Deploy Power BI as Code.

Professionalizing your solution using Power BI Project Files and Git integration

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FAVORITE STUFF:

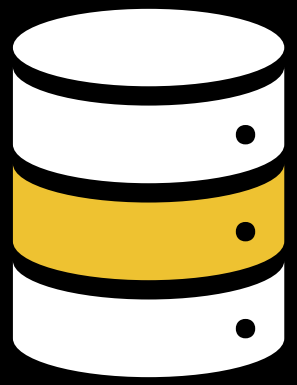
After this session

Challenges	File formats	Git	Deployment
Understand challenges working with multiple developers on the same Power BI solutions	Understand which file formats Power BI supports and explain the differences and advantages of each	Understand how Git can help version your solutions, collaboration and branching of solutions	Deployment patterns using the new file format and / or Git integration

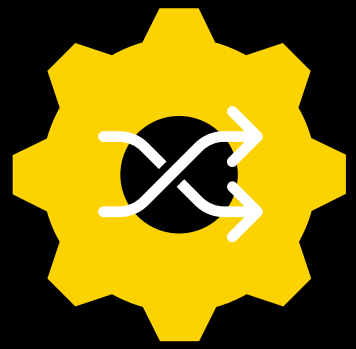
Report Development Cycle

Publishing your report online

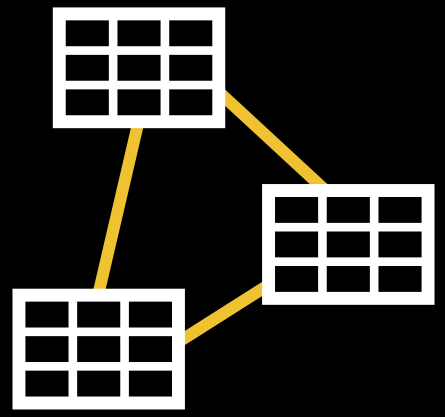
Gather



Clean



Model



Visualize

Publishing your report online

Build dataset and report

Publish to service

Power BI Service

Who is using this development cycle as their way of work?

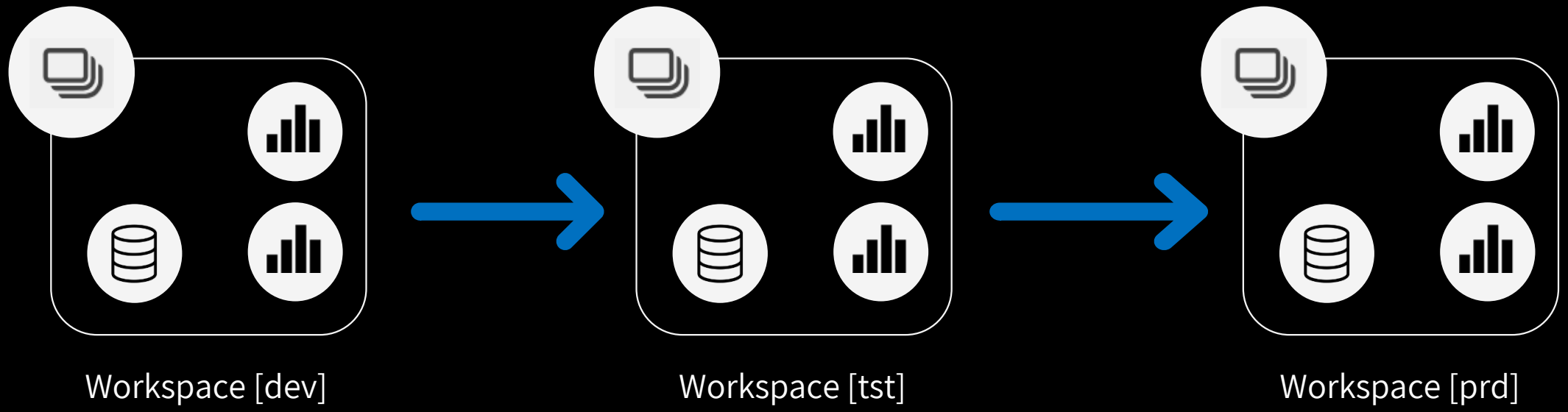
What are your experiences?

Everybody?

Things you might have encountered

- Collaboration is difficult
- Keeping track of changes is (almost) impossible
- Download report from service to get latest version
- Publishing a previous version

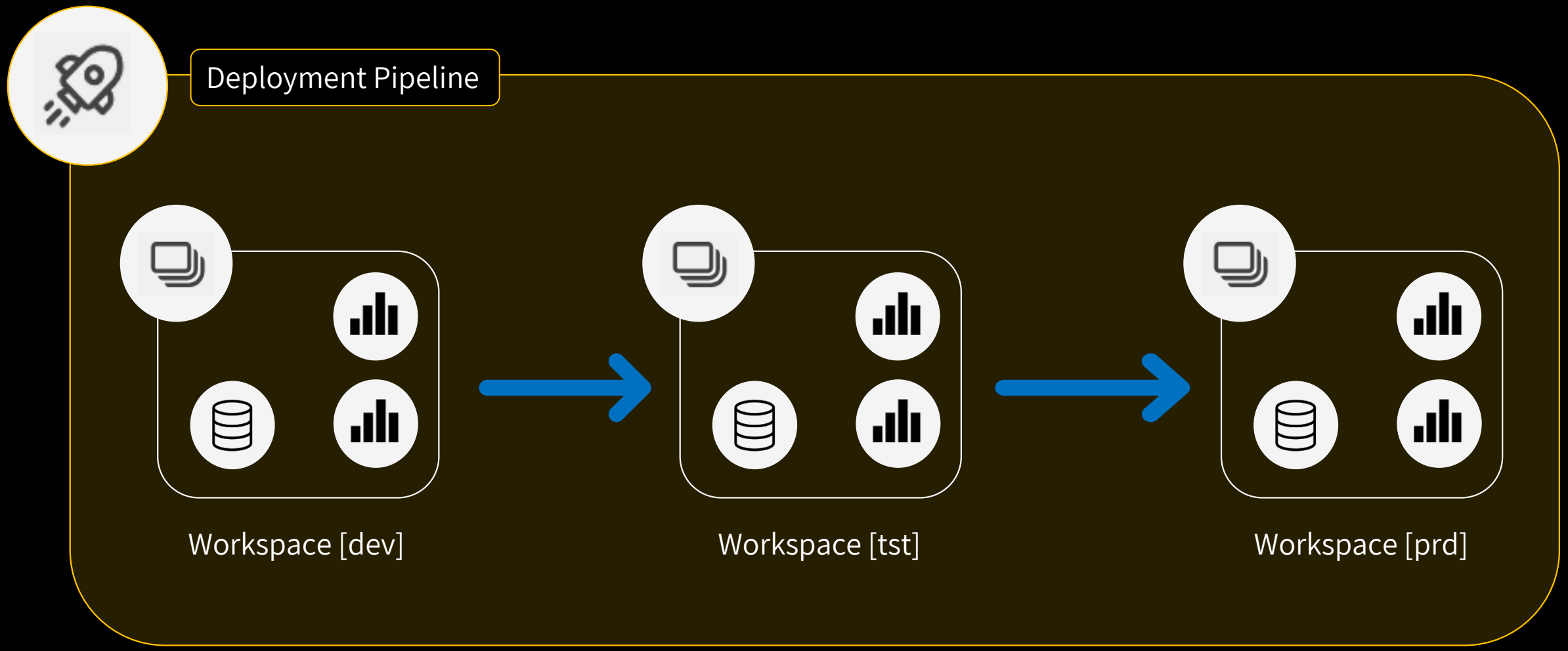
Working in stages (DTAP)



