

Introduction of .NET Framework and development tools for it

Esa Salmikangas

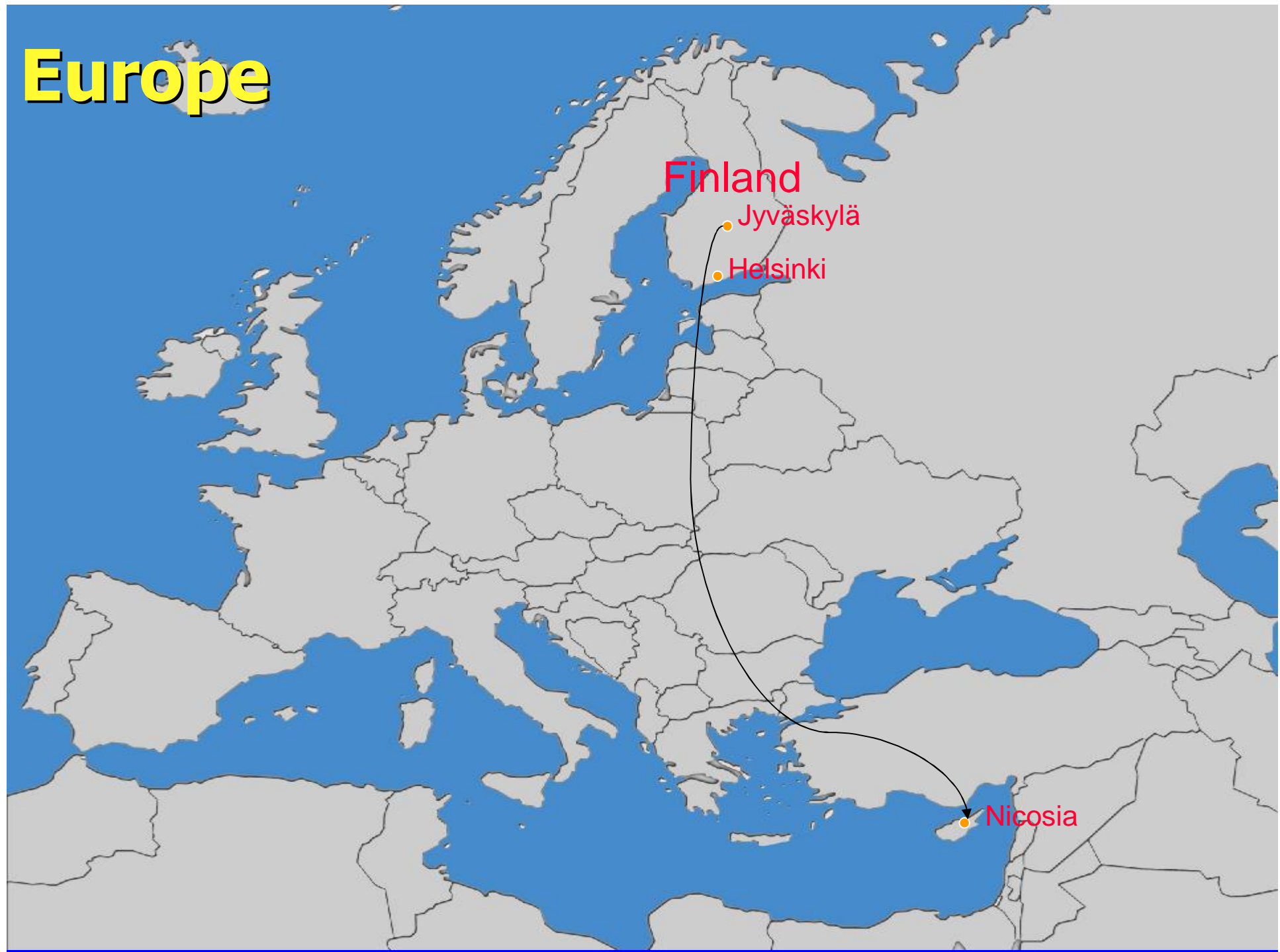
JAMK/IT

Version 9.11.2005

Sources: MSDN, Academic Resource KIT materials and Anders Hejlsberg's and Dalibor Kacmar's presentations

