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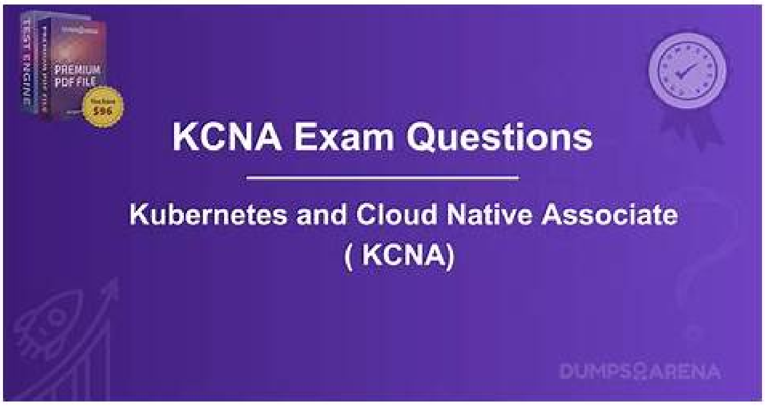

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Linux Foundation KCNA Certification Exam is ideal for individuals who are interested in pursuing a career in cloud computing or DevOps. It is also suitable for IT professionals who want to enhance their skills in Kubernetes and cloud native technologies to support their organization's digital transformation initiatives. KCNA Exam covers a wide range of topics, including Kubernetes architecture, deployment, networking, storage, security, and troubleshooting.

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Quiz Linux Foundation - KCNA - Kubernetes and Cloud Native Associate Updated Test Lab Questions

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Linux Foundation KCNA (Kubernetes and Cloud Native Associate) Certification Exam is a highly sought-after certification for professionals working in the field of cloud computing. Kubernetes and Cloud Native Associate certification exam is designed to test the candidate's knowledge and skills in Kubernetes and cloud-native technologies. KCNA Exam is conducted by the Linux Foundation, which is a non-profit organization that supports the development of open-source software.

Linux Foundation Kubernetes and Cloud Native Associate Sample Questions (Q87-Q92):

NEW QUESTION # 87
You're running a Kubernetes cluster with several applications, and you want to analyze the performance of your applications at the Kubernetes cluster level. What are the key metrics you should monitor to gain insights into cluster-wide performance?

- A. Total CPU and memory usage across all nodes in the cluster.
- B. Number of active Kubernetes controllers (e.g., Deployment, ReplicaSet).
- C. Number of failed deployments and pod restarts.
- D. Latency and throughput of requests to the Kubernetes API server.
- E. Number of pods running in each namespace.

Answer: A,B,C,D

Explanation:
The correct answers are B, C, D, and E . These metrics are crucial for understanding the overall performance of your Kubernetes cluster. B: Total CPU and memory usage across all nodes in the cluster. This metric helps you assess the overall resource consumption of your cluster. If the CPU or memory utilization consistently reaches high levels, it might indicate resource constraints, performance bottlenecks, or potential capacity planning issues. C: Number of failed deployments and pod restarts. This metric provides insights into the stability and reliability of your applications. Frequent deployment failures or pod restarts might indicate issues with application code, deployment configurations, or underlying infrastructure. D: Latency and throughput of requests to the Kubernetes API server. The Kubernetes API server handles all requests to manage the cluster. Monitoring API server latency and throughput can help identify performance bottlenecks and potential issues with cluster communication. E: Number of active Kubernetes controllers (e.g., Deployment, ReplicaSet). Kubernetes controllers are responsible for managing and maintaining the state of your applications. Tracking the number of active controllers can help you identify potential issues with controller activity, such as resource exhaustion or unexpected controller behavior. Option A is not as crucial for cluster-wide performance analysis. While knowing the number of pods running in each namespace might be useful for resource allocation, it doesn't directly reflect the overall performance of the cluster.

NEW QUESTION # 88
You are tasked with deploying a microservices application on Kubernetes. The application relies heavily on communication between its different services, and you need to ensure reliable and secure communication. Which of the following open standards are most relevant for this scenario?

- A. Kubernetes API
- B. Open Container Initiative (OCI)
- C. Service Level Objectives (SLOs)
- D. Open Service Mesh (OSM)
- E. Cloud Native Computing Foundation (CNCF)

Answer: D

Explanation:
Open Service Mesh (OSM) is an open standard focused on providing a secure and reliable way to connect microservices. It helps with service discovery, load balancing, traffic management, and security features, making it ideal for deploying microservices applications on Kubernetes.

NEW QUESTION # 89
You are running a containerized application that requires access to a specific host-mounted directory. Which of the following is the most appropriate Kubernetes mechanism to achieve this?

- A. Pod Security Policy
- B. HostPort
- C. VolumeMounts
- D. Service Account
- E. ConfigMap

Answer: C

Explanation:
The *VolumeMountS section within a Pod definition allows you to map host directories or persistent volumes into your container. This provides a secure and controlled way to access files from the host machine within your container. HostPort, Service Account, Pod Security Policy, and ConfigMap are all different Kubernetes concepts and do not directly address the need for host directory access.

