



INTEGRATION STRATEGIES D365 FINANCE OPERATIONS


Faisal Fareed

MY BACKGROUND

Faisal Fareed

D365 Finance & SCM Technical Solution Architect



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

 [@ffareed](https://twitter.com/ffareed)

 <http://daxture.blogspot.com/>

 <https://www.youtube.com/c/DaxtureD365FO>

Has worked in AX/D365FO for over 12 years, specifically around Development, Architecture, Installations, Integrations, reporting, Power Platform



ANZ D365 FinOps Team Leader & Founder



Pakistan - D365 and Power Platform UG Leader



365 Saturday | Power Community Ambassador



AGENDA

- 01 Right Technology for Integration
- 02 MS Ecosystem
- 03 Virtual Entities Vs. Dual-write/Data Integrator
- 04 Overview and Architecture
- 05 Demo
- 06 Implementation considerations
- 07 Make your call

ACRONYMS

Dynamics 365 For Finance & Operations: F&O | D365 F&O | FinOps

Dynamics 365 for Sales / Customer Engagement: CE | Sales | CRM | D365 for Sales

Dataverse: CDS | CDS-A | CDS-T

Data Integrator: DI

Dual Write: DW

Out of the Box: OTB

CHOOSE RIGHT TECHNOLOGY

Attribute	Dual-write	F&SCM Virtual entities	Data Integrator
Scenario	Near real-time	Real-time CRUD	Scheduled recurrence
Method	Synchronous	Not applicable	Asynchronous
Direction	Bi-directional	Not applicable	Uni-directional
Data	Data is duplicated	Data remains in source	Data is duplicated
Logic	Auto business logic execution	Auto business logic execution Can call Odata actions	Auto business logic execution
Offline scenario	Catch-up capability	Not applicable	Supports

