

Wprowadzenie do Kubernetesa

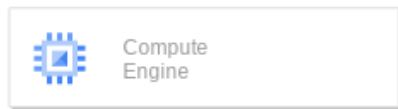
Agenda

- 1/ Czym jest Kubernetes
- 2/ Jak rozmawiać z Kubernetes
- 3/ Automatyzacja
- 4/ Narzędzia i zasoby



Czym jest Kubernetes

01/



AWS Elastic IP



AWS Elastic Load Balancing



Azure Load Balancer



GCP Cloud Load Balancing



Nginx Load Balancer



Azure Public IP



AWS Elastic Block Storage



AWS Elastic File System



Nginx Load Balancer



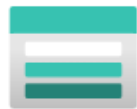
AWS Elastic IP



Haproxy Load Balancer



Cloud External IP Addresses



Azure Storage Accounts



Azure Managed Disks



Haproxy Load Balancer



Azure Public IP



Azure Virtual Machine



Amazon EC2



GCP Cloud Storage



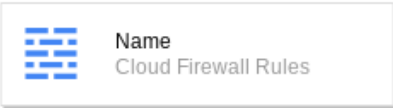
GCP Filestore

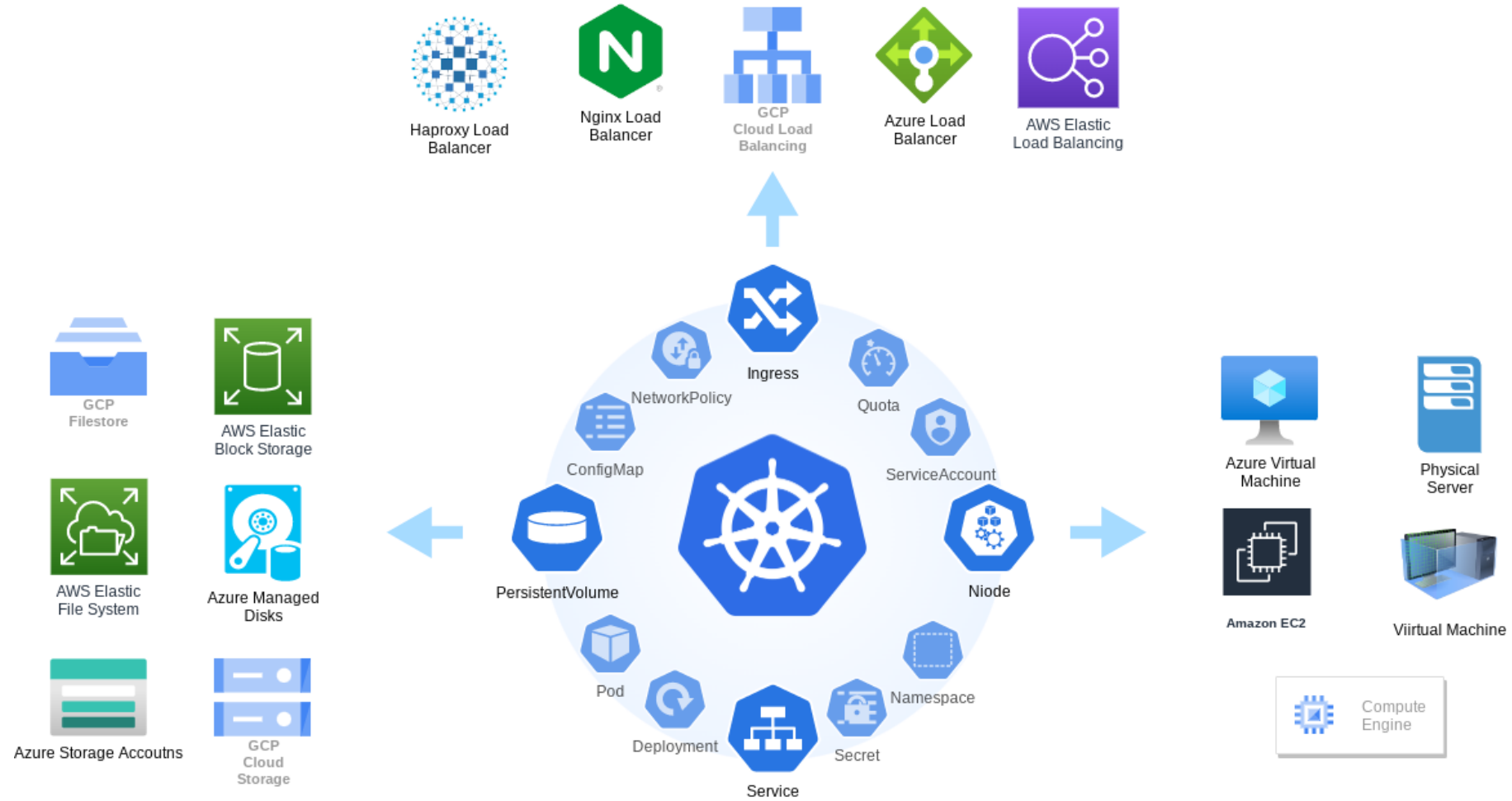


Azure Virtual Machine



Cloud External IP Addresses







Jak rozmawiać z Kubernetesem

02/

> Pod

```
apiVersion: v1
kind: Pod
metadata:
  name: hello-world
spec:
  containers:
  - image: nginx:1.21
    name: nginx
    ports:
    - containerPort: 80
      protocol: TCP
```



> ReplicaSet / DaemonSet / Job / ...

```
apiVersion: apps/v1
kind: ReplicaSet
metadata:
  name: hello-world
spec:
  replicas: 2
  template:
    spec:
      containers:
        - image: nginx:1.21
          name: nginx
```



```
apiVersion: v1
kind: Pod
spec:
  containers:
    - image: nginx:1.21
      name: nginx
```

```
apiVersion: v1
kind: Pod
spec:
  containers:
    - image: nginx:1.21
      name: nginx
```


> Deployment

```
apiVersion: v1
kind: Deployment
metadata:
  name: hello-world
spec:
  replicas: 3
  selector:
    matchLabels:
      name: hello-world
  template:
    ...szablon setu...
```



```
apiVersion: v1
kind: ReplicaSet
metadata:
  name: hello-world
spec:
  replicas: 3
  selector:
    matchLabels:
      name: hello-world
  template:
    ...szablon setu...
```



```
apiVersion: v1
kind: Pod
spec:
  ...
```

```
apiVersion: v1
kind: Pod
spec:
  ...
```

```
apiVersion: v1
kind: Pod
spec:
  ...
```

> Service

```
apiVersion: v1
kind: Service
metadata:
  name: moj-serwis
spec:
  selector:
    app: moja-aplikacja
  ports:
    - protocol: TCP
      port: 80
      targetPort: 3137
```



Stały adres IP
Oraz nazwa DNS która
na niego wskazuje

> Ingress

```
apiVersion: networking.k8s.io/v1
kind: Ingress
metadata:
  name: minimal-ingress
spec:
  ingressClassName: nginx
  rules:
  - http:
      paths:
      - path: /api
        pathType: Prefix
        backend:
          service:
            name: moj-serwis
            port:
              number: 80
```



