

Power BI gebruikersavond



INSPARK



PBIG
POWER BI GEBRUIKERSGROEP

InSpark Data & AI



Rob



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Agenda

- Version control & deployments
 - Challenges & alternatives
 - PBIX-deployments
 - XMLA-deployments
- Multi-Tenant Deployment
 - Security
 - Parameterization
- Questions



Power BI Version Control & Deployments



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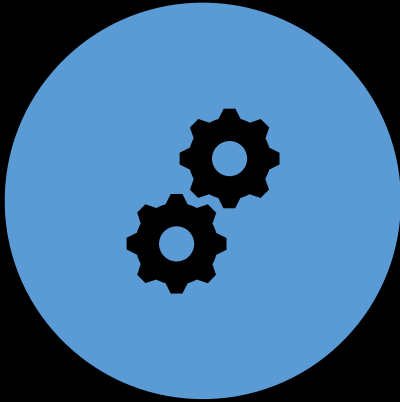


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Who uses a
Power BI
deployment
strategy?



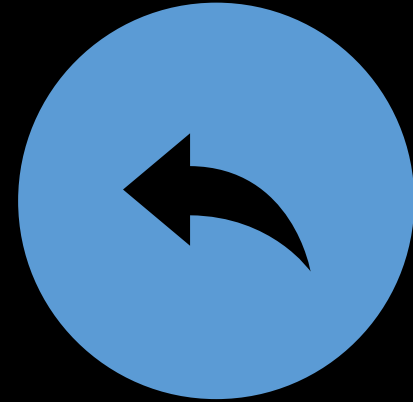
Version control and its advantages



CONTROL OVER CHANGES



COLLABORATION



REVERTING TO PREVIOUS
VERSIONS

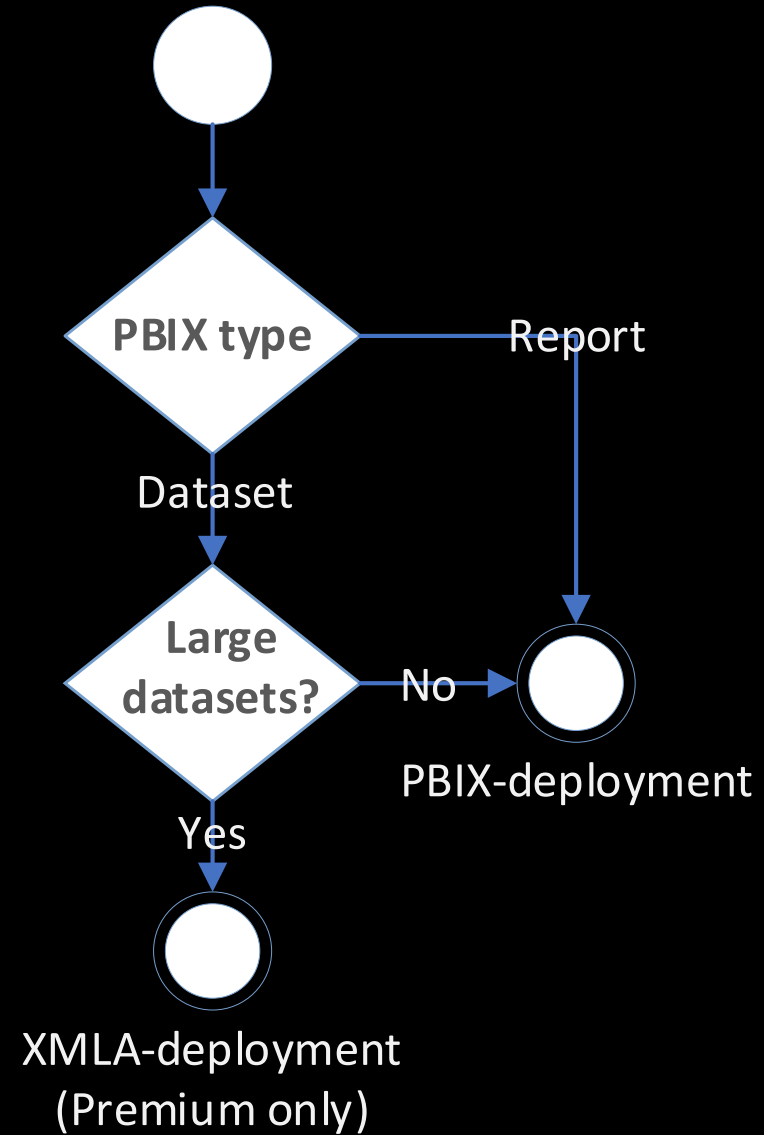
The challenges

- No native version control (yet)
- Roll back changes
- Collaborate on datasets & reports

