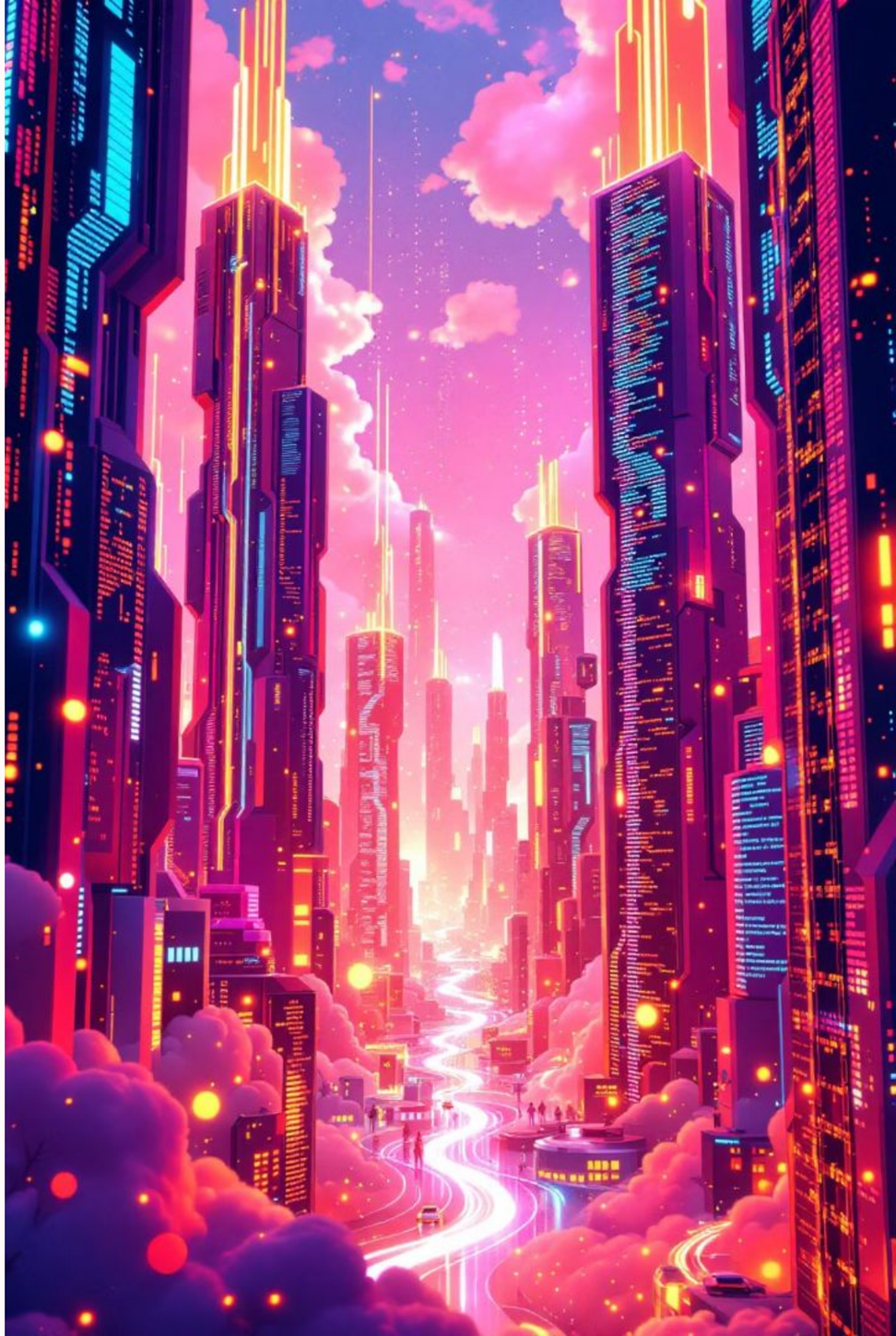
Unified Observability

A Single Pane of Glass

Explore how unified observability, powered by OpenTelemetry and Grafana, empowers organizations to gain a comprehensive understanding of Digital systems, accelerating innovation and improving performance.



About Me

GuhaTek

Sivasubramanian Bagavathiappan

Co-Founder | SRE Leader

20
Years of Experience

1
Patents Holding

1
Patents Filed

Observability Facts

The term **"Observability"** in the context of systems actually comes from which mathematical concept?

