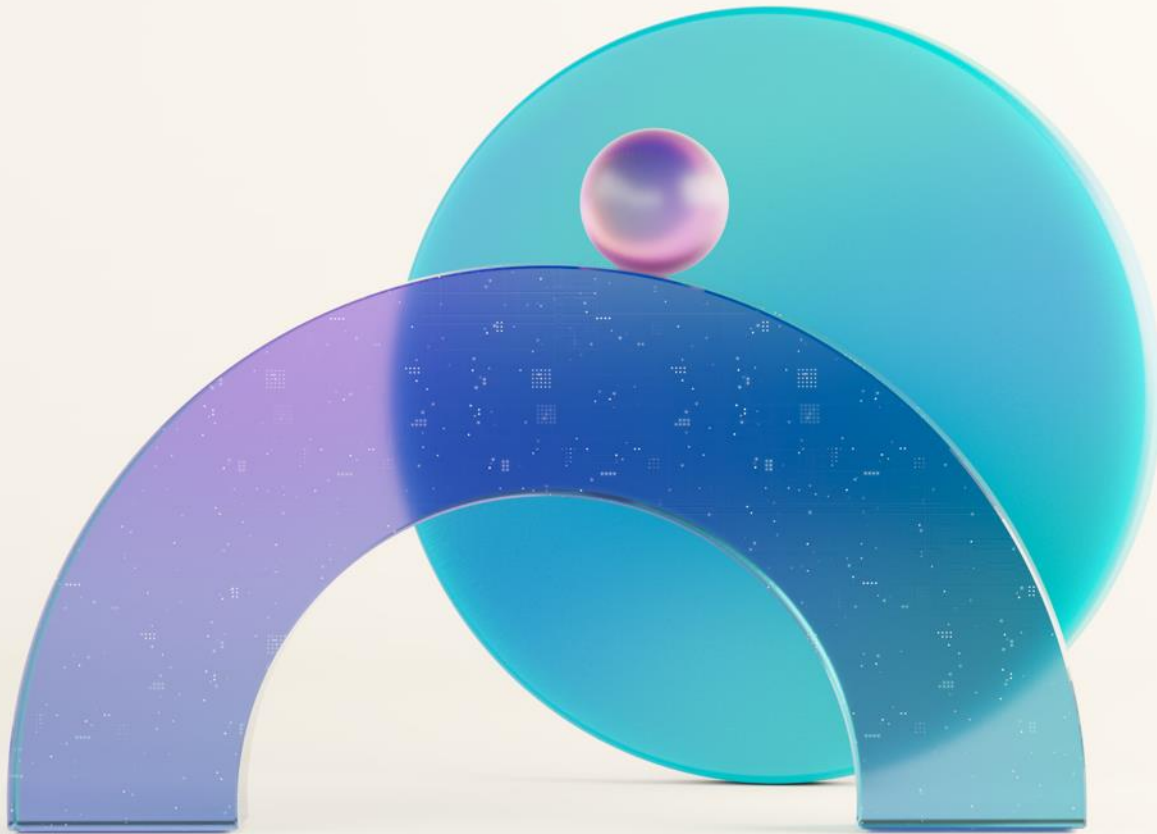


An abstract graphic on the left side of the slide. It features several overlapping, semi-transparent geometric shapes. A prominent pink triangular shape is on the left. In front of it is a teal rectangular block. A small, reflective sphere sits on top of the teal block. Another teal block is visible below the first one. The background is a light, neutral color with a subtle gradient.

Microsoft Fabric

COMMUNITY CONFERENCE



Leveraging CI/CD capabilities in Microsoft Fabric

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Agenda

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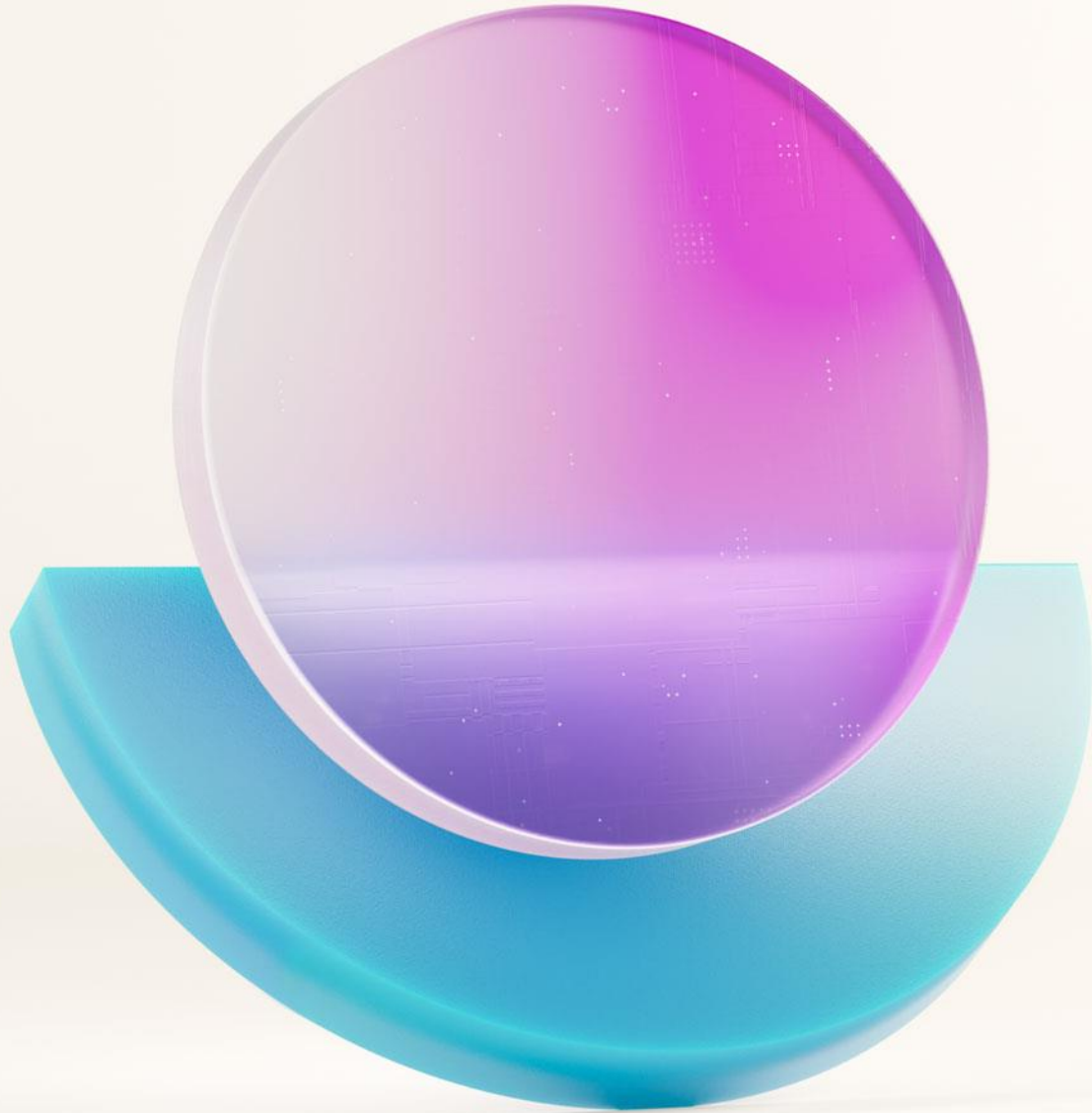
New announcements

07

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04

Deployment strategies



Conceptual

CI / CD

Continuous Integration / Continuous Deployment

CI / CD

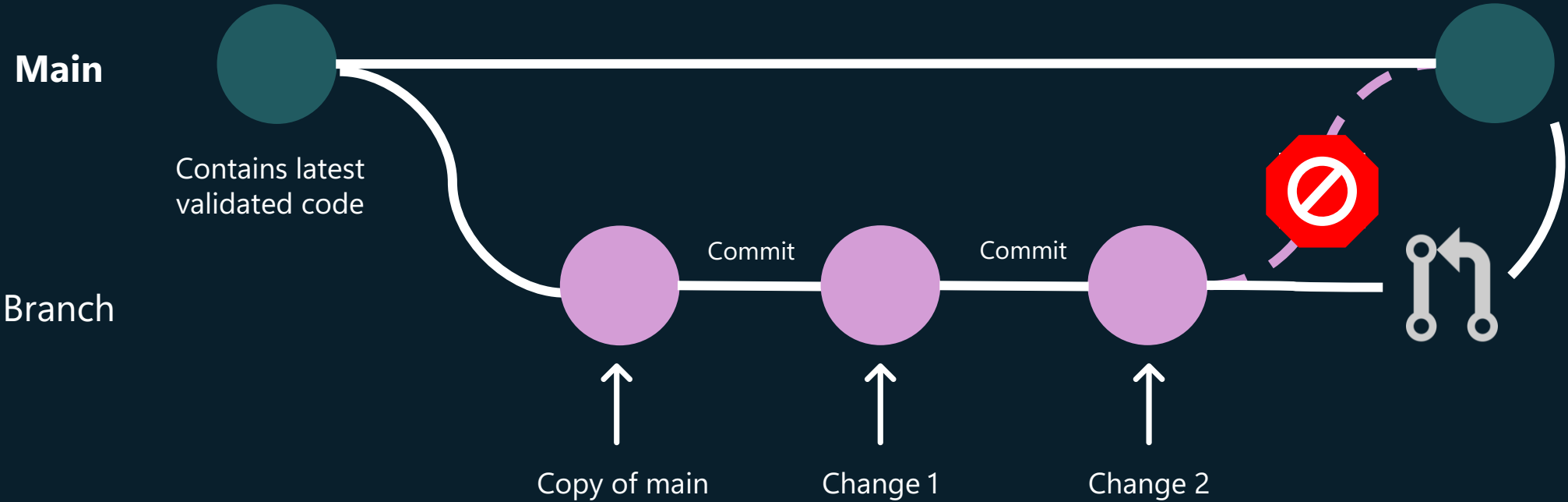
Continuous Integration

- Small but frequent changes
- Working with multiple people on various aspects of the solution
- Merging back into main branch

