

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/>

Graphical user interface, text, application Description automatically generated

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

How to create deployment name app-dep, image=nginx, and replicas 5 using imperative command?

- A. `kubectrl create app-dep deployment --image=nginx --replicas=5`
- B. `kubectrl create deployment app-dep --image=nginx --replicas=5`
- C. `kubectrl create app-dep deployment --replicas=5 --image=nginx`

Answer: B

Explanation:

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

Create a deployment named my-dep that runs the nginx image with 3 replicas

```
kubectrl create deployment my-dep --image=nginx --replicas=3
```

NEW QUESTION 3

What is the name of the Kubernetes agent that runs on each worker nodes?

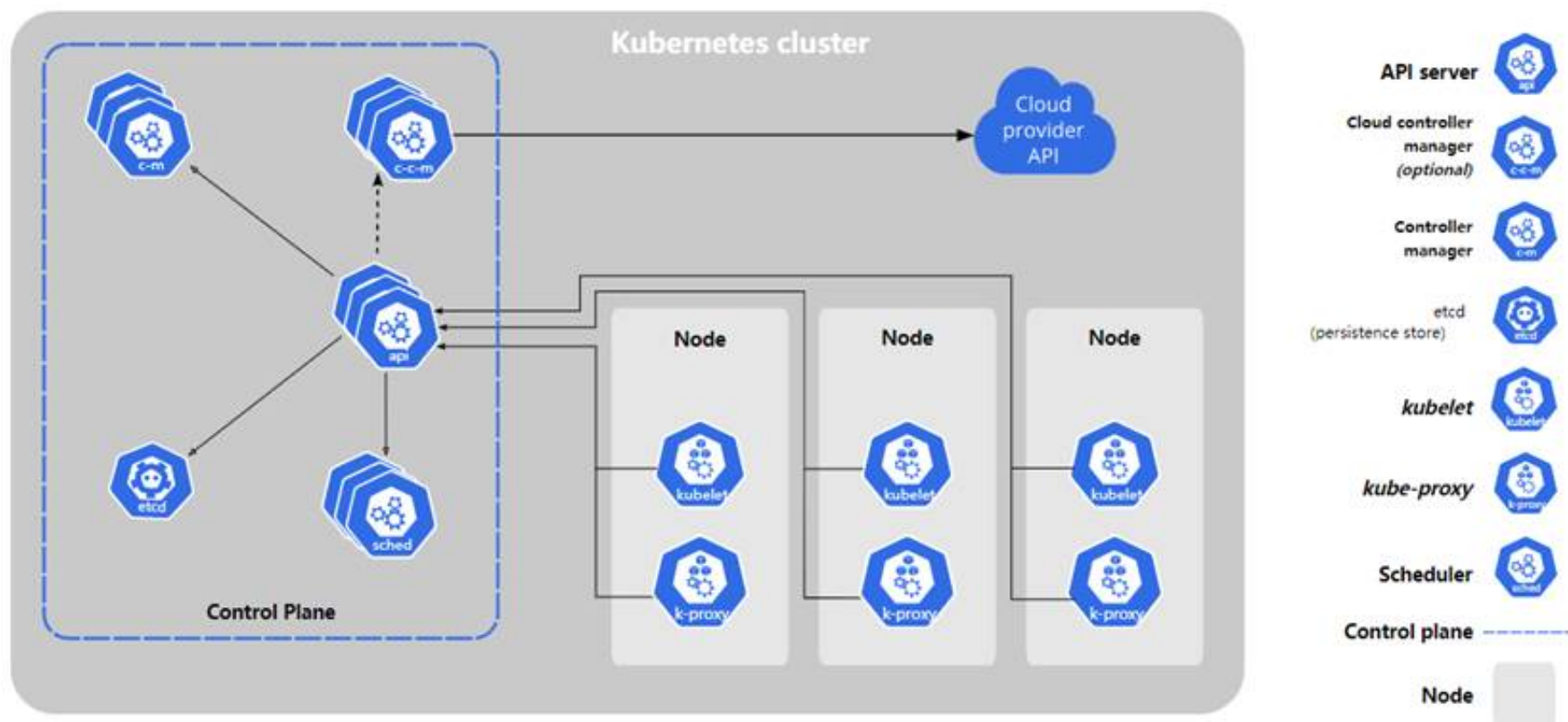
- A. kubelet
- B. systemd
- C. kube-proxy
- D. pod

