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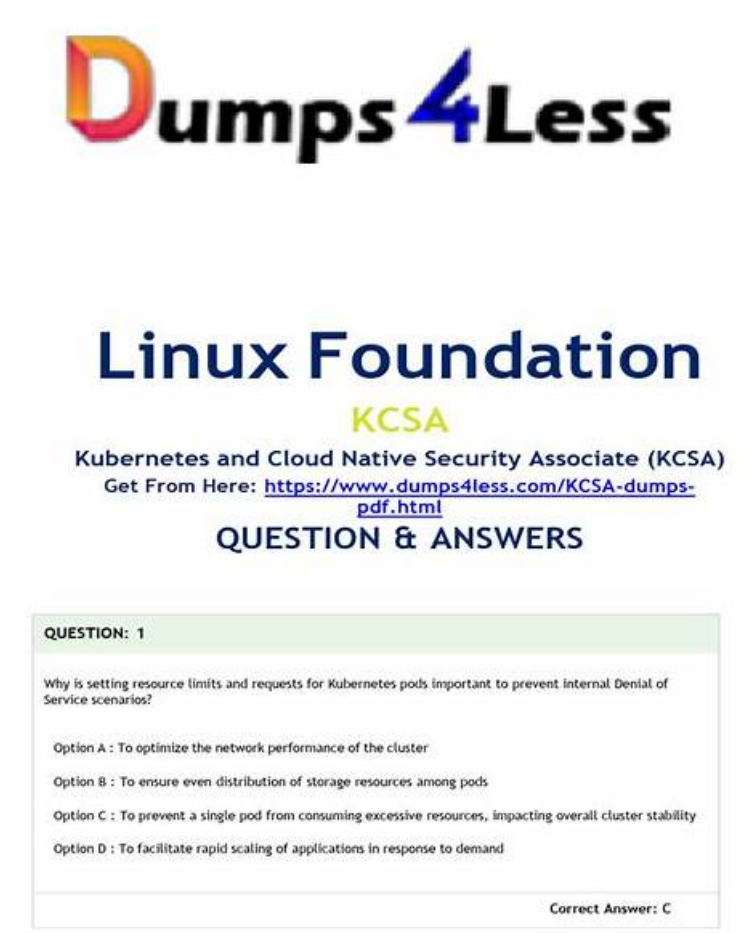

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Linux Foundation KCSA Exam Syllabus Topics:

Topic	Details
Topic 1	• 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.
Topic 2	• 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 3	• 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.

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Free PDF 2025 High Pass-Rate Linux Foundation KCSA: Exam Linux Foundation Kubernetes and Cloud Native Security Associate Papers

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Linux Foundation Kubernetes and Cloud Native Security Associate Sample Questions (Q13-Q18):

NEW QUESTION # 13
When using a cloud provider's managed Kubernetes service, who is responsible for maintaining the etcd cluster?

- A. Cloud provider
- B. Kubernetes administrator
- C. Namespace administrator
- D. Application developer

Answer: A

Explanation:
* Inmanaged Kubernetes services(EKS, GKE, AKS), the control plane is operated by thecloud provider
.
* This includesetcd, API server, controller manager, scheduler.
* Users manageworker nodes(in some models) and workloads, but not the control plane.
* Exact extract (GKE Docs):
* "The control plane, including the API server and etcd database, is managed and maintained by Google."
* Similarly forEKSandAKS, etcd is fully managed by the provider.
References:
GKE Architecture: https://cloud.google.com/kubernetes-engine/docs/concepts/cluster-architecture EKS Architecture: https://docs.aws.amazon.com/eks/latest/userguide/eks-architecture.html AKS Docs: https://learn.microsoft.com/en-us/azure/aks/concepts-clusters-workloads

NEW QUESTION # 14
Which of the following statements is true concerning the use ofmicroVMsover user-space kernel implementations for advanced container sandboxing?

- A. MicroVMs provide reduced application compatibility and higher per-system call overhead than user- space kernel implementations.
- B. MicroVMs offer higher isolation than user-space kernel implementations at the cost of a higher per- instance memory footprint.
- C. MicroVMs allow for easier container management and orchestration than user-space kernel implementation.
- D. MicroVMs offer lower isolation and security compared to user-space kernel implementations.

Answer: B

Explanation:

* MicroVM-based runtimes(e.g., Firecracker, Kata Containers) use lightweight VMs to provide strong isolation between workloads.
* Compared touser-space kernel implementations(e.g., gVisor), microVMs generally:
* Offerhigher isolation and security(due to VM-level separation).
* Come with ahigher memory and resource overhead per instancethan user-space approaches.
* Incorrect options:
* (A) Orchestration is handled by Kubernetes, not inherently easier with microVMs.
* (C) Compatibility is typically better with microVMs, not worse.
* (D) Isolation is stronger, not weaker.
References:
CNCF Security Whitepaper - Workload isolation: microVMs vs. user-space kernel sandboxes.
Kata Containers Project - isolation trade-offs.

