



ROMANIA
University of Bucharest
Faculty of Mathematics and Computer Science



Power BI vs Grafana

A Comparative Analysis

InfoViz

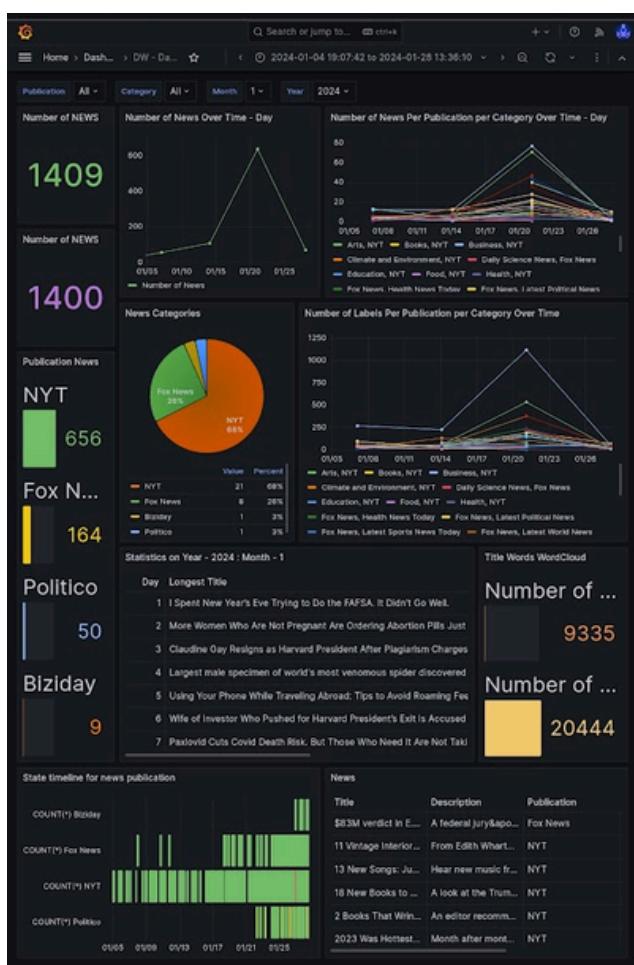
Ioachim LIHOR

BUCHAREST 2024

Agenda

1. Introduction
2. Comparison procedure
3. Features
 - a. *Datasource*
 - b. *Querying*
 - c. *Graphs*
 - d. *Configurability*
 - e. *Dashboarding*
4. Strength point
5. Conclusion

INTRODUCTION



*Foundation
year*

2013

*Number of
companies*

29K

Number of users

20M

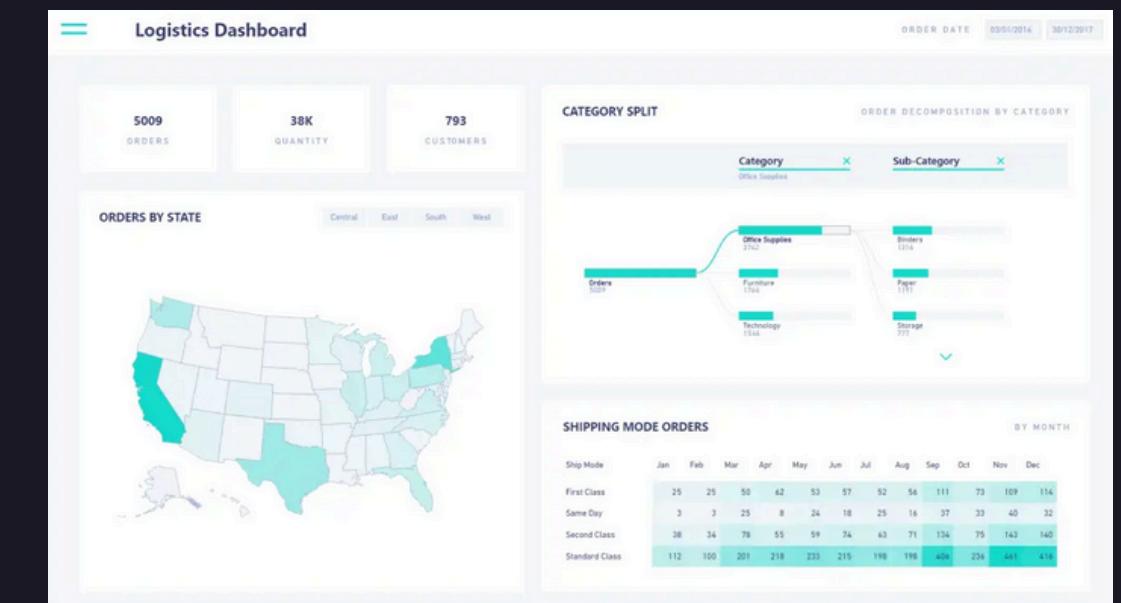
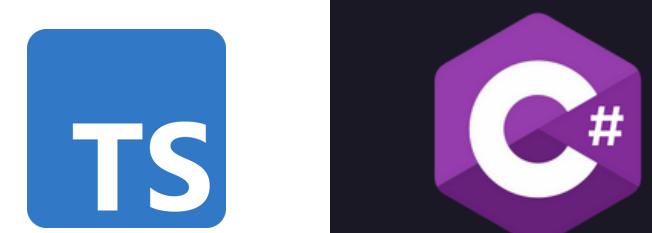
Worth

