



ROMANIA  
*University of Bucharest*  
*Faculty of Mathematics and Computer Science*



# Power BI vs Grafana

## *A Comparative Analysis*

InfoViz

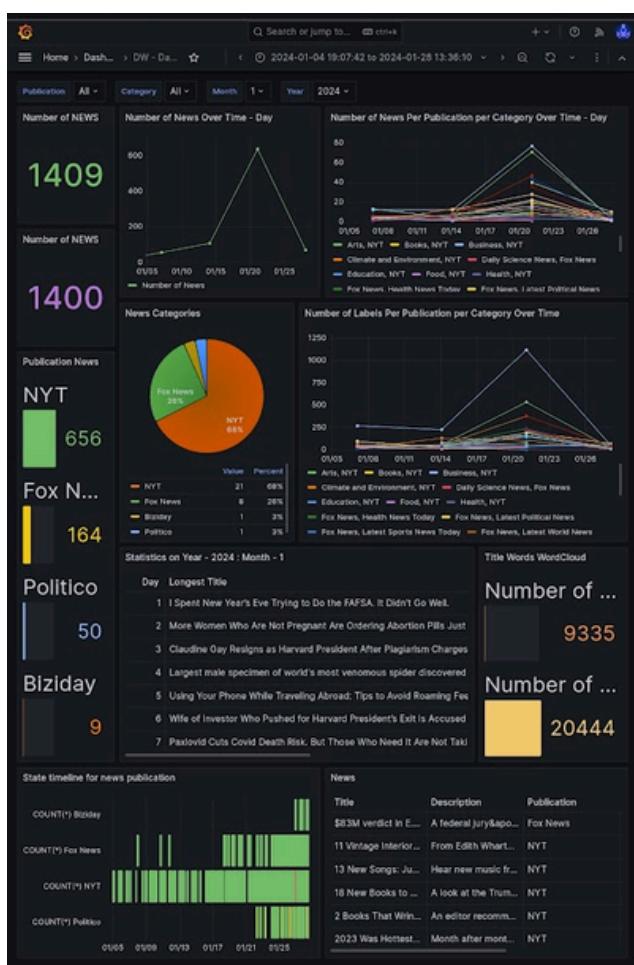
Ioachim LIHOR

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

