

# Microsoft.NET

(Throw away all your prejudice against Microsoft.  
We had to do it in order to create this presentation)

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## What is this thing good for ?

- ◆ You're in Himalayas and you forgot your life-saving manual on your desktop at home
- ◆ You reach a gazillion usernames and passwords for all your Internet accounts
- ◆ Your boss at Nokia makes you completely rewrite an application originally written for Motorola
- ◆ You go to [www.microsoft.com](http://www.microsoft.com) and it takes forever to get to the Microsoft.NET page

*The Microsoft.NET intends to solve these issues. We're going to show you how.*

## What is .NET ?

- ◆ Accelerating, unifying and integrating the next generation of Distributed Computing
  - ❖ Napster (OpenNap)
  - ❖ MSN Messenger
- ◆ New user experiences
  - ❖ Voice, Handwriting, Vision for input
  - ❖ Global profile access experience
- ◆ Explosive Growth of Hardware technology
  - ❖ Broadband, Wireless, Smart cards, Pocket PC, PDA, Screen Phone
- \* Vision: Empower people through great software anytime, any place, and on any device

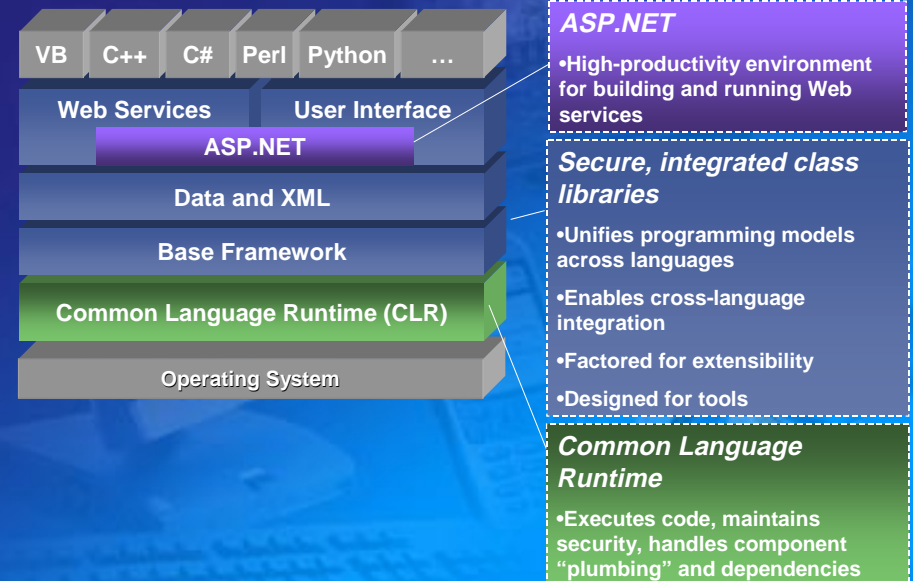
## What does it mean for users ?

- ◆ User data lives on Internet
- ◆ Seamless access of data and applications
- ◆ Diversity of service
- ◆ Diversity of input methods

## What about for developers ?

- ◆ Extend the concept of OS: Internet=the new OS
- ◆ Result: portable & fast development, of high-quality applications
- ◆ Rich set of development resources
- ◆ Visual Studio.NET

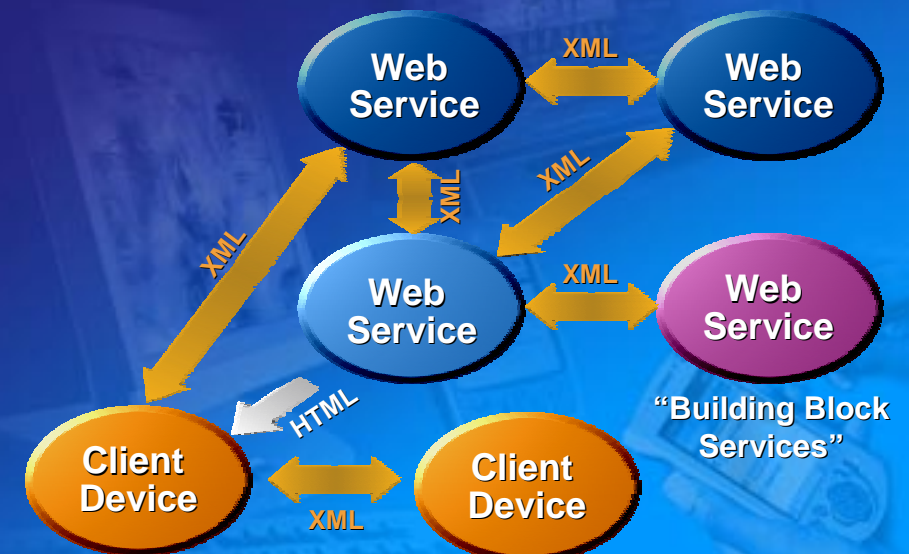
## Inside the .NET Framework



## What does it mean for business?

- ◆ Enabling access to all of a user’s data and applications anywhere and from any device
- ◆ Benefit from radically increased efficiency and productivity
- ◆ Allow both loosely coupled and tightly coupled linking of applications
- ◆ B2B architecture is abstracted
- ◆ Data is Secure, Universally Accessible

