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PowerBuilder 11 Preview

November 14, 2006

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PowerBuilder 11 Preview



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PowerBuilder 11 Preview



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Agenda

- Deploying a PowerBuilder application as a .NET Web Forms application in ASP .NET 2.0
- Deploying a PowerBuilder application as a .NET Windows Forms application and optionally as a Smart Client application
- Deploying PowerBuilder NVOs as .NET Web Services
- Deploying PowerBuilder NVOs as .NET Assemblies
- The .NET Debugger
- DataWindow Enhancements
- Roadmap

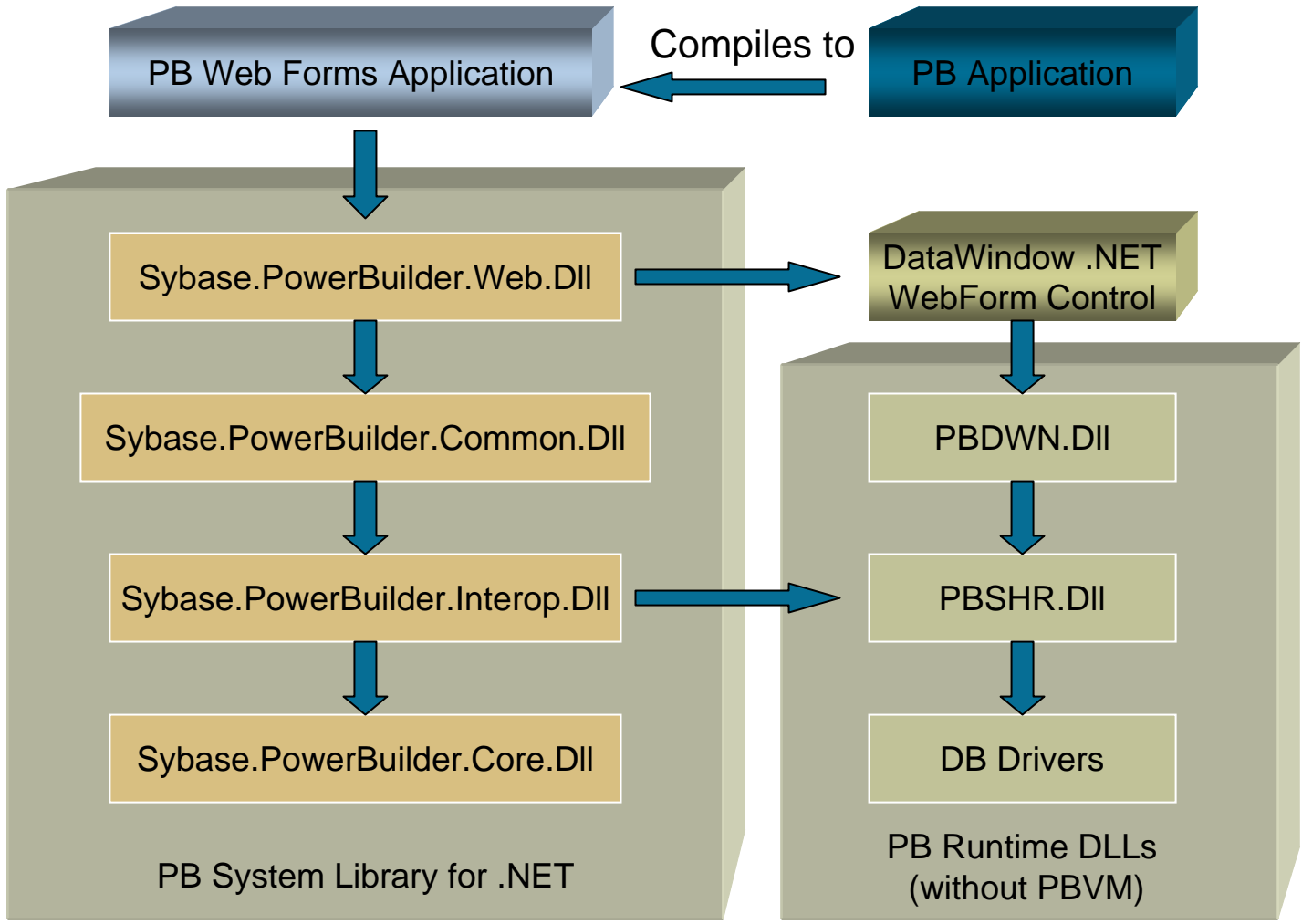
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Deploying PowerBuilder application as a .NET Web Forms application in ASP .NET 2.0

