Optimizing Your Power BI Workflow

with Project Files, Source Control, and TMDL

Nicky van Vroenhoven | Daan Humblé

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1 review = 1 €

Towards beating pancreatic cancer



Your PC ran into a problem and needs to restart. We're just collecting some error info, and then we'll restart for you.

20% complete



For more information about this issue and possible fixes, visit https://www.windows.com/stopcode

If you call a support person, give them this info:

Stop code: CRITICAL_PROCESS_DIED

Optimizing Your Power BI Workflow

Common Power BI developer challenges

- Messy and Disorganized Project Files
- Challenges with Collaboration
- Difficulty in Tracking Changes
- Manual and Error-Prone Deployment Processes
- Complex Semantic Models and Reports

Nicky van Vroenhoven



powerdobs

Unit Lead Fabric & Power BI

sessionize /nicky-van-vroenhoven

/NickyvV

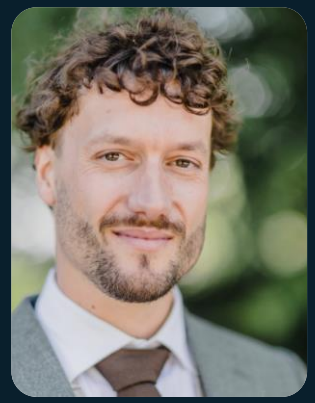
nickyvv.com

/in/nickyvanvroenhoven

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Data Platform MVP

Daan Humblé



Microsoft

Cloud Solution Architect Data & AI

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/in/daanhumble

Optimizing Your Power BI Workflow
Objectives

Power BI as code	Git & Azure DevOps	Deployment pipelines
Understand the technical concepts of working with PBIP and TMDL (and PBIR)	Learn how to connect your Power BI Desktop to Power BI Service via Azure DevOps and Git	Structure your (team's) process by organizing your deployments

Optimizing Your Power BI Workflow

Benefits

- Recover lost work
- Enable Team Collaboration
- Track changes over time
- Manage Complex Semantic Models and Reports
- Automate Semantic Model and Report Deployment

But first, some theory

Source Control & Version Control

Git

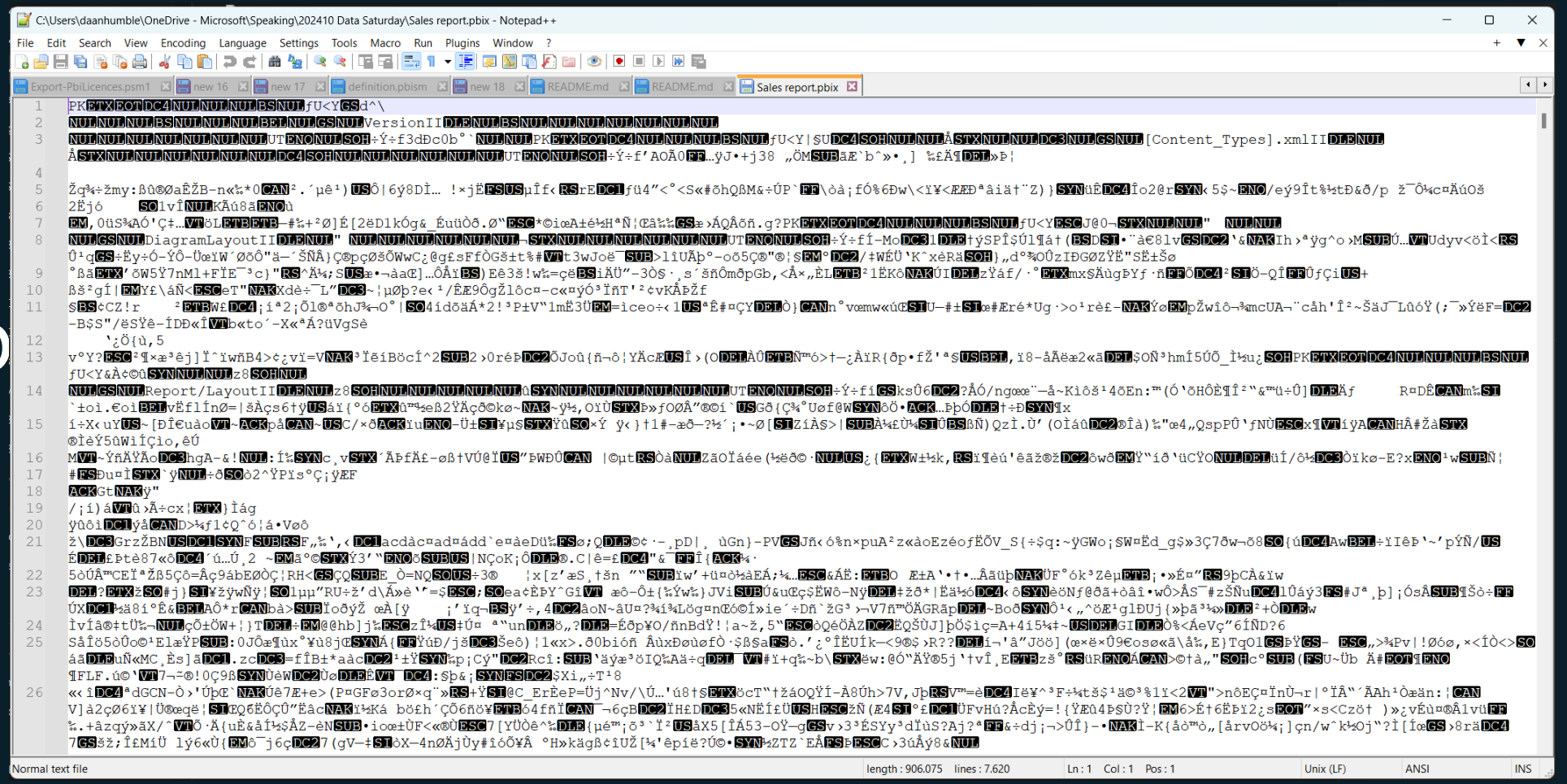
Azure DevOps
(or GitHub)

Deployment

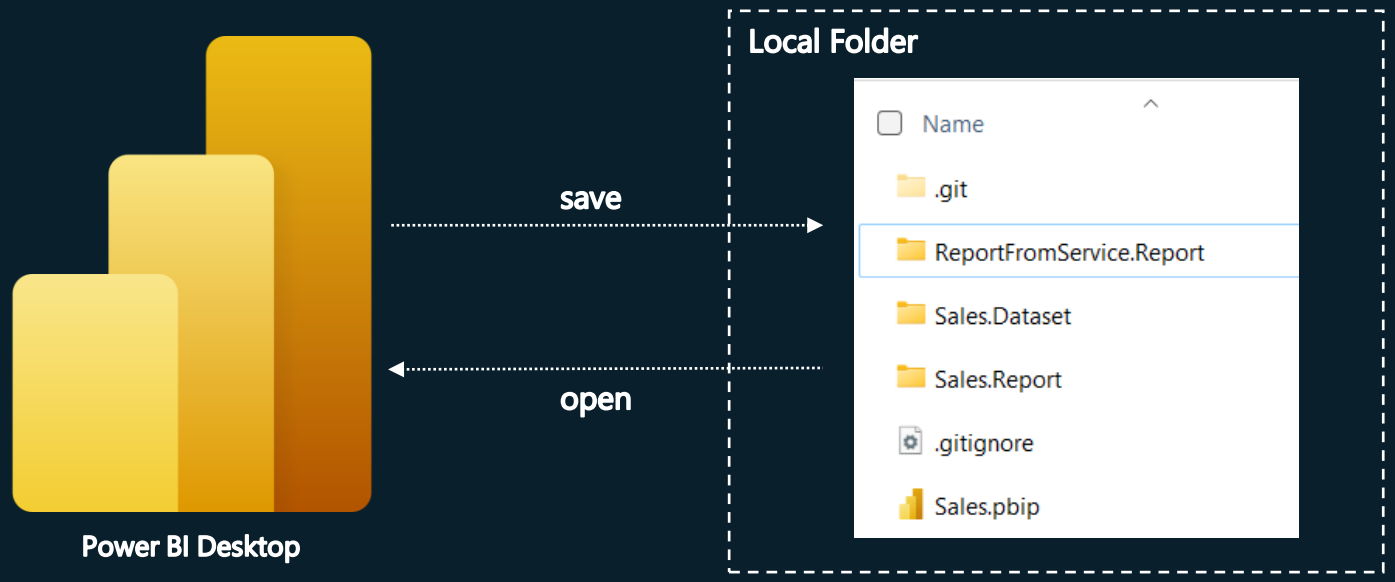
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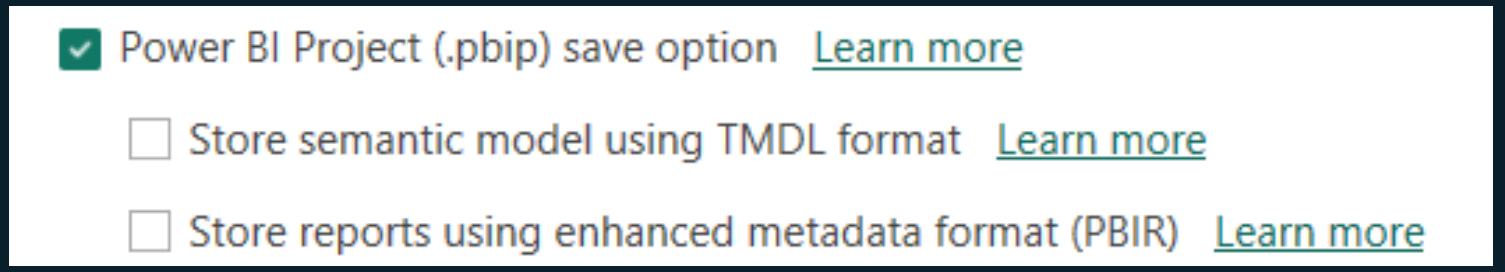

C:\Users\daanhumble\OneDrive - Microsoft\Speaking\202410 Data Saturday\Sales report.pbix - Notepad++
File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?
Export-PbiLicences.psm1
new 16
new 17
definition.pbism
new 18
README.md
README.md
Sales report.pbix
Normal text file
length : 906.075 lines : 7.620
Ln : 1 Col : 1 Pos : 1
Unix (LF)
ANSI
INS

