Bing Maps for Enterprise – Integrating Bing Maps within WPF or WinForm application
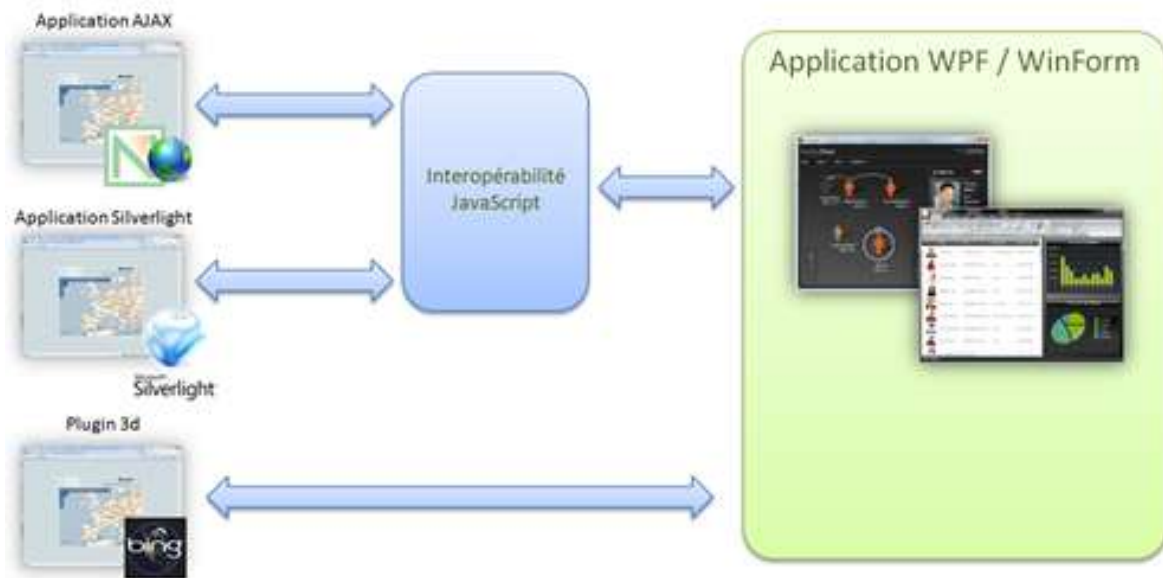
Bing Maps for Enterprise API does not provide us with full-WPF control that could allows us to easily integrate mapping into WPF or WinForm application but still, there are some possibilities to realize this kind of integration.

Through this article, we will analyze the different ways to integrate Bing Maps in WPF/WinForm applications and for each of these, we will understand the pros and cons and risks that might be considered.

Nicolas Boonaert

General presentation and interests

To be able to provide mapping scenario, we can be asked to add Bing Maps in a desktop application but the problem is that there is no WPF/WinForm alternative control. It can be justified by the fact that it represents a really rare needs and this kind of control won't be usable in other technology contrary to AJAX or Silverlight ones.

In order to integrate mapping anyway, there are some possibilities that imply to integrate Bing Maps AJAX/JavaScript, Silverlight or 3D plugin within your application and that's what will be presented in the rest of this article.

Each solutions described here, are not necessarily officially supported by Microsoft and it should really be considered in your development mostly if it will be used in final release or your apps.

Nicolas Boonaert

Solution 1: Integrate using Bing Maps AJAX control through WebBrowser

This solution could really be the simple way to integrate mapping within your application, it is certainly the solution that is the most maintainable, supported and finally less costly.

It consists in developing application that will execute an HTML specifically developed page that will be displayed within a WebBrowser control.

Pros:

- Easy to develop
- Known technology and supported solution for the HTML page
- AJAX control possibilities and features

Cons:

- Interoperability stack relatively complex
- AJAX control limitations
- No multitouch support
- No WPF transformation
- Will be rendered above any other WPF element

Useful links and information:

At the beginning, a Proof of Concept was created and shared by Marc Schweiger (MS), then a codeplex project came out, created by Burcu Dogan. This project is available at:

http://vewpf.codeplex.com/

Attention: This solution doest not perfectly work on non-US installation, it is just a matter of separator and decimal conversion.

Solution 1: Integrate using Bing Maps AJAX control through WebBrowser

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Solution 2: Integrate using Bing Maps 3D plugin

This solution allows us to display the control as rendered when we used 3D Mode in AJAX control, so it is possible to get every 3D features and content like buildings, vegetations, terrain and every camera possibility.

Pros:

- API 3D features
- Fully integrated in WPF
- Other control can be rendered above the map control
- WPF transformation support
- Multitouch support

Cons:

- Interoperability stack really complex
- Materials requirements (GPU, RAM…)
- Non-supported method

Useful links and information:

InfoStrat Company shared a really great project on codeplex that you can use freely in your application and it is available at: http://bingmapswpf.codeplex.com/

I would like to personally thank InfoStrat team for sharing this project as it really helps tons of developers, including me of course!

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Solution 3: Integrate using Bing Maps Silverlight through WebBrowser

Bing Maps Silverlight control integration within WPF application was not something that came into my mind at the first glance but while we were discussing over the phone with some other developers that had specific needs, I said "you should try to integrate Silverlight control, it can worked great".

The same day, after work, I created a VS solution and created the project to see if it can work and the good news is that it worked pretty well.

The idea is the same as the AJAX control, using JavaScript and Silverlight interop.

Pros:

- Bing Maps Silverlight Control features and power
- Multitouch support
- Rich content and possibilities

Cons:

- Bing Maps Silverlight Control limitations
- Interoperability stack relatively complex
- Bad WPF integration (WebBrowser limitation: no transformation support, rendered above any other control)

Useful links and information:

I will published the full explanation and solution really soon where I will explain how to make the thing works!

Solution 3: Integrate using Bing Maps Silverlight through WebBrowser

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Solution 4: Full WPF control custom development

The last solution is by far the most complex and costly one. It consists in developing a full WPF control that will only use native WPF elements to display and render tiles and more gneeraly the map control.

This kind of control could be the best way to avoid any other solutions limitations, but the fact that it's the most complex solution to develop brings us to consider the needs of such solution.

Adding to the fact that the animation feature (smooth scrolling-in) of Bing Maps Silverlight Control is only available in Silverlight as it uses DeepZoom technology. It is really hard to get the same result with WPF for the moment.

Pros:

- WPF full capabilities (Multitouch, rich content…)
- Complete integration and interaction

Cons:

- Cost and complexity of the development
- Reliability, hard to put in production environment

Useful links and information:

I started developing this kind of control for a specific project that uses MS Surface while there was no other solution (No InfoStrat.VE, to hard to reuse MS Concierge Application).

Thus, it is not impossible to realize such control but it is clearly costly (time and money). It has to be the latest and final solution.

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Conclusions

This overview of Bing Maps WPF/Winform integration allows us to get to know every important point that need to be considered before developing using one or another solution described here.

The needs has to be clearly identified and thing around the development has to be kept in mind.

If you have any questions about these solutions, please let me know through a comment on my blog or by sending me an email: nicolas.boonaert [AT] gmail [DOT] com

In a coming article, I will present the Silverlight integration solution and describe every steps and important thing to get this solution working.

Original French article : http://blogs.developpeur.org/nicoboo/archive/2010/06/05/bing-maps-for-enterprise-int-gration-de-la-cartographie-au-sein-d-une-application-wpf-ou-winform.aspx

Nicolas Boonaert