



*ACE 2011 International*

# Role-Based Clients

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# Session Goals



- ▶ **Define Role-Based and Application Specific Clients**
- ▶ **Discuss When can and Why should they be used**
- ▶ **Tutorial of two simple Clients with architecture and code samples**

# Definitions



## Role-Based Client or Application Specific Client

### ▶ A PLM User Interface that has been:

- De-featured to remove un-necessary menus and functions
- Created to consolidate all information (mash-up) for the specific task at hand
- Localized (time zone and language)
- Designed ergonomically for the environment of the user
  - Barcode interface instead of a mouse
  - Touch-typist interface instead of a mouse
  - Mouse driven data entry instead of a keyboard
  - Touch screen
  - Mobile device

# Why Do We Discuss Role-Based Clients?



- #1 success factor for any PLM deployment is the end-user adoption.
- PLM (and CRM and ERP) are all highly dependent on accurate and timely data. If then end-users won't use the PLM clients, the enterprise data and processes will continue to be managed in Excel and on Post-It Notes.
- Willingness to adapt to end-user requests is important for reaching the stubborn users. It becomes "their" system instead of an IT mandate.
- Best way to increase the efficiency of the casual or infrequent users. Decreases training requirements.

# Why Don't We use Role-Based Clients All the Time then?



- ▶ **The overall trend in enterprise business software has been to use standard out-of-the-box clients**
  - Cost of development and support with legacy application technologies has driven IT costs
  - Every data model or process model change results in changes to client code, and re-deployment of clients
  - BUT some of these decision criteria are dated and no longer relevant. For example; Even at Aras customers we see too much use of the standard client
  
- ▶ **We need a fresh approach – technology allows flexibility, so let's use it to engage the end-users**

# PLM Clients

## 1<sup>st</sup> Step: Allow Multiple Platforms



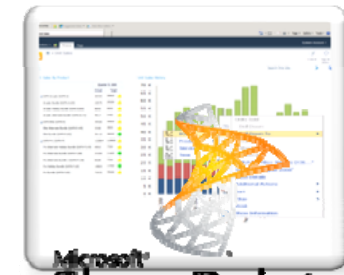
**OFFICE**



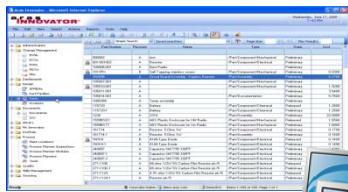
**MOBILE**



**CAD**



**Microsoft  
SharePoint**



**BROWSER**

Web Services Connections



**Database**



**File Vault**

# PLM Clients

## 2<sup>nd</sup> Step: Implement Task-Specific UI's



**ACCOUNT FORM**

Company Name: Aras Corporation  
 Owner: Peter Schroer  
 Status: Subscriber  
 Current Score: 27932  
 Max Score: 44629  
 License Key: YES  
 Last Updated On: 4/21/2011  
 Street: 300 Brickstone Square  
 Suite: 904  
 Andover MA 01810  
 Country: United States  
 Zip: 01810

**CONTACT FORM**

Title: Russell Moro  
 First Name: Russell  
 Last Name: Moro  
 Last Web Visit: 2/16/2011  
 Job Title: sr. consultant  
 Job Function: [dropdown]  
 Job Role: [dropdown]  
 Email: rrmoro@aras.com  
 Office Phone: 978-601-8000  
 Mobile Phone: [blank]  
 City: Andover  
 State / Province: MA  
 Country: United States  
 ZIP: [blank]

Account	Owner	Score	City
AMD	Peter Schroer	8	Sunnyv
Amscan	Peter Schroer	25	Eden Pr
Applied Enterprise Solutions	Peter Schroer	1	Slidell
aPiron	Peter Schroer	4	Concor
Aras Corporation	Peter Schroer	279323	Andove
Arrow Electronics, Inc.	Peter Schroer	4	
Autodesk	Peter Schroer	245308	
Extensible CAD Technologies	Peter Schroer	8	Avon
Freudenberg-FDS	Martin Allemann	78	Weinhe
GM	Peter Schroer	21	Detroit
GoEngineer	Peter Schroer	242	