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.NET Web Forms Application Architecture



What happens at deployment-time

- **PowerScript code is compiled to a .NET assembly**
- **.NET assemblies are copied to the virtual folder**
 - PowerBuilder system library for .NET
 - DataWindow .NET
- **Resource files are copied**
 - Including PowerBuilder stock images
- **ASP.NET files are generated**
 - Default.aspx: the main ASP.NET page
 - Default.htm: hide menu and toolbars of IE

What applications are not suitable for the Web?

- **Those that:**
 - Retrieve large amounts of data
 - Have a complex user interface with many windows or have many DataWindows on a single page
 - Use external functions for visual effects
 - Are used for intensive data entry

What PowerBuilder features can I use?

- **All PowerScript language features**
 - All data types
 - Arrays
 - Function invocation (dynamic, post, trigger)
 - Event handling
 - Embedded SQL
- **All controls**
 - Except for InkPicture, InkEdit, OleControl and OleCustomControl
- **File operations**
- **Sending Emails**
- **DataWindow printing**

What PowerBuilder features don't work

- **Some system classes such as:**
 - Profile-related classes
 - Trace-related classes
- **Some system functions such as:**
 - DDE-related functions
 - Clipboard-related functions
- **Some Controls, properties or events such as:**
 - OLE
 - Drag & drop events
 - EditLabels of TreeView

Best practices – General

- **Event handling**
 - Avoid handling unnecessary events – reduce postbacks
 - **Clicked event of DataWindow**
- **Close Database connections after use**
 - Better scalability
- **Avoid retrieving large amount of data.**
 - Better scalability

Best practices – DataWindow

- **Use DataWindow pagination**
 - Better performance
- **Minimize row retrieval**
 - Better performance and scalability
- **Handling client-side events**
 - Reduce postbacks

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.NET Web Forms application Demonstration

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Deploying PowerBuilder
application as a .NET Windows
Forms application and optionally
as a Smart Client application

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Comparison Between Rich/Thin/Smart Clients