Intro of .NET

Europe



Finland Facts

- ❑ Independent since 1917, Republic
- ❑ EU member since 1995
- ❑ population 5,2 million
- ❑ area: 338,145 sq km (Cyprus 9,250)
- ❑ capital: Helsinki
- ❑ languages: finnish, swedish
- ❑ currency: Euro
- ❑ economy:
 - Finland has a highly industrialized, largely free-market economy, with per capita output roughly that of the UK, Italy etc.
 - Its key economic sector is manufacturing - principally the wood, metals, engineering, telecommunications, and electronics industries.

more facts about Finland: <http://www.cia.gov/cia/publications/factbook/geos/fi.html>



About the lecturer

Esa Salmikangas, brief CV

you can call me Esa
e-mail: esa.salmikangas@jypoly.fi

- interest for computers since 1978
- M.Sc., Civil Engineering, University of Oulu 1992 Finland
- work experience in industry since 1989
 - special expert area: applied CAD design systems
 - worked in following tasks: developer, trainer, consult, expert
 - programming experience in following languages:
 - Fortran VisualBasic, VBA, VB.NET, LISP, AutoLISP, SQL
 - programming experience in following environments:
 - AutoCAD, Excel, Lotus Notes, Outlook, Exchange Server, dBase, Access, SQLserver etc
 - experience in following operating systems:
 - MacOS, VAX/VMS, Unix (SunOS, HP-UX), DOS, Windows
- work experience in teaching
 - many short courses in companies since 90'
 - part-time teacher 1995-1996 and 1999-2000
 - lecturer since 2000 in IT-institute, interest areas:
 - software engineering, application development tools, .NET

.NET Framework

- ❑ What Is the .NET Framework?
- ❑ The .NET Framework is an integral Windows component for building and running the next generation of software applications and Web services.
- ❑ The .NET Framework:
 - Supports over 20 different programming languages.
 - Manages much of the plumbing involved in developing software, enabling developers to focus on the core business logic code.
 - Makes it easier than ever before to build, deploy, and administer secure, robust, and high-performing applications.
 - The .NET Framework is composed of the common language runtime and a unified set of class libraries.

Software in the past vs nowadays



In the past

- small programs
 - > from "scratch"
- terminating
- batch processing
- only supports business
- gurus and "heroes"
- custom made
- centralized

Nowadays

- huge systems / big applications
 - > ready made components
- 24/7/365
- interactivity
- critical for business
- team work
- products
- distributed systems

About Application Architectures

A quick history

- | | | |
|--|--|---|
| <ul style="list-style-type: none">● Monolithic '60-80's<ul style="list-style-type: none">➤ Easy to Build➤ Difficult to maintain➤ Poor Interop➤ Difficult to scale➤ Still exist | <ul style="list-style-type: none">● 2-tier '80-90's<ul style="list-style-type: none">➤ Rich Services➤ More open➤ Somewhat difficult to scale➤ Difficult to manage | <ul style="list-style-type: none">● n-tier (Web) '90-...<ul style="list-style-type: none">➤ Stateless or Loosely coupled➤ Protocol level Interop➤ Limited functionality |
|--|--|---|

- **The Web Affects Everything**
 - **Application Architecture Continues to Evolve**
 - More Server Centric And also Distributed => Service Orientated
 - Highly scalable and flexible
 - Open and discoverable
 - **Business Applications Get More Complex**
 - Business to Business
 - Business to Consumer

