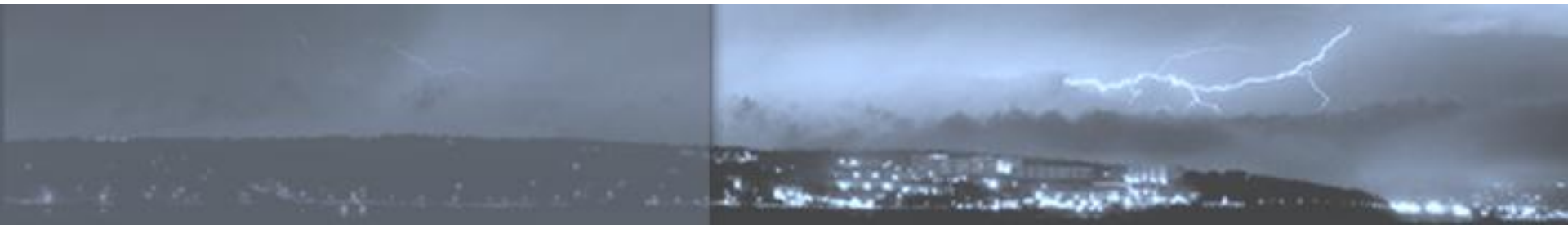




Make SharePoint your Information hub with Business Connectivity Services

Brett Lonsdale

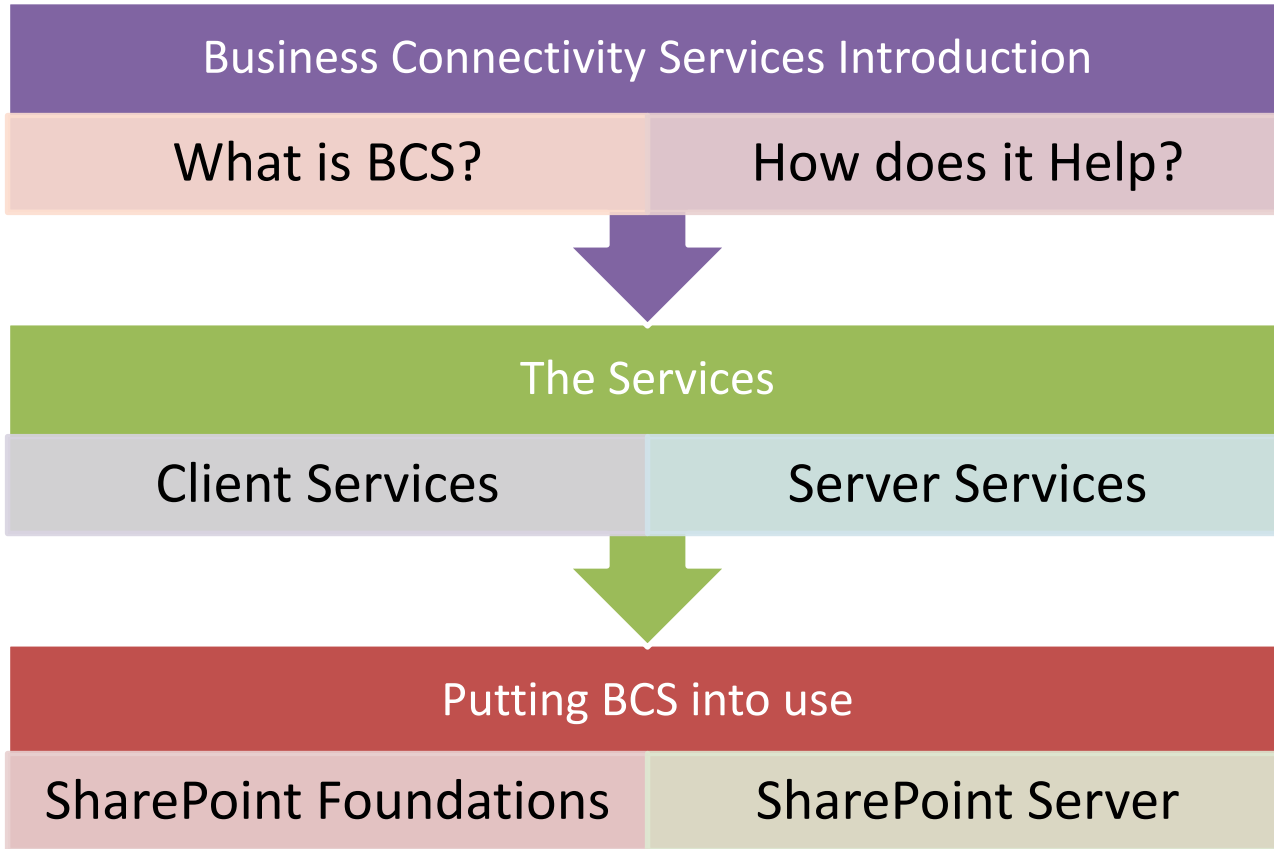


About Me

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Agenda





Business Connectivity Services Introduction

What is BCS?

How does it Help?



The Services

Client Services

Server Services



Putting BCS into use

SharePoint Foundations

SharePoint Server



What is BCS?



Office 2010

SharePoint Server

SPD
VS

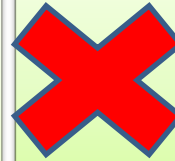
SharePoint
Workspace

InfoPath

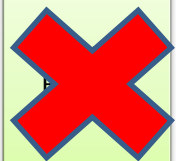
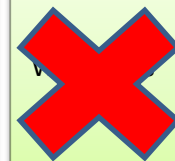
Word

Outlook

External
Lists



External
Bus field
Type



BDC Client
Runtime

BDC Cache

Offline
Operations

ECT

BDC
Runtime

Security

Solution
Packaging

Out of
the Box
UI

CRM

SAP

Siebel

LOB

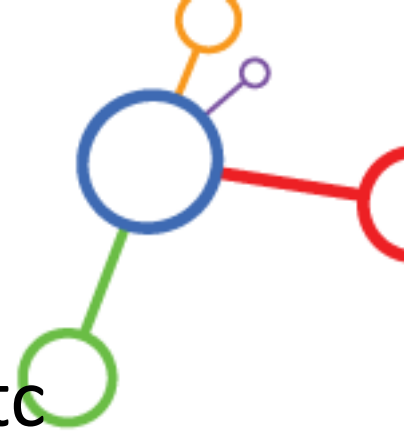
What's new?

- Entities become External Content Types
 - Now more than just a schema
 - ECT's describe behavior
- WCF and .NET Assembly Connectors
