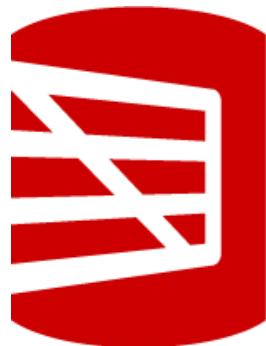


Thank you sponsors!



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Solid Innovator

 **INSPARK**

macaw

Your guide in the Era of AI.

Rubicon
Consulting & Technology

illionx



BRANDER

company

Rate Data Saturday Holland

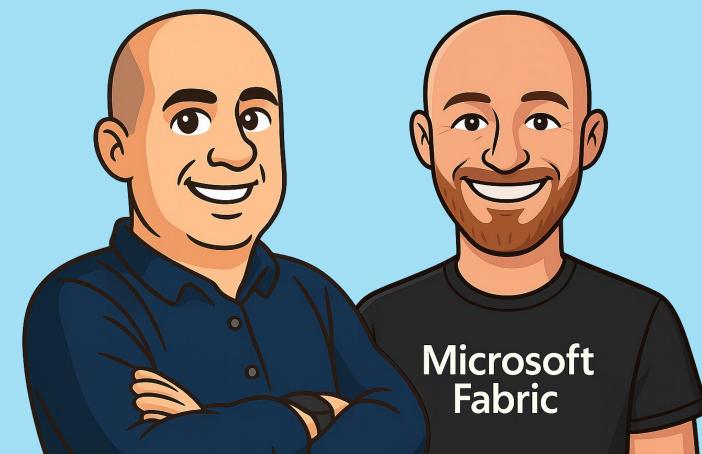


**Review to win
With custom Data Saturdays lego stickers!**



FABRIC AUTOMATION ALL THE WAY

A DEEP DIVE INTO AUTOMATING YOUR
FABRIC DATA PLATFORM



WHO ARE WE?



Peer Grønnerup

Technical Architect & Community Advocate at Tabular Editor

*+15 years working with BI, Data Platform design & automation
Part of the Fabric Private Preview (Project Trident)
... and all in on Fabric Automation and CI/CD!*

 <https://www.linkedin.com/in/peergroennerup/>

 <https://peerinsights.hashnode.dev>

 <https://github.com/gronnerup>

WHO ARE WE?

Erwin de Kreuk

Principal Consultant

Lead Data & AI at InSpark



<https://www.linkedin.com/in/erwindekreuk/>

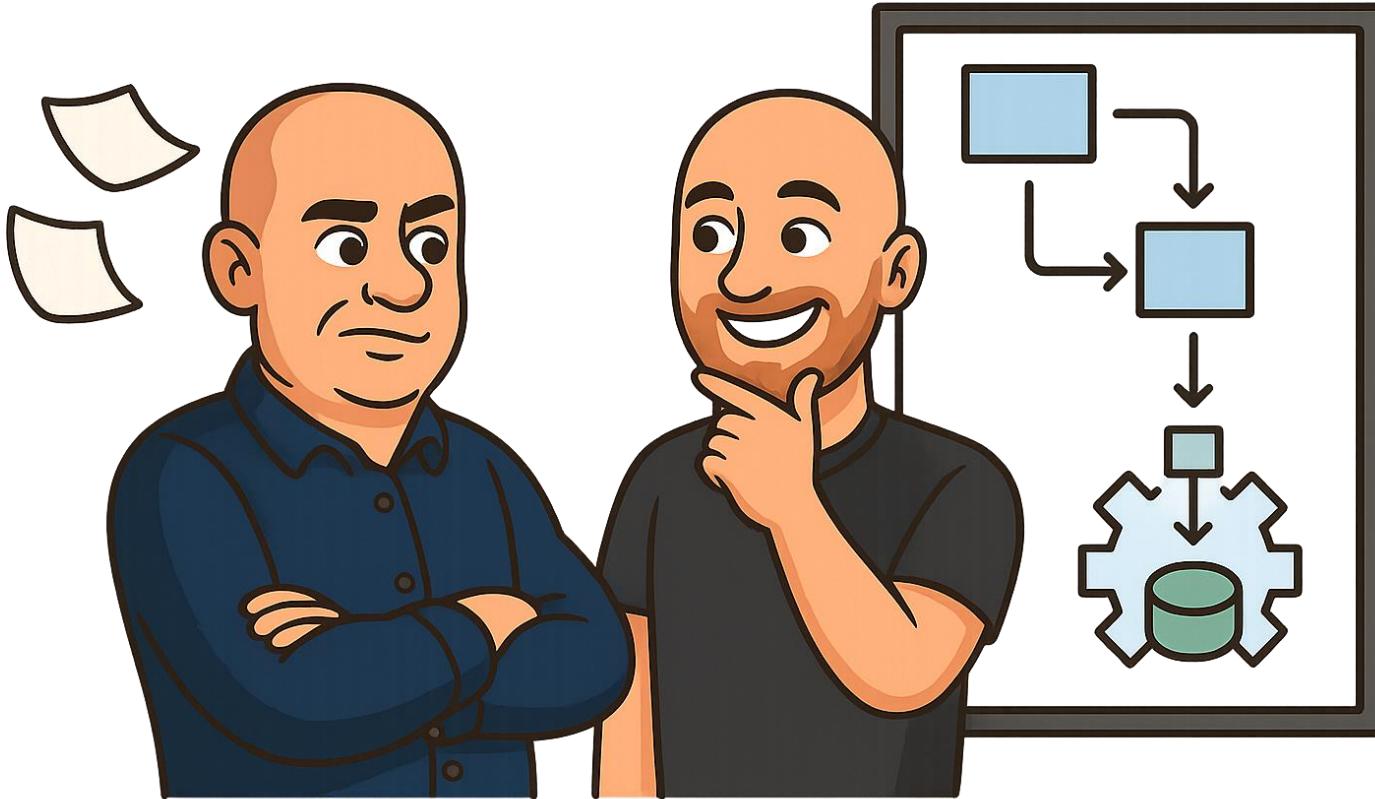
<https://erwindekreuk.com>

<https://github.com/edkreuk>

<Https://Dutchfabricusergroup.com>

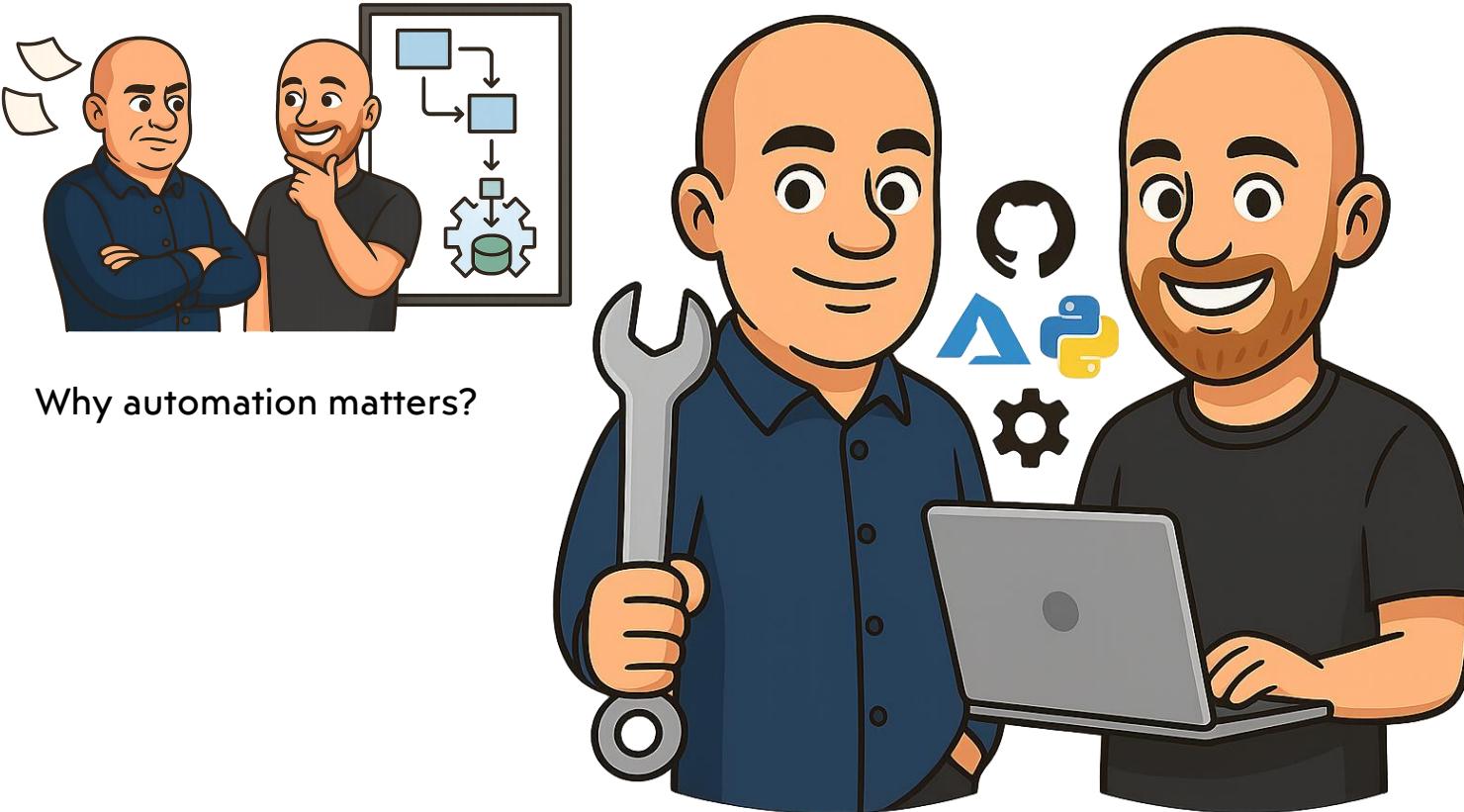


SO, WHERE ARE WE GOING TODAY...?



Why automation matters?

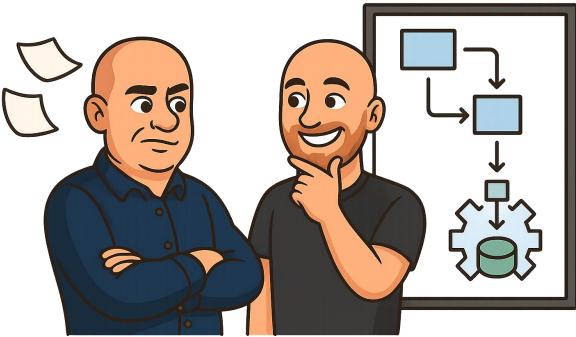
SO, WHERE ARE WE GOING TODAY...?



Why automation matters?

Tooling

SO, WHERE ARE WE GOING TODAY...?

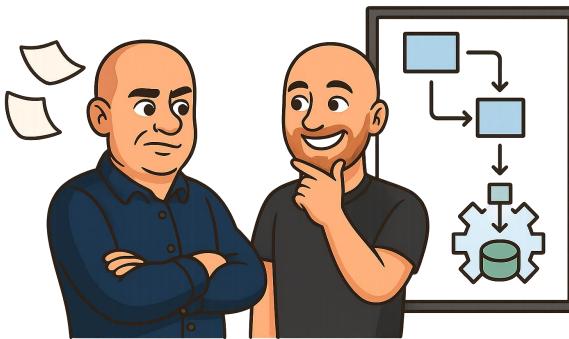


Why automation matters?

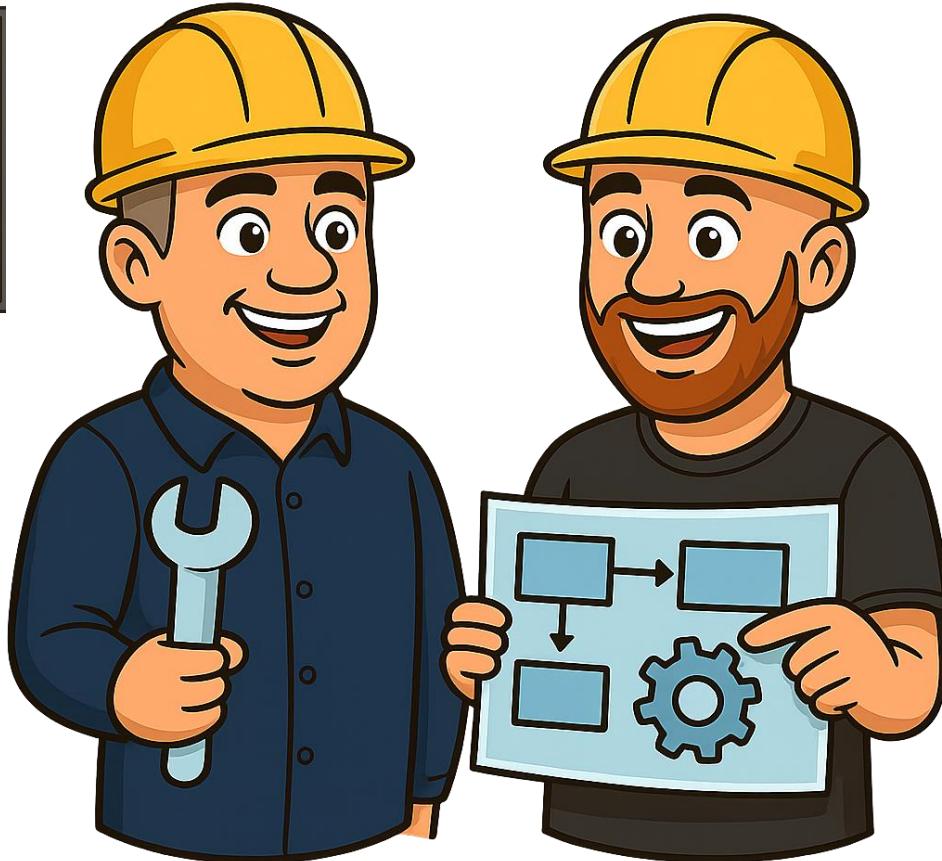


Getting started as a non hero

SO, WHERE ARE WE GOING TODAY...?



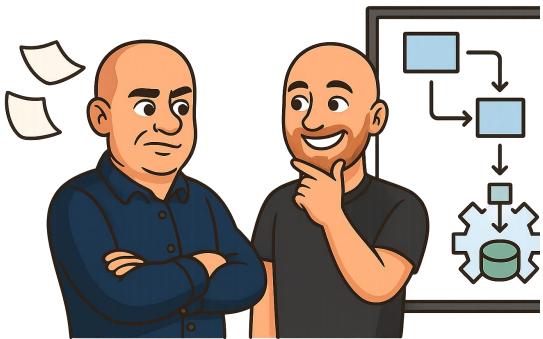
Why automation matters?



Getting started as a non hero

Architecting for automation

SO, WHERE ARE WE GOING TODAY...?



Why automation matters?



Getting started as a non hero



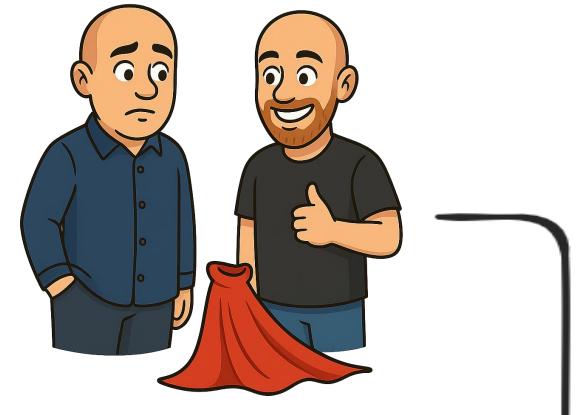
Architecting for automation

Fabric IaC

SO, WHERE ARE WE GOING TODAY...?



Why automation matters?



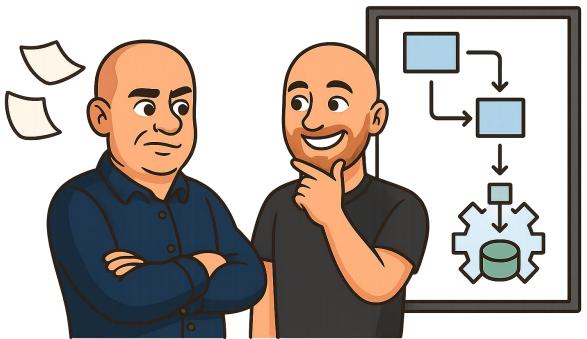
Getting started as a non hero



Architecting for aut

BREAK

SO, WHERE ARE WE GOING TODAY...?



Why automation matters?



Tooling



Getting started as a non hero



Architecting for automation

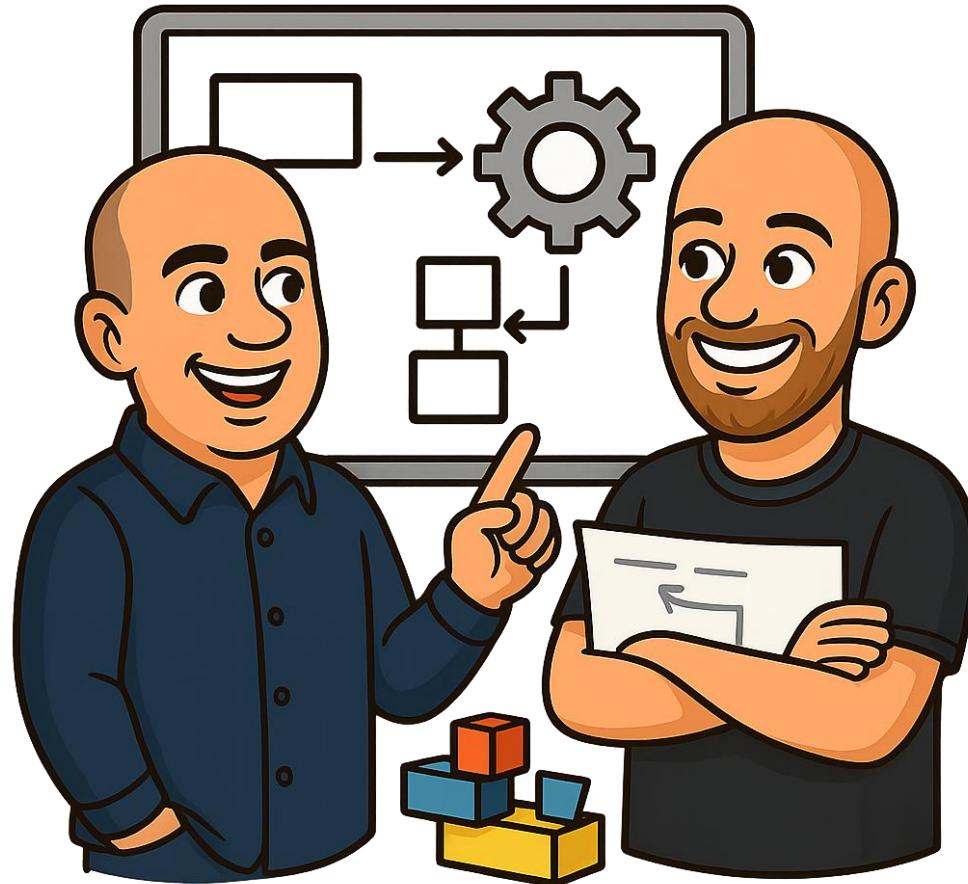


Fabric IaC



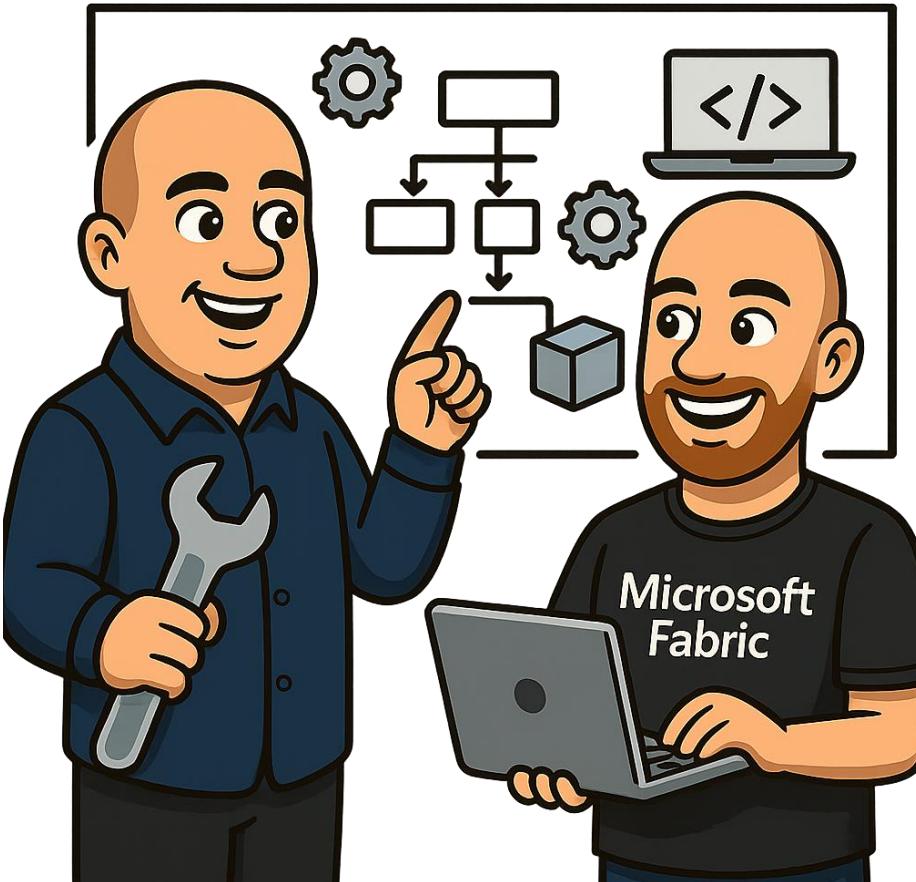
BREAK

...AND AFTER THE BREAK?



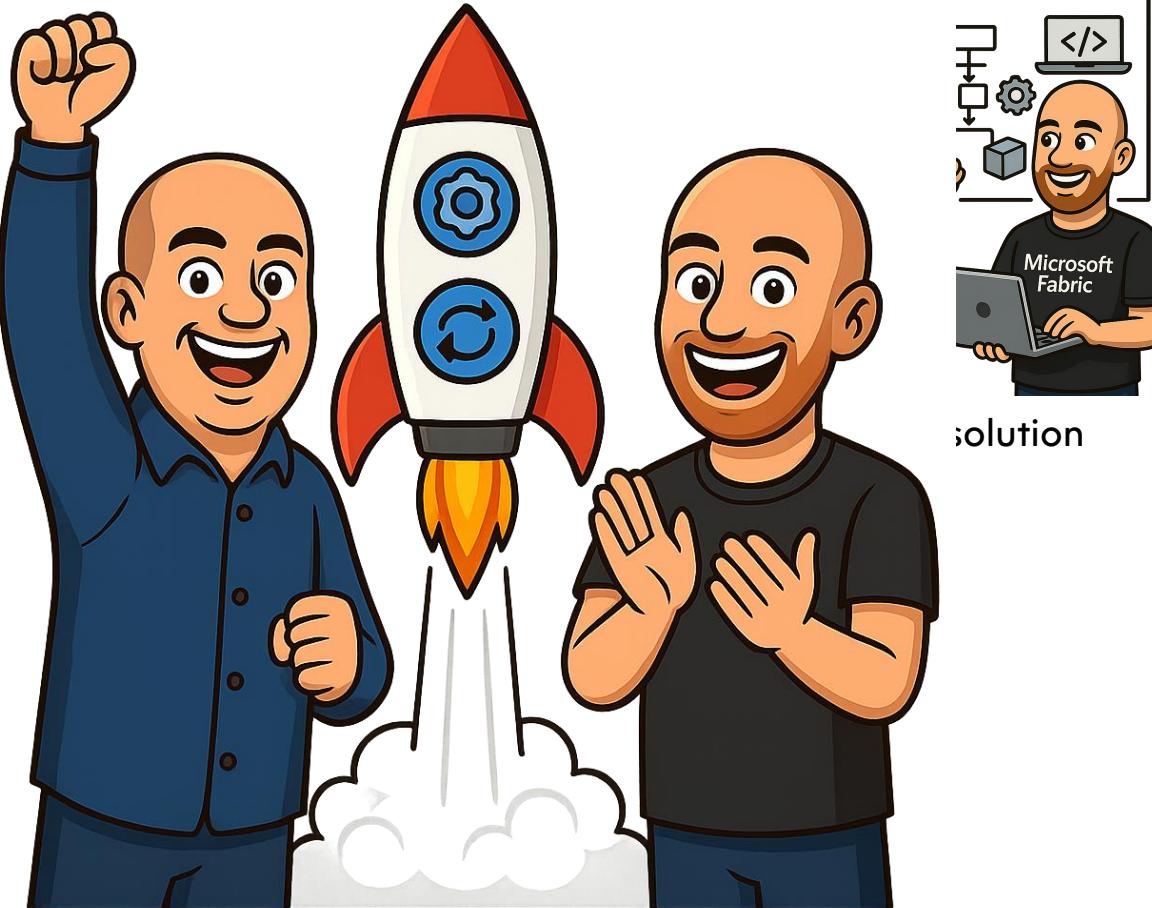
Ways-of-working

...AND AFTER THE BREAK?



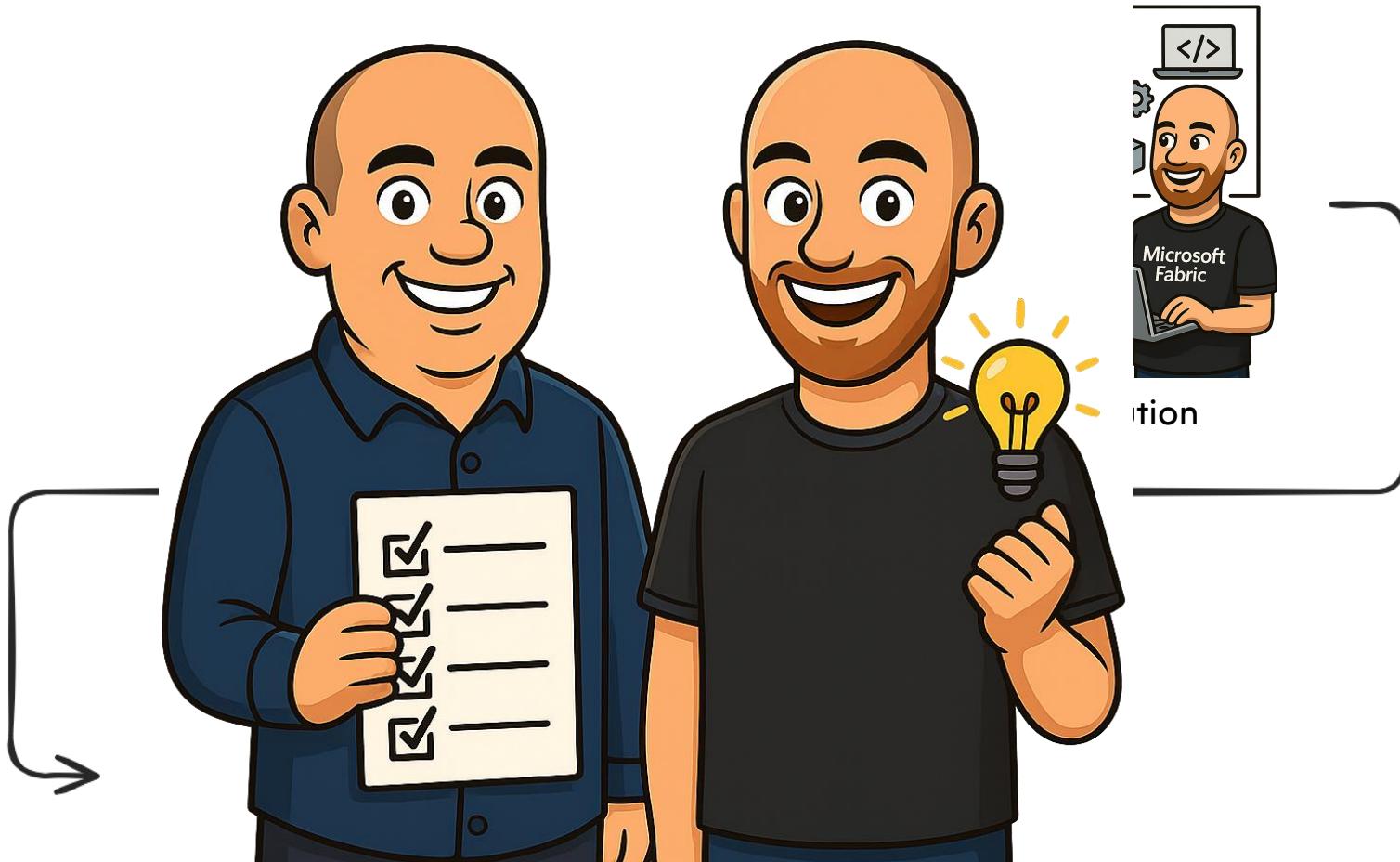
Building our solution

...AND AFTER THE BREAK?



