



SharePoint 2010 – Developers Overview

Udviklingsmulighederne i SharePoint 2010

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Session objectives

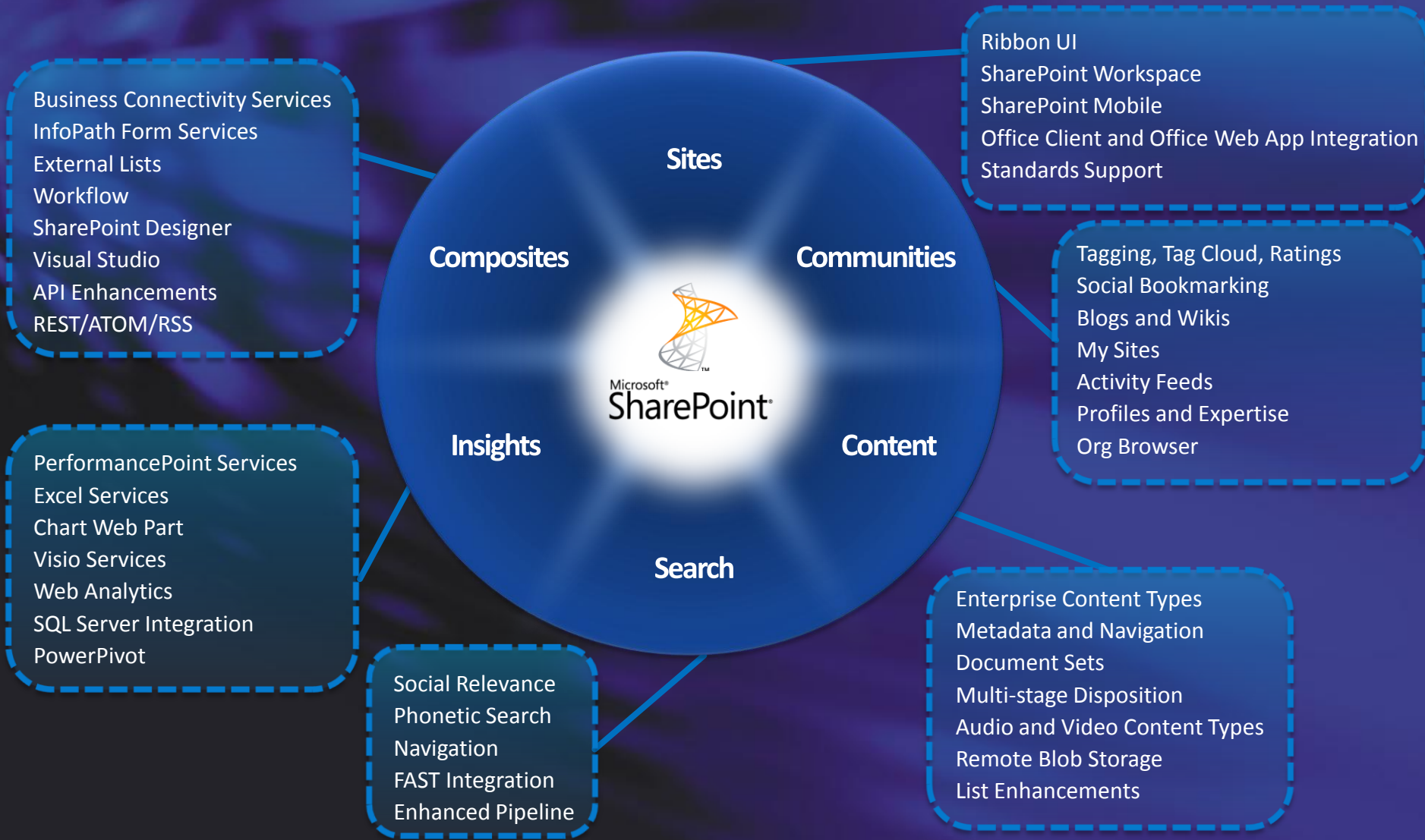
- Overview of VS2010 support for SharePoint development
- Overview of new SharePoint 2010 development features

Who am I?



- Working with SharePoint architecture at Avanade
 - Started in internal IT in 1990 (public sector)
 - Consultant since 1998 within both infrastructure and development
 - Started with SharePoint in 2003
- Avanade is a joint venture by Microsoft and Accenture
 - Approx 9.000 consultants (approx 300 in the Nordics)
 - System integrator which is 100% focused on Microsoft technology
- Campus Days 2010 sessions
 - Kapacitet og performancemanagement i SharePoint 2010
 - Udviklingsmulighederne i SharePoint 2010

SharePoint 2010 investment areas



SharePoint 2010 Development Investments



Developer Productivity

- *Rapidly develop solutions with Visual Studio 2010*
- *Application Lifecycle Management & Team Development*
- *Solution quality improved with debugging tools*

