



Business Data Catalog: Integrating LOB Data and Applications

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Server 2007

Session Objectives

- Learn what the Business Data Catalog (BDC) is
- See how to use it within pages, lists, search, and profiles
- See how to register new applications with the BDC
- Understand issues with design, security
- Understand what it doesn't do and how you can address that with additional technology
- Get an introduction to emerging tools

What is the Business Data Catalog?

Customer Feedback

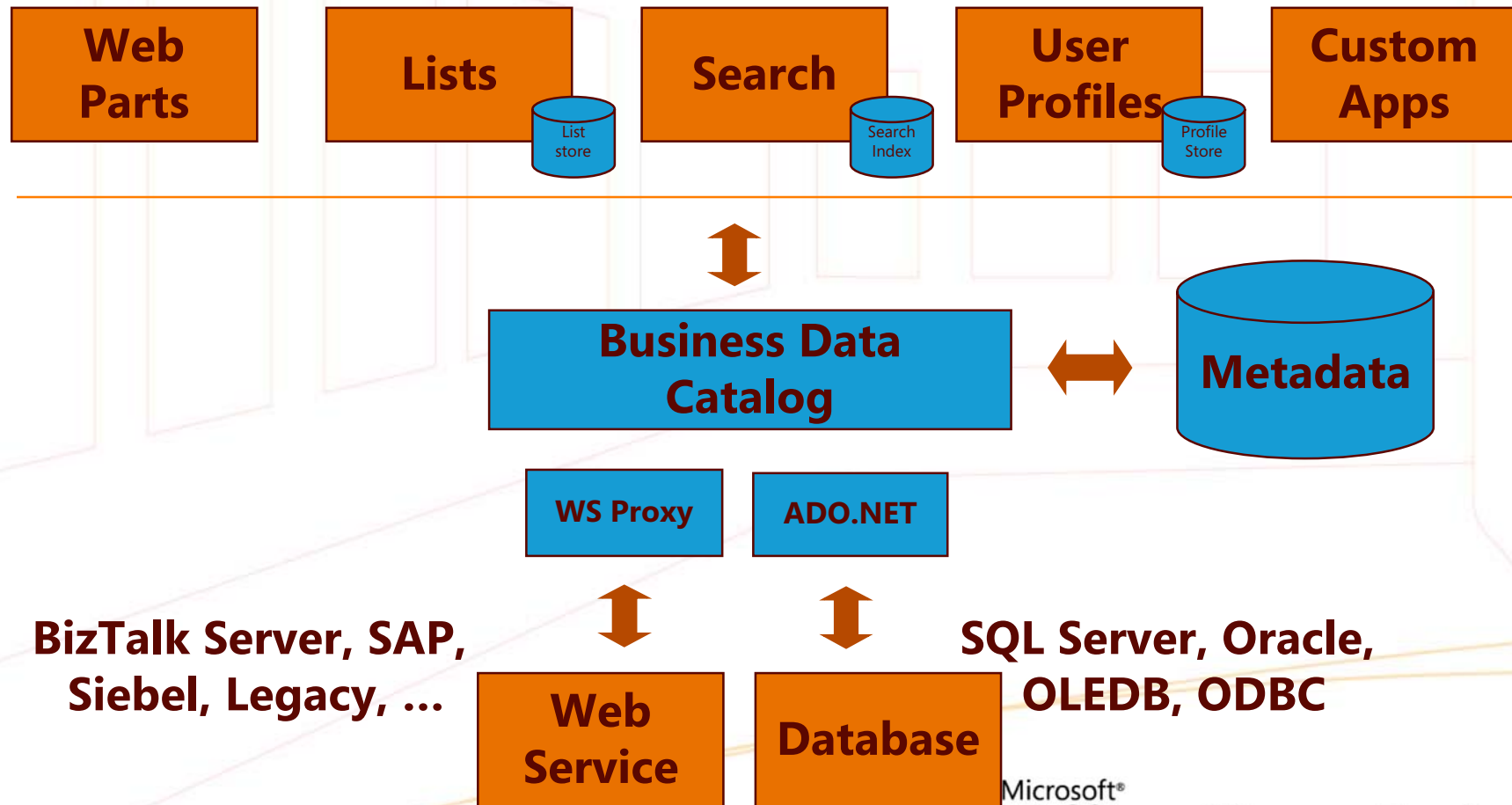
- Less custom integration code
- Deep integration of data into the places users work
- New application types that blend data, collaboration
- Need for structured data search
- Bridge portal and business application UI
- Centrally manage security, auditing, connections



Design Motivations

- Reduce the need for custom front-end code
 - Reuse SOA investments already in place
- Create manageable method for reusing data
 - Centralized deployment
 - Centralized data security
 - Low latency
- Designed for portal & collaboration scenarios
 - Data query, indexing, personalization
- The BDC is not about: transactions, workflow, data transformation, adapters, precomposition

