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Python and .NET

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www.realimage.com

What you can expect?

- What is .NET?
- How can I use Python with .NET?
- Are there any benefits in using Python with .NET?

.NET is basically a runtime and a set of class libraries

Windows Programming with C

```
HWND CreateWindow(LPCTSTR lpClassName,
    LPCTSTR lpWindowName,
    DWORD dwStyle,
    int x,
    int y,
    int nWidth,
    int nHeight,
    HWND hWndParent,
    HMENU hMenu,
    HINSTANCE hInstance,
    LPVOID lpParam
);
```

Windows Programming with .NET/C#

```
using System;
using System.Windows.Forms;

class Program
{
    static void Main()
    {
        Form myForm = new Form();
        myForm.ShowDialog();
    }
}
```

So, .NET simplifies a lot for Windows application developers.

Not only that, but .NET also provides interoperability between different programming languages.

So, libraries written in one language could be consumed in another language.

All .NET language compilers (C++, C#, VB) emit CIL instead of native machine code.

CIL == Common Intermediate Language

The .NET's runtime (CLR) understands and executes only CIL.

CLR == Common Language Runtime

Much like how we have a C++ or C# compiler for .NET, we now have a Python interpreter for .NET

IronPython

A fast Python implementation for .NET and ECMA/CLI

IronPython is a bridge between Python and the .NET world.

http://www.flickr.com/photos/deepakdk/3926663872/

Setting up IronPython

- Get it from: http://ironpython.codeplex.com/
- IronPython 2.6 RC-1 is the latest.
- IronPython 2.6 complies with CPython 2.6

Setting up the development environment

- Get Eclipse from www.eclipse.org
- Install Eclipse plugin for Python development - PyDev from http://pydev.org/updates
- Eclipse offers code completion, refactoring, debugging and time for coffee.

Demo Time

(I am bored of talking)

IronPython – Behind the scenes

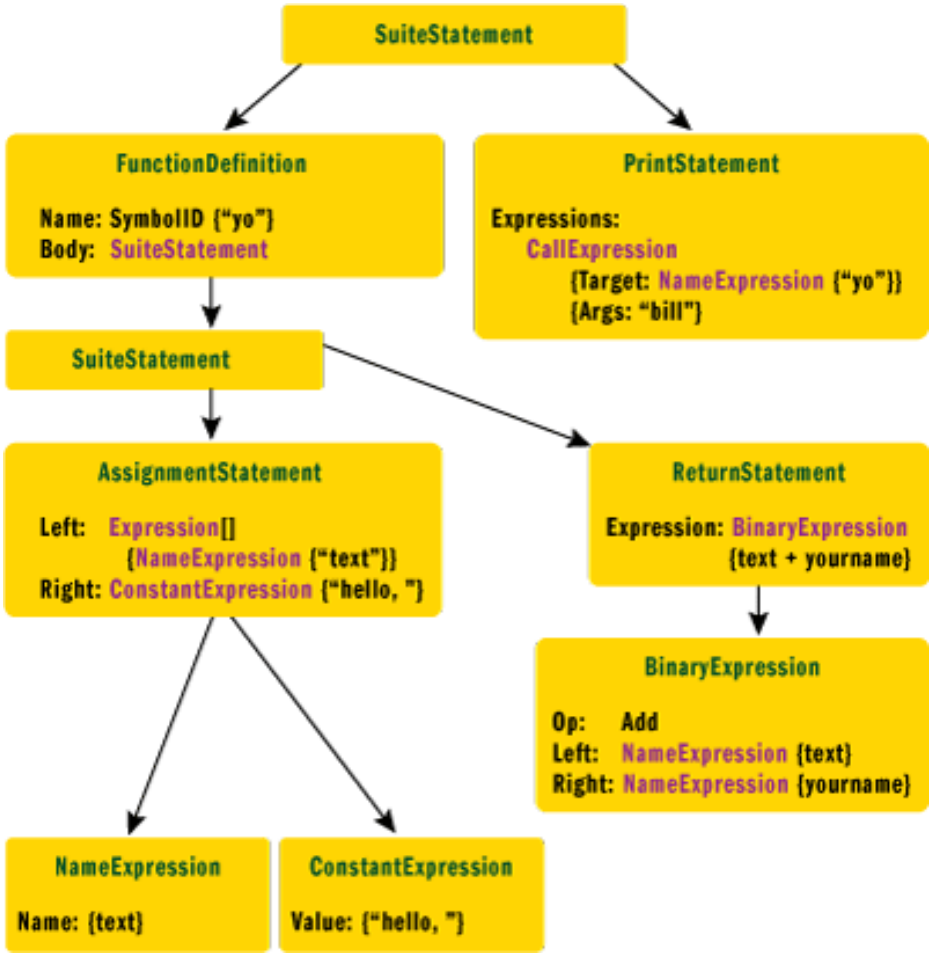
http://www.flickr.com/photos/yuradjalins/2099782447/

.NET’s runtime (CLR) was meant for statically typed languages

So, DLR was invented to support dynamically typed languages on the .NET CLR.

DLR == Dynamic Language Runtime

IronPython hands out an Abstract Syntax Tree (AST) to the DLR



DLR dynamically generates the CIL for the nodes in the AST

DLR simplifies a lot of tasks for dynamic programming language implementers

DLR + CLR == better performance for Python

References

- IronPython performance report: http://ironpython.codeplex.com/Wiki/View.aspx?title=IP26RC1VsCPy26Perf&referringTitle=Home

- DLR: http://www.codeplex.com/dlr

No more slides!

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