**inventory.yml**

all:

hosts:

localhost:

ansible\_connection: local

**Observability and Incident Management**

Use tools like Prometheus, Grafana, and Alertmanager to monitor system health.

Example: Alert when CPU usage exceeds a threshold:

- alert: HighCPUUsage

expr: avg(rate(container\_cpu\_usage\_seconds\_total[5m])) > 0.9

for: 5m

labels:

severity: critical

**Create Prometheus Alert Rule**: Define a custom alert rule for high CPU usage

Save this as **high-cpu-alert.yaml**:

apiVersion: monitoring.coreos.com/v1

kind: PrometheusRule

metadata:

name: high-cpu-alerts

namespace: monitoring

spec:

groups:

- name: cpu-usage-alerts

rules:

- alert: HighCPUUsage

expr: avg(rate(container\_cpu\_usage\_seconds\_total[5m])) > 0.9

for: 5m

labels:

severity: critical

annotations:

summary: "High CPU usage detected"

description: "CPU usage is above 90% for more than 5 minutes. Value: {{ $value }}"

**kubectl apply -f high-cpu-alert.yaml**

**Verify the Alert Rule: Port-forward Prometheus to access the UI:**

kubectl port-forward -n monitoring svc/prom-stack-kube-prometheus-prometheus 9090:9090

**Test the alerting expression in Prometheus:**

avg(rate(container\_cpu\_usage\_seconds\_total[5m]))

**Configure Alertmanager**

1. Create an Alertmanager configuration to route the alert to a webhook.

Save this as alertmanager-config.yaml:

apiVersion: v1

kind: ConfigMap

metadata:

name: alertmanager-config

namespace: monitoring

data:

alertmanager.yaml: |

global:

resolve\_timeout: 5m

route:

receiver: "webhook"

group\_wait: 30s

group\_interval: 5m

repeat\_interval: 1h

receivers:

- name: "webhook"

webhook\_configs:

- url: "http://self-healing-script.default.svc.cluster.local:8080"

**kubectl apply -f alertmanager-config.yaml**

**Create a PromQL Query for Metrics**

**sum(rate(container\_cpu\_usage\_seconds\_total{namespace="default", pod=~"my-app.\*"}[1m])) by (pod)**

This query calculates the average CPU usage for pods in the default namespace.

**kubectl get pods --kubeconfig /home/ansible/.kube/config**

**kubectl auth can-i get pods --kubeconfig /home/ansible/.kube/config**

**ansible-playbook -i inventory.yml deploy\_springboot.yml**