Deployment Platform

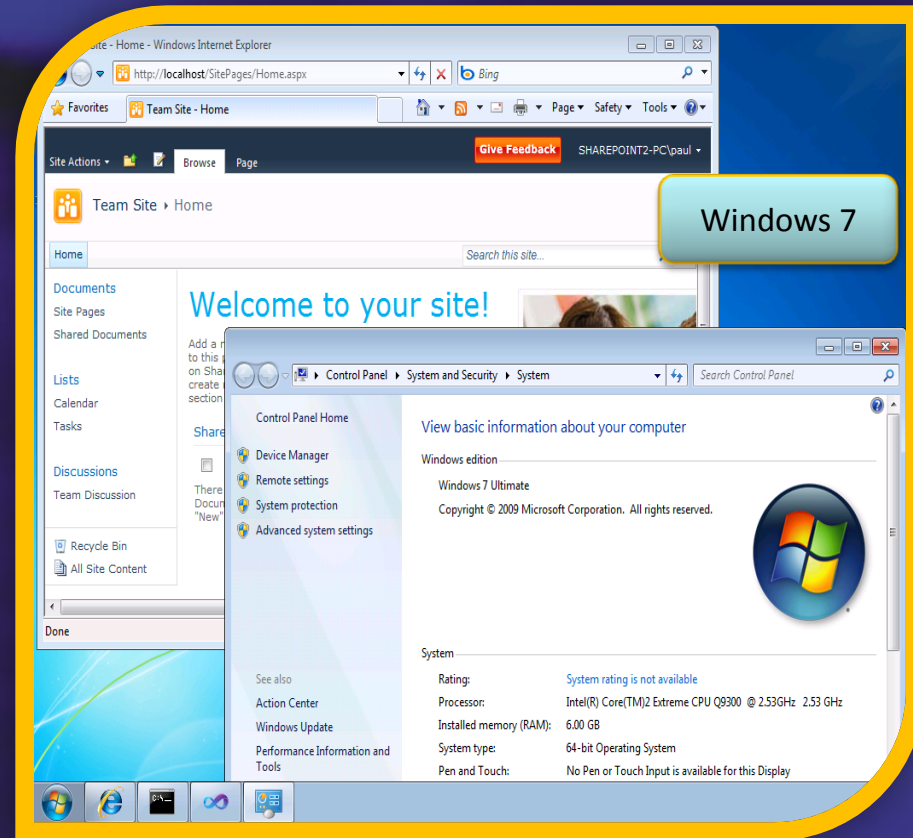
- *Rich solution UI with Silverlight, XSLT View, Clean HTML*
- *Data Foundation – Relationships, Lookup*
- *Better programmability with LINQ, Client API*

Solution Hosting

- *Standardized WSP Package Deployment*
- *SharePoint Online shared solution hosting*
- *Install on Vista SP1 or Windows 7 for Developers only*

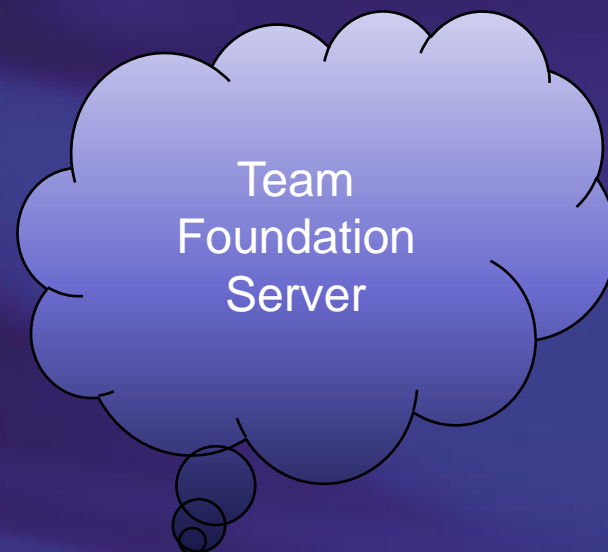
Development on Windows 7 / Vista SP1

- Either SharePoint Foundation or SharePoint Server
 - Requires x64 OS
 - Only for developers
 - Not supported for production
 - Only stand alone installation
 - Can be disabled through GPO's
 - Install guide in SDK



Development Environments

- Windows 7 / Vista SP1 with SharePoint 2010
- Local virtualized environments
 - x64 = no Microsoft Virtual PC
- Boot to VHD with Windows 7
 - Windows 2008 / Windows 2008 R2 native
- Virtualized server environments
 - Remote Desktop



Development, Deployment and Debugging

- Web Part, BCS and Workflow designers
- Package and Deploy SharePoint projects
- Generate WSP for Production Deployment
- View SharePoint site in Server Explorer
- F5 debugging
- Developer Dashboard
- Team Foundation Server integration



