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Towards a common app platform:

What PowerApps makers should know about Dynamics 365

SPUG.fi - 26.8.2018

Jukka Niiranen

Agenda



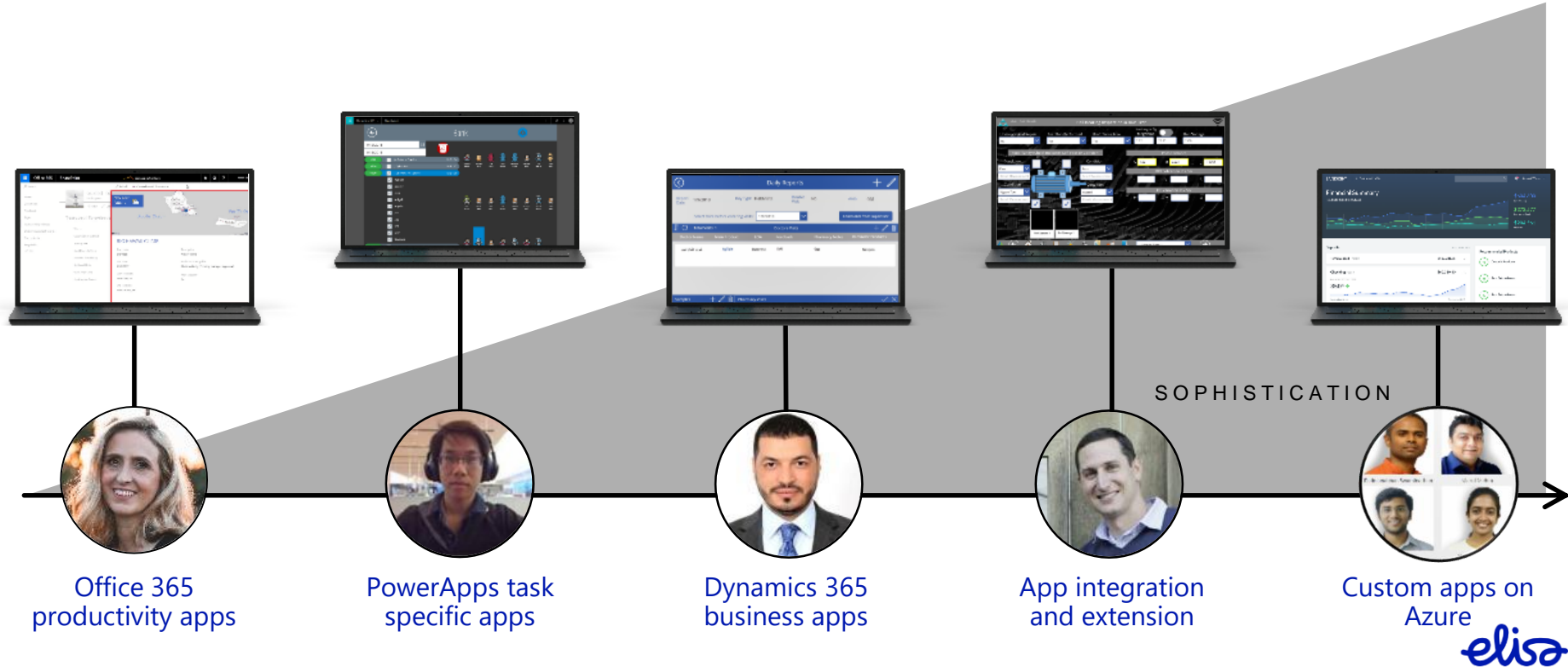
Intro

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

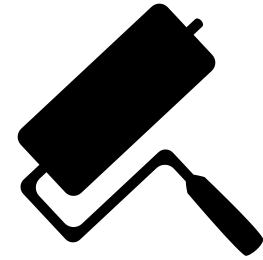
- ✓ A) Power users and citizen developers to step up from Excel sheets
- ✓ B) Organizations to build task specific apps for their mobile workforce
- ✓ C) Enterprise business applications like CRM

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](#)



