eXtremeCRM 2016 Newport Beach

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Integrating CRM with the Common Data Service

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InaPlex, Inc

Introduction

Power Apps, Flow, Azure Logic Apps, Common Data Service

Outline

- Brief overview of the Common Data Service (CDS) environment
  - We will be examining integration, not covering how to build apps
- Motivating Example Application
  - PowerApp querying CRM directly
  - Flow populating CDS, then read by PowerApp
  - Azure Logic App populating CDS, then read by PowerApp (maybe)
  - Custom Web API read by PowerApp
- Second example
  - Bulk data import to CDS from CRM

Special Offer From InaPlex

InaPlex has a special offer until December 31

To learn more about integration with CDS take up our FREE offer

- A set of maps freely available for Dynamics CRM and Salesforce account and contact
- Blog post going into process in detail (blog.inaplex.com)
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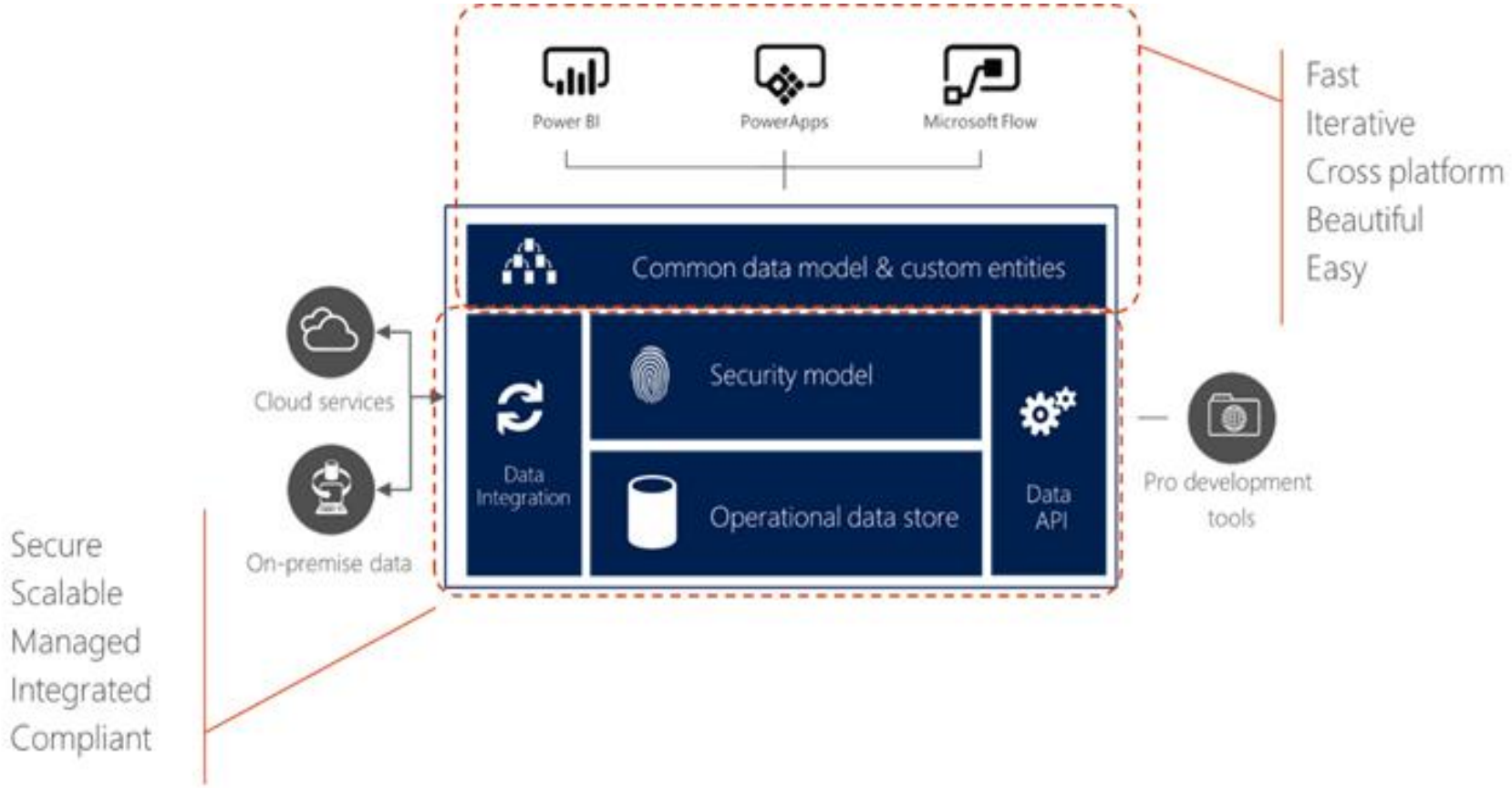
Now – on with the presentation!

Microsoft Common Data Service and Flow

… changing every day… GA Oct 1, iterating every 2 weeks



Tenancy and Environments

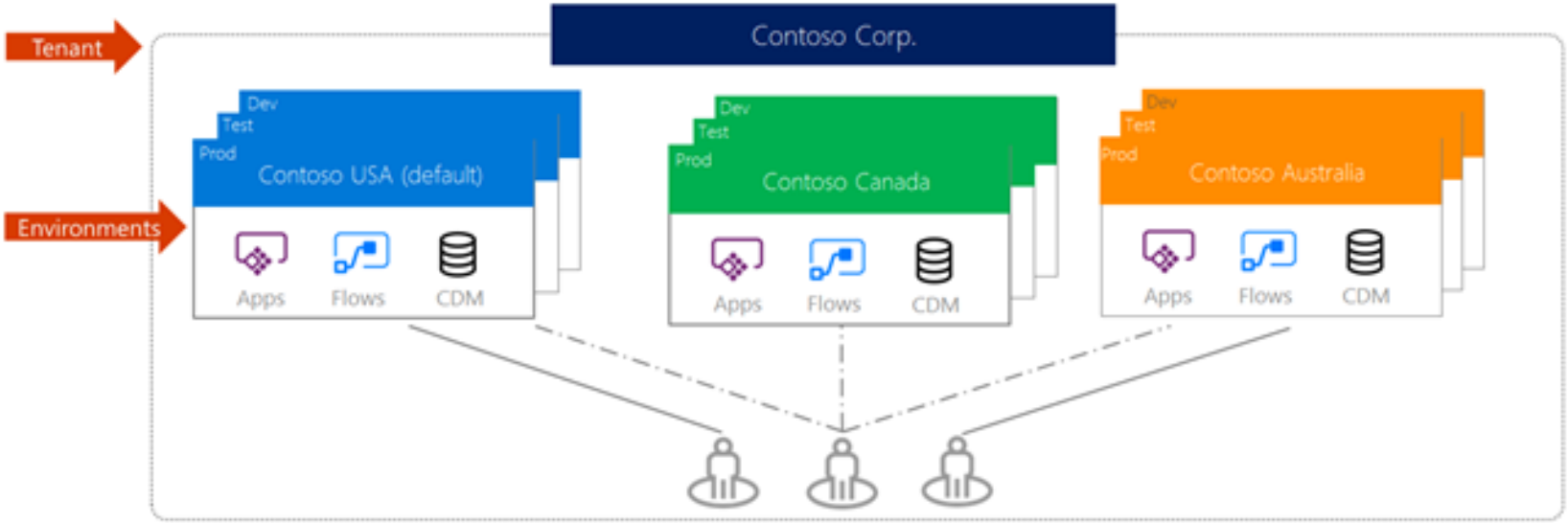
For all practical purposes, Office 365 and Azure subscriptions are single tenant