THE DIGITAL FEEDBACK LOOP

Microsoft Dynamics 365

Marketing

Sales

Commerce

Service

Operations

Finance

Talent

Power platform

Power BI

PowerApps

Microsoft Flow

Engage customers



Optimize operations



Empower employees



Transform products



Data + intelligence

Office 365

LinkedIn

Developer Tools

Azure IoT

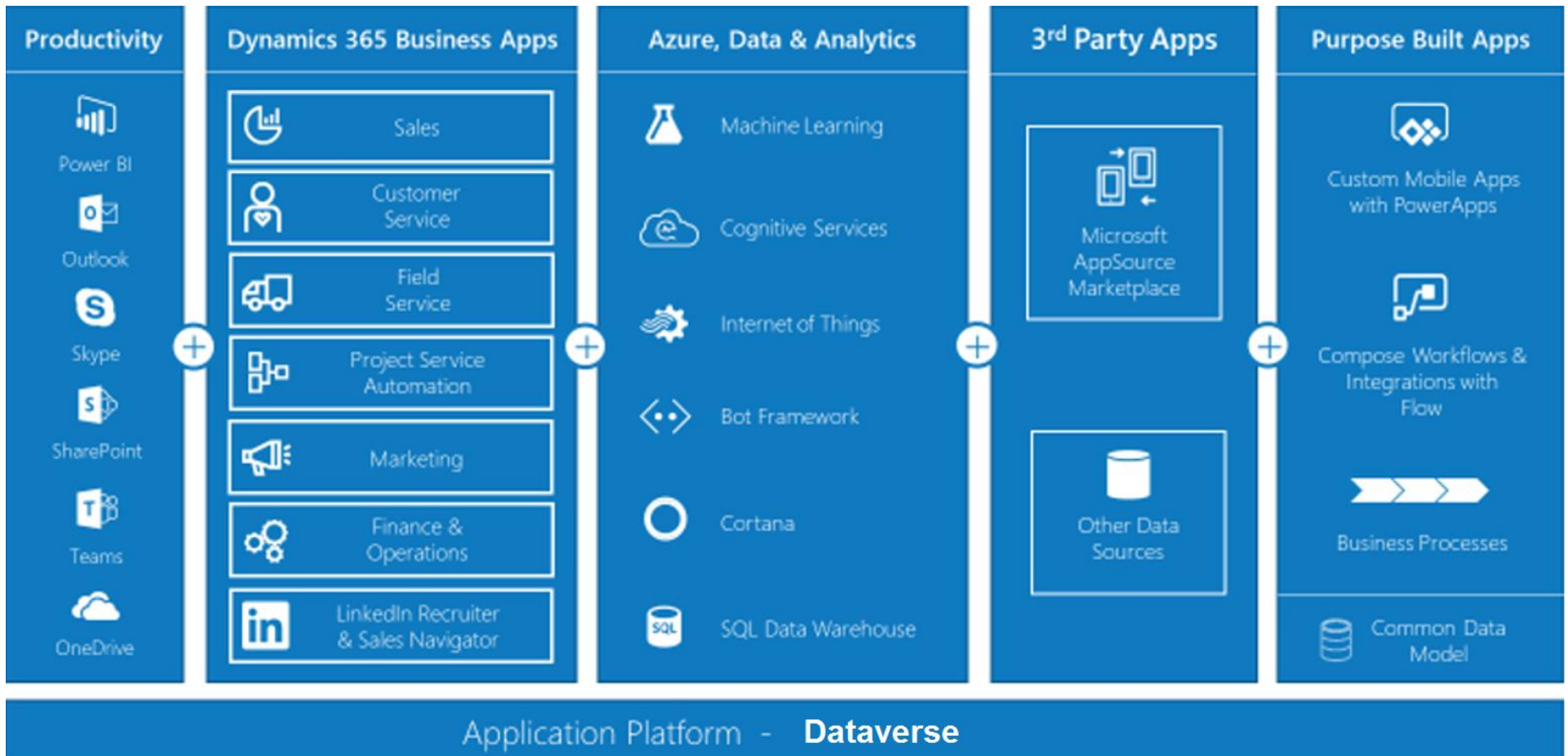
Microsoft HoloLens

Bing

Azure

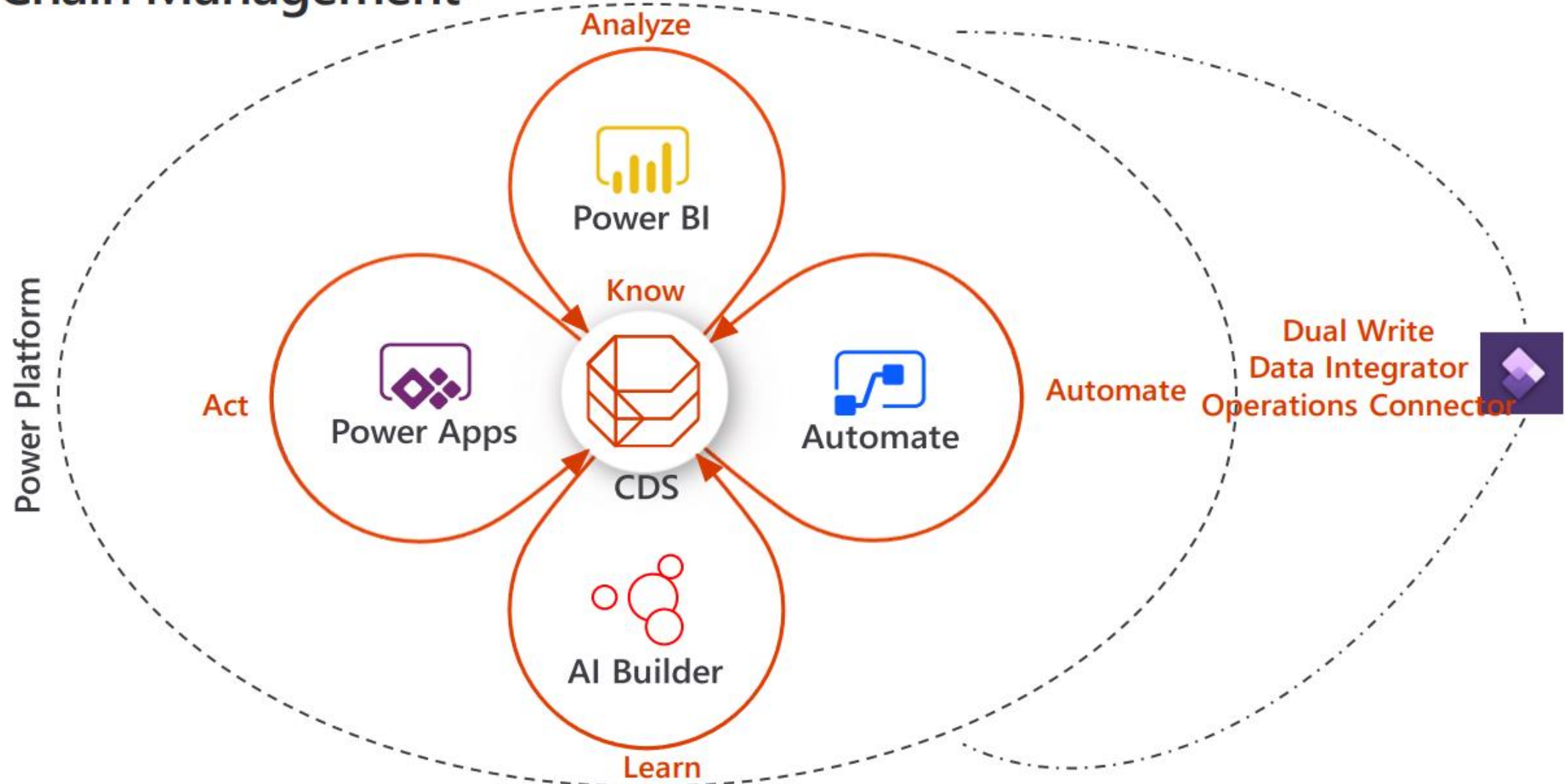
Adobe

MICROSOFT ECOSYSTEM

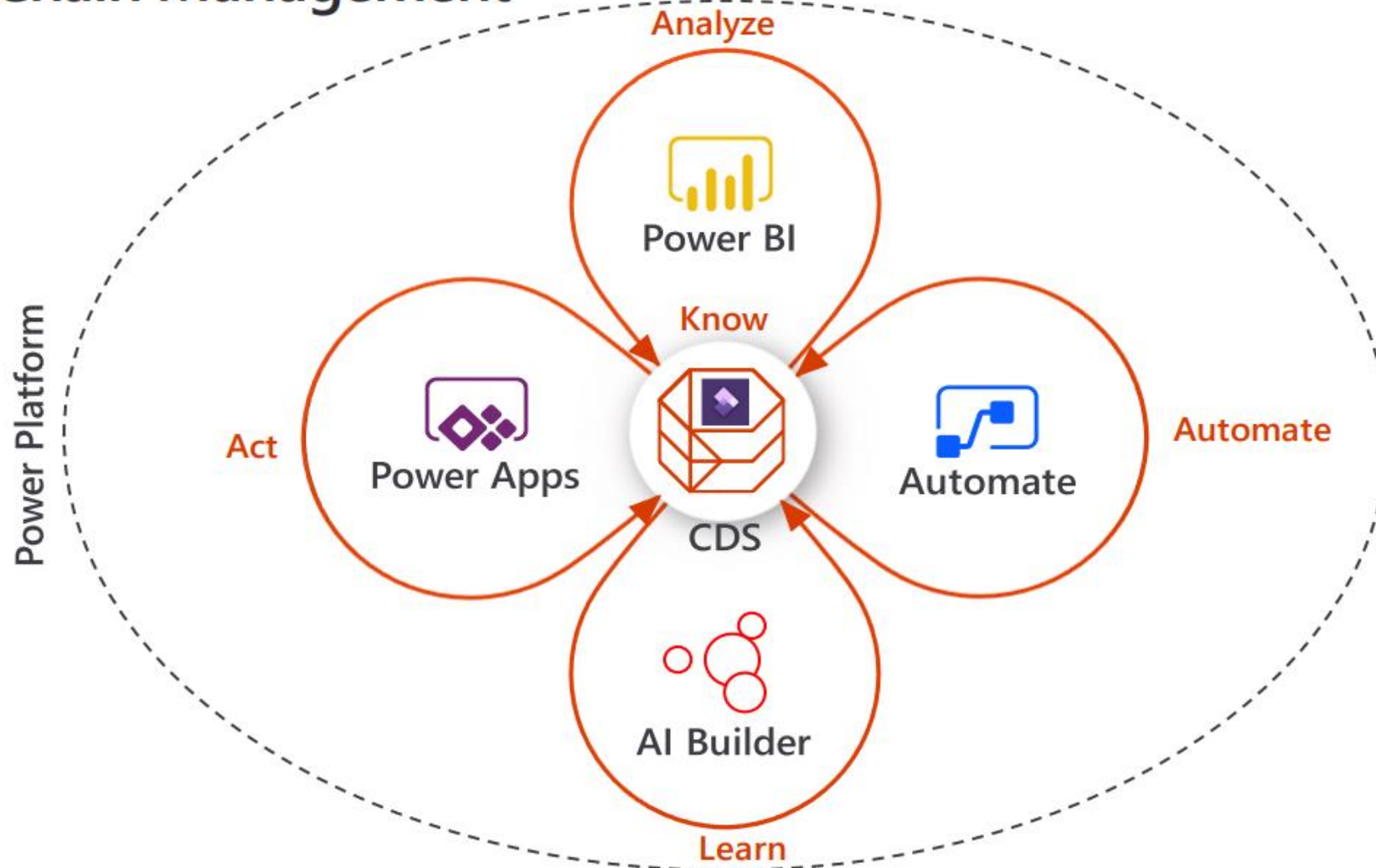


Microsoft's Ecosystem comprises of 5 distinct pillars within the Microsoft stack

Context – Previous state - Power Platform & Finance and Supply Chain Management



Current state – Microsoft Power Platform with Finance and Supply Chain Management



Client	Connectors	Common Data Service
Power Apps (Canvas)	Yes	Yes
Power Apps (Model)	No	Yes
Power Portals	No	Yes
Power Automate	Yes	Yes
AI Builder	No	Yes
PowerBI	Yes	Yes

