**Nodes**

Kubernetes nodes by example

In Kubernetes, nodes are the (virtual) machines where your workloads in shape of pods run. As a developer you typically don’t deal with nodes directly, however as an admin you might want to familiarize yourself with node [operations](https://kubernetes.io/docs/concepts/nodes/node/).

To list available nodes in your cluster (note that the output will depend on the environment you’re using, I’m using [Minishift](http://kubernetesbyexample.com/diy/)):

$ kubectl get nodes

NAME STATUS AGE

192.168.99.100 Ready 14d

One interesting task, from a developer point of view, is to make Kubernetes schedule a pod on a certain node. For this, we first need to label the node we want to target:

$ kubectl label nodes 192.168.99.100 shouldrun=here

node "192.168.99.100" labeled

Now we can create a [pod](https://github.com/openshift-evangelists/kbe/blob/master/specs/nodes/pod.yaml) that gets scheduled on the node with the label shouldrun=here:

$ kubectl apply -f https://raw.githubusercontent.com/openshift-evangelists/kbe/master/specs/nodes/pod.yaml

$ kubectl get pods --output=wide

NAME READY STATUS RESTARTS AGE IP NODE

onspecificnode 1/1 Running 0 8s 172.17.0.3 192.168.99.100

To learn more about a specific node, 192.168.99.100 in our case, do:

$ kubectl describe node 192.168.99.100

Name: 192.168.99.100

Labels: beta.kubernetes.io/arch=amd64

beta.kubernetes.io/os=linux

kubernetes.io/hostname=192.168.99.100

shouldrun=here

Taints: <none>

CreationTimestamp: Wed, 12 Apr 2017 17:17:13 +0100

Phase:

Conditions:

Type Status LastHeartbeatTime LastTransitionTime Reason Message

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OutOfDisk False Thu, 27 Apr 2017 14:55:49 +0100 Thu, 27 Apr 2017 09:18:13 +0100 KubeletHasSufficientDisk kubelet has sufficient disk space available

MemoryPressure False Thu, 27 Apr 2017 14:55:49 +0100 Wed, 12 Apr 2017 17:17:13 +0100 KubeletHasSufficientMemory kubelet has sufficient memory available

DiskPressure False Thu, 27 Apr 2017 14:55:49 +0100 Wed, 12 Apr 2017 17:17:13 +0100 KubeletHasNoDiskPressure kubelet has no disk pressure

Ready True Thu, 27 Apr 2017 14:55:49 +0100 Thu, 27 Apr 2017 09:18:24 +0100 KubeletReady kubelet is posting ready status

Addresses: 192.168.99.100,192.168.99.100,192.168.99.100

Capacity:

alpha.kubernetes.io/nvidia-gpu: 0

cpu: 2

memory: 2050168Ki

pods: 20

Allocatable:

alpha.kubernetes.io/nvidia-gpu: 0

cpu: 2

memory: 2050168Ki

pods: 20

System Info:

Machine ID: 896b6d970**cd**14d158be1fd1c31ff1a8a

System UUID: F7771C31-30B0-44EC-8364-B3517DBC8767

Boot ID: 1d589b36-3413-4e82-af80-b2756342eed4

Kernel Version: 4.4.27-boot2docker

OS Image: CentOS Linux 7 (Core)

Operating System: linux

Architecture: amd64

Container Runtime Version: docker://1.12.3

Kubelet Version: v1.5.2+43a9be4

Kube-Proxy Version: v1.5.2+43a9be4

ExternalID: 192.168.99.100

Non-terminated Pods: (3 **in** total)

Namespace Name CPU Requests CPU Limits Memory Requests Memory Limits

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default docker-registry-1-hfpzp 100m (5%) 0 (0%) 256Mi (12%) 0 (0%)

default onspecificnode 0 (0%) 0 (0%) 0 (0%) 0 (0%)

default router-1-cdglk 100m (5%) 0 (0%) 256Mi (12%) 0 (0%)

Allocated resources:

(Total limits may be over 100 percent, i.e., overcommitted.

CPU Requests CPU Limits Memory Requests Memory Limits

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200m (10%) 0 (0%) 512Mi (25%) 0 (0%)

No events.

Note that there are more sophisticated methods than shown above, such as using affinity, to [assign pods to nodes](https://kubernetes.io/docs/concepts/configuration/assign-pod-node/) and depending on your use case, you might want to check those out as well.