

DEV315

IronPython and Dynamic Languages on .NET

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Session Objectives and Agenda

Background and Roadmap

Demo COM, Sho, Powershell etc.

Demo XNA; talk about Robotics

Demo Web FX: Silverlight and ASP.NET

Summary

Why Python?

- *"Python plays a key role in our production pipeline. Without it a project the size of Star Wars: Episode II would have been very difficult to pull off. From crowd rendering to batch processing to compositing, Python binds all things together,"*
 - Tommy Burnette, Senior Technical Director, Industrial Light & Magic.
- *"What language is BitTorrent written in? Python."*
 - BitTorrent FAQ
- *"Python, like many good technologies, soon spreads virally throughout your development team and finds its way into all sorts of applications and tools...Python scripts are used in many areas of the game."*
 - Mustafa Thamer, Civilization IV development team
- *"Python has been an important part of Google since the beginning, and remains so as the system grows and evolves. Today dozens of Google engineers use Python, and we're looking for more people with skills in this language."*
 - Peter Norvig, director of search quality at Google

IronPython's Dual Goals

- True Python Implementation
 - Interactive and dynamic experience
 - Existing programmer knowledge and code
 - Rich set of libraries
 - Run existing regression tests and code
- Seamless integration with .NET
 - Consume .NET libraries and run inside .NET hosts
 - Interoperate with other .NET languages
 - Exploit .NET infrastructure
 - Visual Studio, debugger, profiler, JIT, GC, ...
 - Let **other** people do our work

Rough Roadmap

IronPython 1.0

- Sept. 2006
- 2.4 language
- 27/54 builtin modules

IronPython 1.1

- April 2007
- 2.4 language
 - Partial 2.5 support
- More modules
- Top user issues

IronPython 2.0

- Early 2008
- 2.5 language
- More modules
- Internal architecture work

IronPython 3.0

- Early 2009
- 3.0 language?
- More modules
- TBD

IronPython 1.1

- 1.1 is a small release to address top user issues
 - 1.1 beta 1 released Wednesday, February 21
- More modules
 - md5, sha, select, and array
 - plus lots of bug fixes to datetime
- More Python 2.5 features (w/ -X:Python25)
 - unified try/except/finally
 - yield from finally support
 - Many other features already in 1.0
- Usability features
 - Better doc comments for .NET libraries
 - Faster load times for importing Python code
- More little bug fixes

Being Python...

- Language

- 2.4 today, 2.5 in the next major release
- 3.0 is the next plan, but that's still a little up in the air

- Libraries

- Python-based libraries should just work
 - Except for dependencies on C-based libraries
- C-based libraries need a porting job
 - More and more over time

- Community

- Microsoft accepted into PSF as a member
- Active mailing list with users helping each other
- FePy sourceforge project

FePy and IPCE

- Sourceforge project led by Seo Sanghyeon
- “FePy project aims to provide enhancements and add-ons for IronPython”
- IronPython Community Edition (IPCE)
 - Files under Src/ are licensed under [Shared Source License for IronPython](#).
 - Files under Lib/ are licensed under [Python Software Foundation License Version 2](#), except the following:
 - ctypes, hashlib, md5, pyexpat, select, sha, site, socket, ssl, unicodedata, wsgi, zlib modules are part of FePy library
 - MySQLdb, dbapi, odbc, pycopg, sqlclient, sqlite, sqlite3 modules are part of FePy DB-API library
 - FePy library and FePy DB-API library are licensed under [MIT License](#).
 - Files under Lib/elementtree are licensed under [ElementTree License](#).
 - Files under Lib/Crypto are licensed under [Python Cryptography Toolkit License](#).
 - Files under Lib/paramiko are licensed under [GNU Lesser General Public License](#).
Click the link for the exact terms

