



Towards a common app platform: What PowerApps makers should know about Dynamics 365

SPUG.fi - 26.8.2018

Jukka Niiranen

Agenda

- XRM + PowerApps = Power Platform
- Model-driven Apps
- Common Data Service (CDS)
- Maker & Admin experience
- One UI
- Ecosystem
- Licensing



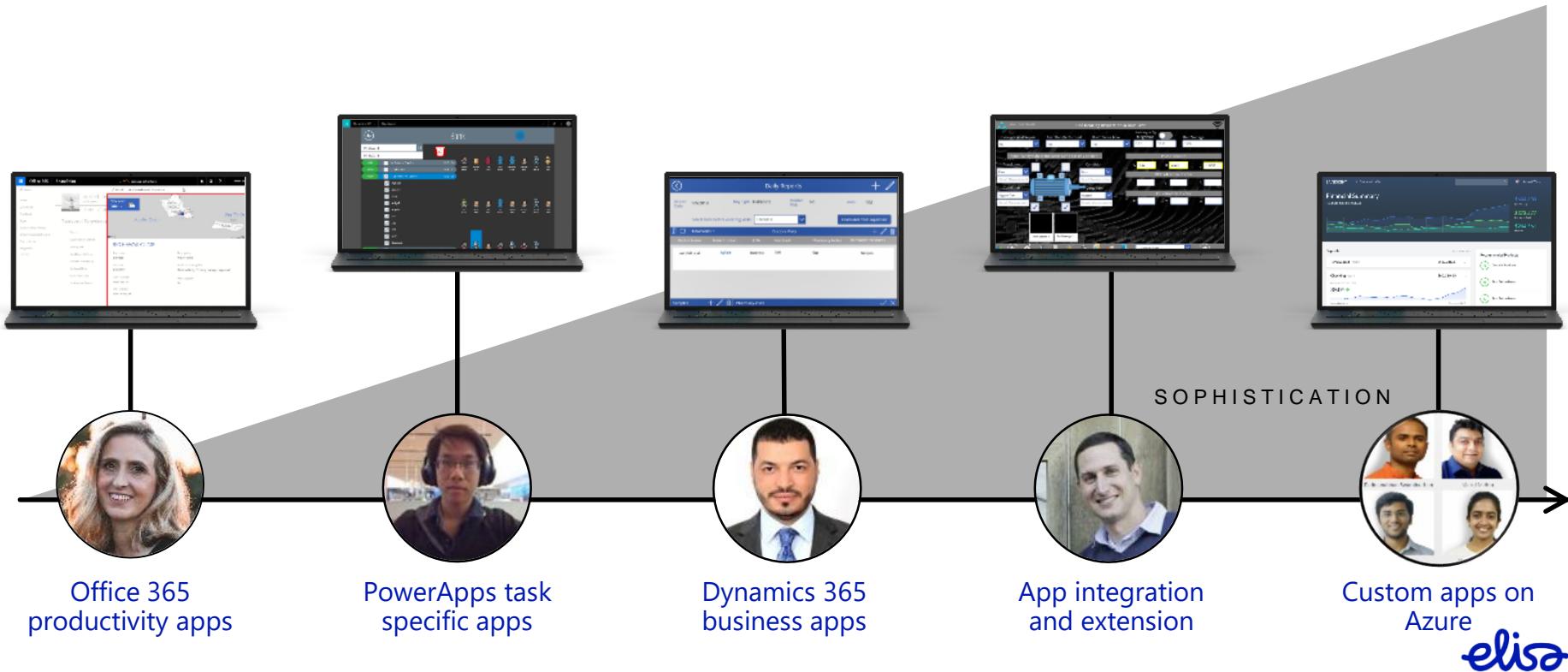
Intro

- Product Lead, Microsoft Business Applications at Elisa
 - Microsoft MVP since 2013
 - Blogging at survivingcrm.com
 - Tweeting at [@jukkan](https://twitter.com/jukkan)
- No-code XRM guy since 2005
 - Started building PowerApps Canvas apps 1 year ago

Which statement
is most accurate?
PowerApps is
for...

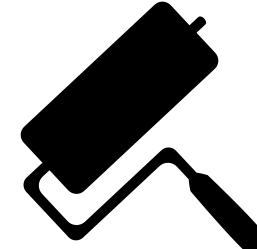
- ✓ A) Power users and citizen developers to step up from Excel sheets
- ✓ B) Organizations to build task specific apps for their mobile workforce
- ✓ C) Enterprise business applications like CRM

App development needs for MS customers





Right tools for the job



Office 365

Tools for information worker productivity

Help individual users to collaborate with one another

Power Platform

Tools for connecting data & applications

Empower citizen developers to solve problems no one has solved for them

Dynamics 365

Tools for managing business processes

Enforce common policies for customer related data & interactions

Yeah, about that SharePoint...

- Over the years, many have tried to use SharePoint as a platform for building their own applications
- Not necessarily because it was the right thing to do, but simply because it was there
 - For Microsoft to offer as a quick solution for businesses
 - For developers as a technology many had experience with
 - For customers as a product they had already paid licenses for
- Today, Microsoft seems to prefer treating SharePoint as a service they manage & have control over the product's user experience
- Also, now there is an actual application platform offering in their product portfolio

4 YEARS AGO

RT [@andrewconnell](#): Developers:

SharePoint isn't a Platform,

SharePoint is a Service

<http://www.andrewconnell.com>

[/blog/developers-sharepoint-isn](#)

[%E2%80%99t-a-platform](#)

[-sharepoint-is-a-service](#)



