



10 YEAR ANNIVERSARY
10 YEAR ANNIVERSARY

ALM Accelerator for Power Platform

Michael Megel
COSMO CONSULT

www.bctechdays.com

10 YEAR ANNIVERSARY
10 YEAR ANNIVERSARY



2022

mibuso.com

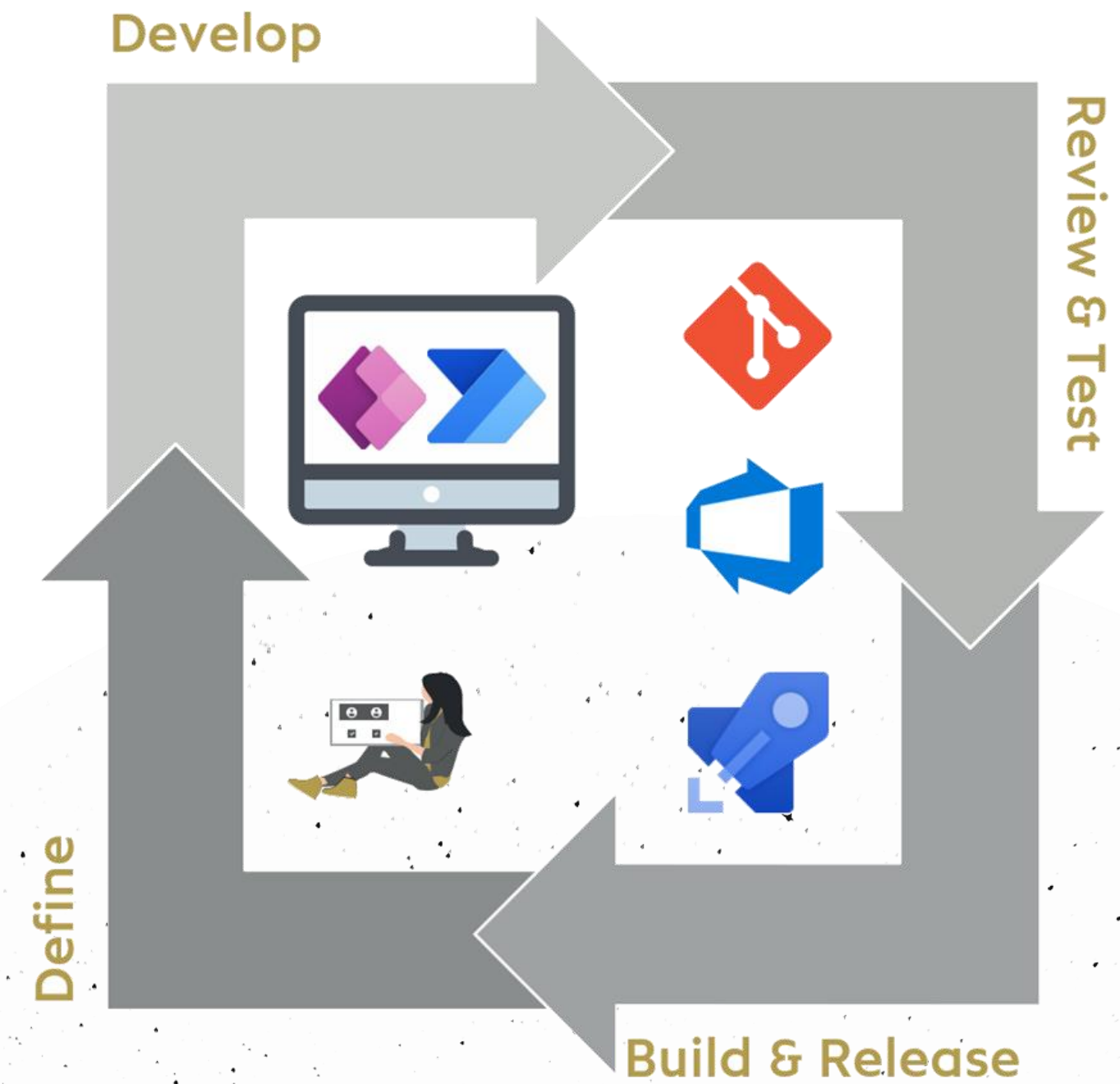
What is ALM?

Why do we need ALM for PP?

www.bctechdays.com

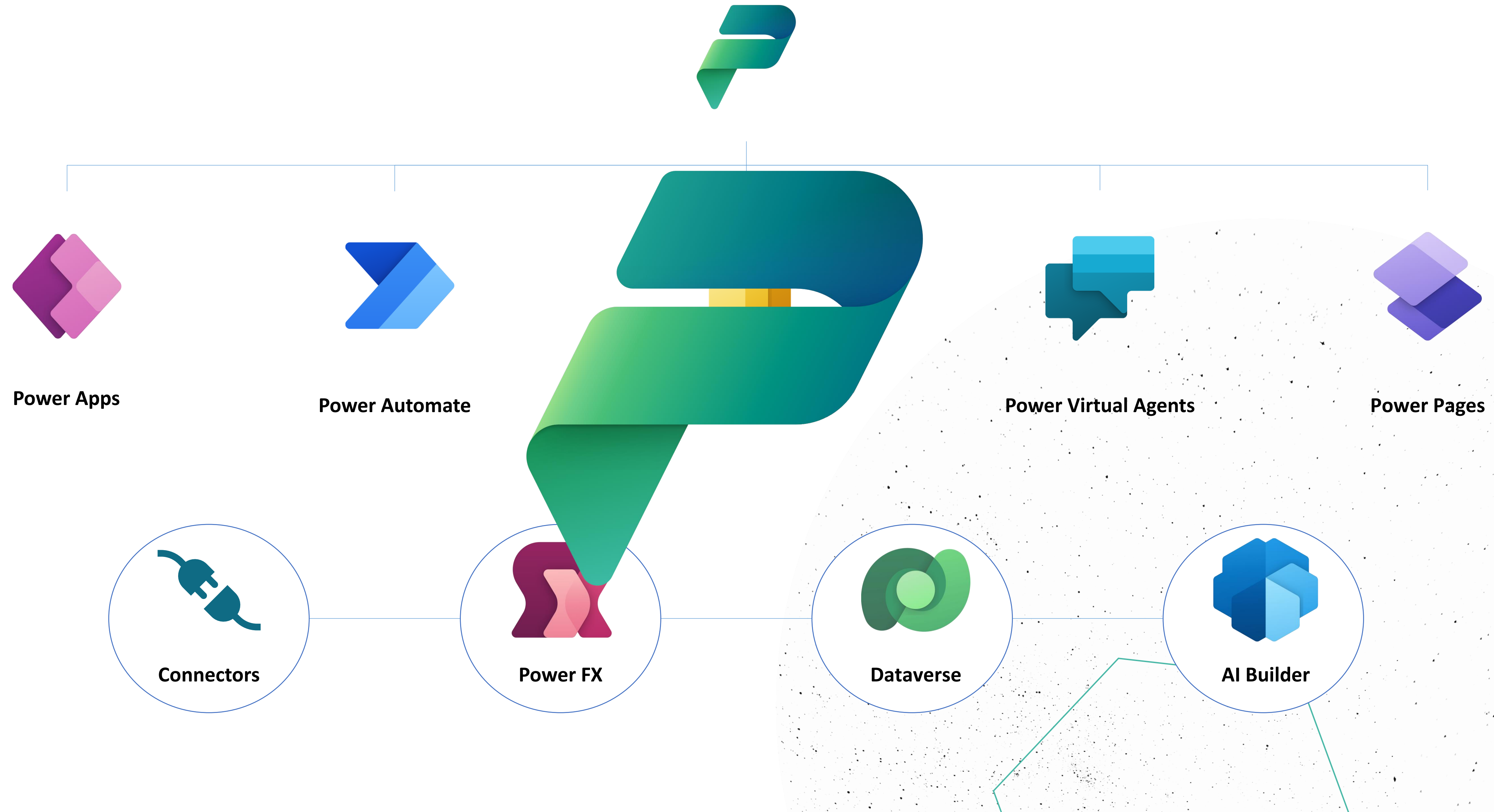
ALM = Application Lifecycle Management

- Defining requirements
- Development
- Testing and quality assurance
- Deployments
- Continuous maintenance and improvements



*Standard
Process*

What is the Power Platform?



Power Platform vs. Dataverse

Power Platform

... is a set of Products like:

- Power Apps
- Power Automate
- Power BI
- Power Virtual Agents
- Power Pages

Uses Dataverse as native database storage capability

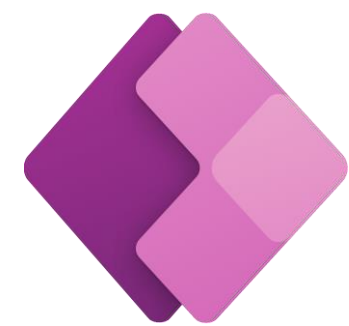
Dataverse (*CRM*)

... is the native database storage capability for Power Platform with customizable tables (*entities*)

Stores data like:

- Power Apps
- Power Automate Flows
- Chat Bots
- Custom Connectors
- Environment Variable Definitions & Values
- Permission Sets
- ...

ALM & Business Central & Power Platform?



Power Apps



Power Automate



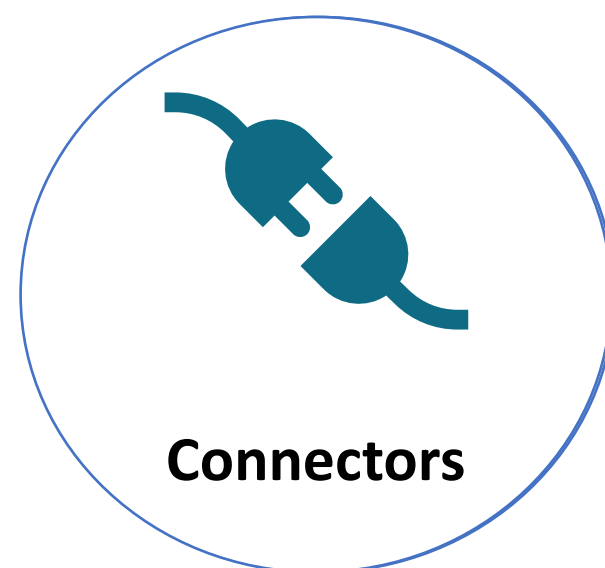
Power BI



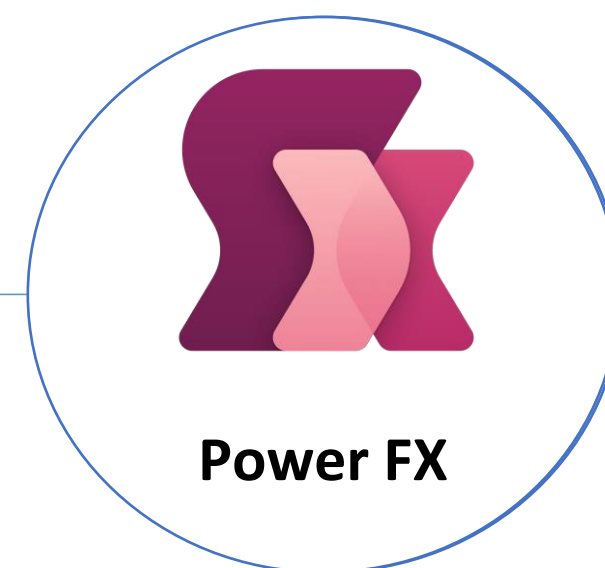
Power Virtual Agents



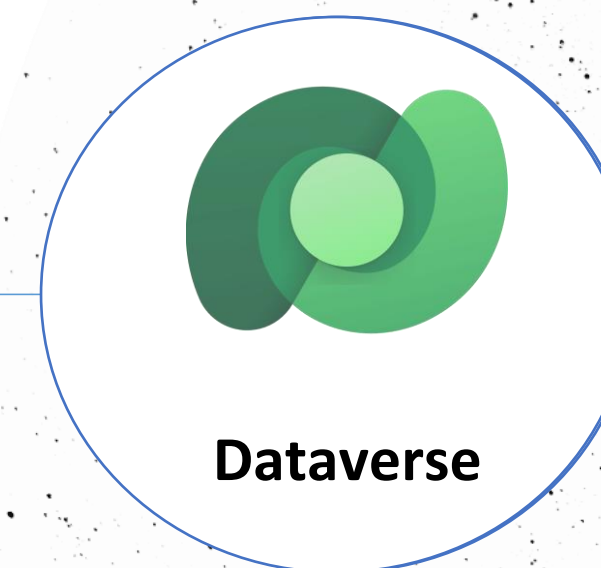
Power Pages



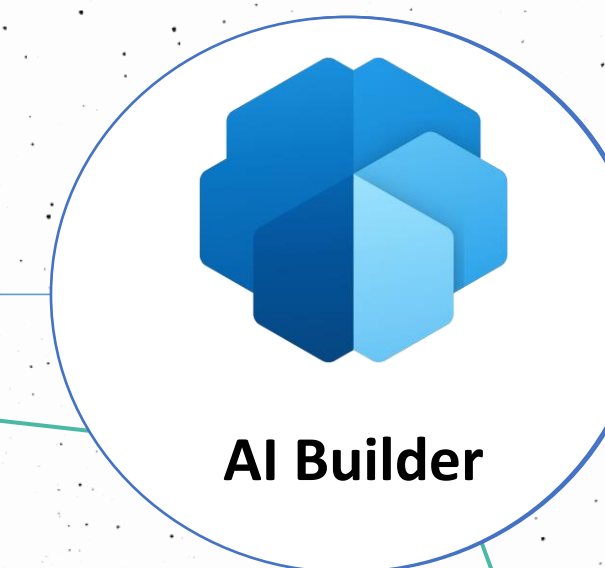
Connectors



Power FX

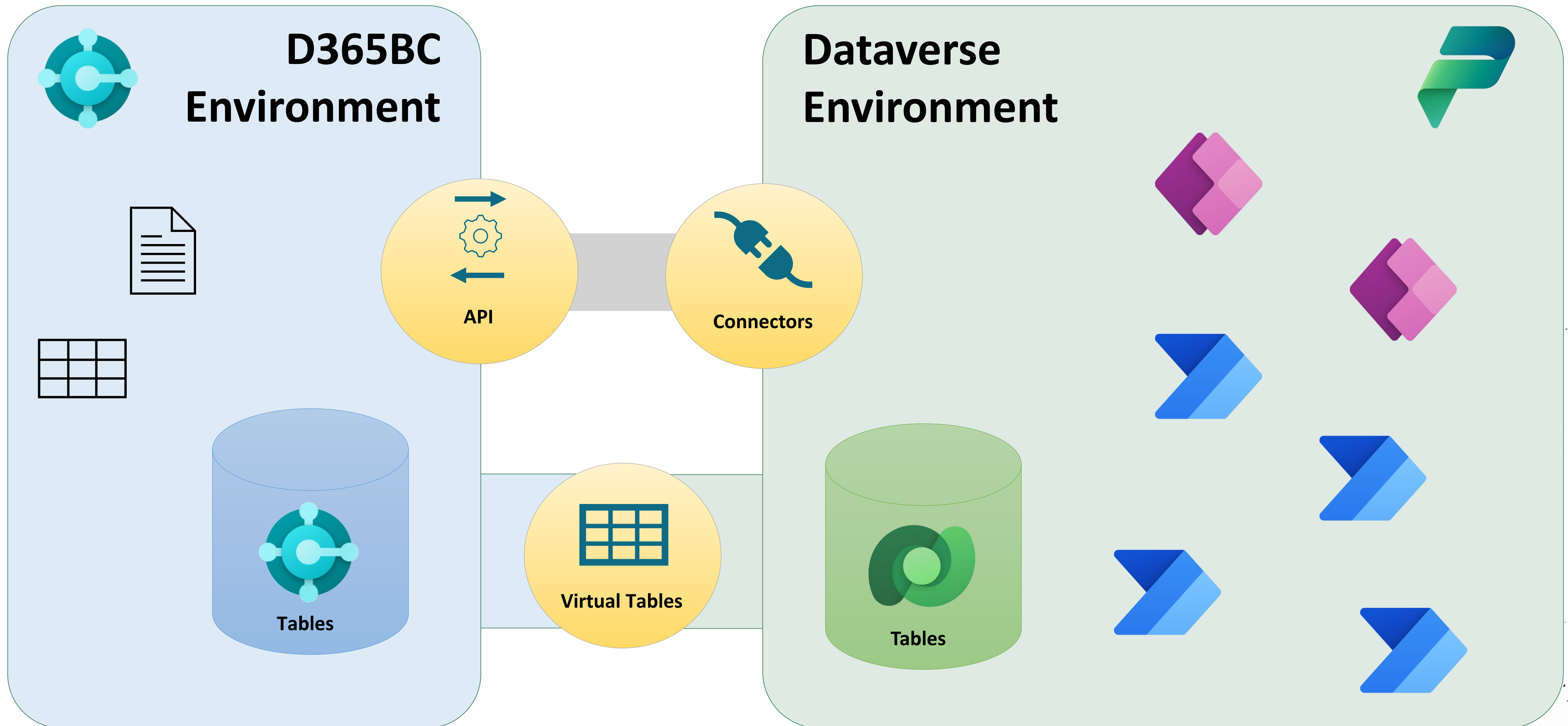


Dataverse



AI Builder

Business Central & Power Platform?





We need a...
Demo

Demo for BC & Power Platform & ALM?

BC & Power-fluff!?!?

Below is a list of all a

nfirmed their presence.



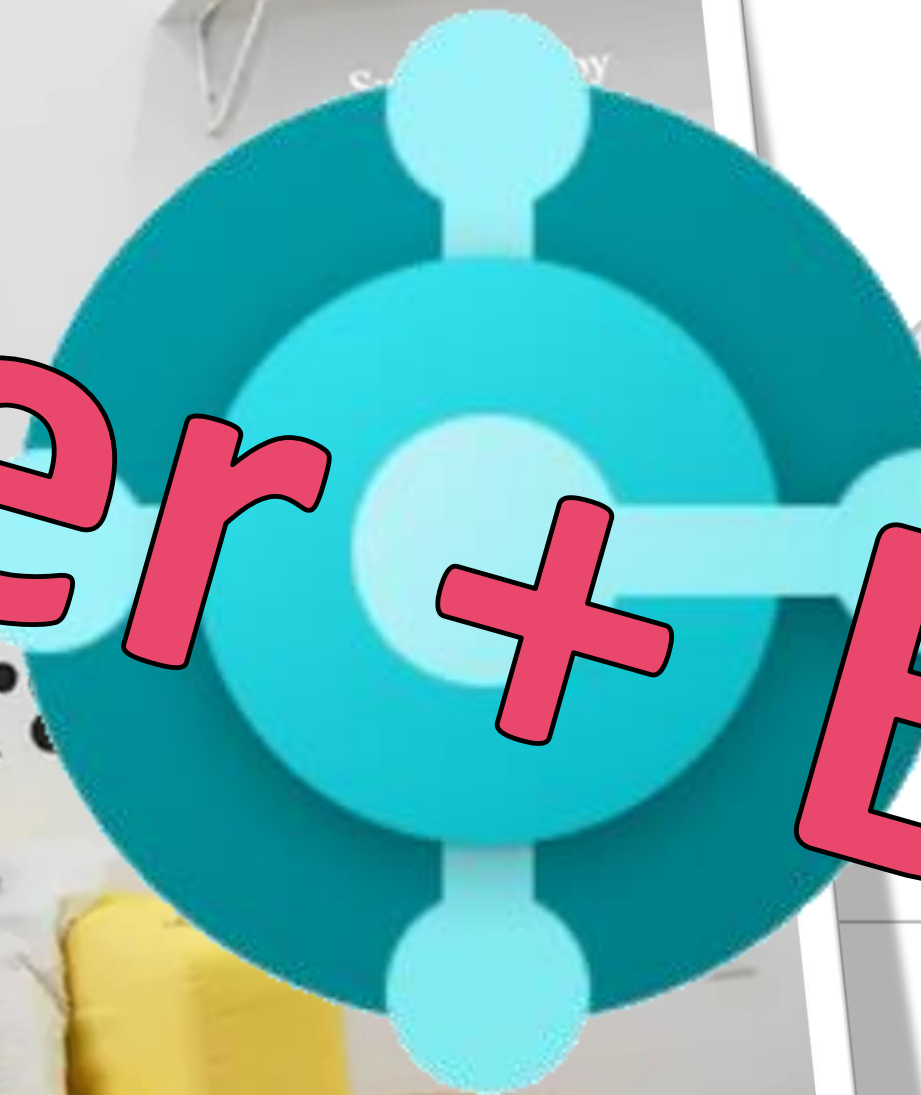

**Julia
Lisovaya**

Microsoft Development Center
Copenhagen



Microsoft Development Center
Copenhagen


Regel
COSMO CONSULT




**Milan
Milincevic**
NaviPartner



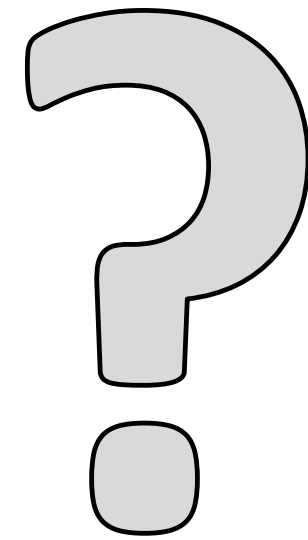

**Jens
Møller-Pedersen**
Microsoft Development Center
Copenhagen

Demo for BC & Power Platform & ALM!

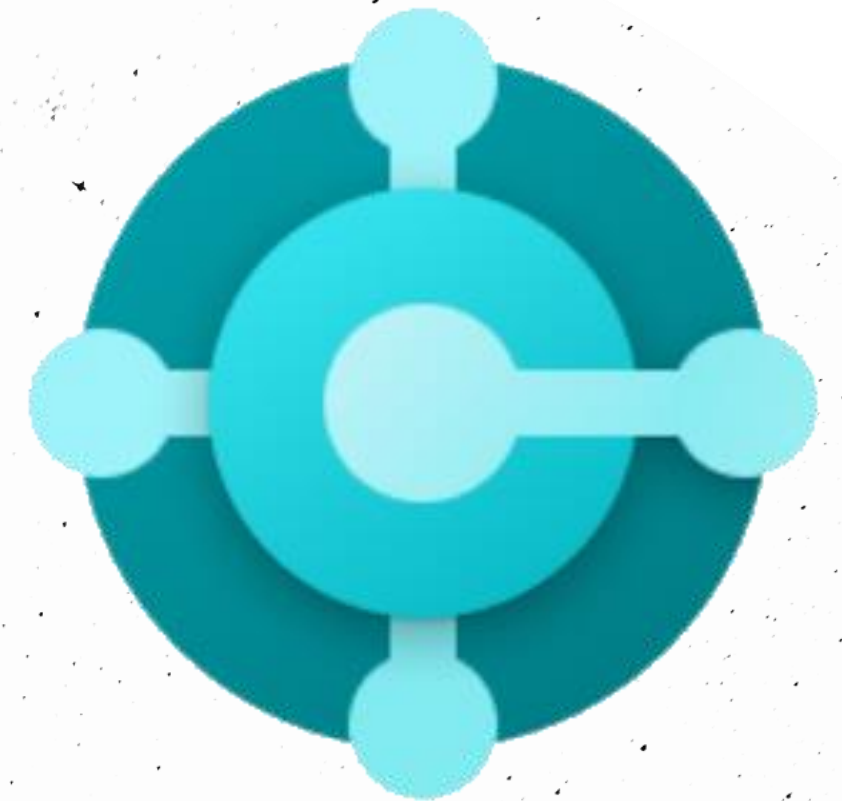
ALM



PP



BC



Beer Tasting
App

Setup: Microsoft Customer Digital Experiences

<https://cdx.transform.microsoft.com/>

- **Dynamics 365 Customer Engagement**
Includes: Power Apps, Power Automate and Office 365 E5 (incl. Power BI Pro)

Dynamics 365 Customer Engagement

Create Tenant

This demo environment includes Dynamics 365 Sales, Customer Service, Customer Service Insights, Field Service, PSA, Forms Pro, Power Apps, Power Automate and Office 365 E5 (incl. Power BI Pro).

