



# Vagrant K8S Traefik

Administración de sistemas



# Introducción



**kubernetes**



**træfik**



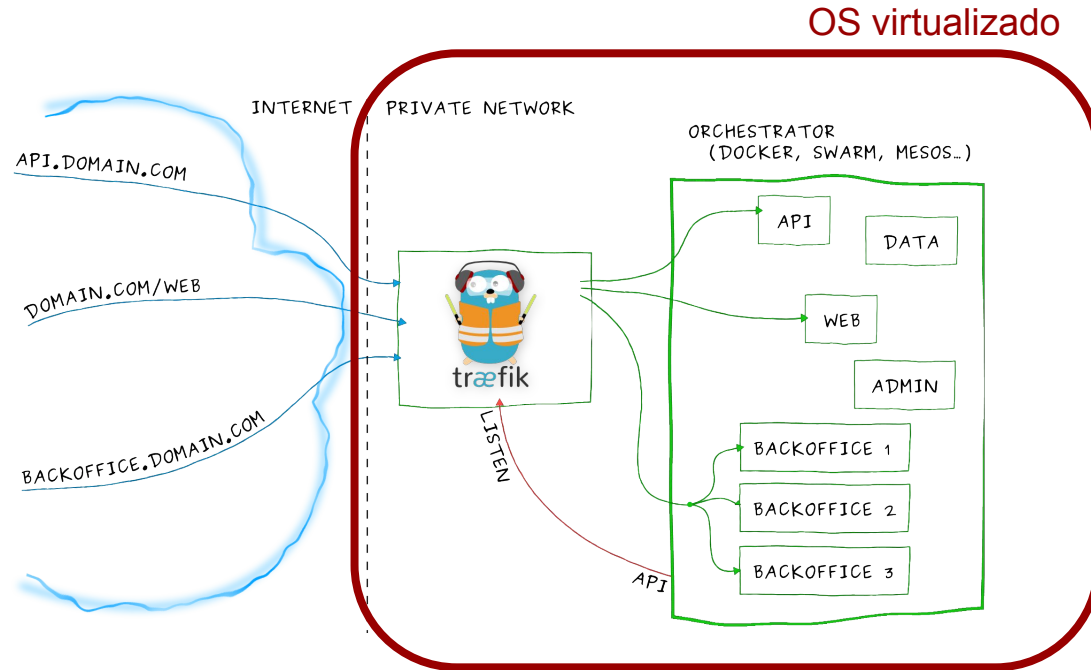
# Introducción

- Entorno virtualizado, Vagrant con Virtualbox
- Orquestación con Kubernetes
- Proxy inverso Traefik

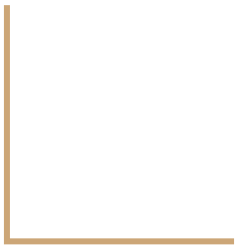
# Objetivos

El trabajo pretende configurar una red de máquinas orquestadas que respondan a peticiones que se realicen a través de la web (http) y que en función del subdominio se mande la petición a la máquina asignada a este a través de un proxy DNS.

# Objetivos



# Implementación



# Implementación: OS virtualizado

Vagrant sobre Virtualbox

Ubuntu 16.04 LTS

Entorno Gnome

Contenedores Docker



HashiCorp

**Vagrant**



ubuntu

# Implementación: Kubernetes

Intento fallido: minikube virtualizado, no existe Vagrantfile

Intento fallido: kubectl y kubeadm virtualizado con 1 nodo, no arranca

Intento fallido: kubectl y kubeadm virtualizado multinodo, no arranca

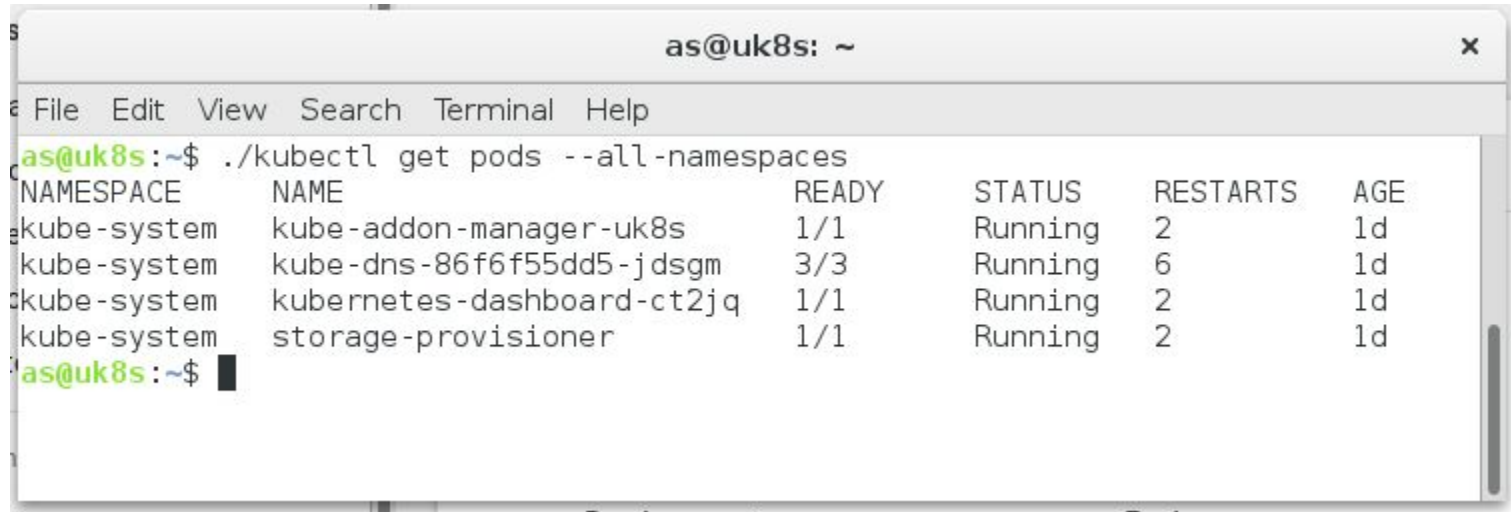
...