- Ignoring complex Active Directory forest structures

PowerApps, Flow, Connections, Logic Apps live inside the subscription

But they can exist in multiple Environments

- https://powerapps.microsoft.com/en-us/blog/powerapps-environments/



PowerApp and CDS Environments

Environment can have zero or one CDS database

Environment is a security realm

- Apps can only connect to data sources within environment
  - Connections
  - Flows
  - Gateways
  - CDS database
  - But they can be shared across an organization

Environment disposed - all connections, Flows, gateways, databases go.

Azure subscription and Office 365 subscription are different worlds (currently)

Motivating Example

Realty Advisors – Property Appraisals for Banks

Realty Advisors have multiple bank clients

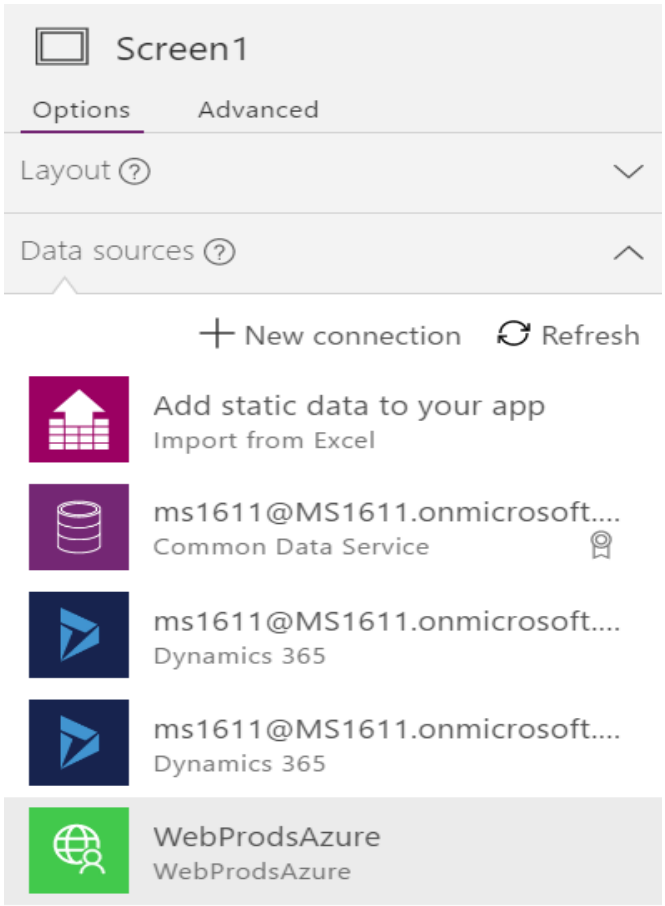
For each bank, they conduct property appraisals

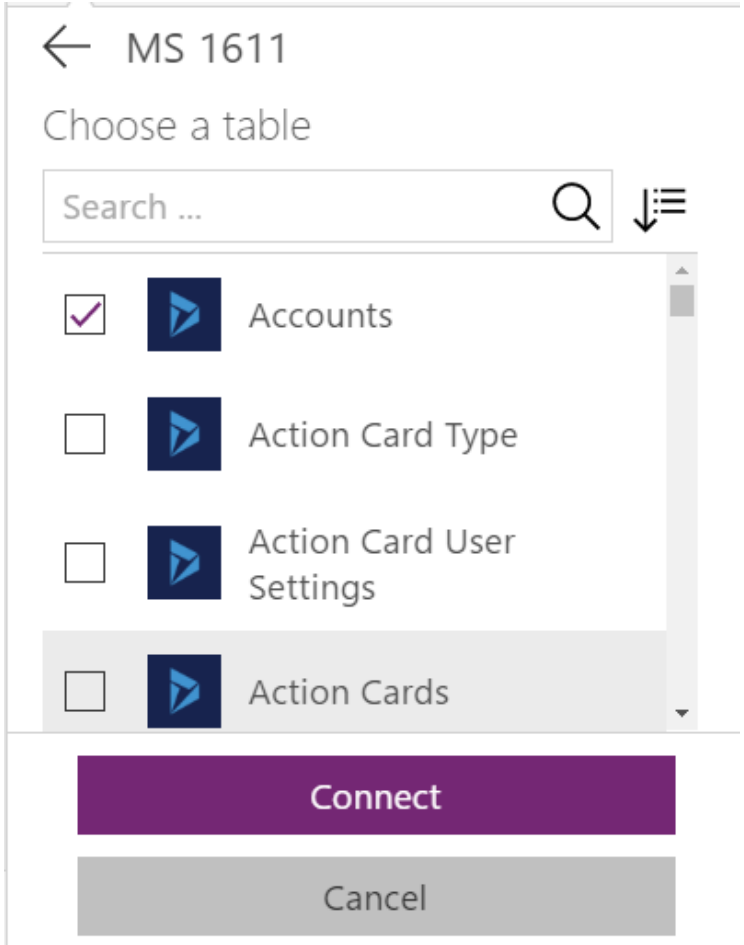
- Licensed Appraiser does the Appraisal
- Banks have lists of approved Appraisers
- Each Appraisal has multiple steps, documents
- Appraiser is a contact in CRM, used by multiple banks
- Custom entities for aspects of Appraisal process

Major bank customer requested real time access to Appraisal process and documents

