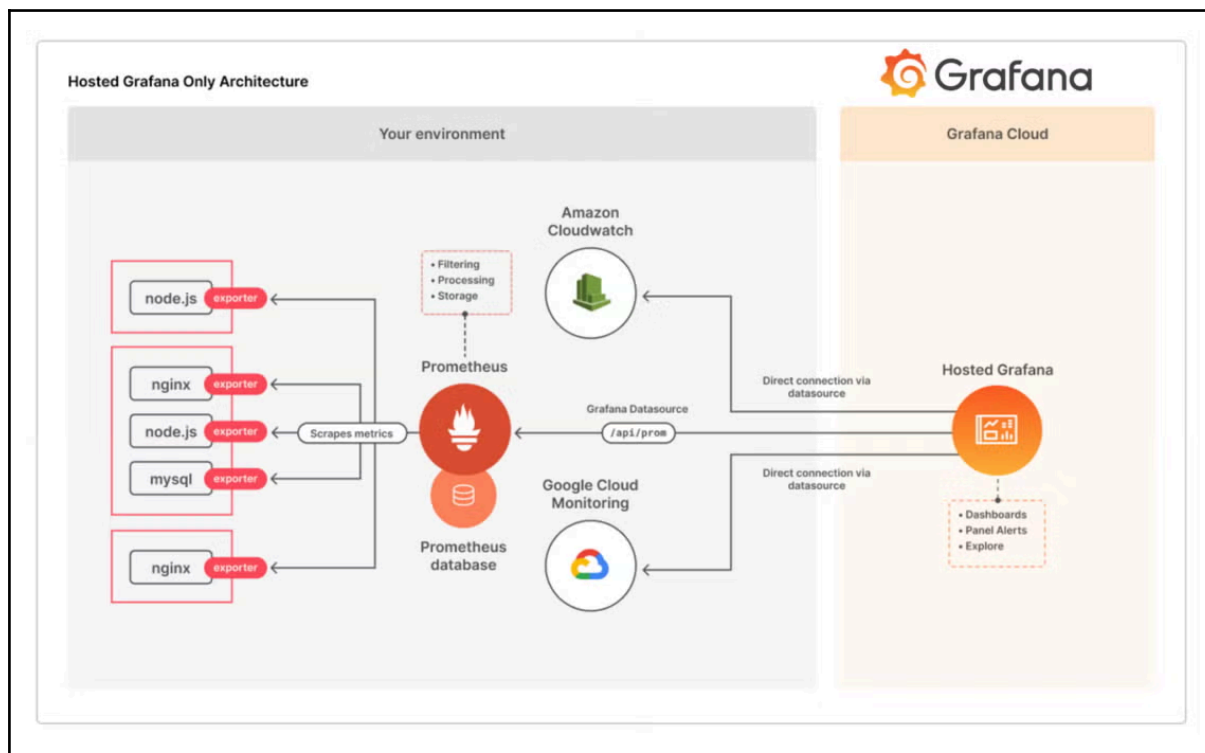


Grafana

Grafana is an open-source data visualization and monitoring tool. It acts as a "single pane of glass" that allows you to query, visualize, and alert on metrics, logs, and traces, no matter where they are stored. Think of it as the **UI layer** of your technical stack. While databases like Prometheus or InfluxDB store your raw data, Grafana is the tool that turns those numbers into beautiful, actionable dashboards.



Grafana (specifically "Hosted Grafana" in the above diagram context) serves as the central visualization and management hub for our entire infrastructure.

Why people use it?

- **Unified View:** You can pull data from multiple sources (like SQL, CloudWatch, and Elasticsearch) and display them side-by-side on the same dashboard.
- **Highly Flexible:** It supports everything from simple line graphs and "Big Stat" numbers to complex heatmaps and geographical maps.
- **Alerting:** You can set rules that trigger notifications (via Slack, PagerDuty, or Email) when a metric crosses a certain threshold.
- **Dynamic Dashboards:** Using variables, you can create a single dashboard that can be filtered for hundreds of different servers or applications.

Why people use it?

Unlike many other monitoring tools, Grafana **does not store your data**. It connects to your existing databases through "Data Sources." When you open a dashboard, Grafana sends a query to the database, fetches the results, and renders the visual.

1. **Data Sources:** It uses **Direct connections via datasource** to communicate with cloud providers like **Amazon Cloudwatch** and **Google Cloud Monitoring**.
2. **API Integration:** It connects to **Prometheus** via a dedicated **Grafana Datasource API** (</api/prom>).
3. **The Pipeline:**
 - a. Individual services (like **node.js**, **nginx**, and **mysql**) use **exporters** to output their data.
 - b. **Prometheus** "scrapes" these metrics and stores them in its own database.
 - c. **Grafana** pulls that data from Prometheus to display it to the user.