



Playing Further Outside Your Sandbox

ADVANCED CONCEPTS IN SHAREPOINT BUSINESS CONNECTIVITY SERVICES

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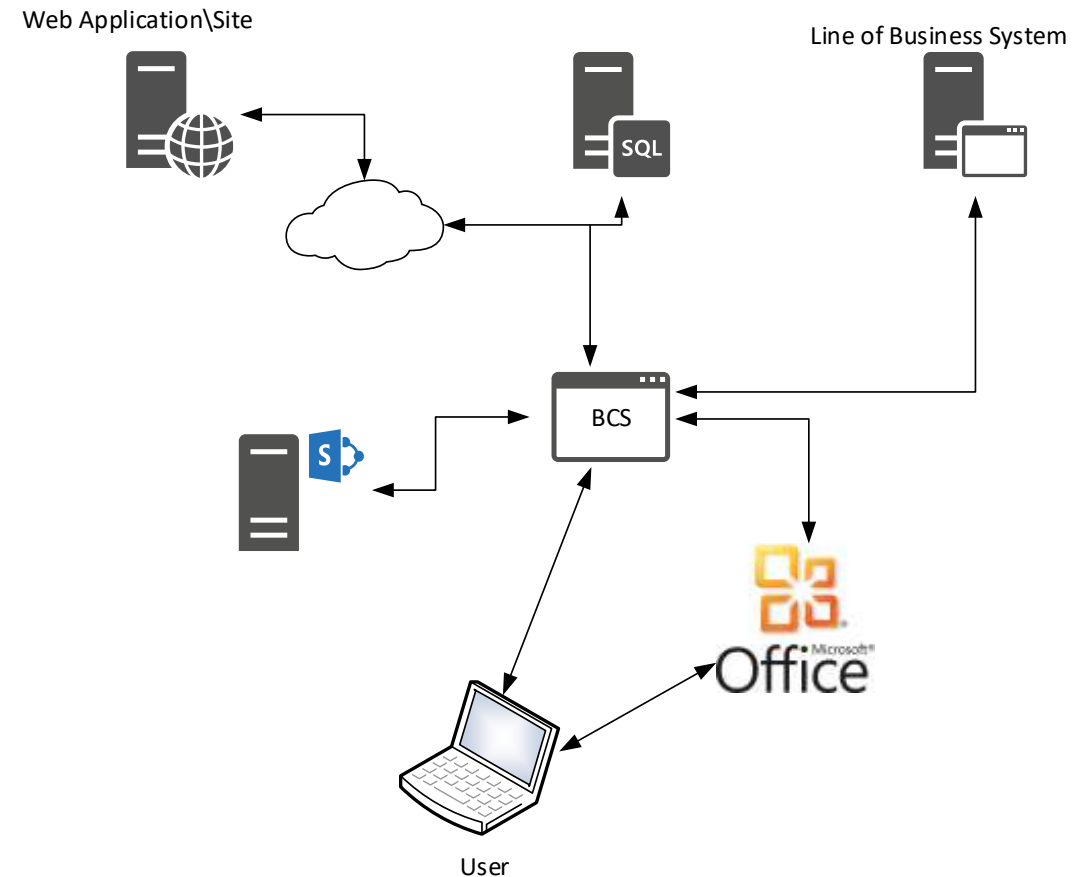
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Things we are going to cover

- ▶ Review of BCS basics
- ▶ BCS in SharePoint Online
- ▶ How to use SP Search with BCS
- ▶ Associations
- ▶ Demos...lots of demos