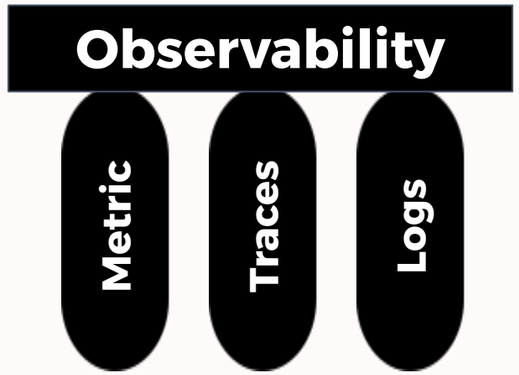
Control Theory

What were things used to **monitor** industrial processes before computers?

Gauges & Thermometers

3

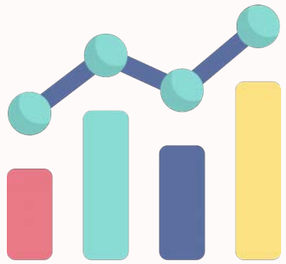
Pillars of observability



The evolution of Observability

Observability 1.0

A foundation for modern application development and understanding system behavior



Metrics

Traces

Logs

Profiling

RUM

APM

Siloed Tools | Reactive approach | Limited or no correlation | Manual analysis

Challenges of Fragmented Observability

Siloed Data

Traditional monitoring tools often work in isolation, creating data silos and hindering a holistic view of system health.

Manual Correlation

Connecting the dots between different data sources requires manual effort, making troubleshooting time-consuming and error-prone.

Limited Insights

Without a unified view, it's difficult to identify root causes, track down performance bottlenecks, and understand the impact of changes.

The evolution of Observability

Observability 2.0

Elevating insights in the digital ecosystem

Context

Events

UX

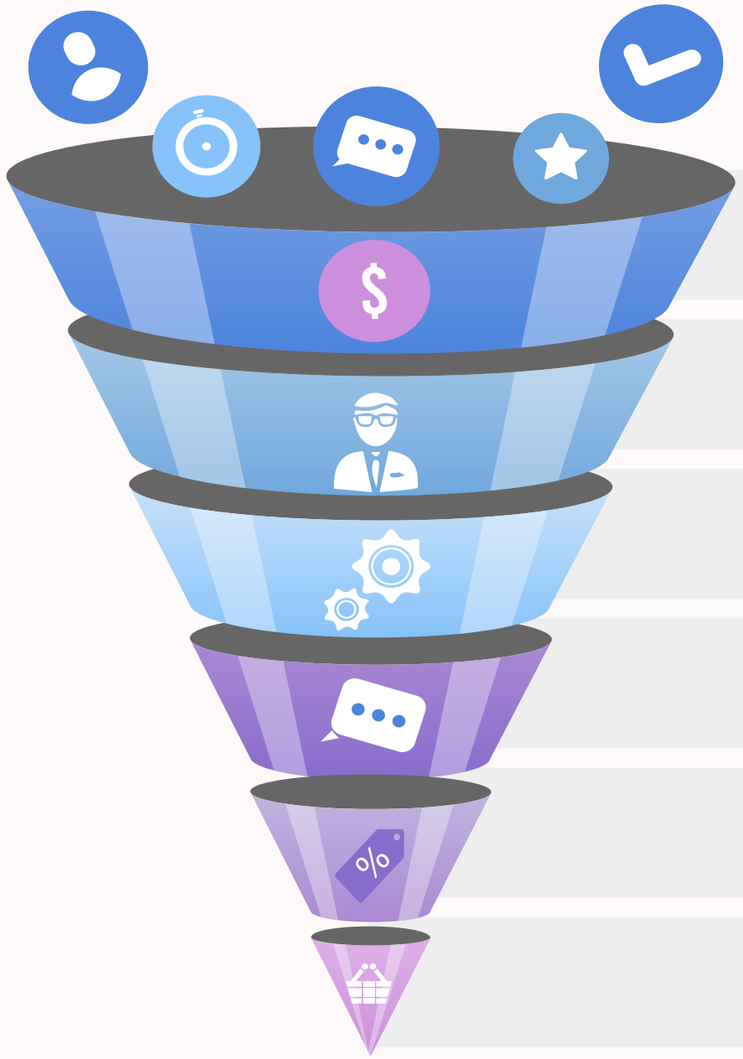
DataStream

Business Metrics

Composite Alarms

Single source of truth | Low / No code instrumentation | Open Standards and Interoperability | Cloud agnostic