- External Lists
- Client Runtime
- Read/Write
- Access consumes BCS
- Tools



Terminology

- **External Content Type** – Table/View etc
- **Finder Method** – Returns multiple columns/rows
- **Specific Finder** – Displays a row
- **IDEnumerator** – Used by the Enterprise Search to enumerate the rows
- **Action** – URL and Parameters
- **Association** – Join (Relationship)



Problems solved by BCS

- Islands of data into 1 application



Finance



Human Resources



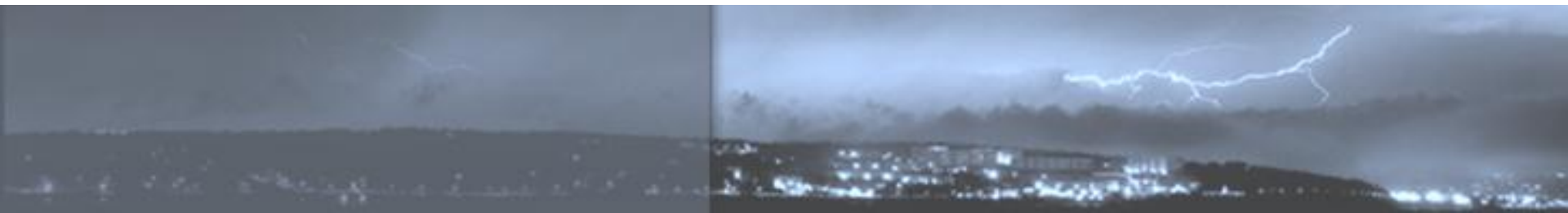
IT



Extranet Collaboration Site



Weekly Issue Tracking Meeting





Business Connectivity Services Introduction

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Server Services



- External Lists
 - Backend data presented in a SharePoint style list
 - InfoPath and Web Forms for Updating | Inserting data
- Business Data Web Parts
 - Now Ajaxian
 - Really only here for backwards compatibility or read only scenarios
- External Data Column
 - Use LOB data in Lists & Libraries
- Search
- User Profile Import



