

Silverlight/WPF, Smartphones, and Sharepoint

Silverlight dev leads Art Haddad and Rex Hanson discuss the ArcGIS API for Silverlight/WPF and show it being used on the Web and for mobile apps. They also discuss ArcGIS for SharePoint.

http://video.esri.com/watch/154/silverlight_slash_wpf_comma_smartphones_comma_and_sharepoint

Video Transcription

00:01 My name's Art Haddad, joined by my colleague Rex Hansen, and we're here to talk about...

00:05 ...ArcGIS on the Microsoft Stack, specifically Silverlight, WPF, WinPhone, and of course, SharePoint.

00:07 If an item's been changed, it will update the geocoded item accordingly based on the change.

00:12 So as our agenda is real simple, we're going to try to cover as much as possible.

00:19 Dave Cardella really did a good job on Introduction to Esri, so we really don't have to go too deep into that.

00:25 We're going to talk about some of the challenges that we've faced and why we built some of these APIs.

00:29 We're going to go into the details of our APIs and... all built on, built out of the Microsoft stack.

00:37 We're going to show some demos along the way and then we'll wrap up.

00:39 Along the way, what I'd like to do is make sure we have plenty of time for questions.

00:44 I'd like this to be as informal as possible, so if you do have a question, please let us know right away.

00:50 All right. As you know, Esri is the world leader in GIS, or geospatial technologies.

00:55 We have well over half a million organizations that use this, and if you go by the numbers...

00:59 The list goes on.

01:02 ...we have well over a million users.

01:03 And for that reason, we've identified...a number of challenges that exist today.

01:10 And for a lot of those challenges, what we wanted to do is provide a set of tools, or APIs...

01:19 ...and frameworks that are available for you to use that will address some of these challenges.

01:25 Some common challenges that you might see in your everyday careers and jobs.

01:29 Things like, hey, I need to get a sales report out there.

01:32 I need to let my sales team know exactly what's working and what's not.

01:36 I need to identify different marketing patterns and targets, specific marketing campaign, towards those things.

01:41 Or I just need to solve a simple, little problem.

01:45 To a user, it might seem simple, but to you, it may not.

01:48 What we need to do is bring in some spatial technology to solve that problem.

01:54 So what we have here with ArcGIS and the Microsoft stack is a way to bring together all of your datasets...

02:01 ...in the Microsoft world, and that's using Silverlight, WPF, the Windows Phone, as well as SharePoint.

02:09 By focusing a lot on the Microsoft stack, what we've been able to do is build a little picture that kind of gives...

02:15 ...you a better idea of what we're talking about.

02:19 All right, so, how many folks here actually use SharePoint right now?

02:24 Okay, we've got a couple of you.

02:26 SharePoint, believe it or not, is a very successful product for Microsoft.

02:30 It's a \$9.6 billion industry for that product alone.

02:34 Billion dollars. That's a lot.

02:36 It's one of the most successful product lines at Microsoft, and we've actually embedded...

02:41 ...or incorporated a product into that world, called ArcGIS Mapping for SharePoint.

02:46 With this product, we can work with all forms of data, whether it be document libraries, InfoPath forms...

02:51 ...Excel spreadsheets, SQL Server, all of that can now work with ArcGIS Mapping for SharePoint...

02:59 ...within the SharePoint environment.

03:01 We also have ArcGIS for Silverlight, and Silverlight for the browser, Silverlight for the desktop...

03:06 ...WPF for the desktop, as well as now the Windows Phone API.

03:10 We combine that with the web and the different server offerings we have - we have ArcGIS...

03:16 ...we have the Bing services and that's, yes, all the Bing map data, the basemap, the hybrid map...

03:23 ...the imagery, along with the different services.

03:26 [unintelligible] as a tier service, the writing service, the geocode service.

03:30 We can run within Azure cloud as well as work with the full arcgis.com, our cloud offering for ArcGIS Server.

03:38 So this is basically the entire stack that we've been able to come up with.

03:42 And what we're going to start out with is the ArcGIS Mapping for SharePoint.

03:45 ...I want to bring you up to speed on what we've done there.

03:49 So for SharePoint, when they first announced SharePoint, this is a slide that they used that describes SharePoint.

03:55 It kind of has a lot of buzzwords in there.

03:58 From our perspective, we look at it like this.

04:05 It says it does everything. Well, to us it's just a Swiss army knife.

04:08 How do we use the right tool to accomplish the right job.

04:13 And from that, we've come up with the ArcGIS Mapping for SharePoint.

04:16 All right, it brings the concept of GIS into SharePoint environment, and it does two things...

04:22 ...and two things very well, at version 2.0.

04:25 It integrates directly and completely into SharePoint 2010 in that it supports the design time experience...

04:32 ...the SharePoint [unintelligible] experience, it supports SharePoint workflows...

04:36 ...it also supports ArcGIS Server 10, so that's the second piece.

04:40 ArcGIS Server is now fully integrated into our SharePoint bits.

04:45 Okay?

04:47 An important aspect to SharePoint is it's not just extensible, it's configurable.

04:53 The majority of folks working inside of SharePoint, they're not programmers.

04:58 They're pretty much analysts and they need to create a dashboard site or a page that demonstrates...

05:03 ...specific information to a set of users that they are responsible for.

05:09 There is no programming associated with that; they need to point and click their way through an entire website...

05:14 ...and that's what this actually does.

05:17 All of this is actually built using the ArcGIS Silverlight API.

05:24 Some of the things you actually get in the SharePoint experience is a Map Web Part.