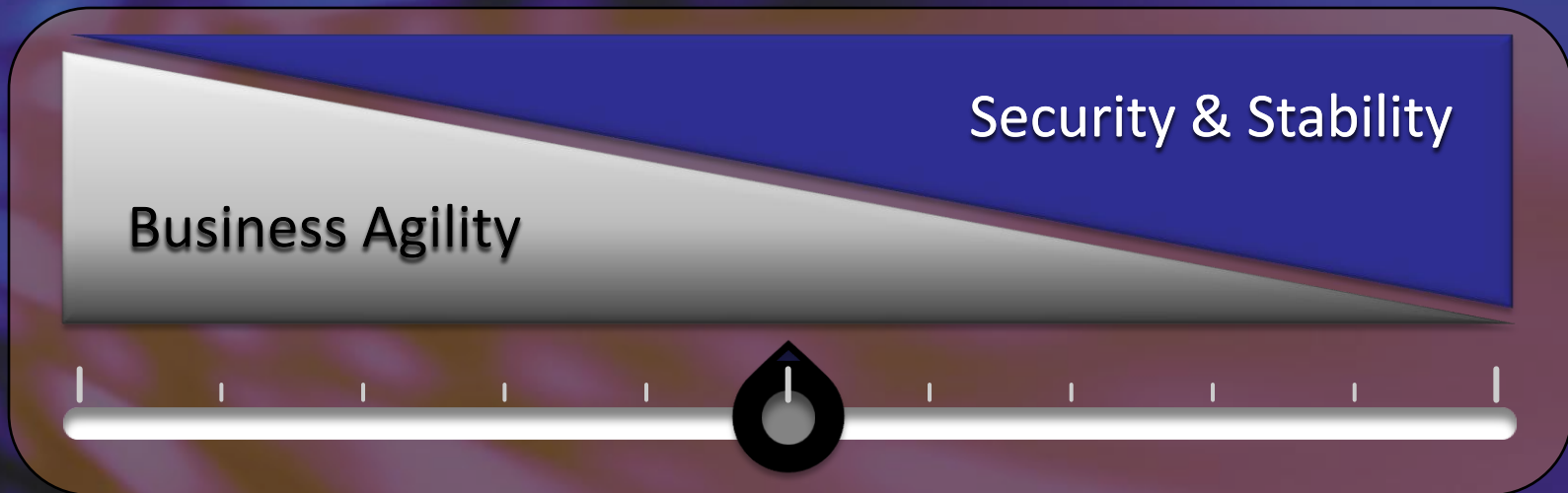
Visual Studio 2010 and SharePoint

DEMO

Broad SharePoint Support

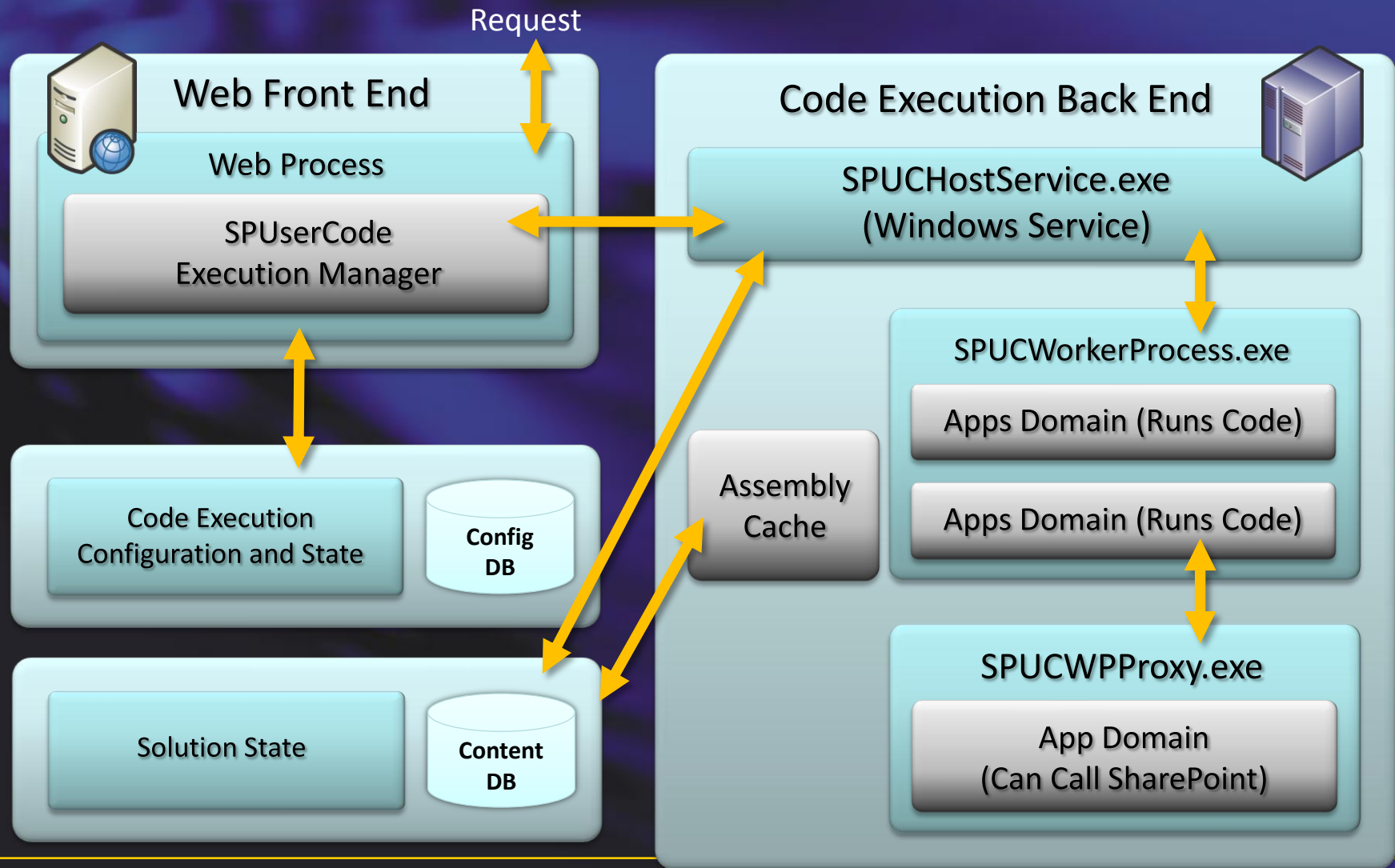
- SharePoint Sandboxed Solutions
- ClientOM, REST, LINQ, JavaScript
- Lists improvements
- SharePoint Designer 2010
 - Import WSP from SharePoint Designer including Workflow
 - Extensibility for development of additional SharePoint artifacts
 - Build Workflow Steps using Visio and SharePoint Designer
- Ribbon and dialog framework
- SharePoint Business Connectivity Services (BCS)

Sandboxed Solutions



- Essential Agility
 - Easy Deployment
 - Iterative Development
 - Access To Shared Servers
 - SharePoint Online
- Essential Stability
 - Safe for Other Users
 - Limited API Access
 - Monitored Resources
 - Separate Process
 - Site Collection Limits

Sandboxed Solutions



Sandboxed Solutions

- Supported Solutions
 - Content Types
 - Site Columns
 - Custom Actions
 - Declarative Workflows
 - Event Receivers, Feature Receivers
 - InfoPath Forms Services (not admin-approved)
 - JavaScript, AJAX, jQuery, Silverlight
 - List Definitions
 - Web Parts (not Visual WebParts)
 - Site Pages
- General rule
 - Below the site collection
- Not supported
 - Network access
 - Including web services
 - Profiles
 - Search
 - File system
 - E.g. Visual WebParts
 - Only a limited Microsoft.SharePoint.dll
 - Access controlled through special dll and assembly redirect
 - ..\14\UserCode\web.config

