
Grafana’s Open Source products

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## Solutions Engineer

- *30y Firefighter - 26y in Monitoring & Observability*
- *Thinks one bullet point is enough for an intro*

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# About Grafana Labs

# Open source is at the heart of what we do

Employ 91% of the **Loki** team members, including project founders

Employ 89% of **Grafana** team members, including project founders

Employ 100% of the **Tempo** team members, including project founders

Employ 100% of the **Mimir** team members, including project founders

Employ 100% of **Pyroscope** team members, including the project founders


Employ 100% of **k6** team members, including the project founders

Employ 44% of the **Prometheus** team members

The leading contributors to the **Graphite** project

Employ contributors, including a Governance Committee member

Employ 100% of **OnCall** team members, including the project founders

Employ 100% of **Faro** team members, including the project founders

**1,200+** **Employees** across 40+ countries

**1M+** **Instances** across Grafana Cloud and OSS

**20M+** **Users** across OSS and Cloud Free tier

# Your open and composable observability stack

**Data source integrations**

API without data consolidation

**Performance Testing**

Load testing

Browser testing

**Application Observability**

Frontend

Service Maps

Serverless

eBPF

**Infrastructure Observability**

Kubernetes

Server/VM

Database

Cloud providers

**Incident Response Management**

SLO

Alerting

OnCall

Incident

ML Insights | Security and governance | Configuration (as code)