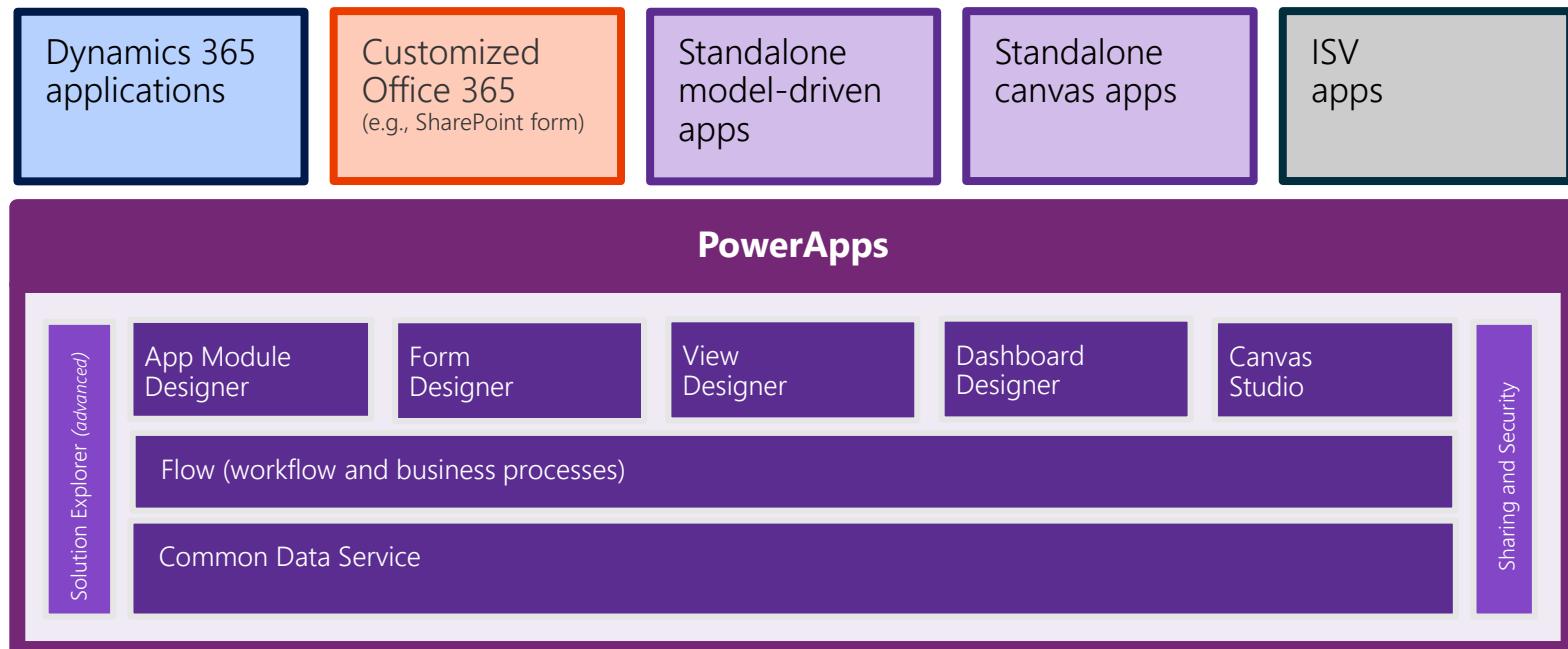
“Stop building stuff that is deployed into SharePoint and stop trying to change the way it works. The more you try, the more frustrated you get and the less success you have. Plus, one day, something will change and your stuff will break and everyone will have some great flame war again.”

[Link](#)



PowerApps = aPaaS*

*Application Platform as a Service





PowerApps

= LCAP*

*Low-code Application Platform

How did we get there?

- Q: What did Microsoft do to make PowerApps a leader in the Enterprise LCAP market?
- A: they merged it with the enterprise business applications platform that already existed: XRM!

Surviving CRM

ABOUT ME DYNAMICS 365 LINKS FINLAND DYNAMICS USER GROUP #MSDYN365 TWE

Introduction to xRM. One Platform. Many Applications.



JUKKA NIIRANEN MARCH 21, 2018 9 COMMENTS

Yes, XRM Is The New Common Data Service

In November 2016 I wrote an article on LinkedIn with the title ["No, Common Data Service is not the new XRM"](#). This was my response to the speculation that had emerged from Microsoft's announcement of a new cloud-native platform to store, model and integrate business data with other (cloud) applications. This platform called CDS was seen as a potential replacement to XRM that had been born into the good ol' on-premises server world already [back in 2003](#). Given the transformative power of SaaS and PaaS, it wasn't such an outlandish thought to imagine the days of XRM bits being numbered, with a new Azure based alternative being prepared behind the scenes to take over.

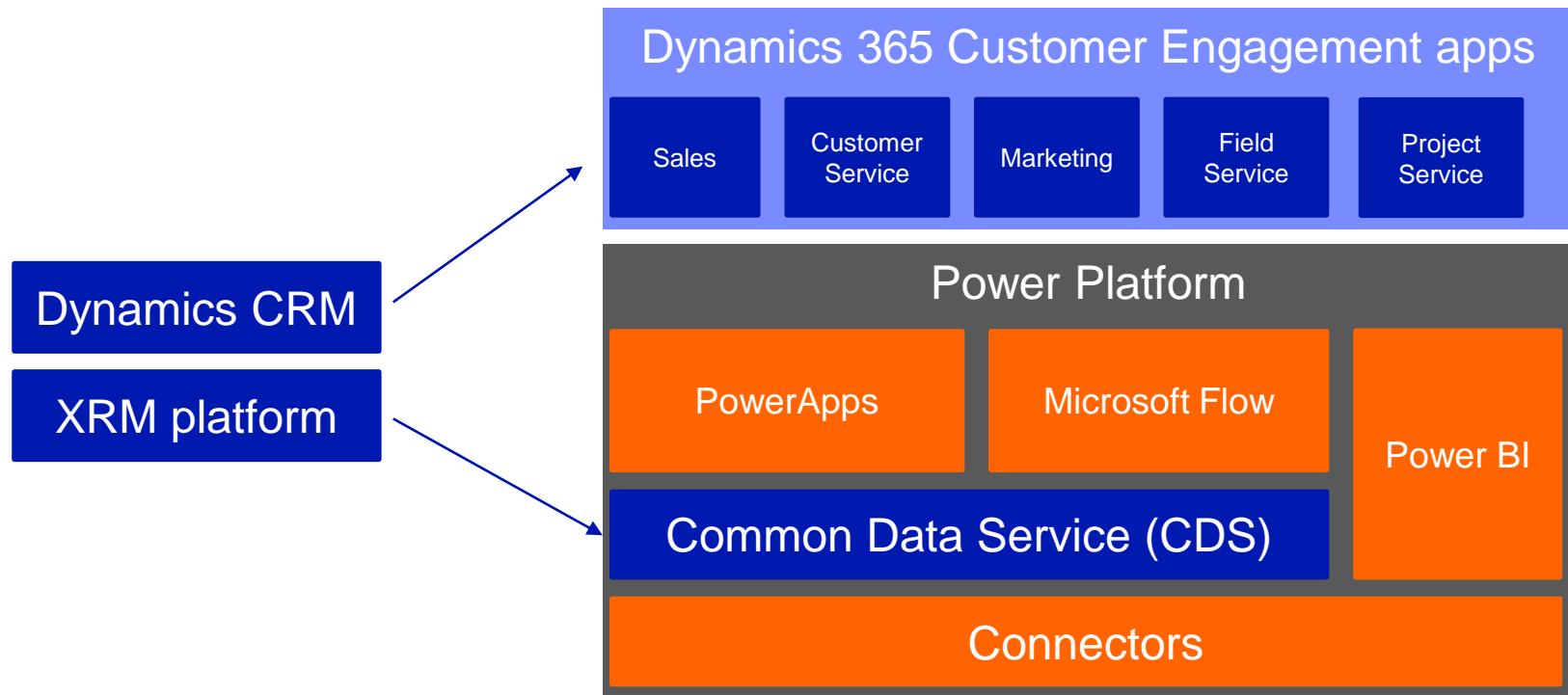
Well, today we had the public launch of the Dynamics 365 Spring Wave in the Microsoft Business Forward event, which I summarized in [my previous blog post](#). The most significant piece of news from this announcement wasn't perhaps articulated so clearly in official Microsoft materials, so I'll try and clarify it here and give some perspective on the what/why/how behind this change.