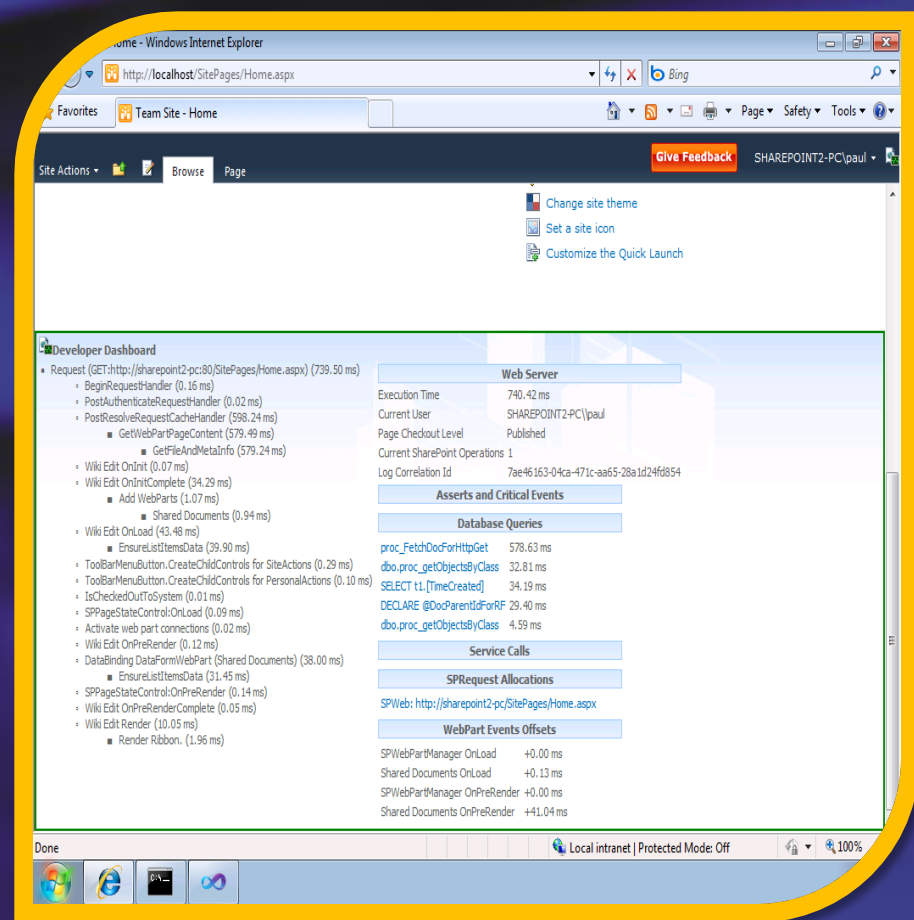


Sandboxed Solutions

DEMO

Developers Dashboard

- Disabled by default
 - Can be configured to be shown always or on demand
 - Configured administratively
 - STSADM
 - PowerShell
- stsadm -o setproperty -pn developer-dashboard -pv ondemand
 - stsadm -o setproperty -pn developer-dashboard -pv on
 - stsadm -o setproperty -pn developer-dashboard -pv off





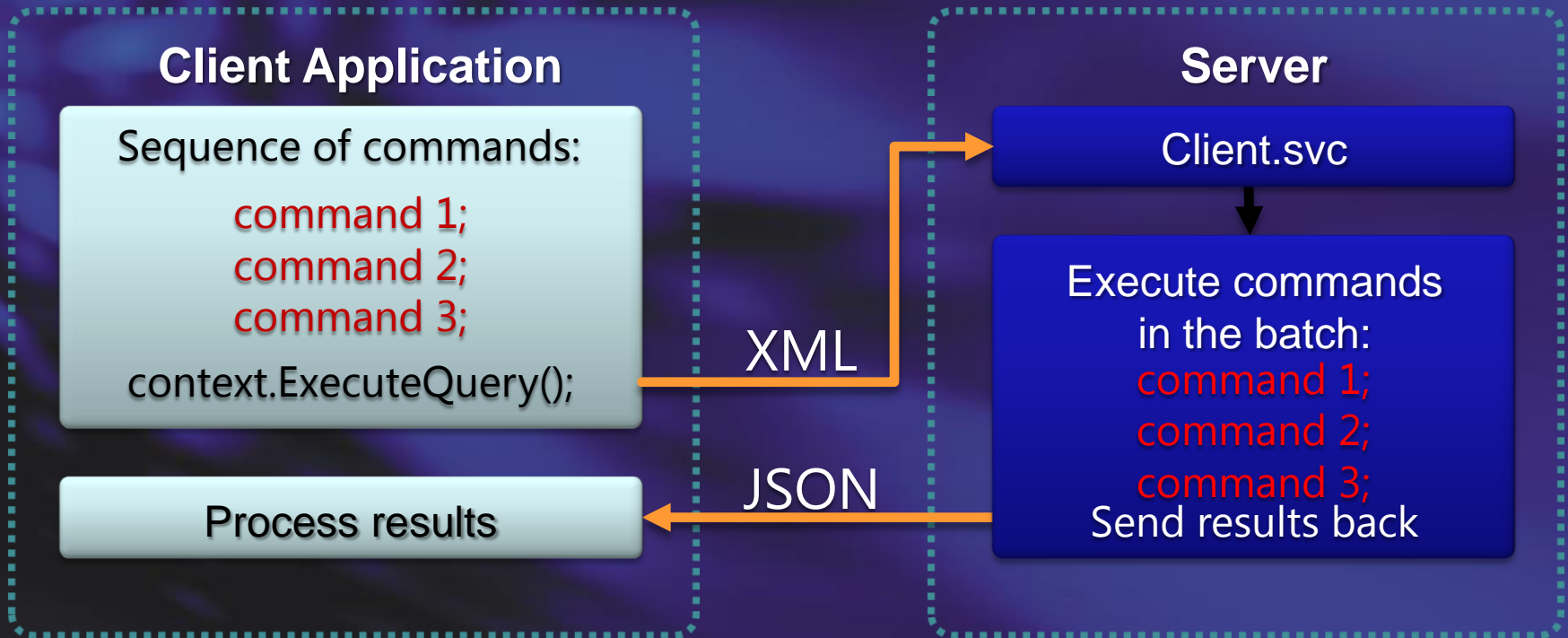
Developers Dashboard

DEMO

SharePoint 2010 Data Models



Client OM - Generally How It Works



- JavaScript is using a `XmlHttpRequest.post`
- ClientOM is using a `HttpWebRequest.post`

