Microsoft Fabric Cafe

Microsoft Fabric and Azure DevOps – The story so far

**January 18th 2025**

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Managing expectations

- Blog posts available for demos shown

- Everything shown is on trial tenant (no NDA material)

- Includes details about Microsoft CI/CD workflows document

- SQL database in Fabric mentioned

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Agenda

- Introduction to Microsoft Fabric

- Introduction to Azure DevOps

- Configuring Azure Repos for Git integration

- Using Azure DevOps with suggested CI/CD options

- CI/CD for Data Warehouses

- Riddles

- Q & A

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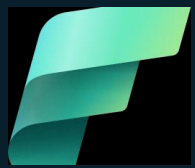
Microsoft Fabric
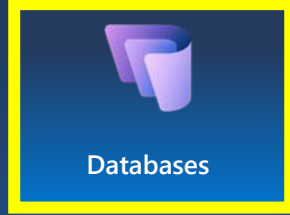
Comp analytics platform | Lake centric and open | Empower every Business user | AI Powered

Power BI

Databases

Data Factory

Industry Solutions

Real Time Intelligence

Data Engineering

Data Science

Data Warehouse

OneLake

Compliance & Governance
Microsoft Purview

GitHub — Git integration
Azure DevOps

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Fabric Demo

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Azure DevOps
- Manages Application Lifecycle Management

- Collection of services
  - Boards, Repos, Pipelines, Test Plans, Artifacts

- Two main versions
  - Services & Server

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Azure DevOps Demo

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About Microsoft Fabric Git Integratiom

- Synchronizes supported items in a workspace with a Git repository.
    - To be more precise, a workspace synchronizes with a branch.

- Items supported at various levels.

- Supports cloud-based versions of Azure DevOps and GitHub.

- Requires Fabric or Power BI Premium capacity.

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Configuring Microsoft Fabric Git Integration with Azure DevOps

- Utilizes Microsoft Entra ID authentication.

- User requires access to both workspace and Git repository.

- Entra user needs to be on same tenant, Azure DevOps org does not.

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Security considerations when using Azure DevOps

- Keep organization and repository in relevant region.

- Keep organization private.

- Consider enabling GitHub Advanced Security for Azure DevOps.

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Git integration demo
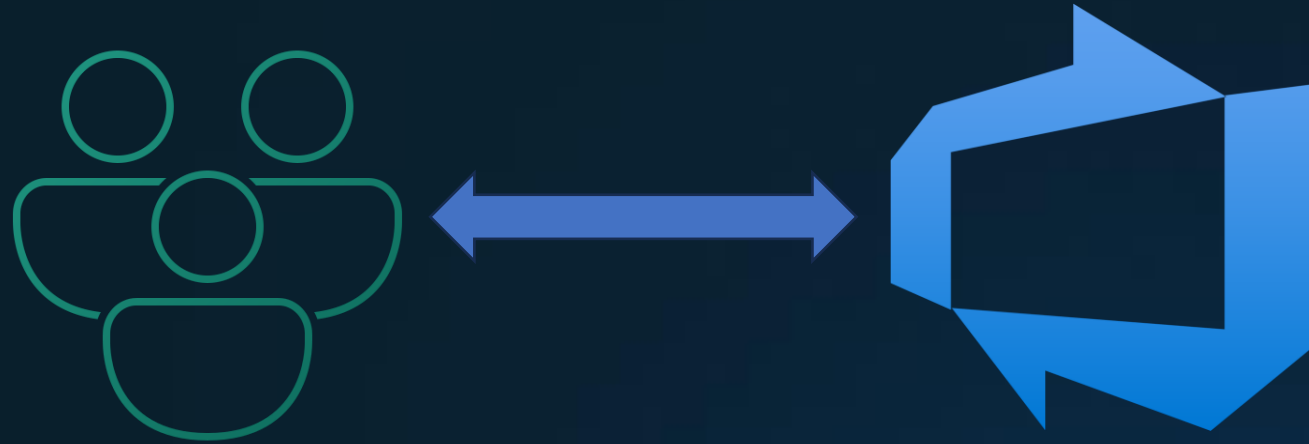
Microsoft Fabric workspace

Azure DevOps

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Using Azure DevOps with suggested CI/CD workflow options

- Microsoft published article last September.

- Will demonstrate how Azure DevOps fits into suggested CI/CD workflows.