Things you might have encountered

- Accidently deploying to production instead of development.. whoops
- Forgot to change data source connection from dev to prod
- Overwriting data in production

Things got a bit better



Demo

What improved / can be avoided?

- Collaboration is difficult
- Keeping track of changes is (almost) impossible
- Download report from service to get latest version
- Publishing a previous version

When using DTAP:

- Accidently deploying to production instead of development.. whoops
- Forgot to change data source connection from dev to prod
- Overwriting data in production

New file format: .pbip

New file format: .pbip

- Power BI Project file
- Saving report and semantic model artifacts in separate plain text files in a clear folder structure
- Introduced in June 2023, but still in preview

Why should we care?

Enables capabilities, such as:

- Editable format: Easily make changes using code editors
- Source Control: Track version history, compare versions, revert to previous versions
- CI / CD: Quality controls (review, testing) before deployment to production

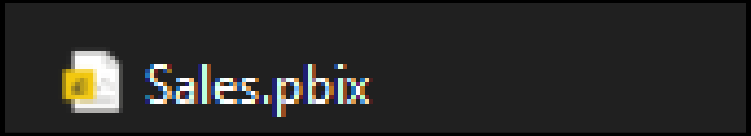
Demo

How do we enable the other benefits?

- Editable format: Easily make changes using code editors
- Source Control: Track version history, compare versions, revert to previous versions
- CI / CD: Quality controls (review, testing) before deployment to production

Source Control

Is there a better way of versioning than..



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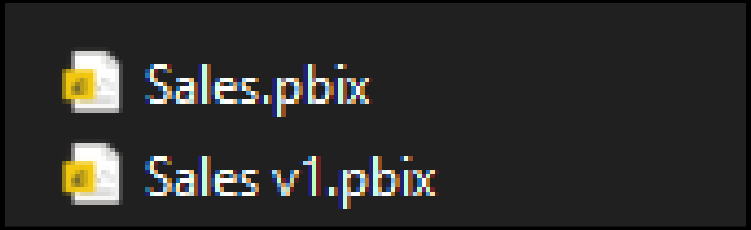

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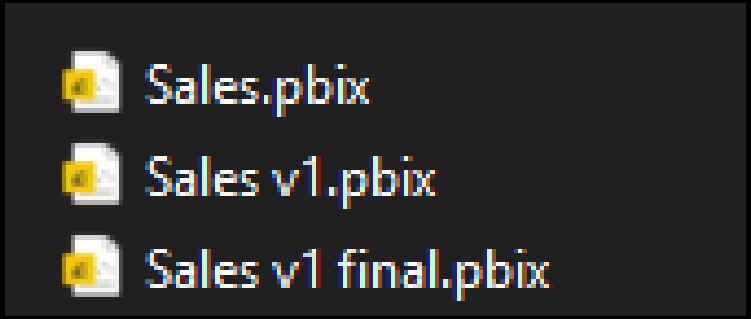

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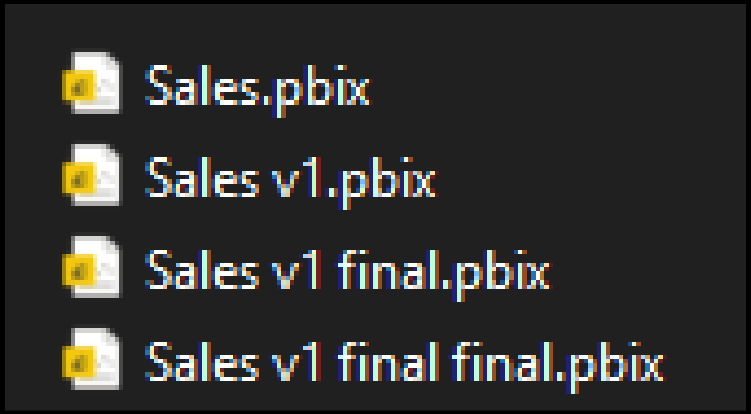

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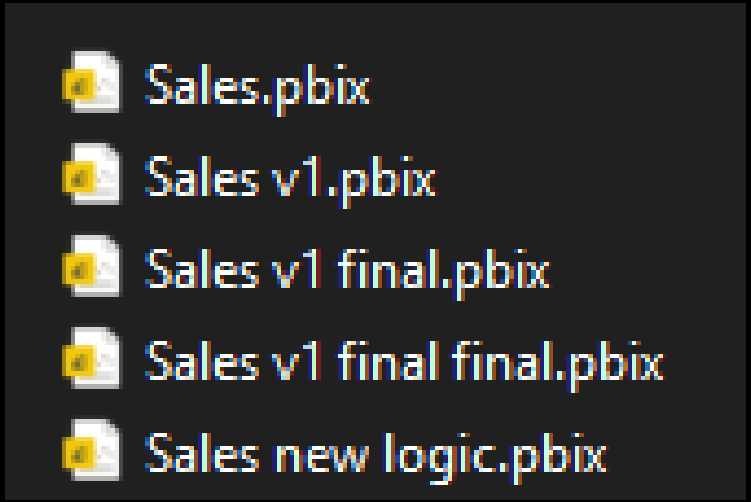


Options

- SharePoint
- OneDrive

But only track the binairy file as a whole. So, we don’t know;

- When we deleted that one table?
- When we introduced that issue in our measure…
- Etcetera.

But we are talking about ‘professionalizing’ –

so let’s take it to the next level…

GIT ALL THE WAY!!

Who has used Git before?

Git, what is it?