.Net CLR Client OM

- C:\Program Files\Common Files\Microsoft Shared\Web Server Extensions\14\ISAPI
 - Microsoft.SharePoint.Client - 281kb
 - Microsoft.SharePoint.Client.Runtime - 145kb
- Compared to the server object model
 - Microsoft.SharePoint.dll – 15.3MB

Javascript Client OM

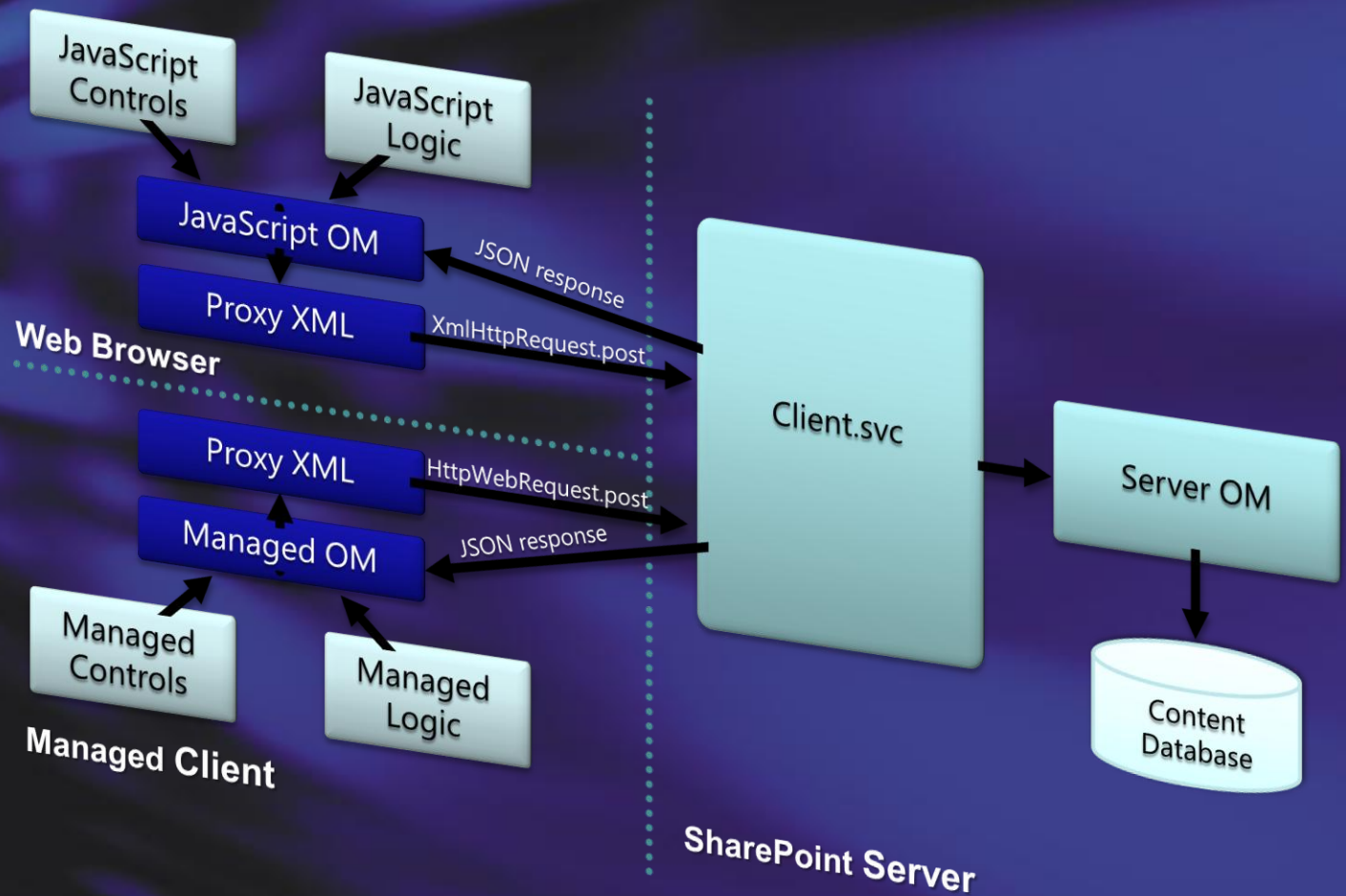
- C:\Program Files\Common Files\Microsoft Shared\Web Server Extensions\14\TEMPLATE\LAYOUTS
 - SP.js (SP.debug.js) - 380KB (559KB)
 - SP.Core.js (SP.Core.debug.js) - 13KB (20KB)
 - SP.Runtime.js (SP.Runtime.debug.js) - 68KB (108KB)

Silverlight CLR Client OM

- C:\Program Files\Common Files\Microsoft Shared\Web Server Extensions\14\TEMPLATE\LAYOUTS\ClientBin
 - Microsoft.SharePoint.Client.Silverlight - 262KB
 - Microsoft.SharePoint.Client.Silverlight.Runtime - 138KB

Client OM

DEMO



LINQ for SharePoint (Language Integrated Query)

- Entity based programming
 - Strong Types and Intellisense
- Supports List Joins and Projections
 - Join lists on lookup field between them
 - Join multiple lists (A->B->C)
 - Project any field from joined list in a query without changes in list schema

```
from o in data.Orders
    where o.Customer.City.Name == "Copenhagen"
    select o;
```

REST-style ListData.svc Web Service

- Work with data via Representational State Transfer (REST)
 - SharePoint list data
 - Other data sources as well
 - Excel spreadsheets
 - Azure cloud store
- Powered by ADO.NET Data Services “Astoria”
 - REST Protocols: Atom, AtomPub, and JSON
 - Integration and Standardization
















REST APIs - URI Map

- Entity properties syntax:
 - `/_vti_bin/ListData.svc/{Entity}[({identifier})]/[{Property}]`
 - Example to get budget hours for Project #4:
 - `/_vti_bin/ListData.svc/Projects(4)/BudgetHours`
- Filter syntax:
 - `/_vti_bin/ListData.svc/{Entity}?$filter={simple predicate}`
 - Example to get Projects for Clients in Chicago:
 - `/_vti_bin/ListData.svc/Projects?$filter=Client/City eq 'Copenhagen'`