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Recommended development process

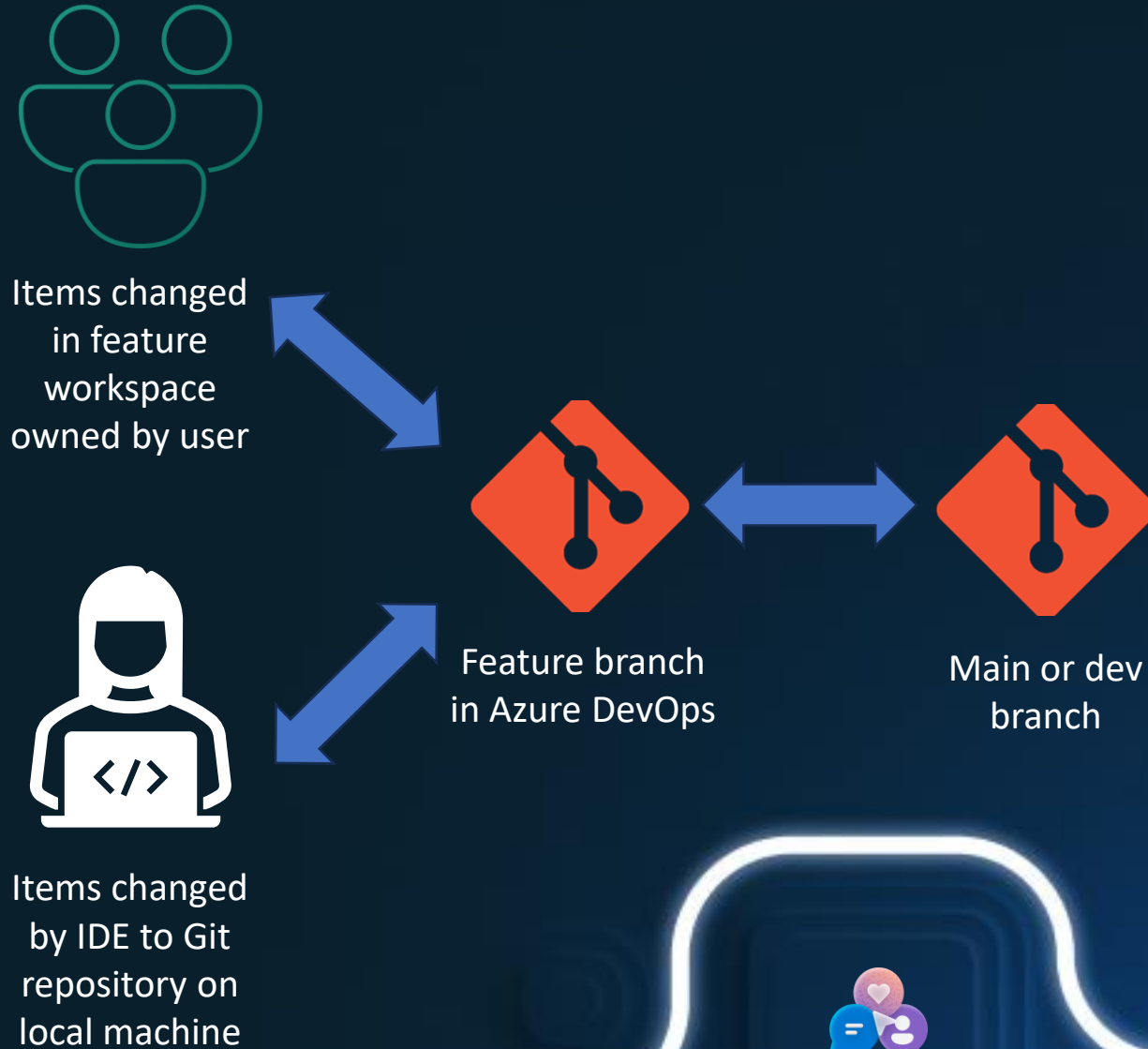Items changed in feature workspace owned by user