Overview of Components



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Business Data Web Parts

Routine business apps with no code

- Scenario
 - 360-degree view of customer
- Today
 - Clipping, custom Web Parts, DataViews
- Office 2007: Reusable biz data Web Parts
 - Show new data with no new code or binaries
 - Master-detail applications with no code
 - Integrated with dashboards and filters
 - Customizable in SharePoint Designer





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Business Data Web Parts

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Business Data Search

- Scenario: find an account manager in Siebel
- Previously
 - Vertical applications lack full-text search
 - Most users can't locate or access vertical applications
 - Hard to have an index gatherer "see" business data
- Office 2007: search any database/Web service
 - Reduced need to write IFilters or protocol handlers
 - No need to create HTML representations of data
 - Integrated with scopes and Search Center
 - Last-minute bonus: custom query-time trimming



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Searching Structured Business Data

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Business Data In Lists

Collaborate around business data

- Scenarios
 - Tag a proposal with a customer
 - Track and annotate key support cases
 - Pick from the canonical list of cost centers
- Today
 - Text or lookup fields
 - Irregular data, duplicated lists of values
- Office 2007: Business data column
 - One column type that stores any entity
 - Integrates with list features: workflow, versioning, etc.
 - One-click refresh





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Business Data in Lists

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Actions And Writeback Link, don't replicate

- Scenario
 - Edit customer in SAP
 - Launch InfoPath form for writeback
- Today
 - Great actions for people
 - Actions on other data means custom code
- Office 2007: Actions on any entity
 - Action is just a URL associated with an entity
 - Actions appear everywhere an entity appears
 - Users can take action in context





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Custom Actions

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User Profile Import

Business-specific targeting & personalization


- Scenarios
 - Show news about your customers
 - Automatically filter dashboard by sales rep's region
- Today
 - Code required to augment user profile
 - Personalized Web Parts require custom code
- Office 2007: import business data into user profile
 - Map user profile property to field of entity
 - Filter Web Parts with user profile filters



How Does One Connect an Application to the BDC?

Development Lifecycle

Write Metadata, not Code

-  Analyst defines business requirements
2. IT Pro / developer writes and tests application definition (metadata)
3. IT Pro uploads application definition
4. Analyst builds solution using business data features

Application Definitions

Metadata Model Overview

- System – A data source
- Entity – A real-world thing in a System
- Method – An operation on an Entity
- MethodInstance – A way to use a Method
 - E.g. Finder, SpecificFinder, IDEnumerator
- Association – A relationship between Entities
- Metadata has two purposes
 - Describe a system's API
 - Give meaning to the API; make it easily usable

Application Definitions

Properties

- Every MetadataObject has a Properties collection
- Business Data Features make use of certain annotations
- You can extend the metadata for your own applications

```
<Entity Name="Customer">  
  <Properties>  
    <Property Name="Title">CustomerName</Property>  
  </Properties>  
  ...  
</Entity>
```

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Application Definitions

Finder Methods

- One method of an entity is designated the *Finder*, another the *SpecificFinder*
- Finder returns a collection of instances given a set of filters
- SpecificFinder returns a single instance given a key

```
<Entity Name="Customer">  
  <Methods>  
    <Method Name="GetCustomer">  
      <MethodInstance Type="Finder" ... /> ...  
    </Method>  
  </Methods>  
</Entity>
```

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Application Definitions

Filters

- Control the data finders return
- Annotations on a Method's input parameters
- Declare which inputs users can override
- Various types: wildcard, exact match, ...
- System filters allow BDC to securely set values, e.g., user token

```
<Method Name="GetCustomer">  
  <FilterDescriptors>  
    <FilterDescriptor Name="Region" Type="ExactMatch"/>  
  </FilterDescriptors>  
  <Parameters>  
    <Parameter Name="Region" Direction="In">  
      <TypeDescriptor ... AssociatedFilter="Region"/> ...  
    </Parameter>  
  </Parameters>  
</Method>
```

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Application Definitions

Associations

- Model relationships between entities
- Has one or more source entities and one destination entity
- Is a method instance
- Takes source instance(s) and returns a destination instance

```
<Association
  Name="CustomerToOrder"
  AssociationMethodName="GetOrdersByCustomer">
  <SourceEntity Name="Customer"/>
  <DestinationEntity Name="Order"/>
</Association>
```

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Application Definitions

IDEnumerators And Search

- Full-text search any application
- BDC crawl protocol has two phases
 - ID Enumeration: Fetch all entity instance IDs
 - Detail fetch: Fetch details for each instance
- IDEnumerator returns the IDs
- SpecificFinder returns the details

```
<Method Name="GetCustomerIDs">  
  <Parameters> ... </Parameters>  
  <MethodInstance Type="IDEnumerator" ... />  
</Method>
```

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Application Definitions

Actions

- Link, don't replicate
- Scenarios so far are read-only
- For writes, link to InfoPath forms, web forms, or app UI
- Actions are links that travel everywhere with an entity
- Users can take action in context

```
<Entity>  
  <Actions>  
    <Action Name="Edit" Url="http://customerweb/edit.aspx"/>  
  </Actions>  
</Entity>
```

