



# 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



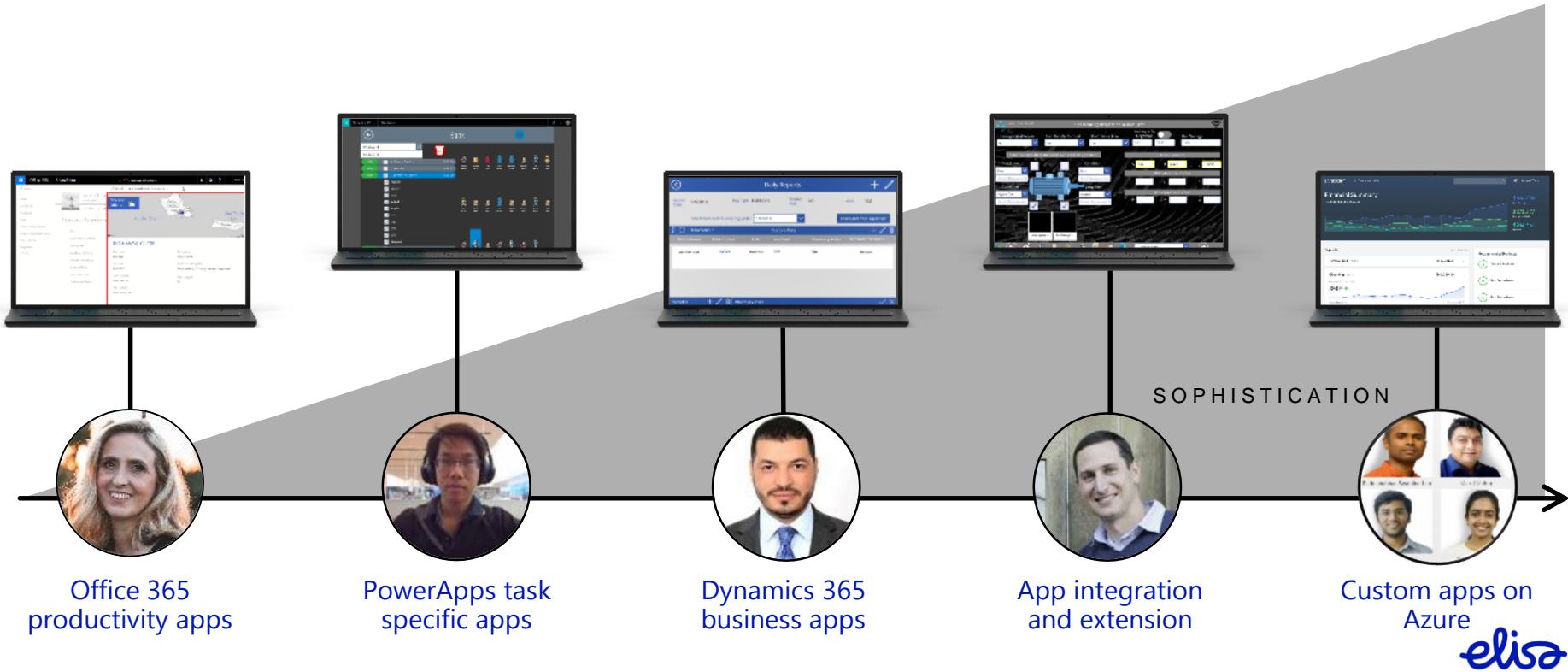
## Intro

- Product Lead, Microsoft Business Applications at Elisa
  - Microsoft MVP since 2013
  - Blogging at [survivingcrm.com](http://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...

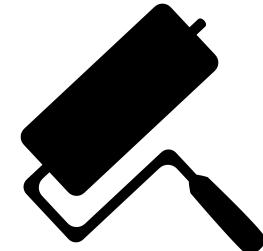
- A) Power users and citizen developers to step up from Excel sheets
- B) Organizations to build task specific apps for their mobile workforce
- C) Enterprise business applications like CRM

# 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

4 YEARS AGO

# 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

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](#)



