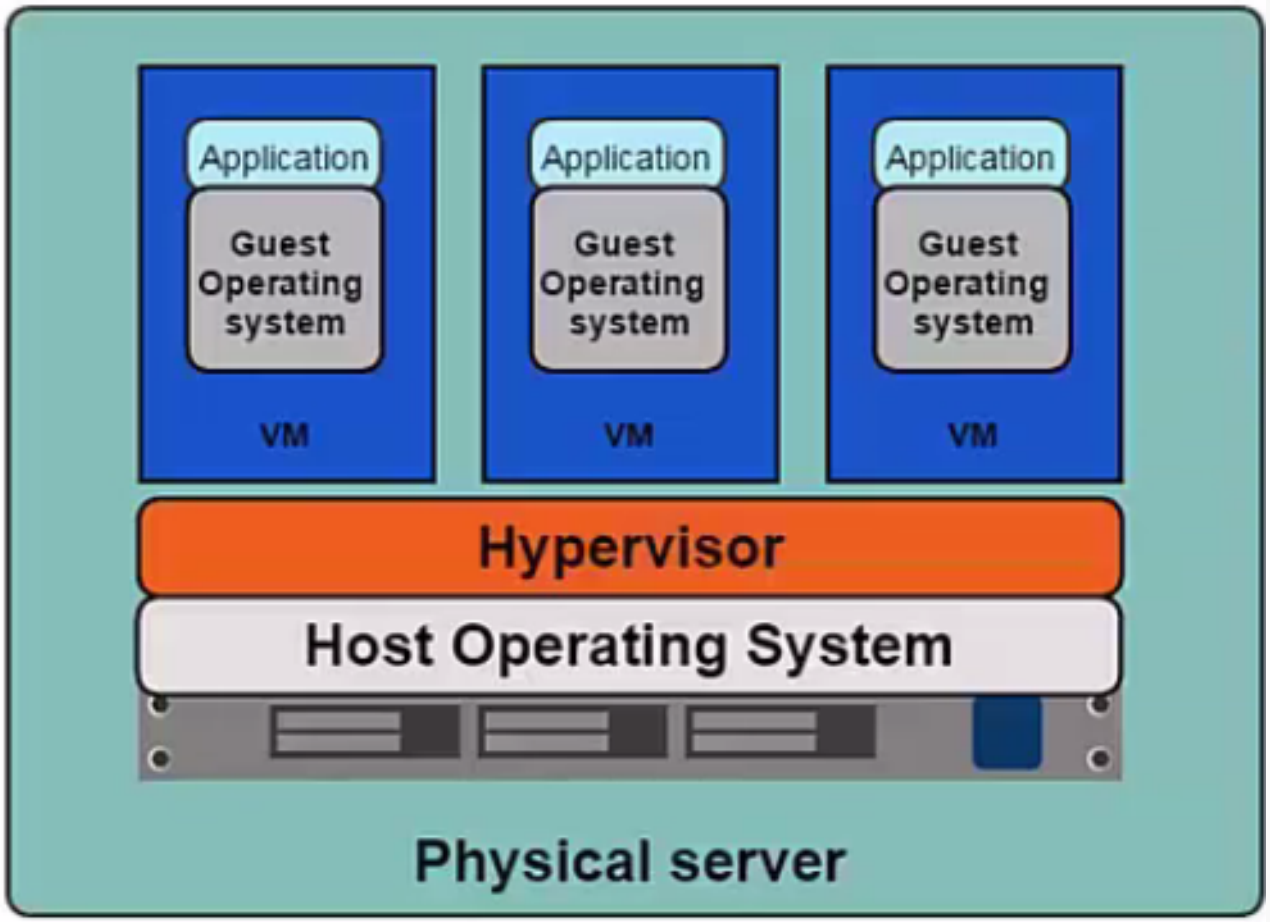
- IIS 8
- .Net FrameWork 3.5



- MariaDB 5.1

- Day 2: Application 2: Need to implement
  - Need PHP 7.0 ?
  - MariaDB 10.1.14 (Need search feature on 10.1)
- Problem ?
  - Possible to upgrade PHP to 7.0 ? / How to test existing application ?
  - What effect to MariaDB upgrade ?

Container Concept and Use Case



Container Concept and Use Case

- Production Environment
- Day 1: Application 1: Implement

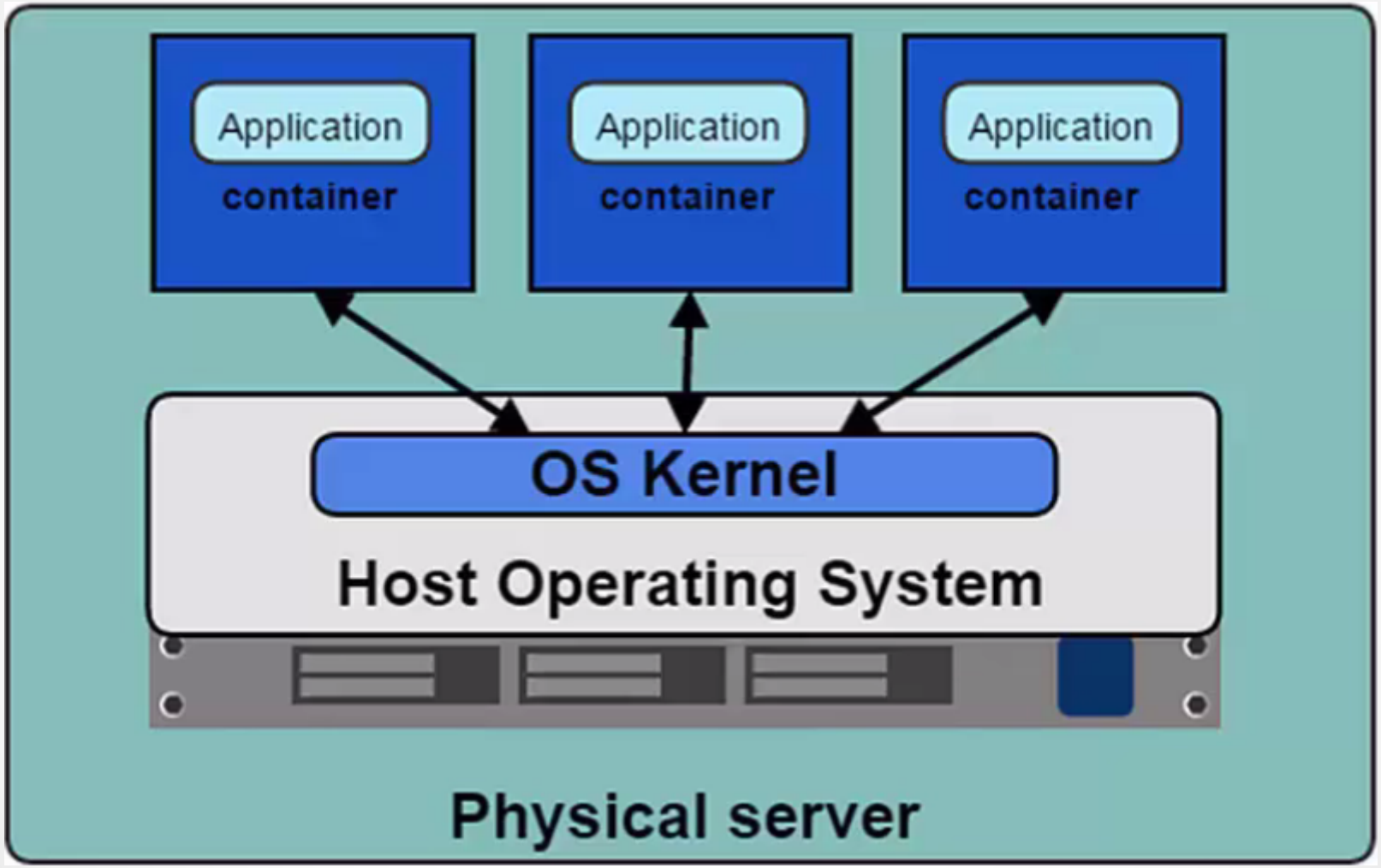
- Apache 2.20 Web Server
- PHP 5.5 Engine
- Larevel 4.1 Framework