SUPPORTED VERSION

- ❖ **Finance and Supply Chain Management App:** 10.0.12 or later
- ❖ **Common Data Service:** Service update 189 or later

CDS VIRTUAL ENTITIES FOR F&O APPS

- Finance and Operations available as data source in CDS
- Supports all CRUD operations
- FO data entities natively available in CDS
- No replication – Data remains in FO
- DW continues to address scenarios where data needs to be physically copied between apps

ANOTHER STEP — FO DATA IN POWER PLATFORM

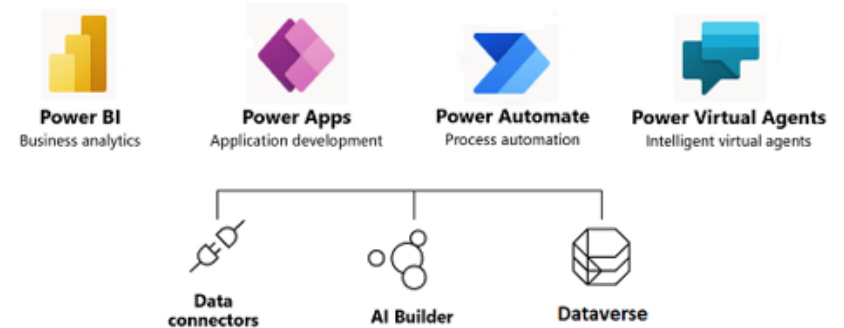


Virtual Entities

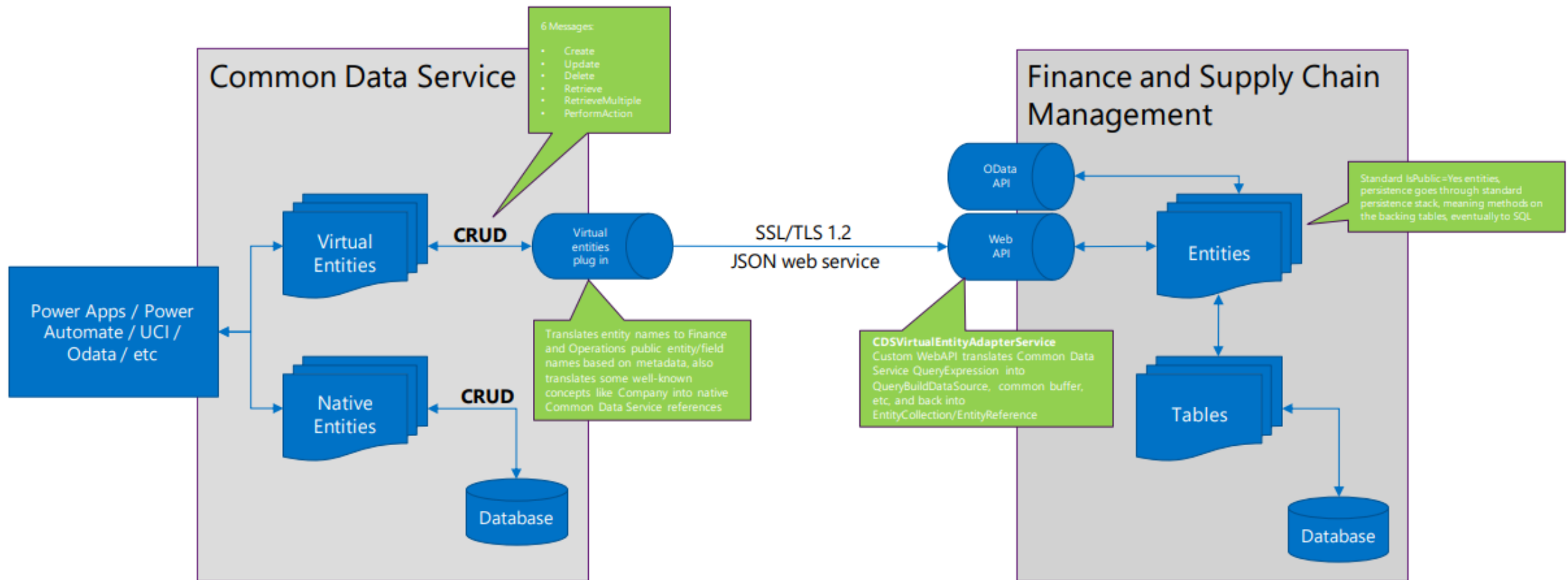
Note: This does not indicate the direction as the direction is not applicable

Microsoft Power Platform

The low-code platform that spans Office 365, Azure, Dynamics 365, and standalone applications



ARCHITECTURE



Virtual Entities

DEMO

Finance and Supply Chain Management Users

Create a Power App to make data entry more simplified

Enhance app experiences with bar code scanning and picture taking on a device

Create various portal experience

CDS Users

Access Finance and Supply Chain Management data with-in CDS

Act on Finance and Supply Chain Management data with-in CDS

For example, View asset maintenance information or fixed asset details etc.



RESOURCES VIRTUAL ENTITIES

Microsoft Power Platform integration with Finance and Operations

<https://docs.microsoft.com/en-us/dynamics365/fin-ops-core/dev-itpro/power-platform/overview>

Entity modelling

<https://docs.microsoft.com/en-us/dynamics365/fin-ops-core/dev-itpro/power-platform/entity-modeling>

Finance and Operations virtual entities FAQ

<https://docs.microsoft.com/en-us/dynamics365/fin-ops-core/dev-itpro/power-platform/faq>

Virtual Entity Solution on AppSource

https://appsource.microsoft.com/en-us/product/dynamics-365/mscrm.finance_and_operations_virtual_entity

VIRTUAL ENTITIES vs. DUAL-WRITE

Attribute	Dual-write	F&SCM Virtual entities	Data Integrator
Scenario	Near real-time	Real-time CRUD	Scheduled recurrence
Method	Synchronous	Not applicable	Asynchronous
Direction	Bi-directional	Not applicable	Uni-directional
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 Virtual entities and Dual-write/Data Integrator are complementary technologies

DATA INTEGRATOR

Admin Experience, point-to-point integration service used to integrate data into Common Data Service



Connections

Manually define
connections



Connection sets

Manually create
connection sets for
connections



Templates

OOTB templates with
integration mappings b/w
FO and CE



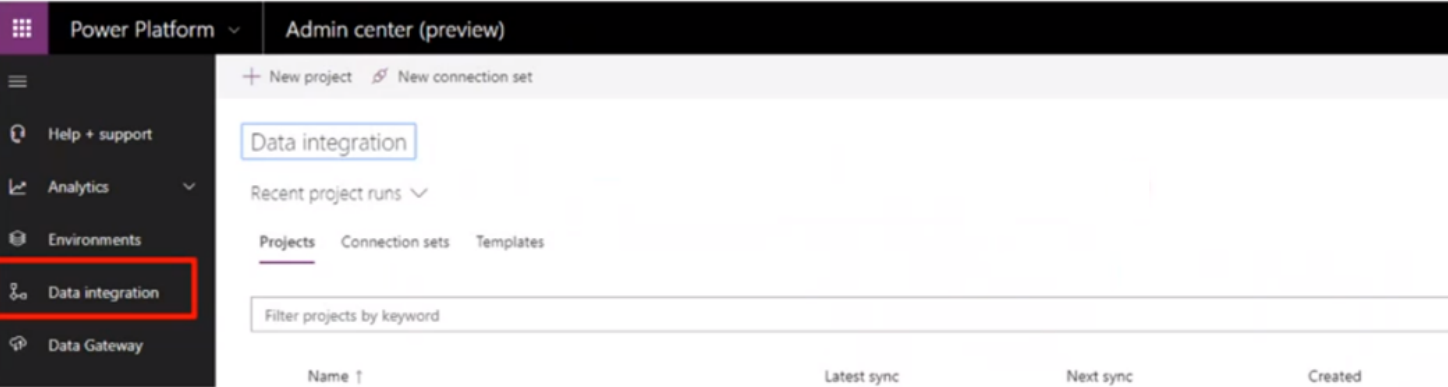
Projects

Manually create projects
(templates can be reused)

