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On-Premises Data Gateway monitoring strategy, why do I care?

PBI Gateway Watchdog - One tool to rule them all

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10 years in Microsoft “Data Realm”

Microsoft Most Valuable Professional

MCSA

Giving my little contribution to the community

PASS

PowerBIUG

POWER PLATFORM BOOTCAMP

Power Platform World Tour

DATA SATURDAYS

dataMinds

Agenda

- Introduction to Data Gateway
- Why & What To Monitor?
- Out Of The Box Logging System
- Standard Monitoring Solution
- Can We Leverage It?
- Q&A

Introduction to Data Gateway

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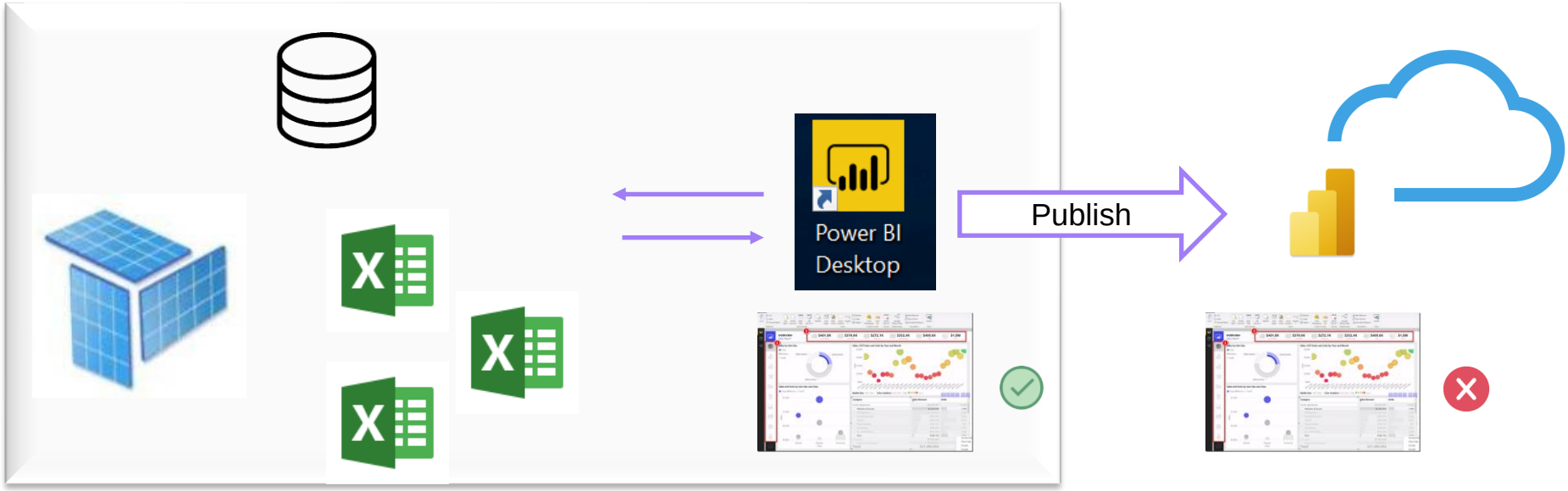
Let’s draw a typical scenario



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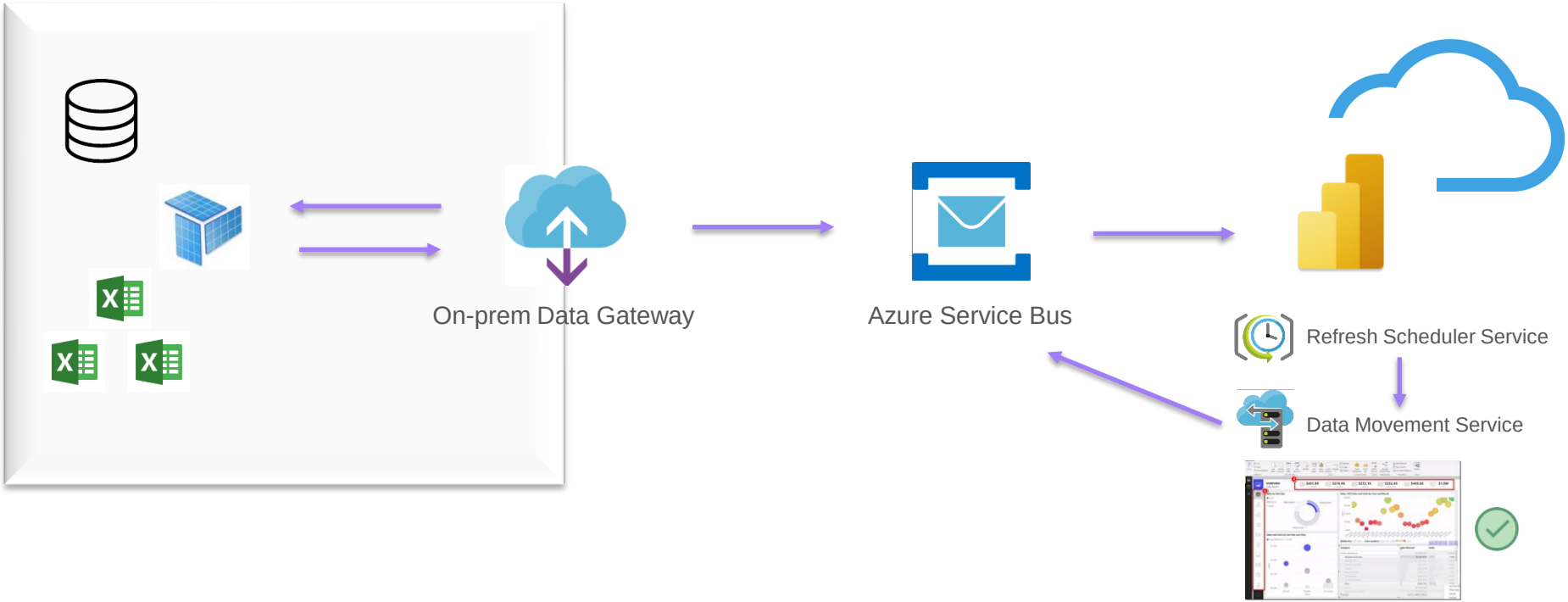
On-Prem Data Gateway is the way