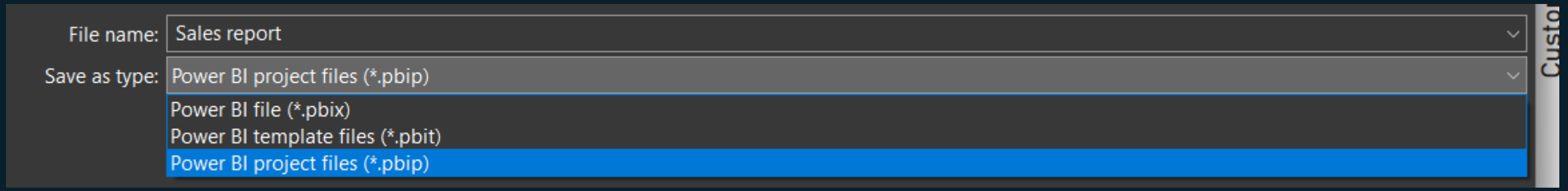
Power BI as Code



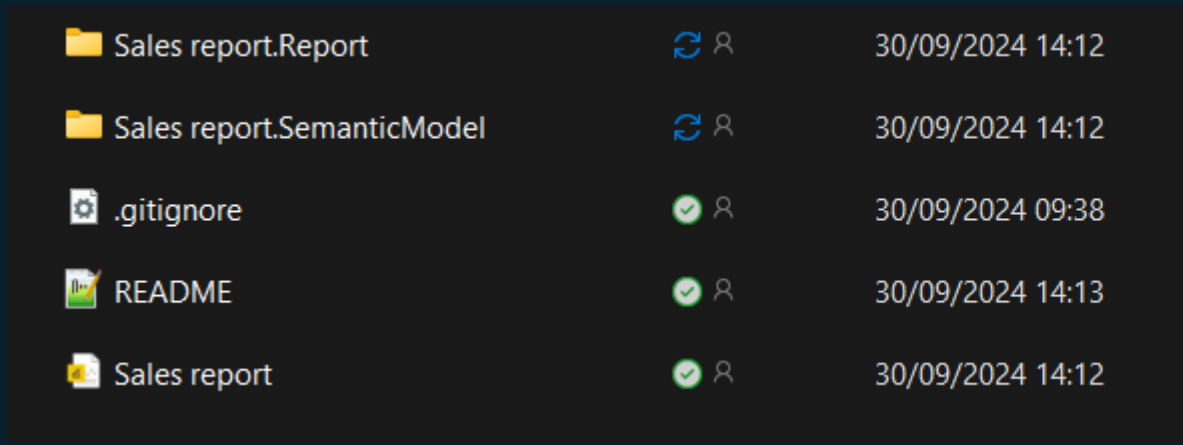
Power BI Project-files or ‘pbip’

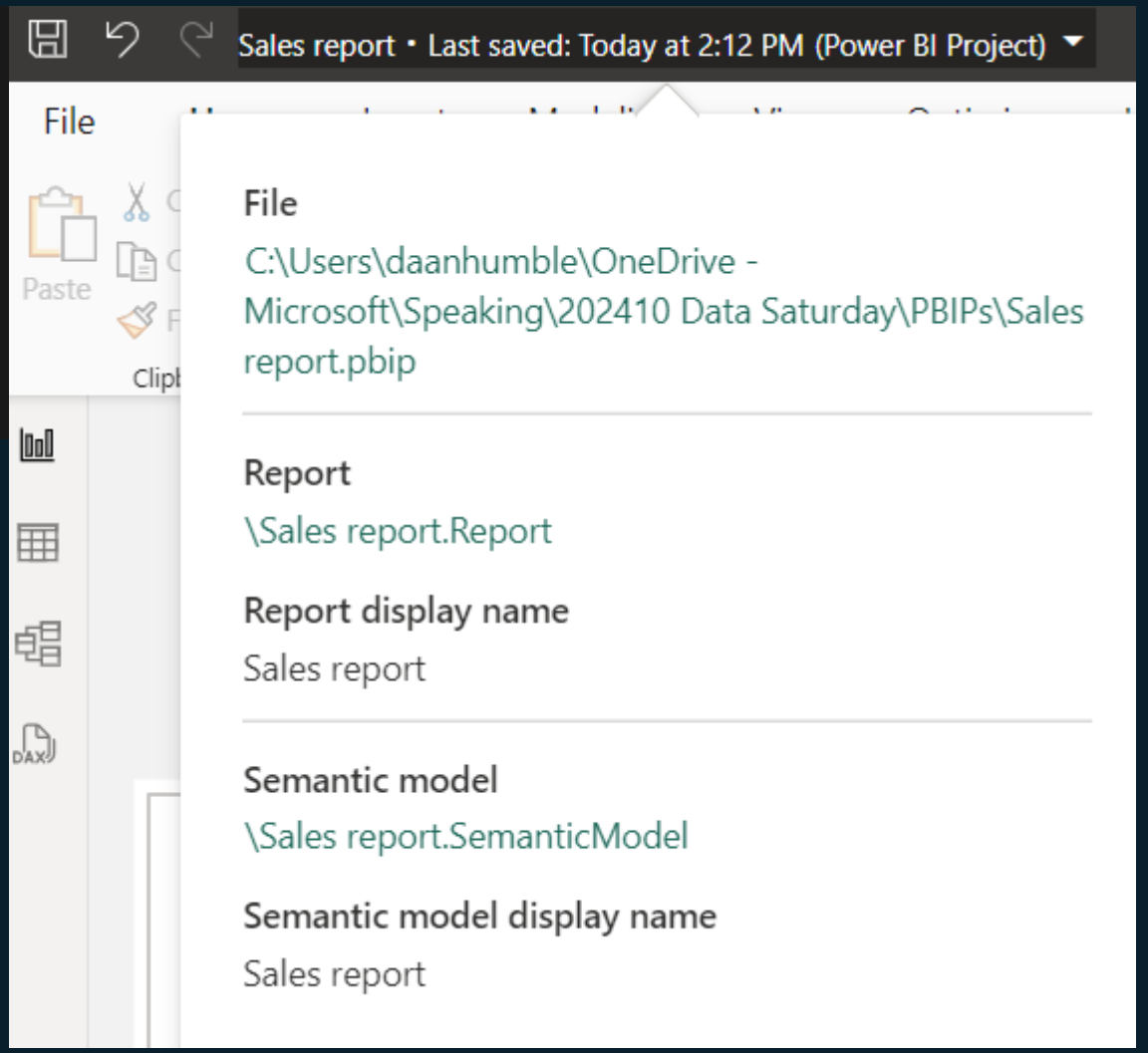
Power BI Project-files or ‘pbip’





Power BI Project-files or ‘pbip’





DEMO

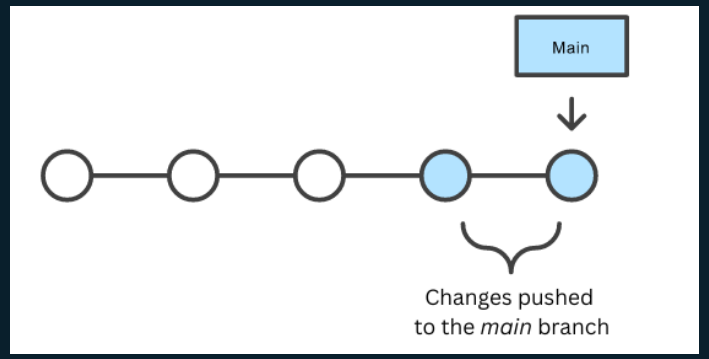
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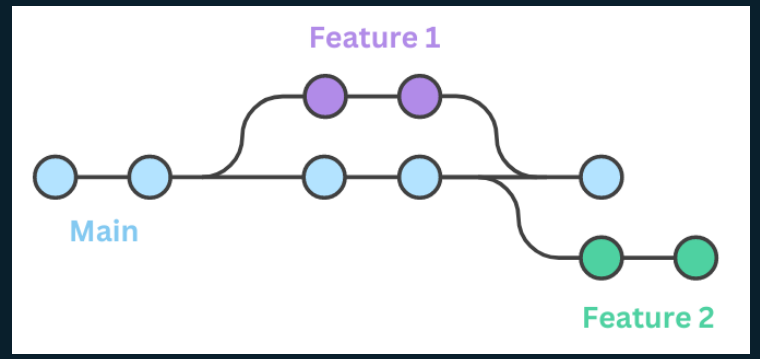
Source Control