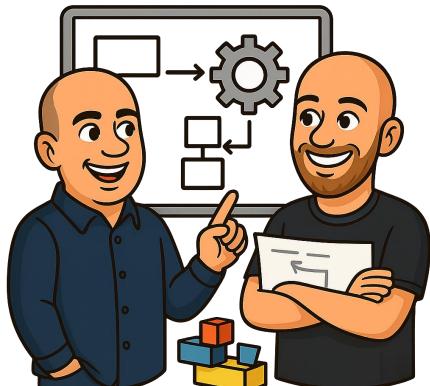
Deployment

...AND AFTER THE BREAK?

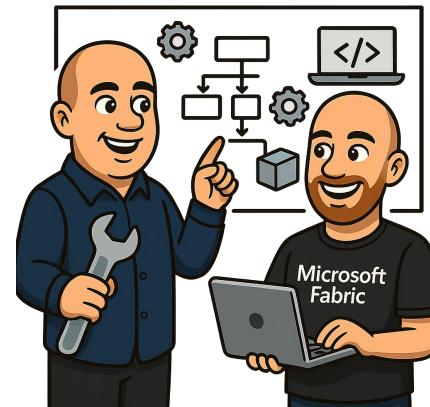


Best Practices, tips & tricks

...AND AFTER THE BREAK?



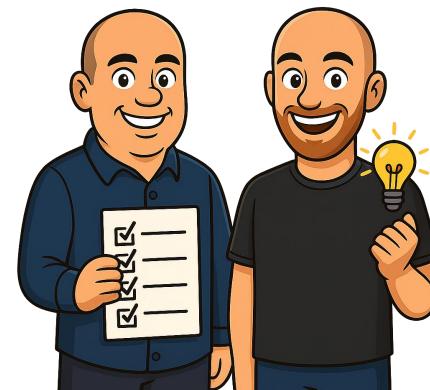
Ways-of-working



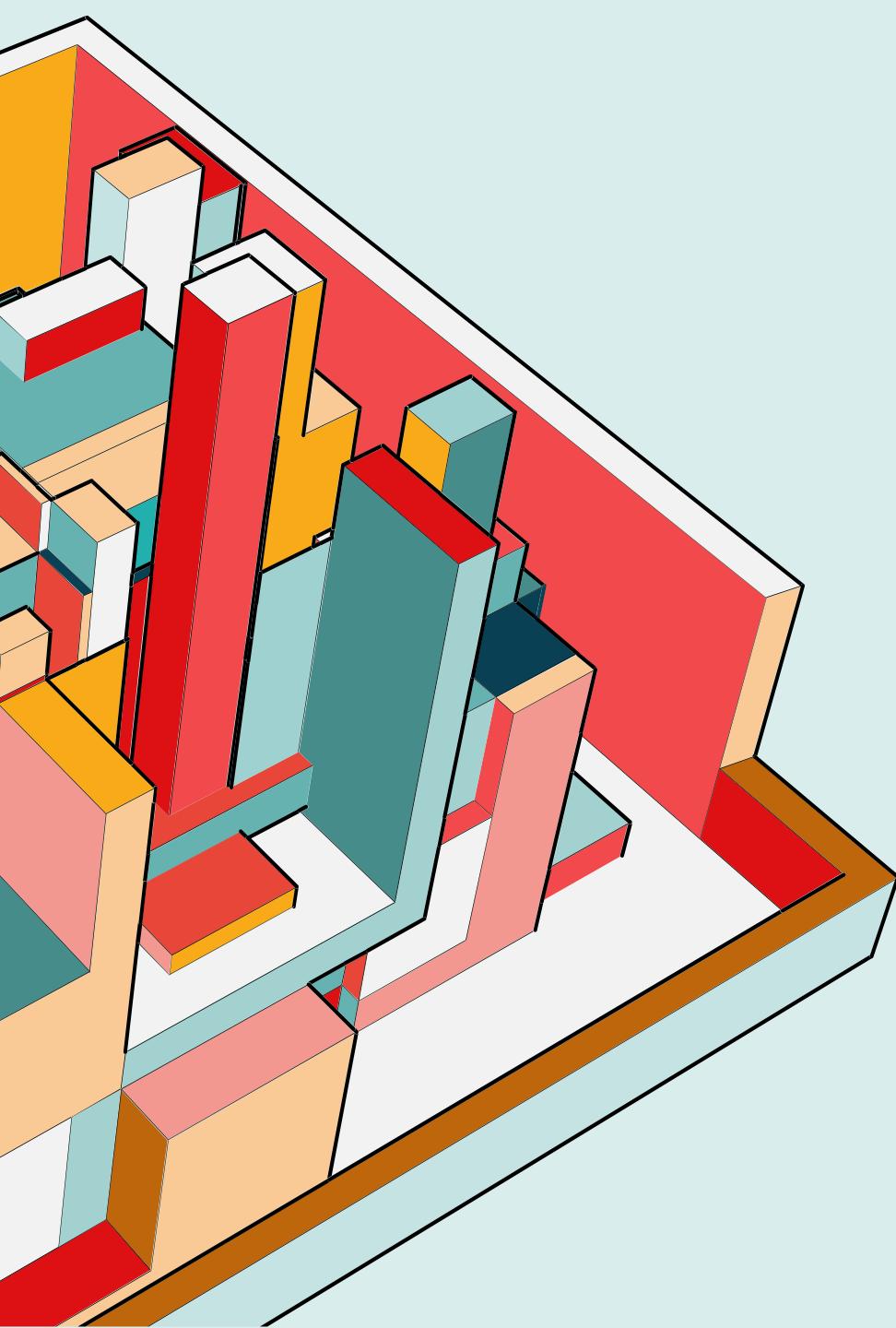
Building our solution



Deployment



Best Practices, tips & tricks

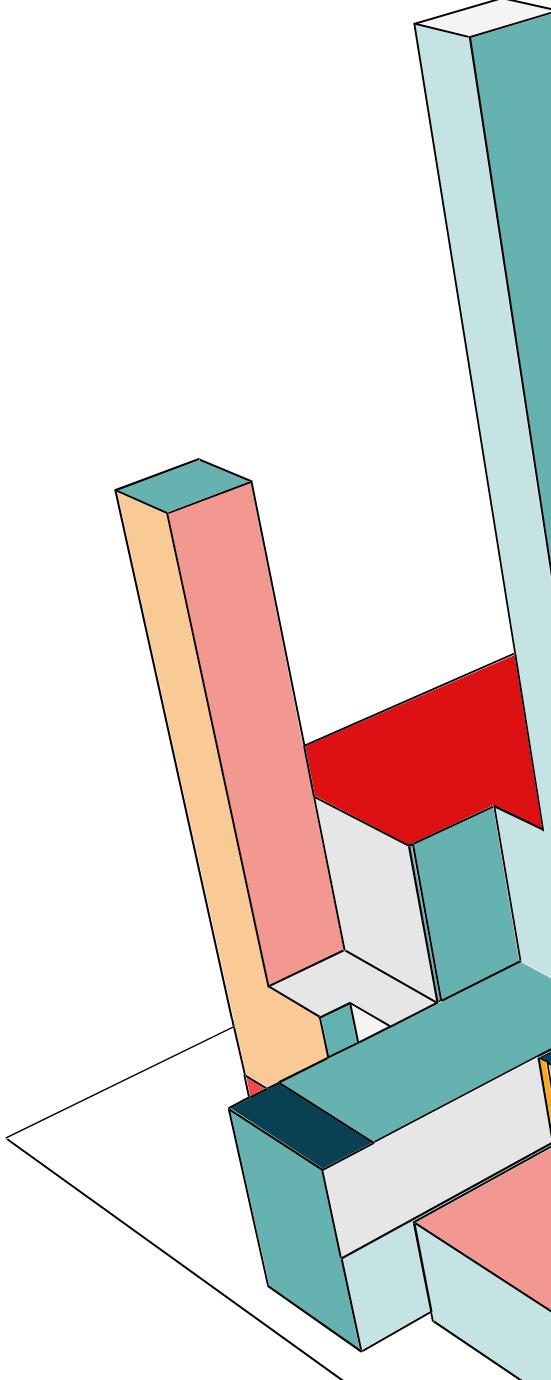


BEFORE WE START...

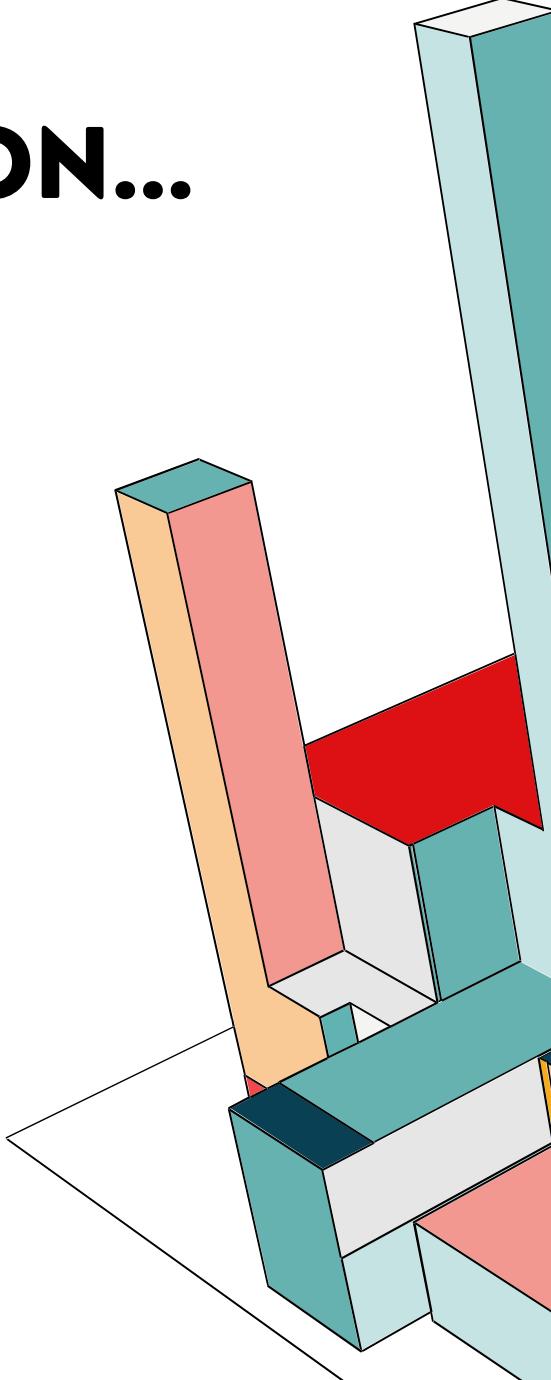
A quick poll

WHAT LEVEL ARE YOU?

- Where are you on automation?
- And what tools are you using?
- Are you using Fabric git integration?



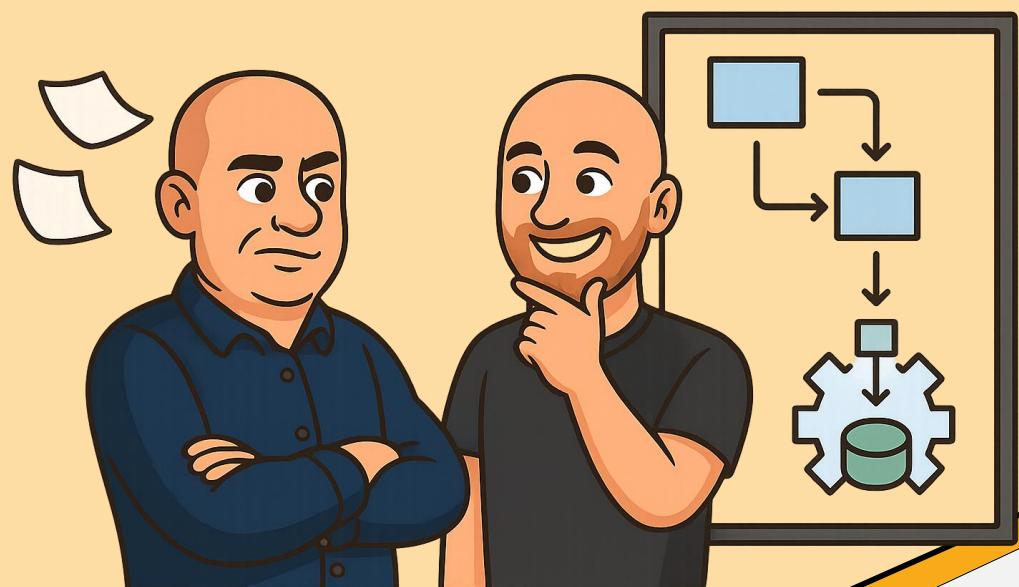
WHERE ARE WE NOW? POST-FABCON...



SCONE.U



WHY AUTOMATION MATTERS!



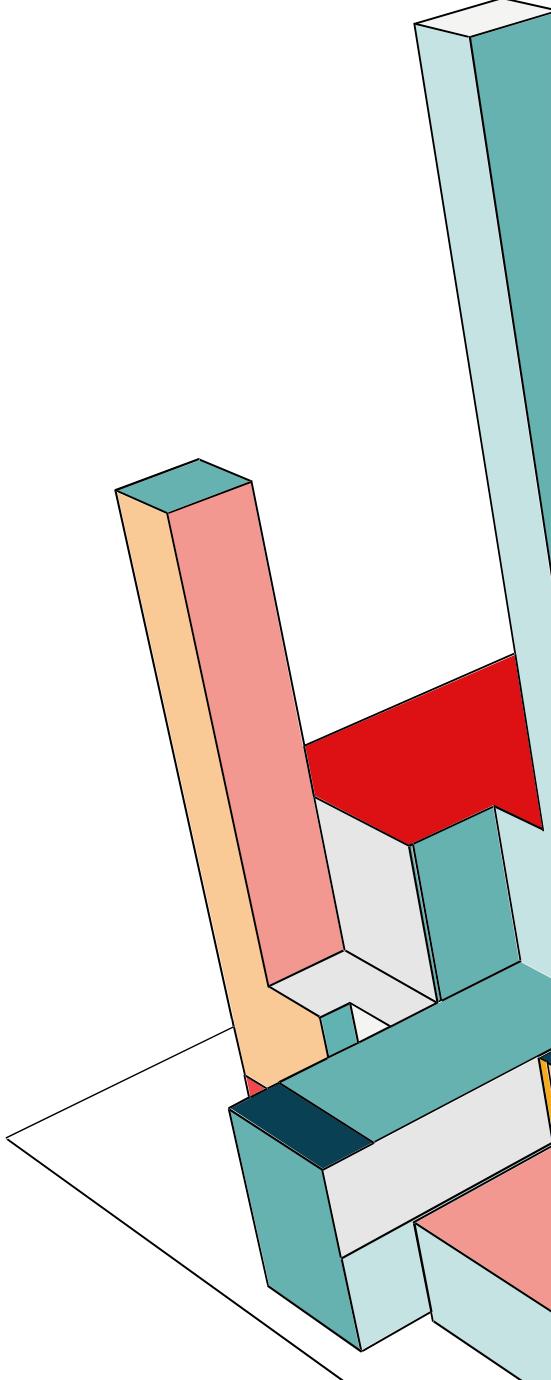
WHY AUTOMATION MATTERS!

Business drivers

- Minimize risk
- Time to market
- Cost efficiency

Technical advantages

- Scalability
- Extensibility
- Flexibility



TOOLING LANDSCAPE FOR FABRIC AUTOMATION



FABRIC AUTOMATION & CI/CD LANDSCAPE

Git Integration

Variable library

fabric-cicd

Fabric REST APIs

Fabric CLI

Deployment pipelines

Semantic Links Lab

Terraform Provider

.NET SDK



FABRIC AUTOMATION & CI/CD LANDSCAPE

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Terraform Provider

.NET SDK



FABRIC TOOLING LAYERS



High Level Tools

Enhance usability and automation

Terraform Provider
fabric-cicd library
Semantic Link Labs



Abstraction Layer

Provide direct interaction with the APIs

Fabric CLI
.NET SDK

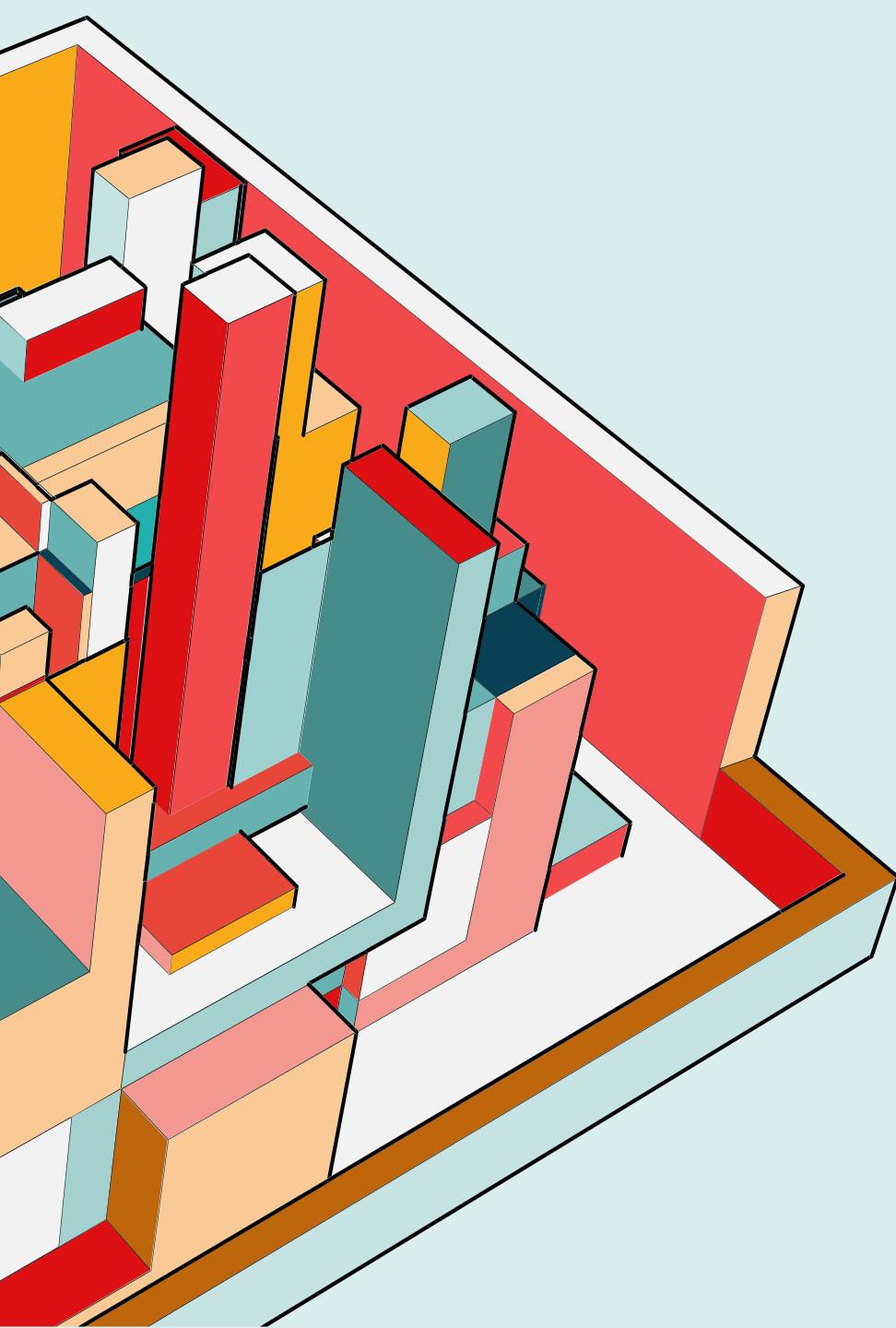


Foundation Layer

Serve as the base for all interactions

Fabric REST APIs





FABRIC REST APIs

The foundation for automation

AUTOMATING FABRIC USING REST APIs

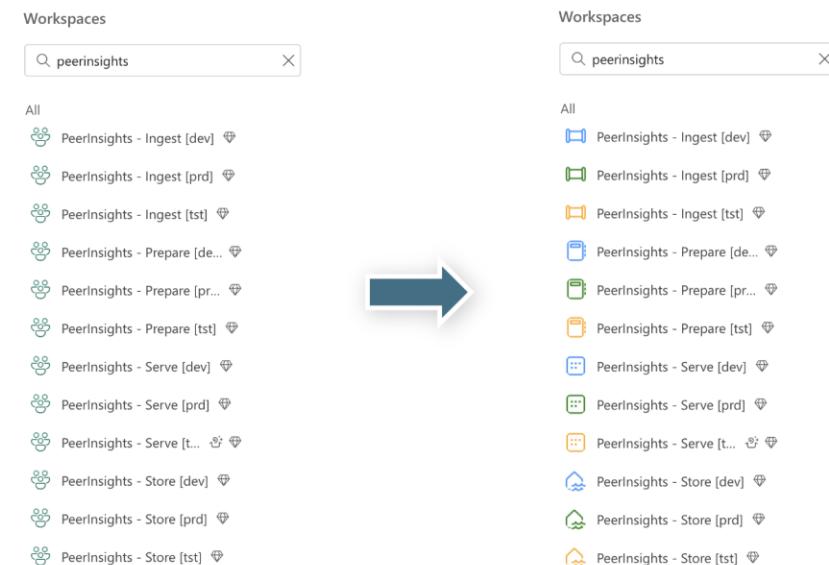


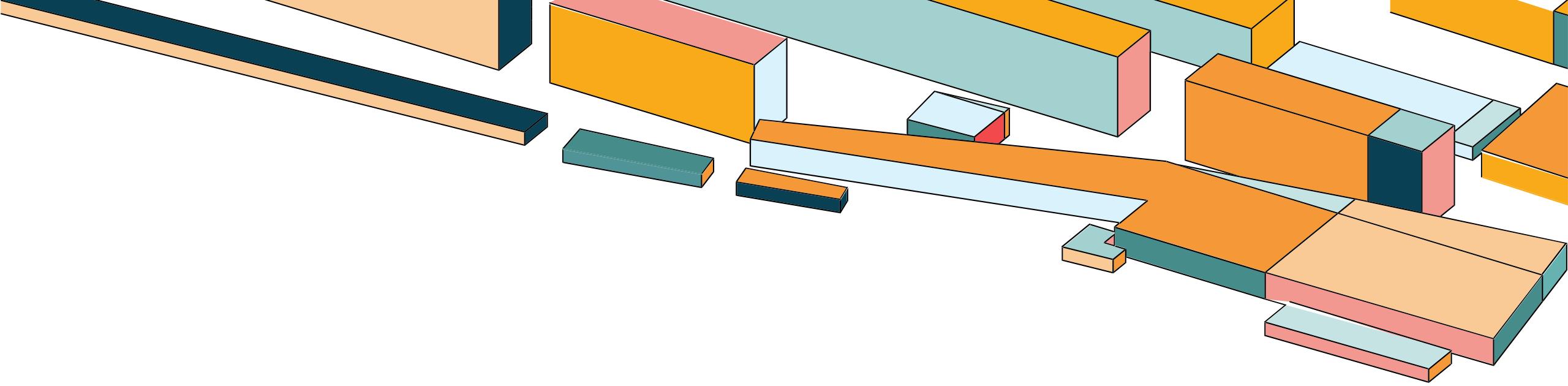
→ <https://learn.microsoft.com/en-us/rest/api/fabric/articles/>

INTERNAL AND UNSUPPORTED APIs

Where there is a will – there is a way...

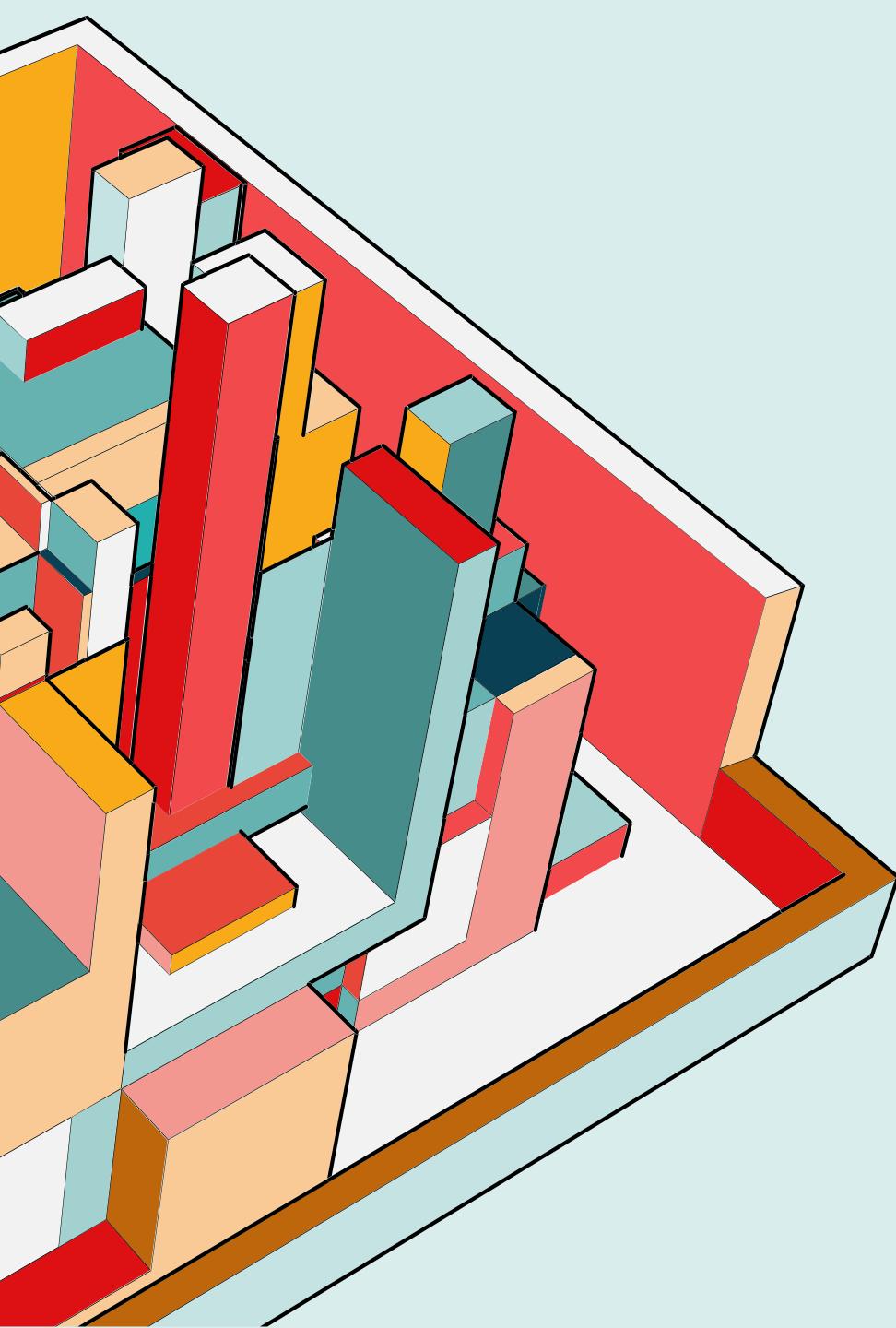
- What is possible in the Fabric/Power BI Service is most likely also possible to automate
- Get ready to do some reverse engineering
- Tooling:
 - Browser (developer mode)
 - Postman
 - VS Code, Cursor or other IDEs
 - Fabric Notebooks
- Example:
<https://peerinsights.hashnode.dev/automating-fabric-maintaining-workspace-icon-images>





DEMO

The background of the slide features a collection of 3D rectangular blocks of various sizes and colors, including orange, teal, light blue, and dark blue. These blocks are arranged in a non-linear, overlapping fashion, creating a sense of depth and movement. Some blocks are positioned higher up, while others are lower, suggesting they are floating in a space. The colors are vibrant and provide a strong visual contrast against the white background.