Answer: A

Explanation:

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

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NEW QUESTION 4

To specify a Kubernetes object which language is used?

- A. JSON
- B. Go
- C. YAML
- D. Node
- E. Python

Answer: C

Explanation:

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

Understanding Kubernetes Objects

This page explains how Kubernetes objects are represented in the Kubernetes API, and how you can express them in `.yaml` format.

NEW QUESTION 5

Which of the following are not the metrics for Site Reliability Engineering?

- A. Service Level Objectives 'SLO'
- B. Service Level Agreements 'SLA'
- C. Service Level Indicators 'SLI'
- D. Service Level Definition 'SLD'

Answer: D

Explanation:

SLI defined quantitative measure of some aspect of the level of service that is provided.

SLOs are key to making data-driven decisions about reliability, they're at the core of SRE practices.

SLAs an explicit or implicit contract with your users that includes consequences of meeting (or missing) the SLOs they contain.

NEW QUESTION 6

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 7

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 8

What can you use to add new resource types to your cluster?

- A. start container
- B. CustomResourceDefinitions
- C. init container
- D. Flux
- E. CRI-O

Answer: B

Explanation:

<https://kubernetes.io/docs/concepts/extend-kubernetes/api-extension/custom-resources/> Graphical user interface, text, application Description automatically generated

CustomResourceDefinitions

The [CustomResourceDefinition](#) API resource allows you to define custom resources. Defining a CRD object creates a new custom resource with a name and schema that you specify. The Kubernetes API serves and handles the storage of your custom resource. The name of a CRD object must be a valid [DNS subdomain name](#).

This frees you from writing your own API server to handle the custom resource, but the generic nature of the implementation means you have less flexibility than with [API server aggregation](#).

Refer to the [custom controller example](#) for an example of how to register a new custom resource, work with instances of your new resource type, and use a controller to handle events.

