Project 3: Infinity Plugin - External Data Analytics

Custom Data Monitoring from APIs & CSV/JSON Sources

Name: MGK Venkatesh
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Grafana Instance: mgkvenkatesh3.grafana.net
Dashboard Name: External Data Analytics Dashboard
Status: Completed

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1. Project Overview

This project integrates **external APIs, CSV/JSON data, and Grafana Cloud** via the **Infinity plugin** for real-time and historical analytics in a unified dashboard.

Objectives

- Connect and visualize external APIs & CSV/JSON data
- Combine external KPIs with Prometheus & Loki metrics
- Enable hybrid monitoring in Grafana Cloud

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2. Technologies Used

Component	Details
Grafana Cloud	mgkvenkatesh3.grafana.net
Infinity Plugin	External data connector
Prometheus	Server metrics
Loki	Application logs
Data Sources	CSV, JSON, REST API

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3. Dashboard Panels

Panel	Source	Type	Key Metrics
Server Monitoring	CSV	Table	CPU, Memory, Disk, Errors
COVID-19 Data	CSV	Table	Historical cases
Currency Rates	API	Stat Grid	Live FX data

Panel	Source	Type	Key Metrics
Server Uptime	Prometheus	Time Series	Service UP status
App Logs	Loki	Logs	Real-time logs

4. Data Source Setup

CSV

- Uploaded CSV with headers: `cpu_percent, disk_percent, error_count, memory_percent, requests_per_min`
- Refresh: Manual / 5 min

API

- Type: JSON (REST API)
- Example response: `{"currency":"USD/EUR","rate":1.18}`
- Refresh: 30s–1m

Prometheus & Loki

- Prometheus Query: `up{job="uptime-kuma"}`
- Loki Query: `level=info`

5. Key Insights

Metric	Observation
CPU Usage	32%–71%, peak at 71%
Memory Usage	55%–75%
Errors	Spike (15) during high CPU
Requests	850–1620 per min
Currency Rates	Live updates for 100+ pairs
Prometheus Uptime	100% availability
Loki Logs	Info-level logs streamed

6. Use Cases

- **Hybrid Monitoring:** Combine internal & external data
- **Custom Integration:** APIs & CSVs for non-native systems
- **Business KPIs:** Real-time financial data + server performance
- **Historical Trends:** CSV-based long-term review

7. Troubleshooting

- **CSV not loading:** Check format, UTF-8, and access
- **API issues:** Verify URL/authentication
- **Data stale:** Refresh intervals & cache
- **Incorrect display:** Review field mapping & parser type

8. Highlights

- Unified dashboard with 5 panels
- Real-time API + Historical CSV data
- Integrated Prometheus & Loki
- Live currency analytics
- Quick setup using Infinity plugin

9. Conclusion

Successfully built a **multi-source Grafana dashboard** using the **Infinity plugin**, integrating APIs, CSVs, Prometheus, and Loki for hybrid real-time analytics and visualization.

Project Status: Completed
Panels: 5 | **Sources:** 4 | **Refresh:** 30s–1m
Instance: mgkvenkatesh3.grafana.net

Live Currency Exchange Rates

Prometheus - Server Metrics

{__name__="up", instance="uptime-kuma:3001", job="uptime-kuma"}

Loki - Application Logs

```
⋮ INFO   Oct 19 05:08:58 loki loki[112]: level=info ts=2025-10-19T05:08:57.957453⸱
⋮ INFO   Oct 19 05:08:58 loki loki[112]: level=info ts=2025-10-19T05:08:57.957428⸱
⋮ INFO   Oct 19 05:08:58 loki loki[112]: level=info ts=2025-10-19T05:08:57.923901⸱
⋮ INFO   Oct 19 05:08:28 loki loki[112]: level=info ts=2025-10-19T05:08:27.957509⸱
⋮ INFO   Oct 19 05:08:28 loki loki[112]: level=info ts=2025-10-19T05:08:27.957477⸱
⋮ INFO   Oct 19 05:07:58 loki loki[112]: level=info ts=2025-10-19T05:07:57.956836⸱
⋮ INFO   Oct 19 05:07:58 loki loki[112]: level=info ts=2025-10-19T05:07:57.956810⸱
⋮ INFO   Oct 19 05:07:58 loki loki[112]: level=info ts=2025-10-19T05:07:57.924360⸱
⋮ INFO   Oct 19 05:07:28 loki loki[112]: level=info ts=2025-10-19T05:07:27.956818⸱
```