**Your environment**

Applications and Infrastructure

Grafana Agent

**Platform**

OSS or commercial

**Loki** Logs

**Grafana** Visualizations

**Tempo** Traces

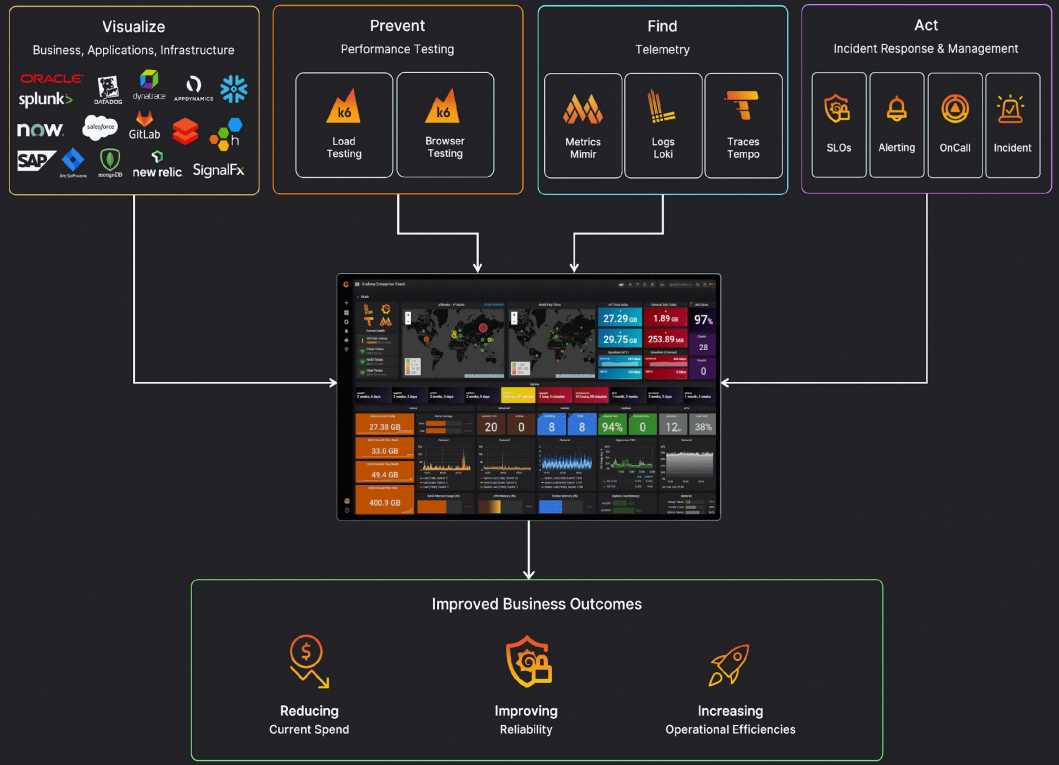
**Mimir** Metrics

**Pyroscope** Profiles

- Native
  OTel, Prometheus
- No lock-in
  Open standard

# Grafana

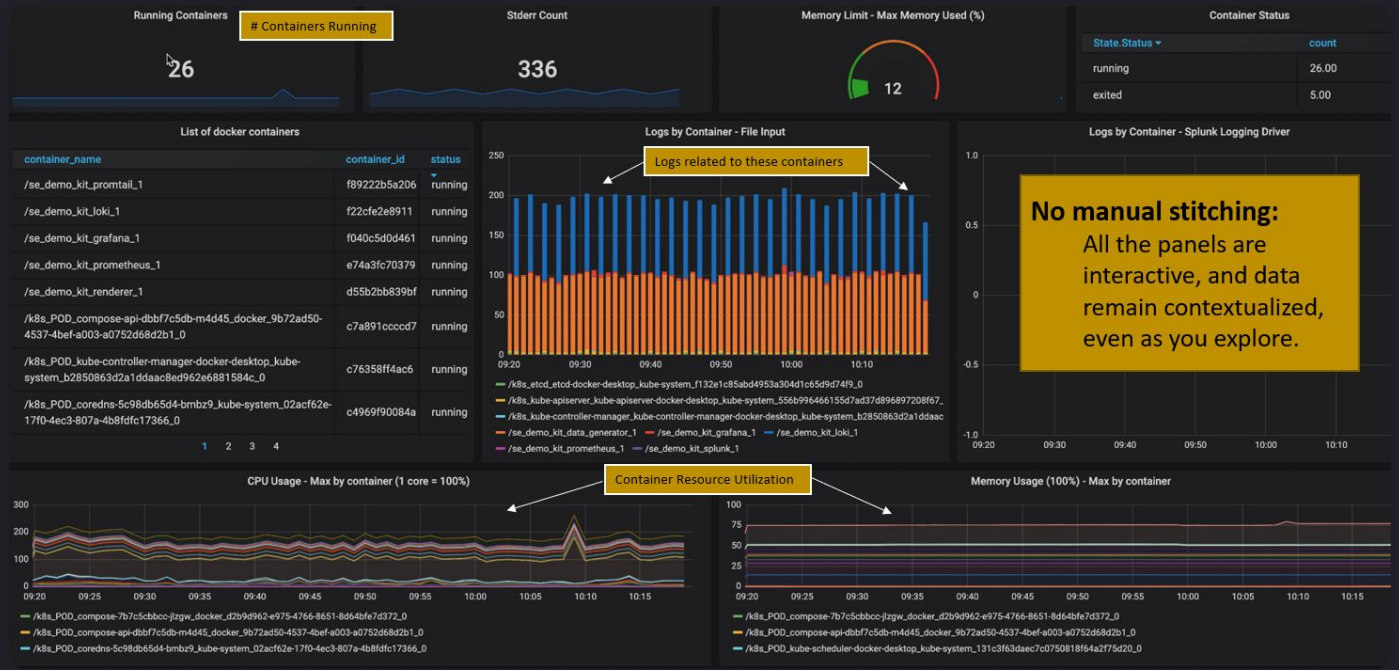
# Grafana Labs – Open & Composable Observability Stack



