Xamarin
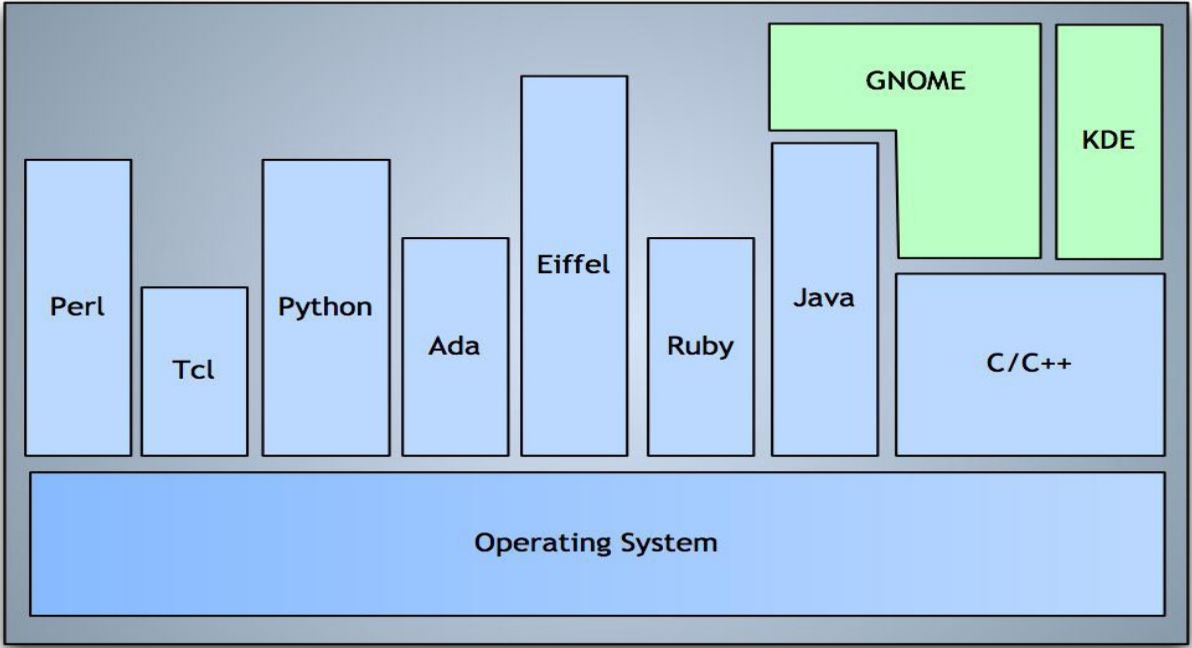
The Mono Project

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What is a development platform?

- Programming language(s)

- (Class) libraries

- Tools (compilers/linker, debugger, profiler, [interpreter], IDE)

- Runtime (virtual machine)

- Documentation

- Ecosystem of applications/developers

What is .NET?

- A development platform 1st introduced by Microsoft

- Multi-language (C#, F#, VB.NET, …)

- Common Language Runtime (CLR)

