

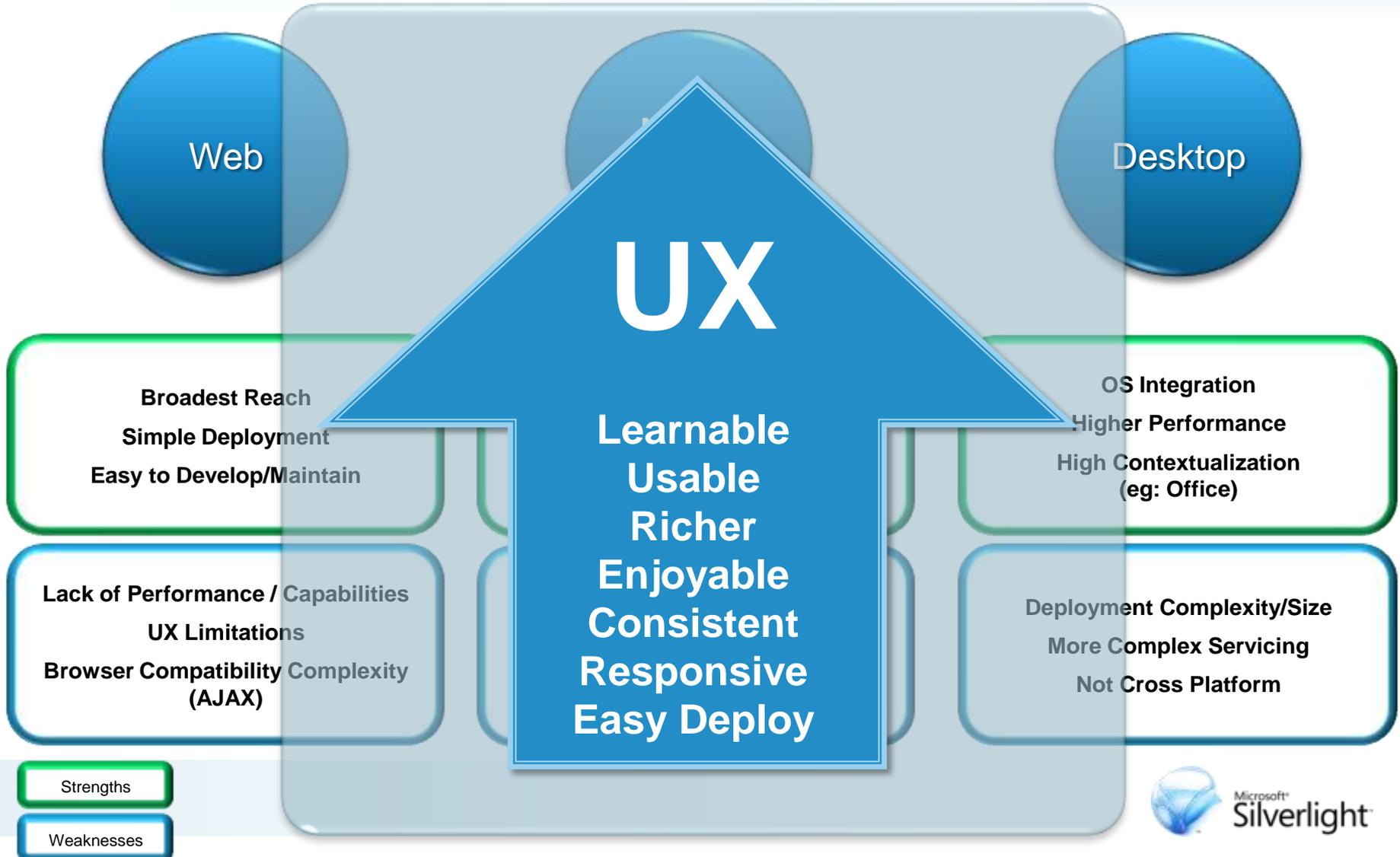


Microsoft®  
**Silverlight™**

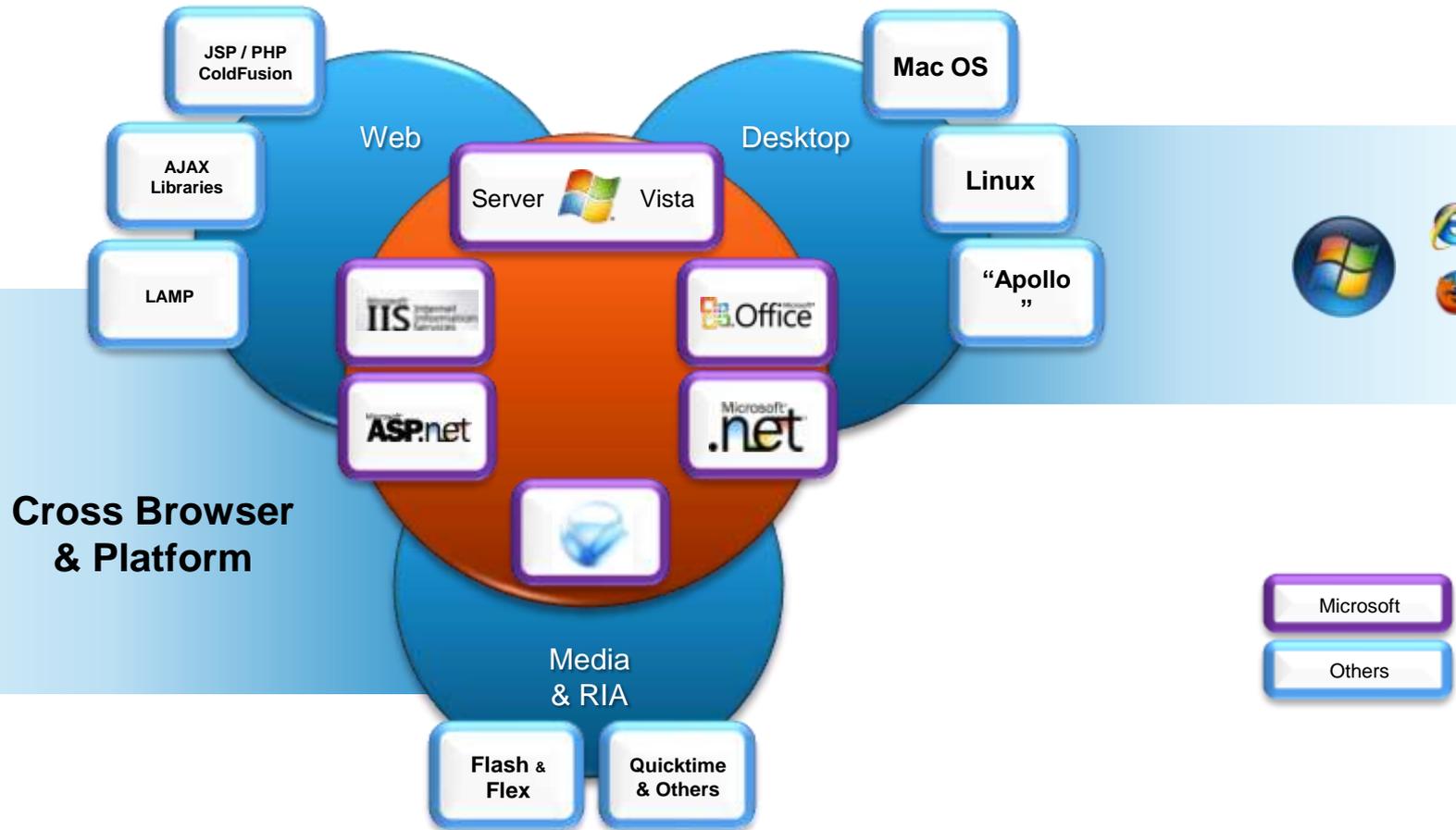
# Silverlight

Suwittha Chandhorn, Microsoft MVP  
MSDN Seminar - May 22, 2007

# UX Opportunity Across Client Application Categories



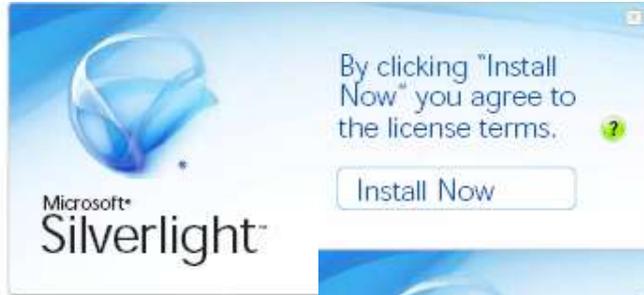
# Application Platforms / Competitive Offerings



# So, What is Silverlight?

Silverlight is a **cross platform, cross browser** .NET plug-in that enables designers and developers to build **rich media experiences** and RIAs for browsers. The preview builds we released currently support **Firefox**, **Safari** and **IE** browsers on both the **Mac** and **Windows**.