External Lists



Customers - Edit Item

Edit

Save Cancel Paste Copy Delete Item Spelling

Commit Clipboard Actions Spelling

Save Cancel

CompanyName * Antonio Moreno Taquería

ContactName Antonio Moreno

ContactTitle Owner

Address Mataderos 2312

City México D.F.

Region

PostalCode 05023

Country Mexico

Phone (5) 555-3932

Fax

Save Cancel

Code	Country	Phone
	Germany	030-0074321
	Mexico	(5) 555-4729
	Mexico	(5) 555-3932
BDP	UK	(171) 555-7788
22	Sweden	0921-12 34 65
	Germany	0621-08460
	France	88.60.15.31
	Spain	(91) 555 22 82
	France	91.24.45.40
M4	Canada	(604) 555-4729
NT	UK	(171) 555-1212



Business Data Web Parts





Northwind_Products List

ProductID	ProductName	SupplierID	CategoryID	QuantityPerUnit	UnitPrice	UnitsInStock	UnitsOnOrder
1	Chai	1	1	10 boxes x 20 bags	18.0000	39	0
2	Chang	1	1	24 - 12 oz bottles	19.0000	17	40
3	Aniseed Syrup	1	2	12 - 550 ml bottles	10.0000	13	70
4	Chef Anton's Cajun Seasoning	2	2	48 - 6 oz jars	22.0000	53	0
5	Chef Anton's Gumbo Mix	2	2	36 boxes	21.3500	0	0
6	Grandma's Boysenberry Spread	3	2	12 - 8 oz jars	25.0000	120	0
7	Uncle Bob's Organic Dried Pears	3	7	12 - 1 lb pkgs.	30.0000	15	0
8	Northwoods Cranberry Sauce	3	2	12 - 12 oz jars	40.0000	6	0
9	Mishi Kobe Niku	4	6	18 - 500 g pkgs.	97.0000	29	0
10	Ikura	4	8	12 - 200 ml jars	31.0000	31	0



External Data Column



Name and Type Type a name for this column.	Column name: <input type="text" value="Company Name"/> The type of information in this column is: External Data
Additional Column Settings Specify detailed options for the type of information you selected.	Description: <input type="text"/> Require that this column contains information: <input type="radio"/> Yes <input checked="" type="radio"/> No External Content Type: <input type="text" value="Northwind Customers (Northwind)"/>   Select the Field to be shown on this column: <input type="text" value="CompanyName"/> <input checked="" type="checkbox"/> Display the actions menu <input checked="" type="checkbox"/> Link this column to the Default Action of the External Content Type Add a column to show each of these additional fields: <input type="checkbox"/> Select all fields <input checked="" type="checkbox"/> Address <input checked="" type="checkbox"/> City <input type="checkbox"/> CompanyName



Search



Microsoft SharePoint 2010 Central Administration > Search Service Application: Add Content Source

I Like It Tags & Notes

Administration

- Search Administration Use this page to add a content source.
- Farm Search Administration * Indicates a required field

Crawling

- Content Sources
- Crawl Rules
- Crawl Log
- Server Name Mappings
- Host Distribution Rules
- File Types
- Index Reset
- Crawler Impact Rules

Queries and Results

- Authoritative Pages
- Federated Locations
- Metadata Properties
- Scopes

Name
Type a name to describe this content source.

Name: *
Northwind

Content Source Type
Select what type of content will be crawled.

Note: This cannot be changed after this content source is created because other settings depend on it.