**CONTACTS**

First Name	Last Name	City	State/Province	Country	Office
Russell	Moro	Andover	MA	United States	978-69
Lisa	Crowley			United States	555-55
Colin	Fox	Babson Park	MA	United States	617-75
John	Sperling			United States	71-4686
Darian	Morgan			United States	(978)-2
Sandeep	Prasad			United States	(978)6
Rob	McAveney	Andover	MA	United States	949-92
Sean	Coleman	Andover	MA	United States	978-69
Colin	Fox	Andover	MA	United States	978-69



**MOBILE**

Documents | Aras Partner Portal | Advanced PLM Software | Enterprise Open

Home | Getting Started | Community | Partners | Pa

Messages | Documents | Customers | CRM | Ro

Recent Customers

- New Aras Customer: Sunstone
- New Aras Subscriber: Sunstone Rubber
- New Aras Customer: Corn Group PLC
- New Aras Subscriber: Sunstone Rubber

News & Events

- SIAD Hydraulic AB Selects Aras for Product Lifecycle Management
- Carestream Health, Nestler Automotive, Avatech Pacific to Present at PLM Strategy at Aras Community
- IDC, CIMA and Beyond PLM to Present at Upcoming Aras Community Event in April

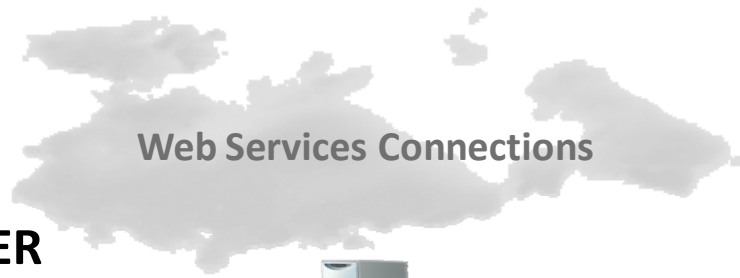
Search Documents

Category: All

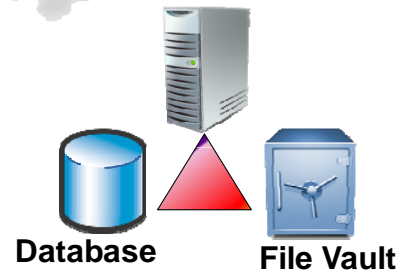
Date	Document Title	Category
April 14, 2011	Aras Configuration - Xis-Tools	Technical
April 14, 2011	Implementation Guidelines	Technical
March 21, 2011	Aras - Discovery Workshop Summary	General
March 15, 2011	Project Management Admin Jump Start	Technical

ID	Name	Category	Status	Last
100000001	Aras Configuration - Xis-Tools	Technical	Published	4/14/2011
100000002	Implementation Guidelines	Technical	Published	4/14/2011
100000003	Aras - Discovery Workshop Summary	General	Published	3/21/2011
100000004	Project Management Admin Jump Start	Technical	Published	3/15/2011

**BROWSER**



Web Services Connections



# Examples



- ▶ **Incoming inspection (bar code)**
- ▶ **Supplier portal**
- ▶ **Shop floor drawing viewer**
- ▶ **Customer portal**
- ▶ **Web-site catalog**
- ▶ **...**

# Aras Recommended Approach



- Where-ever possible - drive client layout design from the Form meta-model to eliminate Client changes when the PLM data model changes**
- Use the standard Aras web services to simplify authentication and authorization management**