# Silverlight Installation Experience





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**Silverlight™**

# Demo - **Silverlight** in Action

# Silverlight 1.0 Beta Features

- Built-in codec support for playing VC-1 and WMV video, and MP3 and WMA audio within a browser. It supports playing high-quality video up to 720p (high definition).
- Silverlight supports the ability to progressively download and play media content from any web-server. No special server software is required.
- Silverlight also optionally supports built-in media streaming.

# Silverlight 1.0 Beta Features

- Silverlight enables you to create rich UI and animations, and blend vector graphics with HTML to create compelling content experiences. JavaScript Programming Model is supported. Easy to integrate with AJAX.
- Silverlight makes it easy to build rich video player interactive experiences. Ability to **“go full screen”** and to resize running video on the fly without requiring the video stream to be stopped or restarted.
- Time-based animation in Silverlight ensures more precise animation than Frame-based in Adobe Flash.

# Silverlight 1.1 Alpha Features

- A built-in CLR engine that delivers a super high performance execution environment for the browser, same core CLR engine that we ship with the full .NET Framework today. It also means you can now execute code within the browser that runs more than 250x faster than interpreted JavaScript.
- Silverlight includes a rich framework library of built-in classes that you can use to develop browser-based applications. This framework library is a subset of the full .NET Framework class library you use today, and enables you to easily re-use your existing skills and knowledge. It includes support for collections, generics, IO, threading, globalization, networking, and LINQ.

# Silverlight 1.1 Alpha Features

- Silverlight includes support for a WPF UI programming model. The Silverlight 1.1 Alpha enables you to program your UI with managed code/event handlers, and supports the ability to define and use encapsulated UI controls (built with any managed .NET language).
- Silverlight provides a managed HTML DOM API that enables you to program the HTML of a browser using any .NET language (this means you can now wire-up an event handler to an HTML button using C# or VB). Silverlight includes a JSON Serializer that supports automatic marshalling of .NET Data Types to/from JavaScript.

# Silverlight 1.1 Alpha Features

- Silverlight doesn't require ASP.NET to be used on the backend web-server (meaning you could use Silverlight with with PHP on Linux if you wanted to).
- However, some pretty nice features enables you to easily integrate Silverlight on the client and ASP.NET on the server together. Silverlight can use the standard ASP.NET application services (membership, roles, profile, etc), and can call either WCF or ASMX web-services hosted within ASP.NET.

# Dynamic Language Runtime Enabled

- Dynamic Language Runtime (DLR) adds a small set of services to the CLR designed explicitly for dynamic language scenarios.
- Lightweight-code-generation features added in CLR 2.0 to create in-memory IL that is then JIT'd into native code at runtime (without ever having to save anything to disk). This can yield much better runtime performance than interpreted code, and ensures that we can optionally garbage collect it to avoid leaking.
- The DLR - and all of the dynamic languages built on top of it - can be used in cross-platform Silverlight application in the browser, ASP.NET 2.0 applications on the server, and WPF/WinForms applications on the desktop.
- Will ship with C#, VB, IronPython and IronRuby!