Continuous Deployment

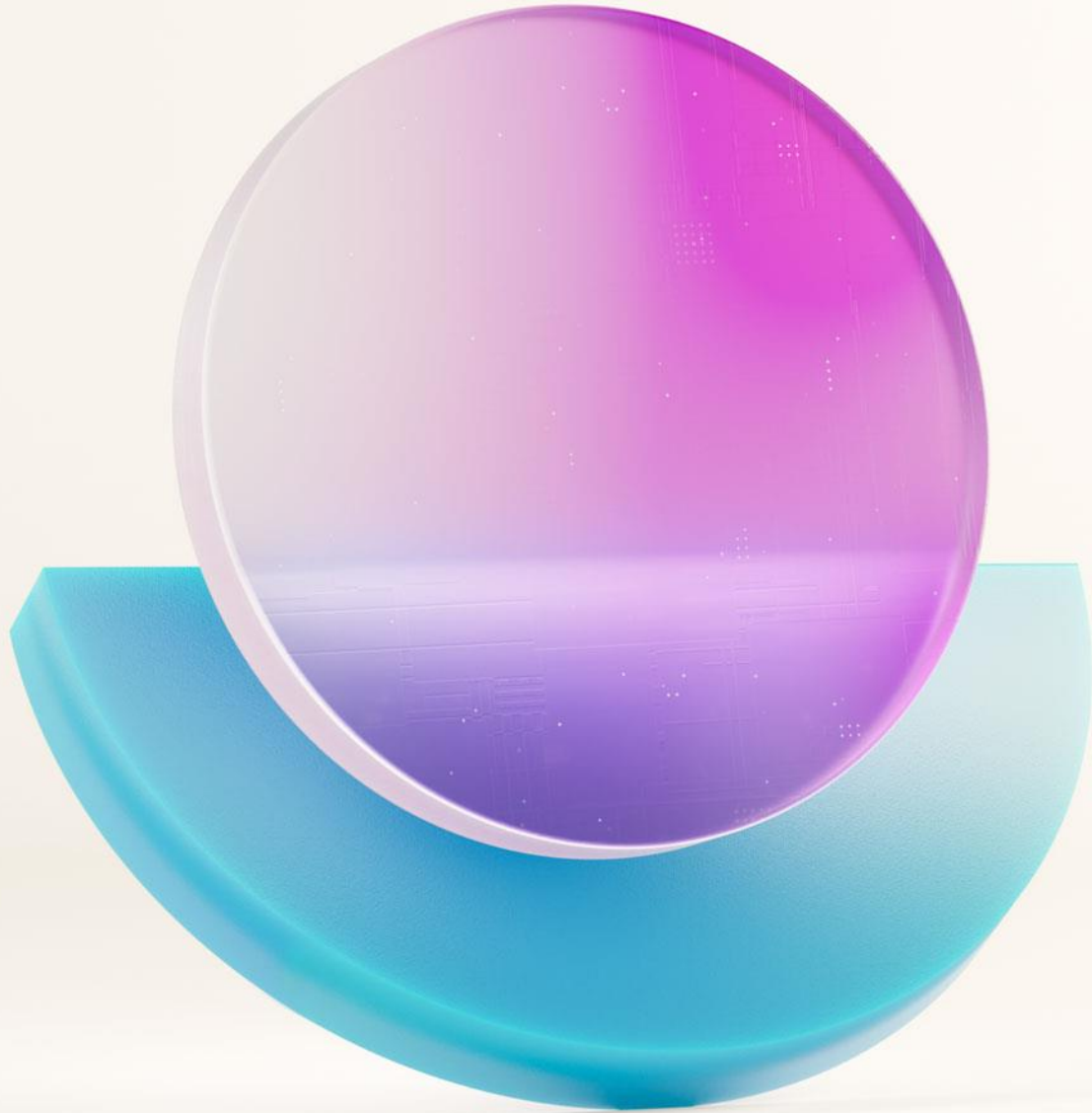
- Working in short cycles (often Agile)
- High frequency updates and releases
- Repeatable deployment process

Git concept



Staged approach

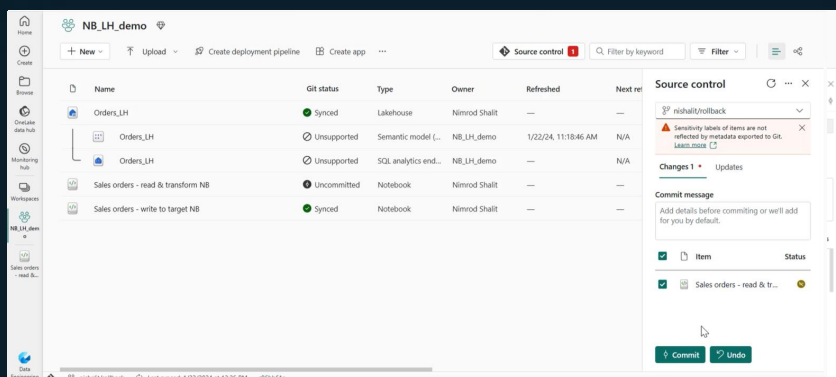




What we have today

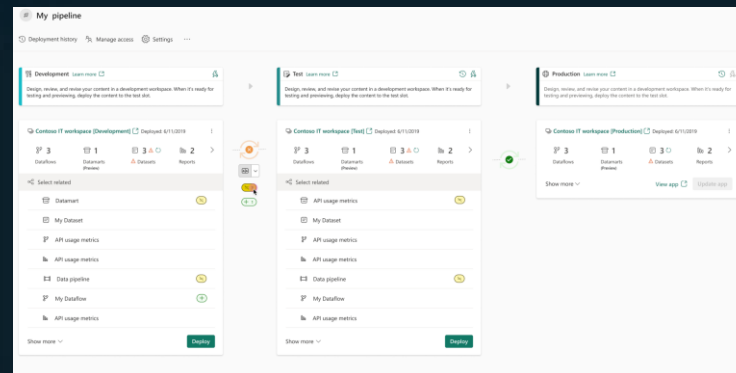
Fabric CI/CD platform

Built-in git integration



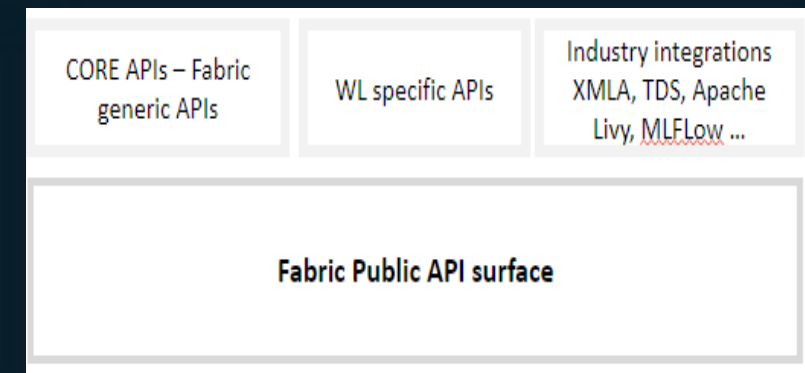
Public preview (with ADO)

