DevOps

Day 6

Date: 22.03.2025

Topics Covered: Prometheus and Java Application Minikube Deployement

Prometheus and Grafana

Prometheus:

sudo useradd \

  --system \

  --no-create-home \

  --shell /bin/false Prometheus

wget https://github.com/prometheus/prometheus/releases/download/v2.47.1/prometheus-2.47.1.linux-amd64.tar.gz

tar -xvf prometheus-2.47.1.linux-amd64.tar.gz

sudo mkdir -p /data /etc/prometheus

cd prometheus-2.47.1.linux-amd64/

sudo mv prometheus promtool /usr/local/bin/

sudo mv consoles/ console_libraries/ /etc/prometheus/

sudo mv prometheus.yml /etc/prometheus/prometheus.yml

sudo chown -R prometheus:prometheus /etc/prometheus/ /data/

cd

rm -rf prometheus-2.47.1.linux-amd64.tar.gz

prometheus --version

sudo vim /etc/systemd/system/prometheus.service

[Unit]

Description=Prometheus

Wants=network-online.target

After=network-online.target

StartLimitIntervalSec=500

StartLimitBurst=5

[Service]

User=prometheus

Group=prometheus

Type=simple

Restart=on-failure

RestartSec=5s

ExecStart=/usr/local/bin/prometheus \

--config.file=/etc/prometheus/prometheus.yml \

--storage.tsdb.path=/data \

--web.console.templates=/etc/prometheus/consoles \

--web.console.libraries=/etc/prometheus/console_libraries \

--web.listen-address=0.0.0.0:9090 \

--web.enable-lifecycle

[Install]

WantedBy=multi-user.target sudo systemctl enable prometheus

sudo systemctl start prometheus

sudo systemctl status prometheus

journalctl -u prometheus -f --no-pager

sudo useradd \

--system \

--no-create-home \

--shell /bin/false node_exporter

wget https://github.com/prometheus/node_exporter/releases/download/v1.6.1/node_exporter-1.6.1.linux-amd64.tar.gz

tar -xvf node_exporter-1.6.1.linux-amd64.tar.gz

sudo mv \

node_exporter-1.6.1.linux-amd64/node_exporter \

/usr/local/bin/

rm -rf node_exporter*

node_exporter –version

sudo vim /etc/systemd/system/node_exporter.service

[Unit]

Description=Node Exporter

Wants=network-online.target

After=network-online.target

StartLimitIntervalSec=500

StartLimitBurst=5

[Service]

User=node_exporter

Group=node_exporter

Type=simple

Restart=on-failure

RestartSec=5s

ExecStart=/usr/local/bin/node_exporter \

  --collector.logind

[Install]

WantedBy=multi-user.target

sudo systemctl enable node_exporter

sudo systemctl start node_exporter

sudo systemctl status node_exporter

journalctl -u node_exporter -f --no-pager

sudo vim /etc/prometheus/prometheus.yml

- job_name: 'jenkins'

  metrics_path: '/prometheus'

  static_configs:

   - targets: ['<jenkins-ip>:8080']

promtool check config /etc/prometheus/prometheus.yml

curl -X POST http://localhost:9090/-/reload

sudo apt-get install -y apt-transport-https software-properties-common

wget -q -O - https://packages.grafana.com/gpg.key | sudo apt-key add -

echo "deb https://packages.grafana.com/oss/deb stable main" | sudo tee -a /etc/apt/sources.list.d/grafana.list

sudo apt-get update

sudo apt-get -y install grafana

sudo systemctl enable grafana-server

sudo systemctl start grafana-server

sudo systemctl status grafana-server

Grafana:

Open source

Prometheus is an open-source system monitoring and alerting toolkit originally built at SoundCloud. It is now a standalone open source project . Prometheus joined the Cloud Native Computing Foundation in 2016 as the second hosted project, after Kubernetes.