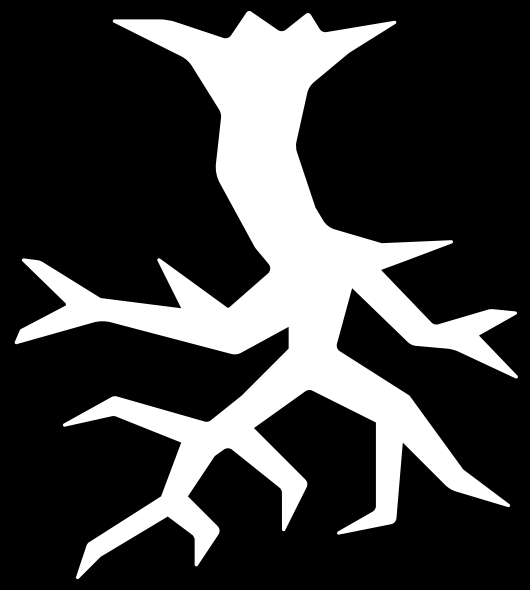
Git is a version control system to **track and manage changes**

It provides functionalities for:

- Version control
- Collaboration
- Tracking changes
- Compare versions

But how?

Branching

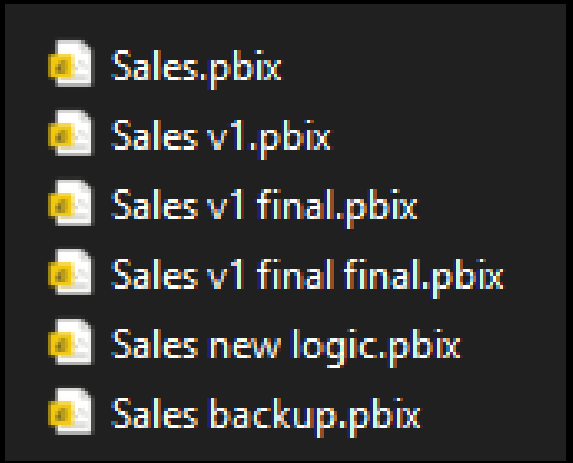


Merging

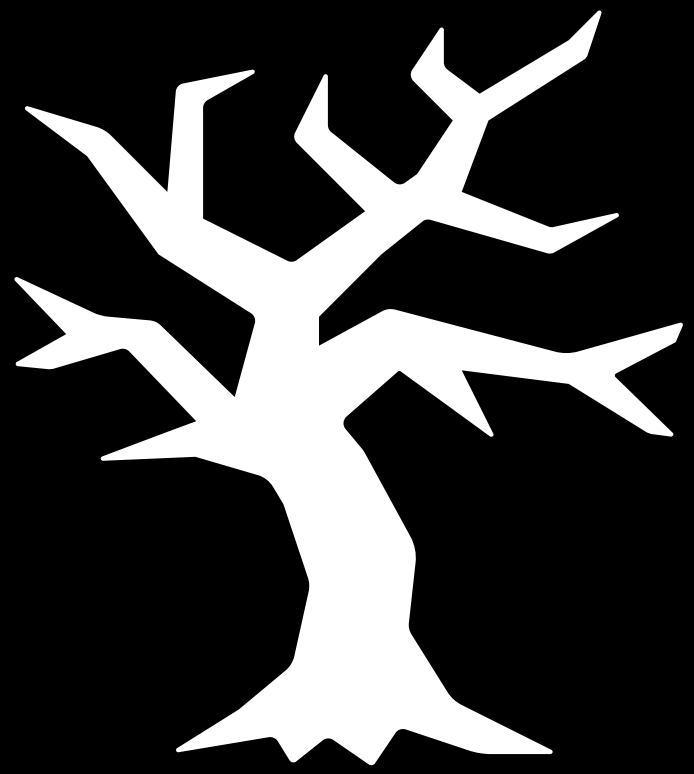
Branching – General concept

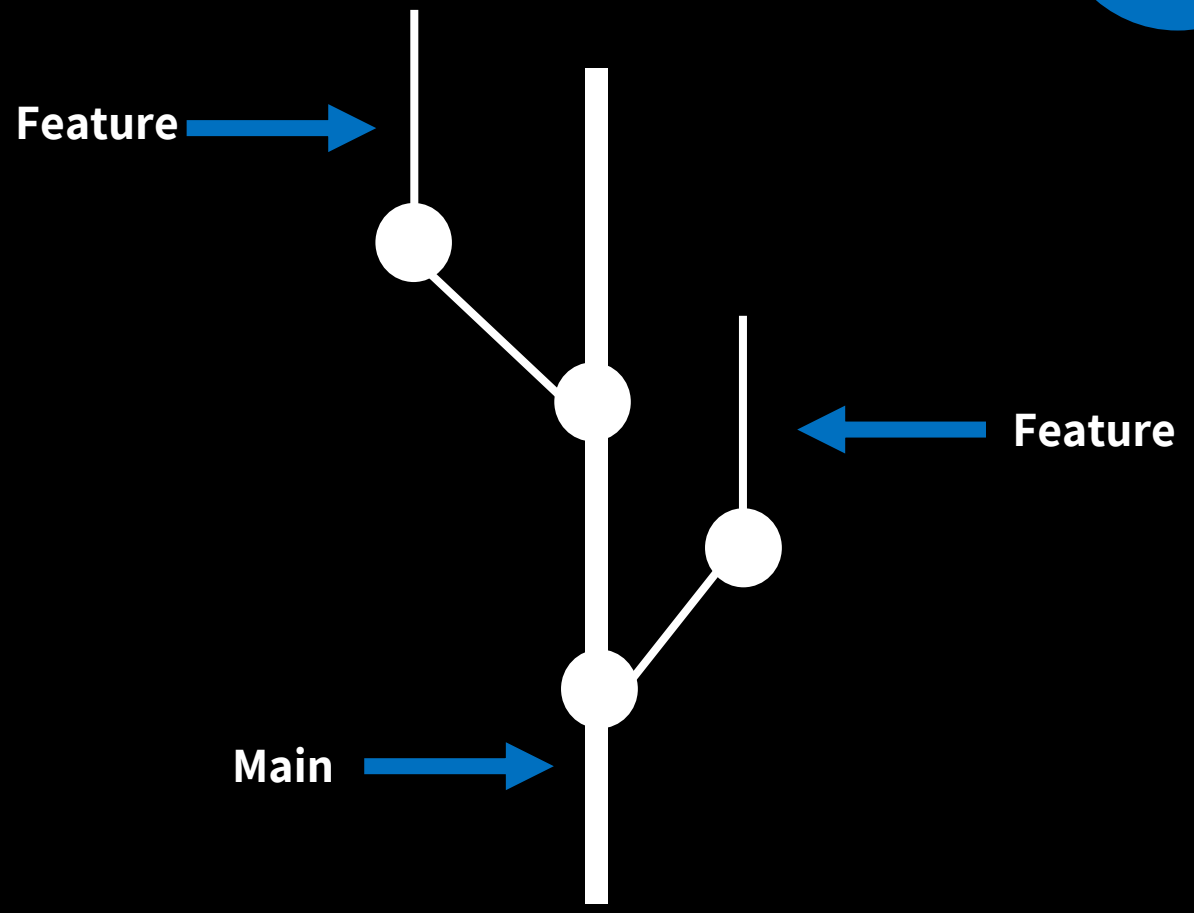
- Isolate development workflow
- Safely create new feature / fix bug
- Copy of code, without modifying “production”,
- Test before saving to “production”

- Without the need for:



But how?