- IIS 8
- .Net FrameWork 3.5

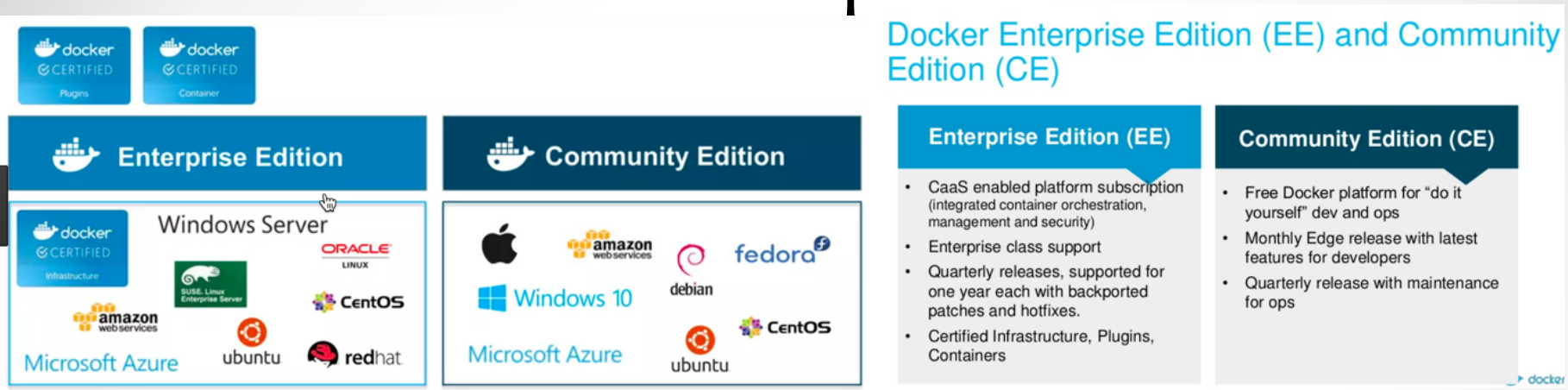
- MariaDB 5.1

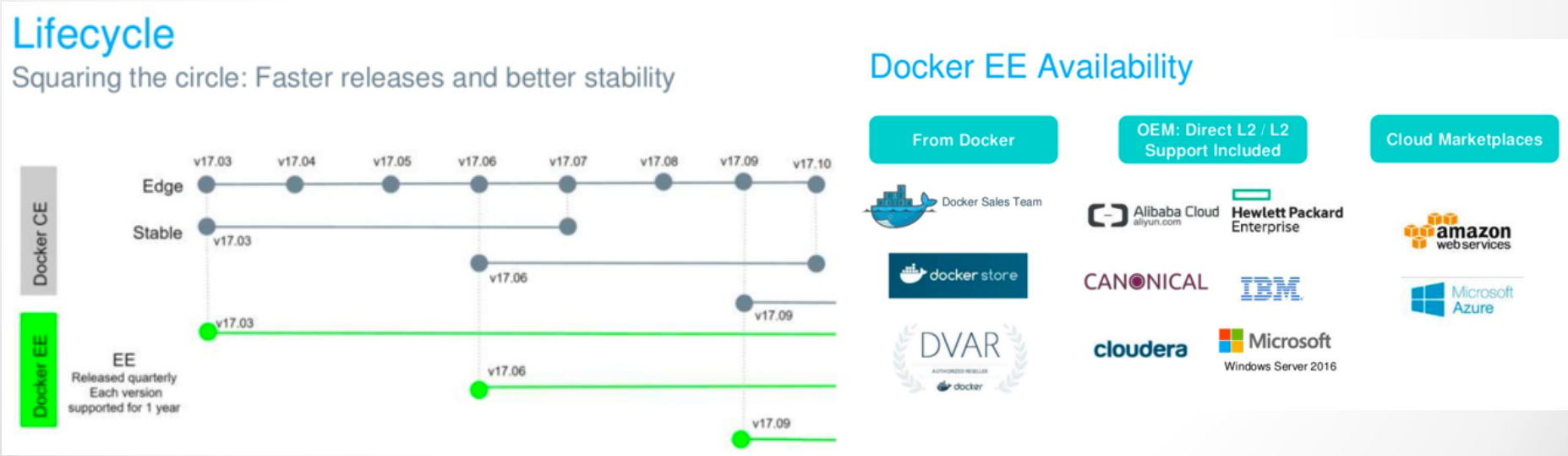
- Day 2: Application 2: Need to implement
  - Need PHP 7.0 ?
  - MariaDB 10.1.14 (Need search feature on 10.1)
- So… The problem still exist.

Container Concept and Use Case



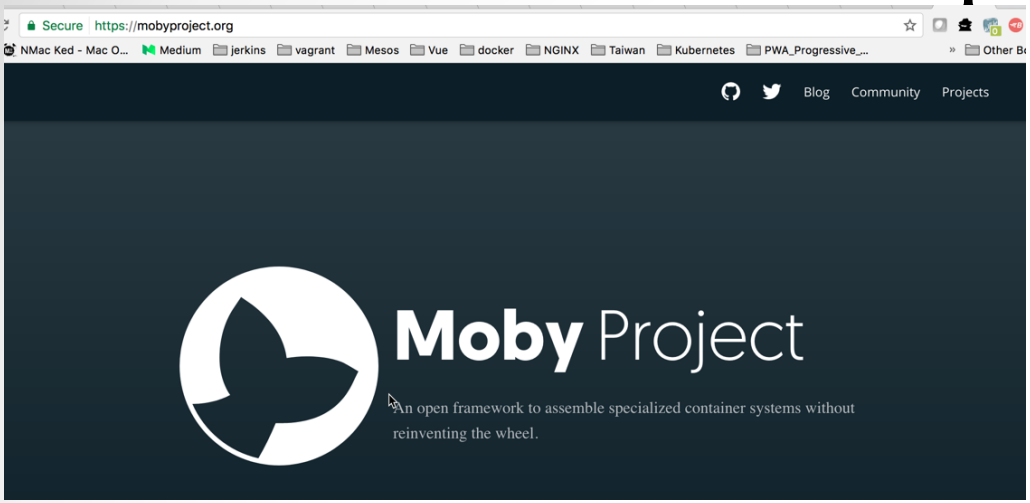
Container Concept and Use Case

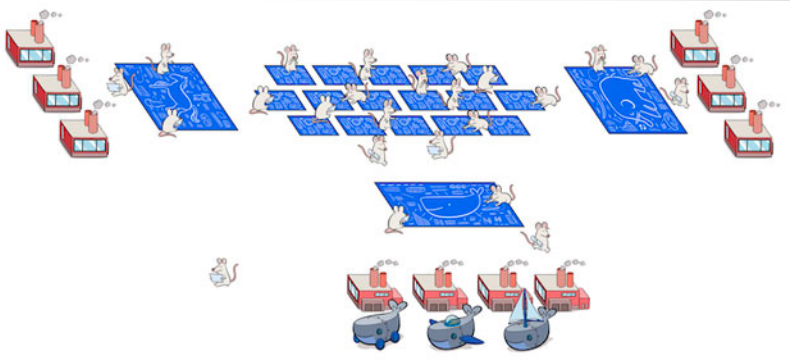


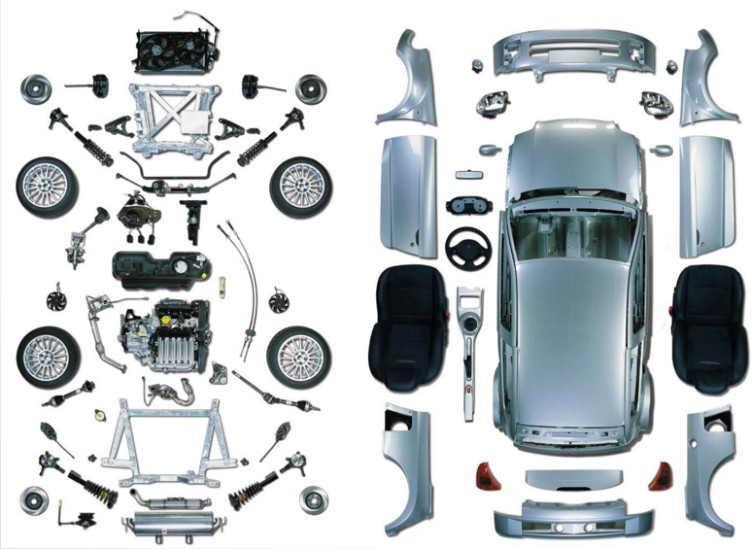


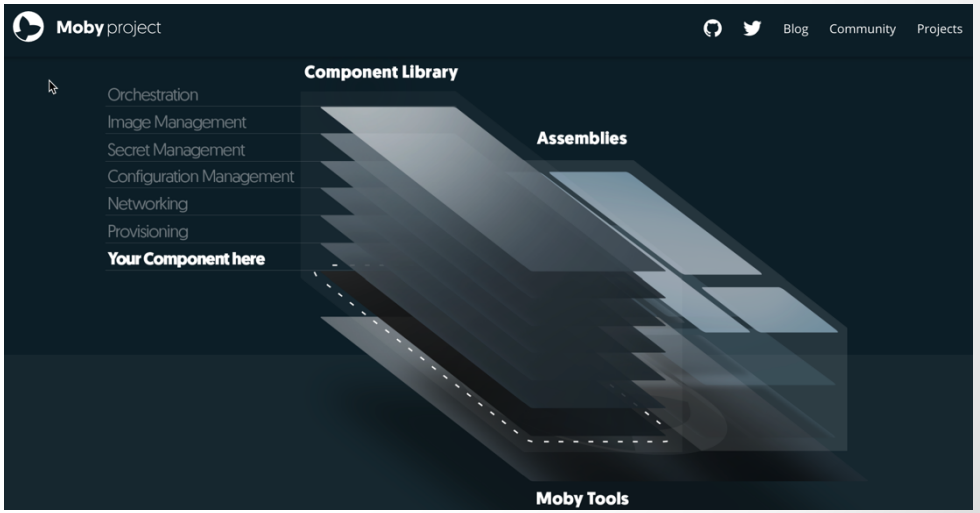
Ref: https://blog.docker.com/2017/03/docker-online-meetup-recap-docker-enterprise-edition-ee-community-edition-ce/

Container Concept and Use Case









Container Concept and Use Case

rkt

A security-minded, standards-based container engine

Overview | Documentation | GitHub Project

Overview

rkt is an application container engine developed for modern production cloud-native environments. It features a pod-native approach, a pluggable execution environment, and a well-defined surface area that makes it ideal for integration with other systems.

The core execution unit of rkt is the *pod*, a collection of one or more applications executing in a shared context (rkt's pods are synonymous with the concept in the Kubernetes orchestration system). rkt allows users to apply different configurations (like isolation parameters) at both pod-level and at the more granular per-application level. rkt's architecture means that each pod executes directly in the classic Unix process model (i.e. there is no central daemon), in a self-contained, isolated environment. rkt implements a modern, open, standard container format, the App Container (appc) spec, but can also execute other container images, like those created with Docker.

Since its introduction by CoreOS in December 2014, the rkt project has greatly matured and is widel