XRM = CDS v2

A brief history

- In the beginning there was MS CRM (2003)
- Which grew into XRM with custom entities (2005)
- And went into the cloud (2008)
- It learned to deliver Solutions (2011)
- Was branded as Dynamics 365 (2016)
- Started migrating to Azure (2017)
- Merged with PowerApps (2018)

CRM/XRM Application/Platform separation



Every app is now a PowerApp

Estimate for Mario Barden

4/18/2016 10:00 AM
Mario Barden
15010 NE 36th Street,
Redmond, WA 98052

Basic information
Room specifications

Select flooring style
Material

Add photos
Capture photos

Flooring material

Vinyl \$1.85 - \$2.25

Tile \$2.99 - \$9.99

Stone \$5.99 - \$7.99

Carpet \$1.98 - \$8.1

Types available

Edimax Slaty Porcelain \$3.55/sq ft

Honey Onyx Marble \$8.99/sq ft

Add photos

PowerApps CDS App 1 CDS > Accounts

Home Recent Pinned Teppo Testaja A1 Consulting Oy

Business Data Accounts Contacts Activities Connections Feedback

Configuration Data Categories Connection Roles Currencies

My Active Accounts

System Views

- My Active Accounts
- Accounts: Influenced Deals That ...
- Accounts: No Campaign Activities ...
- Accounts: Responded to Campaign...
- Active Accounts
- All Accounts

Address 1: City

Address 1: City	Count
Los Angeles	1
Lynnwood	1
Missoula	1
Phoenix	1
Redmond	3
Renton	1
Santa Cruz	1

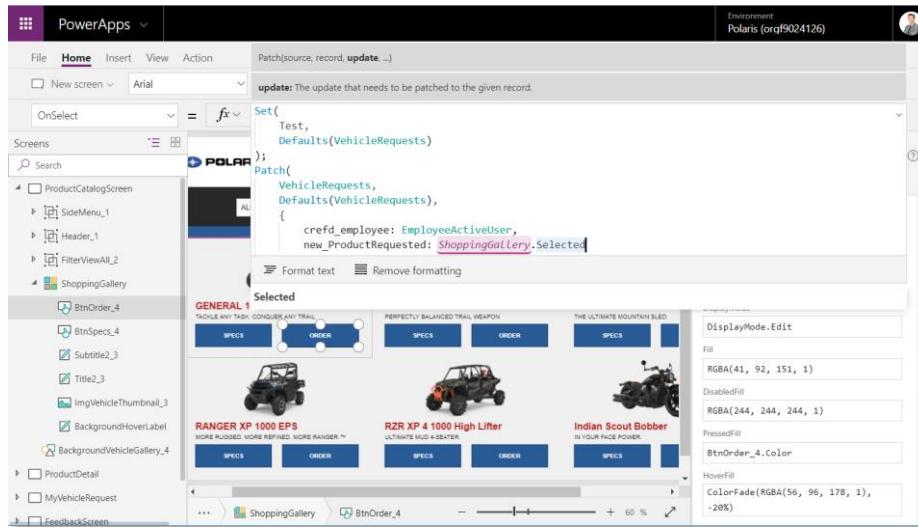
Count: All (Account)

All # A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

1 - 3 of 3 (0 selected)

Every app is now a PowerApp

Canvas App Studio



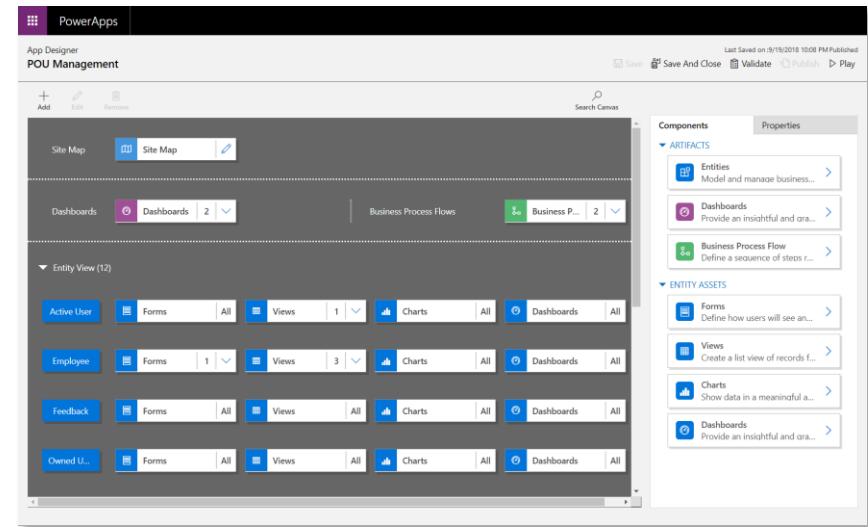
The screenshot shows the PowerApps Canvas App Studio interface. The top navigation bar includes 'PowerApps', 'Home', 'Insert', 'View', 'Action', 'New Screen', 'Arial', and a 'Patch' function. The main area displays a code editor with the following snippet:

```
update: The update that needs to be patched to the given record.

Set(
  Test,
  Defaults(VehicleRequests)
);
Patch(
  VehicleRequests,
  Defaults(VehicleRequests),
  {
    credf_employee: EmployeeActiveUser,
    new_ProductRequested: ShoppingGallery.Selected
  }
);
```

Below the code editor is a preview of a mobile application screen titled 'Polar'. The screen displays a grid of vehicle products: 'RANGER XP 1000 EPS', 'RZR XP 4 1000 High Lifter', and 'Indian Scout Bobber'. Each item has 'SPEC' and 'ORDER' buttons. The 'RANGER XP 1000 EPS' item is highlighted with a blue border. The left sidebar shows the 'Screens' list with items like 'ProductCatalogScreen', 'ShoppingGallery', and 'FeedbackScreen'.

