




---

## What's New in Silverlight 5?

Brian Noyes  
[www.idesign.net](http://www.idesign.net)

---

©2010 Brian Noyes, IDesign Inc. All rights reserved



## About Brian

---

**Chief Architect**  
IDesign Inc. ([www.idesign.net](http://www.idesign.net))

**Microsoft Regional Director**  
([www.theregion.com](http://www.theregion.com))

**Microsoft MVP**  
Silverlight

**Publishing**

*Developers Guide to Microsoft Prism 4, O'Reilly & Assoc., March 2011*

*Developing Applications with Windows Workflow Foundation, LiveLessons training DVD, June 2007*

*Smart Client Deployment with ClickOnce, Addison Wesley, January 2007*

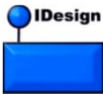
*Data Binding in Windows Forms 2.0, Addison Wesley, January 2006*

*MSDN Magazine, MSDN Online, CoDe Magazine, The Server Side .NET, asp.netPRO, Visual Studio Magazine*

**Speaking**

*Microsoft TechEd US, Europe, Africa, Asia, DevConnections, DevTeach, etc.*


E-mail: [brian.noyes@idesign.net](mailto:brian.noyes@idesign.net)  
Twitter: @briannoyes  
Blog: <http://briannoyes.net>



## Agenda

---

- Silverlight 5 Overview
- XAML Improvements
- Security
- Windows Integration
- Media
- 3D
- PivotViewer
- What's Next?



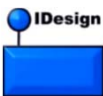
## Silverlight 5 Overview

---

- Next release of Silverlight
- Due out by end of year
- RC available
- Continues to close the gap with WPF features
- Adds features that WPF does not have

<ul style="list-style-type: none"> <li>■ Tooling           <ul style="list-style-type: none"> <li>• XAML binding debugging</li> <li>• Visual Studio profiling support</li> </ul> </li> <li>■ Binding and Markup           <ul style="list-style-type: none"> <li>• Implicit data templates</li> <li>• ICustomTypeProvider for dynamic properties</li> <li>• Ancestor RelativeSource binding</li> <li>• Binding in style setters</li> <li>• DataContextChanged event</li> <li>• UpdateSourceTrigger PropertyChanged</li> <li>• Custom Markup Extensions</li> </ul> </li> <li>■ Text           <ul style="list-style-type: none"> <li>• Linked and multi-column text</li> <li>• Better OpenType support</li> <li>• Pixel-Snapped Text</li> <li>• Tracking/leading control</li> </ul> </li> <li>■ Media           <ul style="list-style-type: none"> <li>• H.264 hardware decoding</li> <li>• Low-latency sound</li> <li>• Remote-control and Media Key support</li> <li>• Trick-play</li> </ul> </li> <li>■ System Access           <ul style="list-style-type: none"> <li>• Unrestricted file access for trusted applications</li> <li>• Read/write to Documents without a dialog</li> <li>• P/Invoke for calling native methods</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>■ In-Browser Improvements           <ul style="list-style-type: none"> <li>• In-Browser embedded browser</li> <li>• In-Browser trusted applications (group policy)</li> </ul> </li> <li>■ Controls           <ul style="list-style-type: none"> <li>• PivotViewer Control</li> <li>• Combobox type-ahead and text searching</li> <li>• Multi-click with ClickCount property</li> </ul> </li> <li>■ Graphics           <ul style="list-style-type: none"> <li>• GPU-accelerated 3D based on XNA</li> <li>• 3D Render targets, XNA built-in effects, more</li> </ul> </li> <li>■ General Performance           <ul style="list-style-type: none"> <li>• Hardware acceleration in windowless mode enabled via new IE9 APIs</li> <li>• XAML parser performance improvements</li> <li>• Network latency performance improvements</li> <li>• Multi-core JIT for improved startup time</li> <li>• Text layout performance improvements</li> </ul> </li> <li>■ Others           <ul style="list-style-type: none"> <li>• 64 bit browser support</li> <li>• Tasks from TPL</li> <li>• Postscript vector printing</li> <li>• Real windows</li> </ul> </li> <li>■ LOTS of other fixes and improvements</li> </ul>
--	---






