Building the *Nullius Filius* of Twitter and Facebook in Silverlight, RIA Services and Entity Framework

Keith Elder
http://twitter.com/keithelder
keith@keithelder.net
http://keithelder.net
http://deepfriedbytes.com

NOTES:

Start Visual Studio.
Start SQL Server Manager so stored procs can be run to break images and revert.
Start zoomit.

Deep Fried Bytes is an audio talk show with a Southern flavor hosted by technologists and developers Keith Elder and Chris Woodruff. The show discusses a wide range of topics including application development, operating systems and technology in general. Anything is fair game if it plugs into the wall or takes a battery.

http://deepfriedbytes.com

MEMORIES OF ANN ARBOR

It is so great to be back in Ann Arbor. I have so many found memories of A2.

2000

I moved to A2 in 1997. Basically my wife and I started our marriage in A2. We had nothing like most couples when they first get married.

I joined a startup .Com called Affordable Computers and in 2000 I finally made enough money to afford to buy a sandwich at Zingerman's.

We were poor!

JOKES

People saw us kicking a can down the street and asked what we were doing…we said *"Moving"*.

We were so poor, I couldn't pay attention.

The homeless guy on the corner offered us a handout.

The dog got nervous every year at Thanksgiving.

We would go to the **KFC** and lick other peoples fingers.

GREAT TO BE BACK!

It is great to be back and I truly thank Dennis and Jay for reaching out to get me here and their efforts in finding money to cover my flight. Hopefully they won't want a refund at the end of this talk. Before I get started I want to make sure everyone understands something.

I make no claims to be an expert in these given technologies. Some of you may know them more. The focus of this talk is to look at these technologies and discuss my experience in using them for a given project. Look at what worked, what didn't and hopefully help those going after me so they don't have to pull their hair out.

Eng. **nuhl**-*ee*-*uhs* **fee**-*lee*-*uhs*
Meaning: Son of nobody

NILLIUS FILUS

If you remember from the title I used these two words. They mean "son of nobody". We are going to be looking at the son of Twitter and Facebook built in Silverlight called Johnny. But I got to thinking. We've heard the saying "only a face a mother could love" but I 'm also certain there are things son's do that only a mother would forgive. Like this guy.
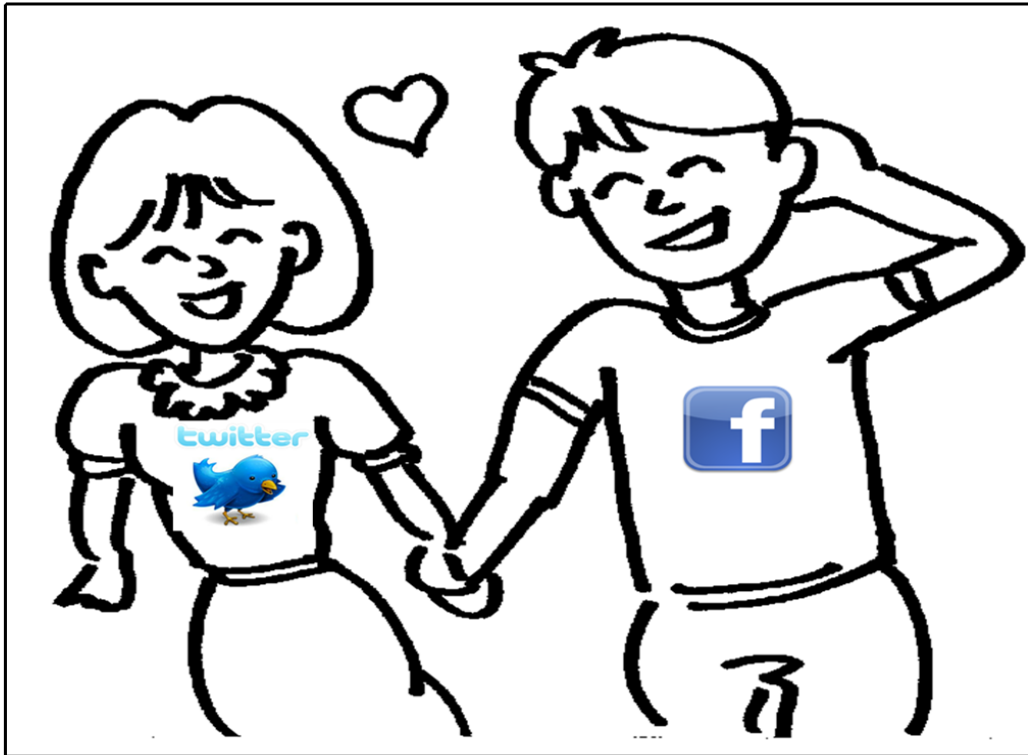
<CLICK>

