Fabric Tenant Monitoring
A DIY Approach

Just Blindbæk & Ásgeir Gunnarsson

Thank you to our Fabric February Friends!

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Co-owner of Data Lab ApS

In BI since 2007

Co-author of Pro Microsoft Power BI Administration

Co-organizer of Data Platform Next Step, Power BI Next Step and Power BI Cruise

Agenda

- Setting the scene and the overall architecture
- Ingest the information with Data Pipelines
- Prepare the information with Spark
- Alternative solutions

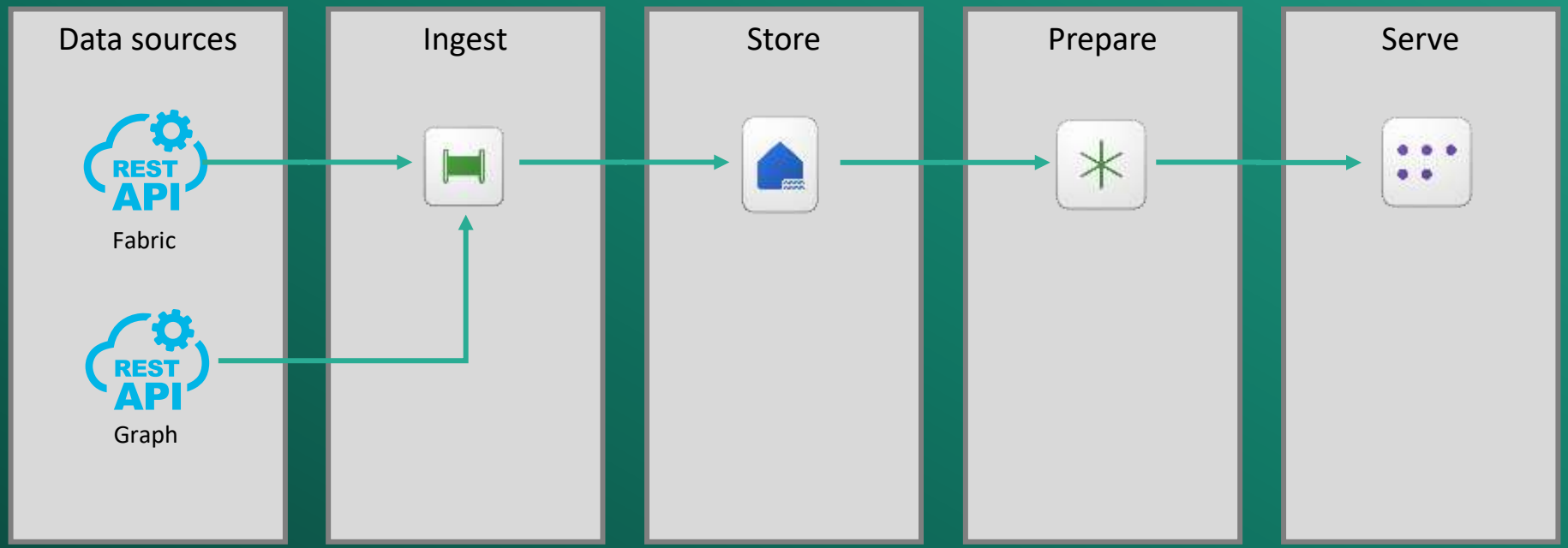
Architecture

A complete solution to ingest and prepare

- Fabric activity/audit events
- Fabric artifacts metadata – the tenant catalogue
- Fabric tenant settings

