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Linux Foundation KCSA Exam Syllabus Topics:

Topic	Details
Topic 1	<ul style="list-style-type: none">• Kubernetes Cluster Component Security: This section of the exam measures the skills of a Kubernetes Administrator and focuses on securing the core components that make up a Kubernetes cluster. It encompasses the security configuration and potential vulnerabilities of essential parts such as the API server, etcd, kubelet, container runtime, and networking elements, ensuring each component is hardened against attacks.
Topic 2	<ul style="list-style-type: none">• Platform Security: This section of the exam measures the skills of a Cloud Security Architect and encompasses broader platform-wide security concerns. This includes securing the software supply chain from image development to deployment, implementing observability and service meshes, managing Public Key Infrastructure (PKI), controlling network connectivity, and using admission controllers to enforce security policies.
Topic 3	<ul style="list-style-type: none">• Compliance and Security Frameworks: This section of the exam measures the skills of a Compliance Officer and focuses on applying formal structures to ensure security and meet regulatory demands. It covers working with industry-standard compliance and threat modeling frameworks, understanding supply chain security requirements, and utilizing automation tools to maintain and prove an organization's security posture.
Topic 4	<ul style="list-style-type: none">• Kubernetes Threat Model: This section of the exam measures the skills of a Cloud Security Architect and involves identifying and mitigating potential threats to a Kubernetes cluster. It requires understanding common attack vectors like privilege escalation, denial of service, malicious code execution, and network-based attacks, as well as strategies to protect sensitive data and prevent an attacker from gaining persistence within the environment.
Topic 5	<ul style="list-style-type: none">• Overview of Cloud Native Security: This section of the exam measures the skills of a Cloud Security Architect and covers the foundational security principles of cloud-native environments. It includes an understanding of the 4Cs security model, the shared responsibility model for cloud infrastructure, common security controls and compliance frameworks, and techniques for isolating resources and securing artifacts like container images and application code.

Linux Foundation Kubernetes and Cloud Native Security Associate Sample Questions (Q36-Q41):

NEW QUESTION # 36

Which standard approach to security is augmented by the 4C's of Cloud Native security?

- A. Secure-by-Design
- **B. Defense-in-Depth**
- C. Zero Trust
- D. Least Privilege

Answer: B

Explanation:

* The 4C's model (Cloud, Cluster, Container, Code) is presented in the official Kubernetes documentation as a layered model that explicitly maps to defense-in-depth.

* Exact extracts from Kubernetes docs (security overview):

* "The 4C's of Cloud Native Security are Cloud, Clusters, Containers, and Code."

* "You can think of the 4C's as a layered approach to security; applying security measures at each layer reduces risk."

* "This layered approach is commonly known as defense in depth."

References:

Kubernetes Docs - Security overview #The 4C's of Cloud Native Security: <https://kubernetes.io/docs>

NEW QUESTION # 37

Which of the following snippets from a RoleBinding correctly associates user bob with Role pod-reader ?

- A. subjects:
 - kind: User
 - name: bob
 - apiGroup: rbac.authorization.k8s.io
 - roleRef:
 - kind: Role
 - name: pod-reader
 - apiGroup: rbac.authorization.k8s.io
- B. subjects:
 - kind: Group
 - name: bob
 - apiGroup: rbac.authorization.k8s.io
 - roleRef:
 - kind: Role
 - name: pod-reader
 - apiGroup: rbac.authorization.k8s.io
- C. subjects:
 - kind: User
 - name: pod-reader
 - apiGroup: rbac.authorization.k8s.io
 - roleRef:
 - kind: Role
 - name: bob
 - apiGroup: rbac.authorization.k8s.io
- D. subjects:
 - kind: User
 - name: bob
 - apiGroup: rbac.authorization.k8s.io
 - roleRef:
 - kind: ClusterRole
 - name: pod-reader
 - apiGroup: rbac.authorization.k8s.io

Answer: A

Explanation:

Kubernetes RBAC uses RoleBinding to grant permissions defined in a Role to a subject (user, group, or service account) within a namespace. The official example shows binding user jane to Role pod-reader:

"A RoleBinding grants the permissions defined in a Role to a user or set of users...." Example:

subjects:

```
- kind: User
name: jane
apiGroup: rbac.authorization.k8s.io
roleRef:
kind: Role
name: pod-reader
apiGroup: rbac.authorization.k8s.io
```

- Kubernetes docs, RBAC: RoleBinding and ClusterRoleBinding

Option B matches this pattern exactly, with name: bob as the User subject and roleRef pointing to the Role named pod-reader.

* Aswaps the names (subject is pod-reader, role is bob) # incorrect.

* References a ClusterRole, not a Role (the question asks for Role).

* Uses kind: Group even though we need the User bob.

References:

Kubernetes Docs - Using RBAC Authorization #RoleBinding and ClusterRoleBinding: <https://kubernetes.io/docs/reference/access-authn-authz/rbac/#rolebinding-and-clusterrolebinding>

NEW QUESTION # 38

Given a standard Kubernetes cluster architecture comprising a single control plane node (hosting both the control plane as Pods) and three worker nodes, which of the following data flows crosses a trust boundary?

- A. From kubelet to Controller Manager
- B. From kubelet to Container Runtime
- C. From API Server to Container Runtime
- **D. From kubelet to API Server**

Answer: D

Explanation:

* Trust boundaries exist where data flows between different security domains.

* In Kubernetes:

* Communication between the kubelet (node agent) and the API Server (control plane) crosses the node-to-control-plane trust boundary.

* (A) Kubelet to container runtime is local, no boundary crossing.

* (C) Kubelet does not communicate directly with the controller manager.

* (D) API server does not talk directly to the container runtime; it delegates to kubelet.

* Therefore, (B) is the correct trust boundary crossing flow.

References:

CNCF Security Whitepaper - Kubernetes Threat Model: identifies node-to-control-plane communications (kubelet # API Server) as crossing trust boundaries.

Kubernetes Documentation - Cluster Architecture

NEW QUESTION # 39

What kind of organization would need to be compliant with PCI DSS?

- A. Government agencies that collect personally identifiable information.
- B. Non-profit organizations that handle sensitive customer data.
- C. Retail stores that only accept cash payments.
- **D. Merchants that process credit card payments.**

Answer: D

Explanation:

* PCI DSS (Payment Card Industry Data Security Standard) applies to any entity that stores, processes, or transmits cardholder data.

* Exact extract (PCI DSS official summary):

* "PCI DSS applies to all entities that store, process or transmit cardholder data (CHD) and/or sensitive authentication data (SAD)."

* Therefore, merchants who process credit card payments must comply.

* Why others are wrong:

* A: No card payments, so no PCI scope.

* B: This falls under FISMA / NIST 800-53, not PCI DSS.

* C: Non-profits may handle sensitive data, but PCI only applies if they process credit cards.

References:

PCI Security Standards Council - PCI DSS Summary: https://www.pcisecuritystandards.org/pci_security/

NEW QUESTION # 40

In which order are the validating and mutating admission controllers run while the Kubernetes API server processes a request?

- A. Validating admission controllers run before mutating admission controllers.
- B. The order of execution varies and is determined by the cluster configuration.
- C. Validating and mutating admission controllers run simultaneously.
- **D. Mutating admission controllers run before validating admission controllers.**