@jukkan •



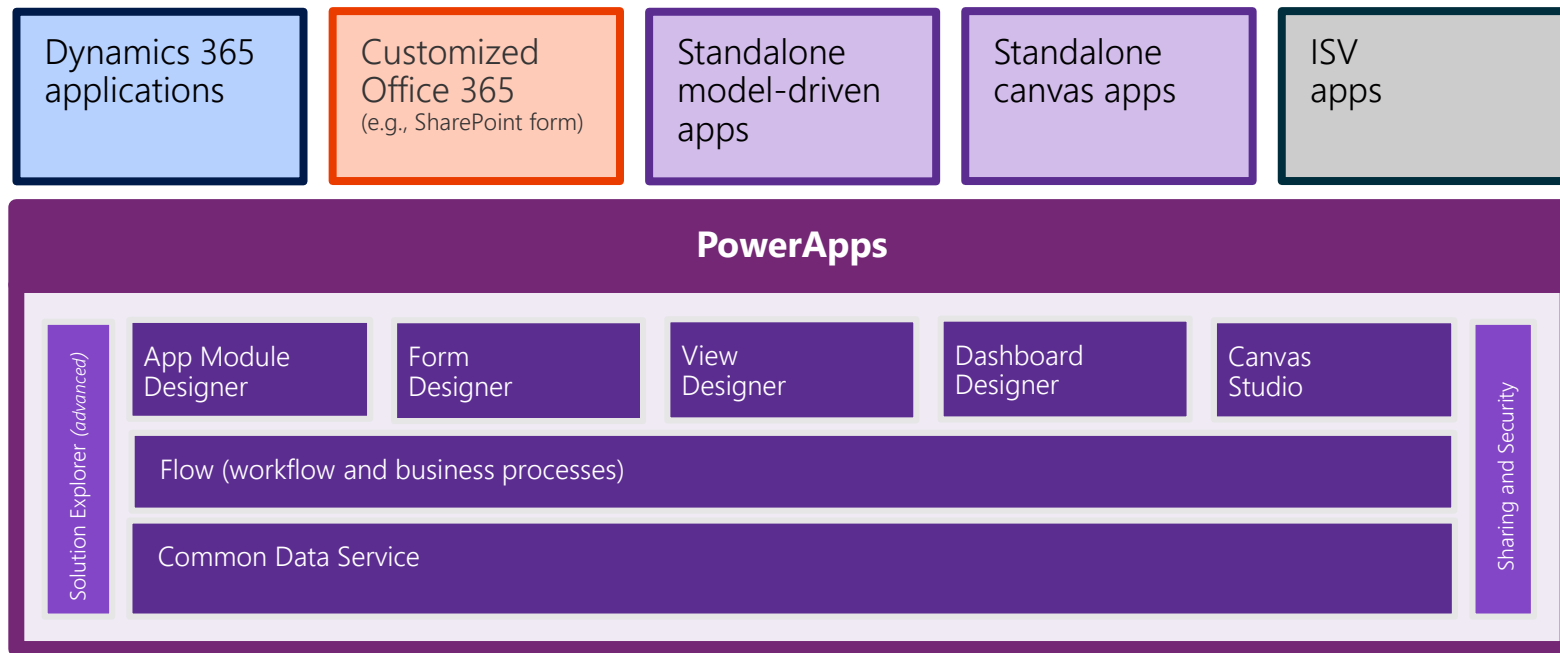
"Stop building stuff that is deployed into SharePoint and stop trying to change the way it works. The more you try, the more frustrated you get and the less success you have. Plus, one day, something will change and your stuff will break and everyone will have some great flame war again."

[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!

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.

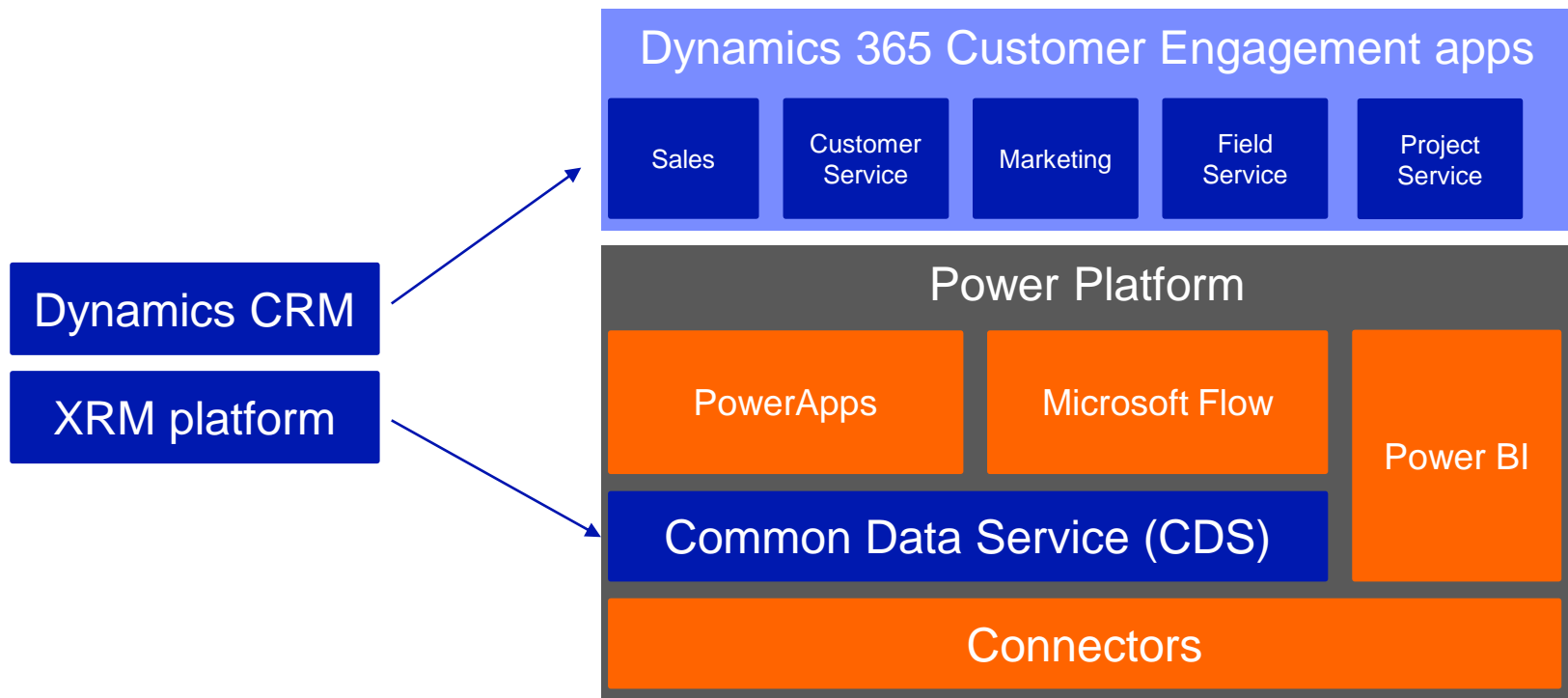
Well, today we had the public launch of the Dynamics 365 Spring Wave in the Microsoft Business Forward event, which I summarized in [my previous blog post](#). The most significant piece of news from this announcement wasn't perhaps articulated so clearly in official Microsoft materials, so I'll try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