Pystones/second Getting Faster with No Work

- Venerable benchmark

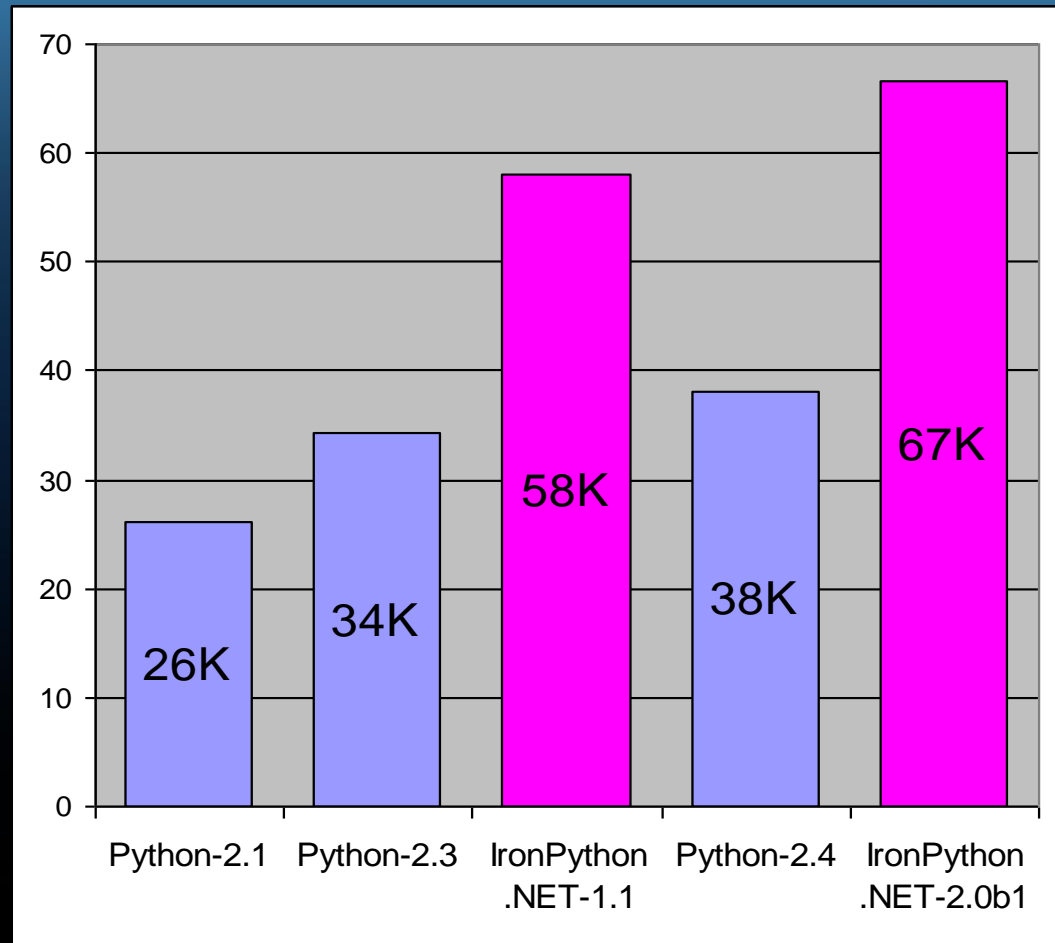
- dhrystone in Python
- in Lib/test/pystone.py
- only benchmark that ships with Python

- Simple but non-trivial

- ~200 lines of code
- Most basic Python ops
- Very little OO

- IronPython is fast

- 1.7x faster than CPython-2.3 running on .Net-1.1
- 2x faster than CPython-2.3 running on .Net-2.0
- 1.8x faster than CPython-2.4 running on .Net-2.0





Game Studio Express
your world. your game.



- A framework for building 2d and 3d games
 - Clearly not the world's first...
- Targets Windows and XBox 360
 - Free for Windows, \$100/year to run on 360
 - Encouraging hobbyist game builder community
 - Security and type-safety is vital for hobbyist games
 - Let's you comfortably run other's games without virus risk
- Focus is on C# as development language
 - This is a dramatic step away from C++
- What if I don't want to use C#?



Game Studio Express
your world. your game.



- One minor and one major issue
 - Content pipeline is hard to extend with Python
 - Custom 3d model format converters require some C#
 - “Custom attribute” static type issue...
 - IronPython won't run on .NET Compact Framework
 - This means Python games won't run on 360
 - Also means IronPython can't run on Windows Mobile ☹
- We've got more work to do...