3B

Product

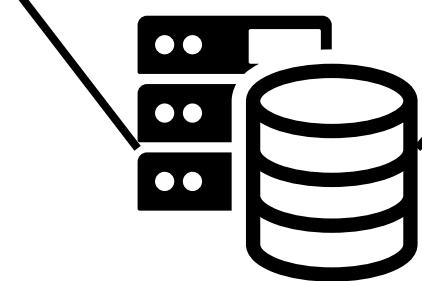
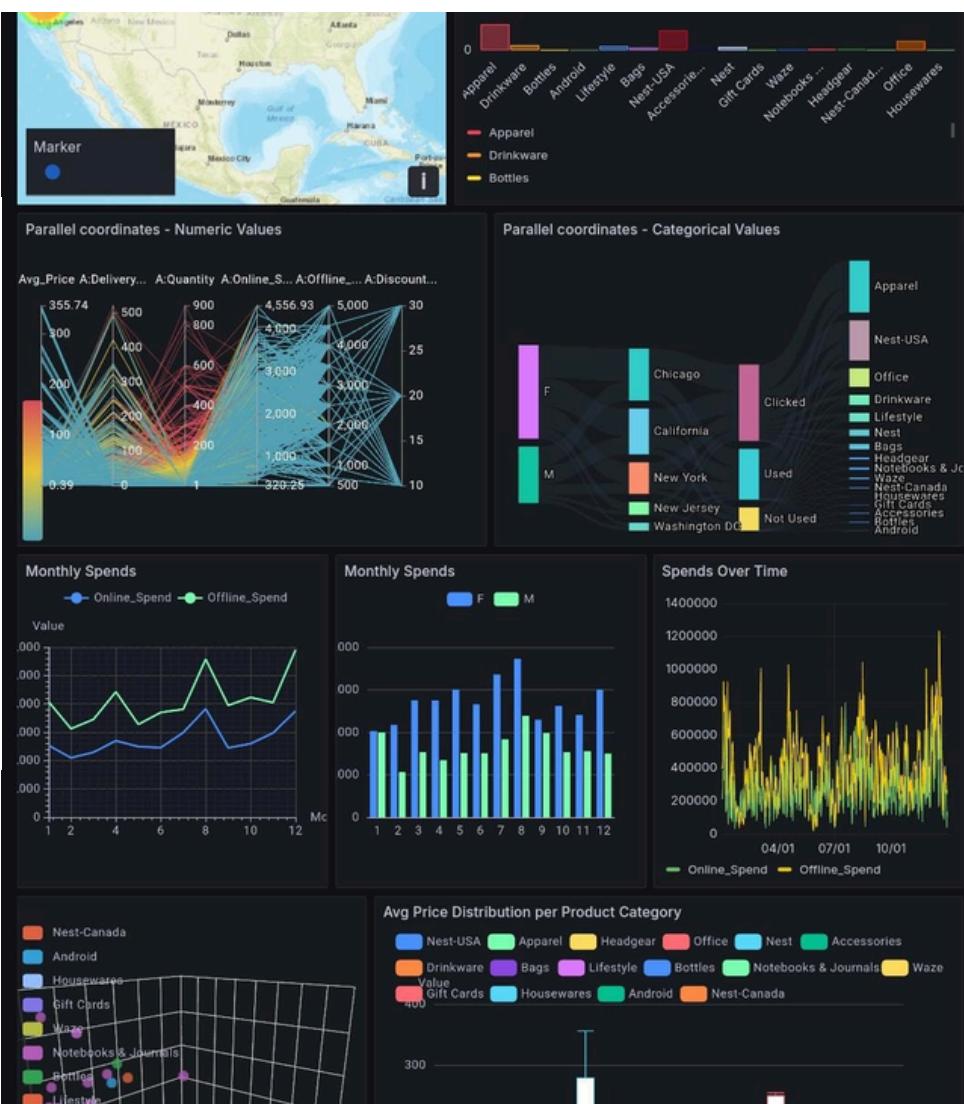
Web

