

CS571

Mansi Shah

(19526)

Homework 4 = Week 4

## RUNNING YOUR FIRST APP ON KUBERNETES

### Step :1 Starting a Minikube virtual machine

```
cs571@ubuntu:~$ minikube start --vm-driver=kvm2
minikube v1.7.2 on Ubuntu 18.04
Using the kvm2 driver based on user configuration
Creating kvm2 VM (CPUs=2, Memory=2000MB, Disk=20000MB) ...
Preparing Kubernetes v1.17.2 on Docker 19.03.5 ...
Downloading kubelet v1.17.2
Downloading kubeadm v1.17.2
Downloading kubectl v1.17.2
Launching Kubernetes ...
Enabling addons: default-storageclass, storage-provisioner
Waiting for cluster to come online ...
Done! kubectl is now configured to use "minikube"
```

### Step:2 Displaying cluster information

```
cs571@ubuntu:~$ kubectl cluster-info
Kubernetes master is running at https://192.168.39.92:8443
KubeDNS is running at https://192.168.39.92:8443/api/v1/namespaces/kube-system/services/kube-dns:dns/proxy

To further debug and diagnose cluster problems, use 'kubectl cluster-info dump'.
```

### Step:3 Deploying your Node.js app

```
cs571@ubuntu:~$ kubectl run kubia --image=mansi2210/shahm888:kubia --port=8080 --generator=run/v1
kubectl run --generator=run/v1 is DEPRECATED and will be removed in a future version. Use kubectl run --generator=run-pod/v1 or kubectl
create instead.
replicationcontroller/kubia created
cs571@ubuntu:~$ kubectl get nodes
NAME          STATUS    ROLES    AGE    VERSION
minikube      Ready     master   3m47s   v1.17.2
```

### Step:4 Listing pods.

```
cs571@ubuntu:~$ kubectl get pods
NAME          READY    STATUS    RESTARTS   AGE
kubia-j26ns   1/1      Running   0           66m
```

### Step:5 Creating a Service object & Listing Services.

```
cs571@ubuntu:~$ kubectl expose rc kubia --type=LoadBalancer --name kubia-http
service/kubia-http exposed
cs571@ubuntu:~$ kubectl get service
NAME          TYPE          CLUSTER-IP    EXTERNAL-IP    PORT(S)          AGE
kubernetes    ClusterIP     10.96.0.1     <none>         443/TCP          7m26s
kubia-http    LoadBalancer 10.110.18.168 <pending>      8080:30132/TCP   16s
```

```
cs571@ubuntu:~$ minikube service kubia-http
```

NAMESPACE	NAME	TARGET PORT	URL
default	kubia-http		http://192.168.39.92:30132

```

🔗 Opening service default/kubia-http in default browser...
cs571@ubuntu:~$ curl 192.168.39.92:30132
You've hit kubia-j26ns

```

#### Step:6 Horizontally scaling the application

```

cs571@ubuntu:~$ kubectl get replicationcontrollers
NAME      DESIRED    CURRENT    READY    AGE
kubia     1          1          1        95m
cs571@ubuntu:~$ kubectl scale rc kubia --replica=3
Error: unknown flag: --replica
See 'kubectl scale --help' for usage.
cs571@ubuntu:~$ kubectl scale rc kubia --replicas=3
replicationcontroller/kubia scaled
cs571@ubuntu:~$ kubectl get replicationcontrollers
NAME      DESIRED    CURRENT    READY    AGE
kubia     3          3          1        96m
cs571@ubuntu:~$ kubectl get pods
NAME          READY    STATUS              RESTARTS   AGE
kubia-5phxs   0/1      ContainerCreating   0          34s
kubia-7wxm6   0/1      ContainerCreating   0          34s
kubia-j26ns   1/1      Running             0          96m
cs571@ubuntu:~$ kubectl get pods
NAME          READY    STATUS    RESTARTS   AGE
kubia-5phxs   1/1      Running   0          80s
kubia-7wxm6   1/1      Running   0          80s
kubia-j26ns   1/1      Running   0          97m
cs571@ubuntu:~$ ^C
cs571@ubuntu:~$ curl 192.168.39.92:30132
You've hit kubia-j26ns
cs571@ubuntu:~$ curl 192.168.39.92:30132
You've hit kubia-j26ns
cs571@ubuntu:~$ curl 192.168.39.92:30132
You've hit kubia-5phxs
cs571@ubuntu:~$ curl 192.168.39.92:30132
You've hit kubia-j26ns
cs571@ubuntu:~$ curl 192.168.39.92:30132
You've hit kubia-5phxs
cs571@ubuntu:~$ curl 192.168.39.92:30132
You've hit kubia-7wxm6
cs571@ubuntu:~$

```

## Step:7 Examining what nodes your app is running on

```
cs571@ubuntu:~$ kubectl get pods -o wide
NAME          READY   STATUS    RESTARTS   AGE   IP            NODE          NOMINATED NODE   READINESS GATES
kubia-5phxs   1/1     Running   0           2m50s  172.17.0.5    minikube      <none>            <none>
kubia-7wxm6   1/1     Running   0           2m50s  172.17.0.6    minikube      <none>            <none>
kubia-j26ns   1/1     Running   0           98m    172.17.0.4    minikube      <none>            <none>
```

  

```
cs571@ubuntu:~$ kubectl describe pod kubia-5phxs
Name:         kubia-5phxs
Namespace:    default
Priority:      0
Node:         minikube/192.168.39.92
Start Time:   Sat, 08 Feb 2020 01:17:49 -0800
Labels:       run=kubia
Annotations:  <none>
Status:       Running
IP:           172.17.0.5
IPs:
  IP:         172.17.0.5
Controlled By: ReplicationController/kubia
Containers:
  kubia:
    Container ID:  docker://5480bffa3881c2e47cb3ff9e2d2e4f5222ed4d6670c40f06eb3d17a92cd8e5c
    Image:         mansi2210/shahm888:kubia
    Image ID:      docker-pullable://mansi2210/shahm888@sha256:9f9db1726111d8815d5a73def458a3390664a48b18cd707b6c508bbd54e7abf4
    Port:         8080/TCP
    Host Port:     0/TCP
    State:         Running
      Started:     Sat, 08 Feb 2020 01:18:46 -0800
    Ready:         True
    Restart Count: 0
    Environment:   <none>
    Mounts:
      /var/run/secrets/kubernetes.io/serviceaccount from default-token-wbrgd (ro)
Conditions:
  Type             Status
  Initialized       True
  Ready             True
  ContainersReady   True
  PodScheduled      True
Volumes:
  default-token-wbrgd:
    Type:          Secret (a volume populated by a Secret)
    SecretName:     default-token-wbrgd
    Optional:       false
QoS Class:         BestEffort
Node-Selectors:    <none>
Tolerations:       node.kubernetes.io/not-ready:NoExecute for 300s
                   node.kubernetes.io/unreachable:NoExecute for 300s
Events:
  Type     Reason      Age   From          Message
  ----     -
  Normal   Scheduled   <unknown> default-scheduler Successfully assigned default/kubia-5phxs to minikube
  Normal   Pulled      2m38s kubelet, minikube Container image "mansi2210/shahm888:kubia" already present on machine
  Normal   Created     2m37s kubelet, minikube Created container kubia
  Normal   Started     2m36s kubelet, minikube Started container kubia
```