Opción elegida: minikube no virtualizado dentro de un OS virtualizado



# Implementación: Kubernetes

```
curl -Lo minikube https://storage.googleapis.com/minikube/releases/latest/minikube-linux-amd64 && chmod +x minikube
curl -Lo kubectl https://storage.googleapis.com/kubernetes-release/release/$(curl -s https://storage.googleapis.com/
kubernetes-release/release/stable.txt)/bin/linux/amd64/kubectl && chmod +x kubectl
sudo -E ./minikube start --vm-driver=none
```



The image shows a terminal window titled 'as@uk8s: ~'. The terminal displays the command `./kubectl get pods --all-namespaces` and its output, which is a table of pods across different namespaces. The table has columns for NAMESPACE, NAME, READY, STATUS, RESTARTS, and AGE. The output shows four pods in the kube-system namespace, all in a 'Running' state.

```
as@uk8s:~$ ./kubectl get pods --all-namespaces
NAMESPACE      NAME                                READY   STATUS    RESTARTS   AGE
kube-system    kube-addon-manager-uk8s            1/1     Running   2           1d
kube-system    kube-dns-86f6f55dd5-jdsgm          3/3     Running   6           1d
kube-system    kubernetes-dashboard-ct2jq         1/1     Running   2           1d
kube-system    storage-provisioner                 1/1     Running   2           1d
as@uk8s:~$
```

# Implementación: Kubernetes

The screenshot displays the Kubernetes Dashboard Overview page. The browser's address bar shows the URL `localhost:30000/#/overview?namespace=_all`. The dashboard features a sidebar on the left with navigation options: Cluster, Namespaces, Nodes, Persistent Volumes, Roles, Storage Classes, Namespace (set to 'All namespaces'), Overview (selected), Workloads, Cron Jobs, Daemon Sets, Deployments, Jobs, and Pods. The main content area is titled 'Workloads' and contains two sections: 'Workloads Statuses' and 'Deployments'.

**Workloads Statuses**

Workload Type	Status
Deployments	100.00%
Pods	100.00%
Replica Sets	100.00%
Replication Controllers	100.00%

**Deployments**

Name	Namespace	Labels	Pods	Age	Images
traefik-ingress-contr	kube-system	k8s-app: traefik-ing.	1 / 1	-	traefik
kube-dns	kube-system	addonmanager.kub. k8s-app: kube-dns version: v20	1 / 1	3 hours	gcr.io/google_contain gcr.io/google_contain gcr.io/google_contain

# Implementación: Traefik

```
# Deploy Traefik using a Deployment or DaemonSet
```

```
./kubectl apply -f https://raw.githubusercontent.com/containous/traefik/master/examples/k8s/traefik-deployment.yaml
```

```
# Submitting An Ingress to the cluster.
```

```
./kubectl apply -f https://raw.githubusercontent.com/containous/traefik/master/examples/k8s/ui.yaml
```

```
echo "$(minikube ip) traefik-ui.minikube" | sudo tee -a /etc/hosts
```

The screenshot shows the Traefik dashboard interface. The browser address bar indicates the URL is localhost:30482/dashboard/#/. The dashboard header includes 'Providers' and 'Health' tabs, and the version is v1.4.5 / roquefort. There are links for 'Documentation' and 'traefik.io'. A search filter is present, and the current context is 'kubernetes'.

The main content area is divided into two panels:

- traefik-ui.minikube/ (Left Panel):** Shows a table of routes and their rules.

Route	Rule
/	PathPrefix:/
traefik-ui.minikube	Host:traefik-ui.minikube

Below the table, there are tags for 'http', 'Backend:traefik-ui.minikube/', and 'PassHostHeader'.
- traefik-ui.minikube/ (Right Panel):** Shows a table of servers and their weights.

Server	URL	Weight
traefik-ingress-controller-7bcb868b8b-stsf	http://172.17.0.4:8080	1

Below the table, there is a tag for 'Load Balancer: wrr'.

# Implementación: Traefik + Vagrant Landrush

Landrush utiliza las iptables, modificando y creando nuevas reglas

```
as@uk8s: ~  
File Edit View Search Terminal Help  
as@uk8s:~$ ./kubectl get pods --all-namespaces  
NAMESPACE      NAME                                     READY   STATUS    RESTARTS   AGE  
kube-system     kube-addon-manager-uk8s                1/1     Running   5           1d  
kube-system     kube-dns-86f6f55dd5-jdsgm              3/3     Running   15          1d  
kube-system     kubernetes-dashboard-ct2jq             1/1     Running   5           1d  
kube-system     storage-provisioner                     1/1     Running   5           1d  
kube-system     traefik-ingress-controller-7bcb868b8b-stssf 0/1     ErrImagePull 0           16m  
as@uk8s:~$
```

Plugin Landrush activado



Traefik se queda bloqueado

# Conclusiones



# Conclusiones

No se ha alcanzado el objetivo: planteamiento, tiempo, complejidad...

Técnicas apropiadas para entornos de desarrollo

Velocidad de evolución de las tecnologías (CI)

Complejidad de software de orquestación en local, alternativas.

FIN