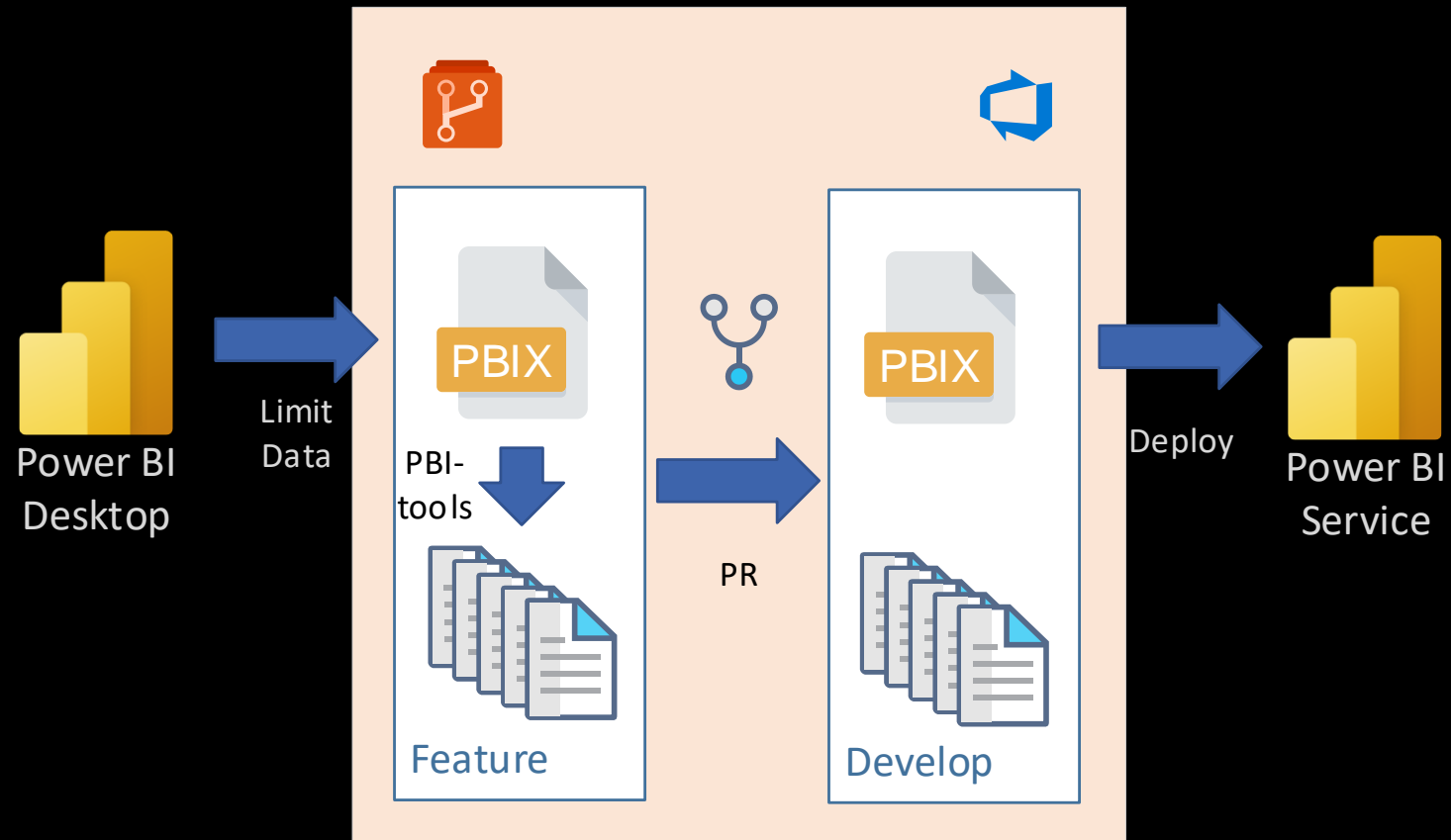
The alternative (challenges)

- Tools:
 - Sharepoint
 - Fileshare
 - DevOps GIT ← our choice
- Binary files: reviewing & authoring changes
- Customer data in version control

Deployment strategy



PBIX-deployments



Power BI Demo

Hydrogen

pro/labs/reports

demo.pbix

sources/labs/reports/demo

Model/tables/QueriesByCountry_2020-07-01_2020-...

Country.dax +

Country.json +

Report

sections/000_Page 1/visualContainers

00000_clusteredColumnChart (c6082)

dataTransforms.json

00000_pieChart (382c2)

config.json +

dataTransforms.json +

demo.pbix

/Hydrogen/pro/labs/reports/demo.pbix

The two versions of the file are different.

Download original file

Download modified file

Country.dax +1

/Hydrogen/sources/labs/reports/demo/Model/tables/QueriesByCountry_2020-07-01_2020-07-31/measure

1 + count('QueriesByCountry_2020-07-01_2020-07-31'[Country])

Country.json +4

/Hydrogen/sources/labs/reports/demo/Model/tables/QueriesByCountry_2020-07-01_2020-07-31/measure

1 + {
2 + "name": "# Country",
3 + "formatString": "0"
4 + }

dataTransforms.json -33

/Hydrogen/sources/labs/reports/demo/Report/sections/000_Page 1/visualContainers/00000_clusteredColu

29 "Type": 3,
30 "Format": "0"
31 }
32 -],
33 - "Filters": [
29 "Type"
30 "Forma"
31 }