Concept 1 – PowerApp querying CRM

Demonstration – Create PowerApp to access CRM





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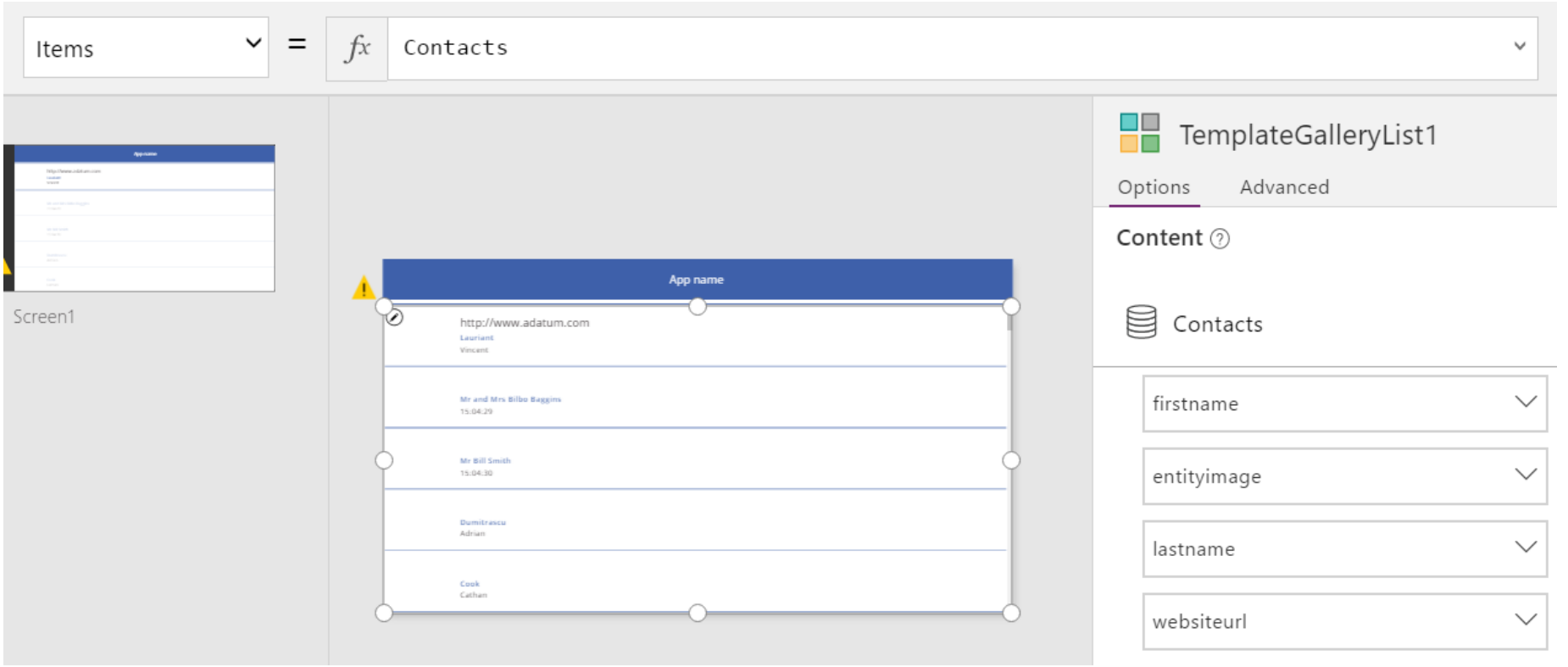


Concept 1 – PowerApp querying CRM

Points to Note, Problems

Multiple CRM connectors – same names

When connector selected, get list of entities

- Can select one or more, but not a query
- In App, can use filter(), search(), lookup() functions to extract and combine data

Problems

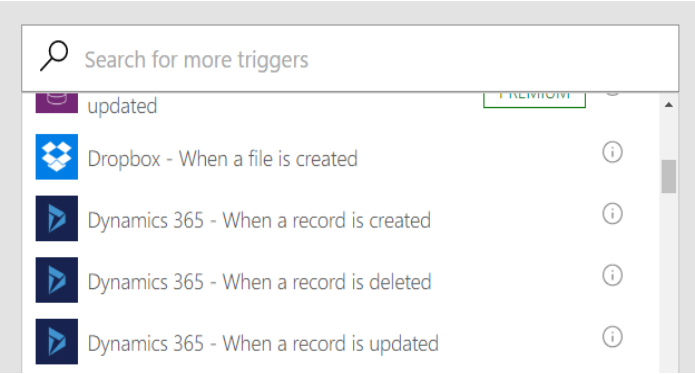
- App and Connector live in Banks tenancy/environment, outside our control
- If connector has credentials for all entities, they can modify and query anything
- Could possibly have custom entity with just there data, but then need to manage sync and refresh