Select the type of content to be crawled:

- SharePoint Sites
- Web Sites
- File Shares
- Exchange Public Folders
- Line of Business Data
- Custom Repository

External Data Source
A Line of Business Data content source crawls external data sources defined in an Application Model in a Business Data Connectivity Service Application.

Select whether to crawl all external data sources in the Business Data Connectivity Service Application, or include only selected external data sources.

Crawl Rule: To create a crawl rule for an external data source, use the following settings:

Select the Business Data Connectivity Service Application:

Business Data Connectivity Service

- Crawl all external data sources in this Business Data Connectivity Service Application
- Crawl selected external data source


Northwind



User Profile Import



Close

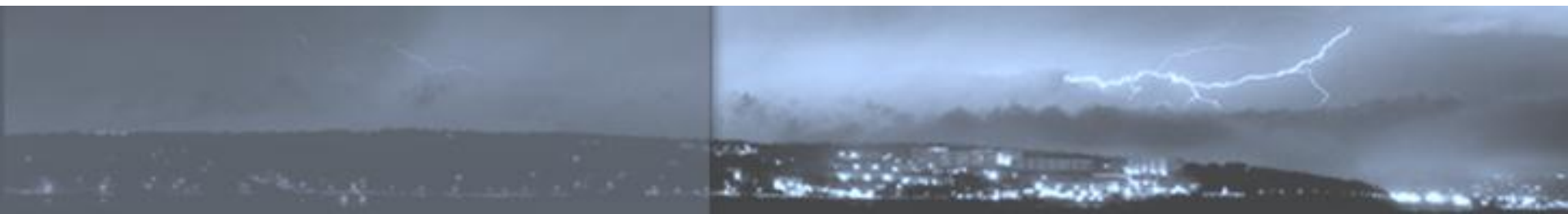
 [Edit Item](#) | [My Regional Settings](#) | [My Alerts](#)

Account	SP2010\administrator
Name	SP2010\Administrator
Work e-mail	
Mobile phone	
About me	
Picture	
Department	
Title	
SIP Address	
First name	
Last name	
Work phone	
User name	Administrator
Web site	
Ask Me About	



Client Capabilities

- SharePoint Workspace
- Outlook
- Office Business Parts (OBPs)
 - List of Items
 - Single Item
- Word
- Access



SharePoint Workspace



BCS - Customers - Microsoft SharePoint Workspace

File Home Sync View

New Delete Paste Cut Copy Copy as Link

List View: Northwind... Expand All Collapse All Import Export

Mark Read Mark Unread Track

Set Alerts Previous Unread Next Unread

Launchbar Search

Go To

Content

- External Lists
 - Customers
 - Available on Server
 - Proposals
 - Suppliers

BCS > Customers

Search This List

CustomerID	CompanyName	ContactName	ContactTitle	Address	City
ALFKI	Alfreds Futterkiste	Maria Anders	Sales Representative	Obere Str. 57	Berlin
ANATR	Ana Trujillo Emparedados y helados	Ana Trujillo	Owner	Avda. de la Constitución 2222	México C
ANTON	Antonio Moreno Taquería	Antonio Moreno	Owner	Mataderos 2312	México C
AROUT	Around the Horn	Thomas Hardy	Sales Representative	120 Hanover Sq.	London
BERGS	Berglunds snabbköp	Christina Berglund	Order Administrator	Berguvsvägen 8	Luleå
BLAUS	Blauer See Delikatessen	Hanna Moos	Sales Representative	Forsterstr. 57	Mannhei
BLOMP	Blondesddd père et fils	Frédérique Citeaux	Marketing Manager	24, place Kléber	Strasbou
BOLID	Bólido Comidas preparadas	Martín Sommer	Owner	C/ Araquil, 67	Madrid
BONAP	Bon app'	Laurence Lehiban	Owner	12, rue des Bourgeois	Marceille

CustomerID: ALFKI
CompanyName: Alfreds Futterkiste
ContactName: Maria Anders
ContactTitle: Sales Representative
Address: Obere Str. 57
City: Berlin
Region:



Outlook 2010



The screenshot displays the Microsoft Outlook 2010 interface. The ribbon at the top includes tabs for File, Home, Send / Receive, Folder, and View. The Home tab is active, showing various action buttons such as New, Delete, E-mail, Meeting, Move, Mail Merge, OneNote, and Open. The left-hand pane shows the navigation pane with folders like Inbox, Drafts, Sent Items, Deleted Items, Calendar, Contacts, Journal, Junk E-mail, Notes, Outbox, RSS Feeds, Search Folders, Suggested Contact, and Tasks. The main pane displays a list of contacts in a grid view. The contacts listed are:

Name	Phone Number
Steven Buchanan	(71) 555-4848 Home
Laura Callahan	(206) 555-1189 Home
Nancy Davolio	(206) 555-9857 Home
Anne Dodsworth	(71) 555-4444 Home
Andrew Fuller	(206) 555-9482 Home
Robert King	(71) 555-5598 Home

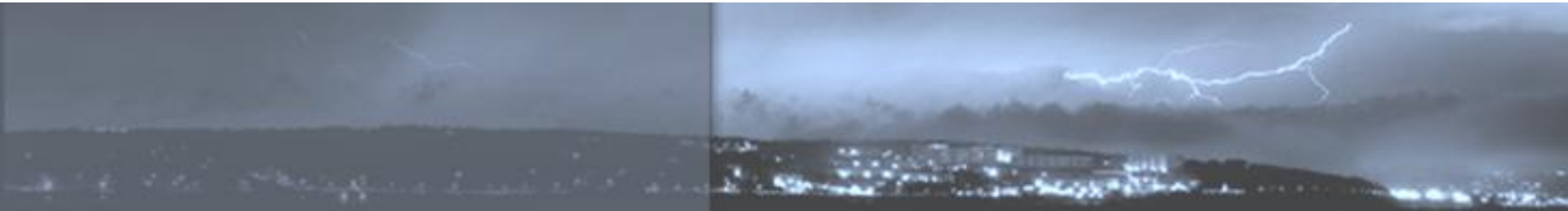


Office Quick Parts



The screenshot shows the Microsoft Word interface with the 'Choose External Data' dialog box open. The dialog box contains a search bar and a table of data. The table has the following columns: CustomerID, CompanyName, ContactName, ContactTitle, and Address. The row for 'ANATR' is highlighted.

CustomerID	CompanyName	ContactName	ContactTitle	Address
ALFKI	Alfreds Futterkiste	Maria Anders	Sales Representative	Obere Str
ANATR	Ana Trujillo Emparedado...	Ana Trujillo	Owner	Avda. de
ANTON	Antonio Moreno Taquería	Antonio Moreno	Owner	Matadero:
AROUT	Around the Horn	Thomas Hardy	Sales Representative	120 Hano
BERGS	Berglunds snabbköp	Christina Berglund	Order Administrator	Berguvsvä
BLAUS	Blauer See Delikatessen	Hanna Moos	Sales Representative	Forsterstr
BLONP	Blondesddsl père et fils	Frédérique Citeaux	Marketing Manager	24, place
BOLID	Bólido Comidas prepara...	Martin Sommer	Owner	C/ Araquil
BONAP	Bon app'	Laurence Lebihan	Owner	12, rue de
BOTTM	Bottom-Dollar Markets	Elizabeth Lincoln	Accounting Manager	23 Tsawa
BSBEV	B's Beverages	Victoria Ashworth	Sales Representative	Fauntlero
CACTU	Cactus Comidas para lle...	Patricio Simoson	Sales Acent	Cerrito 33



InfoPath



The screenshot displays the Microsoft InfoPath application window titled "(Design) Form1 - Microsoft InfoPath". The interface includes a ribbon with tabs for File, Home, Insert, Page Design, Data, Developer, Control Tools, and Table Tools. The Control Tools ribbon is active, showing options for Text Box, Rich Text Box, Drop-Down List, Combo Box, Check Box, and Option Button. The main workspace shows a form with fields for CustomerID, CompanyName, ContactName, ContactTitle, Address, City, Region, PostalCode, Country, Phone, and Fax. The City field is selected, and the Rules pane on the right is open, showing a rule named "Rule 1" with the condition "City is blank" and the action "Formatting" applied to the text "AaBbCcYyZz". The Fields pane on the left shows a tree view of the form's data fields, with "City" selected under the "myFields" folder.