## XAML Improvements

---

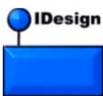
- Bindings
  - RelativeSource ancestor binding
  - UpdateSourceTrigger=PropertyChanged
  - Binding to dynamic types
    - ▲ COM, anonymous types, JsonObject, etc
  - Style Setter.Value binding
  - DataContextChanged event
- Implicit Data Templates
- XAML Debugging
- Custom markup extensions



## Multi-Column and Linked Text

- Flow text from RichTextBlock to RichTextBlockOverflow elements
  - Link as many as you want
  - Change from beta which used RichTextBox
- Size text elements to work around other elements
- Selection works across elements for a transparent experience


Look again at that dot. That's here. That's home. That's us. On it everyone you love, everyone you know, everyone you ever heard of, every human being who ever was, lived out their lives. The aggregate of our joy and suffering, thousands of confident religions, ideologies, and economic doctrines, every hunter and forager, every hero and coward, every creator and destroyer of civilization, every king young couple in love, every mother and father, hopeful child, inventor and explorer, every teacher of morals, every corrupt politician, every "superstar," every "supreme leader," every saint and sinner in the history of our species lived there - on a mote of dust suspended in a sunbeam. The Earth is a very small stage in a vast cosmic arena. Think of the rivers of blood spilled by all those generals and emperors so that, in glory and triumph, they could become the momentary masters of a fraction of a dot. Think of the endless cruelties visited by the inhabitants of one corner of this pixel on the scarcely distinguishable inhabitants of some other corner, how frequent their misunderstandings, how eager they are to kill one another, how fervent their hatreds. Our posturings, our imagined self-importance, the delusion that we have some privileged position in the Universe, are challenged by this point of pale light. Our planet is a lonely speck in the great enveloping cosmic dark. In our obscurity, in all this vastness, there is no hint that help will come from elsewhere to save us from ourselves. The Earth is the only world known so far to harbor life. There is nowhere else, at least in the near future, to which our species could migrate. Visit, yes. Settle, not yet. Like it or not, for the moment the Earth is where we make our stand. It has been said that astronomy is a humbling and character-building experience. There is perhaps no better demonstration of the folly of human conceits than this distant image of our tiny world. To me, it underscores our responsibility to deal more kindly with one another, and to preserve and cherish the pale blue dot, the only home we've ever known.



## Character Spacing

- Important for text-heavy layout, headlines and more
- Control spacing between characters (Tracking)
  - Continues to support control of spacing between lines as well
- Character Spacing expressed as 1/1000 of font size
- Set on anything derived from Control or TextElement


Character spacing 200  
 Character spacing 100  
 Character spacing 0  
 Character spacing -100  
 Characterspacing-200

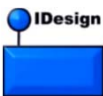


## Opentype Support

---

- Ligatures
- Contextual Alternatives
- Numerical Formats
- Fractions
- Super/Sub Script
- Asian Font Specifics
- Much, much more
- System.Windows.  
Typography





## Text Clarity

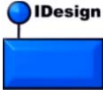
---

- API Similar to WPF 4
- TextOptions.
  - TextFormattingMode
  - TextHintingMode
  - TextRenderingMode

Hello World, from Pete Brown: Default  
 Hello World, from Pete Brown: Display, Fixed, ClearType  
 Hello World, from Pete Brown: Display, Animated, ClearType  
 Hello World, from Pete Brown: Display, Fixed, Aliased  
 Hello World, from Pete Brown: Display, Fixed, Grayscale  
 Hello World, from Pete Brown: Ideal, Fixed, ClearType

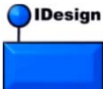
Hello World, from Pete Brown: Default  
 Hello World, from Pete Brown: Display, Fixed, ClearType  
 Hello World, from Pete Brown: Display, Animated, ClearType  
 Hello World, from Pete Brown: Display, Fixed, Aliased  
 Hello World, from Pete Brown: Display, Fixed, Grayscale  
 Hello World, from Pete Brown: Ideal, Fixed, ClearType