19

Data Integrations Projects (Required from CE to FO)

New Project (step 1/4)



New Project (step 2/4)

New project

Data integration project enables the flow of data between applications. A project contains mappings for one or more entities.

Project name: *

My 1st customer project

Connection set *

D365

Template *

Choose template

New Project (step 4/4)

New project

Data integration project enables the flow of data between applications. A project contains mappings for one or more entities.

Project name: *

My 1st customer project

Connection set *

D365

Template *

Accounts (Sales to Fin and Ops) - Direct

Microsoft 09/22/2017 2.0.0.0

Organizations *

USMF - cm591473

Privacy notice and consent

This data integration feature allows your organization to share its data with the external systems you designate. By creating a data integration project and clicking "Create", you consent to share the selected datasets with external systems that may be outside of the region in which your organization's data is located.

Create Cancel

New Project (step 3/4)

Choose template

customers

Name	Description	Author	Created date ↑	Version
Accounts (Sales to Fin and Ops) - Direct	Sales 'Accounts' to Finance and Operations 'Customers'.	Microsoft	09/22/2017	2.0.0.0
Contacts to Customers (Sales to Fin and Ops) - Direct	Sales 'Contacts' to Finance and Operations 'Customers V2'	Microsoft	03/12/2018	2.0.0.1
DW Customer V3	Test template for CDS Account type Customer to FO Customers V3.	Microsoft	10/30/2018	1.0.0.0