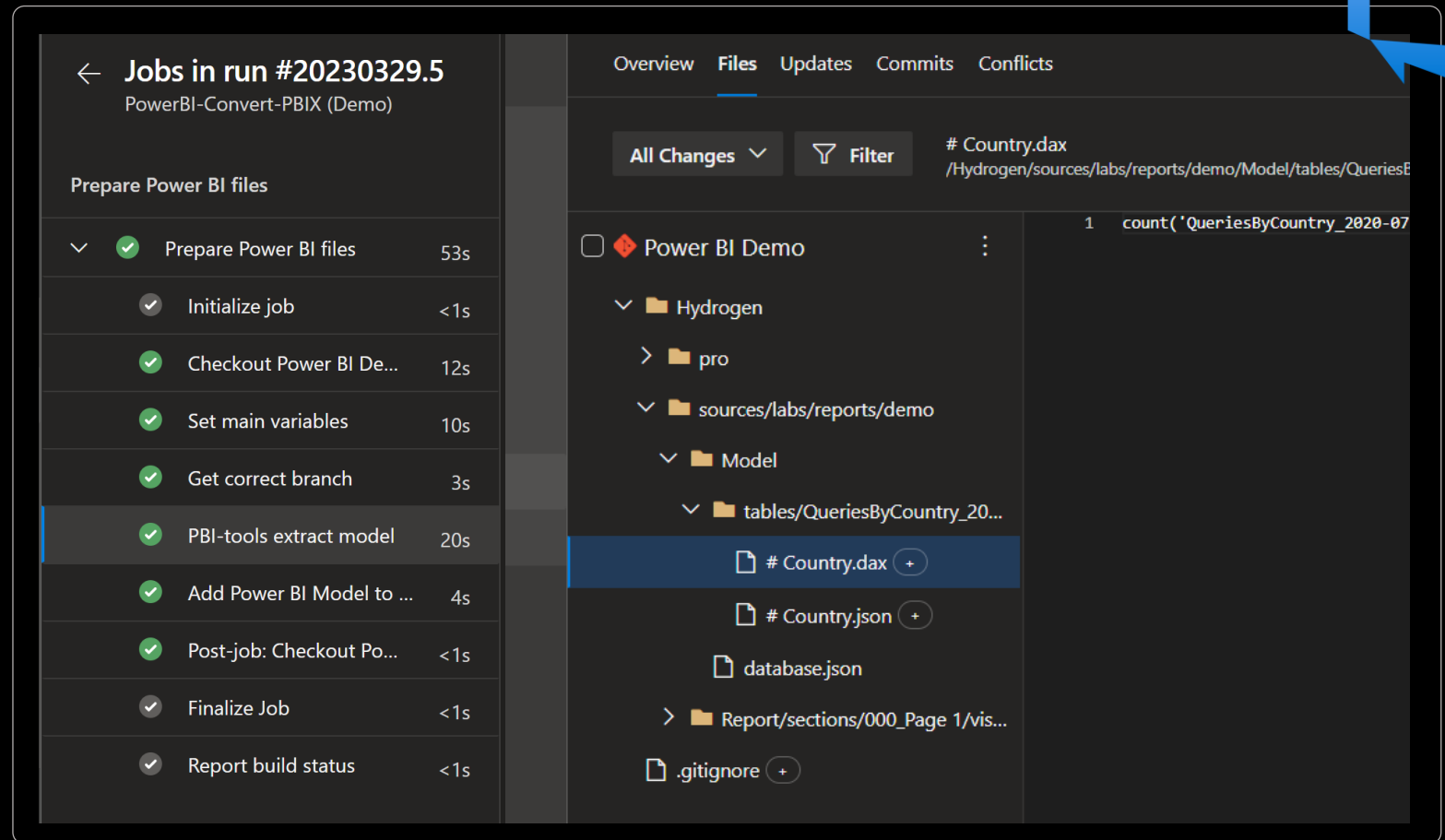
Page 1 of 1

Drill through

75%

PBI-tools CLI (Mathias Thierbach)

1. Extract .pbix in pre-process pipeline
2. Review changes in pull request



The screenshot displays a pull request interface for a job titled "Jobs in run #20230329.5" under the project "PowerBI-Convert-PBIX (Demo)".

Jobs in run #20230329.5
PowerBI-Convert-PBIX (Demo)

Prepare Power BI files

Job Name	Status	Duration
Prepare Power BI files	✓	53s
Initialize job	✓	<1s
Checkout Power BI De...	✓	12s
Set main variables	✓	10s
Get correct branch	✓	3s
PBI-tools extract model	✓	20s
Add Power BI Model to ...	✓	4s
Post-job: Checkout Po...	✓	<1s
Finalize Job	✓	<1s
Report build status	✓	<1s

Files

Overview Files Updates Commits Conflicts

All Changes Filter

Country.dax
/Hydrogen/sources/labs/reports/demo/Model/tables/QueriesE

1 count('QueriesByCountry_2020-07

Power BI Demo

- Hydrogen
 - pro
 - sources/labs/reports/demo
 - Model
 - tables/QueriesByCountry_20...
 - # Country.dax (+)
 - # Country.json (+)
 - database.json
 - Report/sections/000_Page 1/vis...
 - .gitignore (+)