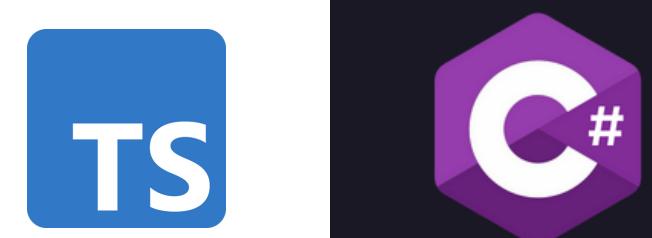
*Worth*

3B

*Product*

Web

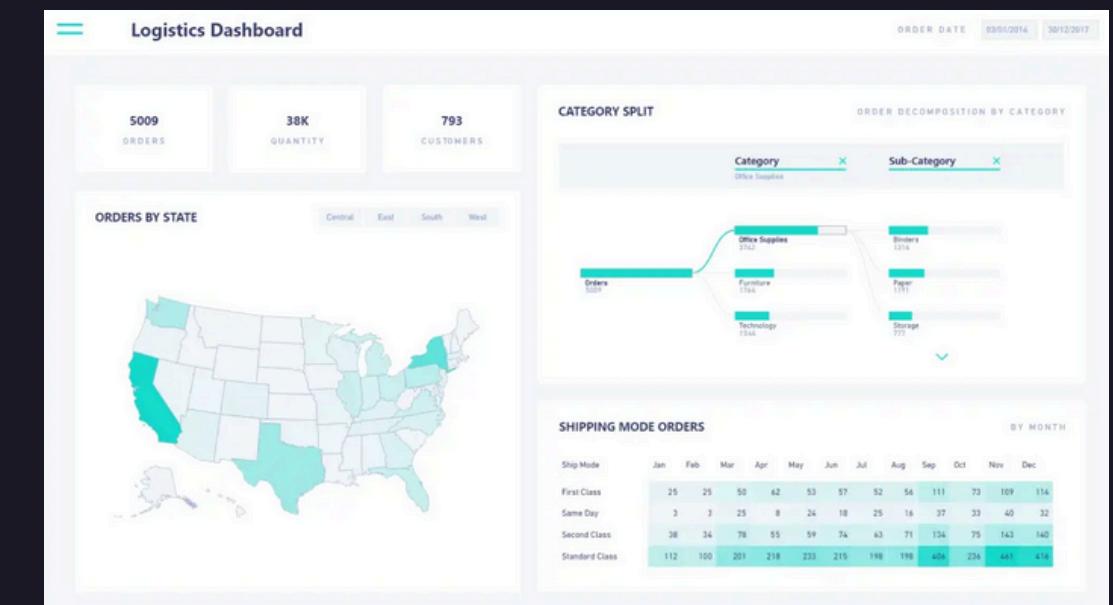
*Programming  
language*



2015

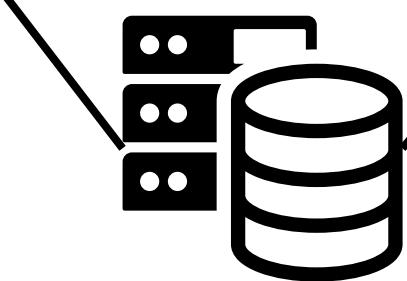
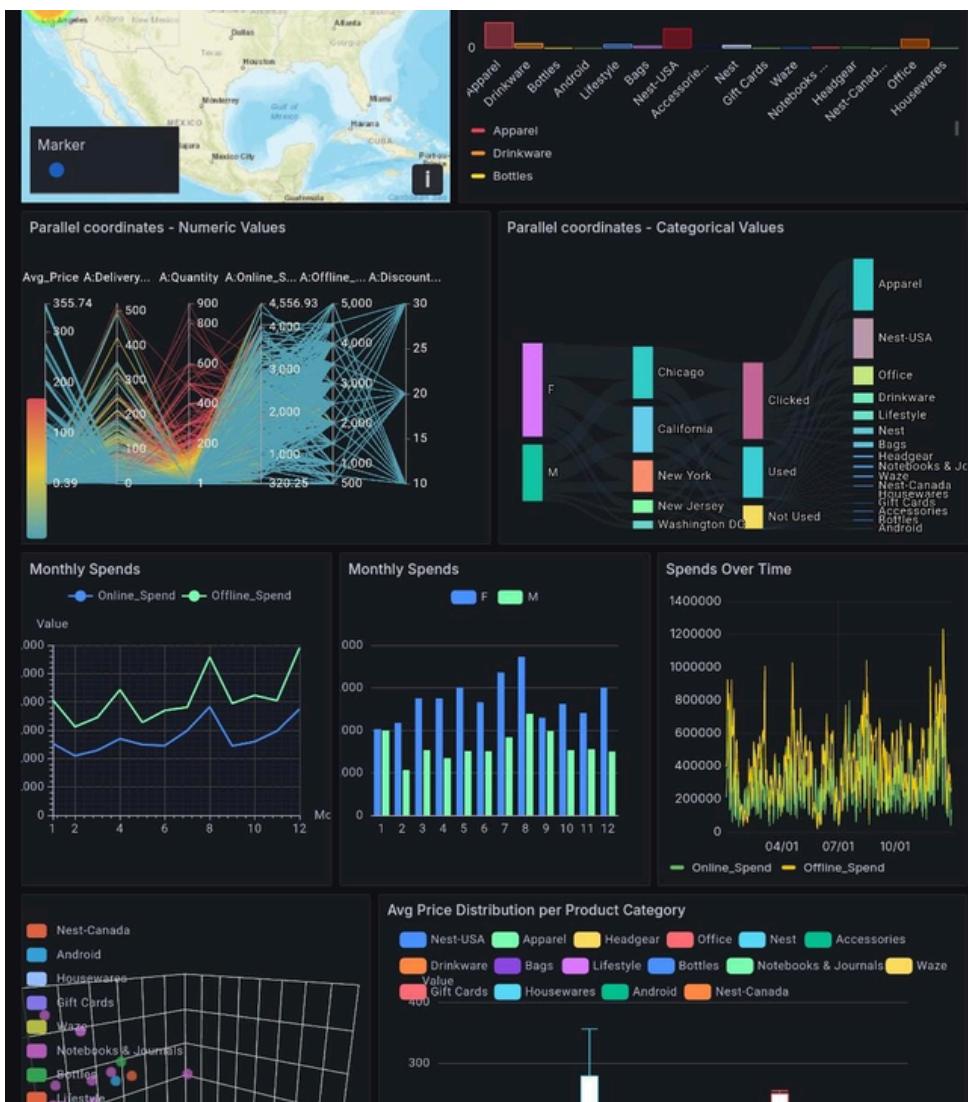


