Sesión 16 prometheus on kubernetes

- https://linuxhint.com/kubernetes_operator/

google cloud

- `gcloud config set compute/zone europe-west1-b` ← (https://cloud.google.com/compute/docs/regions-zones/)
- `gcloud container clusters create bootcamp --num-nodes 3 --scopes «https://www.googleapis.com/auth/projecthosting,storage-rw»`
- `gcloud container clusters list`
- en local, con las utilidades G instaladas: `gcloud container clusters get-credentials bootcamp --zone europe-west1-b --project <project>`
  - https://cloud.google.com/sdk/docs/quickstart-linux
- y para eliminar después el cluster: `gcloud container clusters delete bootcamp`

helm

- https://medium.com/google-cloud/helm-on-gke-cluster-quick-hands-on-guide-ecffad94b0
- `k apply -f create-helm-service-account.yaml`

  create-helm-service-account.yaml

```yaml
# This is an extract from here:
http://jayunit100.blogspot.fi/2017/07/helm-on.html
apiVersion: v1
kind: ServiceAccount
metadata:
  name: helm
  namespace: kube-system
---
apiVersion: rbac.authorization.k8s.io/v1beta1
kind: ClusterRoleBinding
metadata:
  name: helm
roleRef:
  apiGroup: rbac.authorization.k8s.io
  kind: ClusterRole
  name: cluster-admin
subjects:
  - kind: ServiceAccount
    name: helm
    namespace: kube-system
```

- obtener password: `gcloud container clusters describe bootcamp –zone europe-west1-b –<project_id>`
  - igual no necesario
- inicializamos helm`helm init –service-account helm`
- `k get deploy,svc tiller-deploy -n kube-system`
  - tiller: parte servidor de helm, con la que interactuamos

- creamos para deployar: `helm create samplechart`
- deployamos: `helm install –name helm-test ./samplechart –set service.type=LoadBalancer`
- vemos el deploy: `k get svc`
- comprobación de nuestro NGINX desplegado: `curl <ip_publica>`

prometheus

- https://itnext.io/kubernetes-monitoring-with-prometheus-in-15-minutes-8e54d1de2e13
- instalación a través de helm: `helm install stable/prometheus-operator –name prometheus-operator –namespace monitoring`
- verificamos: `kubectl get pods -n monitoring`
- prometheus: `kubectl port-forward -n monitoring prometheus-prometheus-operator-prometheus-0 9090` → http://localhost:9090
- grafana: `kubectl port-forward $(kubectl get pods –selector=app=grafana -n monitoring –output=jsonpath=«{.items..metadata.name}») -n monitoring 3000` → http://localhost:3000 (admin:prom-operator)
- alertmanager: `kubectl port-forward -n monitoring alertmanager-prometheus-operator-alertmanager-0 9093` → http://localhost:9093

deploy traefik

para usar con el deploy del WHO (necesitamos la IP asignada por el uso de **nip.io**)

traefik.yaml

```
---
apiVersion: v1
kind: ServiceAccount
metadata:
  name: traefik-ingress-controller
  namespace: kube-system
---
kind: Deployment
apiVersion: extensions/v1beta1
metadata:
  name: traefik-ingress-controller
  namespace: kube-system
  labels:
    k8s-app: traefik-ingress-lb
spec:
  replicas: 1
  selector:
    matchLabels:
      k8s-app: traefik-ingress-lb
  template:
    metadata:
      labels:
        k8s-app: traefik-ingress-lb
        name: traefik-ingress-lb
    spec:
      serviceAccountName: traefik-ingress-controller
      terminationGracePeriodSeconds: 60
```

```
      containers:
      - image: traefik
        name: traefik-ingress-lb
        ports:
        - name: http
          containerPort: 80
        - name: admin
          containerPort: 8080
        args:
        - --api
        - --kubernetes
        - --logLevel=INFO
        - --metrics
        - --metrics.prometheus
        - --web
        - --web.metrics
        - --web.metrics.prometheus
---
kind: Service
apiVersion: v1
metadata:
  name: traefik-ingress-service
  namespace: kube-system
spec:
  selector:
    k8s-app: traefik-ingress-lb
  ports:
    - protocol: TCP
      port: 80
      name: web
    - protocol: TCP
      port: 8080
      name: admin
  type: LoadBalancer
```

rbac.yaml

```
---
kind: ClusterRoleBinding
apiVersion: rbac.authorization.k8s.io/v1beta1
metadata:
  name: traefik-ingress-controller
roleRef:
  apiGroup: rbac.authorization.k8s.io
  kind: ClusterRole
  name: traefik-ingress-controller
subjects:
- kind: ServiceAccount
  name: traefik-ingress-controller
  namespace: kube-system
---
kind: ClusterRole
apiVersion: rbac.authorization.k8s.io/v1beta1
metadata:
  name: traefik-ingress-controller
```

```
rules:
  - apiGroups:
      - ""
    resources:
      - services
      - endpoints
      - secrets
    verbs:
      - get
      - list
      - watch
  - apiGroups:
      - extensions
    resources:
      - ingresses
    verbs:
      - get
      - list
      - watch
```

- nos asignamos admin para poder hacer el rbac: `kubectl create clusterrolebinding cluster-role-user –clusterrole=cluster-admin –user=<user_email_gcloud>`
- `k deploy -f rbac.yaml -n kube-system`
- `k deploy -f traefik.yaml -n kube-system`
- `k get svc -n kube-system` : obtener IP pública → http://<ip>:8080 (panel admin)
  - http://<ip>:8080/metrics

deploy WHO

- `k create namespace who`
- `k apply -f whoami-deployment.yaml -n who`
- `k apply -f whoami-ingress.yaml -n who`
- `k apply -f whoami-service.yaml -n who`
- `k apply -f whoareyou.yaml -n who`
- `k get svc,deply -n who`

otro

otro-who.yaml

```
apiVersion: extensions/v1beta1
kind: Deployment
metadata:
  name: whoami-deployment
spec:
  replicas: 1
  selector:
    matchLabels:
      app: whoami
  template:
    metadata:
      labels:
```

```
        app: whoami
    spec:
      containers:
      - name: whoami-container
        image: containous/whoami
---
apiVersion: v1
kind: Service
metadata:
  name: whoami-service
spec:
  ports:
  - name: http
    targetPort: 80
    port: 80
  selector:
    app: whoami
---
apiVersion: extensions/v1beta1
kind: Ingress
metadata:
  name: whoami-ingress
  annotations:
    kubernetes.io/ingress.class: traefik
spec:
  rules:
  - host: whoami.localhost
    http:
      paths:
      - path: /
        backend:
          serviceName: whoami-service
          servicePort: http
```

añadir ingress para grafana de prometheus

grafana.yaml

```
apiVersion: extensions/v1beta1
kind: Ingress
metadata:
  name: prometheus-operator-grafana
  namespace: monitoring
  annotations:
    kubernetes.io/ingress.class: traefik
spec:
  rules:
  - host: grafana-35-187-100-153.nip.io
    http:
      paths:
      - path: /
        backend:
          serviceName: prometheus-operator-grafana
```

```
            servicePort: 80
```

- `k apply -f grafana.yaml [-n monitoring]`

otros

- cloudflare : anti-DDOS + CDN
- confluence (10$ por 10 users on-premise)
- `docker system df`