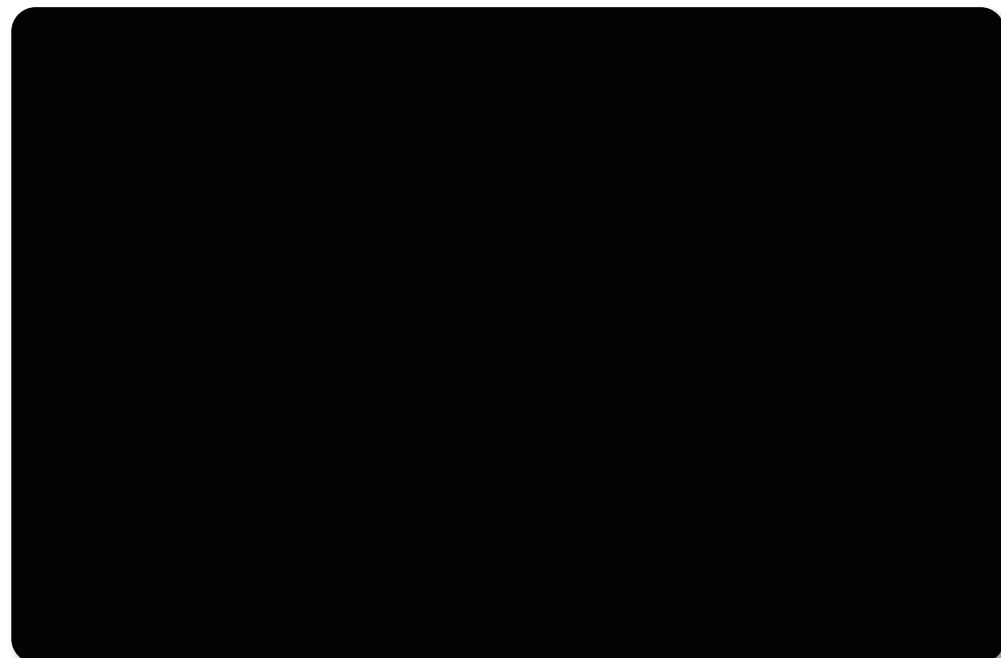


FABRIC CLI

The Command Line Way

FABRIC CLI – THE COMMAND LINE WAY

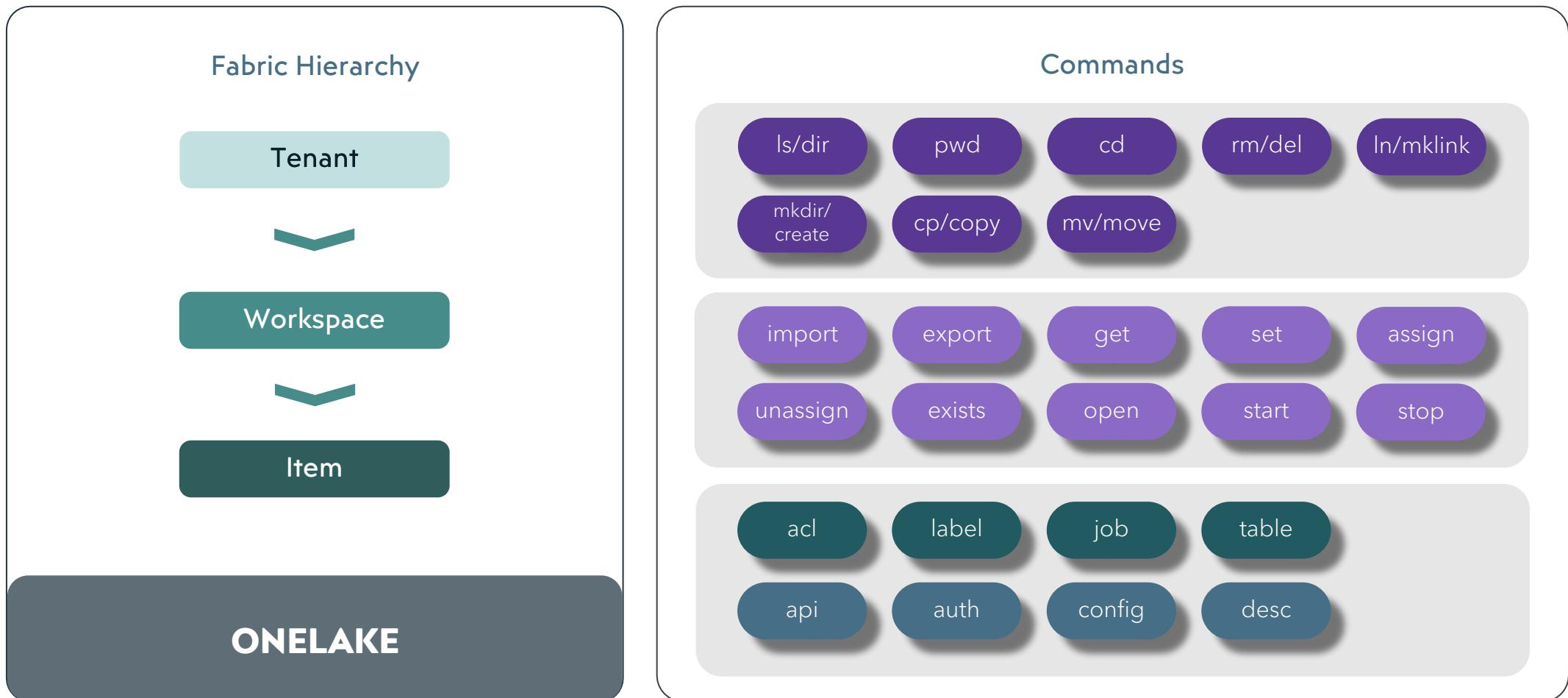
GA & OSS



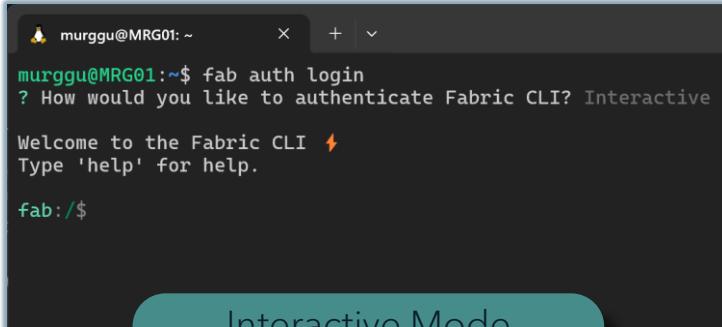
<https://aka.ms/FabCLI>

- **Built for Developers**
 - Operate and automate Fabric from your terminal, scripts, and pipelines.
 - No more bouncing to the UI.
- **Simple Mental Model**
 - Navigate Fabric like a file system.
 - Interactive and Non-Interactive modes
- **Based on Public APIs - without the complexity**
 - Wraps Fabric, Power BI, OneLake & ARM APIs.
- **Works with your favorite IDEs like VS Code etc.**
- **In GA and just open-sourced!**

FABRIC AS A FILE SYSTEM



CLI MODES



```
murggu@MRG01:~$ fab auth login
? How would you like to authenticate Fabric CLI? Interactive mode
Welcome to the Fabric CLI ✨
Type 'help' for help.

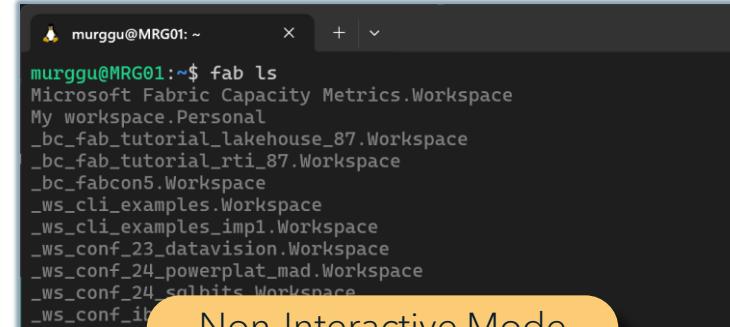
fab:/$
```

Interactive Mode

Type queries interactively in a terminal, execute them, and see the results.

Type fab auth login and enter

- Run commands interactively within a session
- Results displayed in real-time



```
murggu@MRG01:~$ fab ls
Microsoft Fabric Capacity Metrics.Workspace
My workspace.Personal
_bc_fab_tutorial_lakehouse_87.Workspace
_bc_fab_tutorial_rti_87.Workspace
_bc_fabcon5.Workspace
_ws_cli_examples.Workspace
_ws_cli_examples_Impl1.Workspace
_ws_conf_23_datavision.Workspace
_ws_conf_24_powerplat_mad.Workspace
_ws_conf_24_salbits.Workspace
_ws_conf_ib...  
Non-Interactive Mode
```

Pass queries directly as command-line arguments when invoking fab <command>.

Use fab <command> directly from terminal

- Useful for quick queries or automation
- Ideal for CI/CD with GitHub Actions, ADO pipelines, and scripts

WHY WE NEED A BETTER WAY



Enhanced local interaction



Automation & custom CI/CD

- No constant need to switch to the browser
- Streamline workflows and better focus
- Flexibility for quick, local tasks

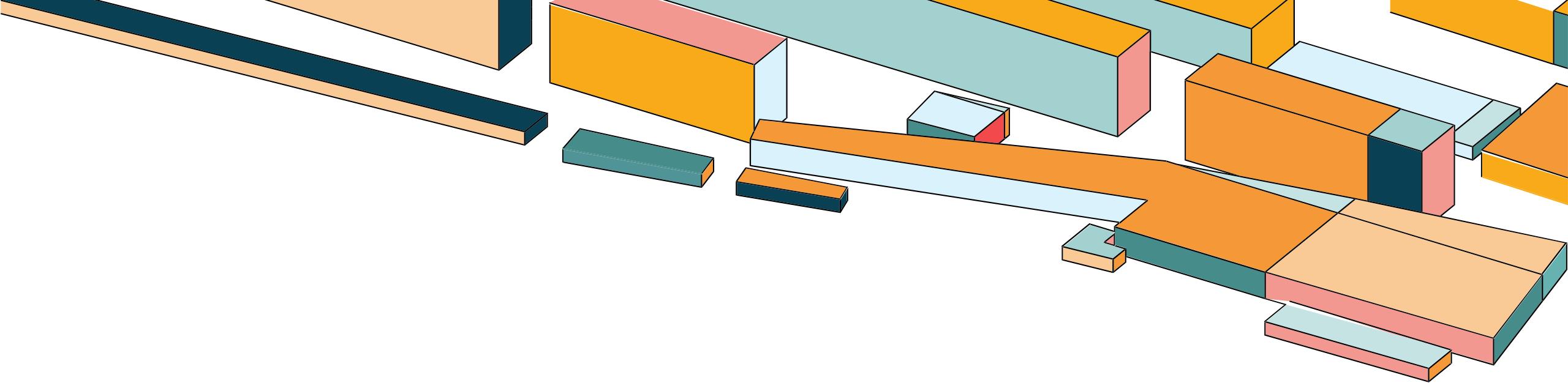


Better developer experience

- Set up tailored pipelines
- Enhanced deployment automation
- Integrate with Azure DevOps and GitHub



Simplified automation and scripting



HOW TO GET STARTED WITH THE CLI

SETUP TO RUN CLI COMMANDS

Prerequisites

- Python version 3.10, 3.11, or 3.12
- Python must be accessible from your terminal (PATH environment variable)

Installation

- pip install ms-fabric-cli

Use full configuration commands

- fab config set encryptionFallbackEnabled true
- fab config set mode interactive

Authentication

Identity Type	Scenario
User	Interactive browser login
Service Principal	Secret Certificate Certificate + password Federated token
Managed Identity	System-assigned User-assigned

GETTING STARTED AS A NON HERO



WHY – AN EXAMPLE

Example: Creating the foundation for a medallion architecture with the Fabric CLI

- Create 3 workspaces
- Assign capacity
- Create 3 lakehouses
- Create shortcut
- Import Notebook



Using Fabric UI

Manual effort

No support for automation

~10 min.

~ 50 clicks + 100 keystrokes



Python & REST APIs

High initial effort

Supports automation

< 10 sec. / hours of initial work

+500 lines of code



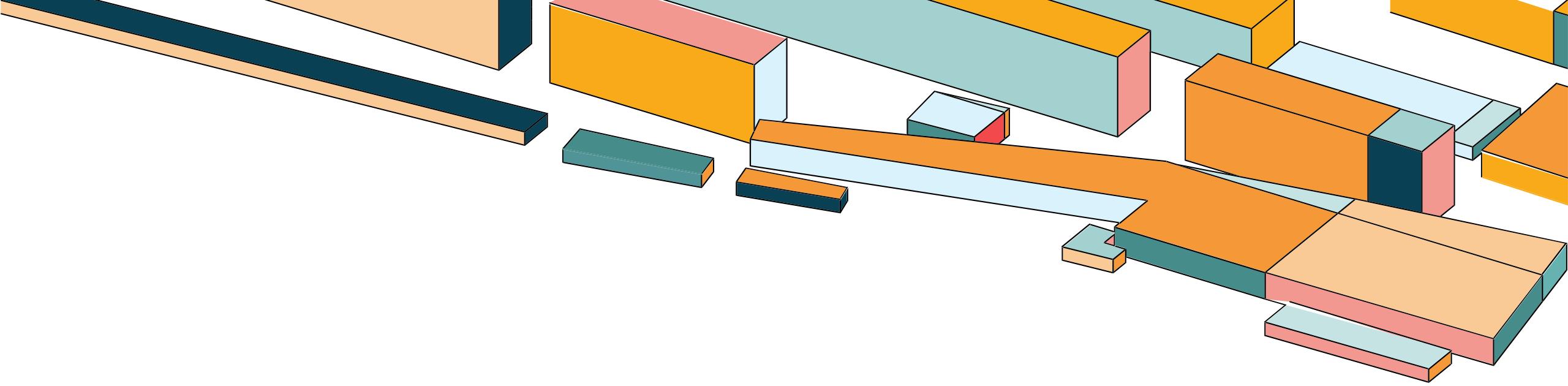
Using the Fabric CLI

Low initial effort

Supports automation

< 10 sec. / a few mins.

< 10 commands



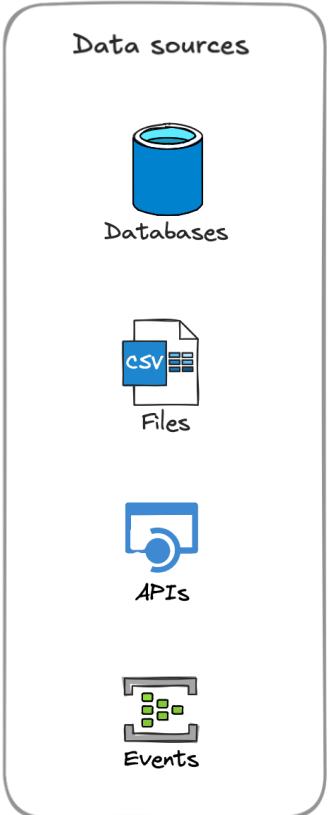
DEMO

The background of the slide features a collection of 3D rectangular blocks of various sizes and colors, including orange, teal, light blue, and dark blue. These blocks are suspended in the air, creating a sense of depth and motion. Some blocks overlap, while others stand alone. The overall effect is a minimalist, modern, and dynamic visual element.

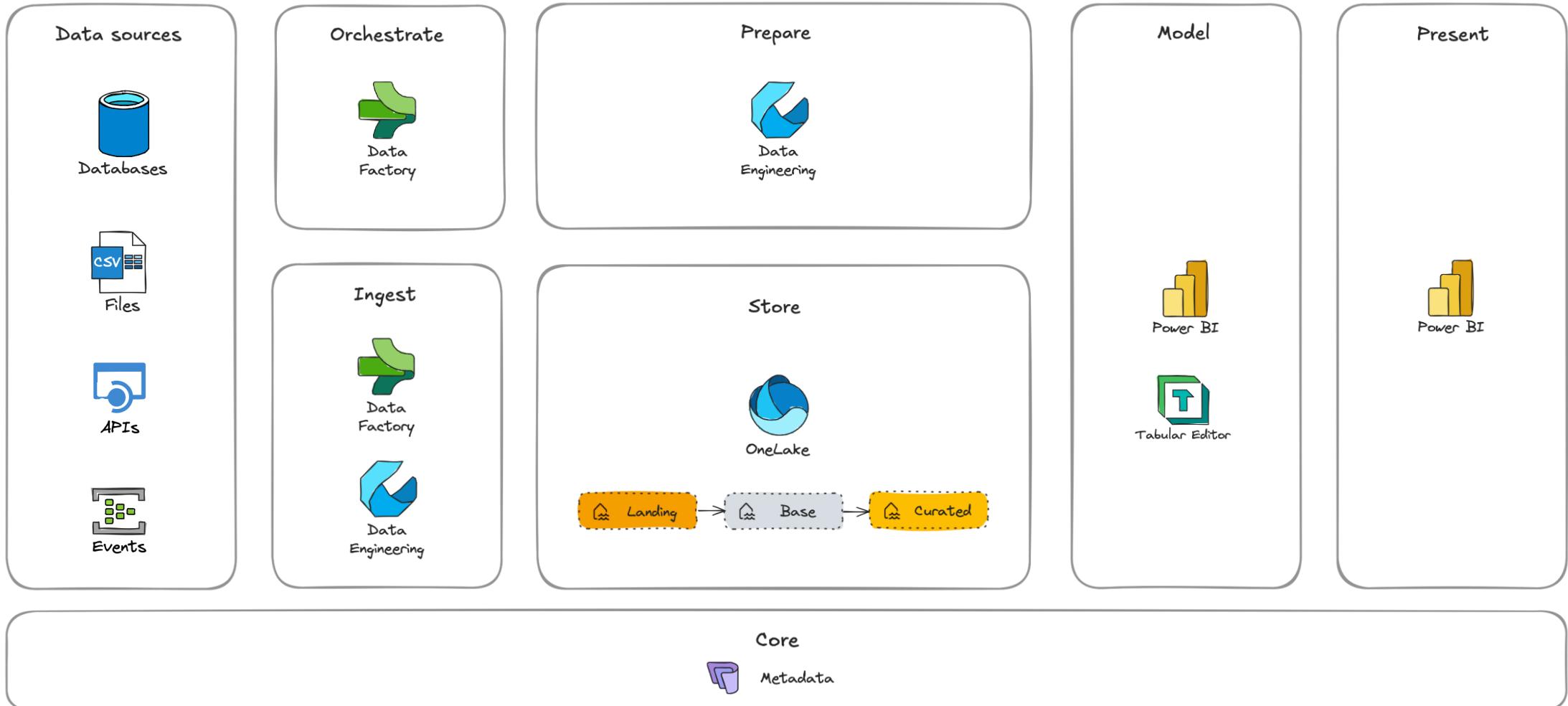
ARCHITECTING FOR AUTOMATION



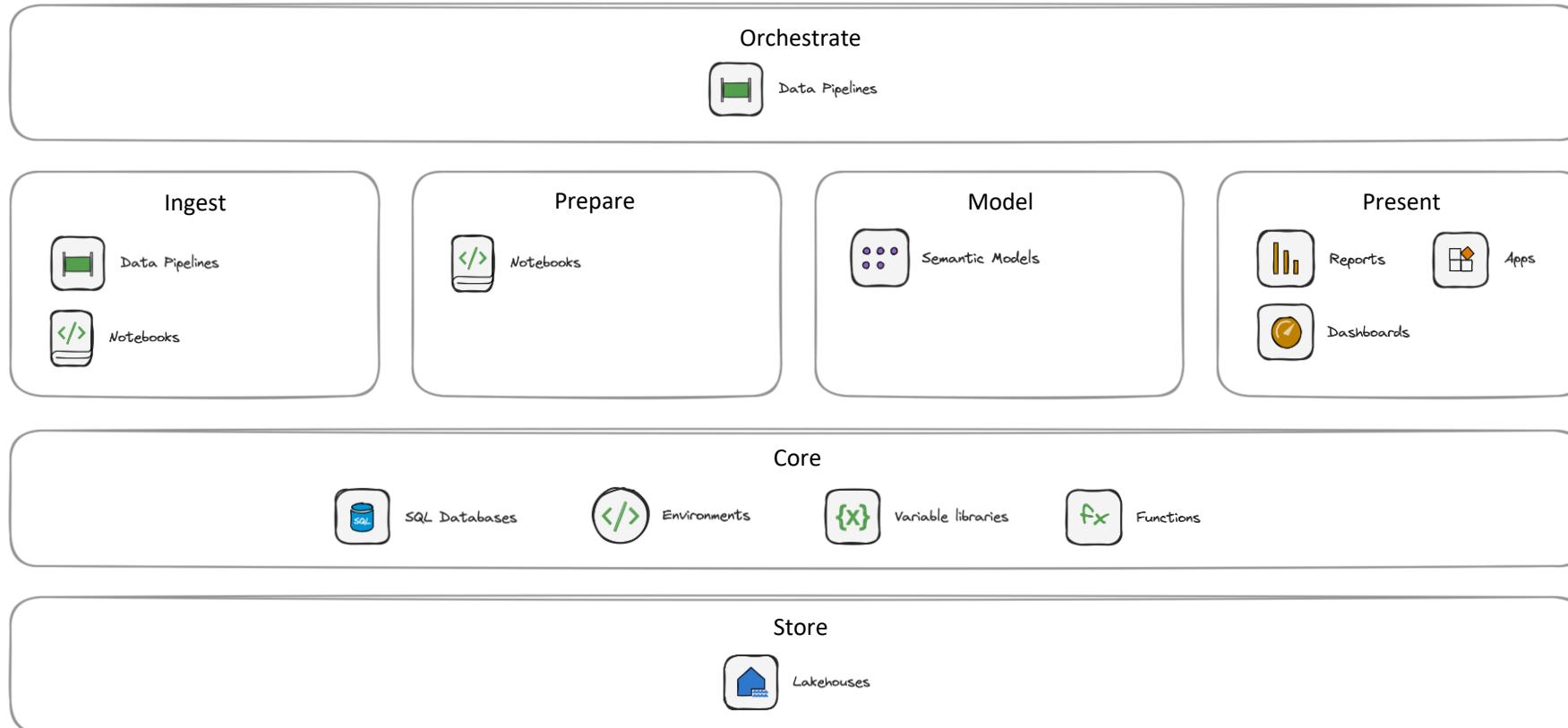
HOW DO YOU ARCHITECT?