@jukkan •



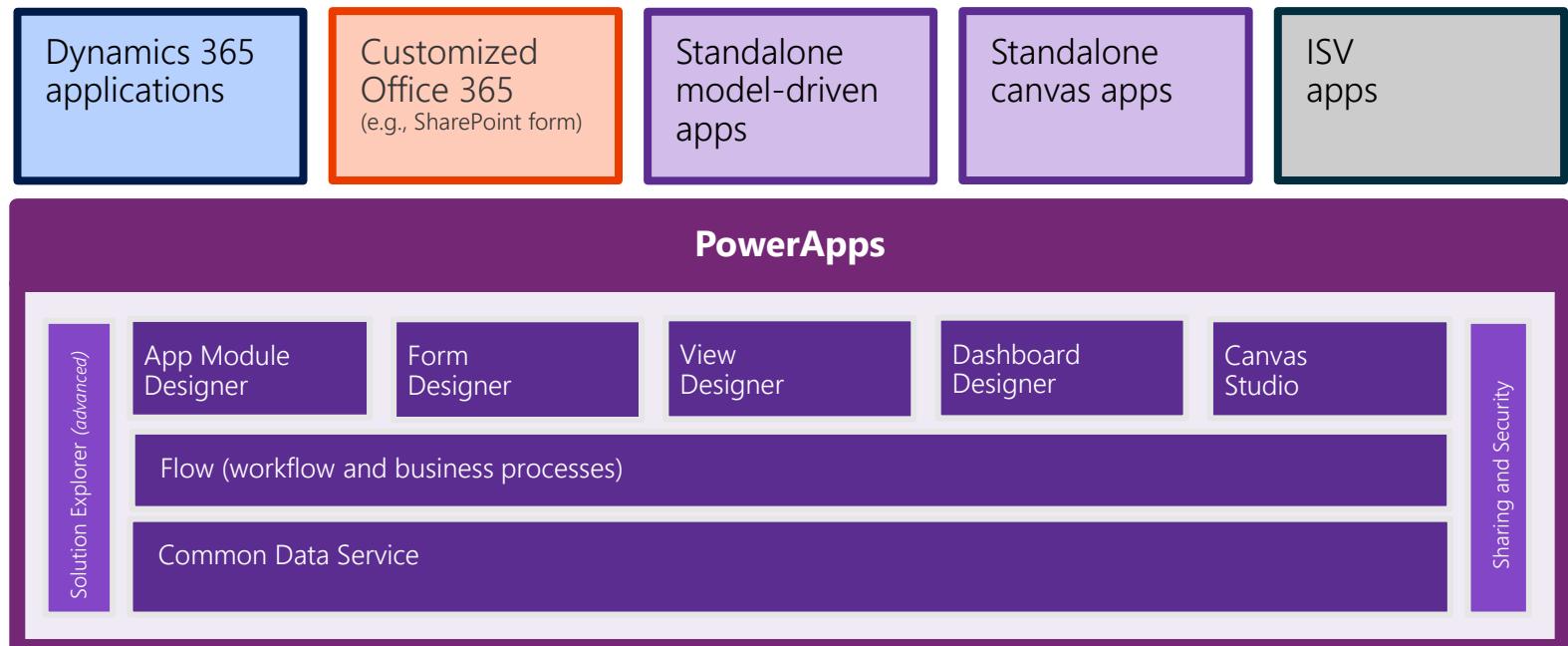
*"Stop building stuff that is deployed into SharePoint and stop trying to change the way it works. The more you try, the more frustrated you get and the less success you have. Plus, one day, something will change and your stuff will break and everyone will have some great flame war again."*

[Link](#)

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# 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.