05:28 This Map Web Part allows you to display and interact with your data in a visual way.

05:35 It allows you to incorporate existing SharePoint lists, ArcGIS Server data, SQL Server data...

05:41 ...through a spatial data service, and a number of other things.

05:46 As part of that Map Web Part, we also allow you to interact with the data tables.

05:51 So if I incorporated a SharePoint list on the map, the SharePoint list now appears as features on the map.

05:57 But more importantly, if I want to interact with those features and I want to see the actual data beneath it...

06:03 ...this table allows you to work with it, and it's part of the experience of working with the Map Web Part.

06:08 There is no extra work that needs to be done, you just get the functionality if that's what you want to configure.

06:15 We also have the ability to take SharePoint lists and dynamically add them to the map...

06:20 ...using a process known as geocoding.

06:23 A lot of data is out there inside of Sharepoint, a lot of it has address information.

06:28 Using the ArcGIS Server locators, or even the Bing locator, you can support putting that data onto a map...

06:35 ...even though the data has never seen the light of spatial before.

06:40 And that's through the concept of a workflow.

06:42 This is a SharePoint 2010 experience.

06:45 So, with this workflow, I can associate this workflow to a SharePoint list, and for those that...

06:51 ...have not been geocoded yet, it'll go in the background and start geocoding those records.

06:56 If an item has been added, it will geocode that item based on Add.

07:07 Furthermore, we integrate with the tasks and alert system, so that if something does get geocoded...

07:14 ...and, as we know with geocoding, an address does not necessarily match a specific point.

07:21 It could be a range of candidate points, and what you need to do is somehow go back...

07:26 ...and pick the correct location.

07:29 Well, a task will get created as part of this workflow assigned to a specific individual...

07:34 ...and you can go back into the item and update it.

07:39 Okay.

07:41 This pretty much talks to what just described, but nonetheless, it's an easy way to geocode...

07:46 ...addresses and that's the key part there.

07:49 There's really no extra effort necessary.

07:52 The question is, if I have a large SharePoint list, what is the scalability of that?

07:58 On two fronts, I would like to suggest.

08:00 One, on the geocoding side.

08:02 And the second, how does it display on a map, okay?

08:06 So the first one, how does it scale out on the geocoding side?

08:10 It happens all on the background thread.

08:12 So, a number of background items get kicked off, and they just go through until they're all done.

08:17 So that's just a background process that doesn't affect your SharePoint site, per se.

08:22 Second part is, how does that get added?

08:24 Within SharePoint, we actually have a limit as to how much you'll add in at any point in time...

08:29 ...and that maxes the configuration item within the SharePoint administration feature.

08:34 Furthermore, you can filter it out based on extent, okay?

08:38 So that's how we deal with large numbers of items within SharePoint lists in the map as well as on the geocoding side.

08:47 Talking about configuration and because we're integrated inside of SharePoint...

08:52 ...we have to integrate into the site administration page.

08:56 Well, inside the site administration page, we have our own section.

08:58 And on that section, you can configure things like the types of locators you want to use by...

09:03 ...default or as a choice, the types of basemaps you want to use...

09:08 ...which document library will contain extensibility modules, so that if I want to add an extra tool that I'd built out...

09:14 ...using the API for Silverlight, I can add that to a specific document library and it just becomes available, et cetera.

09:20 There's a number of those configuration items available for you.

09:25 All right.

09:26 Keep in mind, I mentioned that SharePoint is a customizable environment.

09:29 You have a design-time experience and then you have a runtime experience.

09:33 A designer is the role that they put into a design-time experience, and within that designer capability...

09:40 ...I can create and configure any kind of a web page within my site.

09:45 And as part of that, our tools subscribe to a series of ribbons that are available in design time...

09:52 ...and those are customized in design time so what shows up in runtime.

09:56 So I might have all the tools available in design time, but if I only say I want to allow basemap configuration...

10:05 ...or I want to allow specific layer information or tools to show up, then only those that were...

10:11 ...configured by the designer are available to those in runtime.

10:16 A designer can also choose to just enable everything, at which point the runtime user is someone...

10:22 ...that can add and do anything that they need.

10:25 But all those, again, it's because it's integrated within SharePoint, you can configure that as a designer.

10:31 Question right here?

10:32 [Inaudible audience question]

10:34 Sure. The question is, what is a SharePoint ribbon?

10:37 In SharePoint 2010, much like Office 2010 and Office 2007, you have a ribbon experience for a toolbar.

10:46 It's that toolbar at the very top, and every part that appears on a page has a section on that ribbon...

10:55 ...and we have completely integrated with that SharePoint experience.

11:01 All right. No matter how much we put into a product, there's always something that someone wants to do more.

11:07 Well, for that, we've created an extensibility framework that's highly based on a common .NET programming pattern...

11:14 ...called the eye command pattern.

11:16 Folks, you are .NET programmers? Maybe? Okay, a couple of you.

11:20 All right. It's a very common pattern, very simple to implement, and once you do that...

11:24 ...along with the ArcGIS API Silverlight, you can extend this the way that you need.

11:30 All right. So, real quick, I just want to show you one thing 'cause this actually took us a...

11:36 ...little further than we needed to.

11:37 So, here's a SharePoint site, it's a 2010 SharePoint site, and I'm actually using IE 9.

11:44 This is a preview release, so if something blows up, it's IE 9, it's not us. All right.

11:51 Yes, I know.

11:53 All right, so this is something I actually showed back in Washington, DC, at the Microsoft Technology Center.

11:58 This is actually a bomb threat tool that allows us to work with a certain amount of data.