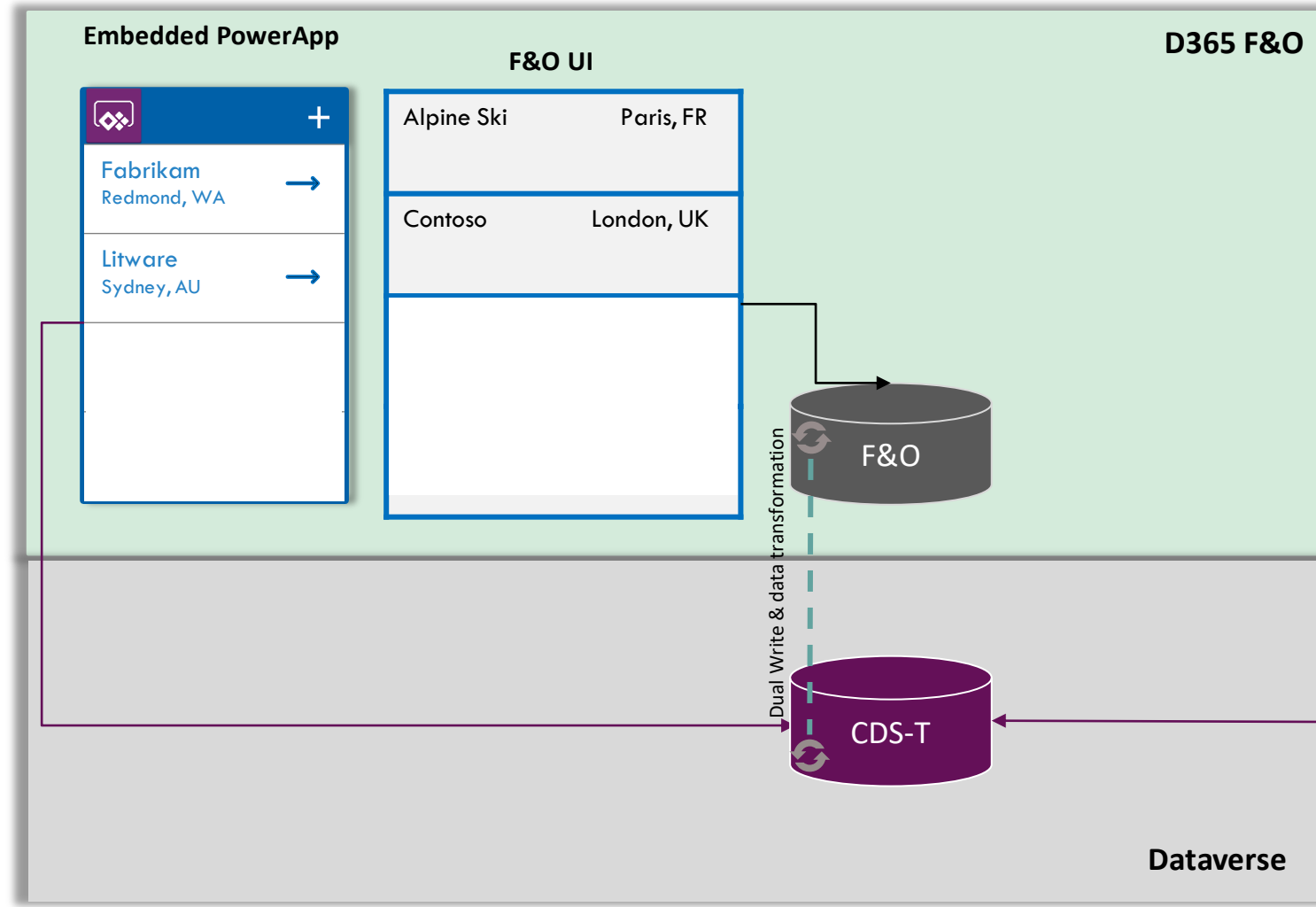
Near real time



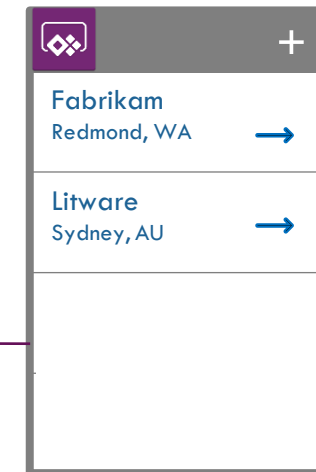
Bi-directional



Master, reference data, and Business Documents

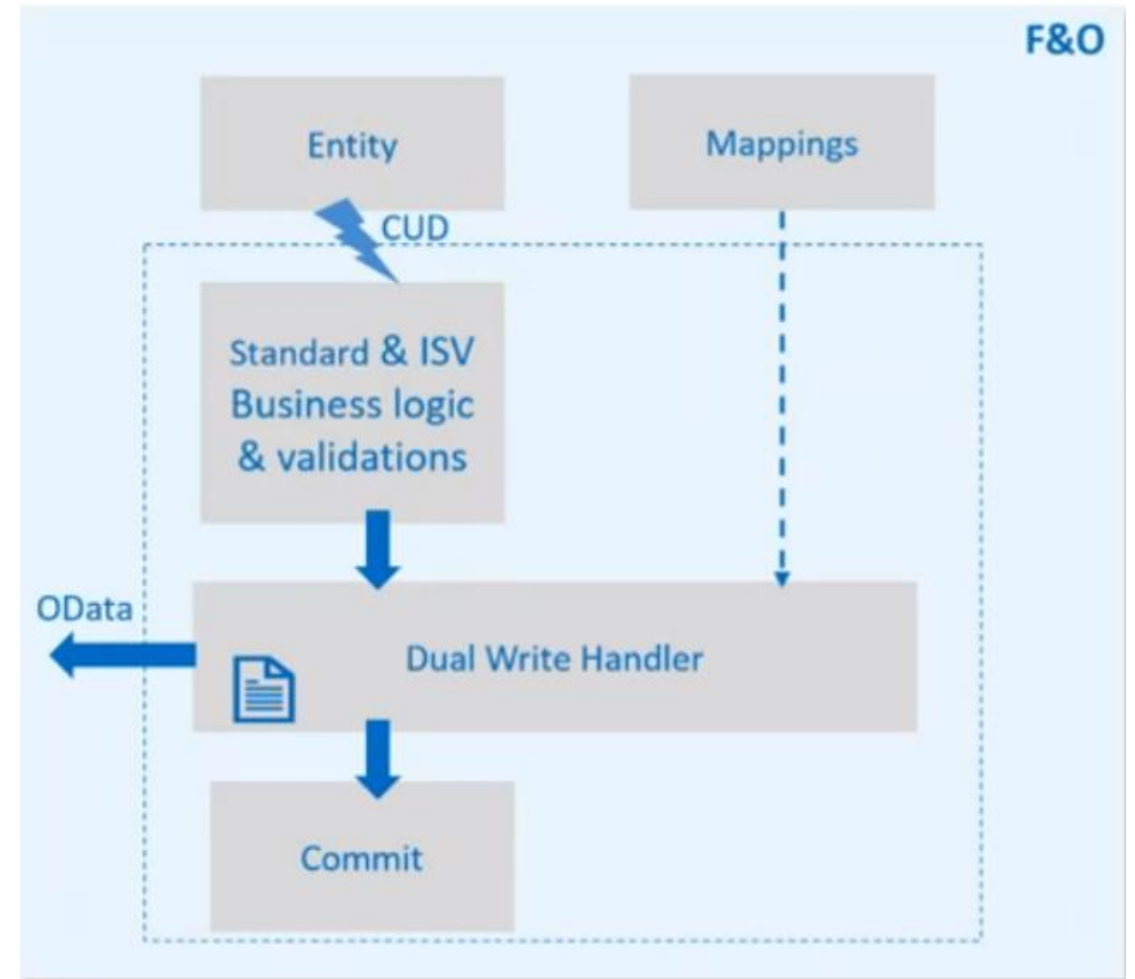
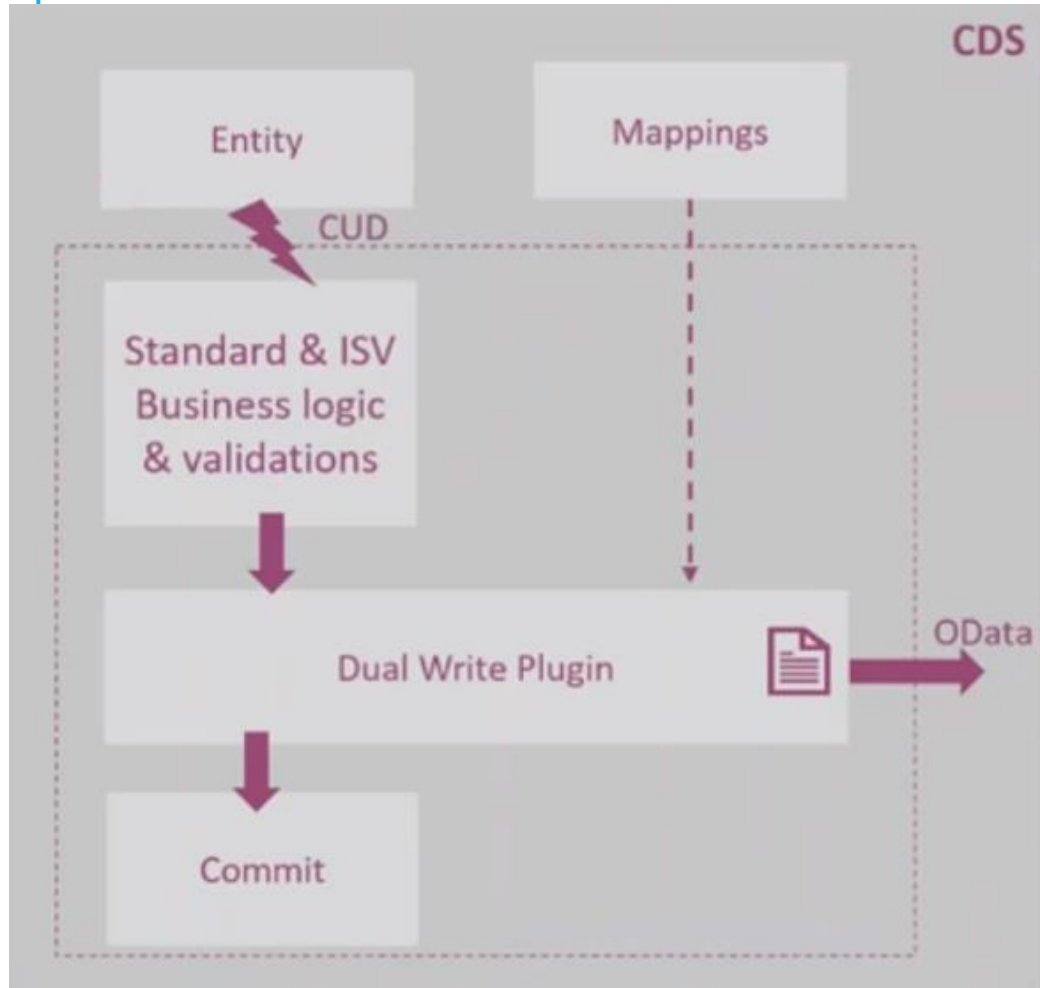


F&O data natively available in Dataverse



PowerApp on Dataverse

DUAL WRITE: ARCHITECTURE



SYSTEM REQUIREMENTS



- **Dynamics 365 Finance and Operations**

- ✓ Application version 10.0.9 (10.0.383.20013)
- ✓ Platform update 33



- **Dynamics 365**

- ✓ Model-driven applications, platform version 9.1.0000.11732 or later

SETUP INSTRUCTIONS

A Step-by-Step guide by Microsoft can be followed from [here](#)