Who's son is this? He wasted bread!

http://www.smosh.com/smosh-pit/photos/24-embarrassing-homemade-halloween-costumes

And what about this genius?

Let's pretend for a minute that twitter and Facebook had a torrent love affair and produced a child. We'll call him Johnny for lack of creativity. Johnny isn't like his parents who were raised on the "web". You know I've said for years the web is dead, long live the Internet. What I mean by that is the majority of people using FB/TW today aren't using the websites. My wife for example NEVER goes to FB proper. She's on her iphone (all the time). I use TweetDeck, others Seesmic. The point is that we store our data on the internet but we like to interact in a richer manner, especially when dealing with *data*. So here's Johnny!

Johnny

Image was taken in the Sriacha Tiger Zoo in Chonburi, Thailand (no original resource found)

The Technologies

- Silverlight 4.0
- WCF Services
- RIA Services
- Entity Framework
- Blend

WCF RIA Services

Microsoft WCF RIA Services simplifies the traditional n-tier application pattern by bringing together the ASP.NET and Silverlight platforms. RIA Services provides a pattern to write application logic that runs on the mid-tier and controls access to data for queries, changes and custom operations. It also provides end-to-end support for common tasks such as data validation, authentication and roles by integrating with Silverlight components on the client and ASP.NET on the mid-tier.

The ADO.NET Entity Framework enables developers to create data access applications by programming against a conceptual application model instead of programming directly against a relational storage schema. The goal is to decrease the amount of code and maintenance required for data-oriented applications. Entity Framework applications provide the following benefits:

DEMO

…. So that is the app.

I started out building this application and I seriously had high hopes. I had watched tons of demos, Silverlight presentations, etc. I was you sitting in the room. All I ever had heard was how magical and awesome Silverlight is. Things like:
<CLICK>

Picture taken from: http://31st-and-chi.blogspot.com/2010/07/bunch-of-pictures-of-unicorns.html

Silverlight Things I'd Heard

- No more JavaScript!
- Debugging was easy
- Could use .NET libraries, re-use what you know
- The speed at which you could create was amazing
- Every time you created a Silverlight project you saved a kitten

THEN I STARTED USING IT

And some of those things weren't true. Some maybe were, but really as a web developer in a past life it felt more like #26 here. <CLICK>
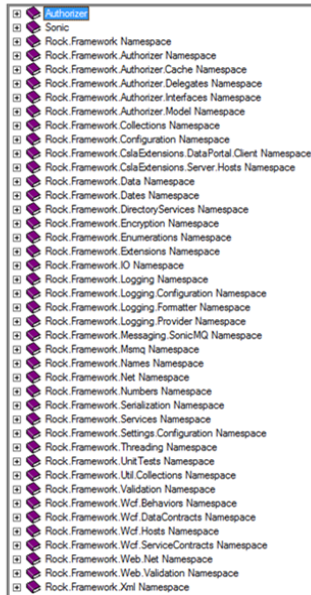
Image from: funnychill.com

And I sort of felt like #26 here.
Let's look at what some of those things were.