REFERENCE ARCHITECTURE AS A START



WORKSPACE STRUCTURE

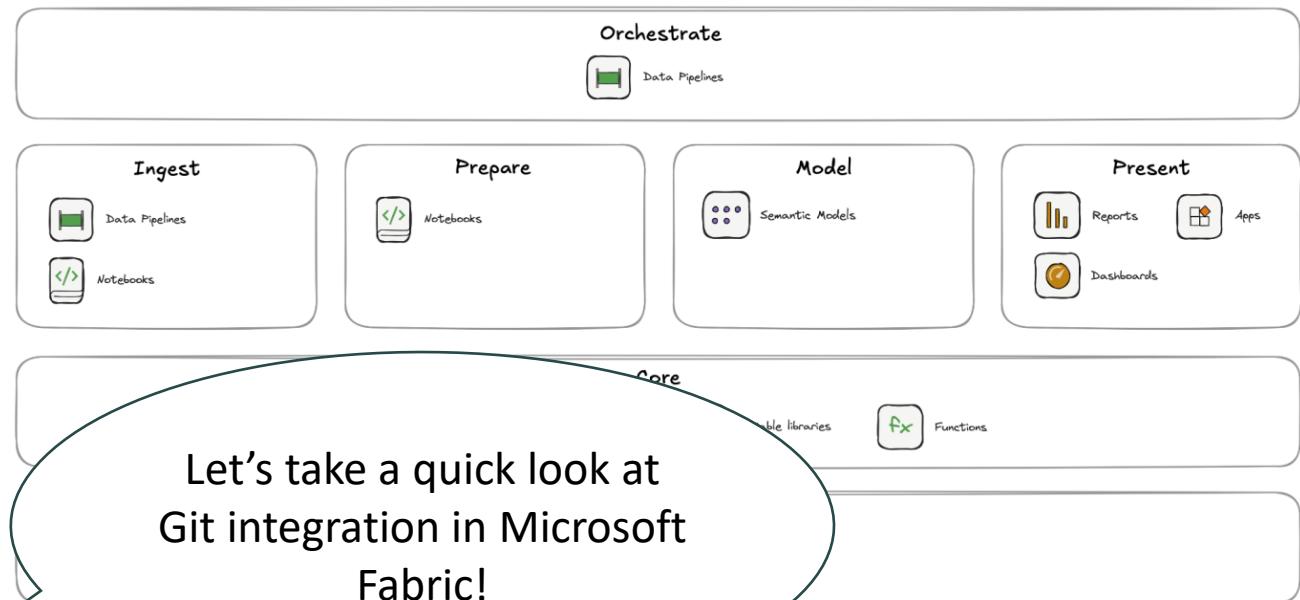
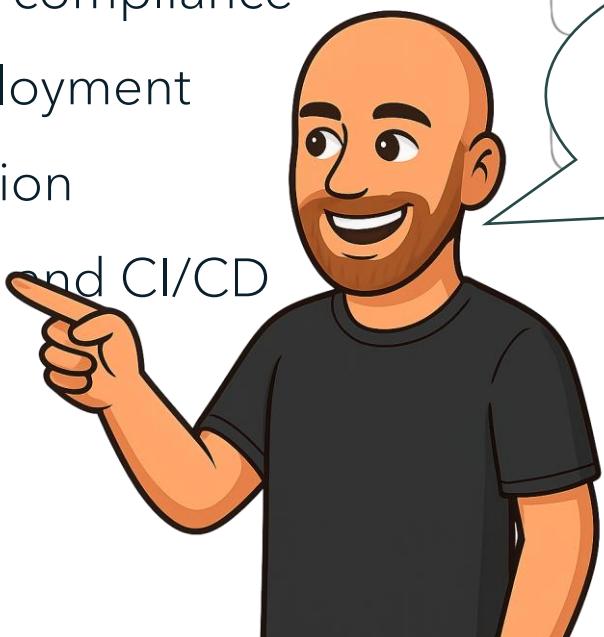


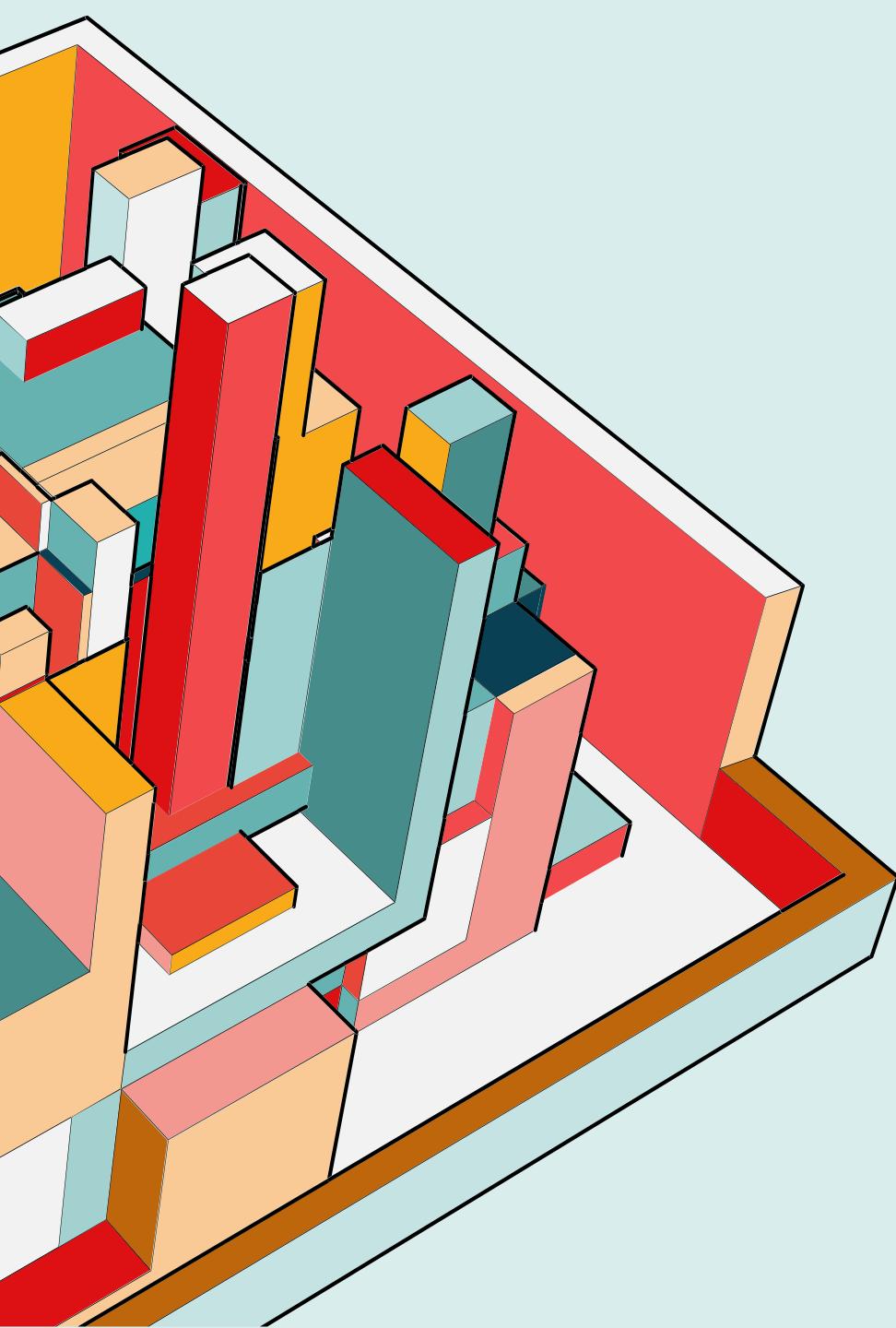
x3

[dev, tst, prd]

WORKSPACE STRUCTURE – WHY THIS?

- Security and Access
- Separation of duties
- Network & connectivity
- Capacity isolation
- Governance & compliance
- Testing & Deployment
- Item organization
- Git integration and CI/CD





GIT INTEGRATION

Source control in Fabric

WHY CI/CD & GIT MATTERS...

The classic foundations

Version control

Change reviews

Testing before releasing

Reproducibility

Collaboration

And the Fabric angle...

Declarative and cloud-native

Items map to Git folders

Enables controlled, repeatable deployments

Use of purpose-built tools

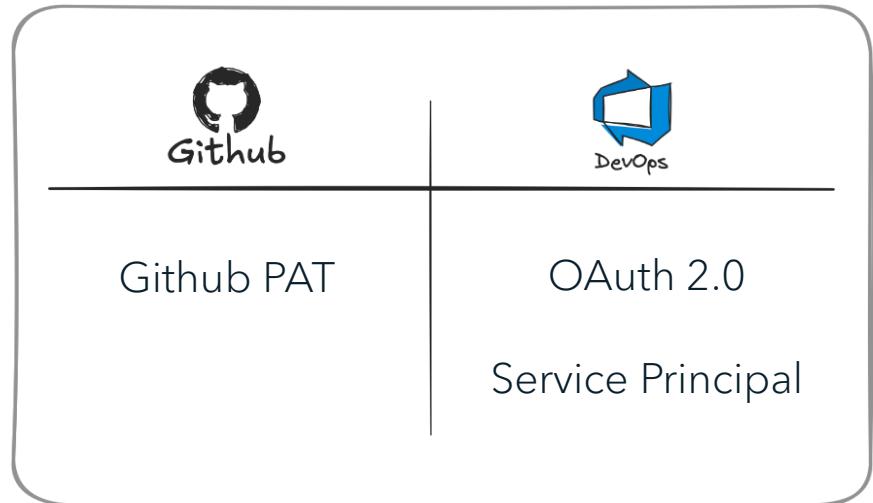
Support for using template repositories with boilerplate scripts, dynamic pipelines etc.

Collaboration at scale

GIT INTEGRATION IN FABRIC

- Integrates on workspace level
- Workspace -> branch
- Supports Github and Azure DevOps
- Sync is bi-directional (push/pull)
- Native support for **ALL** items
(some in preview)
- API support (Fabric Core REST APIs)

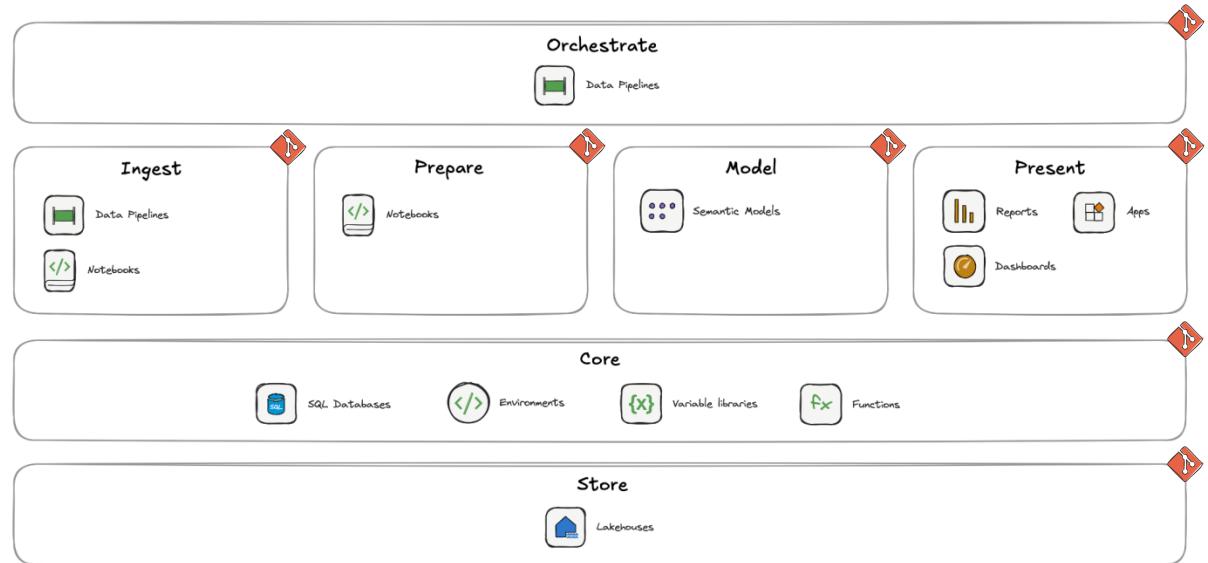
Authentication options



Read more: <https://learn.microsoft.com/en-us/fabric/cicd/git-integration/intro-to-git-integration>

A GO-TO FOR FABRIC GIT INTEGRATION

- Use Mono-repo
- Organized your workspaces by layer
- Using clear naming conventions
- Use the Git provider of your choice
- Branching strategy depends...
there is no one-size fits all...
- Git integration all [dev] workspaces by default

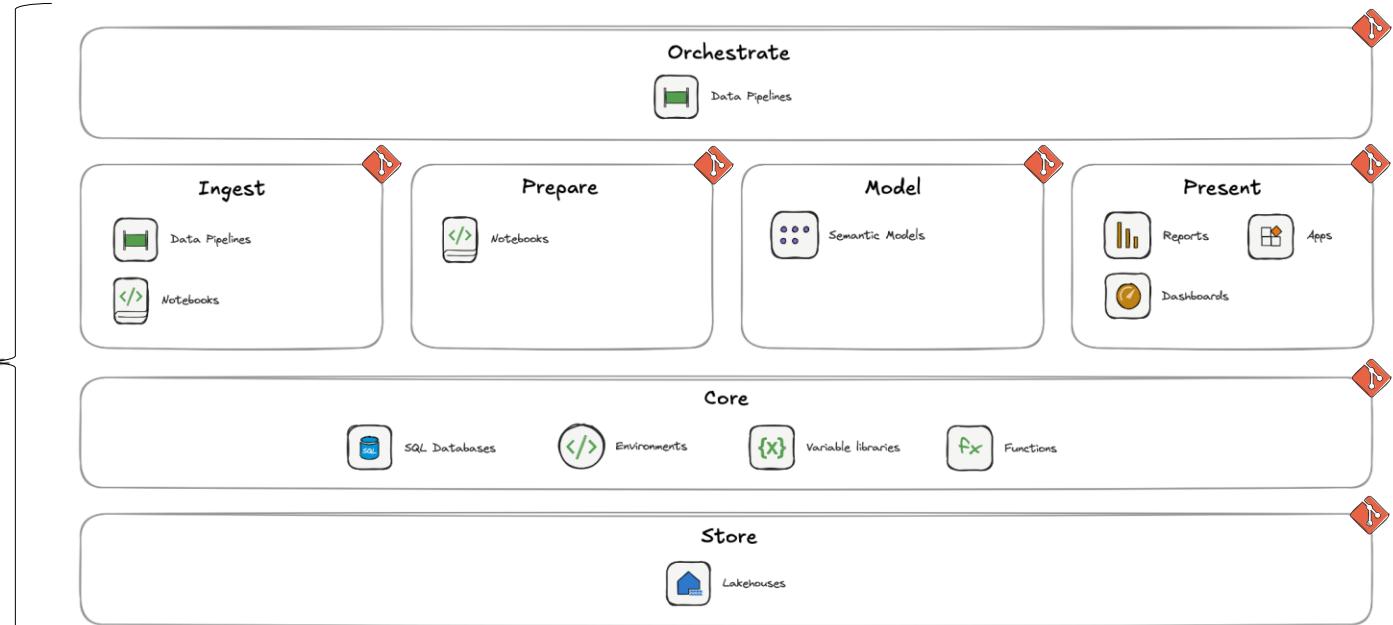


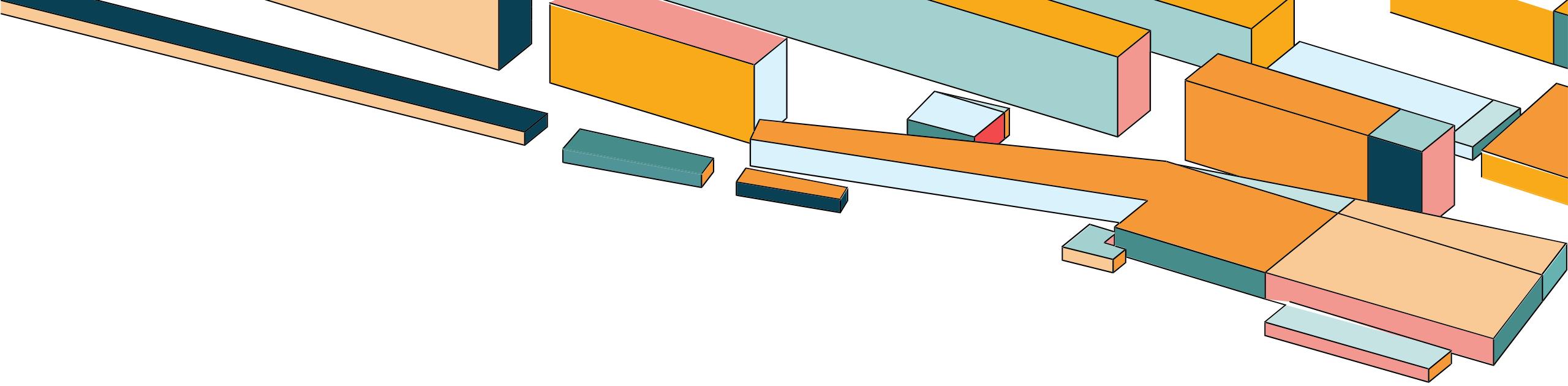
A GO-TO FOR FABRIC GIT INTEGRATION



Git Repo structure

.azure-pipelines
.github
automation
documentation
solution
/core
/ingest
/model
/orchestrate
/prepare
/present
/store





DEMO

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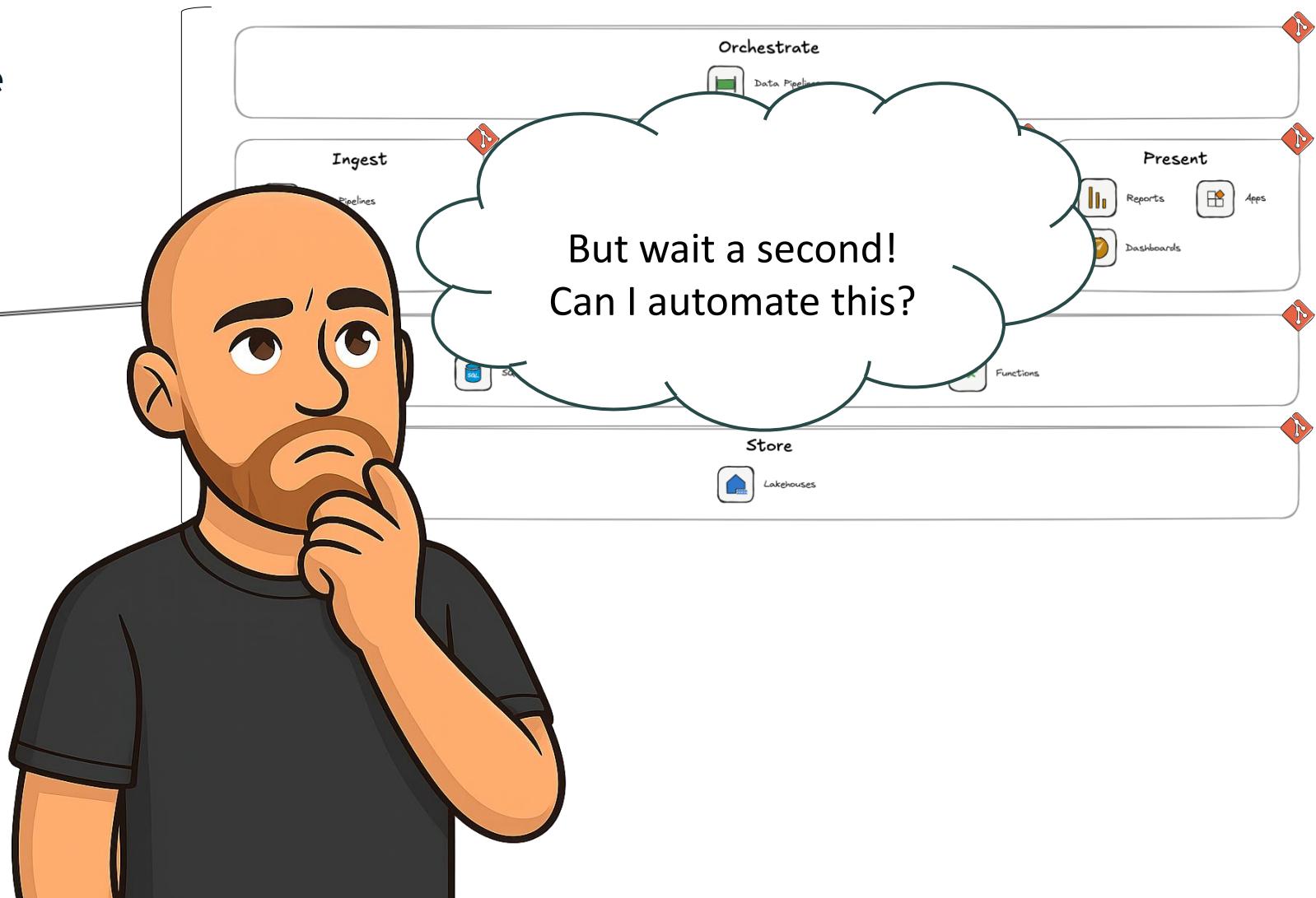
A GO-TO FOR FABRIC GIT INTEGRATION



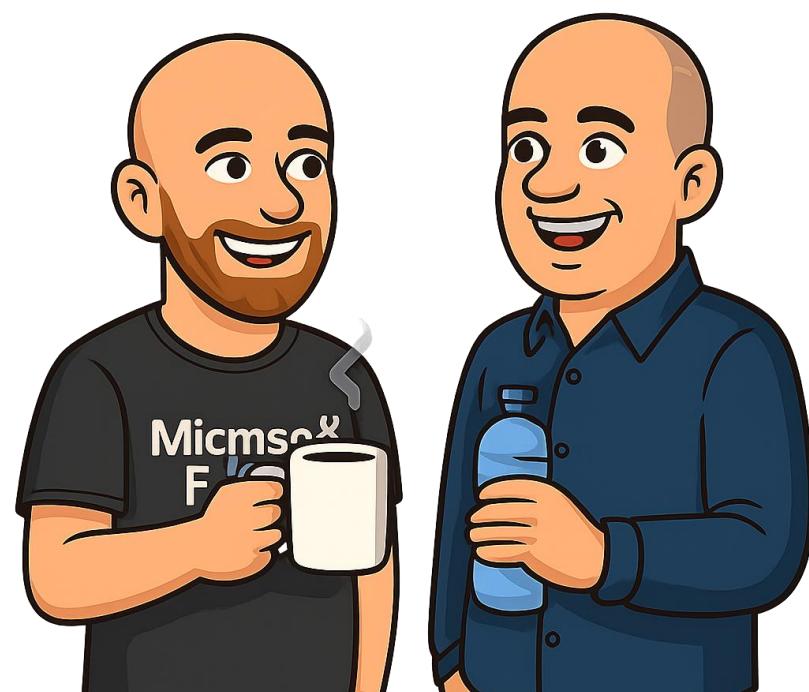
Git Repo structure

.azure-pipelines
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BREAK

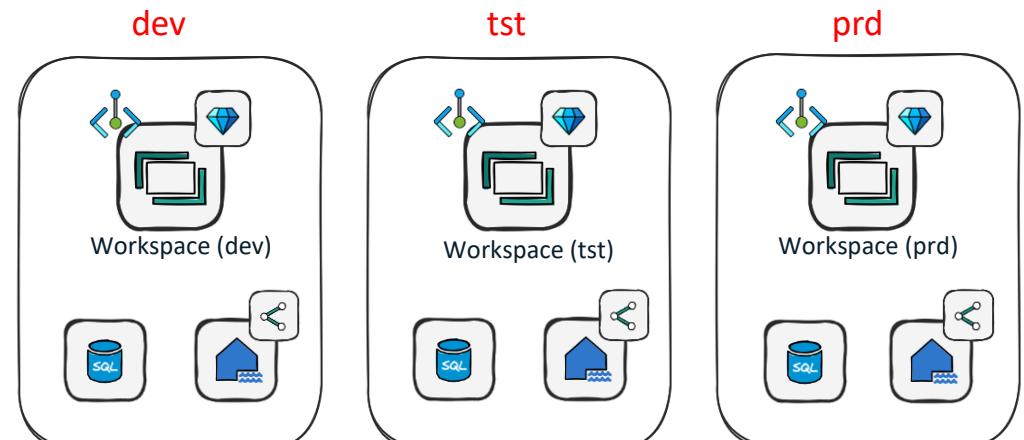


FABRIC IAC

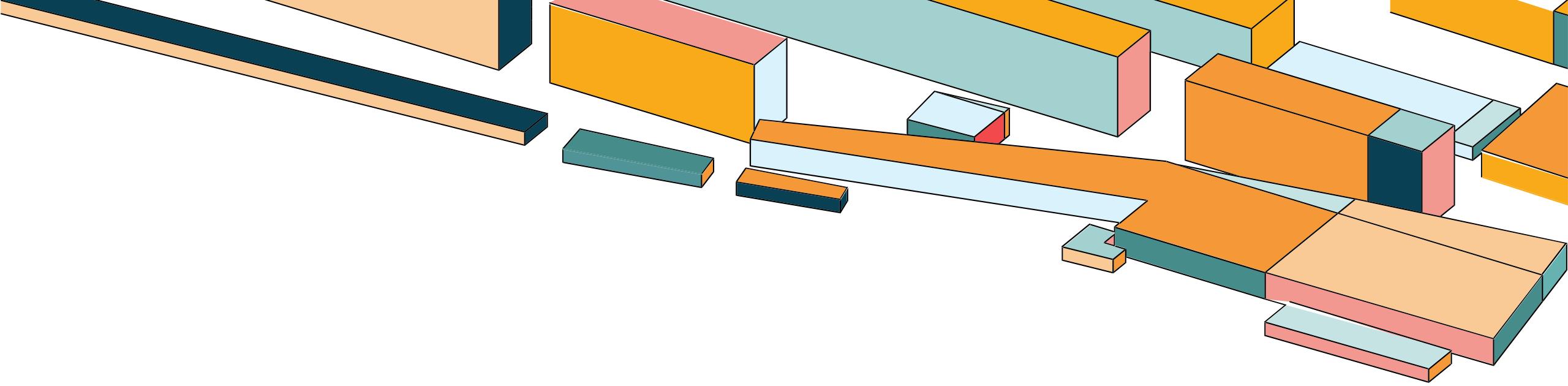


AUTOMATING FABRIC SOLUTION SETUP

- Recipe based solution (json)
- Utilizes Python and the Fabric CLI
- Can run from Azure DevOps and GitHub as well as on your locale machine
- Minimum requirements:
 - A Service Principal
 - A Fabric Capacity



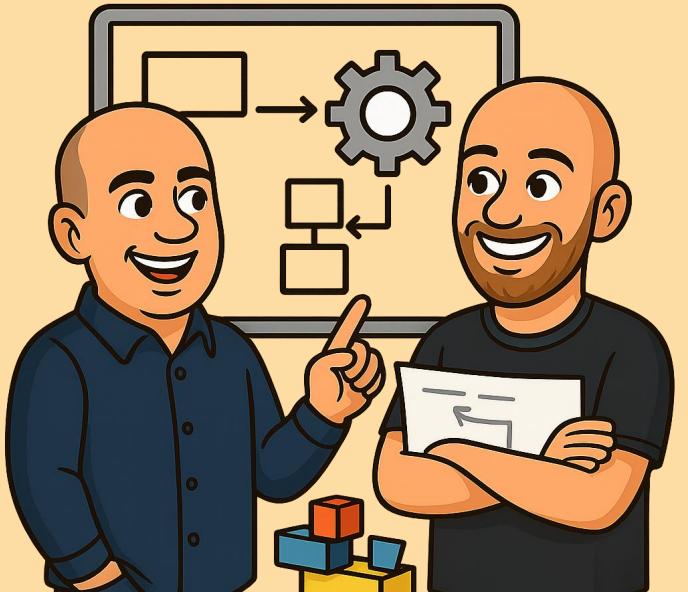
Download source code: <https://github.com/gronnerup/FabricAutomation>



DEMO

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WAYS-OF-WORKING

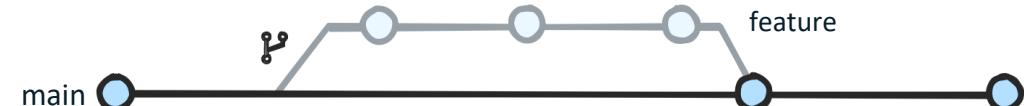


BRANCH FOR REAL-WORLD COLLABORATION



Branching Isn't Just Git Hygiene - It's a Collaboration Strategy!

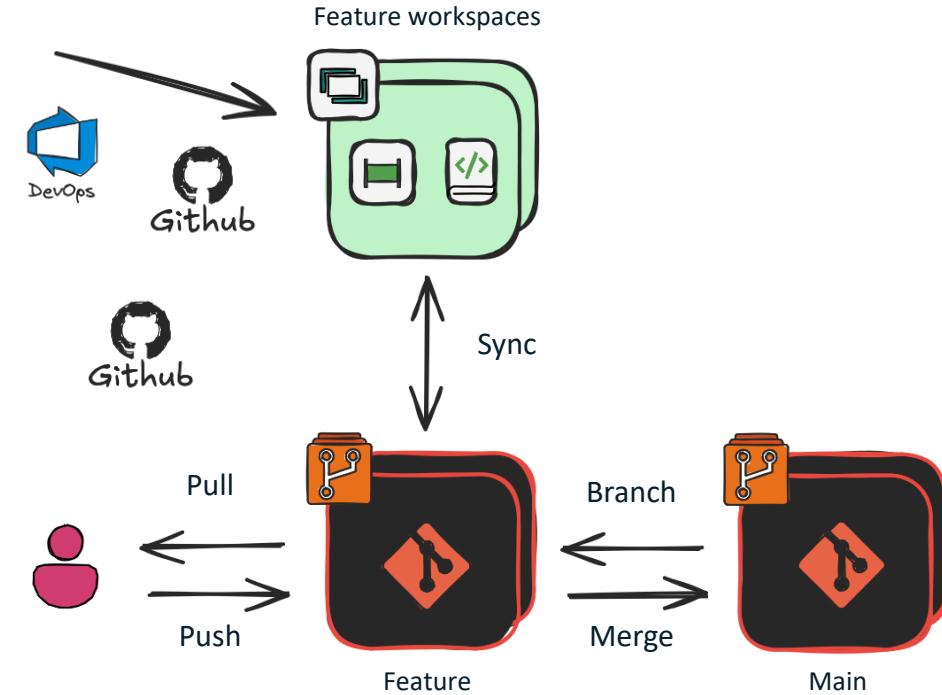
- Git is the source of truth, and branching is how we manage change
- Branches give developers a separate workspace for their code and...
 - Isolates development
 - Protects the mainline of our code
 - Enables parallel development
 - Helps organize and structure releases
 - Is crucial for streamlined collaboration
 - Enables experiments



THE BRANCHING FLOW

Development flow - Supported by automation!