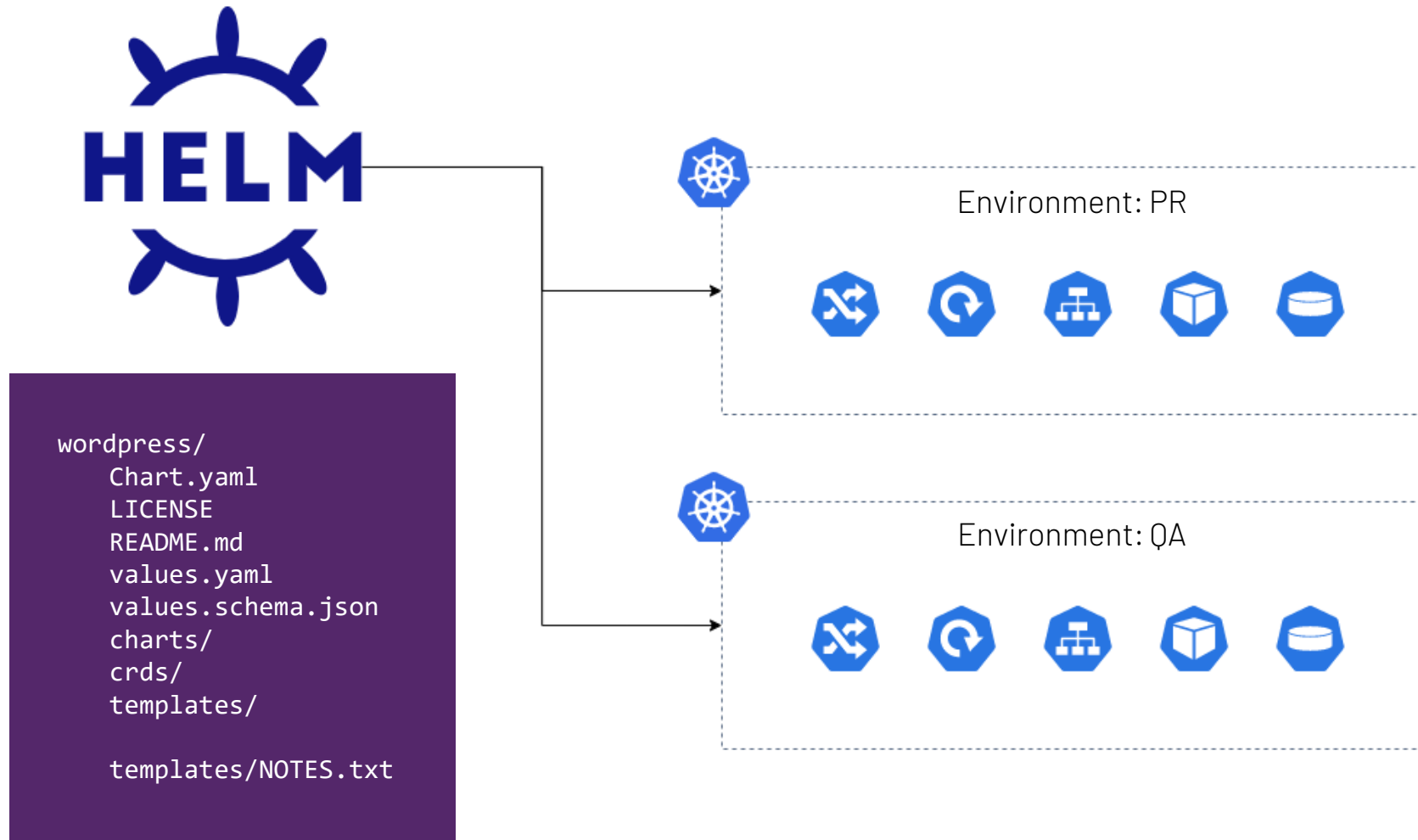
Load Balancer kierujący
ścieżkę /api do
wybranego serwisu