Setting Client ID in F&O AAD-Configuration



Providing App Consent




Installing Dual Write solutions in CE


The screenshot shows the Microsoft Dynamics 365 Admin Center interface. On the left is a navigation pane with the following items: Environments, Analytics, Resources, Capacity, Dynamics 365 apps (highlighted), Portals, Help + support, Data integration, Data gateways (preview), Data policies, and Admin centers. The main content area has a purple header bar that says "To manage Power Apps and Power Automate resources, select an environment." Below this, the section is titled "Dynamics 365 apps" with a link "See which apps are available to install and configure in your org (tenant). Learn more". A table lists available apps:


Name ↑		Status	Publisher
Dual-write application orchestration solution	...	Enabled	Microsoft Dynamics 365
Dual-write core solution	...	Enabled	Microsoft Dynamics 365


Data management


Import / Export



Import



Export



Data task automation



Dual-write



Templates



Configure data source



Job history cleanup



Configure entity export to database


Data entities


Framework parameters


Staging cleanup


Set up roles for data projects


Copy into legal entity

Data projects

All projects



Filter

[Run project](#) [Load project](#) [Delete](#) [Download](#)

<input type="radio"/> Data project name	Project type	Project category
<input checked="" type="radio"/> Card	Import	Project
Credit card	Import	Project
CreditCard	Export	Project
VIDA_REC	Import	Project
APIInvoiceAutomationAttach	Export	Project
ImpTest	Import	Project
VendorInvoice	Export	Project
Units	Export	Project
Sales multi line discount agree...	Export	Project
SalesOpenSalesMultiLineDiscou...	Export	Project
DWM-6eb9ddc7-3aea-42ea-ba...	Export	CDS
CDS released distinct products	Export	Project
Project work breakdown structu...	Export	Project
Integration entity for project	Export	Project
Integration entity for project task	Export	Project
Integration entity for project co...	Export	Project
Integration entity for project act...	Export	Project



Refresh

All  Search 

Dual-write



You don't have any environments enabled for dual-write.

Before you can use dual-write, link the Finance and Operations apps environment to a Common Data Service environment. [Learn more](#)

[New link to environment](#)

×

- Summary



Filter by keyword

Environment ↑	Unique name
DW R&D (orgb2a9609a)	org9d8a89ef
(orgf1edcdeb120072023001460)	org66b23bc
orgf1edcdeb120072023001460_20200408131 (orgf1edcdeb120072023001460)	org66b23bc
RSL - programmed	org68807db
RSL - 2nd programmed draft	org68807db
RSL - Video App (programmed-videoapp)	org68807db
RSL - Video App Test (programmed-videoapp-tst)	org68807db
RSL-Q1 (programmed-q1)	org17dcab
RSL-Q1 - programmed - test	org17dcab
RSL-R4 DEV (programmed-r4-dev)	org12bae00
RSL-R4 DEV-Q1 (programmed-r4-devQ1)	org12bae00
RSL-R4 DM (programmed-r4-dm)	org040b45b
RSL-R4 TEST (programmed-r4-test)	orgb54cf00
RSL-R4 TEST-Q1 (programmed-r4-testQ1)	orgb54cf00
RSL-R4 TEST-VideoApp (programmed-r4-test-videoapp)	orgb54cf00
RSL-R4 TRAINING (programmed-r4-training)	orgefd3937
RSL-R4 UAT (programmed-r4-uat)	org61ebdb0
RSL-R4 UAT-VideoApp (programmed-r4-uat-videoapp)	org61ebdb0
RSL-TEST (programmed-test)	org689e7939
RSL-TEST-2nd programmed draft	org689e7939

Cancel

Setup link to Common Data Service

✓ Choose environment
DW R&D (orgb2a9609a)

● **Select legal entities**
dat

○ Health check

○ Summary



Select one or more Legal Entities

DAT

✓ Legal entity ↑

✓ dat

Back

Next

Cancel

Setup link to Common Data Service



✓ Choose environment
DW R&D (orgb2a9609a)

✓ Select legal entities
dat

● **Health check**
10/10 checks passed

○ Summary

Running checks to make sure your system meets the requirements to enable dual-write

- App version
The dual-write is supported on Finance and Operations apps environments with Platform Update (PU) 33 or above (App version 10.0.9).
 - ✓ PU 33 or above
- The dual-write core solution
The dual-write core solution contains metadata for your entity maps and must be installed in the environment.
 - ✓ The dual-write core solution (msdyn_DualWriteCore)
- The Common Data Service can connect to Finance and Operations apps
Before you can enable dual-write, you must grant access to the apps to connect to each other.
 - ✓ App user with ID: 33976c19-1db5-4c02-810e-c243db79efde
 - ✓ App user with ID: 2e49aa60-1bd3-43b6-8ab6-03ada3d9f08b
- The Finance and Operations apps can connect to the Common Data Service
Before you can enable dual-write, you must grant access to the apps to connect to each other.
 - ✓ App user with ID: 00000015-0000-0000-c000-000000000000
 - ✓ App user with ID: 2e49aa60-1bd3-43b6-8ab6-03ada3d9f08b
- Apps in tenant
The required dual-write applications need to be installed in the tenant.
 - ✓ App ID: 33976c19-1db5-4c02-810e-c243db79efde
 - ✓ App ID: 2e49aa60-1bd3-43b6-8ab6-03ada3d9f08b
- The dual-write registration and runtime plugins
Plugin need to exist and be enabled
 - ✓ Microsoft.Dynamics.Integrator.DualWriteRegistration.Plugins
 - ✓ Microsoft.Dynamics.Integrator.DualWriteRuntime.Plugins



Back

Next

Cancel

Setup link to Common Data Service



✓ Choose environment
DW R&D (orgb2a9609a)

✓ Select legal entities
dat

✓ Health check
10/10 checks passed

● **Summary**

Selected environments:

it.sandbox.operations.dynamics.com ⇄ DW R&D (orgb2a9609a) (org9d8a89ef)

Selected legal entities:

dat

Validation Results:

✓ 10/10 checks passed

Privacy notice and consent

This data integration feature allows your organization to share its data with the systems you designate. By clicking 'Create', you consent to share the selected datasets with systems that may be outside of the region in which your organization's data is located.

Back

Create

Cancel

Dual-write

Environment: Presales ANZ: Field Service Demo (orga5a07b7b) (AB...