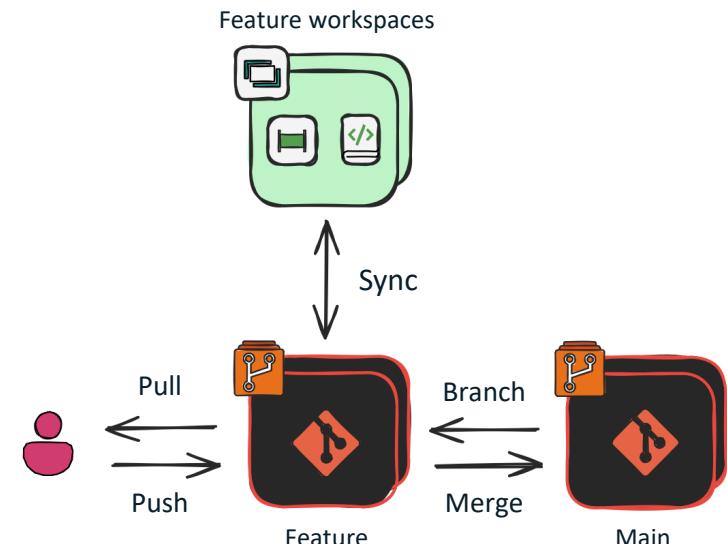
1. Create branch from main
2. Develop
3. Create PR
4. Merge feature to main
5. Delete feature branch



THE BRANCHING FLOW – AUTOMATED

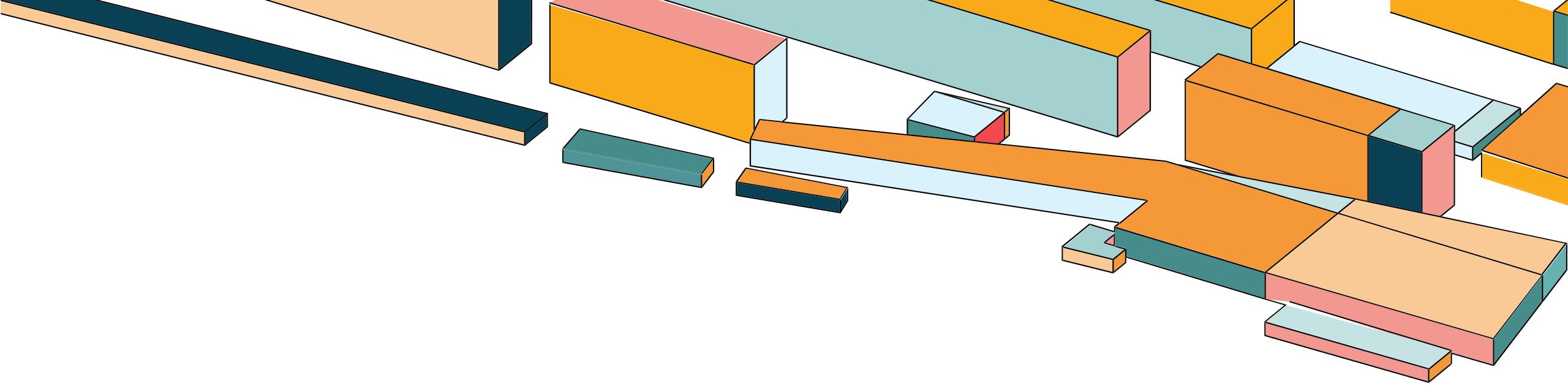
Why automate this?

ClickOps	Automated
Manual process	Fully automated - just create the branch
1 workspace – 1 branch	Support for multiple workspaces
No transfer/setup of:	Customize:
- ACL - Spark settings - Private Endpoints - WS Identity	- ACL - Spark settings - Private Endpoints - WS Identity - Capacity
Inherits source capacity	Supports automated sync and cleanup
Requires manual cleanup	



<https://peerinsights.hashnode.dev/automating-feature-workspace-maintainance-in-microsoft-fabric>

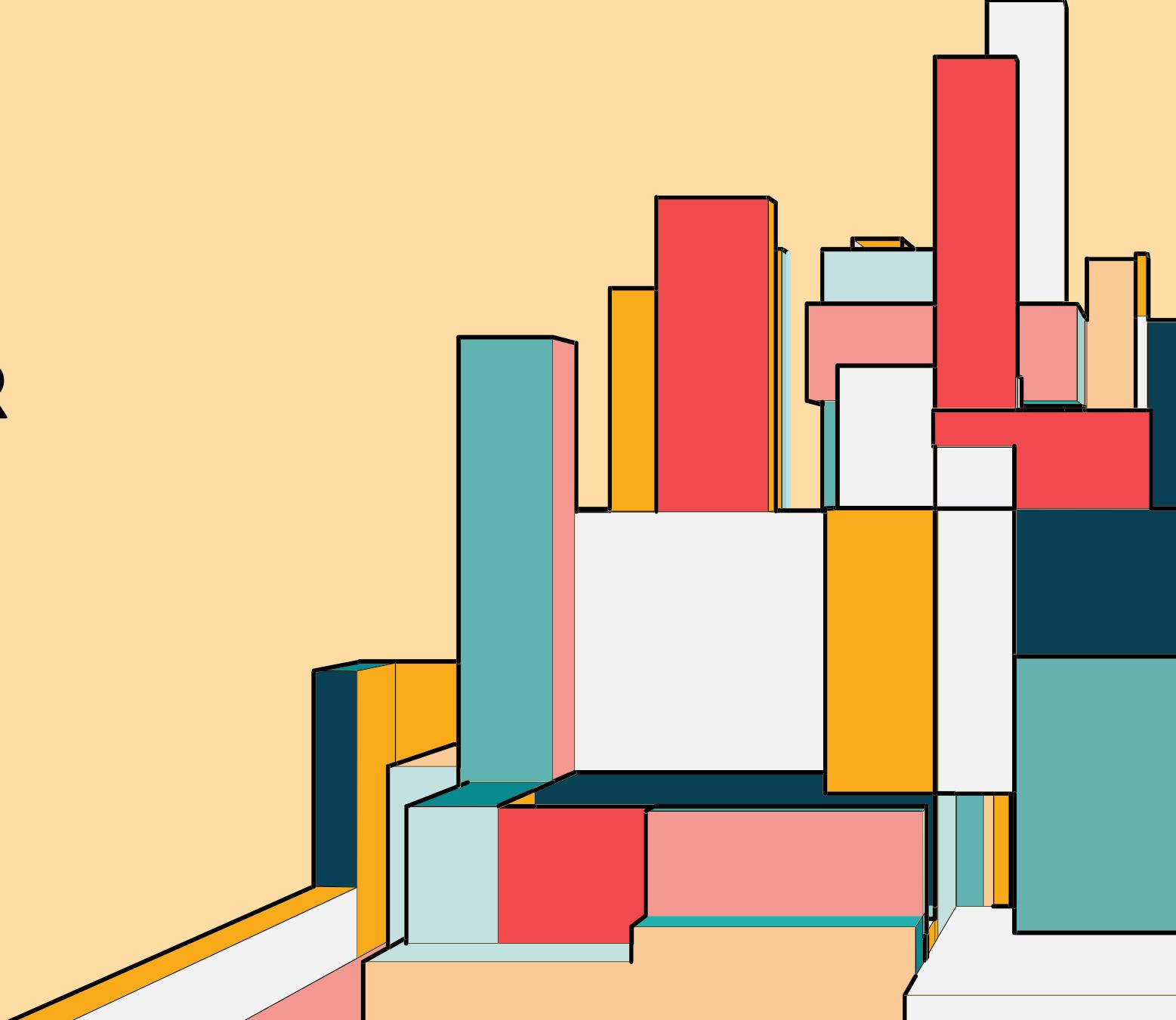
<https://justb.dk/blog/2025/02/fabric-spark-notebooks-and-cu-consumption/>

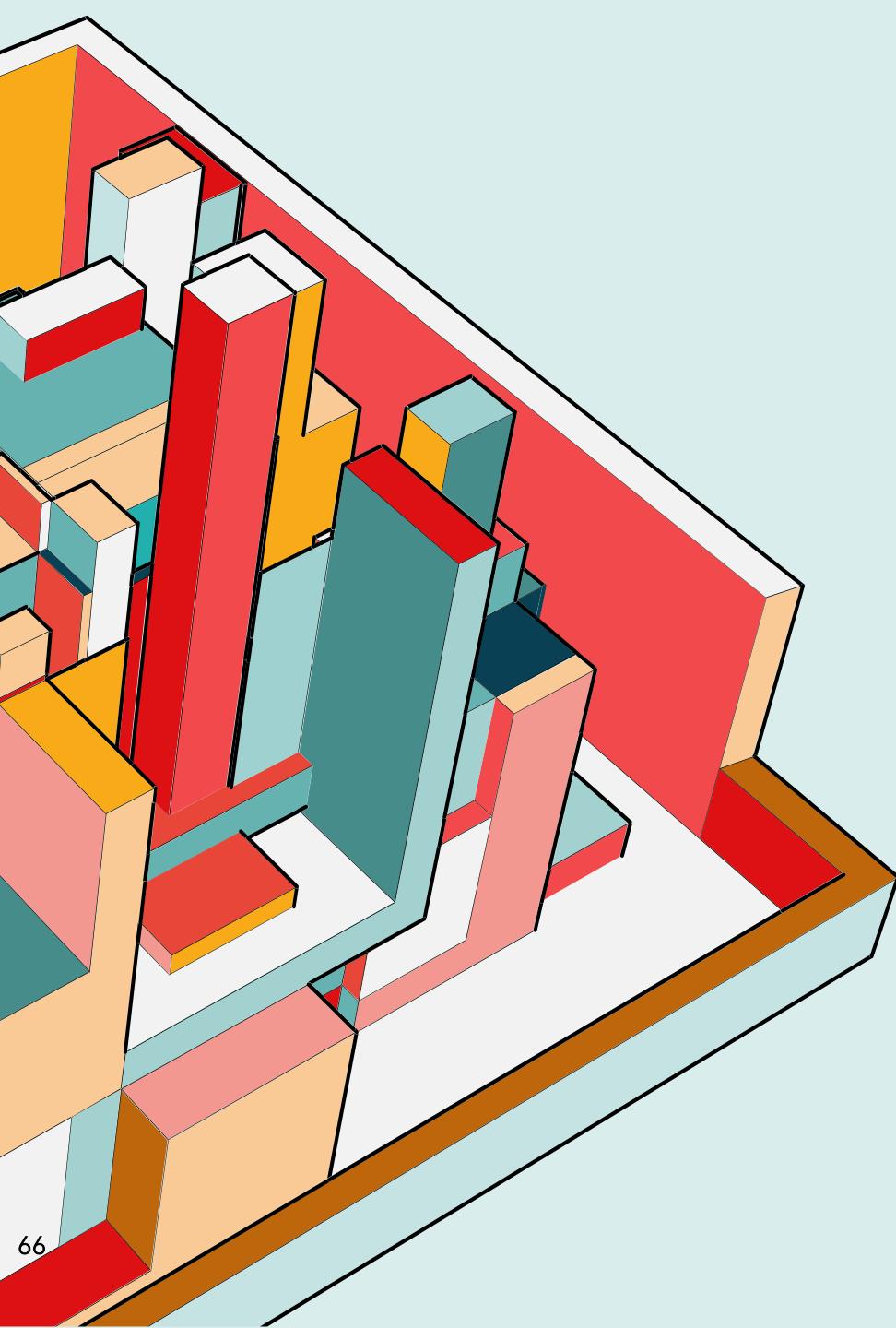


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BUILDING OUR SOLUTION



A large, abstract graphic on the left side of the slide consists of numerous 3D rectangular blocks of various sizes and colors, including yellow, red, blue, and orange, arranged in a layered, overlapping fashion. They are set against a light blue background.

FABRIC METADATA DRIVEN FRAMEWORK

FABRIC METADATA DRIVEN FRAMEWORK

- Meets most of your needs
- Full control over design and features.
- Less development effort.
- Flexibility and extensibility.
- Lower upfront costs.

FABRIC METADATA DRIVEN FRAMEWORK

- Efficient data management is a cornerstone of modern organizations, and leveraging the right tools can make all the difference.
- The Fabric Metadata -Driven Framework is a cutting-edge solution designed to optimize data handling and utilization.
- This innovative framework harnesses the powerful capabilities of the Fabric SQL Database to build a robust, scalable, and flexible Metadata -driven architecture.

KEY FEATURES

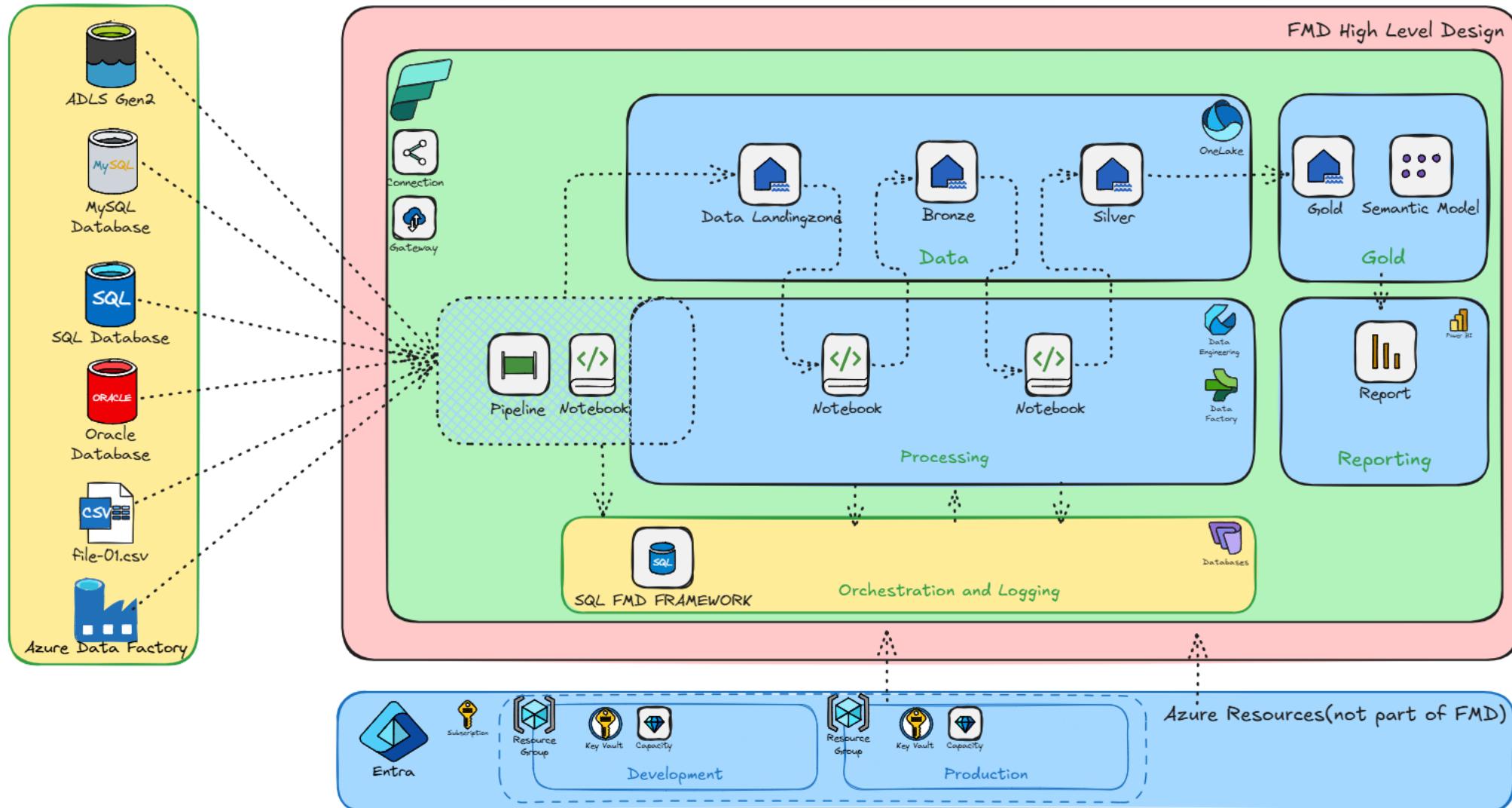
Scalability and
Flexibility

Cost Efficiency

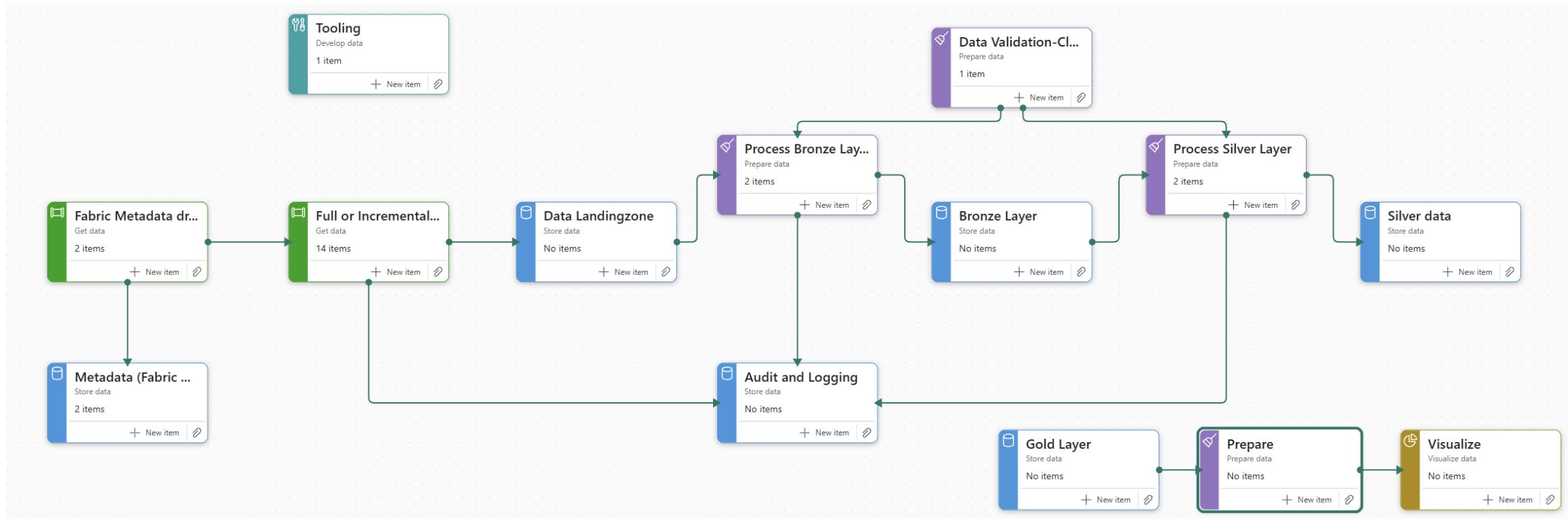
Streamlined Data
Integration

Enhanced Data
Governance

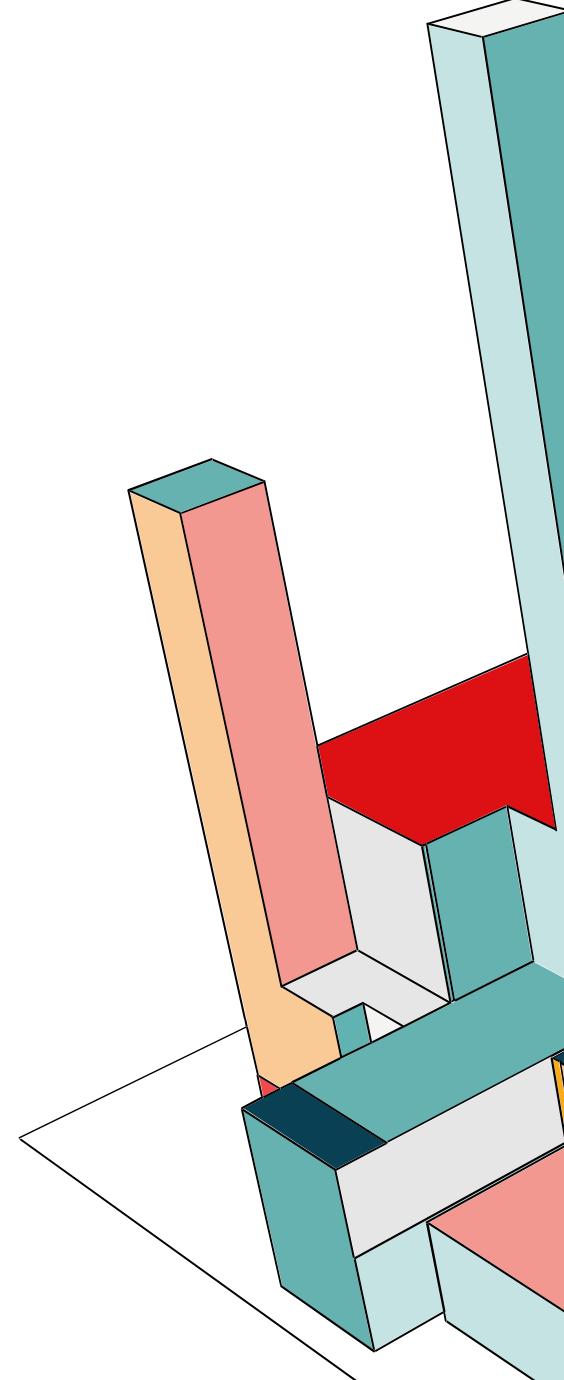
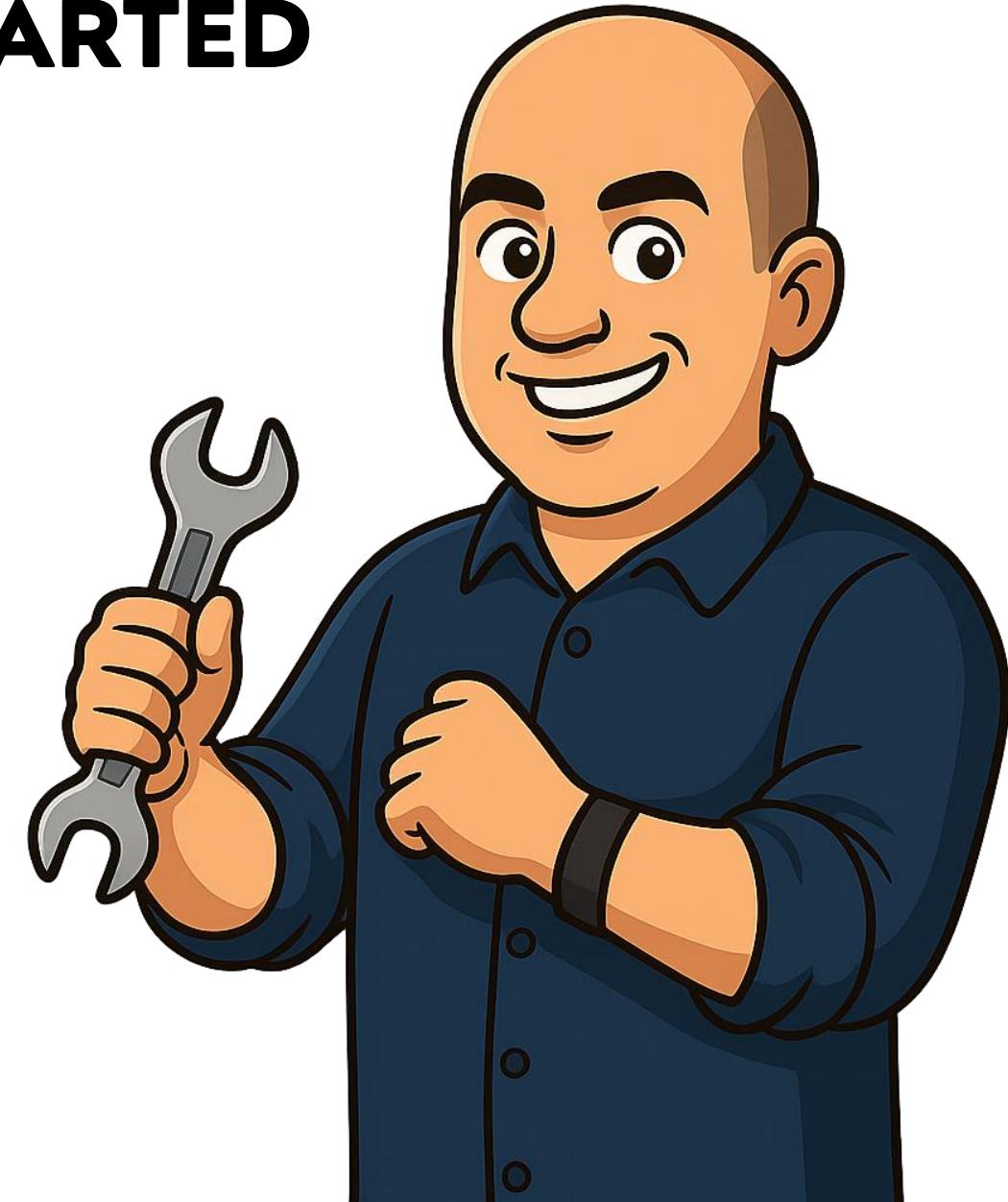
FABRIC METADATA DRIVEN FRAMEWORK



METADATA-DRIVEN DATA INGESTION FRAMEWORK COMPONENTS



LET'S GET STARTED



CONNECTIONS (REQUIRED)

- Required Connections
 - Fabric Data Pipelines
 - Authentication Oauth
 - Workspace Identity is Coming
 - Service Principal is also an option
 - Fabric SQL database
 - Authentication Oauth
 - Service Principal is also an option

All other connections are based on your configuration

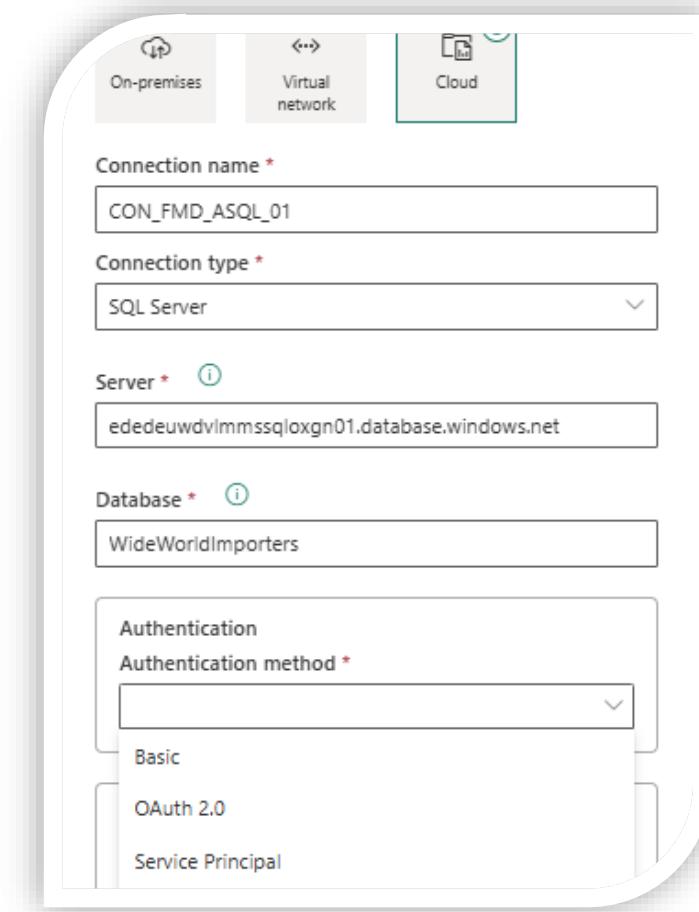
The image displays two side-by-side screenshots of a cloud connection configuration interface, likely from a Microsoft service like Azure. Both screens show the same basic setup for a 'Cloud' connection.