Power BI



# COMPARISON PROCEDURE

02/11

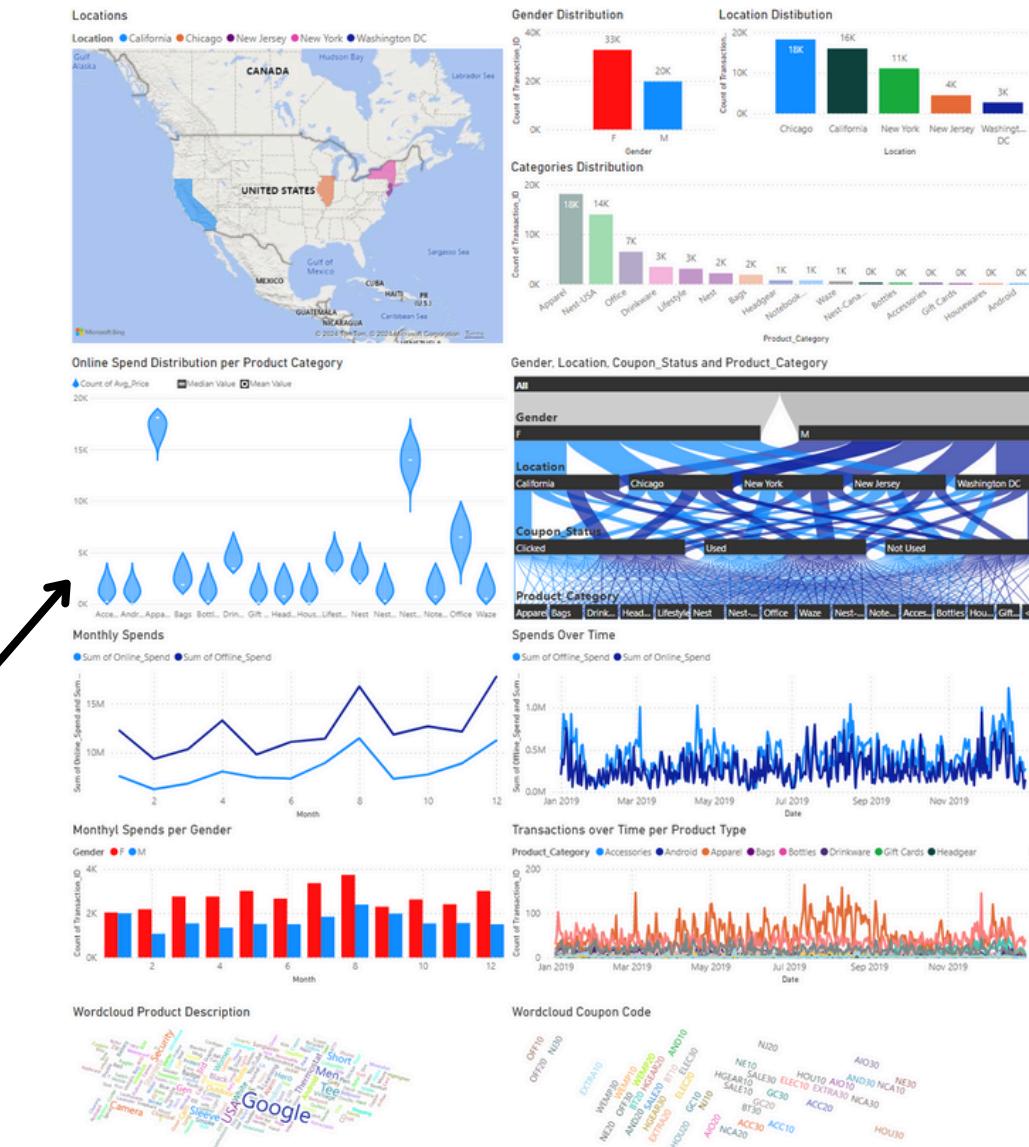


VERTICA

Online Shopping  
Dataset

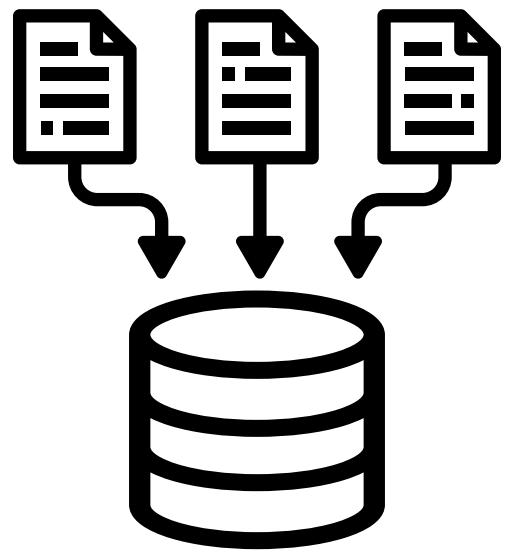


Power BI



# FEATURES

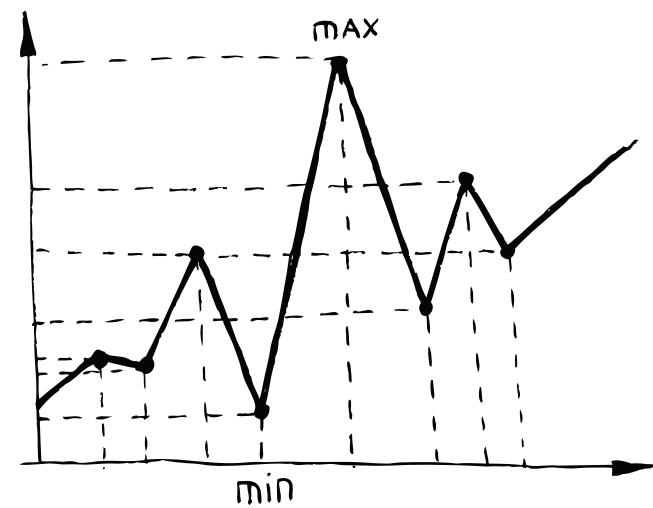
03/11



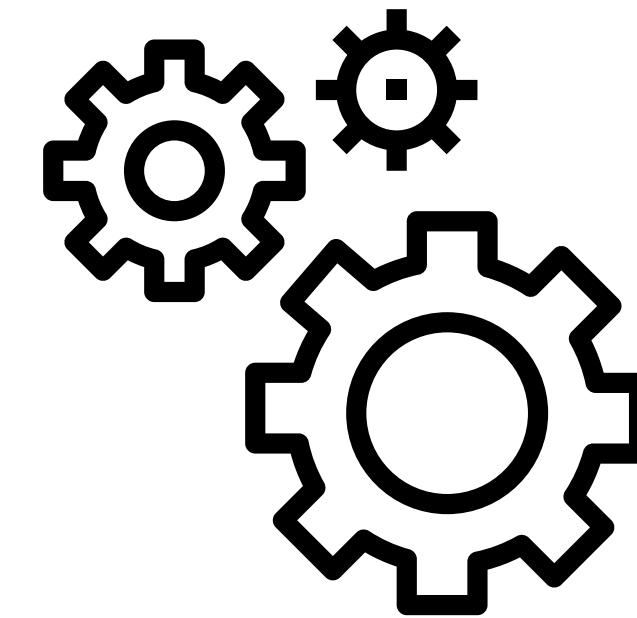
Datasource



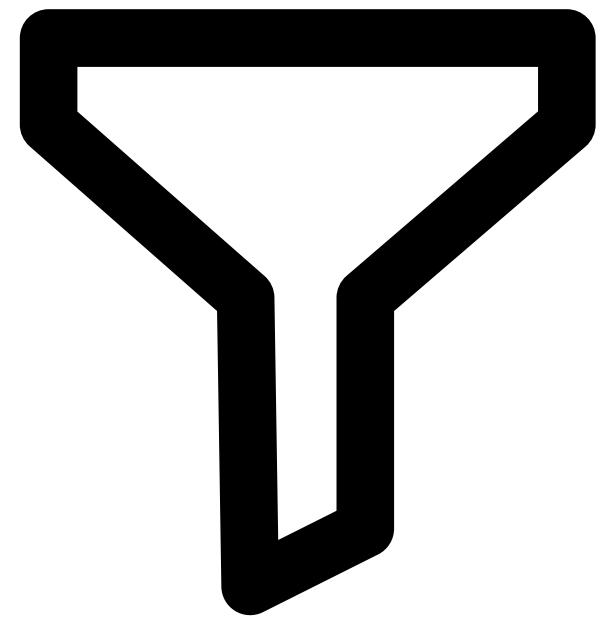
Querying



Graphs



Configurability

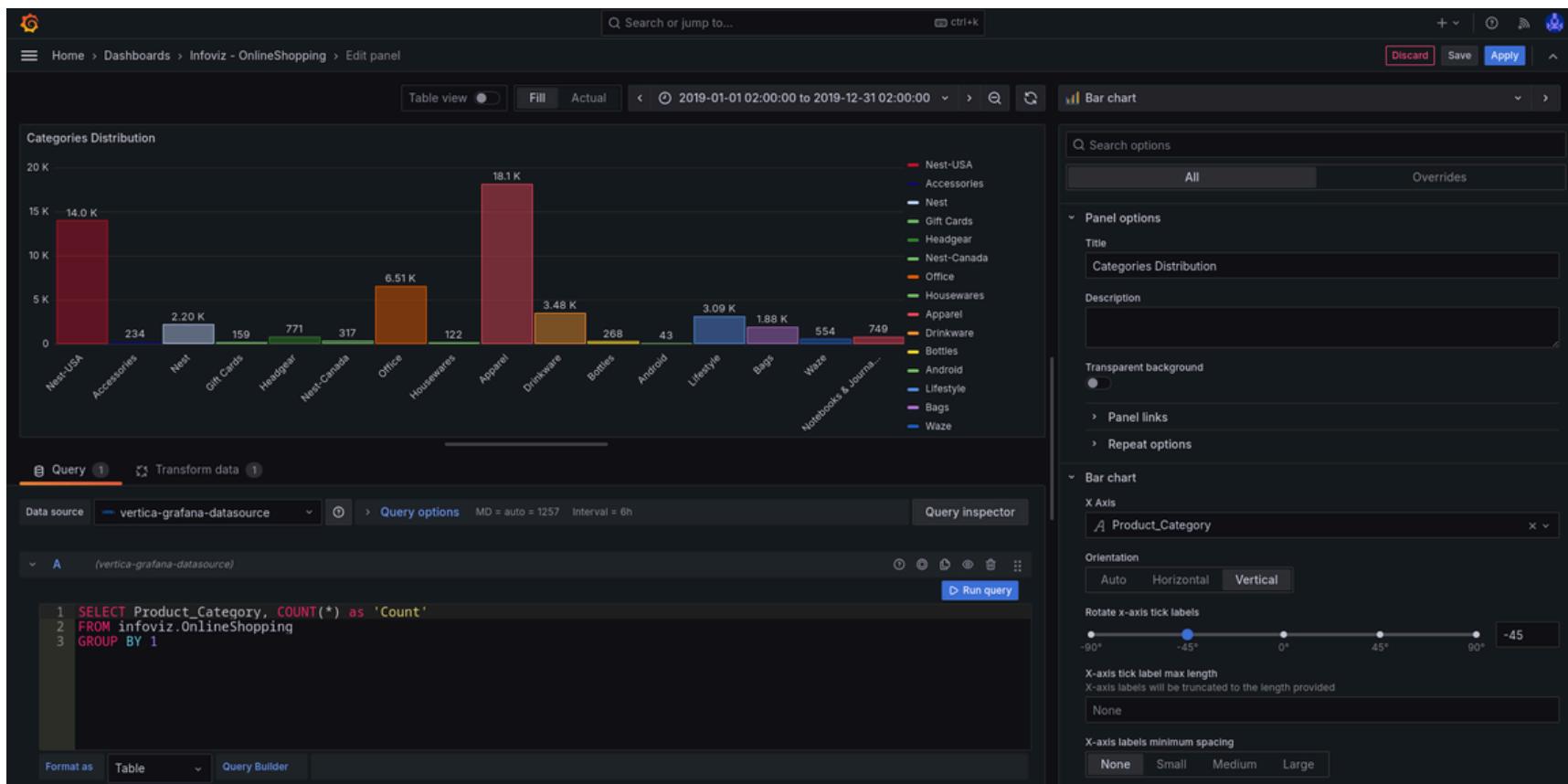


Filtering

# DISCLAIMER !



# Grafana



DATASOURCE QUERY GRAPH

PANEL SIDE

REPORT SIDE

# DATASOURCE



The screenshot shows the Grafana interface with the "Data Sources" tab selected. At the top, there's a search bar labeled "Choose data source type" and a "Filter by name or type" dropdown. Below is 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 in Power BI. At the top is a search bar and a "Search" button. The main area lists data sources under categories:

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

The "Other" category is currently selected and expanded, listing various connectors:

- Web
- SharePoint list
- OData Feed
- Active Directory
- Microsoft Exchange
- Hadoop File (HDFS)
- Spark
- Hive LLAP
- R script
- Python script
- ODBC
- OLE DB
- Acterys : Model Automation & Planning (Beta)
- Amazon OpenSearch Service (Beta)
- Anaplan
- Solver

At the bottom are buttons for "Certified Connectors" (green), "Template Apps" (red box), "Connect" (green), and "Cancel" (white).