Microsoft Robotics Studio



IronPython with ASP.NET

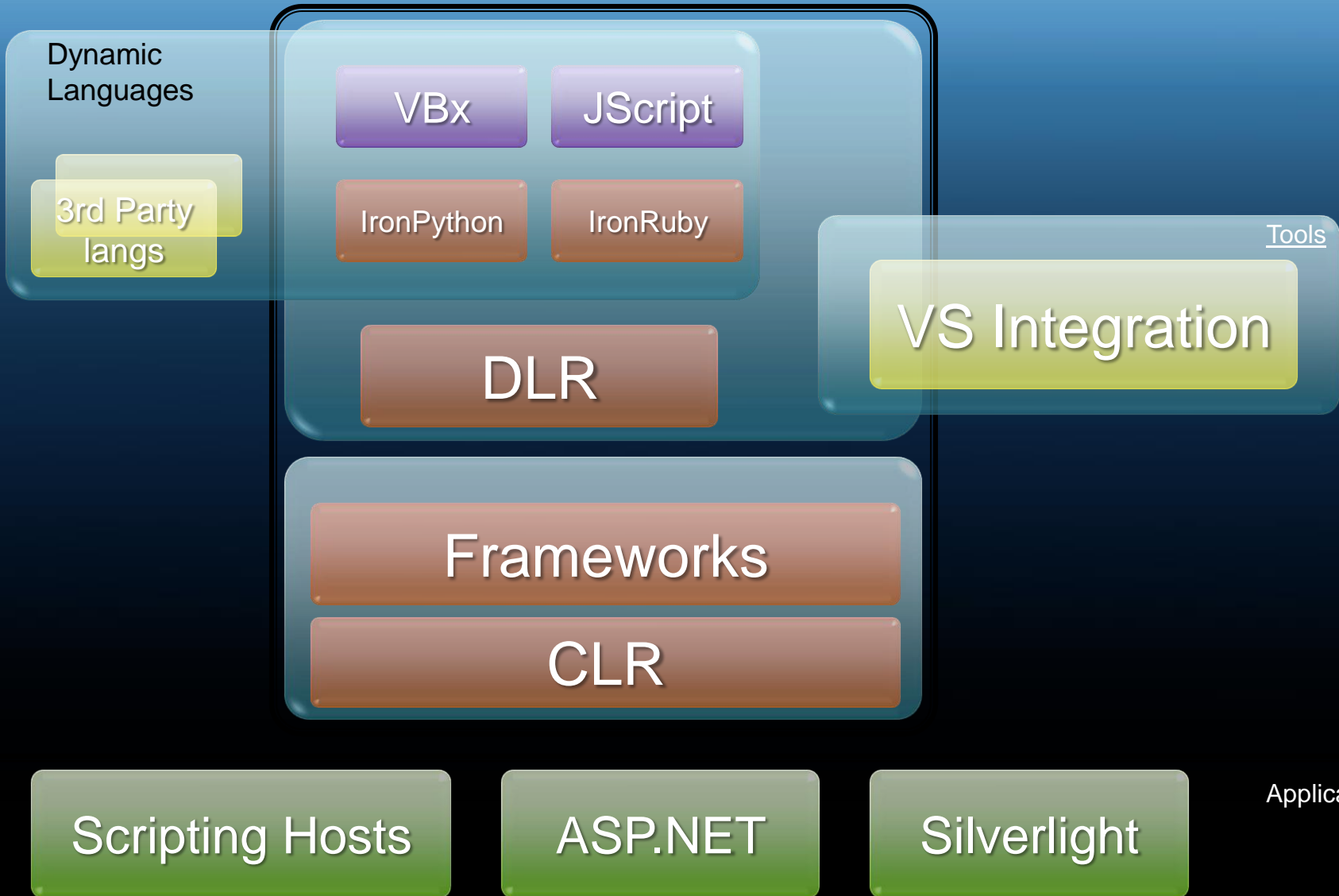
- Adds new language choice for ASP.NET
- Marriage of best of breed technologies
 - Bring IronPython & dynamic languages to ASP.NET
 - Bring the best Web framework (ASP.NET) to IronPython
- CTP:
 - www.asp.net/downloads/futures

IronPython for ASP.NET

IronPython

ASP.NET

Dynamic Languages Initiative



Summary & Resources


blogs.msdn.com/ironpython

Dynamic Languages Initiative, IronPython Samples
codeplex.com/ironpython

Silverlight
silverlight.net and codeplex.com/dynamicsilverlight

ASP.NET
asp.net/downloads/futures

Web Services
blogs.msdn.com/dmitryr



Q&A

Related Content

Breakout Sessions

[Web 324](#) Dynamic Languages on the Web

Chalk-Talks

[WEB06-TLC](#) Developing Data Driven Applications Using the New Dynamic Data Controls in ASP.NET

Resources

Technical Communities, Webcasts, Blogs, Chats & User Groups

- <http://www.asp.net/downloads/futures>
- www.codeplex.com/ironpython
- [Blogs.msdn.com/ironpython](http://blogs.msdn.com/ironpython)
- www.iunknown.com (John Lam's blog)
- <http://blogs.msdn.com/huginin/> (Jim Huginin's DLR blog)

Mix07 Talks <http://sessions.visitmix.com/>

- [Mahesh and Polita's Dynamic Data controls talk](#)
- [Jim and John DLR/SL talk](#)

Resources

Technical Communities, Webcasts, Blogs, Chats & User Groups

<http://www.microsoft.com/communities/default.aspx>

Microsoft Learning and Certification

<http://www.microsoft.com/learning/default.aspx>

Microsoft Developer Network (MSDN) & TechNet

<http://microsoft.com/msdn>

<http://microsoft.com/technet>

Trial Software and Virtual Labs

<http://www.microsoft.com/technet/downloads/trials/default.aspx>



Links:

Scott Guthrie on Channel 9 - <http://channel9.msdn.com/showpost.aspx?postid=304508>

Silverlight Developer Center - <http://msdn2.microsoft.com/en-us/silverlight/default.aspx>

Silverlight Alpha 1.1 SDK - <http://msdn.microsoft.com/vstudio/eula.aspx?id=c8bf88e7-841c-43fd-c63d-379943617f36>

Microsoft®
Silverlight™

Microsoft[®]

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