Automatyzacja

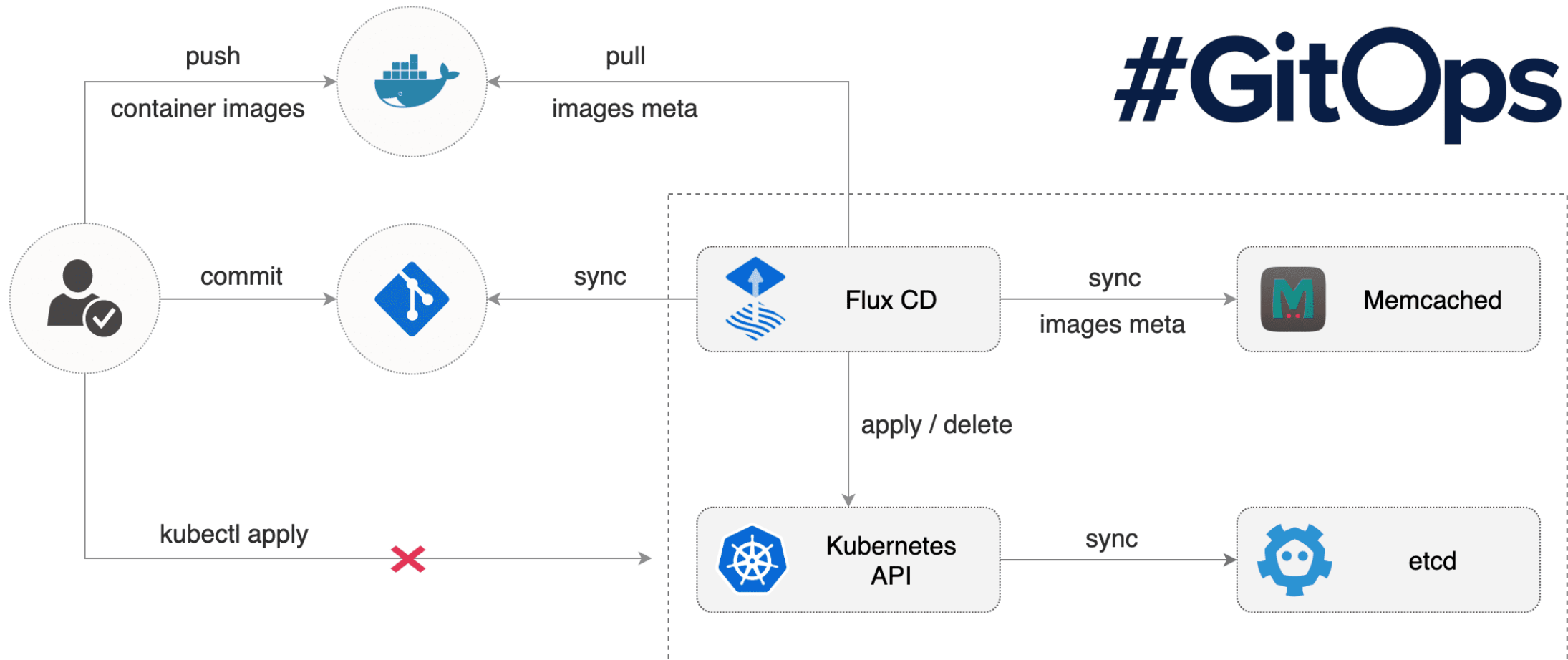
03/

> Helm



> Flux

#GitOps





Narzędzia i zasoby

04/

> Własny klaster Kubernetes

Microk8s

Zero-ops, pure-upstream Kubernetes,
from developer workstations to production.

<https://microk8s.io/>

K3s

The lightweight Kubernetes distribution, certified and built for IoT & Edge
computing

<https://k3s.io/>

> k9s

Context: minikube
Cluster: minikube
User: minikube
K9s Rev: dev
K8s Rev: v1.17.3
CPU: 5%
MEM: 17%

<0> all
<1> kube-system
<2> default

<a> Attach
<ctrl-d> Delete
<d> Describe
<e> Edit
<ctrl-k> Kill
<l> Logs

<ctrl-j> Logs (jq)
<ctrl-l> Logs <Stern>
<shift-l> Logs Previous
<shift-f> Port-Forward
<s> Shell
<y> YAML

Pods(all)[23]

NAMESPACE↑	NAME	READY	RESTART	STATUS	CPU	MEM	%CPU/R	%MEM/R	%CPU/L	%MEM/L	IP	NODE
default	hello-1582785780-lsrt	0/1	0	Completed	n/a	n/a	n/a	n/a	n/a	n/a	172.17.0.12	minikube
default	hello-1582785840-rq8h5	0/1	0	Completed	n/a	n/a	n/a	n/a	n/a	n/a	172.17.0.12	minikube
default	hello-1582785900-4zbkf	0/1	0	Completed	n/a	n/a	n/a	n/a	n/a	n/a	172.17.0.12	minikube
default	jaeger-5bbc8c887-cmj7	1/1	1	Running	0	7	0	3	0	3	172.17.0.11	minikube
default	nginx	1/1	1	Running	0	4	0	0	0	0	172.17.0.10	minikube
default	nginx-6fbbddc48c-5kv5p	1/1	0	Running	0	2	0	28	0	14	172.17.0.15	minikube
default	nginx-6fbbddc48c-7xn7j	1/1	0	Running	n/a	n/a	n/a	n/a	n/a	n/a	172.17.0.7	minikube