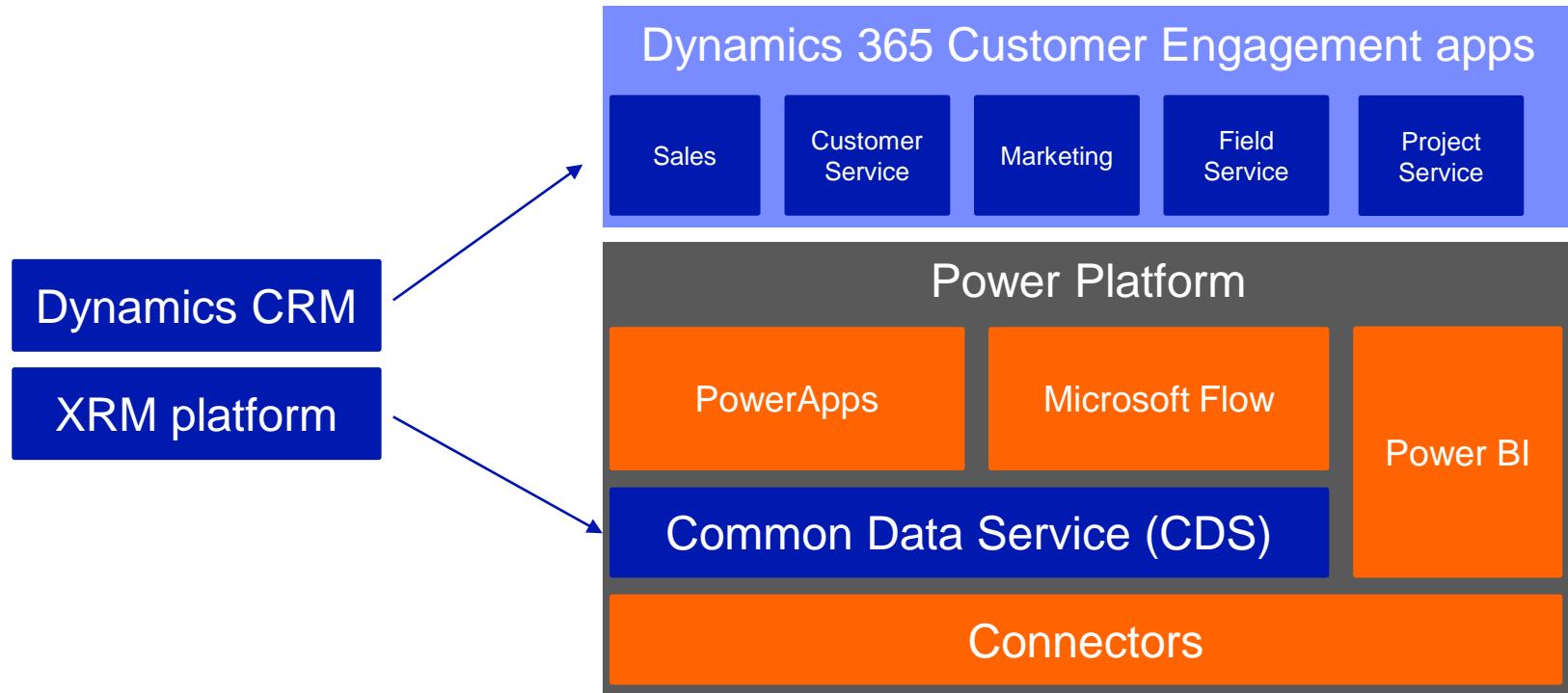
Well, today we had the public launch of the Dynamics 365 Spring Wave in the Microsoft Business Forward event, which I summarized in [my previous blog post](#). The most significant piece of news from this announcement wasn't perhaps articulated so clearly in official Microsoft materials, so I'll try 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

- d1 Accounts: Influenced Deals That ...
- d1 Accounts: No Campaign Activities ...
- d1 Accounts: Responded to Campaign...
- d1 Active Accounts
- d1 All Accounts

Address 1: City

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

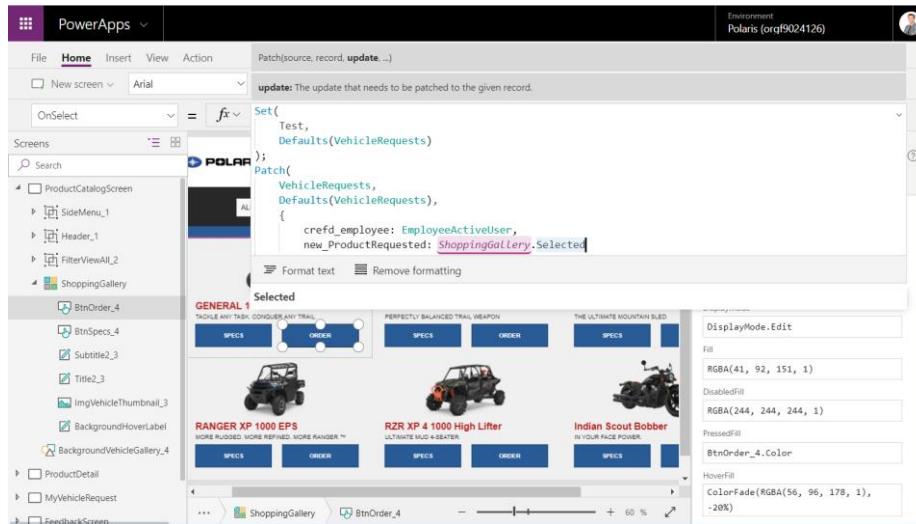
Count: All (Account)