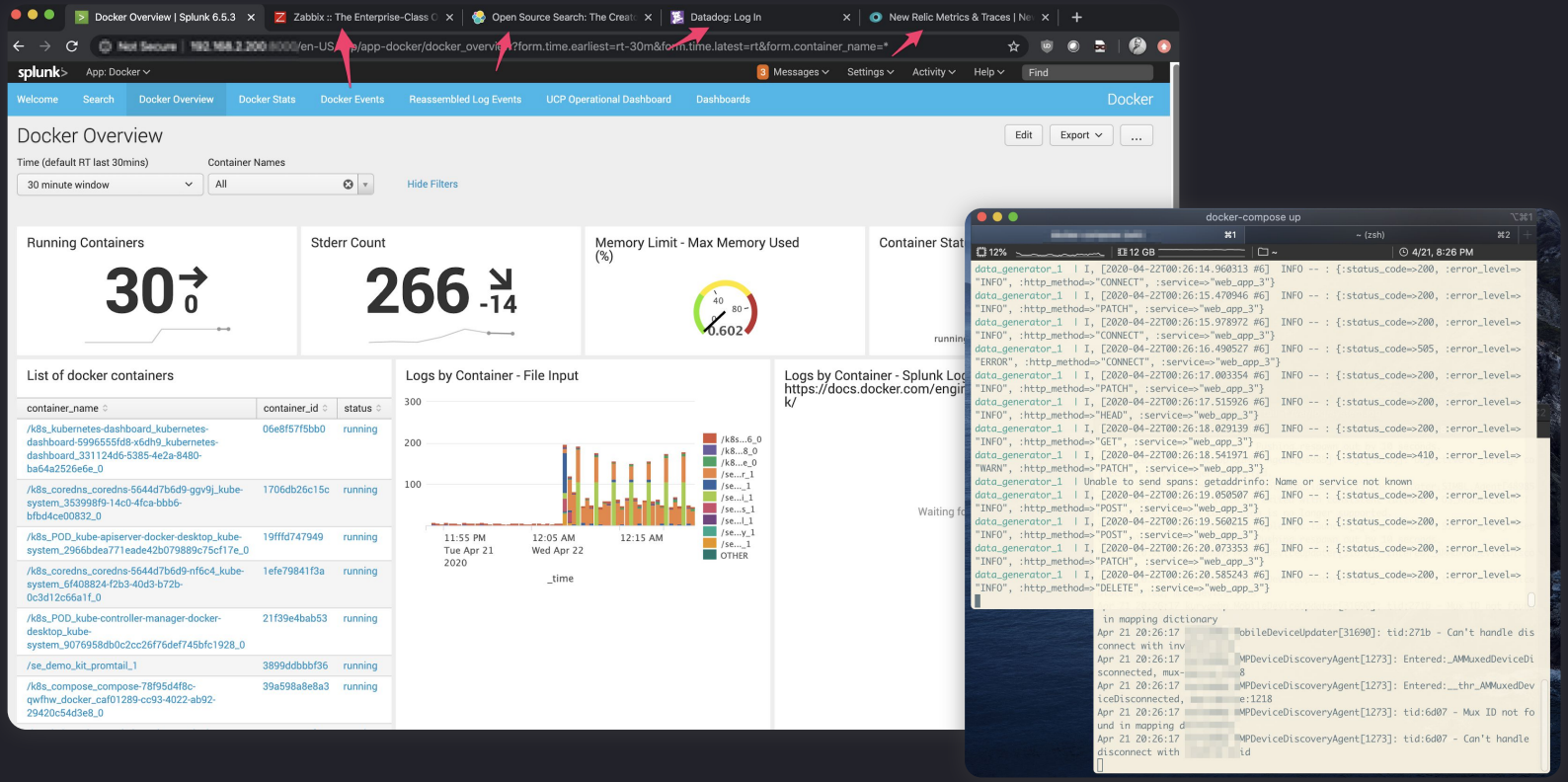
# Grafana

- 25 out of the box Visualizations
  - >100 more available as plugins
- 150+ Datasources (incl. Enterprise)
- Available as OSS in a usable way

# With Grafana: Unified Metrics, Logs, & Traces



# Customer Example: Before Grafana




2023

Visualize

# Grafana Correlations

## Correlate your data, no matter where it lives.

### Who?

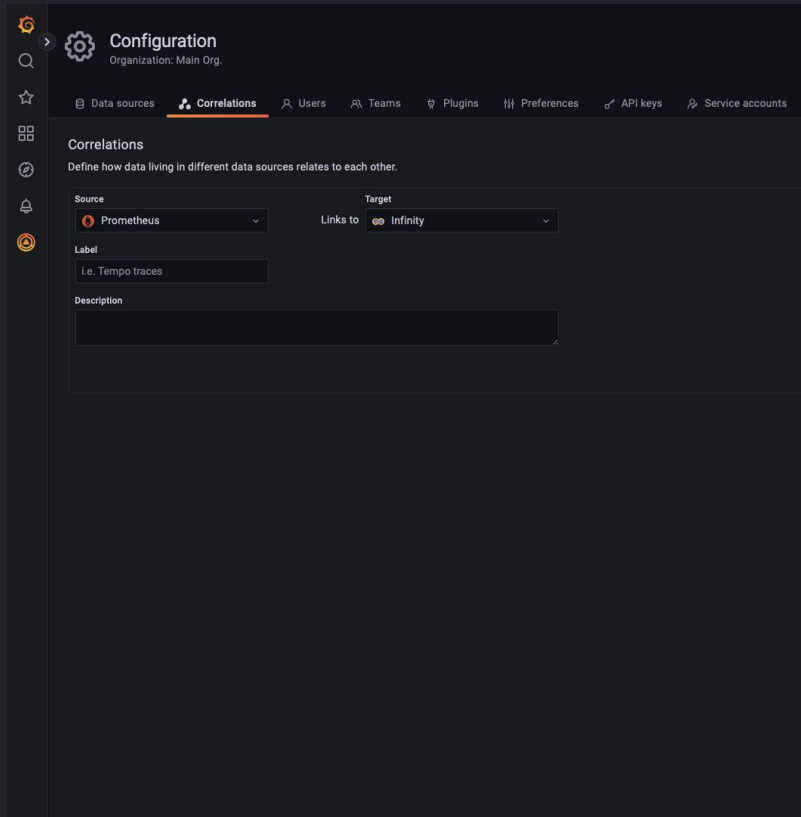
Users with related data in more than one data source.

### Why?

Bringing together all the signals and context for the systems you care about enables you to truly observe those systems. Unfortunately, those signals and context often live in different data sources. Grafana Glue brings all that data together and enables you to explore correlated and contextualized information.

### What?

- ✓ Define the relationships between your data in Grafana
- ✓ Use Grafana to pivot between different data sources using those relationships. For example, go from Prometheus metrics to Splunk logs for the same application.



# New onboarding experience - Revamped, easier Panel Edit side pane

## Improve information architecture and user experience for new users

### Who?

All users creating or editing panels

### Why?

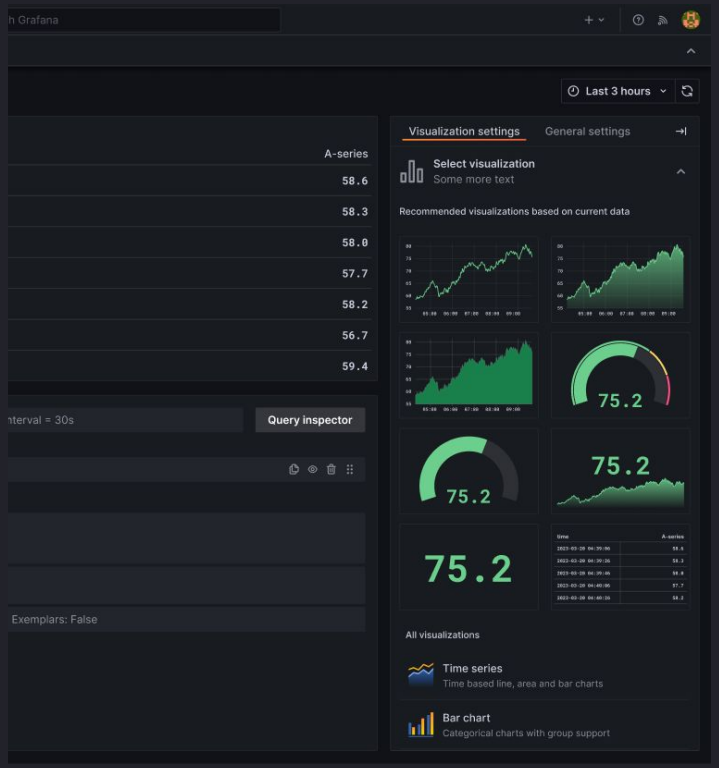
Recent user research has shown that new users are not confident in creating and configuring a visualisation panel that answers their questions.

