Silverlight and the Dynamic Language Runtime

Agenda

- Silverlight Overview
  - Hello World
  - Features
  - Great Apps!
- Dynamic Language Runtime
  - Hello DLR World
  - Under The Hood

Hello, World!

demo

XAML

- XAML = eXtensible Application Markup Language
- Flexible XML document schema
  - Examples: WPF, Silverlight, Workflow Foundation
- More compact than code
- Enables rich tooling support
  - While still preserving good readability and hand-coding within text editors

XAML

```
<TextBlock FontSize="32" Text="Hello
world" />
```

=

```
TextBlock t = new TextBlock();
t.FontSize = 32;
t.Text = "Hello world";
```

Silverlight 2 Runtime Features

- 2D, Graphics
- Audio, Video
- Animations
- Text, Text Input*
- Controls*
- Layout*
- Styles/Templates*
- Data Binding*
- Networking
  - HTTP/S and Sockets*

- .NET Support*
  - C# and VB.NET*
- LINQ*
- XML APIs*
- Generics*
- HTML Integration*
  - JSON Serializer
- Local storage*
- Crypto APIs (AES)*
- Threading*

* New in Silverlight 2

Silverlight 2 SDK Libraries

- Dynamic Languages*
  - JScript
  - IronRuby
  - IronPython
- Additional Controls*
- LINQ for XML*
- XML Serialization*
- Syndication APIs (RSS)*

* New in Silverlight 2

Silverlight Roadmap

- Silverlight V1 Shipped Late '07
- Silverlight V2
  - March 5th   Beta 1 (non-commercial go-live)
  - Mid '08:   Beta 2 (go live)
- Tools
  - Expression Suite and Visual Studio updates for all public Silverlight releases
  - Visual Studio Designer support (Cider) later this year

Demo Exploring

because we don't have the time to build it ourselves

demo

Custom Controls & Components

- .NET programming model brings componentization and reuse to Silverlight
  - Custom XAML elements can be created using .NET inheritance
  - Layout engine can also be extended
  - WPF attached property model allows existing components to learn new tricks
  - Classes can be used to encapsulate common functionality

Silverlight Sandbox

- Silverlight lives in the browser Sandbox
- Developers <u>cannot</u> extend the sandbox
- Silverlight extends in a secure way
  - Local storage (isolated storage)
    - Similar to cookies
  - FileOpen dialog
  - Sockets
    - Beta 1: Site of origin, port restrictions
  - Cross domain HTTP(S) requests
    - Support Silverlight and Subset of Flash policy files

HTML DOM Integration

- Silverlight apps are browser apps
- Interacting with the browser host is critical
  - Interact with and create HTML elements and script objects through .NET code
  - Expose .NET objects to javascript
- Gives access to common browser services
  - Alert
  - Browser history
  - Existing web app functionality

Local Storage

- Cookies on steroids
- Provides 10MB of app specific local storage
- Can be expanded per app by prompting the user
- Exposed through .NET IsolatedStorage APIs

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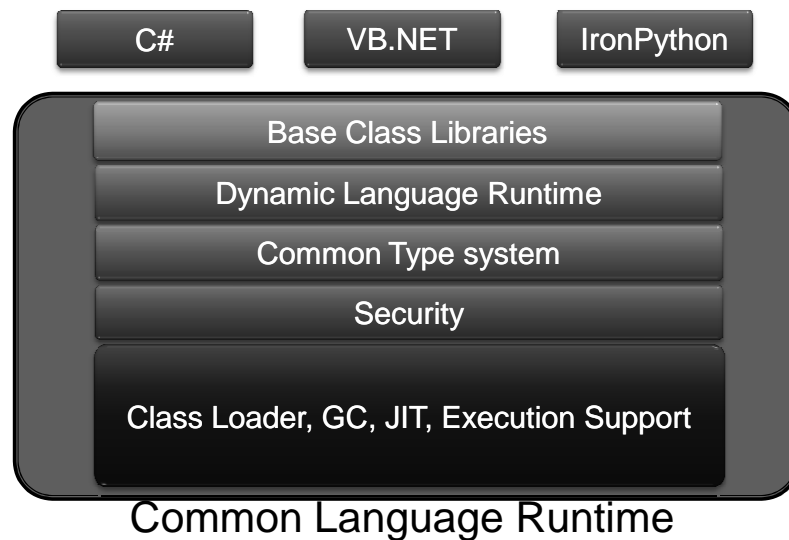 - Hello DLR World
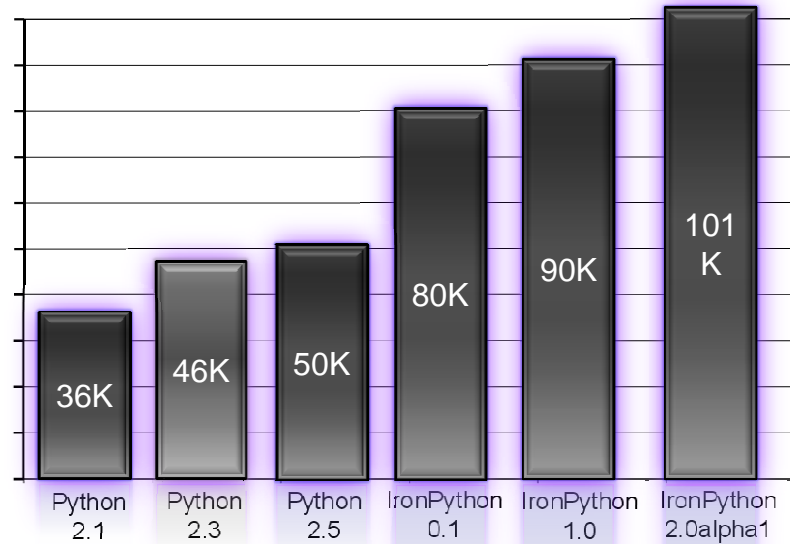 - Under The Hood

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Hello, DLR World!

demo

CLR Stack

| C# | VB.NET | … |

Base Class Libraries

Common Type System

Security

Class Loader, GC, JIT, Execution Support

Common Language Runtime

CLR Stack

C#	VB.NET	IronPython

Base Class Libraries

Dynamic Language Runtime

Common Type system

Security

Class Loader, GC, JIT, Execution Support

Common Language Runtime

DLR Pillars

- Compiler/Backend Framework
- Hosting API's
- IDE Experience

DLR Pillars

Bar chart:
- Python 2.1: 36K
- Python 2.3: 46K
- Python 2.5: 50K
- IronPython 0.1: 80K
- IronPython 1.0: 90K
- IronPython 2.0alpha1: 101K

Resources

- Silverlight:
  http://www.silverlight.net
- IronPython:
  http://www.codeplex.com/Wiki/View.aspx?ProjectName=IronPython
- IronRuby:
  http://www.ironruby.net
- Scott Gu's blog:
  http://weblogs.asp.net/scottgu