Features:

multi dimensional

Features

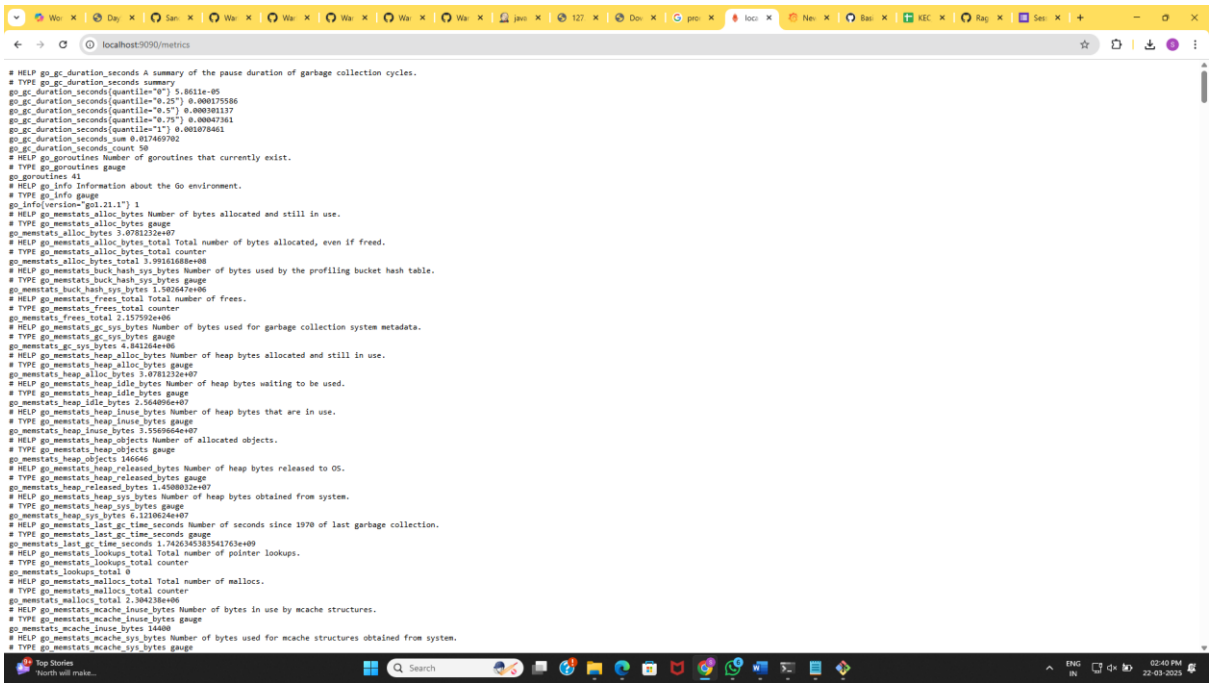
1. a multi-dimensional data model with time series data identified by metric name and key/value pairs
2. PromQL, a flexible query language to leverage this dimensionality
3. no reliance on distributed storage; single server nodes are autonomous
4. time series collection happens via a pull model over HTTP
5. pushing time series is supported via an intermediary gateway
6. targets are discovered via service discovery or static configuration
7. multiple modes of graphing and dashboarding support