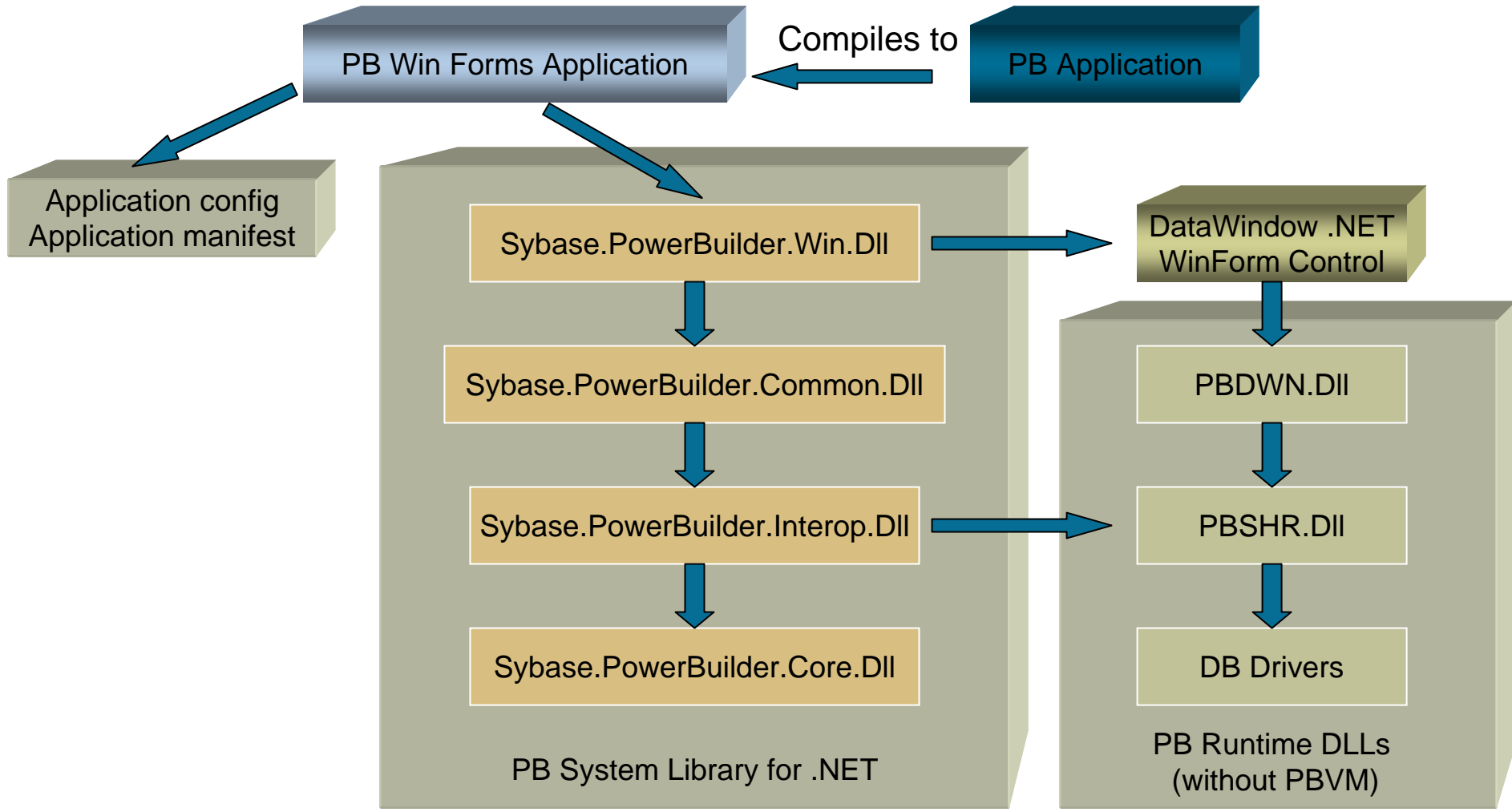
	Rich Client	Thin Client	Smart Client
Rich User experience	Yes	No	Yes
Responsive	Yes	No	Yes
Heavy footprint	Yes	No	No
Difficult to deploy	Yes	No	No
DLL Hell	Yes	No	No
Network dependency	No	Yes	No
Easy deployment	No	Yes	Yes
Developer productivity	Yes	No	Yes
Occasionally connected	No	No	Yes
Perform well in low bandwidth network	No	No	Yes
Use Local Resources	Yes	No	Yes

A PowerBuilder Smart Client Application

- **Is a .NET Windows Forms application**
- **Is a self-updatable application**
- **Is an offline enabled application**
- **Is a combination of PowerBuilder functionalities and the power of the .NET platform**
 - DataWindow, EditMask,...
 - Algorithm, Threading,...
- **Is an application that takes the advantages of both Rich Client and Thin Client features**

- **Supports most features available in a PowerBuilder Win32 application**
 - PowerScript language features
 - DataWindow, Editmask, RichText, InkEdit, InkPicture,...
 - DataStore, Transaction, ResultSet,...
 - most System functions
- **Consume .NET framework library through PB .NET language interop.**
 - Regex, algorithm, threading,...
- **Preserve PowerBuilder development skills**
 - Create a PowerBuilder application
 - Deploy it as a .NET Windows Forms application

.NET Windows Forms Application Architecture



- **“Intelligent Update” is a new application deployment technology that makes deploying a PB11 Windows Forms based application as easy as deploying a web application**
- **Based on “ClickOnce” technology of .NET Framework 2.0**
- **“Intelligent Updater” is designed to address the pain of updating a typical Client/Server application**

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.NET Windows Forms application Demonstration

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Deploying PowerBuilder Nonvisual Objects (NVOs) as .NET Web Services

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Deploying NVOs as .NET Web Services

- **PowerBuilder NVOs can be deployed as .NET Web Services**
- **A .NET Web Services Target Wizard is provided to facilitate this process**
- **When deployed directly to an IIS server, PowerBuilder creates an application directory under the IIS virtual root and creates an ASMX file in the application directory**
 - The ASMX file created by the project is an ASP.NET executable file rather than a true WSDL file
 - It may be necessary to add the "?WSDL" suffix to the URL when trying to access the Web service from certain types of applications

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NVOs as .NET Web Services Demonstration

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Deploying PowerBuilder Nonvisual Objects (NVOs) as .NET Assemblies

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Deploying NVOs as .NET Assemblies