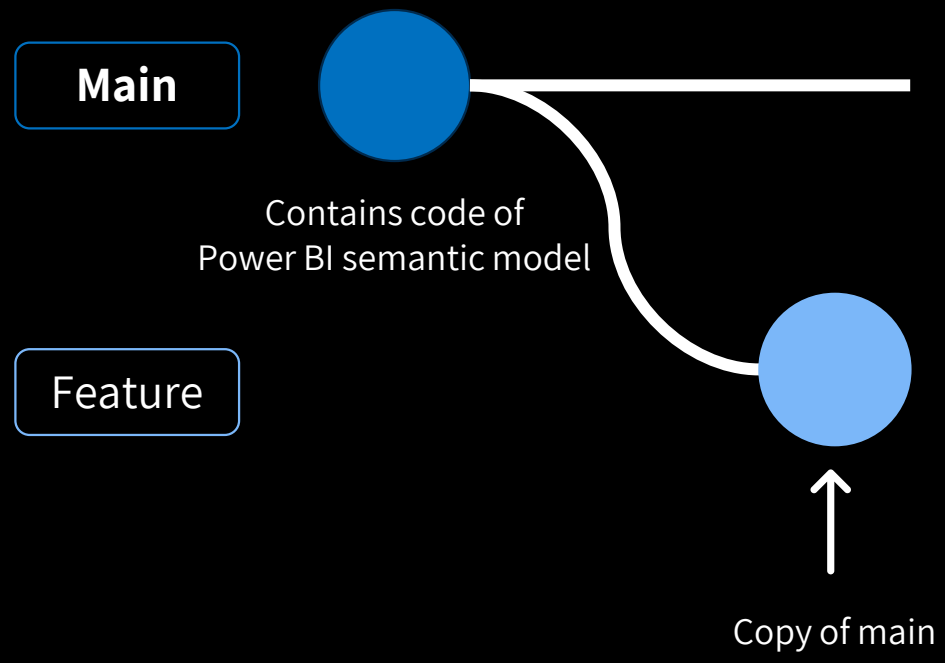


Branching

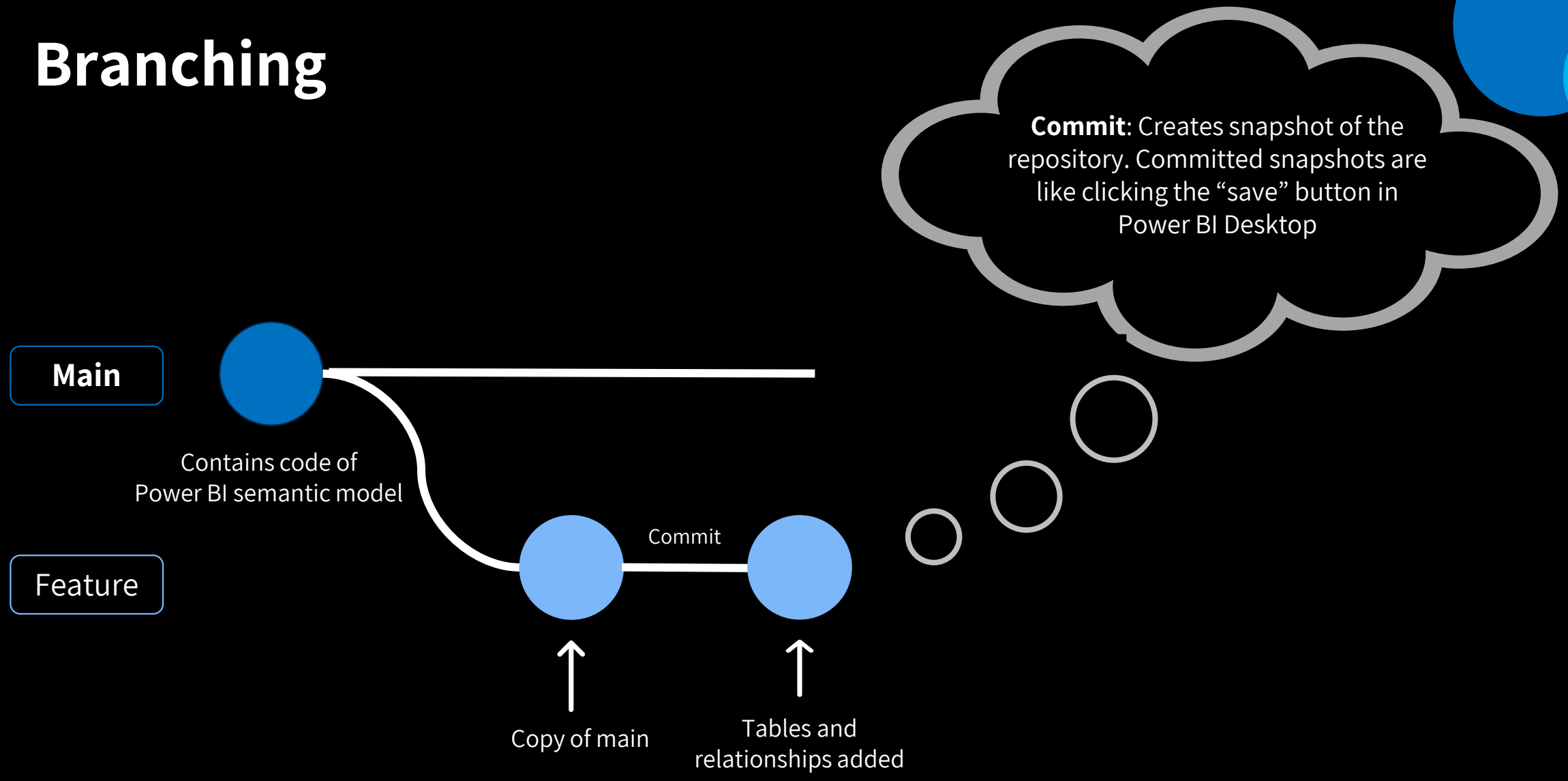
Main

Contains code of Power BI semantic model

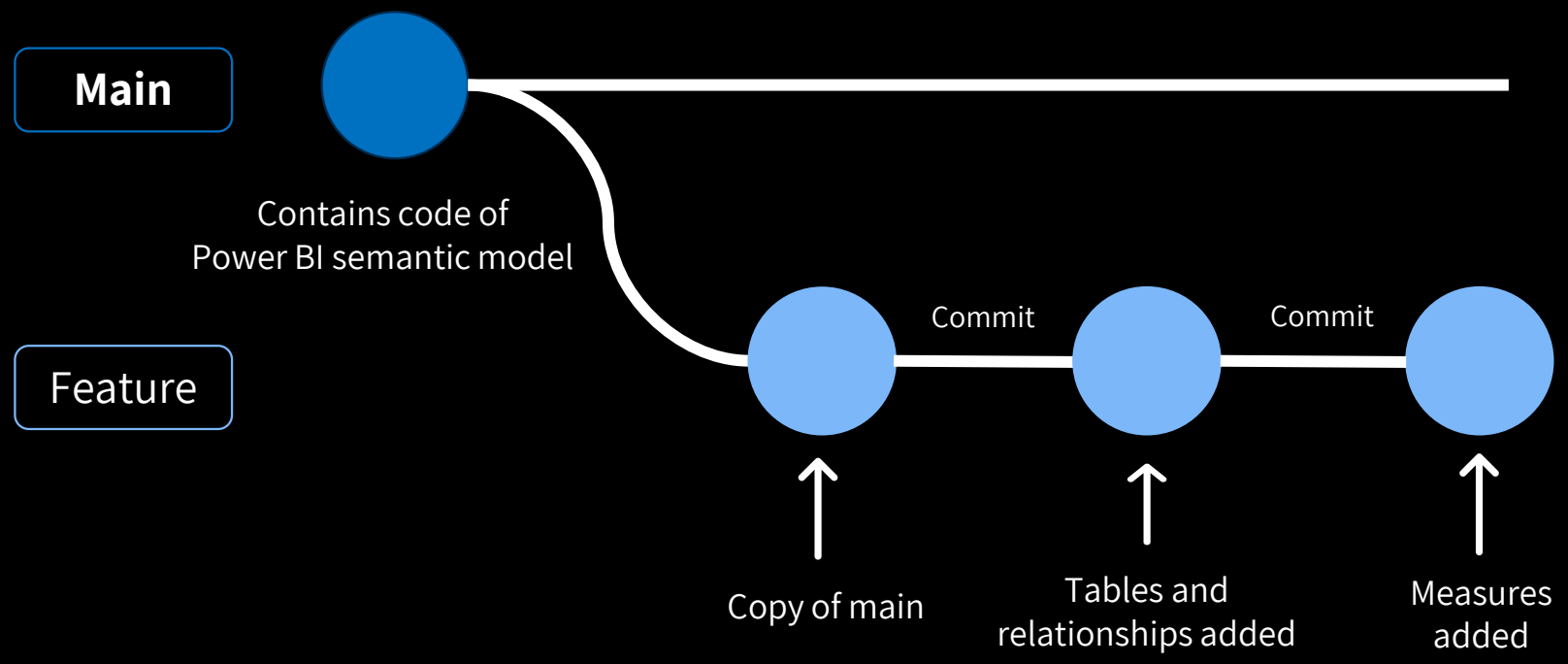
Branching


Main
Contains code of
Power BI semantic model
Feature
Copy of main

Branching