12:04 This is the Map Web Part.

12:07 Let me bounce this out.

12:09 Okay, so you'll see here that I have a run time, and in that run time I have two tabs available to me...

12:16 ...an application tab, and it has the ability to swap out the basemap, add content, view the map contents itself...

12:25 ...and some other tools, like the Bomb Threat tool, Select by Location, and Drive Times.

12:29 And on the layer, I have a limited set of things I can do with layer.

12:32 For instance, if I want to zoom to or go to the Gaslamp building footprints within San Diego...

12:39 ...I can do that immediately.

12:41 Well, one of the things that we did hear is the ability to do search, and this comes with the product...

12:47 ...so if I want to search for San Diego Convention Center, it'll go out there, and assuming I typed it right...

12:55 ...it will be added to the map, and I added a pin right to the map.

12:59 Little things like that, and from that point, I want to execute a tool, and this tool, believe it or not...

13:05 ...is based on DHS spec, Department of Homeland Security.

13:08 That says for a specific bomb type, specific characteristics, and the size of the bomb based on

vehicle type.

13:17 You'll be able to calculate out the areas in which are a problem.

13:24 So we've actually implemented that tool using geoprocessing within ArcGIS Server.

13:28 We published that geoprocessing model to a server end point, and we've added that to the map.

13:34 And what it does, it comes back with two areas - the outdoor evacuation area and a building evacuation area.

13:40 From there, I can execute additional tools to identify the lots that I need to identify for evacuation, et cetera.

13:47 How we built this was pretty straightforward.

13:50 And actually, let me bounce out of here, and just real quick, what I want to do - actually...

13:59 ...I'm going to do that by just staying in here real quick.

14:06 Save some time.

14:08 If I wanted to configure this or edit this inside of SharePoint, I can select that part and click Edit Web Part...

14:14 ...and you'll quickly find that I have an increased set of tools available to me in the designer...

14:22 ...both at the application level, here is, at the layer level, including how I want to update the map...

14:30 ...whether it's been panned or zoomed, if I have more information, update information...

14:36 ...and working with symbology, including adding a heat map, changing out the symbol sets, et cetera.

14:43 And, of course, configuring that ribbon is real simple.

14:47 I have a little Manage Ribbon tool in which I can go through and I can select specific the things that are available...

14:55 ...at runtime versus design time.

14:58 So I'm going to stop right there; there's so much more I can show you here.

15:00 There's actually a video presentation that takes you through a 20-minute schpiel on all the different things...

15:06 ...you can do here, but I'm going to stop right there.

15:09 If we have more time later on during our social, I'll take you through the whole thing, and it's really pretty cool.

15:14 But you can see how easy it can be.

15:16 It's really point and click, configure your way through.

15:20 All right, so I'm going to stop there, let me bounce back out, and go back in here.

15:29 Obviously, we just released - well, not obviously, but we just released version 2.0.

15:34 And obviously we want to continue increasing the product by adding more capabilities.

15:39 Today, we have a Code Gallery sample you can download.

15:42 Add it to your SharePoint site for editing capabilities as well as time aware and things of that nature.

15:48 What we want to do is add those out-of-the-box experiences.

15:51 We want to include our spatial, now spatially aware SharePoint lists.

15:55 This is part of fast and search integration within SharePoint.

16:00 We have so many different things we want to do, but we don't want to just do it, just...

16:04 ...out of the sake of, we think it's a good thing.

16:07 We want to wait to hear and get that feedback from our users, just like we do with everything else.

16:13 All right. Moving on, and this is where it gets fun.

16:17 Our ArcGIS API for Microsoft Silverlight is the next section.

16:20 Now keep in mind, this is the platform we've built out the SharePoint site.

16:23 If you've used arcgis.com before, the ArcGIS Explorer Online, there's also another application built on the same framework.

16:29 And just recently, we were awarded the Visual Studio Reader's Choice Award for 2010...

16:34 ...in the category of Mapping and GIS Components.

16:38 So this is a community award; it's not an organization that said hey, we like you guys, here's your award.

16:44 So that's why it means something to us - it was based on community feedback, so we really won...

16:48 ...this based on real-world people saying this is a good thing.

16:53 So I wanted to make sure that that was stated in this meeting 'cause I'm really proud of the team.

16:59 I want to get this out of the way.

17:00 This is something that happened on Monday.

17:02 Bob Muglia was reported as saying, Silverlight is dead, so to speak, in not so many words.

17:09 Well, this is the slide Scott Guthrie actually showed at the Dev Connection Summit on Monday.

17:14 It's alive.

17:15 It's not dead. It's not going away.

17:18 He said, Microsoft is shifting its strategy.

17:22 And of course, they're shifting its strategy. They have to.

17:25 HTML5 is on the horizon; they're supporting it.

17:28 The PDC was based on two things, and two things alone.

17:32 Azure, Windows Phone.

17:35 That's what they emphasized.

17:36 They didn't talk about SharePoint in that thing; SharePoint's not dead; it's still alive and vibrant.

17:41 Silverlight wasn't really discussed as much, but it was discussed, and it's not going away.

17:47 So I just wanted to get that on the table, get it out of the way.

17:51 It's still strategic, and it's not going away, so let's be very clear on that.

17:56 However, they are going to support HTML5, as well.

17:59 That's plain as day; I mean, look at Esri.

18:03 We have HTML and JavaScript.

18:06 We have Flex, we have Silverlight.

18:11 We support them all; Microsoft is in the same boat.