## .NET Applications



## How is it done ?

- ◆ **Web-service: building block**
- ◆ **Examples:**
  - ❖ Passport: for authentication
  - ❖ File services
- ◆ **What is needed ?**
  - ❖ CLR (Common Language Runtime)
  - ❖ .NET Framework and Development Tools
  - ❖ Microsoft.NET Enterprise Servers
  - ❖ Device Software (Drivers)
  - ❖ .NET Applications

## Concerns. Issues.

- ◆ **Privacy**
  - ❖ Who can access user's data
- ◆ **Security**
  - ❖ Identification method (password v.s. fingerprint)
  - ❖ Protect from being hacked
- ◆ **Market Acceptance**
  - ❖ Is the market ready for .NET
  - ❖ Does it cost a company more than what it can gain from switching to .NET?
- ◆ **Bandwidth**
- ◆ **The disaster from hardware failure**

## .NET Timeline

	2000	2001	2002+
Infrastructure and Tools	.NET Framework, Visual Studio.NET tech previews	.NET Framework, .NET Compact Framework, Visual Studio.NET	v2
Building Block Services	Passport	Additional key services	Corporate federation
Enterprise Servers	.NET Enterprise Servers in beta	.NET Enterprise Servers	v2
Operating Systems	Windows 2000	Windows XP	Blackcomb

## Summary

- ◆ .NET Framework enables a new generation of distributed web applications and services
- ◆ Common Language Runtime enables integrated development across multiple languages
- ◆ .NET is about all kinds of computing devices
  - ❖ Common framework, consistent paradigm
  - ❖ Apps and platform are portable, adaptable
  - ❖ Devices grow richer over time by adding secure code
  - ❖ Devices plug natively into Web Services

## More Information on .NET

- ◆ [msdn.microsoft.com/.NET](http://msdn.microsoft.com/.NET)
  - ❖ Get Visual Studio.NET Beta 1 from Fraser!
  - ❖ Download developer docs
- ◆ News and Discussion Groups
  - ❖ [news://msnews.microsoft.com/microsoft.public.dotnet.academic](http://news://msnews.microsoft.com/microsoft.public.dotnet.academic)
  - ❖ MSDN Online articles: <http://msdn.microsoft.com/msdnmag>
  - ❖ <http://gotdotnet.com>
  - ❖ <http://www.asp.net>
  - ❖ <http://discuss.develop.com>
  - ❖ <http://asplists.com>
- ◆ Public Sample Applications:
  - ❖ [www.ibuyspy.com](http://www.ibuyspy.com): ASP.NET running live
  - ❖ [www.fmexpense.com](http://www.fmexpense.com): ASP.NET with mobile controls
- ◆ Books
  - ❖ A Programmer's Intro to C# by Eric Gunnerson
  - ❖ "A Preview of ASP.NET" from Wrox Press

Where do **you** want to go today?

Microsoft

## .NET Principles

*The Microsoft Vision for Computing*

- ◆ Bring distributed computing to the Internet
- ◆ Fully exploit abundant communications and computing
- ◆ Seamless integration of multiple applications and devices
- ◆ Deliver software as a service
- ◆ Next generation user experience
- ◆ User in control
- ◆ *The .NET Framework is the programming-model substrate for the .NET vision*

## Robust And Secure

- ◆ Automatic lifetime management
  - ❖ All .NET objects are garbage collected
- ◆ Exception handling is built in
  - ❖ No more HRESULTS
- ◆ Verifiable and type safe
  - ❖ Eliminates common programming errors
- ◆ Evidence-based security
  - ❖ Based on origin of code as well as user
  - ❖ Extensible permissions

## Multi-Language

- ◆ Perl
- ◆ Python
- ◆ COBOL
- ◆ Jscript
- ◆ Eiffel
- ◆ Haskell
- ◆ Pascal
- ◆ ML
- ◆ Ada
- ◆ APL
- ◆ C
- ◆ C++ ("IJW")
- ◆ Visual Basic
- ◆ C#
- ◆ SmallTalk
- ◆ Oberon
- ◆ Scheme
- ◆ Mercury
- ◆ Oz
- ◆ Objective Caml
- ◆ Java support via "JUMP"

## Base Framework

### System

- Collections
- Configuration
- Diagnostics
- Globalization
- IO
- Net
- Reflection
- Resources
- Security
- ServiceProcess
- Text
- Threading
- Runtime
  - InteropServices
  - Remoting
  - Serialization

## Sample Scenarios

- ◆ The .NET application experience should be...
  - Discoverable
  - Network-aware
  - Personalized
  - Secure
  - Offline-capable
  - Sticky
  - Mobile
  - Performant
  - Smart
- ◆ Examples in the mobile device space:
  - ❖ Email: Mobile Outlook
  - ❖ Contacts: Address Book / Phone Book
  - ❖ Instant Messenger / Buddy List
  - ❖ E-Commerce: Electronic Wallet, Payment, Banking
  - ❖ Games
  - ❖ Location-based applications, e.g. maps
  - ❖ Call Control
  - ❖ Media Player
  - ❖ eBook Reader
  - ❖ News: MSN Mobile (offline-capable)
  - ❖ Information Assistant

## Improvement over today

- ◆ Applications and data can gracefully be used in different platforms
- ◆ Different services can act upon a same set of data with different configuration based on the preferences of the user
- ◆ A web service can incorporate another web service to provide the desired functionality
- ◆ Different from a frame based site. A unified protocol model between web services exists.
- ◆ Ubiquitous User Interfaces