Model-driven App Designer



The screenshot shows the PowerApps Model-driven App Designer interface. The top navigation bar includes 'PowerApps', 'App Designer', 'POU Management', 'Save', 'Save And Close', 'Validate', 'Publish', and 'Play'. The main area features a 'Site Map' tab and a 'Dashboards' section with two items. The right sidebar is titled 'Components' and contains sections for 'ARTIFACTS' and 'ENTITY ASSETS'. The 'ARTIFACTS' section includes links for 'Entities', 'Dashboards', and 'Business Process Flow'. The 'ENTITY ASSETS' section includes links for 'Forms', 'Views', 'Charts', and 'Dashboards'.

PowerApps

PowerApps Form

PowerApps Form

Home Learn Apps Create Data Entities Option Sets Data Integration Connections Custom Connectors Gateways Flows AI Builder (preview) Solutions

+ Add field 

+ Add Field 

+ Add Component  

+ Add Field 

+ Add Component      

Entities >     

Fields Relations  

Display name               

Components    

Layout               

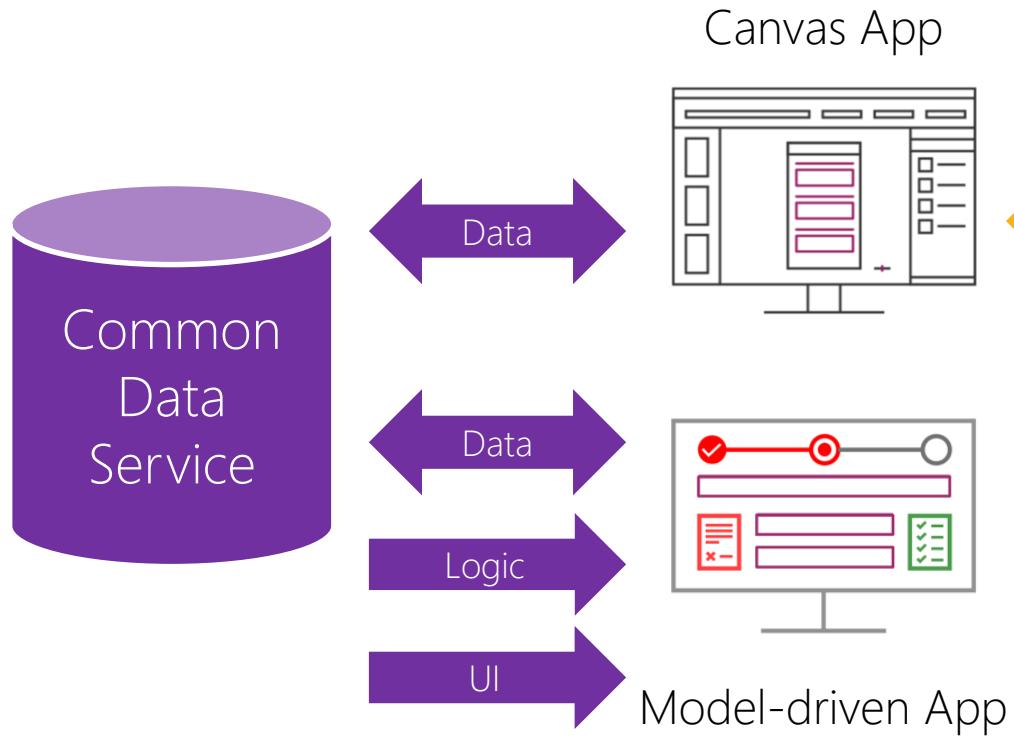
Tree view                

New Car                  

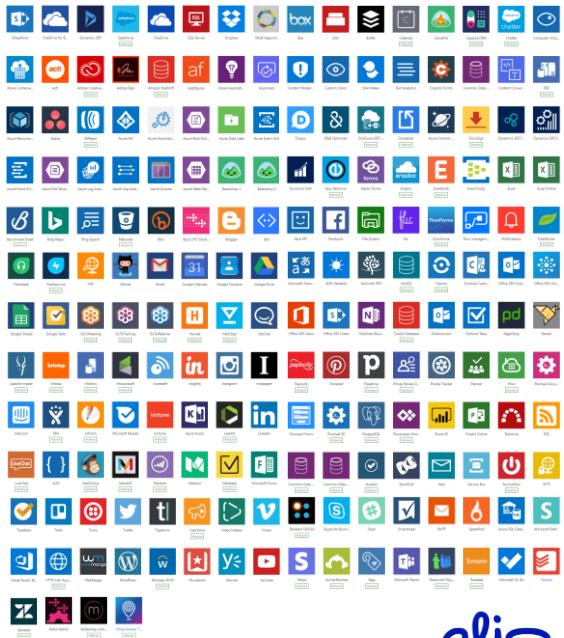
Responsive (800 x 800) 

14

It's all about the data

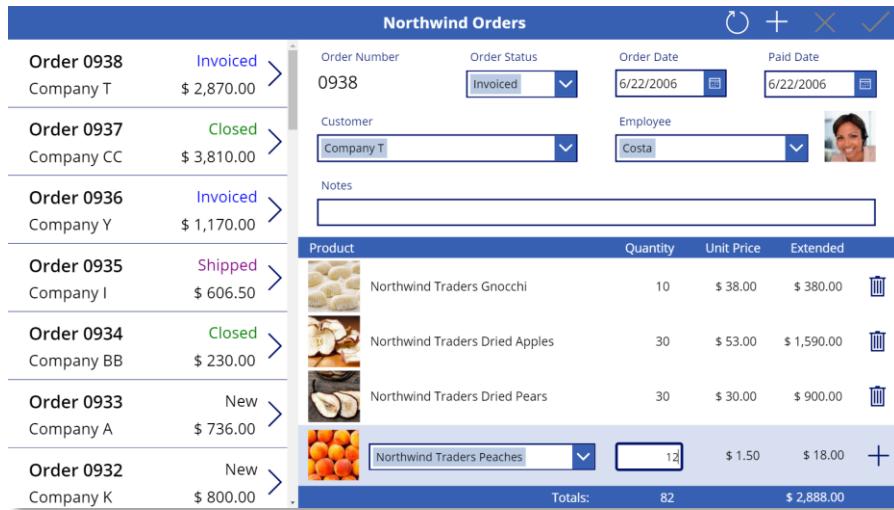


250+ Connectors



elisa

CDS = relational database, whereas SharePoint...



Order Number	Order Status	Order Date	Paid Date
0938	Invoiced	6/22/2006	6/22/2006
Customer	Employee		
Company T	Costa		
Notes			
Product	Quantity	Unit Price	Extended
Northwind Traders Gnocchi	10	\$ 38.00	\$ 380.00
Northwind Traders Dried Apples	30	\$ 53.00	\$ 1,590.00
Northwind Traders Dried Pears	30	\$ 30.00	\$ 900.00
Northwind Traders Peaches	12	\$ 1.50	\$ 18.00
	Totals:	82	\$ 2,888.00

Blog > Announcements > Common Data Service > Formulas > PowerApps

Northwind Traders relational data sample

Greg Lindhorst, Principal Program Manager, Tuesday, June 11, 2019



Shane Young PowerApps MVP @ShanesCows · May 29

SharePoint Lookup columns are the devil if you are using PowerApps. The Devil I tell you.