90-day environment not eligible for extension

- **Business Central SaaS Trail:**

Dynamics 365 Business Central admin center						
+ New Refresh						
Environments						
Name	Application Family	Type	State	Country/region	Current Version	
PROD 🔗	Business Central	Production	Active	US	20.4.44313.44365	
QA 🔗	Business Central	Sandbox	Active	US	20.4.44313.44365	
UAT 🔗	Business Central	Sandbox	Active	US	20.4.44313.44365	

10 YEAR ANNIVERSARY
10 YEAR ANNIVERSARY



Business Central Demo App

www.bctechdays.com

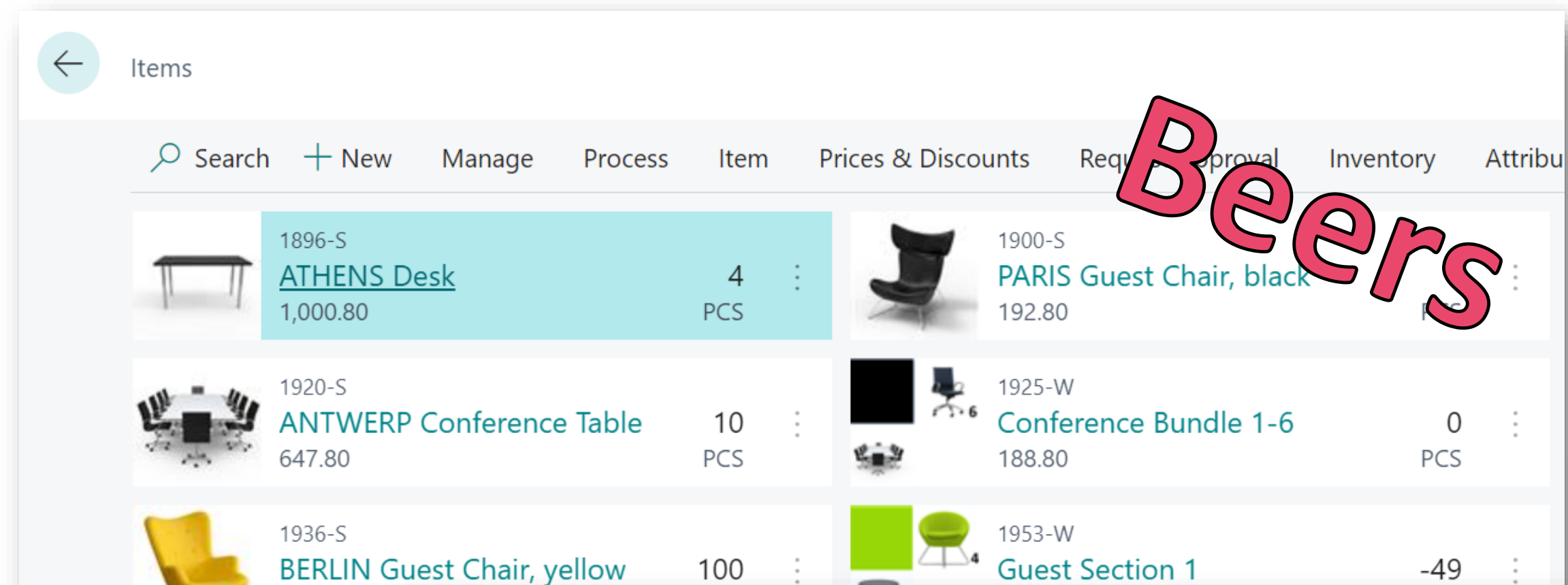
What can I do in Business Central?

Standard

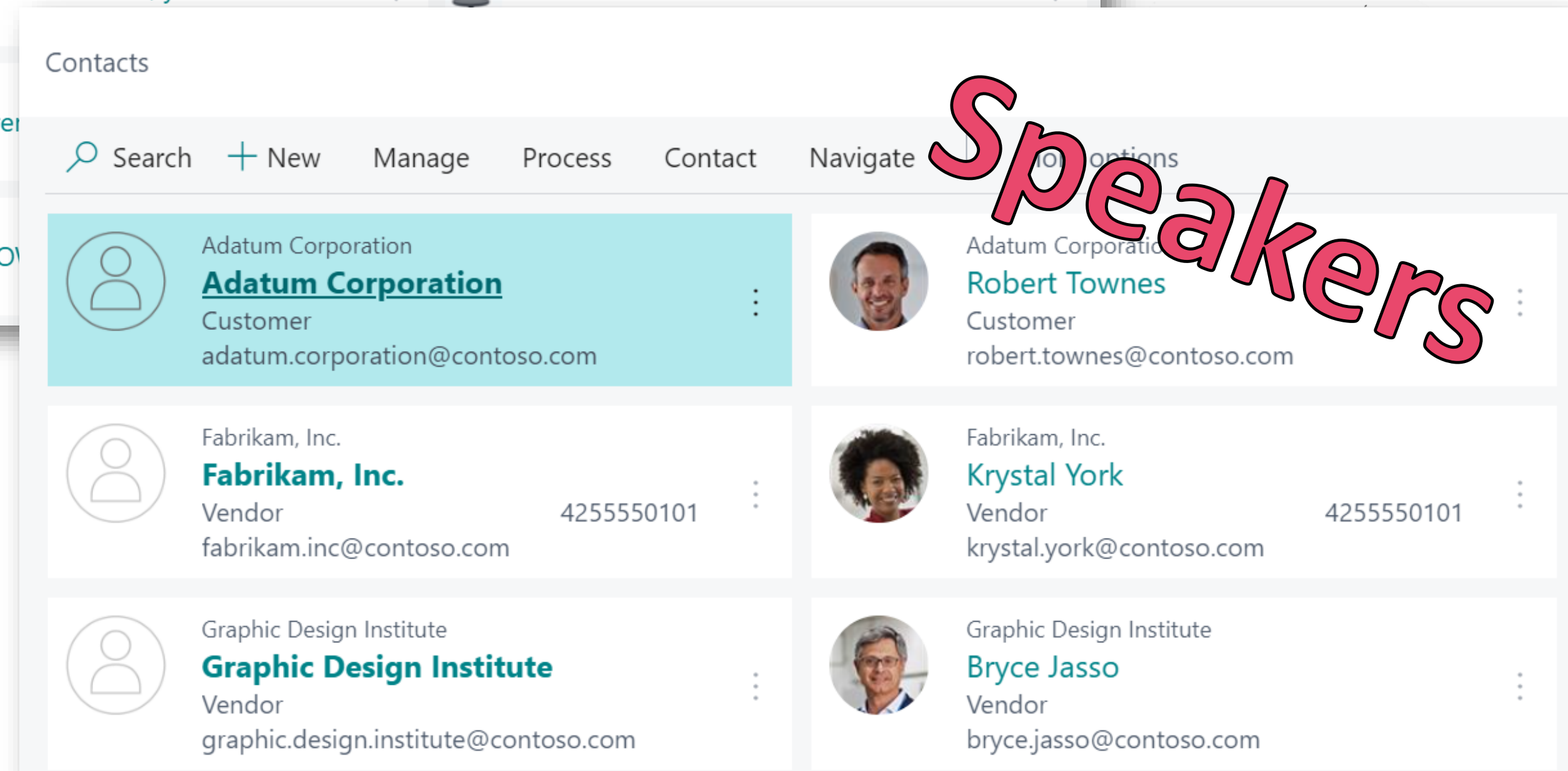
- Standard Tables, Pages, Reports, ...
- Standard APIs

Extension

- Extend Tables, Pages, ...
- Add Tables, Pages, ...
- Additional APIs



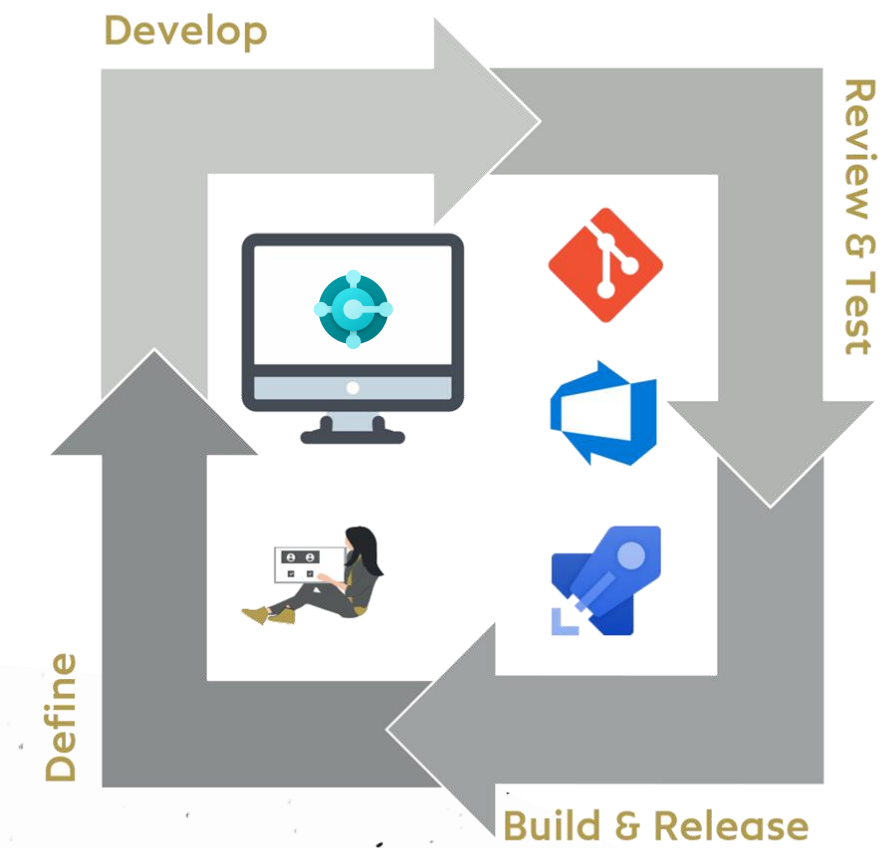
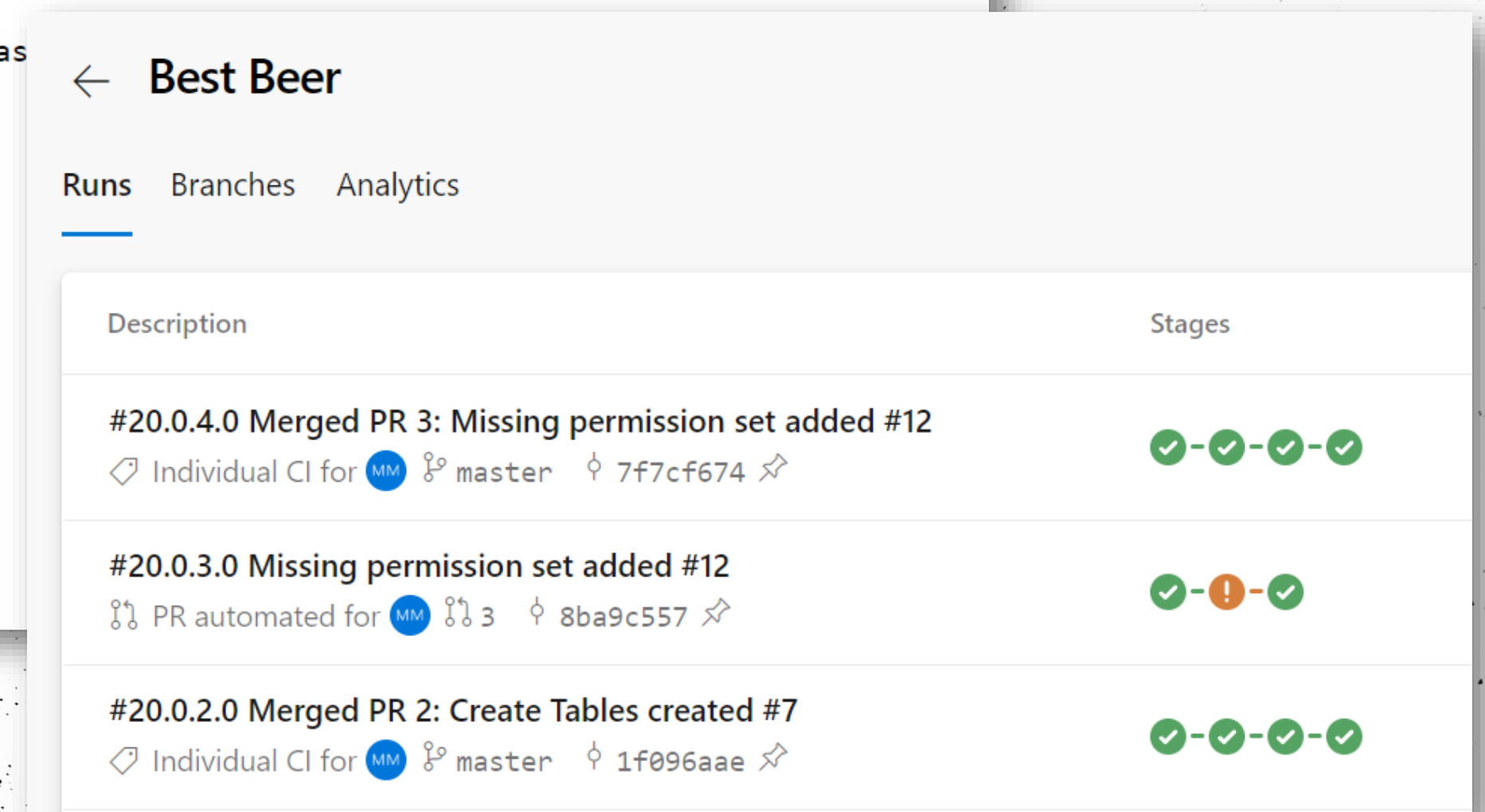
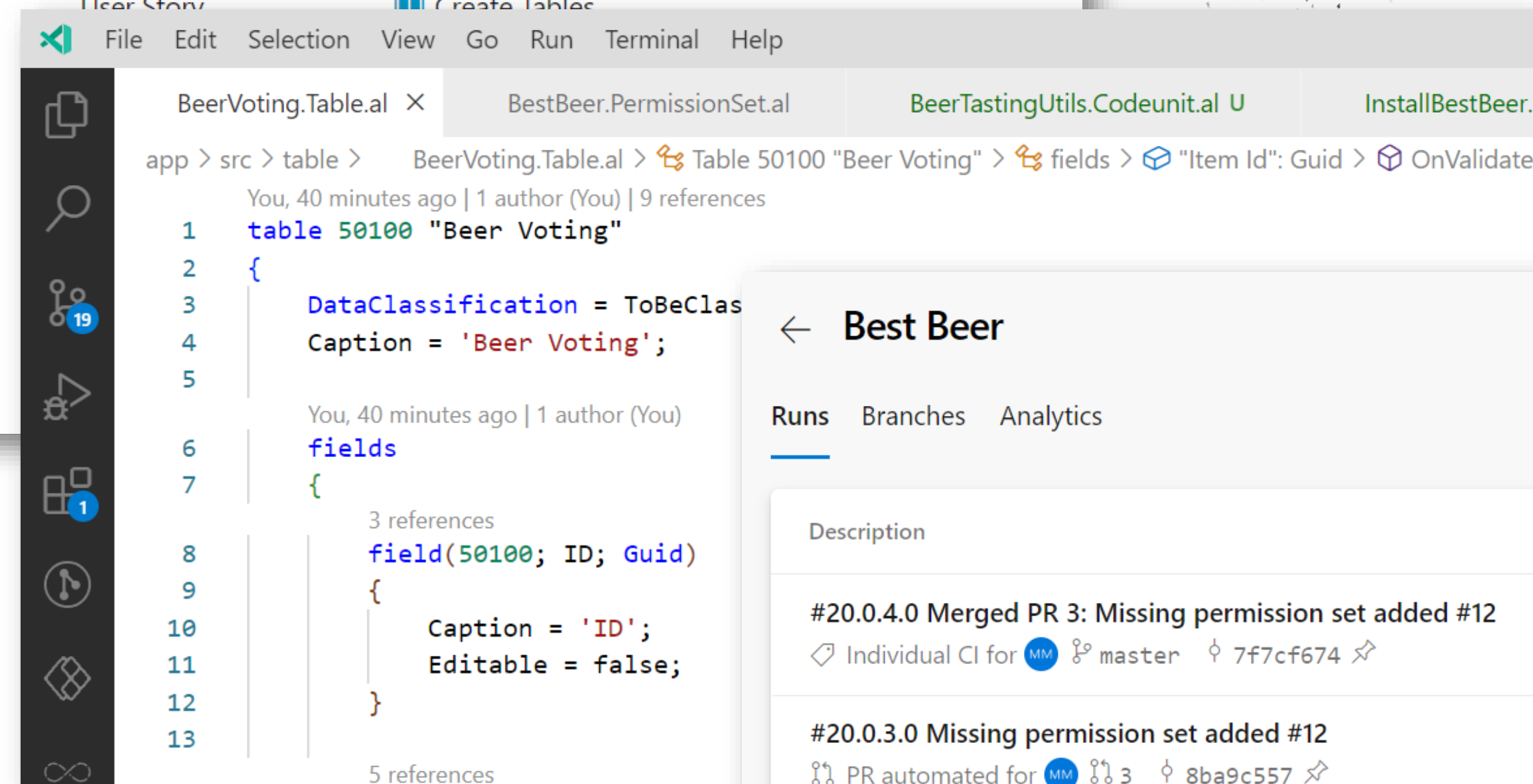
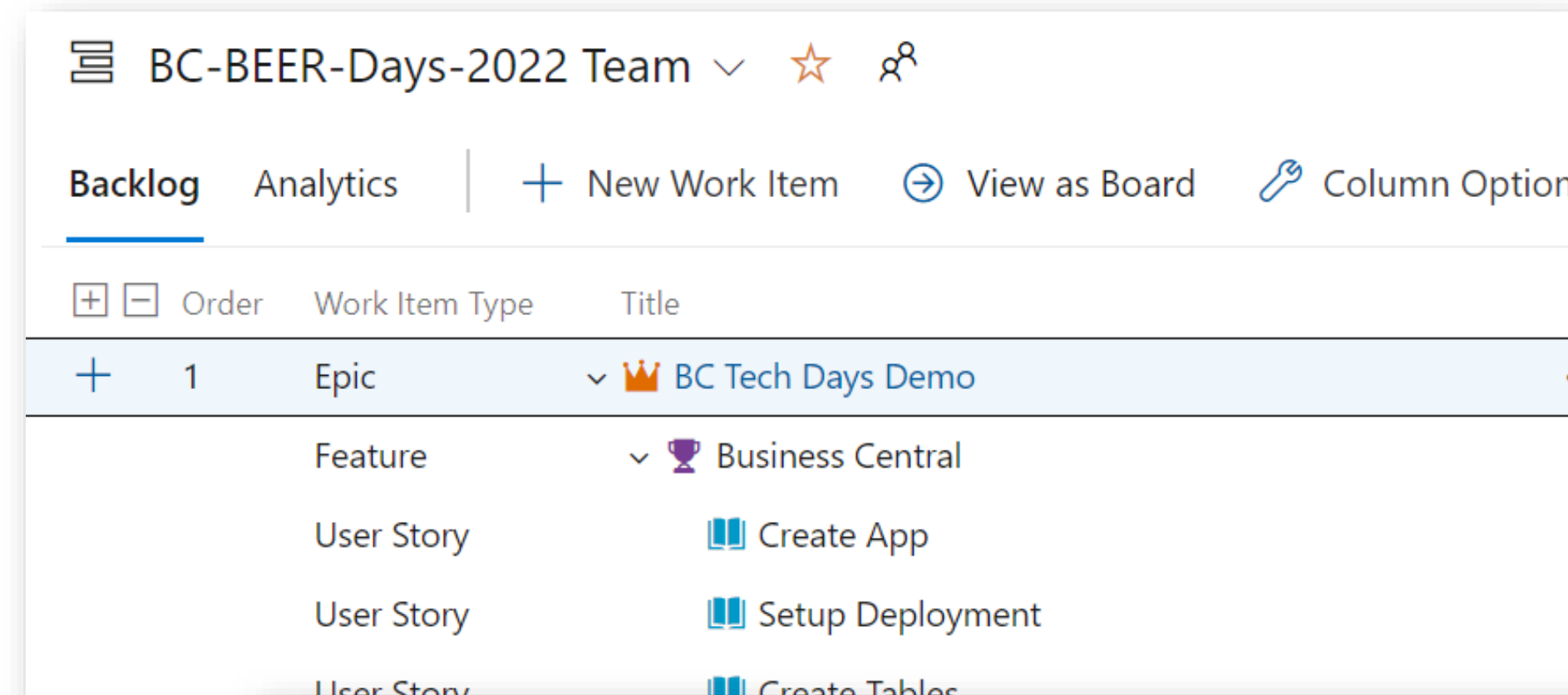
Beers