18:14 So, now that we've got that out of the way, let's come back over here.

18:20 The API for Microsoft Silverlight and WPF is real simple.

18:23 It's a powerful web and desktop mapping API.

18:27 It allows you to design your applications.

18:30 Our API is designed for the Silverlight and WPF platform.

18:36 It utilizes ArcGIS Server, it brings in additional data types like Bing Maps and services.

18:43 Silverlight itself is cross browser, it will support all the platforms that Silverlight supports...

18:49 ...including Mac, Chrome, Safari, Firefox, as well as Internet Explorer.

18:54 On the WPF side, it being a desktop app it is, we'll support x64-based...

19:00 ...implementations so you can write a native 64-bit implementation of your application using our WPF API.

19:07 And it would not be a Microsoft-based API if we didn't support integration with individual studio environment.

19:13 Of course, we do; we're fully integrated with it.

19:17 We have a number of libraries that we do ship and the reason why we break them apart...

19:21 ...is to think about Silverlight itself.

19:24 Silverlight itself is typically not installed with the setup program for your application...

19:29 ...you access it through a web browser.

19:32 You have the URL, and you have to download the bits that run within a plug-in within your browser.

19:37 Well, it makes no sense to include the kitchen sink in that deployment.

19:41 It does make sense to include the things that you need for your application to run.

19:46 Hence, a couple of these things are broken apart.

19:49 Our core library is for working with maps and layers as in our client DLL.

19:54 To work with any Bing maps and services is an additional DLL called Bing.

19:59 If you want to work with some of our widgets, we have a toolkit assembly which provides some of those widgets.

20:05 And of course, some additional data sources that are not in our core product...

20:09 ...you can work with those DLLs as well.

20:11 So we kind of break it apart for deployment purposes, but more importantly so that...

20:16 ...you can know what you're working with, as well.

20:19 Our Toolkit DLL and our Toolkit data sources are actually open source libraries.

20:24 We host those on codeflex.com., esrisilverlight.codeflex.com.

20:30 And with that, you can actually download the full source code.

20:34 See how it is we've built some of these widgets to extend our platform.

20:37 You have full access to the source, full access to the documentation as well as the binaries, so if you wanted...

20:42 ...to build out your own stuff, you have a good pattern from which you can work.

20:48 'Course I mentioned IDE integration. It's not just Visual Studio, it's also Expression Blend.

20:53 Expression Blend itself is a design time or a designer's tool, not necessarily a programmer...

20:59 ...but someone that can point and click, configure the way through.

21:02 It's a very good environment for what in Silverlight we call "templating."

21:08 So if I have a user experience or a set of user interfaces that were designed one way...

21:13 ...and I want to reuse those in a different-looking application, I can use Expression Blend to do that kind of a thing.

21:19 Or, I can just go into Visual Studio and work with XAML.

21:22 Think of it as a really good XAML writing tool.

21:27 Now for those of you who don't know, XAML is the markup language that is...

21:29 ...used to express the presentation of your Silverlight application.

21:36 All right. At version 2.0 and with ArcGIS Server 10, we've added a number of new features.

21:42 Some of those things are kind of important. I wanted to bring them out.

21:44 One is editing, and with editing, we've also provided you a set of tools out of the box to enhance that editing experience.

21:53 And, with a feature layer that is supported through server and in the client, you can bind our widgets...

22:03 ...to those layers and you automatically get editing experiences.

22:08 It's really that simple.

22:09 Or you can go out there and create your own experience yourself.

22:13 Either way, editing is built into the core API now, and not just feature editing but also attribute editing.

22:21 Then, of course, we have a whole host of geometry operations to help support not only editing...

22:26 ...but other spatial operations, as well.

22:29 Autocomplete, convex hull, I want to cut a feature, I want to densify...

22:34 ...I want to generalize, all those things are now available as a REST endpoint through ArcGIS Server.

22:42 We've added the ability to work with time, or what is also known as temporal rendering.

22:48 If a layer is supported with a set of attributes for time, the map itself is time aware.

22:56 So what we've also done is extended our widgets to support a time slider.

23:00 So you bind the widget to your map, and of course, you now get time.

23:09 And there's obviously more; there's so much more that it's really hard to put a set of slides together...

23:15 ...and actually share that within an hour's time.

23:18 So rather than go on, what I want to do is invite Rex Hansen up here to go into a lot of the detail on some of this stuff. Rex?

23:27 Thanks, Art. Get this thing...

23:32 Can you hear me? Here we go.

23:35 Great. Thanks, Art.

23:37 So, Art mentioned working with the ArcGIS API for Microsoft Silverlight and WPF.

23:41 What I'd like to do is show you briefly, number 2?

23:53 There we go.

23:57 What I'd like to show you is what you'd need to get started with this.

24:00 So he sort of tantalized you with some information about what we have in our current product.

24:06 What we have for our Silverlight/WPF API, as well as with our other web APIs, is a resource center.

24:11 This is a one-stop shop where you can go get... you can download the bits, you can install those bits...

24:16 ...and then you can start using this resource center to discover how to build your application.

24:21 This is the resource center for our Silverlight/WPF API.

24:24 What we'll notice here is there's a couple of links that we can actually download the setup.

24:28 So, if we download this setup, we'll run through the install, it will give us the DLLs that we saw...

24:34 ...within the presentation that Art mentioned before.

24:36 The [unintelligible] this goes down on disk along with some design-time integration pieces, allows us...

24:40 ...to integrate within some Visual Studio and Expression Blend and provide toolbox integration...

24:45 ...a reference integration, as well as templates.