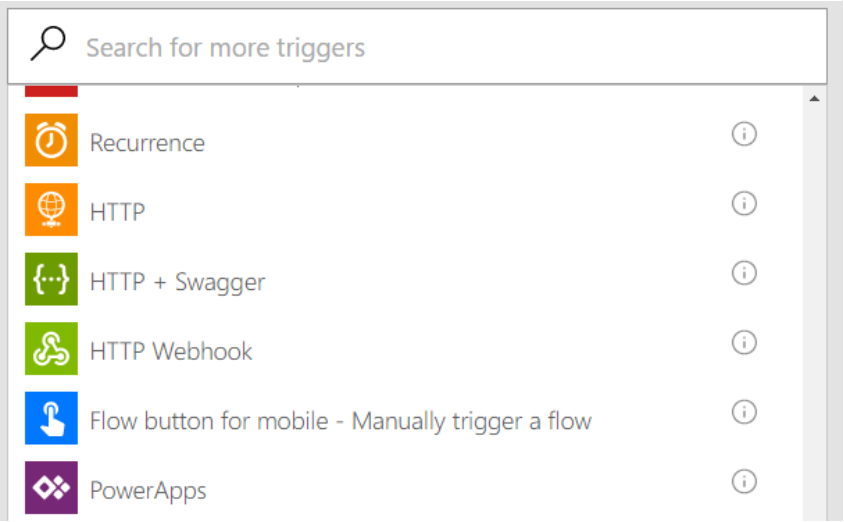
Concept 2 – Flow populating CDS

Get Summary Data into CDS for Bank PowerApp

Use a Flow to pull data from CRM

First step is to specify a trigger





Concept 2 – Flow populating CDS

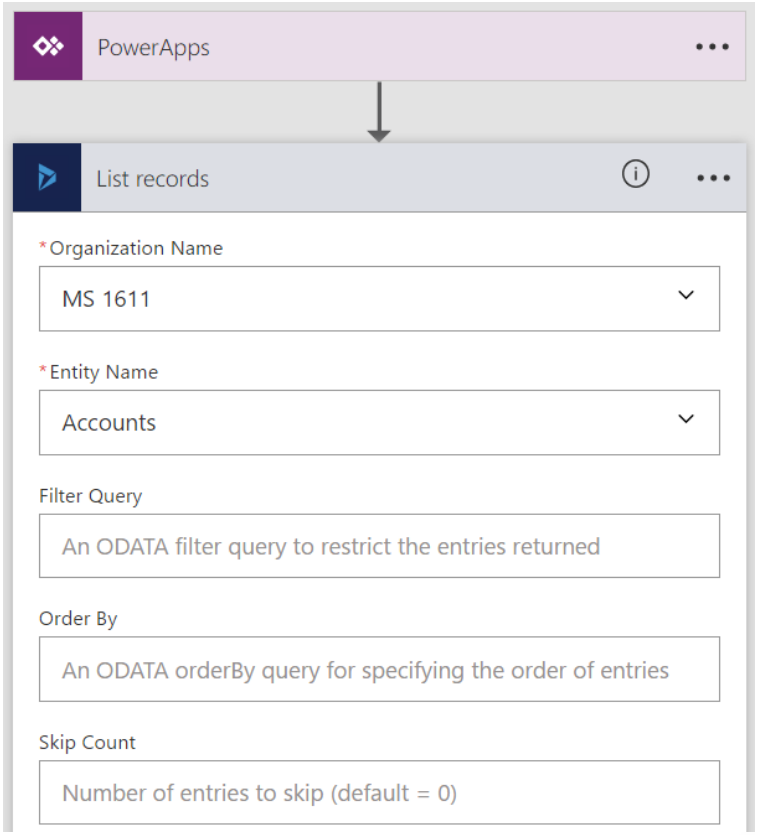
Flow Design

Start of a Flow that looks promising

List records action only queries a single entity

Means need multiple Flows

- Account
- Contact
- Custom Appraisal entities



Concept 2 – Flow populating CDS

Problems

Essentially same problems as Concept 1

The Flow and Connector live in Bank tenancy / environment

- They can modify Flow and Connector at any time
- Need to have credentials that restrict access but still allow all required data
- Very complex for this system

Second issue is that Flow needs to be triggered

- Example showed trigger from PowerApps
- Not clear if PowerApp can trigger multiple Flows
- Can use Recurrence trigger, but then need to decide frequency

Concept 3 – Azure Logic App to CDS

Use a Logic App to Populate CDS

Azure Logic Apps underlie Flow

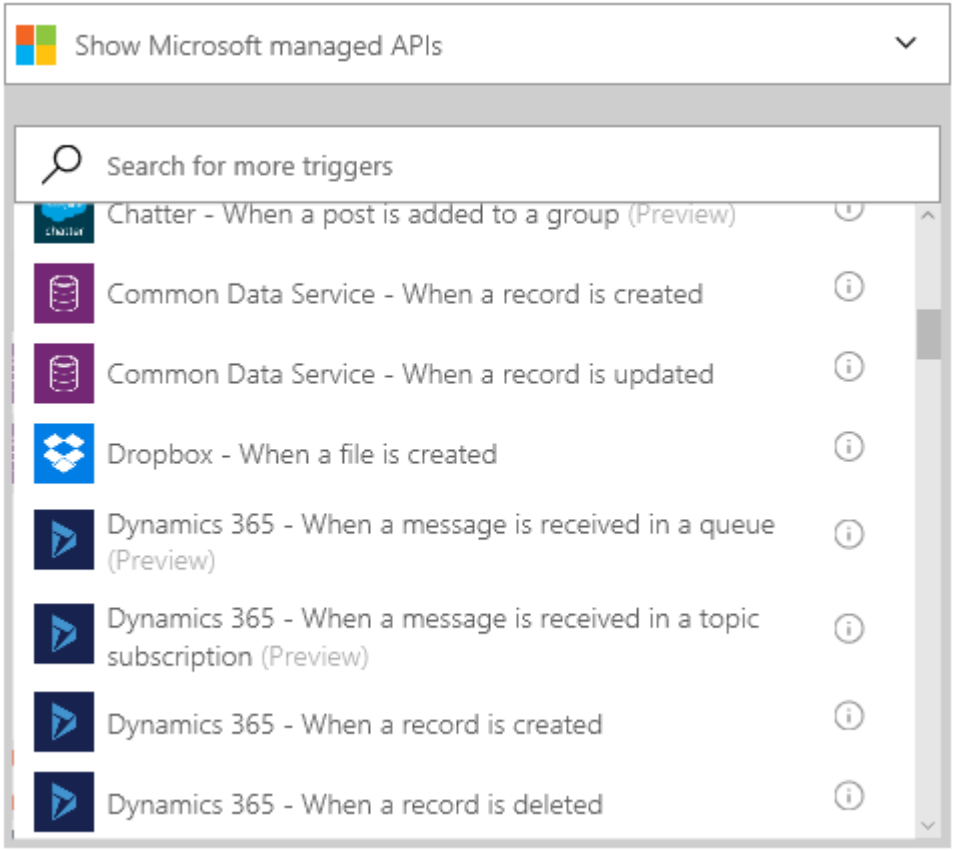
More functionality and flexibility

But

- Azure world separate to Office 365 world
- See portal.azure.com
- CDS connector only added in

  last couple of weeks
- Not clear which environment

  CDS will be in



Concept 3 – Azure Logic App to CDS

Possible Trigger, Problems

Can do POST to URL to trigger

Not clear if PowerApp can do URL post

Not clear if Logic App in ‘our’ Azure can update CDS in ‘their’ O365

Back to security issues

Probably also multiple Logic Apps

Concept 4 – Web API to query CRM

Custom API deployed to Azure

Both Azure Logic Apps and PowerApps can use a connector that connects to Rest API

Advantages

- API is accessed by URL – can reside anywhere
- We have full control over credentials, querying
- API can present consolidated data schema that is just what customer requires
- We can change CRM schema with breaking the client
- Extend to other banks by using separate logins
- Scalable, can also use Azure Web API Management for high to very high volume