Items changed by IDE to Git repository on local machine

Feature branch in Azure DevOps

Main or dev branch

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One step further by introducing unit tests
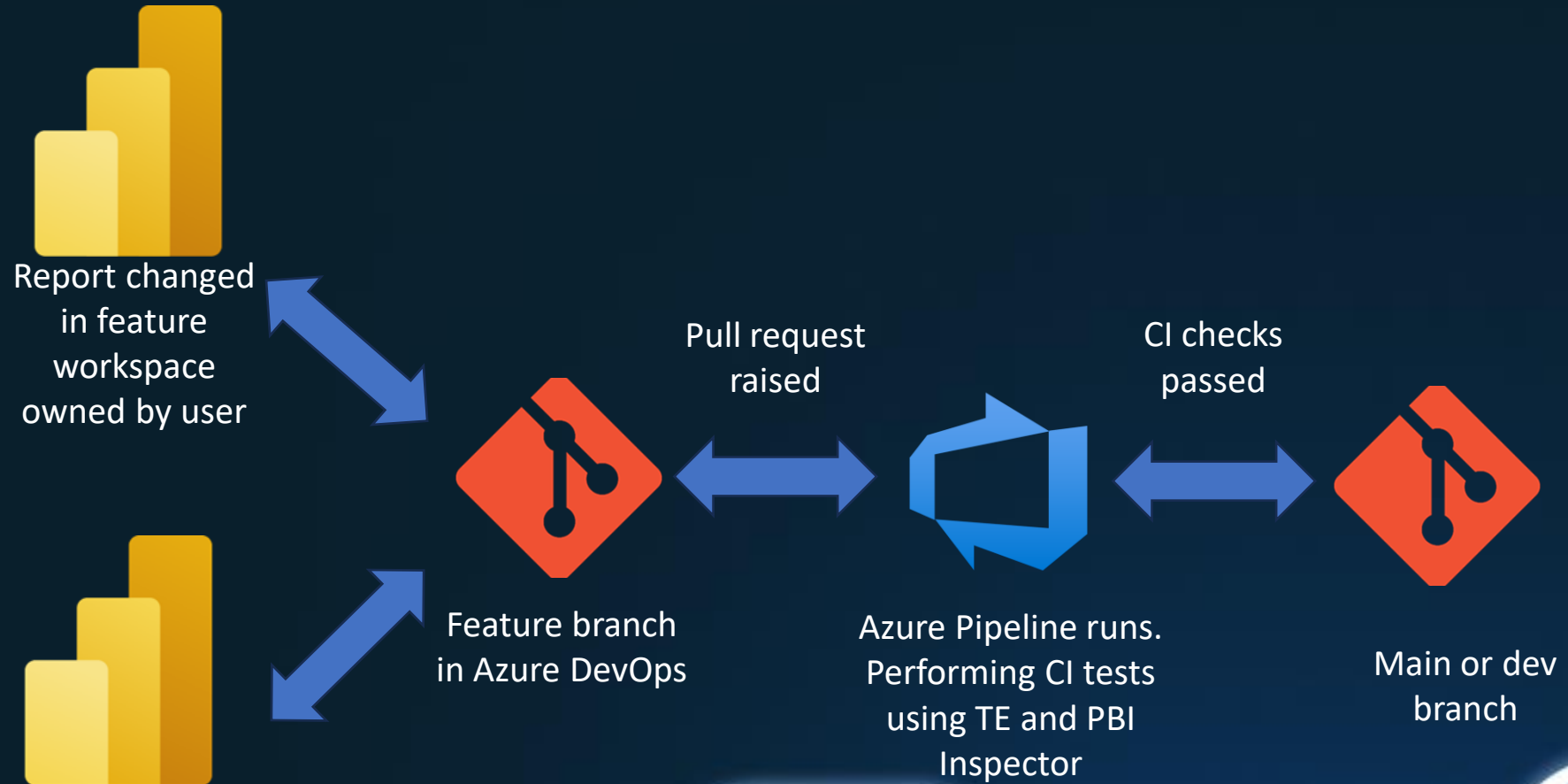
Report changed in feature workspace owned by user

Report changed by IDE to Git repository on local machine

Feature branch in Azure DevOps

Pull request raised

Azure Pipeline runs. Performing CI tests using TE and PBI Inspector

CI checks passed

Main or dev branch

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Release option 1 – Git-based deployments

- Deploy to multiple workspaces connected to the same Git repository in Azure DevOps.

- Achieved by workspaces being connected to different branches in same repository.