# Web Media Challenges

## Customer expectations of Web media experiences are increasing

- Expect DVD-like experiences blending video, animation, interactivity
- It should “just work” cross platform on Mac and Windows
- True full screen, captioning, HD aren’t readily available

## Production costs are increasing for interactive media

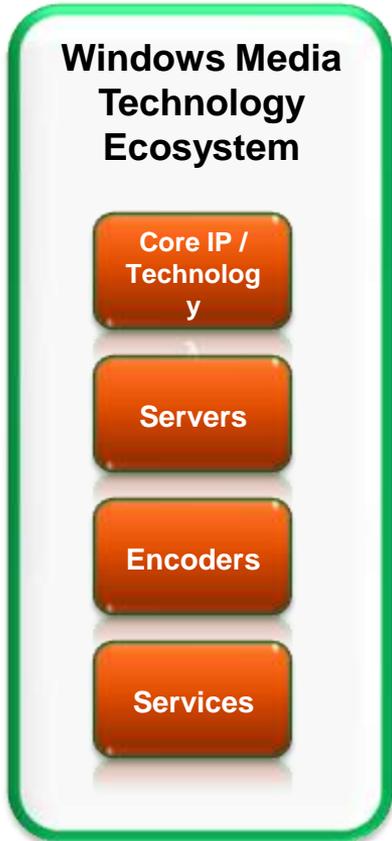
- Cost of delivery rising as viewers expect interactivity, animation
- Maintaining multiple development teams for internal/external is expensive
- Lack of consistency in tools, platforms between Desktop, Web, devices

## Efficient Delivery, Revenue Generation are complex

- Having to support multiple video formats from archive to mobile is messy
- Advertising isn’t fluid or organic like broadcast – it gets ignored!
- True cross platform content protection doesn’t exist for those who want it



# Windows Media Client Surfaces



**Web Experiences / RIA**



**Other Media Clients**

# Rich Media Platform Comparison

## Create

Feature	Silverlight	.NET 3.0	Adobe Flash 9
Rich 2D animation/graphics w/ audio and video	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Industry standard video codec	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Scalable video format from HD to mobile	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Hardware-assisted editing and encoding solutions	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
XML (XAML) -Based Presentation layer for SEO	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Choice of standards-based and high-performance languages	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	

## Deliver

E2E Server & Application Platform	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Media Server Licensing (Unlimited Bandwidth)	\$999/unlimited	\$999/unlimited	\$4500/150 users
Content Access Protection (DRM)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Client side playlists for ad-insertion	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Robust Video Publishing Tools and 3 <sup>rd</sup> Party Ecosystem	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	

## Experience

High-performance, multi-core enabled client	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Scalable Full Screen video up to HD (720p)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Native support for device-based video	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Offline, Document support		<input checked="" type="checkbox"/>	
Client Size	~2MB	~40MB	~2MB
Supported Operating Systems	Windows /Mac	Windows	Windows/Mac/Linux