Deployment pipelines



GA feature

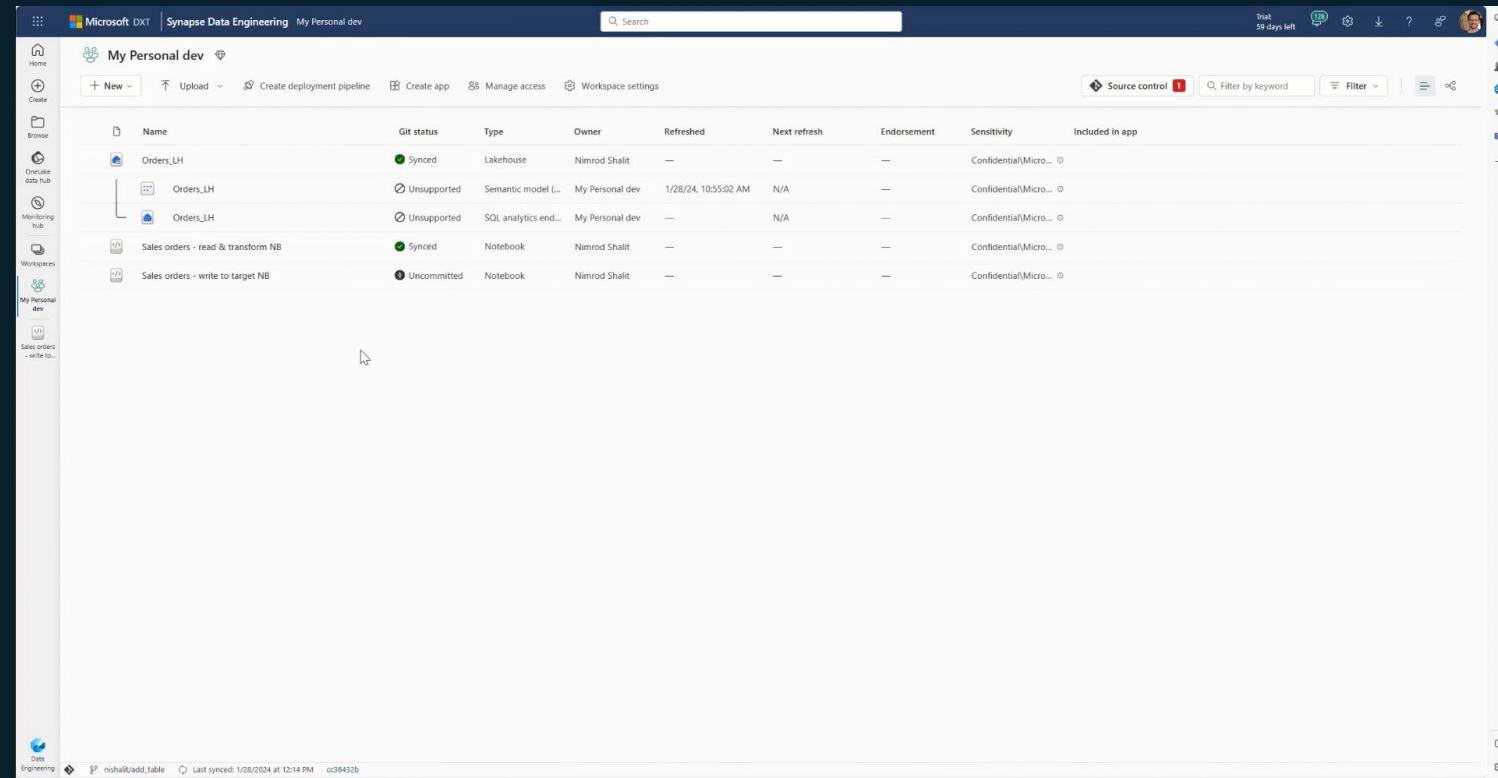
Fabric REST APIs



Public preview

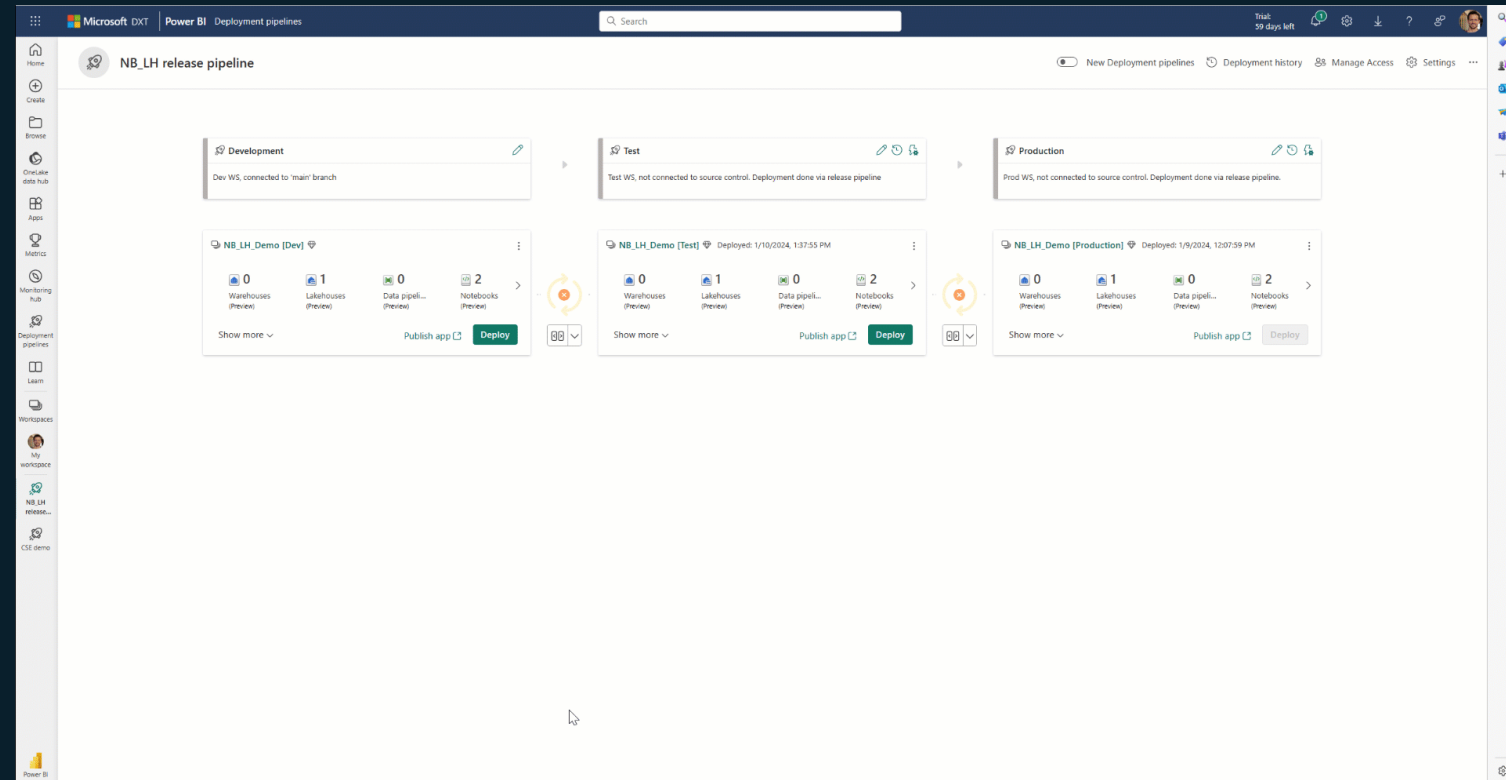
Git integration

- Sync a WS to a Git branch and back
- Git provider- Azure DevOps
- Supported items
 - Power BI- Report, Paginated report, Semantic models
 - Data Engineering- Notebook, Lakehouse
- Fabric git APIs – REST APIs & PS samples.
- Manage branches using 'Checkout/Switch branch'
- Conflict resolution



Deployment Pipelines

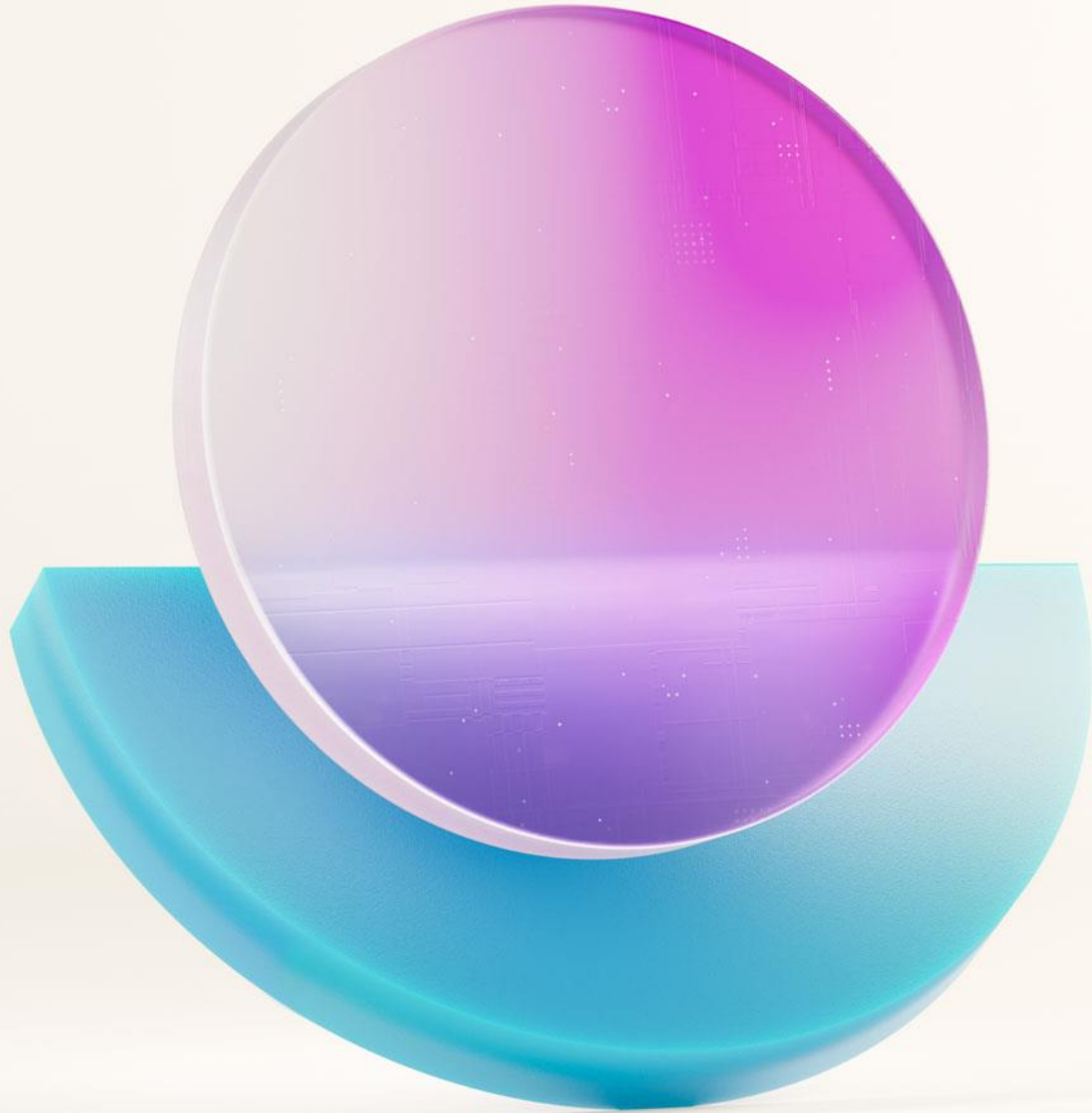
- Deploy items across WSs, and apply rules on configuration
- Supported items
 - Power BI- Report, Paginated Report, Semantic model, Dataflow Gen1, Dashboard, data mart
 - Data Engineering- Notebook, Lakehouse
- Compare changes on code-level
- Create a pipeline of 2-10 stages