2 Gateway types

On-premises data gateway
(Standard mode)

All Storage Mode Support

Scheduled Refresh Support

On-premises data gateway
(Personal mode)

Import Mode Support

Scheduled Refresh Support

Gateway: Architecture security

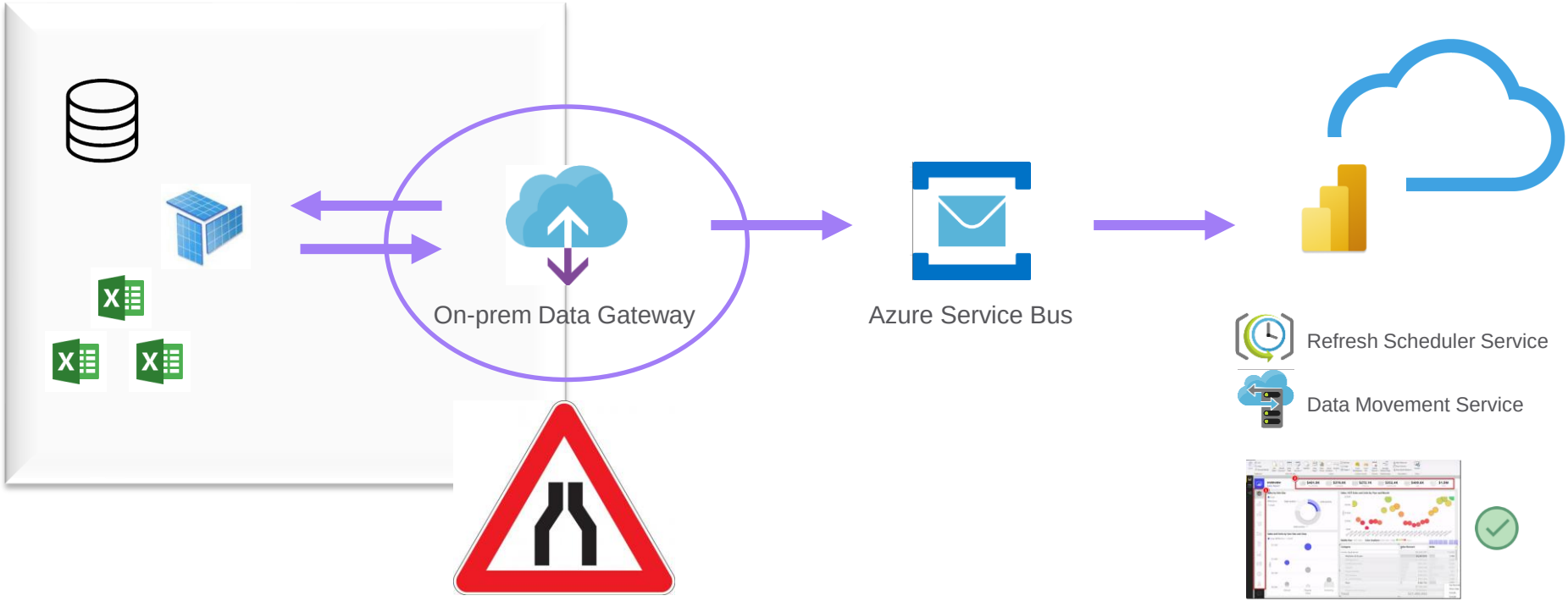
- **Credentials stored locally** and in Power BI Service
- **Data Source credentials encrypted** and stored in the cloud only gateway can decrypt
- **Gateway polling** → No inbound port to open
- **Outbound port** to open TCP: 443, 5671, 5672, 9530...9534

Gateway: Considerations

- Keep gateways' name/**recovery key** in a safe place (migration, take over and recovery)
- **Do not install Personal and then Enterprise**
- **Sometimes 2 gateways** are needed
- **Create a cluster for High-Availability**: round robin or balanced load
- **On-premises data gateway app** helps you
- **Powershell 6 cmdlets** to manage Gateway

Why and What to Monitor?

Why?


On-prem Data Gateway
Azure Service Bus
Refresh Scheduler Service
Data Movement Service

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What?

- Gateway’s resources pressure and peaks
- Volume of queries
- Queries’ length
- Queries distribution
- Errors

Out of the box Monitoring System

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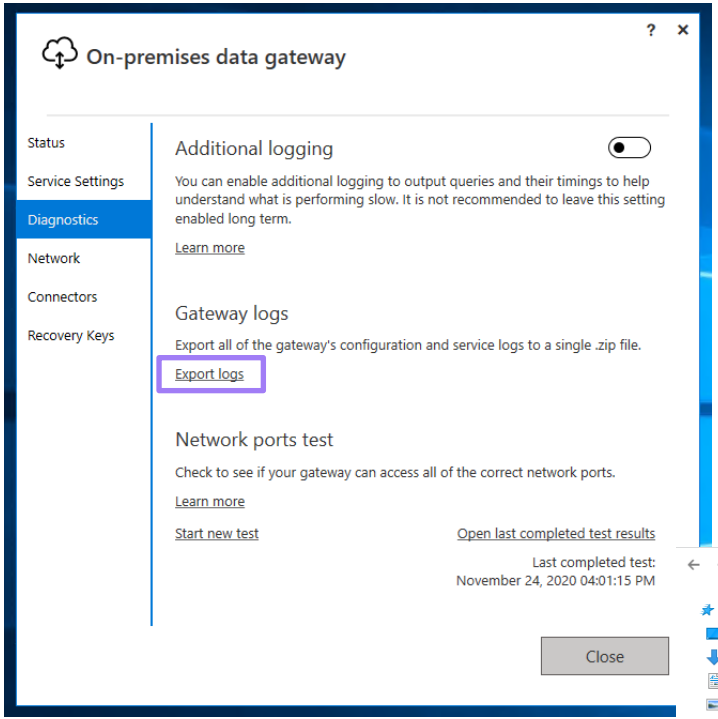
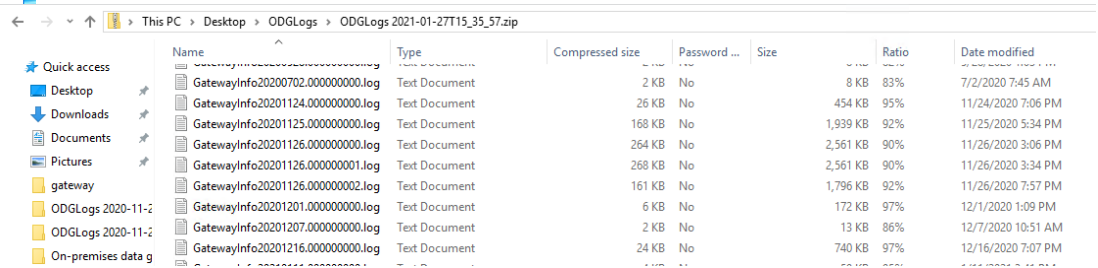