Adopt professional development with branching

Trunk-based development



Feature branching

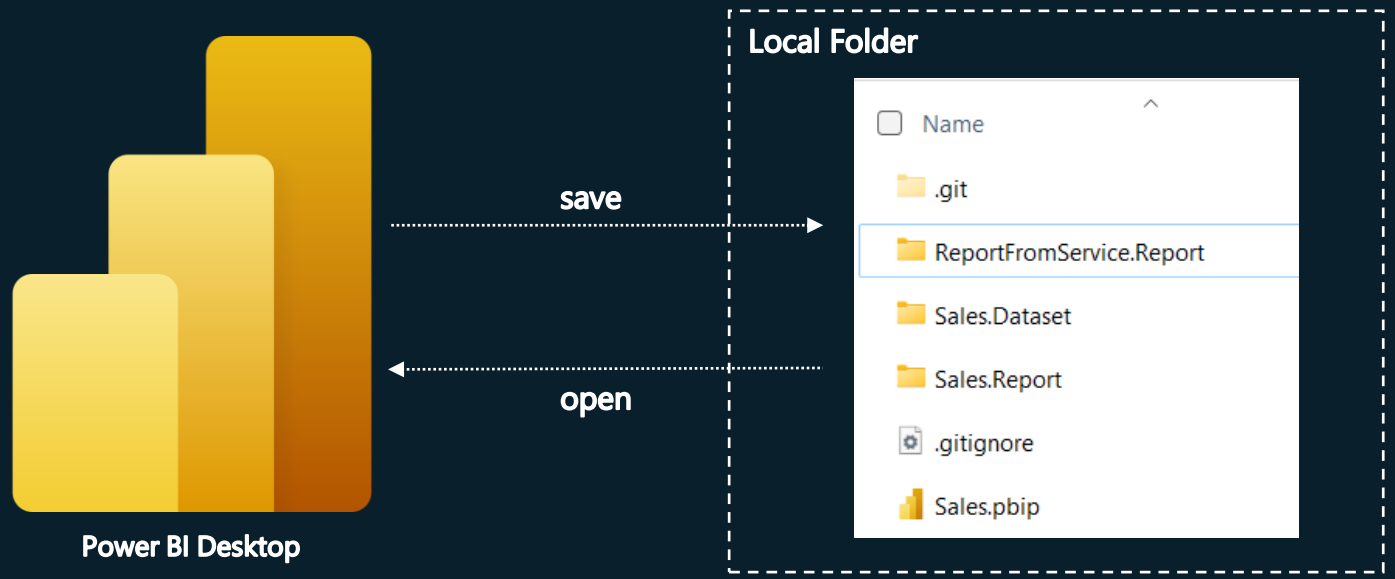


Visual Studio Code

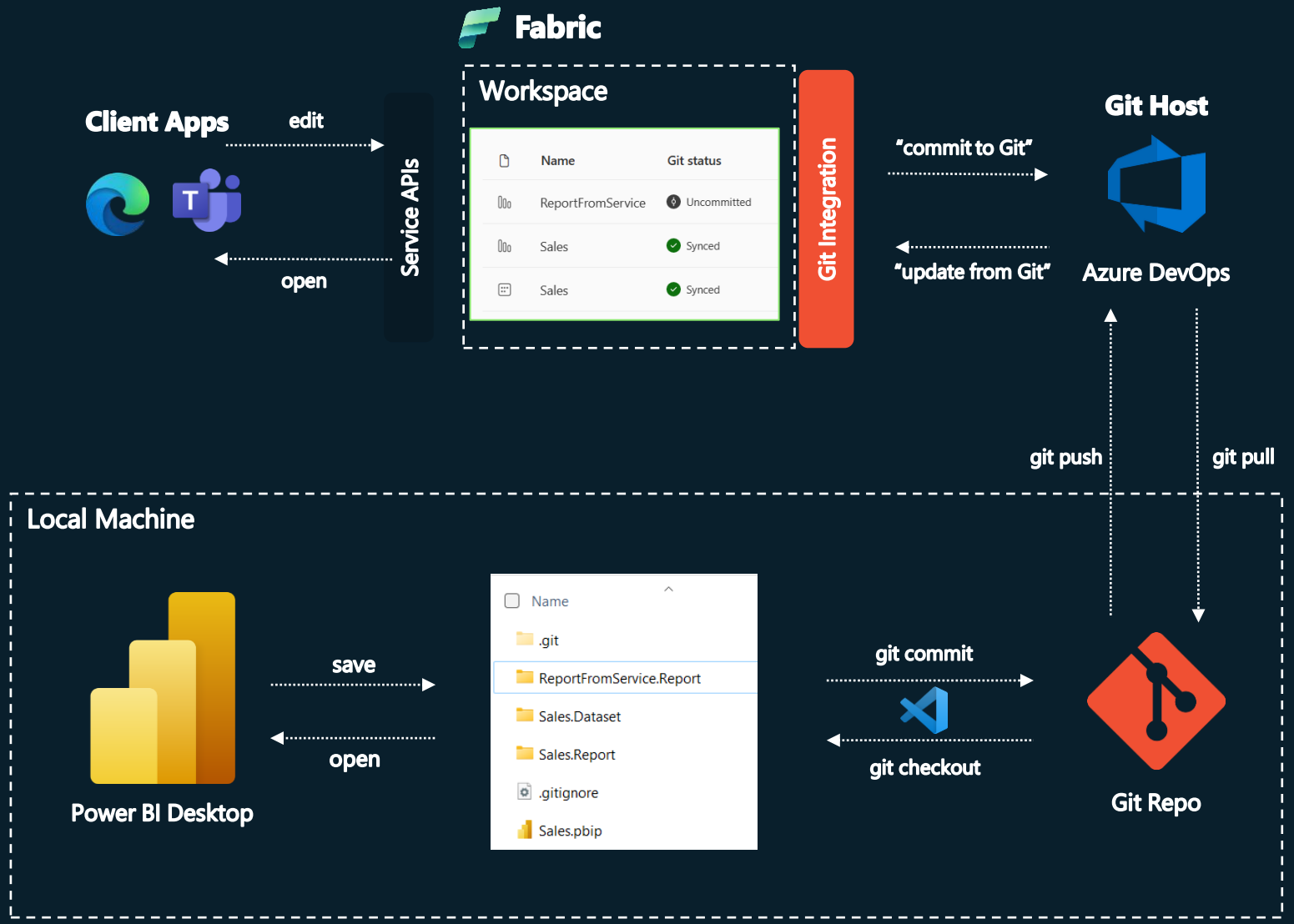
Azure DevOps

Every organization should settle on a standard branching flow to ensure consistency across teams.

Power BI & Git


Local Folder
Name
.git
ReportFromService.Report
Sales.Dataset
Sales.Report
.gitignore
Sales.pbip
save
open
Power BI Desktop

Power BI & Git


Fabric
Workspace
Client Apps
edit
open
Service APIs
Name
Git status
ReportFromService
Uncommitted
Sales
Synced
Sales
Synced
Git Integration
"commit to Git"
"update from Git"
Git Host
Azure DevOps
git push
git pull
Local Machine
Power BI Desktop
save
open
Name
.git
ReportFromService.Report
Sales.Dataset
Sales.Report
.gitignore
Sales.pbip
git commit
git checkout
Git Repo

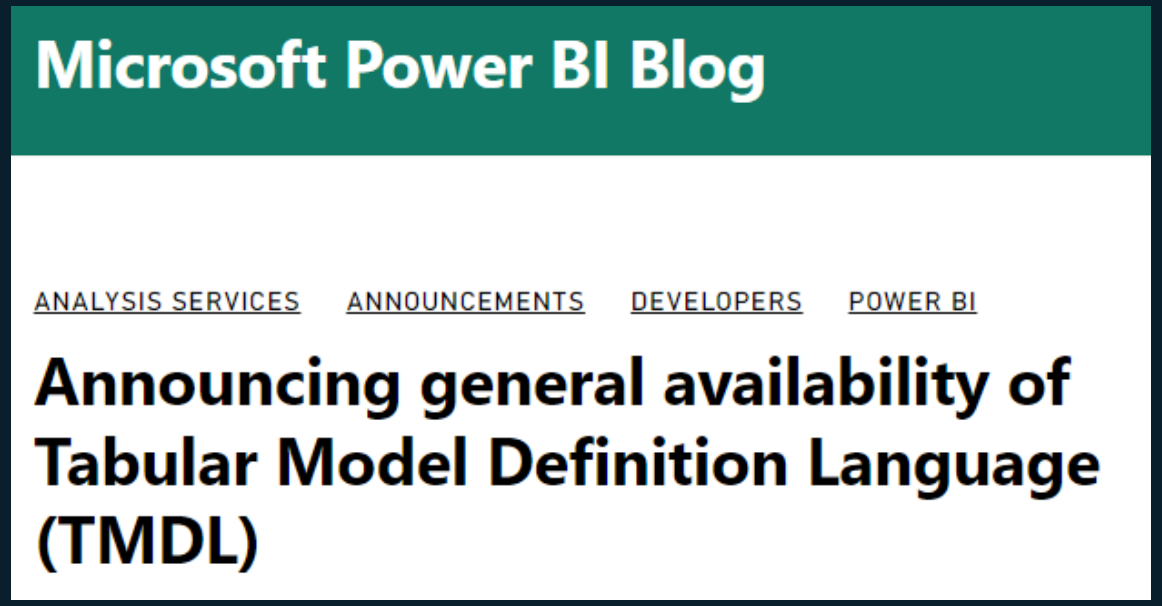
DEMO

Optimizing Your Power BI Workflow
Objectives

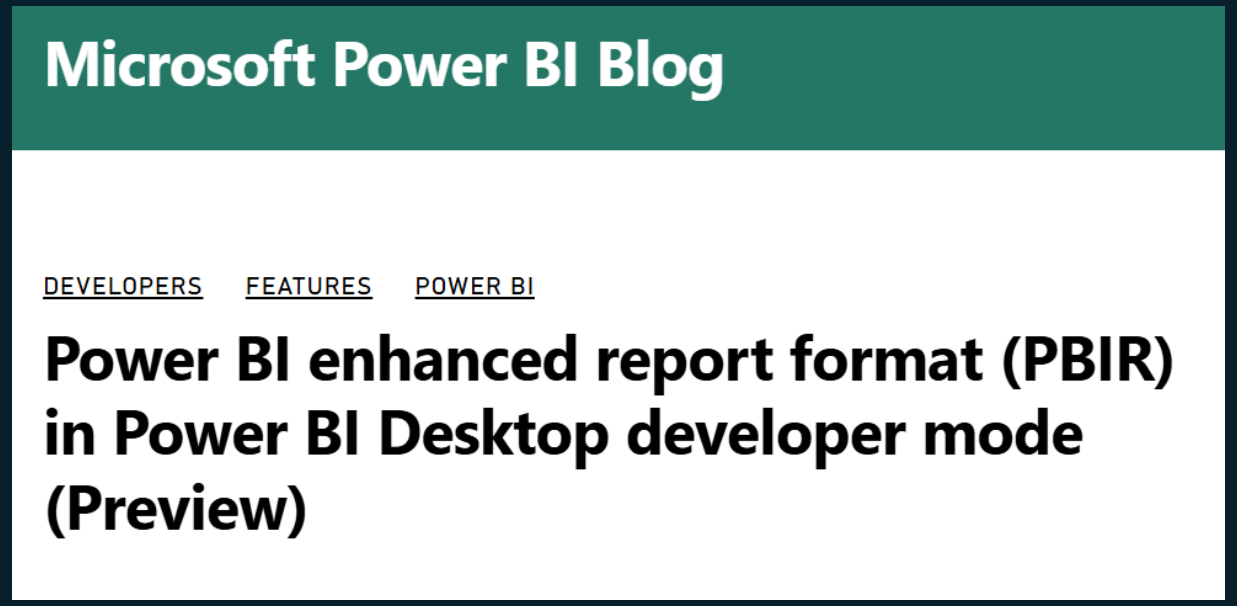
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Power BI as code