Speakers

Standard ALM Process in Business Central

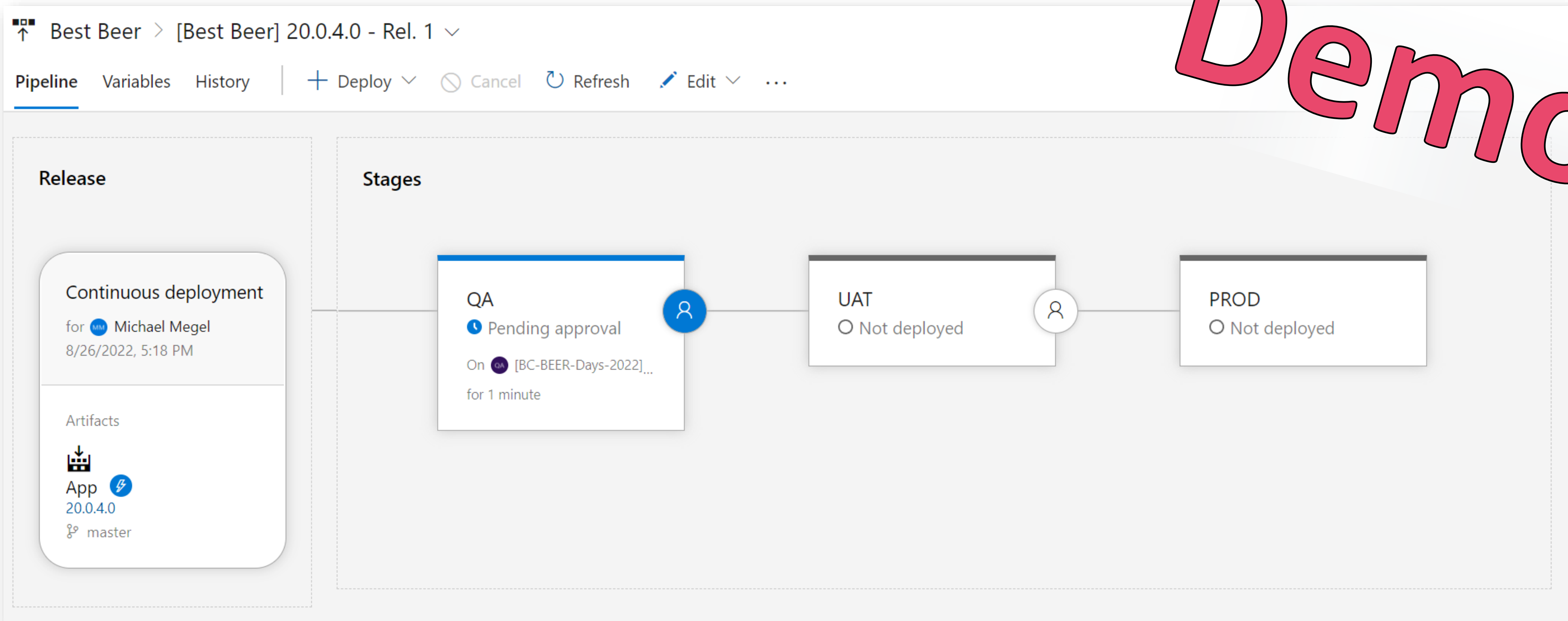
- **Define** Tasks in Azure DevOps Backlog
- **Develop** with Microsoft AL in VS Code
- **Test & review** Source Code in Git repositories
- **Build** Artifacts with Azure Pipelines



Standard ALM Process in Business Central

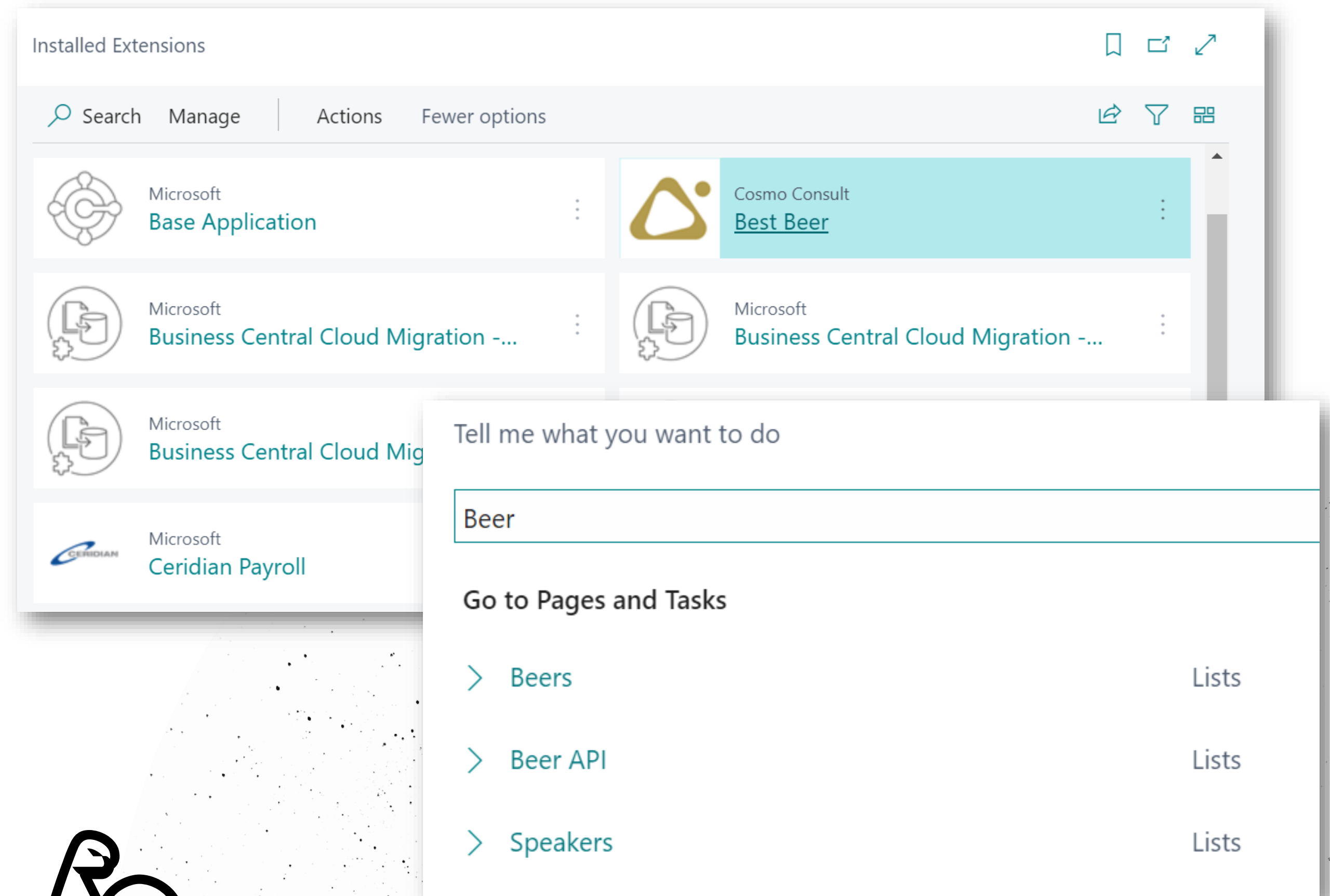
- **Continuous Deployment** to all Business Central environments with Approval

Demo



Business Central

- Backlog & User Stories **OK**
- Development **OK**
Tables, Pages, APIs, ...
- App built 🚀
- App tested 🚀
- App deployed 🚀
- Result tested **OK**



ALM Process: 🔄 🔄 🔄

ALM Process?

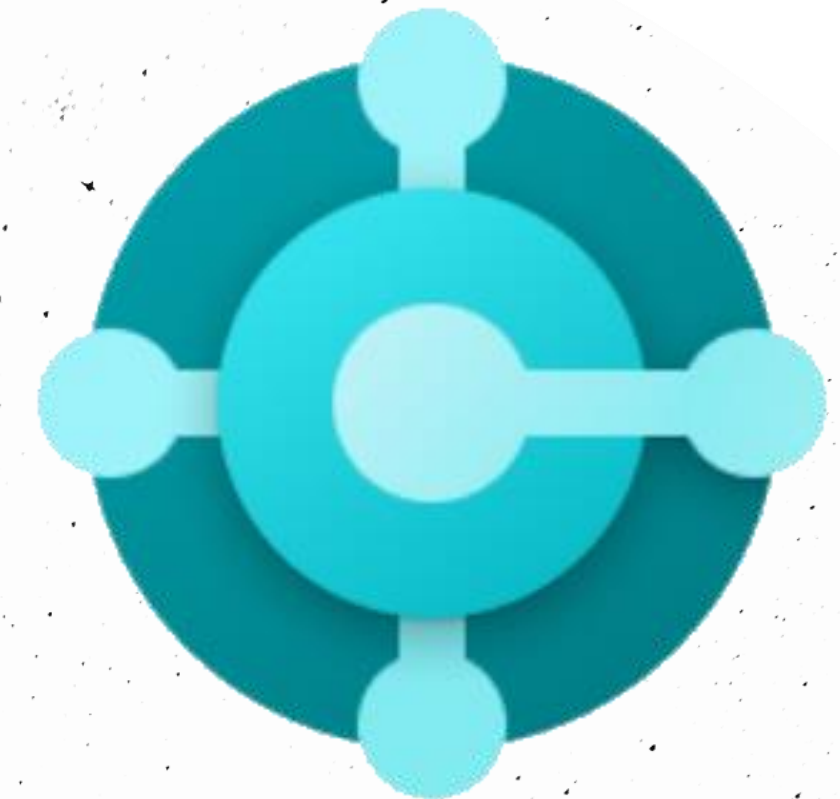
ALM



PP

?

BC



10 YEAR ANNIVERSARY
10 YEAR ANNIVERSARY



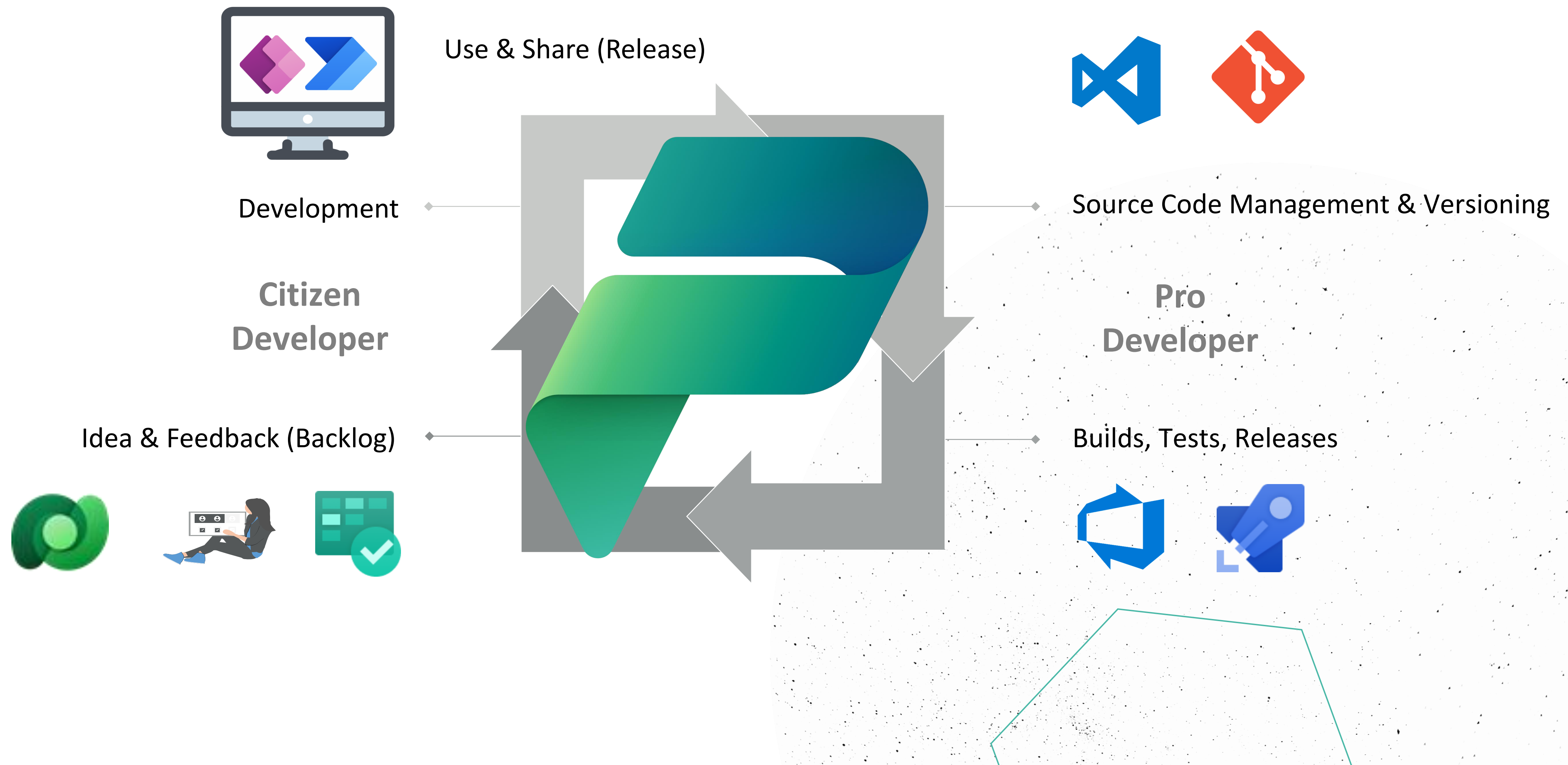
2022

mibuso.com

Citizen Developers ALM?

www.bctechdays.com

Application Lifecycle Management?



10 YEAR ANNIVERSARY
10 YEAR ANNIVERSARY



2022

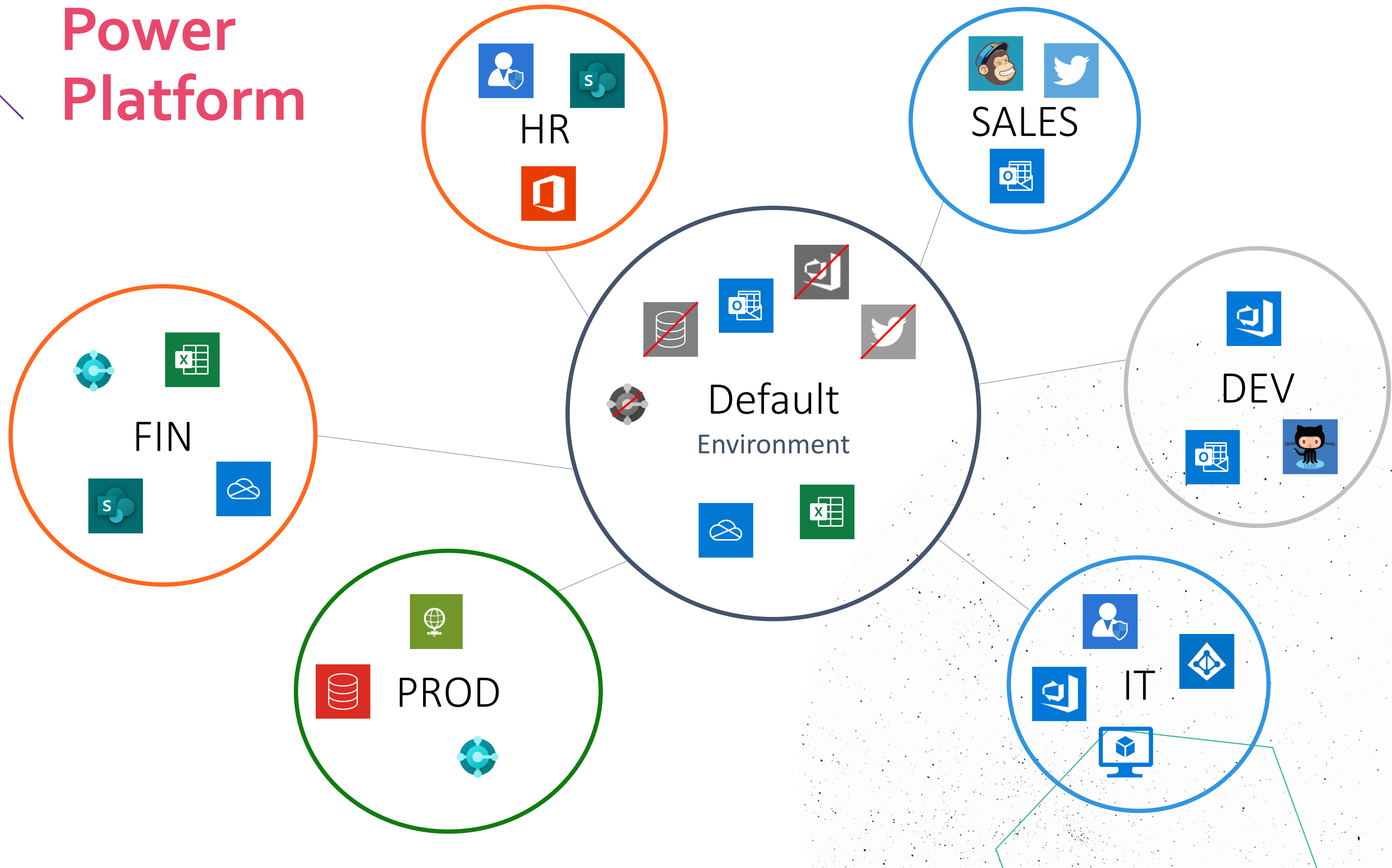
mibuso.com

Power Platform & ALM

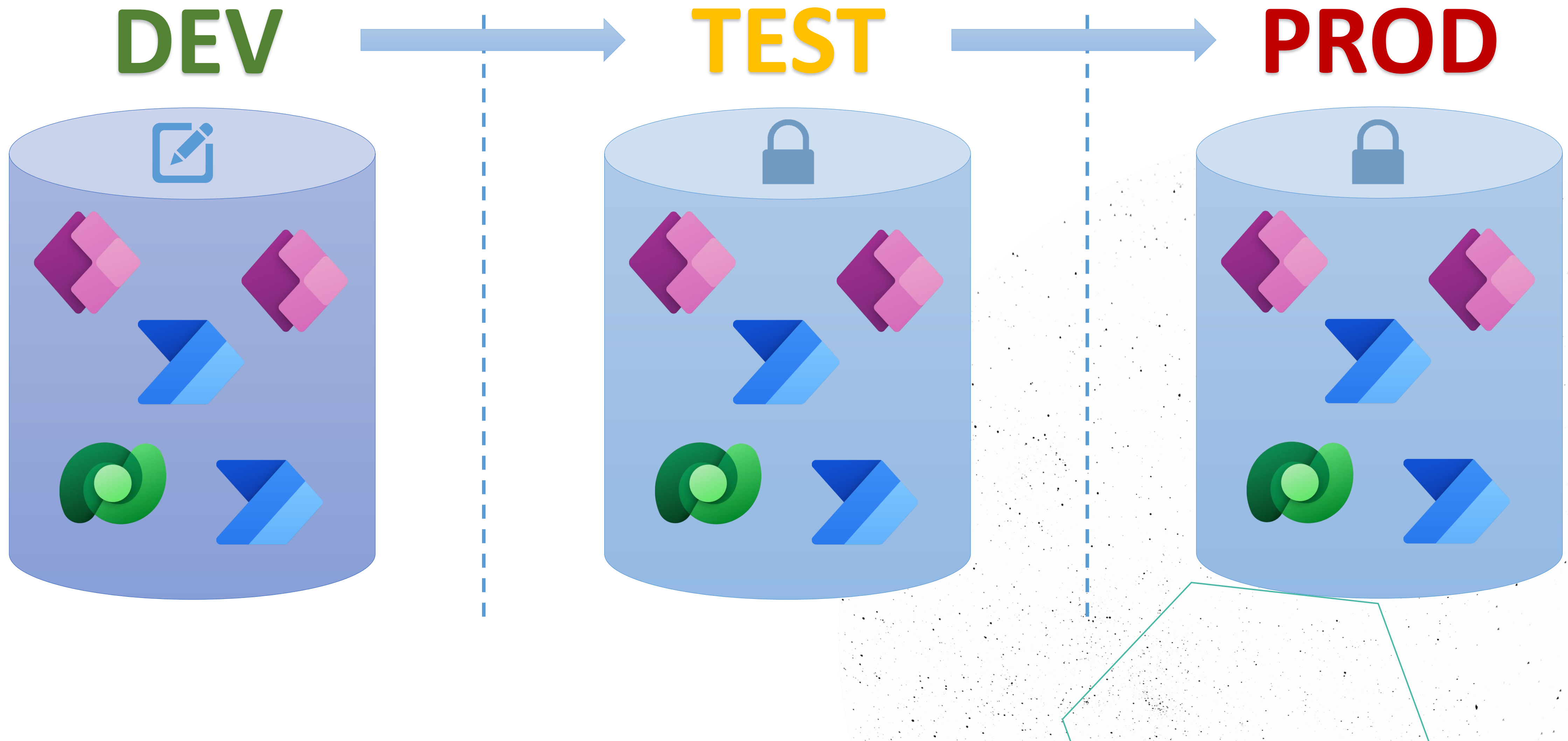
Where are we?