24:51 Once we have that installed, we can bounce over to our concepts and we can get started here.

24:56 We can easily view a short video here on how to get started with our Silverlight/WPF API.

25:05 Basically, it requires that you have Visual Studio 2010 with Silverlight tools and optimally...

25:11 ...the Expression Blend SDK, or you'll have Expression Blend 4.

25:16 You can actually get started free of charge by using Visual Studio Web Developer Express, as well...

25:20 ...and that's what this video walks you through is using that free download.

25:25 It will walk you through the process of actually creating an application with a simple map, adding a layer...

25:30 ...being able to use that application and show you some basic functionality and getting started with the API.

25:38 Probably one of the first places you'll go is, there's a sample section, and this sample section is an interactive Silverlight...

25:43 ...application that we've built using the API, and really highlighting the different areas and functional areas...

25:48 ...within the API that you might like to take advantage of.

25:51 You can see some of those areas over here, on the left-hand side, and we can step through these different expanders...

25:57 ...and see the different functionality that's available, such as simple mapping.

26:02 We'll have something like this, which allows us to work with some of the Silverlight platform capabilities...

26:06 ...to give us sort of a semi-3D effect, right?

26:10 So you can see, we're leveraging what the platform provides.

26:15 We also provide a toolkit.

26:16 These are controls and data sources that enable you to, or enhance the usability...

26:22 ...of the API, so enhance your use of the map or enhance the ability to work with...

26:27 ...other layers that you might want to integrate within your map application.

26:31 So what we might see here is, for example, the ability to pop up, let's say, a little info window...

26:37 ...or information about the map, and we can track that in.

26:42 Within our...we can actually use this within our application quite easily...

26:47 ...by bouncing over to a couple of different tabs that are on top here, what we will see is a XAML tab...

26:53 ...to actually look at the design markup.

26:55 Code behind tab in both C# and db.net so we can discover how to use this.

[26:59](#) We can copy and paste this directly into our application and start using it.

[27:03](#) We can also look at the code behind that was required here, as well.

[27:06](#) And we can copy and paste this into our application.

[27:10](#) Note over here the application as a whole is available for download.

[27:13](#) You can get all the source code for this application so that you can run it locally on your machine...

[27:17](#) ...and you can actually see all this, get it all, get access to it locally on your own box.

[27:24](#) Another item here I'll highlight briefly is the toolkit data sources.

[27:29](#) What this does is it presents the ability to work with our API and extend our API to work with other data sources.

[27:37](#) And so out of the box, we'll provide support for Open StreetMap, right.

[27:42](#) A community-type basemap here for sharing data that you can utilize in your application as a basemap...

[27:49](#) ...and your Silverlight or WPF application as a basemap.

[27:52](#) You've got some other options here...

[27:53](#) ...such as heat map. This is generating a client-side bitmap based upon...

[27:57](#) ...the intensity, or the density of points or values within a specific region.

[28:03](#) We also have something like KML, so we support a section of the Google Maps spec of KML...

[28:09](#) ...and this allows us to integrate this on the client directly within our map.

[28:18](#) Another item here I'll mention, we also have the ability to edit and work with an out-of-the-box editor widget...

[28:24](#) ...that allows us to select, make changes.

[28:31](#) In this case we can actually see, if you can see there, we have a little snapping tool that's available.

[28:38](#) That allows us to snap to different vertices and other polygons.

[28:42](#) We can save this.

[28:44](#) We push it back up to our layer.

[28:46](#) And essentially what we've done is we've made changes to a feature or attributes on the...

[28:50](#) ...client and push that back to central server.

[28:53](#) So we have functionality there built around ArcGIS Server 10, feature services, and functionality that enhances...

28:59 ...that end-user editor experience.

29:02 Something also new that we added at 10 that we're leveraging within our API is the ability to work with time-aware layers.

29:08 This means that the layer itself has, essentially, date fields, or date range.

29:12 Features themselves have date ranges, and you can render those based upon the time extent for a map.

29:18 So in this case, what we have is a block of, essentially a block of time or a time extent...

29:25 ...and we can see the different features as they're present within the map during a specific time range.

29:30 So we can see these, these are hurricanes over a time period between August 2000 and October 2000.

29:38 We can see the track. We're using a specific renderer to render these temporally.

29:45 We can see how to leverage this.

29:46 Now, what's nice about this is I can break over to my XAML. That's exactly what I just did here.

29:50 You can look at the storyboarding, the different animation capabilities that have been integrated...

29:54 ...and utilized within our API.

29:56 All this stuff is based on Silverlight and WPF functionality that we can then leverage within our API.

30:01 So we can take full advantage of that.

30:05 We'll also mention here is that we do have the ability to integrate with Bing Maps.

30:07 This is another out-of-the-box capability that we can utilize quite effectively for basemap integration...

30:15 ...as well as services such as geocoding and routing.

30:17 We can flip through and utilize these, as necessary.

30:22 It's a great way to discover how to get started or how to use the API.

30:26 It's an instructive SDK and so that's what it's designed to be.

30:29 We also have some other items here and I'll just touch on these briefly.

30:33 A lot of the, one of the benefits is the user experience with Silverlight. There's a developer experience...

30:38 ...there's a runtime experience, and there's a user experience.

30:40 One of the major benefits with Silverlight is the ability to enhance the user experience by using fully functional...

30:47 ...animated symbology that really gets the point across, really presents itself very well and aesthetically to the end user.

30:55 What we have here is a symbol gallery and this allows you to traverse through a set of different...