- **PowerBuilder NVOs can be deployed as .NET assemblies**
- **A .NET Assembly Target Wizard is provided to facilitate this process**
- **Data types are automatically mapped between Powerscript and C#**

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NVOs as .NET Assemblies Demonstration

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The .NET Debugger

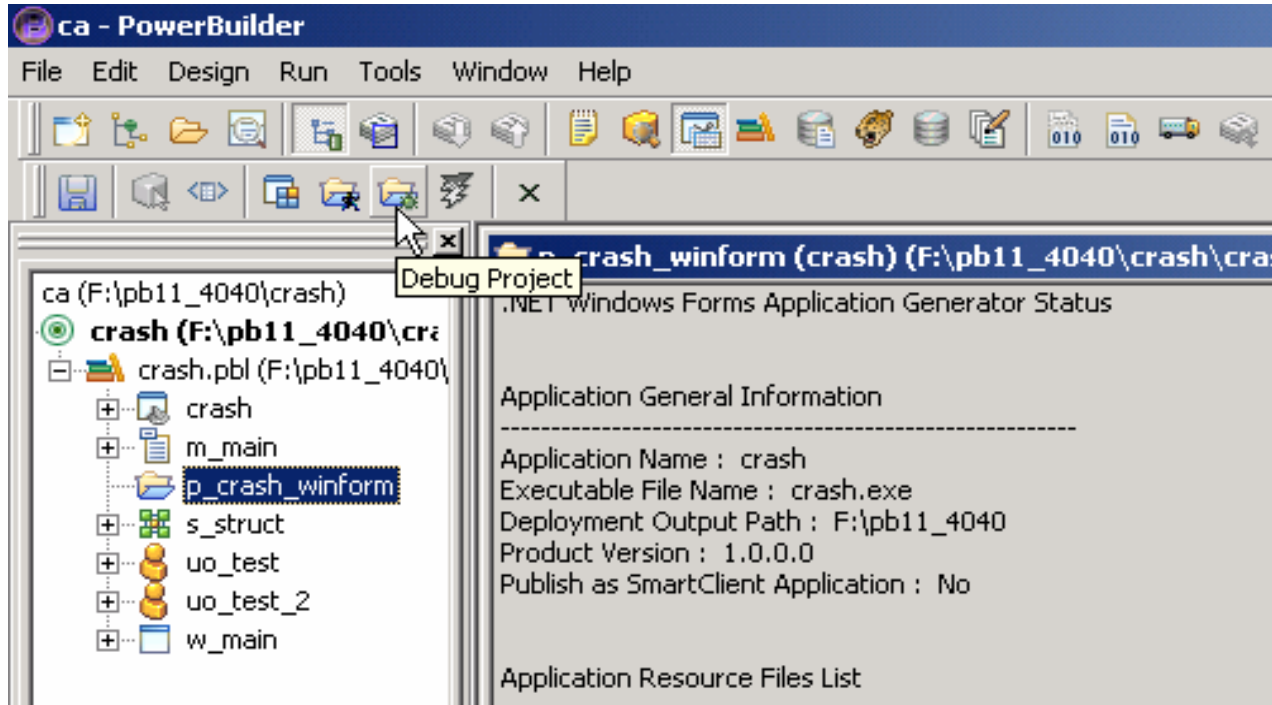
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Debugger for .NET Applications

- **All operations are on PowerScript level**
 - Set Breakpoint, show variables in different Scope,...
- **Support debugging for Windows Forms, Web Forms and NVO .NET Assembly**
- **Uses the same IDE as PB P-Code Debugger**

Debugger for .NET Applications

- Invoke the debugger from a new toolbar icon (Debug Project) or context menu



Debugger for .NET Applications - IDE

The screenshot shows the PowerBuilder IDE interface. The main window is titled "Debugger - clicked () returns long for cb_local of w_main". The debugger window displays the following code and variable values:

```
clicked () returns long for cb_local of w_main
double ldbl = 1.23e123
blob lblob
string ls1, ls2
ls1 = Space(300);
ls2 = "abcd"
constant int ci = 12345;

time lt
lt = Now()
date ld
```

The Source Browser on the right shows the project structure:

- Application
- Windows
- Menus
- User Objects
- Functions

The Output Window at the bottom shows the following assembly load information:

```
Loaded F:\pb11_4040\DataWindow.dll, Symbols loaded.
Loaded C:\WINNT\assembly\GAC_MSIL\System.Drawing\2.0.0.0_b03f5f7f11d50a3a\System.Drawing.dll.
Loaded F:\pb11_4040\Sybase.PowerBuilder.Interop.dll.
Loaded C:\WINNT\system32\msvc80d.dll, Symbols loaded.
Loaded F:\pb11_4040\DataWindowInterop.dll, Symbols loaded.
Loaded C:\WINNT\assembly\GAC_MSIL\System.Configuration\2.0.0.0_b03f5f7f11d50a3a\System.Configuration.dll.
Loaded C:\WINNT\assembly\GAC_MSIL\System.Deployment\2.0.0.0_b03f5f7f11d50a3a\System.Deployment.dll.
Loaded C:\WINNT\assembly\GAC_MSIL\System.Xml\2.0.0.0_b77a5c561934e089\System.Xml.dll.
Loaded C:\WINNT\assembly\GAC_MSIL\Accessibility\2.0.0.0_b03f5f7f11d50a3a\Accessibility.dll.
Loaded F:\pb11_4040\Microsoft.Ink.dll.
```

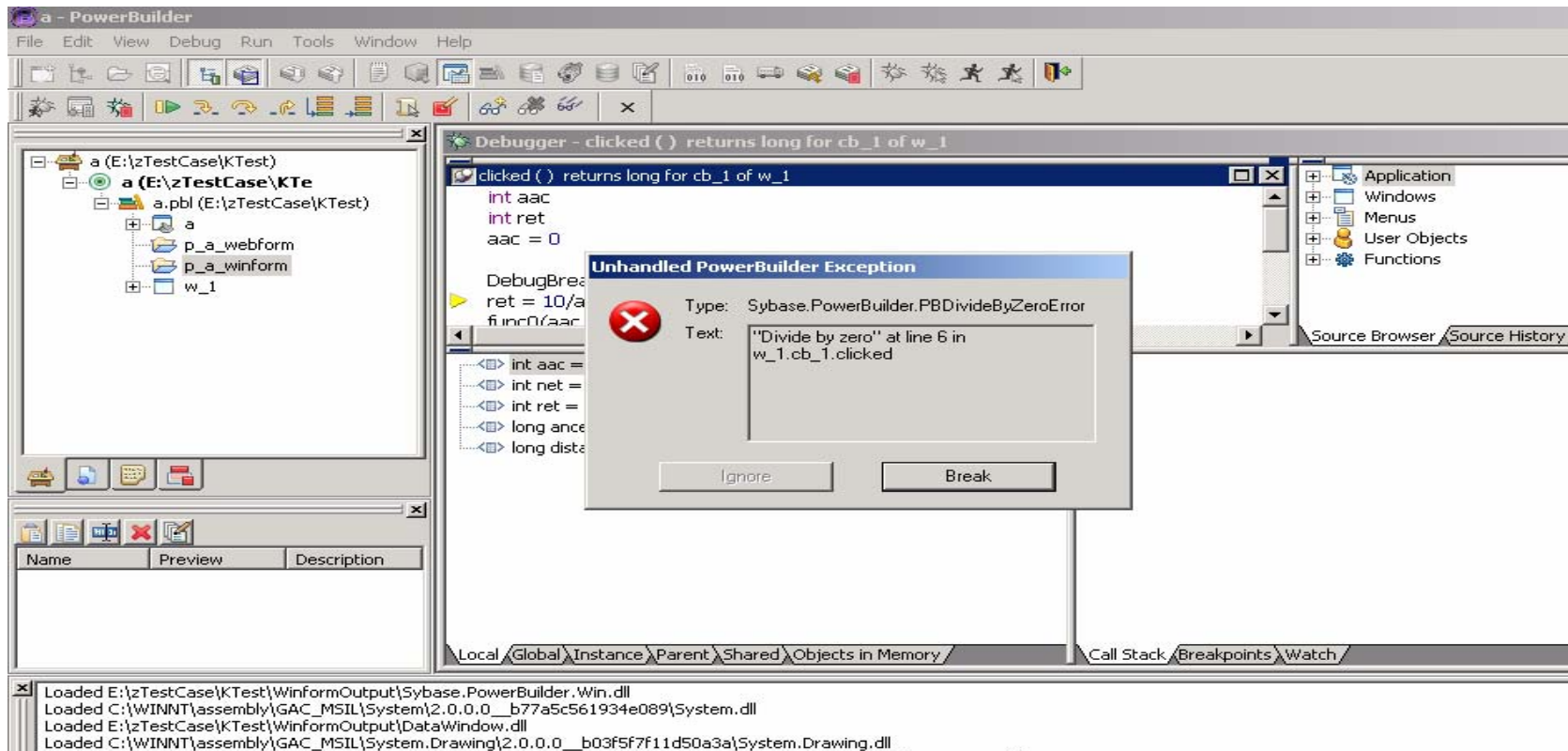
Output Window shows Assemblies Load Information