REST APIs - QueryString Parameters

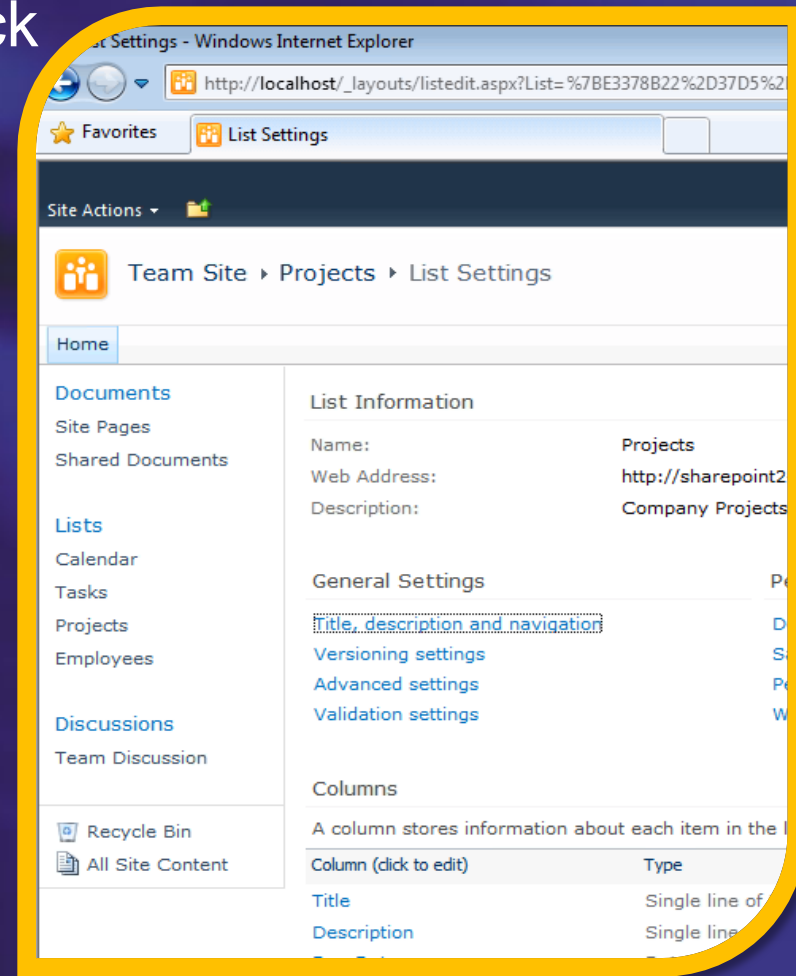
- \$filter={simple predicate}
- \$expand={Entity}
- \$orderby={property}
- \$skip=n
- \$top=n
- \$metadata
- More information
 - <http://msdn.microsoft.com/en-us/library/cc907912.aspx>

Data Access Technologies - Decision Matrix

	Client OM	Server OM	REST	LINQ to SharePoint
On SharePoint Server				
On Remote Computer				
Site / List Objects				
Traverse Relationships				
Calling Pattern (Direct)				
Calling Pattern (Callback)				
Strongly-Typed (Columns as Properties)				

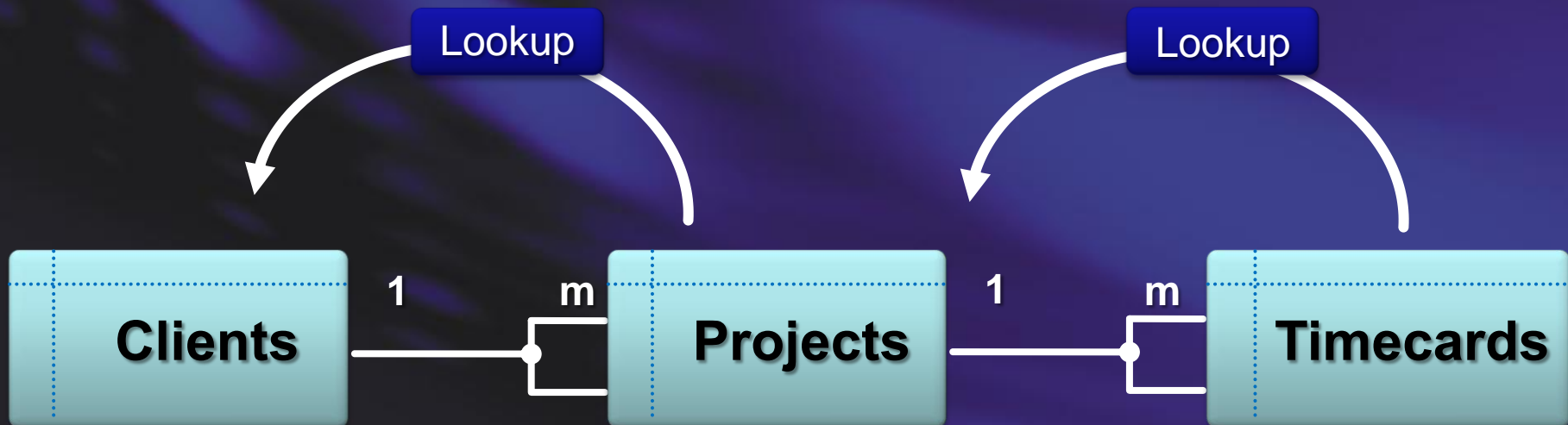
SharePoint 2010 List Improvements

- Relationships with Cascade or Block
 - Transacted Cascading Deletion
 - Restriction of Deletion
- Validation with Excel Like Formula
 - Formula-based Validation
 - Ensure Uniqueness
- Lookup to Multiple Columns
- List Index Auto-Creation
- Scalability and Performance
 - List Query Throttling