Hello World, from Pete Brown: Default  
 Hello World, from Pete Brown: Display, Fixed, ClearType  
 Hello World, from Pete Brown: Display, Animated, ClearType  
 Hello World, from Pete Brown: Display, Fixed, Aliased  
 Hello World, from Pete Brown: Display, Fixed, Grayscale  
 Hello World, from Pete Brown: Ideal, Fixed, ClearType



## Real Windows

---



## Pinvoke

---

- Just like on the full .NET framework
- Elevated Trust applications only
  - In browser and out-of-browser
- Windows Only
- Call any compatible native library
  - Windows APIs
  - Device and sensor APIs
  - Your own native DLLs

## Variable Speed Playback and Trick Play



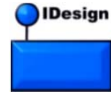
- Variable Speed Playback
  - +32x to -32x speed
  - Enables Fast-Forward and Rewind without seeking
- Trick-Play
  - Speed up or slow down video without affecting audio pitch
  - Enabled from 0.5x to 2.0x Speed
  - Save time watching my tutorials 😊

## Remote Control and Media Keyboard Support



- MediaCommand Event
  - Not a Command as in WPF
  - On UIElement
- Supports Remote Controls
- Supports Media Keys
- Mac and PC

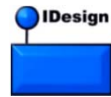




## Low-Latency Sound

---

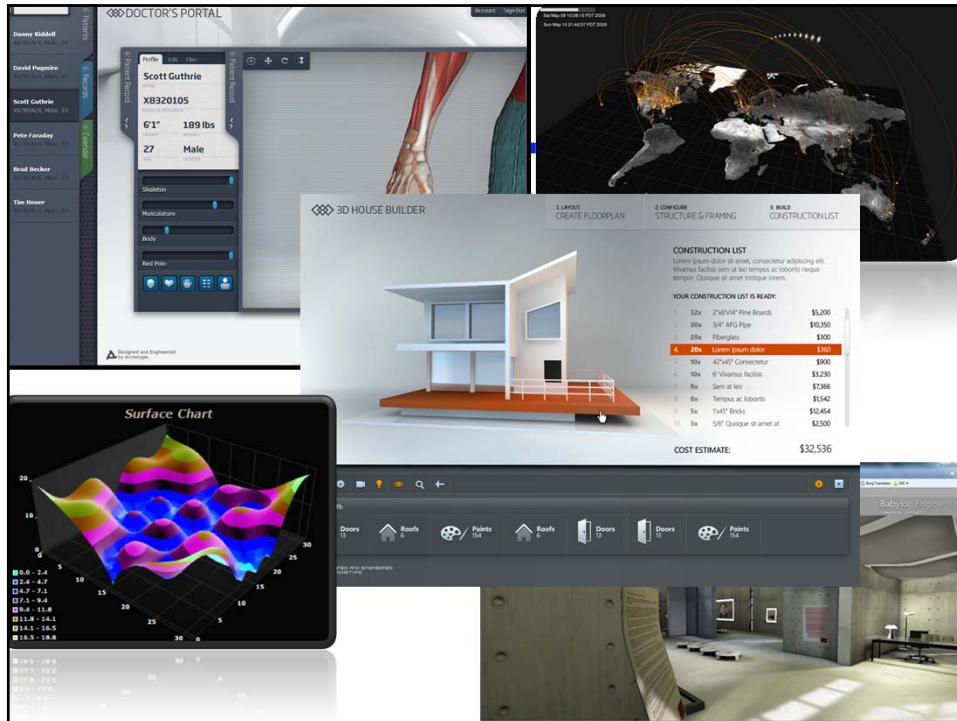
- Eliminates circular queues of MediaElements for near-realtime sound
  - XNA-based API
  - SoundEffect and SoundEffectInstance classes
- Enables playing WAV files
  - PCM Encoded
  - 8 or 16 bit, mono or stereo
  - 22.5, 44.1 or 48khz sample rate
  - Other formats will not work, just as in XNA and WP7
- Not just for games



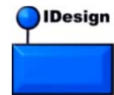
## 3D

---

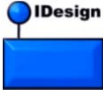
- Suitable for games, visualization, modern interfaces, more
  - Seamlessly combine 2d and 3d elements
- Features split between runtime and SDK libraries
- Based on XNA