www.bctechdays.com

Power Platform

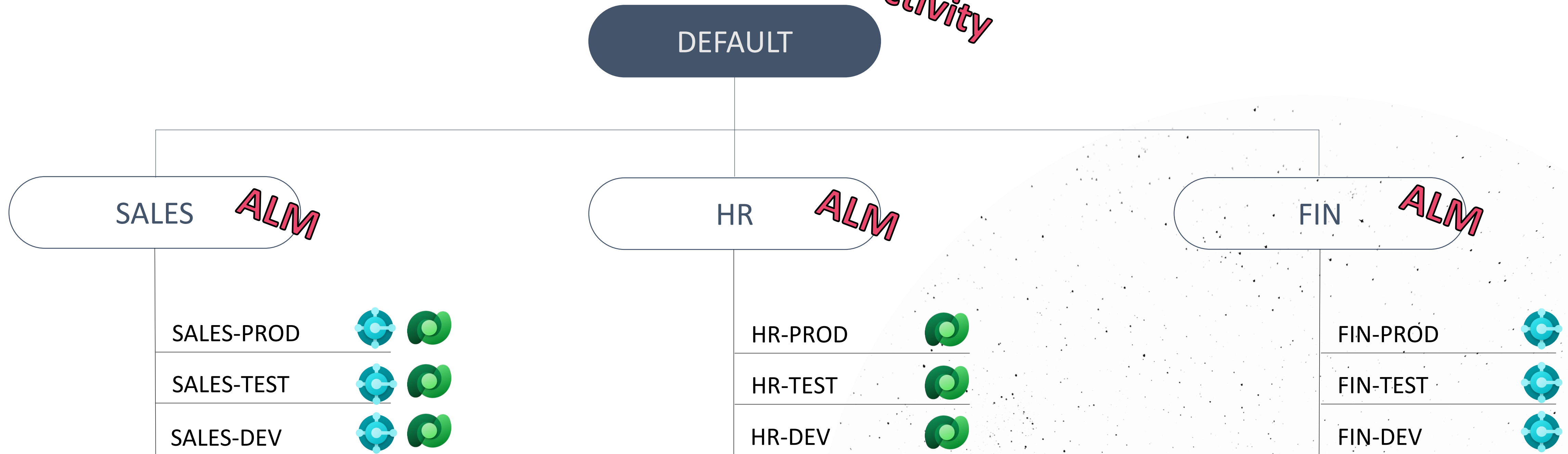


ALM Environments for Power Platform



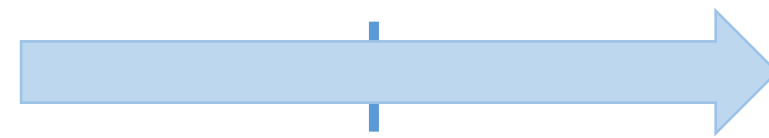
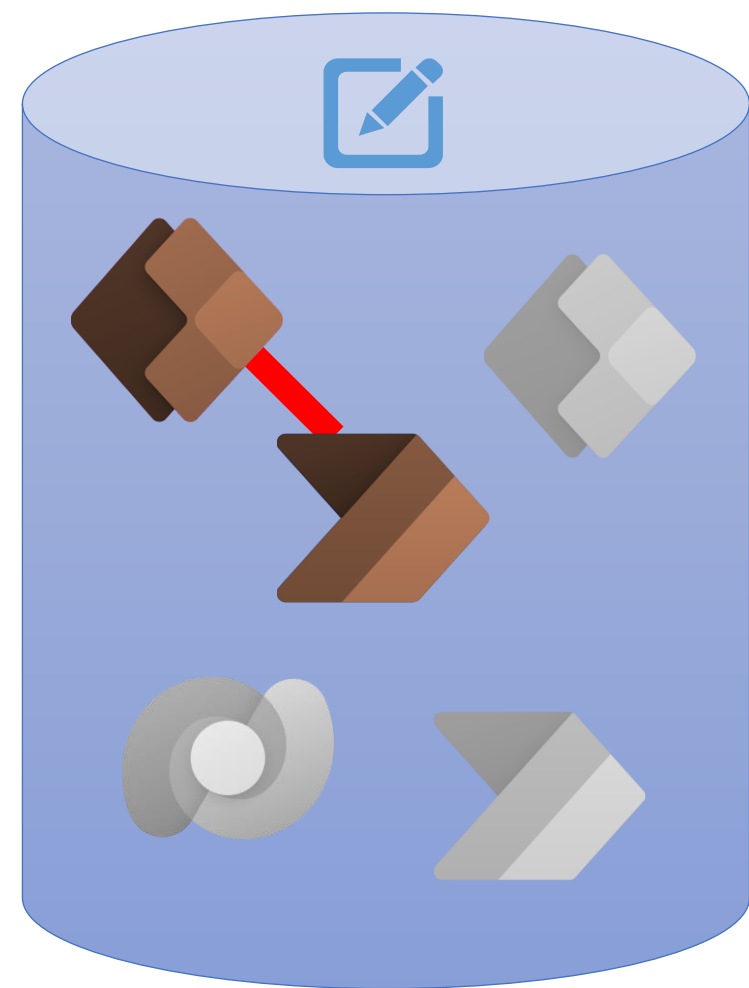
Environments for ALM in Power Platform

*Personal
Productivity*



Citizen Developer Deployment Process

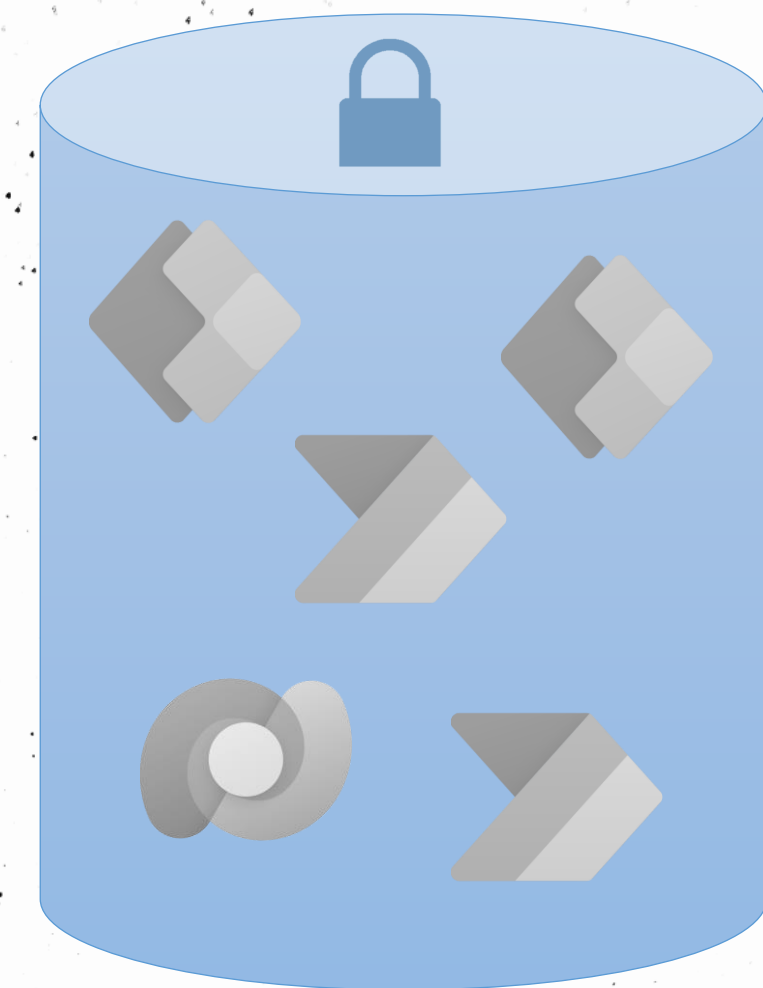
DEV



TEST



PROD



Dataverse Solutions

Solution

- Package of Components (Power Apps, Flows, ...)
- Publisher, Prefix, Unique Name, Version
- Managed vs. Unmanaged

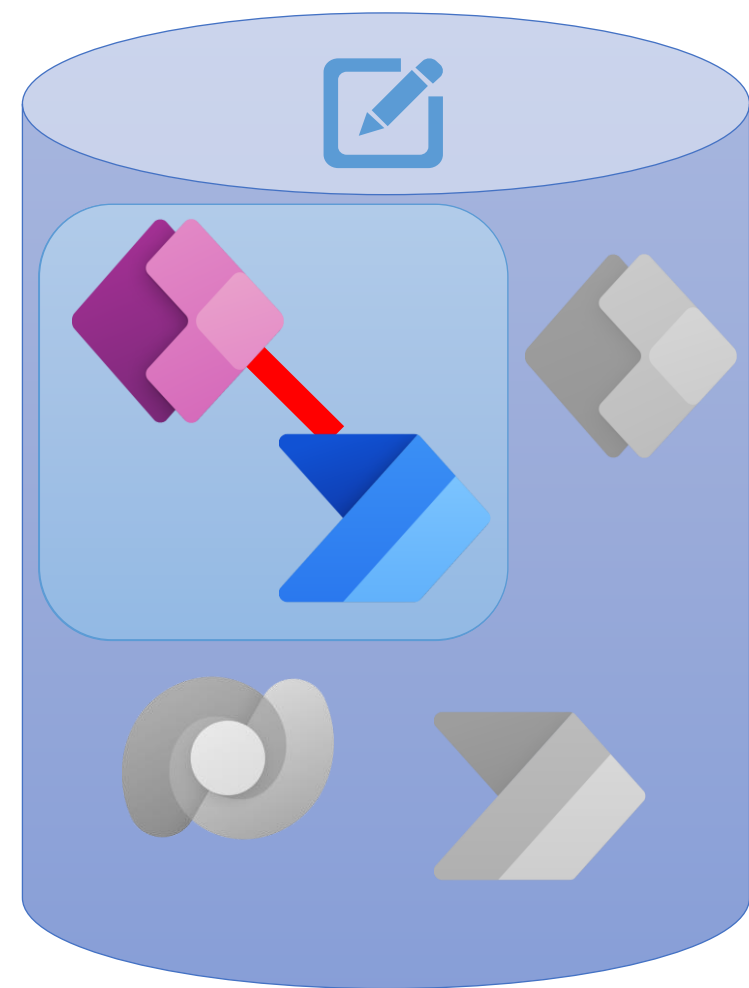
Solution Deployment

- Extend Dataverse with customizations during installation
- Can be installed and uninstalled from Dataverse
- May have dependencies to other solution components

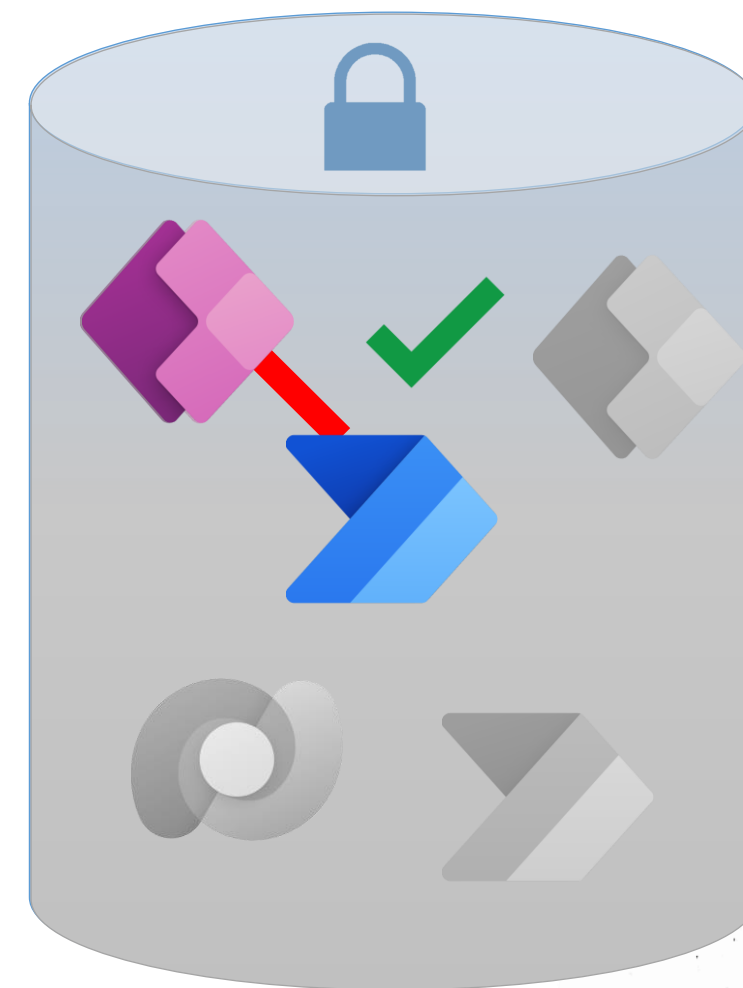


Deployment with Solutions

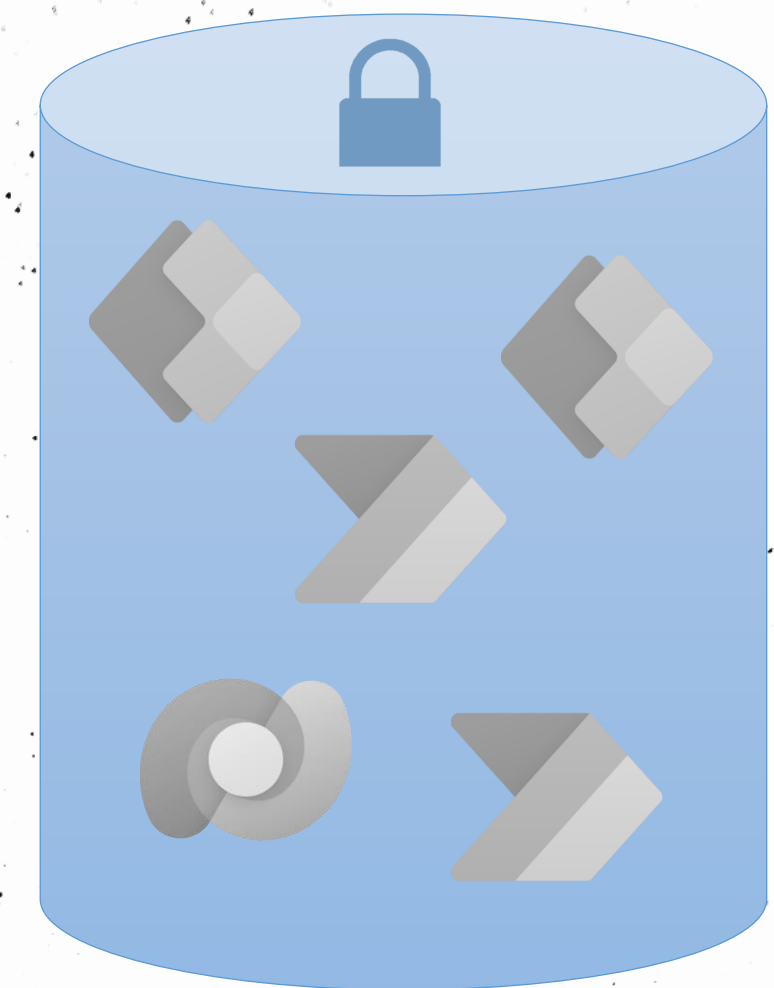
DEV



TEST



PROD



10 YEAR ANNIVERSARY
10 YEAR ANNIVERSARY



My Beer Tasting Demo Solution

www.bctechdays.com

My Beer Tasting Demo

Business Central App:

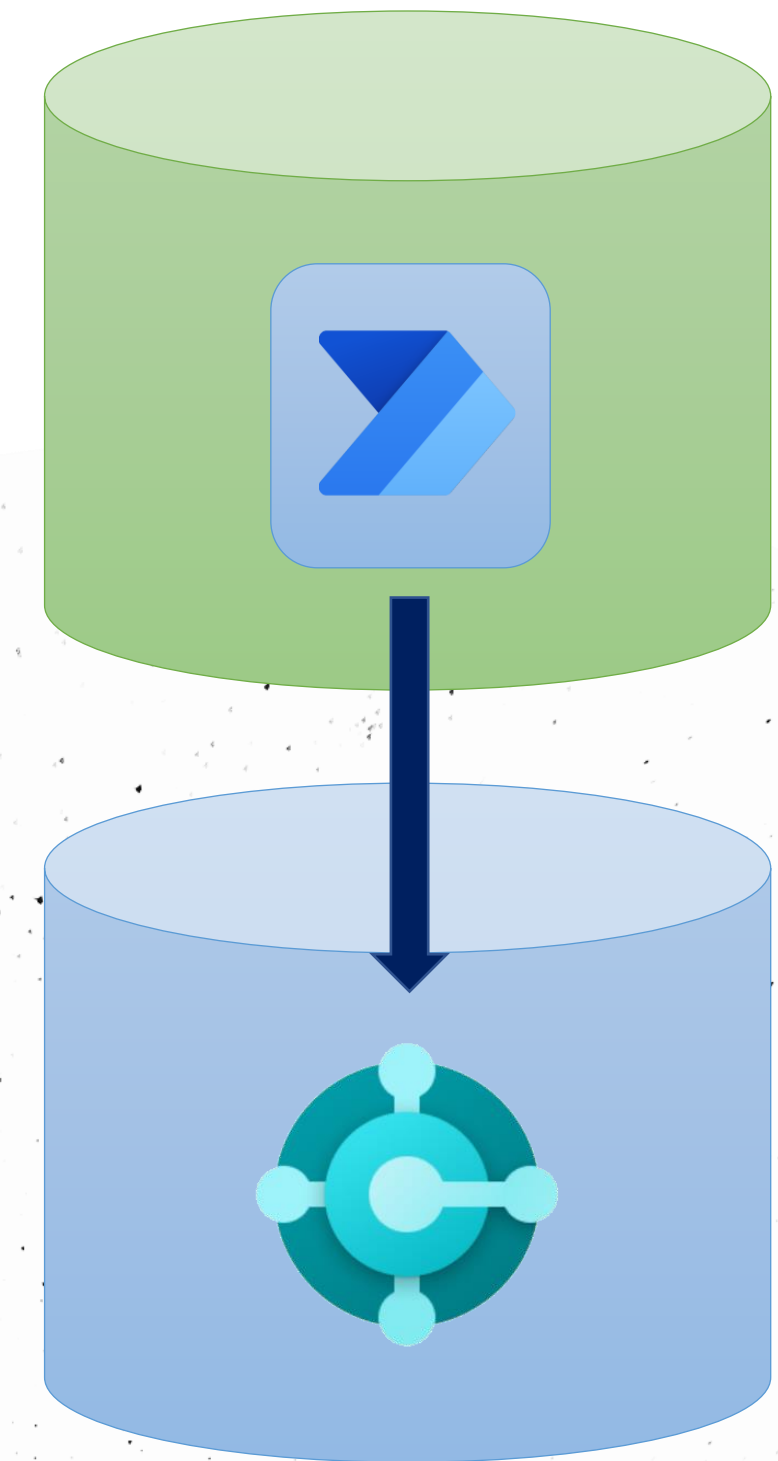
- Installed & Ready for Test ☐ OK

Business Central demo data:

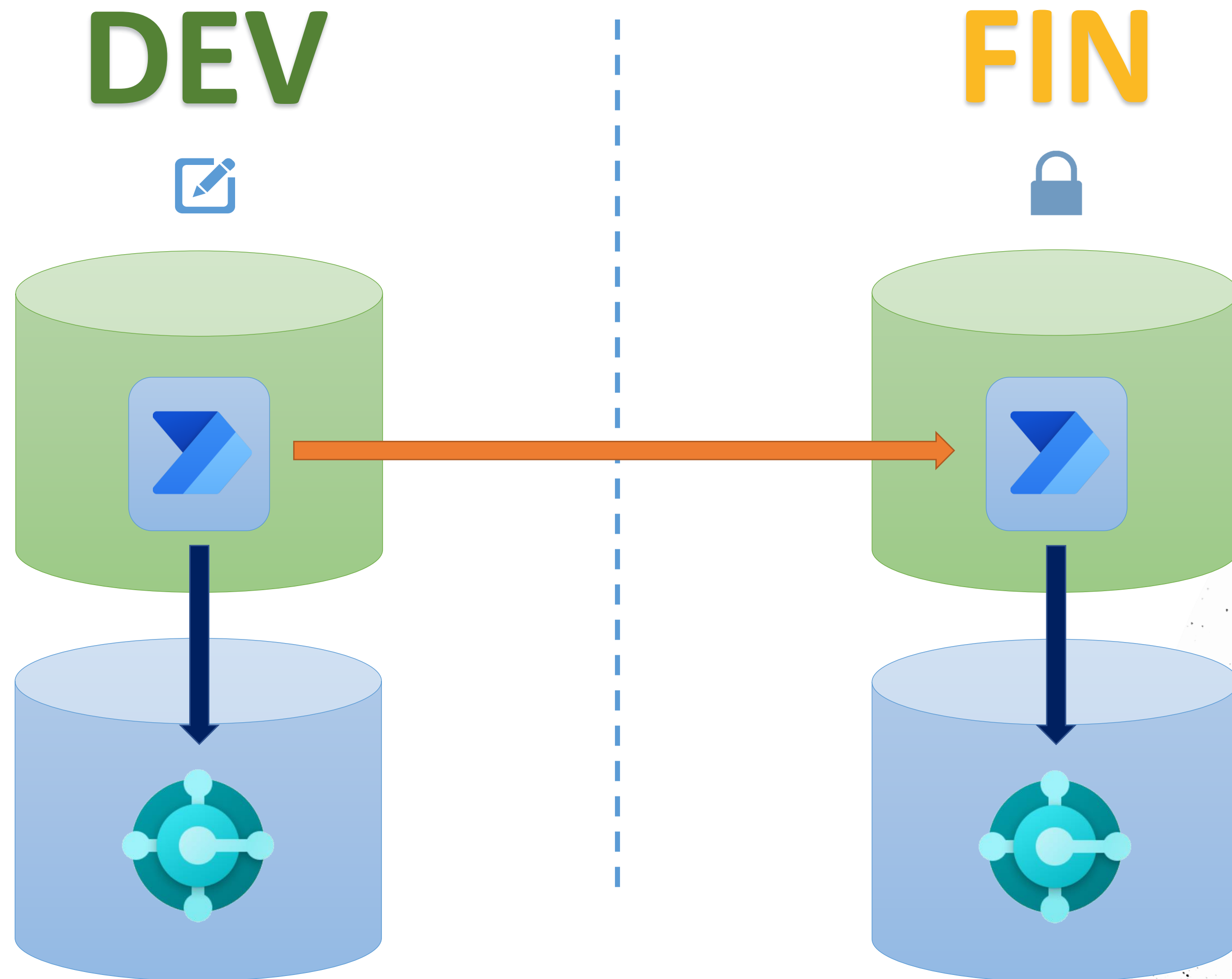
- no Beers (Items)
- no Speakers (Contacts)
- not ready for Test

How to setup demo data?

- Manually → (51 + 6) Records per environment ... 
- or
- Use Power Automate Flow, my Business Central API, Demo Data (JSON)



Manual Deployment Plan



Power Automate & Business Central Connector

- Environment name
- Company name
- API category
- Table name

Create Beer record

* Environment name	QA
* Company name	CRONUS USA, Inc.
* API category	cosmo/bcTechDays/v1.0
* Table name	beers
no	
name	
percentage	
picture	
pictureUrl	

Fixed Values?

Make your solution configurable!

Environment Variables:

- Store the parameter keys and values
- Serve as input to various other application objects.
- Provide new parameter values while importing solutions to other environments.
- Store configuration for the data sources used in canvas apps and flows.

Connection References:

- Contains information about a connector.
- Canvas Apps & Power Automate Flows use these connection references
- You can setup connections for connections references in the target environment without further configuration of apps or flows.

Make your solution configurable!

My Solution Environment Variables:

- Business Central Environment
- Business Central Company

My Environment Variables Values:

- QA (*Environment name*)
- 61c93d13-... (*Company ID*)

Exclude the current values of the environment variables from the solution **before deployment!!!**

Edit Business Central Enviro... ✕

Use this variable to store information about an app or flow. Its values can be updated as it moves to different environments. [Learn more](#)

Display name *

Business Central Environment

Name * ⓘ

mme2k_BusinessCentralEnvironment

Description

Business Central Environment

Data Type *

Text

Default Value ⓘ

Current Value

Override the default value by setting the current value for your environment.

QA

Edit Business Central Comp... ✕

Use this variable to store information about an app or flow. Its values can be updated as it moves to different environments. [Learn more](#)

Display name *

Business Central Company

Name * ⓘ

mme2k_BusinessCentralCompany

Description

Data Type *

Text

Default Value ⓘ

Current Value

Override the default value by setting the current value for your environment.

61c93d13-2c0f-ed11-b845-6045bd8e51...

Make your solution configurable!

Create record (V3)

* Environment name: [@] Business Centr... x

* Company name: Name of the Dynamics 365 Business Central company x
'Company name' is required.

* API category: Name of the Dynamics 365 Business Central API category (also called API ✓

* Table name: Name of the Dynamics 365 Business Central table ✓

+ New step Save

Add dynamic content +

Add dynamic content from the apps and connectors used in this flow. Hide

Dynamic content	Expression
Search dynamic content	
Environment Variables	
[@]	Business Central Company (mme2k_BusinessCentralCo...
[@]	Business Central Environment (mme2k_BusinessCentral...
[@]	Should the Peek Button Be Showed (msdyn_ShouldSho...