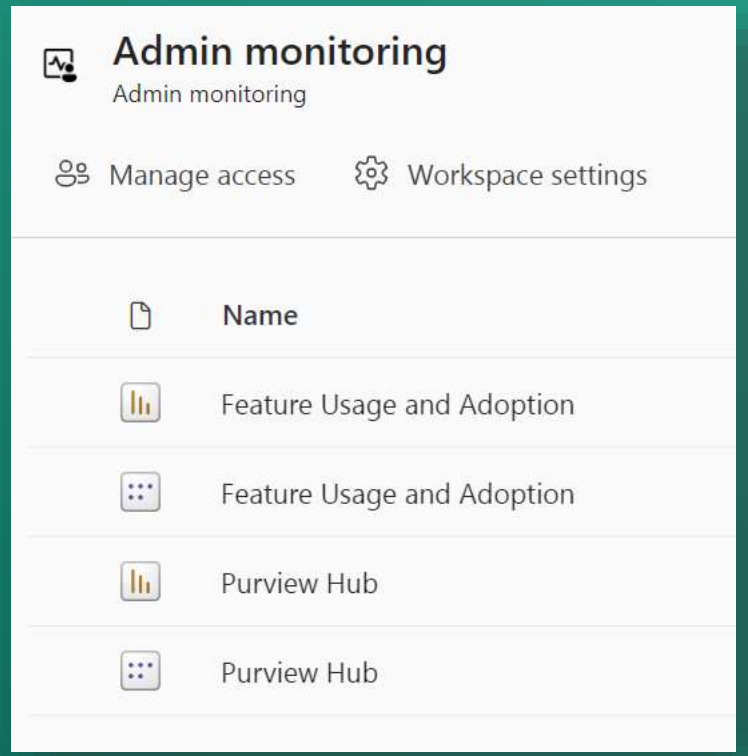
- Extra: Microsoft Graph data (users, groups, licenses)

Architecture



Fabric monitoring options from Microsoft

- Capacity usage metrics
- Monitoring hub
- Admin monitoring workspace



Ingestion & Store

Access to the data: pre-req setup

- Create a Service Principal (App Registration)
- Create a new Security Group in Azure Active Directory
- Add the Service Principal as a member of the security group
- Enable service principal authentication for read-only admin APIs in Admin Tenant Settings and add the security group
- *Optional: Enable the Enhance admin APIs responses with "detailed metadata" and "DAX and mashup expressions"*

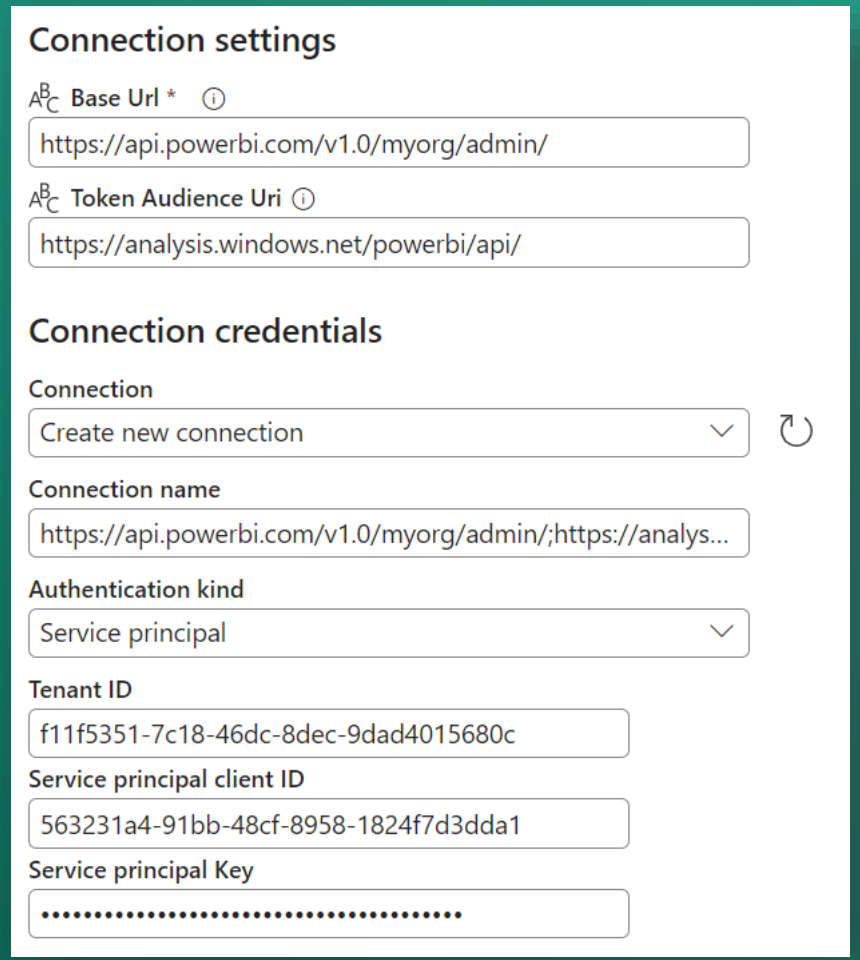
Connection settings

Type: REST (Web V2)