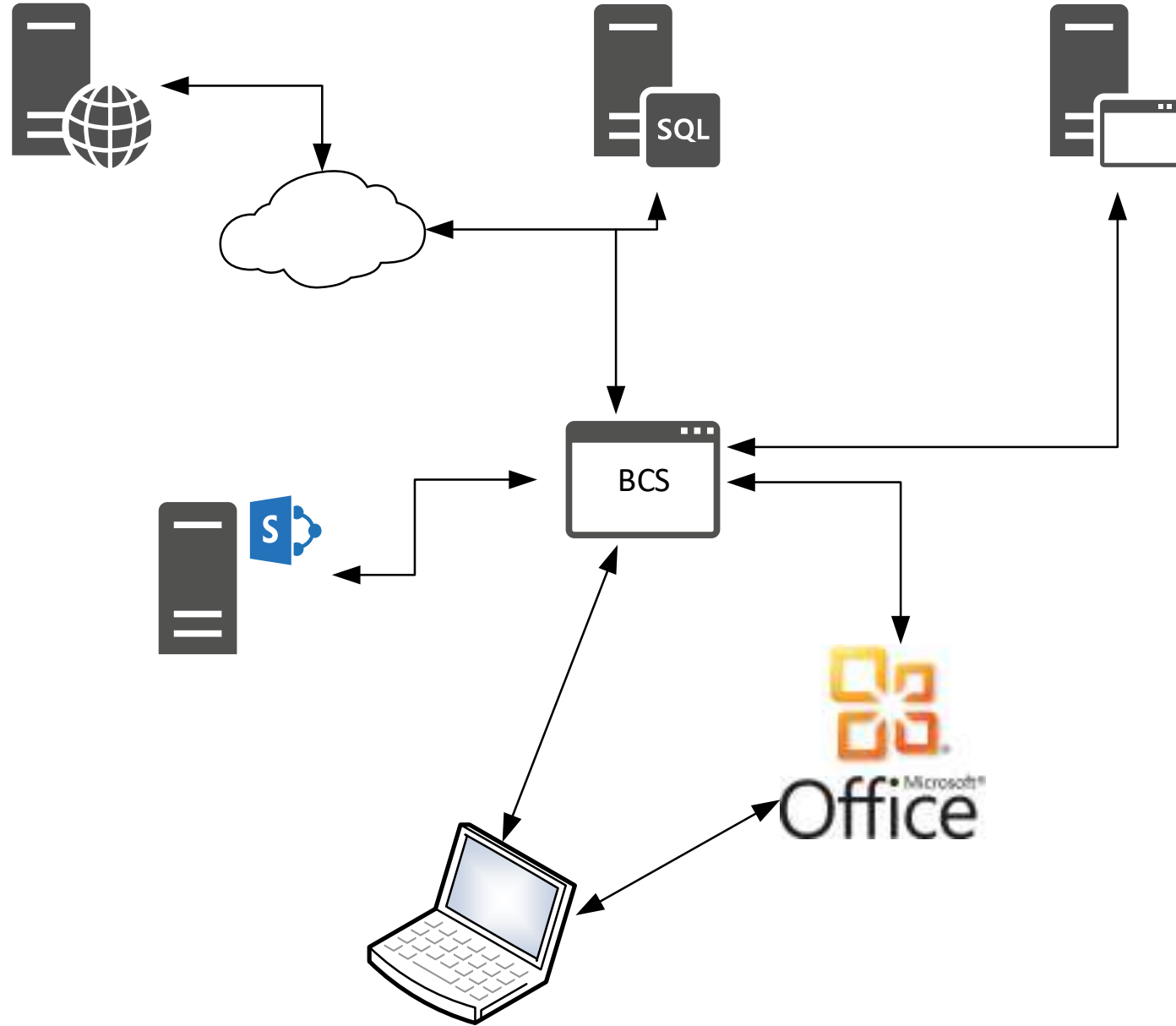
Important Concepts in BCS

- ▶ Business Connectivity Service seamlessly connects SharePoint to external data sources
- ▶ Integrates rich client applications to external data systems
- ▶ Can use BCS to surface data from external sources into SharePoint lists and even update those sources from SharePoint



Web Application\Site

Line of Business System



User

External Content Types

- ▶ The foundation of any BCS solution within SharePoint
- ▶ External Content Types allow you to customize the data you wish to view from the external source
- ▶ Can use to populate entire lists with data or use as source for drop down fields
- ▶ Can be configured to allow for full CRUD operations or only display values as stored in the data source

BCS in SharePoint Online

- ▶ Implementation very similar to On-Prem SharePoint
 - ▶ Create “Picker” columns the same
 - ▶ Create External Lists the same
 - ▶ Even create ECTs the same...
 - ▶ Almost
- ▶ OOTB implementation to database is to Azure DBs only.