### What?

Revamp specific areas on the panel edit page to improve discoverability and task success. This includes an improved sidebar layout and rethought IA on the top bar options.

### Feature highlights

- ✓ New collapsible side pane that unifies Visualization selector and settings as well as general settings.
- ✓ Separation of visualization selection and general settings in the side pane.



# Grafana TraceQL Search UI

## Find the traces you want without learning TraceQL

### Who?

Users looking to unlock the benefits of TraceQL without having to learn yet-another query language.

### Why?

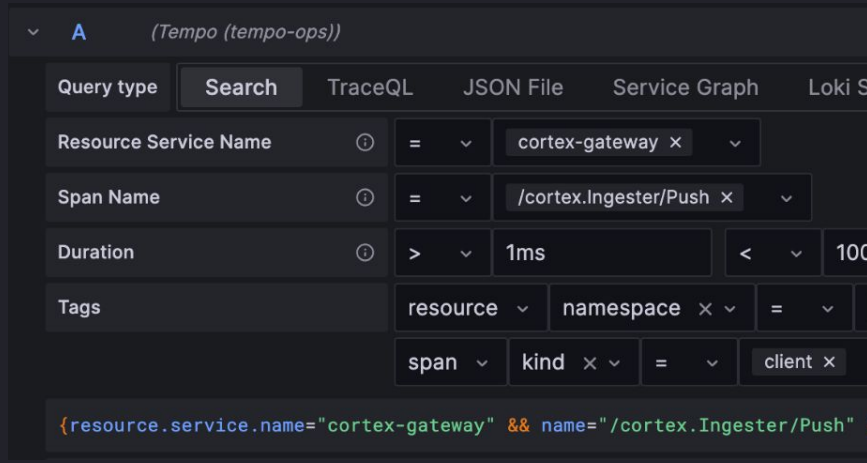
Users want to answer questions about their systems using their traces as quickly and easily as possible. Making them learn an entirely new query language to do this can present a steep barrier to entry.

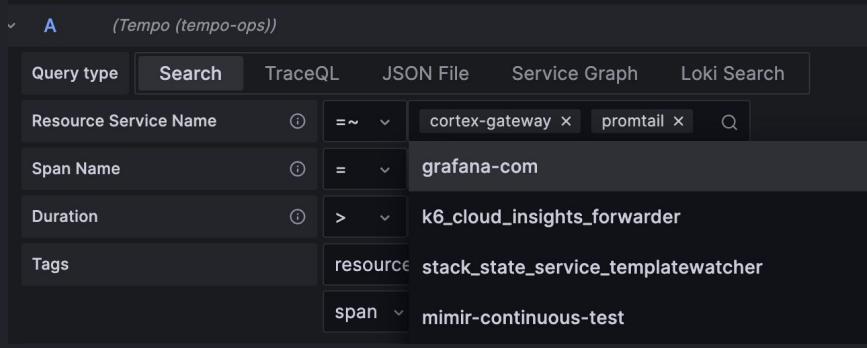
### What?

A point-and-click way to build TraceQL queries in Grafana.

### Feature highlights

- See the underlying query being run to build your familiarity with the language
- Use drop-downs to select the attribute values you want to filter by
- Configure the default attributes you want to surface as filters
- Works with for OSS Tempo, Grafana Cloud Traces, and Grafana Enterprise Traces



# Lightweight integration with VCS

## Edit and preview dashboards in VSCode

### Who?

Grafana administrators, Platform Engineers and service owners building dashboards.

### Why?

There are great advantages to maintaining your dashboards as code, managed using version control, alongside other infrastructure config. However, dashboards are visual and you need a way to validate your updates before committing them.

### What?

We're bringing Grafana into the developer's workflow with a VSCode plugin where you can make changes and review them directly on your workstation, within seconds of opening a dashboard file, with all the relevant data sources pulled in from your Grafana instance.

### Feature highlights

- ✓ Backup and version control through VCS if enabled on file system
- ✓ Easily review a PR: just download a branch and open the dashboard on your workstation
- ✓ Hook up to your Grafana instance to access all your data sources
- ✓ Integrate into your CD pipeline like any other code change

# New Developer Portal

## One stop shop for Developer related information

### Who?

Developers creating community, commercial or private plugins for Grafana or general contributing to the Grafana ecosystem.

### Why?

Content for developers has been published to several disparate locations, increasing the barrier to entry for enhancements and extensions to Grafana.

