

.NET

Semaine 1
Introduction
Java vs C#

Objectifs du cours

- Comprendre les différences .NET et Java
 - Originalités
 - Avantages
- Etre capable de développer en .NET
 - Winforms
 - WPF
 - LINQ
 - WCF
- Pouvoir trouver des informations

Organisation du cours

- Pas de projet 😊
- Examen
 - Sur machine
 - Ecriture "bouts de code"
- Environnement : VS 2015 + Resharper
 - Chez vous : VS 2015 Community / Enterprise, Resharper (gratuit étudiant)

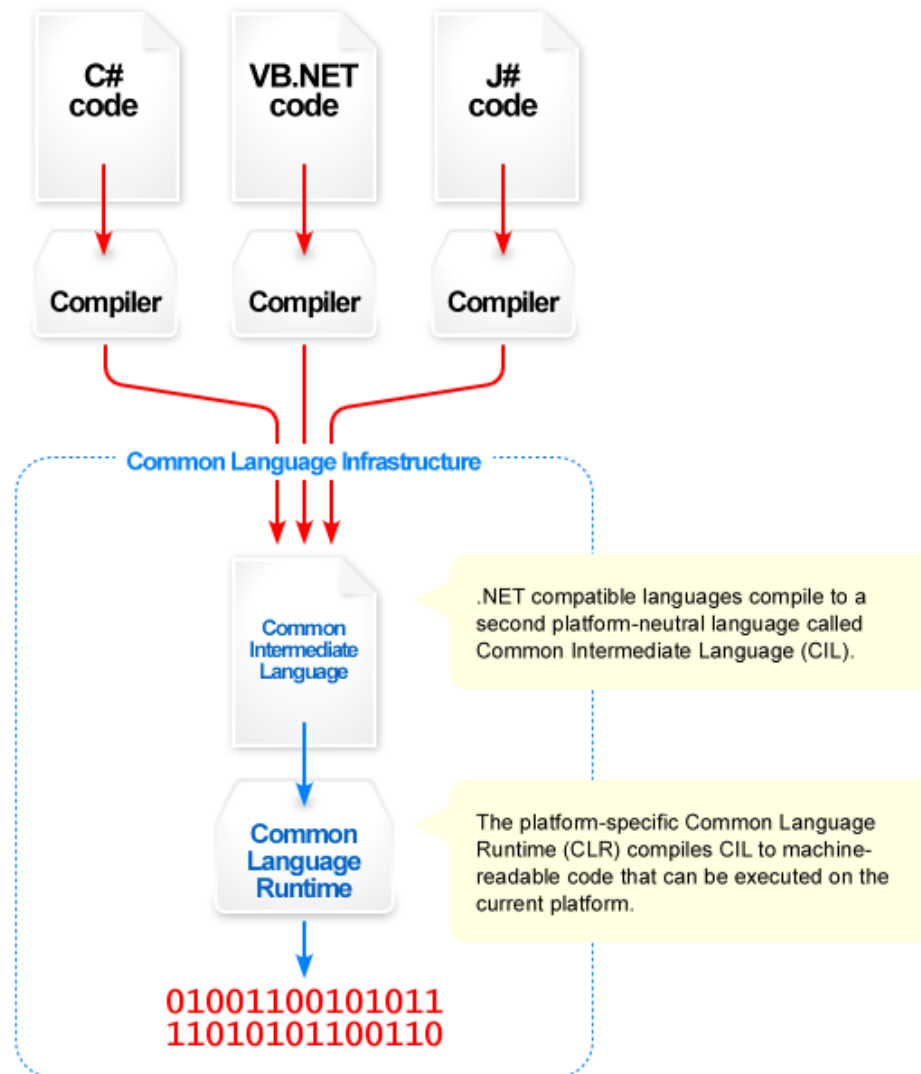
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- Java vs C#
- Windows Forms
- WPF - MVVM
- LINQ
- WCF

.NET c'est quoi ?