NEW QUESTION 9

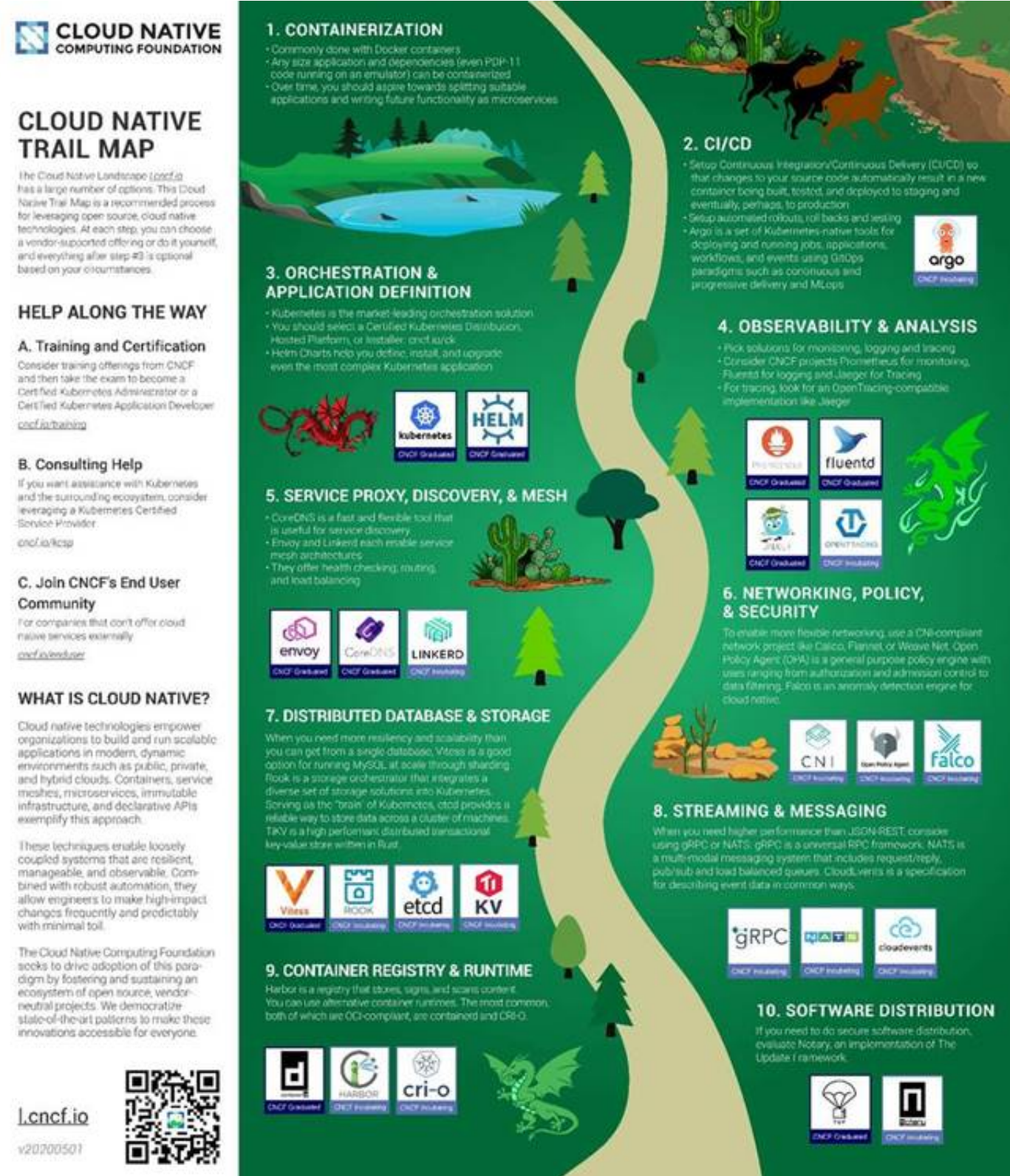
Which project in this list is a leading project in the observability space?

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

Answer: A

Explanation:

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



NEW QUESTION 10

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 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/kubect/kubectl-commands#get>

NEW QUESTION 14

What Linux feature is used to provide isolation for containers?

- A. Processes
- B. Services
- C. NetworkPolicy
- D. Control groups

Answer: D

Explanation:

Control groups provide isolation for container processes, keeping them separate from other process-es on the host.

NEW QUESTION 17

What do GitOps tools do in kubernetes?