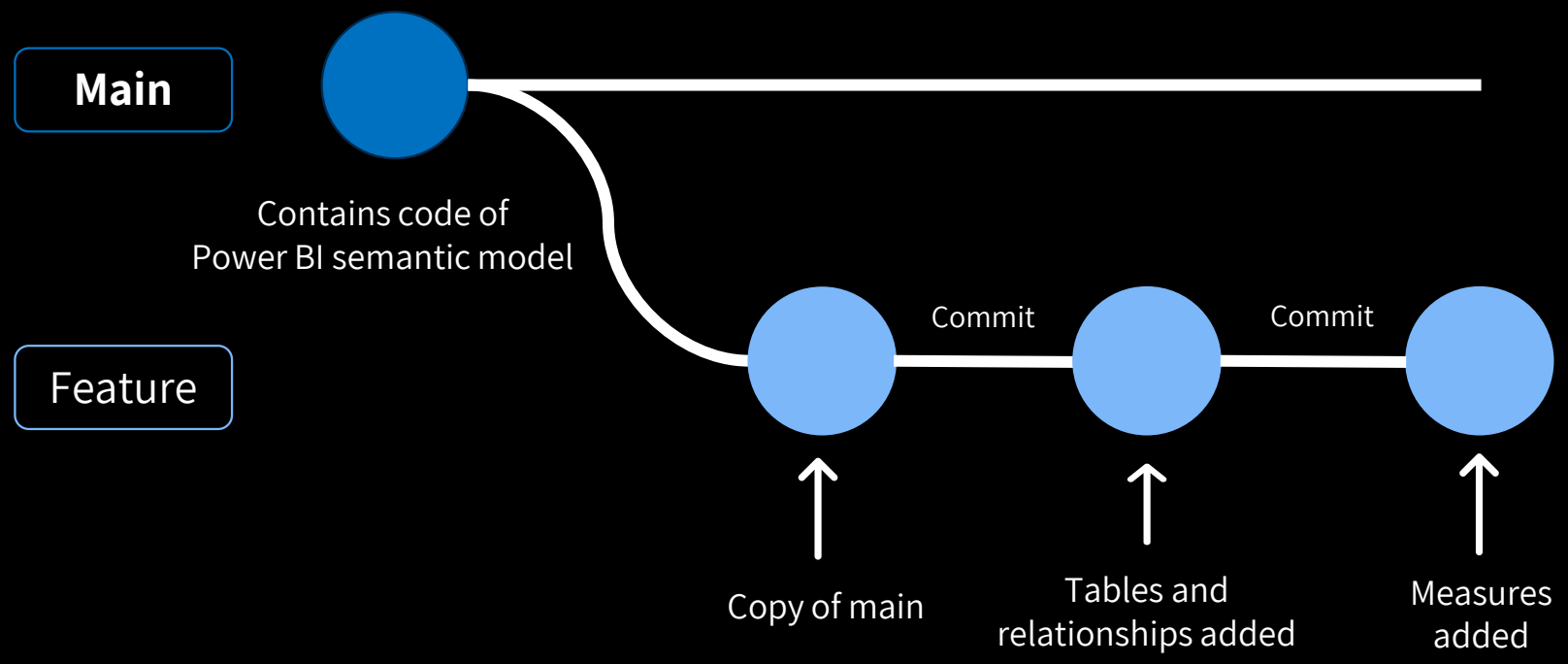

Commit: Creates snapshot of the repository. Committed snapshots are like clicking the “save” button in Power BI Desktop
Main
Contains code of Power BI semantic model
Feature
Commit
Copy of main
Tables and relationships added