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

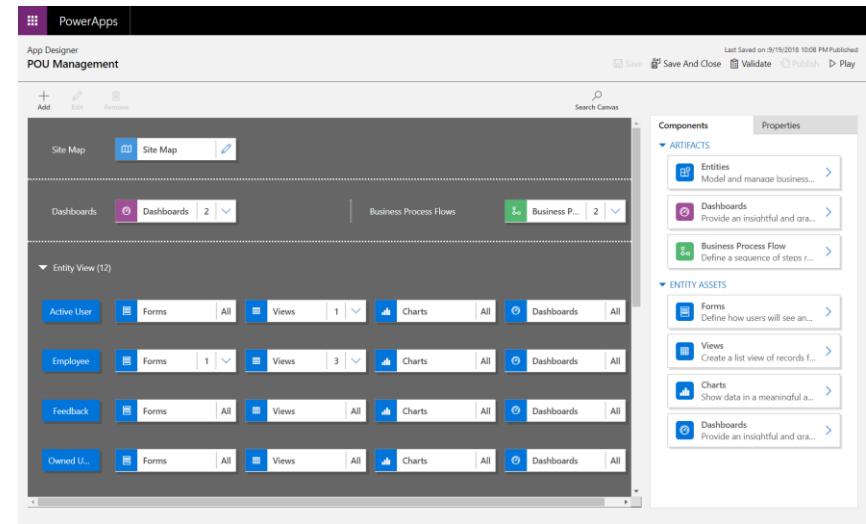
1 - 3 of 3 (0 selected)

# Every app is now a PowerApp

## Canvas App Studio



## Model-driven App Designer



The screenshot shows the Microsoft PowerApps Studio interface, specifically the 'Form' tab, where a new car form is being designed.

**Left Navigation Bar:**

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

**Top Bar:**

PowerApps    PowerApps    Form    PowerApps    Form

**Toolbars and Buttons:**

- + Add field    - Delete
- + Add Field    + Add Component
- Undo    Redo
- + Add Field    + Add Component
- Undo    Redo    Cut    Paste |
- Delete    Switch to

**Entity Selection:**

Entities > Car

**Fields Tab:**

- Fields    Relations
- Display name
- Body Type
- Condition
- Currency
- Dealer
- Exchange Rate
- Manufacturer
- Mileage (km)
- Model
- Model Year
- Name
- Power Source
- Price
- Price (Base)
- Transmission
- Trim Level
- Type

**Components Tab:**

Components

- Search
- Fields
- Layout
  - 1-column tab
  - 2-column tab
  - 3-column tab
  - 1-Column section
  - 2-Column section
  - 3-Column section
  - 4-Column section
- Components
- Tree view

**Tree View Panel:**

Tree view

- Car
  - Header
  - General
    - General
    - Name
    - Manufacturer
    - Model
    - Model Year
    - Trim Level
    - Body Type
    - Power Source
    - Transmission
    - Type
    - Mileage (km)
    - Condition
    - Price
    - Owner
    - Notes
    - Section
      - Dealer
      - Dealer
    - Footer