Entity map	Status	Version
Asset management asset lifecycle models (msdyn_assetlifecyclemodels)	Not running	1.0.0.0 - MicrosoftDynamics
Asset management asset lifecycle states (msdyn_assetlifecyclestates)	Not running	1.0.0.0 - MicrosoftDynamics
Asset management asset types (msdyn_customerassetcategories)	Not running	1.0.0.0 - MicrosoftDynamics
Asset management assets (msdyn_customerassets)	Not running	1.0.0.0 - MicrosoftDynamics
Asset management functional location lifecycle models (msdyn_functionallocationlifecyclemodels)	Not running	1.0.0.0 - MicrosoftDynamics
Asset management functional location lifecycle states (msdyn_functionallocationlifecyclestates)	Not running	1.0.0.0 - MicrosoftDynamics
Asset management functional location types (msdyn_functionallocationtypes)	Not running	1.0.0.0 - MicrosoftDynamics
Asset management functional locations (msdyn_functionallocations)	Not running	1.0.0.0 - MicrosoftDynamics
Asset management manufacturers (msdyn_manufacturers)	Not running	1.0.0.0 - MicrosoftDynamics
Asset management models (msdyn_models)	Not running	1.0.0.0 - MicrosoftDynamics
Asset management warranty (msdyn_warranties)	Not running	1.0.0.0 - MicrosoftDynamics

Entity mappings

Activity log

Initial sync details

Catch-up errors

Details

Filter executions by keyword

Name	Company	Last update	Submitted	Status	Upserts	Errors
Nothing to display						

Entity mappings

Activity log

Initial sync details

Catch-up errors

Details

Filter by keyword

Key	Error message	Error type	Payload
Nothing to display			

Entity map version

Choose an entity map version

Display name	Description	Version	Publisher
msdyn_customerassetcategories - Asset management asset types	Dual Write template for sync between FO.AssetManagementAssetTypes--CDS.msdyn_customerassetcategories	1.0.0.0	MicrosoftDynamics

Run

Add mapping

Save as

Refresh entities

Dual-write > Asset management asset types (msdyn_custo...

Entity mappings

Activity log

Initial sync details

Catch-up errors

Details

Finance and Operations apps.Asset management asset types Common Data Service.Maintenance Asset Type

Filter mappings by keyword

Field	Map type	Field	Issues	Actions
LIFECYCLEMODELID [LIFECYCLEMODELID]	=	msdyn_lifecyclemodel.msdyn_assetlifecyclemodel_id [Lifecycle Model (Asset Lifecycle Model ID)]		Reset Delete
MAINTENANCEASSETTYPEID [MAINTENANCEASSETTYPEID]	=	msdyn_maintenanceassettypeid [Maintenance Asset Type ID]		
NAME [NAME]	=	msdyn_name [Name]		
CALCULATEKPI TOTAL [CALCULATEKPI TOTAL]	<	msdyn_calculatekpitotal [Calculate KPI Total]		

Entity mappings

Activity log

Initial sync details

Catch-up errors

Details

Entity map details

Name
Asset management asset types (msdyn_customerassetcategories)

Description
Dual Write template for sync between FO.AssetManagementAssetTypes--CDS.msdyn_customerassetcategories

Version
1.0.0.0 - MicrosoftDynamics

Dependencies
Common Data Service
dynamics365AssetManagement: 1.1.0.0

Finance and Operations apps
Product version: 10.0.383.25

05/20/2020 15:27

Update field mappings

05/13/2020 10:51

Run

05/12/2020 13:52

Update field mappings

05/12/2020 13:50

Error

05/20/2020 13:31

Run

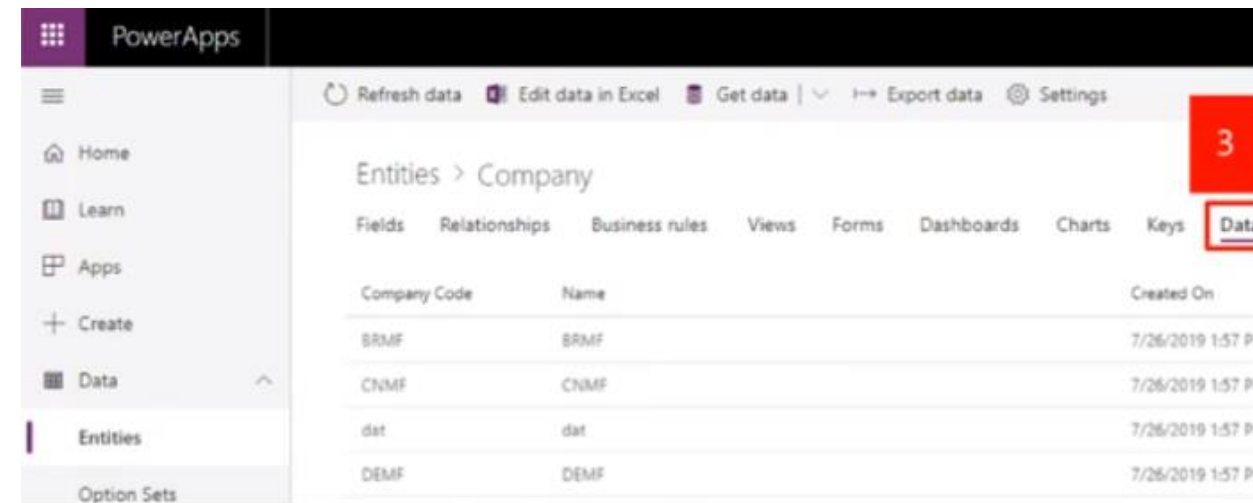
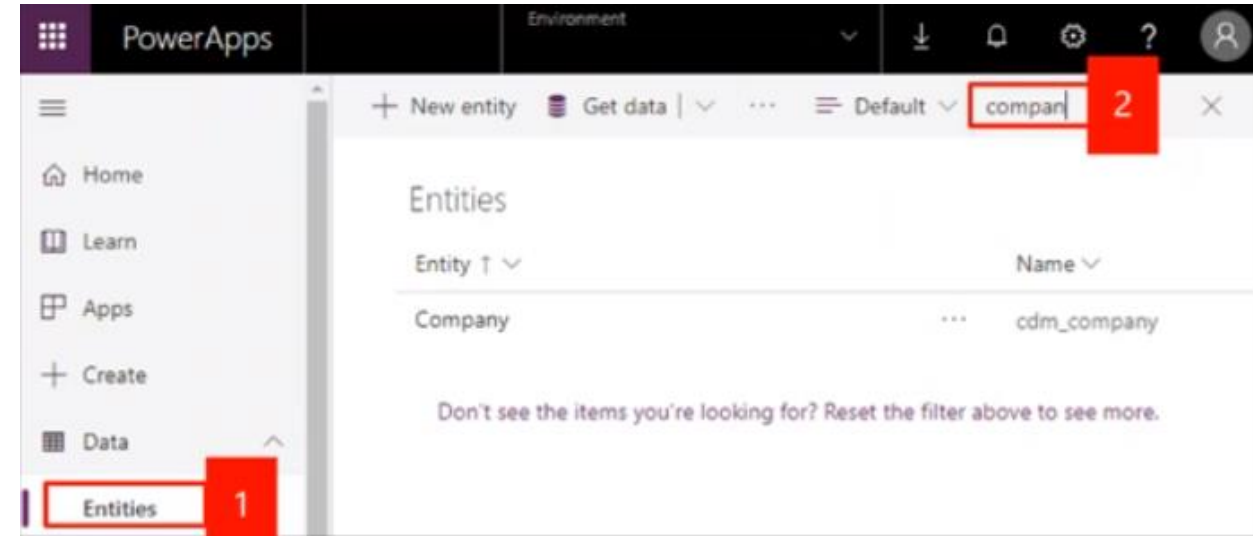
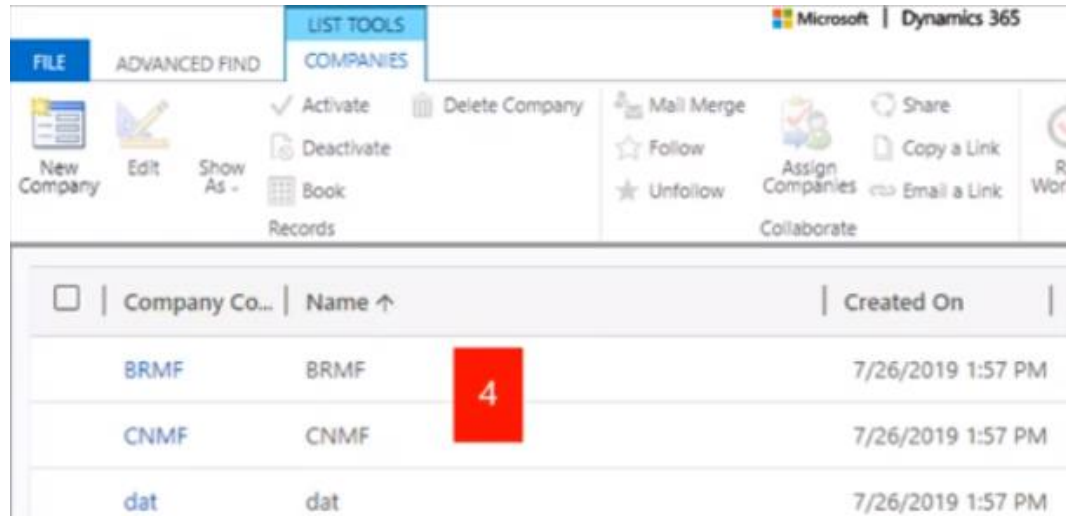
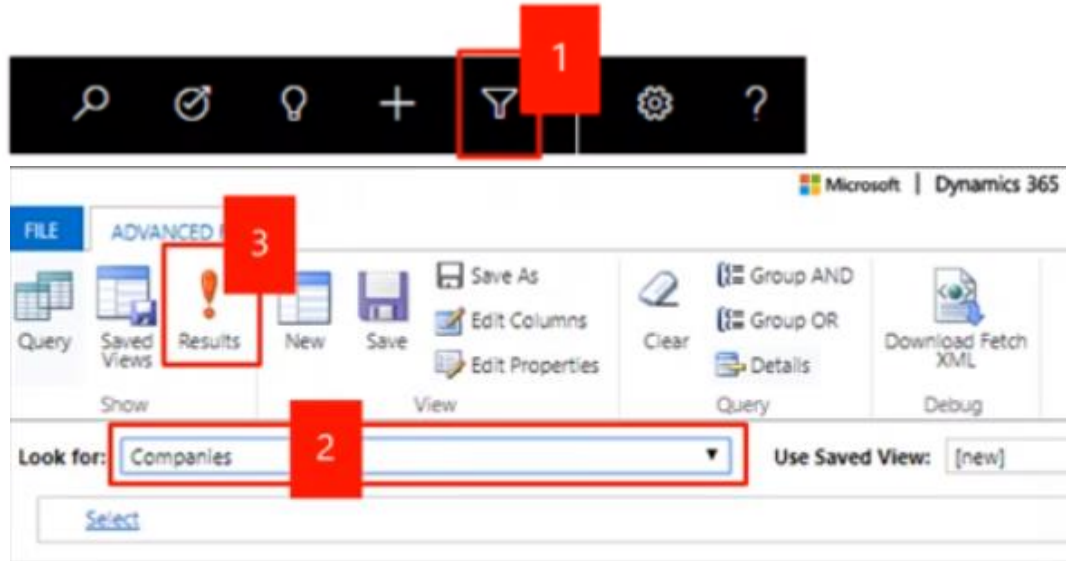
05/12/2020 13:31