Fabric User APIs

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

Item type	Create (without definition)	Get	Update	Delete	List
Dashboard	✗	✗	✗	✗	✓
DataPipeline	✗	✓	✓	✓	✓
Datamart	✗	✗	✗	✗	✓
Eventhouse	✓	✓	✓	✓	✓
Eventstream	✓	✓	✓	✓	✓
KQLDatabase	✗	✓	✓	✓	✓
KQLQueryset	✓	✓	✓	✓	✓
Lakehouse	✓	✓	✓	✓	✓
MLExperiment	✓	✓	✓	✓	✓
MLModel	✓	✓	✓	✓	✓
MirroredWarehouse	✗	✗	✗	✗	✓
Notebook	✓	✓	✓	✓	✓
PaginatedReport	✗	✗	✗	✗	✓
Report	✗	✓	✗	✓	✓
SemanticModel	✗	✓	✗	✓	✓
SparkJobDefinition	✓	✓	✓	✓	✓
SQLEndpoint	✗	✗	✗	✗	✓
Warehouse	✓	✓	✓	✓	✓



New announcements

New Fabric items supported in CI/CD

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	✓	✓ (Soon)
Spark Environment	✓	✓ (Soon)

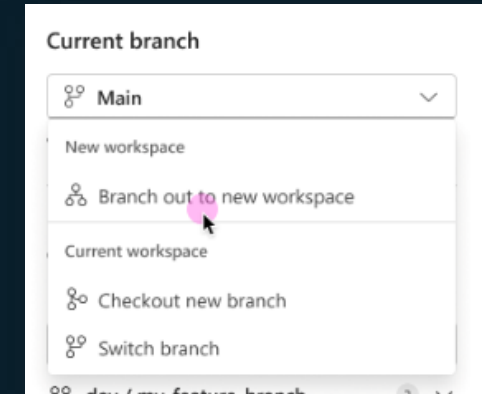
E2E Automated CI/CD process

Enabling fully automated CI/CD processes using familiar tools

- Git APIs
 - Connect/Disconnect a workspace to a git branch
 - Commit to git
 - Update from git
 - Get item status
- Deployment pipelines APIs
 - Deploy all workspace content
 - Deploy selected items
 - Create a pipeline (*coming soon*)
 - Assign a workspace to a pipeline stage (*coming soon*)
 - Manage user access to a pipeline (*coming soon*)

Branch out to new workspace (*April*)

- **Branch out to new workspace** –
 - Create a new isolated work environment (workspace & branch) in a few clicks.
 - After clicking 'Create':
 - New workspace is created and assigned to a capacity
 - New branch is created, based on existing branch
 - New branch and workspace are connected
 - Branch content is synced into the workspace
 - Developer lands in new workspace, reducing 'time-to-code'.

A screenshot of a 'Create new branch and workspace' dialog box. The dialog has a title bar with a close button (X). Below the title, there is a description: 'Create a copy of your current branch, connect it to a new workspace, and make changes without affecting your current workspace. [Learn more](#)'. The dialog contains two main sections. The first section is for the 'Branch name', with a text input field containing 'merge_sales_table'. Below this is a 'Based on' section with a dropdown menu showing 'Main'. The second section is for the 'Workspace name', with a text input field also containing 'merge_sales_table'. At the bottom right of the dialog, there are two buttons: a green 'Create' button and a grey 'Cancel' button. A mouse cursor is pointing at the 'Create' button.

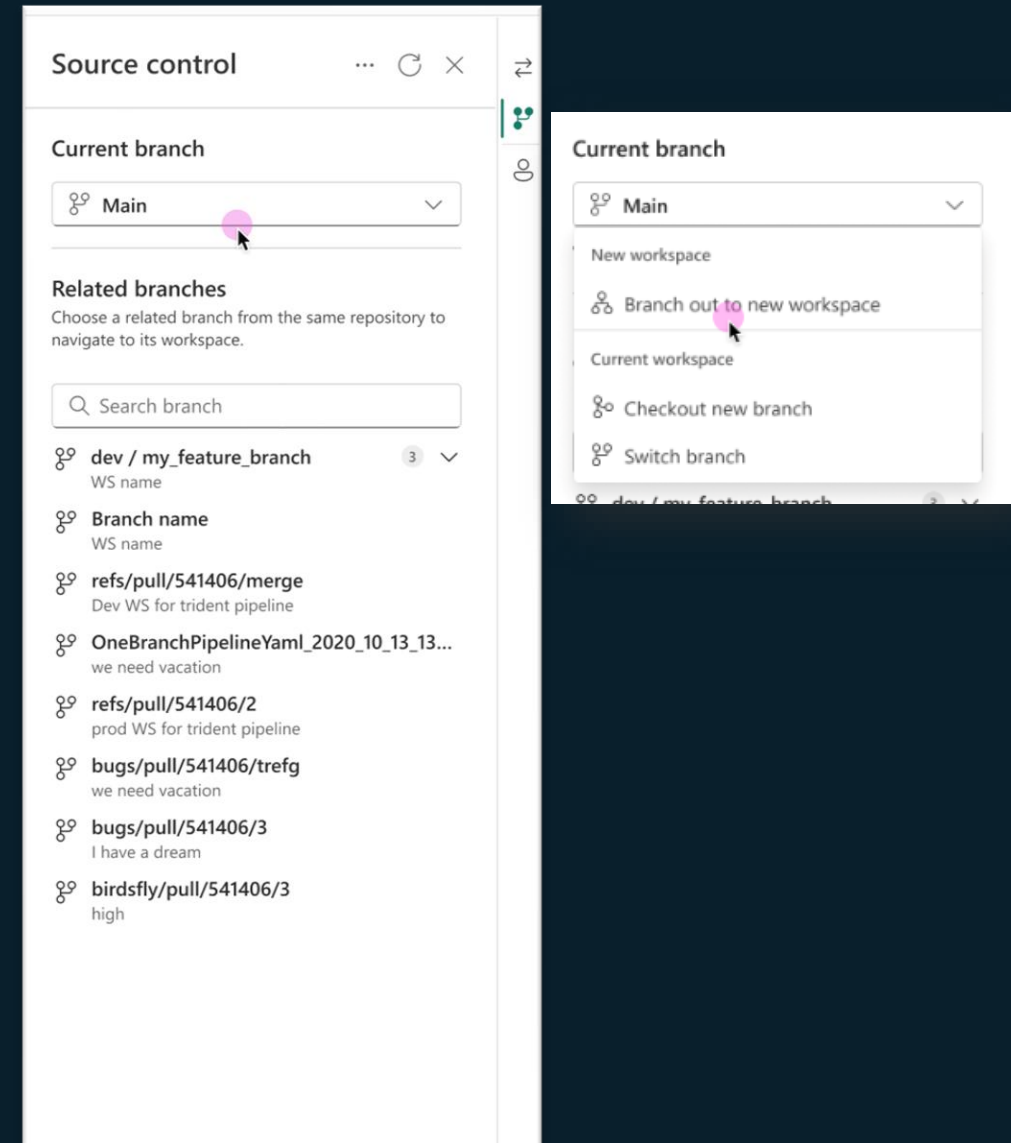
Contextual navigation (*April*)

- **Branches tab**

- Consolidate all branch related actions in a single place within the source control pane