DevOps deployment pipelines

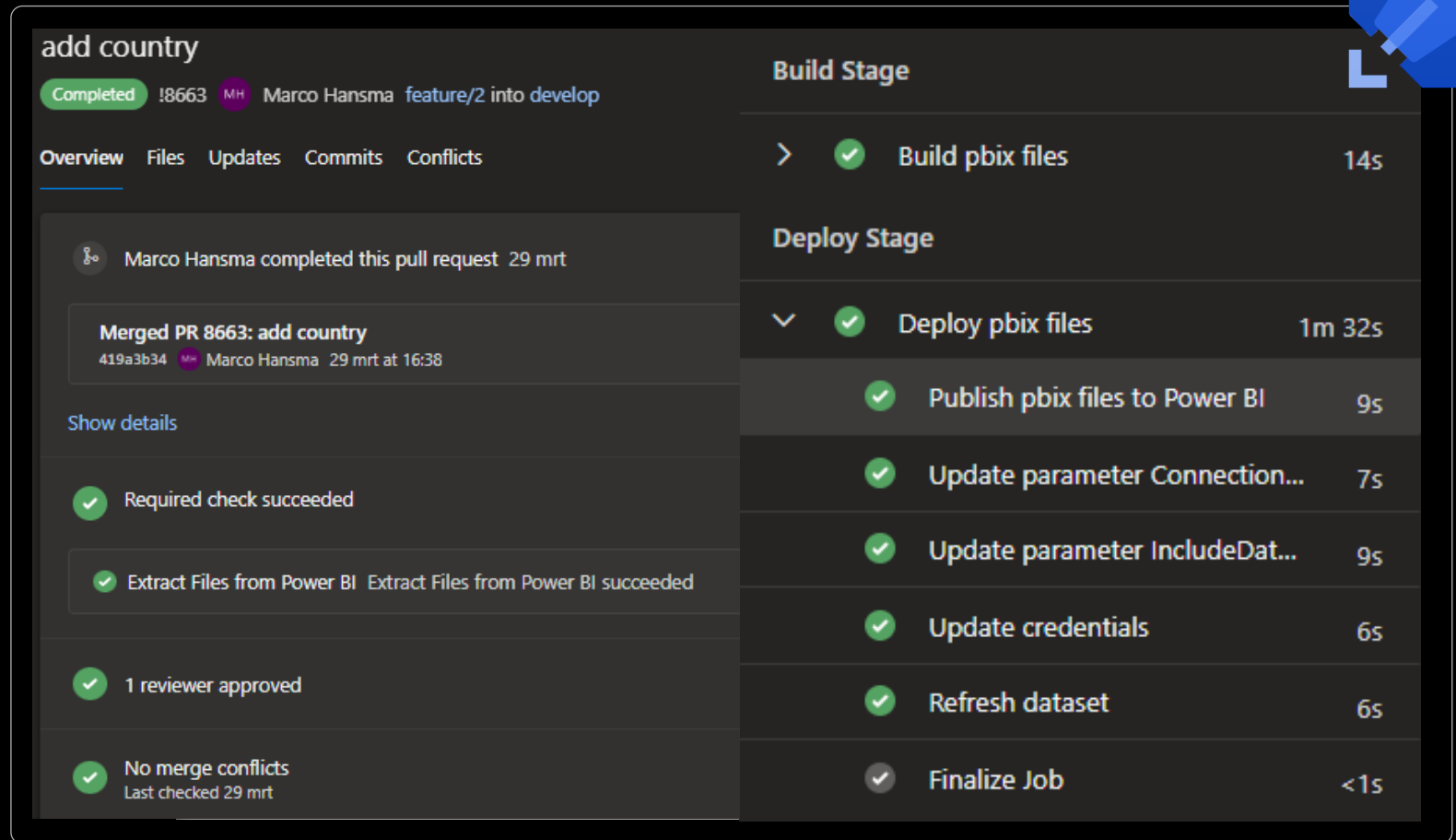
Build pipeline:

- Retrieve .pbix from repo

Release pipeline:

- Publish .pbix
- Set parameters
- Trigger refresh

* Power BI Actions (Maik van der Gaag)



The screenshot displays a GitHub pull request titled "add country" (PR #8663) by Marco Hansma, merged into the "develop" branch. The pull request status is "Completed". Below the PR details, a list of checks shows that the required check succeeded, files were successfully extracted from Power BI, and the PR was approved by one reviewer with no merge conflicts.

On the right side, the Azure DevOps pipeline is shown, consisting of a "Build Stage" and a "Deploy Stage".

