

Linux-Foundation

Exam Questions KCNA

Kubernetes and Cloud Native Associate (KCNA)



NEW QUESTION 1

kubeadm is an administrative dashboard for kubernetes

- A. False
- B. True

Answer: A

Explanation:

<https://kubernetes.io/docs/reference/setup-tools/kubeadm/>

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Kubeadm

Kubeadm is a tool built to provide `kubeadm init` and `kubeadm join` as best-practice "fast paths" for creating Kubernetes clusters.

kubeadm performs the actions necessary to get a minimum viable cluster up and running. By design, it cares only about bootstrapping, not about provisioning machines. Likewise, installing various nice-to-have addons, like the Kubernetes Dashboard, monitoring solutions, and cloud-specific addons, is not in scope.



Instead, we expect higher-level and more tailored tooling to be built on top of kubeadm, and ideally, using kubeadm as the basis of all deployments will make it easier to create conformant clusters.

NEW QUESTION 2

What does CNCF stand for?

- A. Cloud Native Computing Foundation
- B. Cloud Native Cloud Foundation
- C. Cloud Native Container Foundation

Answer: A

Explanation:

<https://www.cncf.io/about/who-we-are/>

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The Cloud Native Computing Foundation (CNCf) hosts critical components of the global technology infrastructure. CNCF brings together the world's top developers, end users, and vendors and runs the largest open source developer conferences. CNCF is part of the nonprofit Linux Foundation.

NEW QUESTION 3

Which project in this list is a leading project in the observability space?

- A. Jaeger
- B. Vitess
- C. Argo
- D. Kubernetes

Answer: A

Explanation:

<https://github.com/cncf/landscape#trail-map>



CLOUD NATIVE TRAIL MAP

The Cloud Native Landscape (cncf.io) has a large number of options. This Cloud Native Trail Map is a recommended process for leveraging open source, cloud native technologies. At each step, you can choose a vendor-supported offering or do it yourself, and everything after step #3 is optional based on your circumstances.

HELP ALONG THE WAY

A. Training and Certification

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B. Consulting Help

If you want assistance with Kubernetes and the surrounding ecosystem, consider leveraging a Kubernetes Certified Service Provider. cncf.io/csp

C. Join CNCF's End User Community

For companies that don't offer cloud native services externally cncf.io/enduser

WHAT IS CLOUD NATIVE?

Cloud native technologies empower organizations to build and run scalable applications in modern, dynamic environments such as public, private, and hybrid clouds. Containers, service meshes, microservices, immutable infrastructure, and declarative APIs exemplify this approach.

These techniques enable loosely coupled systems that are resilient, manageable, and observable. Combined with robust automation, they allow engineers to make high-impact changes frequently and predictably with minimal toil.

The Cloud Native Computing Foundation seeks to drive adoption of this paradigm by fostering and sustaining an ecosystem of open source, vendor-neutral projects. We democratize state-of-the-art patterns to make these innovations accessible for everyone.

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NEW QUESTION 4

What tool allows you to create self-managing, self-scaling, self-healing storage?

- A. Persistent Volume
- B. Persistent Volume Claim
- C. Storage Class
- D. Rook
- E. Volume

Answer: D

Explanation:

<https://rook.io/>

Text Description automatically generated

Storage Operators for Kubernetes

Rook turns distributed storage systems into self-managing, self-scaling, self-healing storage services. It automates the tasks of a storage administrator: deployment, bootstrapping, configuration, provisioning, scaling, upgrading, migration, disaster recovery, monitoring, and resource management.

Rook uses the power of the Kubernetes platform to deliver its services via a Kubernetes Operator for each storage provider.

NEW QUESTION 5

What is the command used to scale the application?

- A. kubectl run
- B. kubectl explain
- C. kubectl scale

Answer: C

Explanation:

<https://kubernetes.io/docs/reference/generated/kubectl/kubectl-commands#scale> Graphical user interface, text, application, email Description automatically generated

scale

Set a new size for a deployment, replica set, replication controller, or stateful set.

Scale also allows users to specify one or more preconditions for the scale action.

If `--current-replicas` or `--resource-version` is specified, it is validated before the scale is attempted, and it is guaranteed that the precondition holds true when the scale is sent to the server.

Usage

```
$ kubectl scale [--resource-version=version] [--current-replicas=count] --replicas=COUNT (-f FILENAME | TYPE NAME)
```



NEW QUESTION 6

Fluentd is the only way to export logs from Kubernetes cluster or applications running in cluster

- A. True
- B. False

Answer: B

Explanation:

<https://github.com/cncf/landscape#trail-map>

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NEW QUESTION 7

What command can you use to get documentation about a resource type from the command line?