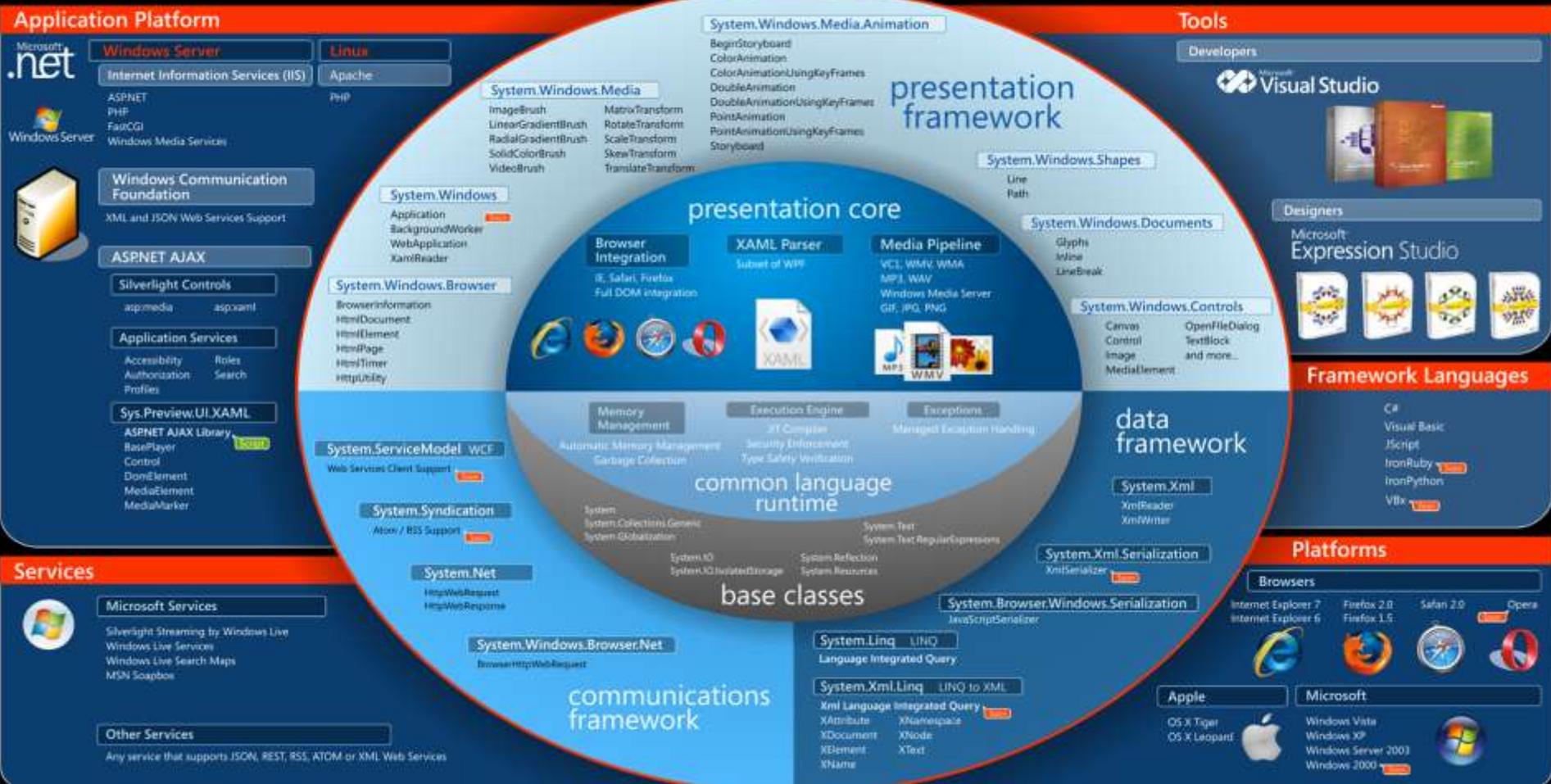


# Microsoft® Silverlight™



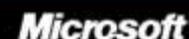
## Microsoft® Silverlight™ 1.1 Developer Reference

[www.silverlight.net](http://www.silverlight.net)

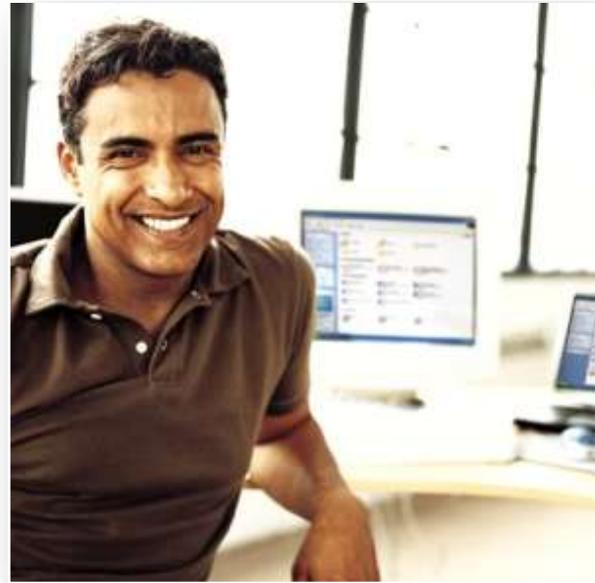


Legend: Namespaces / Category, JavaScript Libraries, Post Silverlight 1.1 Alpha Functionality

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# Unifying the Design / Development Process