Business Connectivity Services Introduction

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The Services

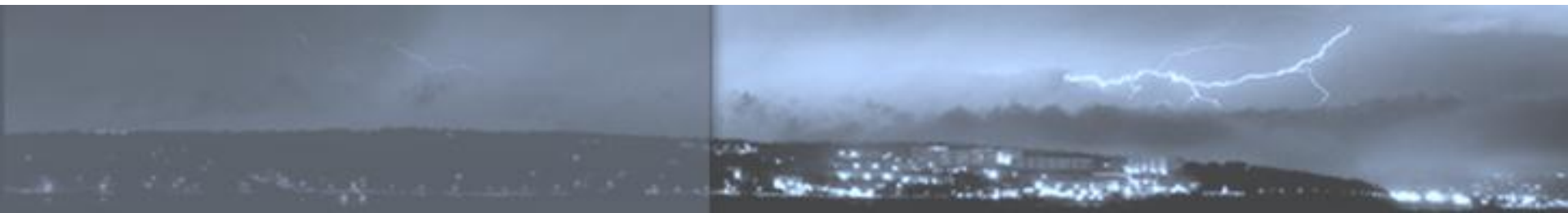
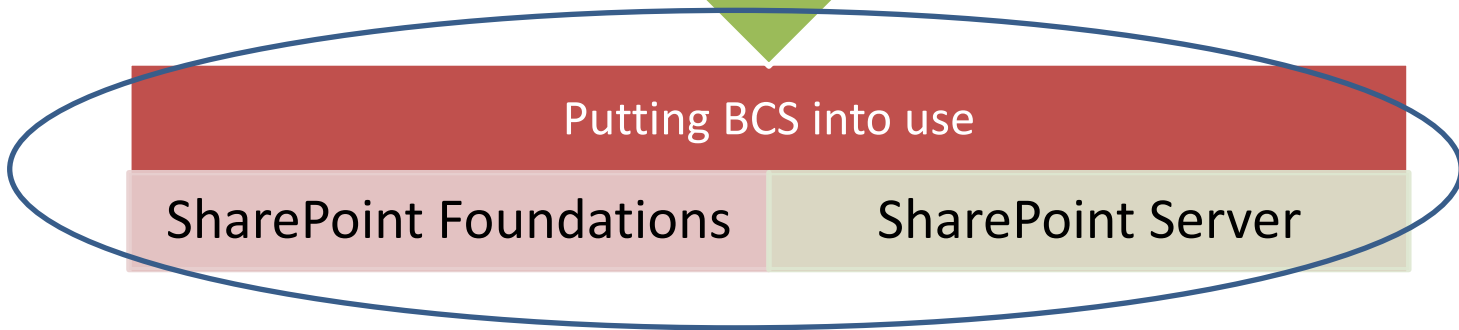
Client Services

Server Services

Putting BCS into use

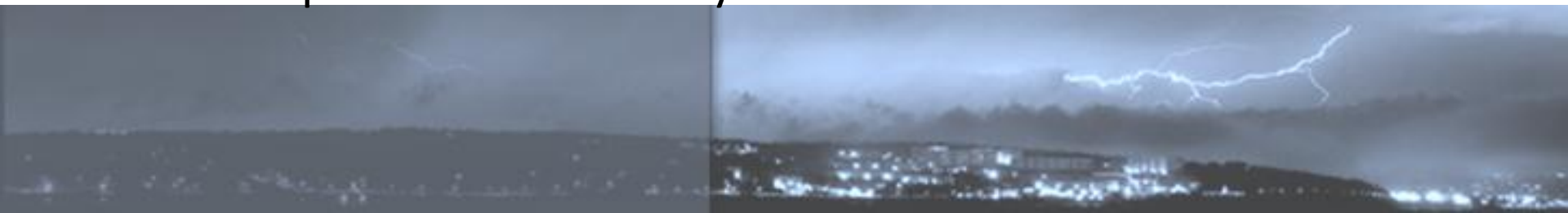
SharePoint Foundations

SharePoint Server



Tools

- SharePoint Designer
 - No code solution
 - Create External Content Types
 - Configure the connection to the Datasource
 - Define Methods
 - Simple Associations
- Visual Studio
 - Code solution
 - Mashups of Datasources
 - Complex Associations
 - Output a .NET Assembly