Demo: Create SharePoint Online ECT

- ▶ To configure Azure DB for BCS connectivity please see:
 - ▶ <http://prairiedeveloper.com/2016/08/prepare-azure-database-sharepoint-online-bcs-connection/>

FILE SITE

Web Part Page, SharePoint List, Document Library, List Workflow, Reusable Workflow, Site Subsite, Delete Site, Rename Site, Reset to Template, Add Users/Groups, Preview in Browser, Administration Web Page, Save as Template, Recycle Bin, Site Options

Navigation < Business Connectivity Services

Site Objects ^ Business Connectivity Services

Business Connectivity Services

- Lists and Libraries
- Workflows
- Site Pages
- Site Assets
- Content Types
- Site Columns
- External Content Types
- Data Sources
- Master Pages
- Site Groups
- Subsites
- All Files

Use this page to view and manage settings for this site.

Site Information

Key information about this site.

Title:	Business Connectivity Services
Description:	Site for testing and demoing SharePoint Online BCS.
Path:	bcs
Web Address:	https://devspnline.sharepoint.com/bcs/
SharePoint Version:	5 (15.0.0.4459)
Server Version:	Microsoft-UIS/0.5

Customization

Links to site customization tools.

- Edit site name page

Settings

General settings for this site.

- Display Quick Launch
- Enable Tree View
- Enable Site RSS Feeds

Permissions Stop Inheriting

This site inherits permissions from its parent.

Name	Permissions
Excel Services Viewers	View Only
SharePointHome OrgLinks Admi...	Limited Access
SharePointHome OrgLinks Editors	Limited Access
SharePointHome OrgLinks View...	Limited Access
Team Site Members	Edit
Team Site Owners	Full Control
Team Site Visitors	Read

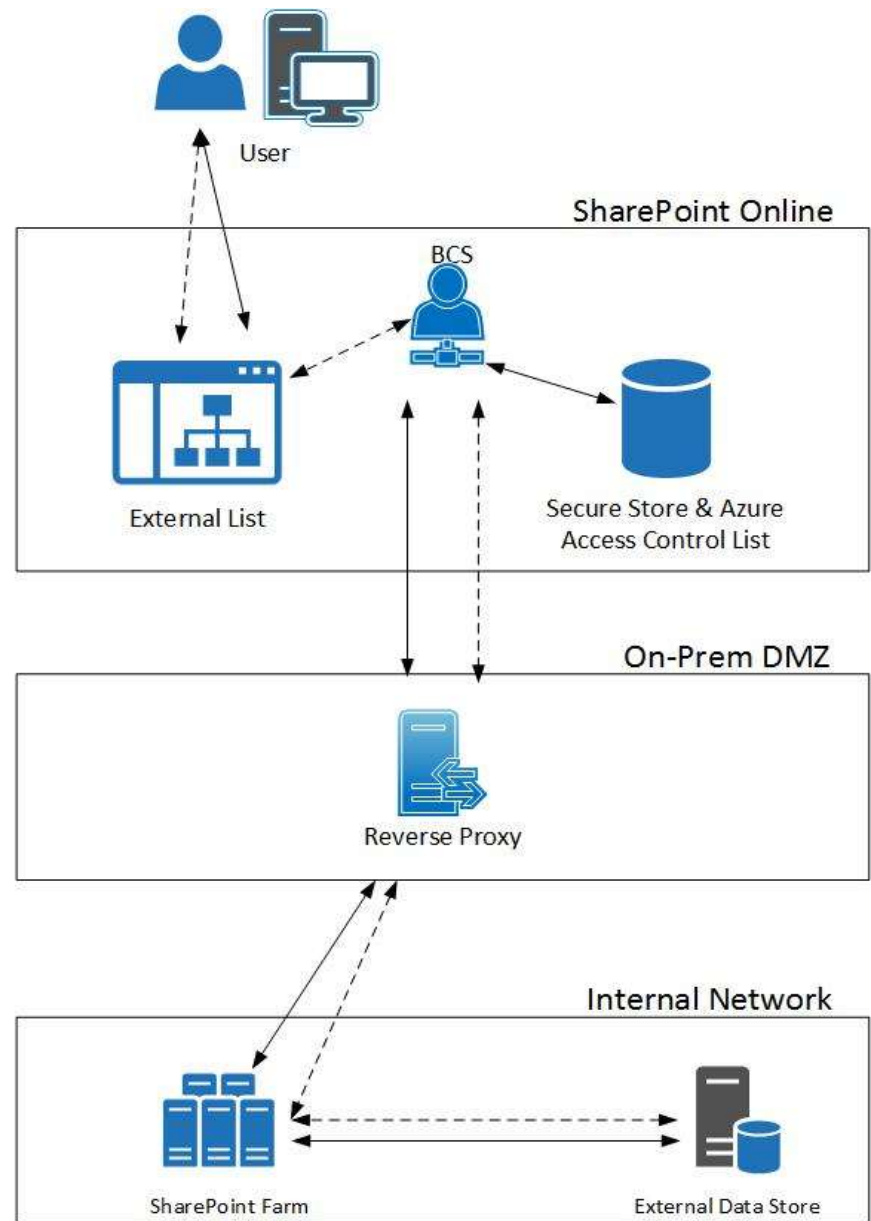
Subsites New...