## Designer

Look, behavior, brand,  
and emotional connection

## Developer

Function, deployment, data,  
security, operational integrity

# Unifying the Design / Development Process



*Designer*



*Developer*

Select Me! 3

Select Me! 1

Select Me! 2

Select Me! 3

Select Me! 4

Select Me! 5

Select Me! 6

Select Me! 7

Select Me! 8



XAML



Select Me! 3

Select Me! 1

Select Me! 2

Select Me! 3

Select Me! 4

Select Me! 5

Select Me! 6

Select Me! 7

Select Me! 8



XHTML  
CSS / XSLT  
XML  
ASP.NET  
Javascript  
AJAX



SEARCH

All Web  Only Fabrikam.com

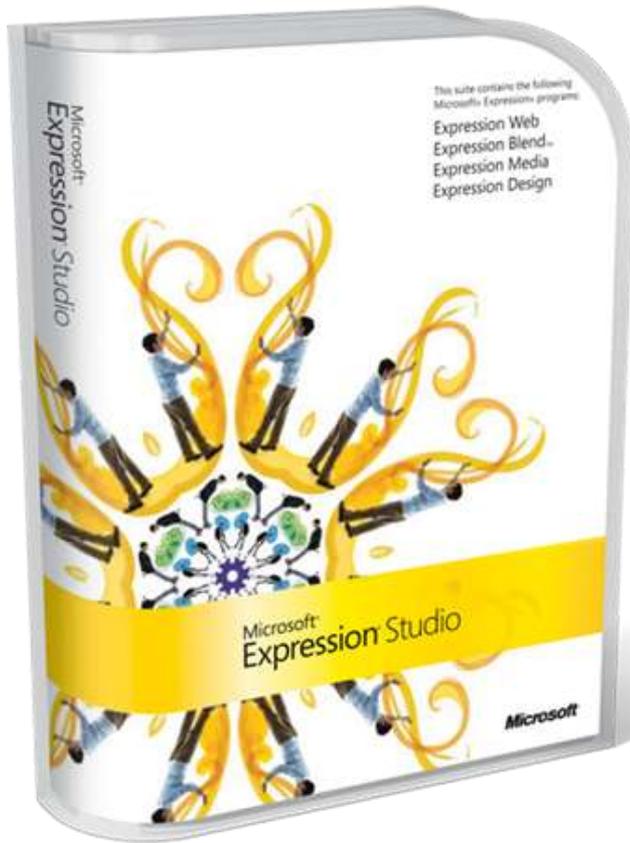
SEARCH

All Web  Only Fabrikam.com

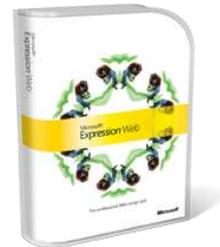
Microsoft  
Expression

# Microsoft® Expression® Studio

Whether you are designing **rich standards-based websites**, **ultimate experiences on the desktop**, or **managing digital assets and content**, Expression professional design tools give you the flexibility and freedom to bring your vision to reality.



Microsoft  
Expression Web



The professional  
**Web**  
design tool



Microsoft  
Expression Blend



The professional  
**Interactive**  
design tool



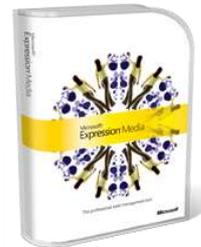
Microsoft  
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The professional  
**Graphic**  
design tool