*Programming
language*



COMPARISON PROCEDURE

02/11

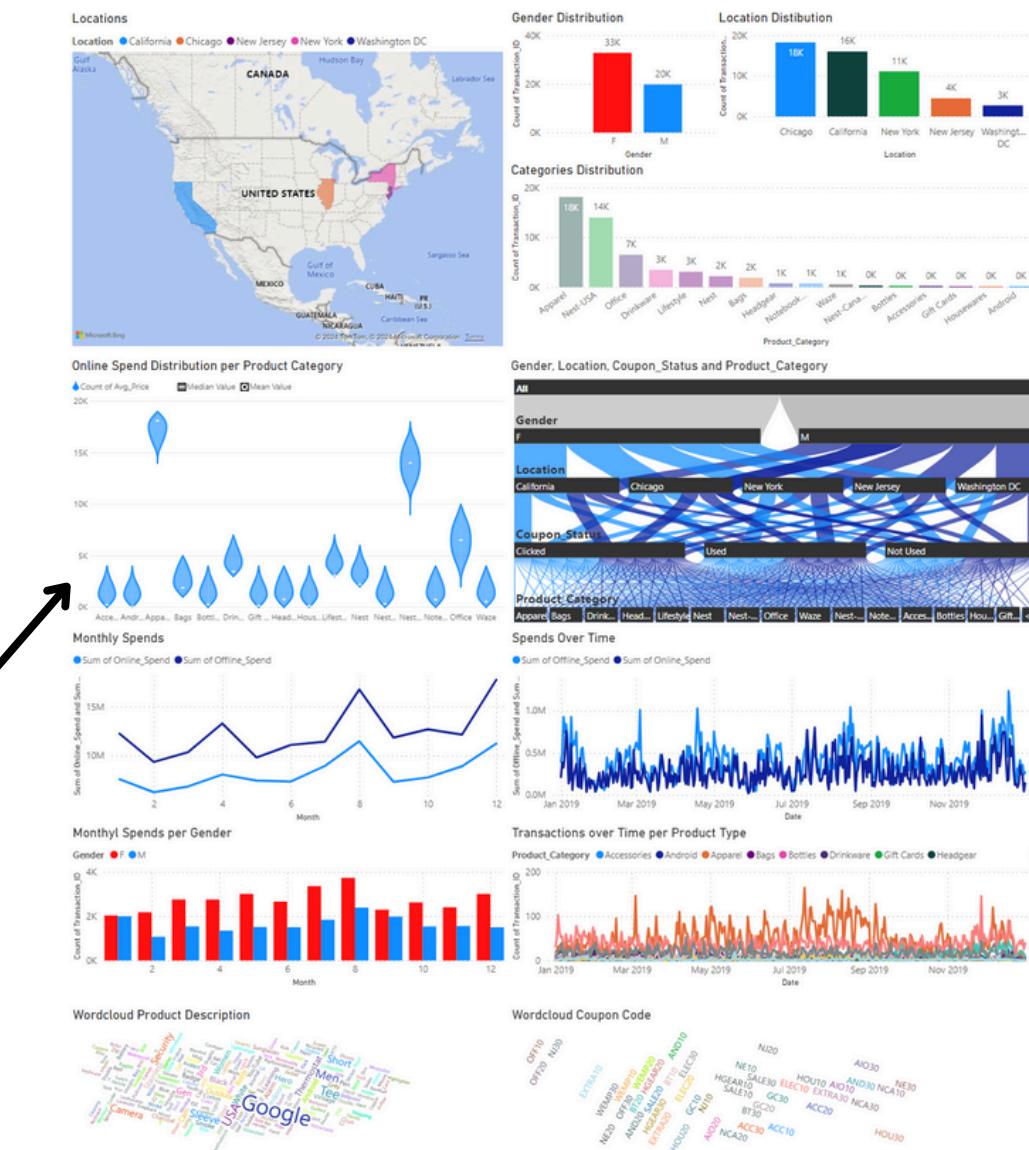


VERTICAL

Online Shopping Dataset

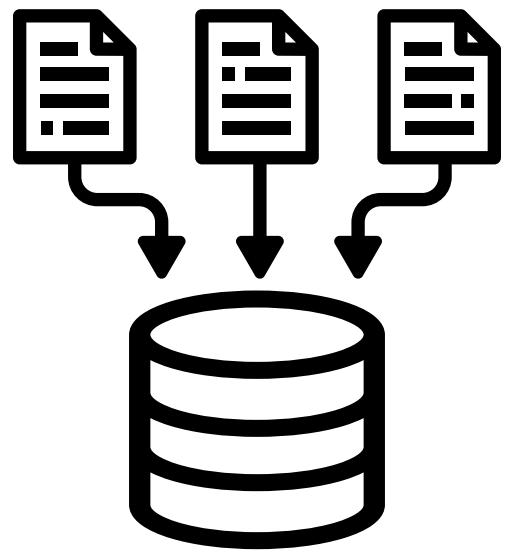


Power BI



FEATURES

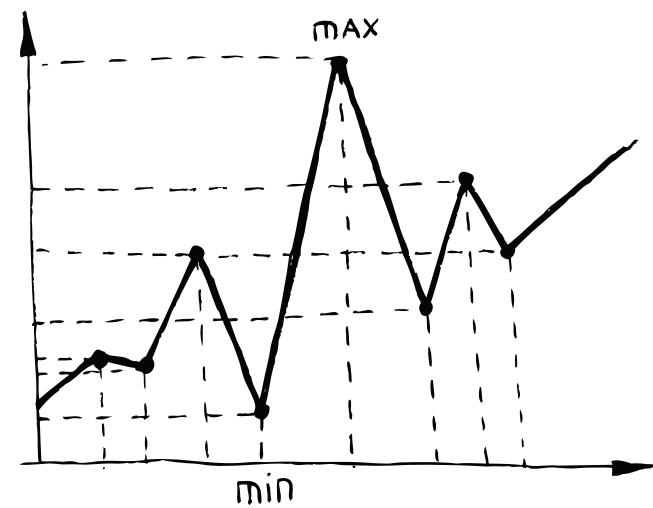
03/11



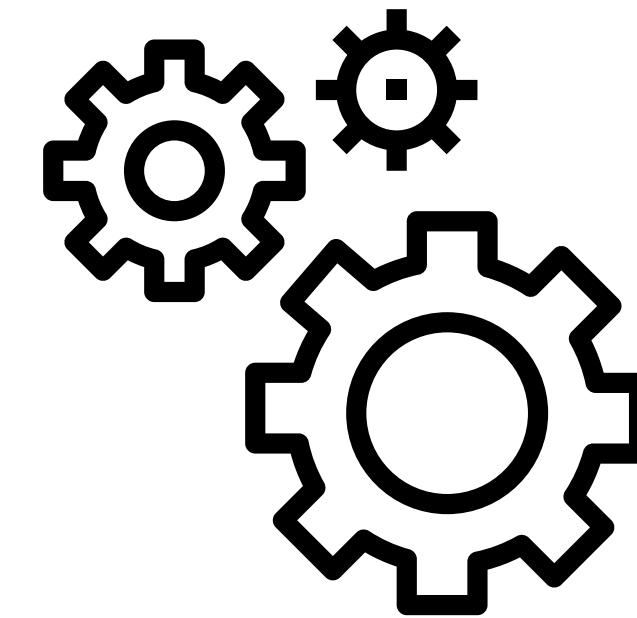
Datasource



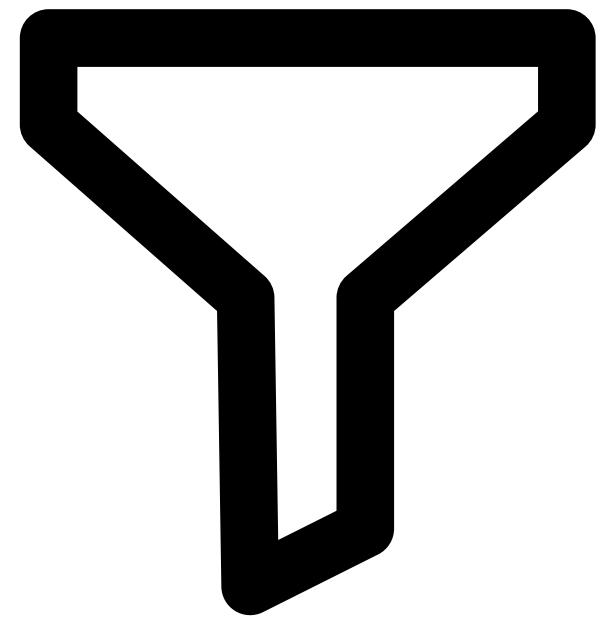
Querying



Graphs



Configurability

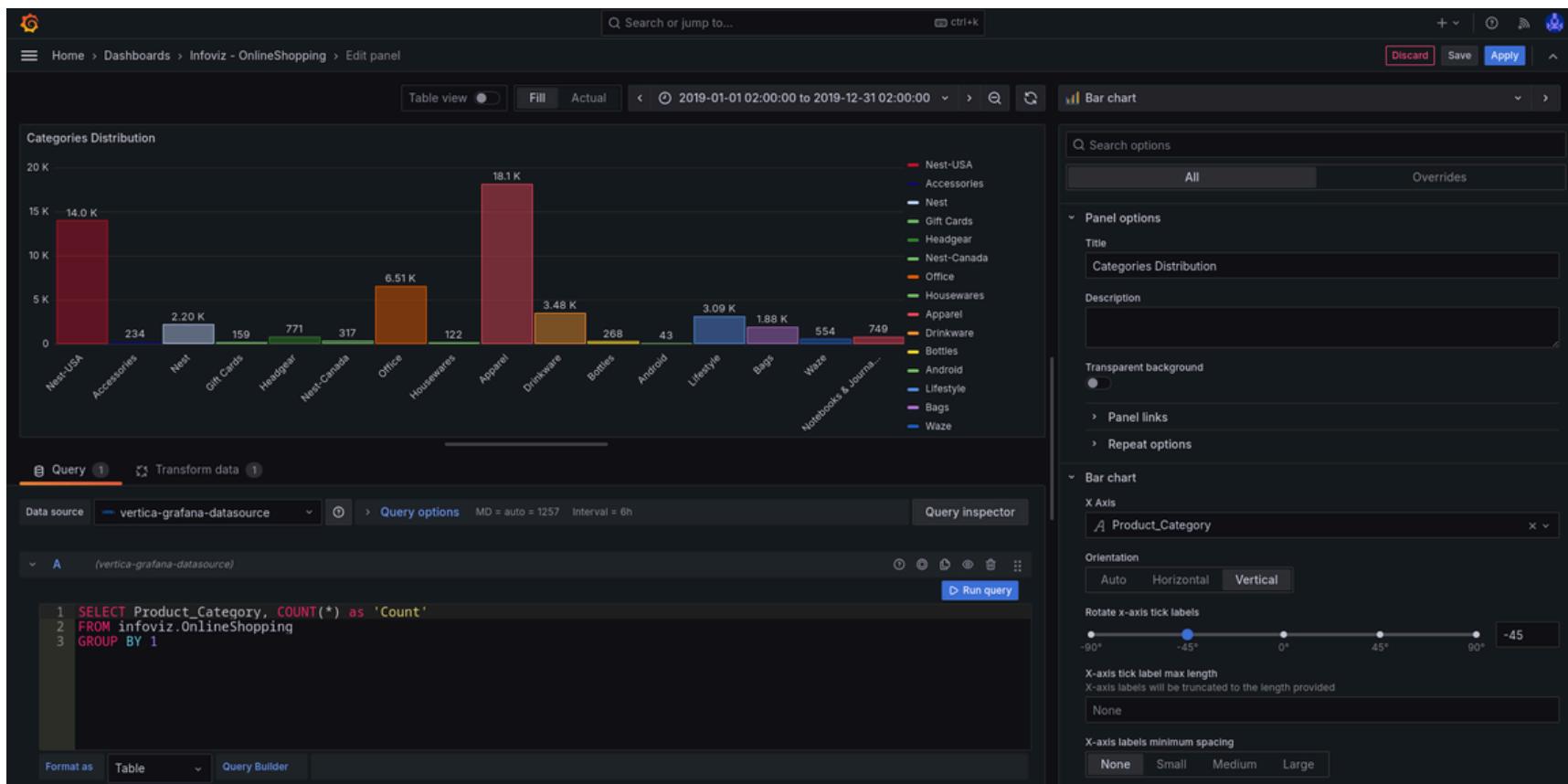


Filtering

DISCLAIMER !



Grafana



DATASOURCE QUERY GRAPH

PANEL SIDE

REPORT SIDE

DATASOURCE



The screenshot shows the Grafana interface for managing data sources. At the top, there's a navigation bar with links for Data Sources, Users, Teams, Plugins, Preferences, and API Keys. Below the navigation is a search bar labeled "Choose data source type" with a "Filter by name or type" placeholder. The main area displays a 5x3 grid of data source icons and names:

