



Linux-Foundation

Exam Questions KCNA

Kubernetes and Cloud Native Associate (KCNA)

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NEW QUESTION 1

What is the main difference between Argo vs. Flux CD?

- A. Argo is pull-based, and Flux is push-based
- B. No difference; both are pull-based
- C. Argo is push-based, and Flux is pull-based
- D. No difference; both are push-based

Answer: C

Explanation:

ArgoCD:

<https://argo-cd.readthedocs.io/en/stable/developer-guide/ci/#can-i-retrigger-the-checks-without-pushing-a-new-c>

FluxCD: <https://fluxcd.io/>

NEW QUESTION 2

What standard does kubelet use to communicate with the container runtime?

- A. Service Mesh Interface (SMI)
- B. CRI-O
- C. ContainerD
- D. Container Runtime Interface (CRI)

Answer: D

Explanation:

kubelet can communicate with any runtime that supports the CRI standard.

NEW QUESTION 3

What is the primary interface for Kubernetes cluster?

- A. Kubernetes Api
- B. Kubelet
- C. YAML
- D. Control Plane
- E. JSON

Answer: A

Explanation:

<https://kubernetes.io/docs/concepts/overview/components/#kube-apiserver>

A screenshot of a computer Description automatically generated with medium confidence

kube-apiserver

The API server is a component of the Kubernetes control plane that exposes the Kubernetes API. The API server is the front end for the Kubernetes control plane.

The main implementation of a Kubernetes API server is **kube-apiserver**. kube-apiserver is designed to scale horizontally—that is, it scales by deploying more instances. You can run several instances of kube-apiserver and balance traffic between those instances.

NEW QUESTION 4

What kind of limitation cgroups allows?

- A. Prioritization
- B. Resource limiting
- C. Accounting
- D. None of the options
- E. Control
- F. Server cpu and memory

Answer: ABCE

NEW QUESTION 5

What is container orchestration?

- A. Packaging code and all of its dependencies into a single executable
- B. Adding code to a container image so it can run as a container
- C. Using automation to manage containers
- D. Spinning a new containers to replace old ones

Answer: C

Explanation:

<https://www.redhat.com/en/topics/containers/what-is-container-orchestration> Text Description automatically generated

Container orchestration automates the deployment, management, scaling, and networking of containers. Enterprises that need to deploy and manage hundreds or thousands of **Linux® containers** and hosts can benefit from container orchestration.

Container orchestration can be used in any environment where you use containers. It can help you to deploy the same application across different environments without needing to redesign it. And **microservices** in containers make it easier to orchestrate services, including storage, networking, and security.