THE LATEST ON RKT

- CoreOS's rkt and to CNCF
- What Kubernete container engin

MORE INFORMATION

Download

CoreOS teams with Intel to make Rocket containers more secure

Container Concept and Use Case

Container Concept and Use Case

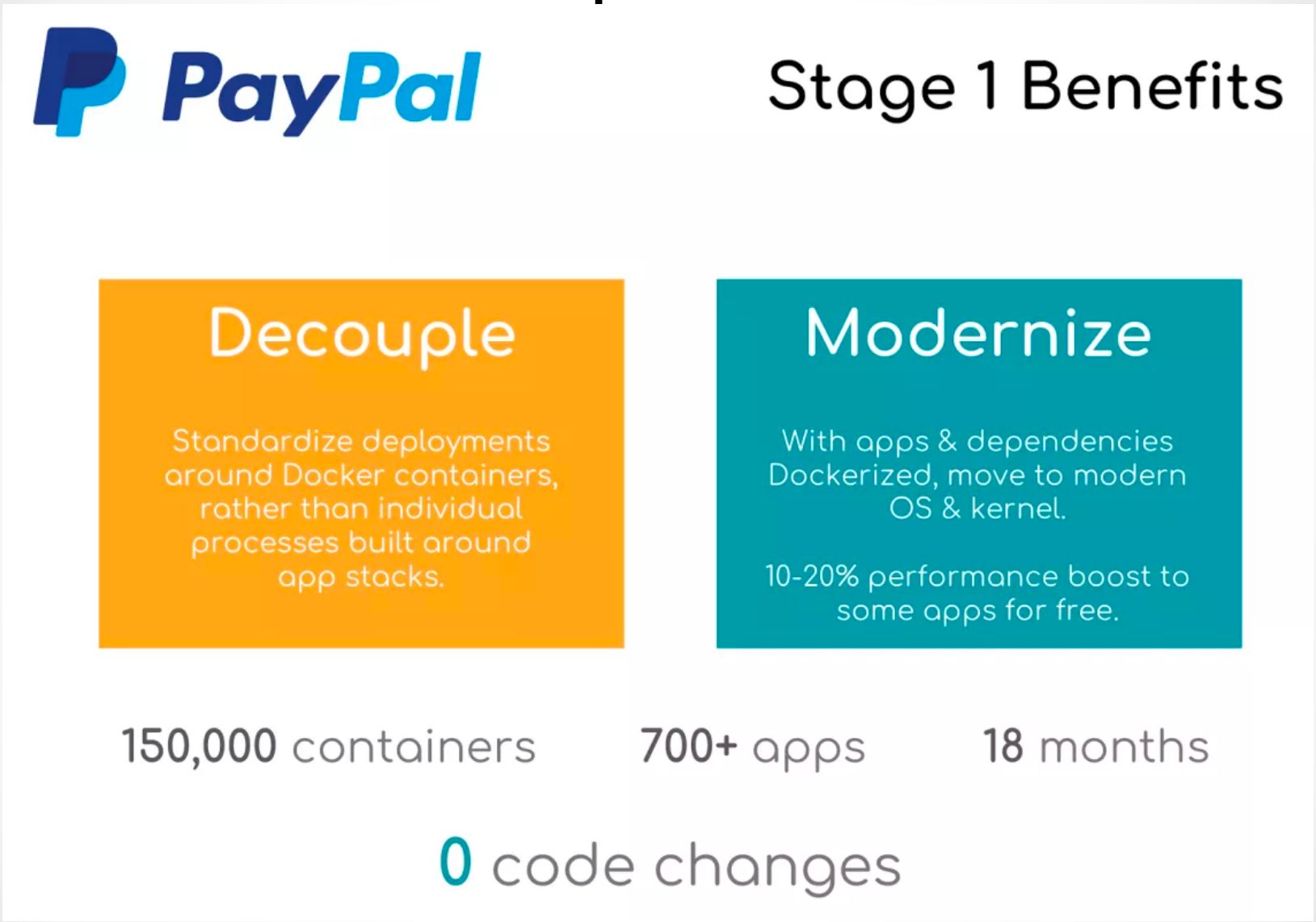
Visa Today

- Live in production for 6 months
- 100K transactions per day
- 10X app scalability
- Multiple clusters across multiple regions

Container Concept and Use Case

Container Concept and Use Case

Container Concept and Use Case



Container Concept and Use Case

Later Stage Benefits

PayPal

1 **Resource Efficiency**

50% fewer vCPUs in QA

25% fewer vCPUs in Prod

2 **Security**

Revoke access to Prod

Automate patching

3 **No VM Provisioning**

Scale containers (fast)

Not VMs (slow)

4 **Availability**

Increased resiliency

"Anything can run anywhere"

5 **Availability Zones**

Application deployments of an entire AZ in a few hours.

6 **Consistent Platform**

Consistent tooling

Standard playbook across app stacks

> 50% boost

to developer local build-deploy-test speed

Developer Freedom

for greenfield apps

Container Concept and Use Case

Principle of Kubernetes

Principle of Kubernetes

- Check kubernetes version

kubectl get nodes -o yaml

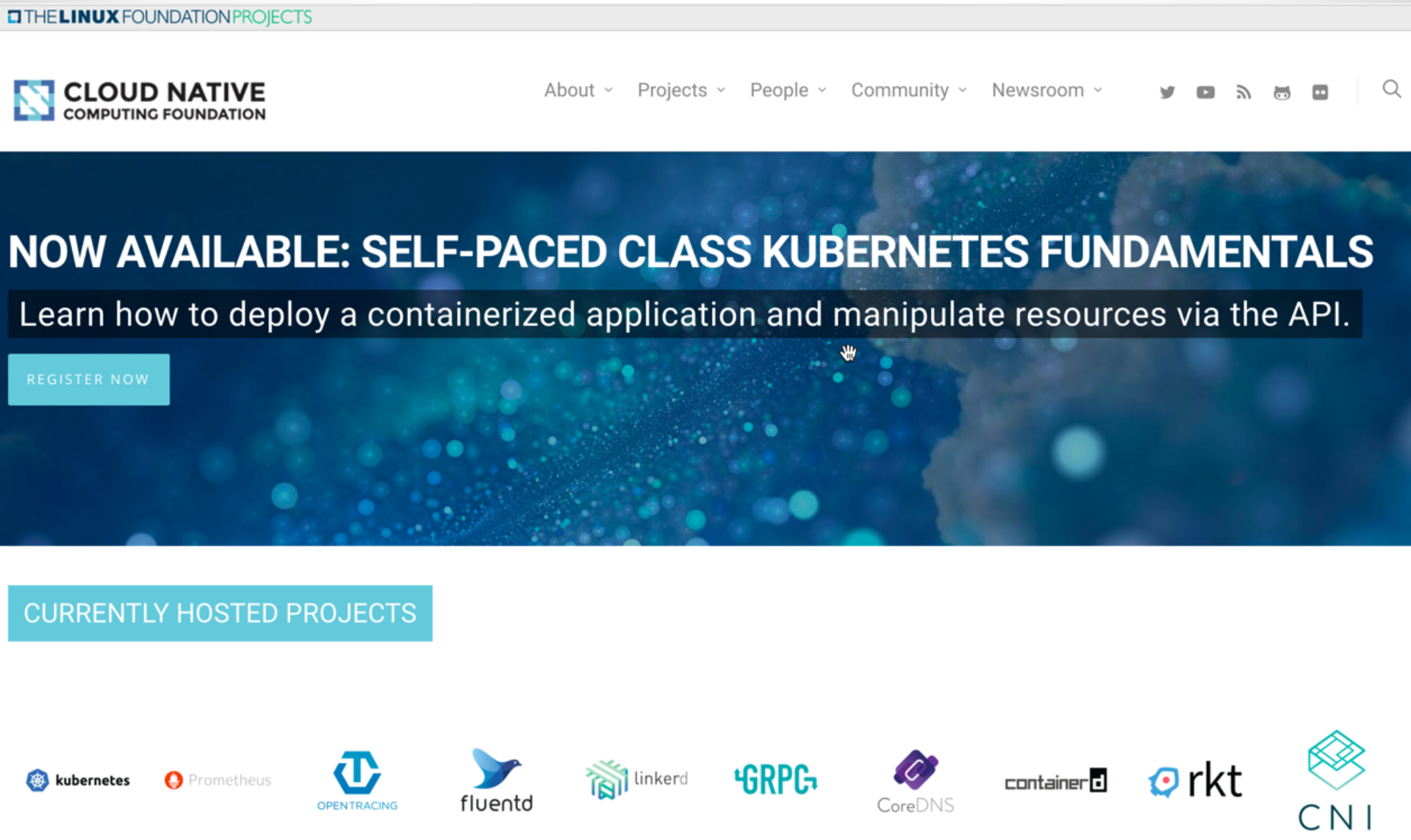
praparnlueangphoonlap —

~ — Terminal MAC Pro — -bash | ~ — Terminal MAC Pro —

```
praparns-MacBook-Pro:~ praparn$ kubectl get nodes -o yaml
apiVersion: v1
items:
- apiVersion: v1
  kind: Node
  metadata:
    annotations:
      node.alpha.kubernetes.io/ttl: "0"
      volumes.kubernetes.io/controller-managed-attach-detach: "true"
    creationTimestamp: 2017-06-24T09:03:07Z
    labels:
      beta.kubernetes.io/arch: amd64
      beta.kubernetes.io/os: linux
      kubernetes.io/hostname: minikube
    name: minikube
    namespace: ""
    resourceVersion: "15676"
    selfLink: /api/v1/nodesminikube
    uid: f03de16d-58bb-11e7-aae1-080027559511
  spec:
    externalID: minikube
```

```
    nodeInfo:
      architecture: amd64
      bootID: cdf78a28-072d-4707-8c7d-dbaa0b95fff7
      containerRuntimeVersion: docker://1.11.1
      kernelVersion: 4.9.13
      kubeProxyVersion: v1.6.0
      kubeletVersion: v1.6.0
      machineID: ef85c4ce9a23440e83266debd5cc9856
      operatingSystem: linux
      osImage: Buildroot 2017.02
      systemUUID: 801D91BA-D487-47D2-9C5D-C12F278B49C5
kind: List
metadata: {}
resourceVersion: ""
selfLink: ""
```