Azure Monitor	CloudWatch	Elasticsearch
Graphite	InfluxDB	Loki
Microsoft SQL Server	MySQL	OpenTSDB
PostgreSQL	Prometheus	plxer Scrutinizer Datasource
Stackdriver	TestData DB	

*Number of
datasources*

130+

160+

05/11



The screenshot shows the "Get Data" dialog box in Power BI. At the top, it says "Get Data" and has a search bar. On the left, there's a sidebar with a "Search" field and a "Get Data from" dropdown set to "Other". The main pane lists various data sources under "Other":

- All
- File
- Database
- Microsoft Fabric (Preview)
- Power Platform
- Azure
- Online Services
- Other

Below the list are buttons for "Certified Connectors" and "Template Apps", with "Template Apps" being highlighted with a red border. At the bottom right are "Connect" and "Cancel" buttons.

QUERYING



Grafana

Data source: vertica-grafana-datasource > Query options MD = auto = 1257 Interval = 6h

```

1 SELECT Location, lat, long, COUNT(*)
2 FROM infoviz.OnlineShopping
3 -- WHERE $__timeFilter(Date)
4 GROUP BY 1, 2, 3

```

Format as: Table > Query Builder

Data source: grafanacloud-ioachimlihor-prom > Query options MD = auto = 1257 Interval = 15s

A (grafanacloud-ioachimlihor-prom)

Kick start your query Explain

Metric Label filters

Select metric Select label = Select value +

+ Operations

Options Legend: Auto Format: Time series Step: auto Type: Range Exemplars: false

Data source: MySQL > Query options MD = auto = 1257 Interval = 15s

A (MySQL)

