Predictive Disk Usage Alert for VictoriaMetrics

# Use Case

Predictive Disk Usage Alert for VictoriaMetrics

# Objective

Automatically forecast disk space usage by VictoriaMetrics and alert if usage is projected to reach 90% of total disk capacity within 2 days. This enables proactive intervention before the disk becomes full.

# Solution Overview

Utilize Prometheus and Grafana to:

1. Collect internal metrics from VictoriaMetrics.

2. Apply `predict\_linear()` to estimate disk usage growth.

3. Trigger alerts based on forecasted usage.

4. Visualize live and forecasted data in Grafana.

# STEP 1: Confirm VictoriaMetrics is exposing metrics

Run:

curl http://localhost:8428/metrics | grep vm\_data\_size\_bytes

You should see:

vm\_data\_size\_bytes{type="storage/small"} ...

vm\_data\_size\_bytes{type="indexdb/file"} ...

# STEP 2: Configure Prometheus to scrape VictoriaMetrics

Edit Prometheus config:

sudo nano /etc/prometheus/prometheus.yml

Under scrape\_configs, add:

scrape\_configs:

- job\_name: 'victoriametrics'

static\_configs:

- targets: ['localhost:8428']

Also confirm rule\_files:

rule\_files:

- /etc/prometheus/alert.rules.yml

# STEP 3: Define Predictive Alert Rule

Edit or create:

sudo nano /etc/prometheus/alert.rules.yml

Add rule:

groups:

- name: victoria\_alerts

rules:

- alert: VMDiskWillFillSoon

expr: |

predict\_linear(vm\_data\_size\_bytes{type="storage/small"}[30m], 2 \* 86400)

+

predict\_linear(vm\_data\_size\_bytes{type="indexdb/file"}[30m], 2 \* 86400)

> 0.9 \* node\_filesystem\_size\_bytes{mountpoint="/"}

for: 10m

labels:

severity: warning

annotations:

summary: "VictoriaMetrics disk space will reach 90% in 2 days"

description: "Current growth rate suggests VM will hit 90% of disk within 2 days."

# STEP 4: Restart Prometheus

Restart Prometheus:

sudo systemctl restart prometheus

# or, if Docker:

docker restart prometheus

# STEP 5: Verify in Prometheus UI

Open in browser:

http://localhost:9090

Go to Alerts tab and check for alert listing.

Test query in Graph tab:

predict\_linear(vm\_data\_size\_bytes{type="storage/small"}[30m], 2 \* 86400)

+

predict\_linear(vm\_data\_size\_bytes{type="indexdb/file"}[30m], 2 \* 86400)

# STEP 6: Import Grafana Dashboard

1. Open Grafana: http://localhost:3000

2. Log in (admin / admin or your own creds)

3. Menu → + → Import

4. Upload JSON or paste it

5. Visualize:

- Actual disk usage

- 1-day and 2-day forecast

- 80% and 90% thresholds

# Outcome

You now have:

- Automated disk usage forecasts

- Predictive alerts before 90% threshold

- Grafana visualization for trends and limits

This replaces Python scripts with full observability through Prometheus + Grafana.