# 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

+

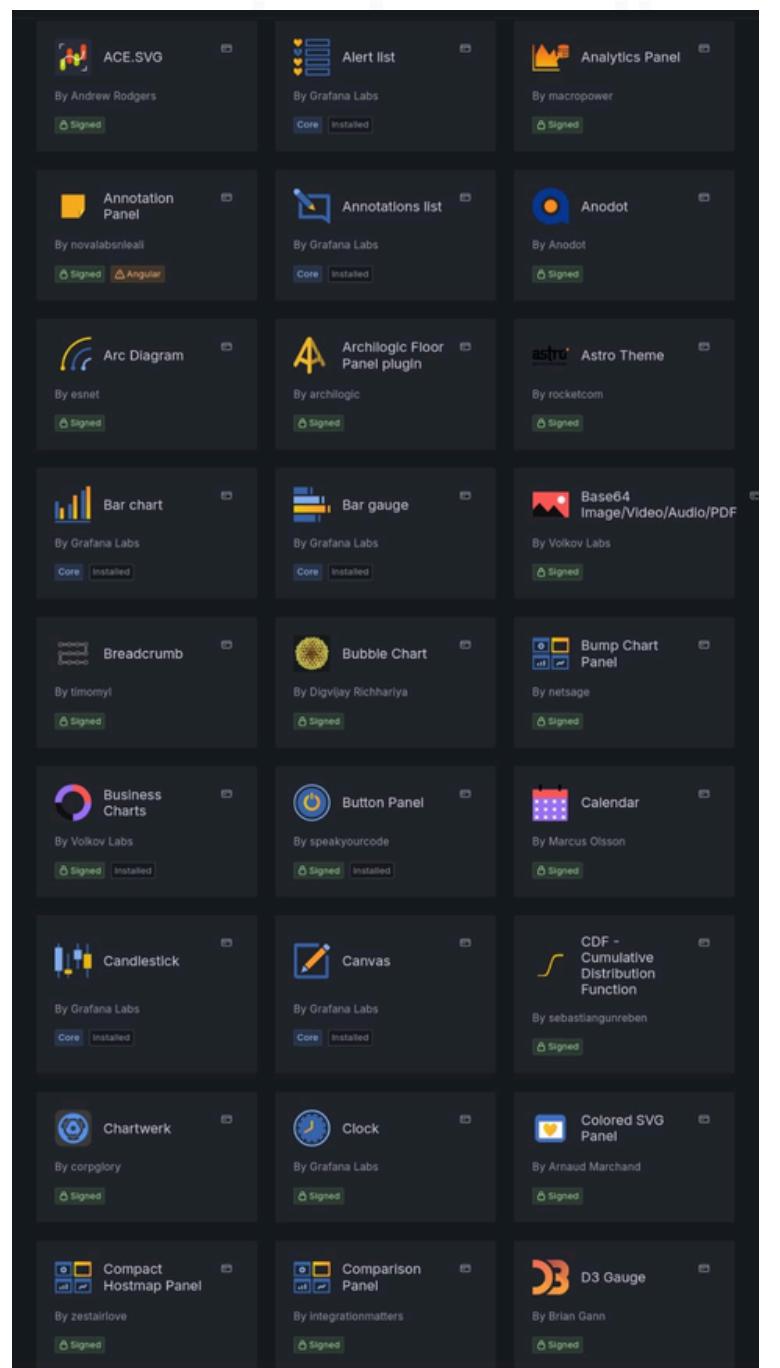
 Power BI  DAX DATE TEMPLATE

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

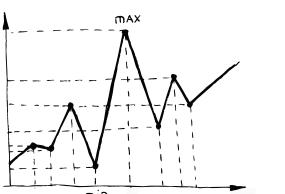
Correlation Co...  
 VAR Correlation  
 FILTER (  
 ADDCOL  
 VALUES ( 'Date'[Date] ),  
 "Value\_X", [Sales Amount],  
 "Value\_Y", [Sales Rows]  
 ),  
 AND (  
 NOT ( ISBLANK ( [Value\_X] ) ),  
 NOT ( ISBLANK ( [Value\_Y] ) )