8

26

26



Michał Guzowski #PowerAddict

@michaelguzowski

Follow

Replying to @ShanesCows

Because sharepoint is not relational database. Lookups should be banned for opening gates to hell

elisa

CDS is superior for many reasons

- PowerApps Model-driven apps are directly generated from the CDS metadata
- Canvas apps are getting more & more native support for complex data types and CDS features
 - Relationships (1:N, N:1, N:N)
 - Option Sets, Owner, Customer, Regarding, Time zone
 - View filters
- Performance (delegation)
- Advanced security model
- **CDS solution framework** is the way how PowerApps (& Flow) components are transferred between environments
 - The whole PowerApps Application Lifecycle Management (ALM) and CI/CD story with Azure DevOps relies on CDS solutions

Summary

- **CDS is the place for relational business data**
 - Solid, proven platform from Dynamics 365 for Sales, backed by SQL Azure
 - Rich ecosystem of partners, tools, apps, ... growing every day
 - Easy to use tooling for authors, control for admins
 - Powerful business features such as business process flows
 - Shared data and the Common Data Model
- Model driven apps already take full advantage of CDS
- Canvas apps are getting richer support in November
 - Relationships
 - Optionsets
 - Much more to come...

We are committed to making CDS the obvious choice

A look inside CDS solutions

Solution Components

Schema

- Entities
- Fields
- 1:N / N:N Relationships
- Option Sets

Templates

- Email
- Contract
- KB Article
- Mail merge

Processes / Steps / Code

- Workflows
- Dialogs
- Business Process Flows
- Business Rules
- Actions
- Web Resources
- Plug-in Assemblies
- SDK Message Processing Steps
- Routing Rules
- Record Creation and Updation Rules
- Custom Controls
- Virtual Entities

Apps are merely one of the many components in a CDS solution

User Interface

- Forms
- Views
- Charts
- Dashboards
- SiteMap
- Ribbons
- Apps

Miscellaneous

- Security Roles
- Field Security Profiles
- Connection Roles
- Reports
- Solution Publisher
- System Settings
- SLA

Why CDS may seem scary

- All of the stuff needed for building Dynamics 365 Customer Engagement environments are still included in CDS solutions
- There are new Maker & Admin UI's for performing the most common PowerApps app development tasks, but...
- A big share of the features are still only accessible via the legacy UI that was designed together with the Dynamics CRM 2011 product



Photo by [Ashim D'Silva](#) on [Unsplash](#)



Home

Conversations

Documents

Shared with us

Notebook

Contact Import

List of Things

Digitalist

Catch The Bus

Pages

Site contents

Recycle bin

Edit

[New](#) [Quick edit](#) [Export to Excel](#) [PowerApps](#) [Flow](#) ...

List of Things

Title	DateOnly	DateAndTime	DateText	+ Add column
First things first	5/26/2019	5/26/2019 11:00 PM		
Second thing comes 2nd	5/27/2019	5/27/2019 9:00 PM		
New Thing X	5/28/2019	5/28/2019 10:00 AM	20190528	

Ah, the simplicity of
Modern SharePoint

Create a column

Learn more about column creation.

Name *

My 1st Choice Column

Description

It's a choice we all have to make...

Type

Choice

Choices *

Choice 1
Choice 2
Choice 3 Can add values manually ⓘ

Default value

None

 Use calculated value ⓘ

More options

Display choices using:

 Drop-Down Menu**Save****Cancel**

Dynamics 365 Settings Customizations

Customization

Which feature would you like to work on?

- Customize the System
- Solutions
- Themes

PowerApps

Field: New for Account - Google Chrome

https://org9edf1585.crm4.dynamics.com/tools/solution/edit.aspx?id=%7bfd140aa...

Field: New for Account - Google Chrome

https://org9edf1585.crm4.dynamics.com/tools/systemcustomization/attributes/manageAttribute.aspx?enti...

PowerApps

File Save and Close Help

Working on solution: Default Solution

Field New for Account

General

Schema

Display Name * My Custom Field 1 Field Requirement * Optional

Name * new_MyCustomField Searchable Yes

Field Security

Enable Disable

Enabling field security? [What you need to know](#)

Auditing *

Enable Disable

This field will not be audited until you enable auditing on the Single Line of Text

Description

Option Set

- MultiSelect Option Set
- Two Options
- Image
- Whole Number
- Floating Point Number
- Decimal Number
- Currency
- Multiple Lines of Text
- Date and Time
- Lookup
- Customer

Appears in global filter in interactive experience

For information about how to use this feature, see the Microsoft Dynamics 365 SD

Type

Data Type * Option Set

Field Type * Simple

Use Existing Option Set

Yes No

Default Value Unassigned Value

NOOO!!! MY EYES!
Why am I in Dynamics?!?

PowerApps

+ Add field Edit data in Excel Get data | Export data Settings

Entities > Account

Fields Relationships Business rules Views Forms Dashboards Charts Keys Data

Display name	Name	Data type
Account Name	name	Text
Account Number	accountnumber	Text
Account Rating	accountratingcode	Option Set
Address 1	address1_composite	Multiline Text
Address 1: Address Type	address1_addressescode	Option Set
Address 1: City	address1_city	Text
Address 1: Country/Region	address1_country	Text
Address 1: County	address1_county	Text
Address 1: Fax	address1_fax	Text
Address 1: Freight Terms	address1_freighttermscode	Option Set
Address 1: Latitude	address1_latitude	Floating Point
Address 1: Longitude	address1_longitude	Floating Point
Address 1: Name	address1_name	Text
Address 1: Post Office Box	address1_postofficebox	Text
Address 1: Primary Contact Name	address1_primarycontactname	Text
Address 1: Shipp		
Address 1: State/		
Address 1: Street		

It's different, but familiar.
I can live with this...

Text

Text Area

Email

URL

Ticker Symbol

Phone

Autonumber

Whole Number

Whole Number

Duration

Timezone

Language

Date Time

Date and Time

Date Only

Currency

Customer

Decimal Number

Floating Point Number

Lookup

Multi Select Option Set

Multiline Text

Option Set

Two Options

My Custom Field 1

Display name *

My Custom Field 1

Name *

cr7d0_ MyCustomField1

Data type *

Option Set

Option set *

Required

Searchable

Calculated or Rollup

+ Add

Advanced options

Done

Cancel

Dynamics 365 ▾ Settings ▾ Customizations

Customization

Which feature would you like to work on?