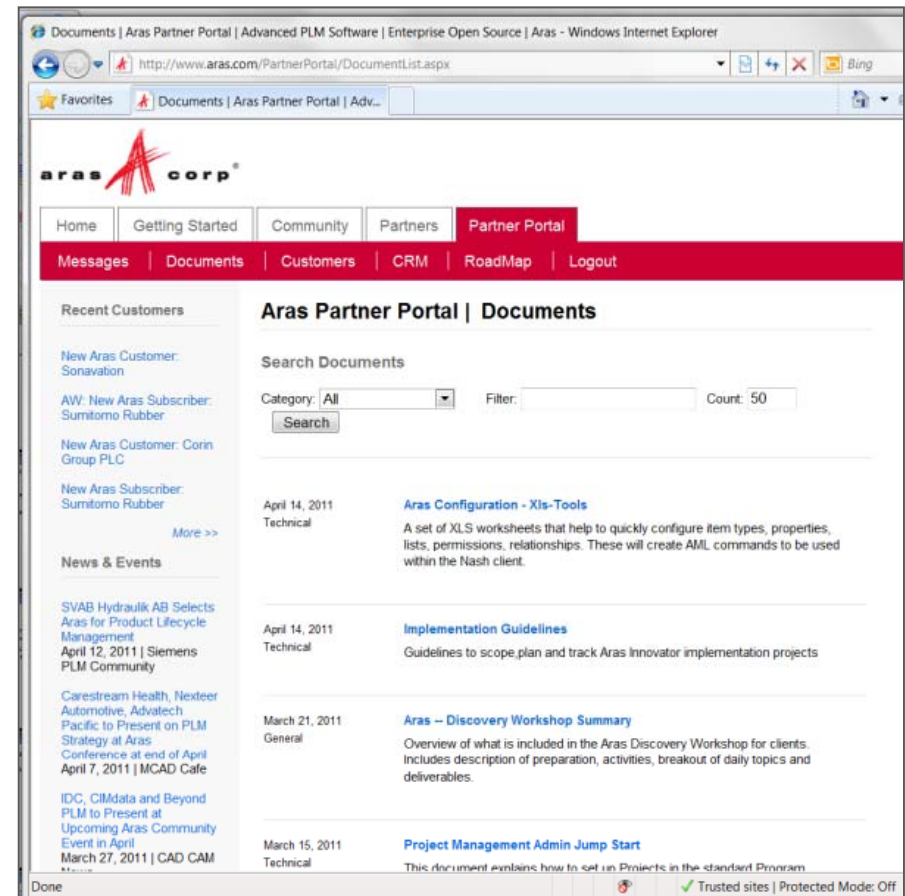
# Sample Project #1

## Simple Portal in standard HTML



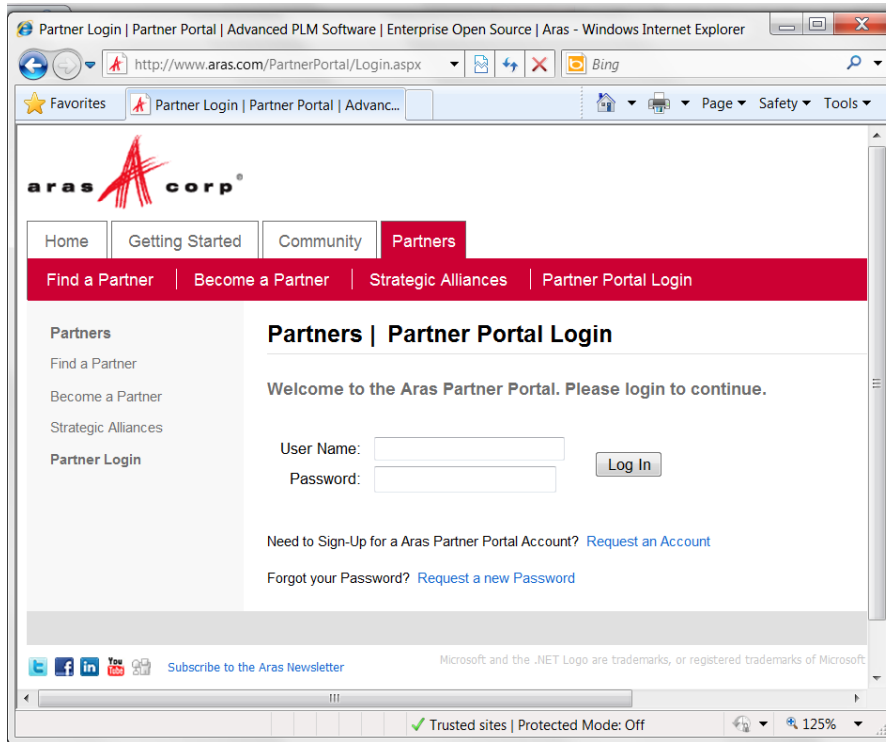
- ▶ High performance for remote clients
- ▶ Highly secure, all data is Aras Corp confidential (CRM)
- ▶ Browser independent
- ▶ No .NET Issues
- ▶ Very good for un-structured Data in lists, files, etc.