Principle of Kubernetes



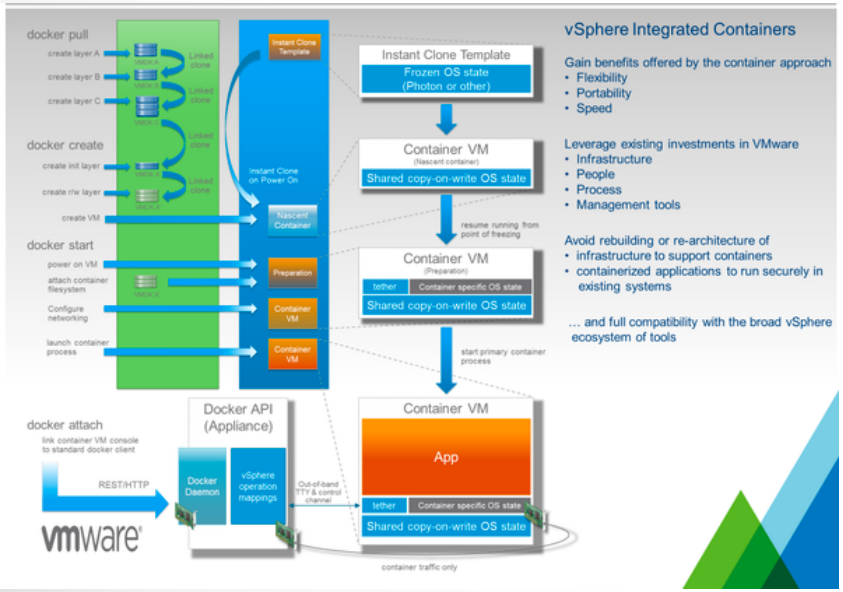
Principle of Kubernetes

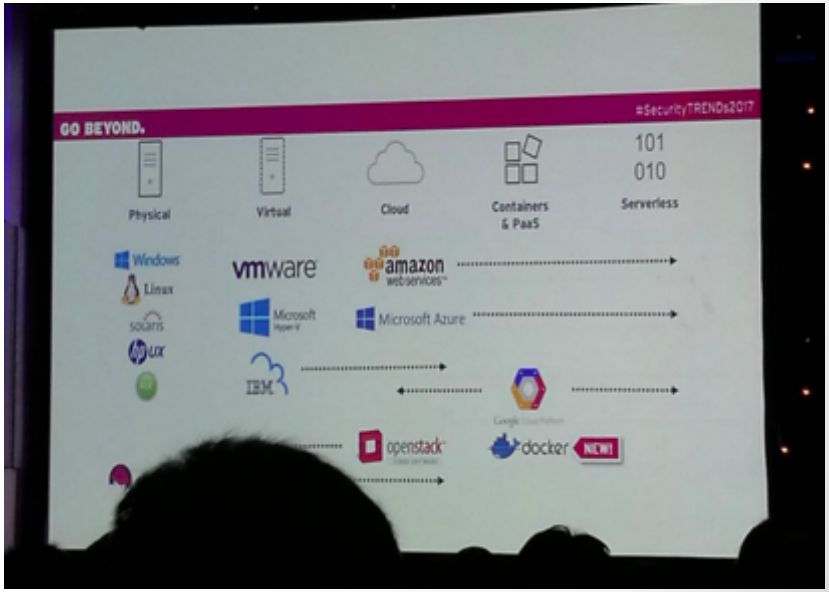
- What is Orchestration (Computing)?
  - Align business request with Application/Data/Infrastructure
  - Centralize management for:
    - Resource Pool
    - Automated Workflow
    - Provisioning
    - Scale Up/Down
    - Monitoring
    - Billing
    - etc

Ref: https://en.wikipedia.org/wiki/Orchestration_(computing)

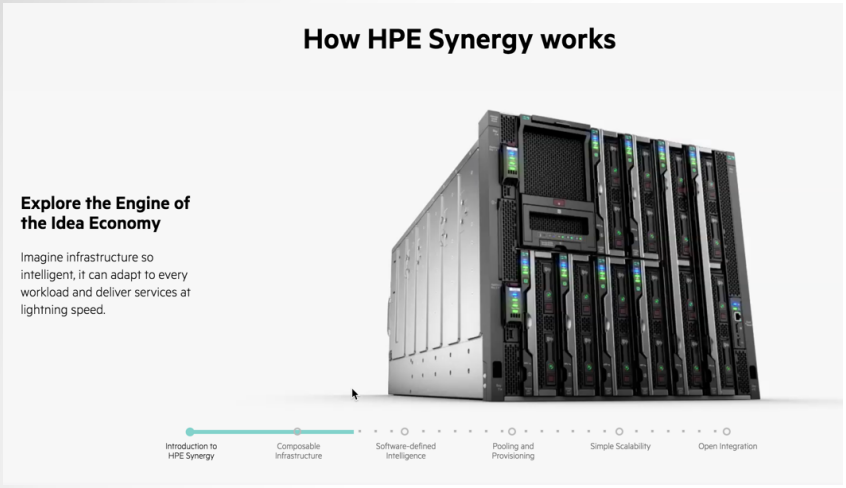
Principle of Kubernetes

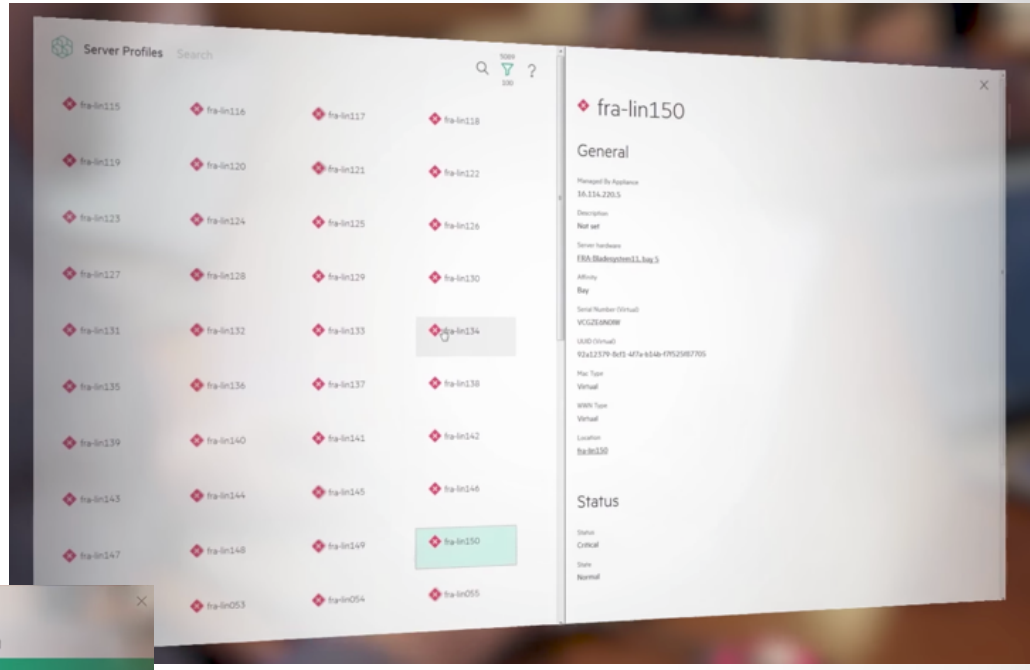
- But why Container Orchestration ?
  - Container Platform is next generation that partner/beat existing virtualize technology
    - Easy to build-ship-run on dev and production
    - Zero Configure
    - Suitable for Microservice architecture
    - Good for application, Good for business (Win/Win !!!)

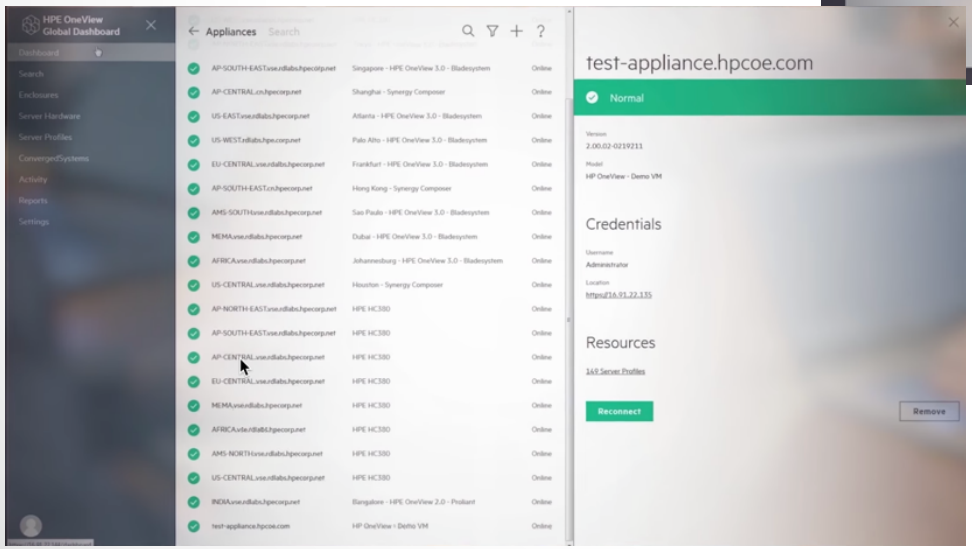




Principle of Kubernetes







Your infrastructure as code

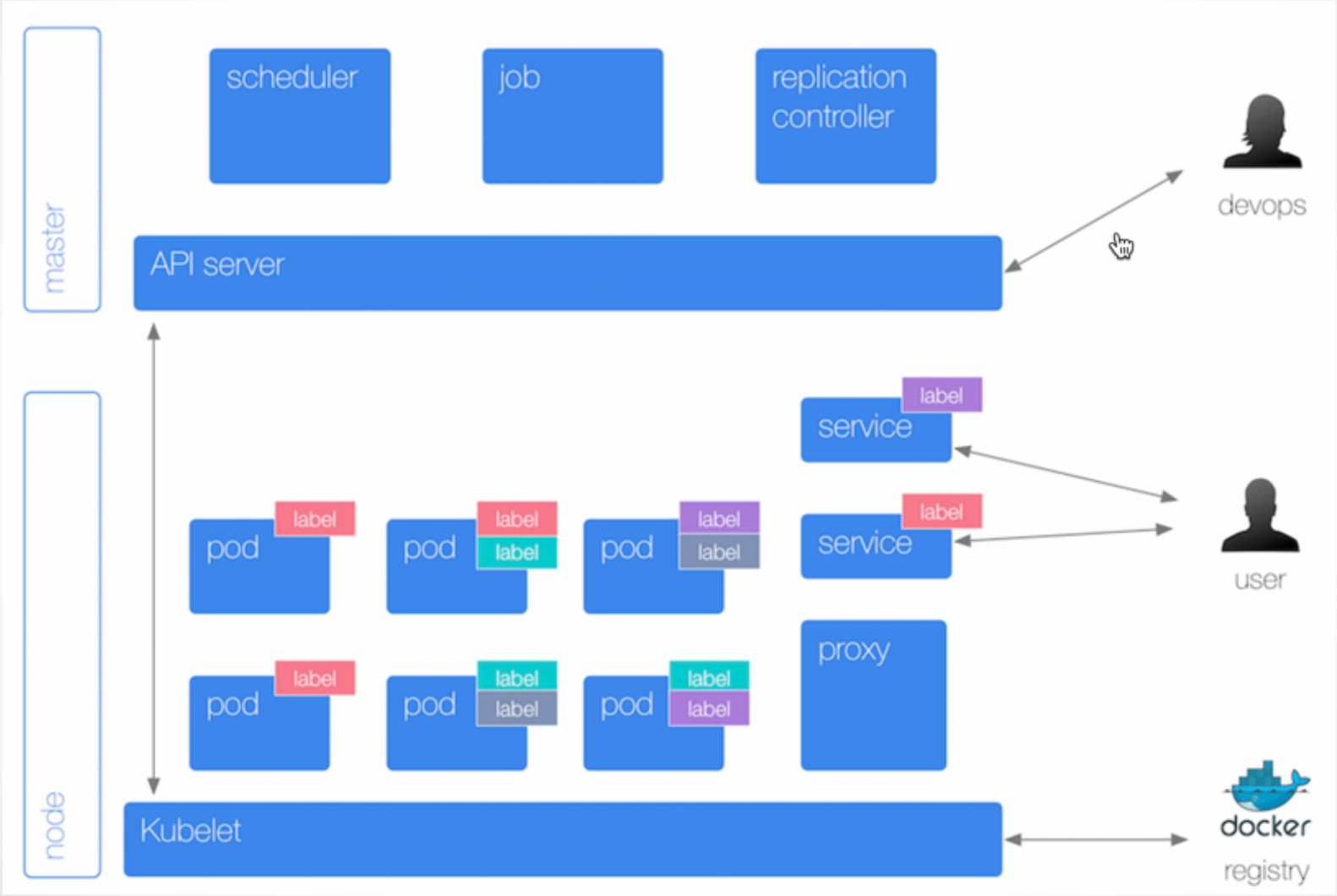
Gain efficiency and control with HPE Synergy, a powerful software-defined solution that lets you manage your infrastructure as code, deploying IT resources quickly and for any workload. Through a single interface, you can compose fluid pools of physical and virtual compute, storage, and fabric resources into any configuration for any application. With HPE Synergy, IT goes beyond the role of internal service broker to offer new applications that elevate and enhance the business.

