Microsoft: IronRuby, IronPython and the Dynamic Language Runtime

Nick Hodge
Professional Geek,
Microsoft Australia
@nickhodge
nhodge@microsoft.com
HAI
CAN HAS STDIO?
VISIBLE "HAI WORLD!"
KTHXBYE
I thout wurld dominashun wuld be bigger.
I haz...

...a happee.
Dynamic languages

- Love ‘em or Hate ‘em People are Using ‘em
- History
  - Visual Basic; implemented as Classic .asp
- Language / Framework tie in
  - PHP (Wordpress)
  - Ruby (Rails, Merb)
  - Javascript (DOM/Browser to jQuery et al)
The \{C|D\}LR

- DLR
  - Dynamic Dispatch
  - Statement Trees
  - Call Site Caching
- LINQ
  - Expression Trees
  - Extension Methods
  - Silverlight
- Fast Delegates
- Generics In Runtime
- Dynamic Methods
- JIT
- GC
- Reflection
- BCL
- Verifier Sandbox
- Dynamic Codegen

.NET 4.0
.NET 3.5
.NET 2.0
.NET 1.0

Joel Pobar
Dynamic Language Runtime (DLR)

IronPython  
IronRuby  
Boo, et al

Dynamic Language Runtime (DLR)

.NET 2.0 (CLR)  
CoreCLR

Silverlight 2.0

Windows  
Mac
Microsoft Public License (Ms-PL)

Submitted by nelson on Mon, 2007-10-15 19:23:

This license governs use of the accompanying software. If you use the software, you accept this license. If you do not accept the license, do not use the software.

1. Definitions
   The terms "reproduce," "reproduction," "derivative works," and "distribution" have the same meaning here as under U.S. copyright law.
   A "contribution" is the original software, or any additions or changes to the software.
   A "contributor" is any person that distributes its contribution under this license.
   "Licensed patents" are a contributor's patent claims that read directly on its contribution.

2. Grant of Rights
   (A) Copyright Grant- Subject to the terms of this license, including the license conditions and limitations in section 3, each contributor grants you a non-exclusive, worldwide, royalty-free copyright license to reproduce its contribution, prepare
Cats and Dogs Living Together

Good doggie!
Open Source = Consequences

- IronPython
- IronRuby
- Dynamic Language Runtime (DLR)
- ECMA 334/335 CLI (eg: Mono)
- Moonlight2CoreCLR
- Moonlight
- Firefox (et al)
- Linux (et al)

MsPL

Open Source
Why Iron*?
Inspiration

• How could Microsoft have screwed up so badly that the CLR is far worse than the JVM for dynamic languages?
  – Jython shows that dynamic languages can run well on the JVM

• **Jim Hugunin** decided to write a short pithy paper called, “Why .NET is a terrible platform for dynamic languages”
  – 2003

• **2007**: John Lam (.NET → MRI)
Dynamic Language Runtime

• Abstracted framework for implementing a dynamic language on .NET/CLR

• Back-end compilers

• Dynamic operations on Objects

• Common Hosting of Languages

• Building your own language with DLR + ANTLR3
  – http://www.bitwisemag.com/2/DLR-Build-Your-Own-Language
  – Dermot Hogan. My tiny mind has assploded

• Check out: **Ironic**: Script.NET, Lua
  – http://codeplex.com/irony
It’s on Codeplex

- IronPython, IronRuby
  - http://codeplex.com/ironpython
  - http://ironruby.net/

- Codeplex == TFS “in the cloud” 😊

- Core V1 components – Trees, Sites, Binders
  - Will ship in .NET Framework 4.0
  - Basis for C# 4.0’s dynamic

- Future pieces are also available today
  - Microsoft.Scripting.dll


- (IronRuby is in github)
Language Specifications

• Ruby
  – Notorious for no formal specification
  – RubySpec: now used by MRI, JRuby, IronRuby...

• Python
  – New movement in recent 6 weeks
Languages on the DLR

- Groovy (yes, Java scripting!)
- Nua (Lua)
- IronScheme
- Phalanger (PHP on CLR/DLR)
- Basic Basic and Basic Javascript (egs)
IronPython is the code name for the new implementation of the Python programming language running on .NET. It supports an interactive console with fully dynamic compilation. It is well integrated with the rest of the .NET Framework and makes all .NET libraries easily available to Python programmers, while maintaining full compatibility with the Python language.
IronPython Roadmap

IPy 1.0
- Shipped Sept. 2006
- v2.4 language compatibility
- 27/54 built-in modules

IPy 1.1
- Shipped April 2007
- Limited v2.5 language features
- More Modules
- Top user issues
- VS Integration (VSX sample)

IPy 2.0
- Current Focus
- Fall 2008
- v2.5 language compatibility
- Built on DLR
- More modules
- Top User Issues

IPy 2.6
- Alpha Released
- H1 2009
- v2.6 language compatibility
- Productize VS integration
- Support for next version of VS

IPy 3.0
- In Planning
- H2 2009?
- Python 3000 language compatibility
- Support for next version of VS
IronRuby Roadmap

IronRuby 0.3
- Now

IronRuby 1.0
- Targetting mid ’09
- Ruby on Rails

http://ironruby.net/
Microsoft: IronRuby, IronPython and the Dynamic Language Runtime

Nick Hodge
Professional Geek,
Microsoft Australia
@nickhodge
nhodge@microsoft.com