Concept 4 – Web API to query CRM

Build the Web App

Steps

1. Use Visual Studio to create a Web API App
   https://www.asp.net/web-api/overview/getting-started-with-aspnet-web-api/tutorial-your-first-web-api
   https://docs.microsoft.com/en-us/azure/app-service-api/app-service-api-dotnet-get-started

   NOTE: MUST include Swagger

2. Web API implements login and query to CRM internally

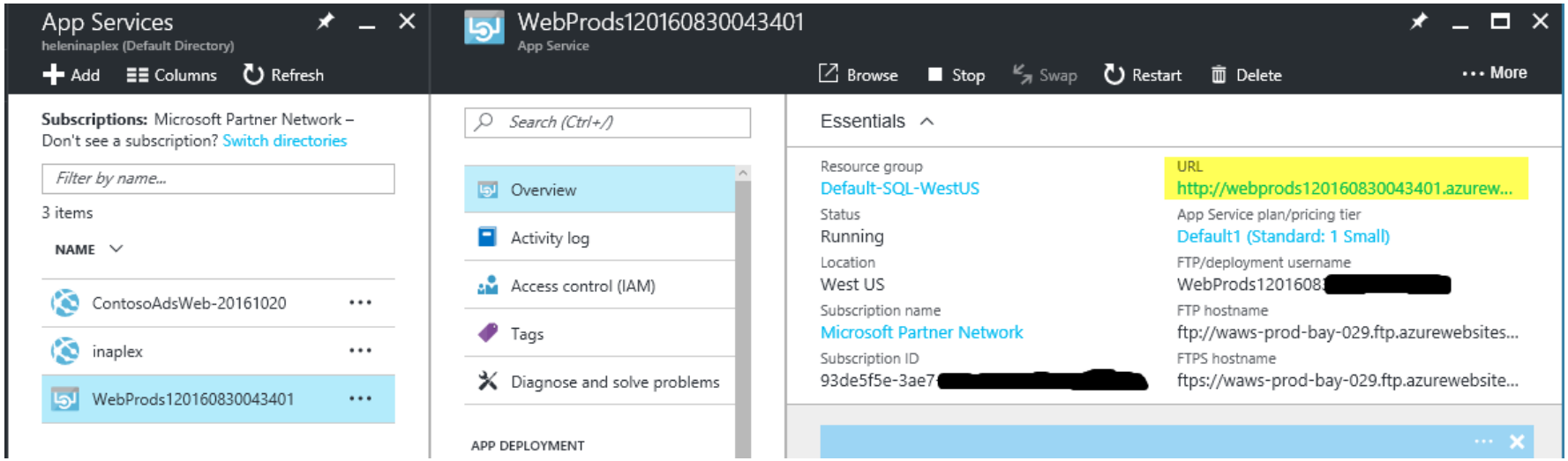
3. Deploy to Azure

4. Hit the Swagger URL, download the Swagger JSON