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Release option 1 - Diagram
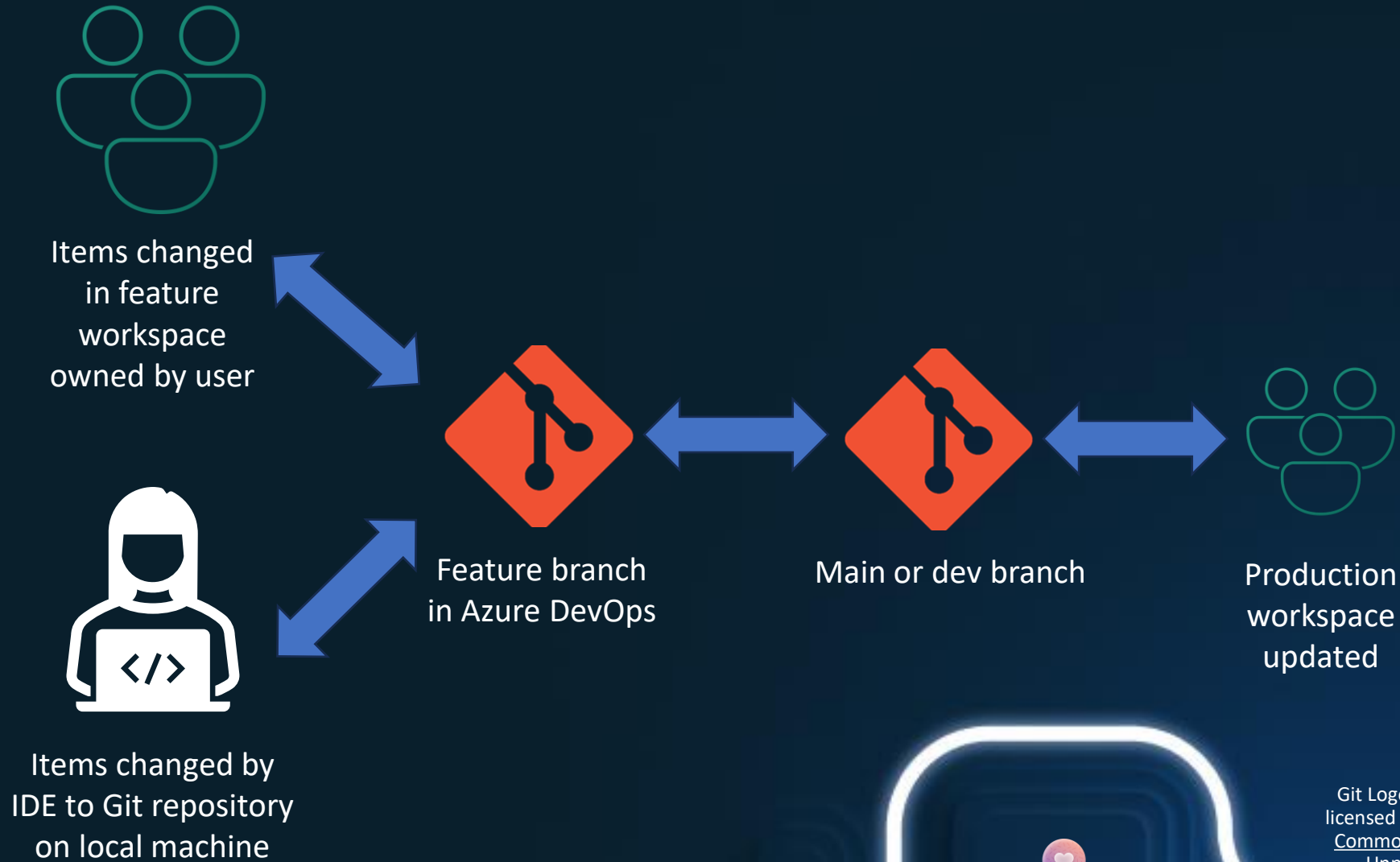
Items changed in feature workspace owned by user

Items changed by IDE to Git repository on local machine

Feature branch in Azure DevOps

Main or dev branch

Production workspace updated

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Release option 2 – Git-based deployments using build pipeline

- Deploy to different workspaces using Azure Pipelines.

- Recommendation is that each workflow contains:
  - Build for unit tests.
  - Release to perform update.

- Note that for various APIs only Power BI items are supported by service principals.