NEW QUESTION 6

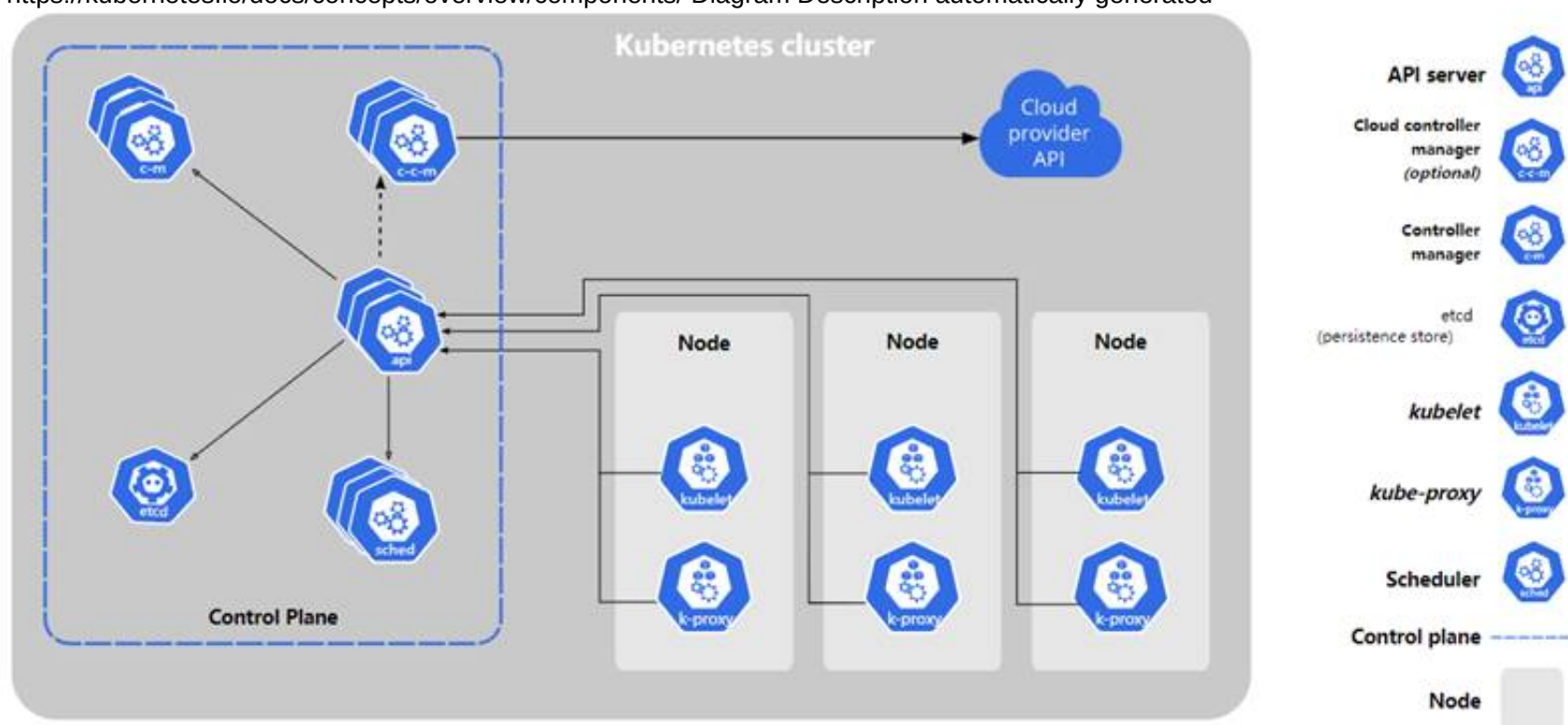
Which of the following components is part of the Kubernetes control panel

- A. kubectl
- B. kube-proxy
- C. Service Mesh
- D. kubelet
- E. Cloud control manager

Answer: E

Explanation:

<https://kubernetes.io/docs/concepts/overview/components/> Diagram Description automatically generated



NEW QUESTION 7

Which of the following best describes a cloud-native app?

- A. An application where all logic is coded into a single large binary.
- B. An application that publishes an HTTPS web front-end.
- C. An application that takes advantages of cloud computing frameworks and their loosely coupled cloud services.
- D. An application that leverages services that are native to public cloud platforms such as Azure, GCP, and/or AWS.

Answer: C

Explanation:

Cloud-native apps leverage cloud computing frameworks and tend to be microservices based, where individual components of the app are coded as individual.

NEW QUESTION 8

To run a startup task before a Pod's container starts up. What Kubernetes feature can help you ac-complish this?

- A. Init container
- B. Sidecar container
- C. Startup probe
- D. DaemonSet

Answer: A

Explanation:

<https://kubernetes.io/docs/concepts/workloads/pods/init-containers/> Text, letter Description automatically generated

A Pod can have multiple containers running apps within it, but it can also have one or more init containers, which are run before the app containers are started.

Init containers are exactly like regular containers, except:

- Init containers always run to completion.
- Each init container must complete successfully before the next one starts.

If a Pod's init container fails, the kubelet repeatedly restarts that init container until it succeeds. However, if the Pod has a `restartPolicy` of `Never`, and an init container fails during startup of that Pod, Kubernetes treats the overall Pod as failed.

To specify an init container for a Pod, add the `initContainers` field into the [Pod specification](#), as an array of `container` items (similar to the `containers` field and its contents). See [Container](#) in the API reference for more details.

NEW QUESTION 9

Which authentication method allows JWTs to authenticate?

- A. OpenId connect
- B. Client 'TLS' certificates
- C. OPA gatekeeper
- D. Anonymous

Answer: A

NEW QUESTION 10

Which of the following is not the part of Kubernetes Control Plane?

- A. kube scheduler
- B. etcd (pronounce: esty-d)
- C. kube api-server
- D. kube-proxy

Answer: D

Explanation:

<https://kubernetes.io/docs/concepts/overview/components/>

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Answer: C

Explanation:

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

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Resource types ↗

List all supported resource types along with their shortnames, **API group**, whether they are **namespaced**, and **Kind**:

```
kubectl api-resources
```

NEW QUESTION 20

Which of the following command is used to get detailed information about the pod?