**Form Preview:**

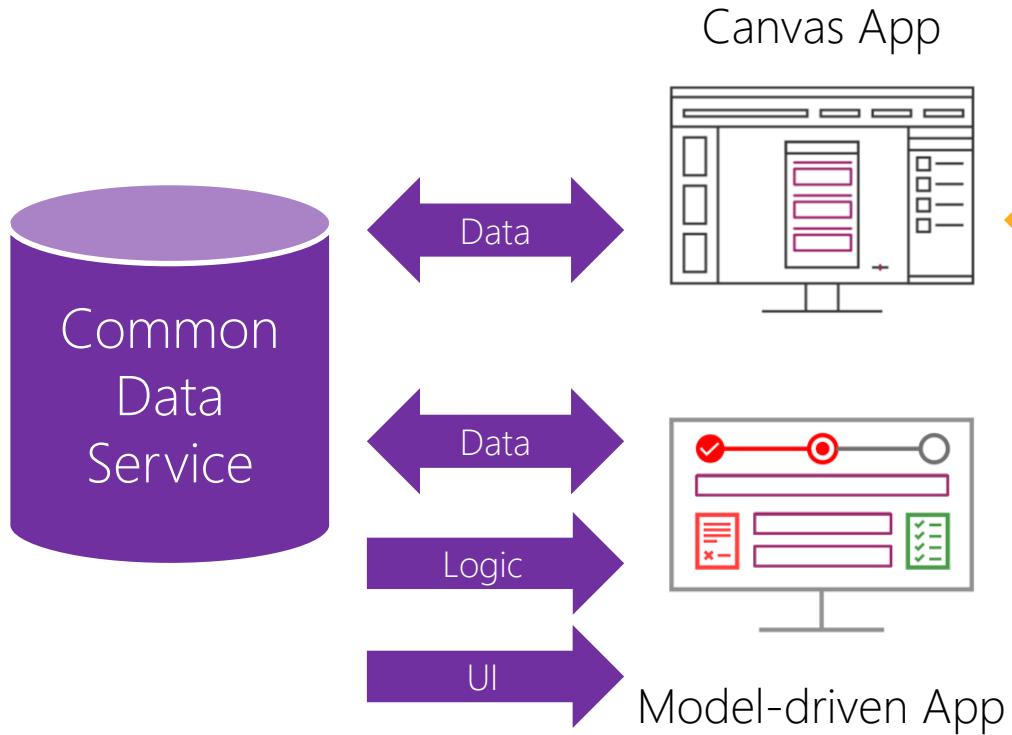
New Car

Car

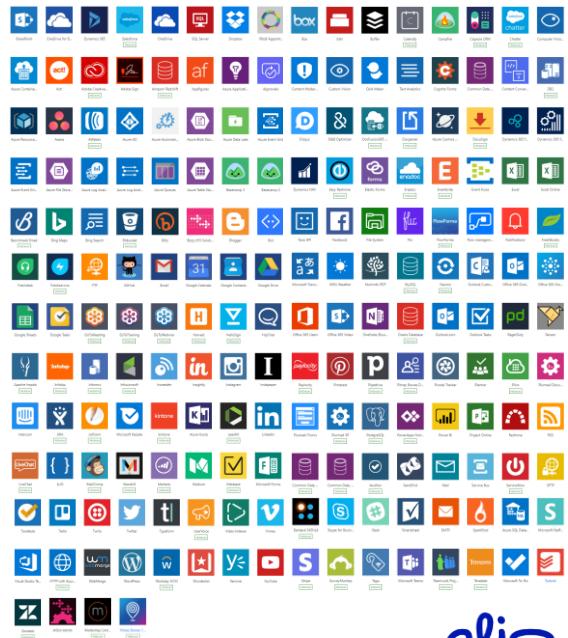
General

Name	
Manufacturer	
Model	
Model Year	
Trim Level	
Body Type	
Power Source	
Transmission	
Type	
Mileage (km)	
Condition	
Price	
Owner	
Notes	
Section	
Dealer	
Dealer	
Type	New
Mileage (km)	

# It's all about the data



250+  
Connectors



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# CDS = relational database, whereas SharePoint...

Order Number	Order Status	Order Date	Paid Date
0938	Invoiced	6/22/2006	6/22/2006

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

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.



GIF

8 26



Michał Guzowski #PowerAddict

@michałguzowski

Follow

Replying to @ShanesCows

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

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# 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 Asim D'Silva on [Unsplash](#)



## Playground

Public group

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**

## Customization

Which feature would you like to work on?

**Customize the System**  
Create, modify, or delete components and others.**Solutions**  
Create, modify, export, or import solutions.**Themes**  
Adjust your organization's colors.

Solution: Default Solution - Microsoft Dynamics 365 - Google Chrome

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

PowerApps

File Publish All Customizations

View: All

New | X | Edit | More Actions

Name

accountcategorycode

accountclassificationcode

accountid

accountnumber

accountratingcode

address1\_addressid

address1\_addressstypecode

address1\_city

Field: New for Account - Google Chrome

https://org9edf1585.crm4.dynamics.com/tools/systemcustomization/attributes/manageAttribute.aspx?entityName=Account&attributeName=MyCustomField1

PowerApps

File Save and Close

Working on solution: Default Solution

Field New for Account

Common

Information

Business Rules

General

Display Name \* My Custom Field 1 Field Requirement \* Optional

Name \* new\_MyCustomField1 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

Type

Data Type \* Option Set

Field Type \* Simple

Use Existing Option Set Yes No

Default Value Unassigned Value

Appears in global filter in interactive experience

For information about how to use this feature, see the Microsoft Dynamics 365 SDK documentation.