Observability Funnel



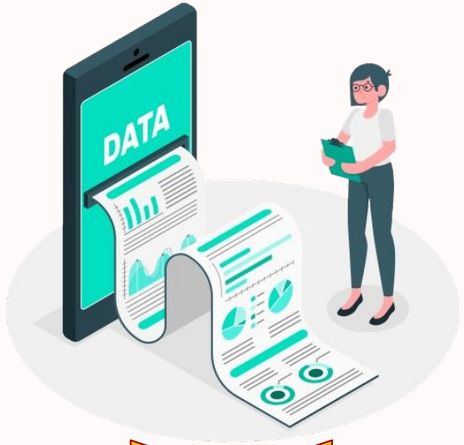
Visibility into business functions & outcomes	Business
Living and breathing customer journey map	CX/UX
Golden signals measurement	API
Context propagation and resilience view	Connector/MW
Durability, consistency, Integrity & recovery	Downstream
Capacity utilization and saturation levels	Infra & Platform

RELIABLE, RESILIENT, SCALABLE & SECURE PLATFORM

Single Source of Truth

Instrumentation

Data Collector



Data Pipeline

Alert Synthetics` SLO

Visualization

Enterprise Telemetry Data Lake

OpenTelemetry

Open Source

OpenTelemetry provides a vendor-neutral standard for collecting and exporting telemetry data, ensuring interoperability and flexibility.

Cloud Native

It seamlessly integrates with cloud platforms, making it ideal for modern, distributed applications.

Language Support

OpenTelemetry supports a wide range of programming languages, enabling consistent instrumentation across diverse technologies.