- Microsoft .NET
 - Ensemble de produits et de technologies informatiques de l'entreprise Microsoft
- Framework .NET
 - Permet de travailler dans un environnement dit « managé » :
 - Gestion de l'exécution des programmes grâce à une machine virtuelle (cf. dia suivante)
 - Gestion de l'allocation des ressources en mémoire
 - Langage C# fort similaire à Java

Machine virtuelle compatible CLI

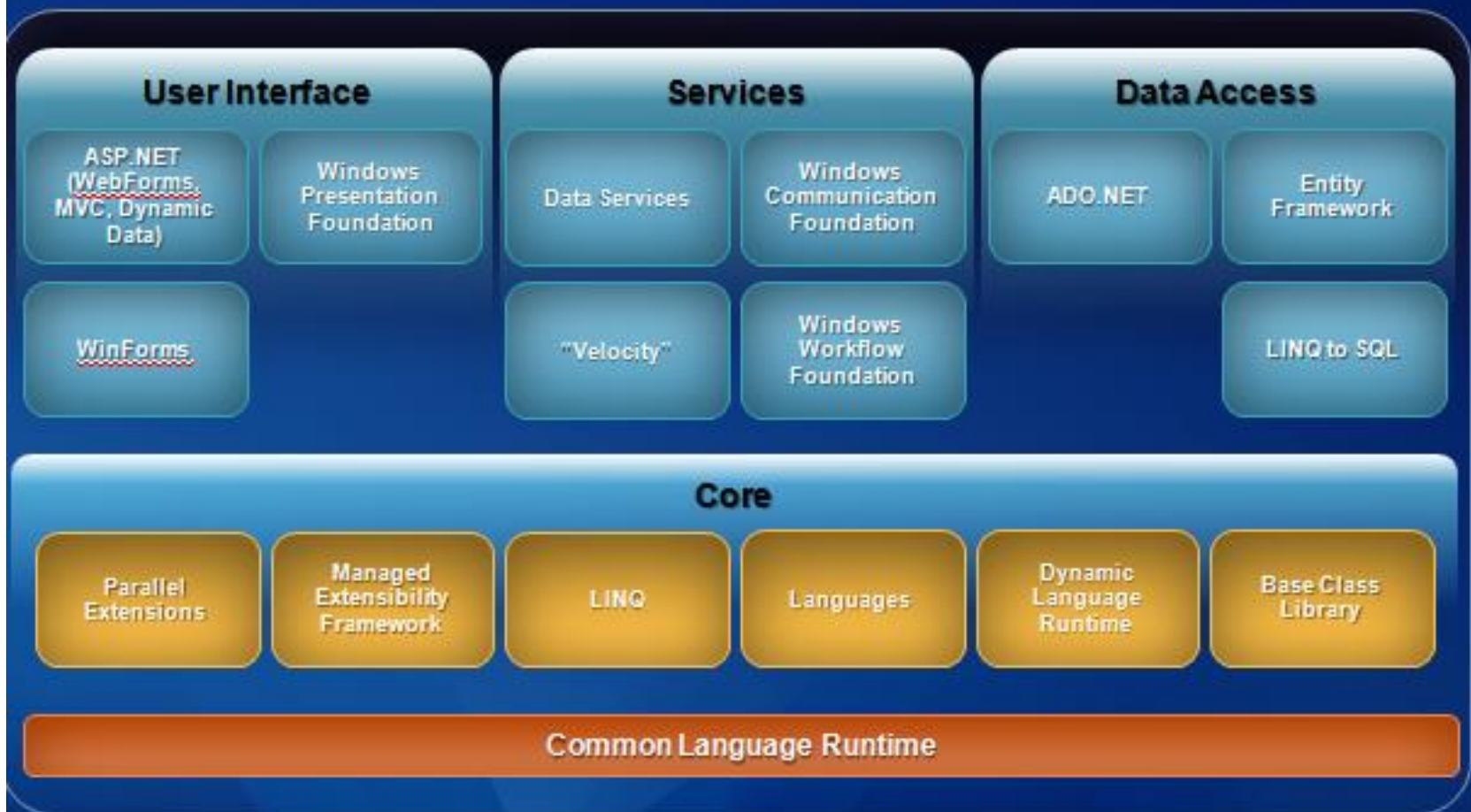


.NET en pratique

- Plateforme professionnelle pour les applications Windows ou Web
 - Windows 8 .. 10
 - Suite Office
- Xbox 360
- Mais pas seulement :
 - Mono ouvre une porte vers le multiplateforme
- Environnement très productif
 - Outils RAD intégrés dans Visual Studio 2015

Architecture .NET

.NET Framework 4.0



What's new in .NET Framework 4.5?