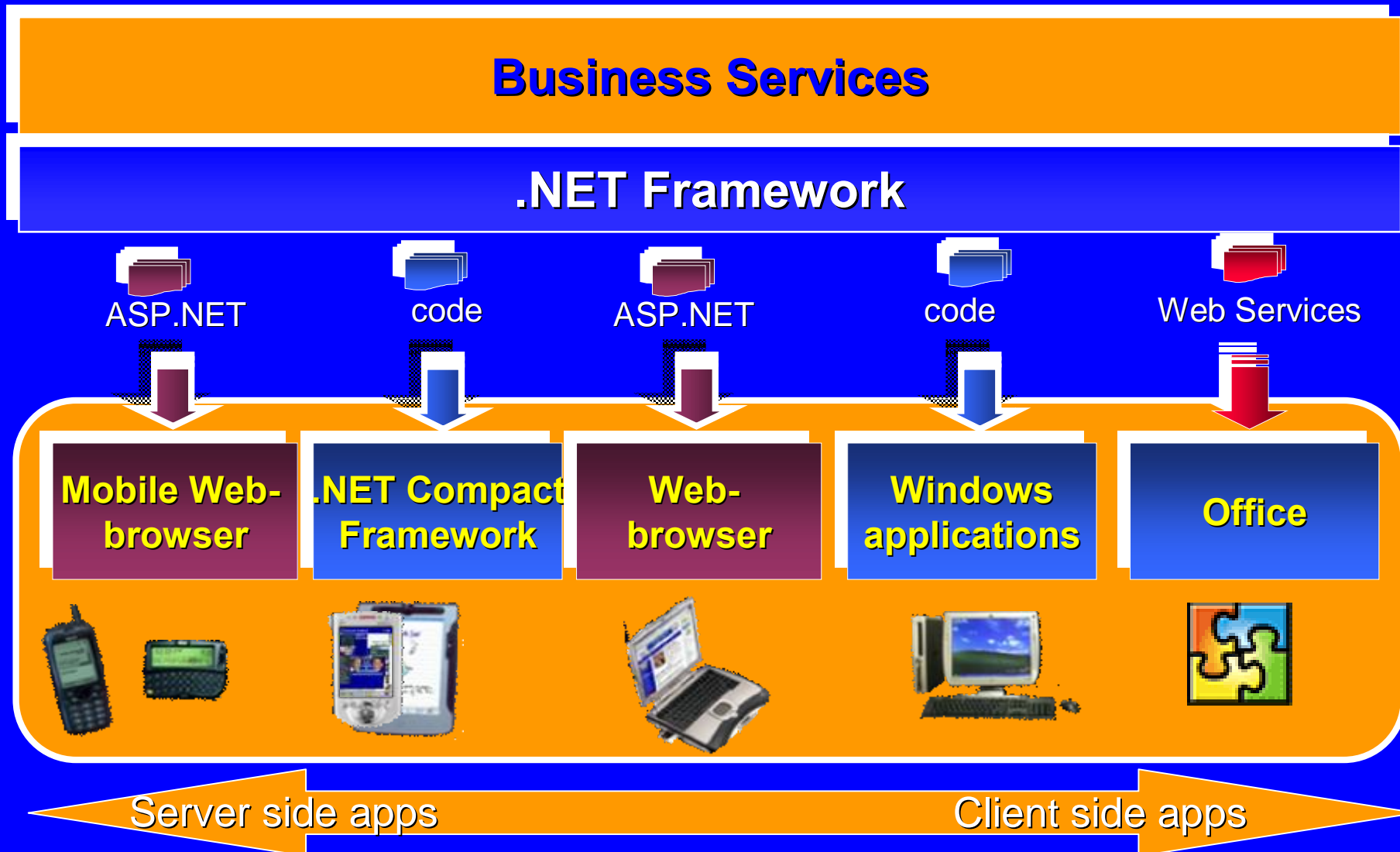
Q: Why new Framework?

A: technologic demands

- ❑ Computing power
 - Has doubled in every 18 month
 - PC-based server scalability
- ❑ Networking
 - Easy and cheap access to Internet
 - wirelss
- ❑ Versatility of equipments
 - PDA, Mobile phone, Smart phone, PC, laptop, TV, embedded systems
- ❑ Internet-standards
 - XML