Stage	Task	Status	Duration
Build Stage	Build pbix files	Completed	14s
	Deploy pbix files	Completed	1m 32s
Deploy Stage	Publish pbix files to Power BI	Completed	9s
	Update parameter Connection...	Completed	7s
	Update parameter IncludeDat...	Completed	9s
	Update credentials	Completed	6s
	Refresh dataset	Completed	6s
	Finalize Job	In Progress	<1s

Limit data parameter

Parameter options in .pbix:

- GIT
- Develop
- Full

Manage Parameters

New

Parameters list:

- SqlServerInstance
- SqlServerDatabase
- Culture
- LimitData**

Name: LimitData

Description: GIT/Develop/Full

☒ Required

Type: Text

Suggested Values: List of values

1	GIT
2	Develop
3	Full
+	

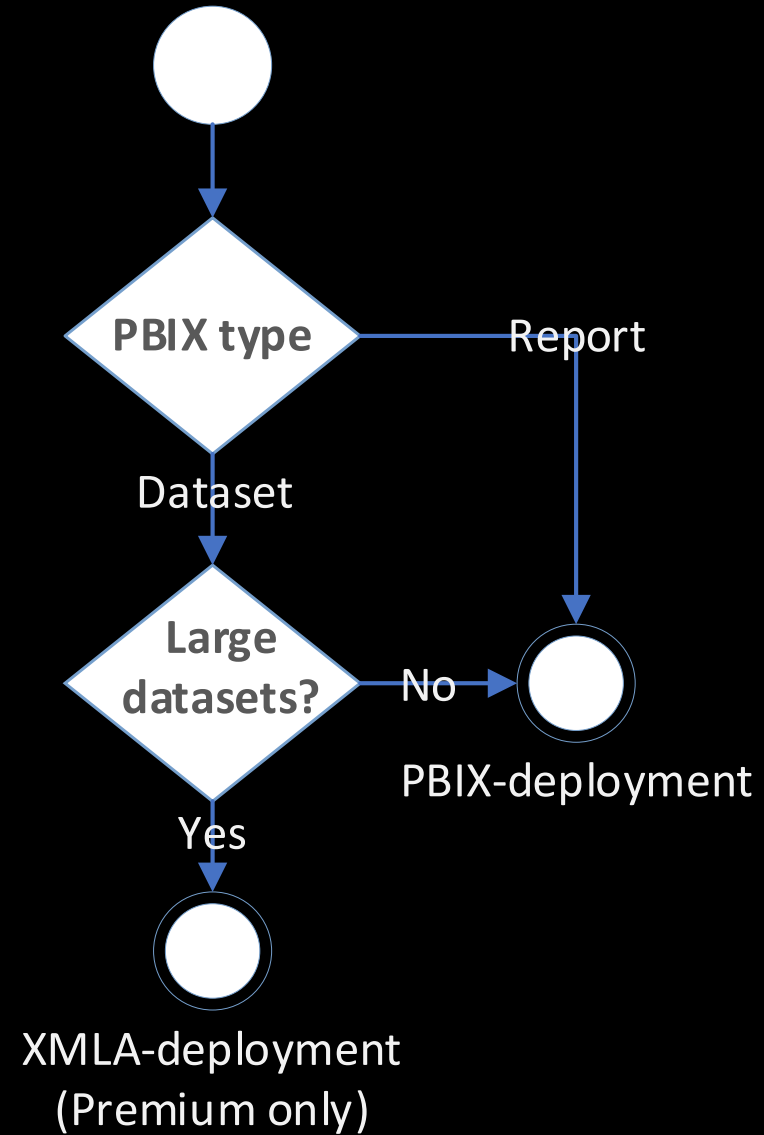
Default Value: Develop

Current Value: Develop

OK Cancel

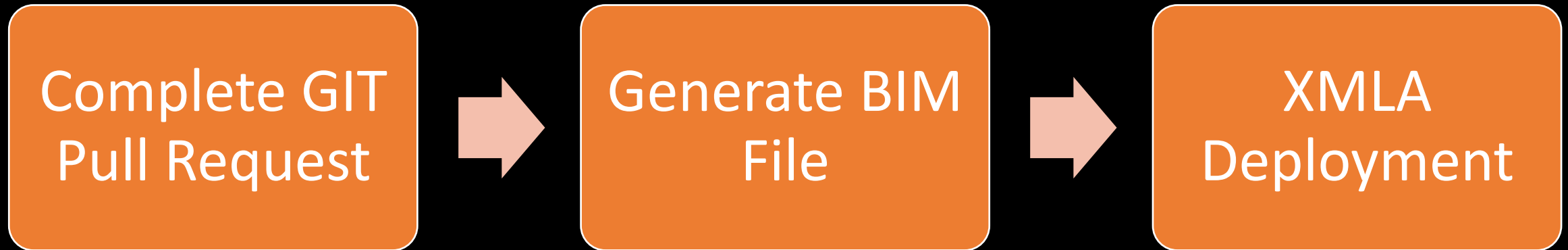
```
let
Source = Sql.Database(SqlServerInstance, SqlServerDatabase),
dbo_vFactSales = Source{[Schema="dbo",Item="vFactSales"]}[Data],
#"Top 0" = Table.FirstN(#"dbo_vFactSales",0),
#"Top 1000" = Table.FirstN(#"Renamed Columns",1000),
RowsToReturn =
    if #"LimitData" = "GIT" then #"Top 0"
    else if #"LimitData" = "Develop" then #"Top 1000"
    else #"dbo_vFactSales",
Result = RowsToReturn
in
Result
```

