Introduction to Mono

- Introduction
  - Who am I?
    - Ben Rousch
    - Manager of Information Systems
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  - What's this about?
    - Introduction to Mono
    - Cross-platform (Linux, Windows, OSX) development using MonoDevelop
    - Next Month: Cross-platform GUI development using Mono, MonoDevelop, and GTK#

What is .NET?

- A software framework created by Microsoft

- Provides a Common Language Runtime, similar to Sun's Java Virtual Machine

- Provides a large library of useful programming features, such as garbage collection, a GUI widget set (winforms), and multiple language support

- Microsoft's implementation only runs on Windows

What is Mono?

- A project led by Novell to create an open source implementation of the .NET specification

- Currently (as of Mono 2.2) implements all of the .NET2 features and a few of the .NET3 features.

- Runs on Linux, OSX, and Windows

Why do we care?

- Mono allows a program that is written in compliance with the .NET2 specification to run on Linux, OSX, and Windows without recompiling.

- Yes, that's correct. Write once, run anywhere.[*]

- *For certain narrow definitions of "anywhere"*

Is Mono a Trap?

- Historically, Microsoft has not played well with the open source community. Why would they allow something like Mono to exist?

- Some parts of .NET may be patented by Microsoft. Could they crush Mono and sue developers using those patents?

- What do open source leaders think about Mono?

Is Mono a Trap?

Richard Stallman: *"Mono is a free implementation of Microsoft's language C#. Microsoft has declared itself our enemy and we know that Microsoft is getting patents on some features of C#. So I think it's dangerous to use C#, and it may be dangerous to use Mono. There's nothing wrong with Mono. Mono is a free implementation of a language that users use. It's good to provide free implementations. We should have free implementations of every language. But, depending on it is dangerous, and we better not do that."*[1]

Is Mono a Trap?

Linus Torvalds (on Microsoft and Patents): *"Another reason why I don't think Microsoft really seriously would go after patents is when you're a convicted monopolist in the marketplace you really should not be suing your competitors over patents. I think that most Microsoft lawyers would say, "You know, let's not do that; that sounds insane."* [2]

Is Mono a Trap?

Mark Shuttleworth: *"At this stage we see no significant issues with patents and Mono. There is a risk of a patent claim against almost any component of Ubuntu - across every jurisdiction in which Ubuntu ships, the patent minefield is too complex. Our view is that we can deal with patent suits if they arise, by removing or re-engineering the relevant components."* [3]

Is Mono a Trap?

The Wikipedia page for Mono sums up my opinion well: *"The base technologies submitted to the ECMA, and therefore also the Unix/GNOME-specific parts, may be non-problematic. The concerns primarily relate to technologies developed by Microsoft on top of the .NET Framework, such as ASP.NET, ADO.NET and Windows Forms (see Non standardized namespaces), i.e. parts composing Mono's Windows compatibility stack. These technologies are today not fully implemented in Mono and not required for developing Mono-applications."* [4]

Free Mono-compatible IDEs

- On Windows:
    - Microsoft Visual Studio Express (compile for .NET2)
    - SharpDevelop (compile for .NET2)
- On OSX:
    - MonoDevelop 2 (currently in Alpha2)
- On Linux:
    - MonoDevelop

Hello World (MonoDevelop)

- Create the Project:
    1. File → New Solution
    2. C# → Console Project
    3. Name: HelloWorld
- Compile the Project:
    1. Project → Build Solution
- Run the Project in Monodevelop:
    1. Project → Run

Packaging

- Create a package for each operating system:
  1. Project → Create Package
  2. Archive of Binaries
  3. Check the Solution and Project
  4. Select Linux (tar.gz) or Windows (.zip) as target platform
  5. Check "Save Configuration in Solution"
  6. Create New or Save to Existing Packaging Project
  7. Project → Build Packages

Cross-Platform Demo

- The same HelloWorld executable can be run on Linux, Windows, and OSX using Mono

Free Software

- Mono: http://www.mono-project.com

- Monodevelop: http://monodevelop.com/

- SharpDevelop: http://www.icsharpcode.net/OpenSource/SD/

- MS Visual Studio: http://www.microsoft.com/Express/

Sources

- [1] http://fsfeurope.org/documents/rms-fs-2006-03-09.en.html#q1

- [2] http://linux-foundation.org/weblogs/openvoices/linus-torvalds-part-ii/

- [3] http://boycottnovell.com/2008/02/22/mark-shuttleworth-on-patents/

- [4] http://en.wikipedia.org/wiki/Mono_(software)#Mono_and_Microsoft.E2.80.99s_patents