Common Fields:

- Connection name ***: CON_FMD_FABRIC_SQL (left) or CON_FMD_FABRICPIPELINES (right).
- Connection type ***: Fabric SQL database (left) or Fabric Data Pipelines (right).
- Authentication** section:
 - Authentication method ***: OAuth 2.0 (both screens).
 - Edit credentials** link (with a warning icon).
- General** section:
 - Privacy level ***: Organizational (both screens).
 - Allow this connection to be utilized with either on-premises data gateways or VNet data gateways.** checkbox (unchecked in both screens).

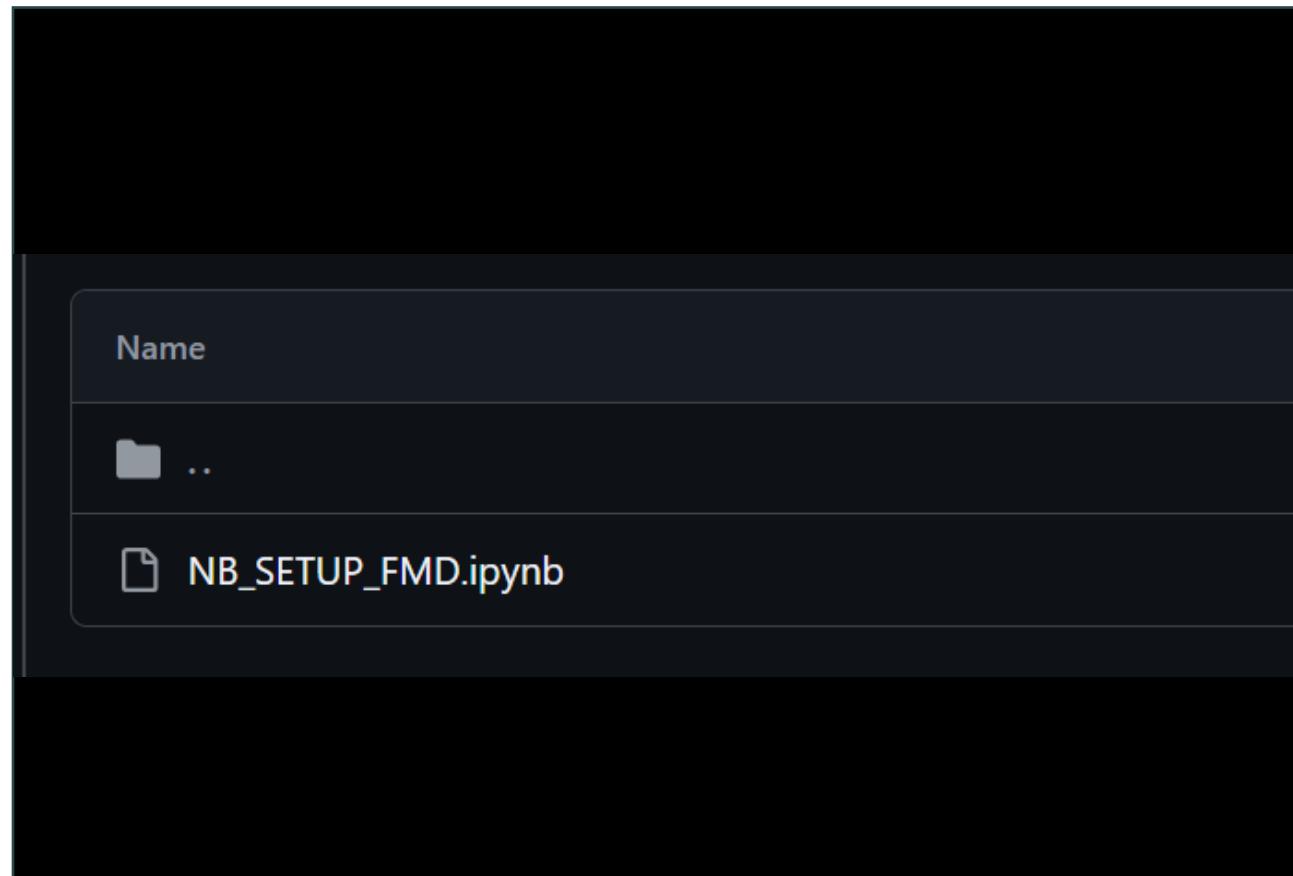
SUPPORTED SOURCES (CURRENTLY)

- SQL Server
- Data Lake Gen 2
- Onelake Tables
- Onelake Files
- FTP / SFTP
- ADF (Connect to ADF pipeline)
- All other connections can easily be added
 - Every connection needs a new Data Pipeline



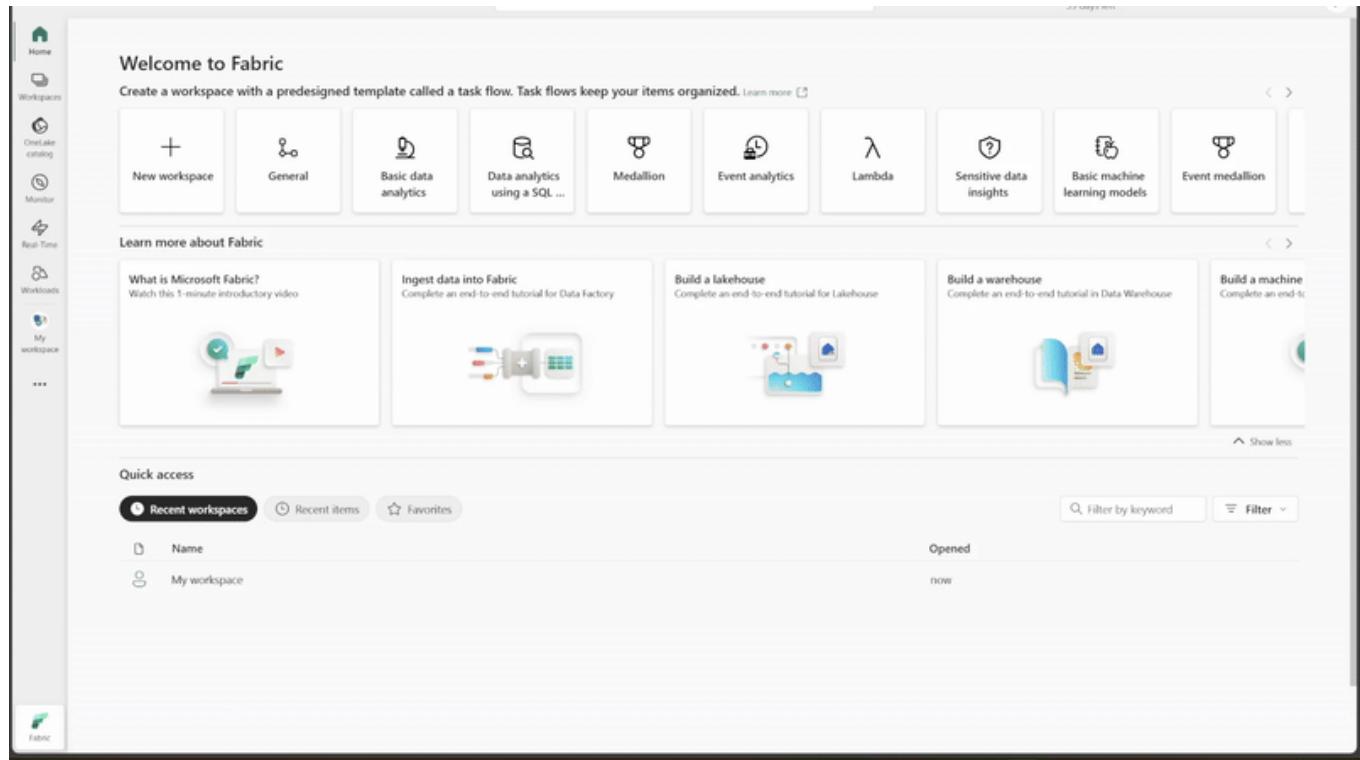
FABRIC METADATA DRIVEN FRAMEWORK

- Download Notebook from Github



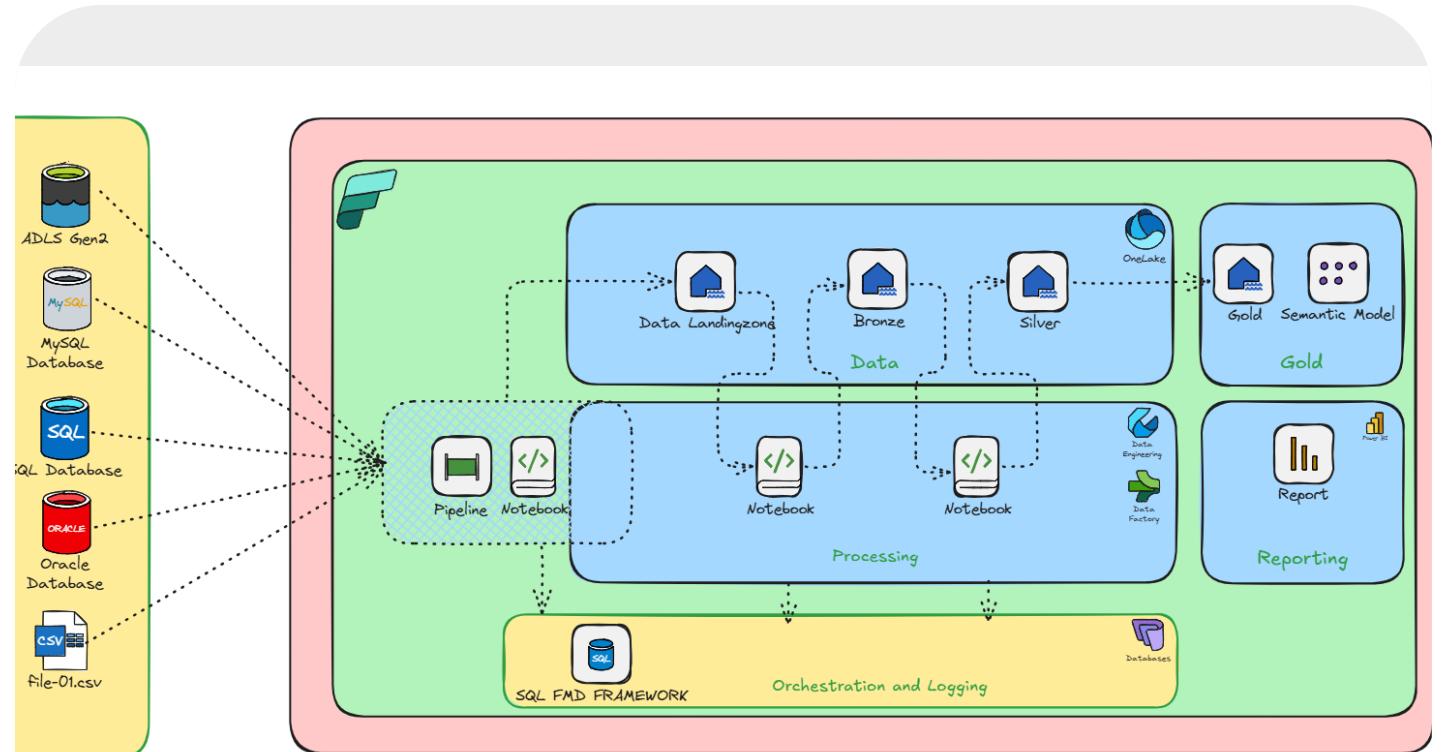
FABRIC METADATA DRIVEN FRAMEWORK

- Download Notebook from Github
- Create Workspace Name is up to you:
 - FMD_XXX_CONFIGURATION
- Assign a capacity
- Import Notebook to this Workspace



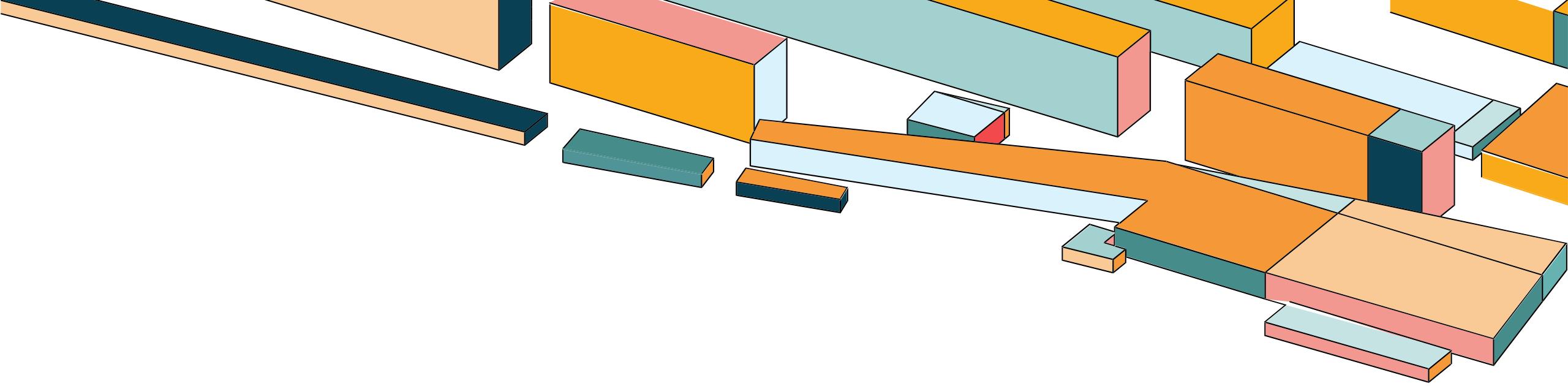
FABRIC METADATA DRIVEN FRAMEWORK

- Open Notebook
 - NB SETUP



```
%pip install ms-fabric-cli --quiet
```

```
import subprocess
import os
from time import sleep, time
import json
import zipfile
from zipfile import ZipFile
import tarfile
from tarfile import TarFile
import lzma
from lzma import LZMAError
import gzip
from gzip import GzipFile
import bz2
from bz2 import BZ2Error
import pickle
from pickle import PickleError
```



DEMO

The background of the slide features a collection of 3D rectangular blocks of various sizes and colors, including orange, teal, light blue, and dark blue, suspended in the air against a white background. The blocks are arranged in a loose, overlapping cluster, with some appearing to float higher than others.

DEPLOYMENT



RELEASE PROCESS – THE MAIN OPTIONS...

Fabric Deployment pipelines	Git based deployment	Git based deployment using build environment
<ul style="list-style-type: none">• No code experience• For simpler solutions• No support for:<ul style="list-style-type: none">• Pre-deployment opr.• Post-deployment opr.• Test & validation	<ul style="list-style-type: none">• Suitable when using Gitflow• Each environment connected to git branch• No need for building environments• Might require post-deployment operations	<ul style="list-style-type: none">• Supports building environments• Deployment through ADO Pipelines/Github actions• Supports manipulation of item definitions

CI/CD BUILDING BLOCKS

Tools & automation options

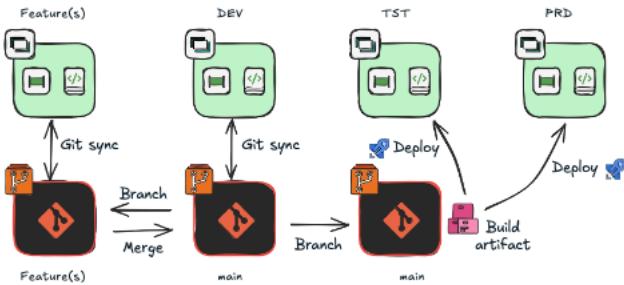
-  Azure DevOps Pipelines
-  Github actions
-  Python scripts & wrappers
-  Fabric CLI wrappers

fabric-cicd Python Library

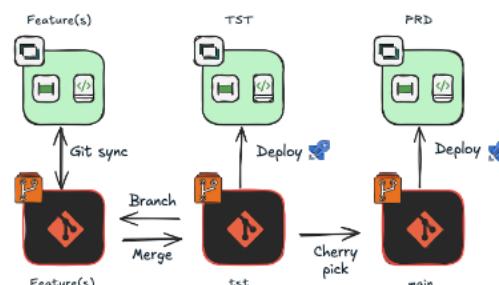
-  Developer friendly
 - Code-first approach
 - No need to call Fabric APIs directly
-  Environment supports
 - Parameterization
 - Reusable for locale, DevOps and more...
-  Smart deployment
 - Deploy all supported items (with public APIs)
 - Auto-unpublish orphaned artifacts

INTRODUCING 3 RELEASE SCENARIOS

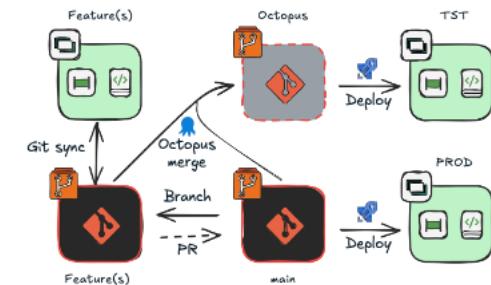
Scenario 1 The simple way



Scenario 2 Pick and choose

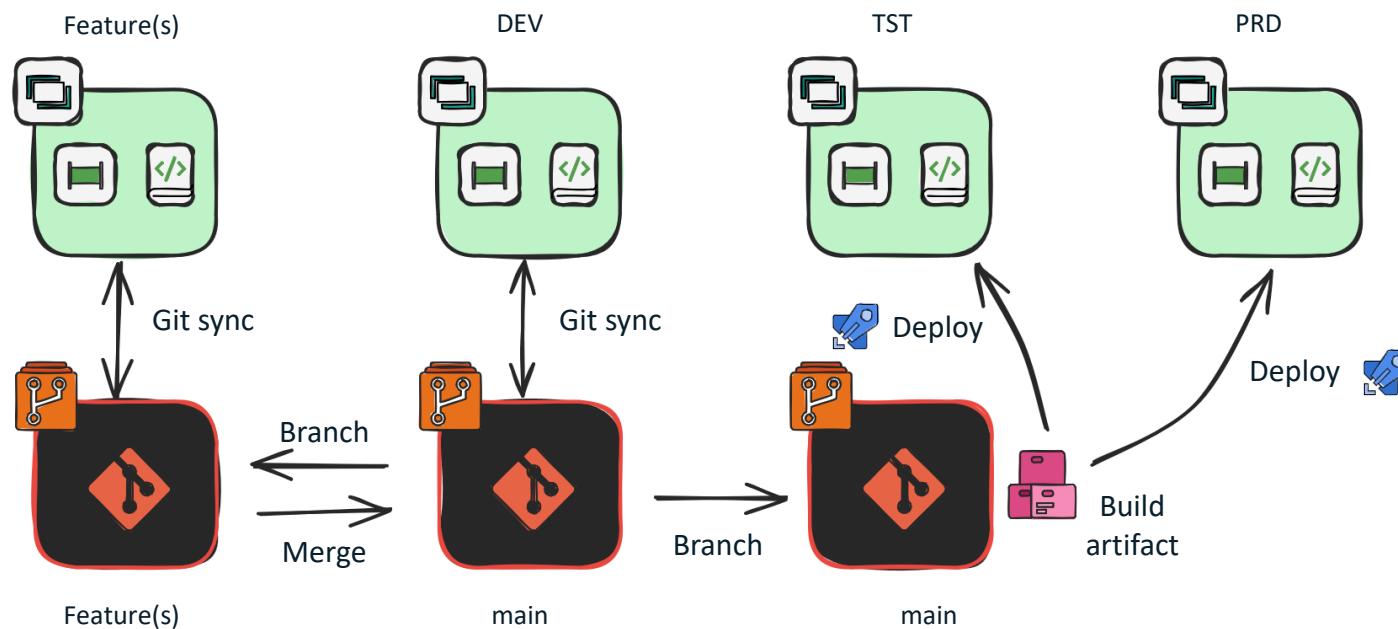


Scenario 3 The selective release option



RELEASE PROCESS – 3 SELECTED SCENARIOS

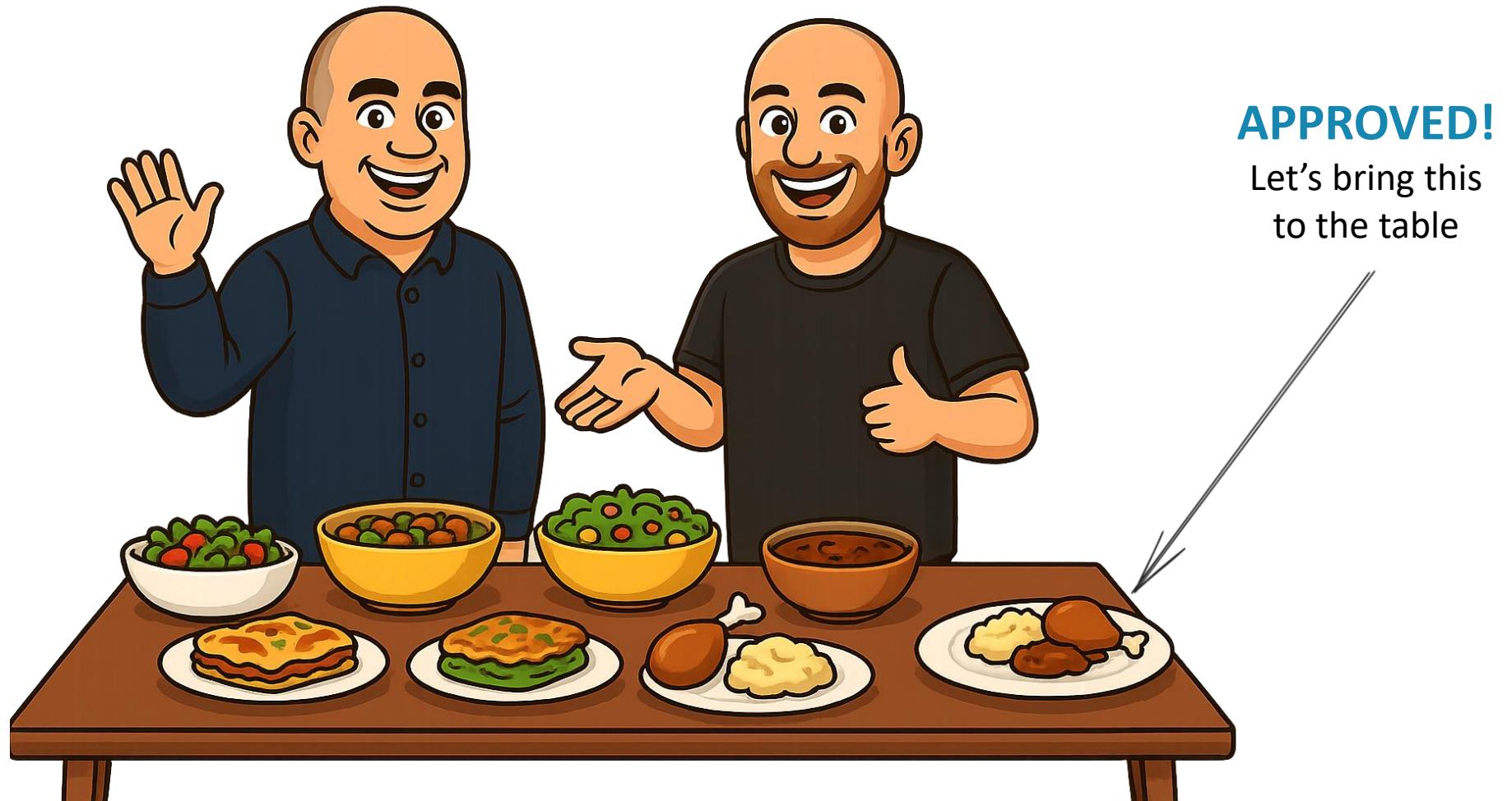
Scenario 1 – Main is always dev



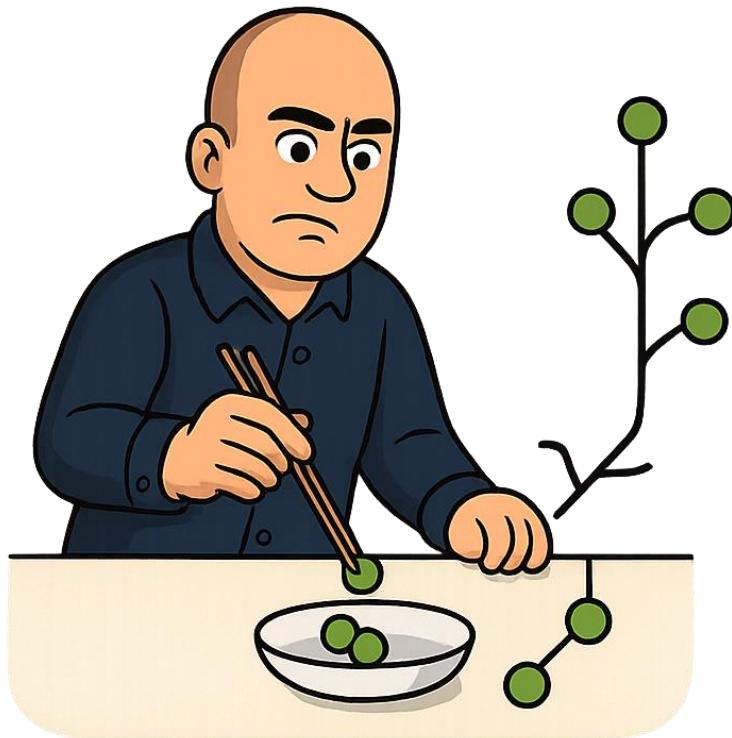
Suitable for:

- Smaller and more simple solutions
- Small teams
- Low or no interdependency between features

SO WHY INTRODUCE ALTERNATIVES?