Branching


Main
Contains code of
Power BI semantic model
Feature
Commit
Commit
Copy of main
Tables and
relationships added
Measures
added

Demo

Branching

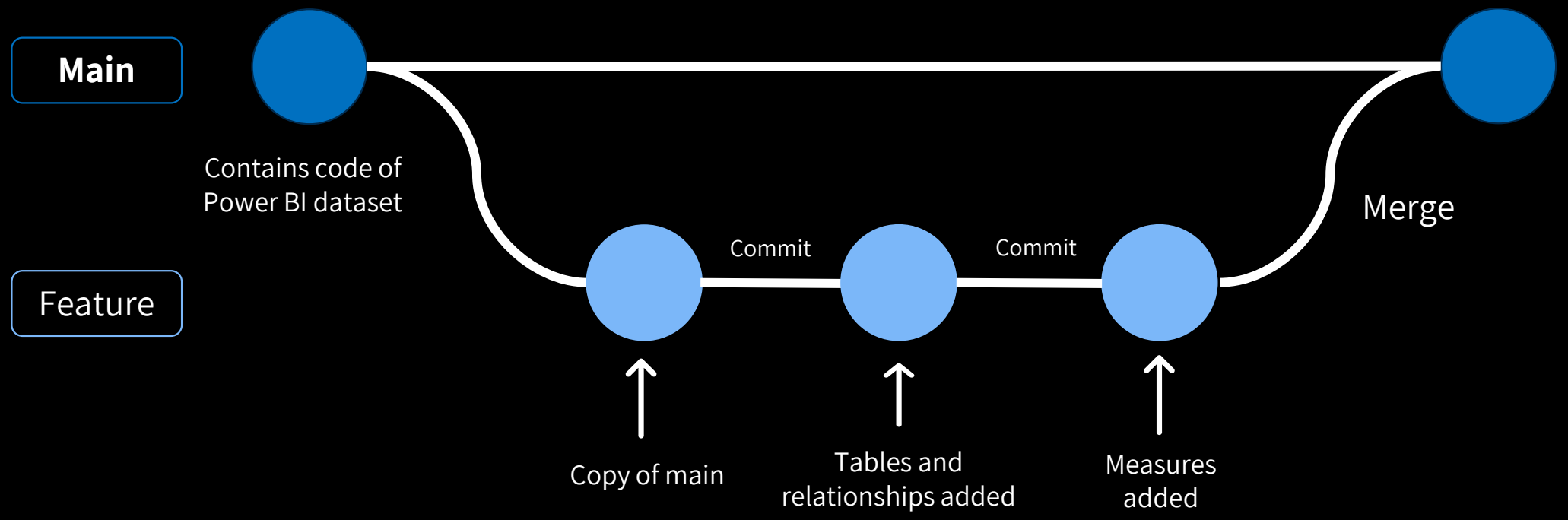


Done developing ☺
Now what?

Merging

- Take the main branch and the feature branch and create one single source of truth.

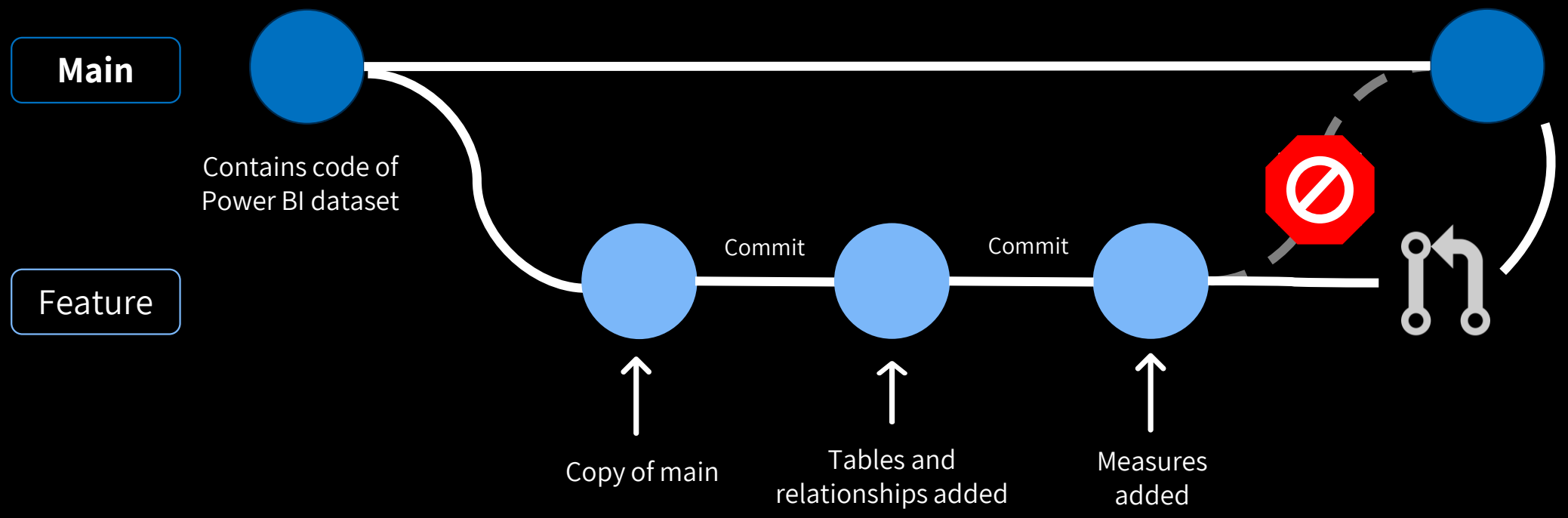
Merging


Main
Feature
Contains code of Power BI dataset
Commit
Commit
Merge
Copy of main
Tables and relationships added
Measures added

Considering main is our production environment...

Do we bring our changes directly to production?