- Customize the System
- Solutions
- Themes

PowerApps

File Save and Close Convert to a real-time workflow Show Dependencies Solution Layers Actions ▾ Help ▾

Working on solution: Default Solution

Process: My Oldskool CRM Workflow

Information

General Administration Notes

Hide Process Properties

Process Name: My Oldskool CRM Workflow

Entity: Account

Activate As: Process

Category: Workflow

Available to Run

- Run this workflow in the background (recommended)
- As an on-demand process
- As a child process

Workflow Job Retention

Options for Automatic Processes

Scope: Organization

Start when:

- Record is created
- Record status changes
- Record is assigned
- Record fields change
- Record is deleted

Select

Specify Condition - Microsoft Dynamics 365 - Google Chrome

File Save and Close

Condition

Form Assistant

Dynamic Values

Look for: Account

Credit Hold
Do not allow Bulk Emails
Do not allow Bulk Mails
Do not allow Emails
Do not allow Faxes

If Account:Relationship Type equals [Customer] AND Owning User (User):Country/Region equals [Finland], then:

- Assign Finnish accounts to Jukka
- Assign: Account to Jukka Niiranen Set Properties

If <condition> (click to configure), then:

Select this row and click Add Step.

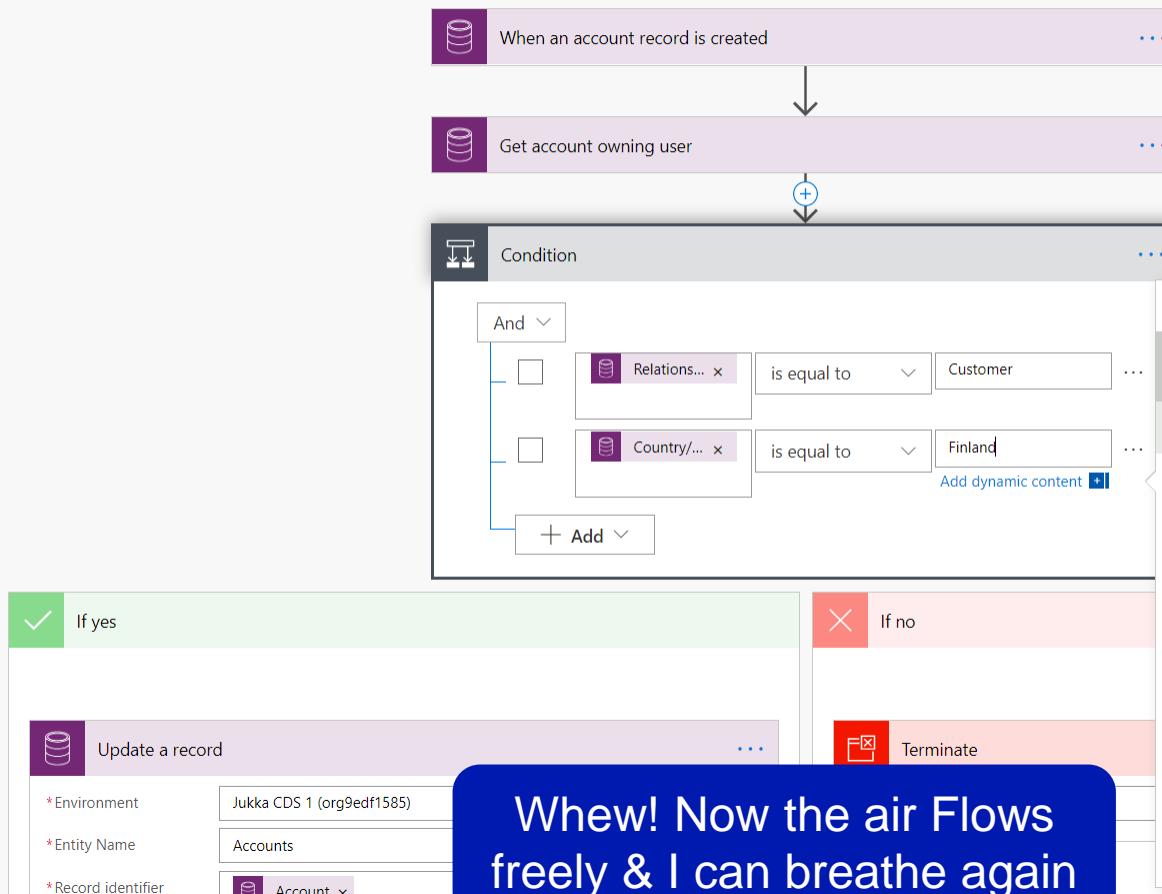
NOT AGAIN! Why are you showing me this?!?



New account responsible notification

[Save](#) [Flow Checker](#) [Test](#)

- Home
- Approvals
- My flows
- Templates
- Connectors
- Data
- AI Builder (preview)
- Solutions
- Learn



Dynamic content Expression

Search dynamic content

Get account owning user

(Deprecated) Process Stage Shows the ID of the stage.

(Deprecated) Traversed Path For internal use only.

Access Mode Value Type of user.

Address 1: Address Type Value Type of address for address 1, such as billing, shipping, or...

Address 1: County County name for address 1.

Address 1: Fax Fax number for address 1.

Address 1: Latitude Latitude for address 1.

Address 1: Longitude Longitude for address 1.

Whew! Now the air Flows
freely & I can breathe again

Canvas vs. Model, Flow vs. Workflow, X vs. Y

- Today the Power Platform offers many choices for building solutions – often too many
- Some functionality has clear use cases from the XRM era (e.g. workflows within CDS database) that are being expanded to work in the cloud era (Flows that work across 200+ data sources)
- User interface capabilities between Canvas apps and Model-driven apps are quite different because of their original target scenarios
- In the long run, maintaining barriers between the client types and features isn't optimal



Photo by Robert Anasch on [Unsplash](#)

“Artificial limitations in app features will be removed, so that choosing [File - New App] will give you model or canvas experiences and everything will work across both.”

