

Assignment 3 - Kubernetes

Question 1

1. Describe differences between master node and worker nodes?

The master coordinates the cluster while the nodes are the workers that run different applications. The master coordinate all activities such as scheduling and maintenance. The node is a VM or physical computer within the cluster.

2. What version of minikube is used in the tutorial?

minikube version: v1.8.1

Question 2

1. Describe kubectl?

Interaction with kubernetes cluster.

2. What is the output of kubectl get nodes

Get the current active nodes, their status, age, role and version

3. What is the output of kubectl get deployments

Error: must specify one of -f and -k. Otherwise if we specify name and image we deploy an application. If we already deployed an image we get their name, ready, up to date, available and age.

Question 3

1. What is a pod, describe its entities?

A group of one or more applications. Shared storage, Networking (Unique IP addresses), Information about how to run each container

2. What information do the kubectl describe pods command give

Information of container, IP address, the ports and events

Question 4

1. Describe what a service is in Kubernetes?

Services allow your applications to receive traffic.

2. What do the kubectl expose deployment/kubernetes-bootcamp --type="NodePort" --port 8080 command do?

Expose a service to external traffic on port 8080.

Question 5

1. How do labels and Label Selector objects relate to a Service?

Allows logical operation on objects in kubernetes, Example: Embed version tags, Classify an object using tags

2. What is the output of `kubectl get rs` command?

ReplicaSet created by the Deployment: NAME, READY, UP-TO-DATE, AVAILABLE, AGE

Question 6

1. Describe rolling updates in Kubernetes?

Update pods without having any downtime. Only update pods with available resources.

2. What does the `kubectl set image deployments/kubernetes-bootcamp kubernetes-bootcamp=jocatalin/kubernetes-bootcamp:v2` command do?

Updates a pod to another version

Question 7

Based on the command `"kubectl run derp --image=nginx --replicas=1 --port=1234"` Worth noticing is that `replicas` is deprecated and should no longer be used (and is therefore ignored by the system). This is based on the error message "Flag `--replicas` has been deprecated, has no effect and will be removed in the future."

1. What does the web browser show when you access the web server?

No, this was not possible with the command given.

2. What is the output from the `kubectl get pods` command

NAME	TYPE	CLUSTER-IP	EXTERNAL-IP	PORT(S)	AGE
kubernetes	ClusterIP	10.96.0.1		443/TCP	5m55s

3. What is the output from the `kubectl get deployment` command

NAME	READY	STATUS	RESTARTS	AGE
nginx	1/1	Running	0	115s

4. What is the output from the `kubectl get services` command

No resources found in default namespace.

Alternative approach

However if we follow the tutorial instead and ignore that command we can get the following based on the questions above:

We could access the site by calling the service nginx1 "minicube service nginx1". This will give some info and open up the browser.

The output started with the following: "Welcome to nginx! If you see this page, the nginx web server is successfully installed and working. Further configuration is required."

Table 1

NAME	READY	STATUS	RESTARTS	AGE
nginx1-56db585f94-qf6s6	1/1	Running	0	37s

Table 2

NAME	READY	UP-TO-DATE	AVAILABLE	AGE
nginx1	1/1	1	1	6m24s

Table 3

NAME	TYPE	CLUSTER-IP	EXTERNAL-IP	PORT(S)	AGE
kubernetes	ClusterIP	10.96.0.1		443/TCP	13m
nginx1	NodePort	10.101.133.13		80:32023/TCP	3m32s