Debugger for .NET Applications

- **Share the same operations, and most functionality of PB P-Code Debugger,**
 - Expression Evaluation
 - Conditional Breakpoint
 - ...
- **Unsupported functionality**
 - Objects in Memory
 - Variable Breakpoint

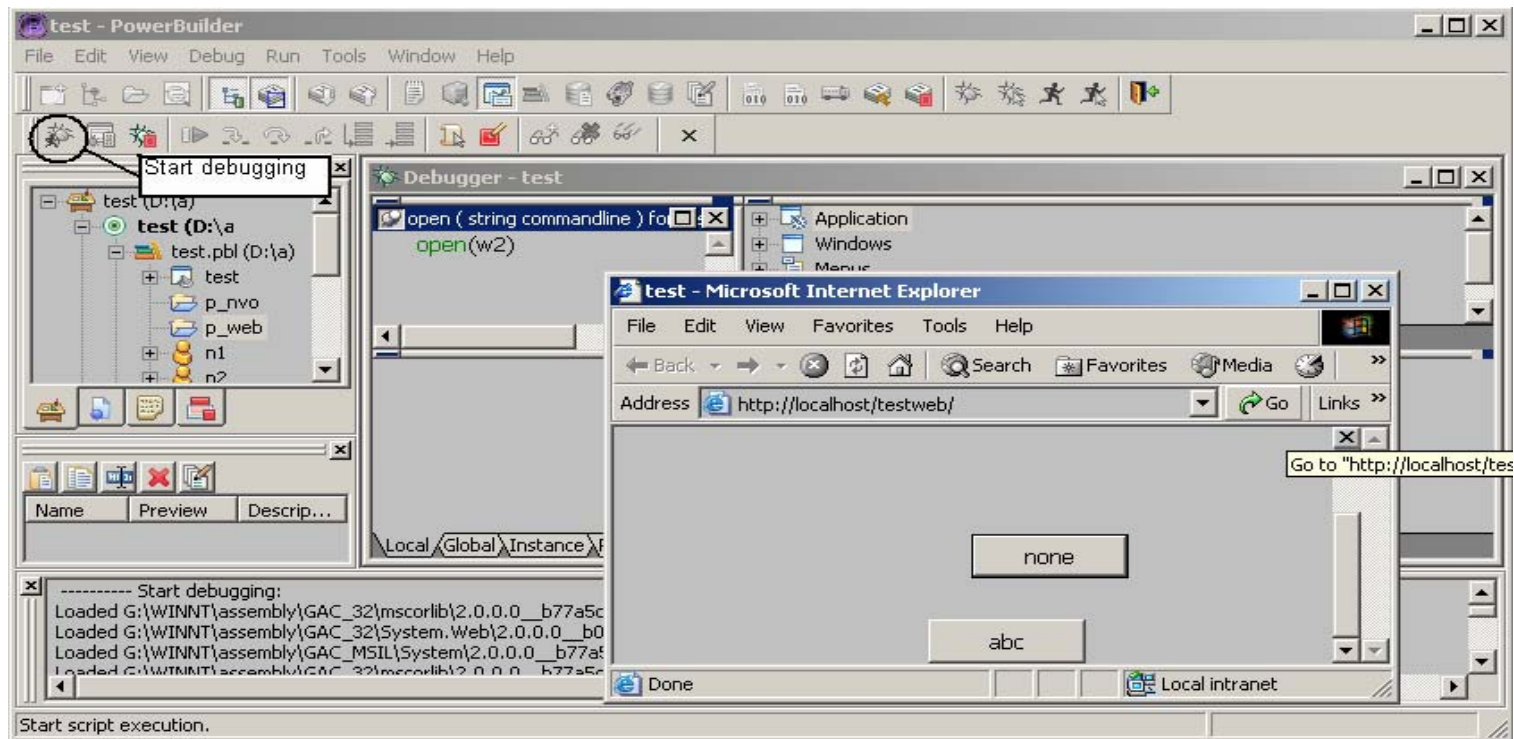
Debugger for .NET Applications

- **Support Exception Handling: step through or continue**
 - PowerScript exception
 - .NET exception