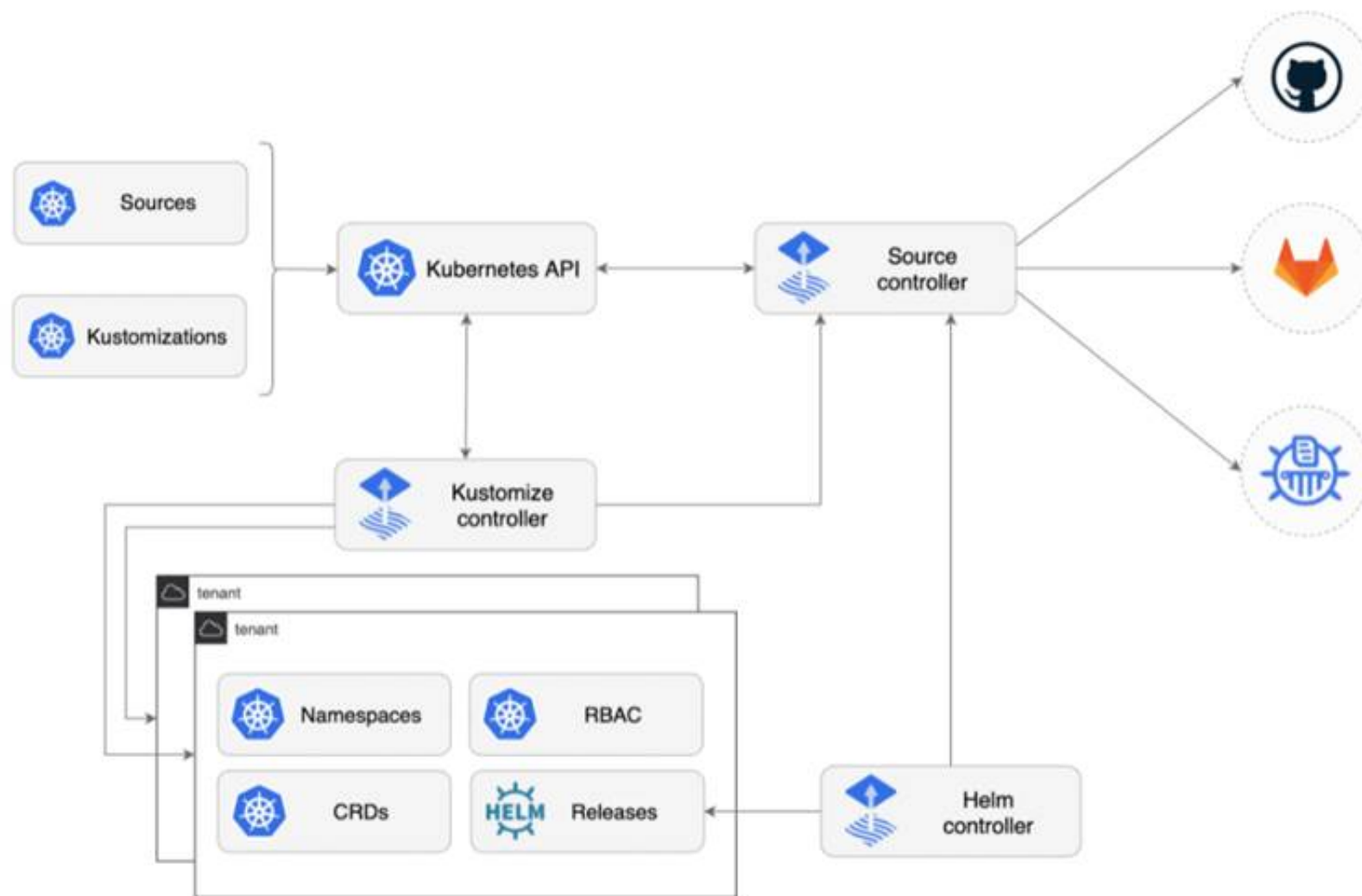
- A. They allow us to make changes to a kubernetes cluster using a Git repository
- B. They manage the source code of kubernetes itself
- C. They allow us to store software code in Git
- D. They allows us to store container images in repositories

Answer: A

Explanation:

<https://fluxcd.io/docs/components/>

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NEW QUESTION 21

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 23

Which is not a service type in Kubernetes?

- A. ClusterIP
- B. NodePort

- C. Ingress
- D. LoadBalancer
- E. ExternalName

Answer: C

Explanation:

<https://kubernetes.io/docs/tutorials/kubernetes-basics/expose/expose-intro/>

without a Service. Services allow your applications to receive traffic. Services can be exposed in different ways by specifying a type in the ServiceSpec:

- *ClusterIP* (default) - Exposes the Service on an internal IP in the cluster. This type makes the Service only reachable from within the cluster.
- *NodePort* - Exposes the Service on the same port of each selected Node in the cluster using NAT. Makes a Service accessible from outside the cluster using `<NodeIP>: <NodePort>` . Superset of ClusterIP.
- *LoadBalancer* - Creates an external load balancer in the current cloud (if supported) and assigns a fixed, external IP to the Service. Superset of NodePort.
- *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. This type requires v1.7 or higher of `kube-dns` , or CoreDNS version 0.0.8 or higher.