default	nginx-6fbbddc48c-bmqj	1/1	0	Running	n/a	n/a	n/a	n/a	n/a	n/a	172.17.0.13	minikube
default	nginx-6fbbddc48c-jf944	1/1	0	Running	n/a	n/a	n/a	n/a	n/a	n/a	172.17.0.12	minikube
default	nginx-6fbbddc48c-xwjnb	1/1	0	Running	0	3	0	39	0	19	172.17.0.14	minikube
kube-system	coredns-6955765f44-2pkvx	1/1	1	Running	3	7	3	10	0	4	172.17.0.2	minikube
kube-system	coredns-6955765f44-wr88k	1/1	1	Running	3	7	3	10	0	4	172.17.0.3	minikube
kube-system	etcd-minikube	1/1	1	Running	20	29	0	0	0	0	192.168.64.15	minikube
kube-system	fluentd-elasticsearch-vnt25	1/1	1	Running	1	51	1	25	0	25	172.17.0.5	minikube
kube-system	kube-apiserver-minikube	1/1	1	Running	47	227	18	0	0	0	192.168.64.15	minikube
kube-system	kube-controller-manager-minikube	1/1	2	Running	20	35	10	0	0	0	192.168.64.15	minikube
kube-system	kube-proxy-sqs9s	1/1	1	Running	0	14	0	0	0	0	192.168.64.15	minikube
kube-system	kube-scheduler-minikube	1/1	2	Running	4	12	4	0	0	0	192.168.64.15	minikube
kube-system	metrics-server-6754dbc9df-t8x2n	1/1	1	Running	0	13	0	0	0	0	172.17.0.8	minikube
kube-system	metrics-server-6754dbc9df-tz7kh	1/1	1	Running	0	10	0	0	0	0	172.17.0.6	minikube
kube-system	storage-provisioner	1/1	2	Running	0	14	0	0	0	0	192.168.64.15	minikube
kubernetes-dashboard	dashboard-metrics-scraper-7b64584c5c-5tjsh	1/1	1	Running	0	5	0	0	0	0	172.17.0.4	minikube
kubernetes-dashboard	kubernetes-dashboard-79d9cd965-wbzvv	1/1	1	Running	0	11	0	0	0	0	172.17.0.9	minikube