Base URL:
https://api.powerbi.com/v1.0/myorg/admin/

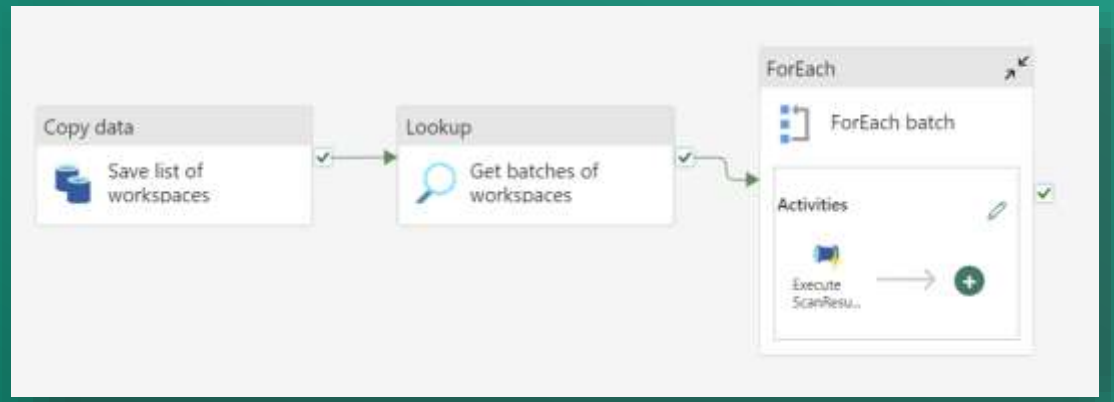
Token Audience Uri:
https://analysis.windows.net/powerbi/api