### What?

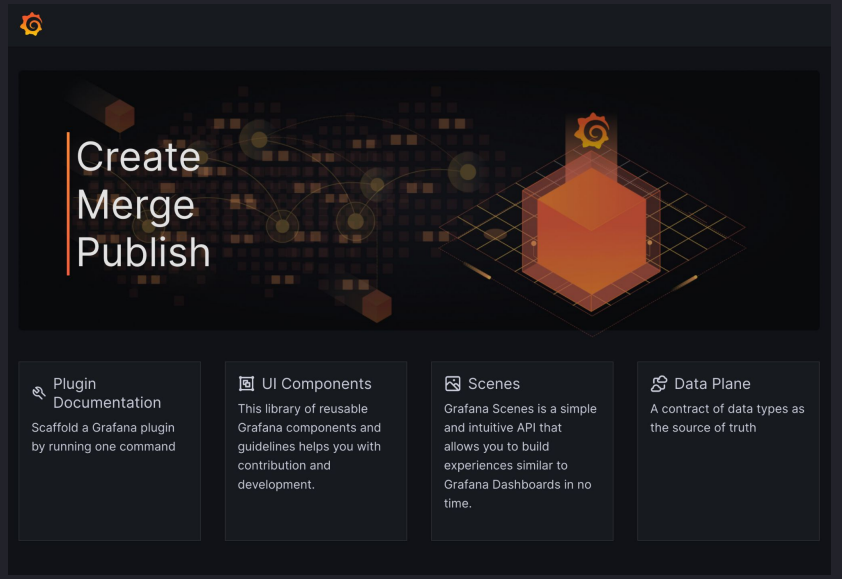
A single portal with a growing set of documentation and resources to help you easily develop and extend Grafana.

https://grafana.com/developers

### Feature highlights

Initial launch Aug 2023 bringing together:

- ✓ Plugin Tools documentation
- ✓ UI Component Library
- ✓ Scenes
- ✓ Data Plane



# Mimir

# Mimir

- For **M**etrics
- Prometheus -> Cortex -> Grafana Enterprise Metrics -> Mimir
- Scales to more than 1,000,000,000 Active Series
- Blazingly fast query performance
- Hard multi-tenancy, access control, and three-way replication
- Can ingest native OpenTelemetry, DataDog, Graphite, and Influx

# Loki

# Loki

Loki is a horizontally-scalable, highly-available, multi-tenant log aggregation system inspired by Prometheus.

- For **L**ogs
- Following the same label-based system as Prometheus
  - Only index what you need often, query the rest
  - “Index the labels, query the data”
- Work with logs at scale, without the massive cost
  - Scalable low latency write path
  - Flexible schema on read
- Access logs with the same label sets as metrics
  - Turn logs into metrics, to make it easier & cheaper to work with them

# The Loki storage model

```
2019-12-11T10:01:02.123456789Z  {app="nginx", env="dev"}  GET /about 1034 Debug "page not found"
```

**Timestamp**

with nanosecond precision

**Labels/Selectors**

key-value pairs

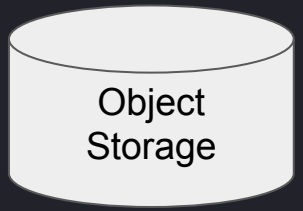
**Content** log line

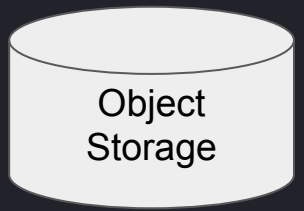
**indexed**

Aka "the index"

**unindexed**

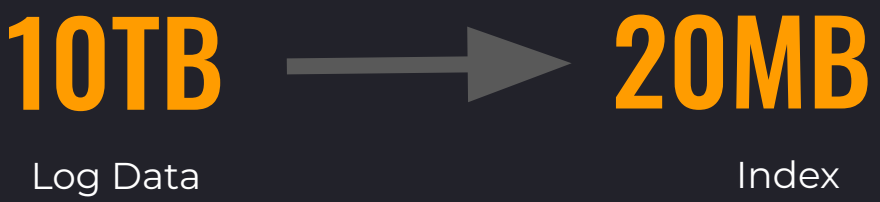
Aka "chunks"



# Efficient logging

Loki does not index the text of logs. Instead, entries are grouped into streams and indexed with Prometheus-style labels.




Think of it more like a table of contents than an index

# Fast queries

**1PB** → **80TB** → **8TB** → **1TB/s max**

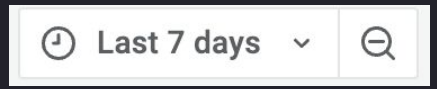
Raw Logs

Label selector

Timeframe

Brute force search - heavily parallelized

{ cluster=”us-central1”, job=~”nginx*” }




|= “needle in the haystack”