Debugger for .NET Applications

- **Debug ASP.NET Application**
 - Support IIS 5.0 or higher version
 - Same operations as debugging Windows Forms application



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.NET Debugger Demonstration

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DataWindow Enhancements

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DataWindow Enhancements

- **Web services supported as a data source**
- **Treeview DataWindow Enhancements**
- **Retain Retrieval Argument Values in the DataWindow Painter**
- **DataWindow Refactoring**

Web Services Data Source for DataWindows

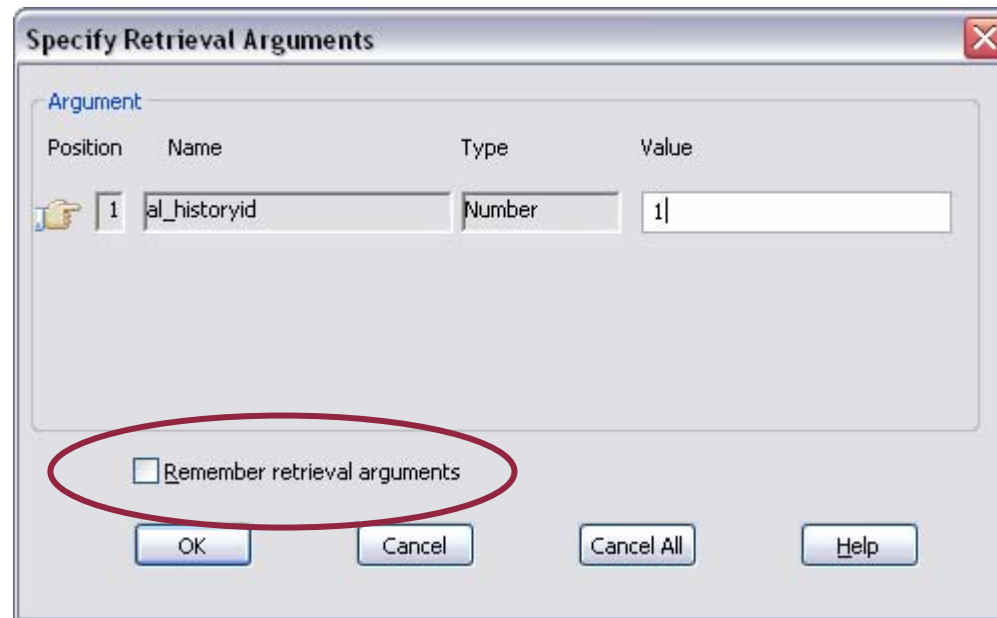
- **This is intended to support database (RDBMS) data delivered via web services**
 - Access to RDBMS data without needing the vendors client software
- **Not all web services are suitable for the DataWindow**
 - Complex return data such as nested structures
 - Amazon.com returns some fairly complex return values
- **The return value from the web service needs to look like a result set**

New TreeView DataWindow Features

- **Remove the height limit from the detail band**
 - Tree nodes can be hidden with a height of 0
- **Moving rows in a TreeView will retain their collapsed/expanded state**
- **TreeView Style DataWindow can now be used in a Web DataWindow control**

Retrieval Arguments Retained

- Retrieval arguments can be remembered in the DataWindow object



DataWindow Refactoring

- **An object model has been imposed on the DataWindow code base**
- **It has been broken into 6 modules**
 - Common
 - Controls (Windows controls)
 - Object (an object manager)
 - Renderer
 - Table
 - External (all external consumer access)
- **Some of the refactoring has made new features easier to implement**

Future DataWindow Enhancements

- **Migration to managed code**
 - Managed C++ and C#
 - Made possible by the “behind the scenes” refactoring
- **WPF (Windows Presentation Foundation) support is planned for a future release**
 - Supports the richer UI experience available with Windows Vista
 - XAML (eXtensible Application Markup Language) Support

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DataWindow Enhancements Demonstration