Instrumentation

1

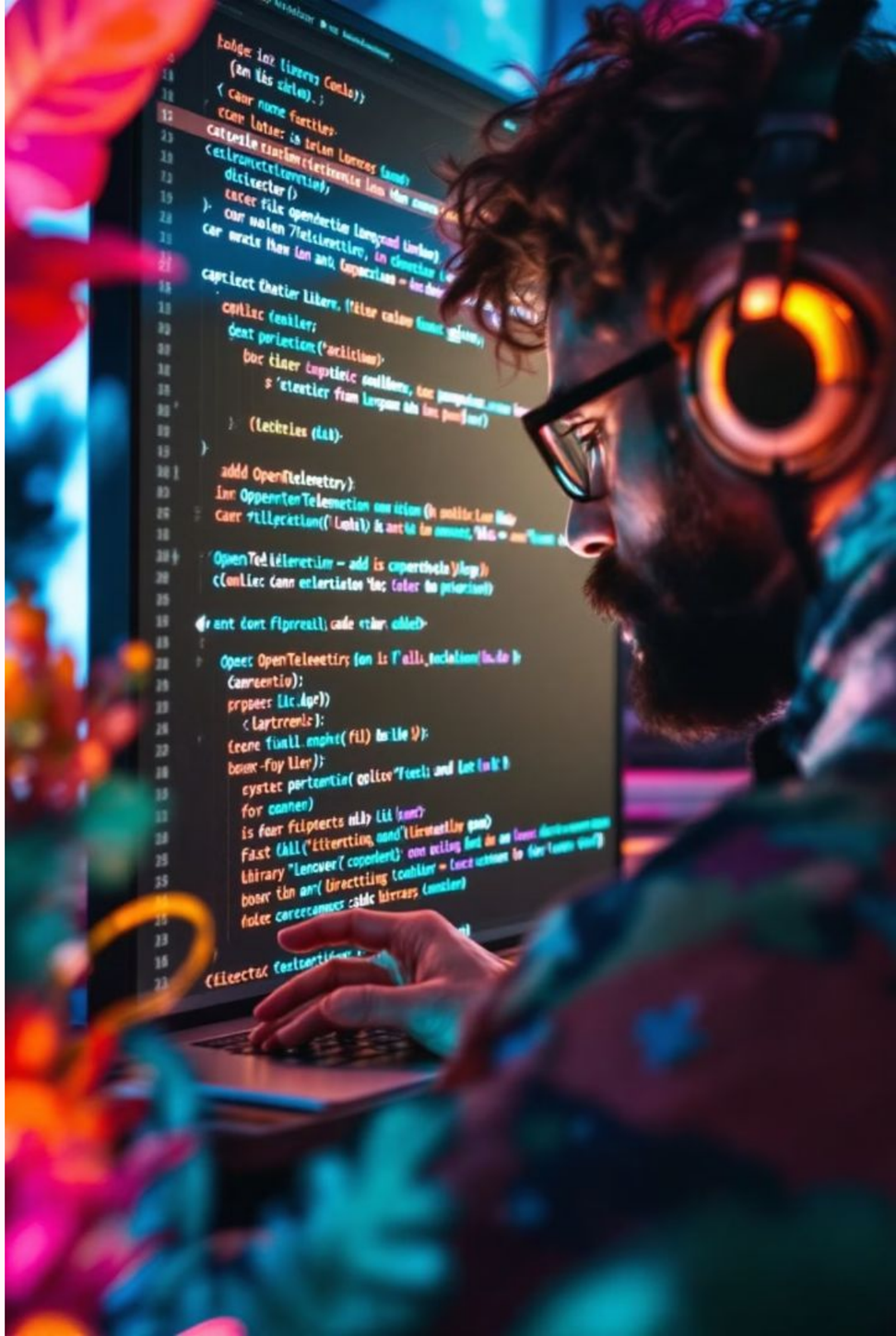
Code Instrumentation

Adding OpenTelemetry libraries to the code allows us to capture traces, metrics, and logs directly from your application.

2

Agent-Based Instrumentation

Agents can be used to instrument applications automatically, simplifying the process for legacy or complex systems.



Collecting and Correlating Data

1

Data Collection

OpenTelemetry agents collect telemetry data and forward it to a backend for storage and analysis.

2

Data Correlation

By linking traces, metrics, and logs using unique identifiers, OpenTelemetry provides a unified view of system behavior.

Visualizing Traces, Metrics, and Logs with Grafana

Single Pane View

Grafana's dashboards provide a unified view of all your observability data, enabling a comprehensive understanding of your systems.

