**What is Prometheus and Grafana?**

Prometheus and Grafana are tools commonly used together for monitoring and visualizing system metrics.

Prometheus is an open-source monitoring and alerting toolkit designed for recording real-time metrics, while Grafana is a visualization tool that helps you create dashboards for those metrics. For example, if you’re tracking server performance, Prometheus collects data like CPU and memory usage, and Grafana lets you visualize that data in graphs, making it easier to analyze and understand. Would you like to delve deeper into a specific aspect of either tool?

**Prometheus**

* What it is: An open-source monitoring and alerting system that collects and stores metrics as time-series data.
* How it works: It pulls metrics from configured endpoints at specified intervals. Each metric is identified by a name and can have various labels for differentiation.

**Grafana**

* What it is: An open-source visualization tool that lets you create dashboards to display the metrics collected by systems like Prometheus.
* How it works: It connects to data sources like Prometheus and allows you to create graphs, charts, and alerts based on the metrics.

**Easy Example:**

Imagine you have a web application, and you want to monitor its performance:

1. **Prometheus**:
   * You set up Prometheus to collect metrics from your web application (like response times, number of requests, error rates).
   * Prometheus scrapes these metrics every 15 seconds.
2. **Grafana**:
   * You connect Grafana to your Prometheus data source.
   * You create a dashboard with graphs showing:
     + Average response time over the last hour.
     + Number of requests per minute.
     + Percentage of successful requests versus failed requests.

**Summary:**

Using Prometheus, you gather data about your application’s performance, and with Grafana, you visualize that data in a way that helps you quickly identify any issues or trends. This combination helps maintain system reliability and performance.

**Interview Monitoring Story for Metrics -**

We manage around 150 Virtual Machines, and to monitor their metrics (CPU, Memory Usage, Disk Usage, System Uptime etc..), we installed Node Exporter on each machine. A central monitoring server hosts both Prometheus and Grafana. In the prometheus.yml file, we configured Prometheus to scrape metrics from all the VMs, and we used Grafana to create dashboards for visualizing the data.

We will do the setup of logs also in the next class.