On-premises data gateway
Status
Service Settings
Diagnostics
Network
Connectors
Recovery Keys
Additional logging
You can enable additional logging to output queries and their timings to help understand what is performing slow. It is not recommended to leave this setting enabled long term.
Learn more
Gateway logs
Export all of the gateway's configuration and service logs to a single .zip file.
Export logs
Network ports test
Check to see if your gateway can access all of the correct network ports.
Learn more
Start new test
Open last completed test results
Last completed test:
November 24, 2020 04:01:15 PM
Close


This PC › Desktop › ODGLogs › ODGLogs 2021-01-27T15_35_57.zip
Quick access
Desktop
Downloads
Documents
Pictures
gateway
ODGLogs 2020-11-2
ODGLogs 2020-11-2
On-premises data g
Name
Type
Compressed size
Password ...
Size
Ratio
Date modified
GatewayInfo20200702.000000000.log Text Document 2 KB No 8 KB 83% 7/2/2020 7:45 AM
GatewayInfo20201124.000000000.log Text Document 26 KB No 454 KB 95% 11/24/2020 7:06 PM
GatewayInfo20201125.000000000.log Text Document 168 KB No 1,939 KB 92% 11/25/2020 5:34 PM
GatewayInfo20201126.000000000.log Text Document 264 KB No 2,561 KB 90% 11/26/2020 3:06 PM
GatewayInfo20201126.000000001.log Text Document 268 KB No 2,561 KB 90% 11/26/2020 3:34 PM
GatewayInfo20201126.000000002.log Text Document 161 KB No 1,796 KB 92% 11/26/2020 7:57 PM
GatewayInfo20201201.000000000.log Text Document 6 KB No 172 KB 97% 12/1/2020 1:09 PM
GatewayInfo20201207.000000000.log Text Document 2 KB No 13 KB 86% 12/7/2020 10:51 AM
GatewayInfo20201216.000000000.log Text Document 24 KB No 740 KB 97% 12/16/2020 7:07 PM

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Standard Log Files

Log	Description	File Pattern
Query Execution	The Query Execution Report contains detailed query execution information.	QueryExecutionReport_<gw_node>_<yyyymmdd>T<hhmmss>.log
Query Start	The Query Start Report contains the query and the query start time.	QueryStartReport_<gw_node>_<yyyymmdd>T<hhmmss>.log
Query Execution Aggregation	The Query Execution Aggregation Report contains query information aggregated to a time interval by GatewayObjectId, DataSource, Success, and QueryType.	QueryExecutionAggregationReport_<gw_node>_<yyyymmdd>T<hhmmss>.log
System Counter Aggregation	The System Counter Aggregation Report contains system counter values aggregated to a time interval.	SystemCounterAggregationReport_<gw_node>_<yyyymmdd>T<hhmmss>.log
Gateway Errors	Gateway Errors contains callstacks for Gateway service event type error.	GatewayErrors<yyyymmdd>.<nnnnnnnnn>.log
Gateway Info	Gateway Info contains details for Gateway service event type information.	GatewayInfo<yyyymmdd>.<nnnnnnnnn>.log
Gateway Network	Gateway Netwrok contains ServiceEndpoint Connection status logs.	GatewayNetwork<yyyymmdd>.<nnnnnnnnn>.log
Gateway Configurator	Contains history of Gateway's configuration	GatewayConfigurator<yyyymmdd>.<nnnnnnnnn>.log
Port Tests	Contains ports tests.	GatewayPortsTestResults2020-11-24T16_01_15.log
Mashup Container Profile		MashupContainerProfiles.log
SAP Adapter		SapAdapter20201124.000000000.log
On Premises Data Gateway*		On-premises_data_gateway_20200414130028
Gateway Properties		GatewayProperties.txt

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Where to find them?

Log	Location
Query Execution	<InstallationFolder>\Microsoft.PowerBI.DataMovement.Pipeline.GatewayCore.dll.config
Query Start	<InstallationFolder>\Microsoft.PowerBI.DataMovement.Pipeline.GatewayCore.dll.config
Query Execution Aggregation	<InstallationFolder>\Microsoft.PowerBI.DataMovement.Pipeline.GatewayCore.dll.config
System Counter Aggregation	<InstallationFolder>\Microsoft.PowerBI.DataMovement.Pipeline.GatewayCore.dll.config
Gateway Errors	<InstallationFolder>\Microsoft.PowerBI.DataMovement.Pipeline.GatewayCore.dll.config or \Microsoft.PowerBI.EnterpriseGateway.exe.config
Gateway Info	<InstallationFolder>\Microsoft.PowerBI.DataMovement.Pipeline.GatewayCore.dll.config or \Microsoft.PowerBI.EnterpriseGateway.exe.config
Gateway Network	<InstallationFolder>\Microsoft.PowerBI.DataMovement.Pipeline.GatewayCore.dll.config or \Microsoft.PowerBI.EnterpriseGateway.exe.config
Gateway Configurator	<InstallationFolder>\EnterpriseGatewayConfigurator.exe.config
Port Tests	Manual Log Export
Mashup Container Profile	Manual Log Export
SAP Adapter	Manual Log Export
On Premises Data Gateway*	Manual Log Export
Gateway Properties	Manual Log Export