RELEASE PROCESS – 3 SELECTED SCENARIOS



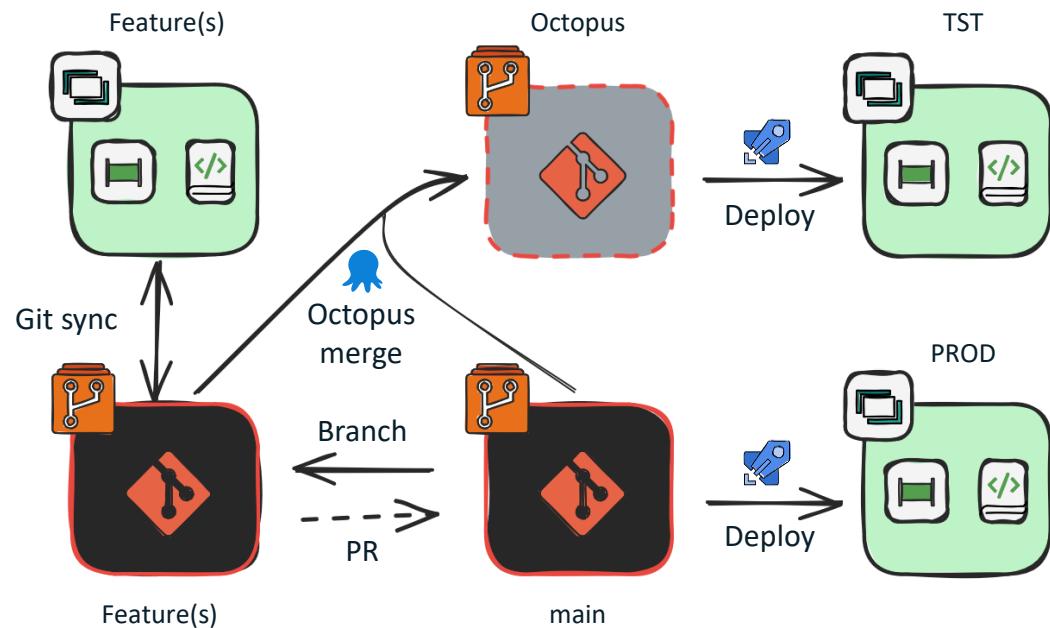
**Cherry-pick
into main**



Octopus merge

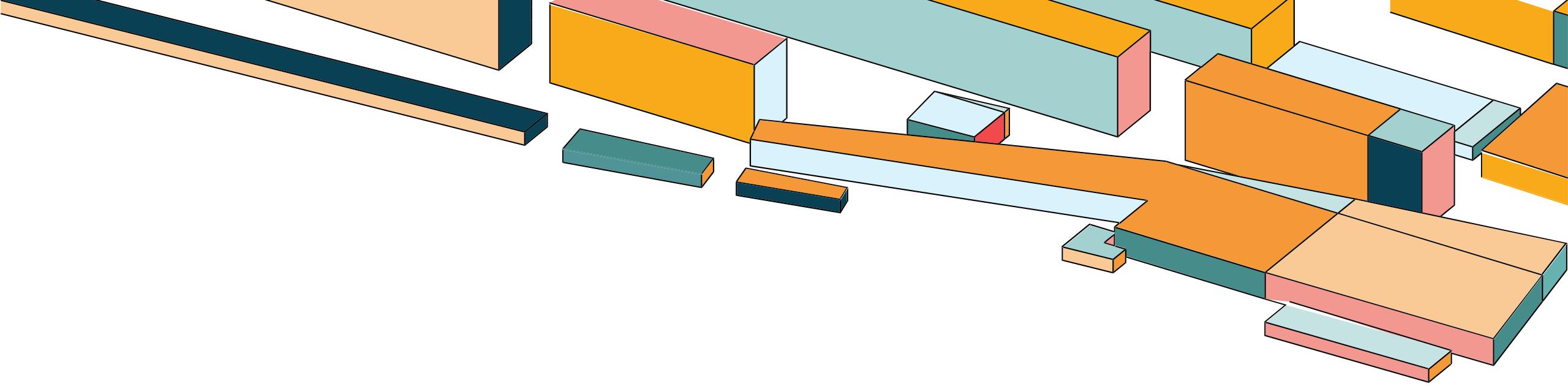
RELEASE PROCESS – 3 SELECTED SCENARIOS

Scenario 3 – Octopus merge



Suitable for:

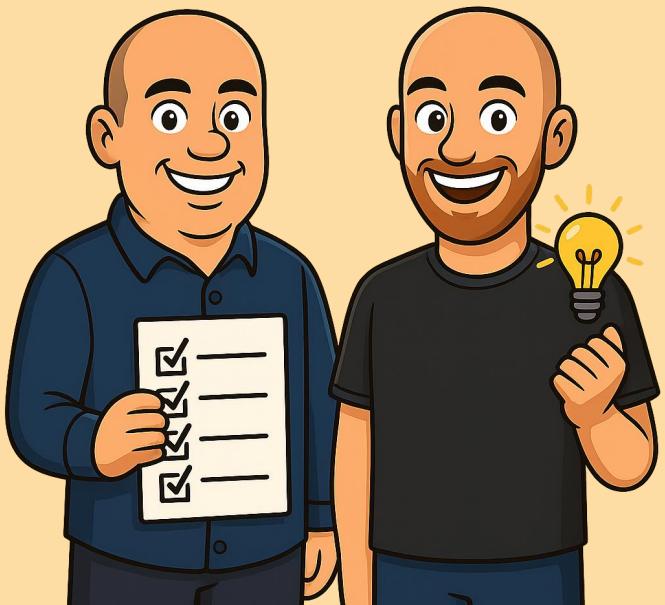
- Large teams
- Many parallel features
- Interdependent changes
- High-risk changes
- Supports per-feature validation
- Supports incremental and selective testing and deployment



DEMO

The background of the slide features a collection of 3D rectangular blocks of various sizes and colors, including orange, teal, light blue, and dark blue. These blocks are suspended in the air, creating a sense of depth and motion. Some blocks overlap, while others stand alone. The overall effect is a minimalist, modern, and dynamic visual element.

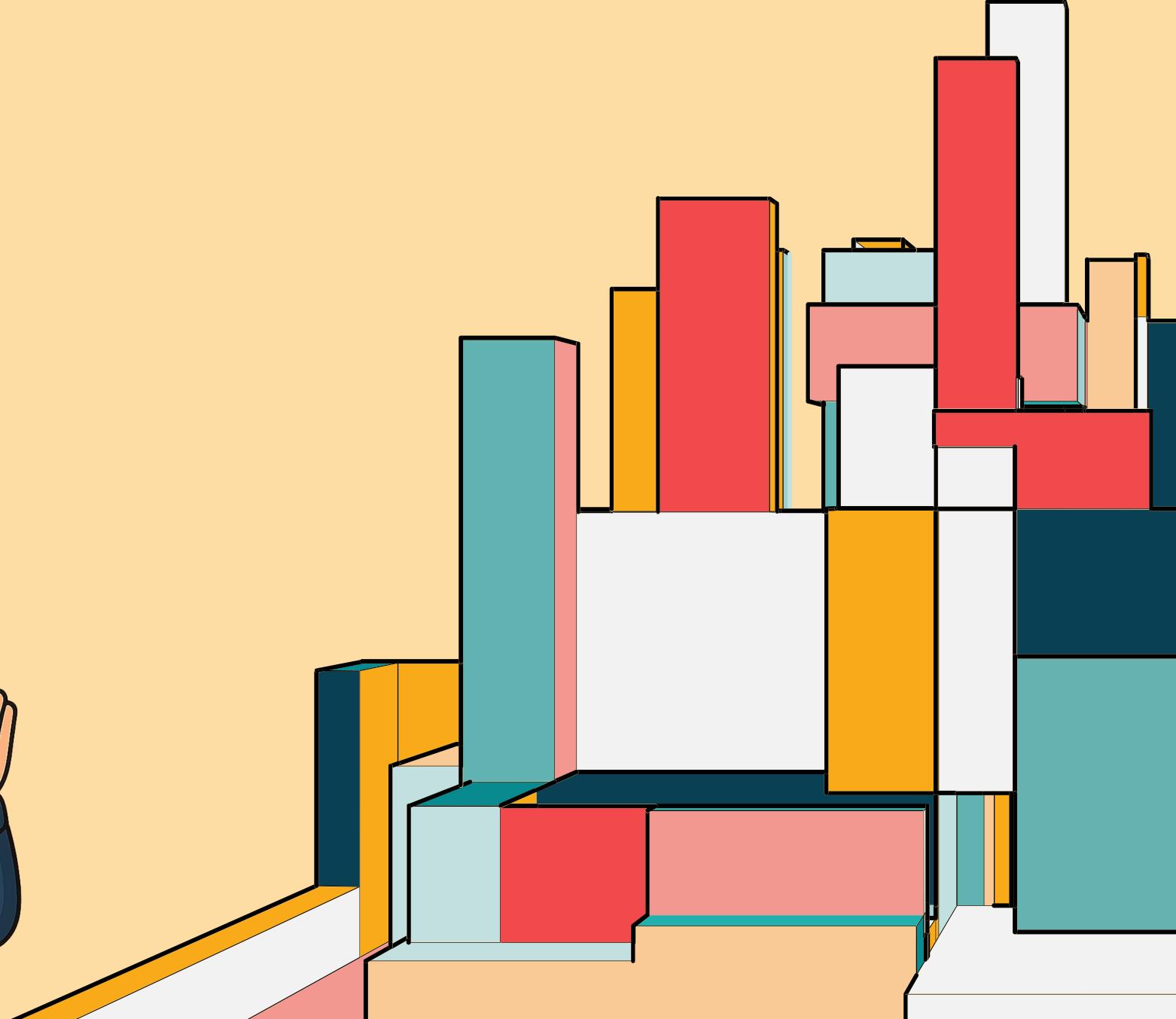
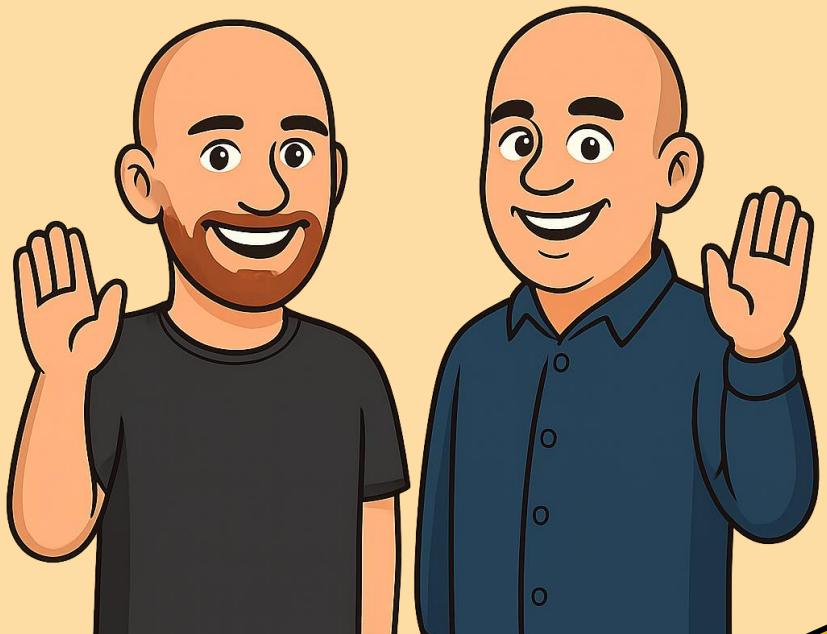
BEST PRACTICES, TIPS AND TRICKS



BEST PRACTICES, TIPS AND TRICKS

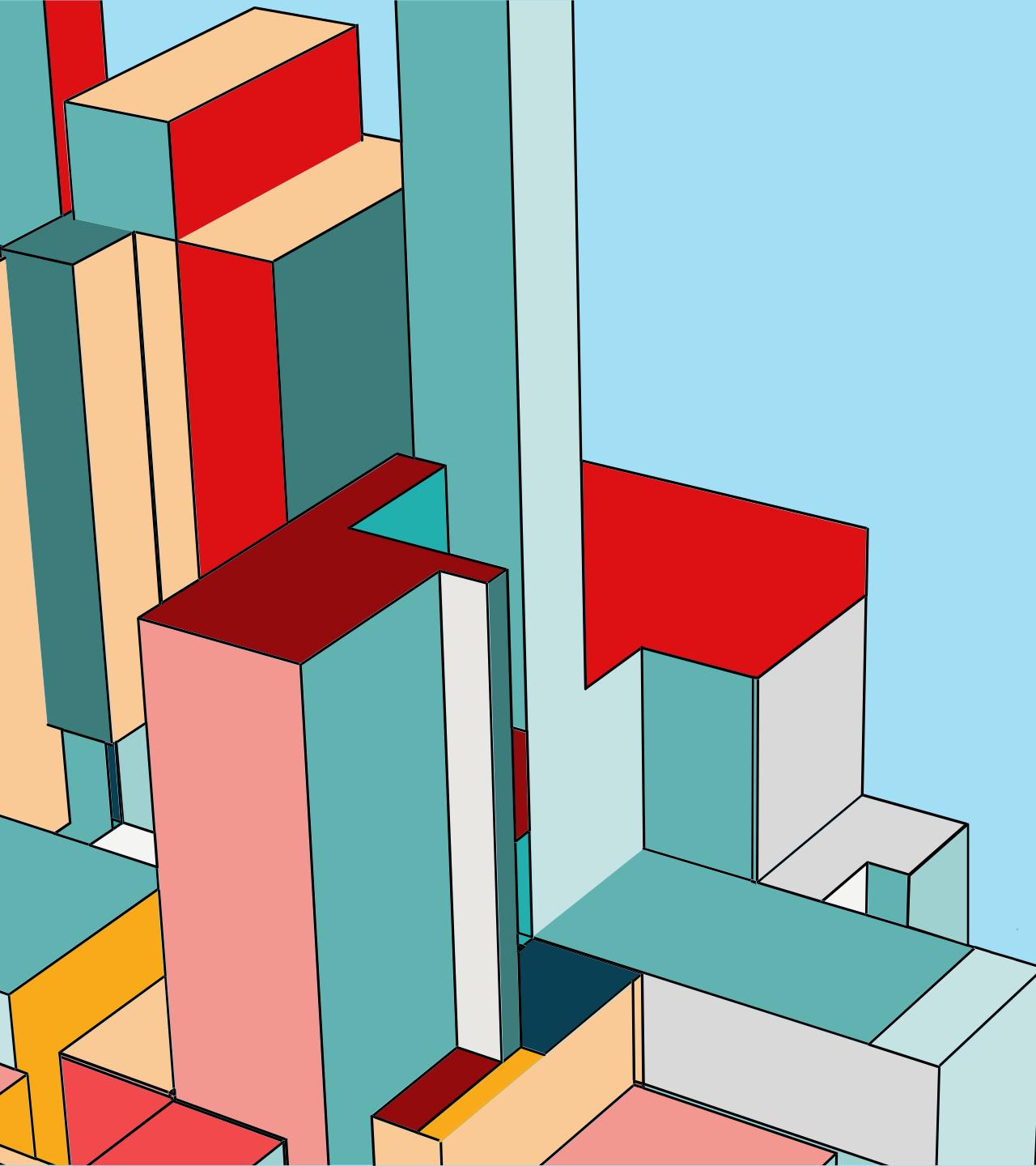
- Split your workloads and layers across multiple workspace
- Use mono-repo structure as a starting point
- Leverage the Fabric CLI, REST APIs, and/or Terraform for automation
- Use the fabric-cicd Python library to deploy Fabric items
- Design everything with automation in mind
 - Invest in dynamic pipelines, notebooks and reusable patterns
 - Apply strict and consistent naming conventions
- Implement a metadata-driven framework for scalability robustness and speed
- Think BIG - start small and get experience
- Stay curious - Get inspired by what others build!

THANK YOU



Rate This session





END OF SLIDEDECK

FABRIC CI/CD PLATFORM

Continuous Integration

Small but frequent changes

Working with multiple people on various aspects of the solution

Merging back into main branch

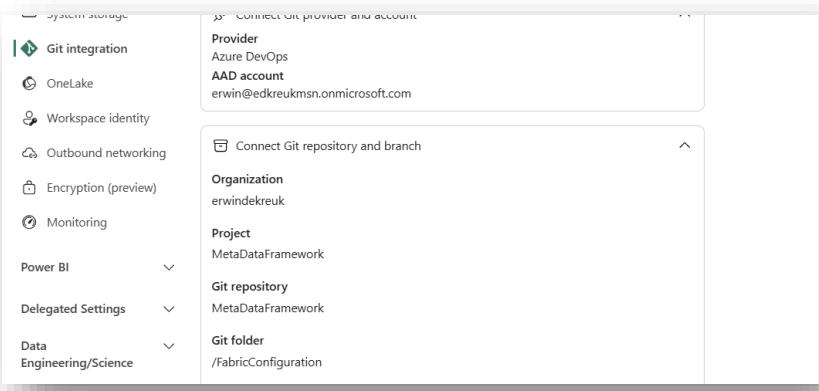
Continuous Deployment

Working in short cycles (often Agile)

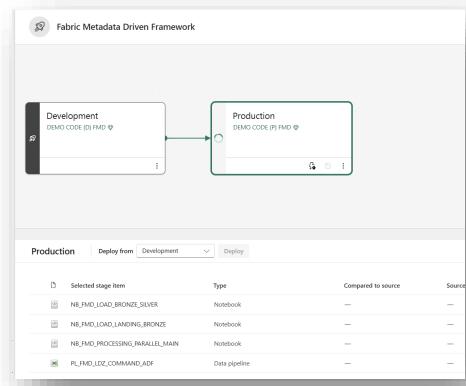
High frequency updates and releases
Repeatable deployment process

FABRIC CI/CD PLATFORM

Built-in git integration



Deployment pipelines



Fabric REST APIs

The screenshot shows a code editor window with a 'HTTP' request. The method is 'POST' and the URL is 'https://api.fabric.microsoft.com/v1/connections'. The code is a JSON object:

```
POST https://api.fabric.microsoft.com/v1/connections

{
  "connectivityType": "ShareableCloud",
  "displayName": "MyGitHubPAT",
  "connectionDetails": {
    "type": "GitHubSourceControl",
    "creationMethod": "GitHubSourceControl.Contents",
    "parameters": [
      {
        "dataType": "Text",
        "name": "url"
      }
    ]
}
```

Variable Library

The screenshot shows the 'Variable Library' interface. It displays a table with columns 'Note', 'Type', and 'Value'. The table has three rows: 'forkspaceGuid' (String type, value '40e27fdc-775a-4ee2-84d5-48893...'), 'alt_name' (String type, value 'keyvaultname'), and 'use_schema_enabled' (Boolean type, value 'true'). To the right of the table is a 'Default value set' section with a green border, showing 'Active' and a list of values: '40e27fdc-775a-4ee2-84d5-48893...', 'keyvaultname', and 'true'. Below this is an 'Alternative value sets' section for 'Prod' with a white background, showing the same three values.

GIT INTEGRATION

- Sync a Workspace to a Git branch
- Git providers
 - Azure DevOps
 - GitHub
 - GitHub Enterprise
- Fabric git APIs – REST APIs & PowerShell samples.
- Fabric CLI
- Manage branches
 - Switch branch
 - Checkout new branch
 - Branch out to new workspace

Workspace settings

- ⚙️ General
- 💎 License info
- ☁️ Azure connections
- 📁 System storage
- ⚡ Git integration
- ⌚ OneLake
- 👤 Workspace identity
- 🔗 Outbound networking
- 🔒 Encryption (preview)
- ⌚ Monitoring
- Power BI
- Delegated Settings
- Data Engineering/Science
- Data Factory
- Data Warehouse

Git integration

Connect to Git to manage your code and back up your work. [Learn more](#)

Preview items Some item types are only available in preview when using Git. [Learn more](#)

⚡ Connect Git provider and account

Provider
Azure DevOps
AAD account
erwin@edkreukmsn.onmicrosoft.com

🔗 Connect Git repository and branch

Organization
erwindekreuk

Project
MetaDataProvider

Git repository
MetaDataProvider

Git folder
/FabricConfiguration

Branch * ⓘ

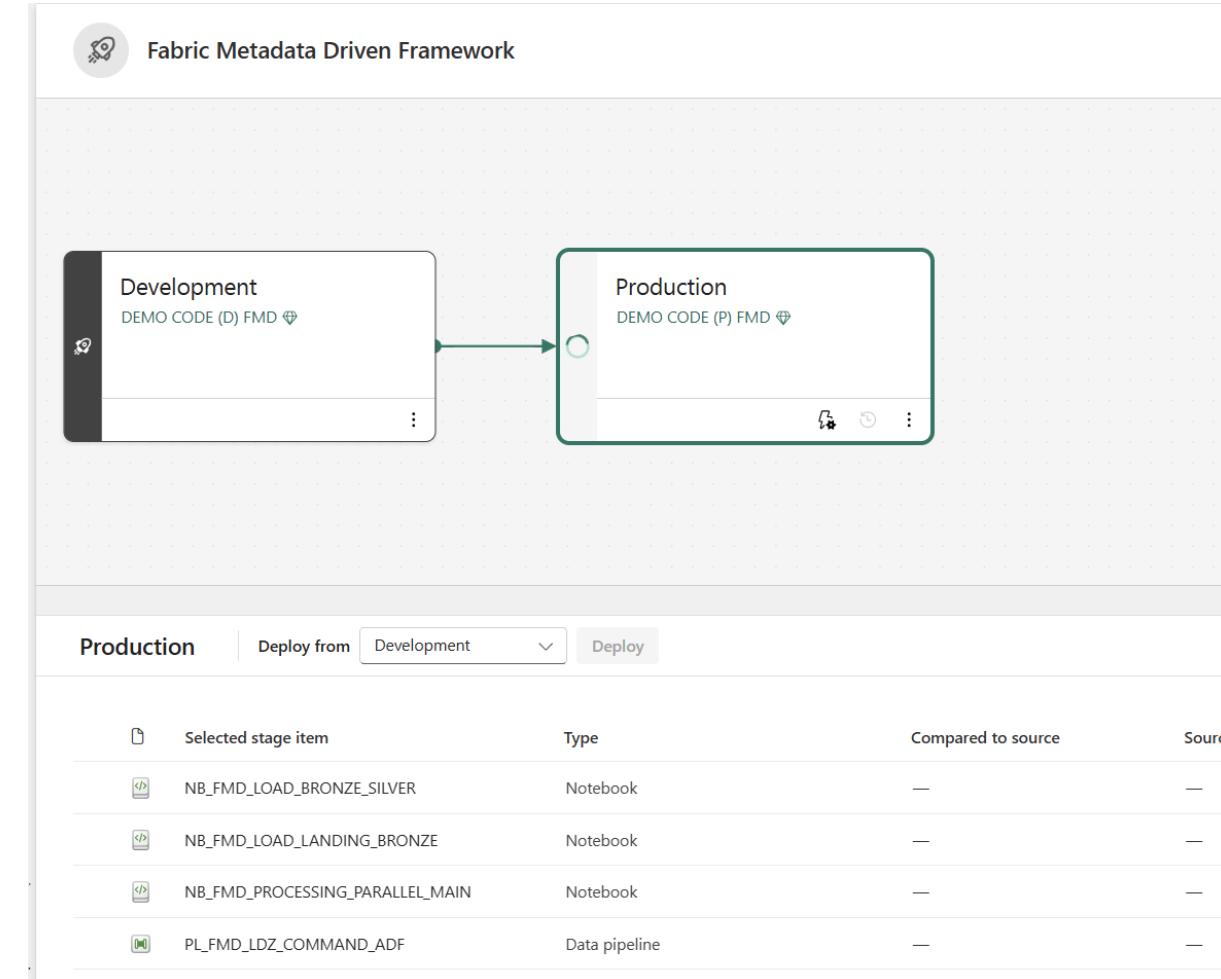
Develop

Switch branch Cancel

Disconnect workspace

DEPLOYMENT PIPELINES

- Deploy items across Workspaces
- Apply rules on configuration
- Majority of Fabric items supported (*and more to come*)
- Compare changes on code-level (*only for semantic models*)
- Create a pipeline of 2-10 stages
 - Pipeline designer at creation
 - Ability to add custom stage names



FABRIC USER APIs

- Automated operations on behalf of Fabric users.
- Supporting CRUD operations
- Example usage scenarios:
 - Item management (see *table*)
 - Item definition
 - Workspace management
 - Workspace access management
 - Execute item jobs

Data Engineering items:
Environment
GraphQL (preview)
Lakehouse (preview)
Notebooks
Spark Job Definitions (preview)
User Data Functions (preview)

Data Warehouse items:
Warehouse (preview)
Mirrored Azure Databricks
Catalog (preview)

Database items:
SQL database (preview)

Data Factory items:
Copy Job (preview)
Dataflow gen2
Data pipeline
Mirrored database
Mount ADF (preview)
Variable library (preview)

Industry solutions:
Healthcare (preview)
HealthCare Cohort (preview)

Real-time Intelligence items:
Activator (preview)
Eventhouse
EventStream
KQL database
KQL Queryset
Real-time Dashboard

VARIABLE LIBRARY

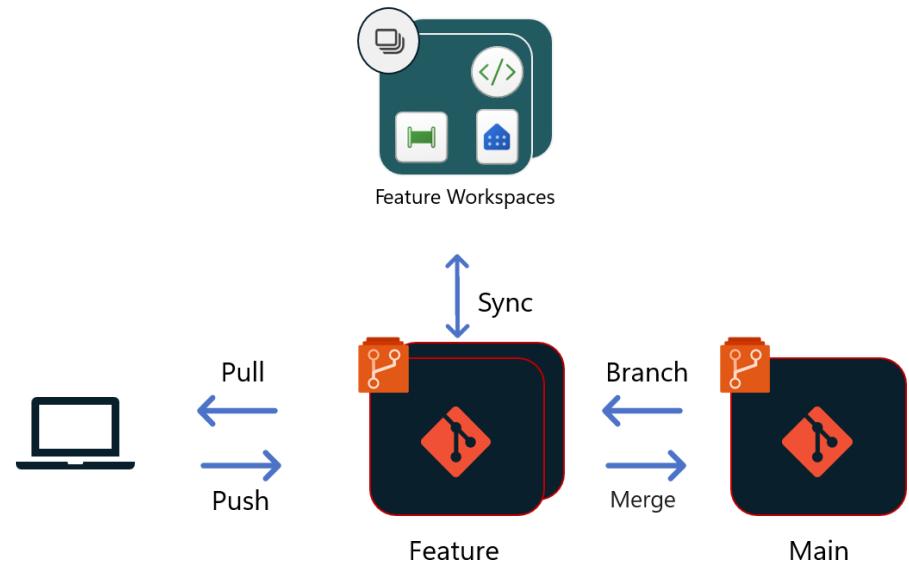
- New item in Fabric
- Central location to manage configurations across items in a workspace.
- Value sets -
 - Set values for different stages of your CI/CD process.
 - Apply them in relevant WSs with a single API call/ click of a button.

VAR_FMD

Variables			Alternative value sets	
<input type="checkbox"/> Name *	Note	Type ⓘ	<input checked="" type="checkbox"/> Default value set * Active	...
<input type="text"/> Data_WorkspaceGuid	<input type="button"/>	String	<input type="text"/> 40e27fdc-775a-4ee2-84d5-48893...	
<input type="text"/> key_vault_name	<input type="button"/>	String	<input type="text"/> keyvaultname	
<input type="text"/> Lakehouse_schema_enabled	<input type="button"/>	Boolean	<input type="text"/> true	
			<input checked="" type="checkbox"/> Prod *	...
			<input type="text"/> 40e27fdc-775a-4ee2-84d5-48893...	
			<input type="text"/> keyvaultname	
			<input type="text"/> true	

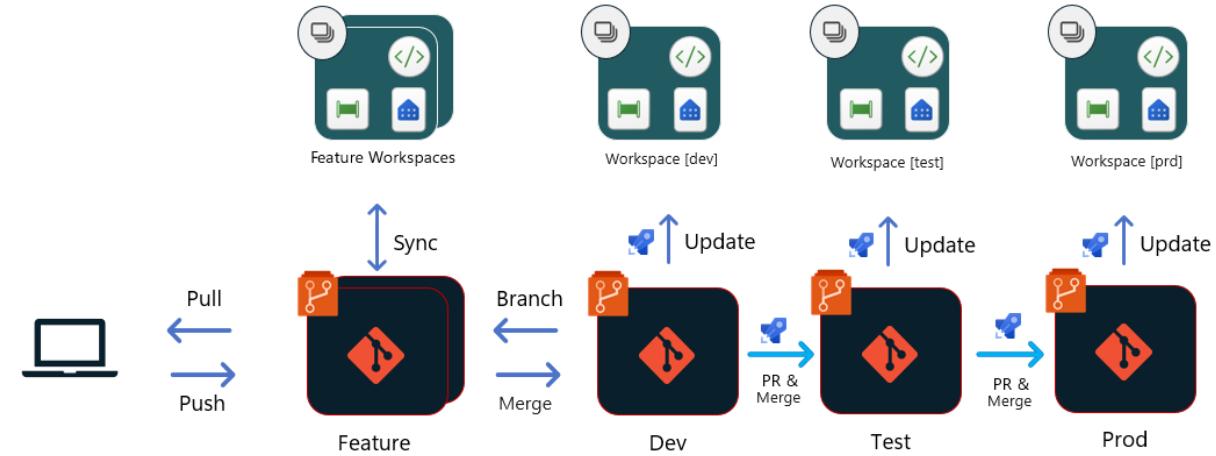
DEVELOPMENT PROCESS

- Development process is consistent across all deployment strategies.
- Deployment method is independent of how updates are released to production.
- Developers work in isolated environments when using source control.
- In Fabric, the isolated environment can be:
 - An IDE on your local machine (e.g., Power BI Desktop, VS Code).
 - A separate workspace within Fabric..