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

# GRAPHS



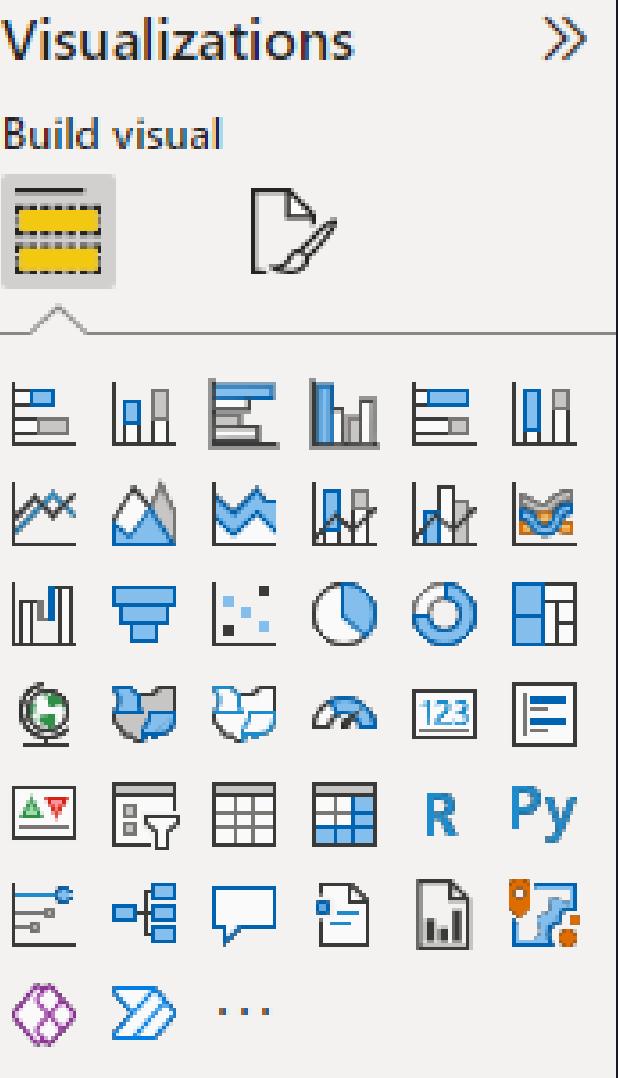
Grafana panels



*Number of graphs*

143+

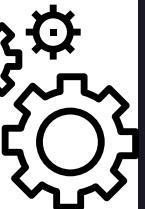
30+



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**

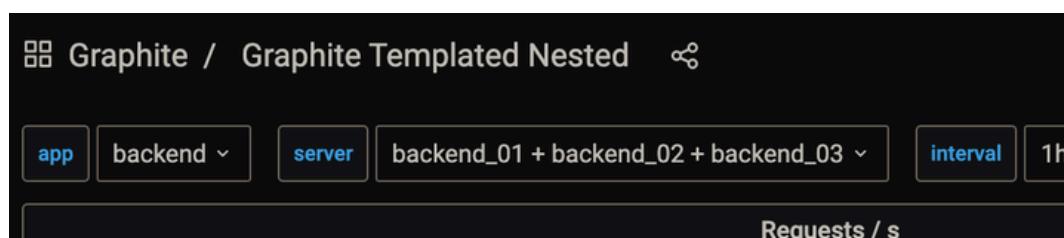
- General
- Annotations
- Variables
- Links
- Versions
- Permissions
- JSON Model