Parameters to keep in mind from …DataMovement.Pipeline.GatewayCore.dll

- DisableQueryExecutionReport
- MashupLogMaximumNumberOfFiles
- **ReportFilePath**
- ReportFileCount
- ReportFileSizeInBytes
- QueryExecutionAggregationTimeInMinutes
- SystemCounterAggregationTimeInMinutes


And now?
Should I read all logs in notepad?
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Standard Monitoring Solution

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Microsoft did something for us

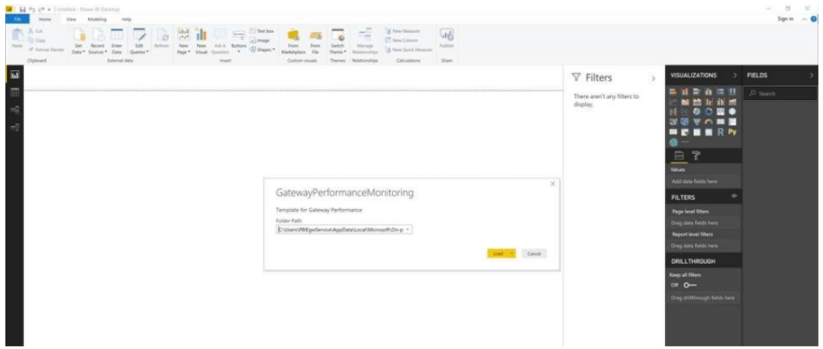
Filter by title

- On-premises data gateways docs
- What is an on-premises data gateway?
- Concepts
- How to
  - Install gateways
  - Configure gateways
  - Manage gateways
  - Troubleshoot the on-premises data gateway
  - Monitor and optimize gateway performance
- Reference
- Resources

Visualize gateway performance

Now, you can visualize the data that's in the log files.

1. Download the Gateway Performance PBI template, and open it by using Power BI Desktop.
2. In the dialog box that opens, check that the folder path matches the value in **ReportFilePath**.



3. Select **Load**, and the template file starts loading the data from your log files. All visuals are populated by using the data in the reports.
4. Optionally, save this file as a PBIX, and publish it to your service for automatic refreshes. To learn more, see Publish datasets and reports from Power BI Desktop.

You also can customize this template file to suit your needs. For more information on Power BI templates, see this Microsoft Power BI blog post.

Is this page helpful?

Yes No

In this article

- Gateway performance monitoring (public preview)
- Slow-perf
- Next step

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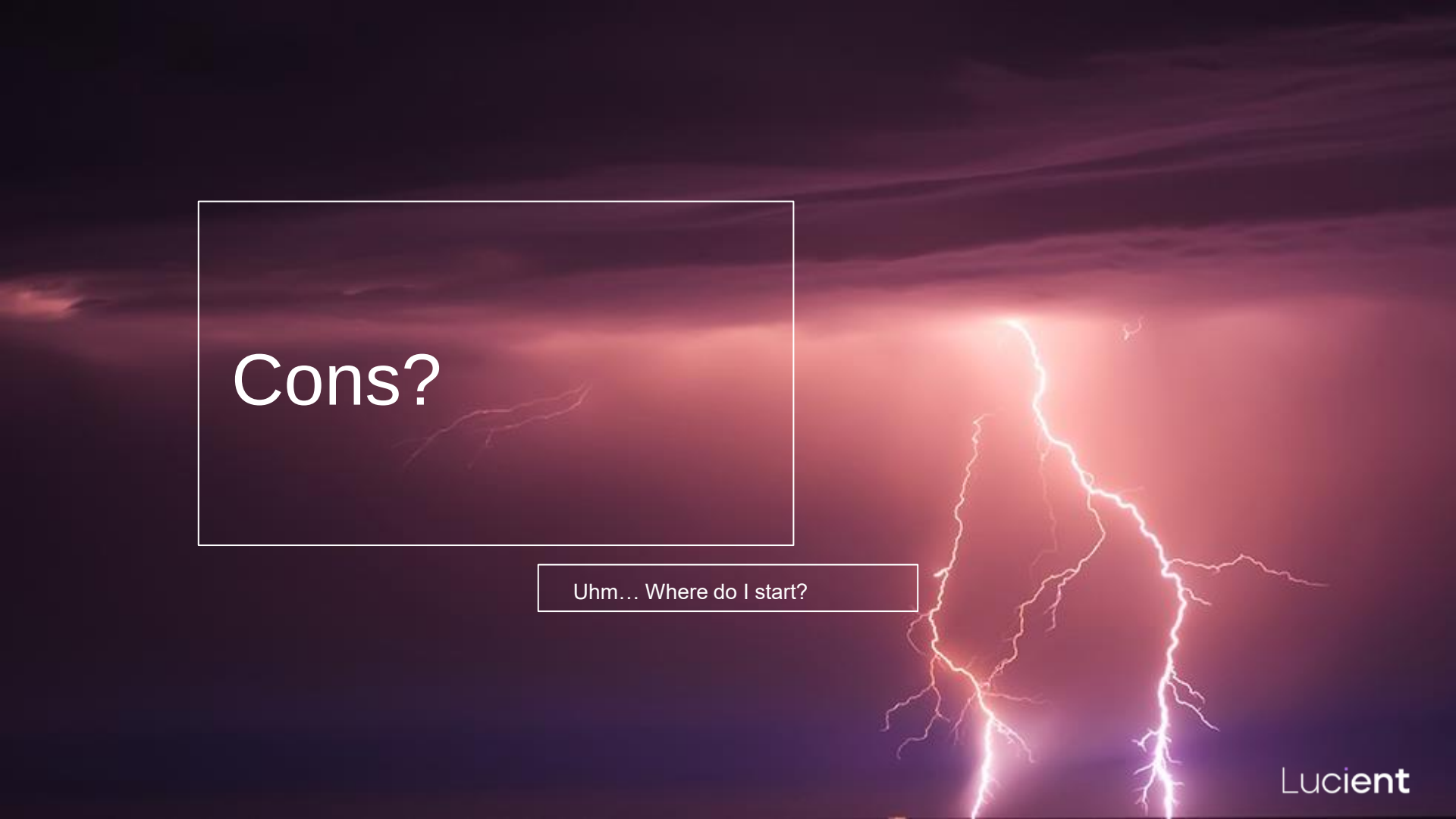
Pros of this solution