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Release option 2 - Diagram
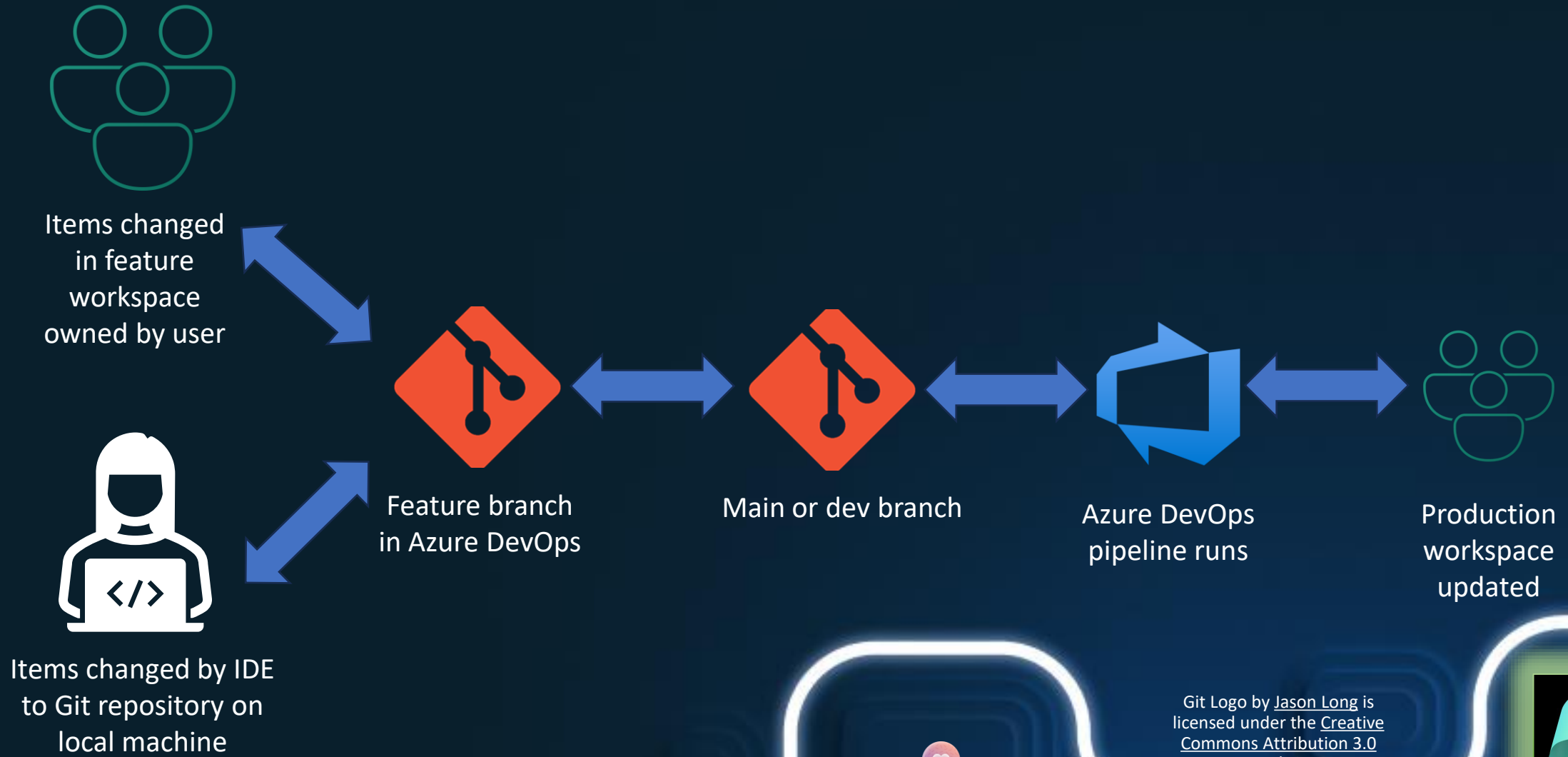
Items changed in feature workspace owned by user

Items changed by IDE to Git repository on local machine

Feature branch in Azure DevOps

Main or dev branch

Azure DevOps pipeline runs

Production workspace updated

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Azure Pipeline recommendations

- Consider YAML pipelines.
  - You cannot do a PR on a classic pipeline!

- Deploy self-hosted Azure Pipeline agents.

- Keep sensitive values in either:
  - Variable groups
  - Azure Key Vault

- Implement approvals process for production workloads.