Principle of Kubernetes

- But why we need Container Orchestration ?
  - Production environment is cluster system
  - Microservice maintain connect was required
  - Application state-full will run on stateless architecture
  - Application scale up/Down was required
  - Many native command/shell for maintain container in production environment
  - etc

Principle of Kubernetes

Principle of Kubernetes



Principle of Kubernetes

- Key Feature
  - Automatic binpacking
  - Horizontal Pod Autoscaling (HPA)
  - Automated rollouts and rollbacks
  - Storage orchestration
  - Self-healing
  - Service discovery and load balancing
  - Secret and configuration management
  - Batch execution

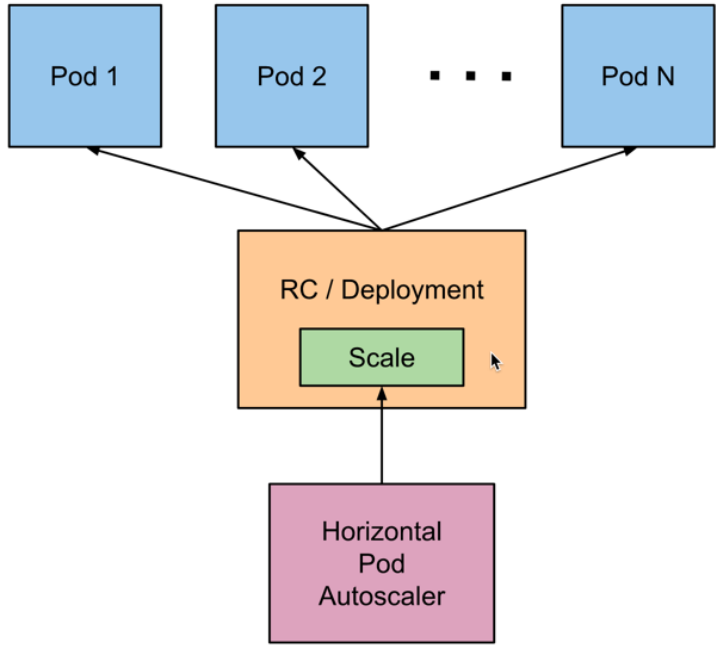
Principle of Kubernetes

- Automatic binpacking
  - CPU/Memory's utilization can define on Pods (Smallest Unit of Kubernetes)
  - Schedule will select the node by ensure all resource is enough for running Pods as required
  - If reach memory limit
    - Current Pods will be terminate (Kill)
    - If restart flag was set. Kubenetes will try to restart Pods on other node
  - If reach cpu limit
    - Schedule will not kill Pods and waiting for it back to normal state
  - Check available node resource by command: kubectl describe node

```
Non-terminated Pods:          (3 in total)
  Namespace                   Name                          CPU Requests    CPU LimitsMemory Requests  Memory Limits
  ---------                   ----                          ------------    ----------------------------  -------------
  kube-system                 kube-addon-manager-minikube   5m (0%)         0 (0%)     50Mi (2%)        0 (0%)
  kube-system                 kube-dns-268032401-mx7s3      260m (13%)      0 (0%)     110Mi (5%)       170Mi (8%)
  kube-system                 kubernetes-dashboard-hdhrz    0 (0%)          0 (0%)     0 (0%)           0 (0%)
Allocated resources:
  (Total limits may be over 100 percent, i.e., overcommitted.)
  CPU Requests  CPU Limits      Memory Requests Memory Limits
  ------------  ----------      --------------- -------------
  265m (13%)    0 (0%)          160Mi (8%)      170Mi (8%)
Events:         <none>
```

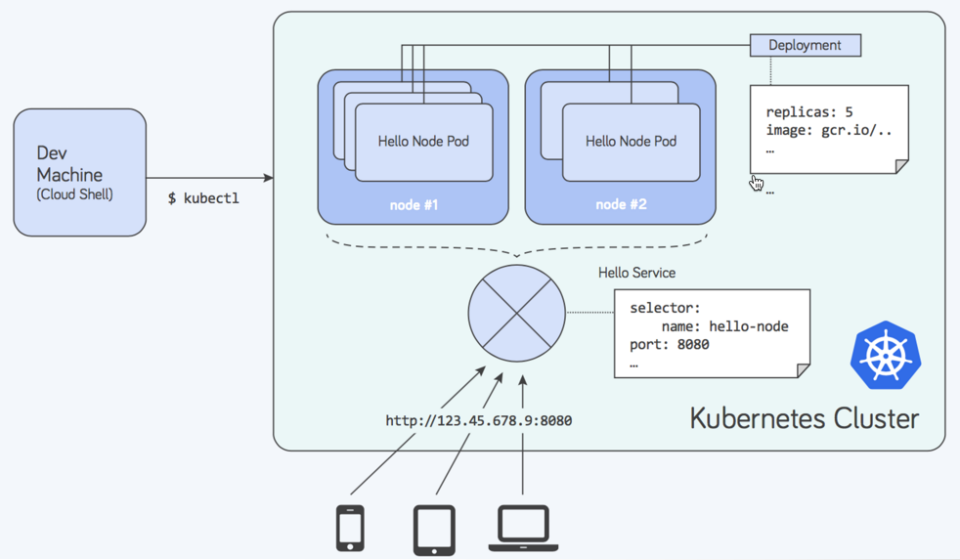
Principle of Kubernetes

- Horizon Pods Autoscaling (hpa)
  - Talk with RC (Replication Controller) for complete task
  - Automatic scaling Pods's number base cpu's utilization
  - Support multiple criteria (metric) for scale (Alpha feature)
  - Support customize criteria (metric) for scale (Alpha feature)
  - Looping check resource's utilization every 30 seconds (default)



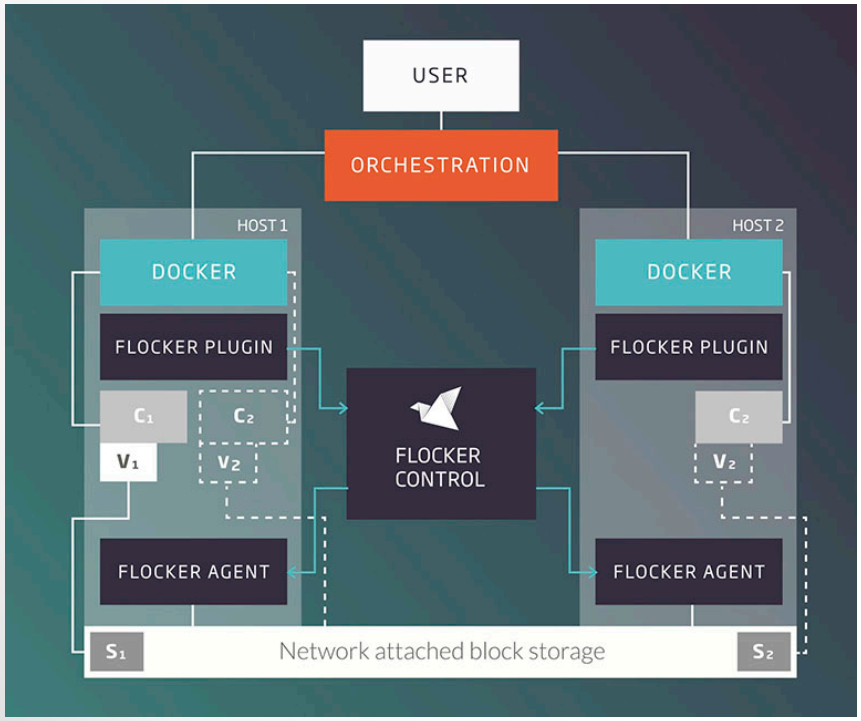
Principle of Kubernetes

- Automated Rollout and Rollbacks
  - Update will base on Pod's template
  - Rollout existing deployment with all remain replicas number as desired
  - If rollout is success. New version will be provision until success
  - Rollback will possible with single command
  - Rollout process can pause/resume as need



Principle of Kubernetes

- Storage Orchestrator
  - Support several storage type:
    - Local Storage
    - Network Storage (NFS, iScsi, Gluster, Ceph, Cinder, Flocker)
    - Cloud Storage (AWS, GCE, Azue Disk etc)