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	...	Text
Account Number	...	Text
Account Rating	...	Option Set
Address 1	...	Multiline Text
Address 1: Address Type	...	Option Set
Address 1: City	...	Text
Address 1: Country/Region	...	Text
Address 1: County	...	Text
Address 1: Fax	...	Text
Address 1: Freight Terms	...	Option Set
Address 1: Latitude	...	Floating Point ...
Address 1: Longitude	...	Floating Point ...
Address 1: Name	...	Text
Address 1: Post Office Box	...	Text
Address 1: Primary Contact Name	...	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

Display name \*

My Custom Field 1

Name \*  cr7d0\_ MyCustomField1

Data type \*  Option Set

Option set \*

Required

Searchable

Calculated or Rollup

Advanced options

Done Cancel

Dynamics 365 Settings Customizations

Customization Which feature would you like to work on?

Customize the System Create, modify, or delete components and others.

Solutions Create, modify, export, or import solutions.

Themes Adjust your organization's colors.

PowerApps Solution: Default Solution - Microsoft Dynamics 365

File Save and Close Activate 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

Common

- Information
- Audit History
- Solution Health Rules
- Solution Health Rules

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

Automatically delete completed workflow jobs (to save disk space)

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

File Save and Close

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.

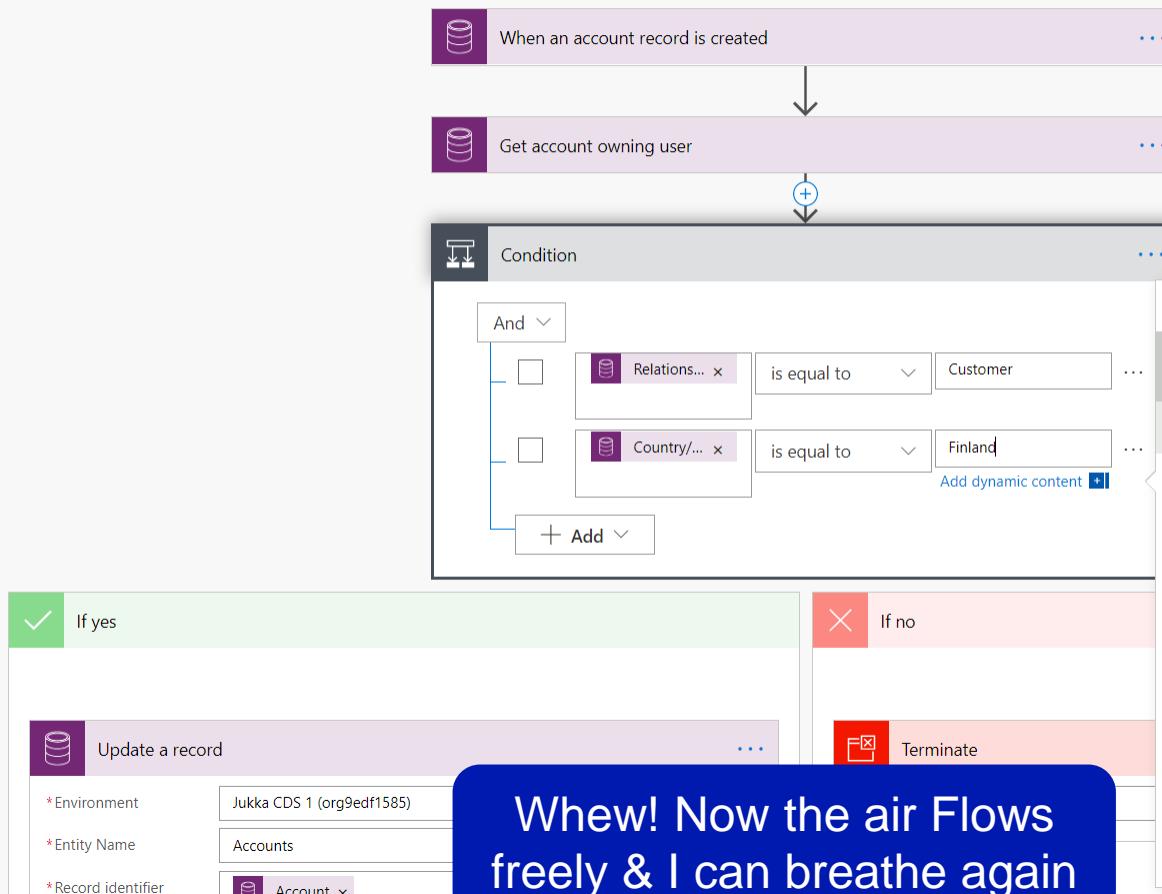
NOT AGAIN! Why are you showing me this?!?