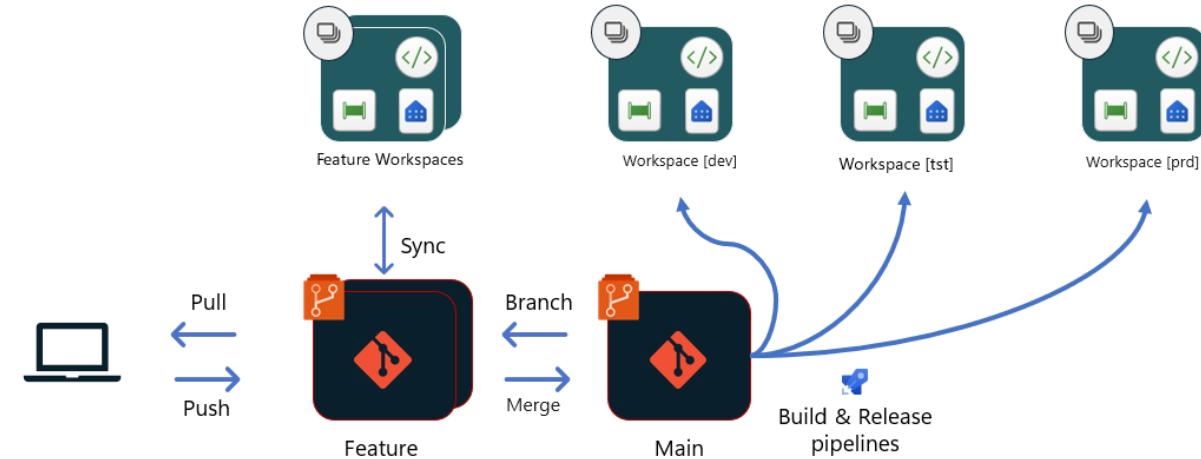
GIT- BASED DEPLOYMENTS

- Git repository as single source of truth for all deployments.
- Gitflow branching strategy used, supporting multiple primary branches.
- Direct upload from Git repo to workspace, bypassing build environments.
- Post-deployment customization possible via API calls or workspace actions.



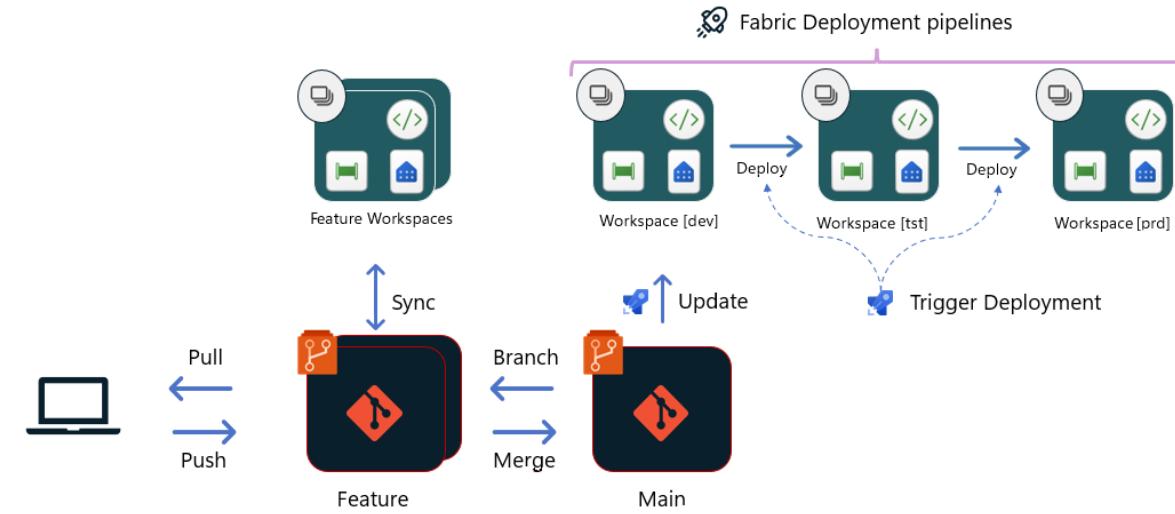
GIT- BASED DEPLOYMENTS USING BUILD ENVIRONMENTS

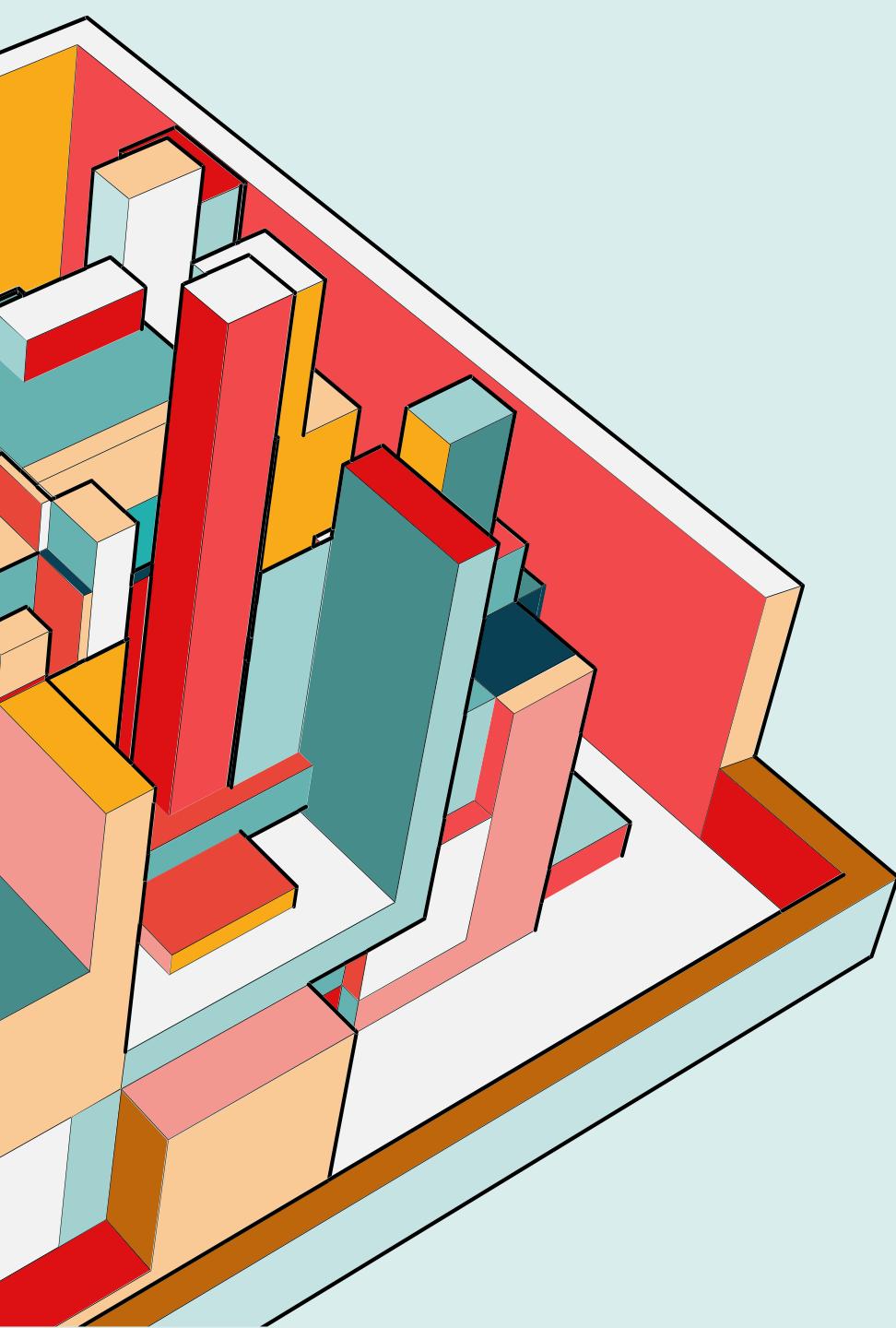
- Git as the single source of truth and origin of all deployments.
- Trunk-based development workflow followed by the team.
- Build environment required with custom scripts to modify workspace-specific attributes (e.g., connectionId, lakehouseld) before deployment.
- Custom release pipeline needed to:
 - Retrieve item content from Git.
 - Call Fabric Item APIs to create, update, or delete modified Fabric Items.



GIT- BASED DEPLOYMENTS USING BUILD ENVIRONMENTS

- Source control used for development only, not as the origin of deployments.
- Deployments occur directly between stages of the Fabric release pipeline.
- Deployment rules, autobinding, and available APIs are sufficient to manage stage-specific configurations.
- Fabric deployment pipeline features leveraged, including:
- Viewing changes in Fabric.
- Tracking deployment history.
- Linear deployment structure in Fabric pipelines.
- Additional permissions required to create and manage deployment pipelines.





OUR FIRST AUTOMATION CALL

A Live Demo

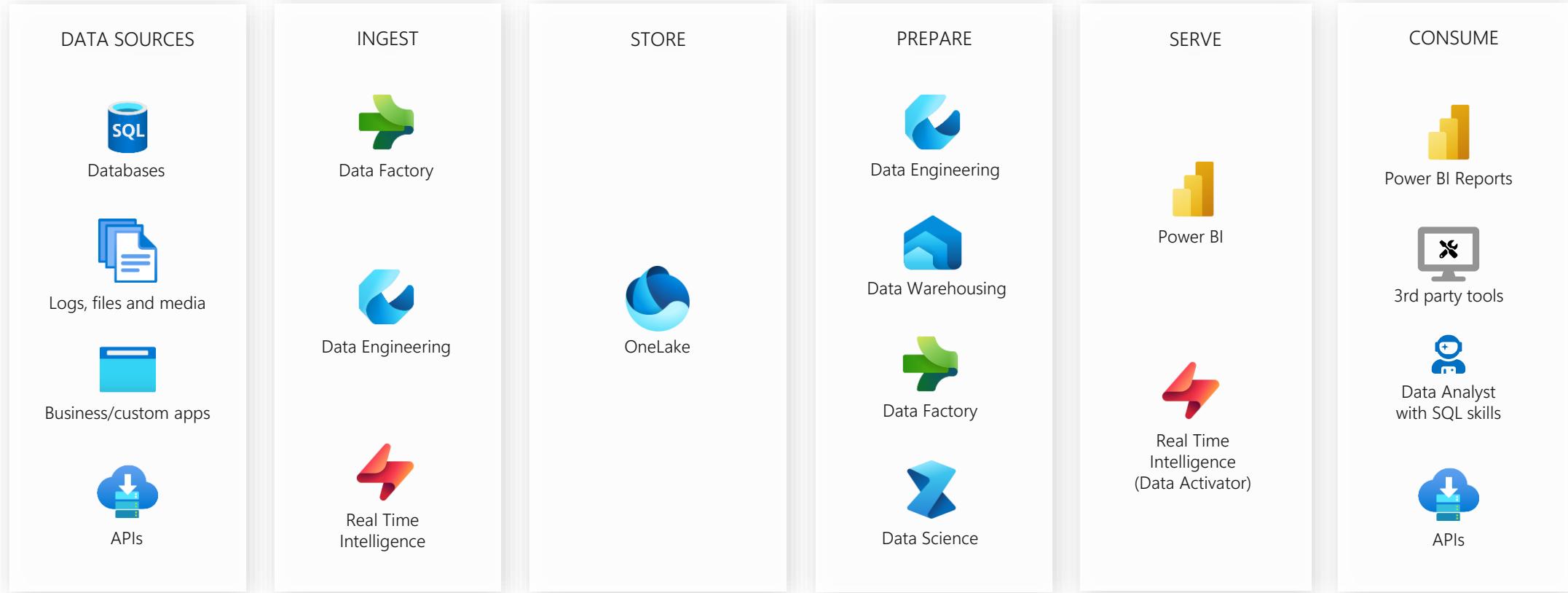
LET'S CREATE A WORKSPACE WITH 3 LAKEHOUSES

- Click Ops
- Fabric Cli
 - [Microsoft Fabric CLI | fabric-cli](#)
- Fabric-cicd
 - [fabric-cicd](#)
- Semantic Link Labs
 - [sempy labs – semantic-link-labs 0.12.1 documentation](#)
- Rest API
 - [Item management - Microsoft Fabric REST APIs | Microsoft Learn](#)

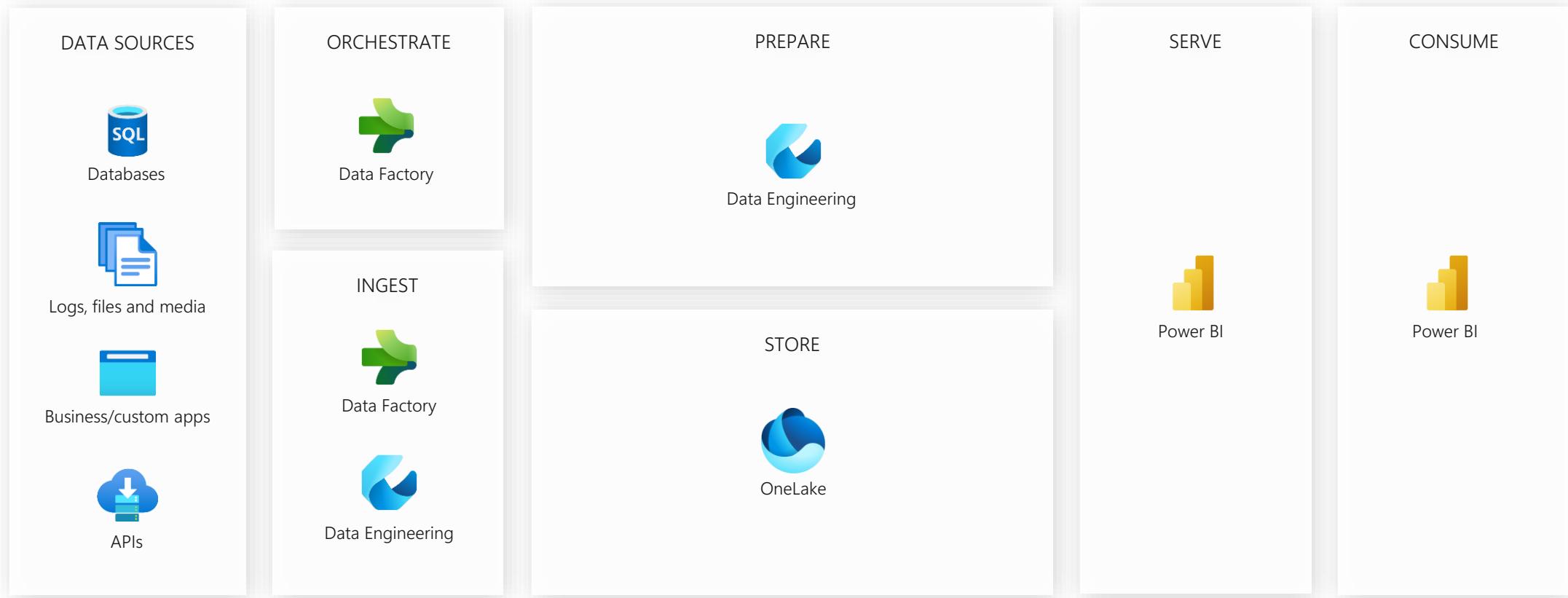


DESIGNING OUR FABRIC LAKEHOUSE PLATFORM

MULTIPLE COMPONENTS = MULTIPLE POSSIBILITIES



A LAKEHOUSE STARTING POINT ARCHITECTURE



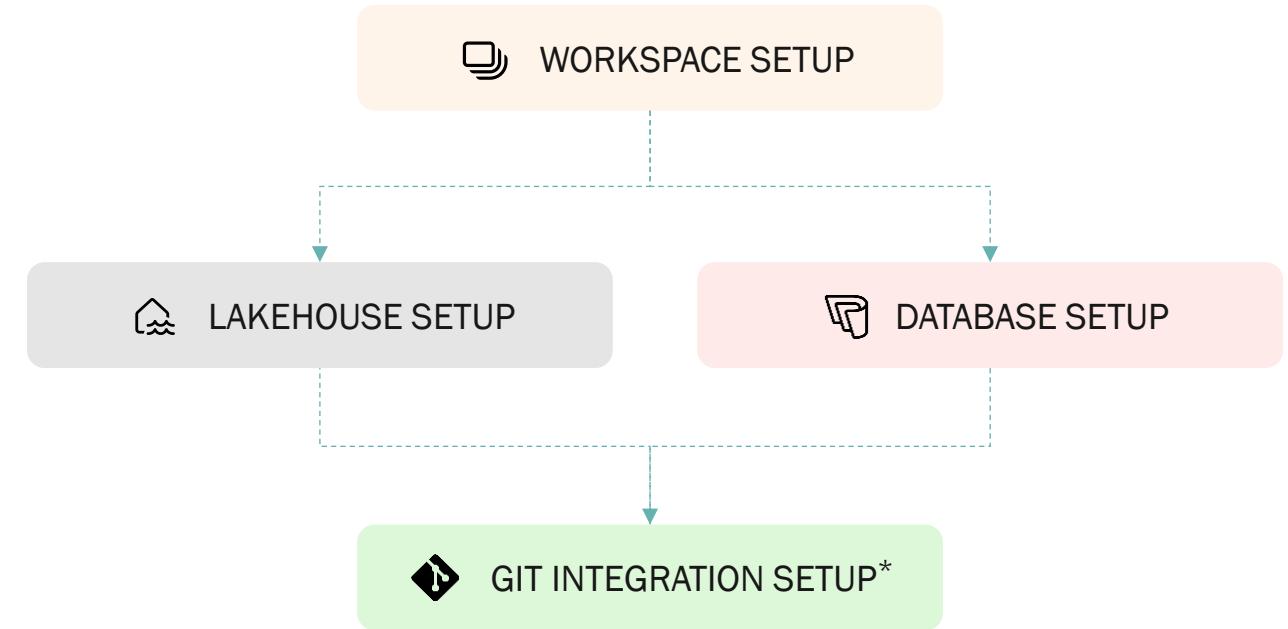


**ACCELLERATE AND
UNIFY FABRIC
SOLUTION SETUP**

AUTOMATING FABRIC SOLUTION SETUP - SHOWCASE

Prerequisites:

- A Fabric Capacity
- A Service Principal *
- Azure DevOps project *



Run options:

- Azure DevOps Pipeline *
- Local Python script

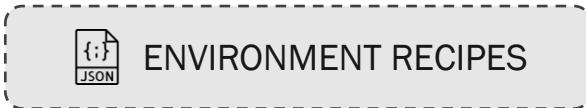
Recipe approach for declaring infrastructure

Download source code: <https://github.com/gronnerup/Fabric>



Blog post "Automating Fabric: Kickstart your Fabric Setup with Python and Fabric REST APIs": <https://peerinsights.hashnode.dev>

AUTOMATING FABRIC SOLUTION SETUP - SHOWCASE



LAKEHOUSE SETUP

- Create Lakehouse items
- Create connections
- Set connection permissions



DATABASE SETUP

- Create SQLDatabase item
- Create connection
- Set connection permissions

GIT INTEGRATION SETUP*

- Connect workspaces to Git
- Initiate & sync

USING A RECIPE-BASED APPROACH TO INFRASTRUCTURE-AS-CODE



BASE RECIPE

```
{  
  "name": "*FabCon - {layer} [{environment}]",  
  "generic": {  
    "capacity_id": "00000000-0000-0000-0000-000000000000",  
    "permissions": { ... },  
    "git_integration": { ... }  
  },  
  "layers" :  
  {  
    "Ingest": { },  
    "Store": {  
      "items": {  
        "Lakehouse": [  
          {"item_name": "Landing", "connection_name": "FabCon-Landing [{environment}]"},  
          {"item_name": "Base", "connection_name": "FabCon-Base [{environment}]"},  
          {"item_name": "Curated", "connection_name": "FabCon-Curated [{environment}]"}  
        ],  
        "SQLDatabase": [  
          {  
            "item_name": "Metadata",  
            "connection_name": "FabCon-MetadataDB [{environment}]",  
            "sql_script": "../resources/Metadata.sql"....  
          }  
        ]  
      }  
    }  
  }  
}
```



RECIPE FILES

- {} infrastructure.dev.json
- {} infrastructure.json
- {} infrastructure.prd.json
- {} infrastructure.tst.json



QUICK OVERVIEW OF THE MAIN SETUP OPTIONS



REST APIs

Utilizing Fabric REST APIs

Pros

- Flexible and scalable
- Fully customizable
- Integrates with DevOps
- Improves governance
- Better resource control

Cons

- Higher initial setup effort
- Possible API coverage gaps



ClickOps

Manually through the Fabric UI.

Pros

- Quick and easy for tiny setups
- Suitable for testing

Cons

- Not scalable
- Error-prone
- No version control
- Not CI/CD friendly



Terraform

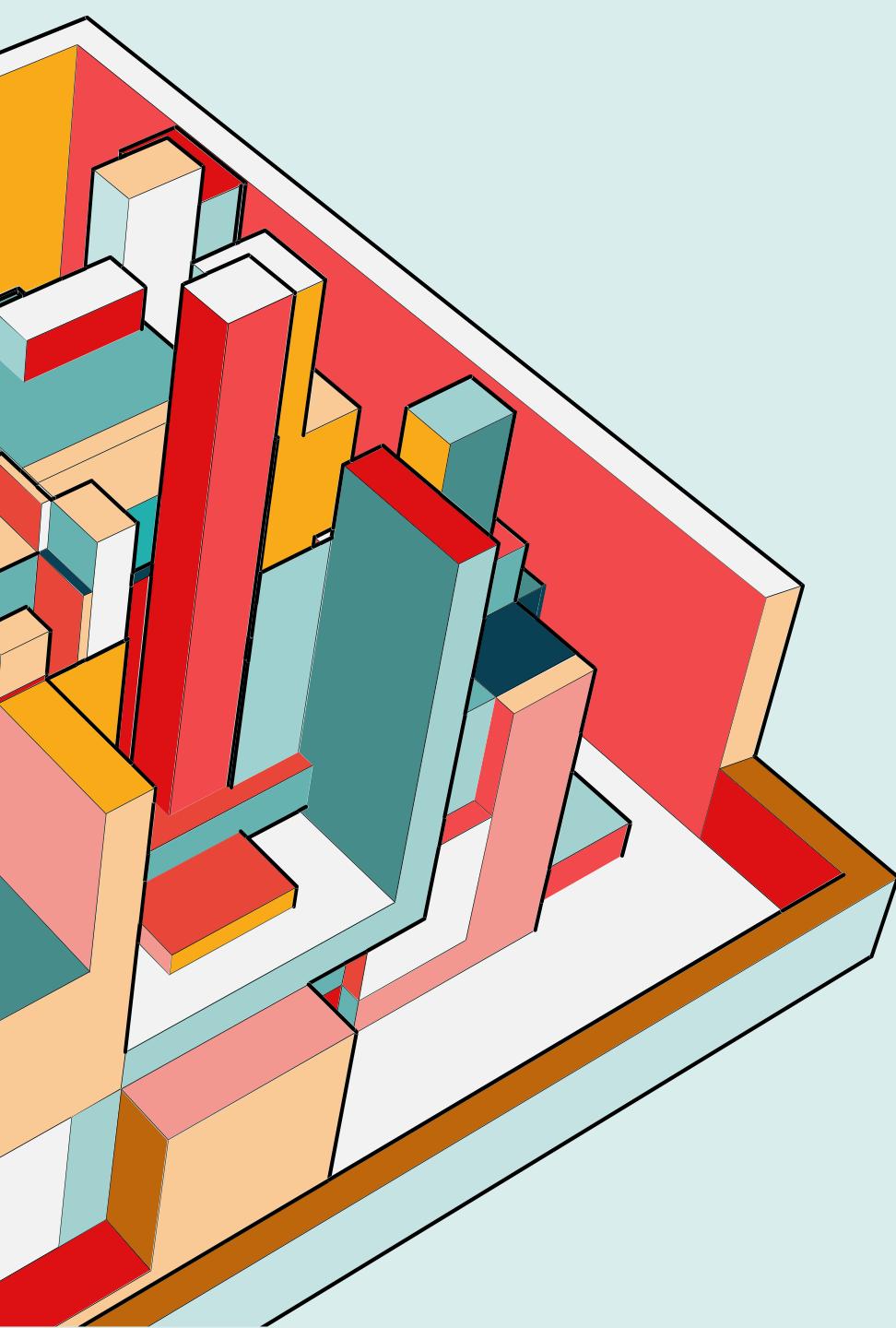
Leading IaC tool!

Pros

- Industry standard
- Readable and scalable
- Ensures consistent deployment
- Declarative & State Management
- Multi-cloud / cross-service

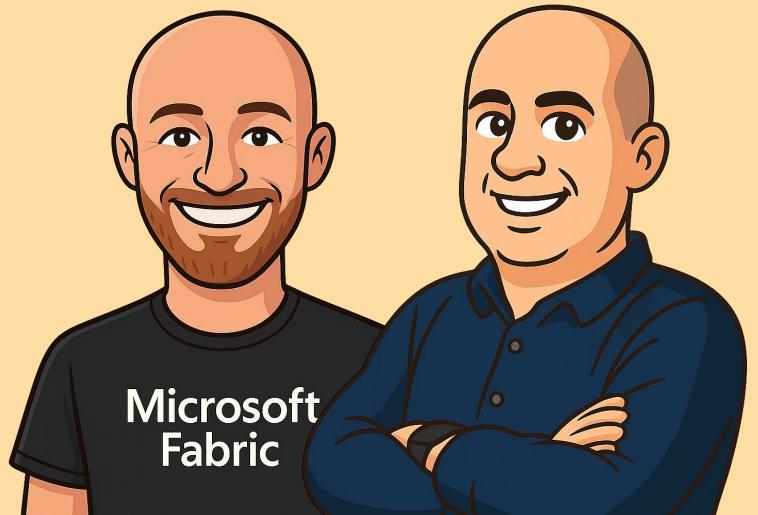
Cons

- Can be complex
- Would still require a hybrid-setup



**WHEN TO CHOOSE
WHICH SCENARIO??**

THANK YOU



Building a bridge from
zero-to-hero

Microsoft Fabric