XRM = CDS v2

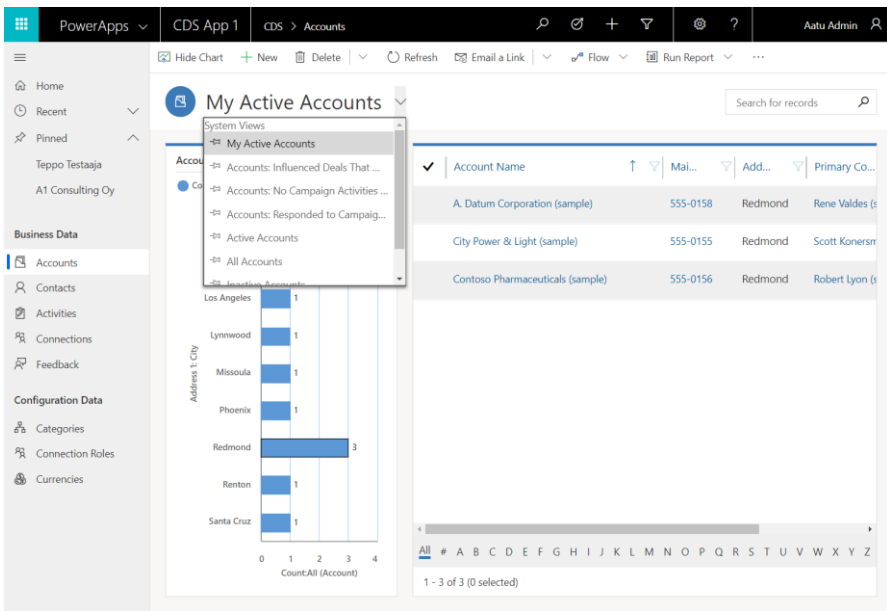
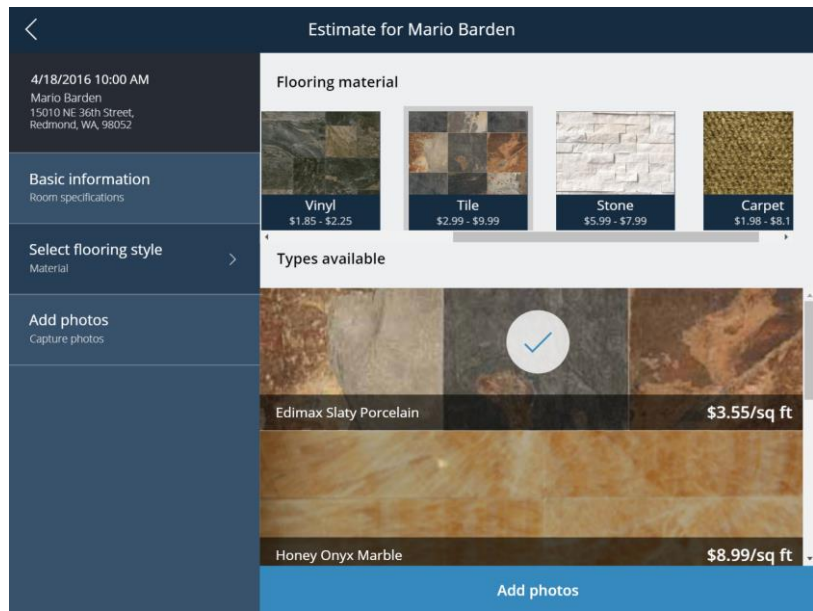
A brief history