In Grafana new Dashboard

9964 - prometheus

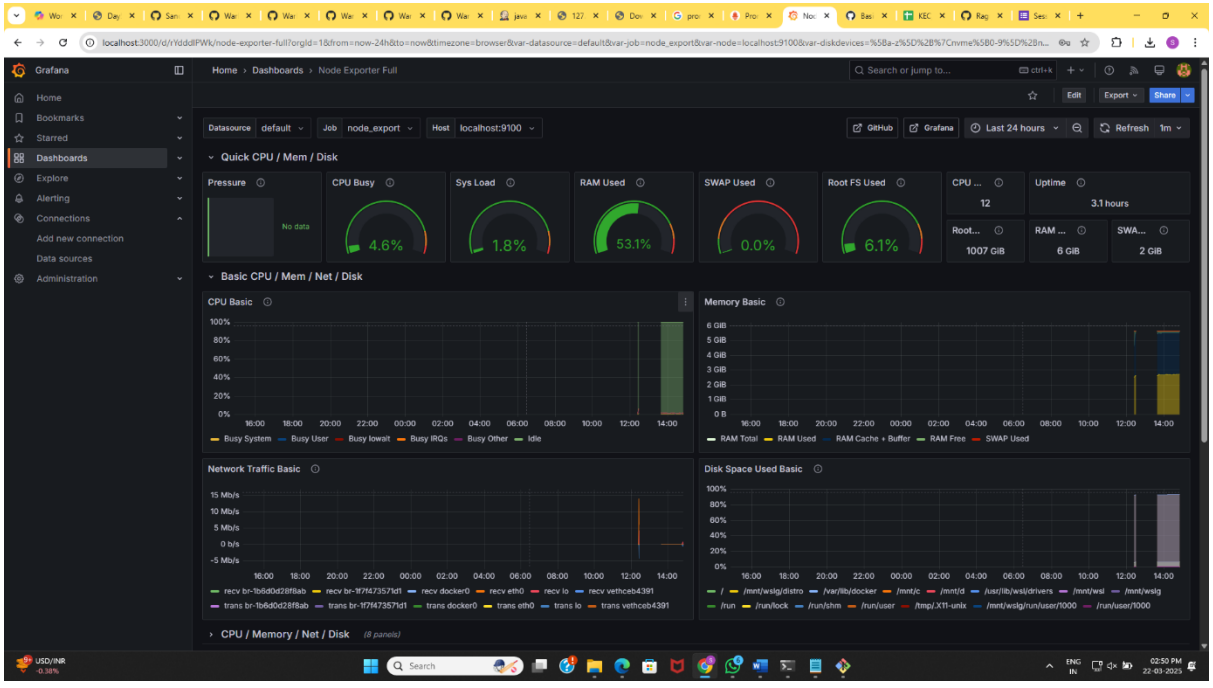
1960

Prometheus Metrics



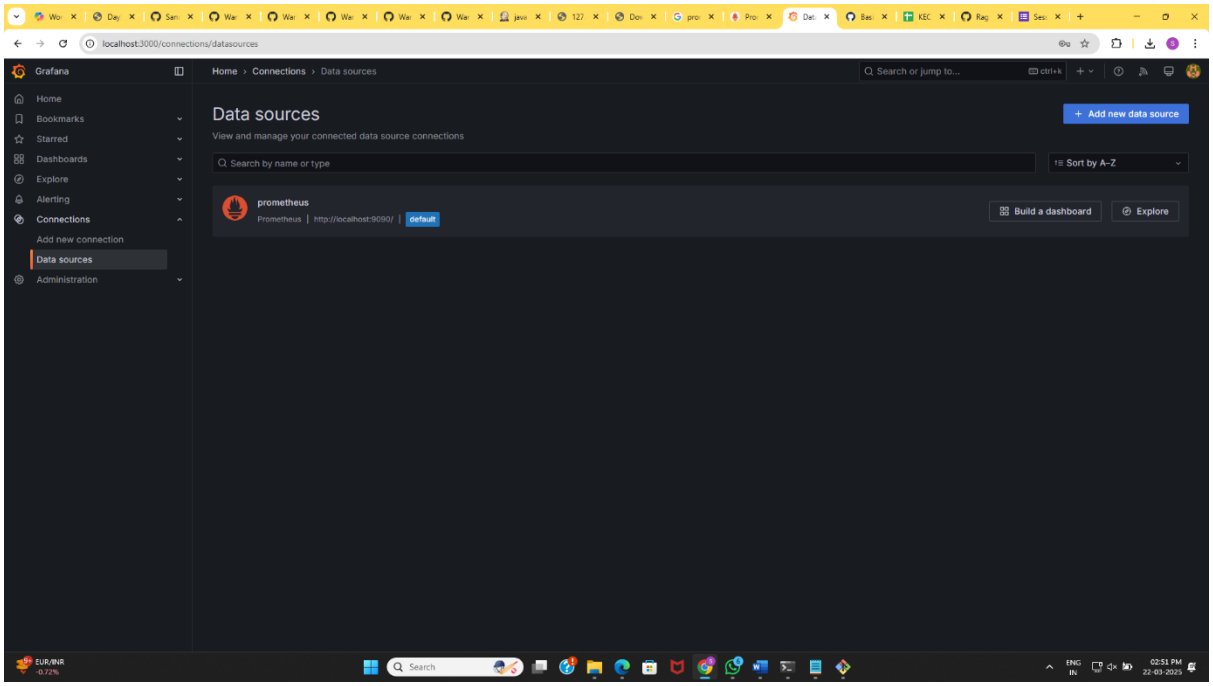