- Free
- Quick to install because it’s a Power BI template
- Compatible with all Power BI Gateway
- Allows to get insights from logging
- Data have already been prepared
- Power BI Teams can get insights without IT


Cons?
Uhm… Where do I start?
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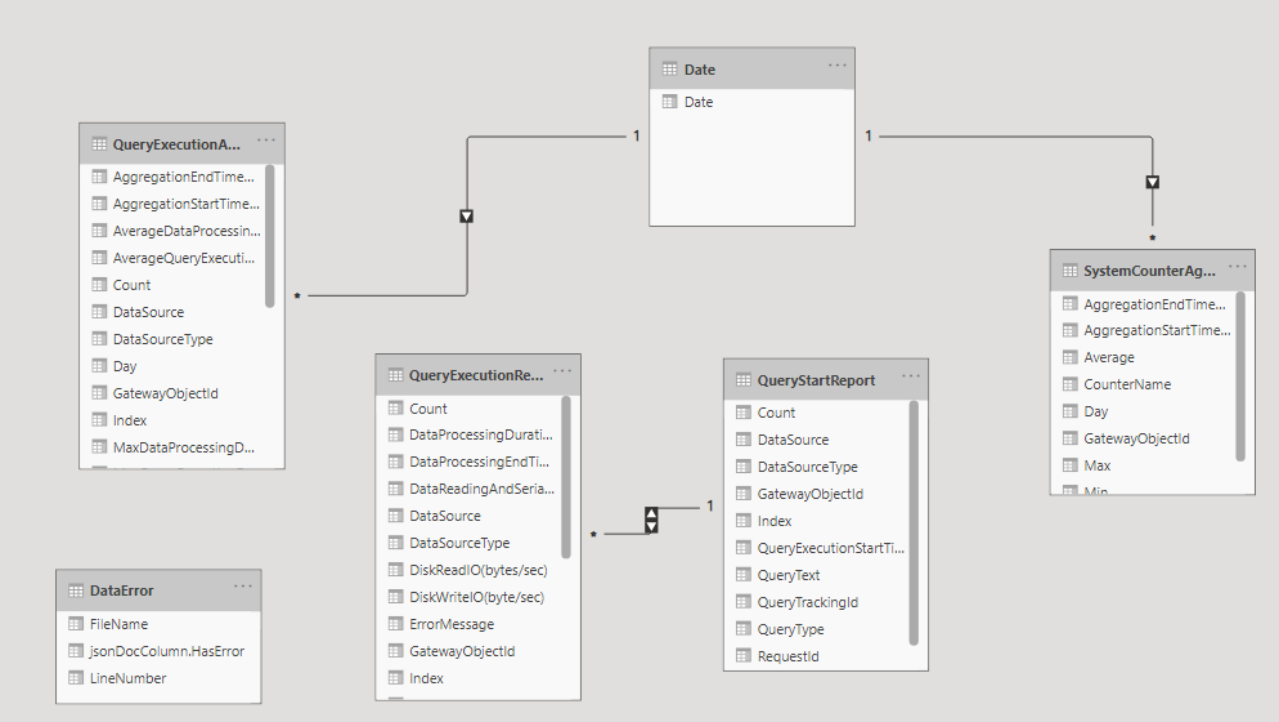
Modeling it’s not its strength

- No Dimensions
- Facts unrelated
- Calendar “in draft”
- No Measures
- No Time Table



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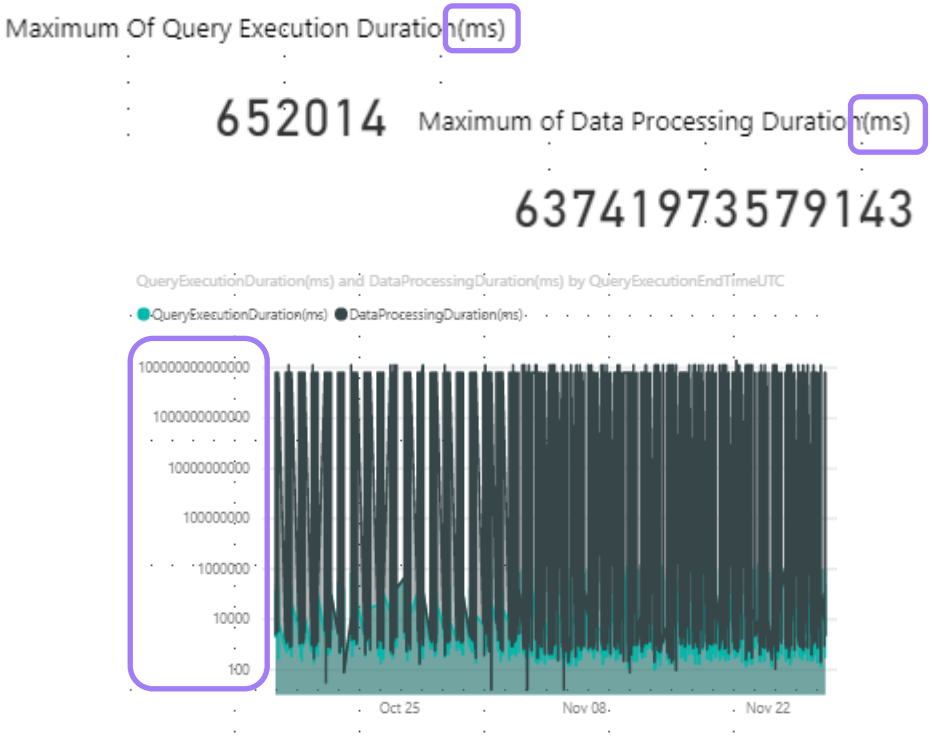
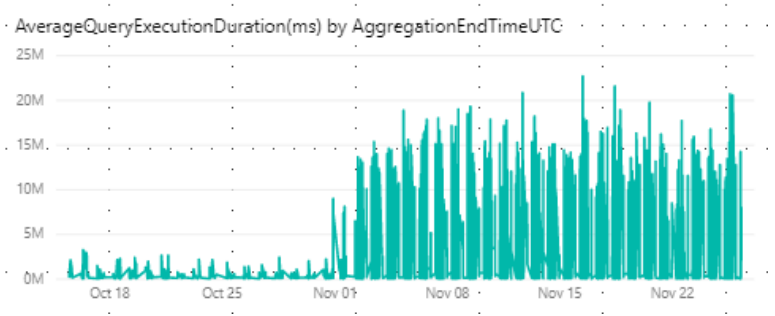
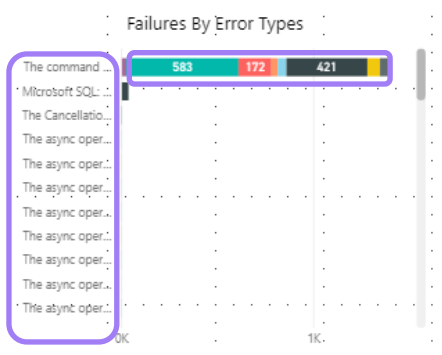
Bad modeling = Bad reports