# Example: One of Grafana Cloud Logs Larger Single Clusters

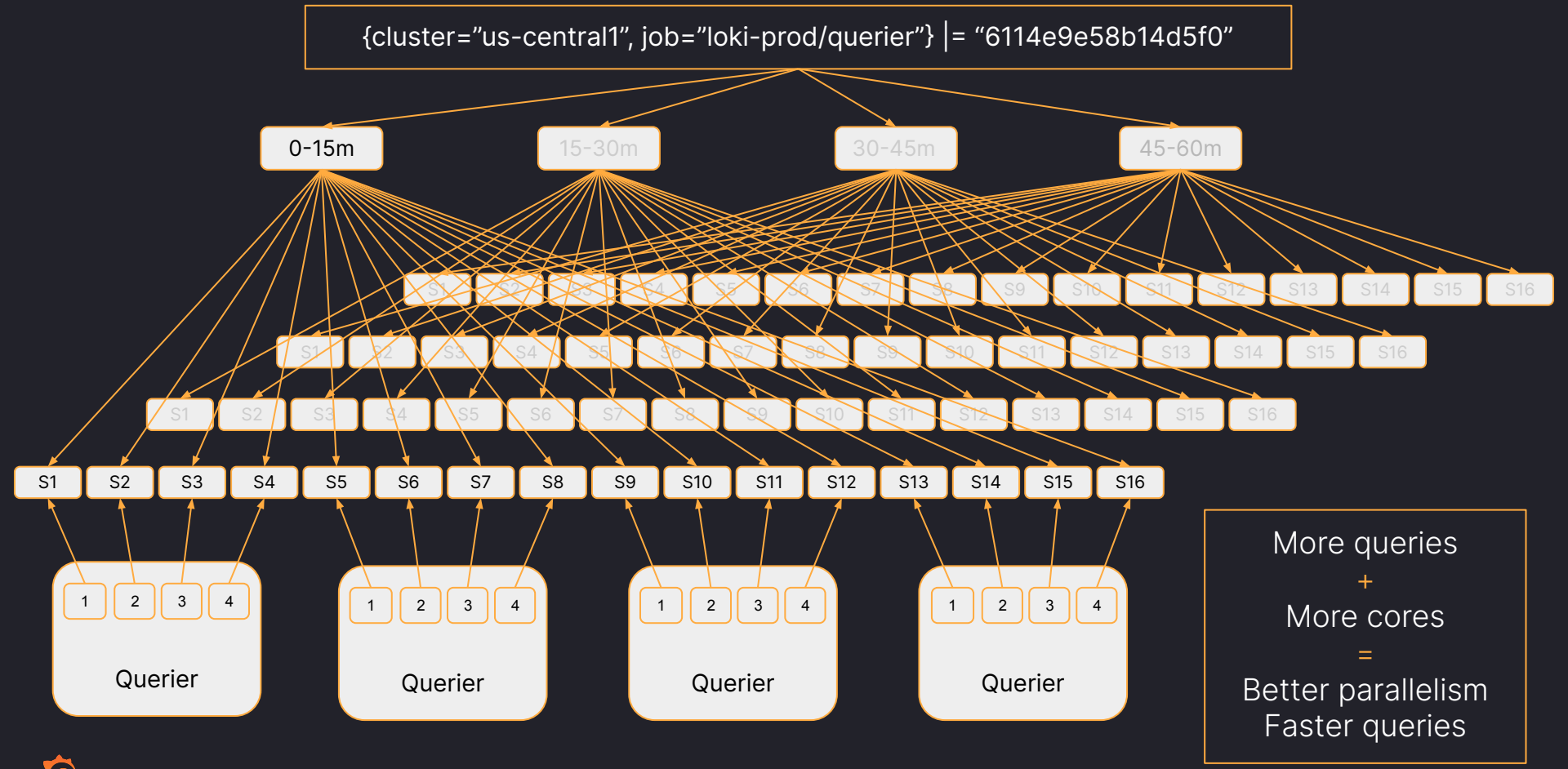
## INGESTION

| | |
|---|---|
| Per Hour | 3TB |
| A day | 60 TB |
| A month | 1.8 PB |
| Active streams | 4400 |

## QUERIES

| | |
|---|---|
| Per Hour | 330 TB |
| A day | 4 PB |
| A week | 25 PB |
| Fastest query throughput | 1TB/sec |

Last update: 25 aug 2023


{cluster="us-central1", job="loki-prod/querier"} |= "6114e9e58b14d5f0"
0-15m
15-30m
30-45m
45-60m
S1 S2 S3 S4 S5 S6 S7 S8 S9 S10 S11 S12 S13 S14 S15 S16
1 2 3 4
Querier
Querier
Querier
Querier
More queries
+
More cores
=
Better parallelism
Faster queries

# Loki makes log collection easy

**G**rafana **A**gent

**P**romtail

- Targets discovery for Kubernetes, Syslog, files and more
- Automatically attach labels to your log lines
- Advanced pipeline mechanism for parsing, transforming and filtering your logs
- Build and expose custom metrics from your logs data

## But Loki is open.

logstash

Lambda




# How to run Loki

## Single Binary

- Testing
- Small installations without HA or horizontal scaling needs

## SSD or Microservices

- Horizontal scalability
- Separate Read/Write paths
- Large installations

## Grafana Cloud

- Batteries included:
  - Multi-tenant
  - Automatic scaling and upgrades
  - RBAC
  - Per tenant QoS

## Enterprise Logs

- Self hosted
- Supported by Grafana Labs
- Security out of the box
- Part of the GES stack

# Tempo

# Tempo

Easy-to-operate, high-scale, and cost-effective distributed tracing system

- For **T**races
- Historic problem: Traces require extremely rich metadata for analysis
  - Expensive, slow, and mandates sampling
- Exemplars: Leverage the extracted logs & metrics
  - Exemplars work at Google scale, with the ease of Grafana
  - Native to Prometheus, Cortex, Thanos, and Loki
- Index and search by labelsets available for those who need it
- 100% compatible with OpenTelemetry Tracing, Zipkin, Jaeger