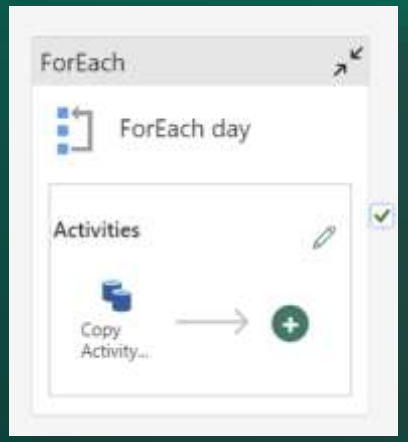
Authentication kind: Service Principal

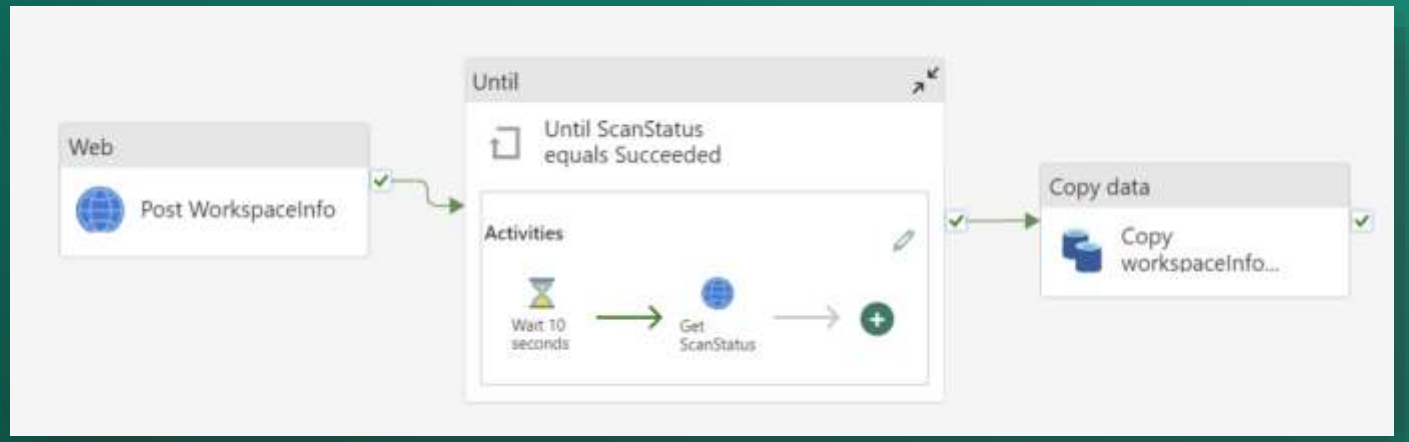


Ingest with Data Factory Pipelines

Name	Type
PL_FabricGetTenantSettings	Data pipeline
PL_PowerBIGetActivityEvents	Data pipeline
PL_PowerBIWorkspaceInfo	Data pipeline
PL_PowerBIWorkspaceInfoScanResult	Data pipeline







Prepare & Serve

Starting point

Getting the data in is the first step

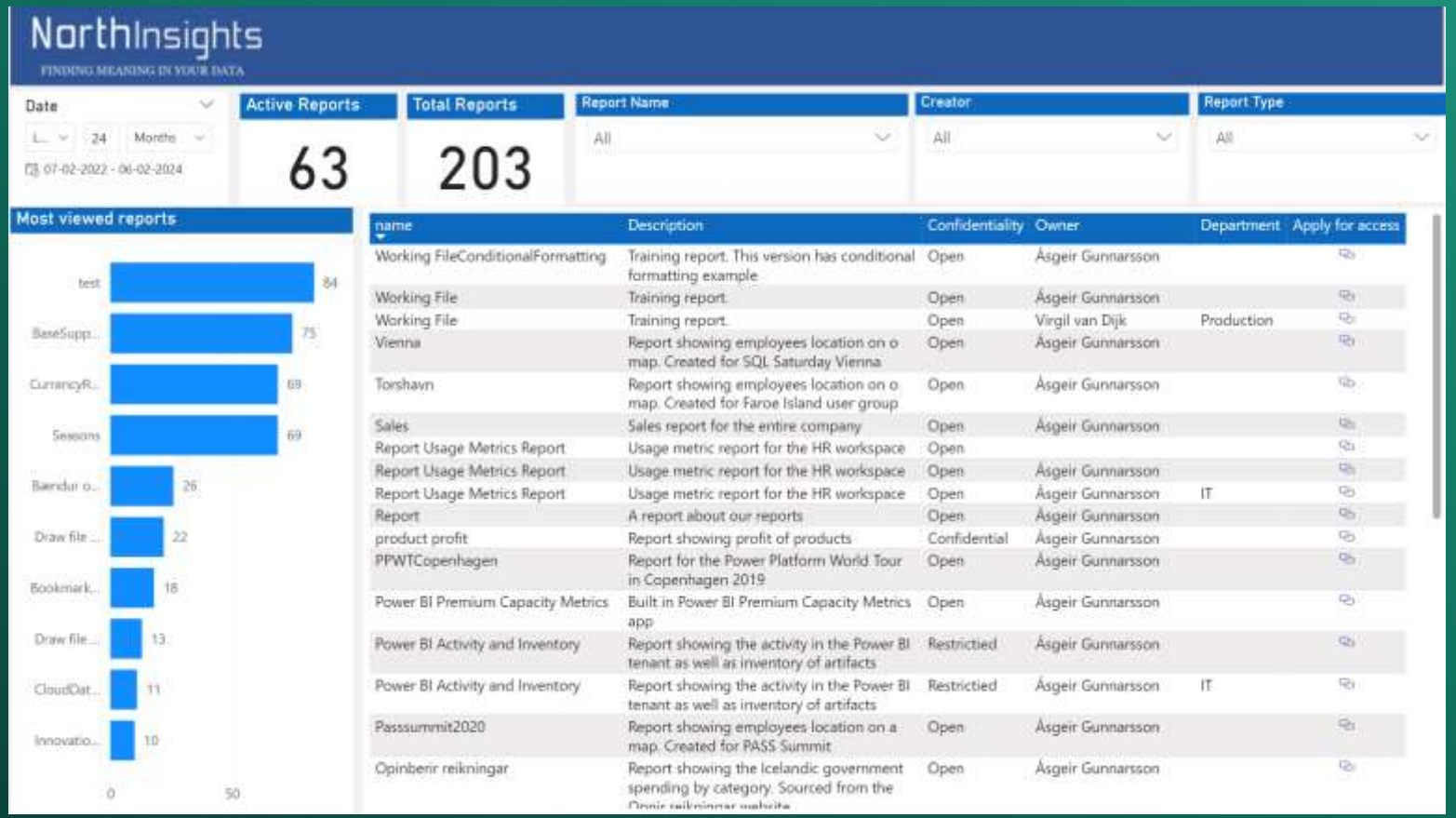
Now you need to make information out of it