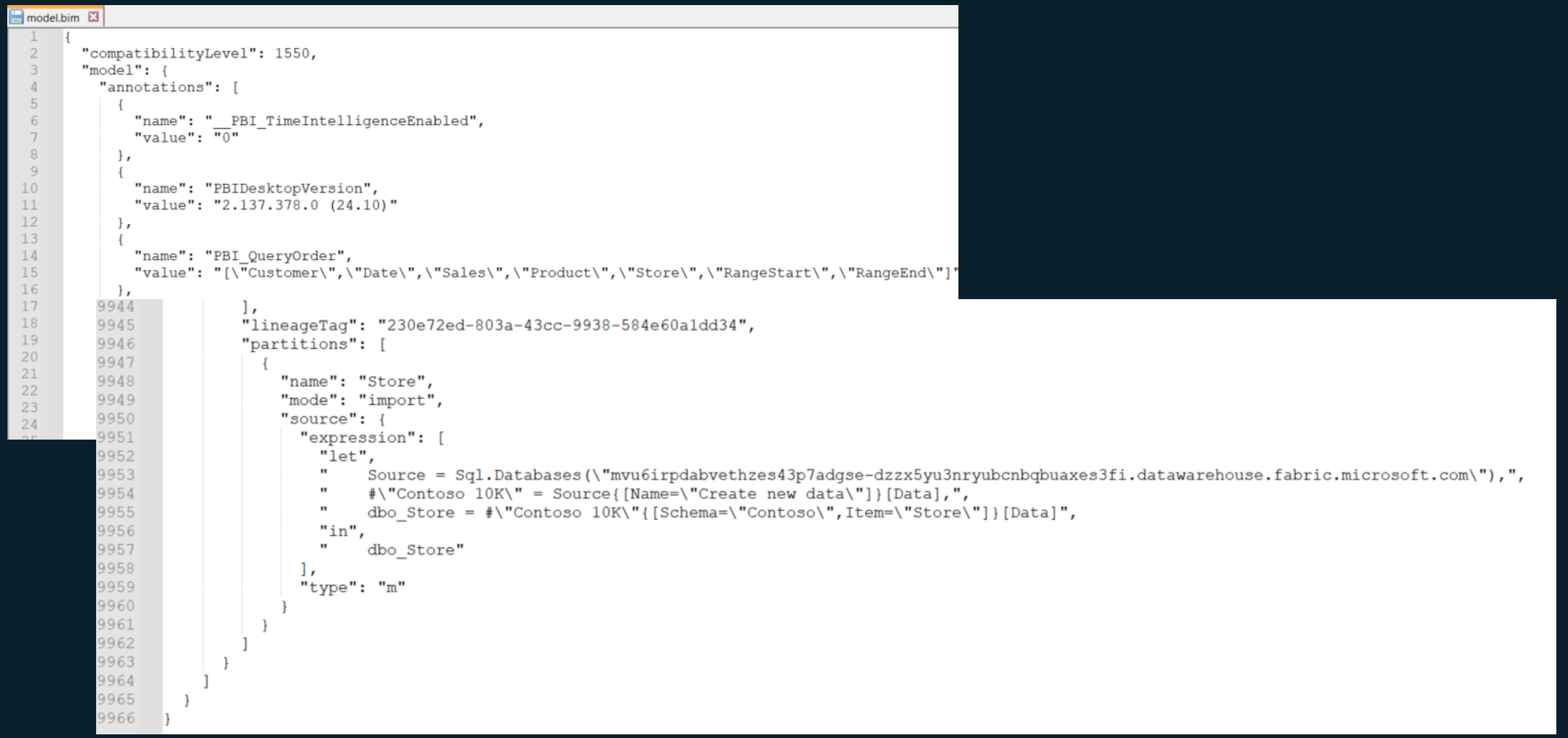
TMDL



PBIR



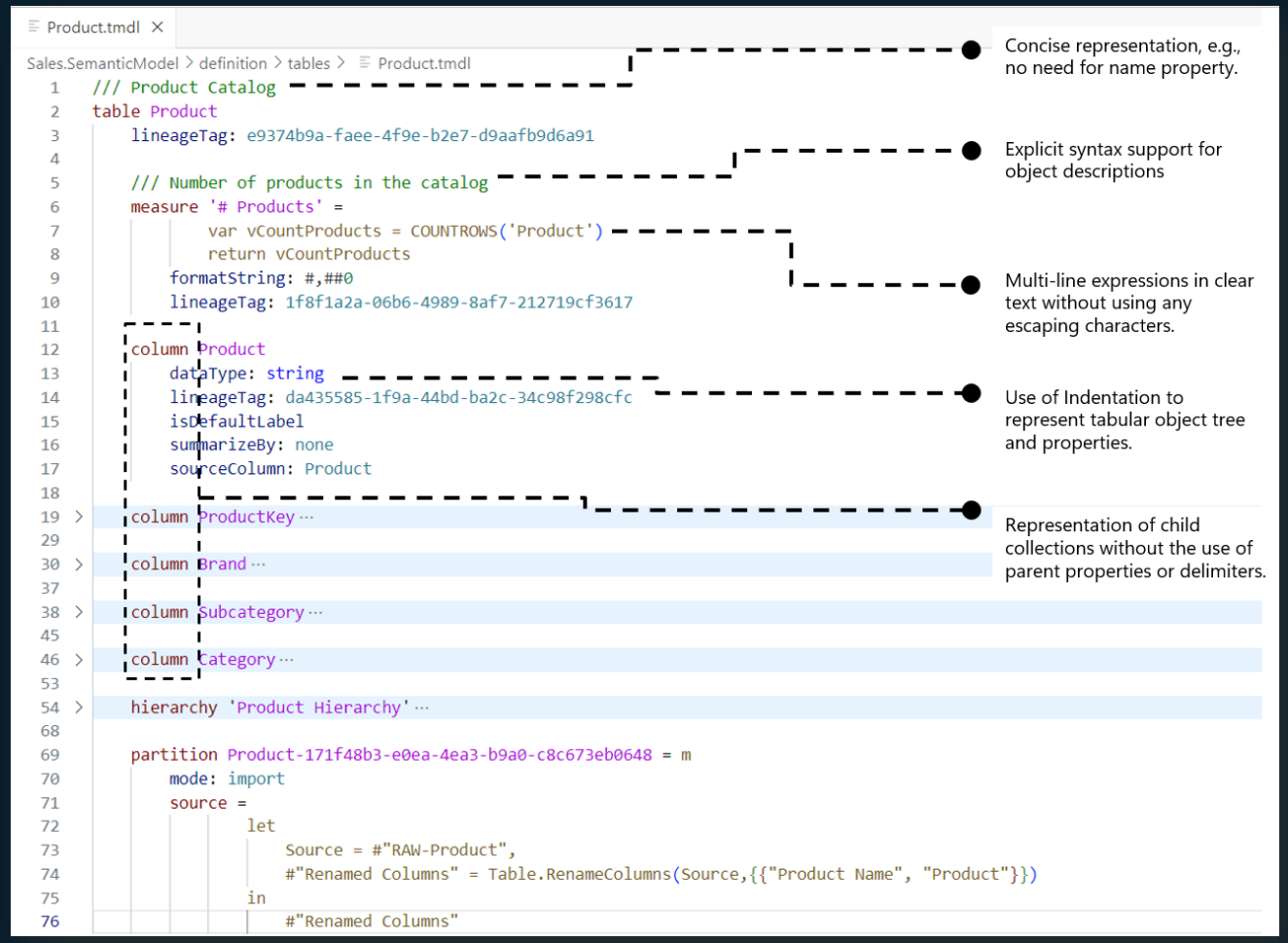
Tabular Model Definition Language



model.bim

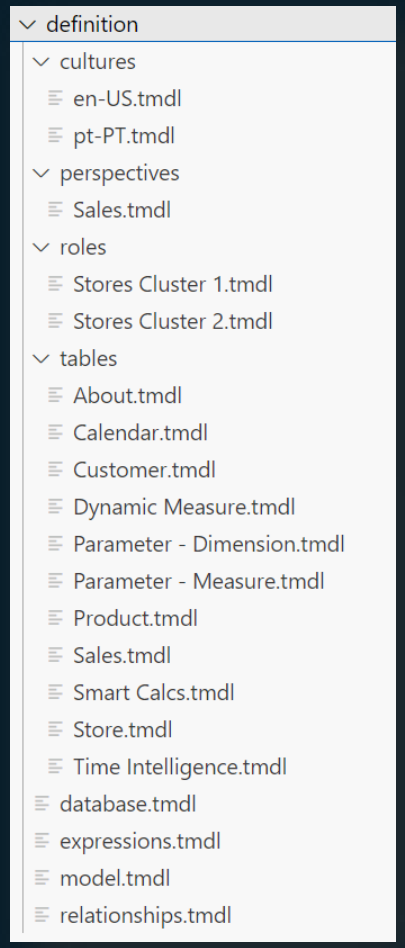
Tabular Model Definition Language

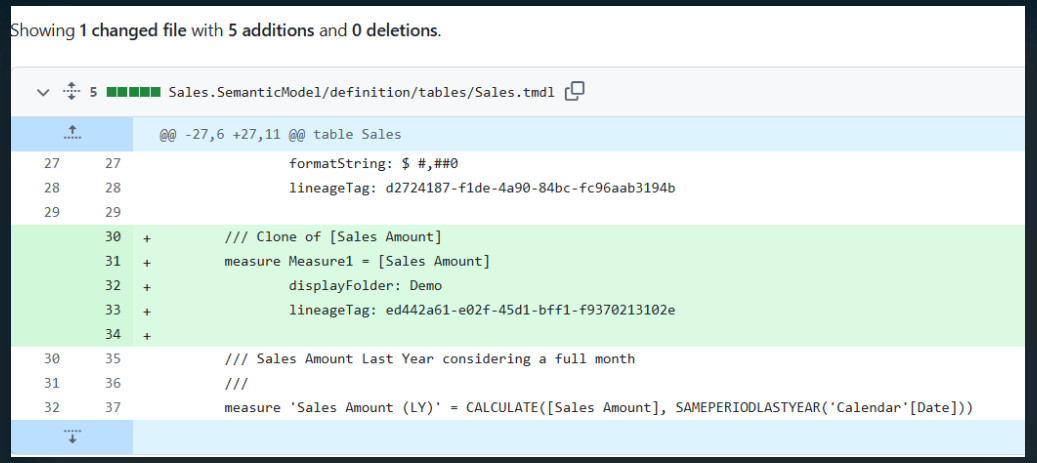
- **Readable** & **Editable** in any text editor



Tabular Model Definition Language

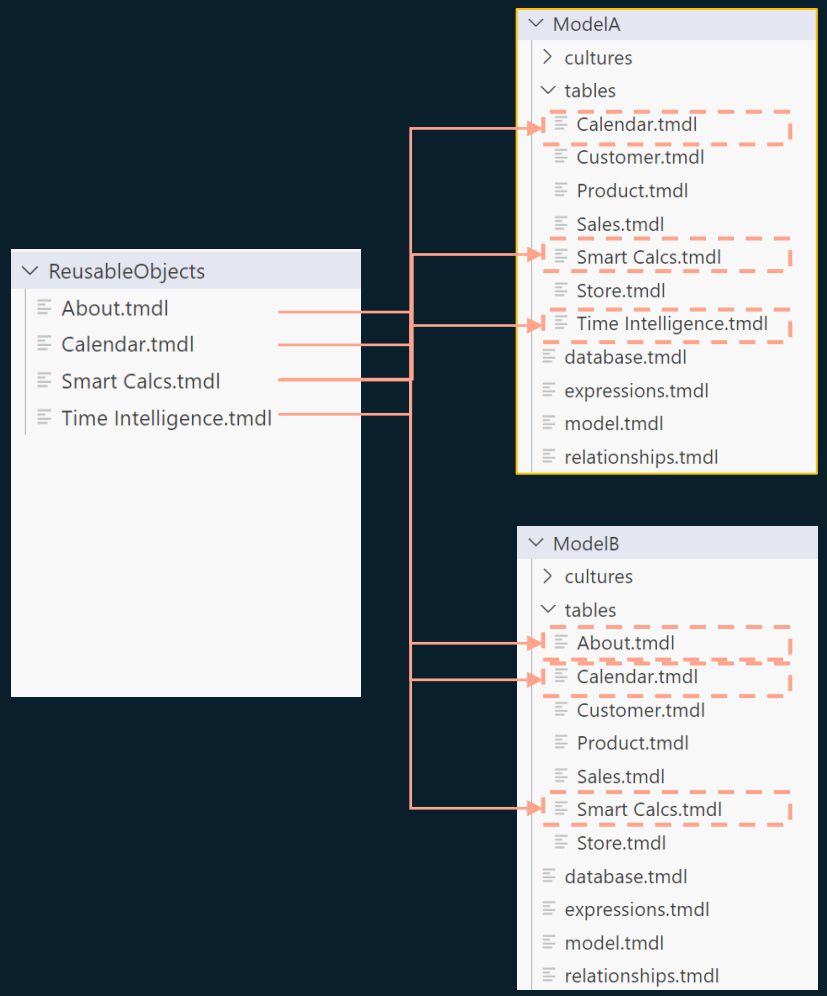
- **Readable** & **Editable** in any text editor
- **Collaborative** by default