metrics

Grafana Prometheus Dashboard



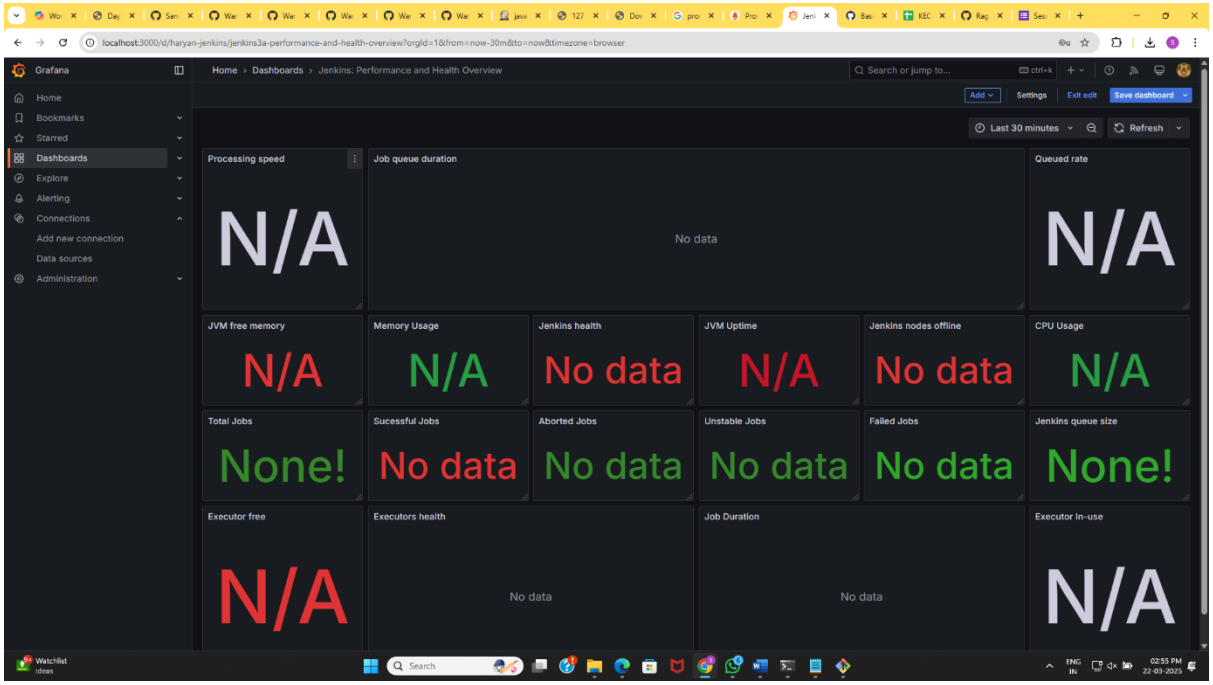
Grafana Dashboard

Creating Connections for Prometheous