Deployment strategy



XMLA-deployments (Premium)

- PBI Tools <-> XMLA-endpoint <-> Power BI Service
- Deploy model only (.bim file)



Prerequisites

- DevOps
 - GIT
 - Power BI Actions (Maik van der Gaag)
- PBI-tools CLI (Mathias Thierbach)
 - <https://pbi.tools/cli/>



Power BI Multi Tenant Deployment



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Omgevingsdiensten

Een gezonde en veilige leefomgeving

"Omgevingsdienst Twente werkt aan een gezonde, veilige en duurzame leefomgeving, zodat iedereen in Twente prettig kan wonen, werken en leven.

In opdracht van de veertien Twentse gemeenten en de provincie Overijssel voeren wij taken uit op het gebied van vergunningverlening, toezicht en handhaving."



Omgevingsdienst
TWENTE



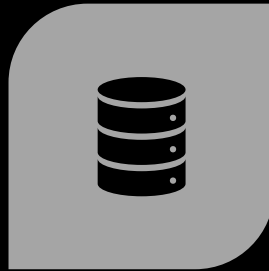
Omgevingsdienst
IJSELLELAND



Multi Tenant at the Omgevingsdienst



A SIMILAR PROCESS AND
ALIKE INFORMATION AND
REPORTING NEED



A GENERIC DATA MODEL
AND REPORTS GOVERNED
FROM 1 TENANT

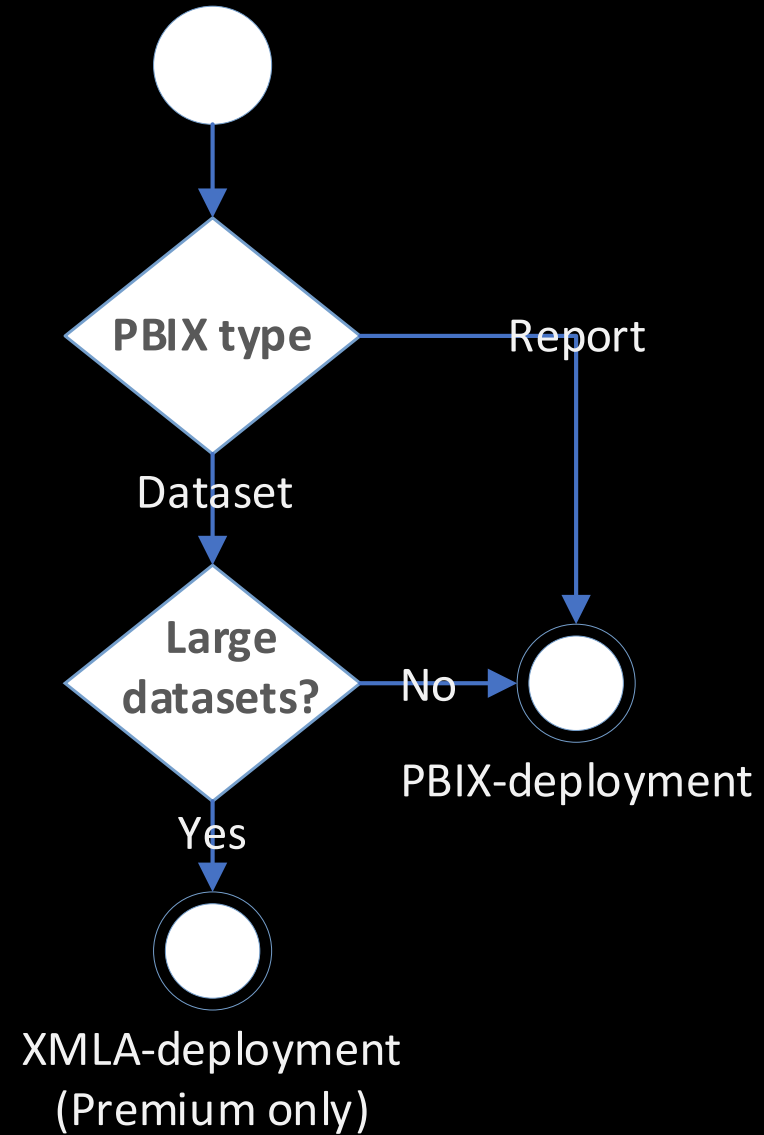


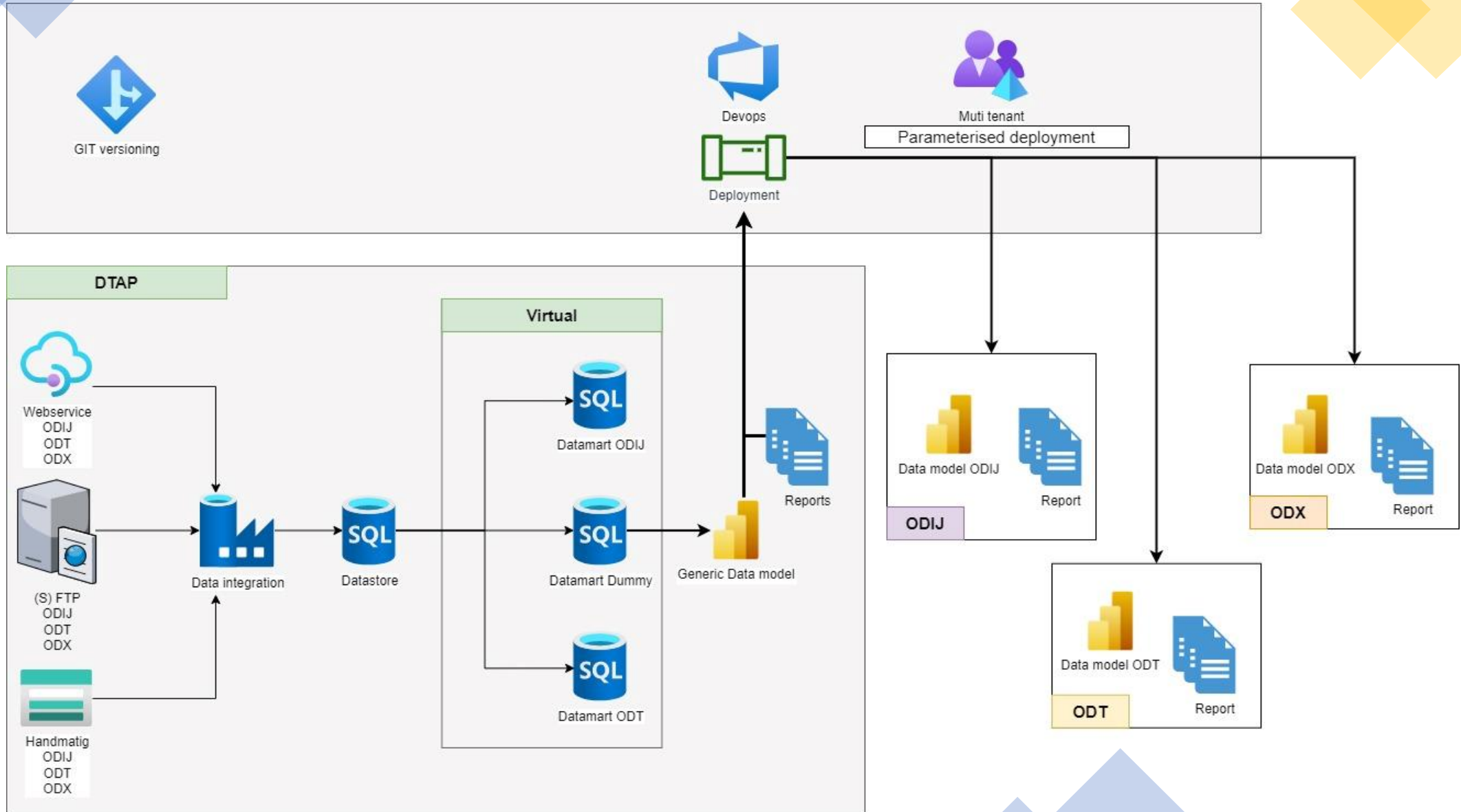
EXTRACT ALL SOURCES IN
ONE CONTROLLED
PROCESS