   https://webprods120160830043401.azurewebsites.net/swagger/docs/v1

Concept 4 – Web API to query CRM

Deployment in Azure

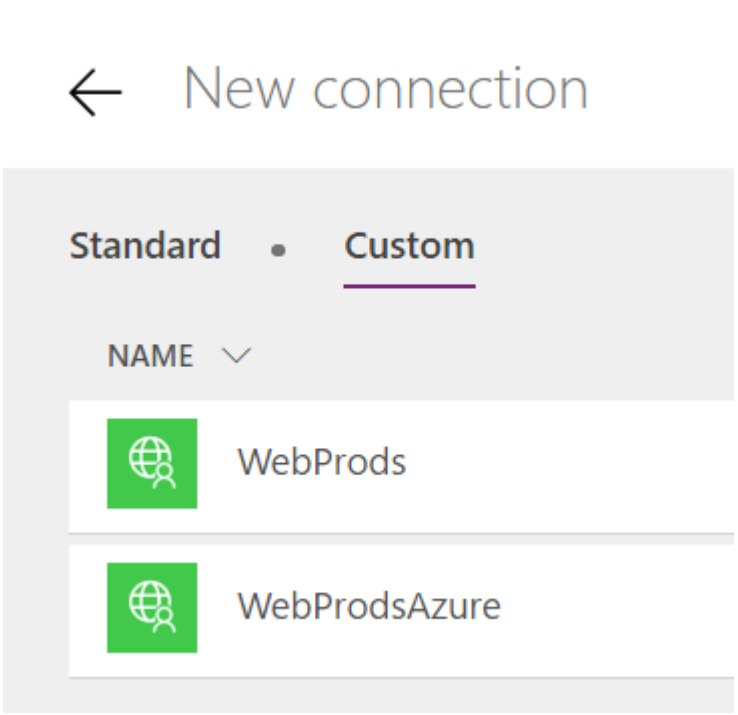
Note the URL top right

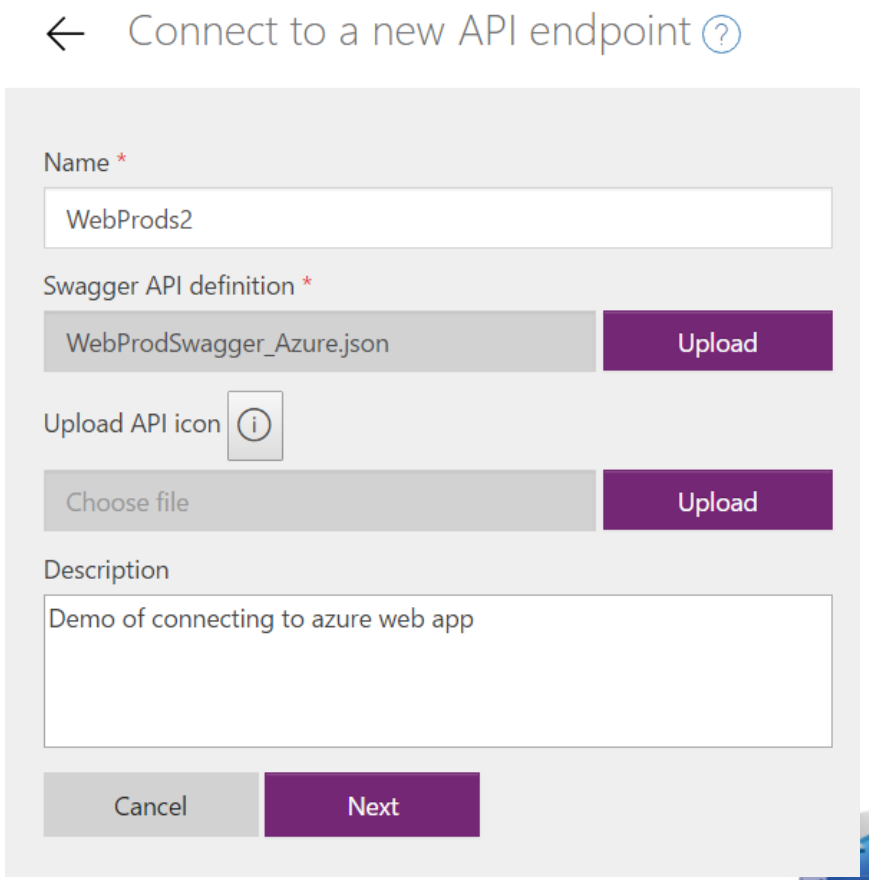


Concept 4 – Web API to query CRM

Connector in PowerApps, Azure

Create a custom connector to API



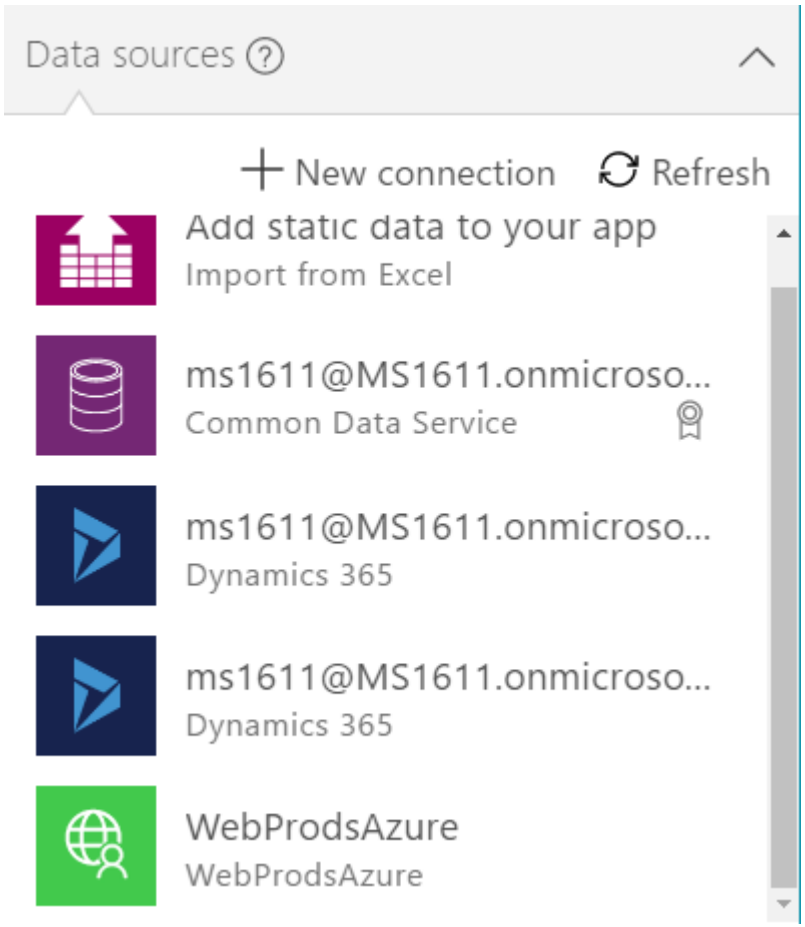


Concept 4 – Web API to query CRM

Build a PowerApp

Add a Connection

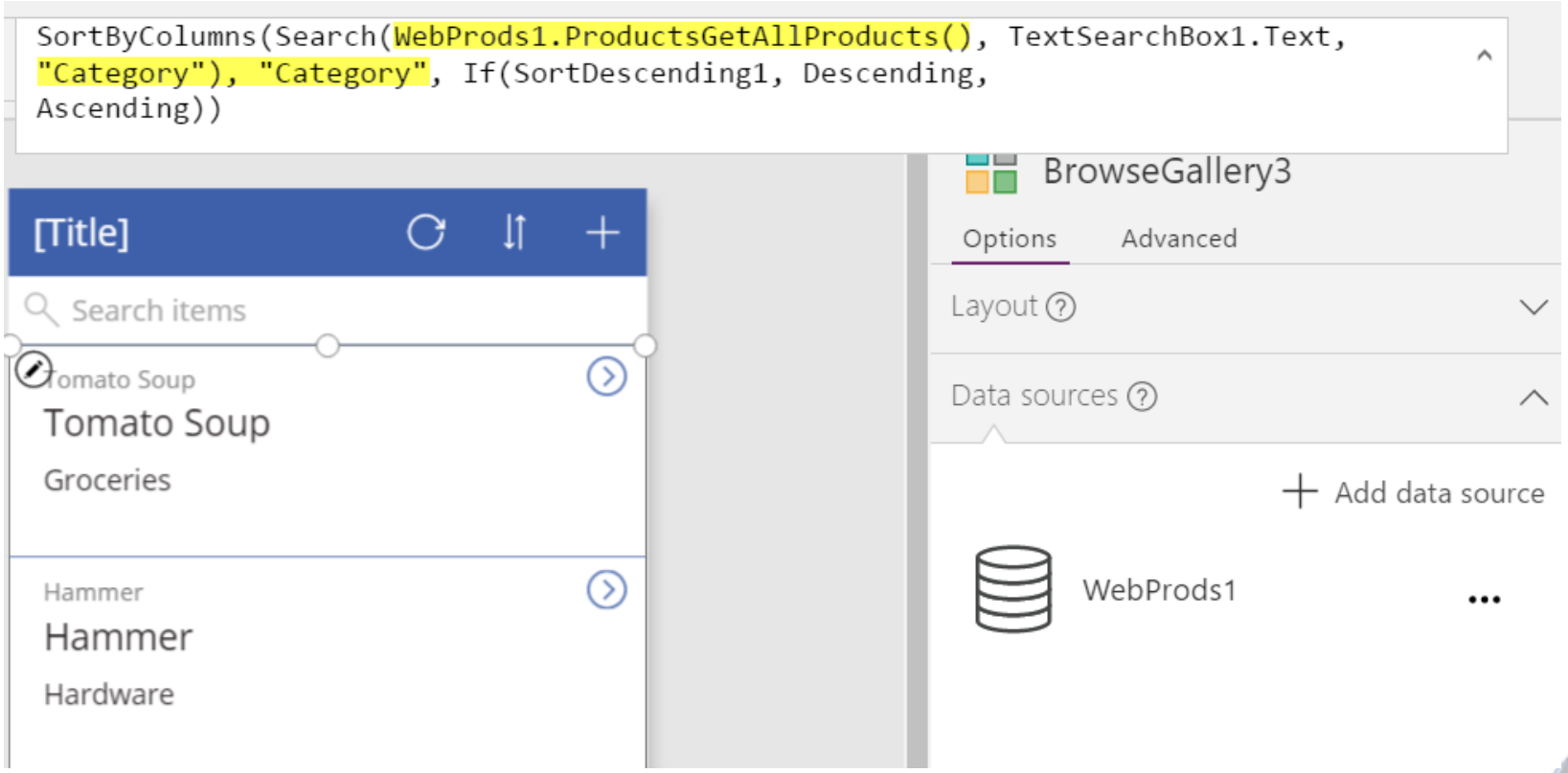
Simply select the new Connector from list



