Monitoring Slave Servers with Prometheus, Node Exporter, and Grafana

1. Overview

This guide provides step-by-step instructions to set up Prometheus, Node Exporter, and Grafana to monitor resource usage on slave servers from an admin server.

- Admin Server: Runs Prometheus and Grafana
- Slave Servers: Run Node Exporter to send system metrics to Prometheus
- Grafana: Displays resource usage data from Prometheus

2. Install Prometheus on Admin Server

2.1 Download & Extract Prometheus

```
cd /opt
sudo yum install -y wget
sudo                                                                                wget
https://github.com/prometheus/prometheus/releases/download/v3.2.1/prometheus-3.2.1.linux-amd64.tar
.gz
sudo tar -xvf prometheus-3.2.1.linux-amd64.tar.gz
sudo mv prometheus-3.2.1.linux-amd64 prometheus
cd prometheus
```

2.2 Configure Prometheus

```
sudo vi /opt/prometheus/prometheus.yml
```

```
scrape_configs:
  - job_name: 'node_exporter'
    static_configs:
      - targets: ['slave1_IP:9100', 'slave2_IP:9100']
```

2.3 Create Prometheus Systemd Service

```
sudo vi /etc/systemd/system/prometheus.service
```

```
[Unit]
Description=Prometheus
Wants=network-online.target
After=network-online.target

[Service]
User=root
ExecStart=/opt/prometheus/prometheus                    --config.file=/opt/prometheus/prometheus.yml
--storage.tsdb.path=/opt/prometheus/data
Restart=always

[Install]
WantedBy=multi-user.target
```

2.4 Start Prometheus Service

```
sudo systemctl daemon-reload
sudo systemctl enable prometheus
sudo systemctl start prometheus
sudo systemctl status prometheus
```

3. Install Node Exporter on Slave Servers

3.1 Download & Install Node Exporter

```
cd /opt
sudo                                                                                wget
https://github.com/prometheus/node_exporter/releases/download/v1.9.0/node_exporter-1.9.0.linux-amd
64.tar.gz
sudo tar -xvf node_exporter-1.9.0.linux-amd64.tar.gz
sudo mv node_exporter-1.9.0.linux-amd64 node_exporter
cd node_exporter
```

3.2 Create Node Exporter Systemd Service

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```
sudo vi /etc/systemd/system/node_exporter.service
```

```
[Unit]
Description=Node Exporter
After=network.target

[Service]
User=root
ExecStart=/opt/node_exporter/node_exporter
Restart=always

[Install]
WantedBy=default.target
```

3.3 Start Node Exporter Service

```
sudo systemctl daemon-reload
sudo systemctl enable node_exporter
sudo systemctl start node_exporter
sudo systemctl status node_exporter
```

4. Install Grafana on Admin Server

```
sudo yum install -y https://dl.grafana.com/enterprise/release/grafana-enterprise-11.5.2-1.x86_64.rpm
```

4.2 Start Grafana Service

```
sudo systemctl enable grafana-server
sudo systemctl start grafana-server
sudo systemctl status grafana-server
```

5. Connect Prometheus to Grafana

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1. Login to Grafana
2. Go to Settings -> Data Sources
3. Click "Add data source"
4. Select "Prometheus"
5. Enter Prometheus URL: http://localhost:9090
6. Click "Save & Test"

6. Import Node Exporter Dashboard

1. Go to Grafana -> Dashboards -> Import
2. Enter Dashboard ID: 1860
3. Select Prometheus as the data source
4. Click "Import"
5. View CPU, RAM, Disk, and Network Usage of Slave Servers!

7. Final Verification

Check the following URLs to verify setup:

- Prometheus UI: http://admin_server_IP:9090/status
- Node Exporter (Slave 1): http://slave1_IP:9100/metrics
- Node Exporter (Slave 2): http://slave2_IP:9100/metrics
- Grafana UI: http://admin_server_IP:3000