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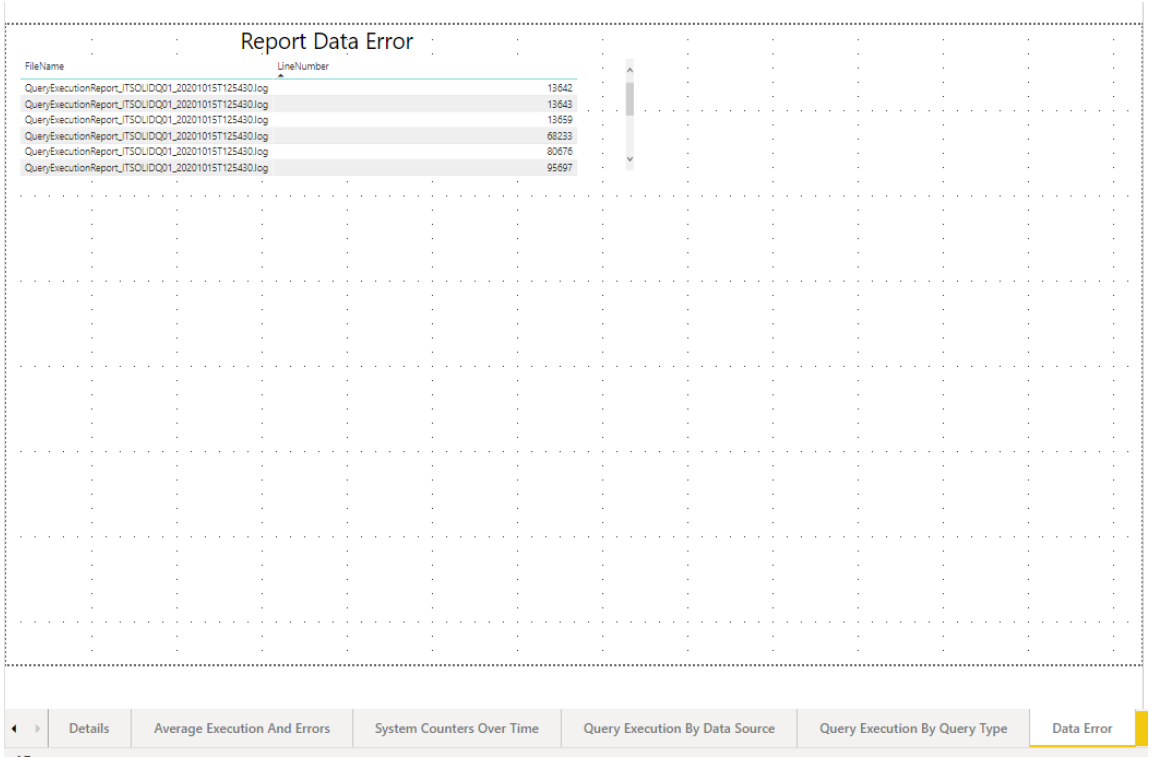
It stills in draft…