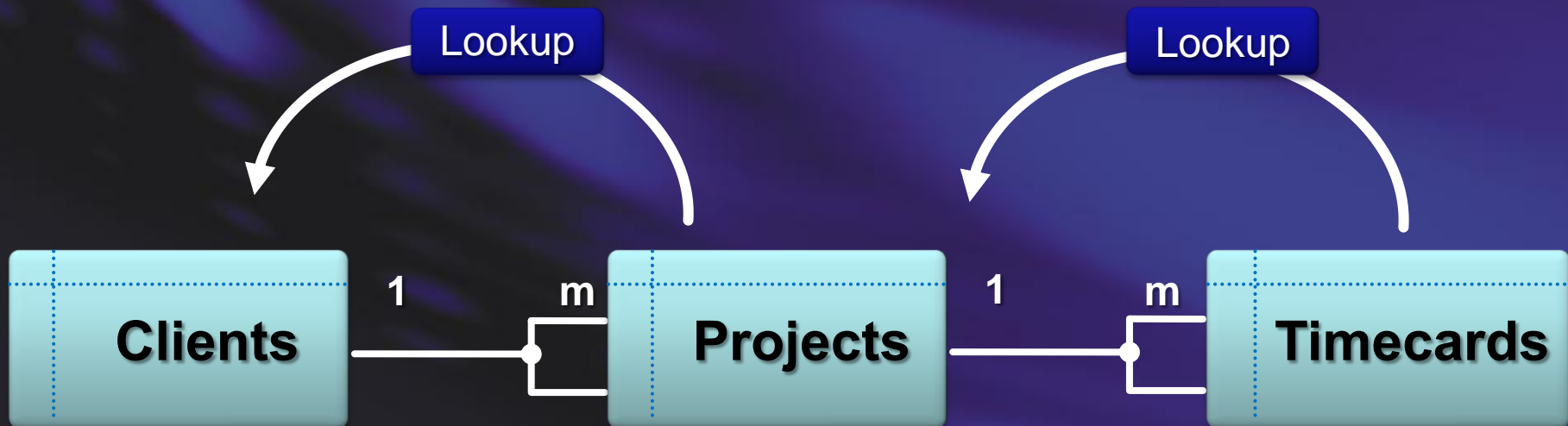
List Lookups

- Lookups form relationships between lists
 - One-to-many
 - Many-to-many



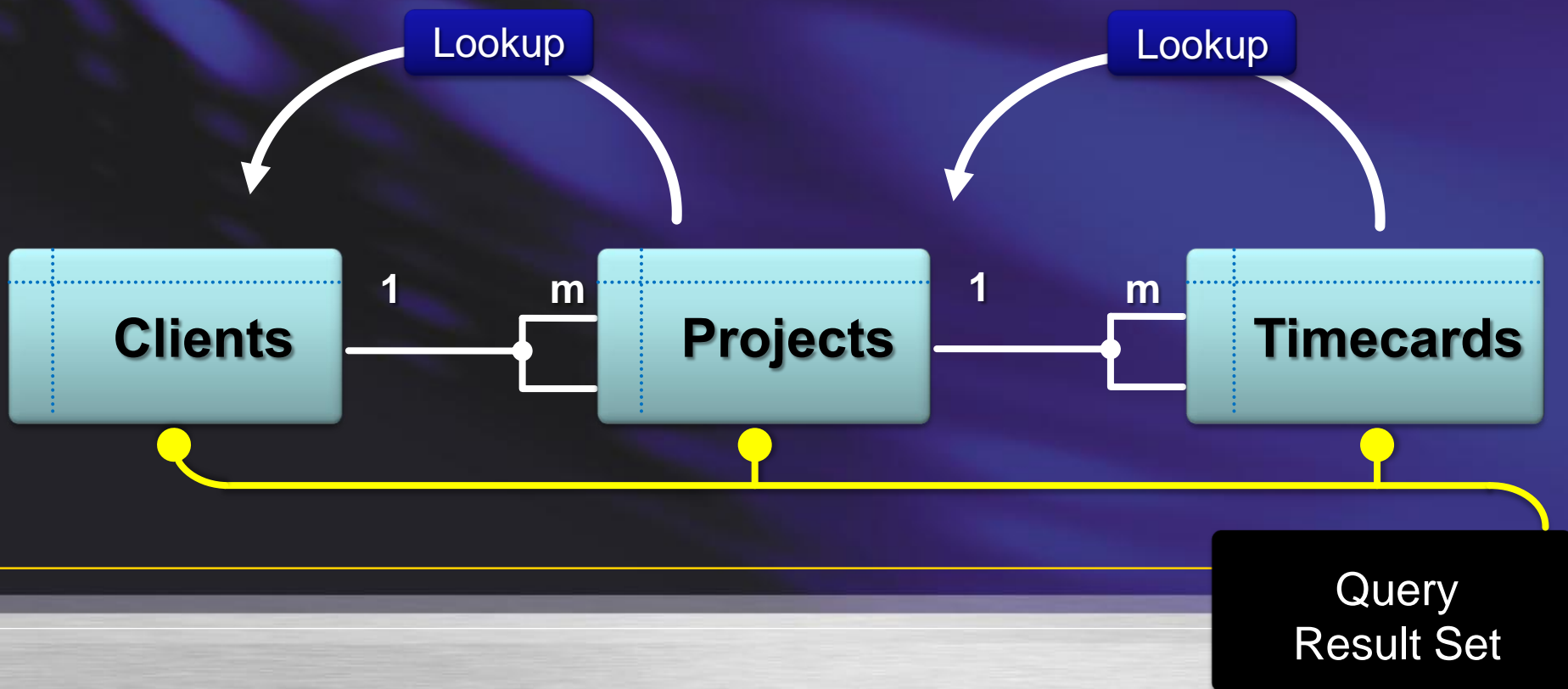
Lists Relationships and Data Integrity

- One-to-many relationships can be used to:
 - Trigger Cascade Delete
 - Restrict Delete



Lists Joins and Projections

- Query within and across lists:
 - Join lists using lookup columns
 - Lookup to multiple columns



List Data Model - Validation and Uniqueness

- Validation Formula can be specified on List and Columns
 - Example: `= [Discount] < [Cost]`
- Column uniqueness constraint