- 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

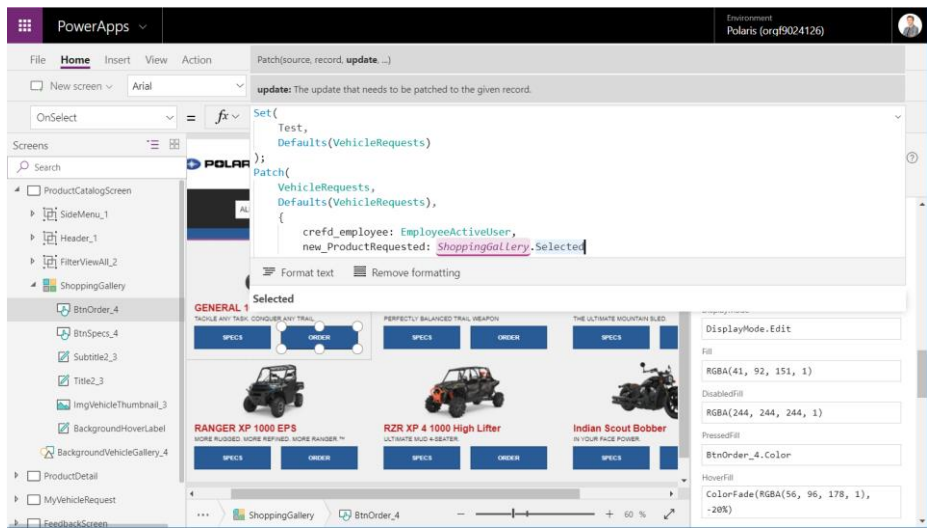


Every app is now a PowerApp

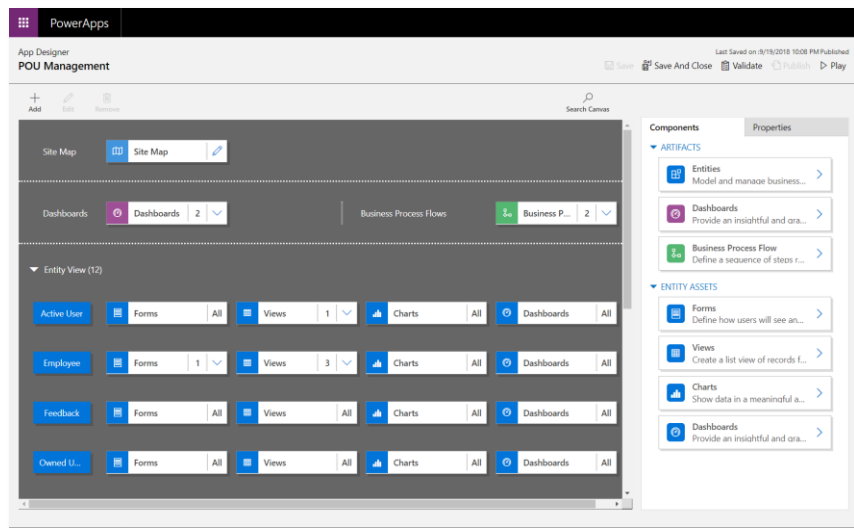


Every app is now a PowerApp

Canvas App Studio



Model-driven App Designer



PowerApps

PowerApps

Form

PowerApps

Form

Home

Learn

Apps

Create

Data

Entities

Option Sets

Data Integration

Connections

Custom Connectors

Gateways

Flows

AI Builder (preview)

Solutions

Entities > Car

Fields

Relationships

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

Layout

Input

Display

Related data

1-column tab

2-column tab

3-column tab

1-Column section

2-Column section

3-Column section

4-Column section

Flip - Switch

Number Input

Arc Knob

Linear Slider

Linear Gauge

Radial Knob

Website Preview

Tree view

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

New Car

Car

General

Name

Manufacturer

Model

Model Year

Trim Level

Body Type

Power Source

Transmission

Type

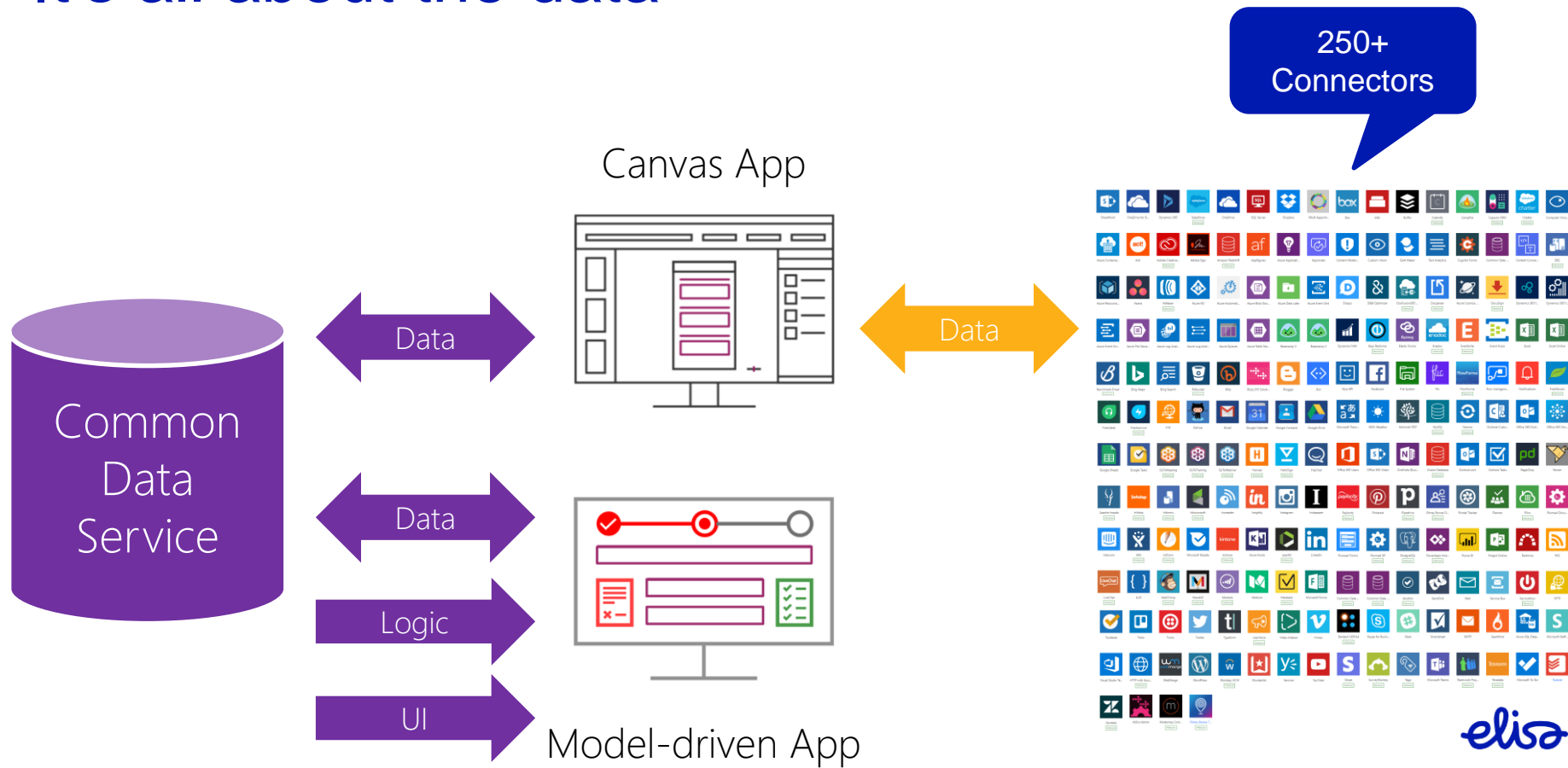
New

Mileage (km)

Responsive (800 x 800)

14

It's all about the data



CDS = relational database, whereas SharePoint...