<pulses>

<pod>

unitygroup.com

<https://k9scli.io/>

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> K8S Lens – the Kubernetes IDE

The screenshot displays the K8S Lens application interface. On the left is a sidebar with navigation options: Cluster, Nodes, Workloads (selected), Configuration, Network, Storage, Namespaces, Events, and Access Control. The main panel is divided into two sections. The top section, titled 'Pods' (30 items), shows a list of pods with columns for Name, Namespace, and Containers. The bottom section, titled 'Pod: calico-node-rwf4g', provides detailed information about the selected pod, including a graph of CPU usage and requests, and a table of pod metadata.

Name	Namespace	Containers
aws-node-hpz7f	kube-system	
aws-node-r9rgs	kube-system	
calico-node-rwf4g	kube-system	
calico-node-x8slr	kube-system	
calico-typha-78b876fc47-sw5...	kube-system	
calico-typha-horizontal-autos...	kube-system	
cert-manager-789598c8d7-ri4...	kube-system	
coredns-5b7d965bf9-8ttz2	kube-system	
coredns-5b7d965bf9-rpq5q	kube-system	
dashboard-758bd48745-qpsft	kontena-lens	
helm-api-0	kontena-lens	
k8s-resource-applier-6d58457...	kontena-lens	
kube-proxy-svn6b	kube-system	
kube-proxy-v9x5g	kube-system	
kube-state-metrics-76ffbc879...	kontena-stats	
license-enforcer-5799c9c94c-...	kontena-lens	
mariadb-1568285718-master-0	jakolehlm	
mariadb-1568285718-slave-0	jakolehlm	
metrics-server-6bd546f4cd-n...	kube-system	

Pod: calico-node-rwf4g

CPU | Memory | Network | Filesystem

Usage | Requests

Created: 27d 5h 55m ago (2019-08-21T08:50:15Z)

Namespace: kube-system

Status: Running

Node: [jq-192-168-81-7.eu-north-1.compute.internal](#)

Pod IP: 192.168.81.7

Priority Class: —

QoS Class: Burstable

Labels: controller-revision-hash: 5c9dddc74, k8s-app: calico-node, pod-template-generation: 1

Annotations: scheduler.alpha.kubernetes.io/critical-pod:

Conditions: Initialized, Ready, ContainersReady, PodScheduled

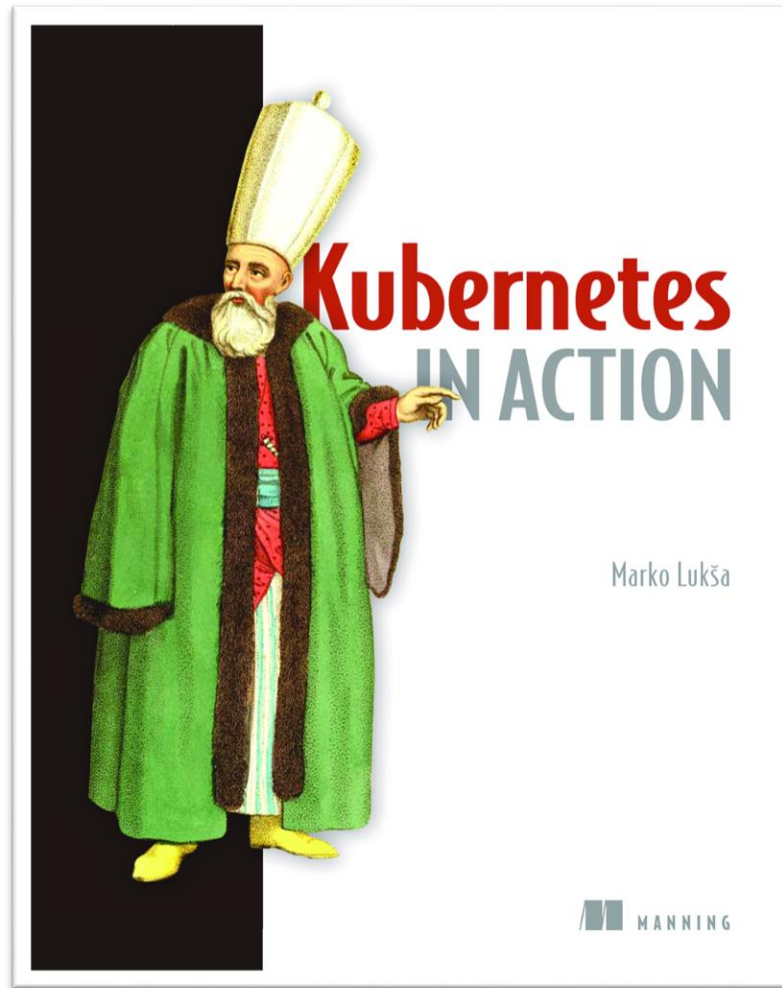
Controlled By: DaemonSet [calico-node](#)

Tolerations: 9 [Show](#)

Affinities: 1 [Show](#)

Secrets: [calico-node-token-8dnpkm](#)

> Kubernetes in Action



- > Materiały dodatkowe do prezentacji

Repozytorium z materiałami z prezentacji

- Definicje dla tworzonych obiektów
- Niniejsza prezentacja

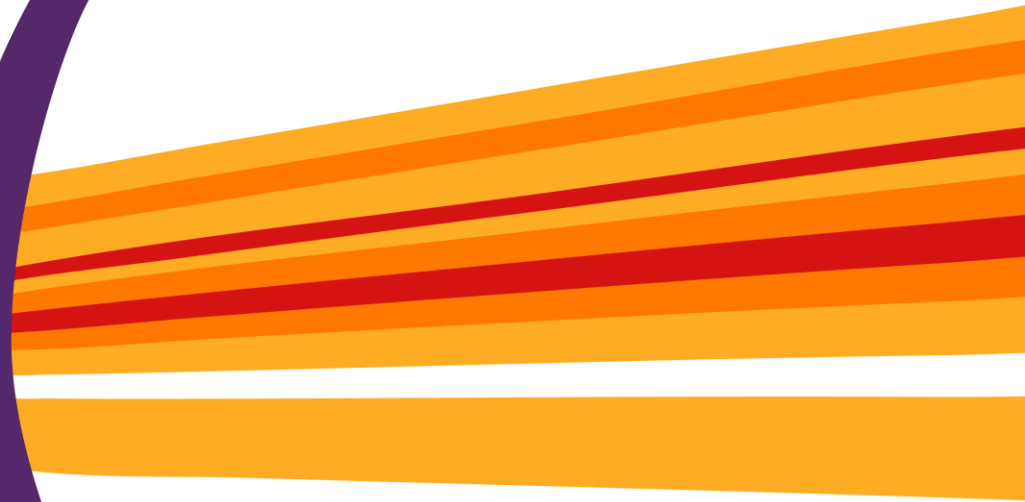
<https://github.com/lpiob/phpers-summit-2022>







25
YEARS





Our Clients:





400 Developers

+50 specjalistów PHP

Łukasz Biegaj







#meetUteam

Przyjdź i poznaj nas na naszym
stanowisku!





Thank You

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