- A. kubectl api-resources
- B. kubectl explain
- C. kubectl get
- D. kubectl get-resource

Answer: B

Explanation:

<https://kubernetes.io/docs/reference/generated/kubectl/kubectl-commands#explain> Graphical user interface, text, application, email Description automatically generated

explain

List the fields for supported resources.

This command describes the fields associated with each supported API resource. Fields are identified via a simple JSONPath identifier:

```
<type>.<fieldName>[.<fieldName>]
```

Add the --recursive flag to display all of the fields at once without descriptions. Information about each field is retrieved from the server in OpenAPI format.

Use "kubectl api-resources" for a complete list of supported resources.

Usage

```
$ kubectl explain RESOURCE
```



NEW QUESTION 8

Which of the following is not the Kubernetes AutoScaling Strategy?

- A. Horizontal Pod Autoscaler
- B. Cluster Autoscaler
- C. Vertical Pod Autoscaler
- D. Load Balancing AutoScaler

Answer: D

Explanation:

<https://learnk8s.io/kubernetes-autoscaling-strategies>

Graphical user interface, text Description automatically generated with medium confidence

In Kubernetes, several things are referred to as "autoscaling", including:

- [Horizontal Pod Autoscaler.](#)
- [Vertical Pod Autoscaler.](#)
- [Cluster Autoscaler.](#)

NEW QUESTION 9

What framework allows developers to write code without worrying about the servers and operating systems they will run on?

- A. Virtualization
- B. Docker
- C. Serverless
- D. Kubernetes

Answer: C

NEW QUESTION 10

How would you return all the pod data in the json format using kubectl command?

- A. kubectl get pods -o json
- B. kubectl get pods --all-namespaces
- C. kubectl get pods -o wide
- D. kubectl get pods -o jsonpath

Answer: A

Explanation:

<https://kubernetes.io/docs/reference/generated/kubectl/kubectl-commands#get>

NEW QUESTION 10

How should folks new to the cloud native ecosystem, go about learning the different aspects of the ecosystem?

- A. by signing up the CNCF slack
- B. by reading the Kubernetes documentation
- C. by looking at the cloud native landscape
- D. by looking at the cloud native trail-map

Answer: D

Explanation:

<https://github.com/cncf/landscape#trail-map>

NEW QUESTION 14

What are the two goals of Cloud-Native?

- A. Rapid innovation and automation
- B. Slow innovation and stable applications
- C. Frequent deployments and well-defined organizational silos
- D. Rapid innovation and reliability

Answer: D

Explanation:

<https://www.redhat.com/en/topics/cloud-native-apps>

NEW QUESTION 16

What is the name for the tool that manages communication between pods, injects a sidecar proxy container into each pod and directs network traffic through the proxy container?

- A. namespace
- B. Deployment
- C. Network policy
- D. Service mesh
- E. Service

Answer: D

NEW QUESTION 21

You might need to run a stateless application in kubernetes, and you want to be able to scale easily and perform rolling updates. What kubernetes resource type can you use to do this

- A. Dameon set
- B. Replica set
- C. Deployment
- D. pod
- E. service
- F. Stateful set

Answer: C

Explanation:

<https://kubernetes.io/docs/concepts/workloads/controllers/deployment/> Graphical user interface, text, application Description automatically generated

Deployments

A *Deployment* provides declarative updates for Pods and ReplicaSets.

You describe a *desired state* in a Deployment, and the Deployment Controller changes the actual state to the desired state at a controlled rate. You can define Deployments to create new ReplicaSets, or to remove existing Deployments and adopt all their resources with new Deployments.

Note: Do not manage ReplicaSets owned by a Deployment. Consider opening an issue in the main Kubernetes repository if your use case is not covered below.

NEW QUESTION 26

Open Container Initiative set container standards for

- A. Code, Build, Distribute, Deploy containers
- B. Run, build, and image
- C. Code, Build, Distribute containers
- D. Run, Build, Distribute containers

Answer: D

NEW QUESTION 28

What is not semantic versioning?

- A. 1.0.0
- B. 2022-05-04
- C. 1.0.0-alpha
- D. 1.0.0-beta.2

Answer: B

Explanation:

<https://semver.org/>
RegEx SemVer at <https://regex101.com/r/vkijKf/1/>

NEW QUESTION 30

Observability and monitoring are not the same?

- A. True
- B. False

Answer: A

NEW QUESTION 34

The Kubernetes API provides an interface for storing objects. Which of the following describes the type of objects stored by the Kubernetes API?