THINGS THAT WERE *DIFF* OR NOT INTUITIVE OR THAT MADE ME GO WHAT THE..!!!

Can't use that DLL

I couldn't use existing Framework libraries. As you can see in this screen shot we have a very extensive Framework that handles a lot of things for us and provides a lot of integration with our infrastructure.

From http://globalnerdy.com

So I wound up copying and pasting some code I needed to make things work.

Let's just try it (show adding a reference, and which files are apart of Silverlight).

Um, Can You Update Your Service For Me?

```xml
<?xml version="1.0" encoding="utf-8"?>
<access-policy>
 <cross-domain-access>
  <policy>
   <allow-from http-request-headers="*">
     <domain uri="*"/>
   </allow-from>
   <grant-to>
     <resource path="/" include-subpaths="true"/>
   </grant-to>
  </policy>
 </cross-domain-access>
</access-policy>
```

What is the client access policy file?
This is a Silverlight Policy file – clientaccesspolicy.xml. Before connecting to a network resource, the Silverlight runtime will try to download this file. It can be used by the sockets class as well.

What is the cross domain file?
This is the Flash policy file – crossdomain.xml. It can be used by the Silverlight runtime like the client access policy file, but it cannot be used along with a sockets class.

Which file is used by the Silverlight runtime?
First the Silverlight runtime tries to download the Silverlight policy file (clientaccesspolicy.xml). If it's missing, the runtime tries to download the Flash policy file (crossdomain.xml). If none of the files is found, the runtime cannot establish a connection with the network resource.

Image from: http://blog.pubquizusa.com/archives/5268

Silverlight doesn't support .GIF files (and that means neither does Windows 7).

My problem was I had tons of nice visual elements that were done in .GIF. And for some reason they were not working. I never thought .gif would have not been supported. Sure I know it is on the way out and there is something better but legacy lives on.

<SHOW DEMO>

But It Works in WPF

There were many times I'd find examples to something only to find out later on it only worked in WPF not Silverlight. I felt I was always so close yet so far away.
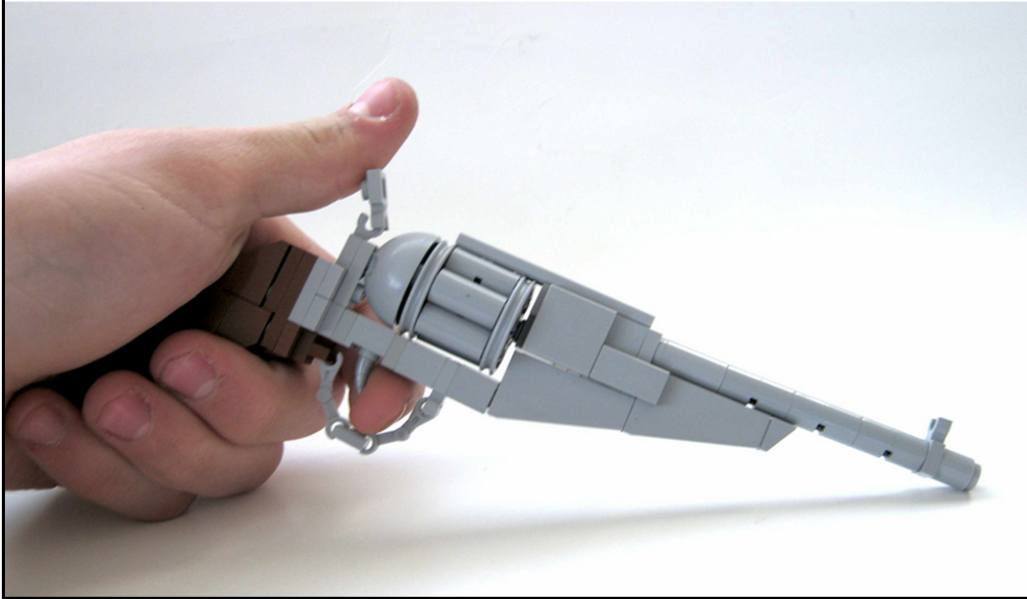
Dealing with Bindings was like playing Russian Roulette starting out. I had read the docs, seen it done, had it work several times but then POW nothing would work.

