

Project Title: Deploying a Scalable Web Application on IBM Kubernetes

Project Overview

In this project, you will create a scalable and highly available web application using IBM Kubernetes. You will deploy a sample web application, such as a microservices-based application or a web service, onto the IBM Kubernetes cluster. You will ensure that the application is configured for high availability, scalability, and efficient resource utilization.

Project Steps

Setup IBM Kubernetes Cluster

Create an IBM Cloud account and set up the IBM Kubernetes Service. Provision a Kubernetes cluster on IBM Cloud.

Develop Sample Web Application

Build a simple web application using a popular framework like Node.js, Python Flask, or Java Spring Boot. Containerize the application using Docker.

Deploy Application on IBM Kubernetes

Deploy the containerized application onto the IBM Kubernetes cluster. Configure the deployment for scalability and high availability.

Implement Load Balancing

Set up a load balancer to distribute incoming traffic across multiple application instances. Ensure that the load balancer is configured to handle traffic efficiently and handle scaling up or down based on the demand.

Monitor and Scale Application

Implement monitoring and logging solutions to track the performance and health of the application. Configure auto-scaling to dynamically adjust the number of application instances based on resource usage and traffic patterns.

Implement Continuous Deployment (Optional)

Set up a continuous integration and continuous deployment (CI/CD) pipeline to automate the deployment process. Implement automated testing to ensure the reliability and quality of the deployed application.

Document and Present the Project

Document the entire process, including the setup, deployment steps, configurations, and any challenges faced. Create a presentation outlining the project's objectives, methodologies, and outcomes, along with a demonstration of the deployed application on the IBM Kubernetes cluster. Completing this project will give you hands-on experience with IBM Kubernetes and help you understand how to deploy and manage containerized applications in a production environment.