Tabular Model Definition Language

- **Readable** & **Editable** in any text editor
- **Collaborative** by default
- **Reusability**



DEMO

Power BI enhanced Report format (PBIR)

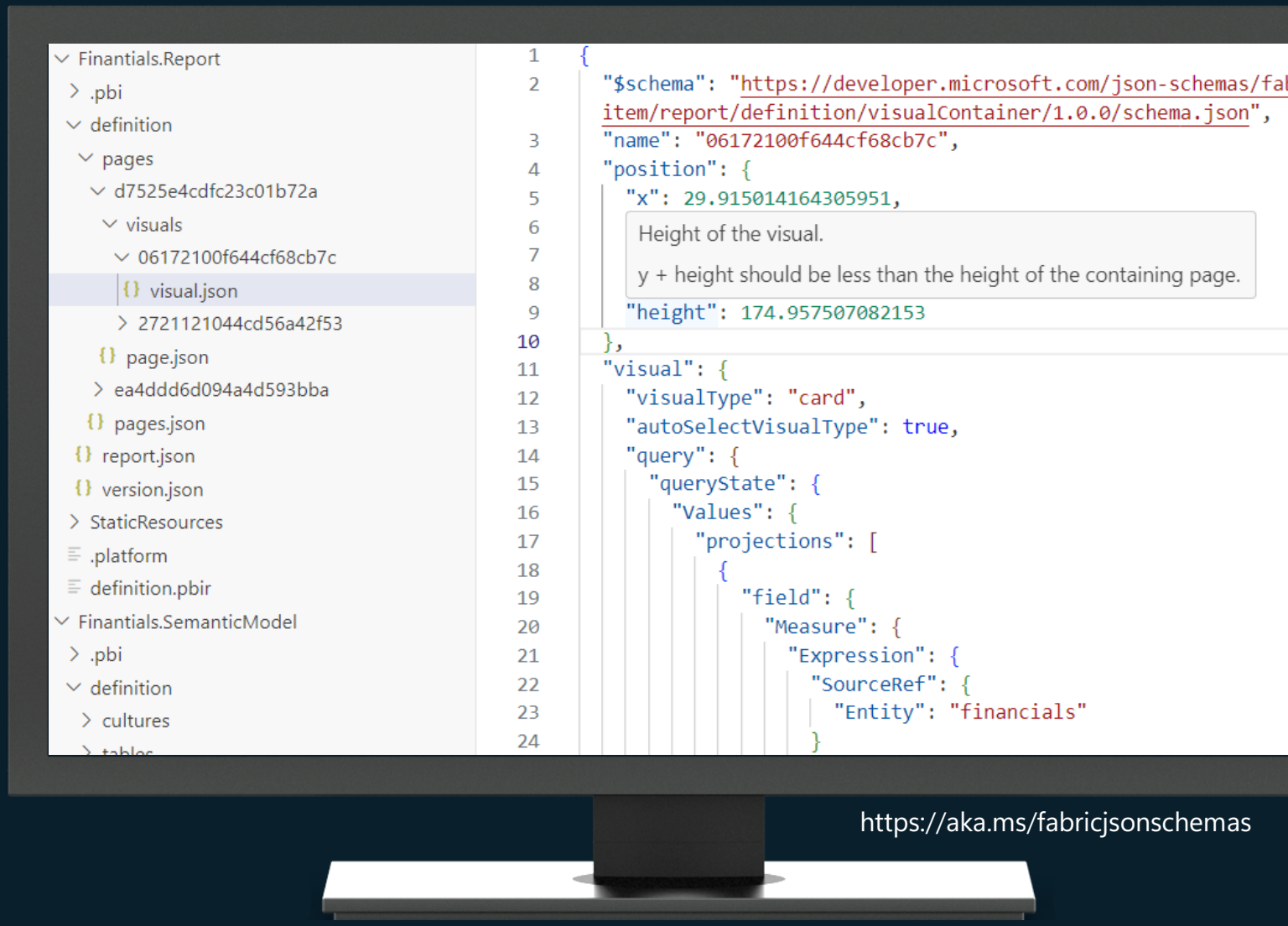


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```


report.json

Power BI enhanced Report format (PBIR)

- **Open** & **Public** format
- Source Control friendly
- Folder structure
- Efficiency boost
  - Batch edits
  - Easily copy between reports
  - Collaborate



https://aka.ms/fabricjsonschemas

DEMO

IMPORTANT! Power BI enhanced Report format (PBIR)

PBIR considerations and limitations

PBIR is currently in **preview**. Keep the following in mind:

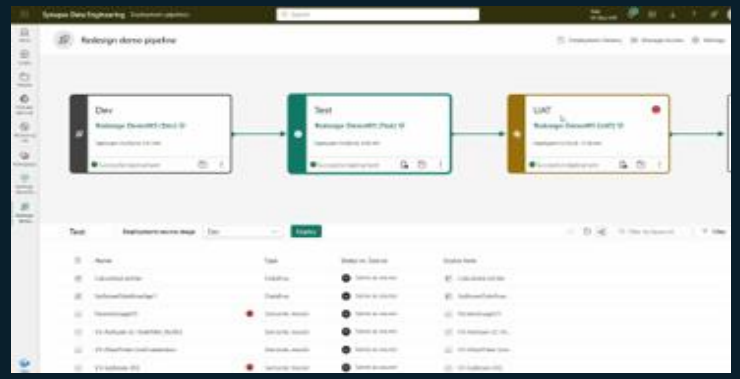
- Service limitations
  - Can't be included in Power BI Apps.
  - Can't be downloaded as PBIX.
  - Can't be deployed with deployment pipelines.
  - Can't be saved as a copy.
  - Can't be published from Power BI Desktop.
  - Can't be uploaded to workspace as PBIX.
- Large reports with more than 500 files experience authoring performance issues (report viewing isn't affected), including:
  - Saving in Power BI Desktop
  - Synchronization in Fabric Git Integration
- Once a report is converted from PBIR-Legacy to PBIR, it isn't possible to roll it back.
- Converting a PBIP file to a PBIX file using the "Save As" feature embeds the PBIR report within the PBIX file, carrying over all PBIR limitations to the PBIX.

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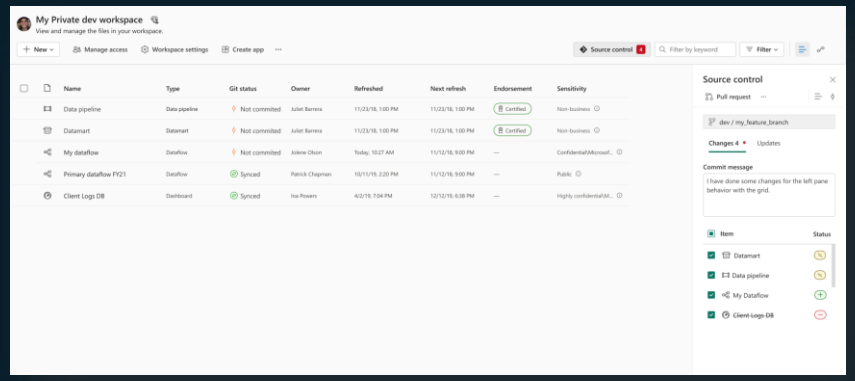
Fabric deployment options