This helped some:
http://geekswithblogs.net/lbugnion/archive/2007/04/02/110622.aspx

<SHOW EXMPLE>

Bindings Example

```
<Grid x:Name="LayoutRoot" d:DataContext="{Binding
Source={StaticResource StatusInfoSampleData}}">
    <ItemsControl x:Name="statusItems"
ItemTemplate="{StaticResource ItemTemplate}"
ItemsSource="{Binding StatusItems, RelativeSource={RelativeSource
Self}}"/>
  </Grid>

<NilliusFilius:StatusCommentsControl x:Name="statusComments"
DataContext="{Binding}" Visibility="{Binding Comments,
Converter={StaticResource
StatusCommentsToVisibilityCollapsedConverter}}"/>
```

Worked In But Not Out

```
public static void CommunicatorPhoneCall(string phone)
    {
        if (Application.Current.IsRunningOutOfBrowser)
        {
            MessageBox.Show("At this time a phone call
cannot be started when NilliusFilius is running out of
browser or installed locally.");
        }
        else
        {

System.Windows.Browser.HtmlPage.Window.Eval(String.For
mat("window.open(\"tel:1{0}\", target=\"_self\");",
phone));
        }
    }
```

Name:	Elder, Keith
Company:	Quicken Loans Inc.
Title:	Director, Software Engineering
Team:	Technology
SubTeam:	Core Engineering
Phone:	(313) 373-4326
Old Phone:	(734) 805-7841
Fax:	(877) 380-4334
Old Fax:	(734) 805-5000
Location:	Mississippi - Remote
Email:	KeithElder@quickenloans.com
Blog:	http://keithelder.net
Facebook Page:	http://facebook.com/keithelder.net
Live Messenger:	keith@keithelder.net
AOL:	ZZorKKa
Yahoo:	keitheld
Twitter:	http://twitter.com/keithelder
Team Leader:	Hamilton, Jamie
Team Members:	Minaev, Val

Do you see the icons on this side panel in the app? Well they are clickable if you are in browser. They work just fine because they are just "links". You know those things that we've used forever?

Basically anything with HtmlPage in it or that needs DOM/HTML doesn't work when out of browser. It needs to be fully native, not JS/HTML magic.

Down the road SL will support Communicator SL controls. I could have written something in COM with OOB to work with Communicator but it was just too painful.

Not Fully Trusted

my trust

u loses it.

When Silverlight is OOB it merely means it is elevated trust, but not *full trust*.

Trusted applications can access some capabilities of the native operating system. For example, on Windows, trusted applications can use Automation features and access or manipulate components exposed by the Office suite and other applications.

Trusted applications can hide the title bar and border of the out-of-browser application window in order to provide a completely customized user interface. For information about enabling this feature, see How to: Configure an Application for Out-of-Browser Support.

When out of the browser you can only access User Folders, even though you are trusted, still sandboxed to these folders. So no writing to c:\temp for example.