Pull Request



Pull Request (PR)

Protect your main branch by defining branch policies. Nobody can directly commit to Main or approve their own work in a pull request.

With a PR, we realise:

- Validation of work
- 4-eye principle (or more)
- Test code as part of PR

Demo

Wasn’t this already possible?

- Yes! Branching and merging was already possible before.
- But, it was in an unreadable file format, called .pbix.
- Dataset and reports were not seperated → one big file
- Dataset contained data
  - Except if you seperately upload a model.bim / xmla
- PBIX files are often too large (volume wise) which required Large File System (LFS) to be enabled on the repository → LFS = anti-pattern

or

Scenarios

Choices…

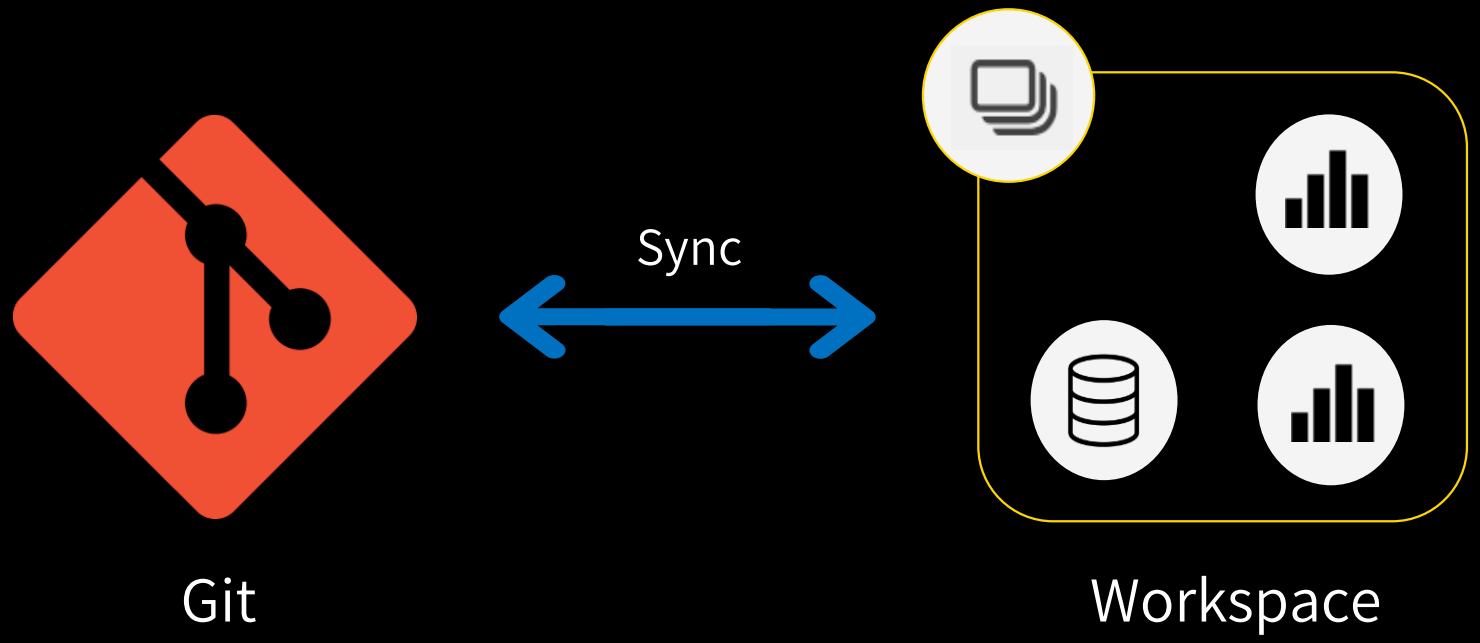
Solely versioning in Git

Git as your source control and versioning system – either locally or in the cloud

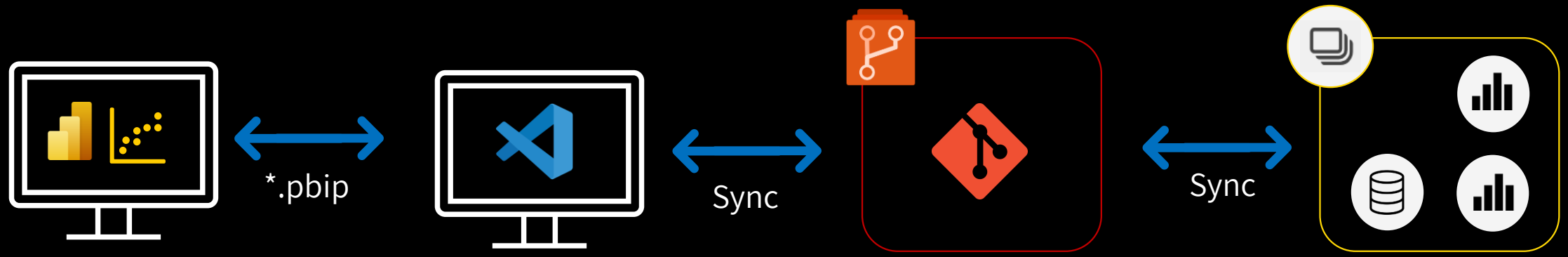
Connect Git to Power BI

Git Integration **in Power BI service** with Azure DevOps as our source control and versioning system