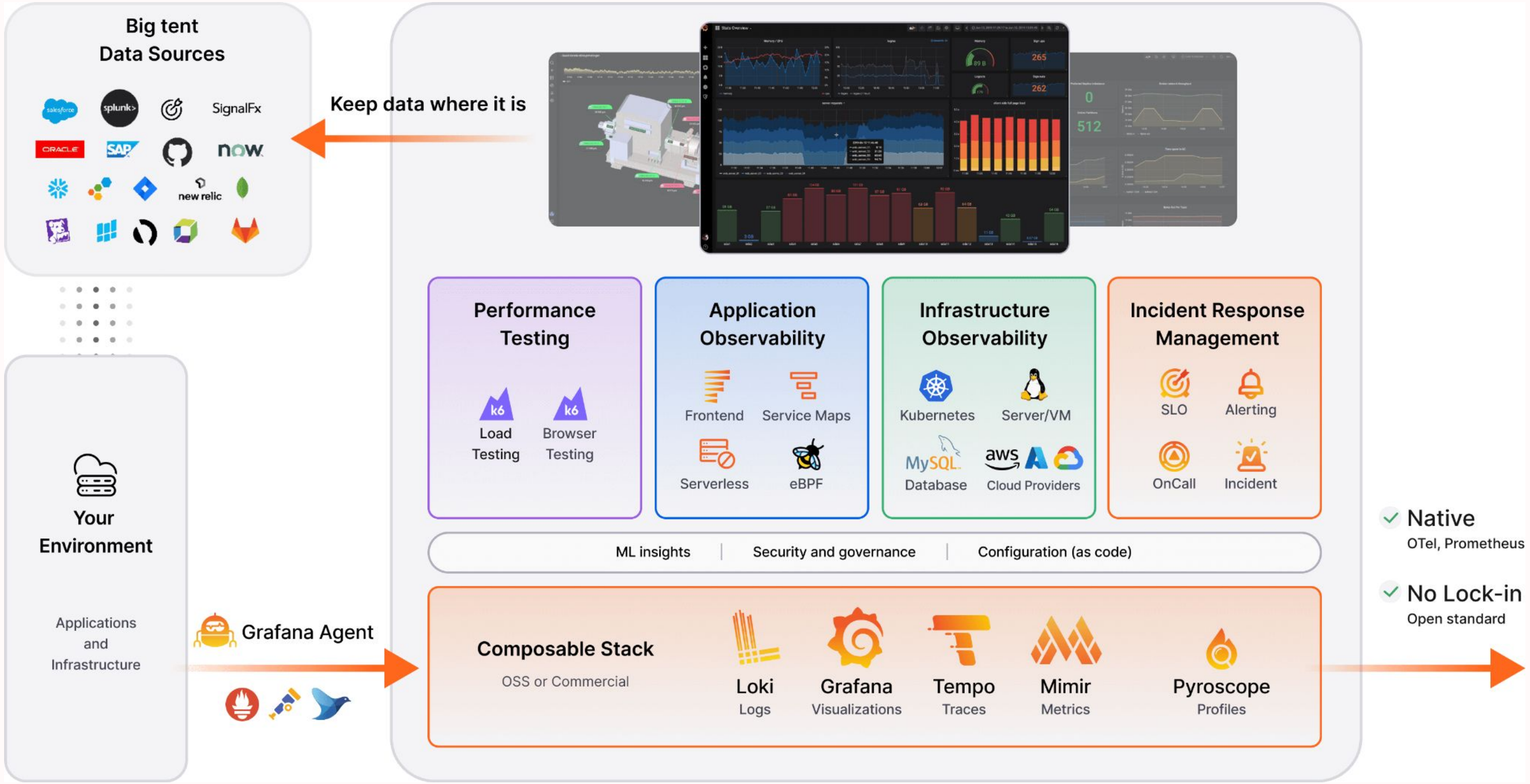
Interactive Exploration

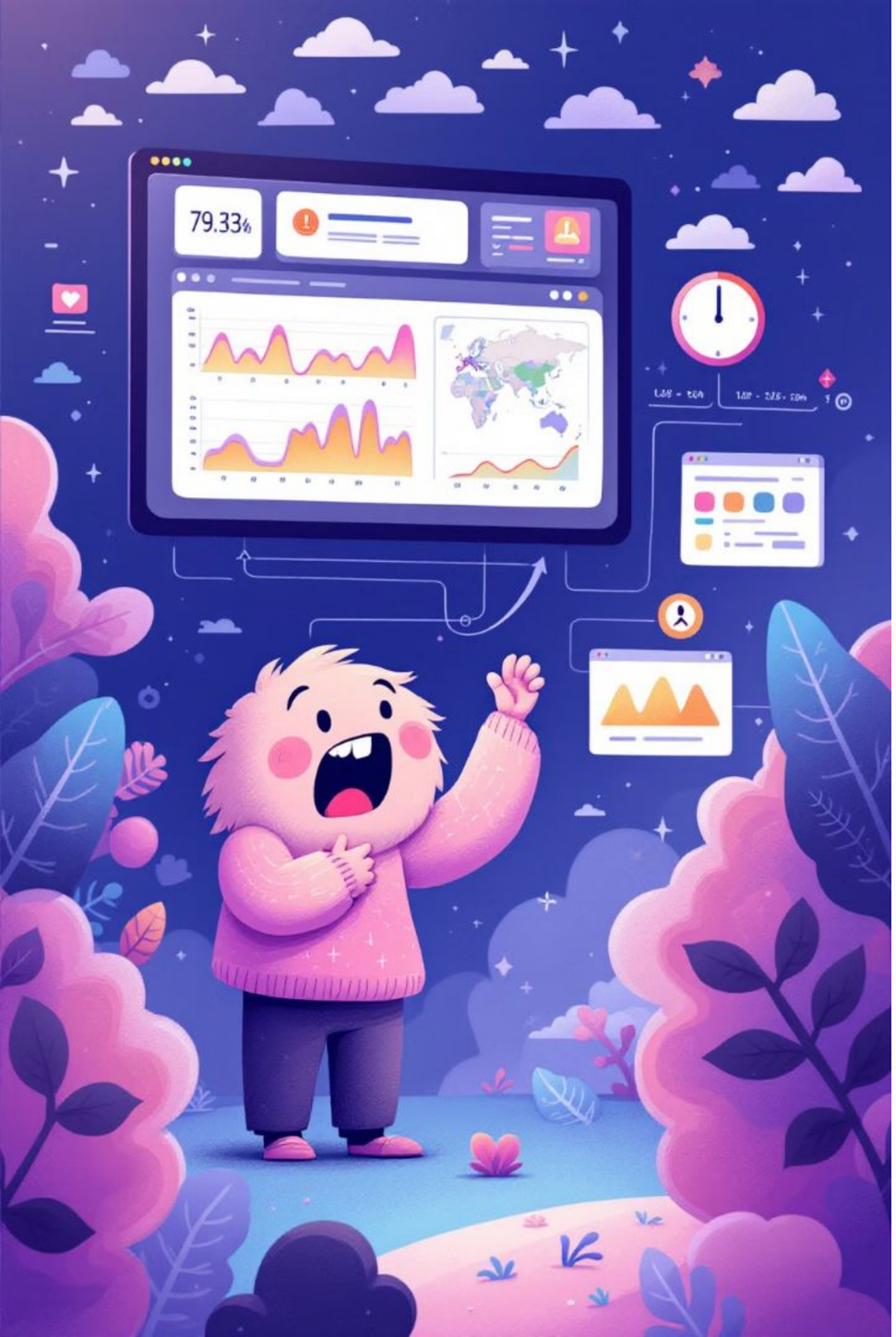
Grafana's interactive visualizations allow you to drill down into specific data points, uncover hidden insights, and diagnose issues quickly.