Memory Leak with Images
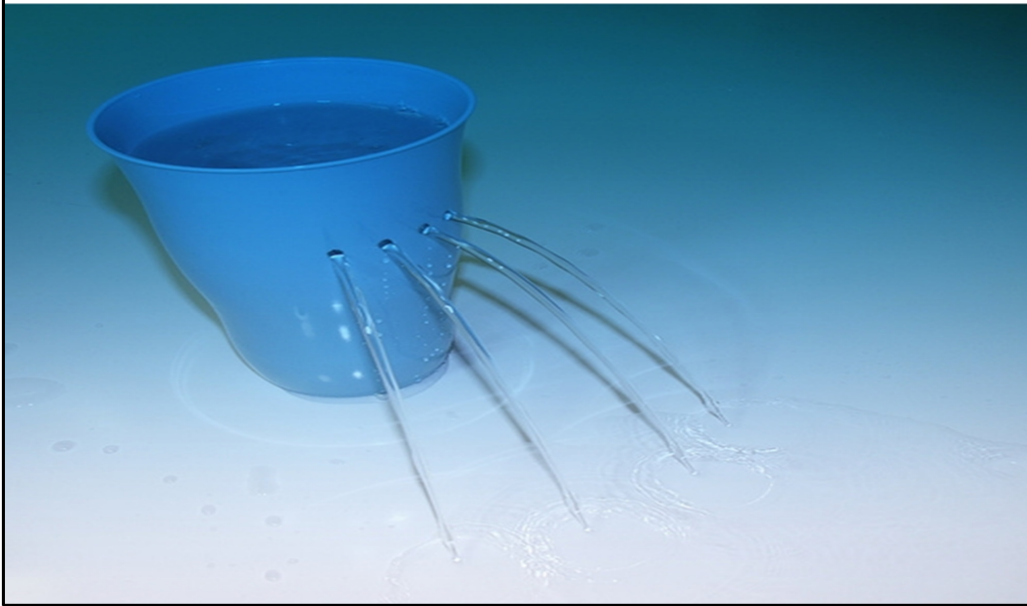
We have 2008 R2 servers setup whereby bankers that are working remote can login and work over the VPN. These machines are setup just like their desktop. After my app was released I got a call from one of the server admins. "Dude, your app is taking up 250MB of memory per instance."

<SHOW DEMO>

Printing

Silverlight
- PrintDocument

WPF
- PrintDialog
- Print queues
- PrintDocument

Printing in Silverlight revolves around using the PrintDocument. WPF gives more control over printing options.

Value Converters

- ◢ 📂 Converters
  - BooleanToVisibilityCollapsedConverter.cs
  - CanDeleteOtherTeamMemberStatusVisibleConverter.cs
  - CanEditOtherTeamMemberCommentVisibleConverter.cs
  - CanEditOtherTeamMemberStatusVisibleConverter.cs
  - DateToSocialDateConverter.cs
  - IFullNameConverter.cs
  - IntToVisibilityCollapsedConvert.cs
  - IsActiveTeamMemberStyleConverter.cs
  - SearchStatusIdParentStatusIdConverter.cs
  - SIPStatusToImageConverter.cs
  - StatusCommentsToVisibilityCollapsedConverter.cs
  - StatusTextConverter.cs

<SHOW DEMO>

Cannot Expose Service from Client
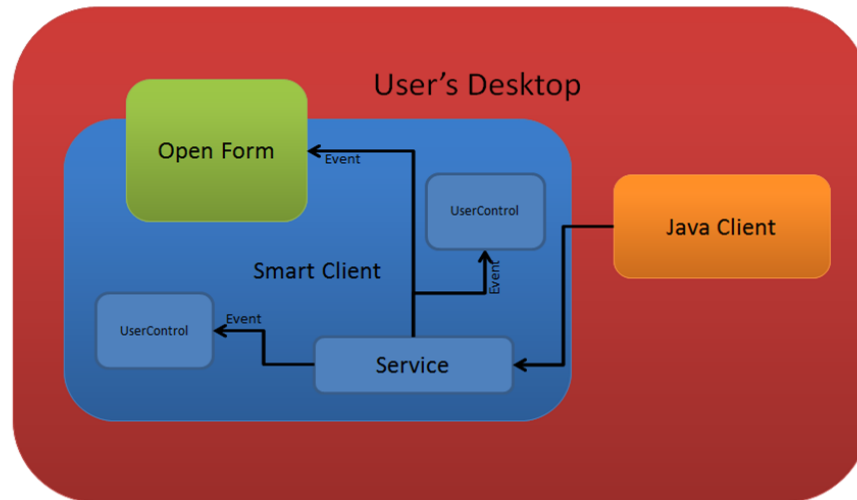
RichTextBox Scrolling Bug