Northwind Orders				
Order 0938 Company T \$ 2,870.00	Invoiced	Order Number 0938	Order Status Invoiced	Order Date 6/22/2006
Order 0937 Company CC \$ 3,810.00	Closed	Order Date 6/22/2006	Paid Date 6/22/2006	
Order 0936 Company Y \$ 1,170.00	Invoiced	Customer Company T	Employee Costa	
Order 0935 Company I \$ 606.50	Shipped	Notes		
Order 0934 Company BB \$ 230.00	Closed			
Order 0933 Company A \$ 736.00	New			
Order 0932 Company K \$ 800.00	New			
Product				
Quantity	Unit Price	Extended		
10	\$ 38.00	\$ 380.00		
30	\$ 53.00	\$ 1,590.00		
30	\$ 30.00	\$ 900.00		
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



Michał Guzowski #PowerAddict

@michaelguzowski

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

User Interface

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

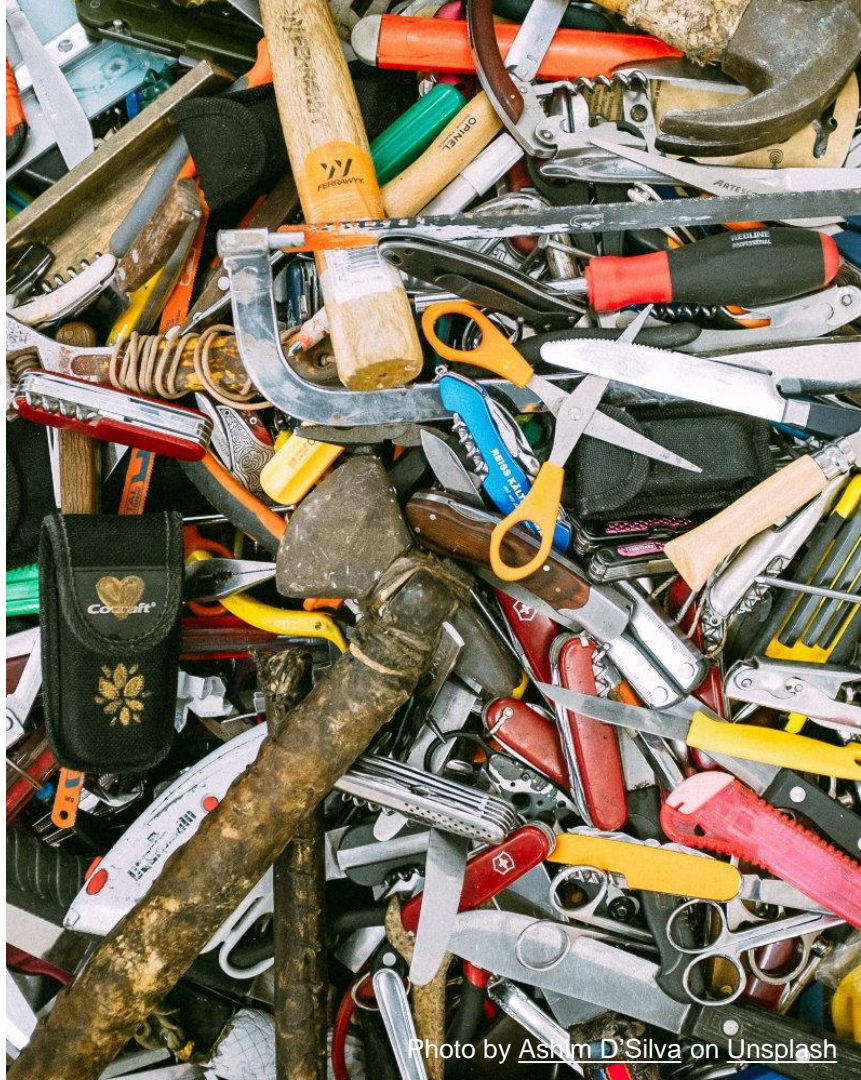
Miscellaneous

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

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

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





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 ▾

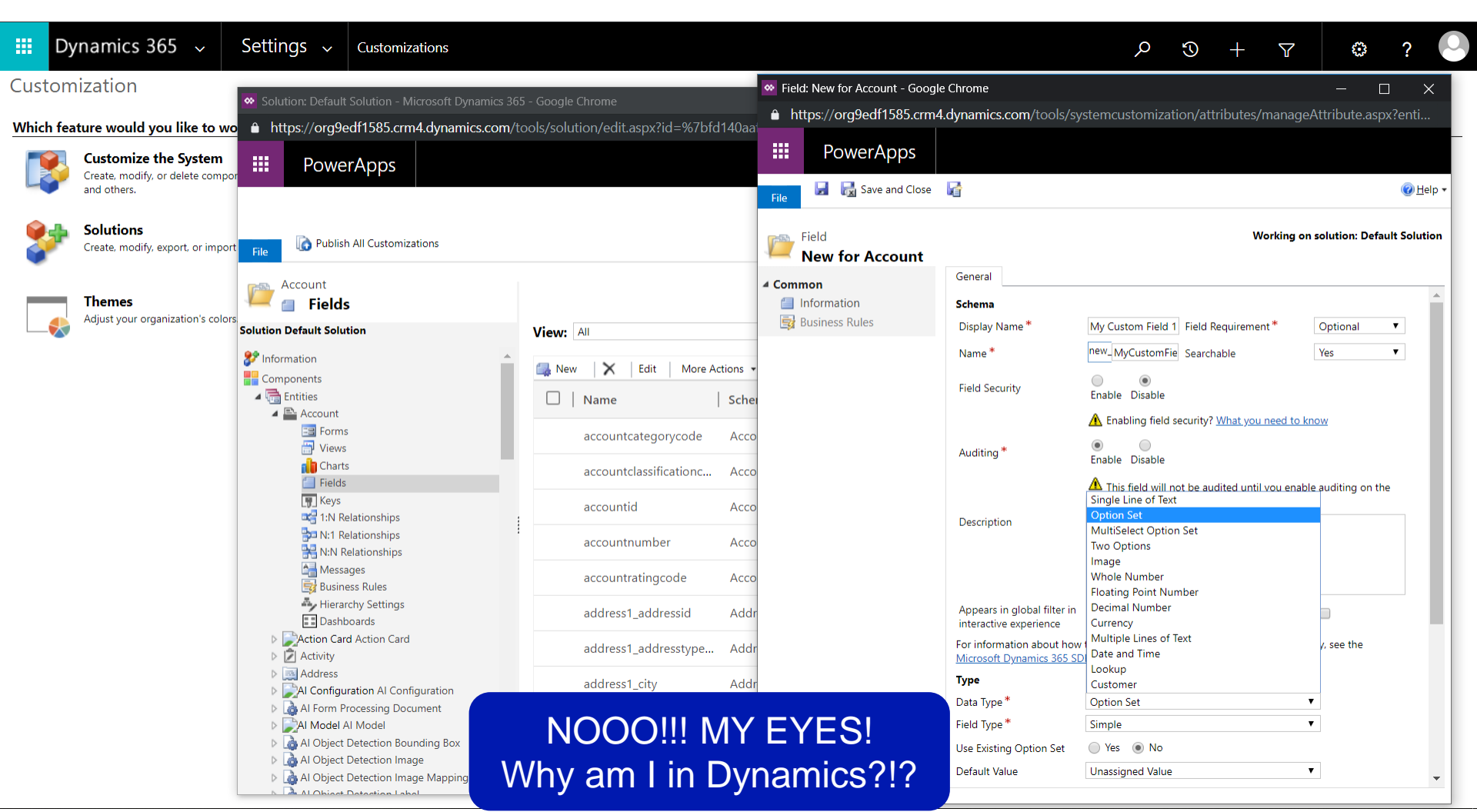
☐ Use calculated value ⓘ[More options](#)