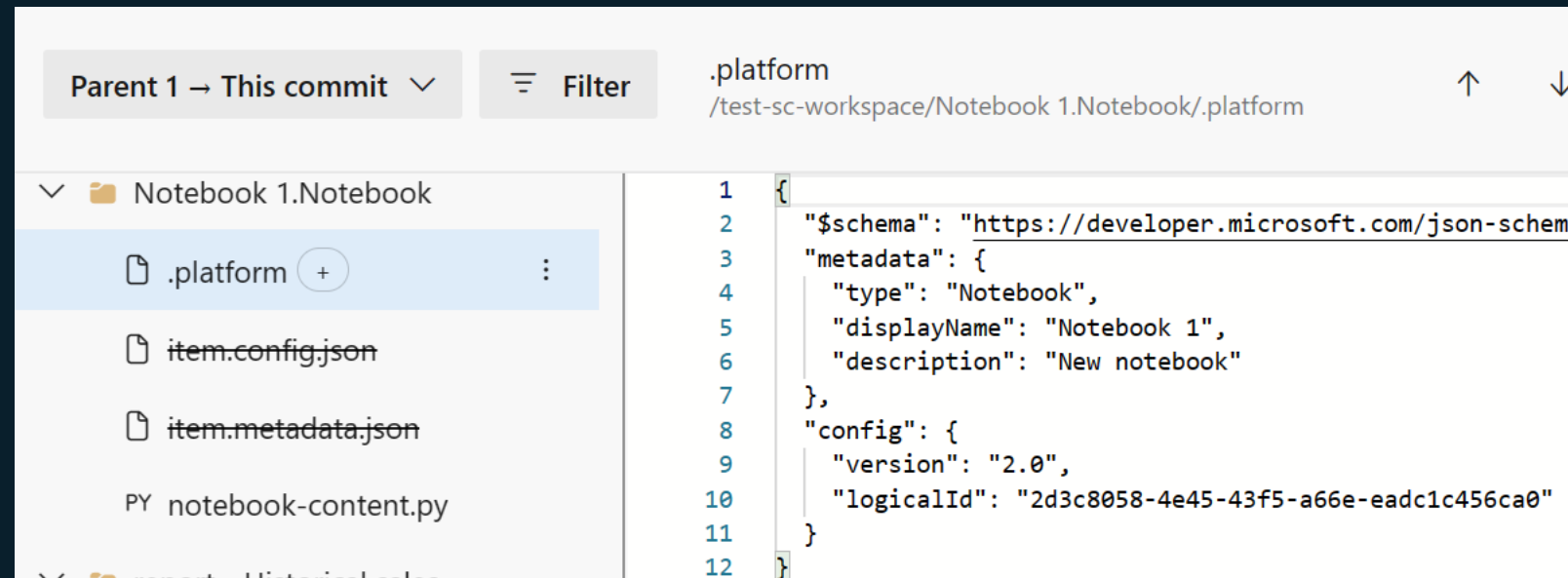
- **Contextual navigation**

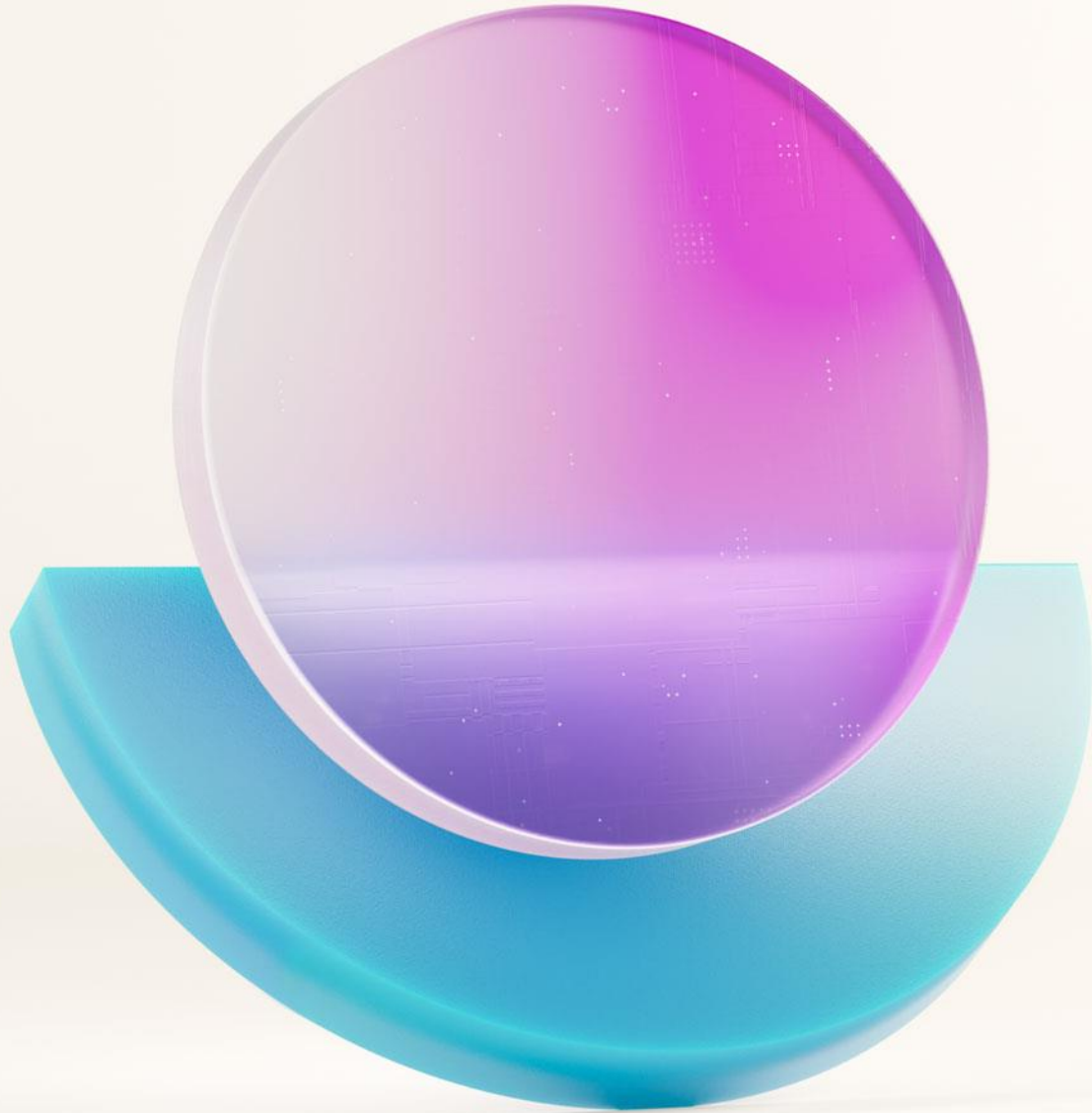
- Find other branches and navigate to their respective workspaces.
- Contextual list of the same 'branch workspaces'.



Unified system file in Git

- Reducing file clutter
- Providing a single, thin Json to represent Fabric items.

