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Impact of Silverlight in Web Applications

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The Silverlight platform consists of two major parts, plus an installer and update component

Abstract – This paper presents the methodology how Silverlight can change the view of the developers and users. We show in this paper how we can make rich graphical user interface into web applications. There are *several highly interactive web applications and web sites. Silverlight provides the Rich Client User Interface. Silverlight has several advantages and impact of web applications compares to standard web applications and it also has several features which overpass the normal web applications. Here we showed how silverlight can impact the web applications by developing a prototype.*

Keywords: Web, Web Application, Silverlight, Impact

INTRODUCTION

Silverlight is not only an appealing canvas for displaying rich and interactive Web and media content to end users. It is also a powerful yet lightweight platform for developing portable, cross-platform, networked applications that integrate data and services from many sources. Silverlight enables you to build user interfaces that will significantly enhance the typical end user experience compared with traditional Web applications. [1]

While Silverlight as a client-side runtime environment seems simple and compact in size, the Silverlight development platform integrates a number of features and complex technologies, making them accessible for developers. [1]

- Core presentation framework
- NET Framework for Silverlight
- Installer and updater

There is a particular value in the combined set of tools, technologies, and services included in the Silverlight platform: They make it easier for developers to create rich, interactive, and networked applications. Although it is certainly possible to build such applications using today's Web tools and technologies, developers are hindered by many technical difficulties, including incompatible platforms, disparate file formats and protocols, and various Web browsers that render pages and handle scripts differently. A rich Web application that runs perfectly on one system and browser may work very differently on another system or browser, or may fail altogether. Using today's large array of tools, protocols, and technologies, it is a massive and often cost-prohibitive effort to build an application that can simultaneously provide the following advantages:

- Ability to create the same user experience across browsers and platforms, so that the application looks and performs the same everywhere.
- Integration of data and services from multiple networked locations into one application using familiar .NET Framework classes and functionality.
- A media-rich, compelling, and accessible user interface (UI).

- Silverlight makes it easier for developers to build such applications, because it overcomes many of the incompatibilities of current technologies, and provides within one platform the tools to create rich, cross-platform, integrated applications.

BENEFITS OF SILVERLIGHT

- Silverlight offers cross-domain support for applications [2]
- Silverlight plugin is just a 1MB download and is supported in windows XP and above.
- Silverlight also has a browser plugin but still needs to reach at pace with flash. [2]
- supports asynchronous calls

NET FRAMEWORK FOR SILVERLIGHT

Following List shows the features of silverlight:

- LNQ
- Base class library [1]
- Window Communication Foundation
- WPF (Windows Presentation Foundation)
- DLR (dynamic language runtime) [1]

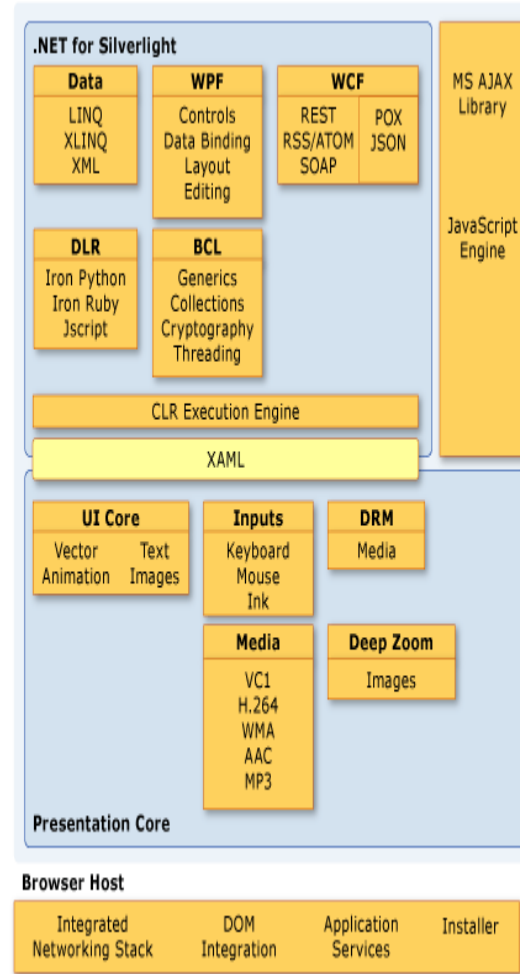


Fig.1 Silverlight Architecture

Fig.1 shows the architecture for silverlight. The architecture is divided into main two parts. The Designing part and second is browser part. At the presentation part it has several additional components like WPF,WCF, DLS, MS Ajax Library, Media, DRM, Deep Zoom, LINQ etc. At the browser part it has components like Networking stack, DOM Integration, Installer, Application Services etc. The .NET Framework for Silverlight is a subset of the full .NET Framework. It provides the essentials of robust, object-oriented application development for application types (such as Internet applications) for which this support has not traditionally been available.AJAX.

Silverlight-based applications are executed in a run-time environment on the client machine, no particular application is required to be installed on the server.