- A. kubectl info
- B. kubectl get
- C. kubectl describe
- D. kubectl explain

Answer: C

Explanation:

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

Describe a pod

```
kubectl describe pods/nginx
```

Describe a pod identified by type and name in "pod.json"

```
kubectl describe -f pod.json
```

Describe all pods

```
kubectl describe pods
```

NEW QUESTION 22

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 25

Flux is built using which toolkit?

- A. CI/CD
- B. DevSecOps
- C. GitOps
- D. DevOps

Answer: C

Explanation:

<https://fluxcd.io/>

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Flux provides GitOps for both apps and infrastructure

Flux and Flagger deploy apps with canaries, feature flags, and A/B rollouts. Flux can also manage any Kubernetes resource. Infrastructure and workload dependency management is built in.

Just push to Git and Flux does the rest

Flux enables application deployment (CD) and (with the help of Flagger) progressive delivery (PD) through automatic reconciliation. Flux can even push back to Git for you with automated container image updates to Git (image scanning and patching).

NEW QUESTION 27

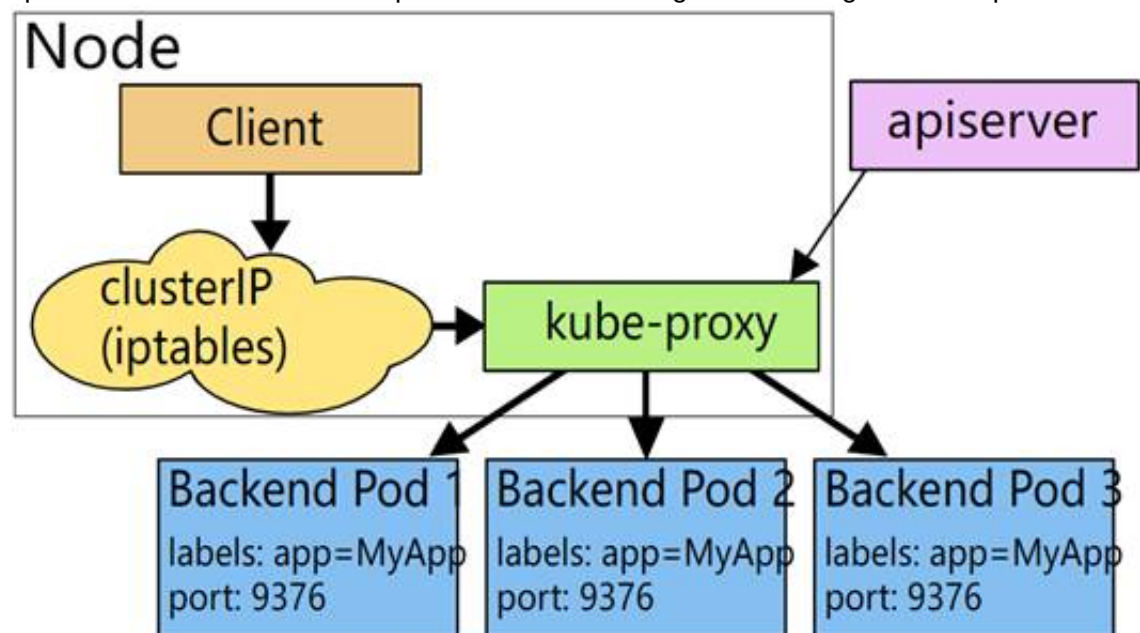
How does service logical group set of pods?

- A. Using hostname
- B. Using label and selectors
- C. Using IP address

Answer: B

Explanation:

<https://kubernetes.io/docs/concepts/services-networking/service/> Diagram Description automatically generated



NEW QUESTION 30

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 32

Which part of a Kubernetes cluster is responsible for running container workloads?

- A. Worker Node
- B. kube-proxy
- C. Control plane
- D. etcd

Answer: A

Explanation:

Worker Nodes are responsible for executing containerized workloads.

NEW QUESTION 34

Which of the following is an example of vertical scaling?

- A. Using cluster autoscaler
- B. Adding more resources (memory and/or cpu) to a kubernetes node
- C. Adding more nodes to kubernetes cluster
- D. Adding more replica pods to a deployment

Answer: B

Explanation:

<https://kubernetes.io/docs/tasks/run-application/horizontal-pod-autoscale/> Text Description automatically generated

Horizontal scaling means that the response to increased load is to deploy more Pods. This is different from *vertical* scaling, which for Kubernetes would mean assigning more resources (for example: memory or CPU) to the Pods that are already running for the workload.