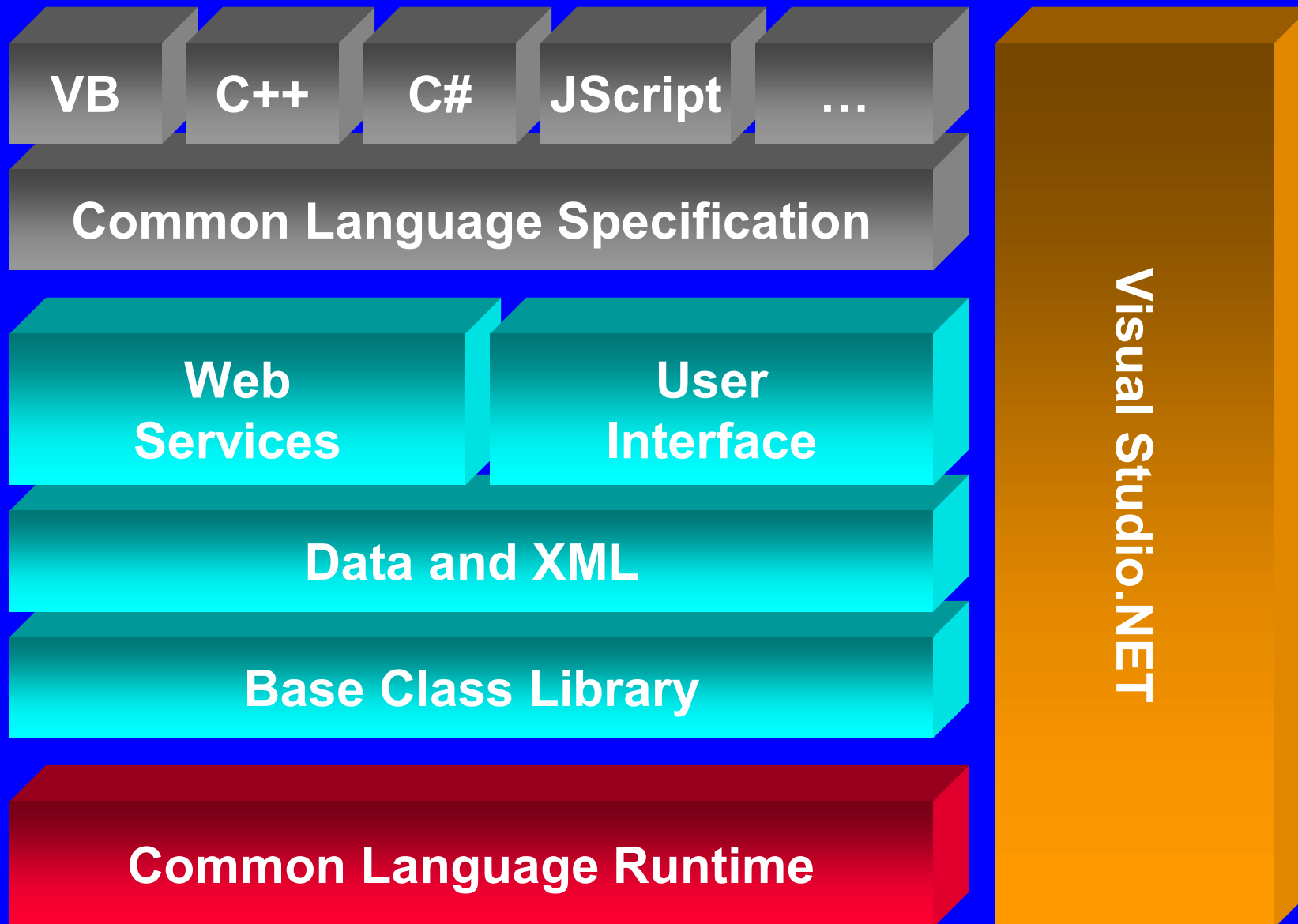
.NET is for different applications



.NET Framework Components

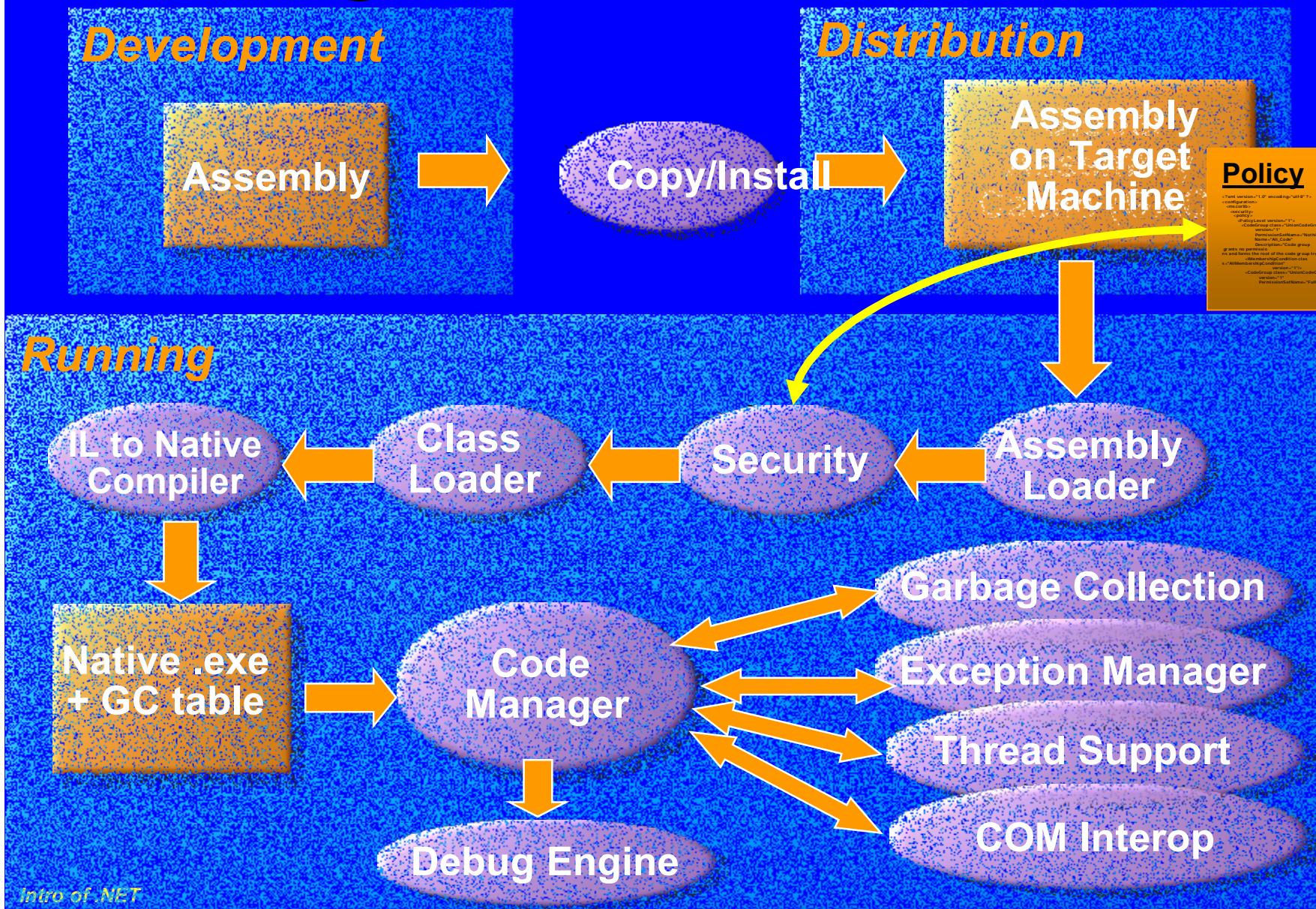
- ❑ This is not n-tier architecture
- ❑ Base has Common Language Runtime
 - Memory Management
 - Common Data Types
 - Lifecycle Monitoring
- ❑ Middle includes Standard System Services
- ❑ Top covers User and Program Interfaces