\* A simple 2 hour project for securely bringing PLM data to the web site for authenticated users



# Sample Project #1

## Login Screen



**Using native PLM authentication by prompting the end-user for username/password, and then using these values in the web services connection.**

**The HTML (ASPX) page becomes a true client to the Aras Innovator server.**

**Standard ASPX page using an ASP Login object**

```
<asp:Login ID="login" runat="server" onauthenticate="upwd_Authenticate" >
```

**Code behind implements the upwd\_Authenticate method**

# Sample Project #1

## Login – Code Behind



Sample in VB - note Aras IOM.DLL is used for Aras Innovator connection  
Could have used an XMLHTTP Object to send the XML/SOAP request as well

```
Protected Sub upwd_Authenticate(ByVal sender As Object, ByVal e As AuthenticateEventArgs)
```

```
    Dim username As String = login.UserName
```

```
    Dim password As String = login.Password
```

```
    Dim connection As HttpServerConnection = Aras.IOM.IomFactory.CreateHttpServerConnection  
        ( "http://My-Server/Innovator", "My-database", username, password)
```

```
    Dim log_result As Item = connection.Login()
```

```
    If log_result.isError() Then
```

```
        status.Text = "ERROR: " + log_result.getErrorString()
```

```
        Return
```

```
    End If
```

```
    Session("MyInnovatorPartner") = New Innovator(connection)
```

```
    Dim ReturnTo As String = Request.QueryString("ReturnTo")
```

```
    If ReturnTo = "" Then
```

```
        Response.Redirect("http://www.aras.com/partnerPortal/MessageList.aspx")
```

```
    Else
```

```
        Response.Redirect(ReturnTo)
```

```
    End If
```