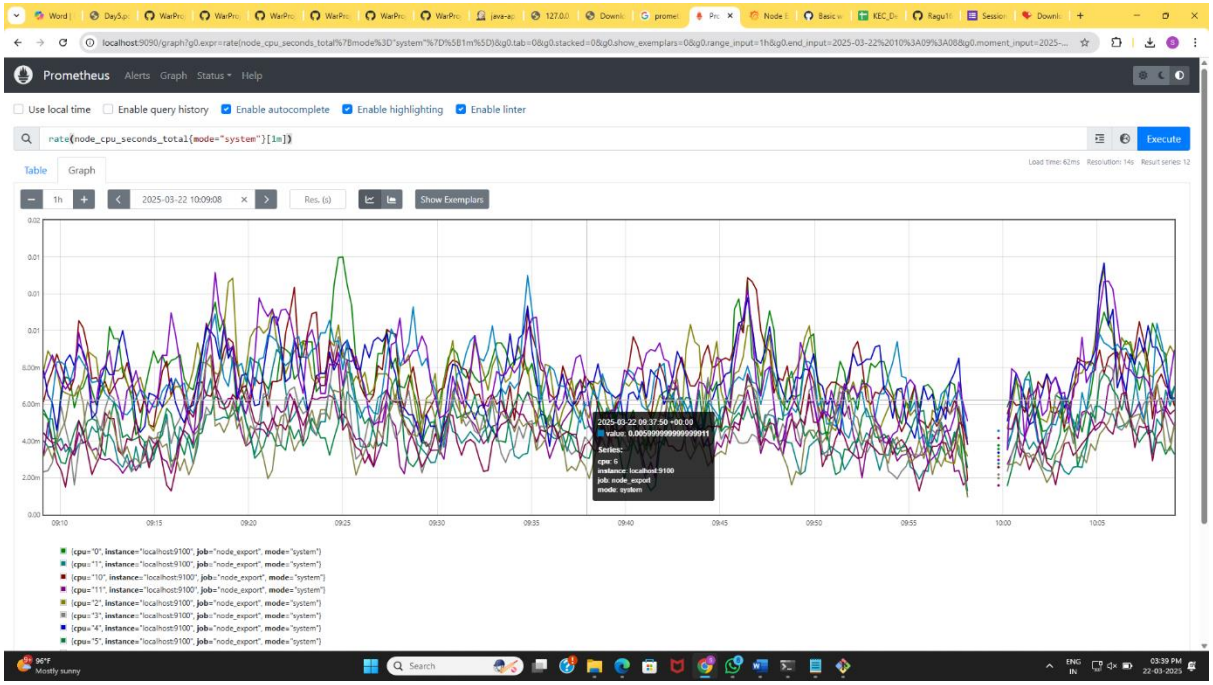
Connections

Jenkins Dashboard



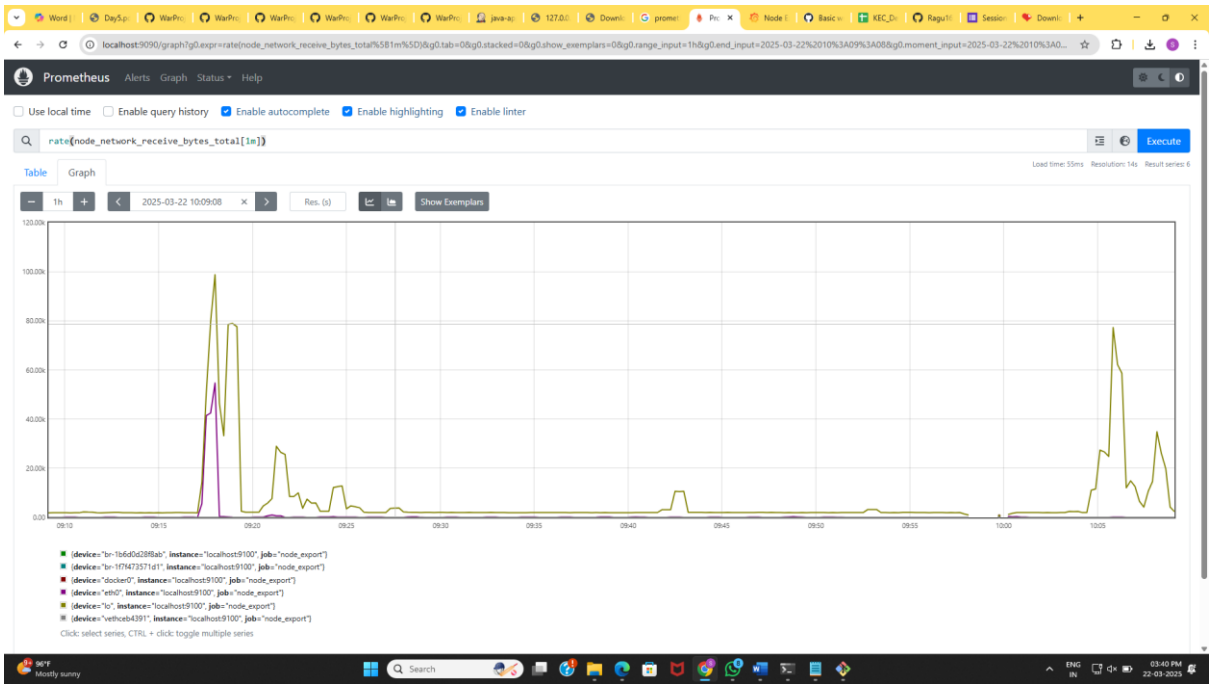
Grafana Dashboard

rate(node_cpu_seconds_total{mode="system"}[1m])