Windows Presentation Foundation

Built-in Ribbon controls ★
 Databinding improvements
 Ability to add breakpoints to databindings
 Data source change aware views (Live Shaping) ★
 Validation improvements ⚡
 Improved legacy UI integration
 Dispatcher improvements ⚡
 Speed-up of large data sets 📈

Windows 8 support ★

Support for
Windows Runtime (WinRT)

.NET Profile
for Metro-style apps

Improved support for sharing
DLLs between .NET profiles

ASP.NET

ASP.NET Web API -
a new framework for REST endpoints ★

Support for implementing
WebSocket receivers ★

Built-in JavaScript + CSS
combining and minification ★

Asynchronous pipeline support ⚡
(Response, Request, HttpHandlers)

ASP.NET MVC 4

Async controllers ⚡
 Built-in mobile templates +
jQuery.Mobile support

Alternate views (e.g.
print version, mobile site)

Support for Recipes:
intelligent codegen ★

ASP.NET Web Pages 2

New site templates
 Versatile validation support
 Support for OAuth and OpenID ★
 Built-in map embedding tools;
supports Google, Bing and others

Did you know? ASP.NET Web Pages is yet another way to work the web besides Web Forms and MVC. WP sites use Razor and are typically developed with WebMatrix.

Web Forms

Strongly typed data binding
 MVC-like support for Models ★
 HTML encoded binding expressions

HTML5 support ★

Control support for
new semantic
elements
 Validator and UpdatePanel now
support new HTML5 elements

Tooling

Markup editors
improved (a lot)
 IIS Express used
by default

Page
Inspector ★

New templates
and snippets

Performance improvements: Multicore JIT, 35 % faster startup,
memory optimizations, assembly sharing between sites, pre-fetch support 📈

Request validation improvements:
AntiXSS built-in, validation usable per file

Windows Communication Foundation

New channels (UDP multicast, WebSockets, ...) ★
 Support for contract-first development ★
 Asynchronous operations ⚡
 Streaming improvements
 Simplified configuration, VS config validation
 Multiple auth modes for HTTP endpoints
 New, simple HttpClient class

Windows Workflow Foundation

C# Expressions
 State machine workflows are back! ★
 Workflow versioning ★
 Code-first activity design
 Faster execution 📈
 Designer usability improvements

Managed Extensibility Framework 2.0

Support for generic parts ★
 Debugging improvements
 Support for explicit and convention-based bindings between objects ★
 Support for binding POCOs: no more attribute requirements

ADO.NET

Sparse columns support improved (SQL Server)
 Passwords are now stored encrypted
 Asynchronous operations ⚡

SQL Express LocalDB

New light version of SQL
Express for developer
use. Supported in .NET
4.5, separate patch for
4.0 is coming.

SQL Server 2012 ("Denali") Support

High Availability support on connection string level
 Fast failover across multiple subnets
 Support for new spatial data types (polygons, arcs etc.) ★

Entity Framework 4.5

Enumeration support
 Migrations for schema changes ★
 Designer improvements

Spatial data type support ★
 Table-valued function support ★
 Multi-result sproc support

Multiple diagrams per model
 Code-first support ★
 Auto-compiled LINQ queries 📈

Base Class Library

Networking improvements (IPv6 enhanced, IDN, EAI etc.)
 Key interfaces (e.g. file IO) now support async ⚡
 New ArraySegment and ReadOnlyDictionary classes
 Support for CLR objects over 2 GB in size
 Resource file management performance improved 📈
 Unicode improvements (v6, console support)
 Background JIT on multicore platforms 📈

Task Parallel Library ⚡

Task thread controls improved:
Task.WaitAll/WaitAny, various
timeout primitives available

TPL Dataflow: Tools for parallel
data flow processing ★

C# 5.0

Support for async programming:
async and await keywords ⚡
 Methods can access call site info
as parameters (CallerInfo)

Visual Basic 11

Iterator implementations (Yield)
 Async and Await equal to C# ⚡
 "Global" keyword for namespace referencing
 Call Hierarchy view available
 CallerInfo attributes (as in C#)

F# 3.0

Type providers ★
 Query expressions (LINQ) ★
 Auto-implemented
properties

Visual C++ 11

C++11 standard support improved
 Auto-vectorization and
parallelization of loops 📈
 GPU-driven processing (C++ AMP)
 Intellisense for C++/CLI

Legend:

⚡ = Asynchrony support
 📈 = Performance improvement
 ★ = Significant new feature

Microsoft
tech·days
Helsinki 2012

SANKO

Suomen Aktiivisten .NET-kehittäjien Kerho
www.facebook.com/sanko.net

offbeat
solutions
www.offbeat.fi

Information based on public sources available
updated on 1st March 2012 (.NET 4.5 beta).

Composed by Jouni Heikkinen.
 Original with updates available @
www.heikkinen.net/hardcode

C# vs Java

- "Same but different"
- Découverte via l'exercice...