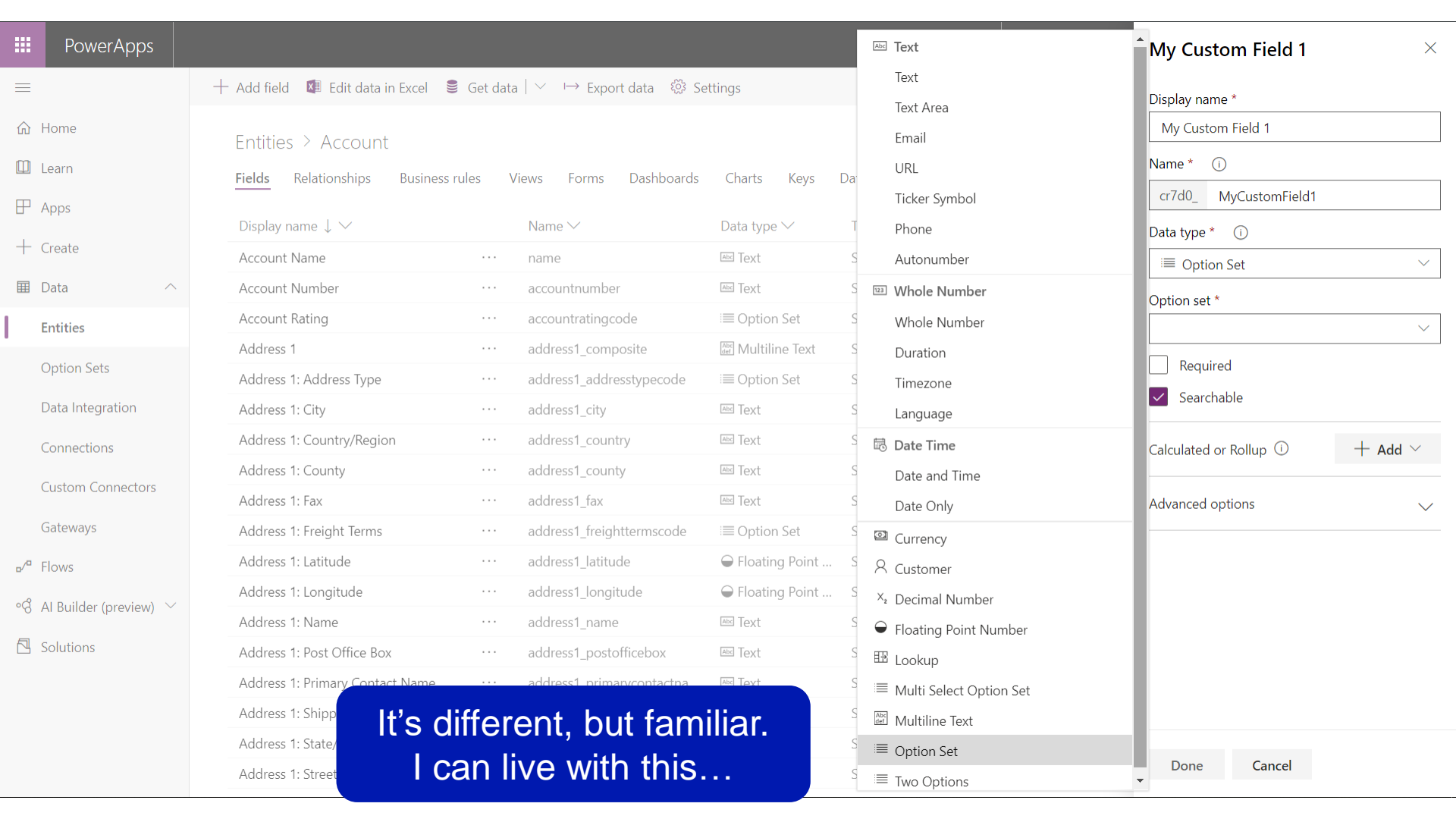
Display choices using:

☒ Drop-Down Menu

Save

Cancel





+ Add field x 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	S
Account Number	...	accountnumber	Text	S
Account Rating	...	accountratingcode	Option Set	S
Address 1	...	address1_composite	Multiline Text	S
Address 1: Address Type	...	address1_addresstypecode	Option Set	S
Address 1: City	...	address1_city	Text	S
Address 1: Country/Region	...	address1_country	Text	S
Address 1: County	...	address1_county	Text	S
Address 1: Fax	...	address1_fax	Text	S
Address 1: Freight Terms	...	address1_freighttermscode	Option Set	S
Address 1: Latitude	...	address1_latitude	Floating Point ...	S
Address 1: Longitude	...	address1_longitude	Floating Point ...	S
Address 1: Name	...	address1_name	Text	S
Address 1: Post Office Box	...	address1_postofficebox	Text	S
Address 1: Primary Contact Name	...	address1_primarycontactna	Text	S
Address 1: Shipp	...			S
Address 1: State	...			S
Address 1: Street	...			S

Text

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

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

Dynamics 365

Settings

Customizations

Customization

Which feature would you like to work with?

Customize the System

Create, modify, or delete components and others.

Solutions

Create, modify, export, or import solutions.

Themes

Adjust your organization's colors.

PowerApps

File

Save and Close

Activate

Convert to a real-time workflow

Show Dependencies

Solution Layers

Actions

Help

Process: My Oldskool CRM Workflow

Information

Working on solution: Default Solution

Common

Information

Audit History

Solution Health Rules

Solution Health Rules

Process Sessions

Process Sessions

General

Administration

Notes

Hide Process Properties

Process Name *

My Oldskool CRM Workflow

Activate As

Process

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)

Entity

Account

Category

Workflow

Options for Automatic Processes

Scope

Organization

Start when:

☒ Record is created

☐ Record status changes

☐ Record is assigned

☐ Record fields change

☐ Record is deleted

Specify Condition - Microsoft Dynamics 365 - Google Chrome

https://org9edf1585.crm4.dynamics.com/Condition/Condition.aspx?EntityId=62a6ad7b-e638-4...

File

Save and Close

Help

Clear

Group AND

Group OR

Primary Contact (Contact)

Email

Contains Data

Primary Contact (Contact)

Do not allow Emails

Does Not Equal

Look for:

Account

Credit Hold

Do not allow Bulk Emails

Do not allow Bulk Mails

Do not allow Emails

Do not allow Faxes

Form Assistant

Dynamic Values

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

Add Step

Insert

Delete this step.

Check account relationship type and country

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

Assign Finnish accounts to Jukka

Assign:

Account

to

Jukka Niiranen

Set Properties

Send account primary contact an introduction email about account responsible person

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

Select this row and click Add Step.

NOT AGAIN! Why are you showing me this!?

Flow

Home

Approvals

My flows

Templates

Connectors

Data

AI Builder (preview)

Solutions

Learn

New account responsible notification

Save

Flow Checker

Test

When an account record is created

Get account owning user

Condition

And

Relations...

is equal to

Customer

Country/...

is equal to

Finland

Add dynamic content

+ Add

If yes

Update a record

*Environment

Jukka CDS 1 (org9edf1585)

*Entity Name

Accounts

*Record identifier

Account

If no

Terminate

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



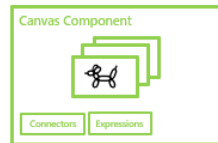
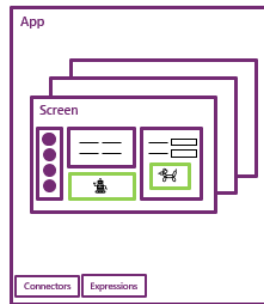
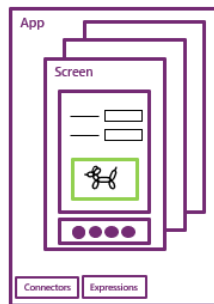
“Artificial limitations in app features will be removed, so that choosing [File - New App] will give you model or canvas experiences and everything will work across both.”



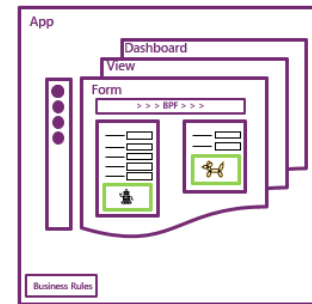
Charles Lamanna
General Manager, Application Platform
Microsoft

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

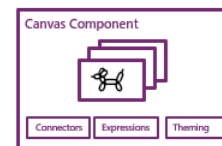
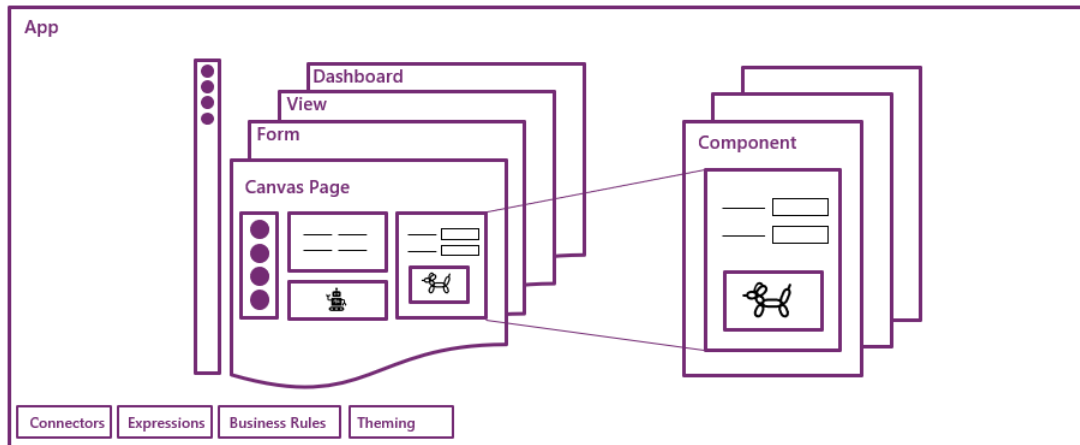
Canvas Apps



