***Kubernetes Questionnaire***

**Overview**

Containerization is ruling the current IT industry; however, it is incomplete and difficult to manage without an orchestration system. Kubernetes is one of the eminent container orchestration system that helps you to manage your containerized applications in different deployment environments. It is open-source, originally designed by Google, and is now being maintained by the Cloud Native Computing Foundation (CNCF). Features like Self-Healing, Automated Rollouts & Rollbacks, Horizontal Scaling of Containers, Storage Orchestration, etc. make it powerful.  
  
Take this assessment to check where do you stand in the Container Orchestration journey.

**40 Question/Answer set**

**QUIZ1**

**Which of the following statements about Deployments in Kubernetes is true?**

A Deployment is used to manage stateless applications and provides declarative updates  
A Deployment is used to define persistent storage volumes  
A Deployment automatically creates and manages ServiceAccounts  
A Deployment can only manage a single pod replica

**Which Kubernetes object is responsible for ensuring that a specific pod runs on every node in a cluster?**

DaemonSet

StatefulSet

ReplicaSet

None of the Above

**Which namespace is used by Kubernetes to create its objects?**

Default

kube-system

kube-public

kube-node-lease

**What role does a kubelet play in Kubernetes?**

Software used to run containers outside of pods  
A lightweight version of Kubernetes  
A device that collects and organizes data for easy access  
A node agent that manages pods and their containers

**Which component of Kubernetes maintains network rules on nodes?**

kube-proxy

Container Network Interface

kubelet

None of the Above

**What is the purpose of a ReplicaSet in Kubernetes?**

Run and maintain a specified number of identical pods

Store non-confidential data in key-value pairs

Monitor and respond to environmental latency

Create and manage volumes

**Who is responsible for overseeing node availability in Kubernetes?**

Node Controller

Job Controller

Endpoint Controller

Service Account Controller

**What is the command to scale a Deployment to a specific number of replicas in Kubernetes?**

kubectl scale deployment <deployment-name> --replicas=<number>  
kubectl set replicas <deployment-name> --count=<number>  
kubectl scale pods <deployment-name> --count=<number>  
kubectl update deployment <deployment-name> --replicas=<number>

**Which kubectl command would you use to get detailed information about a specific pod in a Kubernetes cluster?**

kubectl describe pod <pod-name>  
kubectl get pod <pod-name> --details  
kubectl pod details <pod-name>  
kubectl show pod <pod-name>

**By default, in which time zone do CronJobs run in Kubernetes?**

UTC

CST

GMT

None of the Above

**Which of the below command gets you inside a Pod?**

kubectl exec -it <pod\_name>

kubectl exec -it <pod\_name> -- /bin/sh

kubectl exec -it /bin/sh

kubectl exec <pod\_name> /bin/sh

**Which one of the following is not a valid service type in Kubernetes?**

ClusterIP

NodePort

LoadBalancer

None of the above

**Which of the following statements about Kubernetes is correct?**

It has Self-healing capabilities.

It can scale up and scale down based on application requirements.

It supports automated scheduling.

All of the above

**What is the purpose of a ConfigMap in Kubernetes?**

To store and manage sensitive information like passwords  
To store and manage configuration data as key-value pairs  
To define storage volumes for pods  
To create persistent storage resources for applications

**The smallest deployable unit in Kubernetes is?**

Pod

Container

Volume

None of the Above

**The kube-apiserver runs on port?**

10251

10250

6443

10252

**Which command is used to safely evict all pods from a node?**

kubectl cordon

kubectl uncordon

kubectl drain

None of these

**Which Kubernetes object is used to store and encode sensitive data?**

ConfigMaps

Secrets

Local variables

None of the above

**Which hashing method is used to encrypt the token CA certificate that facilitates the joining of worker nodes with the master node?**