XSLT Views for Lists

- View Design in UI and SPD
- Replaces CAML for Views
 - CAML is still used for queries
- Better performance
- Easier edit in SPD
 - Ribbon UX
 - sort/filter/group
 - conditional formatting
 - etc
- Simpler coding experience
 - Standard language
 - Shared default XSLT
- XSLT-based views are now default
 - SharePoint Lists, External Lists

SharePoint Designer 2010

- Free download
- New Tools
 - BDC Entities
 - List Schema
 - Custom Actions
 - Task / Approval Designer
- Improved Tools
 - Workflow Designer
 - Page Editor
- SharePoint Designer work can be upgraded to VS2010
 - “Save site as template” in SharePoint Site Settings creates WSP
 - WSP imports into Visual Studio 2010 as new project

Ribbon and dialog framework

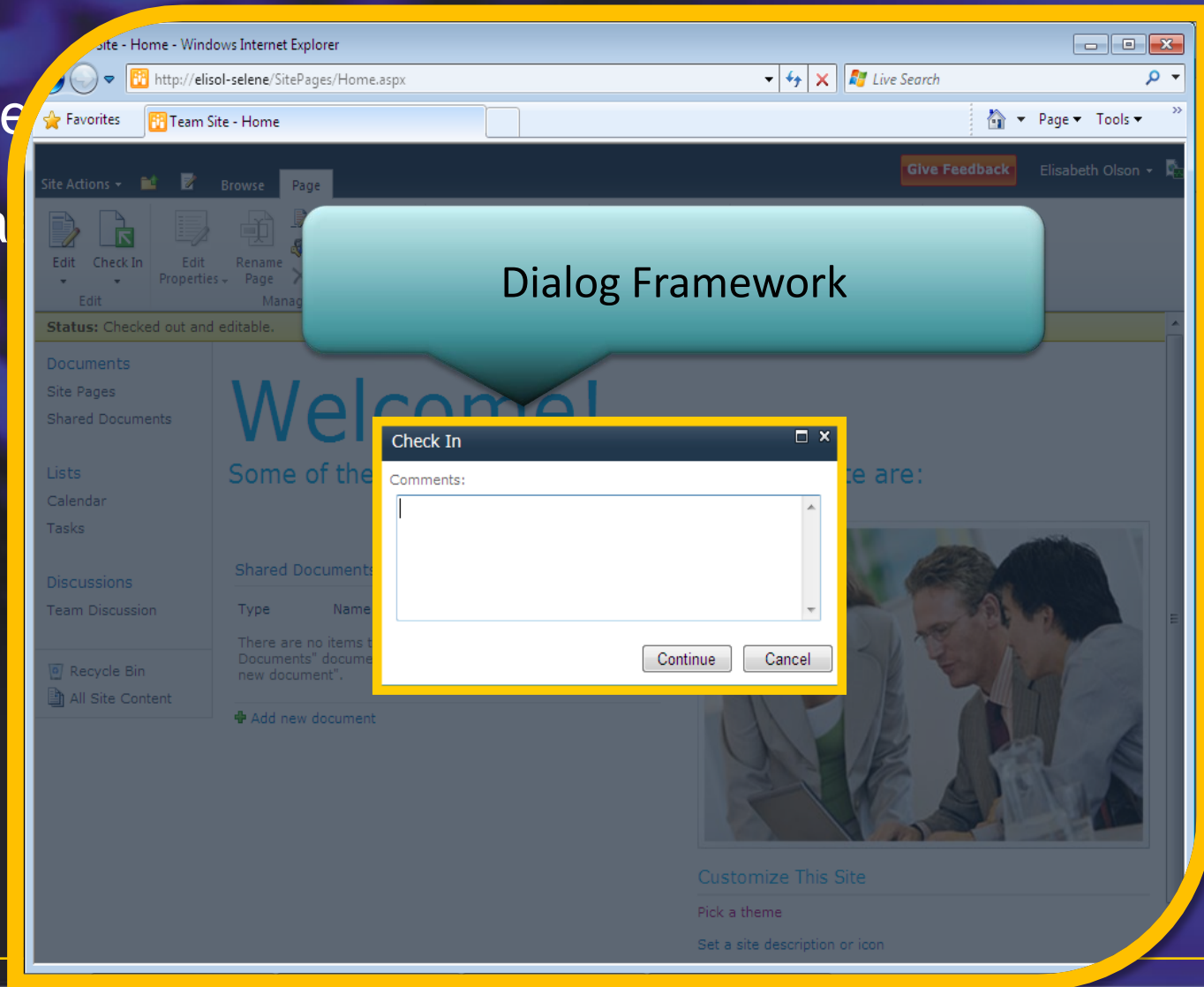
- Client

- Context



Ribbon and dialog framework

- Replace
- Open a



Upgrading SharePoint code (2007 to 2010)

- VSeWSS
 - VS.NET that support the importing of existing VSeWSS projects
 - VB & C#
 - VSeWSS v1.1 and up
 - Projects are converted to VS2010 formats and project layout is maintained
 - Separate download – not shipping with VS2010
 - Template name is called "Import VSeWSS Project" in VS2010
 - Supports both sandbox and full trust solutions
- WSP's can be imported in VS2010

Upgrade issues

- STP files
- UI changes
 - CSS
 - Custom actions
 - Backwards compatible UI
- Large List Query Throttling
- Deprecated APIs
- Deployment path issues
- Project refactoring
- Other

Versioned controls

Loads late in the rendering process

```
<SharePoint:VersionedPlaceholder runat="server" UIVersion="4">  
    <div>Content</div>  
</SharePoint:VersionedPlaceholder>
```

Executed on load event time

```
<SharePoint:UIVersionedContent runat="server" UIVersion="4">  
    <ContentTemplate>  
        <div>Content</div>  
    </ContentTemplate>  
</SharePoint:UIVersionedContent>
```

My 5 favourites

- Developer Dashboard
- Visual Studio 2010 support
 - Packaging
 - Deployment
 - Debugging
- External Lists
- Client API's
- New features in SharePoint Designer 2010

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QUESTIONS