30:59 ...resource dictionaries that give us the ability to work with enhanced symbol sets that we can really copy...

31:06 ...paste, and utilize within our application.

31:11 So for example here, I like this moving line.

31:13 I want to be able to see what that line contains.

31:16 Well, I can copy and paste this markup...I can actually see the line over here.

31:20 We can actually get some, a little more interaction with that symbology.

31:25 We can take a look at the resource dictionary that represents that line.

31:28 We can copy and paste this into our application and render our features using symbology...

31:36 And this is an easy way on our resource center to discover and then utilize some of that functionality.

31:42 Now, Art also mentioned that when you install the product, we get a couple of out-of-the-box templates.

31:46 I'll show you these briefly here in a second when I bounce into Visual Studio.

31:50 These out-of-the-box templates enable you to get started with sort of a

31:55 It's templated, or skinned, in a certain way that allows you to essentially modify or drop in tools...

32:00 ...and functionality in a ready-to-go, essentially web-ready application.

32:07 What we also have here online is a template gallery.

32:10 What this template gallery does, it allows us to traverse through a set of templates that we can preview...

32:19 ...and then maybe what we want to do here is bounce out to this template, we want to view it.

32:23 We want to see how it operates...be able to do with this. Let's see here, we'll do something like this. Alright. Fantastic.

32:33 So we can see a lot of the options that are out of the box.

32:36 The source code for this is available for download.

32:39 Alright, so we can close this, I can go over here and I can download the source code for that template.

32:42 We can bring it right into Visual Studio and start customizing it right away.

32:45 This is a great way of being able to get access to something that looks good, looks aesthetic, is almost ready to go...

32:51 ...essentially without - all you'd have to do, essentially, add your data and fire it up and you're good to go.

32:57 Another thing I'll just make a point of, we have a full API reference.

33:00 So if you need, as a developer, you need to dive into the details of working with our API...

33:06 ...the full API reference is available online, so this is the place to go.

33:09 Much like MSDN, you can go online, you can discover how to use at a very low level, our API effectively.

33:16 Let's bounce into Visual Studio here really quick.

33:18 I've got a simple Silverlight application.

33:20 I'll just show you some of the design integration work.

33:23 What we'll see over here on the right - I'm sorry, on the left-hand side is a toolbox.

33:27 So this toolbox includes our controls that are part of our core assembly, Esri ArcGIS client assembly...

33:32 ...as well as our toolkit assembly.

33:35 Map and scale bar, part of our core.

33:37 Everything else is actually in our toolkit.

33:44 Now, as Art mentioned, we have the source code available for our toolkit available on CodePlex.

33:48 You can go out there and discover how we built these. You can modify them.

33:53 You can also utilize that as a template essentially for how to build an API, how to build your...

33:55 ...controls if you decide to go down that path.

33:56 What this does offer, and what I have here, is a simple application, simply a simple page, user control...

34:03 ...and I've dragged a map actually onto the canvas.

34:06 I can actually see the map on the canvas here, or I can bounce out to my XAML.

34:11 I can see that there's nothing in the map, right?

34:12 So it's just a basic map control.

34:15 The name space has been added for me, that's great, and what I can do here at design time as well is...

34:21 ...I have the ability to work with Map Settings.

34:25 So Map Settings is a custom property or category here that's been added as part of our design time integration.

34:31 And to make this easier to work with layers, which is obviously standard with a map, we have the ability...

34:37 ...to traverse ArcGIS Online or any public ArcGIS Server REST-based service, that...

34:44 ...we can traverse the stack of services. We can add them to our application fairly easily.

34:49 Here, we can get a preview of what those services look like.

34:53 I'll go ahead and we'll go with this map here.

34:56 I'll click OK, you can see, that's been added, and we'll go ahead and run it.

35:00 Run this.

35:02 No, we didn't actually set an explicit size for the container for a map so it'll fill the browser window with a map.

35:09 And note here, we also didn't wire up any certain navigation functionalities.

35:13 That stuff is baked into the map.

35:15 So when this loads, what we'll notice is that I'll immediately have both keyboard...

35:20 ...and mouse interaction enabled on the map.

35:23 And we can see the fluid, the fluid interaction with the map.

35:26 So, I can hold the control key down, I can zoom in, I can use my scroll wheel, and I can zoom in and out quite effectively.

35:34 I can also pan using the keyboard, so this is all wired up for me.

35:38 I don't have to do that manually. All right? Great.

35:45 Another option here is the ability to work with a template.

35:48 So as I mentioned before, as part of the integration of our setup with Visual Studio, what we have is under...

35:55 ...our Visual C# section under Silverlight, what you'll see is a couple of standard templates, essentially.

36:03 We'll have a standard template and a showcase template. We can get a little window...

[36:07](#) ...of what those look like over here.

[36:08](#) You can get an idea of what they're going to appear like, and if I add one...

[36:13](#)I'll go ahead and go with the standard, I'll click OK, it will create the application for me.

[36:22](#) And when it creates it, I'll actually have to build it to see at design time, but what I will get is...

[36:27](#) ...a nice fluid design time experience, which is good.

[36:37](#) All right, we're working. Here we go.

[36:39](#) Okay, great.

[36:40](#) So we don't actually see anything there; we'll go ahead and we'll read what it says, we need to actually build it.

[36:45](#) When we build this, we'll actually get a nice design time experience.

[36:48](#) One thing that's new in Visual Studio 2010 that they didn't have in 2008 is the ability to interact with, have...

[36:53](#) ...an interactive design surface for Silverlight applications.