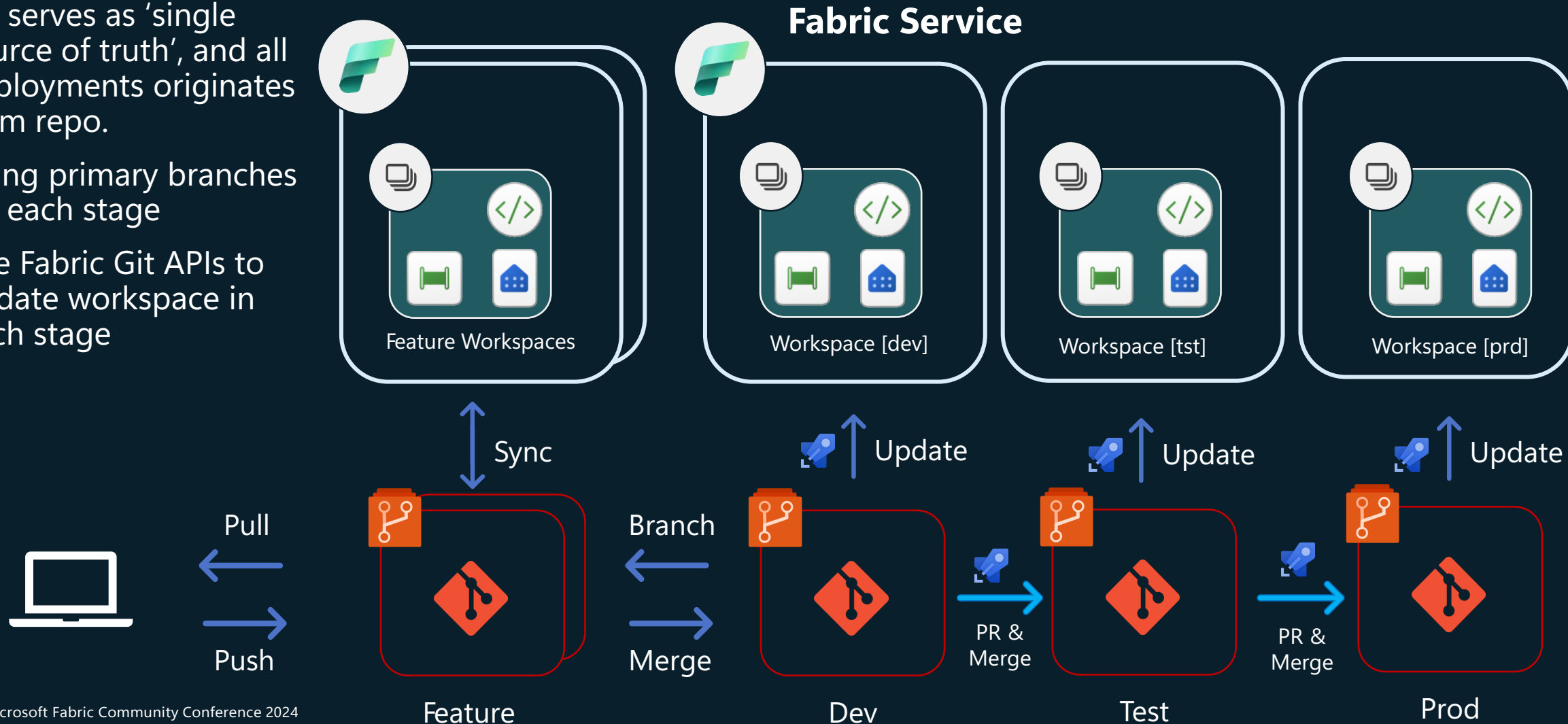




Deployment Strategies

Scenario 1 – Git- based deployments

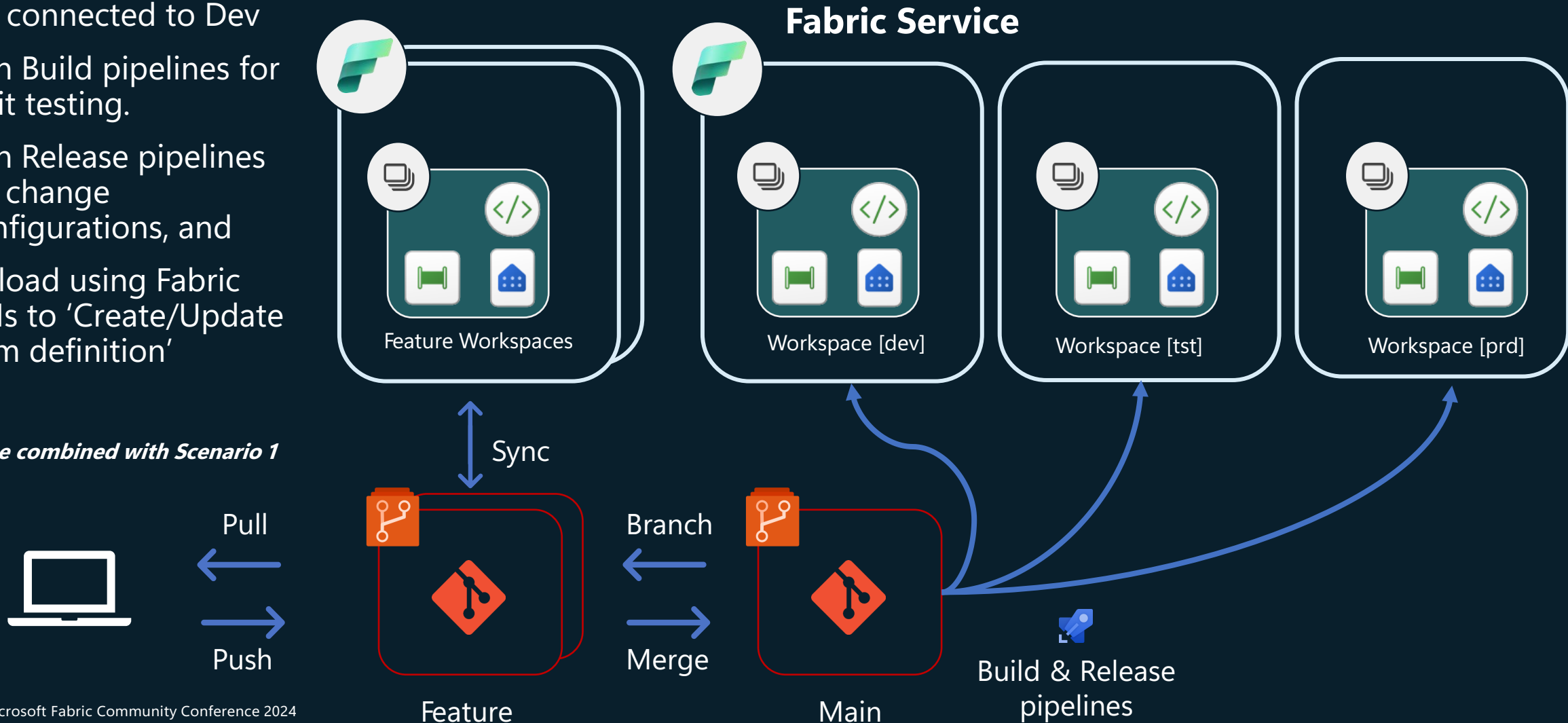
- Git serves as 'single source of truth', and all deployments originates from repo.
- Using primary branches for each stage
- Use Fabric Git APIs to update workspace in each stage



Scenario 2* – Git & Build environments

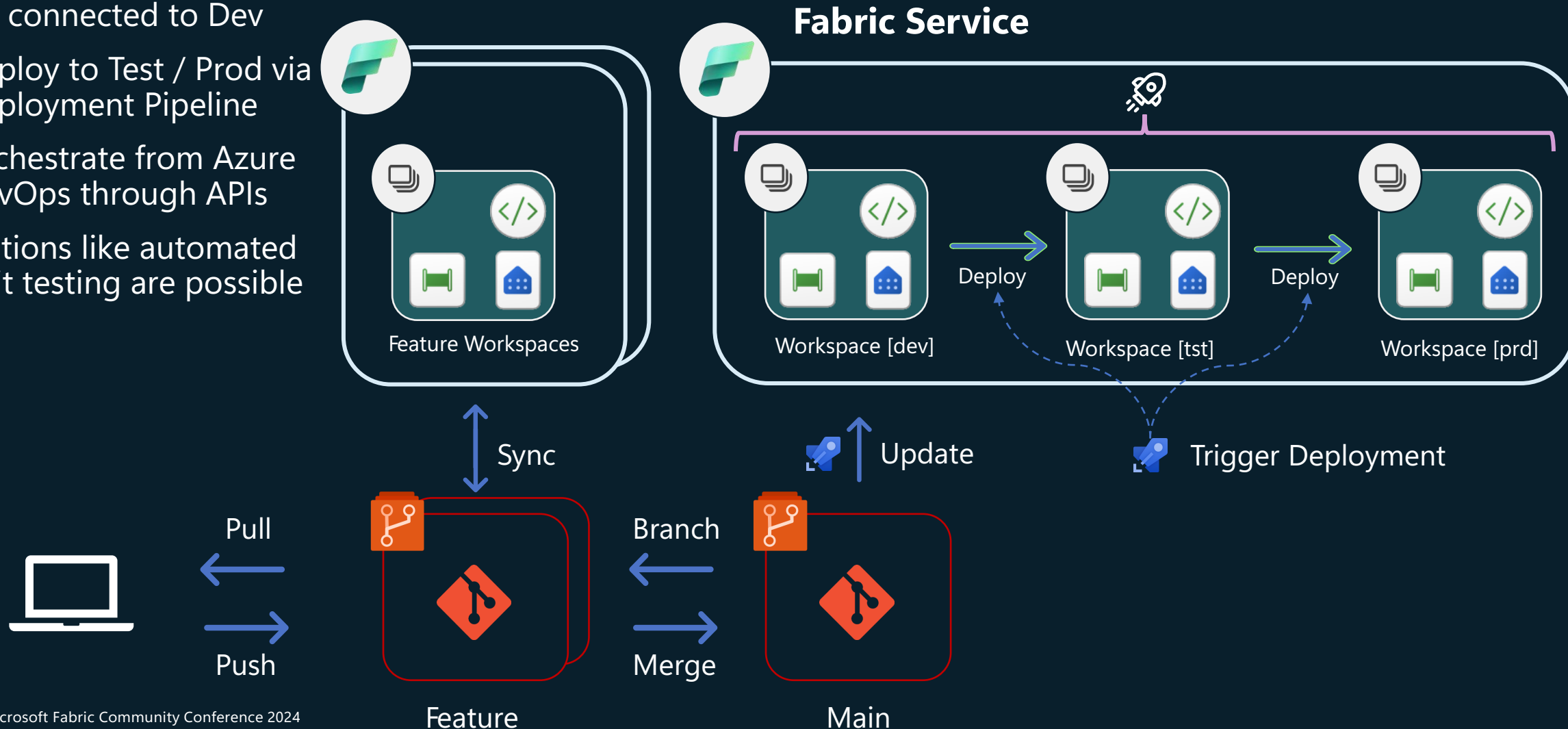
- Git connected to Dev
- Run Build pipelines for Unit testing.
- Run Release pipelines for change configurations, and
- Upload using Fabric APIs to 'Create/Update item definition'

** Can be combined with Scenario 1*

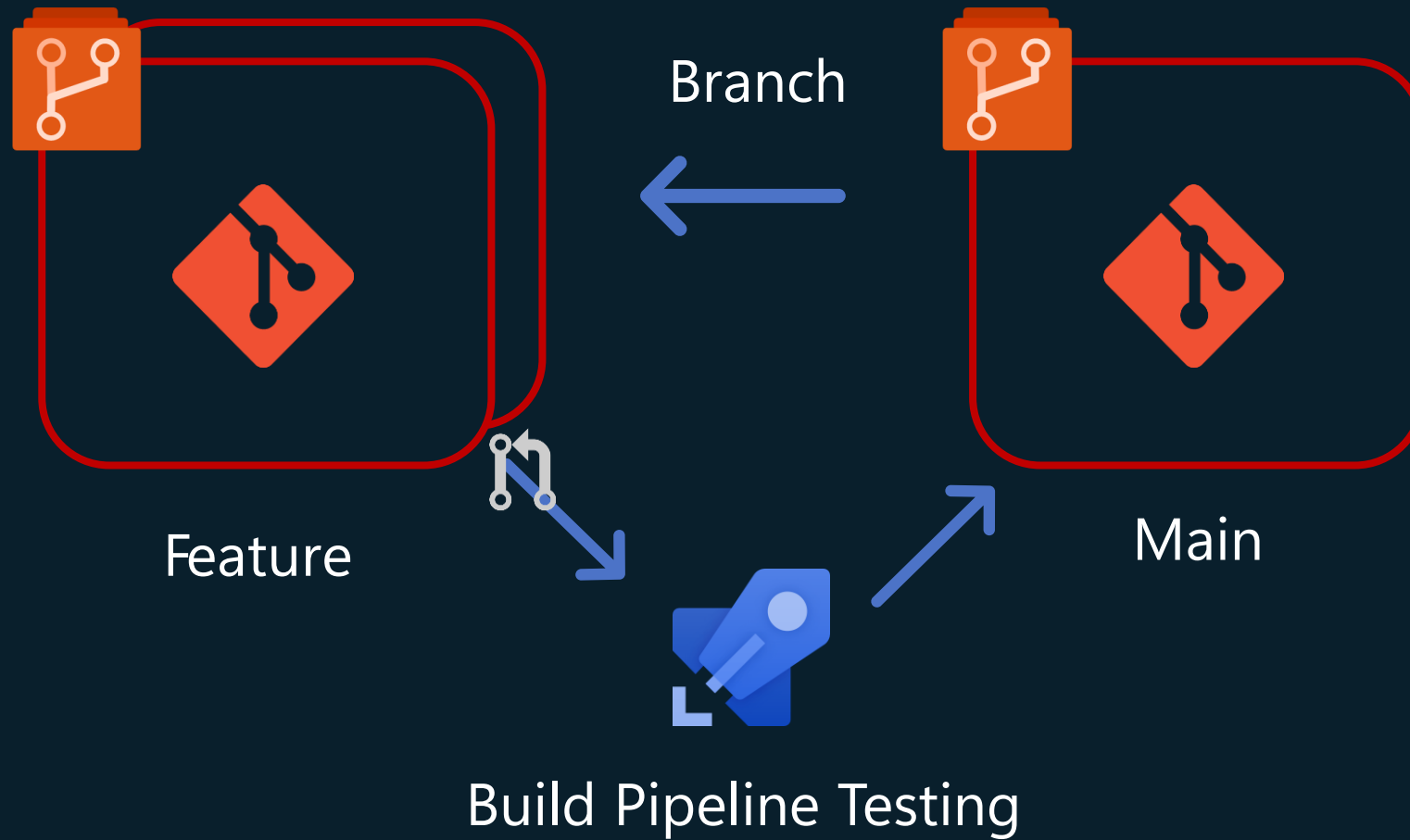


Scenario 3 – Git & Deployment pipelines

- Git connected to Dev
- Deploy to Test / Prod via Deployment Pipeline
- Orchestrate from Azure DevOps through APIs
- Options like automated unit testing are possible