Keith Elder
Why does "... may your days ..." sound like "mayonnaise" in Christmas songs? #MerryChristmas
2010 December 07 at 11:22 AM   via QBook Comment Alert Me
Comments
Jensen, Russ   Maybe it's a regional dialect thing?
2010 December 21 at 10:31 AM
Delete
Edit
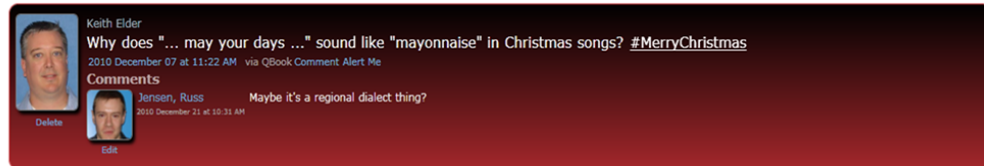
While not a *real* problem or WTF moment with Silverlight this caused me lots of grief and I had to rewrite my user controls to not use RichTextBox. Plus because of this I lost a lot of functionality in the application because users would be no longer able to copy and paste their status updates.

<ShOW DEMO>

Image from http://pffanon.wikia.com/wiki/User_talk:Team_Doofenshmirtz

The problem with passing parameters to the URL should have been a simple thing. But getting information from the URL wasn't a *no brainer*.

See SearchStatusUpdates.xaml.

Can I make it work?
<SHOW DEMO>

END USER PROBLEMS

I launched the application. The question is what did everyone think of Johnny? How did it work? Was it welled received? People really liked the quickness of searching and the functionality but there were some problems that jumped out pretty quickly.

Mac Scrolling

A fellow team mate who had a mac called me the day I launched the app and said hey, I have an issue with the app. Oh yeah? What is it? Well I'm trying to scroll up and down the page and it doesn't work? But you have a mac you don't have a scroll wheel (ba doom ching).

Ok seriously that doesn't work. Let me look into it.

Mumble mumble blind chicken.

Turns out SL didn't support mac scrolling but then later about a month or so it got scrollwheel support. I was a hero.

Macs Caused Out of Browser
Exceptions

Check update completed event failed
System.Exception: [Arg_COMException]
Arguments: Debugging resource strings are
unavailable.
Often the key and arguments provide
sufficient information to diagnose the
problem.

I got this error every time a mac user started out of browser. Not sure why, I still haven't fixed.

<SHOW DEMO>

Who wouldn't want to copy this awesome picture of me? In SL you can't.

I'll tell you about a story later where I needed the application to be able to copy an image. Turns out you can't. Something we take for granted in the web just isn't there.

From http://globalnerdy.com

I did a beta test of about 100 users. One of them called and said they couldn't perform their job because of the application and wanted to go back to the old way because they couldn't copy images. Goes back to the problem in silverlight whereby you can only copy Text, not objects etc.

I'll show you my *work around*.

THINGS I ~~LOVED~~ LIKED A LOT

I don't get to write client apps anymore. At least not right now, I used to. Having done WinForms for years I really liked working in Xaml after I got past ValueConverters.

XAML Query

```
private SubscriptionType GetSubscriptionType()
{
    XamlQuery.ControlSet set = XamlQuery.XamlQuery.ByType<RadioButton>(this);
    foreach (RadioButton x in set)
    {
        if (x.IsChecked.HasValue)
        {
            if (x.IsChecked.Value)
            {
                return NumToEnum<SubscriptionType>(Convert.ToInt32(x.Tag));
            }
        }
    }
    return SubscriptionType.None;
}
```

http://xamlquery.codeplex.com/

http://xamlquery.codeplex.com/

What is *XamlQuery*
XamlQuery is a lightweight yet powerful library that enables rapid web development in *Silverlight*. It simplifies several tasks like page/document traversing; finding controls by name, type, style, property value or position in control tree; event handling; animating and much more. In short, what *XamlQuery* aims to do to *Silverlight* is similar to what *jQuery* does to *JavaScript*.

