Kubernetes

(commonly stylized as k8s) is an open-source container-orchestration system for automating application deployment, scaling, and management. ... It aims to provide a "platform for automating deployment, scaling, and operations of application containers across clusters of hosts".

**Container orchestration** is the automatic process of managing or scheduling the work of individual containers for applications based on [microservices](https://avinetworks.com/what-are-microservices-and-containers/) within multiple clusters. The widely deployed container orchestration platforms are based on open-source versions like Kubernetes, Docker Swarm or the commercial version from Red Hat OpenShift.

Sample project:-

Once you deployed kubernates in azure using bash or power shell we can check the version of kubernates

kubectl version

Client Version: version.Info{Major:"1", Minor:"16", GitVersion:"v1.16.0", GitCommit:"2bd9643cee5b3b3a5ecbd3af49d09018f0773c77", GitTreeState:"clean", BuildDate:"2019-09-18T14:36:53Z", GoVersion:"go1.12.9", Compiler:"gc", Platform:"linux/amd64"}

Server Version: version.Info{Major:"1", Minor:"13", GitVersion:"v1.13.12", GitCommit:"a8b52209ee172232b6db7a6e0ce2adc77458829f", GitTreeState:"clean", BuildDate:"2019-10-15T12:04:30Z", GoVersion:"go1.11.13", Compiler:"gc", Platform:"linux/amd64"}

Kubernate cluster information

ravi@Azure:~$ kubectl cluster-info

Kubernetes master is running at

healthmodel-replicaset-service is running at [https://myakscluster-dns-67c8ab5c.hcp.eastus.azmk8s.io:443/api/v1/namespaces/kube-system/services/healthmodel-replicaset-service/proxy](https://myakscluster-dns-67c8ab5c.hcp.eastus.azmk8s.io/api/v1/namespaces/kube-system/services/healthmodel-replicaset-service/proxy)

CoreDNS is running at [https://myakscluster-dns-67c8ab5c.hcp.eastus.azmk8s.io:443/api/v1/namespaces/kube-system/services/kube-dns:dns/proxy](https://myakscluster-dns-67c8ab5c.hcp.eastus.azmk8s.io/api/v1/namespaces/kube-system/services/kube-dns:dns/proxy)

kubernetes-dashboard is running at [https://myakscluster-dns-67c8ab5c.hcp.eastus.azmk8s.io:443/api/v1/namespaces/kube-system/services/kubernetes-dashboard/proxy](https://myakscluster-dns-67c8ab5c.hcp.eastus.azmk8s.io/api/v1/namespaces/kube-system/services/kubernetes-dashboard/proxy)

Metrics-server is running at [https://myakscluster-dns-67c8ab5c.hcp.eastus.azmk8s.io:443/api/v1/namespaces/kube-system/services/https:metrics-server:/proxy](https://myakscluster-dns-67c8ab5c.hcp.eastus.azmk8s.io/api/v1/namespaces/kube-system/services/https:metrics-server:/proxy)

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

How to check the nodes

ravi@Azure:~$ kubectl get nodes

NAME STATUS ROLES AGE VERSION

aks-agentpool-19189458-vmss000000 Ready agent 20h v1.13.12

aks-agentpool-19189458-vmss000001 Ready agent 20h v1.13.12

aks-agentpool-19189458-vmss000002 Ready agent 20h v1.13.12

How to create pods in kubernames:-

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Create one file touch mysql.yml and enter below data in the file

apiVersion: extensions/v1beta1

kind: Deployment

metadata:

name: app-mysql

spec:

replicas: 1

template:

metadata:

labels:

app: app-mysql

spec:

volumes:

- name: data

emptyDir: {}

containers:

- name: mysql

image: mysql:5.6.22

env:

- name: MYSQL\_USER

value: root

- name: MYSQL\_DATABASE

value: appdb

- name: MYSQL\_ROOT\_PASSWORD

value: secret

ports:

- containerPort: 3306

volumeMounts:

- name: data

mountPath: /var/lib/mysql/

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apiVersion: v1

kind: Service

metadata:

name: app-mysql

spec:

selector:

app: app-mysql

ports:

- port: 3306

And save the file and enter the below command

kubectl apply -f mysql.yml

Next enter the below command

ravi@Azure:~$ kubectl get pods

NAME READY STATUS RESTARTS AGE

app-mysql-5656687575-pjsv7 1/1 Running 0 15h

ravi@Azure:~$ kubectl get deployment

NAME READY UP-TO-DATE AVAILABLE AGE

app-mysql 1/1 1 1 16h

ravi@Azure:~$ kubectl get service

NAME TYPE CLUSTER-IP EXTERNAL-IP PORT(S) AGE

app-mysql ClusterIP 10.0.53.246 <none> 3306/TCP 16h

kubernetes ClusterIP 10.0.0.1 <none> 443/TCP 21h

mysql-service ClusterIP 10.0.200.57 <none> 3306/TCP 17h

How to check the logs kubectl logs name of the service

How to login to the database

kubectl exec -it app-mysql-5656687575-pjsv7(name of the service) -- mysql –uroot(user) -psecret(password)