Unit tests conceptual



Unit tests

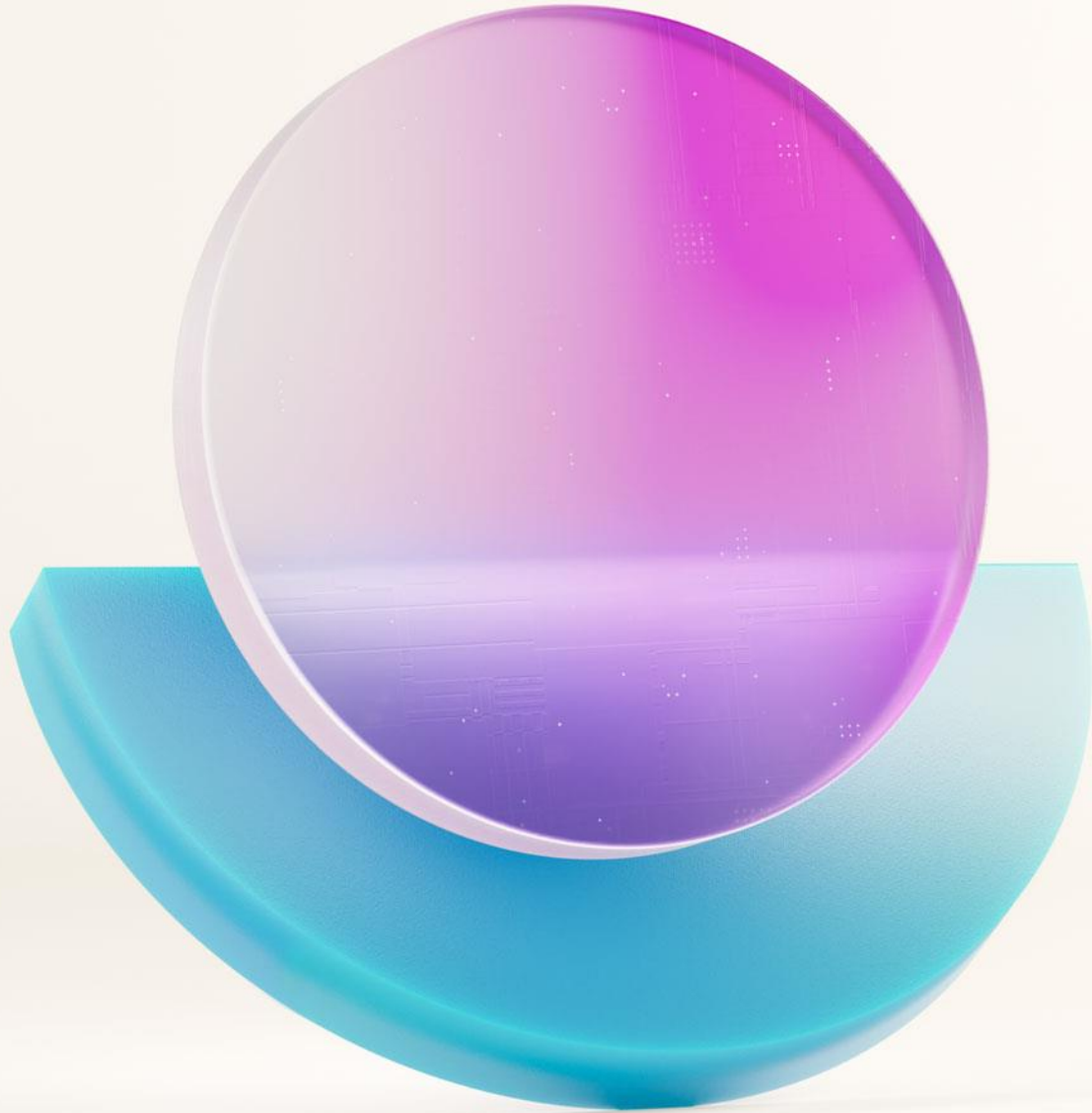
Data Factory Pipelines example

Challenges we have identified:

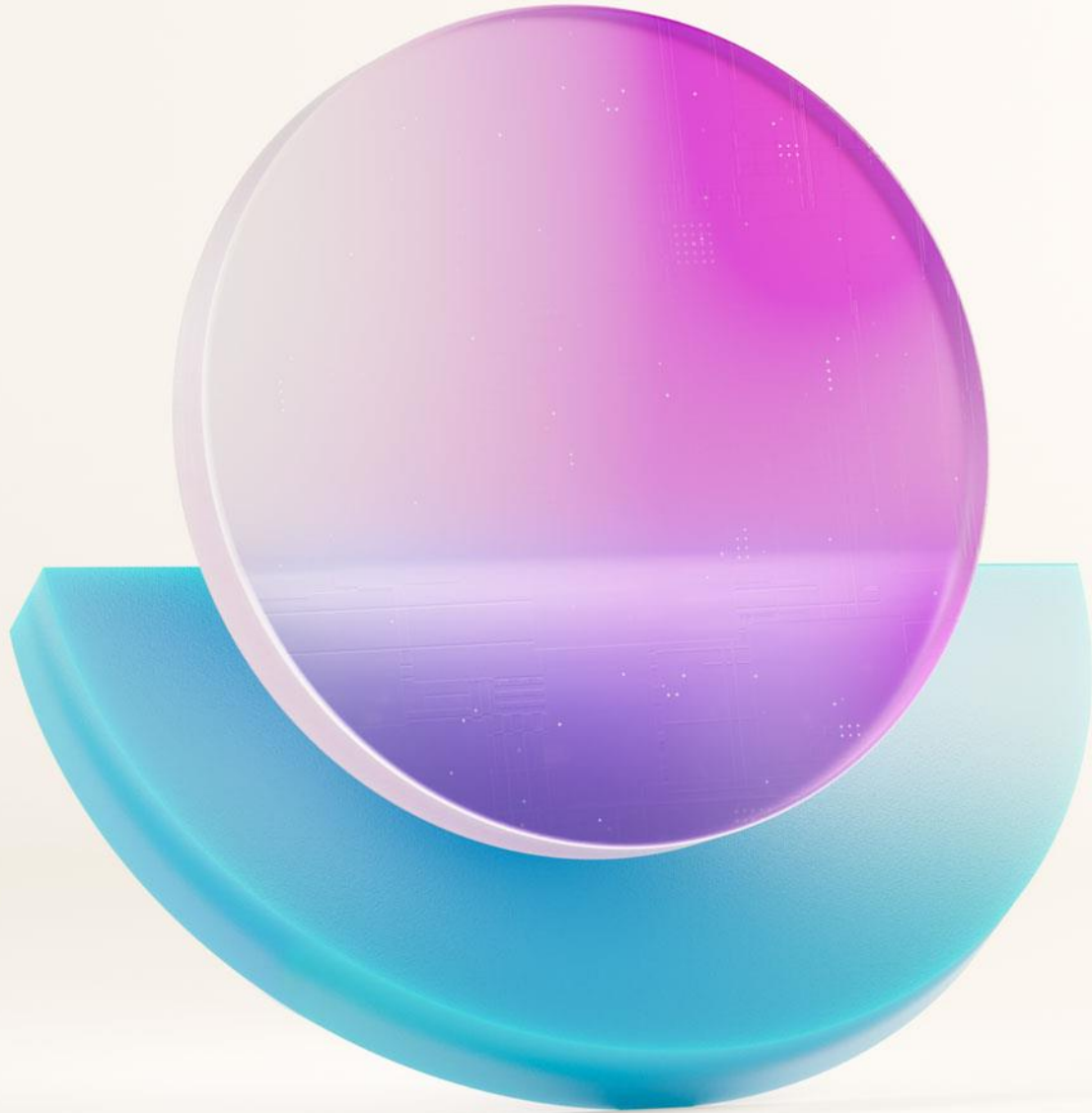
- Long-running pipelines with complex expressions, easily make mistakes.
 - Only syntax is validated in the UI
 - Real testing only done during pipeline execution
- No tools to test and validate if the pipelines work and continue to work going forward

What if we could...