Microsoft  
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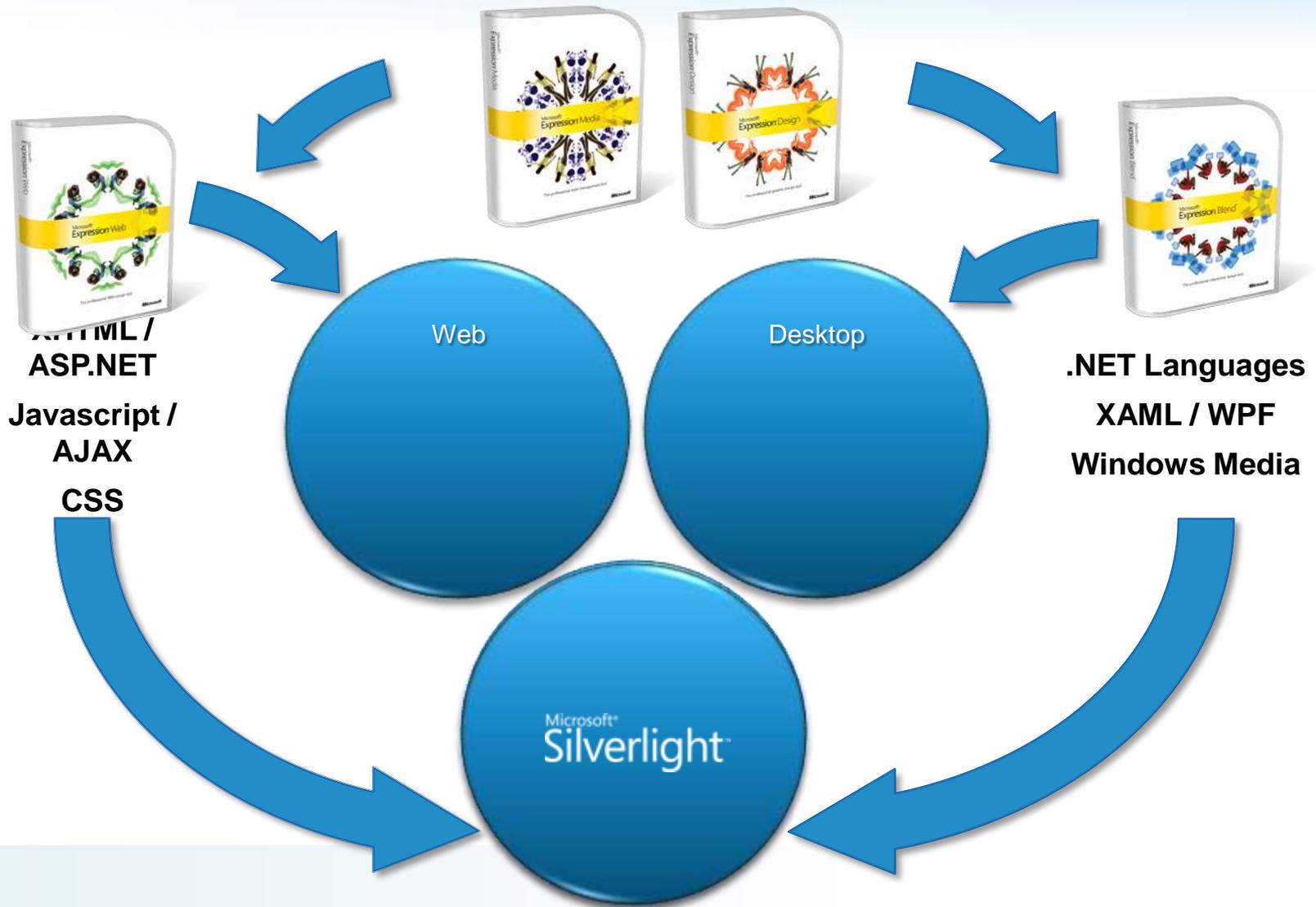


The professional  
**Asset**  
**Management**  
tool



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# Expression Studio Application Targets by Tool





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# Demo – Development Processes

# Industry Support

## Design Agencies

avenue a  
razorfish

schematic

AKQA

frog design

LIGHTMAKER.COM

identity mine

## Infrastructure & Tools

Avid

SONIC

Tarari

BUYDRM

LIMELIGHT  
NETWORK

Akamai

## Media Companies

CBS.com

MLB.com

brightcove

NETFLIX

UNIVERSAL  
UNIVERSAL MUSIC GROUP



# Silverlight Overview



## Compelling Cross-Platform User Experiences

- Immersive media experiences & RIA
- Seamless, fast installation for end users
- Consistent experiences on Mac / Windows

## Flexible programming model with collaborative tools

- Integration with Web technologies
- Based on the .NET Framework
- Role specific tools for designers / developers

## Efficient, lower cost delivery, and more capable media

- HD to Mobile w/ SMPTE VC-1
- Broad media ecosystem
- Tools for live and on-demand publishing

# Resources

- My Silverlight Article at

<http://www.blognone.com>

- Community Resources in Thai

<http://www.thaisharp.net>

- Silverlight by Scott Guthrie

<http://weblogs.asp.net/scottgu/archive/2007/05/07/silverlight.aspx>

- Silverlight by TechCrunch

<http://www.techcrunch.com/2007/04/30/silverlight-the-web-just-got-richer/>

- DLR by Jim Hugunin

<http://blogs.msdn.com/hugunin/archive/2007/04/30/a-dynamic-language-runtime-dlr.aspx>

