

Final project

Part 1. Prepare infrastructure

1. Deploy automatically K8S cluster

*Setup HA cluster with Calico CNI(v3.16.5)

2. Deploy CI/CD tool into K8S by using YAML-manifests or Helm charts.

*For Jenkins setup Master + Slave nodes

*All configuration define as a JCasC

*Setup Nginx as a Reverse Proxy for Jenkins Master node

3. Spin up repository manager for storing artifacts(Docker images, Helm charts, etc) you can use Artifactory, Nexus, etc.

Part 2. Deploy application

1. Write pipeline which deploy application into K8S cluster

- Application code <https://github.com/ingvar-goryainov/python-app>
- Build in Docker image
- Store image in Repository Manager
- Use YAML-manifests or custom Helm chart for deploying application

2. Organize “Rolling Update” strategy.

*Use “Blue-Green” or “Canary” strategy for deployment

*Spin up HA Kafka cluster in K8S

*Write pipeline for deploying application

<https://github.com/etycomputer/website-metric-producer>

*Organize strategy for redeploy application

Part 3. Configure monitoring

3. Install and configure next components on your K8S cluster

- Prometheus
- Prometheus NodeExporter
- Grafana
- Alertmanager

4. Configure Prometheus to scrape metrics from all the nodes.

5. Configure Grafana dashboard with general panels.

6. Add alerts for the panel

*Install and configure ELK stack in K8S cluster to scrape metrics from Kafka