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.”*

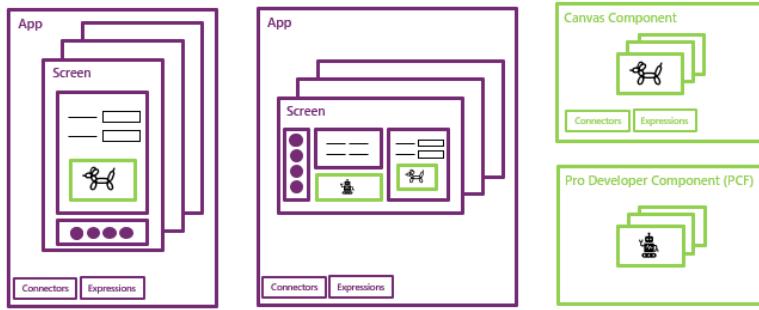


Charles Lamanna

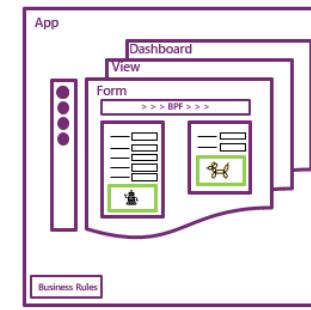
General Manager, Application Platform  
Microsoft

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

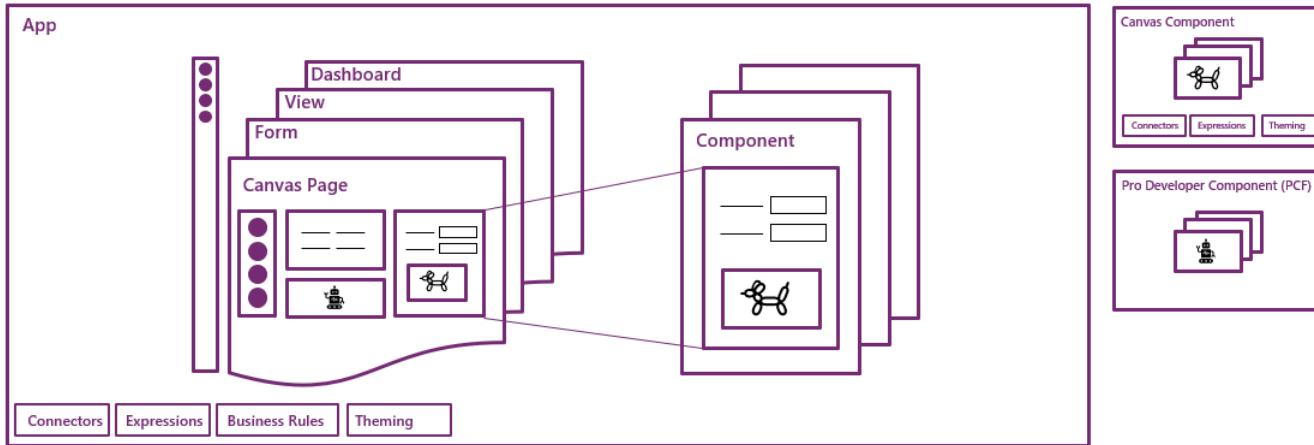
## Canvas Apps



## 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

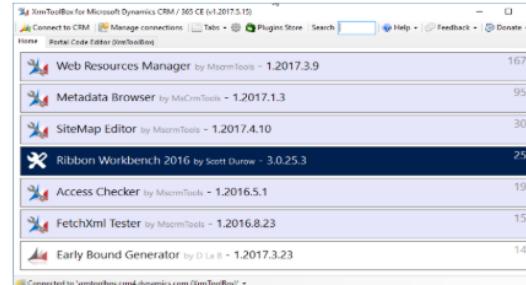
Get your [CDSToolBox](#) here:

[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/>



Phone Call (Phone Call)  
Call the customer with relevant information (sample) Priority High

Phone Call Tab Related

Subject: Call the customer with relevant information

Call From: Alpine Ski House (sample)

Call To: Susanna Shubert (sample)

Phone Number: 555-0101

Body Details: Click the icon or Drop files Here

**Audio Attachment Control**

QnAMaker Control

What are the membership options? Ask

Component

Marketing Sales Field Services Finance and Operations Marketing Sales Field Services Finance and Operations Marketing Sales Field Services Finance and Operations Marketing Sales Field Services Finance and Operations

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"

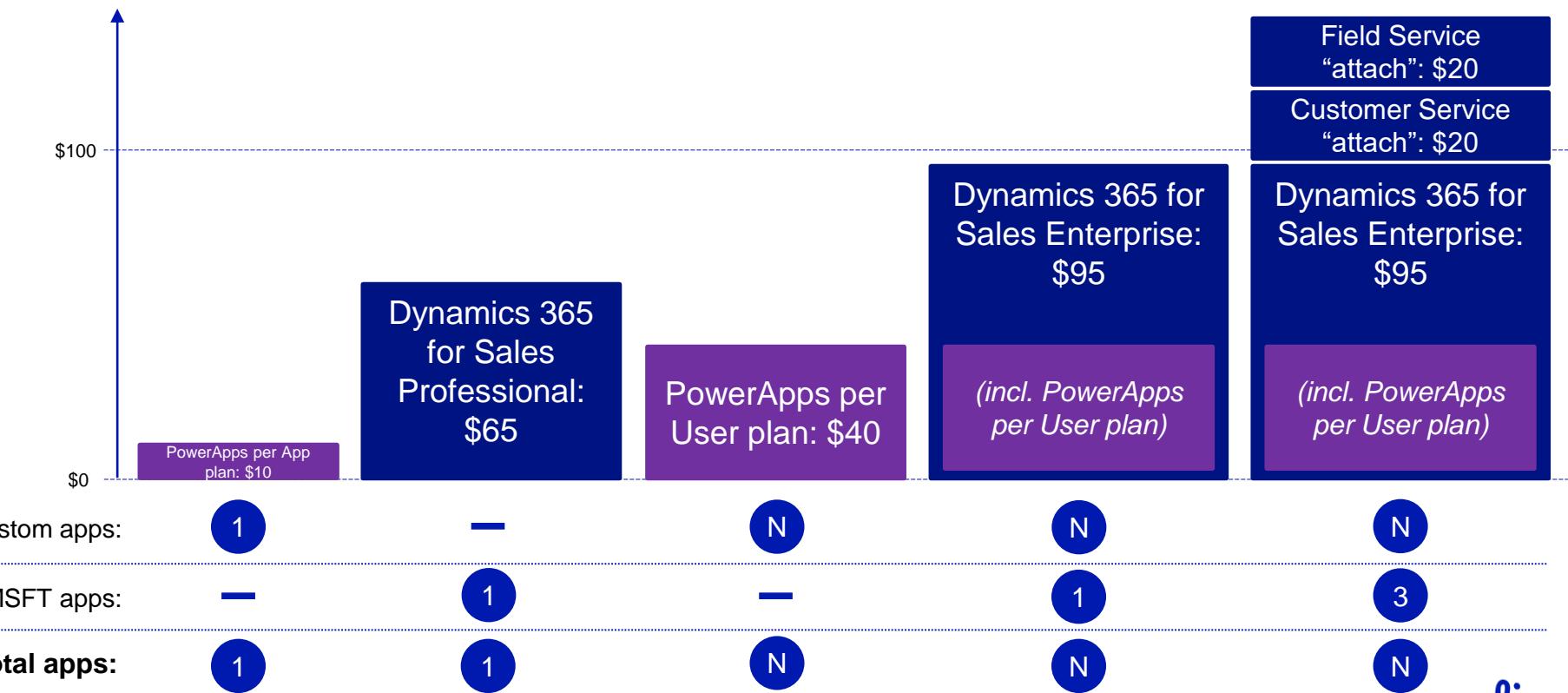
# "Our Office 365 users can never afford this!"

- 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!