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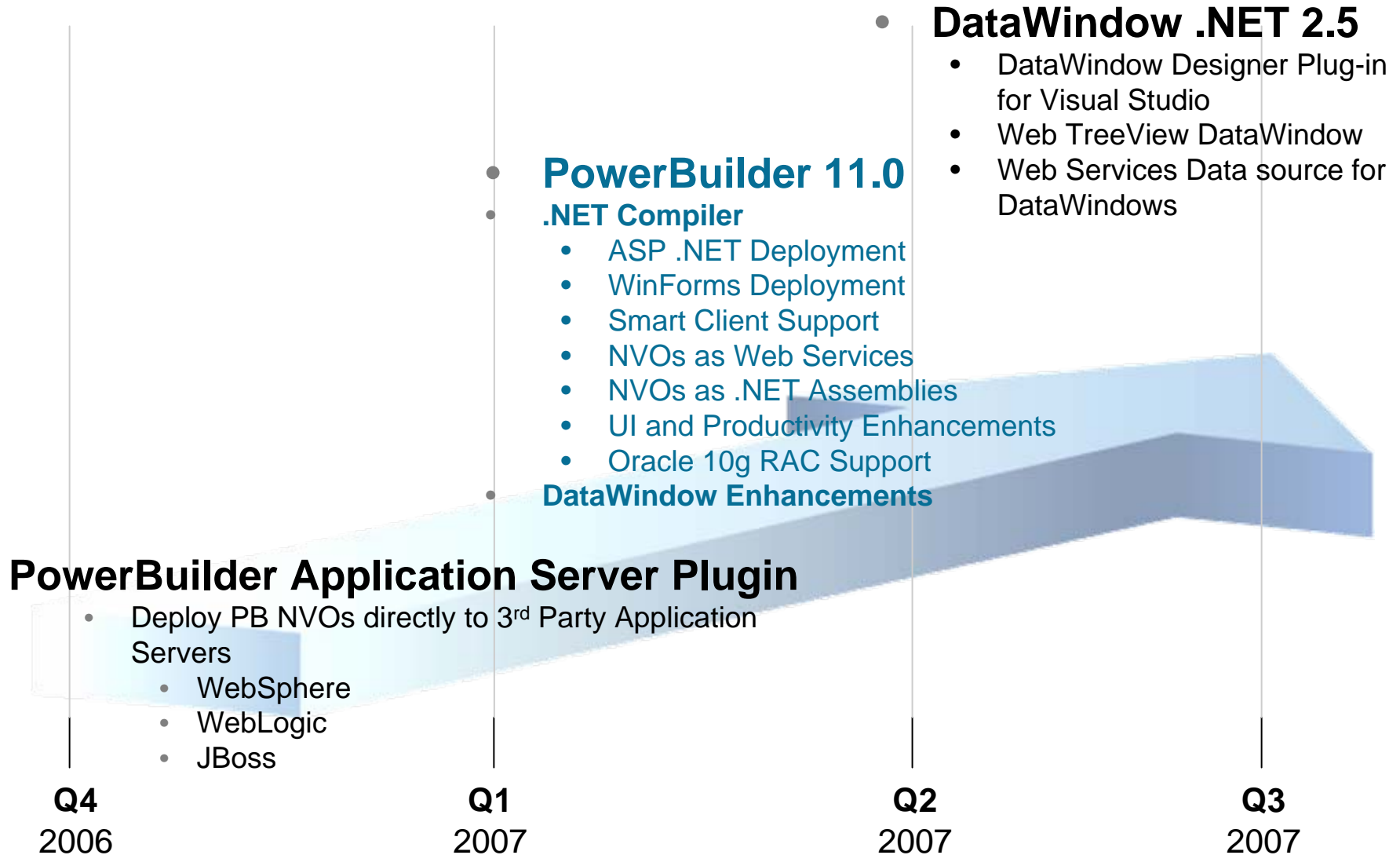
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PowerBuilder Road Map

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PowerBuilder Family Roadmap



Useful Information and Resources

- **PowerBuilder 11 Beta**
 - <http://www.sybase.com/detail?id=1043611>
- **ISUG Website**
 - <http://www.isug.com>
- **DataWindow .NET 2.5 Beta (Beginning in December 2006)**
 - <http://www.sybase.com/datawindow.net>
- **Sybase Newsgroups**
 - <http://www.sybase.com/newsgroups>