Application Definitions

AuthN, AuthZ, And Auditing

- Centralized security and auditing
- Two authentication patterns
 - Trusted subsystem
 - Impersonation / delegation
- Two authorization patterns
 - Mid-tier authorization
 - Backend authorization
- One place to audit
 - Log who accesses which data when

Tools for Building Definitions

- Metadata Manager for MOSS 2007 BDC (beta)
 - <http://www.mossbdcmetadatamanager.com/>
 - Free version for SQL Server data sources
 - Licensed version adds Web service, Oracle, ODBC
 - Action builder
 - Visual designer for associations
 - Multiple entity support
 - Configuration of LOBSystems, LOBSystemInstances, Entities, Methods, etc.
- BDC Metadata Editor
 - Unsupported tool written by development team
 - Runs on server, edits BDC metadata store directly

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Application Generation Tools

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Business Data Catalog API

Two halves: Runtime and administration

- Runtime API
 - Browse metadata, execute methods, retrieve instances, traverse relationships
 - For custom application builders
- Administration API
 - Create, read, update, and delete metadata and manage permissions
 - For administrators
 - For ISVs building metadata management tools
- OOB features use these public APIs



What Is Still Needed In Addition to the BDC?

Integration Prerequisites

- Communication
 - SOAP
 - ADO.NET
- Authentication
 - MOSS SSO
 - Kerberos
- Composition
 - LOB Vendor middleware
 - BizTalk Server
 - 3rd Party middleware or custom components

What About Write-back?

- Use custom actions to take users to:
 - Server-side InfoPath forms
 - Custom ASP.NET pages
 - The LOB vendor's own Web interface

What About LOBi?

- “LOBi” was introduced last June at Tech-Ed Boston as a technology
 - Appeared to be a technology at the time
- There was a reorganization
 - “LOBi” is now one of the teams under “MOSS 14”
 - The old BDC team is part of the LOBi team
- Envisioned key features (all subject to change)
 - Client-side functionality (in addition to server-side)
 - Write-back
 - Composition



Summary / Call to Action

- The BDC's job is to reduce, perhaps eliminate, custom code *on the front-end*
- You still need to:
 - Expose LOB data
 - You've been doing this anyway, we hope, for SOAs
 - Make sure the exposed data makes sense
 - Provide a usable means of identity sharing
 - MOSS provides SSO, Windows provides Kerberos
- This has a bright future, and the next release will build forward from this investment



SharePoint Conference Hands-on Labs

The following is the list of Hands-on Labs available in SAAL C relevant to this presentation
<edit this list to remove all not relevant>:

- HOL101 What's New in Microsoft Windows SharePoint Services 3.0 Feature Walkthrough
- HOL111 What's New in Microsoft Office SharePoint Server 2007 Feature Walkthrough
- HOL171 Synchronizing Data Between Microsoft Office Groove 2007 and Microsoft SharePoint Products and Technologies
- HOL201 Introducing Content Types for Microsoft Windows SharePoint Services 3.0
- HOL202 Microsoft Windows SharePoint Services Installation and Configuration
- HOL203 Microsoft Windows SharePoint Services 3.0 Backup and Restore
- HOL211 Microsoft Office SharePoint Server 2007 People and Permissions
- HOL212 Microsoft Office SharePoint Server 2007 Personalization
- HOL213 Microsoft Office SharePoint Server 2007 Installation and Configuration
- HOL214 Microsoft Office SharePoint Server 2007 Enterprise Features Administration
- HOL215 Microsoft Office SharePoint Server 2007 Records Management Deployment and Configuration
- HOL216 Microsoft Office SharePoint Server 2007 for Search Installation
- HOL217 Getting Started with Search in Microsoft Office SharePoint Server 2007



SharePoint Conference Hands-on Labs (2)

The following is the list of Hands-on Labs available in SAAL C relevant to this presentation
<edit this list to remove all not relevant>:

- HOL241 Using Microsoft Office Excel 2007 Spreadsheets for Web Service-Based Calculations and Browser Rendering
- HOL262 Building Microsoft Office InfoPath 2007 Forms that Run as Both Rich Client and Browser Applications
- HOL301 Using Features to Provision Sites in Microsoft Windows SharePoint Services 3.0
- HOL302 ASP.NET 2.0 Interoperability with Microsoft Windows SharePoint Services 3.0 - Web Parts and Master Pages
- HOL303 Creating Workflows for Microsoft Windows SharePoint Services 3.0
- HOL304 Using List Events in Microsoft Windows SharePoint Services 3.0
- HOL305 Microsoft Windows SharePoint Services 3.0 Site Templates
- HOL311 Getting Started with the Business Data Catalog in Microsoft Office SharePoint Server 2007
- HOL312 Search Administration and Customization in Microsoft Office SharePoint Server 2007
- HOL313 Designing Content-Driven Web Sites with Microsoft Office SharePoint Server 2007
- HOL314 Microsoft Office SharePoint Designer 2007 - CSS and the Data Form Web Part



Sweepstake

Complete your Feedback form
and have a chance
to win a Zune!*



* English US version