

DevOps Assignment Documentation

Project Overview

The objective of this project was to create a Docker image for a React application and deploy it to a Kubernetes cluster. The following steps outline the tasks completed to achieve this objective.

Tasks Completed

1. **Cloned the React Application Repository**
 - Cloned the repository from GitHub to obtain the source code for the React application.
2. **Created a Dockerfile**
 - Developed a Dockerfile to containerize the React application. The Dockerfile specifies the base image, sets the working directory, installs dependencies, copies the source code, exposes the required port, and starts the application.
3. **Built the Docker Image**
 - Used the Dockerfile to build a Docker image of the React application.
4. **Ran the Docker Container Locally**
 - Deployed the Docker container locally to ensure the application runs as expected.
5. **Verified Local Deployment**
 - Accessed the application locally to confirm it was running correctly.
6. **Created a Kubernetes Cluster Using Kubespray**
 - Set up a Kubernetes cluster with 1 master and 2 worker nodes using Kubespray. This involved configuring the cluster and ensuring proper communication between nodes.
7. **Created a Docker Registry Secret in Kubernetes**
 - Set up a Kubernetes secret to allow pulling the Docker image from a private Docker registry.
8. **Created a Kubernetes Deployment**
 - Developed a deployment configuration file to deploy the React application in the Kubernetes cluster.
9. **Created a Kubernetes Service**
 - Developed a service configuration file to expose the React application via a NodePort.
10. **Deployed the Application**
 - Applied the Kubernetes deployment and service configuration to the cluster to deploy the React application.
11. **Verified the Deployment**
 - Ensured the application was running correctly in the Kubernetes cluster.
12. **Accessed the Application**
 - Accessed the deployed application via a web browser using the NodePort.

Artifacts

All relevant files, including the Dockerfile and Kubernetes deployment configurations, are available in the repository: [React-Todo-list](https://github.com/nihalcomviva/React-Todo-list).(<https://github.com/nihalcomviva/React-Todo-list>)

140.238.249.204

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Quick connect...

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```
[mobility@payx9-jenkins React-Todo-list]$ kubectl get nodes
NAME                STATUS    ROLES    AGE   VERSION
master1             Ready    control-plane   43d   v1.29.5
worker1             Ready    <none>        43d   v1.29.5
worker2             Ready    <none>        43d   v1.29.5
[mobility@payx9-jenkins React-Todo-list]$ kubectl get po -n poc
NAME                READY    STATUS    RESTARTS   AGE
react-todo-app-5947b5d87f-zllbs   1/1      Running    0           8m7s
[mobility@payx9-jenkins React-Todo-list]$ kubectl get svc -n poc
NAME                TYPE        CLUSTER-IP    EXTERNAL-IP  PORT(S)    AGE
react-todo-app-service  NodePort    10.233.31.77   <none>        80:30007/TCP  8m4s
[mobility@payx9-jenkins React-Todo-list]$ ll
total 1212
-rw-rw-r-- 1 mobility mobility 487 Jul 24 08:19 deployment.yaml
-rw-rw-r-- 1 mobility mobility 375 Jul 24 08:04 Dockerfile
-rw-rw-r-- 1 mobility mobility 1037 Jul 24 08:03 package.json
-rw-rw-r-- 1 mobility mobility 1210146 Jul 24 08:03 package-lock.json
drwxrwxr-x 2 mobility mobility 4096 Jul 24 08:03 public
-rw-rw-r-- 1 mobility mobility 719 Jul 24 08:03 README.md
-rw-rw-r-- 1 mobility mobility 221 Jul 24 08:20 service.yaml
drwxrwxr-x 3 mobility mobility 4096 Jul 24 08:03 src
[mobility@payx9-jenkins React-Todo-list]$ ssh worker2
Activate the web console with: systemctl enable --now cockpit.socket

Last login: Wed Jul 24 08:28:11 2024 from 10.22.21.214
[mobility@payx9-worker2 ~]$ curl ifconfig.me
141.148.215.141[mobility@payx9-worker2 ~]$
```

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React App

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Get Things Done !

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