<SHOW DEMO>

Blend

"*Anything becomes intuitive if you use it long enough.*" *- Me*

This quote pretty much sums up how I felt about Blend after using it for awhile.

RIA Services / Entity Framework

- RIA saved me a lot of time
- Entity Framework – adhoc queries

RIA Services saved me a lot of time as long as I didn't need a Complex Type returned.

EF worked great because I could re-use the existing ObjectContext for adhoc queries and return strong typing, saved lots of crappy Ado.Net Code (see http://wp.me/p1kJb2-cY for a full blown example of using Full-Text searching with RIA Services and Entity Framework.

I also did a lot of writing of queries in LINQ Pad. I'd profile them and then run the same query in EF. EF was more optimized.

Show full-text search example if time.

<SHOW DEMO>

NO JAVASCRIPT
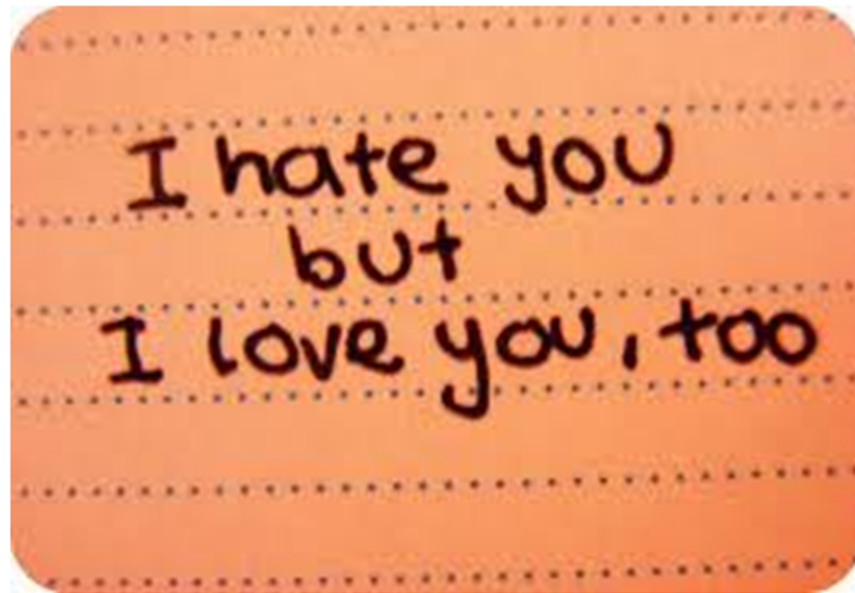
I liked not having to write javascript, mainly because I hate debugging. Luckily I didn't have to write much at all.

Comparison

What I was told

- No more JavaScript!
- Debugging was easy
- Could use .NET libraries
- The speed at which you could create was amazing
- Every time you created a Silverlight project you saved a kitten

Reality

- 90% true
- Yes
- Very slimmed down set and nothing I had previously written without a lot of work
- If I'd seen this talk before starting would have saved me a lot of time. Verdict is still out.
- I like dogs.

Words of Wisdom from The Elder

- Grids Are Good for Layout

- Caliburn Micro or MVVM Light

- RIA Services vs WCF

- No DOM in OOB so be careful using HtmlPage.Window in your app can haunt you

IS JOHNNY HAPPY WITH HIMSELF?

I HEAR OPEN SOURCE IS THE
NEW THING

Happy to annouce that Nillius Filus will be open soured.

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