NEW QUESTION 35

Which of the following is an advantage a cloud-native microservices application has over monolithic applications?

- A. Cloud-native microservices applications tend to be faster and more responsive than monolithic applications.
- B. Cloud-native microservice applications tend to be easier to troubleshoot.
- C. Cloud-native microservice applications tend to be easier to scale and perform updates on.

Answer: C

Explanation:

Cloud-native applications tend to be microservice base, they have individual services that can be independently scaled, updated and rolled back. This makes scaling and update operations simpler and less risky.

NEW QUESTION 38

What is the default service type in Kubernetes?

- A. ClusterIP
- B. NodePort
- C. serviceType
- D. loadBalancer

Answer: A

Explanation:

<https://kubernetes.io/docs/concepts/services-networking/service/#publishing-services-service-types> Graphical user interface, text, application, email Description automatically generated

Kubernetes `ServiceTypes` allow you to specify what kind of Service you want. The default is `ClusterIP`.

Type values and their behaviors are:

- **ClusterIP** : Exposes the Service on a cluster-internal IP. Choosing this value makes the Service only reachable from within the cluster. This is the default `ServiceType`.
- **NodePort**: Exposes the Service on each Node's IP at a static port (the `NodePort`). A `ClusterIP` Service, to which the `NodePort` Service routes, is automatically created. You'll be able to contact the `NodePort` Service, from outside the cluster, by requesting `<NodeIP>:<NodePort>`.
- **LoadBalancer**: Exposes the Service externally using a cloud provider's load balancer. `NodePort` and `ClusterIP` Services, to which the external load balancer routes, are automatically created.
- **ExternalName**: Maps the Service to the contents of the `externalName` field (e.g. `foo.bar.example.com`), by returning a `CNAME` record with its value. No proxying of any kind is set up.

NEW QUESTION 43

What is etcd used for in Kubernetes?

- A. Integration with cloud platforms
- B. Network routing for the cluster
- C. Kubernetes API security
- D. Backend object storage for the Kubernetes API

Answer: D

Explanation:

etcd serves as a distributed object store that backs the Kubernetes API.

NEW QUESTION 48

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 51

What command to view the kube config?

- A. kubectl view config
- B. kubectl config view
- C. kubectl get kubeconfig

Answer: B

Explanation:

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

view

Display merged kubeconfig settings or a specified kubeconfig file.

You can use `--output jsonpath={...}` to extract specific values using a jsonpath expression.

Usage

```
$ kubectl config view
```



NEW QUESTION 55

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 57

What are default kubernetes namespaces?

- A. default, kube-public, kube-system, kube-node-lease
- B. kube-default, kube-public, kube-system, kube-node-lease
- C. default, kube-public, kube-systems, kube-node-lease
- D. default, kube-public, kube-system, kube-node-leases

Answer: A

Explanation:

<https://kubernetes.io/docs/concepts/overview/working-with-objects/namespaces/>
Graphical user interface, text Description automatically generated with medium confidence

You can list the current namespaces in a cluster using:

```
kubectl get namespace
```

NAME	STATUS	AGE
default	Active	1d
kube-node-lease	Active	1d
kube-public	Active	1d
kube-system	Active	1d

Kubernetes starts with four initial namespaces:

- `default` The default namespace for objects with no other namespace
- `kube-system` The namespace for objects created by the Kubernetes system
- `kube-public` This namespace is created automatically and is readable by all users (including those not authenticated). This namespace is mostly reserved for cluster usage, in case that some resources should be visible and readable publicly throughout the whole cluster. The public aspect of this namespace is only a convention, not a requirement.
- `kube-node-lease` This namespace holds [Lease](#) objects associated with each node. Node leases allow the kubelet to send [heartbeats](#) so that the control plane can detect node failure.

NEW QUESTION 59

Which style of operations are preferred for K8S and cloud native applications?

- A. JSON
- B. Declarative
- C. Imperative

Answer: B

Explanation:

<https://kubernetes.io/docs/tasks/manage-kubernetes-objects/declarative-config/#trade-offs>

NEW QUESTION 60

What is a commonly used package manager for kubernetes applications?