A list of the subsites contained within this site.

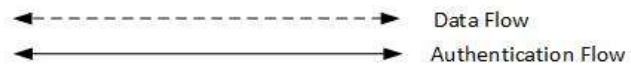
Site Name	URL
There are no items to show in this view.	

SharePoint Online to On-Prem Data

- ▶ SharePoint Online can access on-prem data via BCS.
 - ▶ Requires Hybrid functionality
 - ▶ Still requires an on-prem SharePoint farm to act as intermediary
- ▶ Uses Azure AD to provide OAuth tokens for authentication
- ▶ Requires an OData endpoint(s) to exist at the data source



Based on diagram from: <https://technet.microsoft.com/en-us/library/dn197239.aspx>



SharePoint Online to On-prem Data - Alternative Methods

- ▶ Data Management Gateway with PowerBI
 - ▶ Creates an OData connection that BCS can integrate with.
- ▶ Sync Azure DB with on prem DB
 - ▶ Requires Microsoft SQL Azure Data Sync Client

Search and BCS

- ▶ Utilizes external content types to find and surface data to users through SharePoint search
- ▶ Requires a BCS profile page to surface data
- ▶ Search indexes the external data the same as it would in SharePoint
- ▶ When clicking on an item found in search, the ID of that item is passed to the profile page and used by the web parts to surface the data.

BCS Profile Page

- ▶ Used by SharePoint to surface data related to the ECT.
- ▶ Basically a site page built with BCS Web Parts.
- ▶ By default will display all information for a single row as defined by the BCS connection.

Demo: Setting up the profile page

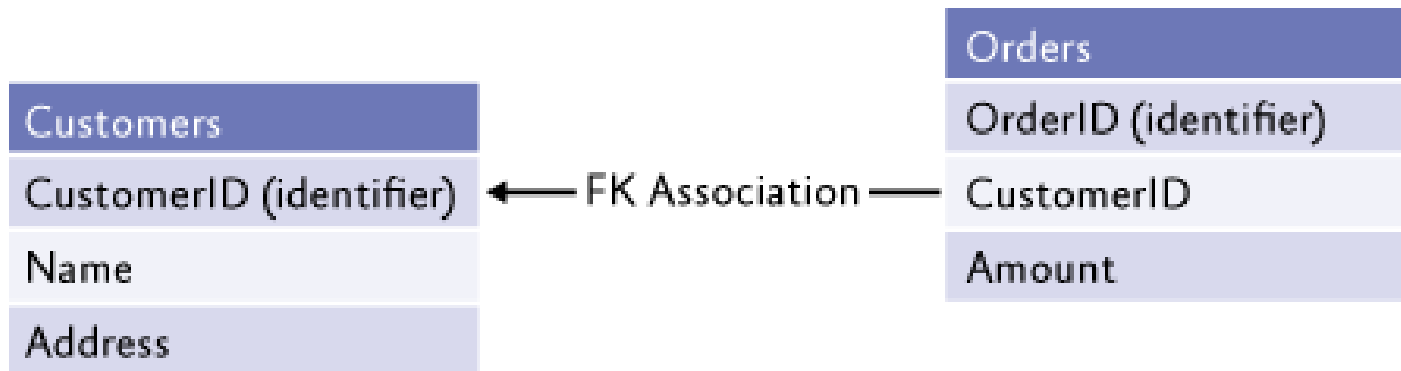
Demo: Configure Search with BCS

Associations

- ▶ Way to connect multiple external sources together to provide a better experience of the data you are looking for.
- ▶ Displays the relationship between two (can be more) sources of data (ECTs)
- ▶ Important for displaying related data