Concept 4 – Web API to query CRM

Build a PowerApp

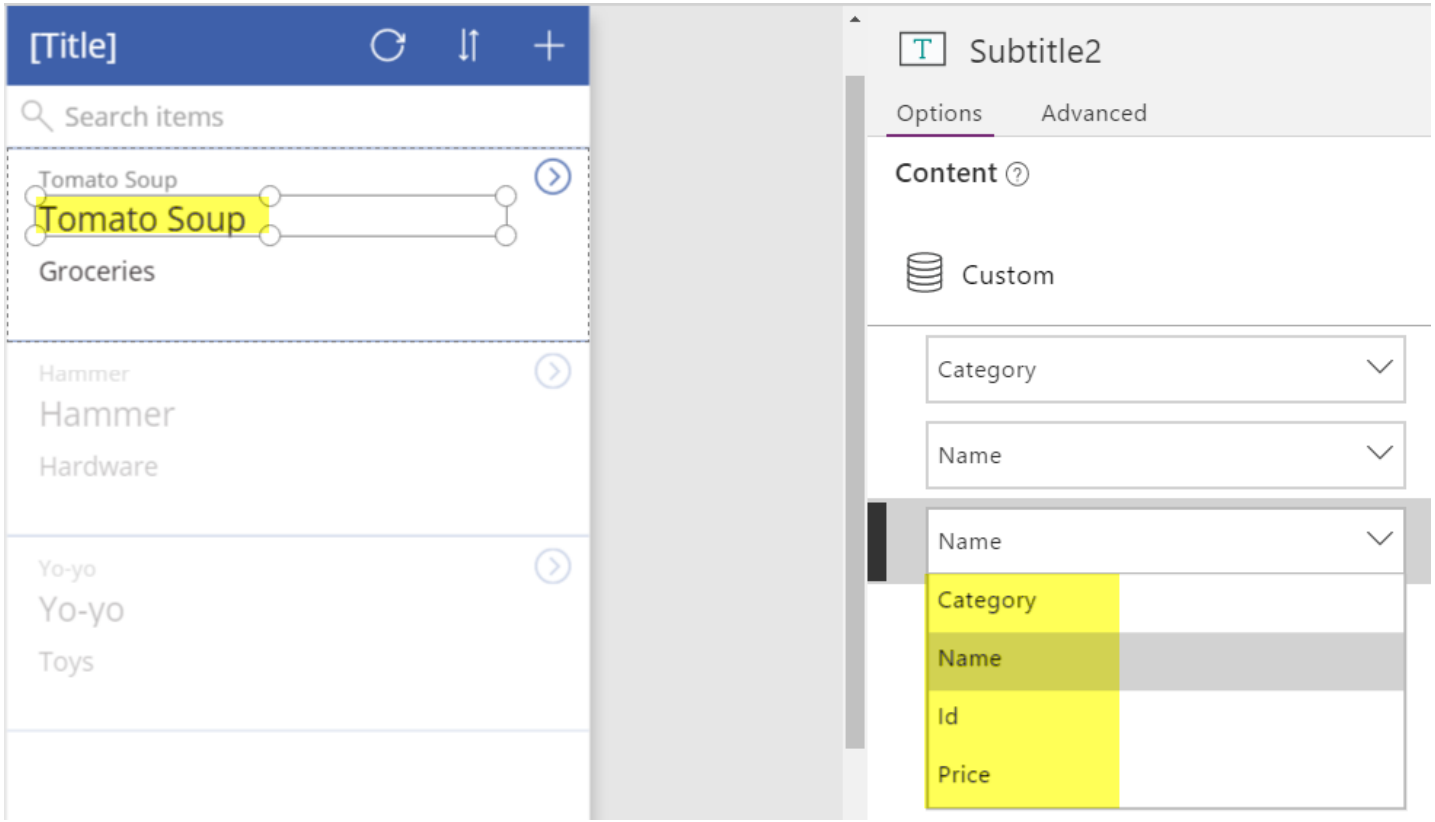
Gallery Control – expression to set data source



Concept 4 – Web API to query CRM

Build a PowerApp

Simple Gallery control, select field for each textbox



Section I Summary

What have we learned?

Multiple ways to attempt to connect CRM data to PowerApps, CDS

If all data and apps in single environment, can work well

If need to cross environment boundaries, Web API provides:

- Isolation from implementation and schema changes
- Security
- Query consolidation for schema

Section II – Bulk Import into CDS

Microsoft Objectives for Common Data Service

From the GA blog post Oct 31, 2016

Our objective for the Common Data Service is to enable the following capabilities for the PowerApps, Microsoft Flow and Pro development communities:

- An easy to provision, yet scalable data store
- A common data model with standard entity schema and behavior
- A powerful data access layer with support for data import, export and security
- Integration with Microsoft Office for Excel and Outlook
- A software developer kit (SDK) for professional development scenarios

The combination of PowerApps and the Common Data Service provides power users and enterprises a best of breed solution for rapid application development.

Bulk Import into CDS

Why get bulk data into CDS?