More information about the different types of Services can be found in the [Using Source IP](#) tutorial. Also see [Connecting Applications with Services](#).

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NEW QUESTION 28

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 33

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 34

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 35

Observability and monitoring are not the same?

- A. True
- B. False

Answer: A

NEW QUESTION 37

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 42

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 46

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 47

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>

A picture containing timeline Description automatically generated



CLOUD NATIVE TRAIL MAP

The Cloud Native Landscape (cncl.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

Consider training offerings from CNCF and then take the exam to become a Certified Kubernetes Administrator or a Certified Kubernetes Application Developer cncf.io/training

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.

cncl.io

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NEW QUESTION 51

What cloud-native construct does a kubernetes pod wrap?

- A. Container
- B. Virtual Machine (VM)
- C. side car process
- D. Docker image

Answer: A

Explanation:

Kubernetes is an orchestrator of containerized apps. However, containers must be wrapped in pods before they can be deployed on kubernetes.

NEW QUESTION 56

Which control plane component is responsible for scheduling pods?

- A. kube-proxy
- B. kube scheduler
- C. kubelet
- D. kube api-server

Answer: B

Explanation:

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

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kube-scheduler

Control plane component that watches for newly created Pods with no assigned node, and selects a node for them to run on.

Factors taken into account for scheduling decisions include: individual and collective resource requirements, hardware/software/policy constraints, affinity and anti-affinity specifications, data locality, inter-workload interference, and deadlines.

NEW QUESTION 59

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 64

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 69

Which of the following container runtime is planned to be deprecated in Kubernetes 1.20 and high-er?

- A. cri-o
- B. None of the options
- C. docker
- D. podman
- E. containerd

Answer: C

Explanation:

<https://kubernetes.io/blog/2020/12/02/dont-panic-kubernetes-and-docker/>

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Wednesday, December 02, 2020

Update: *Kubernetes support for Docker via `dockershim` is now removed. For more information, read the [removal FAQ](#). You can also discuss the deprecation via a dedicated [GitHub issue](#).*

Authors: Jorge Castro, Duffie Cooley, Kat Cosgrove, Justin Garrison, Noah Kantrowitz, Bob Killen, Rey Lejano, Dan “POP” Papandrea, Jeffrey Sica, Davanum “Dims” Srinivas

Kubernetes is [deprecating Docker](#) as a container runtime after v1.20.

You do not need to panic. It's not as dramatic as it sounds.

TL;DR Docker as an underlying runtime is being deprecated in favor of runtimes that use the [Container Runtime Interface \(CRI\)](#) created for Kubernetes. Docker-produced images will continue to work in your cluster with all runtimes, as they always have.

NEW QUESTION 73

Which kubernetes object do deployments use behind the scenes when they need to scale pods?

- A. Horizontal pod autoscaler
- B. ReplicaSets
- C. kubectl
- D. Replication controller

Answer: B

Explanation:

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

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ReplicaSet

A ReplicaSet's purpose is to maintain a stable set of replica Pods running at any given time. As such, it is often used to guarantee the availability of a specified number of identical Pods.

NEW QUESTION 75

Which of the following is NOT a Kubernetes component?

- A. Scheduler
- B. Docker
- C. Cloud Controller manager
- D. Kube-proxy

Answer: B

Explanation:

Docker is not a Kubernetes component.

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

```
kubect1 logs -p -c ruby web-1
```

NEW QUESTION 82

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