Custom Dashboards

Grafana lets you create custom dashboards tailored to your specific needs, ensuring visibility into the metrics that matter most.

Grafana Observability Stack





Empowering Alerting and Incident Response

1

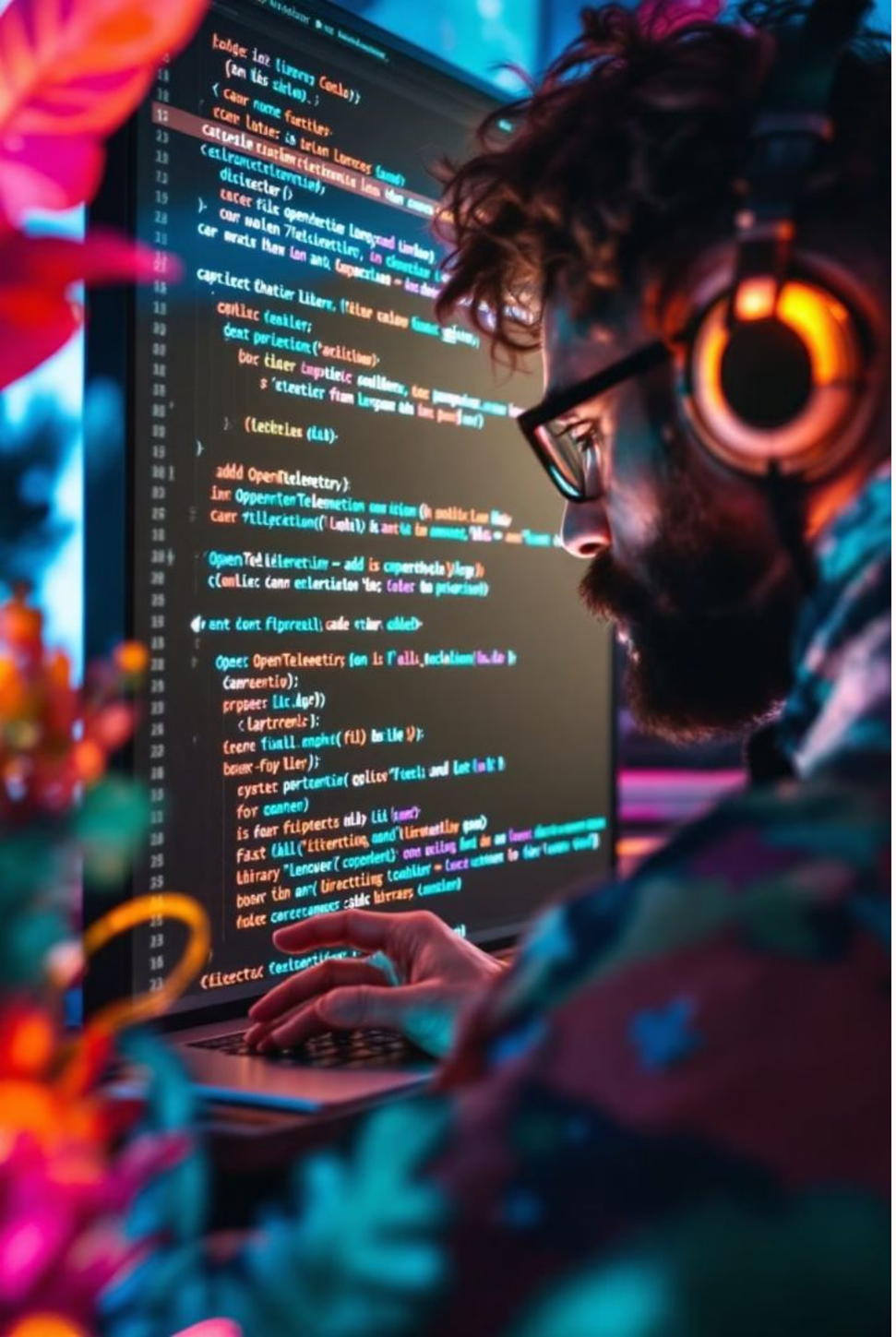
Composite Alerts

Grafana's composite alerting allows you to create complex alert rules based on multiple data sources, ensuring comprehensive monitoring.