In Section I we looked at a particular application with a requirement to get limited data into CDS

Problems caused by security, management

Easy to imagine scenarios inside an enterprise where it is useful/important to have substantial amount of information in CDS, for use by PowerApps across org

CDS also designed to be accessed from Excel, Outlook

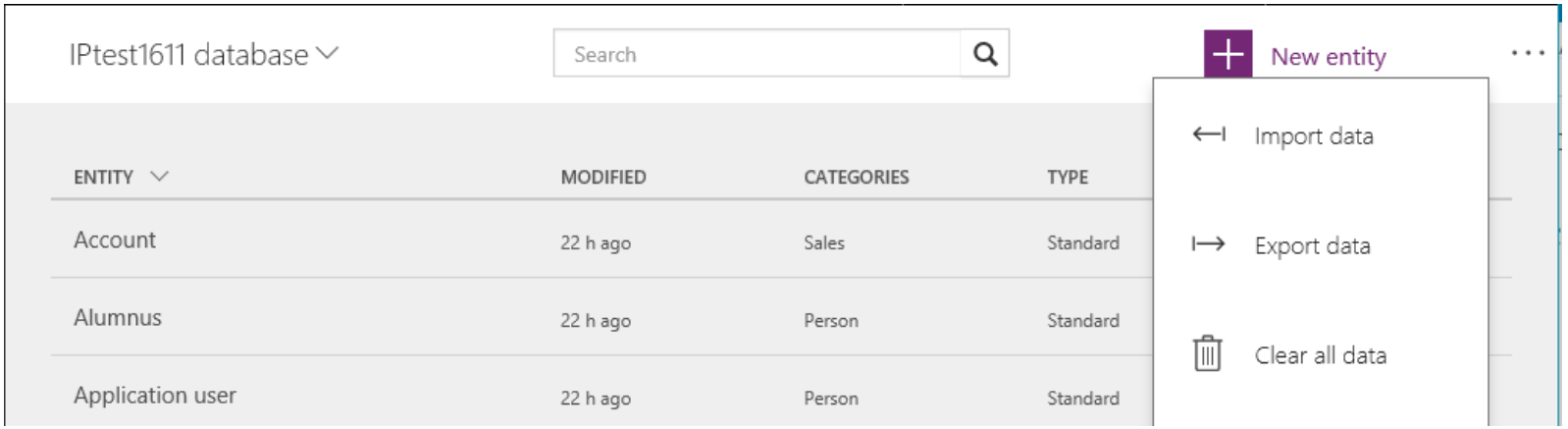
But Flow, Logic Apps not really set up to do large scale importing

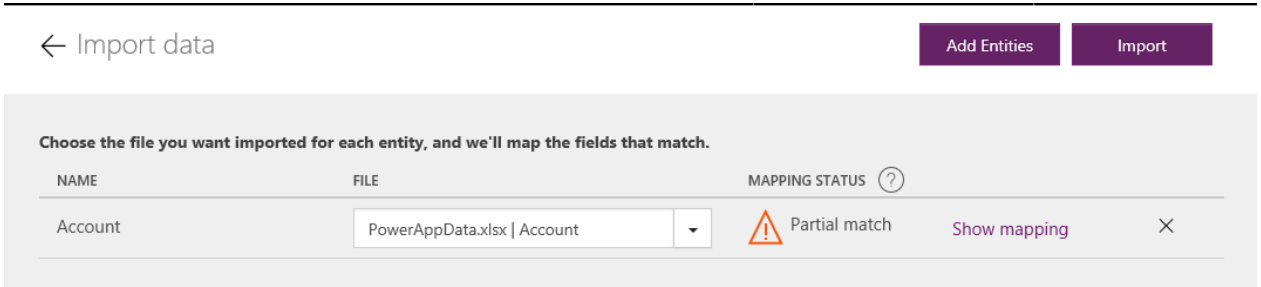
- Trigger based
- Limited data transformation
- No matching

Bulk Import into CDS

Import via Excel

CDS offers Excel import capabilities to single or multiple tables





Bulk Import into CDS

Problems with Excel Import

While Excel Import does work, there are some issues

- The worksheet must have the primary key of the table, and matching appears to be just on the primary key. If there is a match the record is updated, otherwise created.
- The field names should match the field names in CDM exactly. If the field names in the Excel file do not match the field names in CDM exactly you will have to manually map them during the import. You will want to avoid doing this because there is currently no way to save a mapping which means you have to do the mapping again if you do another import.
- All required fields must be mapped, even if you do not have data.
- Several fields have default values that may not be appropriate for your data. For example, the country fields default to Afghanistan unless you map a different default value.
- Picklist fields need to have the correct values.

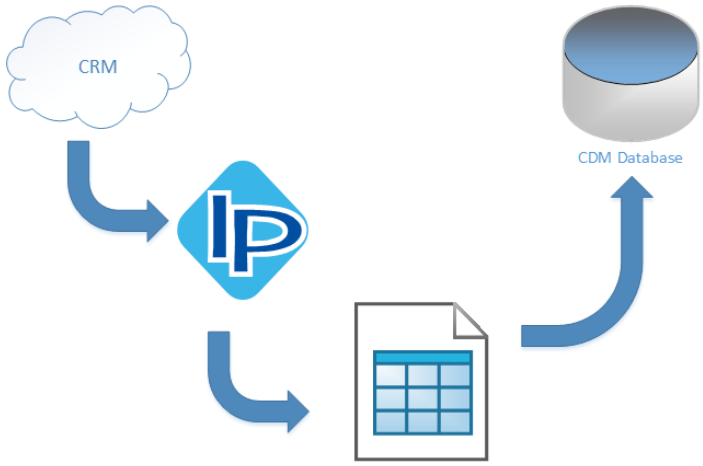
In summary – not a repeatable process

Bulk Import into CDS

Possible Solution

Process can be automated using ETL products such as Inaport

1. Export a template file or files from the CDS.
2. Use the template files to create an Excel worksheet that will hold the Dynamics data.
3. Use ETL to pull account and contact data from Dynamics CRM into the data file. In the process, the data will be standardized to meet the CDS import requirements.
4. Import the data sheet into the CDM database.



Bulk Import into CDS

Advantages of Approach

Using an ETL product to populate the spreadsheet means

- Can do match/update on records, using flexible match criteria
- Can do sensible data transformation
- Provide data for default and required fields

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Conclusion

It's a fun time for us all!

Scale of functionality and opportunity in Office 365, Dynamics 365, and Azure is enormous

PowerApps, Flow, Azure Logic Apps offer significant integration capabilities

BUT

- Are currently targeted more at intra-enterprise, not inter-enterprise
- Not a replacement for ETL products (yet)
- Will probably lead to hard to manage spaghetti flows of data
- Are iterating *very* rapidly and likely will be very different this time next year

Web APIs represent a good solution for many scenarios

David Evans, InaPlex - david@inaplex.com

2 WAYS TO FILL OUT SURVEY:

1. DOUBLEDUTCH APP

2. WEBSITE

http://tinyurl.com/hohgnyp

Complete prior to the closing session to be included in Wednesday's drawing!

FITBIT CHARGE 2