Format: Table Filter Group Order Preview

Dataset Table

Choose Select table

Column Aggregation - optional Alias - optional

Choose Choose Choose

+

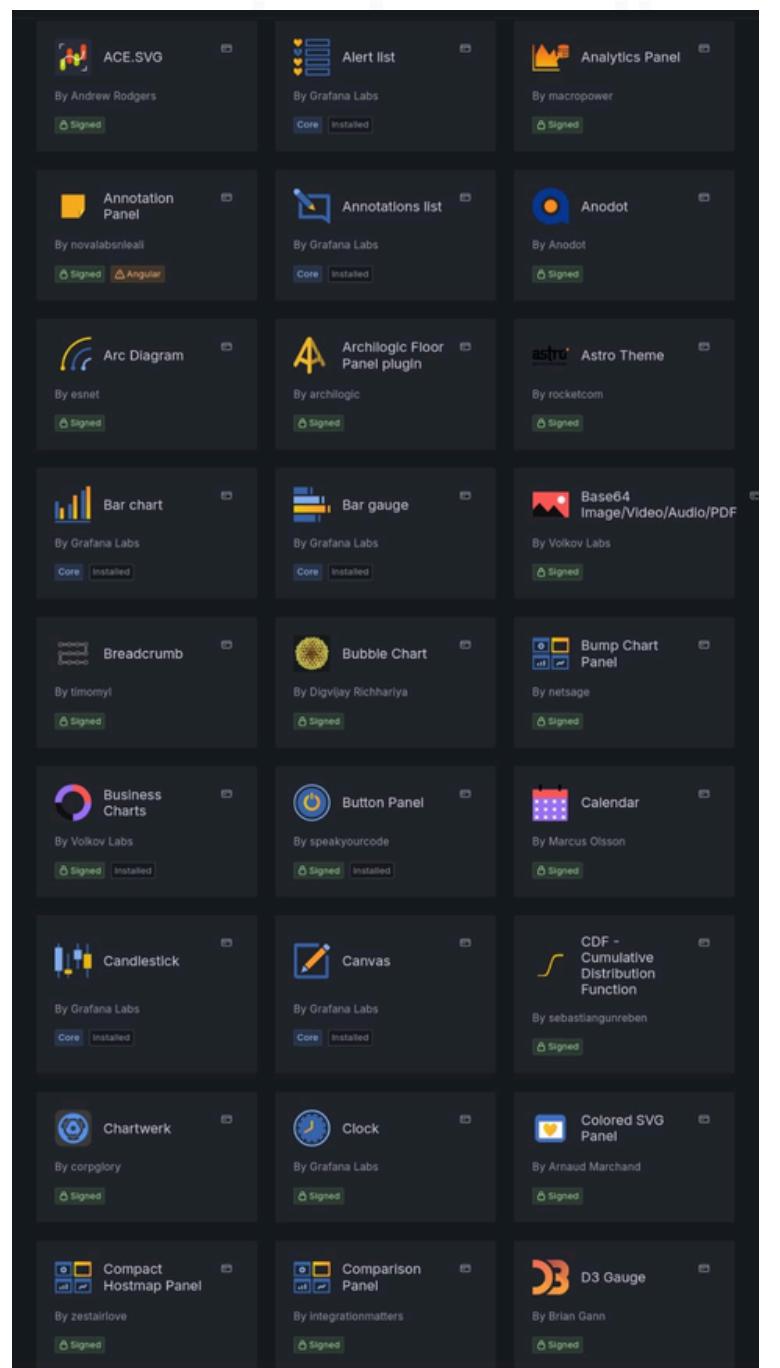
 Power BI  DAX DATE TEMPLATE

Clipboard Data Sources Data Queries External data Insert Page Visual Question Marketplace Custom visuals

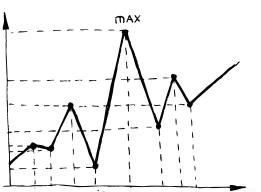
Correlation Co...
 VAR Correlation
 FILTER (
 ADDCOL
 VALUES ('Date'[Date]),
 "Value_X", [Sales Amount],
 "Value_Y", [Sales Rows]
),
 AND (
 NOT (ISBLANK ([Value_X])),
 NOT (ISBLANK ([Value_Y]))

1 Price Range =
 2 SWITCH (
 3 TRUE,
 4 Sales[Net Price] < 100, "LOW",
 5 Sales[Net Price] < 1000, "MEDIUM",
 6 "HIGH"
 7)