Deployment pipelines



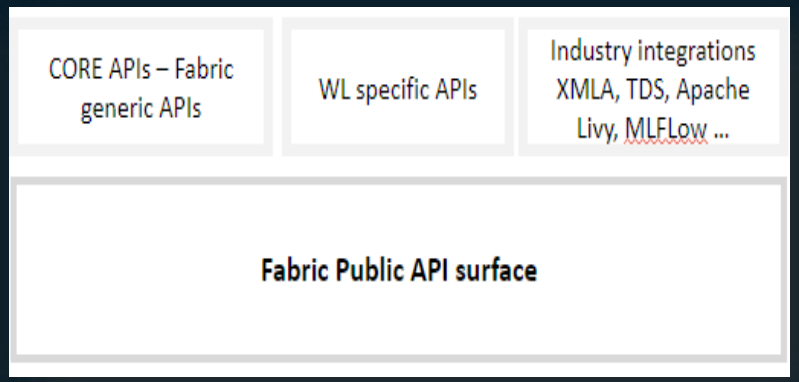
GA

Git integration



Public Preview

Fabric REST APIs

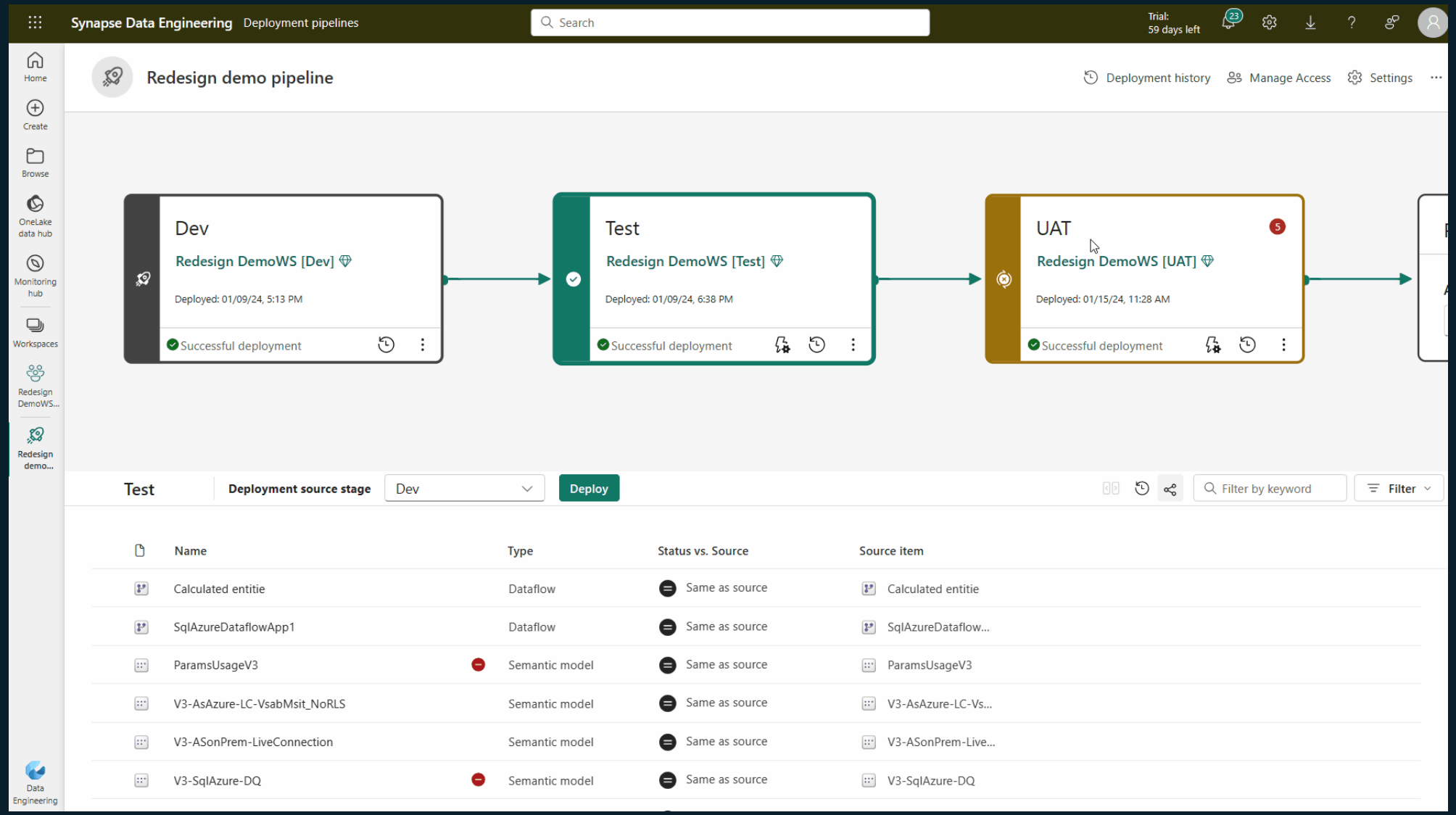


Public Preview

+ simplicity
+ constraints

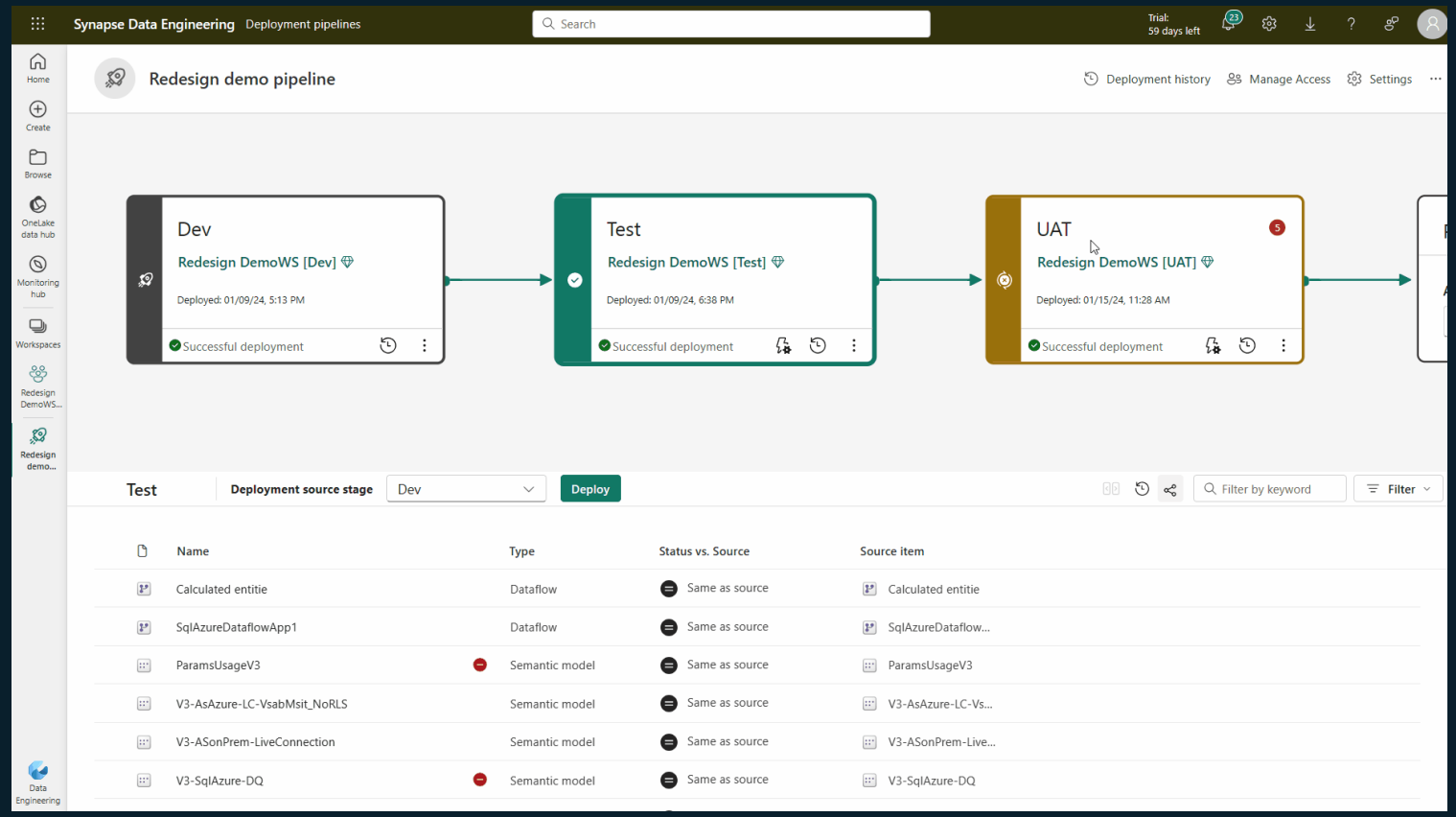
+ flexibility
+ responsibility

Deployment pipelines



Deployment pipelines

- Manage lifecycle of organizational content
- Selective deployments
- Deployment rules
  - Datasource
  - Parameter
- Deployment history
- Change review

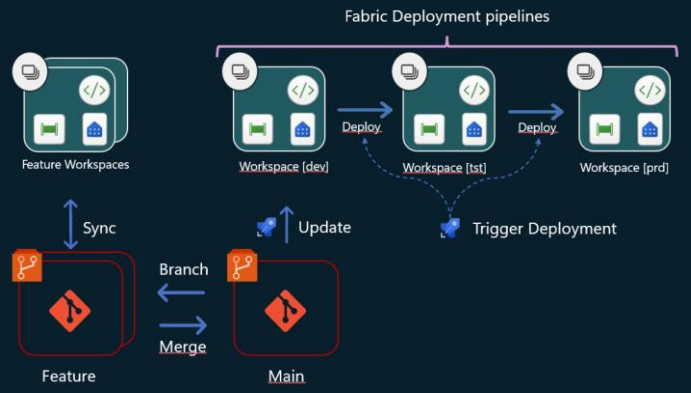


New item support

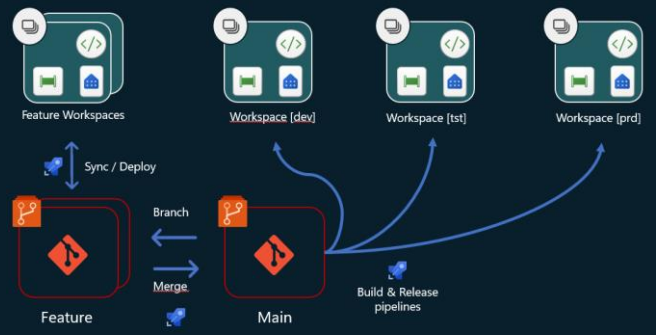
Item	Git integration	Deployment pipelines
Power BI reports	✓	✓
Power BI paginated reports	✓	✓
Power BI Semantic models	✓	✓
Notebooks	✓	✓
Lakehouse	✓	✓
Data pipelines	✓	✓
Data Warehouse	✓	✓
Spark Job definition	✓	✓
Spark Environment	✓	✓