Sha64

Sha128

Sha256

MD5

**What is the TTL (Time To Live) of a token generated by kubeadm init?**

12 hours

24 hours

36 hours

48 hours

**QUIZ2:**

**How does a StatefulSet differ from a Deployment in terms of storage?**  
StatefulSets cannot use PersistentVolumes  
**StatefulSets provide stable, persistent storage for each replica**  
There is no difference between StatefulSets and Deployments in terms of storage  
None of the above

**During a Kubernetes upgrade, which component should be upgraded on the master nodes first?**

kubelet  
kube-apiserver  
kubeadm  
kubectl

**Which Kubernetes object grants access to resources at the cluster level?**

Role  
RoleBinding  
ClusterRole  
ServiceAccount

**Which of the following is responsible for providing persistent storage in Kubernetes?**  
Volumes  
**PersistentVolume (PV)**  
PersistentVolumeClaim (PVC)  
StatefulSet

**What is the purpose of a PersistentVolumeClaim (PVC) in Kubernetes?**  
**To request and claim storage resources from the underlying PersistentVolume (PV)**  
To manage storage classes  
To create and manage volumes  
To persistently store logs and application data

**What must be done as a best practice before upgrading the worker nodes in a Kubernetes cluster?**

Drain the nodes  
Delete the worker nodes  
Upgrade the kubelet only  
Reboot the master node

**Which Kubernetes object is used to define rules for ingress and egress traffic to/from a pod?**

Service  
Ingress  
NetworkPolicy  
Endpoint

**What is the purpose of a ClusterRoleBinding in Kubernetes?**

To bind a ClusterRole to a specific namespace  
To bind a Role to a service account at the cluster level  
To bind a ClusterRole to a user, service account, or group at the cluster level  
To grant access to cluster-level resources to a pod

**Which of the following attribute(s) is used to taint a Node?**

NoExecute

NoSchedule

PreferNoSchedule

All of the Above

**Which probe informs the kubelet whether a container is ready to start accepting traffic?**

Readiness

Liveness

Startup

None of the Above

**Which command is used to upgrade the Kubernetes control plane after upgrading kubeadm package?**

kubeadm upgrade apply  
kubeadm upgrade control-plane  
kubectl upgrade  
kubeadm apply upgrade

**Which Kubernetes object allows dynamic provisioning of storagein Kubernetes?**  
PersistentVolumeClaim (PVC)  
PersistentVolume (PV)  
**StorageClass**  
StatefulSet

**Which of the following is true about Kubernetes NetworkPolicy?**

NetworkPolicies are applied cluster-wide  
NetworkPolicies are only used for external traffic management  
NetworkPolicies are namespace-specific  
NetworkPolicies cannot restrict traffic based on pod labels

**What is the purpose of a Role in Kubernetes?**

To define a set of rules that allow access to cluster-wide resources  
To define a set of rules that allow access to resources within a specific namespace  
To bind a service account to a set of permissions  
To create a new Kubernetes cluster

**Which type of Kubernetes object is commonly used for applications that require stable, unique network identifiers and persistent storage?**  
Deployment  
ReplicaSet  
**StatefulSet**  
DaemonSet

**Which of the following commands removes a taint from a worker node?**

kubectl taint node node\_name key-

kubectl untaint node node\_name key=value:effect

kubectl taint node node\_name key=value:effect-

kubectl untaint node node\_name key-

**What is the main purpose of a NetworkPolicy in Kubernetes?**

To manage how pods communicate with each other  
To configure the DNS resolution for pods  
To define the resource limits for pods  
To assign unique IP addresses to each pod

**Which Kubernetes component collects resource metrics like CPU and memory usage to be used by the Horizontal Pod Autoscaler (HPA)?**

**kubelet**

Metrics Server

Prometheus

Kubernetes Dashboard

**What is the primary function of the Kubernetes Horizontal Pod Autoscaler (HPA)?**

To scale the number of nodes in the Kubernetes cluster based on demand

**To automatically scale the number of pods in a deployment based on resource usage**

To increase the resource limits of individual pods in a deployment

To manage the scaling of external services integrated with kubernetes