## PivotViewer




- Data visualization control
- Based on DeepZoom technology
- Progressively render and filters visual data

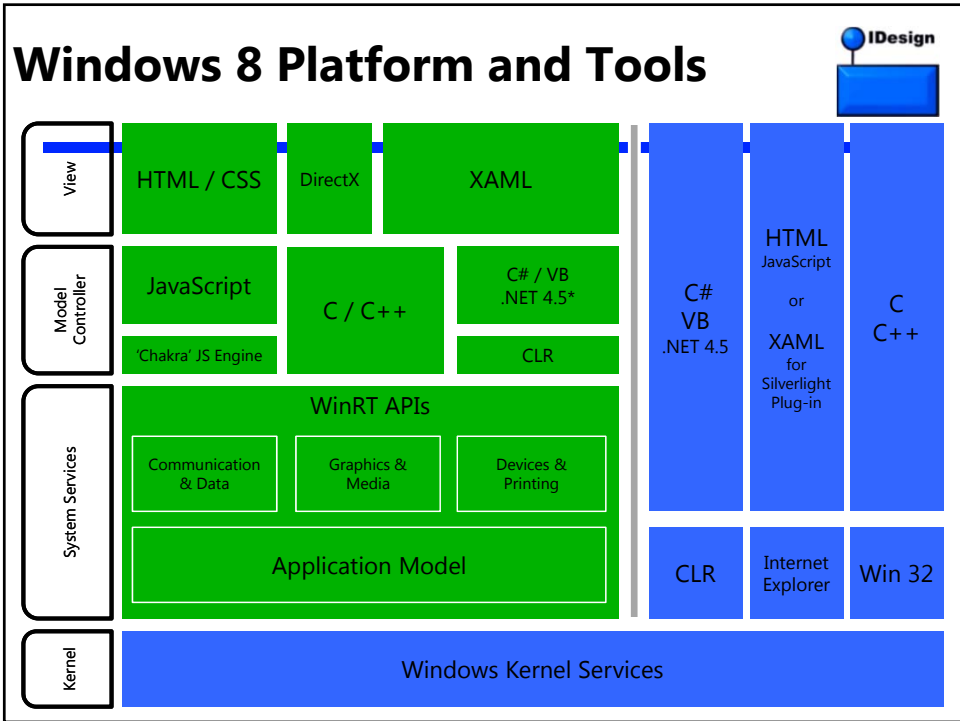


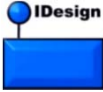
## Windows 8

---

- “Windows Re-imagined”
- Touch-centric
- “Fast and Fluid”
- More secure
- Metro style shell
- More reliable
- Desktop mode
- Backward compatible – Windows 7








## WinRT

---


- Windows 8 OS API
  - Like Win32 for previous operating systems
- Exposes APIs that replace some .NET APIs
  - Desktop client application focused
- Unmanaged code



## Metro Apps

---

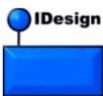
- Developed on WinRT, not .NET
- XAML + C#/VB/C++ or HTML 5 + JS
- Touch centric, content focused
- Constrained execution environment
- Full screen or snap view
  - Non-overlapping windows
- Leverage WinRT OS level features
  - Search, Sharing, Settings sync



## Next Steps

---

- Silverlight 5 to ship by the end of the calendar year
- Silverlight 5 RC available now
- Visit <http://silverlight.net>
  - Download the bits
  - Watch the tutorial videos
  - Walk through the tutorial posts
- Watch the BUILD keynotes and videos
- Start playing with the Win 8 Developer Preview and VS 11 Metro app building



## Resources

---

- Silverlight 5 in Action, Pete Brown, Manning Press, <http://www.manning.com/pbrown2/>
- Silverlight 5 RC Announcement post with links: <http://10rem.net/blog/2011/09/01/silverlight-5-rc-now-available>
- Smooth road to Metro post: <http://tinyurl.com/smoothroadtometro>
- BUILD videos: <http://channel9.msdn.com/Events/Build/Build2011>

E-mail: [brian.noyes@idesign.net](mailto:brian.noyes@idesign.net)  
Twitter: @briannoyes  
Blog: <http://briannoyes.net>