

Kubernetes QA

Kubernetes Architecture

1. What is Kubernetes?
2. Describe the architecture of Kubernetes.
3. What is a Kubernetes cluster?
4. What are the components of the Kubernetes control plane?
5. Explain the role of the kube-apiserver.
6. What is the function of etcd in Kubernetes?
7. Describe the role of the kube-scheduler.
8. What is the kube-controller-manager?
9. What is the purpose of the cloud-controller-manager?
10. Explain the role of the kubelet.
11. What is the function of kube-proxy?
12. Describe the role of a Pod in Kubernetes.
13. How do Namespaces work in Kubernetes?
14. What is the role of the Container Runtime in Kubernetes?

Kubernetes Objects

15. What are Kubernetes objects?
16. Explain the concept of a Deployment in Kubernetes.
17. What is a ReplicaSet?
18. How does a StatefulSet differ from a Deployment?
19. What is a DaemonSet?
20. Describe the purpose of a Job in Kubernetes.
21. What is a CronJob?
22. How do ConfigMaps work?
23. Explain the purpose of Secrets in Kubernetes.
24. What is a PersistentVolume (PV)?
25. Describe the role of PersistentVolumeClaim (PVC).
26. What is a Service in Kubernetes?
27. Explain the purpose of Ingress in Kubernetes.

- 28. What is a NetworkPolicy?
- 29. Describe the purpose of a ResourceQuota.

Kubernetes Deployment and Management

- 30. How do you create a Kubernetes cluster?
- 31. What tools can you use to manage Kubernetes clusters?
- 32. How do you deploy a Pod in Kubernetes?
- 33. Explain how to scale a Deployment.
- 34. What is rolling update strategy?
- 35. Describe a blue-green deployment strategy in Kubernetes.
- 36. How do you perform a canary deployment in Kubernetes?
- 37. What is Helm in Kubernetes?
- 38. How do you use Helm to manage Kubernetes applications?
- 39. What is Kustomize?
- 40. Explain how to use kubectl.
- 41. How do you monitor a Kubernetes cluster?
- 42. What are the common tools for Kubernetes logging?
- 43. How do you handle logging in Kubernetes?
- 44. What is the role of Prometheus in Kubernetes

Kubernetes Networking

- 45. How does networking work in Kubernetes?
- 46. Explain the concept of ClusterIP.
- 47. What is a NodePort?
- 48. Describe the purpose of a LoadBalancer Service.
- 49. What is kube-dns or CoreDNS?
- 50. How do you implement service discovery in Kubernetes?
- 51. Explain how network policies work.
- 52. What is a CNI plugin?
- 53. How does flannel work as a CNI plugin?
- 54. Explain the role of Calico in Kubernetes networking.
- 55. What is the purpose of Istio in Kubernetes?
- 56. Describe the concept of a service mesh.

- 57.How do you set up Istio in a Kubernetes cluster?
- 58.Explain the role of Envoy in Istio.
- 59.What is Linkerd and how does it compare to Istio?

Kubernetes Storage

- 60.How does storage work in Kubernetes?
- 61.What are the different types of PersistentVolumes?
- 62.How do you manage dynamic provisioning of storage?
- 63.What is StorageClass in Kubernetes?
- 64.Explain the concept of volume plugins.
- 65.What is CSI (Container Storage Interface)?
- 66.How do you configure local storage in Kubernetes?
- 67.What are StatefulSets and how do they handle storage?
- 68.How do you handle database deployments in Kubernetes?
- 69.What is the purpose of a VolumeSnapshot?
- 70.How do you perform backup and restore in Kubernetes?
- 71.Explain the use of Rook in Kubernetes storage.
- 72.What is Ceph and how is it used in Kubernetes?
- 73.Describe the use of GlusterFS in Kubernetes.
- 74.What is the role of NFS in Kubernetes storage?

Kubernetes Security

- 75.How does security work in Kubernetes?
- 76.What is RBAC (Role-Based Access Control)?
- 77.How do you configure RBAC in Kubernetes?
- 78.What are ServiceAccounts?
- 79.Explain the purpose of PodSecurityPolicies.
- 80.How do you use NetworkPolicies for security?
- 81.What is a Secret in Kubernetes and how do you manage it?
- 82.How do you secure etcd?
- 83.Explain the concept of mTLS in Kubernetes.
- 84.What are Pod Security Contexts?
- 85.How do you perform vulnerability scanning in Kubernetes?

- 86.What is the role of Open Policy Agent (OPA)?
- 87.How do you integrate OPA with Kubernetes?
- 88.Describe the concept of admission controllers.
- 89.What is the purpose of Aqua Security in Kubernetes?

Kubernetes Advanced Topics

- 90.How do you manage multi-cluster Kubernetes environments?
- 91.What is Federation in Kubernetes?
- 92.Explain the concept of Operators in Kubernetes.
- 93.How do you create a Kubernetes Operator?
- 94.What is the role of Custom Resource Definitions (CRDs)?
- 95.How do you manage Kubernetes upgrades?
- 96.What is KubeVirt and how is it used?
- 97.Describe the concept of serverless in Kubernetes.
- 98.How do you implement serverless with Knative?
- 99.What is the role of Argo in Kubernetes?
- 100. Explain how you can use Kubernetes for CI/CD.