Ideally a star schema to be consumed in Power BI

From this

It´s ~50.000 lines for 3 days in Just´s small tenant

To this


NorthInsights
FINDING MEANING IN YOUR DATA
Date
07-02-2022 - 06-02-2024
Active Reports
63
Total Reports
203
Report Name
All
Creator
All
Report Type
All
Most viewed reports
test 84
BaseSupp... 75
CurrencyR... 68
Seasons 69
Bændur o... 26
Draw file ... 22
Bookmark... 18
Draw file ... 13
CloudDat... 11
Innovatio... 10
0
50
name
Description
Confidentiality
Owner
Department
Apply for access
Working FileConditionalFormatting
Training report. This version has conditional formatting example
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Report showing employees location on o map. Created for SQL Saturday Vienna
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Usage metric report for the HR workspace
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A report about our reports
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Power BI Activity and Inventory
Report showing the activity in the Power BI tenant as well as inventory of artifacts
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IT
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Report showing employees location on a map. Created for PASS Summit
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Opinberir reikningar
Report showing the Icelandic government spending by category. Sourced from the
Open
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Issues faced

Relationships

- One workspace has many reports that has one or more semantic models (datasets) which have one or more reports and one or more data sources which may or may not feature in a report
- A user can have access workspace or one or more items

Data quality issues

Different implementations for different workloads

Problem illustrated

1 Workspace can have

0:n reports can have

1:n semantic models can have

0:n reports

Problem illustrated

1 Workspace

can have

0:n reports

can have

1:n semantic models

can have

0:n reports

Has access to workspace

Problem illustrated

1 Workspace can have

0:n reports can have

1:n semantic models can have

0:n reports

Has access to report

Problem illustrated

1 Workspace

can have

0:n reports

can have

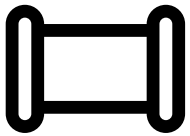
1:n semantic models

can have

0:n reports

Has build access to semantic model

Problem illustrated



Pipeline has dependencies – but what are they

ABC relations_dependentOnArtifactId	ABC relations_relationType	ABC relations_settingsList	ABC relations_usage	ABC relations_workspaceId
a54ce657-99a4-4d1c-ab79-6efe90e7b24d	Association	None	Association	7781b9ea-fe42-4c23-aa53-bf9476c4c15b

Data model

It´s difficult to model the data

One big complex model?

Multiple smaller simpler models?

Data model

IT DEPENDS

Data model

I lean towards multiple smaller models

Fact table for each workload

Separat models for activities and other non inventory data

Alternatives

Alternative solutions

- Admin monitoring workspace
- Ingest with Azure Data Factory
  - https://github.com/justBlindbaek/PowerBIMonitor
- Ingest with PowerShell
  - https://github.com/RuiRomano/pbimonitor
- Prepare with Dataflows
- Paid solutions
  - Argus PBI: Service to monitoring the whole-tenant for Power BI.
  - Power BI Sentinel: Service with Governance, Auditing and Disaster Recovery for Power BI and Fabric.

Thank you!

Share your **feedback** in **any language** using **voice** or **text**!

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