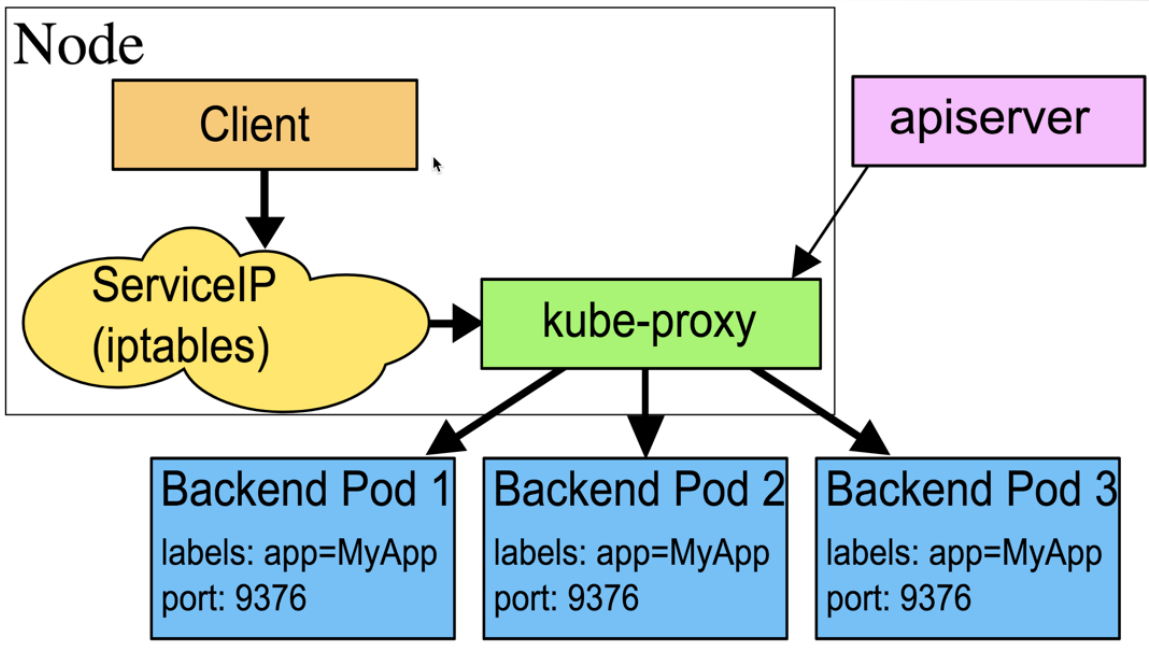


Principle of Kubernetes

- Self-healing
  - Replication Controller (RC) will maintain unit of Pods as design (not to much (kill) and not to few (create)
  - Full-fill Pods on every failure case with automatic by system

Principle of Kubernetes

- Service Discovery and Load Balancing
  - Service will act like "connector" for client need to connect with Pods
  - Discovery will use for service to look "Pods" by environment variable or dns service
  - Support load balancing between multiple Pods (replica)



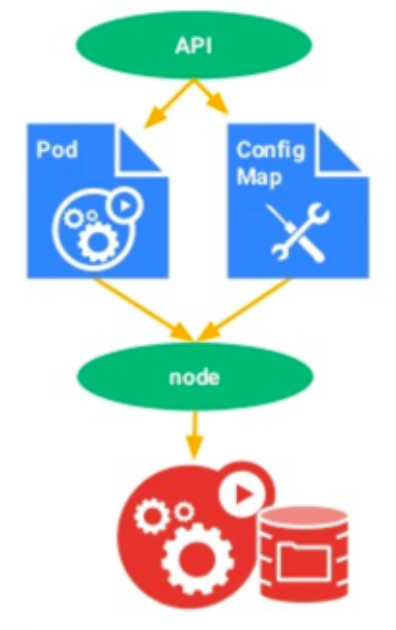
Principle of Kubernetes

- Secret and Configuration Management
  - Kubernetes can keep confidential data (such as username/password) for running application on encrypt format.
  - Can reference on Pods instead plan text configuration.

```
$ kubectl get secrets
NAME                  TYPE                                  DATA      AGE
db-user-pass          Opaque                                2         51s

$ kubectl describe secrets/db-user-pass
Name:            db-user-pass
Namespace:       default
Labels:          <none>
Annotations:     <none>

Type:            Opaque

Data
====
password.txt:    12 bytes
username.txt:    5 bytes
```

Principle of Kubernetes

- Secret and Configuration Management
  - Sometime we have a many configuration that need to specify on each application, But it should be change every time need.
  - Idea is create configuration file (ConfigMap) for define all configuration that reference on Pods instead



ConfigMap

```
apiVersion: v1
kind: ConfigMap
metadata:
  name: dragon-config
labels:
  environment: non-prod
data:
  dragon.how.much: very
  dragon.type: fast
```

```
apiVersion: v1
kind: Pod
metadata:
 name: dragon-pod
spec:
 containers:
  - name: dragon-container
    image: dragon-image
    env:
     - name: DRAGON_LEVEL
       valueFrom:
         configMapKeyRef:
           name: dragon-config
           key: dragon.how.much
     - name: DRAGON_TYPE
       valueFrom:
         configMapKeyRef:
           name: dragon-config
           key: dragon.type
```

Principle of Kubernetes

- Batch Execution
  - A job will response some kind of batch execute by create special Pods (Terminate when batch complete)
  - Normally kubernetes will use job for maintain many background process for cluster system such as Replication Controller (RC) will submit job for start new Pods when existing is fail or delete.
  - Type of Job
    - Non-parallel jobs
    - Parallel jobs with fix-completion
    - Parallel jobs with work queue

K8S vs Docker what is the difference ?

K8S vs Docker what is the difference ?

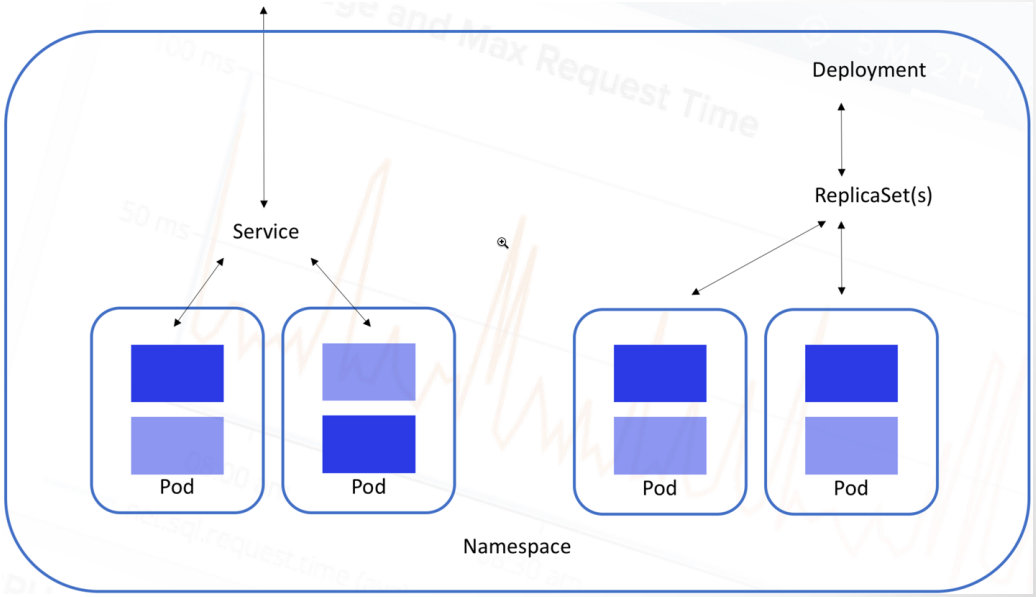
- The **difference concept** of Docker/K8S
  - Docker Native/Swarm Mode:
    - Simplify (Single command for initial/manage/maintain)
    - Provide all resource within suite (overlay network, key value etc) by default
    - Fastest deployment
  - K8S (Kubernetes):
    - Production grade orchestrator (Customizable)
    - Customize by design (network plugin, storage etc)
    - Complex configuration support for handle application

K8S vs Docker what is the difference ?

Topic	K8S	Docker/Swarm
Architecture	Open-system (Base on cluster manager "Borg" for support complex workload)	**Swarm**: Proprietary of Docker product, "Easy to use", "Extend capability of Docker in cluster"
Operation command	Almost operate by "YMAL" file (Declarative Command)	Almost operate by "command" (Imperative Command)
Unit of Work	Pods (Pods >= Container)	Container
How to Identify Work	"Label operation"	**Docker**: By container name **Swarm**: By service/stack name
Level of workload management	Service Level: (Simple) Replication Level: (Auto healing) Deployment Level: (Auto healing + Roll Update)	**Docker**: N/A **Swarm**: Service Level (Snag with service/stack)
Auto scaling	HPA (Horizontal Pods Scaling) base on CPU	No
Health check	Liveness & Readiness (Multi option to check application health)	Service health only

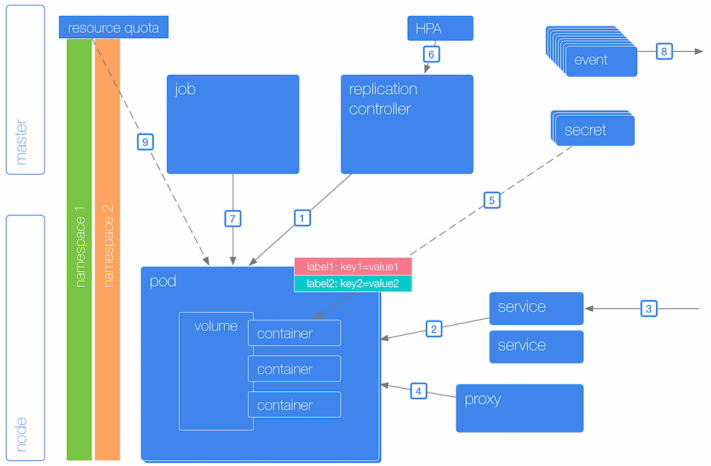
K8S vs Docker what is the difference ?

- Workload Management
  - Swarm operation
    - docker service (run/ps/stop/rm etc)
    - docker stack (deploy/ls/ps/services etc)
  - K8S Operation
    - Service
    - Replication Controller
    - Deployment + RS

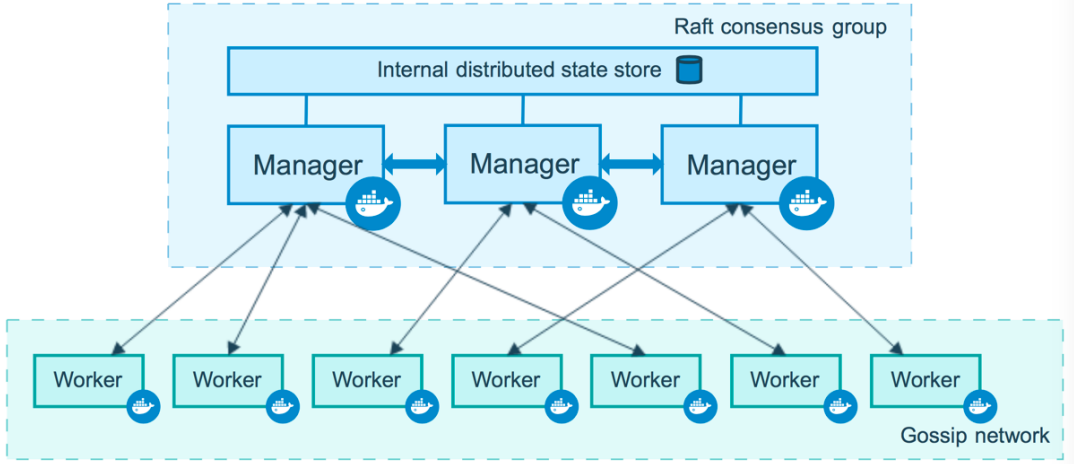


K8S vs Docker what is the difference ?