# Grafana Beyla

# Beyla - eBPF application auto-instrumentation

- Zero code change auto instrumentation
- Leverages eBPF technology
- GA since November 2023
  - https://github.com/grafana/beyla
- Currently support for ootb RED Metrics

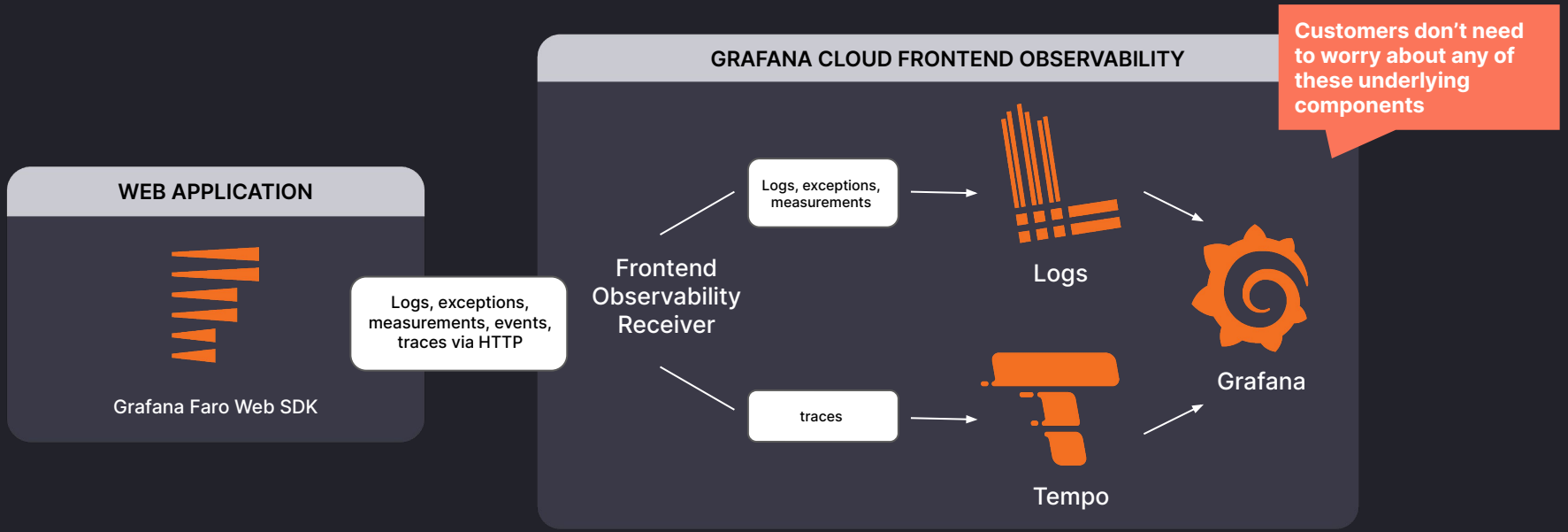
# Faro

# Faro

- For **F**rontend/Browser Monitoring - **R**eal**U**ser**M**onitoring
- Providing visibility into the performance experience of real users interacting with your application
  - Expensive, slow, and mandates sampling
- RUM tools bridge the gap between application performance and the impacts on User Experience
- Understand how your optimizations are improving the UX

# How Frontend Observability works under the hood

- **The Grafana Faro Web SDK** collects telemetry & forwards it to the **collector endpoint in Grafana Cloud**
- **The Grafana Cloud Collector Endpoint** processes and forwards telemetry to the appropriate **logs and traces backends in Grafana Cloud**
- **The Grafana Cloud Frontend Observability application** provides out-of-box dashboards and curated workflow



# Grafana Pyroscope

# Pyroscope

- For **P**rofiling
- We announced the acquisition March 15th
  - https://github.com/grafana/pyroscope
- Profiles
  - “How much CPU & RAM am I spending in what areas of the code?”
  - “...and how does this change over time?”
- Go: pprof
- Java: https://github.com/grafana/JPProf