- A. npm
- B. apt
- C. helm
- D. kubernetes manifest

Answer: C

Explanation:

<https://helm.sh/>

NEW QUESTION 65

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 68

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 69

Which organizational persona creates Service Level Agreements 'SLA', Service Level Objectives 'SLO', and Service Level Indicator 'SLI'?

- A. Developer
- B. DevSecOps
- C. Site Reliability Engineer (SRE)
- D. Security and Compliance Engineer
- E. DevOps

Answer: C

Explanation:

SREs create SLAs, SLOs, and SLIs to define and implement standards for application and infra-structure reliability.

NEW QUESTION 70

Which of the following best describes the way kubernetes Role-based access control (RBAC) works?

- A. Kubernetes does not do RBAC

- B. Kubernetes RBAC states which users can perform which actions against which re-source
- C. Kubernetes RBAC lists which operations on which resources are denied to users
- D. Kubernetes RBAC is responsible for authenticating subjects such as users and groups

Answer: B

Explanation:

<https://kubernetes.io/docs/reference/access-authn-authz/rbac/>

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Using RBAC Authorization

Role-based access control (RBAC) is a method of regulating access to computer or network resources based on the roles of individual users within your organization.

RBAC authorization uses the `rbac.authorization.k8s.io` API group to drive authorization decisions, allowing you to dynamically configure policies through the Kubernetes API.

To enable RBAC, start the API server with the `--authorization-mode` flag set to a comma-separated list that includes `RBAC` ; for example:

```
kube-apiserver --authorization-mode=Example,RBAC --other-options --more-options
```

NEW QUESTION 75

Which access control component of Kubernetes is responsible for authorization and decides what requestor is allowed to do?

- A. Service Account
- B. Role-based access control 'RBAC'
- C. Deployment

Answer: B

Explanation:

<https://kubernetes.io/docs/reference/access-authn-authz/authorization/> Text, letter Description automatically generated

Authorization Modes

The Kubernetes API server may authorize a request using one of several authorization modes:

- **Node** - A special-purpose authorization mode that grants permissions to kubelets based on the pods they are scheduled to run. To learn more about using the Node authorization mode, see [Node Authorization](#).
- **ABAC** - Attribute-based access control (ABAC) defines an access control paradigm whereby access rights are granted to users through the use of policies which combine attributes together. The policies can use any type of attributes (user attributes, resource attributes, object, environment attributes, etc). To learn more about using the ABAC mode, see [ABAC Mode](#).
- **RBAC** - Role-based access control (RBAC) is a method of regulating access to computer or network resources based on the roles of individual users within an enterprise. In this context, access is the ability of an individual user to perform a specific task, such as view, create, or modify a file. To learn more about using the RBAC mode, see [RBAC Mode](#)
 - When specified RBAC (Role-Based Access Control) uses the `rbac.authorization.k8s.io` API group to drive authorization decisions, allowing admins to dynamically configure permission policies through the Kubernetes API.
 - To enable RBAC, start the apiserver with `--authorization-mode=RBAC` .

NEW QUESTION 77

What is the functionality of the daemon set?

- A. To run a copy of the pod in all the nodes of the cluster
- B. To initialize the pod before starting the main pod
- C. To run a copy of the pod in a single node of the cluster

Answer: A

Explanation:

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

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DaemonSet

A DaemonSet ensures that all (or some) Nodes run a copy of a Pod. As nodes are added to the cluster, Pods are added to them. As nodes are removed from the cluster, those Pods are garbage collected. Deleting a DaemonSet will clean up the Pods it created.

Some typical uses of a DaemonSet are:

- running a cluster storage daemon on every node
- running a logs collection daemon on every node
- running a node monitoring daemon on every node

NEW QUESTION 79

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 83

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

```
kubectl expose rc nginx --port=80 --target-port=8000
```

NEW QUESTION 85

What is scheduling in Kubernetes

- A. Determining when to execute a cron-job
- B. Assigning pods to nodes
- C. Joining a new nodes to the clusters

D. Setting a time for automated tasks

Answer: B

Explanation:

<https://kubernetes.io/docs/concepts/scheduling-eviction/>

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Scheduling

- [Kubernetes Scheduler](#)
- [Assigning Pods to Nodes](#)
- [Pod Overhead](#)
- [Taints and Tolerations](#)
- [Scheduling Framework](#)
- [Scheduler Performance Tuning](#)
- [Resource Bin Packing for Extended Resources](#)

NEW QUESTION 86

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 91

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