GRAPHS



Grafana panels



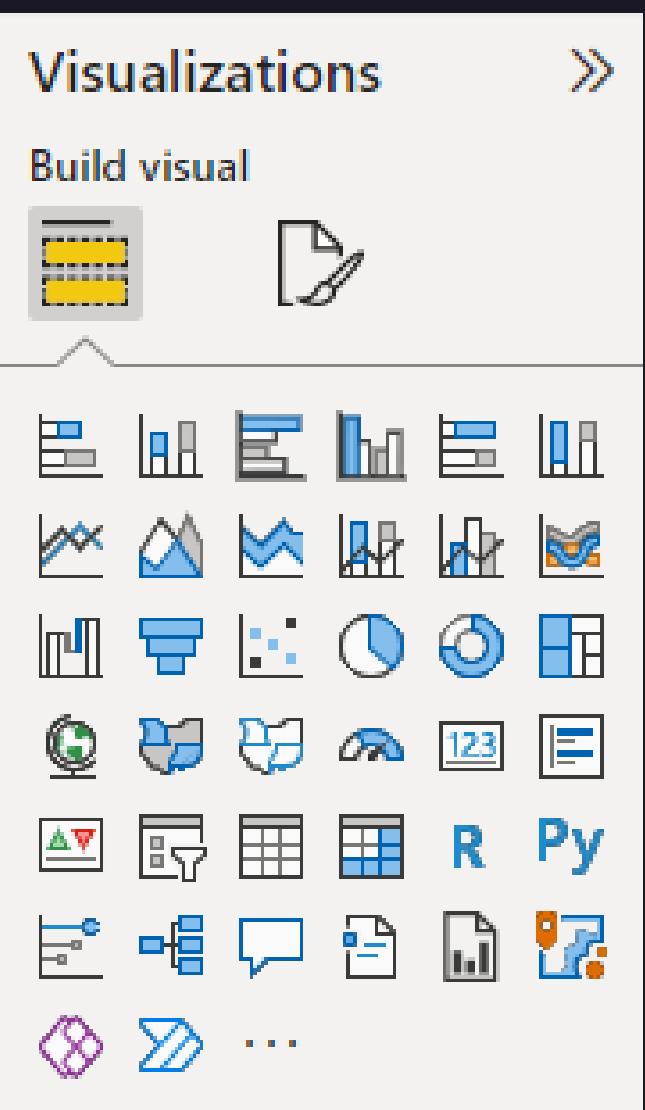
Number of graphs

143+

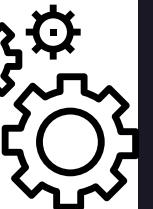
30+



PowerBI panels



CONFIGURABILITY



Grafana

Overrides

X Axis
A Product_Category

Orientation
Auto Horizontal Vertical

Rotate x-axis tick labels
-90° -45° 0° 45° 90° -45

X-axis tick label max length
X-axis labels will be truncated to the length provided
None

X-axis labels minimum spacing
None Small Medium Large

Show values
Auto Always Never

Stacking
Off Normal 100%

Bar width
0

Bar radius
0

Highlight full area on hover
On

Color by field
Use the color value for a sibling field to color each bar value.

+ Add field override

Visualizations

Format visual

Search

Visual General

Properties

Reset to default

Title
On

Subtitles
On

Dividers
On

Color

Style
Solid

Width
1

Ignore padding
On

Format

Search

Visual Properties

Title

Subtitles

Dividers

Color

Style

Width

Ignore padding

X-axis
FiscalMonth

Y-axis
Last Year Sales This Year Sales

Secondary y-axis
Add data fields here

Legend
Add data fields here

Small multiples
Add data fields here

Tooltips
Add data fields here

Drill through
Cross-report Off

Keep all filters
On

Add drill-through fields here

08/11

FILTERING



Grafana

Variables

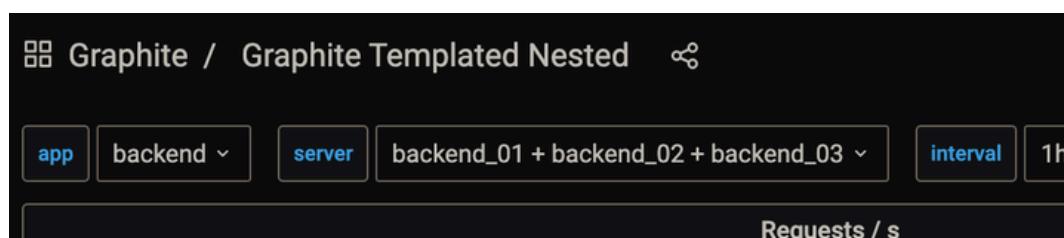
- General
- Annotations
- Variables
- Links
- Versions
- Permissions
- JSON Model

Variable	Definition
query1	myKey1, myKey2, myKey3
query2	query_result()
titleName	node_uname_info(domainname="home")
availBytes	query_result(node_filesystem_avail_bytes)
free_memory	node_memory_free_bytes