Make your solution configurable!

Edit Business Central

Learn about connections and connection references

Display name *

Business Central

Name * ⓘ

mme2k_BusinessCentral

Add a description

Business Central

Connector *

Dynamics 365 Business Central

Connection * ⓘ

Refresh

admin@CRM284457.onmicrosoft.com

Create Beer

...

* Environment name

[@] Business Centr... x

* Company name

[@] Business Centr... x

* API category

cosmo/bcTechDays/v1.0

* Table name

beers

no

{ Outputs x

name

{ name x

percentage

{ percentage x

picture

Copy to my clipboard (Preview)

New Comment

Rename

Add a note

Static result (Preview)

Settings

Configure run after

Peek code

Delete

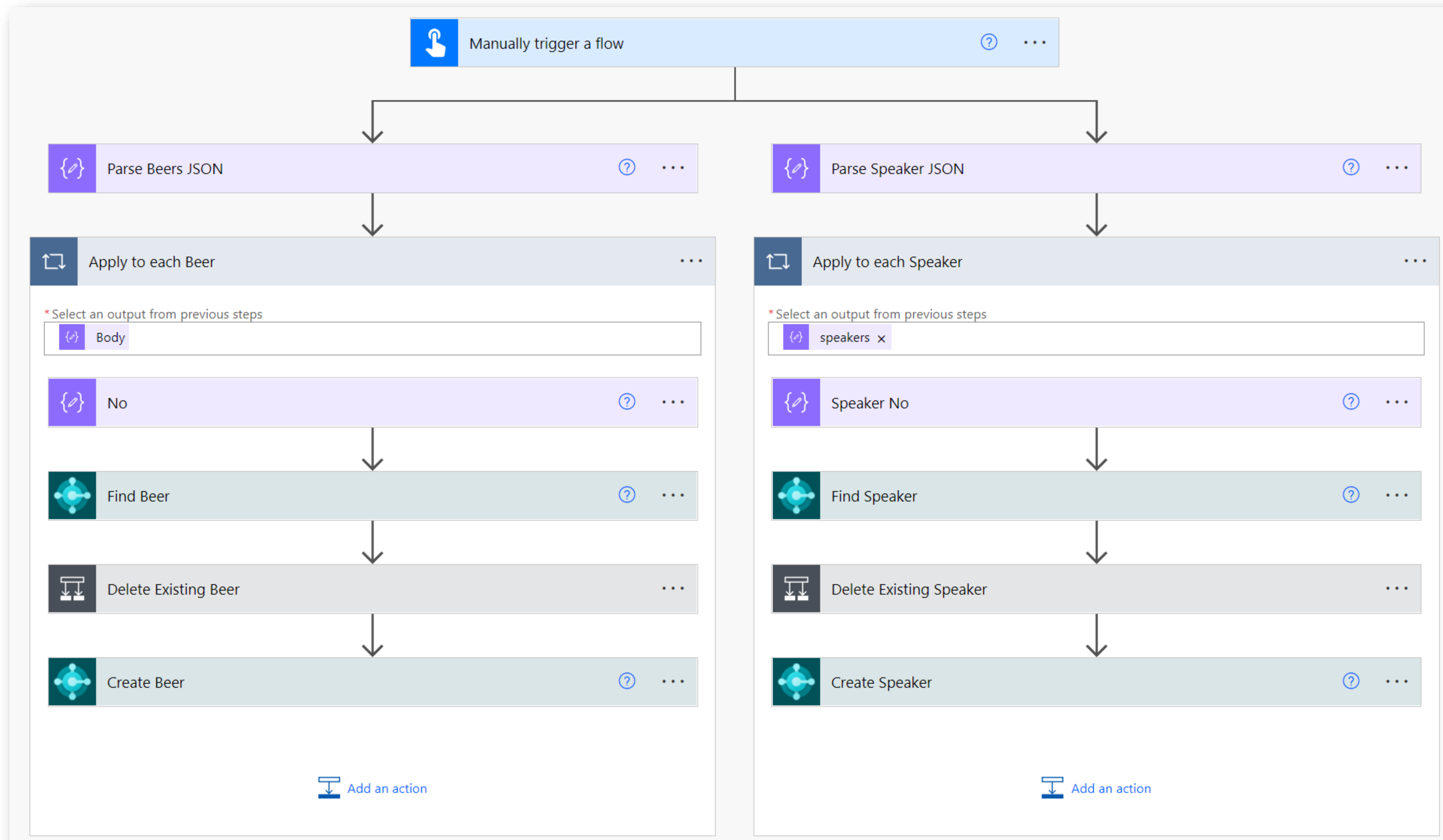
Connection references

Other connection references

✓ Business Central
admin@CRM284457.onmicrosof...

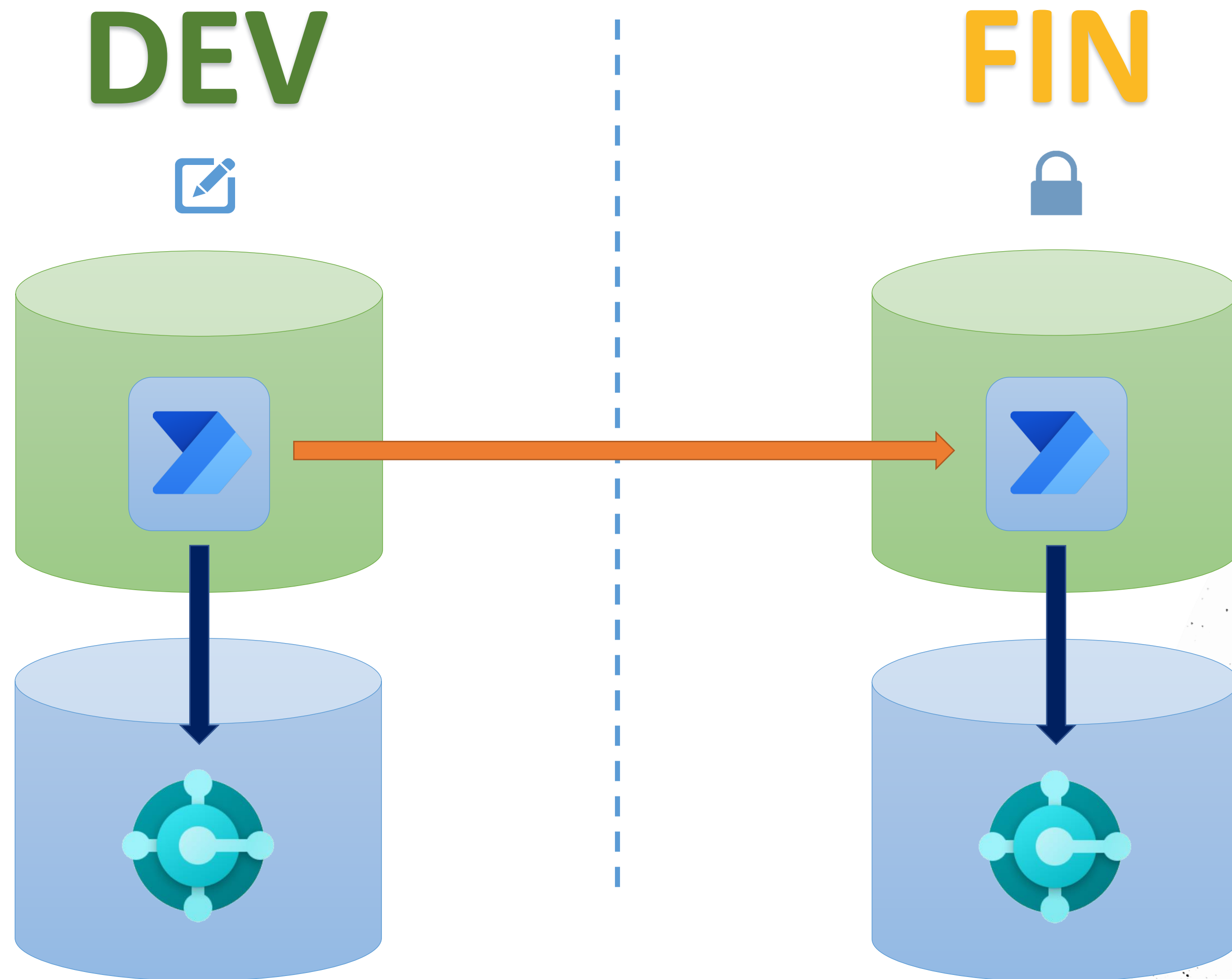
+ New connection reference

My Beer Tasting Demo Data Setup Flow



Manual Deploy – Run Flow – Test

Demo



My Beer Tasting Demo

Business Central App:

- Installed & Ready for Test ☐ OK

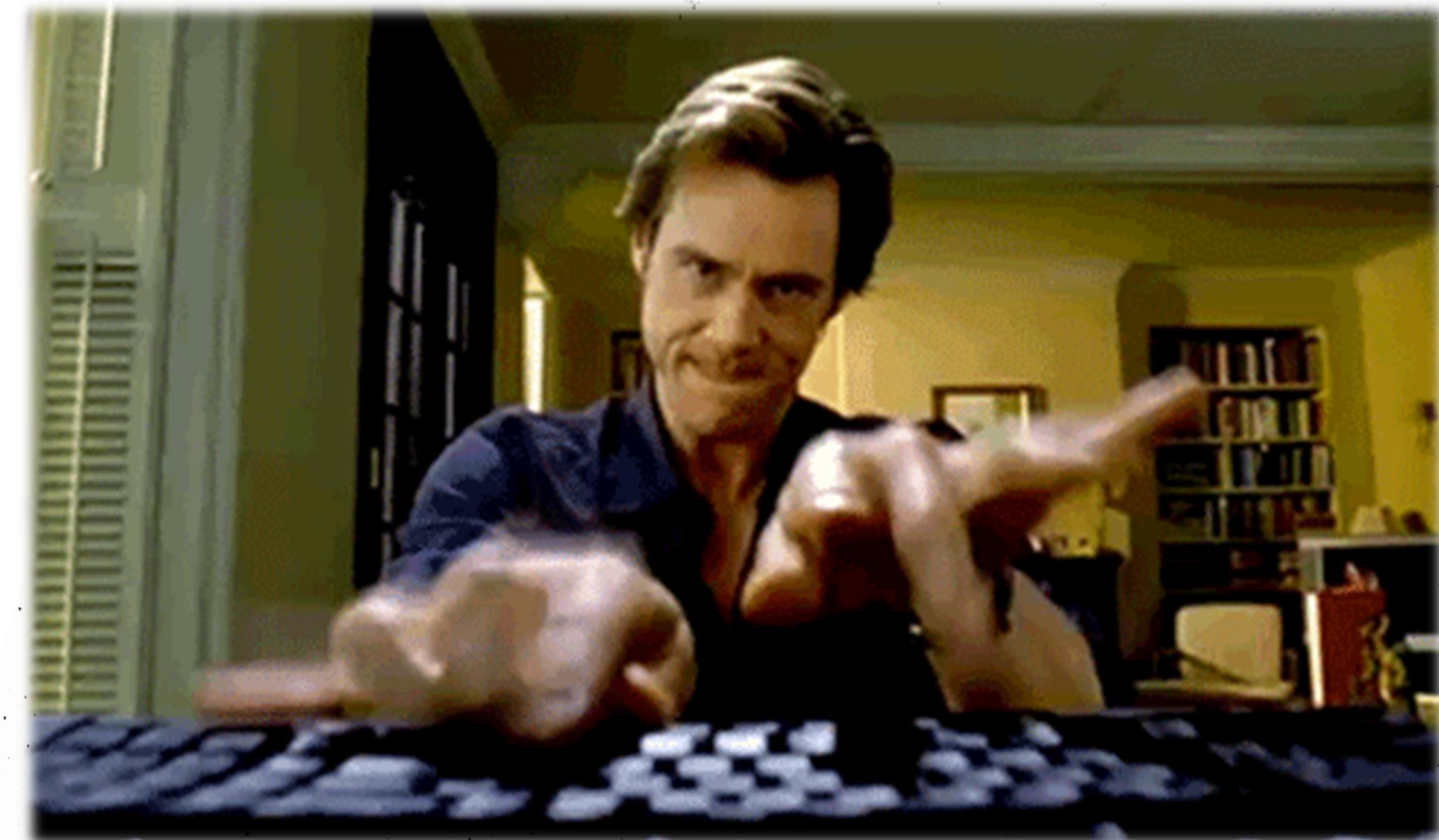
Business Central Demo Data:

- Beers (Items) added ☐ OK
- Speakers (Contacts) added ☐ OK
- Ready for Test ☐ OK

Manual ALM Process: ☐ OK

Beer Tasting Canvas App:

- Development in progress...



Automated ALM for My BC Tech Days Demo

Power Platform

- ALM Environments
- no SCM
- Manual Solution Transport



PP

Manual
Process

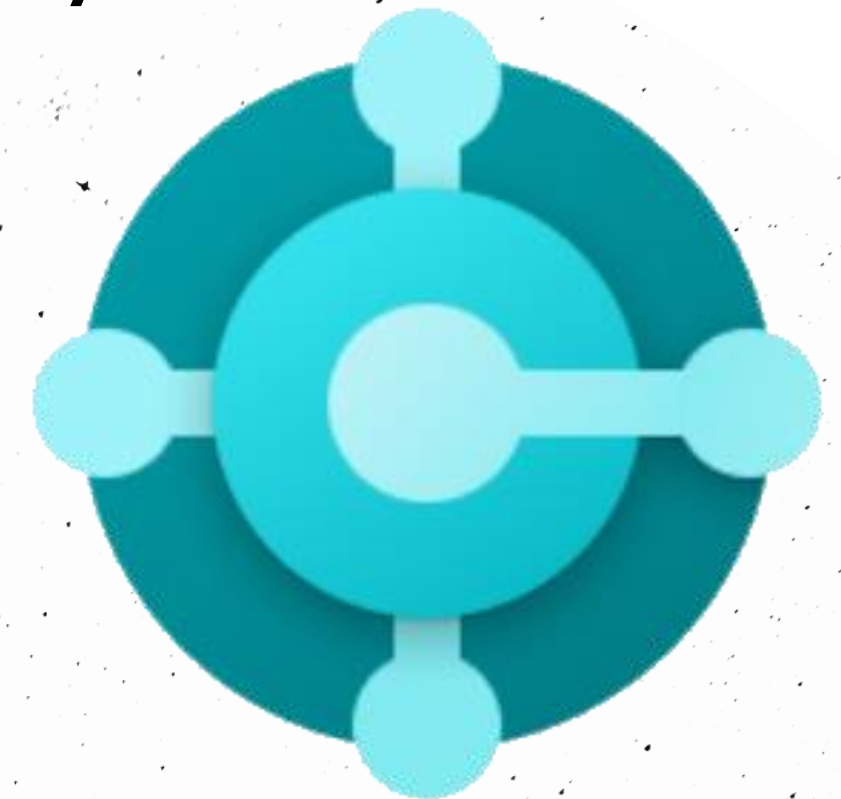
ALM

?

Business Central

- ALM Environments
- SCM
- Build & Deployment 

BC



Automated
Process

10 YEAR ANNIVERSARY
10 YEAR ANNIVERSARY



2022

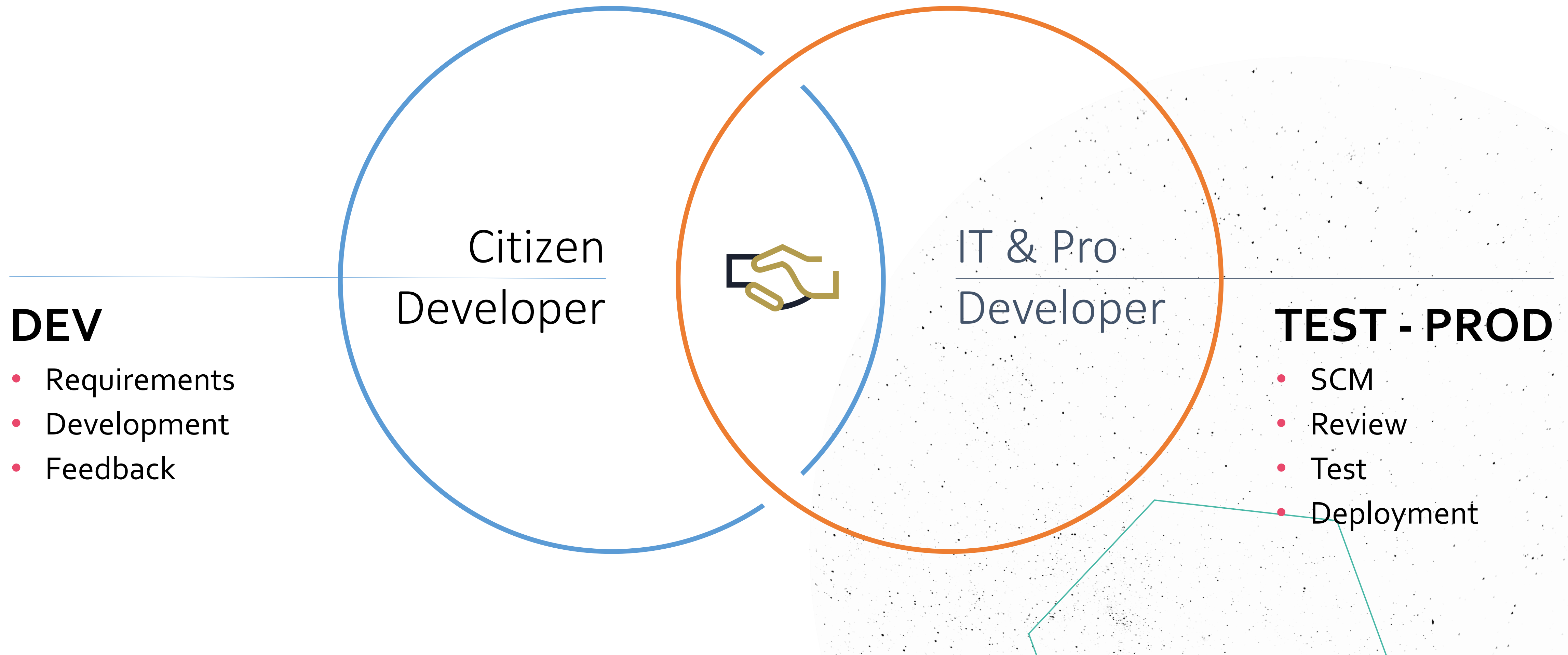
mibuso.com

Professional ALM Power Platform

www.bctechdays.com

ALM 4 Power Platform

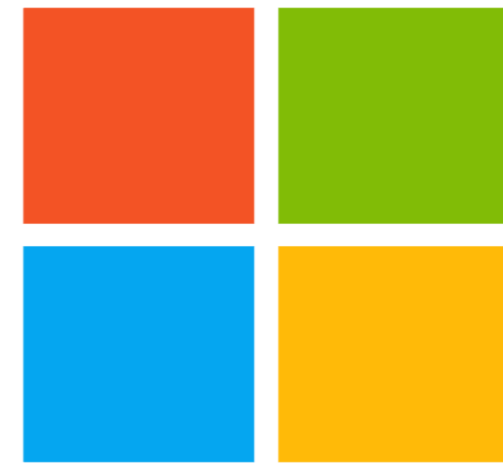
Everyone is part of Application Lifecycle Management!



ALM Accelerator for Power Platform

Microsoft Doc's

- Blog Post
- Documentation
- Setup Guide
- How-to use Guide



<https://aka.ms/aa4pp>

<https://aka.ms/coestarterkit>

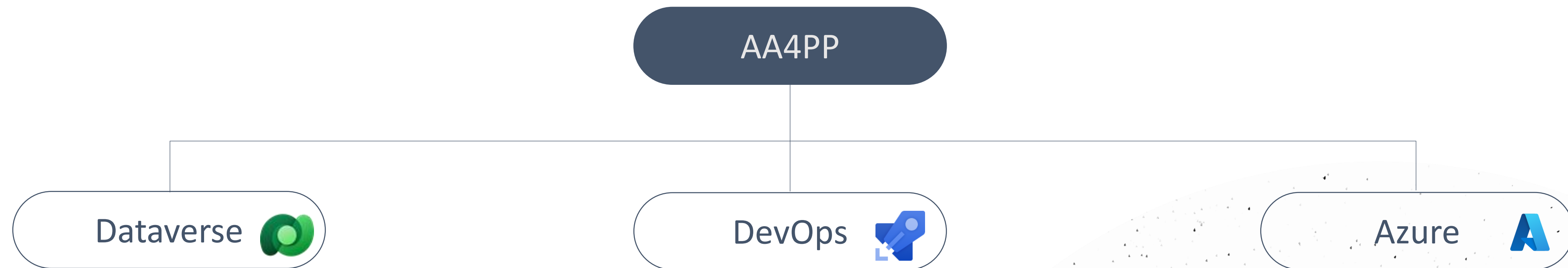
Open Source

- Monthly Releases
- Report Issues
- Request Features



<https://github.com/microsoft/coe-starter-kit>

Setup AA4PP



Don't worry about Setup!

Power Platform Environments

- Admin Rights for Environments (Dev, Validation, Test, Production)

Azure DevOps

- Admin Rights at Organization & Project

Azure Active Directory

- Admin Rights for App Registration & AAD Group

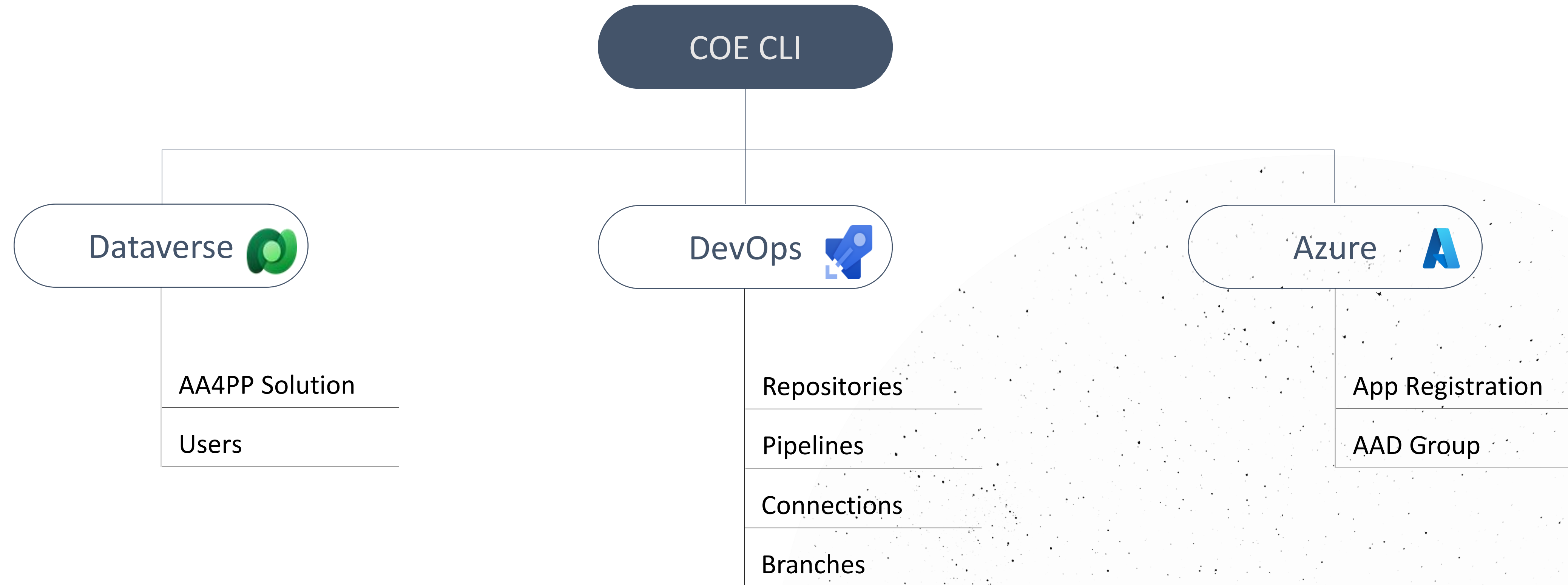
Tools

- Installed CoE CLI from Center Of Excellence Starter Kit


```
alm generate install -o setup.json ...
```

```
alm install -f setup.json ...
```

CoE CLI help setup AA4PP & Azure DevOps



Azure: App Registration & AAD Group

Home > Contoso | App registrations > ALMAcceleratorServicePrincipal

ALMAcceleratorServicePrincipal | API permissions

Search (Ctrl+/) Refresh Got feedback?