[36:57](#) So that's one thing we actually do have in VS 2010, which is really nice.

[37:00](#) Let me close some of this stuff out here.

[37:01](#) Let's reload the designer, and what we'll see is...there it is. There's our application.

[37:09](#) We can start going in and customizing this content right away, if I run it.

[37:13](#) It's already preconfigured with a set of base layers, and so I can utilize those base layers...

[37:17](#) ...in the base layers switcher that's already part of the template.

[37:21](#) We can get started right away with an application that's ready to go out of the box.

[37:32](#) There we go. Let's switch through.

[37:37](#) Great. We have exactly what we need there. Fantastic.

[37:43](#) Okay, good stuff.

[37:44](#) Now, at this point I think we should probably bounce over to Windows Phone.

[37:51](#) I guess we'll wrap up, briefly wrap up the current Silverlight/WPF story.

[37:55](#) A version 2.1 release is pending.

[37:56](#) We just had a release candidate go out yesterday.

[37:59](#) You can go up there on that site that I showed you, our public resource center site.

38:02 You can download the setup, you can install it and you can actually work with our current 2.1 release candidate.

38:07 We've got some new functionality that's been added in here.

38:10 We have touch-enabled controls, our map, our editor, our draw surface.

38:14 They're all touch-enabled , so they'll work with touch-based gestures out of the box, and we leverage that.

38:19 We work with our ArcGIS.com web maps, so ArcGIS.com is a site for sharing web maps...

38:24 ...creating web maps and distributing those amongst groups or to the public.

38:28 We can work with web maps within the API specifically now as developers.

38:32 Enhanced editing. We've enhanced the editing experience.

38:35 Obviously this is coupled with our touch and gesture support, so if you start to, for example...

38:40 ...via a touch-based gesture, you tried to move a vertice on a polygon or a line or point...

38:50 ...you actually see a little magnifier window pop up to enhance that editing experience that you know...

38:54 ...exactly where you're placing that point, because oftentimes it's kind of difficult to see when...

38:58 ...you're trying to edit with a finger.

38:59 So we tried to enhance that experience a little bit more.

39:01 We saw KML as a data source.

39:03 KML is a data source that we support out of the box now.

39:06 A couple of new widgets here. A legend widget, which is templateable...

39:10 ...so we can actually add TOC functionality to the legend widget, such as turning on visibility...

39:15 ...maintaining selection layers and all that.

39:17 The info window's another option that allows us to essentially pop up, in a standard way...

39:23 ...information within a window that's hooked or anchored to a specific location.

39:27 Next, v.Next, releases, upcoming releases.

39:30 We're looking at having wraparound support, the ability to pan around the globe and have it continue.

39:35 We don't have that now, but we're looking to add that in and make that consistent and as accurate...

[39:39](#) ...as we possibly can for you.

[39:41](#) Also complex shape drawing - scaling, rotating, want to have the ability to draw arrows, ellipses...

[39:46](#) ...and also work with existing shapes that you can draw on the map, scale and rotate those as...

[39:50](#) ...you would any other markup graphics.

[39:54](#) So that pretty much wraps up our Silverlight/WPF story.

[39:56](#) What's nice about this is it goes right into our ArcGIS for Windows Phone story.

[40:00](#) ArcGIS for Windows Phone, the development environment for ArcGIS for Windows Phone is Silverlight.

[40:05](#) And so we can take our Silverlight API, we can take the functionality there, and we can reuse a lot of that...

[40:10](#) ...within our Silverlight, within our Windows Phone API, and then leverage that when building an application.

[40:16](#) We've done both. We're creating an application that's going to be available to download within the Marketplace...

[40:22](#) ...the Zune Marketplace, essentially.

[40:24](#) This will be available probably in December.

[40:27](#) Likely in December, in about a month or so.

[40:31](#) This will be built on top of our ArcGIS for API for Windows Phone.

[40:34](#) ArcGIS for API for Windows Phone is the developer experience for building...

[40:36](#) ...Windows Phone-based applications.

[40:42](#) The capabilities of the Windows Phone application are going to be similar to what you would expect...

[40:46](#) ...with an ArcGIS.com-based application.

[40:48](#) Have the ability to browse and search map galleries or maps that are available on ArcGIS.com.

[40:52](#) We can work with on-premises data via web maps that are hosted in ArcGIS.com.

[40:59](#) We can search by using a place-name search within the application.

[41:02](#) We can identify locations or features that happen to be present within a web map.

[41:06](#) We also have the ability to measure distance and area and, a pivotal piece here, the ability to edit data.

41:12 We can collect and we can edit existing data. It's going to be part of the out-of-the-box experience with the application.

41:19 We'll take a look at that application here shortly.

41:22 Art's going to demo that right at the end.

41:24 Now, back to the ArcGIS API for Windows Phone, this just reiterates that we're targeting the...

41:30 ...ArcGIS Silverlight API, the same source code. We're just building it to a different platform.

41:35 We're building it for the Silverlight off our Windows Phone platform, but we're sharing the same source code.

41:40 So a lot of the same functionality that we have in our Silverlight and WPF API, we have in our Windows Phone API.

41:45 It's baked in.

41:47 There's one key here, and that is that we have a different toolkit.

41:50 We actually, we had a release candidate this morning go out for 2.1, and in that release candidate...

41:56 ...one of the new features there was our toolkit.

41:58 So we're going to have a toolkit, it'll have a legend, it'll have an info...

42:01 ...window, we'll have a child page.

42:03 It'll essentially be designed to enhance the user experience, the developer experience...