Association Categories

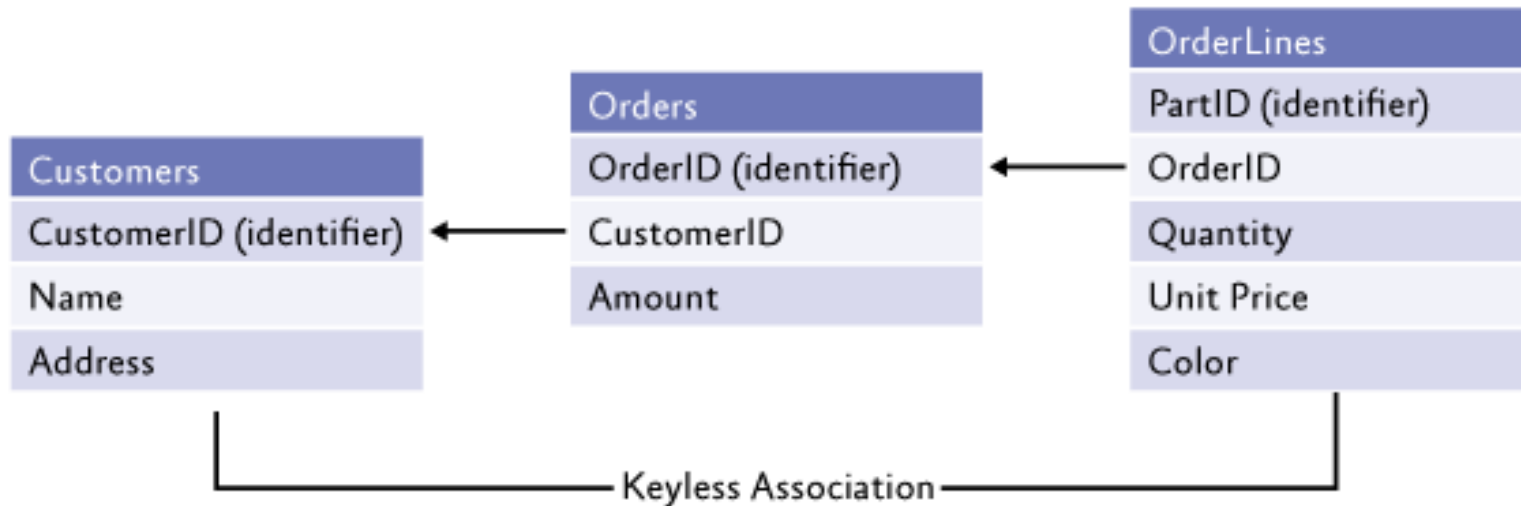
- ▶ **Foreign Key Associations** – Connecting an ECT to the identifier of another ECT



<https://msdn.microsoft.com/en-us/library/ff798500.aspx>

Association Categories

- ▶ **Foreign Keyless Associations** – Requires custom logic to connect an ECT to another.



Foreign Key Associations

- ▶ One-to-One Foreign Key Associations
 - ▶ Two different ECTs
 - ▶ Maps one item in ECT #1 to one item in ECT #2
 - ▶ ECT #1 has a primary key that can reference a foreign key in ECT #2

Foreign Key Associations

- ▶ One-To-Many Foreign Key Associations
 - ▶ Two different ECTs
 - ▶ Maps one item in ECT #1 to many items in ECT #2
 - ▶ ECT #1 has a primary key that can reference a foreign key in ECT #2

Foreign Key Associations

- ▶ Self-Referential Foreign Key Associations
 - ▶ One ECT
 - ▶ Shows relationship to other items within the ECT

Demo: Creating a One-To-Many Association

Demo: Display Data via Association

- ▶ Goal: Display all the assets we have that correspond to a particular category.

Foreign Keyless Associations

- ▶ Like Foreign Key Associations, keyless associations have **one-to-one**, **one-to-many** and **many-to-many associations**
 - ▶ Do not connect directly to association over a foreign key.
- ▶ Multiple External Content Type Associations
 - ▶ Connects to more than one field across more than one ECT.

Foreign Keyless Associations

- ▶ Non-Integer Primary Keys
 - ▶ Are connected to other ECTs using primary key that is a non-integer identifier
 - ▶ Use custom logic to link to other sources of data.
- ▶ Use ECTs within the same BDC Model

Demo: Custom Edit ECT

- ▶ Goal: Illustrate how to edit an ECT outside of Designer.

Thank You!!

- ▶ How to contact me if you ever have questions:
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