- Available for Windows and Windows Phone

- ECMA standard
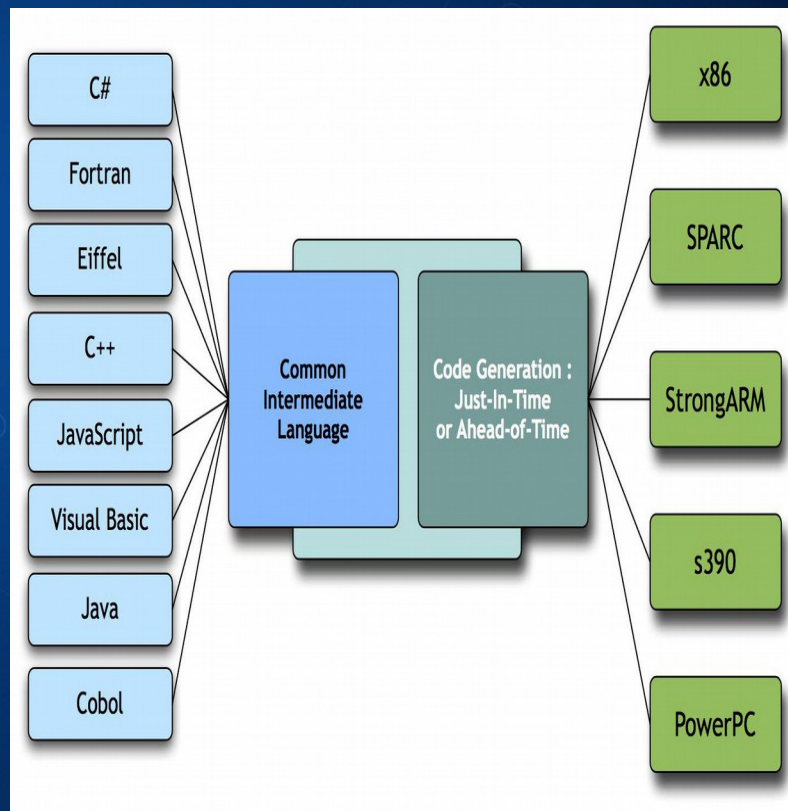
.NET features

- Common Language Runtime (CLR)

- Garbage collection

- Object oriented

- Easy interface with unmanaged code

- Reflection

- Simplified deployment

- Security

What is Mono?

- A free implementation of the .NET platform

- Created by Miguel de Icaza at Ximian to bring a modern development platform to Linux/GNOME

- Available today for Linux, Mac, Windows, Android, iOS, Xbox, …

- And several hardware platforms (x86, SPARC, PPC, ARM, Alpha, MIPS, …)

- A very active community

- Backed by Xamarin, Microsoft, IBM

Mono History

- Started in 2001 by Ximian Labs Team as an experiment

- Soon 1st version of the compiler was working

- Initial implementation of the huge class libraries

- ECMA standard up to C# 4.5/5.0

- Extended class libraries (GNOME, KDE, …)

What can I use it for?

- Command-line tools

- Desktop (Linux, Mac, Windows) apps

- Mobile apps (Xamarin.Android, Xamarin.iOS, Windows Phone)

- Websites/web services

- 3D/games

- Anything

C#

- Object oriented (OOP)

- Modern general-purpose programming language

- Includes everything you would expect in a modern language (Generics, events/properties, functional programming, lambdas, components)

F#

- Functional language

- Can access the whole .NET class library

- Perfect for data analysis

- But can be used for anything, contrary to popular belief (see https://github.com/dvdsgl/shallow for an iOS app written in F#)

Other languages

- VB.NET (forget about it)

- Boo, IronPython, IronRuby, IronLisp, Eiffel, Component Pascal, Nemerle

- C++/CLI (¿¿??)

- J# (Java), P# (Prolog), A# (Ada), Jscript.NET, L# (LISP)

- Anyone implementing the CLI

Class libraries

- All basic stuff (multithreading, collections, IO, XML, class/method attributes, security, networking)

- Data queries (LINQ, System.Data)

- System.Drawing/System.Media

- Reflection/remoting/runtime interaction

- Accessibility/localization

Tools

- Fully integrated IDE (MonoDevelop)

- Command line:

  - mcs -o program.exe program.cs (compiler)

  - mono program.exe (runtime)

  - Mono –profile=log:... program.exe (profiler)

  - Xbuild, msbuild

Cross platform features

- The world is cross-platform

- Conditional compilation

- PCLs/Shared projects for business logic sharing

- UI sharing (Xwt, Xamarin.Forms)

The future of .NET

- MS just open sourced a part of it (MIT license), and will continue doing so with other parts

- Creation of the .NET foundation

- Software market is multi-platform

- Mono adoption a big driver for this move

- Miguel de Icaza deserves many thanks for helping in this huge move for Microsoft

- Mono and .NET convergence?

Q&A

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