2

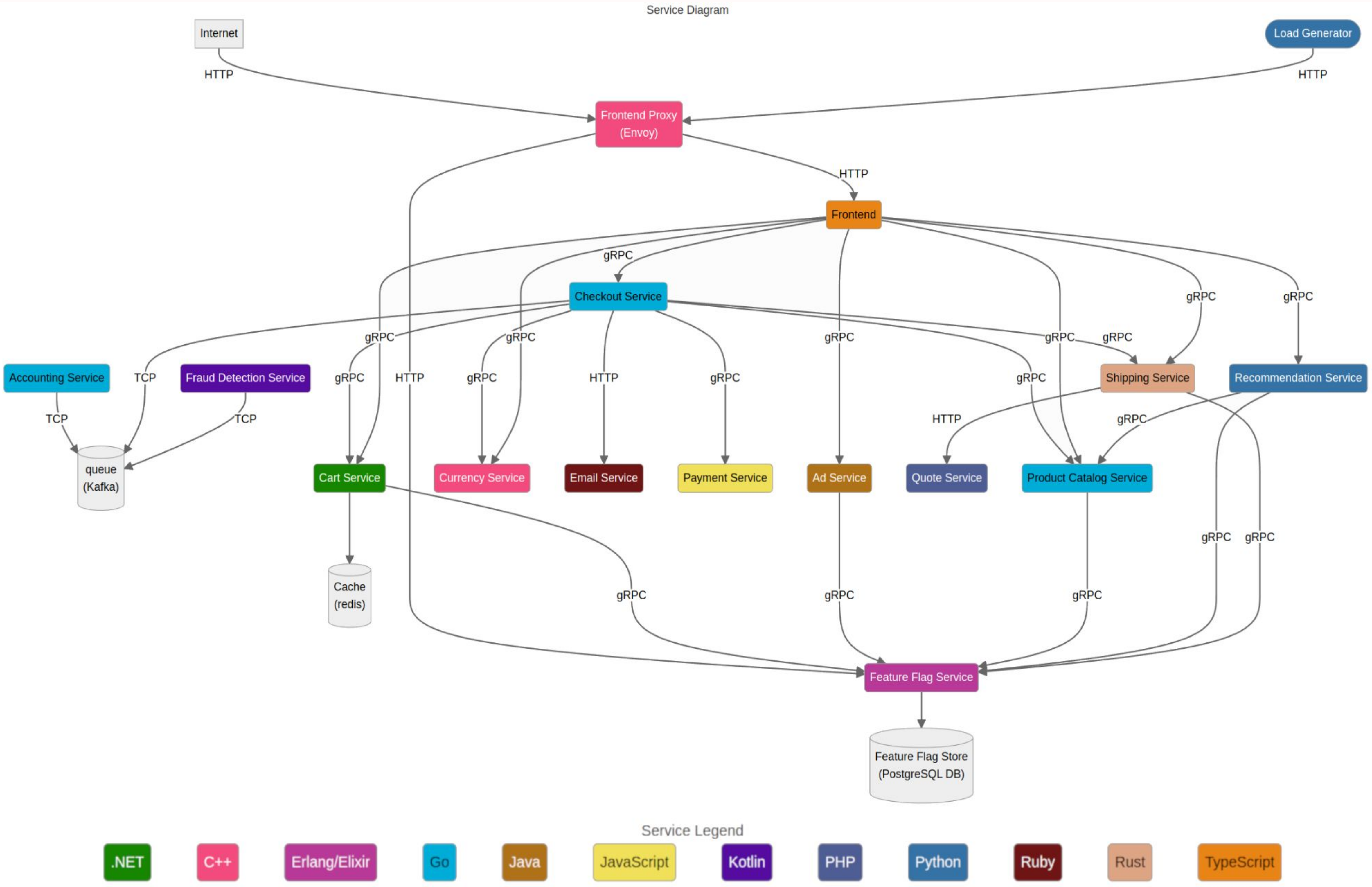
Automated Root Cause Analysis

By analyzing traces, metrics, and logs together, Grafana helps pinpoint root causes, accelerating incident resolution.