Framework, Languages, And Tools

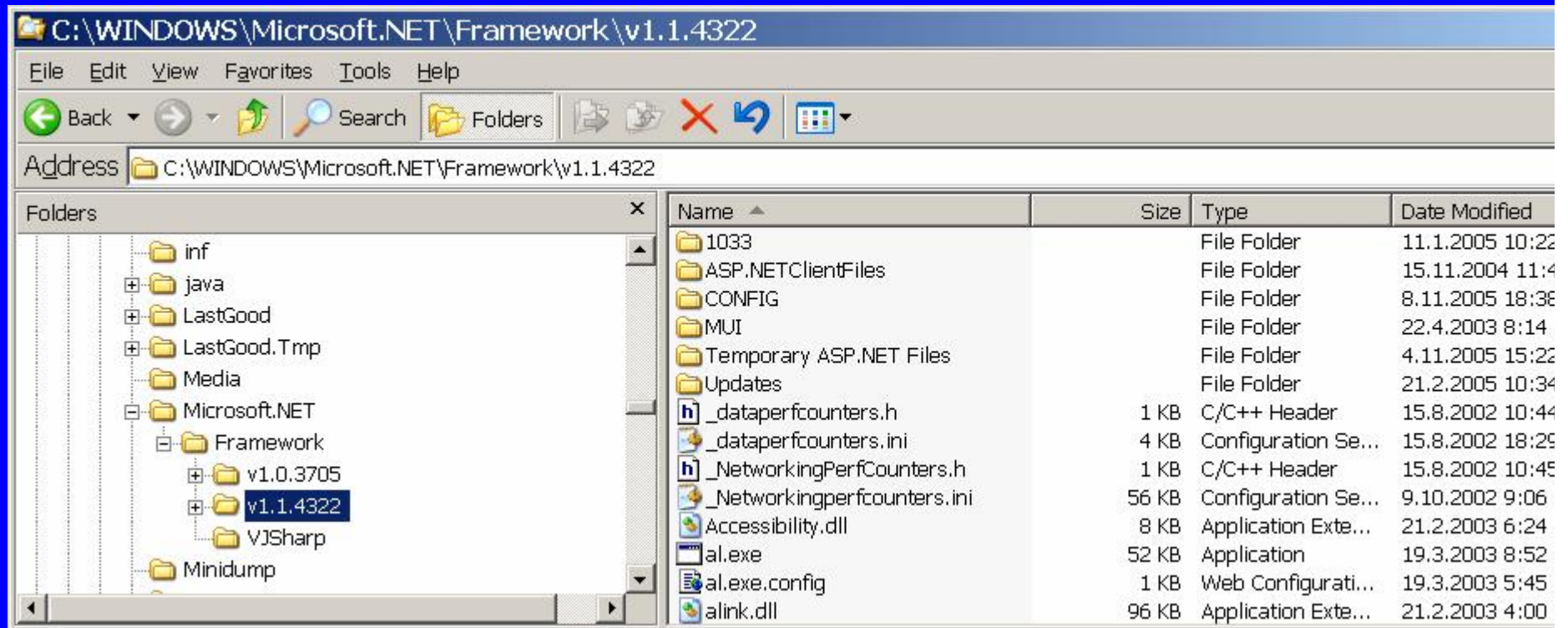


Intro of .NET

Common Language Runtime Running Process



How to check is .NET Framework installed?