- A. Containers
- B. REST
- C. YAML
- D. ETCD

Answer: B

Explanation:

Kubernetes objects are RESTful objects.

NEW QUESTION 35

What is autoscaling?

- A. Automatically measuring resource usage
- B. Automatically assigning workloads to nodes in a cluster
- C. Automatically repairing broken application instances
- D. Automatically adding or removing compute resources as needed

Answer: D

Explanation:

<https://kubernetes.io/blog/2016/07/autoscaling-in-kubernetes/>

Autoscaling means automatically scaling up or down in response to real-time usage data.

NEW QUESTION 39

Continuous delivery is .

- A. Manually deploying the code
- B. Coding, Building and Testing the code
- C. Automatically deploying code to [container or server] environment

Answer: C

NEW QUESTION 42

What CNCF project is the leading DNS project in the CNCF landscape?

- A. Kubernetes
- B. gRPC
- C. KubeDNS
- D. CoreDNS

Answer: D

Explanation:

<https://github.com/cncf/landscape#trail-map>

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NEW QUESTION 46

Which is NOT a use case for the Kubernetes dashboard?

- A. Troubleshooting any issues with applications
- B. Managing running applications
- C. Installing new Kubernetes cluster
- D. Managing the entire Kubernetes cluster

Answer: C

NEW QUESTION 49

The three typical opentelemetry data is?

- A. Metrics
- B. Traces
- C. Logs
- D. All of the options

Answer: D

Explanation:

<https://opentelemetry.io/docs/concepts/data-sources/> Text Description automatically generated

What is OpenTelemetry?

OpenTelemetry is a set of APIs, SDKs, tooling and integrations that are designed for the creation and management of *telemetry data* such as traces, metrics, and logs. The project provides a vendor-agnostic implementation that can be configured to send telemetry data to the backend(s) of your choice. It supports a variety of popular open-source projects including Jaeger and Prometheus.

NEW QUESTION 52

What are container runtimes with Kubernetes?

- A. CRI-O
- B. lxd
- C. containerd
- D. Dockershim

Answer: AC

Explanation:

<https://kubernetes.io/docs/setup/production-environment/container-runtimes/> Graphical user interface, text, application, email Description automatically generated

Container Runtimes

Note: Dockershim has been removed from the Kubernetes project as of release 1.24. Read the [Dockershim Removal FAQ](#) for further details.

You need to install a container runtime into each node in the cluster so that Pods can run there. This page outlines what is involved and describes related tasks for setting up nodes.

Kubernetes 1.25 requires that you use a runtime that conforms with the Container Runtime Interface (CRI).

See [CRI version support](#) for more information.

This page provides an outline of how to use several common container runtimes with Kubernetes.

- [containerd](#)
- [CRI-O](#)
- [Docker Engine](#)
- [Mirantis Container Runtime](#)

Note:

Kubernetes releases before v1.24 included a direct integration with Docker Engine, using a component named *dockershim*. That special direct integration is no longer part of Kubernetes (this removal was [announced](#) as part of the v1.20 release). You can read [Check whether Dockershim removal affects you](#) to understand how this removal might affect you. To learn about migrating from using dockershim, see [Migrating from dockershim](#).

If you are running a version of Kubernetes other than v1.25, check the documentation for that version.

NEW QUESTION 54

Which statement is true about Pod Networking?

- A. All pod requires an external DNS server to get the hostname
- B. All containers in a pod get a unique IP address
- C. All containers in a pod share a single IP address
- D. All pod requires NAT to get a unique IP address.

Answer: C

Explanation:

<https://kubernetes.io/docs/concepts/workloads/pods/#pod-networking> Text Description automatically generated

Pod networking

Each Pod is assigned a unique IP address for each address family. Every container in a Pod shares the network namespace, including the IP address and network ports. Inside a Pod (and **only** then), the containers that belong to the Pod can communicate with one another using `localhost`. When containers in a Pod communicate with entities *outside the Pod*, they must coordinate how they use the shared network resources (such as ports). Within a Pod, containers share an IP address and port space, and can find each other via `localhost`. The containers in a Pod can also communicate with each other using standard inter-process communications like SystemV semaphores or POSIX shared memory. Containers in different Pods have distinct IP addresses and can not communicate by OS-level IPC without special configuration. Containers that want to interact with a container running in a different Pod can use IP networking to communicate.

Containers within the Pod see the system hostname as being the same as the configured `name` for the Pod. There's more about this in the [networking](#) section.

NEW QUESTION 57

Which of the following are characteristics of Statefulsets?