42:09 ...and the user experience, for Windows Phone developers, so that's new.

42:17 Obviously as part of our Windows Phone support, we wanted to add in this touch-enabled experience...

42:23 ...on a set of our controls.

42:24 And that, because we have the same source code, we could share across different platforms.

42:28 So we're handling a variety of different gestures, such as tap or double-tap, drag, or touch and hold.

42:34 We're handling these gestures within all of our APIs depending upon which platform we're working with, right?

42:39 But we're handling it so that you have a consistent experience, so that a touch and hold has a...

42:43 ...consistent experience whether you're working on the WinPhone 7 platform, Silverlight, .NET, or .NET, actually.

[42:49](#) So, we've built in an abstraction layer there that allows you to work within a consistent environment...

[42:55](#) ...for the touch-enabled controls.

[42:57](#) As I mentioned before, the application will be available at the Marketplace; the API right now is...

[43:01](#) ...on the resource center.

[43:03](#) Let's just take a quick look at the resource center.

[43:12](#) What we do have here is, this'll look very similar to the ArcGIS Silverlight/WPF API, but here we actually provide...

[43:21](#) ...both an application, links to and discussion on the application as well as the API.

[43:26](#) So it's ArcGIS for Windows Phone.

[43:27](#) From here we can actually get to conceptual discussion that walks through the process of...

[43:32](#) ...what you need to get started, how to get the tools, what you do after you install those tools...

[43:37](#) ...to build your first Windows Phone application.

[43:40](#) We have a similar experience here with our interactive SDK.

[43:43](#) Now, this is actually skinned to look like...it's actually a Silverlight application that you can't download...

[43:49](#) ...but...it's a Silverlight application, but it's skinned to look like a Windows phone...

[43:57](#) ...because we want that interactive experience without having to download the tools...

[44:00](#) ...and work with Visual Studio to actually see the SDK.

[44:02](#) So this way what you can do is you can get an interactive experience on the web, in your browser...

[44:06](#) ...without actually getting the product and installing all the tools.

[44:10](#) You can actually see what it would look like if your were using our API.

[44:13](#) So we have the ability to interact with the map component as it would look like on a phone...

[44:20](#) ...we can scale this in and out, we can actually download the SDK.

[44:23](#) If we want to, we can actually see the SDK that's built against the WinPhone platform.

[44:28](#) We can also, from here, we can copy and paste code, whether it's the markup or it's...

[44:32](#) ...the code behind, all that's available, and this is all available on the web...

[44:35](#) ...you don't actually have to go get any of the tools; you can just get access to this right now

and see it and use it.

[44:44](#) There we go.

[44:46](#) I think we're going to run out of time here shortly.

[44:47](#) So let me bounce back over to the slides. Great.

[44:53](#) So we can see a lot of information there.

[44:54](#) You're obviously going to get linked out to the forums, which is a great place to interact with our...

[44:58](#) ...development team on how to get up and running with applications.

[45:01](#) Our blog is a good location for going to get maybe current information about the APIs and the release schedule...

[45:07](#) ...feature functionality, or any of the capabilities that are baked in.

[45:14](#) Let's take a look at the application.

[45:17](#) So Art has a Windows Phone, and he's going to demonstrate the ArcGIS application for Windows Phone.

[45:30](#) Okay, can you hear me? Okay.

[45:33](#) So, what I have here is a release version of the Windows Phone, it's an LG device.

[45:38](#) And for those who haven't seen it, this is the main screen, and on the main screen, I've penned a couple of tiles to it.

[45:45](#) First is that ArcGIS SDK, which Rex just showed you, and he bounces that really quick just to show that...

[45:52](#) ...in fact, you have the same exact SDK available that Rex was showing you, including some of the...

[46:01](#) ...nice support that Rex was showing you earlier.

[46:04](#) Let me bounce back out.

[46:07](#) And, of course, we have an Esri application, and this will be soon made available in the marketplace.

[46:14](#) We believe we're going to submit it to the marketplace around November, before Thanksgiving...

[46:19](#) ...and then it takes a certain number of days to get out the final, so...

[46:24](#) Anyway, what I have here, since I've already started this application once, it remembers where I left off...

[46:29](#) ...I loaded up the community basemaps, and the community basemaps are simply there.

46:34 I have a number of options available to me, some on the app bar, some in the context menu itself...

46:39 ...including settings, from which I can define my ArcGIS.com login information. Go back.

46:49 I can also find maps within ArcGIS Online, at which point right here, it'll start me up again...

46:56 ...because it remembered where I was in featured content, and as soon as the Internet comes back...

47:01 ...it will show me some of the featured content there and of course, I can switch out to other things...

47:08 ...for instance, the most popular, and it will go back out and reload information that was based on most popular items.

47:16 I can search, or I can just go right back to my map and I can start working on my map.

47:21 There's a number of other features in here but again, because of our timeline, I may have to hold.

47:26 During our social, I can actually take the time and show you the Windows Phone in its entirety.

47:32 Rex?

47:33 Great. Thanks, Art.

47:38 All right, guys.

47:39 So, in order to wrap up, we saw earlier that Esri is the leader in GIS and so they're driving on many frontiers...

47:46 ...in different platforms, Silverlight/WPF and Windows Phone and SharePoint are just a couple of those.

47:52 We provide here is a different way to visualize your data, depending upon which platform you decide to...

47:56 ...build against or which application you decide to build with.

48:00 We saw all that demonstrated here.

48:02 All of this is available for download.

48:04 If you go to our resource center right now, you can get every one...

1:10:56 How does that actually apply?