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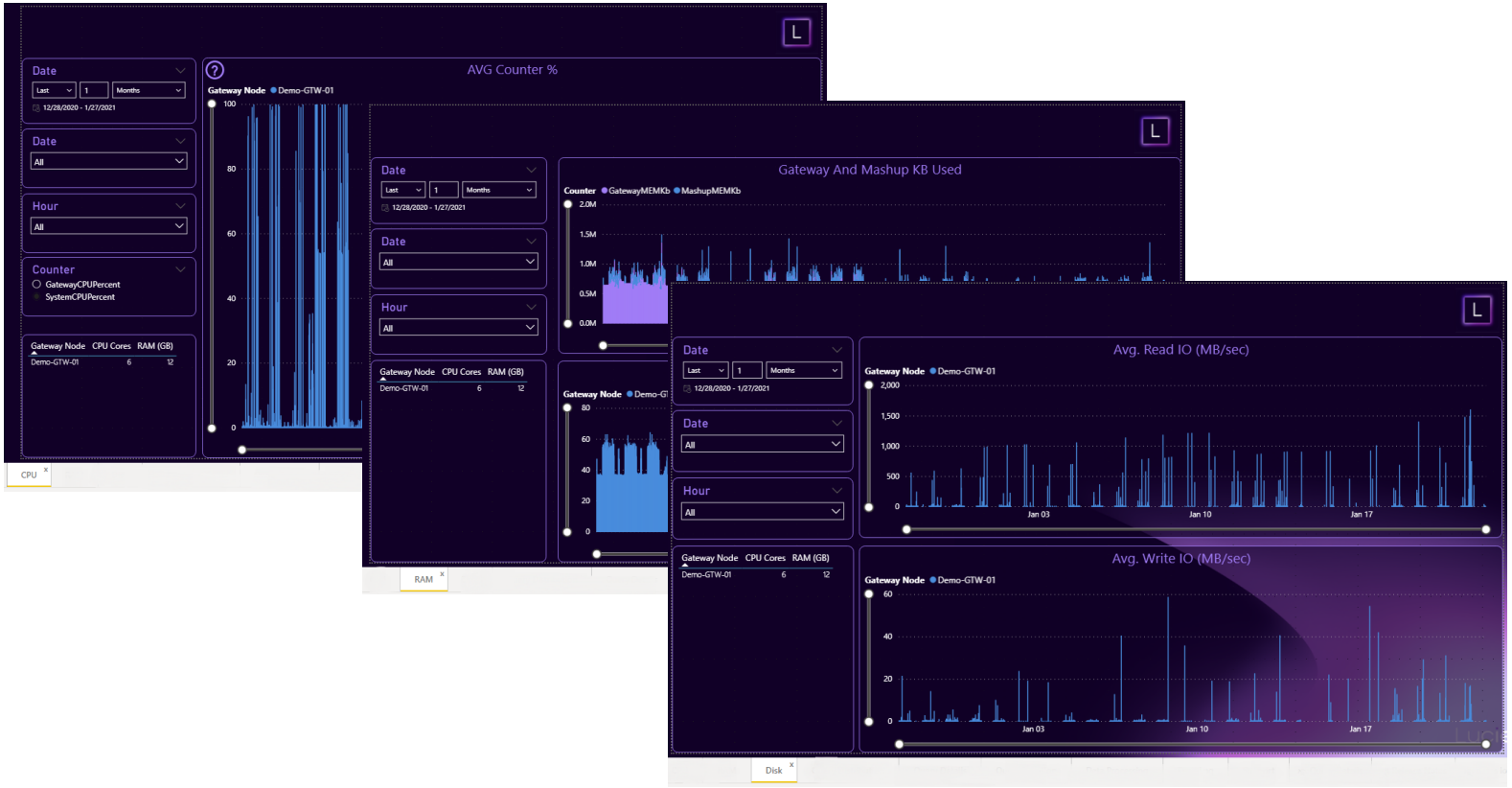
Can we leverage it?

Performance counters by topic



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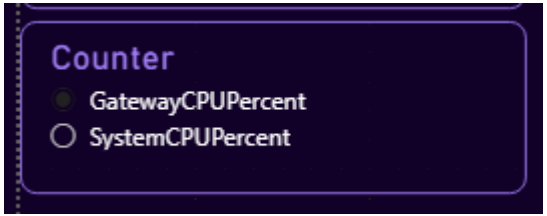
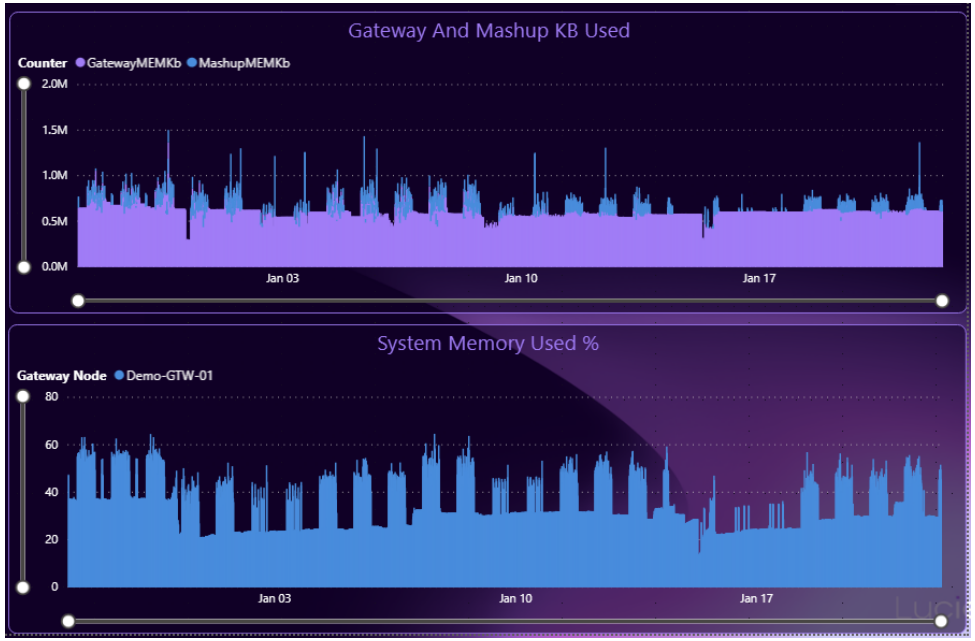
CPU Counters Improvements

- Gateway CPU Percent Normalized using CPU cores number
- Counters Selection



RAM Counters… All at a glance



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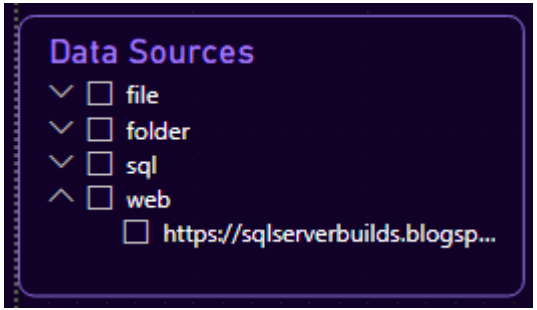
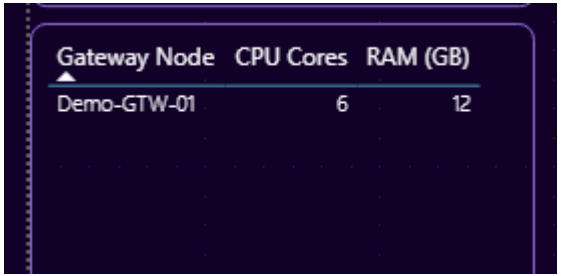
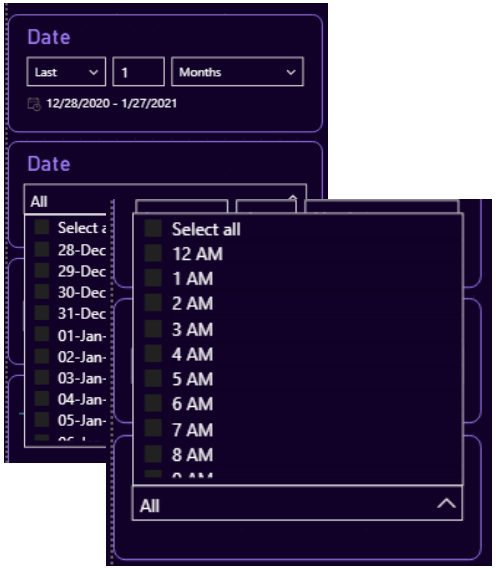
General Pros