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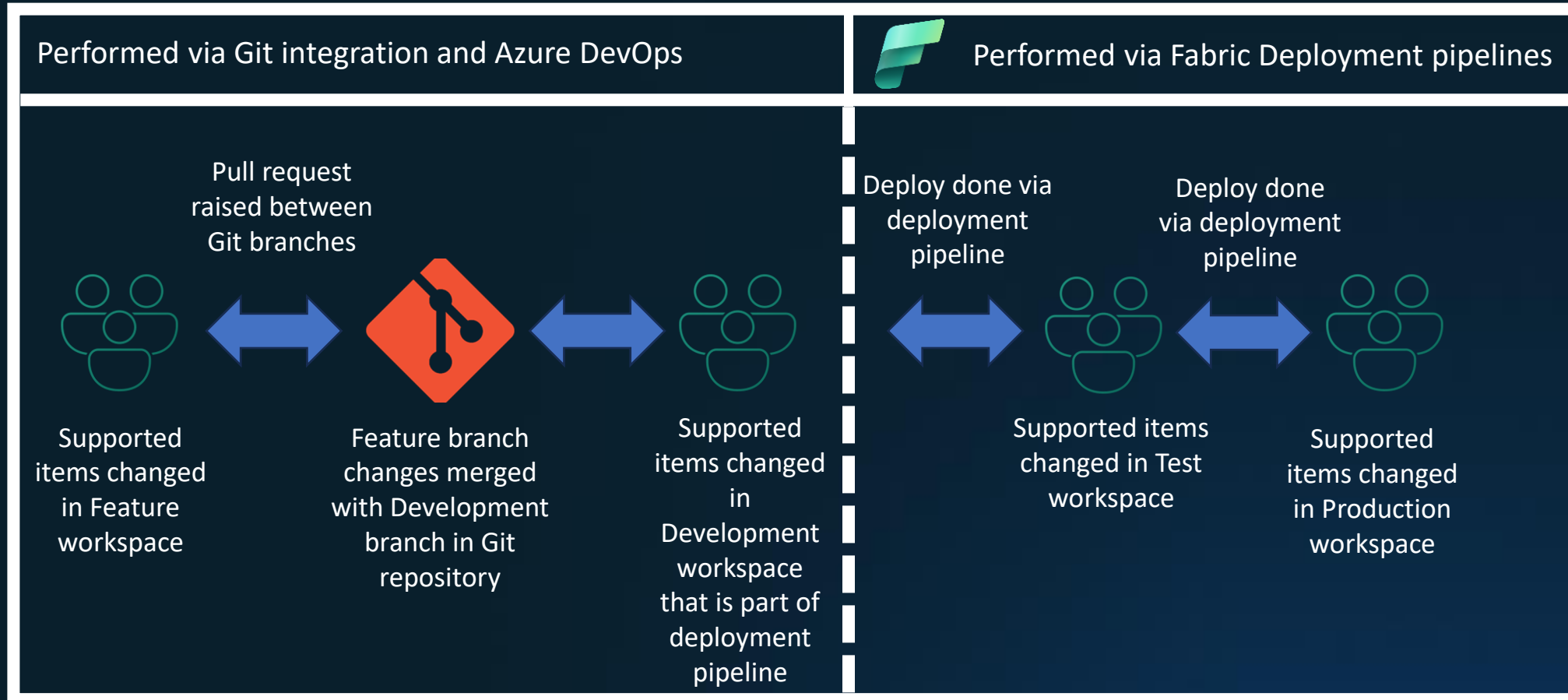# Release option 3 – Deploy using Microsoft Fabric deployment pipelines

- Perform pull request from feature branch to a branch connected to a workspace that represents Dev stage of a deployment pipeline.

- From there, orchestrate using Microsoft Fabric deployment pipelines

- Alternatively, orchestrate to different Microsoft Fabric deployment pipeline stages using Azure DevOps.

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Release Option 3 – Diagram

Performed via Git integration and Azure DevOps

Pull request raised between Git branches

Supported items changed in Feature workspace

Feature branch changes merged with Development branch in Git repository

Supported items changed in Development workspace that is part of deployment pipeline

Performed via Fabric Deployment pipelines

Deploy done via deployment pipeline

Deploy done via deployment pipeline

Supported items changed in Test workspace

Supported items changed in Production workspace

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Orchestrated by Azure Pipelines

Performed via Git integration and Azure DevOps

Performed by Azure Pipelines

Pull request raised between Git branches

Deploy done via Azure Pipelines

After approval deployment done via Azure Pipeline

Supported items changed in Feature workspace

Feature branch changes merged with Development branch in Git repository

Supported items changed in Development workspace that is part of deployment pipeline

Supported items changed in Test workspace

Supported items changed in Production workspace

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Azure Pipelines allows introduction of DataOps

Performed via Git integration

Orchestrated by Azure Pipelines

Deploy done via Azure Pipeline

Deploy done via Azure Pipeline

Notebook call through API in YAML Pipeline

Supported items changed in Development workspace that is part of deployment pipeline