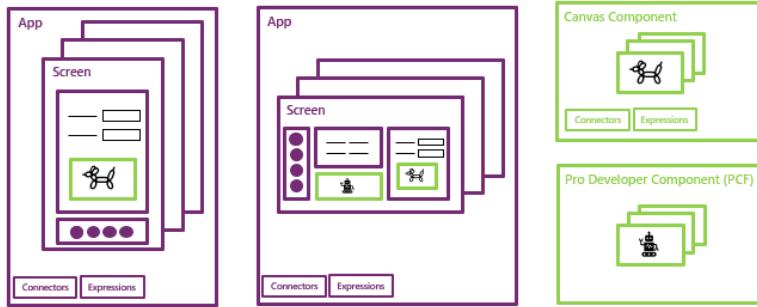


Charles Lamanna

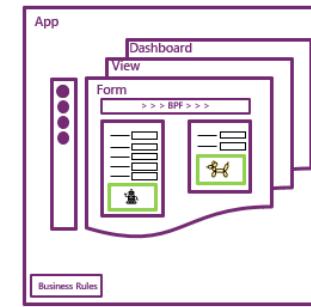
General Manager, Application Platform
Microsoft

<https://www.nz365guy.com/power-platform-changes-and-answering-community-questions-with-charles-lamanna/>

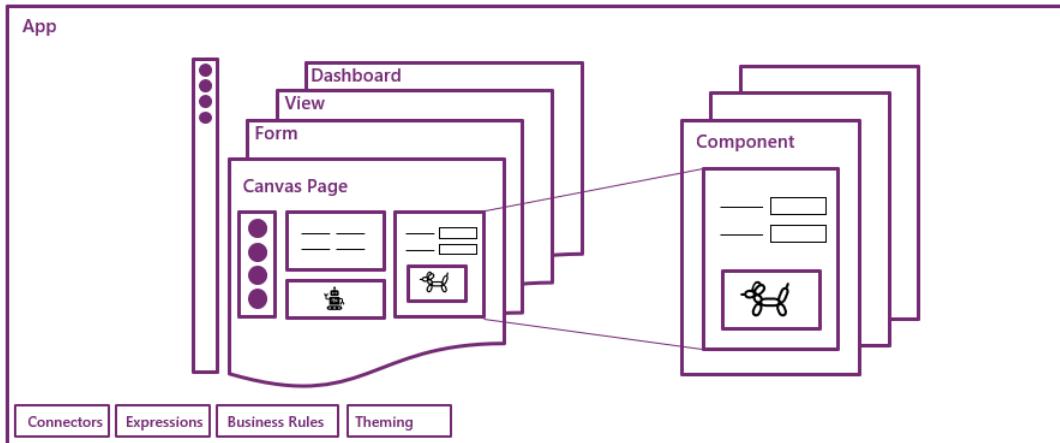
Canvas Apps



Model Driven Apps



PowerApps



Introducing PowerApps Portals: powerful low-code websites for external users

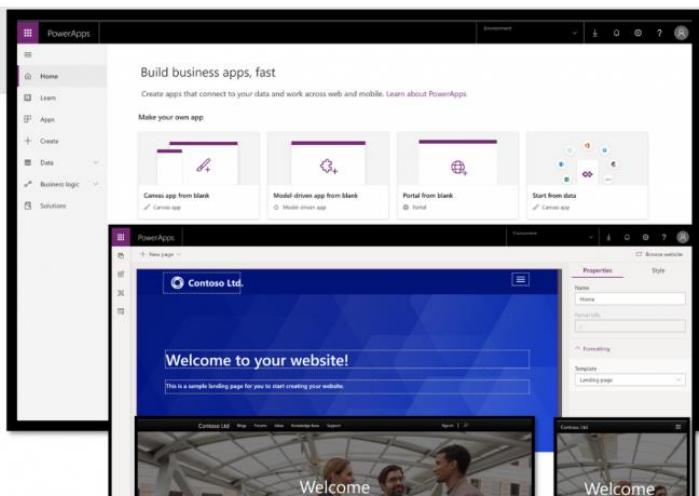
 Charles Lamanna, General Manager, Sunday, June 9, 2019



Over the past year, we've seen incredible growth from customers and partners delivering low-code apps to employees across their organizations with PowerApps.

Along the way, customers have continually asked us: what about people *outside* my company? Sharing apps with external users has been the #1 request on PowerApps Ideas, with dozens of compelling use cases for working with partners, customers, franchisees, and others who aren't part of a maker's organization.

Today we're excited to announce **PowerApps Portals**, the ability to build low-code, responsive websites which allow external users to interact with the data stored in the Common Data Service.



Canvas App

Model-driven App

Portal

CDS data

The CDS community DOES already exist

- Many of the XRM based tools also work for CDS solutions and Model-driven app development
- Connecting to a CDS environment is technically identical to using Dynamics 365 Customer Engagement v9 instance
- For tips & tricks on server-side business logic, data modelling, security configuration, API's – it's perfectly OK to search for "Dynamics 365" or even "XRM" content
- Just remember that Dynamics 365 cloud ERP products (Finance & Operations, Business Central are not built on CDS

XrmToolBox

THE ULTIMATE SET OF TOOLS
FOR MICROSOFT DYNAMICS 365

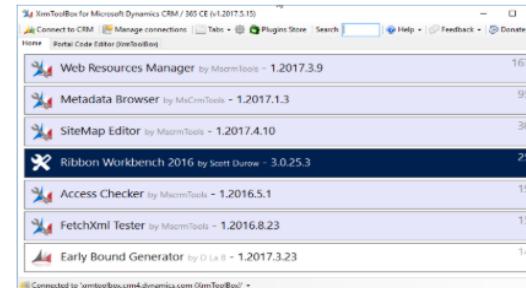
Get your [CDSToolBox](#) here:

[Download latest version \(1.2019.7.34\)](#)

[See other releases](#)

What is XrmToolBox?

XrmToolBox is a Windows application that connects to the Common Data Service for Apps (CDS). Dynamics 365 Customer Engagement (CE) applications, like Dynamics 365 for Sales, Service or Talent also use the Common Data Service for Apps as their foundational data service. XrmToolBox, provides tools to ease customization, configuration and operation tasks for anything built on CDS, including Dynamics 365 CE (formerly CRM) and model-driven PowerApps. It is shipped with more than 30 plugins to make administration, customization or configuration tasks easier and less time consuming. And more than 100 other plugins are available in the Plugins Store.



<https://www.xrmtoolbox.com/>



A screenshot of the Microsoft Dynamics 365 Sales application. The main view shows a 'Phone Call' record for 'Call the customer with relevant information (sample)'. The 'Phone Call Attachment' control is visible on the right side of the screen. It features a preview area showing a blue circular icon with a white upward arrow, a file selection button labeled 'Click the icon or Drop Files Here', and a progress bar at the bottom indicating a file is being uploaded. The progress bar shows '0:00 / 1:17' and includes standard media control icons for play, pause, and stop.

ADDRESS EXAMPLE

New Address Example

General

Name:

Owner:


Contar Conta
Wide World Importers

<u>Resumo</u>	Listas de Preços do Projeto	Detalhes	Field Service	Agenda
CEP:	01001-000			
Endereço:	Praça da Sé			
Complemento:	Conjunto 375			
Cidade:	São Paulo			

Summary
Details
Scheduling
Related

CONTACT INFORMATION

First Name:

Last Name:

Address:

City:

State:

Zip:

Phone:

Email:

Timeline

Enter a note...