- Better look and feel
- Better Data Sources management
- Multiple Gateway support
- Slicing and Dicing improved
- 99% based on standard logging file







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Query Distribution Analysis

- Queries per Type
- Queries per Day
- Queries per Hour
- Queries per Gateway

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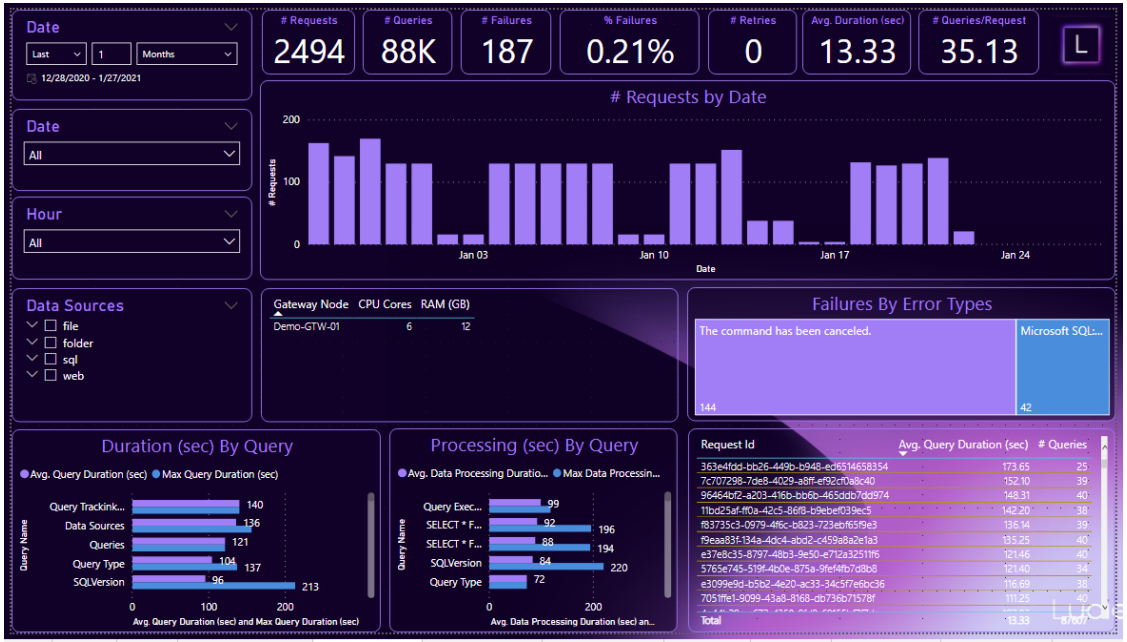
Query Details

- Queries per Request
- % Failures
- Which requests fail
- Query & Data Processing Durations



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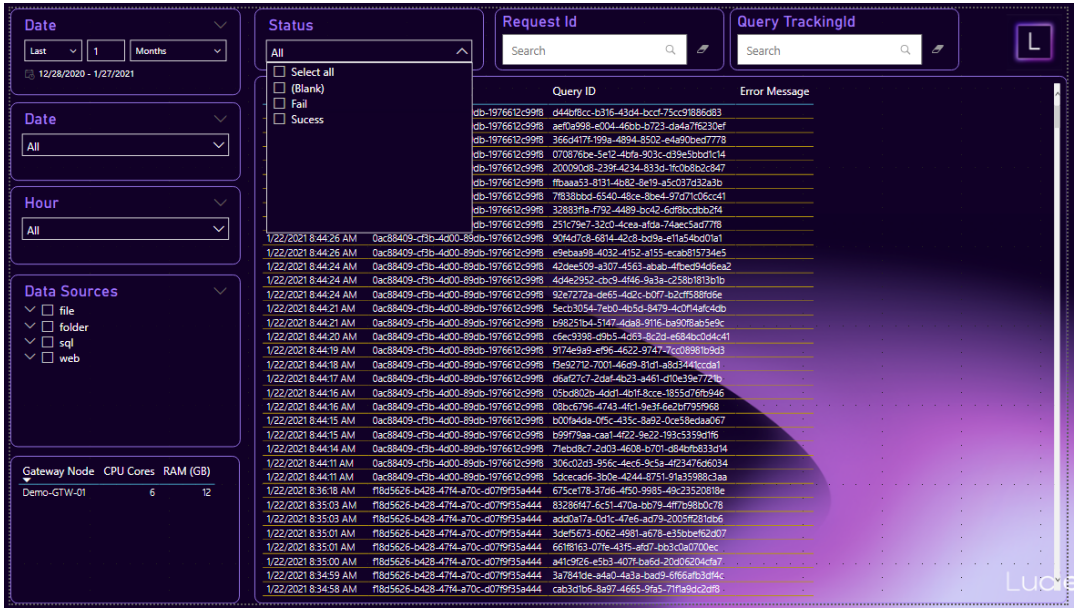
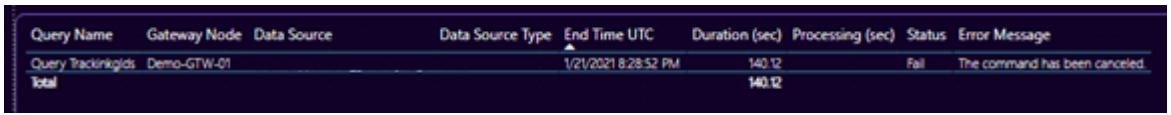
Error Log Analysis

- Search by Request ID
- Search by Query Tracking ID
- Slice and Dice the log
- Dig into requests to get more insights for errors





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Demo time…
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Any Questions?
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Thank You!

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