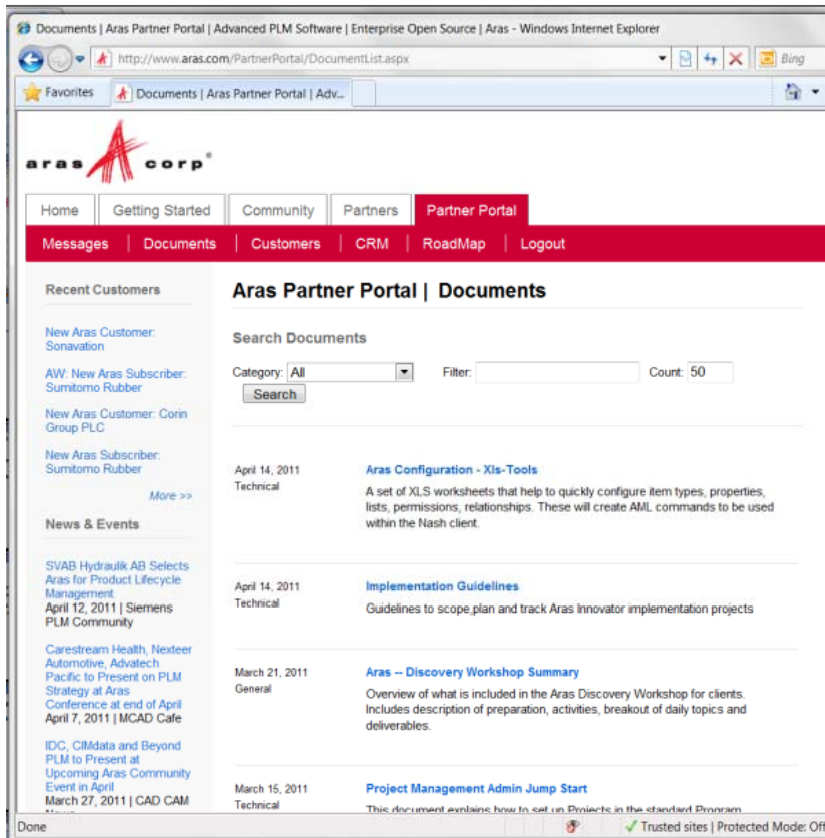
```
End Sub
```

**Adding the Innovator  
Connection to the  
Session Object**



# Sample Project #1

## Data List Page Example



Need to ensure that regardless of how this page is reached, directly or through the Login page, that an authenticated session is enforced.

The “Page\_Load” ASPX method is used to test whether this IIS session has a valid Innovator connection, if not, the user is redirected to the LoginPage

Standard ASPX page with declared code-behind

```
<%@ Page Language="vb" AutoEventWireup="false" CodeBehind="default.aspx.vb"  
    Inherits="PartnerPortal._Default" %>
```

# Sample Project #1

## Data Page– Code Behind



### Sample in VB using the Aras IOM.DLL

```
Public ArticlesXML As System.Xml.XmlDocument
```

```
Protected Sub Page_Load (ByVal sender As Object, ByVal e As System.EventArgs) Handles Me.Load
```

```
    If Session("MyInnovatorPartner") Is Nothing Then
```

```
        Dim url As String = Request.Url.AbsoluteUri
```

```
        Response.Redirect("http://www.aras.com/PartnerPortal/Login.aspx?ReturnTo=" & url)
```

```
    End If
```

```
    Dim MyInnovator As Innovator = Session("MyInnovatorPartner")
```

```
    Dim AML As String = "<AML><Item type=Article' action=get' /></AML>"
```

```
    Dim Result As Item = MyInnovator.applyAML(AML)
```

```
    ArticlesXML.LoadXml(Result.dom.OuterXml)
```



**Note: loading an XML Document with the result from Aras**

```
End Sub
```

**Very simple test. Is there a named Aras session object in IIS for this user's session? If not, re-direct to the Login Page, otherwise run the query to populate the HTML page**

# Sample Project #1

## One last hint...



```
AML = "<AML><Item type=Article' action=get' /></AML>"  
Dim Result As Item = MyInnovator.applyAML(AML)
```

or

```
AML="<AM><Item type='Article' action='My Query Method' /></AML>"  
Dim Result As Item = MyInnovator.applyAML(AML)
```

### We often move the actual query into a Method

- Allows division of responsibility between developers
- Allows Post-processing of data
- Merging of Federated Items

