

Microsoft Silverlight: RIA Enabler and SaaS accelerator

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Introduction

Web Services, Web 2.0 technologies, user generated content and online communities are driving factors for evolutionary business and operational models such as “Enterprise 2.0”. These models leverage user driven technologies to bring-in agility, flexibility, transparency, seamless flow of information and pay-per-use abilities; enabling enterprises to improve upon IT costs, user productivity, customers reach and collaboration.

Rich Internet Applications (RIA) combines many web technologies; they are available to the consumers just like the desktop applications, and they are interactive and intelligent. Software as a service (SaaS) model combines technologies such as web services, XML and HTTP to deliver the software over the web.

Microsoft Silverlight platform besides offering variety of features to facilitate Rich Internet Application (RIA) development also enables Independent Software Vendors (ISVs) to accelerate Software as a Service (SaaS) adoption for their Product offering.

Purpose

Article briefly explains why consumers and software vendors are increasingly interested adopting SaaS model. It also discusses the importance of RIA in fulfilling the SaaS implementation. At the end article explains how Microsoft Silverlight platform enables ISVs to adopt RIA and SaaS models rapidly.

Changing face of Software delivery

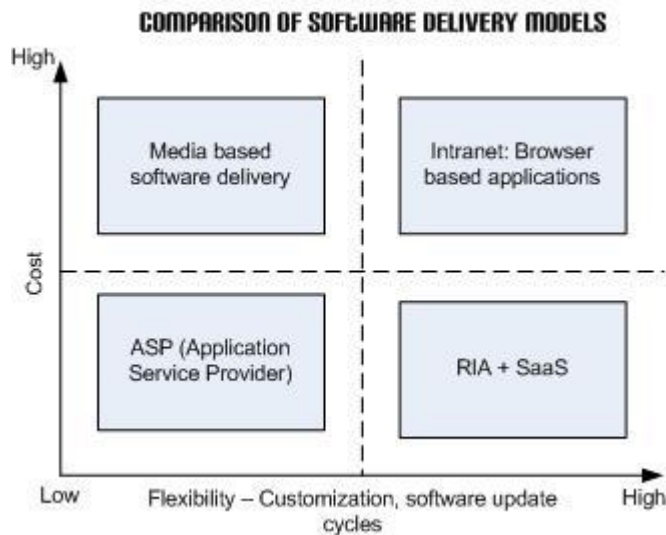
Software Industry is experimenting with innovations in software delivery models, pricing models, content management and user experience technologies. These innovations are benefiting both consumers and software vendors.

Our interactions with our customers we understand that while purchasing new software they are particularly interested in:

- Flexible licensing models that lowers the acquisition costs (of software and solutions),
- Standards based integration that enables business agility
- Intuitive user interfaces improving end user productivity.

Also Independent Software Vendors (ISVs) are looking to

- Increase the frequency of release cycles for applying patches and enhancing the product functionality
- Reduce distribution costs, development costs and support costs.



Traditionally ISVs delivered software using magnetic and optical media where end user or an IT administrator is in control of installation and configuration processes. User could choose when to install, what to install, when to upgrade and why to upgrade. However this model has certain shortcomings such as user has to wait for longer time for software to be released and also user required skills and time to configure the software to match business needs. The media shipment and management are additional overheads for software vendors and end user

organizations. Consumers also required investing in specific hardware and other IT equipments to support the software deployment.

Growth of broadband connectivity to Internet offered alternative to above delivery mechanism. Software companies started offering products in the downloadable format. This certainly saved time and cost required for overall media management. However IT administrators and end users still needed to manage installation, configuration and up-gradation.

Internet also enabled development of browser based applications, these applications did not require any installation at the end user machines for most of the part, but offered very little personalization and/or configuration flexibility matching the end user needs. Intranet applications offered certain flexibility but required investments in IT infrastructure. Even though browser based applications brought-in many benefits it lacked user experience affecting productivity and end user through put

Diffusing SaaS and Web 2.0

Over the last few years consumers are experiencing dynamic, more responsive, desktop like internet based applications. Rich Internet Applications (RIA) leverage advancements in browser technologies, XML, AJAX, Content management, and configurable rich UI. Simultaneously with the maturity of a web services platform, Software as a Service (SaaS) delivery model is gathering lot of attention and organization are evaluating the benefits and liabilities this option offers. SaaS is attractive to consumers particularly for following reasons:

- Low or no setup cost towards software and additional hardware
- Subscription based licensing model – no upfront commitment
- Customizable business processes – Business agility
- Quicker upgradation of the software
- Online environment enables faster support mechanism

There are few concerns customers have regarding SaaS model

- Data Security
- User experience and user throughput
- Network dependency

Why should ISVs care?