Graphite / Graphite Templated Nested

app backend server backend_01 + backend_02 + backend_03 interval 1h

Requests / s



query0

Select variable type

Query

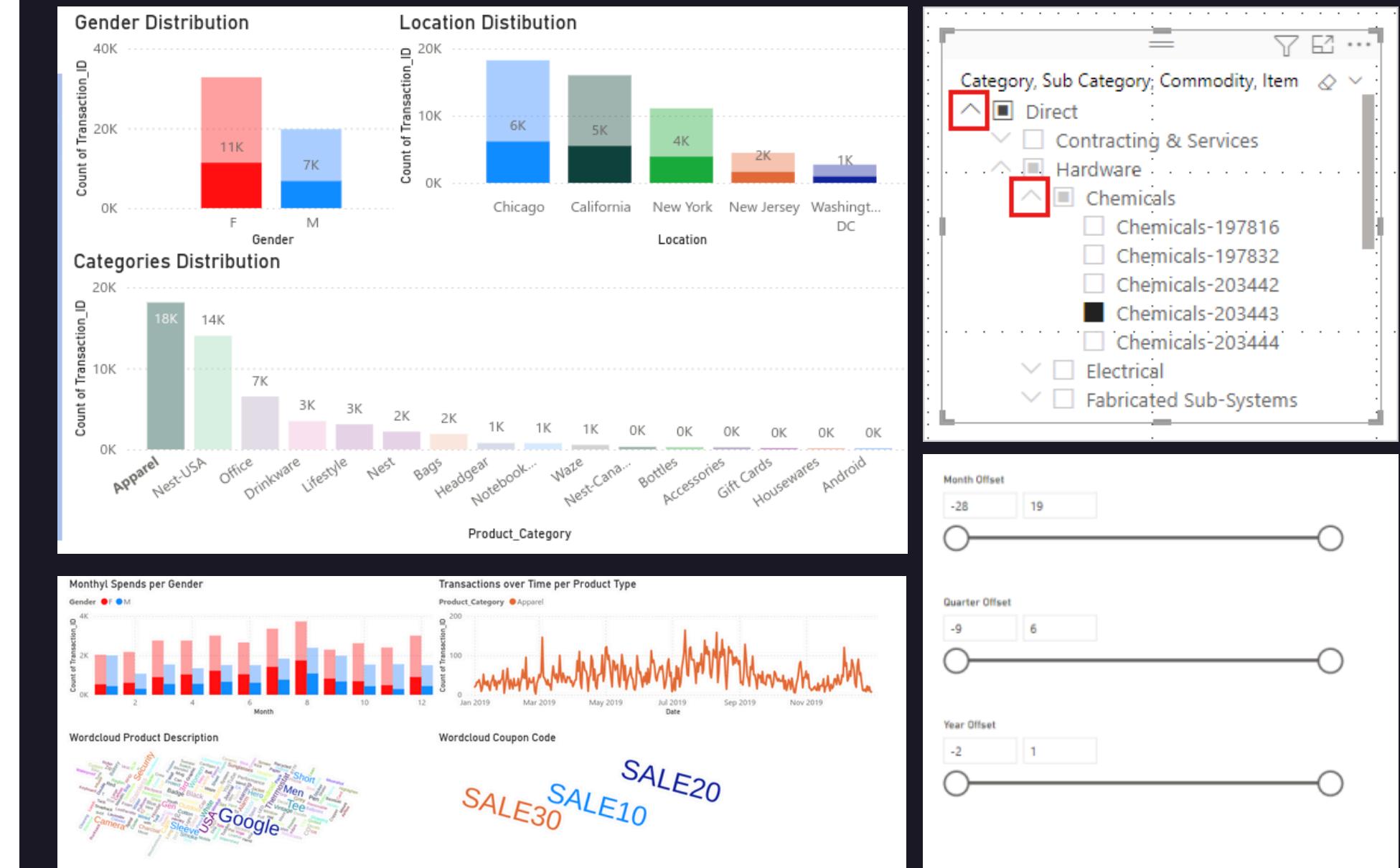
Custom

Text box

Constant

Show on dashboard

Label and value Value Nothing



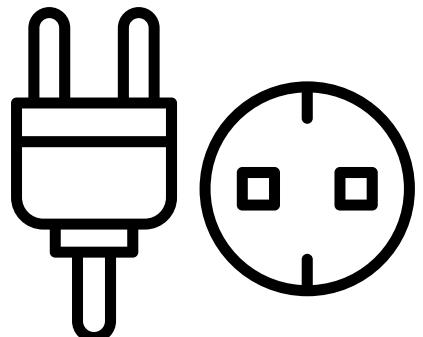
STRENGTH POINTS



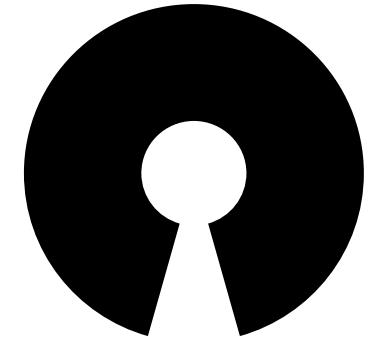
Grafana



Real-Time Monitoring



Extensibility with Plugins



Open Source and Community Support



Power BI



Microsoft

Integration with Microsoft Products

DAX

Powerful Data Modeling Features



Reporting and demo

CONCLUSION



11/11

POWERFUL BI TOOLS

POPULAR

PROPER TO USE FOR SPECIFIC USE-CASES

RICH DATA VISUALIZATION

MULTIPLE DATA SOURCES SUPPORT



Power BI

*Thank
You*