Overview Quickstart Integration assistant

Manage

- Branding & properties
- Authentication
- Certificates & secrets
- Token configuration
- API permissions
- Expose an API
- App roles
- Owners
- Roles and administrators
- Manifest

Support + Troubleshooting

- Troubleshooting

Configured permissions

The "Admin consent required" column shows the default value for an organization. How

Applications are authorized to call APIs when they are granted permissions by users/admins. [Learn more about permissions and consent](#)

+ Add a permission ✓ Grant admin consent for Contoso

API / Permissions name	Type	Description
Microsoft DevOps (1)		
Visual Studio Team Services	Delegated	Have full access to Visual Studio Team Services
▼ Dynamics 365		
user_impersonation	Delegated	Access Common Data Service as organization
▼ PowerApps-Advisor (1)		
Analysis.All	Delegated	Analysis.All

To view and manage permissions and user consent, try [Enterprise applications](#).

Microsoft Azure

Home > ALMAcceleratorForMakers

ALMAcceleratorForMakers | Members

Group

+ Add members Remove Refresh Bulk operations

Overview Diagnose and solve problems

Direct members All members

Manage

Search by name Add filters

Properties

Members

Owners

Roles and administrators

Administrative units

Group memberships

Applications

Name
<input type="checkbox"/> MM Michael Megel
<input type="checkbox"/> Michael Megel
<input type="checkbox"/> System Administrator

Share AA4PP to Makers

Power Platform: Canvas App

megel@CRM903014.OnMicrosoft.c

ALM Accelerator for Power Platform

Select Your Maker Environment
Michael Megel's Environment

REFRESH

MANAGE SOLUTIONS

IMPORT SOLUTION

Search Solutions

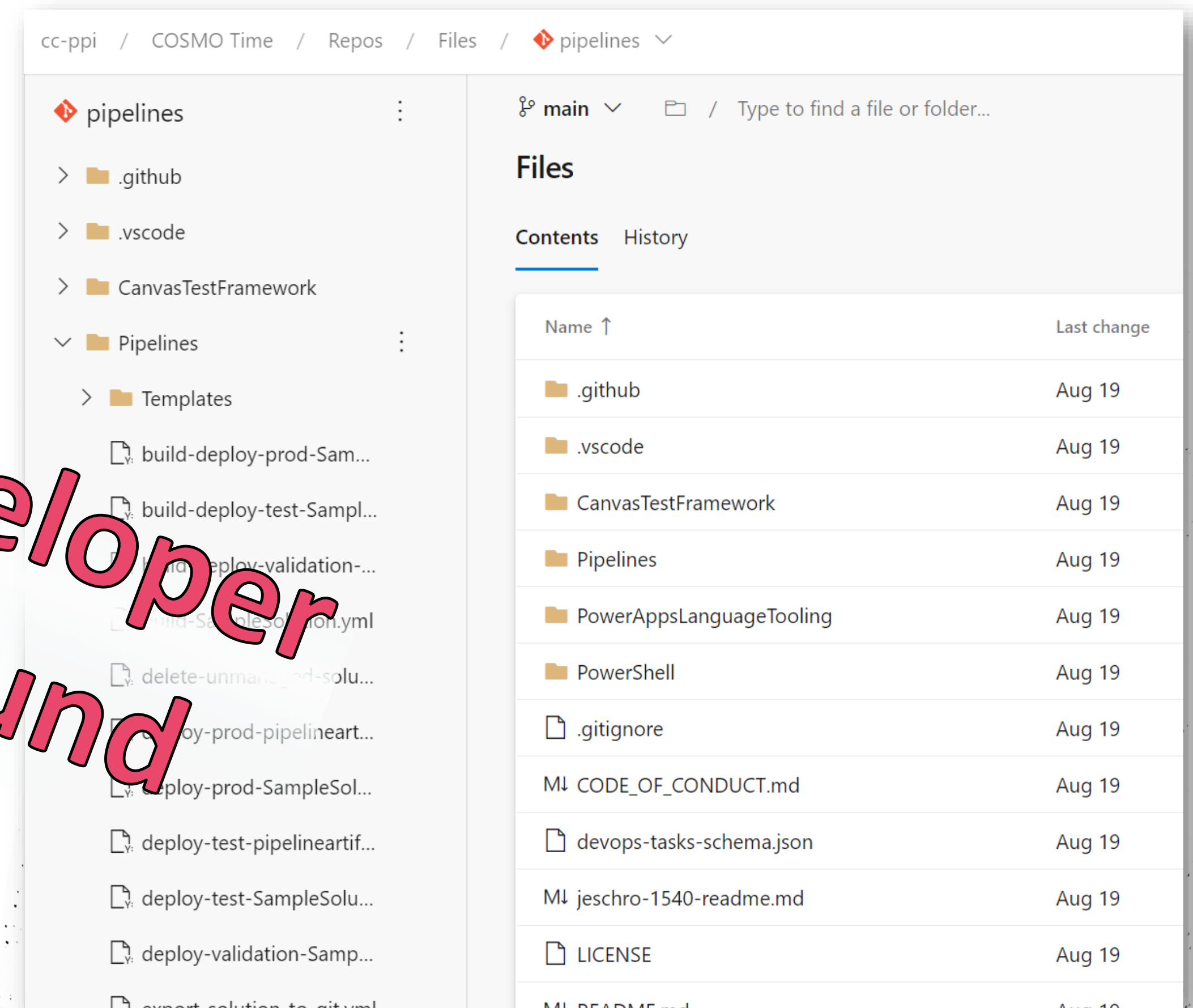
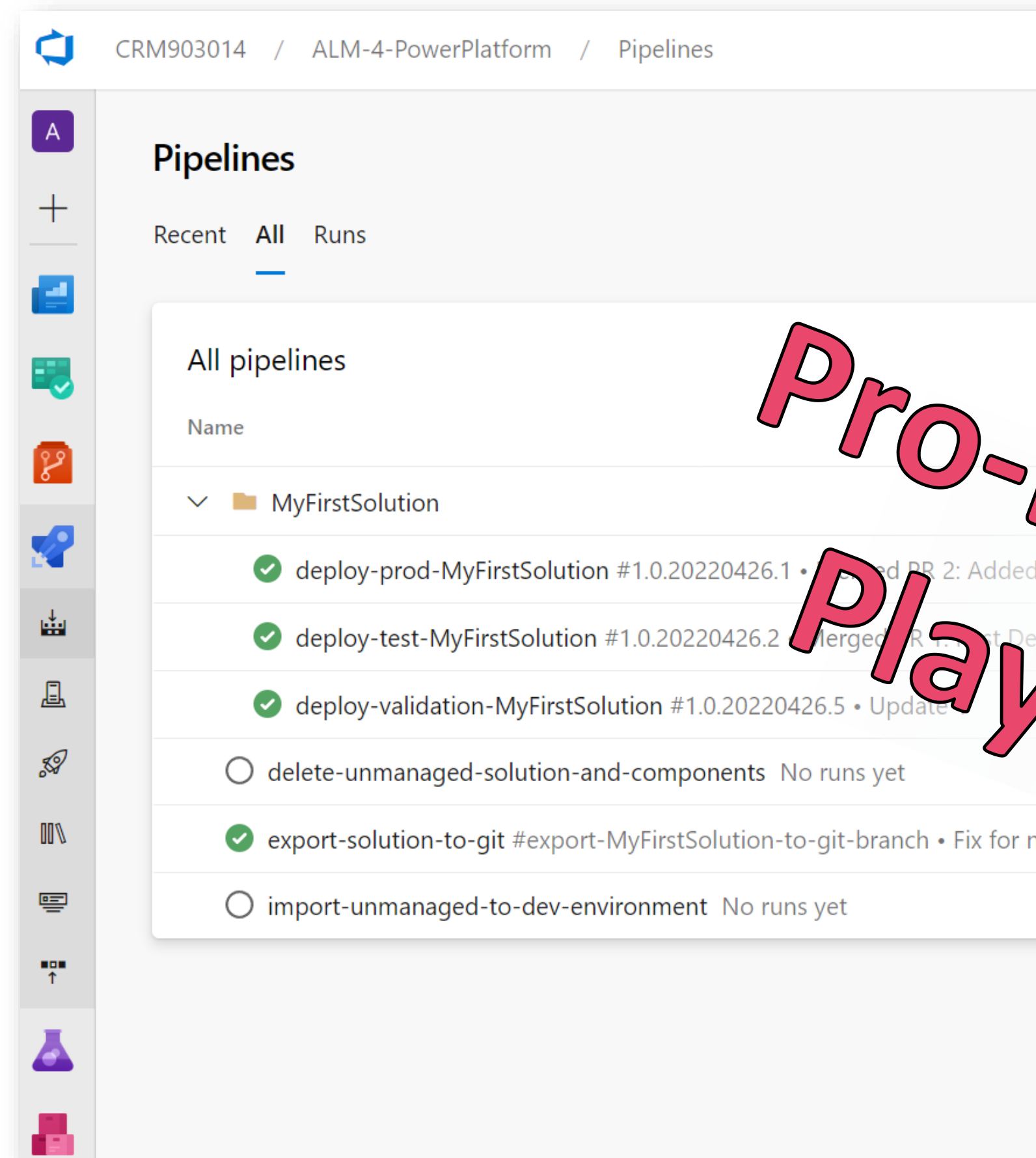
SOLUTION				PROFILE		
Feedback Open Solution Configure Deployment Settings	COMMIT SOLUTION	<input type="radio"/>	DEPLOY SOLUTION	<input type="radio"/>	Choose a Profile No Profile Selected	DELETE SOLUTION
My First Solution Open Solution Configure Deployment Settings	COMMIT SOLUTION	<input checked="" type="radio"/>	DEPLOY SOLUTION	<input checked="" type="radio"/>	ALM-4-PowerPlatform Validation - Test - Prod - Default	DELETE SOLUTION
My Second Solution Open Solution Configure Deployment Settings	COMMIT SOLUTION	<input type="radio"/>	DEPLOY SOLUTION	<input type="radio"/>	ALM-4-PowerPlatform Validation - Test - Prod - Default	DELETE SOLUTION
Powerthon Component Library Open Solution Configure Deployment Settings	COMMIT SOLUTION	<input type="radio"/>	DEPLOY SOLUTION	<input type="radio"/>	Choose a Profile No Profile Selected	DELETE SOLUTION
Telemetry 4 BC Open Solution Configure Deployment Settings	COMMIT SOLUTION	<input type="radio"/>	DEPLOY SOLUTION	<input type="radio"/>	ALM-4-PowerPlatform Validation - Test - Prod - Default	DELETE SOLUTION

Maker Playground

ALM Accelerator Environment: PROD (CRM903014) ■ Maker Environment: Michael Megel's Environment

Maker
Playground

Azure DevOps: Pipelines & Repositories



Pro-Developer
Playground

2022

mibuso.com

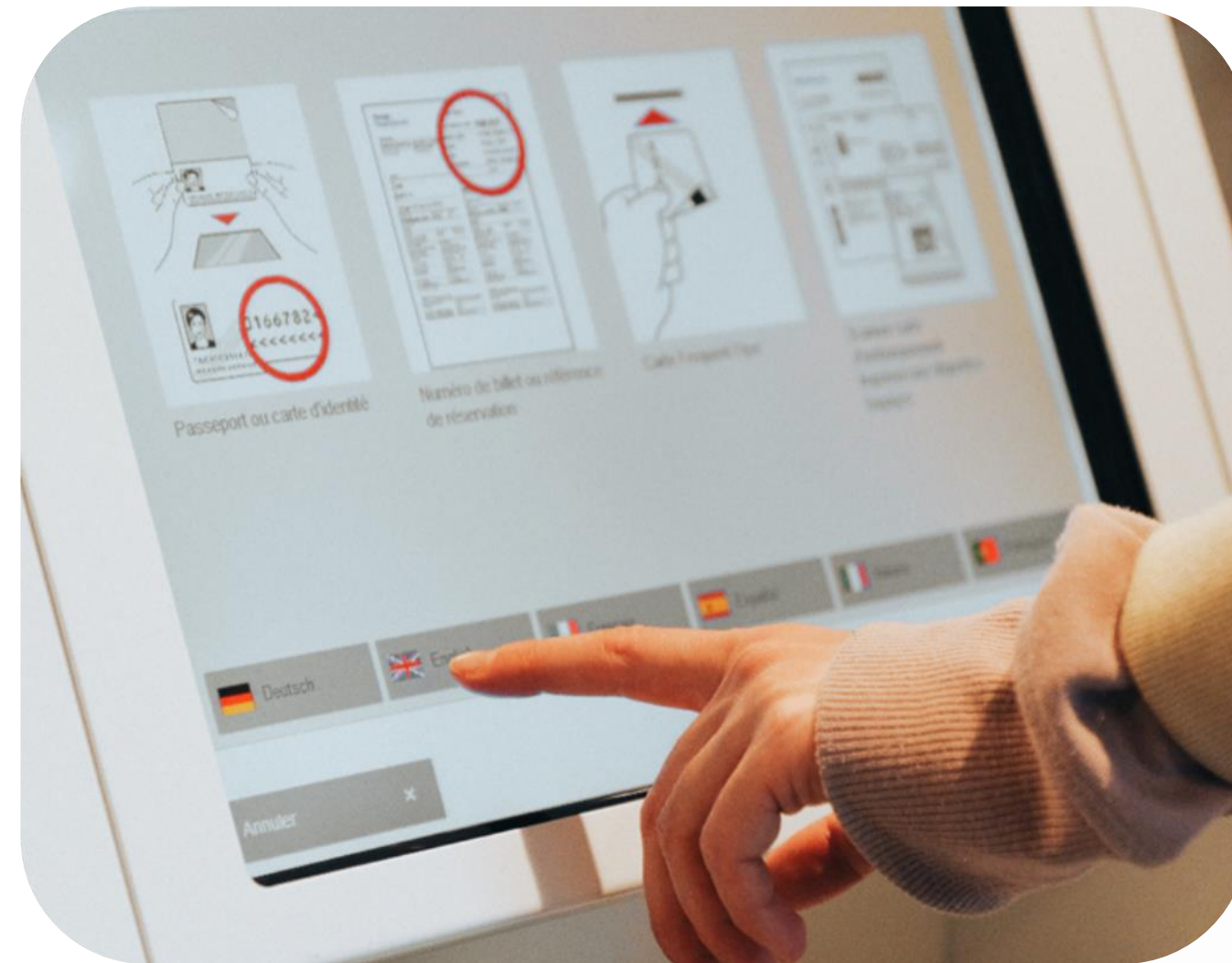
Professional ALM

Getting started with AA4PP

AA4PP for Citizen Developers...



Professional
Development



Automated
Deployment



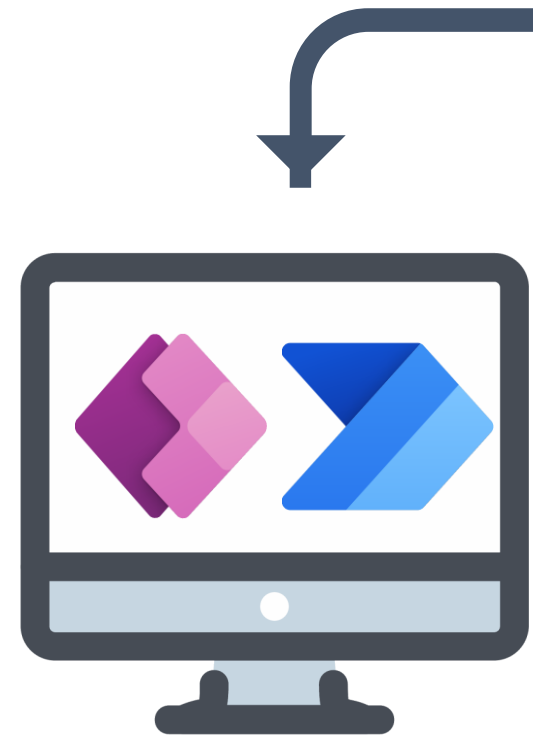
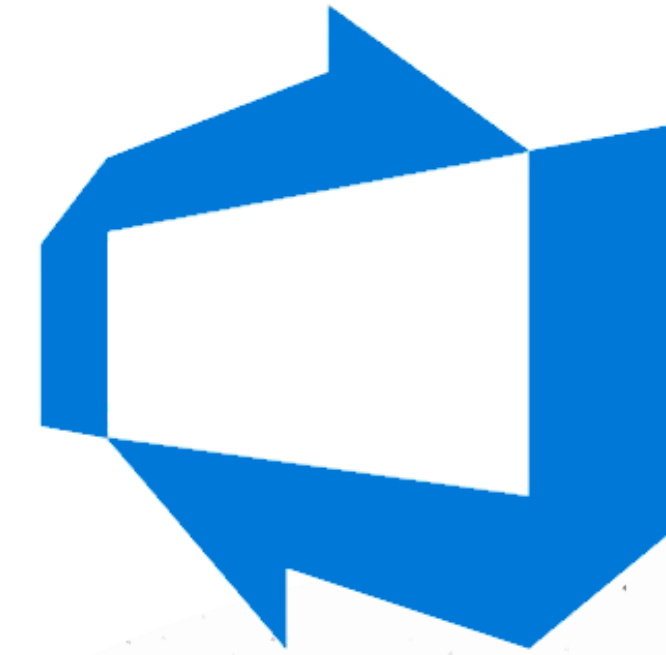
Empower
Collaboration

Professional Development needs...

- A **clean and isolated environment** as starting point
- A possibility to **restore a stable / latest version** during development
- A possibility to **frequently store** changes in a save way
Don't break others...
- A **cleanup** of the DEV environment before starting other tasks

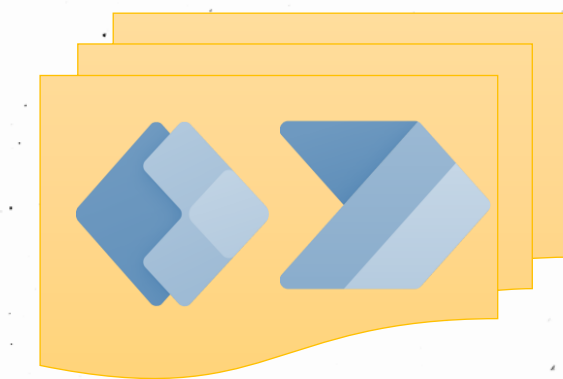


AA4PP empowered Development Process



Tasks

- Restore unmanaged Solutions from Source Code
- Save unmanaged Solutions as Source Code
- Remove unmanaged Solutions & all Components

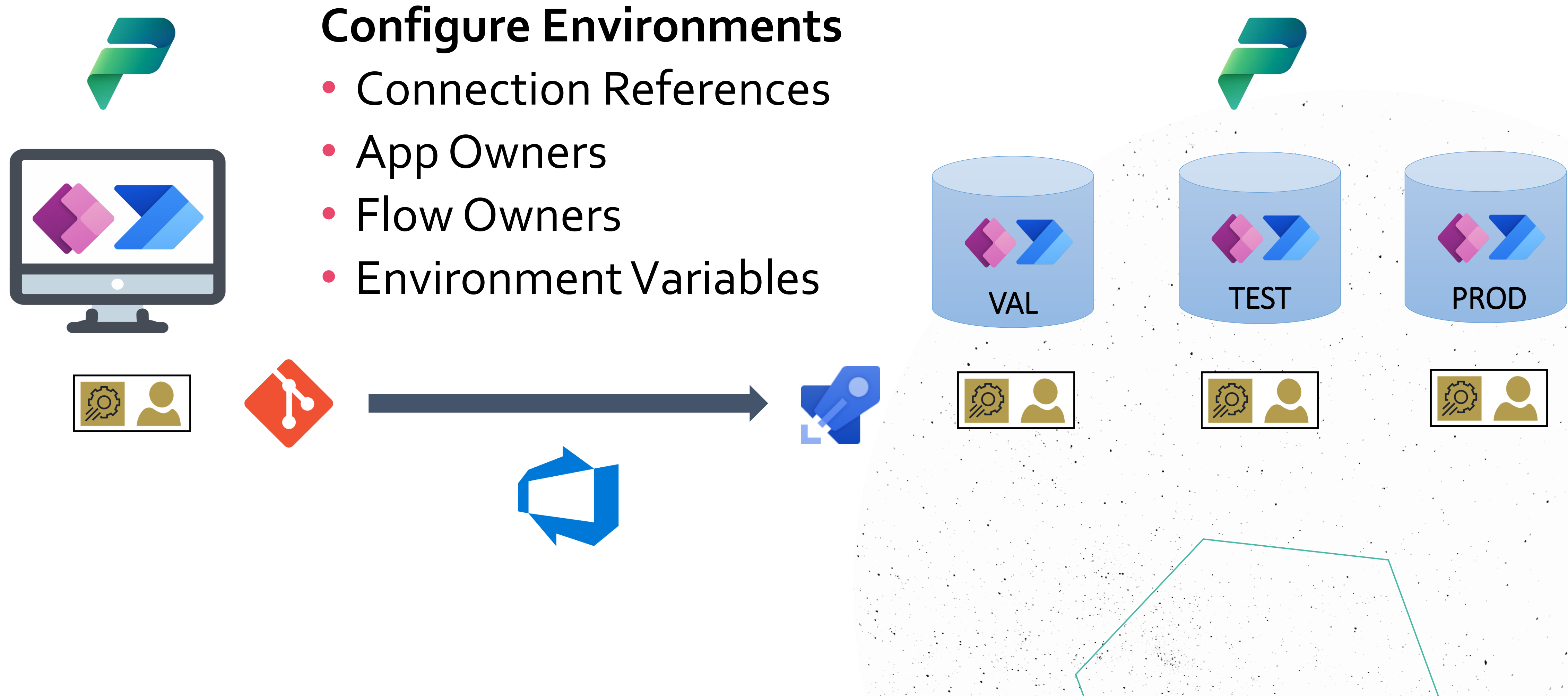


Automated Deployment needs...