Model Driven Apps



PowerApps



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

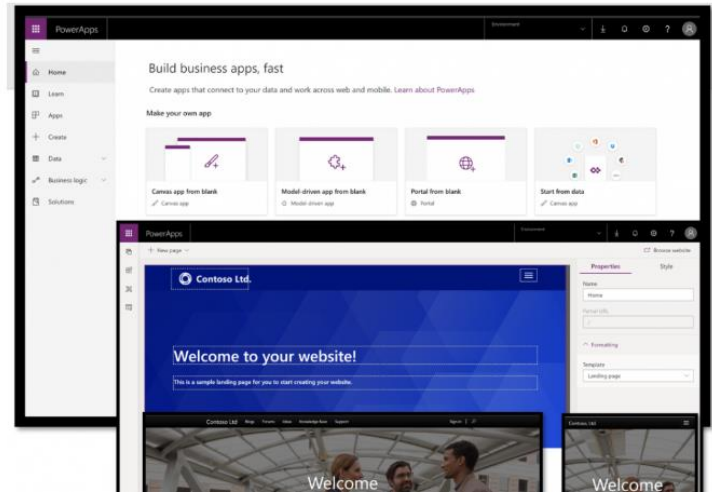
 Charles Lamanna, General Manager, Sunday, June 9, 2019



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

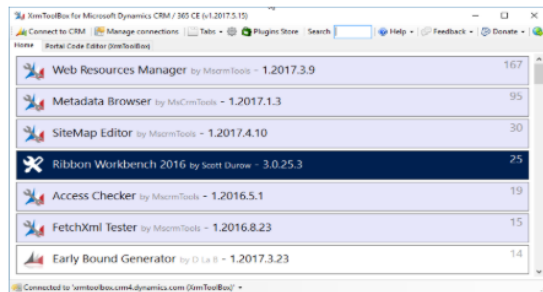
Get your CDSToolBox here:

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/>



Categories

Please select

Search

Type and hit enter...

Authors

Ideas

About



MSFT
1/21/16 (FRI)
136.42
▲ 0.71 (0.51%)

Open	135.55
High	136.44
Low	136.27

Stock Update Card

<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"

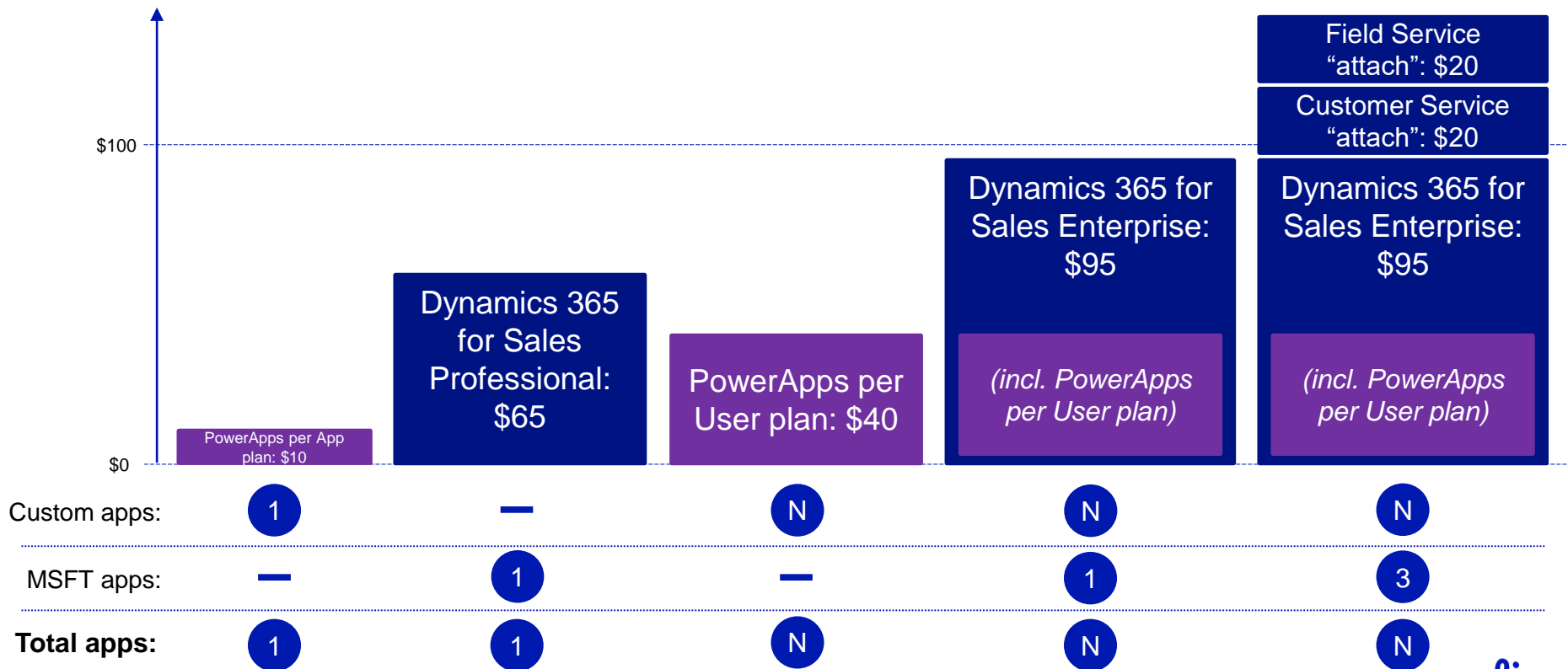
"Our Office 365 users can never afford this!"

- 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!