Silverlight provides a retained mode graphics system similar to Windows Presentation Foundation (WPF), and integrates multimedia, graphics, animations and interactivity into a single runtime environment. In Silverlight applications, user interfaces are declared in Extensible Application Markup Language (XAML) and programmed using a subset of the .NET Framework. XAML can be used for marking up the vector graphics and animations. Silverlight can also be used to create Windows Sidebar gadgets for Windows Vista. [4]

HISTORY OF SILVERLIGHT

There are 5 different versions of Silverlight is available. They are following:

- **Silverlight 1** - Silverlight 1, developed under the codename Windows Presentation Foundation/Everywhere (WPF/E) was released in 2007. It consisted of the core presentation framework, which is responsible for the user interface (UI), interactivity and user input, basic UI controls, graphics and animation, media playback, Digital rights management (DRM), and DOM integration.
- **Silverlight 2** - Included a version of the .NET Framework, implemented the same full Common Language Runtime (CLR) version as .NET Framework 3.0; so it can execute programs written in any .NET language.
- **Silverlight 3** - Silverlight 3 was announced on 12 September 2008, and unveiled at MIX09 in Las Vegas on 18 March 2009.[6] A beta version was made available for download the same day. The final version was released 9 July 2009. Silverlight 3 included more controls[7]—including but not limited to DataGrid, TreeView, various layout panels, DataForm for forms-driven applications and DataPager for viewing paginated data.
- **Silverlight 4** - On 18 November 2009, at the Professional Developers Conference in Los Angeles, Microsoft Corporation unveiled a Beta version of Silverlight 4. [8] The final version was released on 15 April 2010 (along with Silverlight 4 tools for

developers). New features in Silverlight 4 include: Support for Google's Chrome browser; Web cam and microphone; Printing; More mouse support; New notification support to send messages to users; New and enhanced controls (e.g., RichTextBox, DataGrid); Theming of controls; rendering HTML; better localization, and others.

- **Silverlight 5** - The final release is available for download on 9 December 2011. [9] New features include: GPU accelerated video decoding, 3D graphics, playback speed controls, remote control and 64-bit support. [9]

DEVELOPED SYSTEM

A Silverlight control is a ZIP format file with extension .XAP containing a list of one or more .NET managed assemblies (.DLL files) along with the AppManifest.XAML file containing this list along with the entry point (class and assembly). Following is the XAML tag for displaying textbox in form.

```
<TextBox Canvas.Left="95" Canvas.Top="55" Height="18" Name="textBox1" Width="160" />
```

A Silverlight project contains the **Silverlight.js** and **CreateSilverlight.js** files which initializes the Silverlight plug-in for use in HTML pages, a XAML file for the UI, and code-behind files for the application code. Silverlight applications are debugged in a manner similar to ASP.NET applications. Visual Studio's CLR Remote Cross Platform Debugging feature can be used to debug Silverlight applications running on a different platform as well. [5]

Following screens shows the screens which are used to developed the system. Fig. 2 shows the login screen for the system. Fig. 3 shows the Menus created and the processing options. It shows the controls like Radio Button, panels, button etc. See the effect is given to the silverlight controls. There is no need for designing the web pages individually. The controls and layout is designed in such a way that there is a no need for designing any controls or pages. Silverlight gives the same feeling for developers and designers. Earlier we have seen that designer and developer both have to work

independently. This situation has been resolved by silverlight framework.

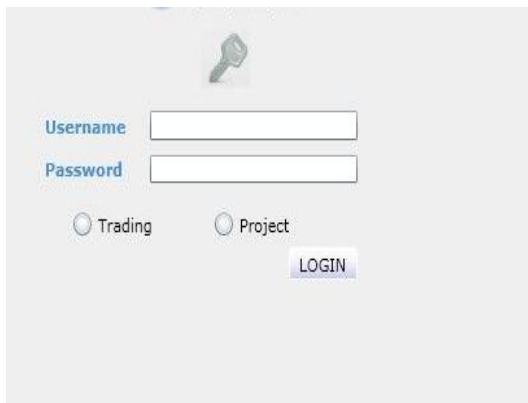


Fig.2 Login Screen

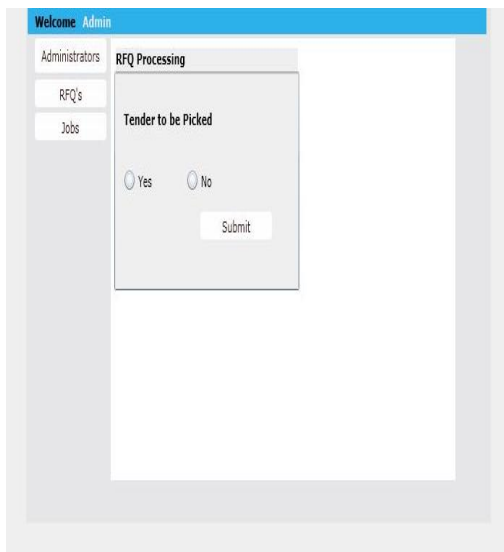


Fig.3 Menu and Processing Option

The controls into silverlight are designed exclusively by providing the rich GUI look and feel to the controls. Most of the parts of effort for designing the controls are decreased. The above screen shows the look and feel of the forms into silverlight.

IMPACT OF SILVERLIGHT INTO WEB APPLICATION

Following is the list of major advances into silverlight which can change the development and designing into the web domain.

- Highest Quality Video Experience [3]
- Cross-Platform, Cross-Browser Compatibility [3]
- Developers and Graphic Designers can work together
- Silverlight offers copy protection [3]
- Cross-Browser Remote Debugging
- Gives the same feeling to the Designers and Developers

CONCLUSION

By studying the several materials related to the problems facing by several users and for the significance of AJAX, we can now say that it reduces several effort from developer side. It also provides the flexibility to the users as well as developers. We can conclude that AJAX has very high impact on developing the Rich Client Applications.

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