NEW QUESTION # 90
Describe the different ways to manage persistent volumes in Kubernetes, including the concepts of static provisioning and dynamic provisioning. Provide examples for each approach.

- A. In static provisioning, the storage is pre-allocated, and PVs are manually bound to PVCs based on resource availability. In dynamic provisioning, Kubernetes allows automatic binding of PVs to PVCs without prior setup. This approach makes use of the default StorageClass or custom ones that support various storage backends such as NFS, Ceph, and cloud providers. Static provisioning requires more manual effort, while dynamic provisioning is easier to scale.

- B. Static provisioning automatically generates PersistentVolumes (PVs) for each PersistentVolumeClaim (PVC) based on available resources. Dynamic provisioning manually defines PVCs but relies on Kubernetes to automatically select the appropriate StorageClass for the required storage type. This approach is not recommended for production environments but is useful for testing and prototyping.
- C. In static provisioning, you manually create PersistentVolumes (PVs) before deploying your application. This gives you more control over storage allocation, but it can be more complex for large deployments. In dynamic provisioning, you use a StorageClass to define storage characteristics, and the cluster automatically provisions PVs as needed. Dynamic provisioning simplifies storage management and allows for more scalable deployments. The YAML examples in option A demonstrate both approaches. The first example defines a static provisioned PV with a hostPath volume. The second example defines a dynamic provisioned StorageClass using the provisioner "kubernetes.io/gce-pd".
- D. Static provisioning requires configuring both PVs and PVCs in YAML files, with explicit definitions for access modes and storage capacity. In dynamic provisioning, Kubernetes automatically generates PVCs as needed by the workloads based on predefined StorageClass settings. This reduces the need for manual intervention and simplifies large-scale deployments. The dynamic provisioning approach leverages persistent volumes provided by third-party cloud storage platforms such as Azure and Google Cloud.
- E. Static provisioning uses Kubernetes' built-in hostPath provisioner, which allocates persistent storage on the local node. In dynamic provisioning, administrators must create a StorageClass that links the PVC to a third-party cloud storage provider, such as AWS EBS. Static provisioning is best for development and testing environments where custom storage solutions are necessary, whereas dynamic provisioning is more suited for production applications where automated storage scaling is required.

Answer: C

Explanation:
In static provisioning, you manually create PersistentVolumes (PVs) before deploying your application This gives you more control over storage allocation, but it can be more complex for large deployments- In dynamic provisioning, you use a StorageClass to define storage characteristics, and the cluster automatically provisions PVs as needed- Dynamic provisioning simplifies storage management and allows for more scalable deployments. The YAML examples in option A demonstrate both approaches. The first example defines a static provisioned PV with a hostPath volume. The second example defines a dynamic provisioned StorageClass using the provisioner "kubernetes.io/gce- pd".

NEW QUESTION # 91
What function does kube-proxy provide to a cluster?

- A. Implementing the Ingress resource type for application traffic.
- B. Forwarding data to the correct endpoints for Services.
- C. Managing access to the Kubernetes API.
- D. Managing data egress from the cluster nodes to the network.

Answer: B

Explanation:
kube-proxy is a node-level networking component that helps implement the Kubernetes Service abstraction. Services provide a stable virtual IP and DNS name that route traffic to a set of Pods (endpoints). kube-proxy watches the API for Service and EndpointSlice/Endpoints changes and then programs the node's networking rules so that traffic sent to a Service is forwarded (load-balanced) to one of the correct backend Pod IPs. This is why B is correct.
Conceptually, kube-proxy turns the declarative Service configuration into concrete dataplane behavior. Depending on the mode, it may use iptables rules, IPVS, or integrate with eBPF-capable networking stacks (sometimes kube-proxy is replaced or bypassed by CNI implementations, but the classic kube-proxy role remains the canonical answer). In iptables mode, kube-proxy creates NAT rules that rewrite traffic from the Service virtual IP to one of the Pod endpoints. In IPVS mode, it programs kernel load-balancing tables for more scalable service routing. In all cases, the job is to connect "Service IP/port" to "Pod IP/port endpoints." Option A is incorrect because Ingress is a separate API resource and requires an Ingress Controller (like NGINX Ingress, HAProxy, Traefik, etc.) to implement HTTP routing, TLS termination, and host/path rules. kube-proxy is not an Ingress controller. Option C is incorrect because general node egress management is not kube-proxy's responsibility; egress behavior typically depends on the CNI plugin, NAT configuration, and network policies. Option D is incorrect because API access control is handled by the API server's authentication/authorization layers (RBAC, webhooks, etc.), not kube-proxy.
So kube-proxy's essential function is: keep node networking rules in sync so that Service traffic reaches the right Pods. It is one of

the key components that makes Services "just work" across nodes without clients needing to know individual Pod IPs.

NEW QUESTION # 92
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