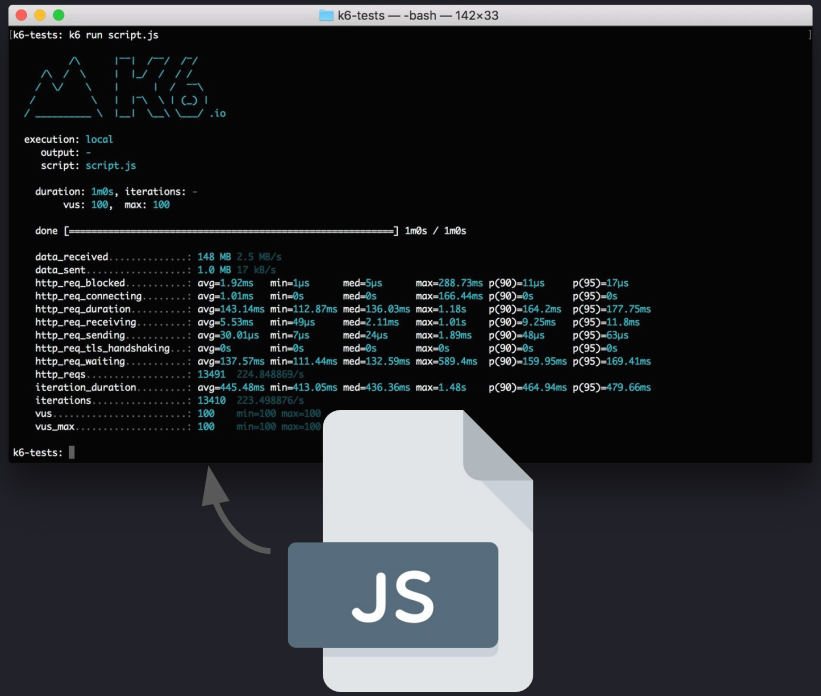

Grafana
k6

# Modern teams are shifting performance testing left

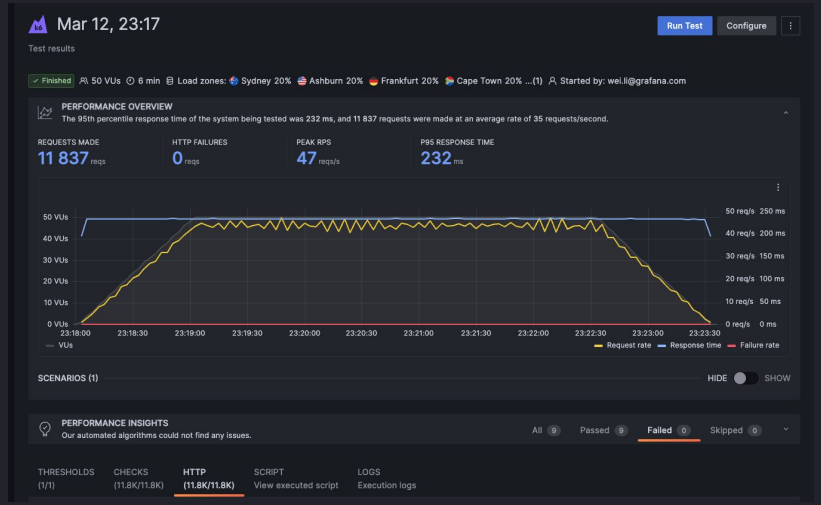
| | OLD WAY | MODERN WAY |
|---|---|---|
| Release frequency | Quarterly or biannually | Weekly |
| Who is responsible for performance testing | QA | QA Engineers/SDETs, Developers, SREs |
| What to test | High-risk components, user stories | AND microservices, infrastructure, unexpected failures |
| When and how testing is done | Manually before releases | Automatically as part of CI/CD |

But legacy testing tools have not kept pace...

# k6 OSS

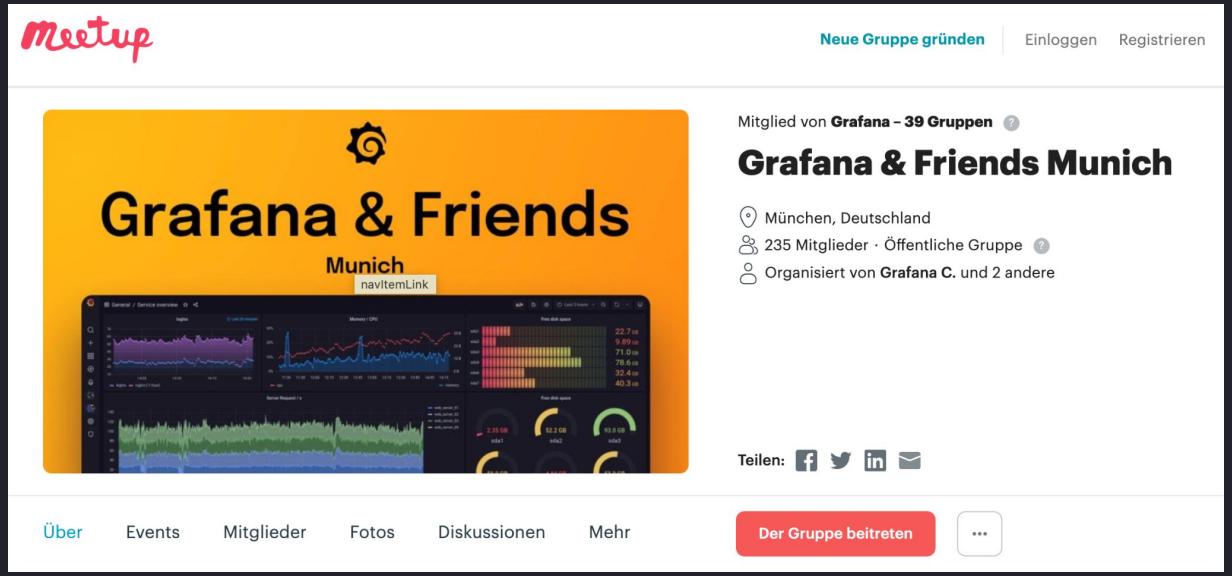



# Grafana Cloud k6 NEW




- New experience in Grafana Cloud launched on March 21
- Built on the legacy commercial product - “k6 Cloud”
- Performance testing and observability in one platform

# Meet our community in the official meetup groups




https://www.meetup.com/grafana-and-friends-munich/

https://www.meetup.com/grafana-and-friends-vienna/

https://www.meetup.com/grafana-and-friends-berlin/