Git Integration with Power BI

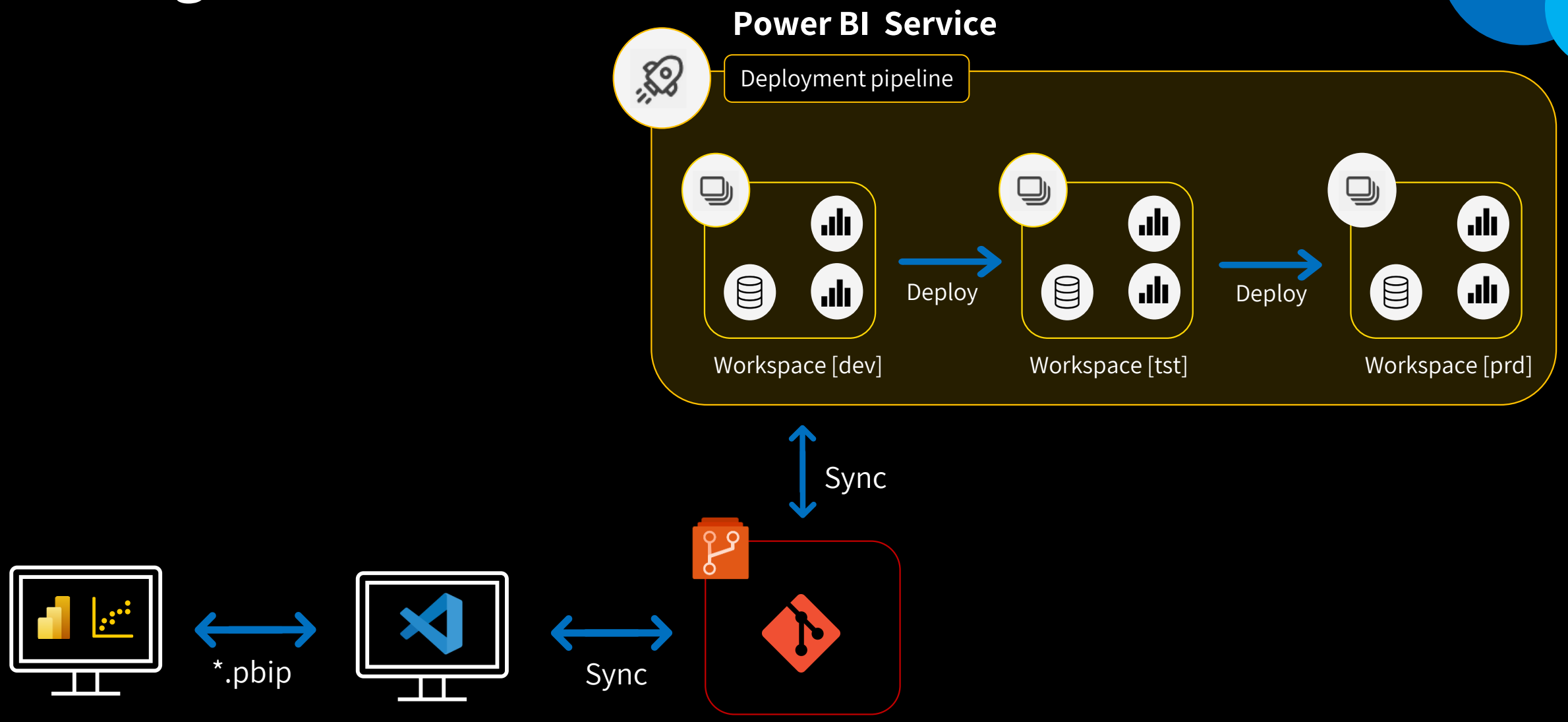


All together

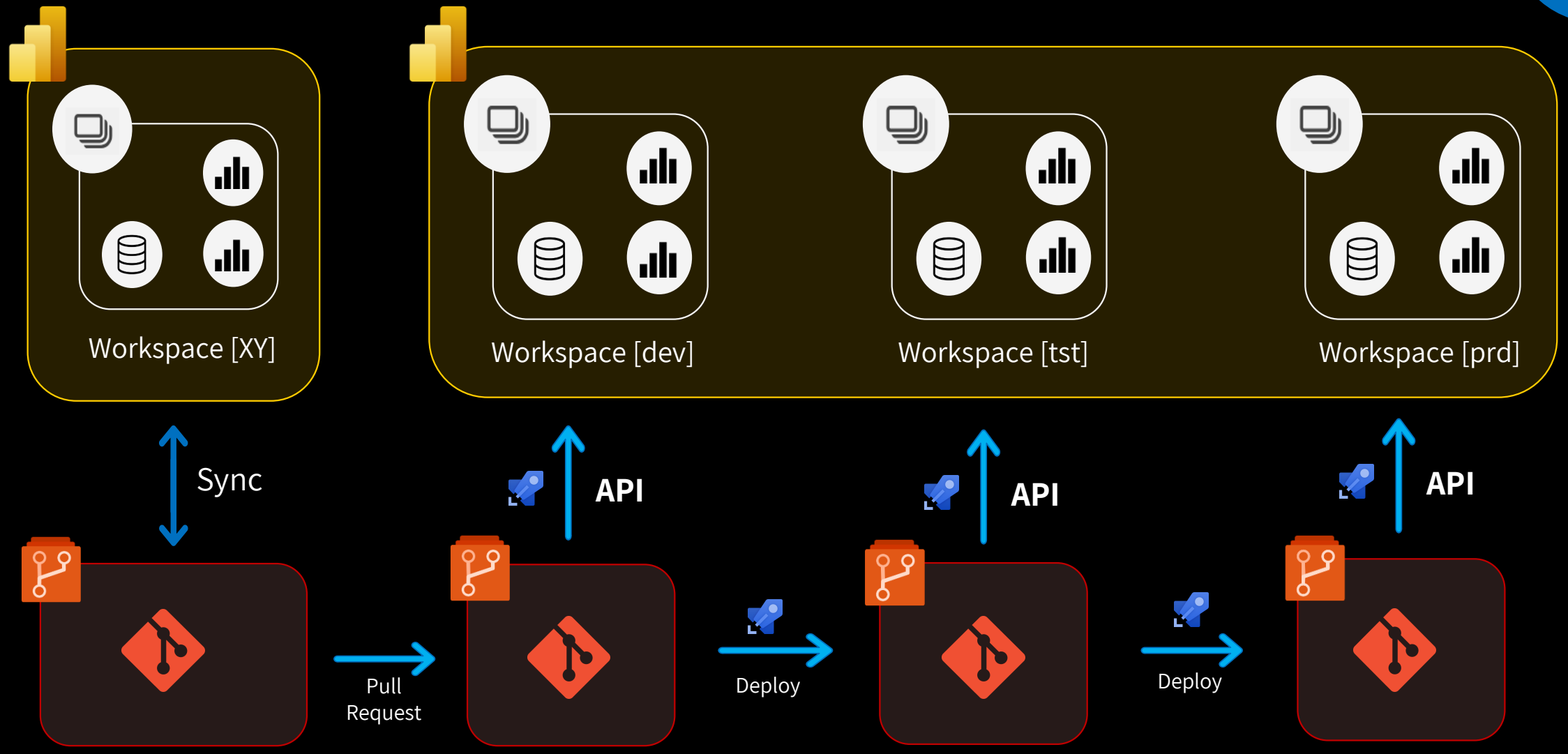


Demo

All together



All Together – Orchestration via Azure Devops



Demo

Combine scenarios

- It’s not as black or white as the solutions presented
- There are many ways to deviate from this design to make this way of work suitable for your organization.

Wrap up

With git integration, we get a **real developer experience** for Power BI solutions

Git allows to check in changes based on code and **track changes**

Choose the **best scenario** for your situation

Although it is not perfect (yet?) it has some **great potential** going forward

Setup your own playground/test environment to **get familiar** with the concepts

Q&A