THIS

Notes

PM

Plan

Due

Aug 2019

S	M	T	W	T	F	S
28	29	30	31	1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

2019

Jan	Feb	Mar	Apr
May	Jun	Jul	Aug
Sep	Oct	Nov	Dec

[Go to today](#)

Summary	Details	Related
Preferred Method of Contact	Any	 Auto- Case: C...
Address 1: Street 1	suite 2	
Address 1: Street 2	Unit 2, 2 Thomas Road, Flat Bush, Auckland 2019	
Address 1: Suburb	Suite 202 Bishop Dunn Place, Flat Bush, Auckland 2019	
Address 1: City	Suite 21, 2 Bishop Dunn Place, Flat Bush, Auckland 2013	
Address 1: ZIP/Postal Code	Suite 22, 2 Bishop Dunn Place, Flat Bush, Auckland 2013	
	Suite 22, 2 Bishop Dunn Place, Flat Bush, Auckland 2013	
	Unit 2, 2 Bishop Browne Place, Flat Bush, Auckland 2013	
	Unit 23, 2 Bishop Dunn Place, Flat Bush, Auckland 2013	
	Unit 23, 2 Bishop Browne Place, Flat Bush, Auckland 2013	

A screenshot of the QnAMaker Control interface. At the top, the text "QnAMaker Control" is displayed. Below it is a rectangular input field containing the question "What are the membership options?". To the left of the input field is a small blue icon of a robot head. To the right is a blue button with the word "Ask". At the bottom of the interface, the text "QnAMaker Control" is repeated, along with a small circular icon.

A screenshot of a Microsoft Dynamics 365 account summary card for 'Smart System Consulting'. The card includes the account name, address, and a 'Smart System Consulting' contact record.

Estado:	<input type="text" value="SP"/>
Bairro:	<input type="text" value="Sé"/>

Date Picker

 DEPENDENT OPTIONSET DEMO

New Dependent Optionset Demo

General

Name	new
------	-----

Component

Azure PaaS Azure SaaS Field Services Finance and Operations Marketing Power Project Service Automation Retail

Native

✓ Label ↑

Azure PaaS

Azure SaaS

IoT

Power BI

<https://pcf.gallery/>

PowerApps licensing model (from October 1st 2019)

PowerApps per app plan



Licensed by app

\$10 user/app/month

Allow individual users to run a **single application** for a specific business scenario based on the full capabilities of PowerApps

A. Licensing a single app at a time

PowerApps per user plan



Licensed by user

\$40 user/month

Equip users to run **unlimited applications** based on the full capabilities of PowerApps

B. Licensing the whole platform

Seeded PowerApps



Licensed through Office 365 & Dynamics 365

Extend and customize Office 365 and Dynamics 365

C. Building apps within an "app"

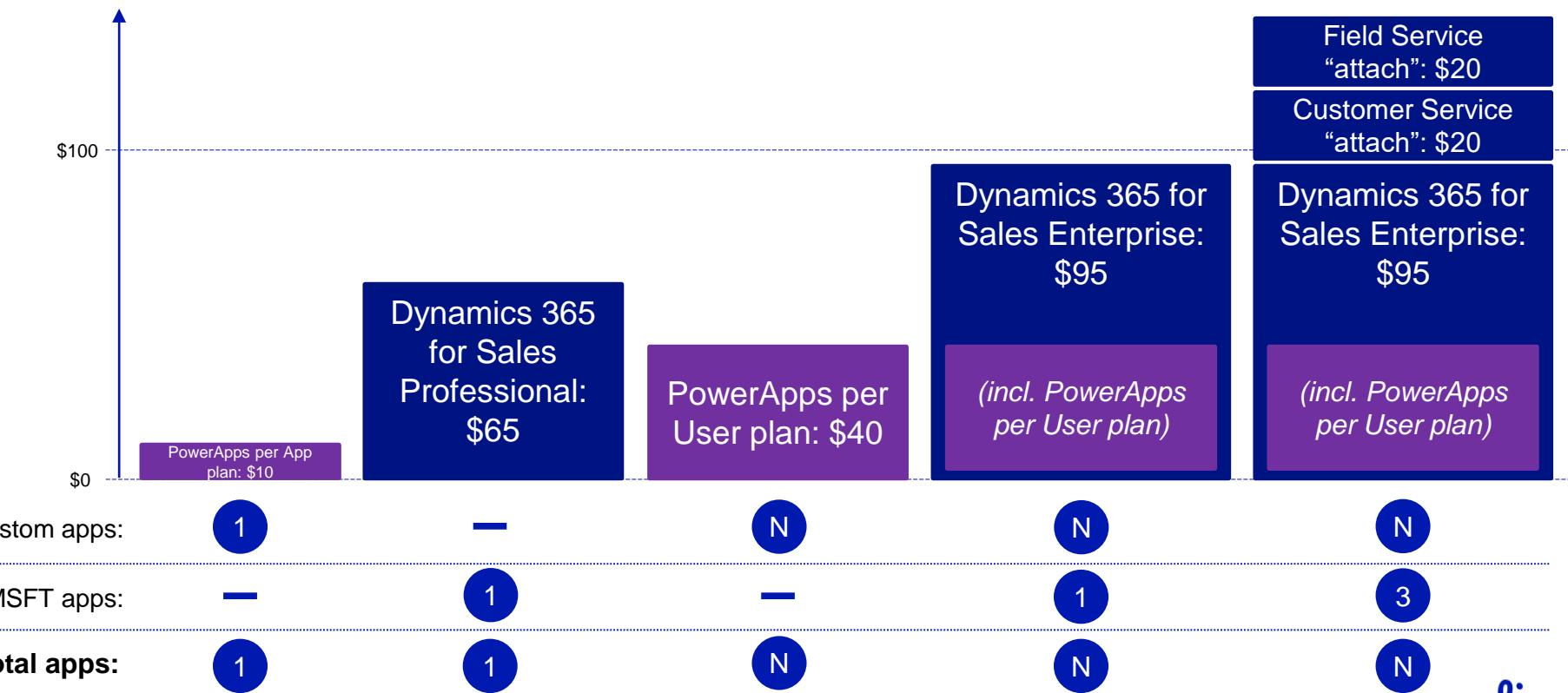
"Our Office 365 users can never afford this!"

- Paying \$40/user/month for just a few advanced intranet forms may not sound like an attractive deal
- The \$10 price of a single app that uses full platform functionality is unbeatable if compared to Dynamics 365 apps
- Modernizing/replacing legacy software with apps on Power Platform should be an "all in" strategic decision, not just a new playground for citizen developers
- PowerApps is for all business applications, not just pretty mobile UI's



Photo by Zdeněk Macháček on Unsplash

Dynamics 365 CE vs. PowerApps app pricing





Thanks for attending!