# Sample Project #2

## Rich UI Portal in MS-Silverlight

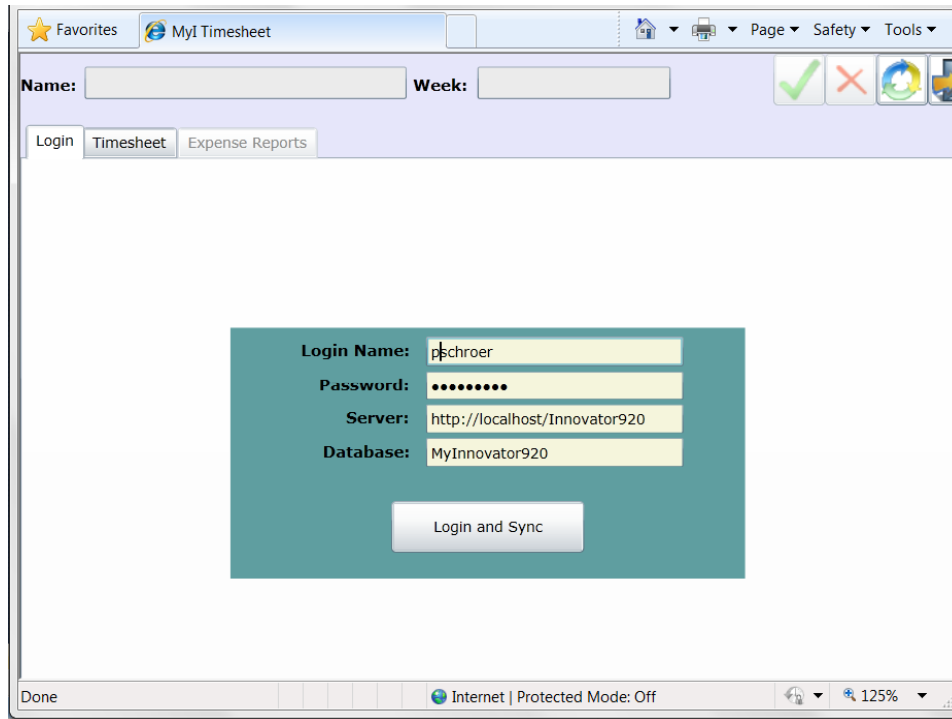


- ▶ Wanted a very graphical, snappy user interface
- ▶ Had to handle structured data – i.e. BOM's and other Relationships (too complicated for HTML)
- ▶ IE, FireFox and Chrome
- ▶ No .NET
- ▶ 100% Secure
- ▶ HTML5 not ready yet so we used Silverlight
- Web CRM
- Timesheets

A screenshot of a web browser displaying the "MyI Timesheet" application. The browser's address bar shows "MyI Timesheet". The application interface includes a header with "Name:" and "Week:" input fields, a "Pinnote" button, and navigation tabs for "Login", "Timesheet", and "Expense Reports". The main content area features a calendar for "April, 2011" and a table for recording time. The table has columns for "Activity:", "Bill To:", "Role/Rate:", and days of the week (Sun, Mon, Tue, Wed, Thu). Below the table are "Total Hours:" and "Total Billable Hours:" input fields. A sidebar on the left lists account information, including "ACCOUNT", "Company Name", "Subscriber", "Street", "City", "Andover", "Country", "United States", "Account", "AMD", "Amscan", "Applied Enterp", "aPrior", "Aras Corporati", "Arrow Electron", "Autodesk", and "Extensible CAD". At the bottom, there is a table with columns for "Freudenberg-FDS", "Martin Allemann", "78", "Weinhei", "Sean", "Coleman", "Andover", "MA", "United States", "978-69", "GM", "Peter Schroer", "21", "Detroit", "Colin", "Fox", "Andover", "MA", "United States", "978-69", and "GoEngineer", "Peter Schroer", "242". The browser's status bar at the bottom shows "Internet | Protected Mode: Off" and "Trusted sites | Protected Mode: Off".

# Sample Project #2

## Login Screen



**Using native PLM authentication by prompting the end-user for username/password, and then using these values in the web services connection.**

**The Silverlight control becomes a true client to the Aras Innovator server.**

**NOTE: the Aras IOM.DLL is not used in a Silverlight Project**

**The event model in Silverlight is asynchronous (UI stays active while Web Services requests are pending), so all access to the Innovator Server was made using HttpWebRequest objects.**

# Sample Project #2

## Login – Code Behind



### Sample in C#

```
public void CallAction(CallContext cc)
{
    // Create the request object
    System.Uri myUrl = new System.Uri(Server.Text + "/Server/InnovatorServer.aspx");
    HttpWebRequest request = WebRequest.Create(myUrl) as HttpWebRequest;

    request.Method = "POST";
    request.Headers["SOAPAction"] = cc.Action;
    request.ContentType = "text/xml";
    request.Headers["AUTHUSER"] = Login_Name.Text;
    request.Headers["AUTHPASSWORD"] = ConvertPasswordToMD5>Password.Password);
    request.Headers["DATABASE"] = Database.Text;

    cc.request = request;

    // need to make a asynch call to get the output stream
    IAsyncResult asyncResult = request.BeginGetRequestStream(new AsyncCallback(RequestStreamCallback), cc);
}
```