DISTRIBUTION IN A
SECURE WAY TO MULTIPLE
TENANTS

Deployment strategy

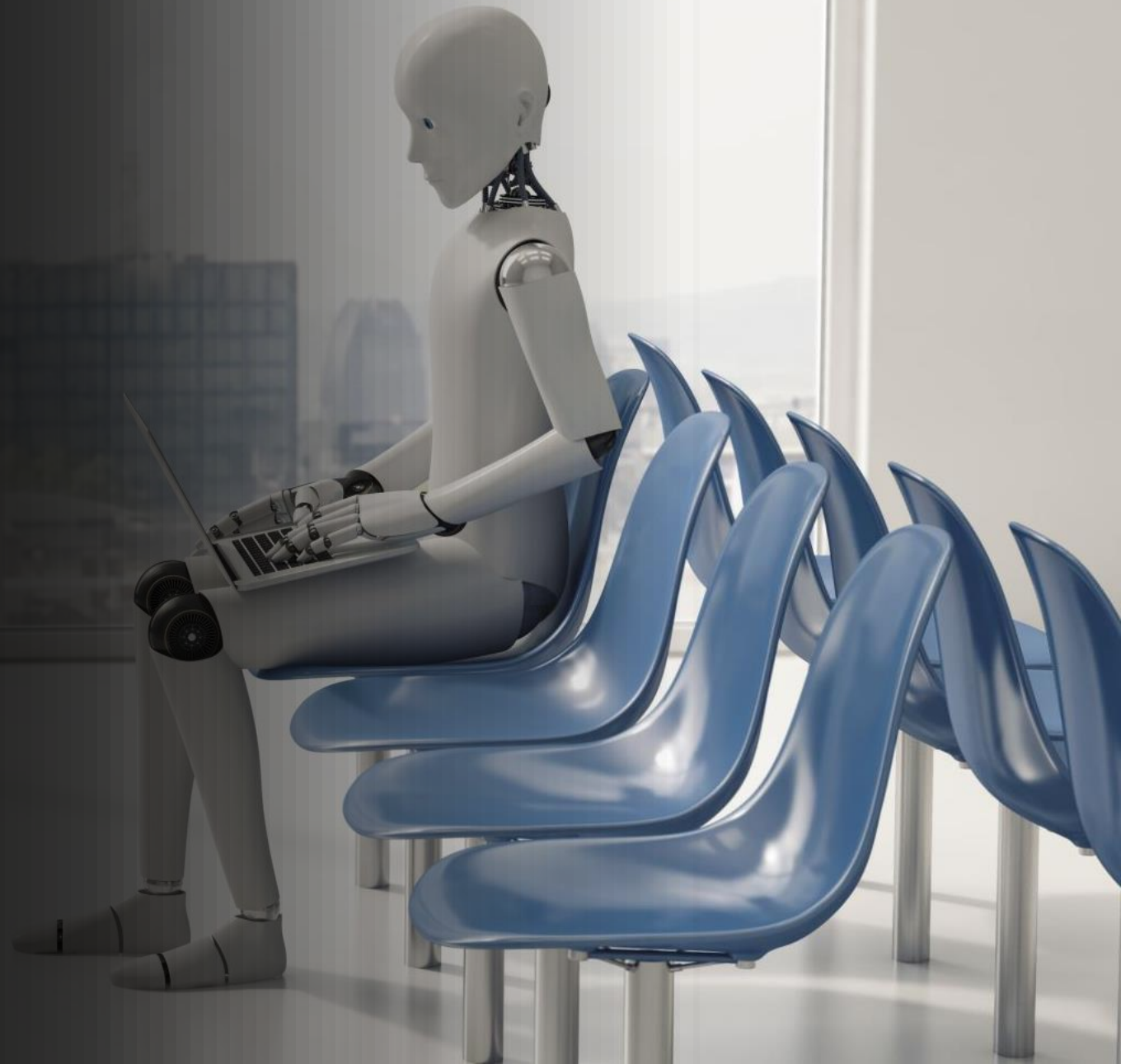






Security measures


- Data model owned by service principal
- Deployed model is a generic dummy model and credentials are updated after deployment
- User in update of credential has only read rights on the schema of the specific Omgevingsdienst
- Parameterized deployment based on iterations of omgevingsdienst
- Usage of Azure Keyvault




Iteration over Omgevingsdiensten

```
49 - ${ each omgevingsdienst in parameters.omgevingsdienst }}:  
50   - stage: CD  
51     displayName: 'Deploy Stage ${ omgevingsdienst.naam }'  
52     jobs:  
53       - deployment: deploy  
54         displayName: Deploy pbix files  
55         environment: Power BI Pro
```

Build Stage

>  Build pbix files

Deploy Stage ODT

>  Deploy pbix files

```
10 extends:  
11   template: /docs/PowerBI/pipelines/templates/main.yml  
12   parameters:  
13     service_connection: 'Oxygen ODT'  
14     schedule: 'Uit'  
15     omgevingsdienst:  
16       - naam: 'ODT'  
17       - naam: 'ODIJ'  
18       - naam: 'ODX'
```



```
environments: ${ parameters.environments }  
service_connection_powerbi: 'sp-${ omgevingdienst.naam }-powerbi-deployment'  
dataset: '${ omgevingdienst.naam } ${ parameters.dataset }'
```

```
'$(DM${ parameters.omgevingsdienst }USER)'  
'$(DM${ parameters.omgevingsdienst }PASSWORD)'
```

Parameterize everything



Power BI Actions

Maik van der Gaag | 9,594 installs | ★★★★★ (31) | Free

Build and Release Management tasks for Power BI.

Get it free

Steps to connect a new Omgevingsdienst technically

1. Import new sources
 2. Create Datamart
 3. Add Service Principal in new Tenant with correct API authorization
 4. Add Power BI workspaces with proper naming conventions and give SP admin rights
 5. Add Service connection in DevOps
 6. Add short notation (ODX) in main.yml as parameter
-

Questions?



Break



Quiz



LEFT



RIGHT



Question 1

Can you view changes to a binary file in
DevOps GIT?



YES

NO



Question 2

Are Power BI sensitivity labels free to use?



YES

NO



Question 3

Can you use one service principal to deploy datasets and reports to multiple Power BI tenants?



YES

NO



Question 4

Can you scan specific Power BI workspaces with Purview?



YES

NO



Question 5

Is Mathias Thierbach the developer of Power BI Actions?



YES

NO



Question 6

In a multiple tenant scenario, are end users able to see data from each others tenant by default?



YES

NO



Final question

What is the size of the Power BI desktop (x64) setup file?

<input type="checkbox"/> File Name	Size
<input type="checkbox"/> PBIDesktopSetup_x64.exe	463.7 MB