Supported items changed in Test workspace

Supported items changed in Production workspace

Lakehouse populated
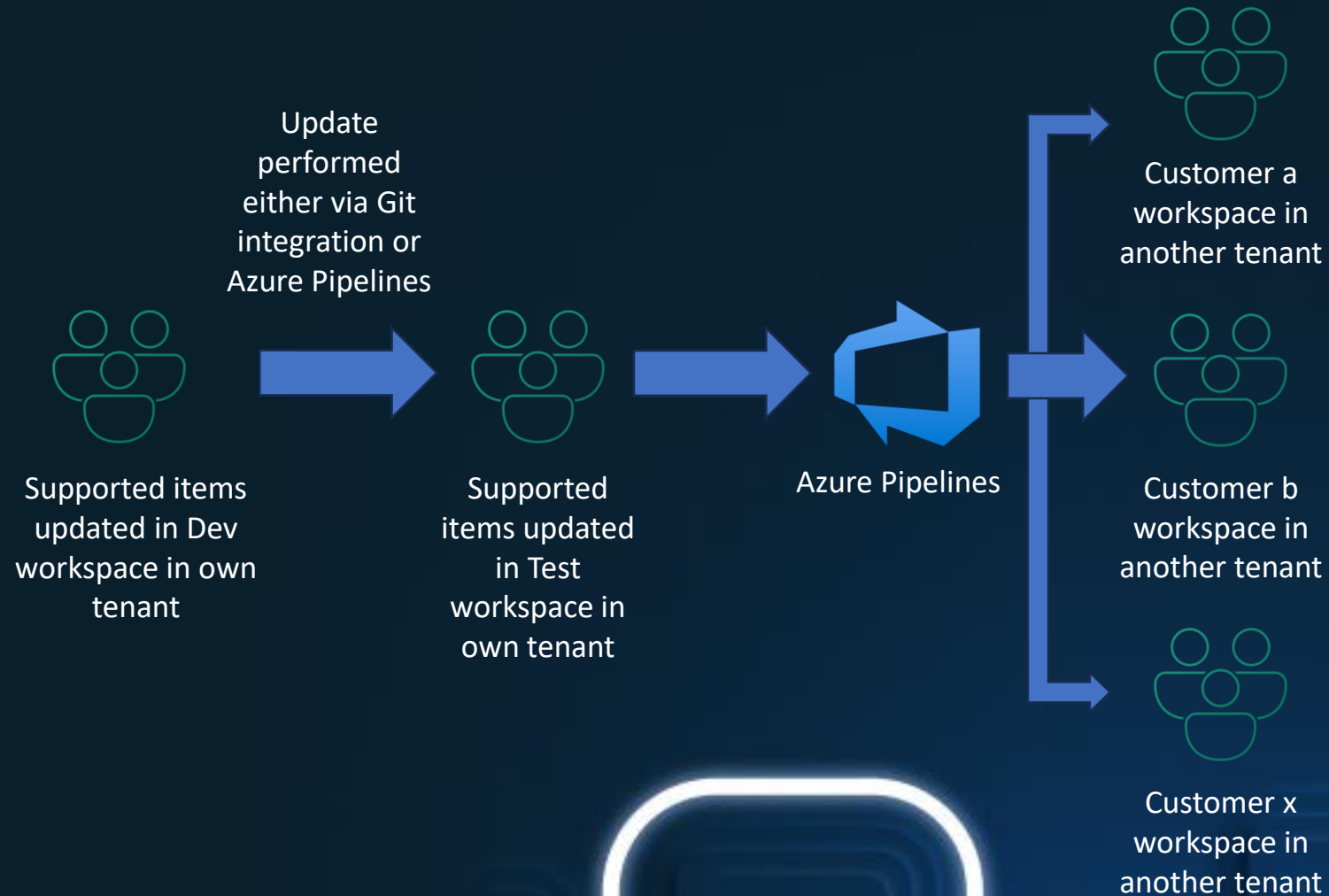
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Release option 4 – For multiple customers/solutions/tenants

- Dev and test stages are managed in same Fabric tenant.

- Deployment to Prod stages to workspaces in other tenants using Azure Pipelines.

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Release option 4 – Diagram

Supported items updated in Dev workspace in own tenant

Update performed either via Git integration or Azure Pipelines

Supported items updated in Test workspace in own tenant

Azure Pipelines

Customer a workspace in another tenant

Customer b workspace in another tenant

Customer x workspace in another tenant

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Demos

- Power BI Desktop Projects.