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

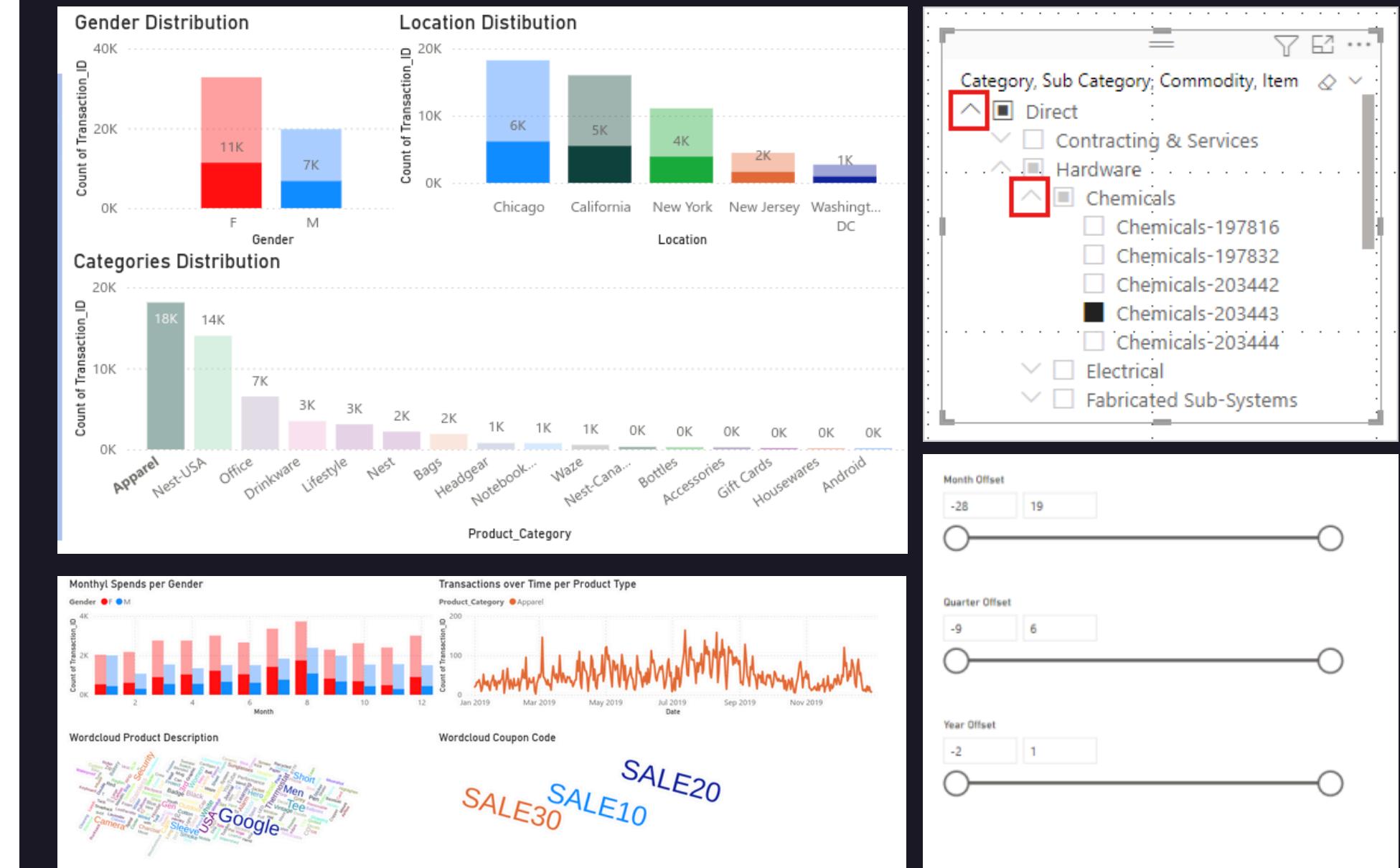
Custom

Text box

Constant

Show on dashboard

Label and value Value Nothing



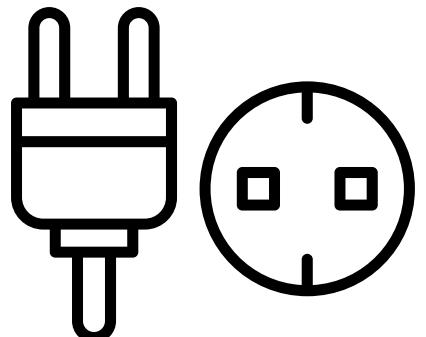
# STRENGTH POINTS



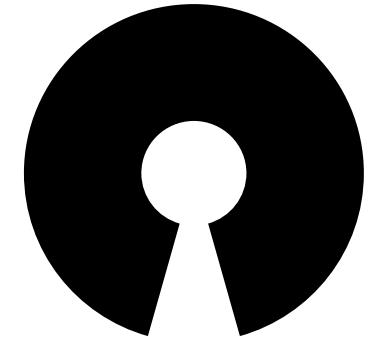
Grafana



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*