**HttpWebRequest with  
authenticated SOAP  
headers**

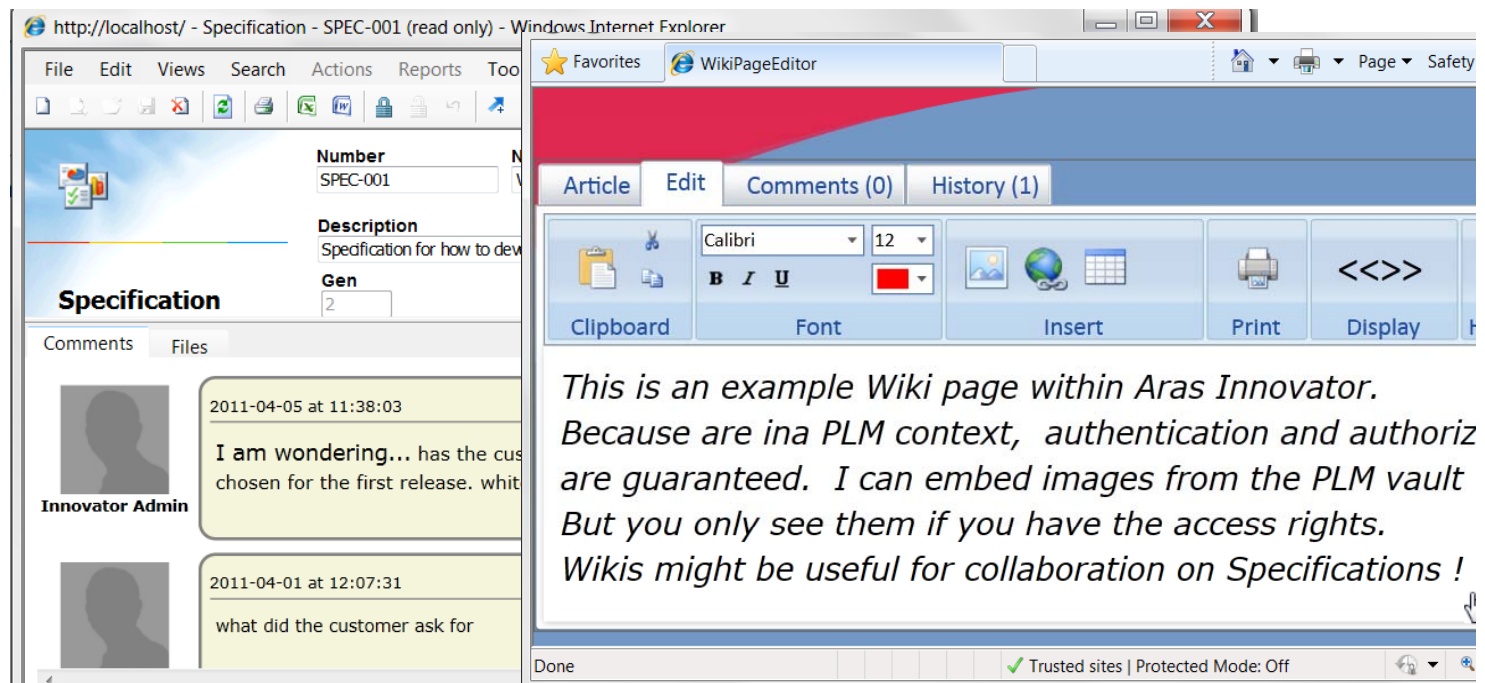
**The simple pattern is (1) create an AML request as XML string, (2) create the HttpWebRequest and get access to the Stream (3) send the AML and then (4) handle the result (which is XML) in a callback method . LINQ and Data Binding are used to load data into the UI.**

# My next project



- ▶ **Silverlight used for a new Collaboration Solution**
  - Discussion threads (forums), Wiki, Chat
- ▶ **Using Aras Innovator as the collaboration server, and all collaboration is persisted in the Aras PLM data model**
- ▶ **Allow PLM objects to be embedded (with access rights)**

- ▶ **Runs:**
  - In PLM
  - In a Web page
- Securely**



# Where to find more resources



- ▶ Aras documentation on web site [www.aras.com](http://www.aras.com)
  - ▶ Community projects
  - ▶ Forums
- 
- ▶ Email me for the projects (Visual Studio 2010) that were used to build the 2 samples