- A. Ordered, graceful deployment and scaling
- B. Creates replica sets
- C. Uses headless services

Answer: A

Explanation:

<https://kubernetes.io/docs/concepts/workloads/controllers/statefulset/>

Graphical user interface, text, application, email Description automatically generated

Using StatefulSets

StatefulSets are valuable for applications that require one or more of the following.

- Stable, unique network identifiers.
- Stable, persistent storage.
- Ordered, graceful deployment and scaling.
- Ordered, automated rolling updates.

NEW QUESTION 58

How to get the logs of the previously terminated nginx container from the web pod?

- A. `kubectl logs -p -c nginx web`
- B. `kubectl logs nginx`
- C. `kubectl logs -p -c web nginx`
- D. `kubectl logs -f -c nginx web`

Answer: A

Explanation:

<https://kubernetes.io/docs/reference/generated/kubectl/kubectl-commands#logs> Text Description automatically generated with medium confidence

Return snapshot of previous terminated ruby container logs from pod web-1

```
kubectl logs -p -c ruby web-1
```

NEW QUESTION 60

'kubectl delete -n my-ns po,svc --all' will delete pods and services including uninitialized ones in the namespace 'my-ns'

- A. FALSE
- B. TRUE

Answer: B

Explanation:

<https://kubernetes.io/docs/reference/generated/kubectl/kubectl-commands#delete> Graphical user interface, text, application, email Description automatically generated

IMPORTANT: Force deleting pods does not wait for confirmation that the pod's processes have been terminated, which can leave those processes running until the node detects the deletion and completes graceful deletion. If your processes use shared storage or talk to a remote API and depend on the name of the pod to identify themselves, force deleting those pods may result in multiple processes running on different machines using the same identification which may lead to data corruption or inconsistency. Only force delete pods when you are sure the pod is terminated, or if your application can tolerate multiple copies of the same pod running at once. Also, if you force delete pods, the scheduler may place new pods on those nodes before the node has released those resources and causing those pods to be evicted immediately.

Note that the delete command does NOT do resource version checks, so if someone submits an update to a resource right when you submit a delete, their update will be lost along with the rest of the resource.

After a CustomResourceDefinition is deleted, invalidation of discovery cache may take up to 10 minutes. If you don't want to wait, you might want to run "kubectl api-resources" to refresh the discovery cache.

Usage

```
$ kubectl delete ([ -f FILENAME ] | [ -k DIRECTORY ] | TYPE [(NAME | -l label | --all)])
```

Delete a pod based on the type and name in the JSON passed into stdin
<code>cat pod.json kubectl delete -f -</code>
Delete pods and services with same names "baz" and "foo"
<code>kubectl delete pod,service baz foo</code>
Delete pods and services with label name=myLabel
<code>kubectl delete pods,services -l name=myLabel</code>
Delete a pod with minimal delay
<code>kubectl delete pod foo --now</code>
Force delete a pod on a dead node
<code>kubectl delete pod foo --force</code>
Delete all pods
<code>kubectl delete pods --all</code>

NEW QUESTION 61

Which command is used to expose Kubernetes service

- A. kubectl expose
- B. kubectl create
- C. kubectl run

Answer: A

Explanation:

<https://kubernetes.io/docs/reference/generated/kubectl/kubectl-commands#expose> Text Description automatically generated

Create a service for a replicated nginx, which serves on port 80 and connects to the containers on port 8000
<code>kubectl expose rc nginx --port=80 --target-port=8000</code>

NEW QUESTION 63

Which command-line tool is used to interact with the Kubernetes cluster?

- A. kube-api
- B. kubectl
- C. kube-scheduler

Answer: B

Explanation:

<https://kubernetes.io/docs/reference/kubectl/>

Graphical user interface, text, application, email Description automatically generated

Command line tool (kubectl)

Kubernetes provides a command line tool for communicating with a Kubernetes cluster's control plane, using the Kubernetes API.

This tool is named `kubectl`.

For configuration, `kubectl` looks for a file named `config` in the `$HOME/.kube` directory. You can specify other `kubeconfig` files by setting the `KUBECONFIG` environment variable or by setting the `--kubeconfig` flag.

This overview covers `kubectl` syntax, describes the command operations, and provides common examples. For details about each command, including all the supported flags and subcommands, see the [kubectl](#) reference documentation.

For installation instructions, see [Installing kubectl](#); for a quick guide, see the [cheat sheet](#). If you're used to using the `docker` command-line tool, [kubectl for Docker Users](#) explains some equivalent commands for Kubernetes.

NEW QUESTION 67

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