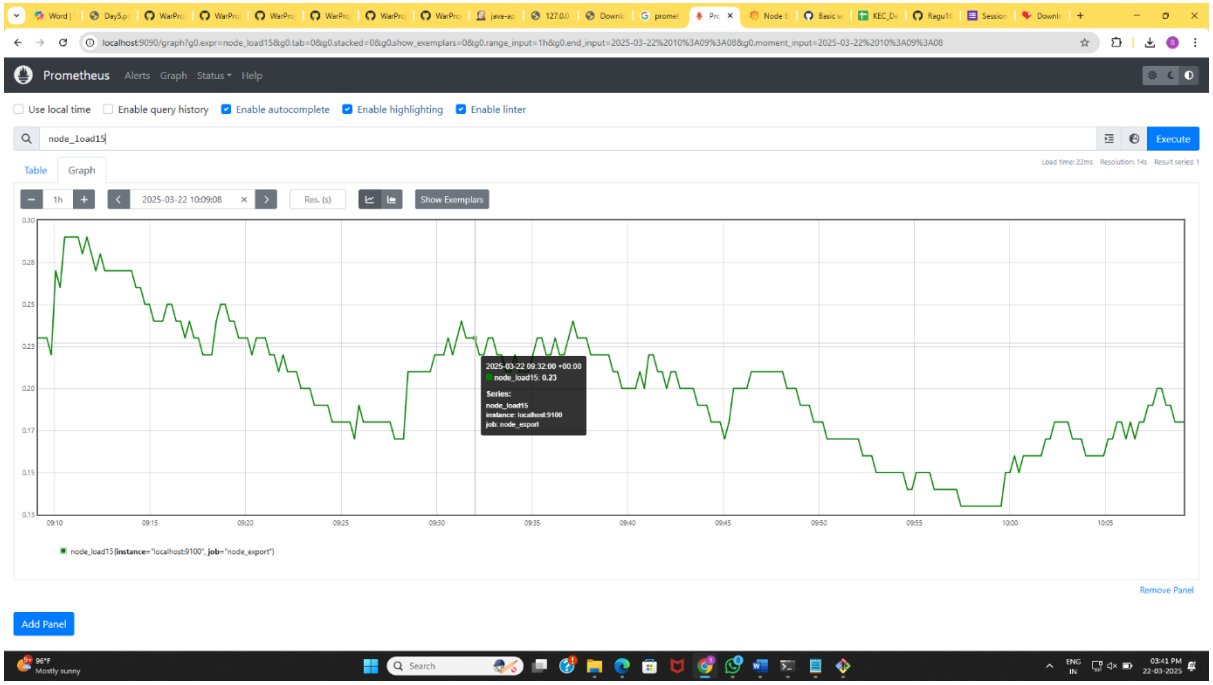
Prometheus

rate(node_network_receive_bytes_total[1m])



Prometheus

node_load15



Prometheus