

LAB2

1-How do I trigger a Prometheus alert?

- Setup and configure the Alert manager.
- Configure Prometheus to talk to the Alert manager.
- Create alerting rules in Prometheus.

2-What is the difference between node exporter and MySQL exporter?

- The Prometheus **Node Exporter** is an open-source time-series monitoring and alerting system for cloud-native environments, including Kubernetes, hosted by the Cloud Native Computing Foundation (CNCF) on GitHub. It can collect and store node-level metrics as time-series data, recording information with a timestamp. It can also collect and record labels, which are optional key-value pairs.
- The **MySQL exporter** is required to monitor and expose MySQL metrics. It queries MySQL, scrapes the data, and exposes the metrics to a Kubernetes service endpoint that can further be scrapped by Prometheus to ingest the time series data. On deployment, this exporter scrapes OPlog, replica set, server status, sharding, and storage engine metrics. It handles all metrics exposed by MySQL monitoring commands. It loops over all the fields exposed in diagnostic commands and tries to get data from them. The MySQL exporter helps users get crucial and continuous information about the database which is difficult to get from MySQL directly.

3-What is the maximum retention period to save data in Prometheus and how to increase it?

- `--storage.tsdb.retention.time`: When to remove old data. **Defaults to 15d**. Overrides `storage.tsdb.retention` if this flag is set to anything other than default.
- `--storage.tsdb.retention.size`: The maximum number of bytes of storage blocks to retain. The oldest data will be removed first. Defaults to 0 or disabled. Units supported: B, KB, MB, GB, TB, PB, EB. Ex: "512MB". Based on powers-of-2, so 1KB is 1024B. Only the persistent blocks are deleted to honor this retention although WAL and m-mapped chunks are counted in the total size. So, the minimum requirement for the disk is the peak space taken by the wal (the WAL and Checkpoint) and chunks_head (m-mapped Head chunks) directory combined (peaks every 2 hours).
- `--storage.tsdb.retention`: Deprecated in favor of `storage.tsdb.retention.time`.
- **Steps:**
 1. Edit the prometheus.service file
`vi /etc/systemd/system/prometheus.service`
 2. add "`--storage.tsdb.retention.time=1y`" below to
"`ExecStart=/usr/local/bin/prometheus \`" line.
 3. `systemctl restart prometheus.service`

4-What are the different PromQL data types available in Prometheus Expression language?

- Floats (mostly scalars)

- Range vectors
- Instant vectors
- Time (though it's often not counted in this category)

5-How To calculate the average request duration over the last 5 minutes from a histogram?

- `rate(http_request_duration_seconds_sum[5m])`
- `rate(http_request_duration_seconds_count[5m])`

6-What is Thanos Prometheus?

- Thanos is an open-source extension to Prometheus created by Improbable, a British gaming technology company. In their blog post announcing the release of Thanos, Improbable revealed the project's goal: "to seamlessly transform existing Prometheus deployments in clusters around the world into a unified monitoring system with unbounded historical data storage.
- By adding Thanos to Prometheus, users can build highly available metric systems with practically unlimited storage. When deployed, Thanos provides features such as a global query view, high accessibility (HA), and affordable access to historical data in a single binary.

7-what is promtool and how i can use it?

- test rules.
- Prometheus ships with a very useful supporting command-line tool
- Small Golang binary can be used to quickly perform several troubleshooting actions and is packed with helpful subcommands.
- # For a single test file.
./promtool test rules test.yml

If you have multiple test files, say test1.yml, test2.yml, test2.yml
./promtool test rules test1.yml test2.yml test3.yml

8-What types of Monitoring can be done via Grafana?

- **Latency:** The time it takes to service a request.
- **Traffic:** How much demand is being placed on your system.
- **Errors:** The rate of failures in your system.
- **Saturation:** How "full" is your system — and critically, how much capacity remains.

9-Can we see different Servers CPU comparison in Grafana?

- Yes, through single dashboard.