Demo Time!

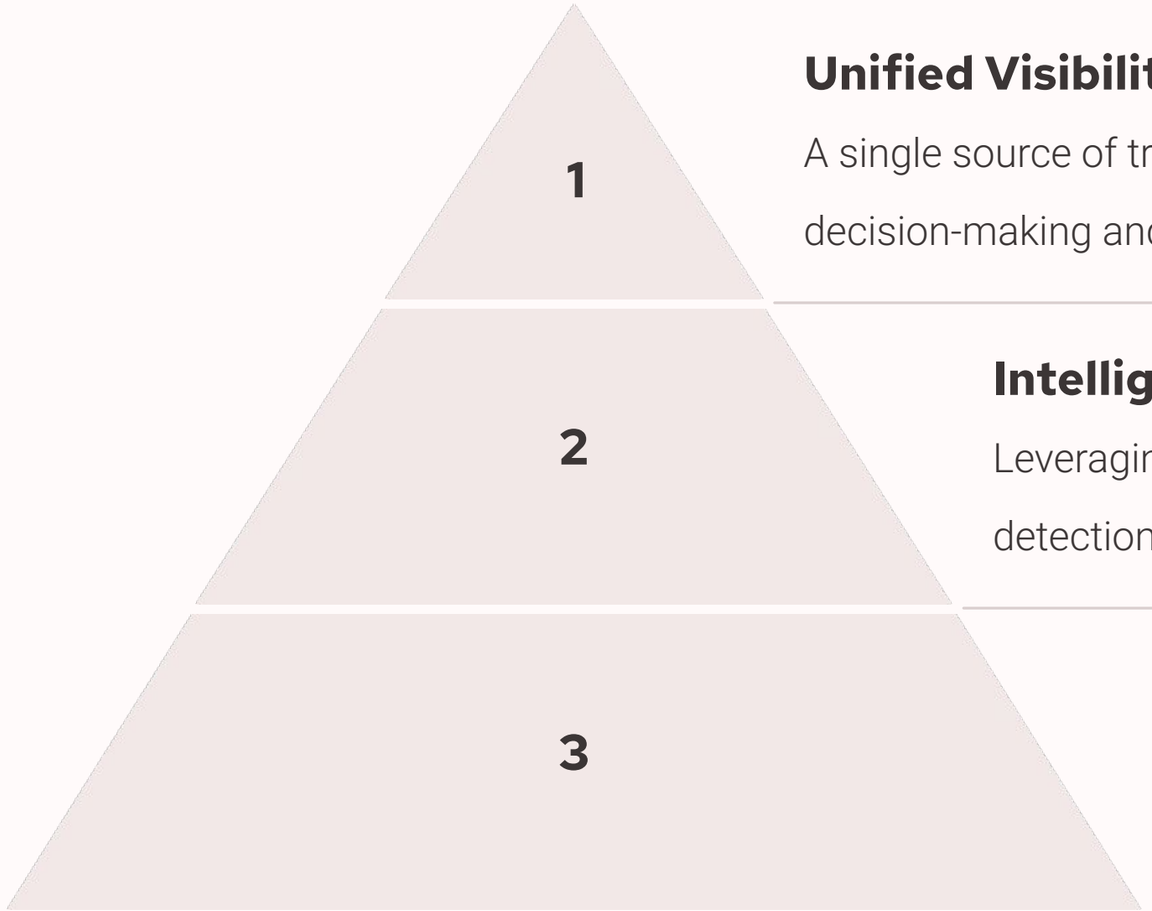
e-Commerce Site (OTEL Demo App)



- ★ Self-contained microservice based application simulating an eCommerce site.
- ★ This application is composed of multiple services that communicate with each other over gRPC and HTTP and runs on Kubernetes.
- ★ Users would come either from mobile app or through web browser connecting over internet.
- ★ Load generator is setup to continuously generate traffic.
- ★ Feature flags is used to inject faults into the various services.

The Future of Observability

Accelerating Innovation



Unified Visibility

A single source of truth for all observability data, empowering better decision-making and faster problem resolution.

Intelligent Automation

Leveraging AI and machine learning to automate tasks like anomaly detection, root cause analysis, and incident response.

Enhanced Security

Proactively identifying security threats and vulnerabilities by analyzing system behavior across all data sources.

THANKS!

Follow-Up questions or feedback?

Email

hello@guhatek.com

Visit us

www.guhatek.com

GuhaTek

Crafting a new paradigm for Reliability