Fabric CI/CD Scenarios

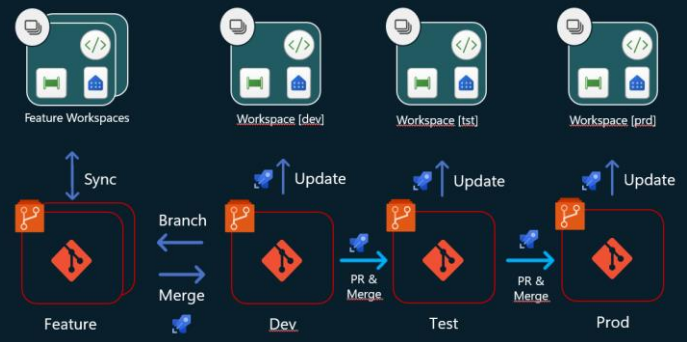
Git & Deployment Pipelines



Git & APIs

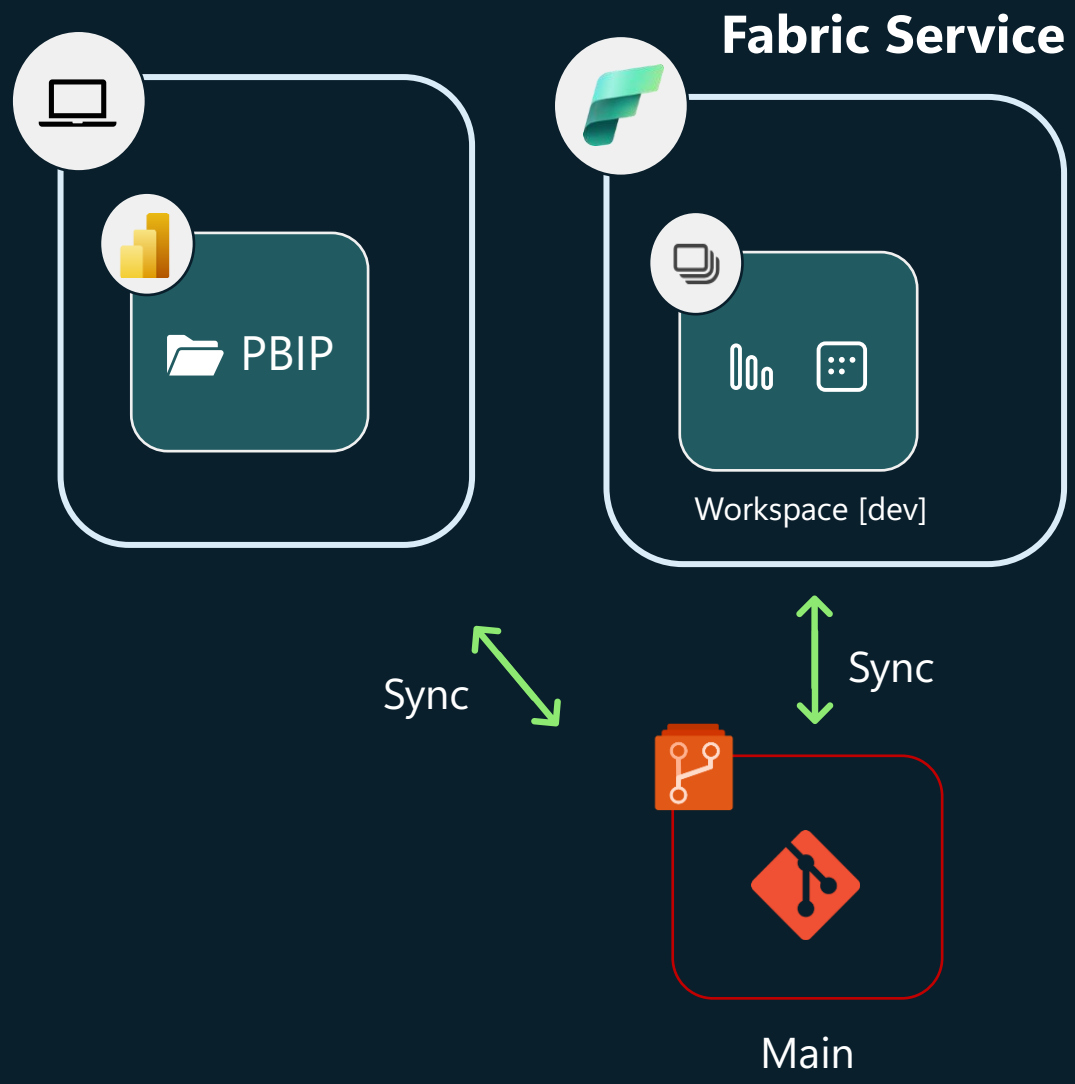


Git based



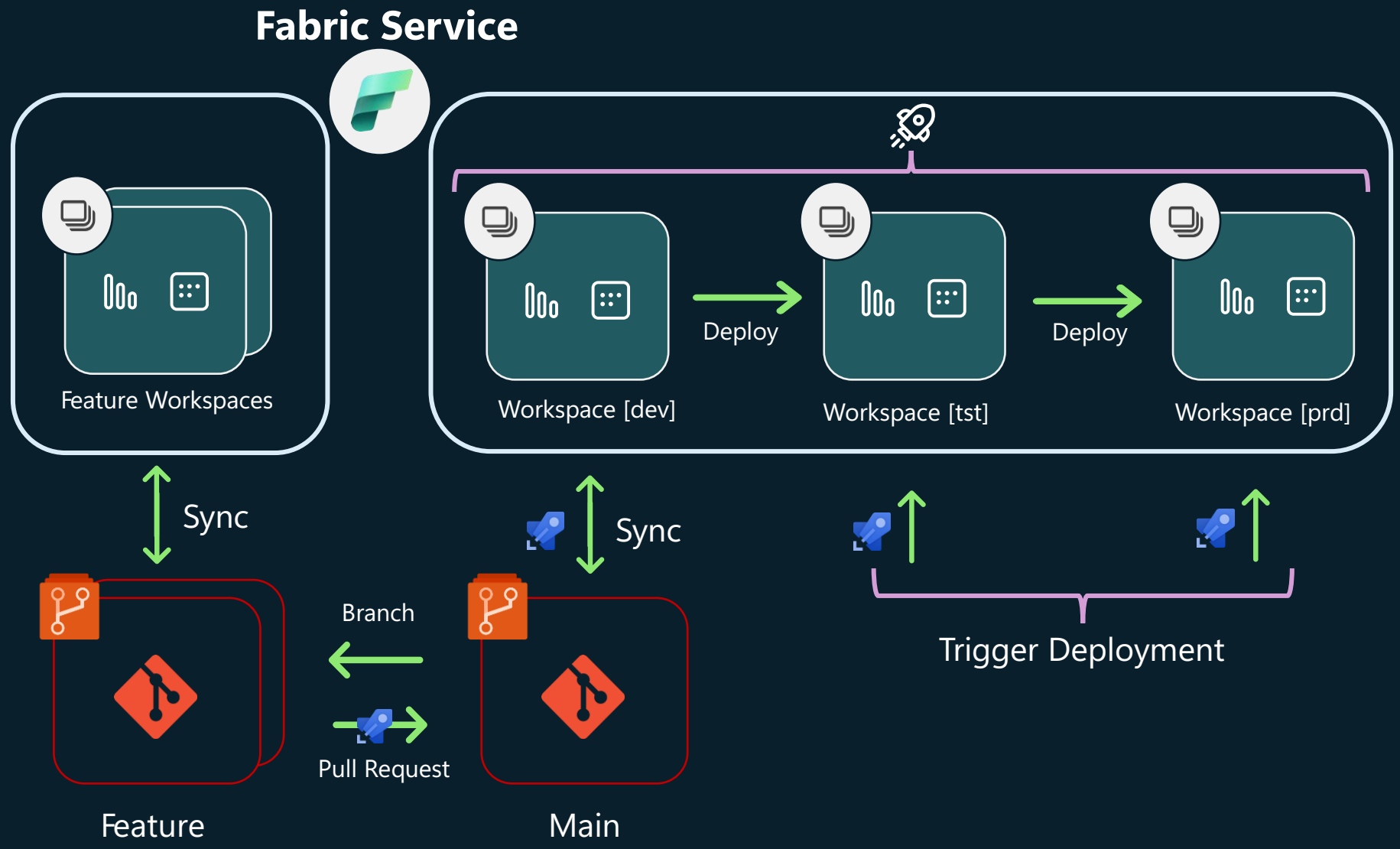
CICD Scenario - Git + Deployment Pipelines

- Git only for dev workspace
- Deploy using deployment pipelines



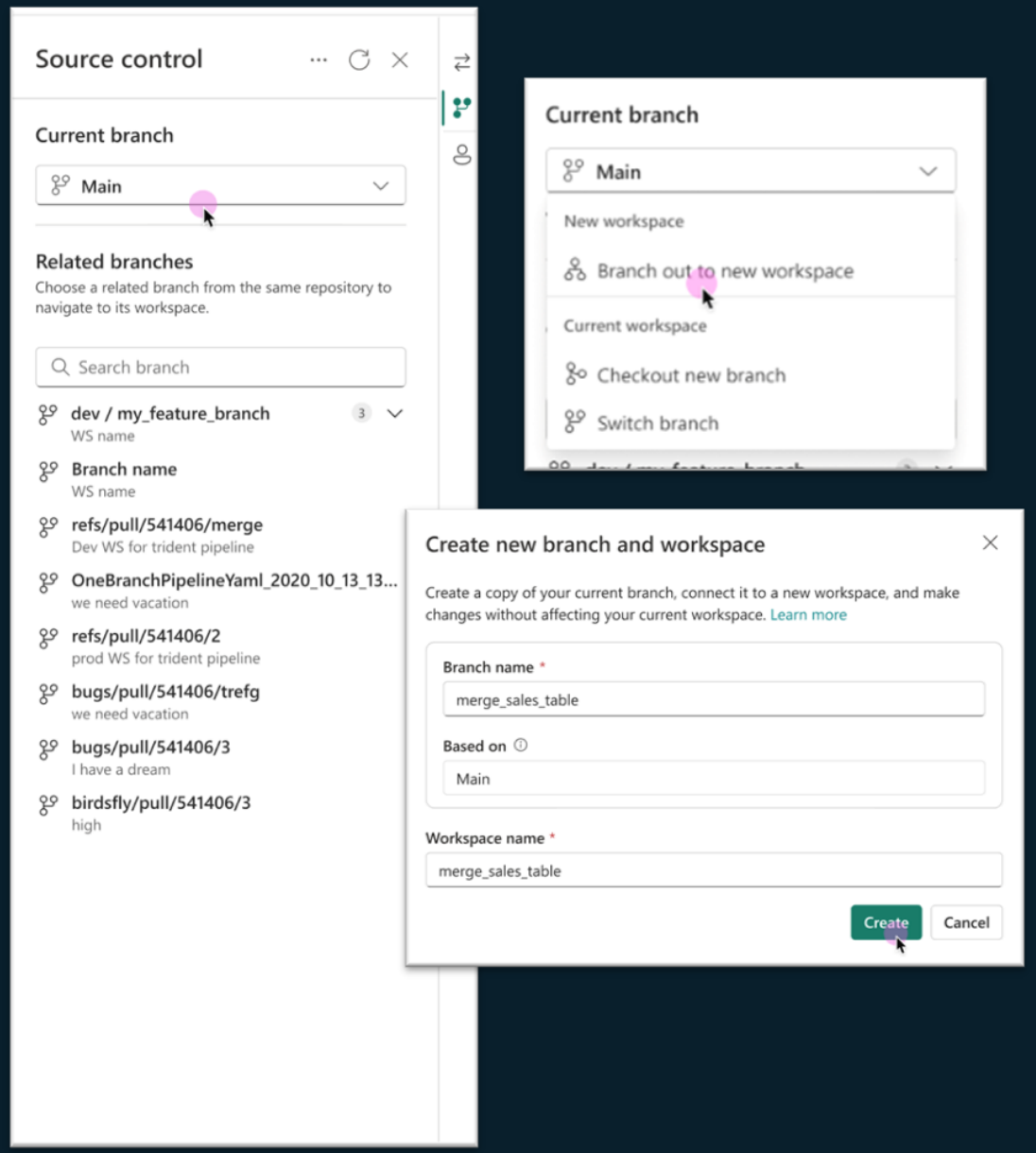
CI/CD Scenario - Git + Deployment Pipelines

- Git only for dev workspace
- Deploy using deployment pipelines
- Pipeline tests
  - Quality; Data
- Automate
  - Git APIs
  - Deployment Pipelines APIs



