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# Exam : KCNA

# Title:Kubernetes and CloudNative Associate (KCNA)

# Version : DEMO

1.An application that is nearing its usage limit. To increase the amount of users it can handle, you allocate additional memory resources to each instance of the application.

What type of scaling is this?

- A. Horizontal Scaling
- B. Cluster Autoscaling
- C. Recursive Scaling
- D. Vertical Scaling
- Answer: D

## Explanation:



# Vertical Scaling

(Scaling up)

Graphical user interface, diagram Description automatically generated

Horizontal Scaling (Scaling out)

2. 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 fromworks 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.

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 *Loncf.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 doi tyourself, 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/kcsp

#### 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 to build and un 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. Com-bined 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 para-digm 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.





#### 1. CONTAINERIZATION

Commonly done with Docker containers
 Any size application and dependencies (even PDP-11
 code running on an emulator) can be containerized
 Voer time, you should asplic towards splitting suitable
 applications and writing future functionality as microservices

#### 3. ORCHESTRATION & APPLICATION DEFINITION

Kubernetes is the market-leading orchestration solution
 You should select a Certified Kubernetes Distribution,
 Hosted Platform, or Installer: cncfio/Ck
 Helm Charts help you define, install, and upgrade even the most complex Kubernetes application



#### 5. SERVICE PROXY, DISCOVERY, & MESH

Corectives is a rast and nextine tool that is useful for service discovery Envoy and Linkerd each enable service mesh architectures They offer health checking, routing, and load balancing



#### 7. DISTRIBUTED DATABASE & STORAGE

When you need more resiliency and scalability than you can get from a single database. Vices is a good option for running MySOL at scale through sharding. Rock is a storage orchestrator that integrates a diverse set of storage solutions into kubernetes. Scrving as the "brain" of Kubernetes, etcd provides a reliable way to store data across a cluster of machines. TKV is a high performant distributed transactional key-value store written in Rust.



#### 9. CONTAINER REGISTRY & RUNTIME

Harbor is a registry that stores, signs, and scans content You can use alternative container runtimes. The most cc both of which are OCI-compliant, are containerd and CRI



#### 2. CI/CD

2. CI/CD
• Setup Continuous Integration/Continuous Delivery (CI/CD) so that changes to your source code automatically result in a new container being built, tested, and deployed to staging and eventually, perhaps, to production Setup automated rollouis, roll backs and testing Argo is a set of Kubernetes-native tools for deploying and running jobs, applications, workflows, and events using GitOps paradigms such as continuous and mrepressive delivery and MI ons
CNCF Incomming



#### 4. OBSERVABILITY & ANALYSIS

Pick solutions for monitoring, logging and tracing
 Consider CNCF projects Prometheus for monitoring,
 Fluentd for logging and Jaeger for Tracing
 For tracing, look for an OpenTracing-compatible





falco

#### 6. NETWORKING, POLICY, & SECURITY



#### 8. STREAMING & MESSAGING

When you need higher performance than JSON-REST consider using gRPC or NATS. gRPC is a universal RPC framework. NATS is a multi-modal messaging system that includes request/reply, pub/sub and load balanced queues. CloudLvents is a specification for describing event data in common ways.





#### **10. SOFTWARE DISTRIBUTION**

If you need to do secure software distribution, evaluate Notary, an implementation of The Update I ramework.



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/

# Understanding Kubernetes Objects

This page explains how Kubernetes objects are represented in the Kubernetes

API, and how you can express them in .yaml format.

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### 5.What is OPA?

- A. Open Permission Agent
- B. Online Policy Audit
- C. Open Policy Agent
- D. Offline Policy Accessor

### Answer: C

### Explanation:

https://www.cncf.io/projects/open-policy-agent-opa/

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PROJECTS

# **Open Policy Agent (OPA)**



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