- K8S Architecture



- Docker Swarm Architcture



K8S vs Docker what is the difference ?

- Docker Command
  - “docker container run -dt --name webtest -p 5000:5000 labdocker/cluster:webservicelite”

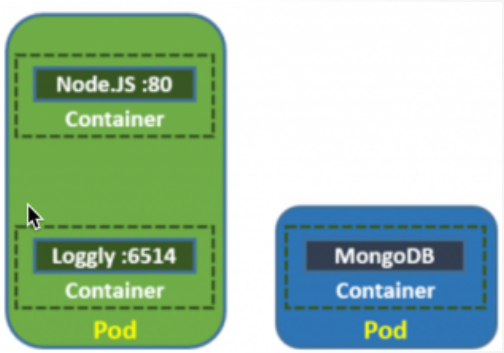
- K8S Pods&Service (YAML File)

```yaml
apiVersion: "v1"
kind: Pod
metadata:
  name: webtest
  labels:
    name: web
    owner: Praparn_L
    version: "1.0"
    module: WebServer
    environment: development
spec:
  containers:
    - name: webtest
      image: labdocker/cluster:webservicelite
      ports:
        - containerPort: 5000
          protocol: TCP
```

```yaml
apiVersion: v1
kind: Service
metadata:
  name: webtest
  labels:
    name: web
    owner: Praparn_L
    version: "1.0"
    module: WebServer
    environment: development
spec:
  selector:
    name: web
    owner: Praparn_L
    version: "1.0"
    module: WebServer
    environment: development

  type: NodePort
  ports:
   - port: 5000
     name: http
     targetPort: 5000
     protocol: TCP
```

K8S vs Docker what is the difference ?

- Unit of Work (Pods vs Container)
  - All container on same Pods will share:
    - Process ID (PID)
    - Network access (Communicate to each other via "localhost")
    - Internal Process Command (IPC)
    - Unix Time-Sharing (UTS)
    - Hostname
    - IP Address/Ports

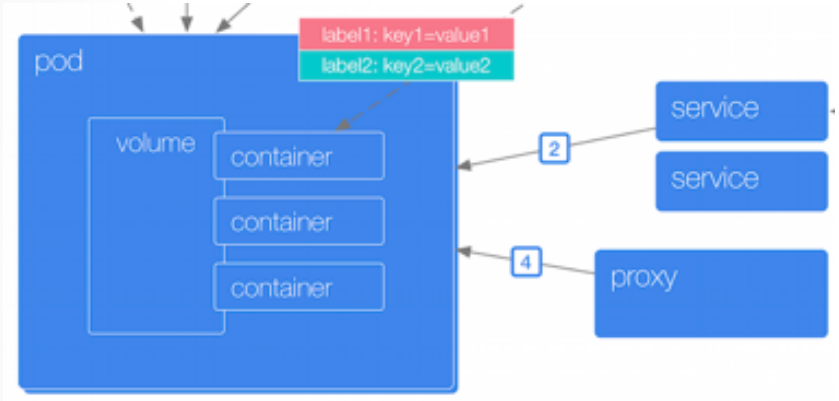


  - Use Case for Multiple Pods:
    - Apache (1 Container) +Tomcat (1 Container)
    - Apache(1 Container) + PHP (1 Container)
    - Nginx (Cache: 1 Container) + Apache/PHP (1 Container)
    - Web Server (1 Container) + Data Volume(Cache: 1 Container)

  - Pods will can create replicas of 1000+ set on cluster system

K8S vs Docker what is the difference ?

- Identify Work (Label is base advantage of K8S)
  - All component of K8S will blinding with “label”
  - Label is free-form, Customize by yourself !!!

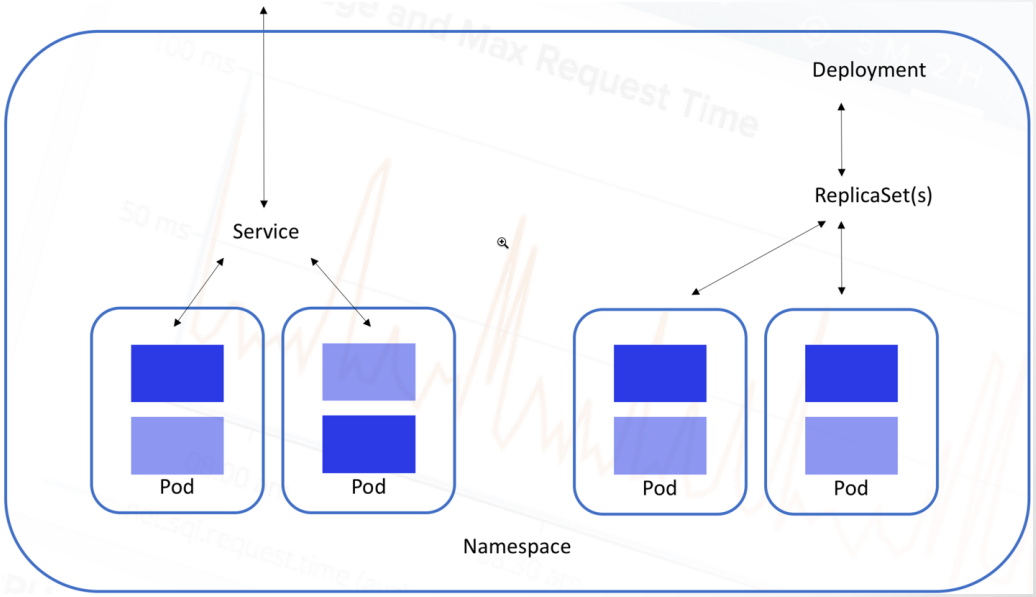



```
"release" : "stable", "release" : "canary"

"environment" : "dev", "environment" : "qa", "environment" : "production"

"tier" : "frontend", "tier" : "backend", "tier" : "cache"

"partition" : "customerA", "partition" : "customerB"

"track" : "daily", "track" : "weekly"
```

```yaml
apiVersion: v1
kind: Service
metadata:
  name: webtest
  labels:
    name: web
    owner: Praparn_L
    version: "1.0"
    module: WebServer
    environment: development
spec:
  selector:
    name: web
    owner: Praparn_L
    version: "1.0"
    module: WebServer
    environment: development

  type: NodePort
  ports:
   - port: 5000
     name: http
     targetPort: 5000
     protocol: TCP
```

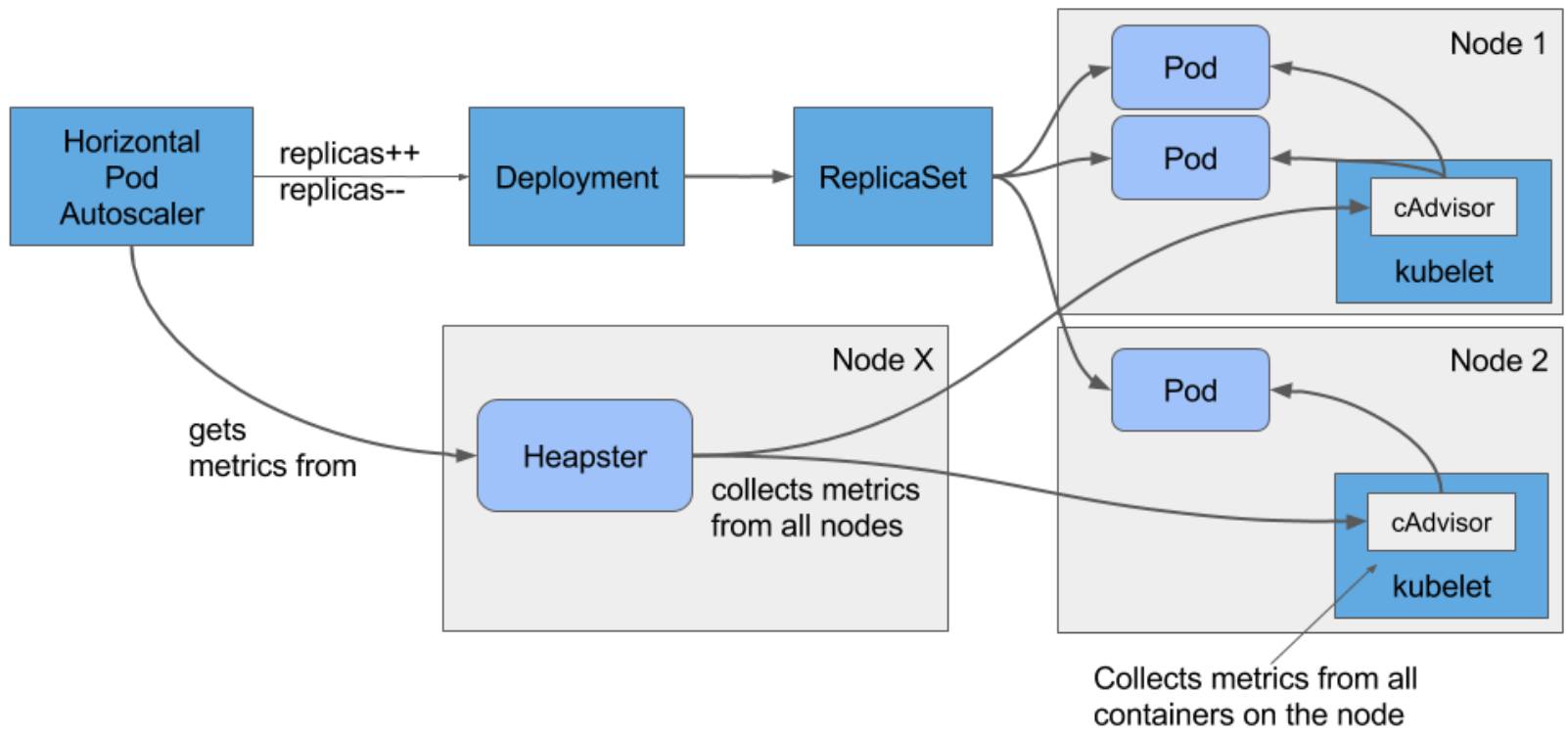
K8S vs Docker what is the difference ?

- Workload Management
  - Swarm operation (Service/Stack)
    - docker service (run/ps/stop/rm etc)
    - docker stack (deploy/ls/ps/services etc)
  - K8S Operation
    - Service
    - Replication Controller
    - Deployment + RS



K8S vs Docker what is the difference ?