- Deploying to multiple workspaces via Git integration.
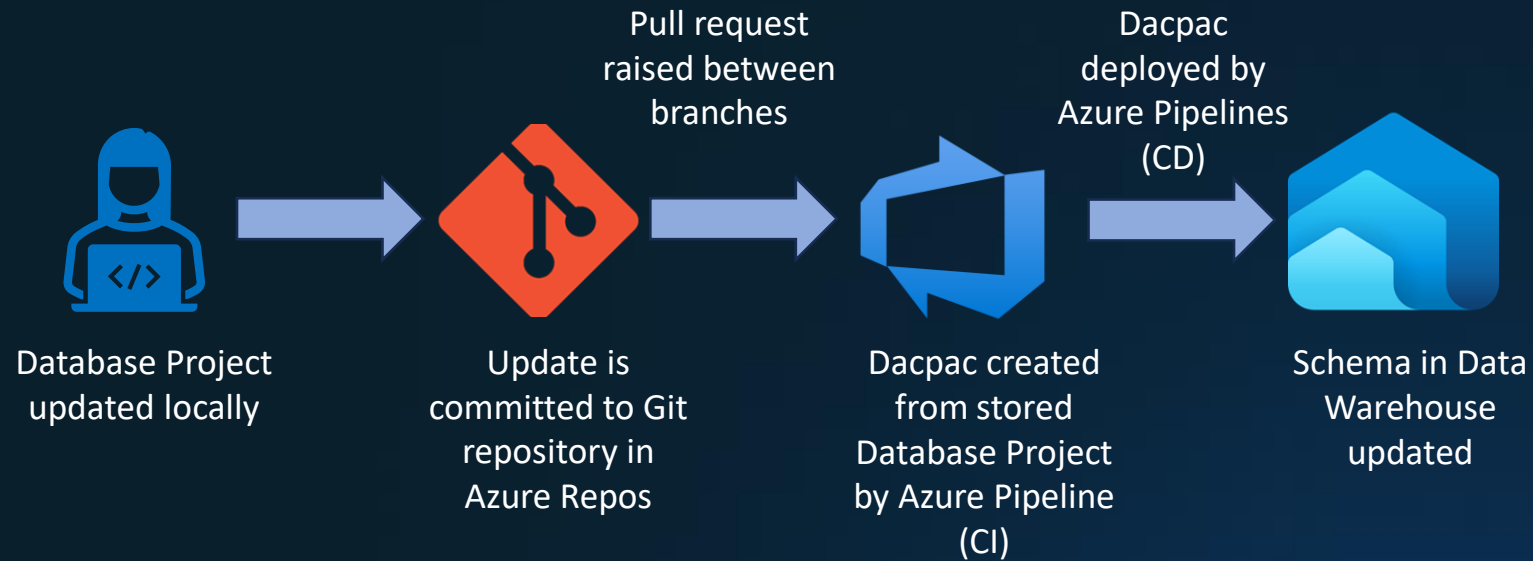
- Deploying via deployment pipelines.

CI/CD methods for Data Warehouses

- Can connect to Data Warehouse via connection string.

- Allows state-based deployment via database projects.

- Supports Database Projects created in various ways.

- CI/CD can be performed in Azure DevOps pipeline.

- **Most** methods can be applied for SQL database in Fabric.

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CI/CD for Data Warehouses

Pull request raised between branches

Dacpac deployed by Azure Pipelines (CD)

Database Project updated locally

Update is committed to Git repository in Azure Repos

Dacpac created from stored Database Project by Azure Pipeline (CI)

Schema in Data Warehouse updated

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For SQL databases in Fabric

Method 1

Schema is extracted to create a Database Project

Source SQL database in Fabric

Change in Database Project

Database Project stored as Git Repository
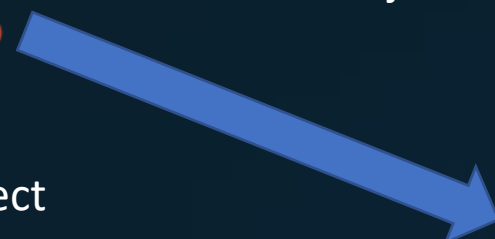
Contents of dacpac deployed via YAML pipeline (CD)

Method 2

Dacpac file is created via YAML Pipeline (CI)

Source SQL database in Fabric

Schema is extracted by YAML pipeline in Azure DevOps

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Demos

- CI/CD for Data Warehouses.

- CI/CD for SQL database in Fabric

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Riddle Number one

- Some say I work on metal on cars, others say I am a fake. What am I?

- A fabricator

Riddle Number two

- Despite the suggestion, I am strong all the time not just every two weeks. What am I?

- Power BI

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Riddle Number three

- I am a storage area full of androids from within the Enterprise. What does that make me?

- A Data Warehouse

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