Sr. DevOps Engineer Technical Interview (Inside Box) -Candidate Instructions

Guidelines

Killercoda

Navigate to https://killercoda.com/login and login with your email address. You'll receive a link in your email and it will allow you to login.

Once logged in, navigate to **Playgrounds**, and choose **Ubuntu**. A new screen will open with a shell and

you can begin work.

Share your Screen on TEAMS.

All work will be supervised.

Candidate may open browser tabs to leverage google, etc.

Part 1: K3s Cluster Setup

Question 1: What is K3s and how does it differ from Kubernetes?

Task 1:

Set up a single-node K3s cluster.

Verify the cluster setup by listing the nodes.

Question 2: Describe the steps to add an additional node to a K3s cluster.

Task 2 (Optional):

Set up a second VM and join it to the K3s cluster.

Part 2: Deploying Applications

Question 3: What are the differences between Deployments, Services, and Pods in Kubernetes?

Task 3:

Deploy an Nginx application using a Deployment.

Expose the Deployment as a NodePort service.

Retrieve and provide the URL to access the application.

Part 3: Building and Deploying a Custom Image

Question 4: Explain the process of building a Docker image and deploying it to a Kubernetes cluster.

Task 4:

Create a simple Dockerfile to build a custom Nginx image with a modified index.html.

Build the Docker image locally.

Push the image to a container registry (provide credentials if needed).

Update the existing Nginx Deployment to use this custom image.

Part 4: Writing and Deploying Helm Charts

Question 5: What is Helm and how does it simplify Kubernetes application management?

Task 5:

Install Helm on the VM.

Create a Helm chart for the custom Nginx application.

Deploy the Helm chart to the K3s cluster.

Modify the Helm chart to update the application (e.g., change the index.html content).

Part 5: Additional Kubernetes Tasks

Question 6: How does Kubernetes handle persistent storage and

what are Persistent Volumes and Persistent Volume Claims?

Task 6:

Create a Persistent Volume (PV) and a Persistent Volume Claim (PVC) for the Nginx Deployment.

Modify the Deployment to use the PVC for storing HTML files.

Question 7: What is an Ingress resource in Kubernetes and

How is it used?

Task 7:

Configure an Ingress resource to expose the Nginx application via a custom domain.

Question 8: How do you scale applications in Kubernetes and

what is the impact on resources?

Task 8:

Scale the Nginx deployment to 3 replicas.

Verify the scaling operation and discuss how Kubernetes manages the load among replicas.

Question 9: Why are resource requests and limits important in

Kubernetes, and how are they configured?

Task 9:

Configure resource requests and limits for the Nginx Deployment.