SharePoint Designer



Use this page to manage connections to external data sources and the operations for this external content type. Add a connection and right-click on tables, views, stored procedures or methods in the data source explorer to add new operations.

External Content Type Operations
Use this part to manage the operations of this external content type.

Warning: You cannot save this external content type without defining at least one operation. Start with creating a 'Read Item' operation from the Operations Design View. The external content type must have a 'Read Item' and a 'Read List' operation to create an external list.

Name	Type	Data Source Object
There are no operations defined for this external content type.		

Data Source Explorer

- Northwind
 - Tables
 - Categories
 - CustomerCustomerDemo
 - CustomerDemographics
 - Customers
 - Employees
 - EmployeeTerritories
 - Order Details
 - Orders
 - Products
 - Region
 - Shippers

Property	Value
Server	sp2010
Database	Northwind



Visual Studio 2010 Pro



The screenshot displays the Microsoft Visual Studio 2010 Pro interface for a Business Data Catalog (BDC) project. The main workspace shows a BDC Designer for the 'Customers' entity, with a tree view containing 'Identifiers' (CustomerID) and 'Methods' (ReadList, ReadItem). The BDC Explorer on the right shows the project structure, and the Properties window displays details for the 'BdcModel1' model, including 'Incremental Update' set to 'True' and 'Name' set to 'BdcModel1'. The BDC Method Details pane at the bottom is empty, with a message: 'Select an Entity on the BDC Designer or [BDC Explorer](#) to edit its methods.'

BdcModel1 Model	
Custom Properties	(Collection)
Default Display Name	
Incremental Update	True
Is Cached	
Name	BdcModel1

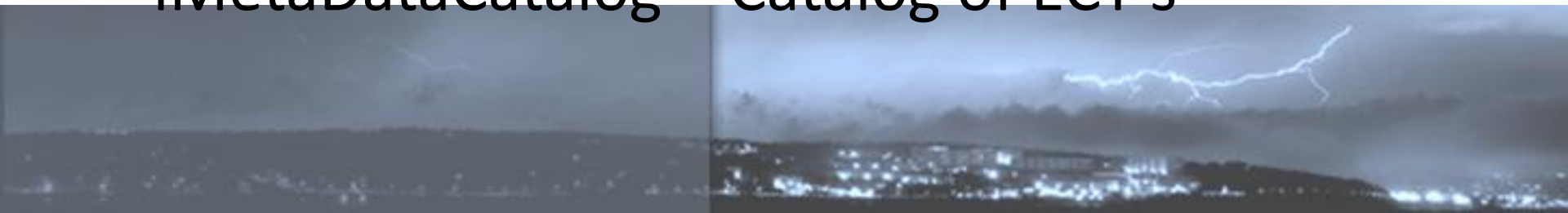
Name
Indicates the name used in code to identify the object.



Object Model



- Namespaces
 - Microsoft.BusinessData.Infrastructure;
 - Microsoft.BusinessData.MetadataModel;
 - Microsoft.BusinessData.MetadataModel.Collections;
 - Microsoft.BusinessData.Runtime;
- iEntity = External Content Type
- iMetaDataCatalog = Catalog of ECT's



Custom

BCSWebPart

Northwind_Products

Northwind_Products Methods

Read Item (Specific Finder)

Fields

- ProductID
- ProductName
- SupplierID
- CategoryID
- QuantityPerUnit
- UnitPrice
- UnitsInStock
- UnitsOnOrder
- ReorderLevel





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@BrettLonsdale