Update field mappings

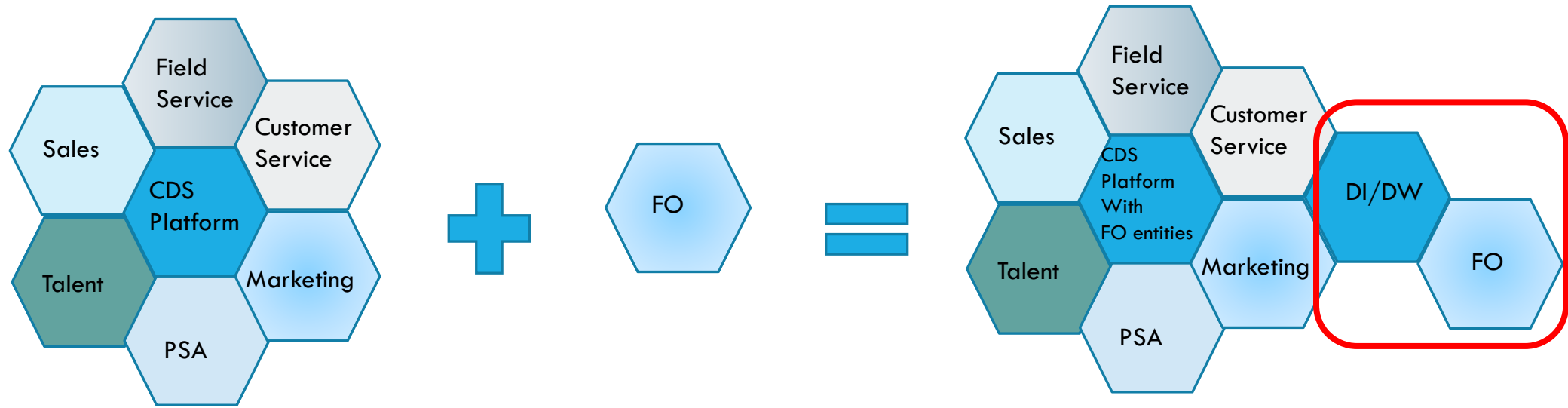


DEMO

F&O REFERENCE DATA IN CE OR DATAVERSE



Unified Experience



IMPLEMENTATION

Considerations

- **Support 1-1 Link FO and CDS**
- **Deploy on same Tenant**
- **Not a data Migration tool**



ITS YOUR CALL...

Virtual entities do not required CRM license on your Dataverse instance

Virtual entities are easy to setup and faster way to get FO data in Dataverse for Portals and a Canvas App

Need FO and Dataverse apps tightly bounded? Data needs to be natively in Dataverse then Dual-write

High volume data needs to be sync between both apps then Data Integrator is your option

Don't need real time data copy? Choose data integrator

RESOURCES VIRTUAL ENTITIES

- Dual-write home page
- Dual-write Questions with Faisal Fareed
- Dual-write implementation with Faisal Fareed (In Progress)
- Application lifecycle management
- Dual write yammer group
- AppSource Packages:
 - <http://aka.ms/dual-write-core>
 - <http://aka.ms/dual-write-app> (if you install package from AppSource or admin center, then Dual-Write Core package is already included 1.0.6) and there is no need to install DW core separately ahead of time).

YOUR FEEDBACK MATTERS...



<https://tinyurl.com/y5rfa4wr>

THANK YOU



Reactor

Abu Dhabi