Because of the potential cost benefits and popularity of “pay-per-use” model; consumers are looking to adopt SaaS model for their software needs. Subscription based pricing model and low upfront investment enables ISVs enter into new markets and address new customers; this is the growth factor for ISVs.

For SaaS enabled products ISVs may no longer need to release versions for multiple platforms. This means lower developer and support costs.

ISVs with no SaaS offering will not only lose this market opportunity but also have a risk to lose market share in shrink-wrap delivery model of the product, as customers would look for ISVs having capabilities in both traditional and SaaS delivery models.

ISVs that are planning to adopt SaaS model for their product lines would need to evaluate various approaches to render end user experience. Rich Internet Application platforms promise desktop like experience for online applications. ISVs need to choose the right platform that gives them UI flexibility, development tools, robust runtime environment that support multiple operating systems.

RIA and SaaS is there a relationship?

While considering product migration to SaaS model ISVs need to evaluate various technical aspects; such as multi-tenant environments, metering, versioning, customization and user experience. End users are typically not concerned about other technical details, but they expect similar or even better user experience compared to the desktop version of the product. While adopting the SaaS model, using HTML web interface, or using remote session software products may not suit the consumer, as both of these approaches don't offer desktop like rich UI.

Rich Internet Application (RIA) offers attractive alternative, where ISVs choose to enhance the current user Interface adopting web model for UI delivery while executing business logic and data

processing on the server. RIA enables ISVs to adopt SaaS model and software delivery over the web while maintaining the user experience similar to desktop application. RIA also promises offline (not connected) mode for applications that are delivered on SaaS model.

Microsoft Silverlight – enabler for RIA and SaaS adoption

Microsoft Silverlight and SaaS model

Dynamic Updates – UI and Functionality

In a SaaS delivery model end users expect ISV to release new features quickly and more frequently. Applications that are developed using Microsoft Silverlight platform can leverage XAML, which is descriptive language such as HTML; to deliver UI updates dynamically. XAML grammar enables developers to create desktop like rich UI applications. ISV can easily release the update to the user by modifying the XAML file and making it available on the server for users to access it. Any update required in this UI only needs download of a new XAML file. Similar to UI application functionality can also be downloaded as a part of the .NET managed code.

Cross platform and Cross Browser

Microsoft has designed and developed Silverlight platform to run on multiple client operating systems, it also has no dependency on the server side infrastructure; it works with any web server. The client side environment includes newly developed .NET Common Language Runtime that supports Apple and Linux platforms in addition to various windows flavours. All of the popular web browsers are supported including Microsoft IE, Safari, Opera and Firefox.

Microsoft Silverlight and RIA

User Experience – Cinematic approach

Silverlight has many features related to media – video, audio that enables developer integrate rich functionality into existing web application or develop new one. Silverlight also supports AJAX enabling developers integrate HTML, Video/Audio and XML and also integration on the server side web services takes technical and functional possibilities to the next level.

Declarative UI – configurability

XAML is declarative language and it enables developers to change UI programmatically by altering the attribute values or by generating the UI on the server side before sending it to the client. This UI can be generated on the basis of business rules, user interaction (after system learns usage pattern), personalization and targeting rules

Vector based graphical system

Vector based graphics support in Silverlight enables developer achieve stunning animation, also font sizes and sizes of various graphical shapes can be scaled on varied levels of screen form factors

without losing clarity. Using client side scripting and managed code programming support developers can manipulate various shapes, its properties, colour combination in synchronization with business events in the application to give rich user experience. ISVs can leverage this programming model and give personalization functionality to end users for modifying the UI as per their needs.

Safe local storage

Silverlight provides the safe isolated local storage for applications that are executing within the sandbox environment on the client machines. Access to this storage is only available to the application that is originated from the same URL that created the local storage.

Sample ISV implementation

Silverlight version 1.0 and 1.1 particularly focuses on rich internet user interfaces through rich media and animation experiences. ISVs that are developing applications in the areas of eLearning, modelling, simulation and collaborative product development should evaluate Silverlight platform.

Conclusion

SaaS and RIA are complementary technologies, offering range of benefits as such cost savings, frequent software updates, flexibility and business agility to ISVs and consumers. Microsoft Silverlight platform accelerates RIA based solution development by providing extensible XAML platform with rich .NET toolset for programming. Silverlight platform provides programming model that can easily be integrated with web services enabling service delivery.

About the Authors

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