- Defined **values for environment variables** in target environments
- **Prepared connections** for solution components in target environments
- **User account** information to setup solution components in target environments



AA4PP empowered Automated Deployment



Setup & Commit my Beer Tasting Demo

Demo

ALM Accelerator for Power Platform

REFRESH

MANAGE SOLUTIONS

IMPORT SOLUTION

SOLUTION

PROFILE

My first Solution

[Open Solution](#) [Configure Deployment Settings](#)

COMMIT SOLUTION

DEPLOY SOLUTION

AML-Training

Validation - Test -

Selected Profile

AML-Training

Enter Notes

Enter notes about this version of your solution (e.g. changes made or work items completed)

Show Advanced

Create New Branch

Branch

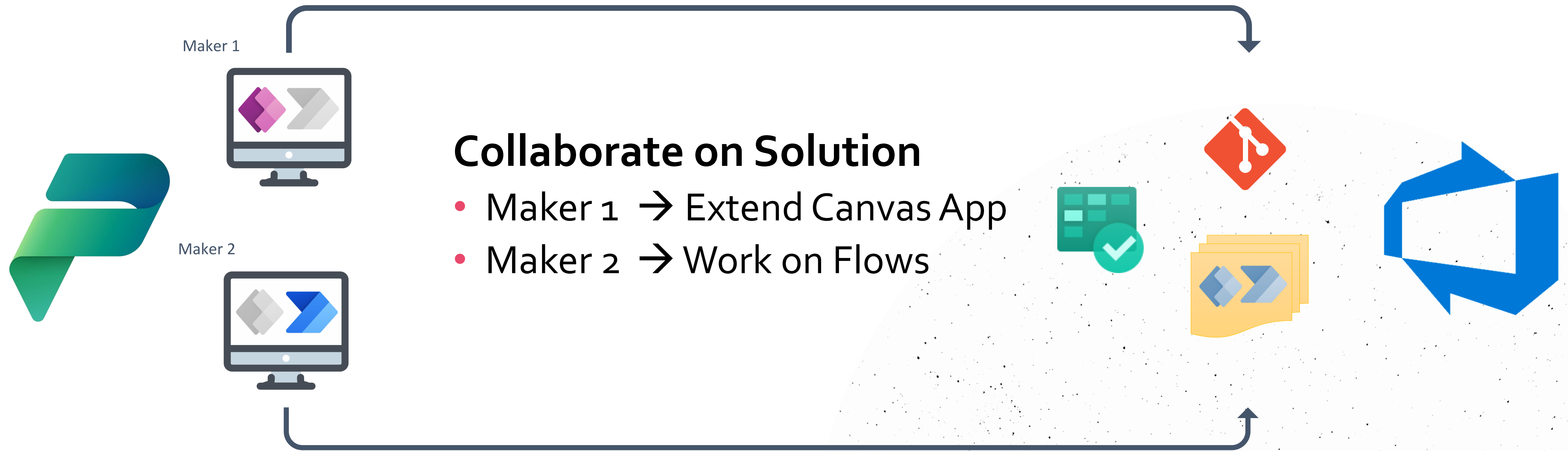
admin@CRM027769.onmicrosoft.com-MyfirstSolution

Collaboration needs...

- **Communication** between developers & stakeholders
- A coordinated process with **validation and review** to merge changes
- **Traceability** of tasks, communications and changes



AA4PP empowered Collaboration



10 YEAR ANNIVERSARY
10 YEAR ANNIVERSARY



2022

mibuso.com

Professional ALM AA4PP Deep Dive

www.bctechdays.com

Professional Development is based on....

- Azure DevOps secure the collaboration and is the **single point of truth** of the Dataverse development process.
- Solution **source code** is stored in an Azure DevOps **git repository**. This makes this repository the origin of development and deployment.

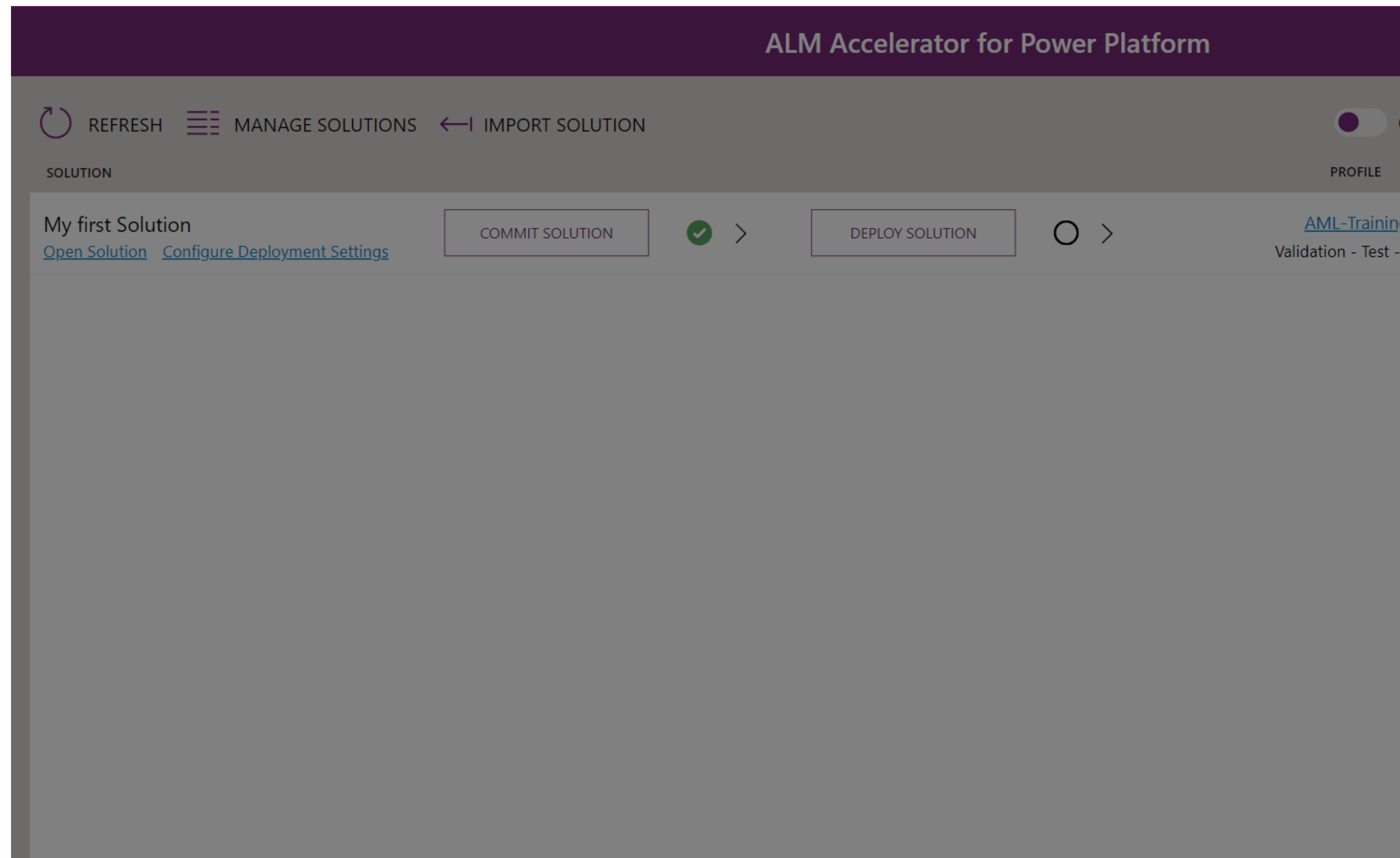


Environments & Branches



Deploy Solution

Demo



DEPLOY SOLUTION

My first Solution

Selected Profile

AML-Training

Title

Enter a title for this deployment of your solution.

Enter Notes

Enter notes about this deployment of your solution (e.g. changes made or work items completed)

☒ **Advanced Settings**

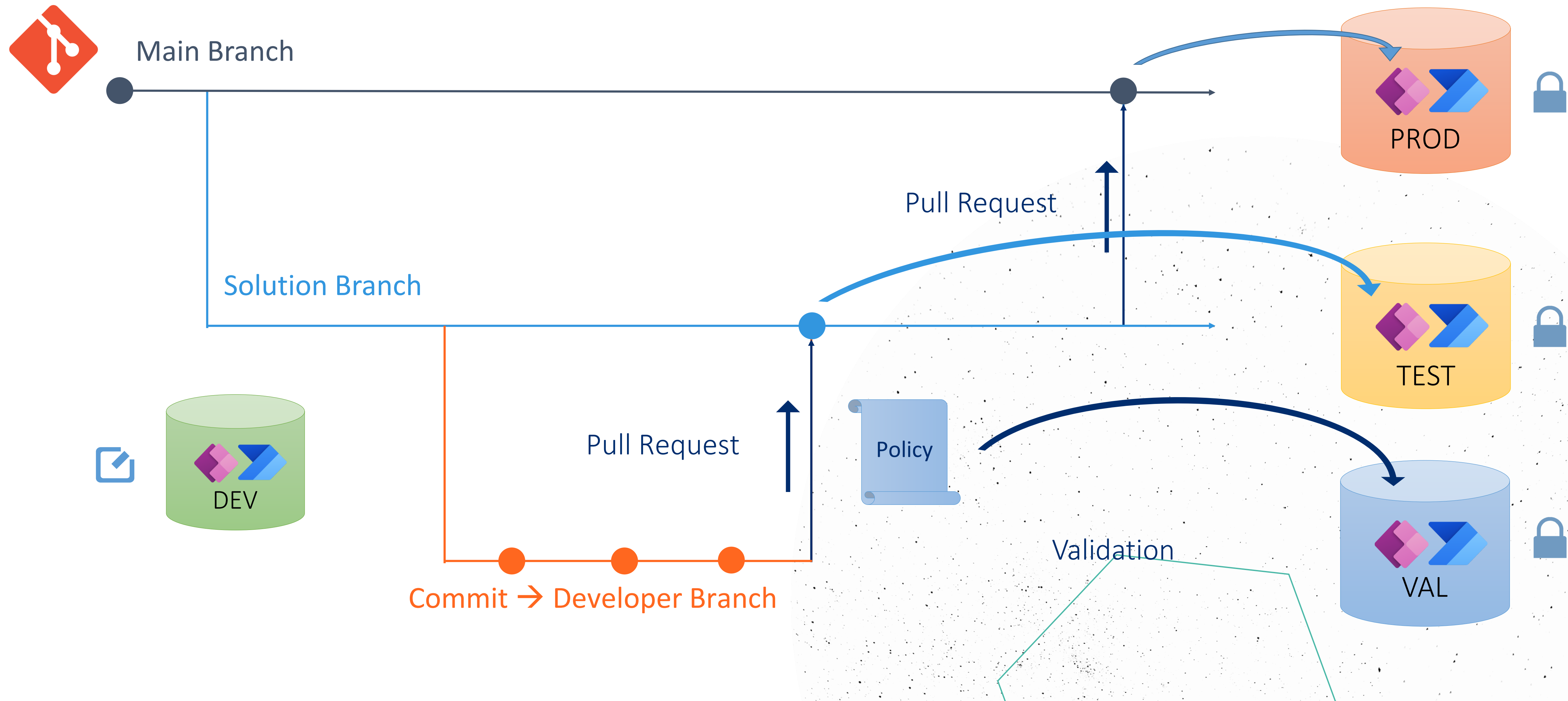
Source Branch

admin@CRM027769.onmicrosoft.com-MyfirstSolution

Target Branch

MyfirstSolution

Deploy Solution: Behind the curtain...

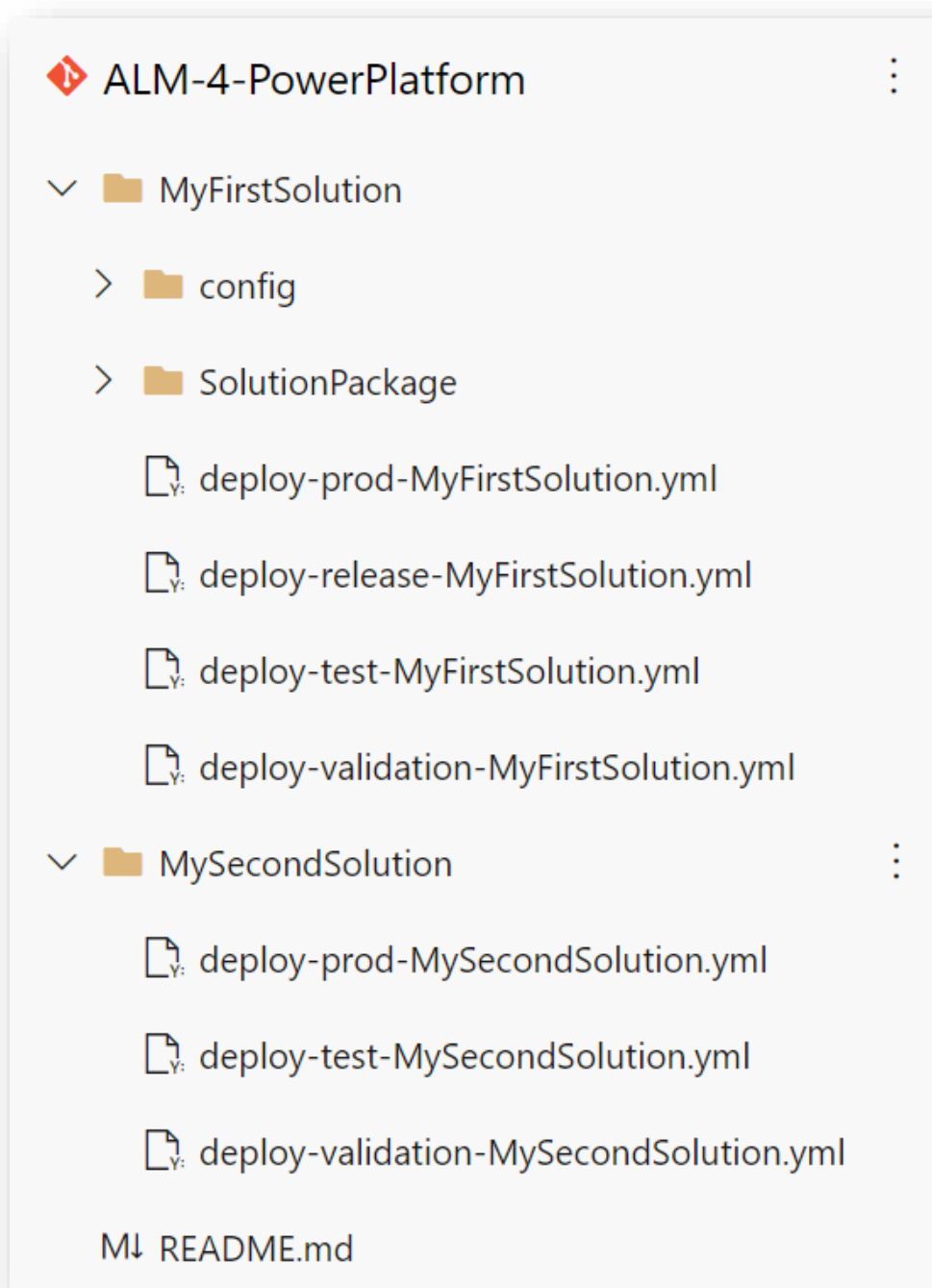


Multiple Solutions in 1 Repository



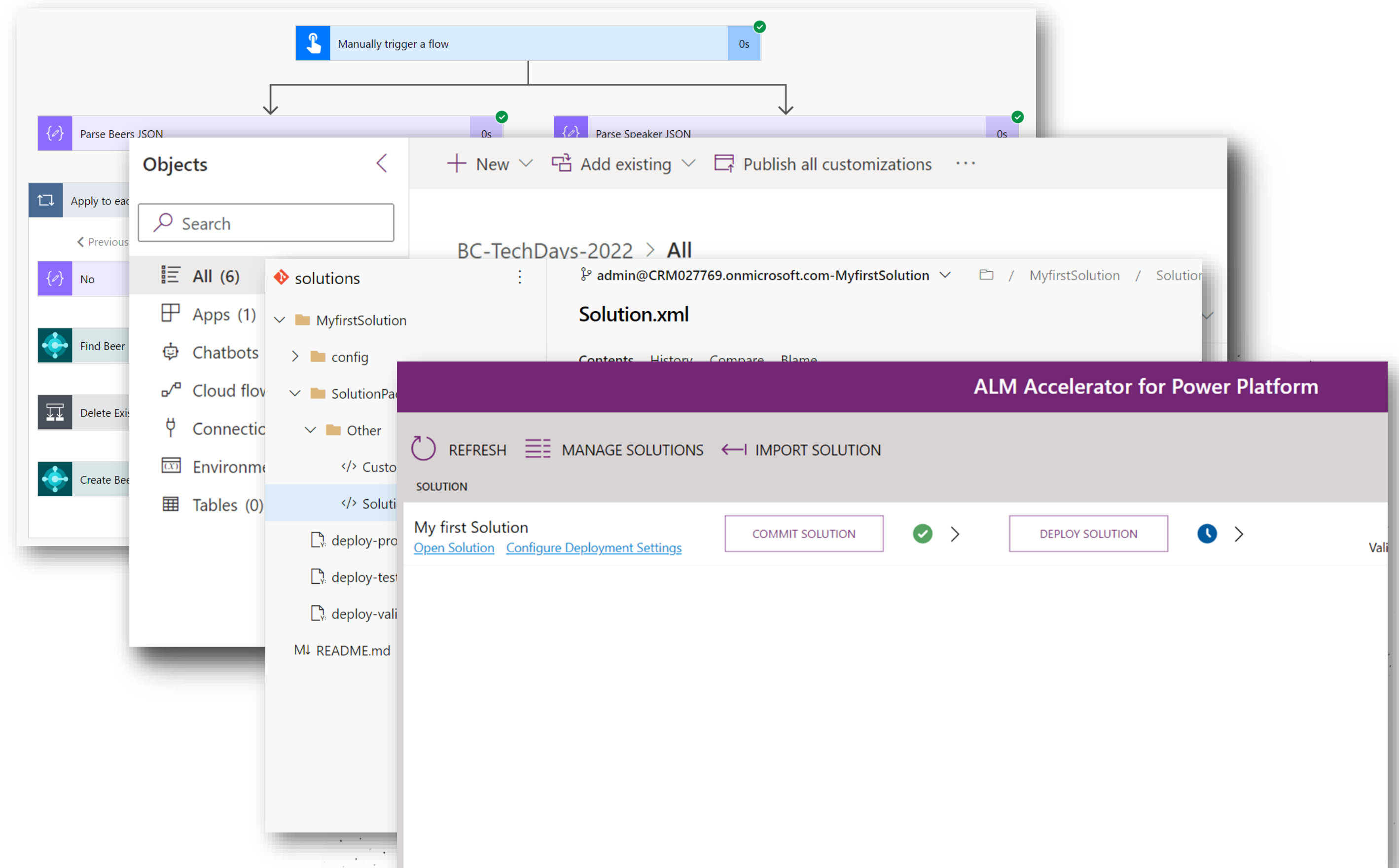
Repository Rules

- Each Solution stored in a **Folder**
- Each Solution starts from **Main Branch**
- Each Solution have a **Solution Branch**
- Solution Pipelines are triggered by **Folder changes**
- Each PR to Solution Branch is validated in **VAL**
- Commit on Folder & Solution Branch trigger import in **TEST**
- Commit on Folder & Main Branch trigger import in **PROD**



ALM Accelerator 4 Power Platform

- Backlog & User Stories **OK**
- Development **OK**
- **AA4PP Commit** **OK**
- **AA4PP Configure** **OK**
- Solution export 🚀
- Source Code stored 🚀
- **AA4PP Deploy** **OK**
- Solution build 🚀
- Solution test 🚀
- Solution import 🚀



ALM Process: 🔄 🔄 🔄

My Beer Tasting Demo

Business Central App:

- Installed & Ready for Test ☐

Business Central Demo Data:

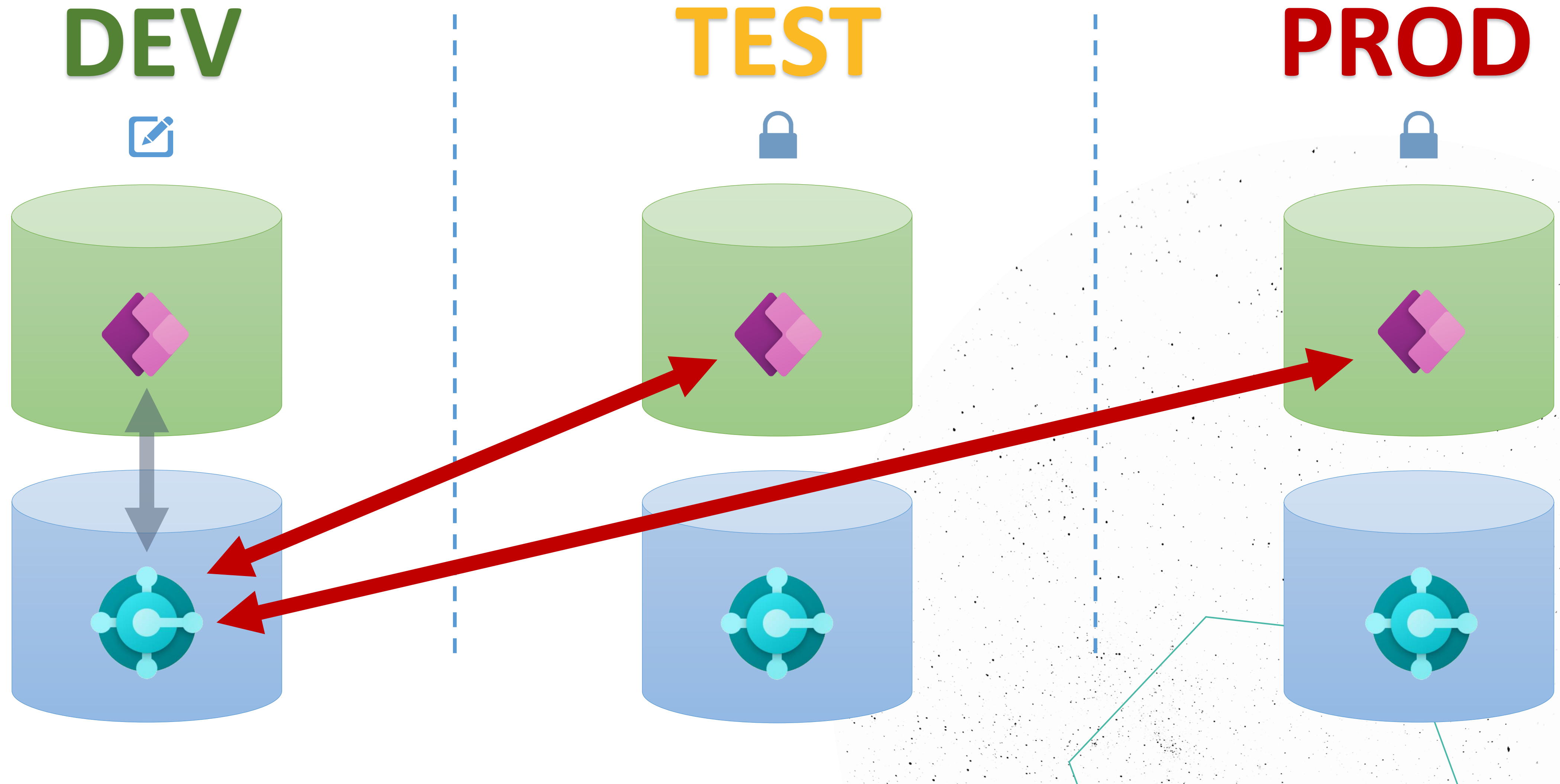
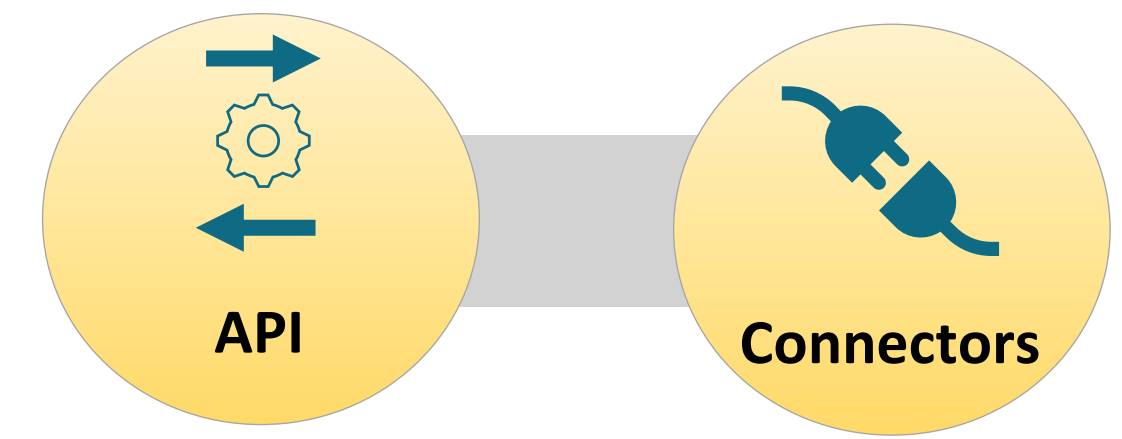
- Beers (Items) added ☐
- Speakers (Contacts) added ☐
- Ready for Test ☐

Beer Tasting Canvas App:

- Development done ☐
- Installed & Ready for Test ☐

Demo

API & Connector



Datasource Environment Variables 4 BC

Dynamics 365 Application Ideas > Dynamics 365 Business Central > General > Datasource environment variables for Business Central in Power Platform

99

Datasource environment variables for Business Central in Power Platform
Michael Megel on 8/20/2022 6:31:19 AM

Planned 2023 Release Wave 1

Data

Search

+ Add data

beerVotings (cosmo/bcTechDays/v1.0)
Dynamics 365 Business Central

beerTastingResults (cosmo/bcTechDays/v1.0)
Dynamics 365 Business Central

beerVotings
(cosmo/bcTechDays/v1.0)

Dataset name
QA,61c93d13-2c0f-ed11-b845-6045bd8e515f

Connection
Dynamics 365 Business Central

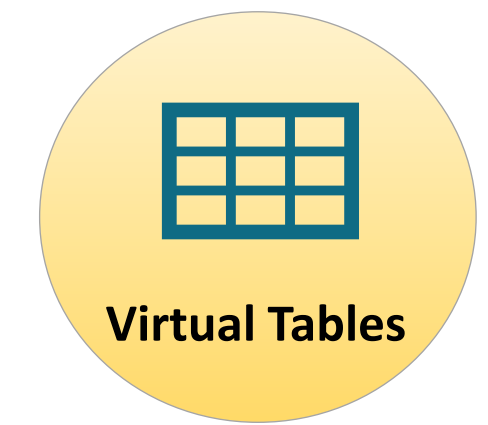
Premium

Connection detail

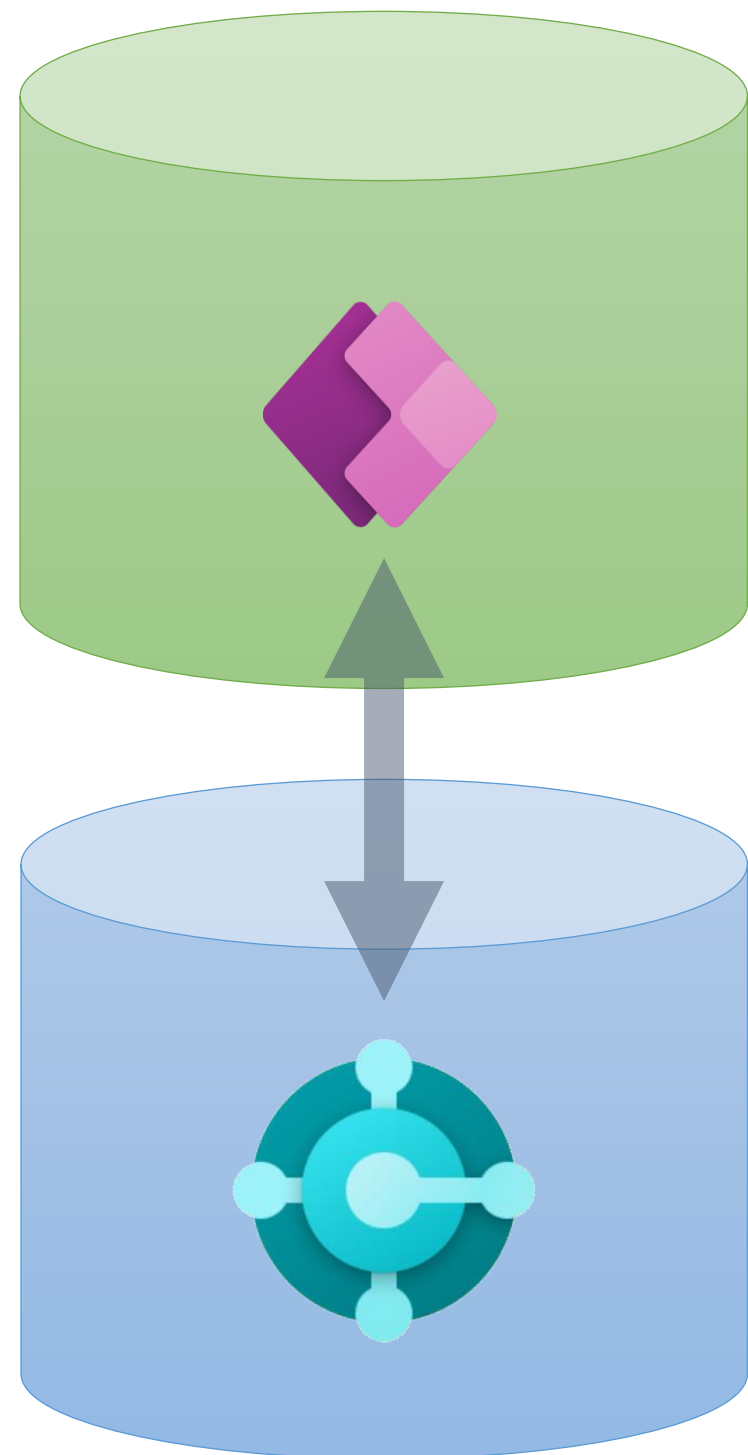


<https://experience.dynamics.com/ideas/idea/?ideaid=3549385d-7723-ed11-b5cf-0003ff45da96>

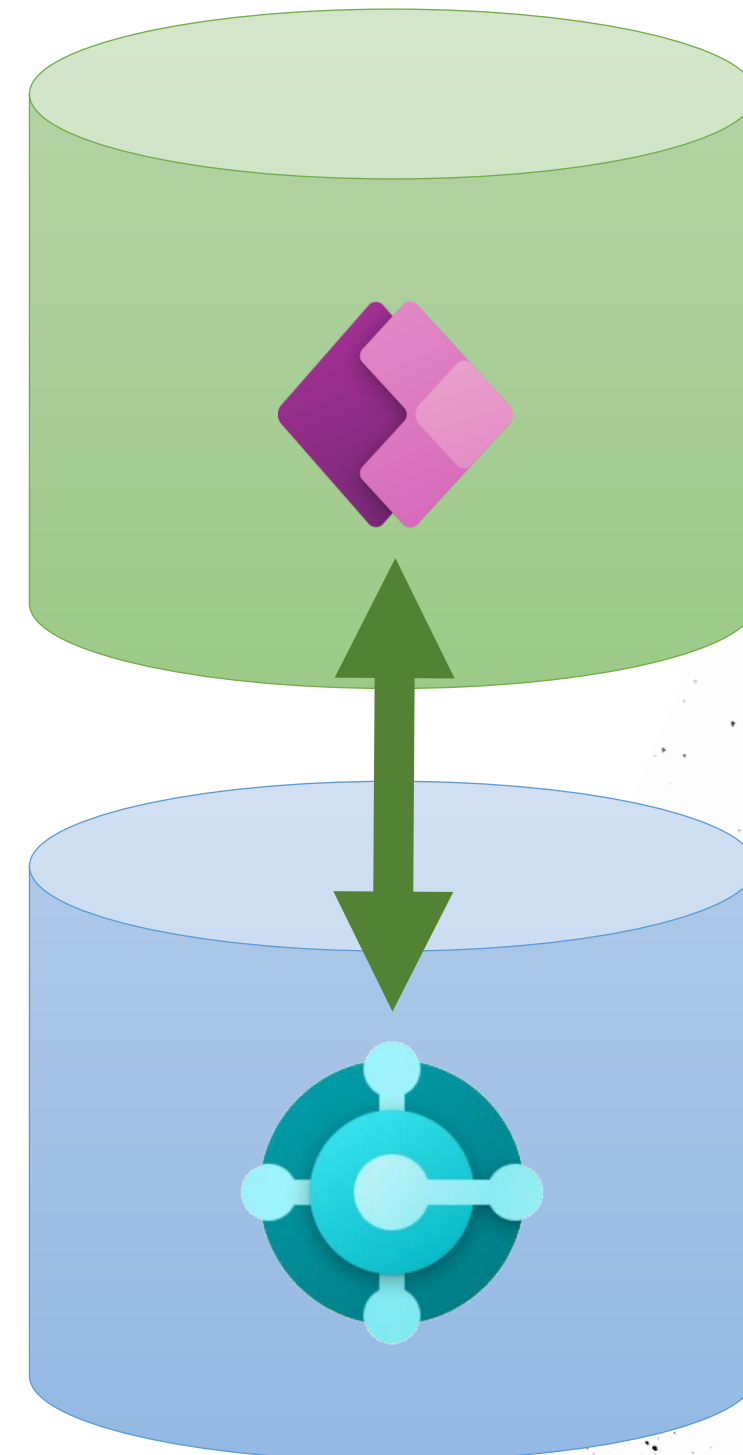
Virtual Tables



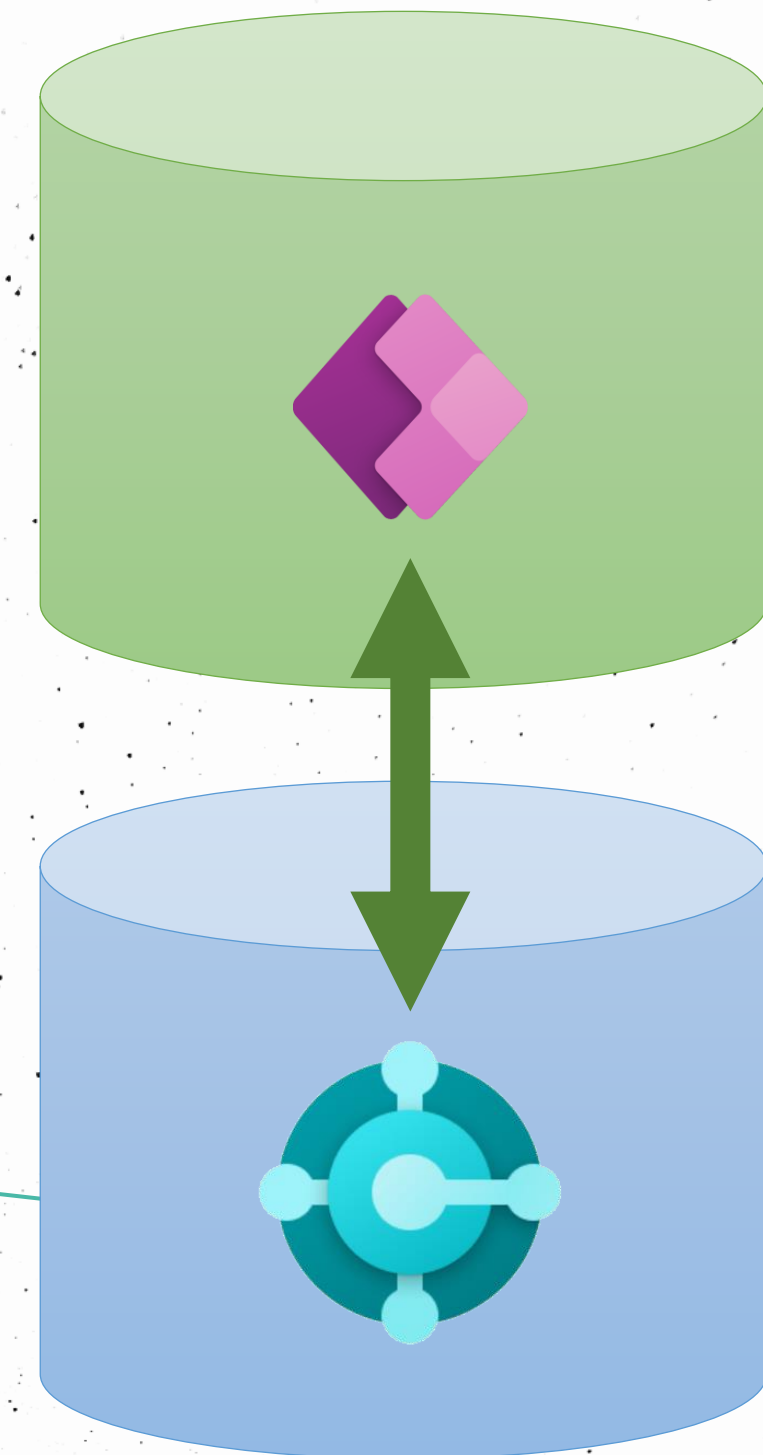
DEV



TEST



PROD



Standard Process

Power Platform

- ALM Environments
- SCM
- Build & Deployment 🚀



PP

ALM Accelerator
for Power Platform

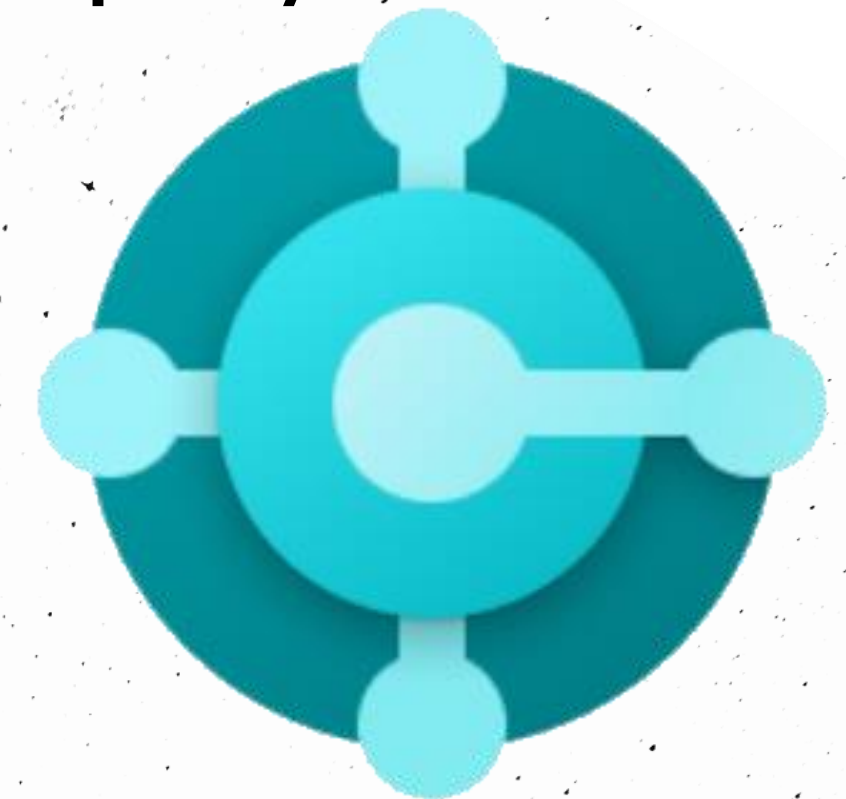
ALM



Business Central

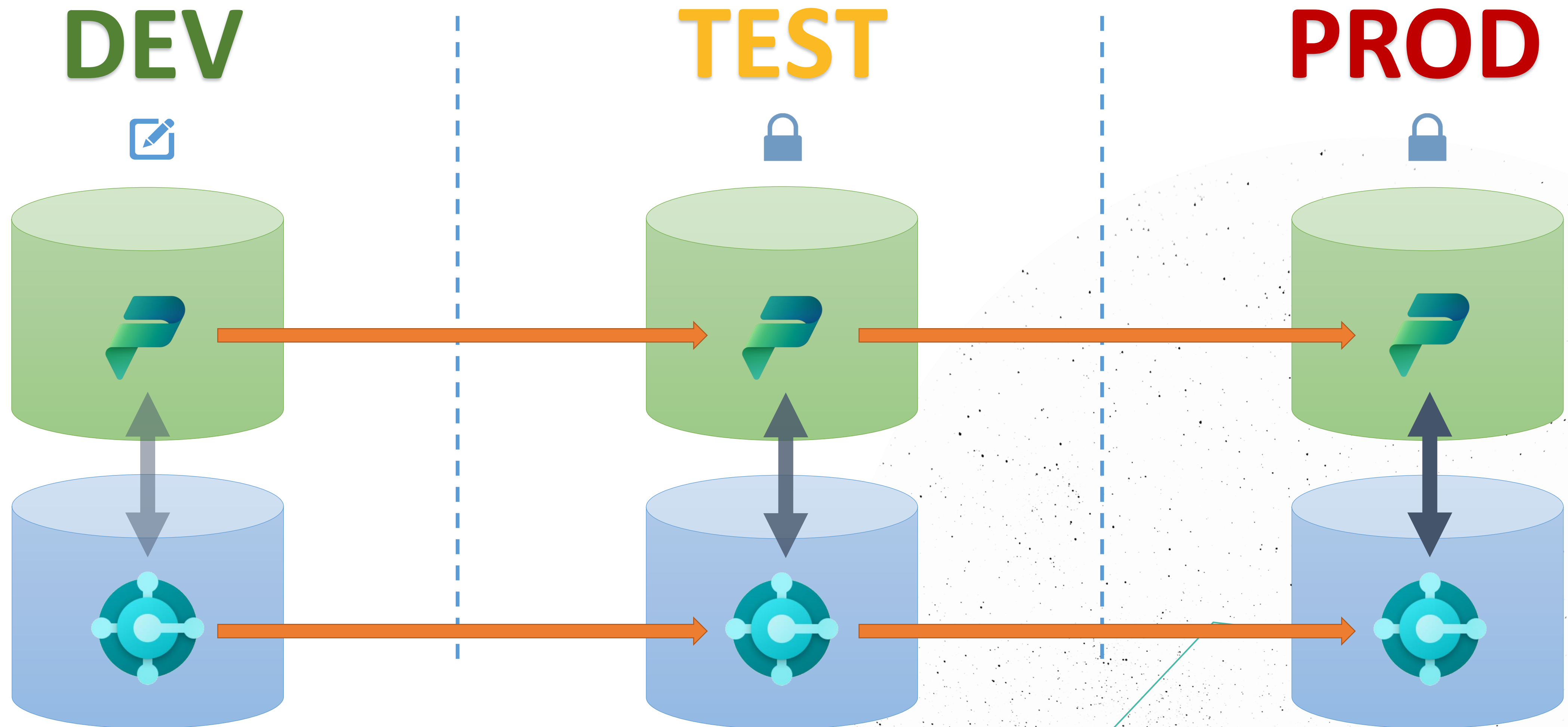
- ALM Environments
- SCM
- Build & Deployment 🚀

BC



Alpaca,
ALOps, AL-Go

Application Lifecycle Management



Thank
You!



Any Questions?



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

twitter <https://twitter.com/MMe2K>

e <https://www.never-stop-learning.de>

IMPORT SOLUTION

Select a Profile

COSMO Telemetry

Solution Source

COSMOTelemetryAPIs

Solution Folder

COSMOTelemetryAPIs

Configuration

COSMOTelemetryAPIs Import History

COMMIT SOLUTION

COSMO Telemetry

Selected Profile

COSMO Telemetry

Enter Notes

Improved Performance

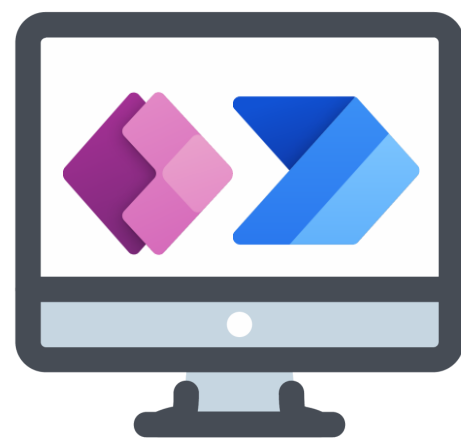
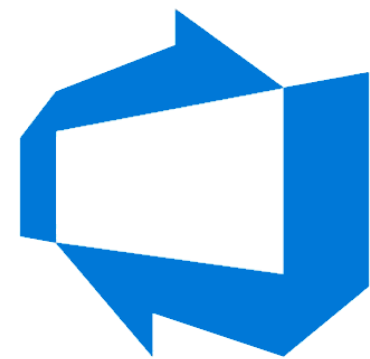
☒ Show Advanced

☐ Create New Branch

Branch

cosmo_Telemetry4BusinessCentral

Prepare Solutions for Deployment



Configure Environments

- Connection References
- App Owners
- Flow Owners
- Environment Variables