New branch out experience

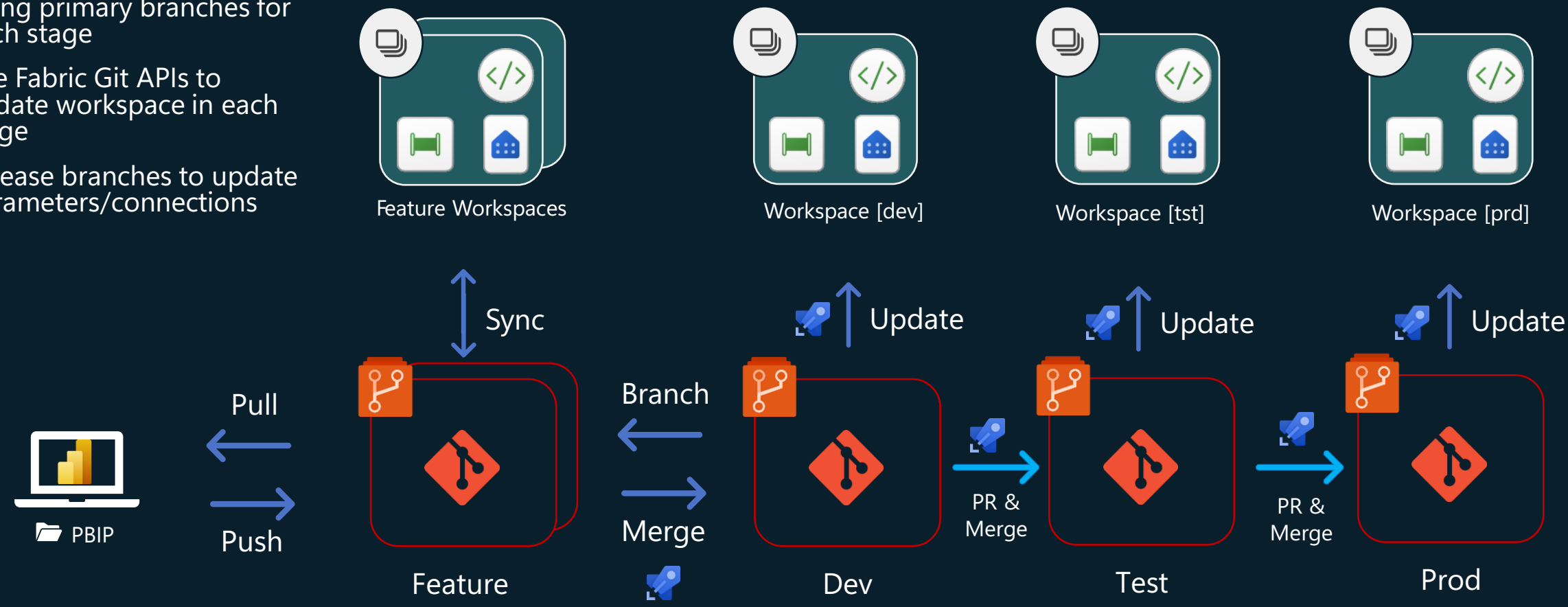
- Create a new isolated work environment (workspace & branch) in a few clicks.
- Reduce friction of creating and connecting multiple branches and workspaces



DEMO

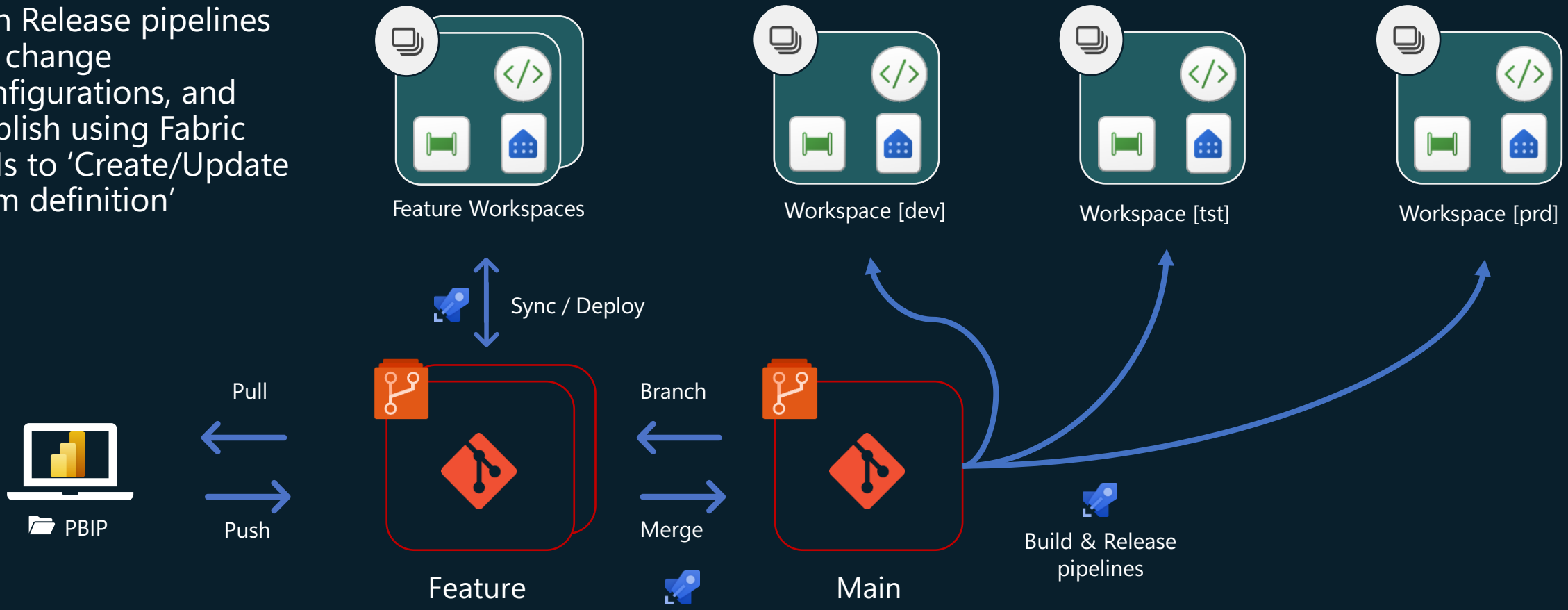
CI/CD Scenario – Git based deployments

- Git serves as 'single source of truth', and all deployments originates from repo.
- Using primary branches for each stage
- Use Fabric Git APIs to update workspace in each stage
- Release branches to update parameters/connections



CI/CD Scenario – Git & Build pipelines

- Git connected to Dev
- Run Build pipelines for Unit testing.
- Run Release pipelines for change configurations, and publish using Fabric APIs to ‘Create/Update item definition’

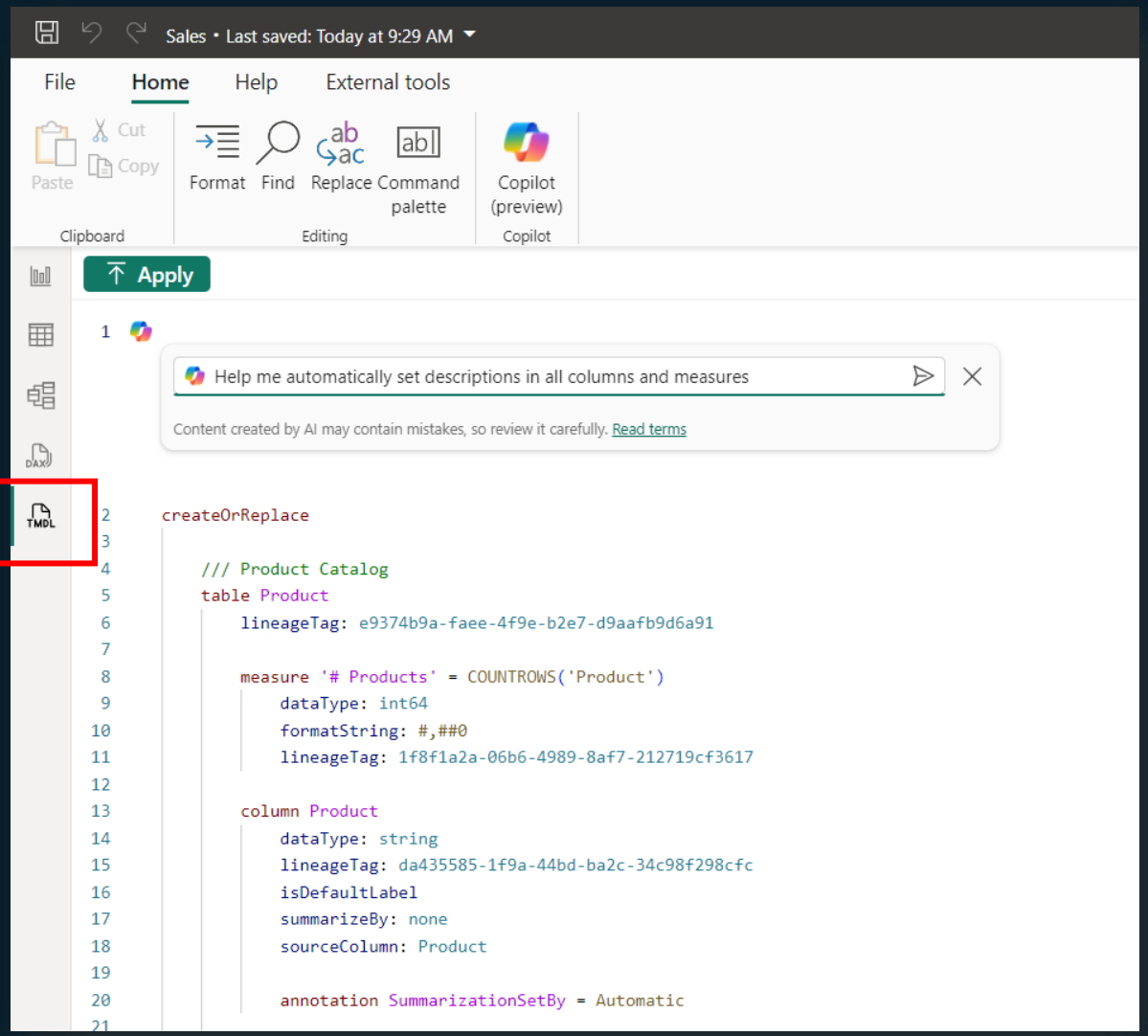


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Coming up

Semantic modeling as code in Power BI Desktop with TMDL view



Rate This session



THANK YOU!



Nicky van Vroenhoven

/in/nickyvanvroenhoven

Daan Humblé

/in/daanhumble

Resources

https://aka.ms/pbidesktopdevmode ★

https://learn.microsoft.com/en-us/power-bi/guidance/powerbi-implementation-planning-content-lifecycle-management-overview ★

https://aka.ms/gitintro

https://learn.microsoft.com/en-us/rest/api/fabric/articles/using-fabric-apis

https://aka.ms/fabricps-pbip

https://github.com/RuiRomano/fabricnotebooks