NEW QUESTION # 15
A container image istrojanizedby an attacker by compromising the build server. Based on the STRIDE threat modeling framework, which threat category best defines this threat?

- A. Repudiation
- B. Denial of Service
- C. Spoofing
- D. Tampering

Answer: D

Explanation:
* In STRIDE,Tamperingis the threat category forunauthorized modification of data or code/artifacts. A trojanized container image is, by definition, an attacker'smodificationof the build output (the image) after compromising the CI/build system-i.e., tampering with the artifact in the software supply chain.
* Why not the others?
* Spoofingis about identity/authentication (e.g., pretending to be someone/something).
* Repudiationis about denying having performed an action without sufficient audit evidence.
* Denial of Servicetargets availability (exhausting resources or making a service unavailable).The scenario explicitly focuses on analtered imageresulting from a compromised build server-this squarely maps toTampering.
Authoritative references (for verification and deeper reading):
* Kubernetes (official docs)- Supply Chain Security (discusses risks such as compromised CI/CD pipelines leading to modified/poisoned images and emphasizes verifying image integrity/signatures).
* Kubernetes Docs#Security#Supply chain securityandSecuring a cluster(sections on image provenance, signing, and verifying artifacts).
* CNCF TAG Security - Cloud Native Security Whitepaper (v2)- Threat modeling in cloud-native and software supply chain risks; describes attackers modifying build outputs (images/artifacts) via CI
/CD compromise as a form oftamperingand prescribes controls (signing, provenance, policy).
* CNCF TAG Security - Software Supply Chain Security Best Practices- Explicitly covers CI/CD compromise leading tomaliciously modified imagesand recommends SLSA, provenance attestation, and signature verification (policy enforcement via admission controls).
* Microsoft STRIDE (canonical reference)- DefinesTamperingasmodifying data or code, which directly fits a trojanized image produced by a compromised build system.

NEW QUESTION # 16
A user runs a command with kubectl to apply a change to a deployment. What is the first Kubernetes component that the request reaches?

- A. Kubernetes Scheduler
- B. kubelet
- C. Kubernetes Controller Manager
- D. Kubernetes API Server

Answer: D

Explanation:

* Allkubectl requestsgo to theKubernetes API Server.
* The API server is thefront-end of the control planeand validates/authenticates requests before other components act.
* Exact extract (Kubernetes Docs - Components):
* "The API server is a component of the Kubernetes control plane that exposes the Kubernetes API. It is the front end for the Kubernetes control plane."
* Other options clarified:
* Controller Manager: reconciles state after API Server processes the request.
* Scheduler: assigns Pods to nodes after API Server accepts workload objects.
* kubelet: node agent, only communicates after API Server updates desired state.
References:
Kubernetes Docs - Components: https://kubernetes.io/docs/concepts/overview/components/

NEW QUESTION # 17
What mechanism can I use to block unsigned images from running in my cluster?

- A. Configuring Container Runtime Interface (CRI) to enforce image signing and validation.
- B. Enabling Admission Controllers to validate image signatures.
- C. Using Pod Security Standards (PSS) to enforce validation of signatures.
- D. Using PodSecurityPolicy (PSP) to enforce image signing and validation.

Answer: B

Explanation:
* KubernetesAdmission Controllers(particularlyValidatingAdmissionWebhooks) can be used to enforce policies that validate image signatures.
* This is commonly implemented withtools like Sigstore/cosign, Kyverno, or OPA Gatekeeper.
* PodSecurityPolicy (PSP):deprecated and never supported image signature validation.
* Pod Security Standards (PSS):only apply to pod security fields (privilege, users, host access), not image signatures.
* CRI:while runtimes (containerd, CRI-O) may integrate with signature verification tools, enforcement in Kubernetes is generally done viaAdmission Controllersat the API layer.
Exact extract (Admission Controllers docs):
* "Admission webhooks can be used to enforce custom policies on the objects being admitted." (e.g., validating signatures).
References:
Kubernetes Docs - Admission Controllers: https://kubernetes.io/docs/reference/access-authn-authz/admission-controllers/
Sigstore Project (cosign): https://sigstore.dev/
Kyverno ImageVerify Policy: https://kyverno.io/policies/pod-security/require-image-verification/

NEW QUESTION # 18
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