- Auto Scale (K8S Horizontal Pod Autoscaler (HPA))



K8S vs Docker what is the difference ?

- Health Check
  - Docker: monitor by service on container
  - Kubernetes: monitor by service + customize
    - Liveness: Pods/Container is still alive (if not restart pods)
    - Readiness Pods/Container is ready to use (if not redirect workload to another pods)
    - Technic for check (Both Liveness/Readiness):
      - ExecAction:
      - TCPSocketAction:
      - HTTPGetAction:

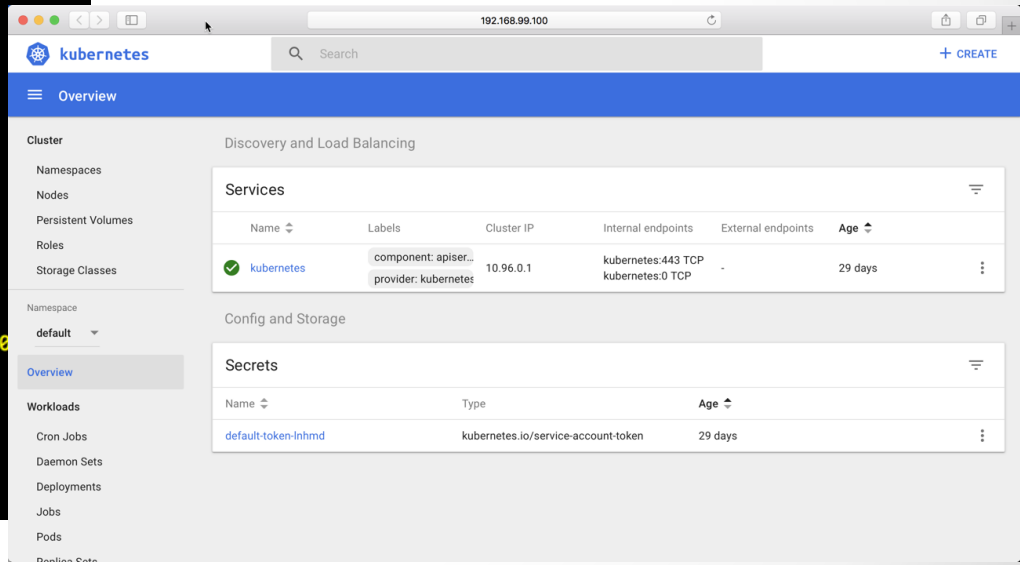
How to acquire K8S on your machine

How to acquire K8S to your machine

- Way1: Minikube (VirtualBox: Native Way)

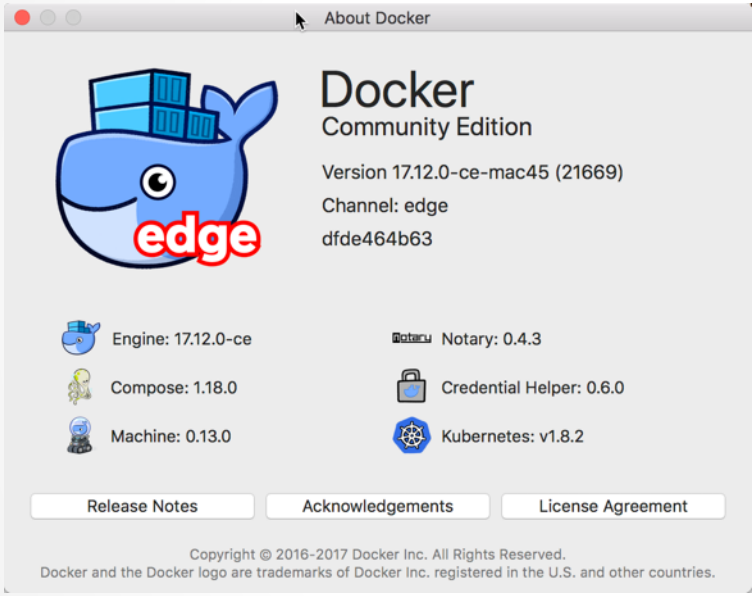
minikube

```
praparns-MacBook-Pro% minikube start
There is a newer version of minikube available (v0.26.0).  Download it here:
https://github.com/kubernetes/minikube/releases/tag/v0.26.0

To disable this notification, run the following:
minikube config set WantUpdateNotification false
Starting local Kubernetes v1.9.0 cluster...
Starting VM...
Getting VM IP address...
Moving files into cluster...
Setting up certs...
Connecting to cluster...
Setting up kubeconfig...
Starting cluster components...
Kubectl is now configured to use the cluster.
Loading cached images from config file.
praparns-MacBook-Pro% minikube status
minikube: Running
cluster: Running
kubectl: Correctly Configured: pointing to minikube-vm at 192.168.99.10
praparns-MacBook-Pro% kubectl config use-context minikube
Switched to context "minikube".
praparns-MacBook-Pro% kubectl get nodes
NAME       STATUS    ROLES     AGE       VERSION
minikube   Ready     <none>    29d       v1.9.0
praparns-MacBook-Pro%
```



How to acquire K8S to your machine

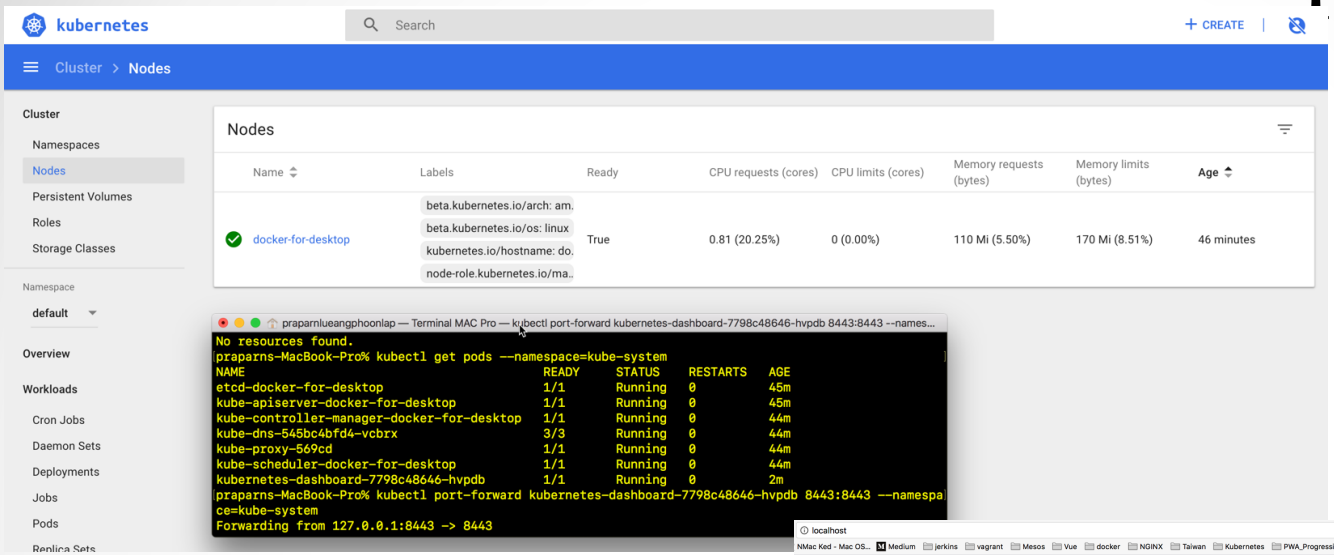
- Way2 : Docker Community Edition (CE)
  - Docker for Windows (**Available Now with Edge Edition !!!**)
  - Docker for MAC (**Available Now with Edge Edition !!!**)

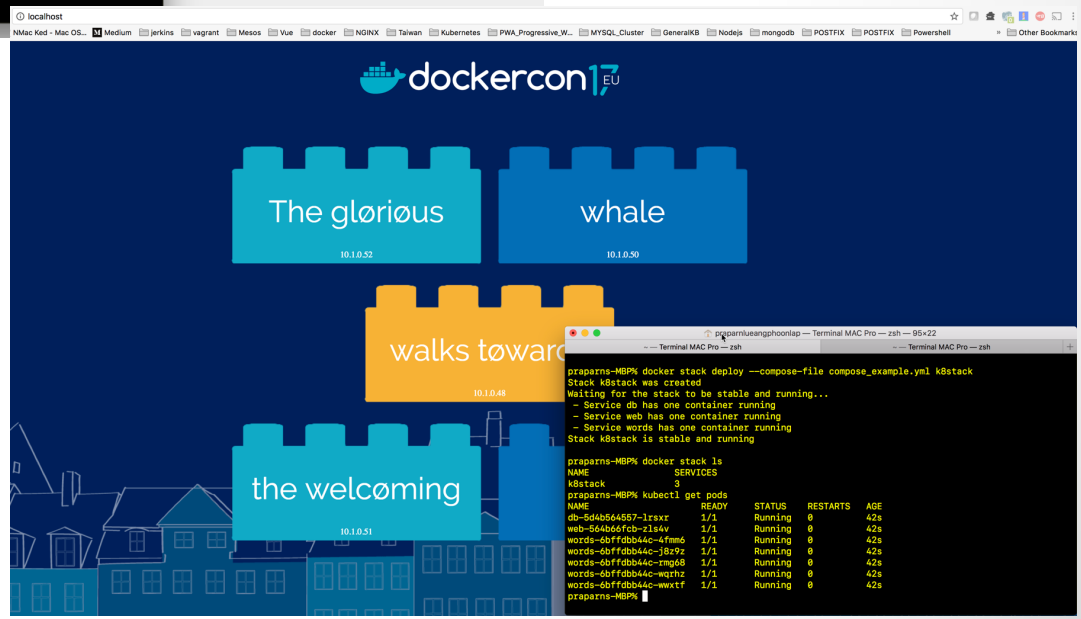


How to acquire K8S to your machine

- Docker CE's Benefit
  - Reduce complexity of K8S setup in this platform (Initial Farm, HA Setup etc)
  - Utilization host resource from mix workload for Swarm and K8S (Docker EE)
  - Developer feel free for testing both Swarm/K8S environment on their machine (Docker CE)
  - Multiple operate support in same farm
    - Docker native command (docker run, docker ps etc)
    - Kubernetest native command (kubectl create, kubectl get pods etc)
    - Compose support both orchestrator
  - Big community of sharing in container world

Benefit of K8S in docker platform





Kubernetes 101

dockercon17 EU

Demo Session

By Praparn Luengphoonlap
Email: eva10409@gmail.com