- Validate our pipelines before run and before deployment
- Validate any new actions and expressions that are added to pipelines



Demo



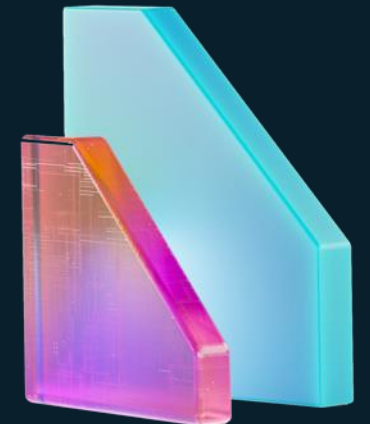
Limitations & Roadmap

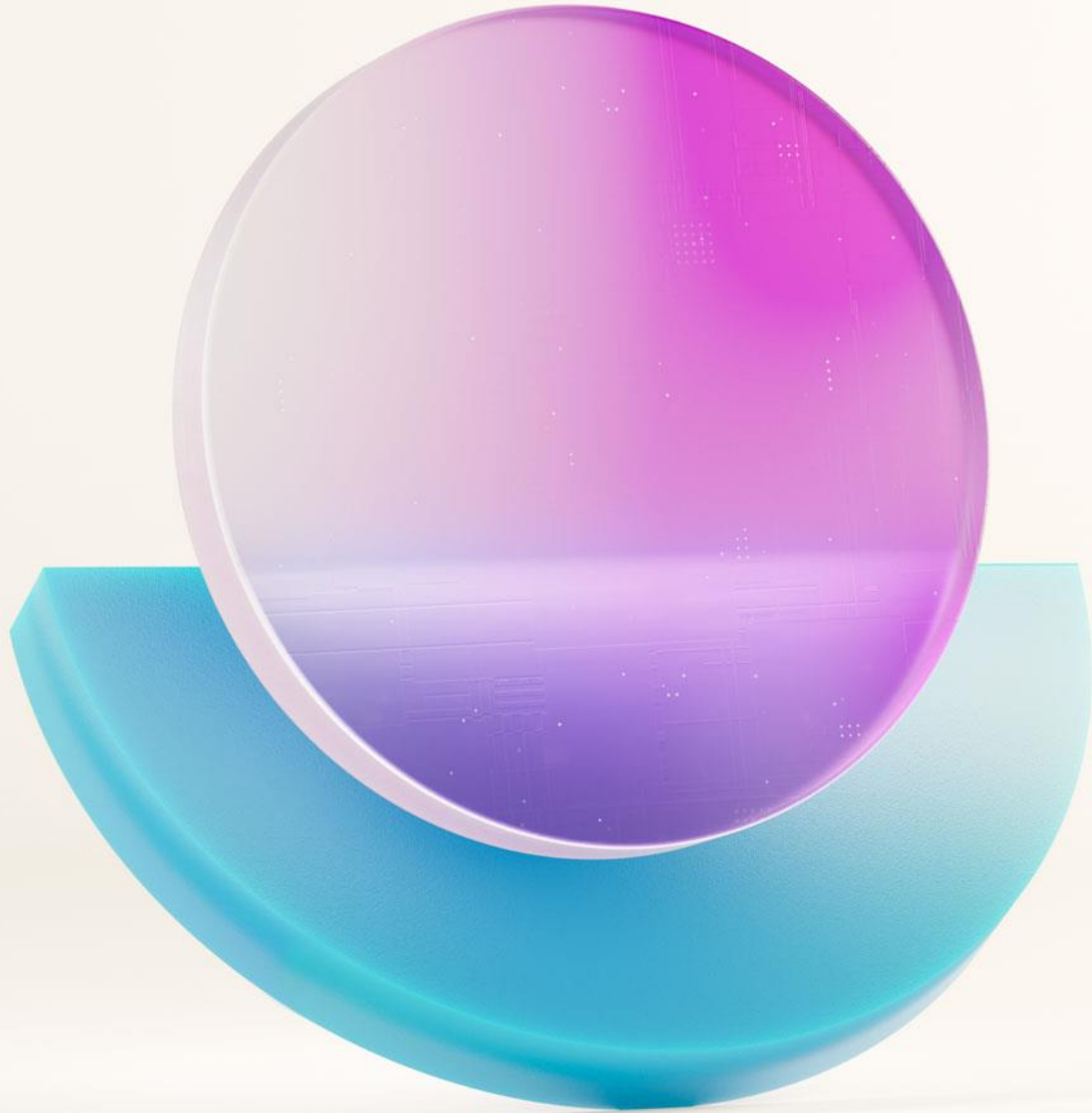
Limitations

- Not all items are supported (yet)
 - Direct Lake Semantic Models
 - Dataflows gen2
 - ...
- Service Principal authentication for Fabric APIs
- Azure DevOps is the only git provider
- No Azure Pipeline extensions/ GitHub Actions available

Roadmap

- New git providers - GitHub and GitHub Enterprise
- Azure DevOps connections across different tenants
- Git General Availability (GA)
- Supported items:
 - Semantic models with DirectLake
 - Reflex
 - EventStream
 - Eventually, all items in fabric...
- Service Principal – gradual support
- Folders in Git integration
- Compare changes between workspace and Git branch





Closing

Resources

- Fabric Deployment Pipelines
<https://learn.microsoft.com/en-us/fabric/cicd/deployment-pipelines/intro-to-deployment-pipelines>
- Fabric Git Integration
<https://learn.microsoft.com/en-us/fabric/cicd/git-integration/intro-to-git-integration>
- API samples for CI/CD
<https://github.com/microsoft/fabric-samples/tree/main/e2e-samples>
- Data Factory Testing Framework
<https://github.com/microsoft/data-factory-testing-framework/tree/main>
- Microsoft Fabric Git REST APIs
<https://blog.fabric.microsoft.com/en-us/blog/automate-your-ci-cd-pipelines-with-microsoft-fabric-git-rest-apis>

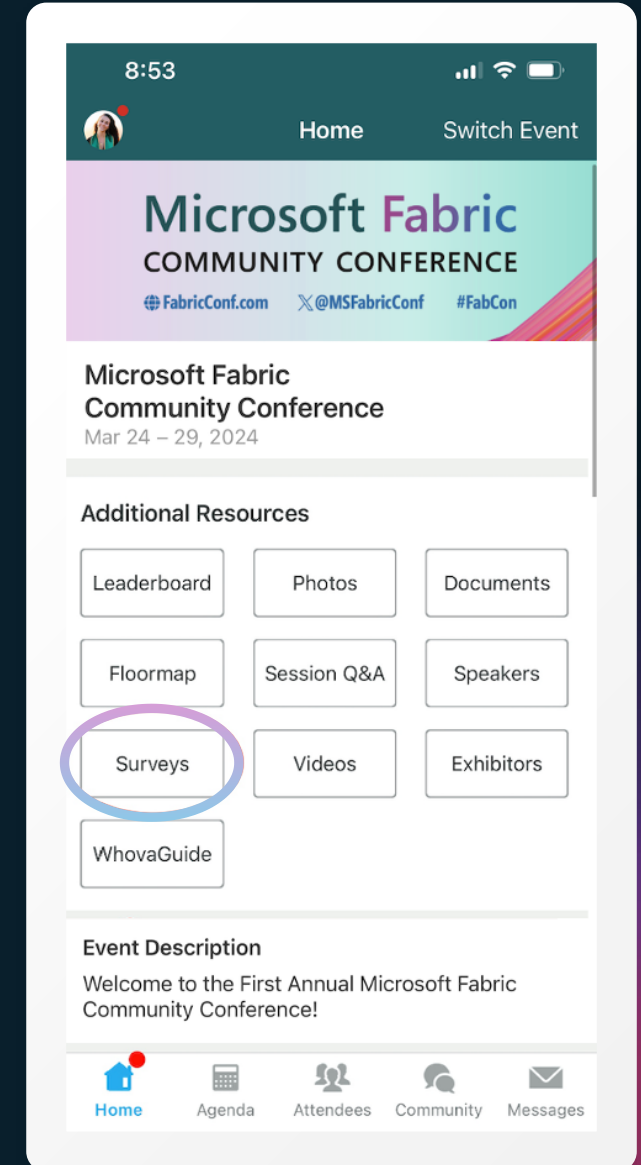
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- 4 Scroll down to find this session title
- 5 Complete the session feedback survey
- 6 Finally, click '**Submit**'



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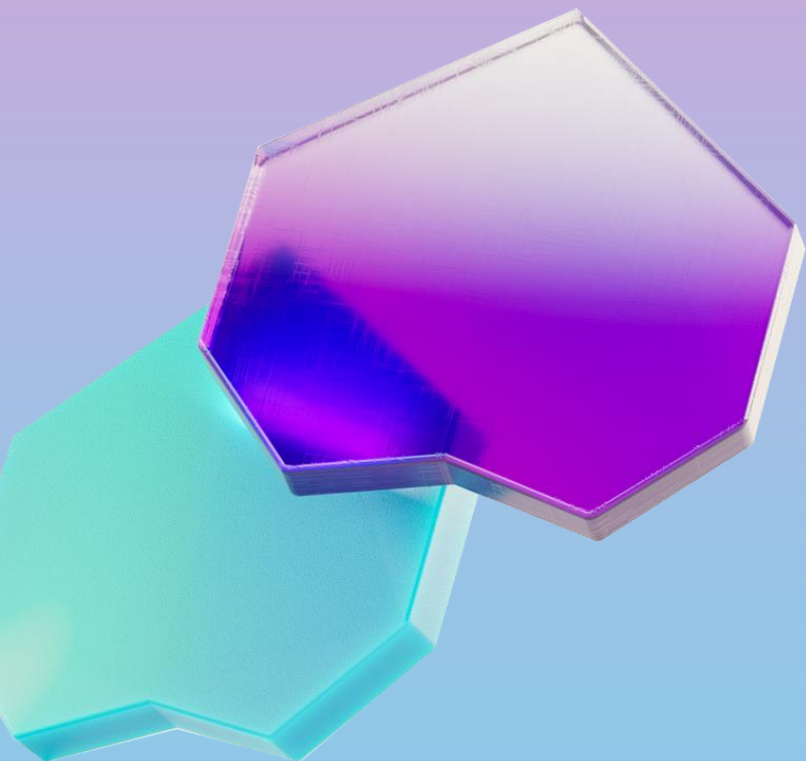
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Data Factory



OneLake



Power BI



Synapse Data
Engineering



Synapse Data
Science



Synapse Data
Warehouse



Synapse Real Time
Analytics



Synapse



Data Activator



Fabric



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