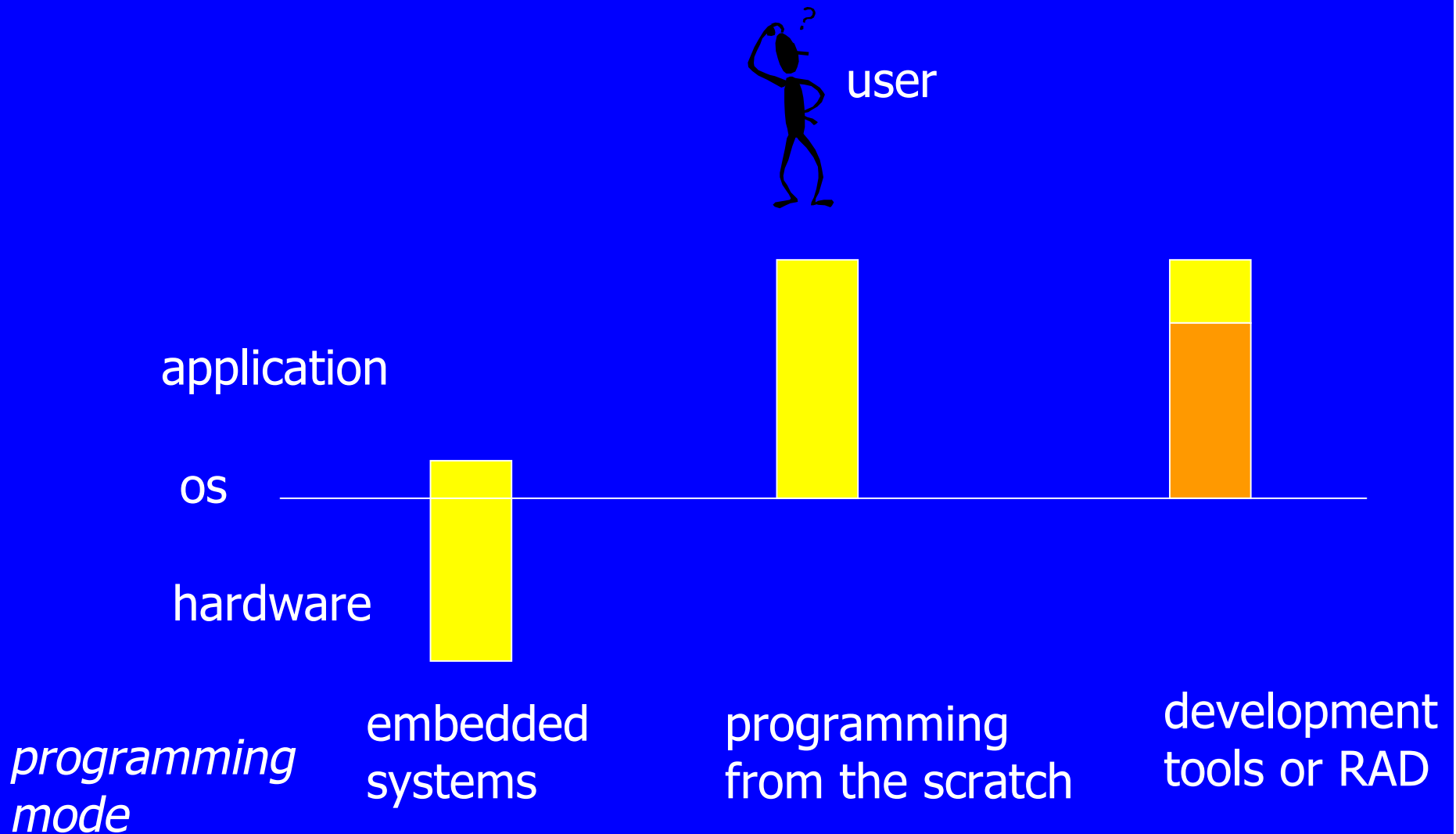
- ❑ Where to get it?
 - www.microsoft.com/downloads
 - about 23 Mb

Application Development Tools

Freewares

Commercial Tools

Why to use development tools?



RAD Definition

- ❑ RAD (rapid application development) is a concept that products can be developed faster and of higher quality through:
 - Gathering requirements using workshops or focus groups
 - Prototyping and early, reiterative user testing of designs
 - The re-use of software components
 - A rigidly paced schedule that defers design improvements to the next product version
 - Less formality in reviews and other team communication
- ❑ RAD usually embraces object-oriented programming methodology, which inherently fosters software re-use.
- ❑ The most popular object-oriented programming languages, C++, VB and Java, are offered in visual programming packages often described as providing rapid application development.

But remember:

"For every complex problem, there is a simple answer, and it's wrong"

- H.L. Mencken

RAD tools

Application Development Tools

- ❑ Delphi
- ❑ JavaOne
- ❑ JBuilder
- ❑ Kylix
- ❑ Sun One Studio
- ❑ Visual Studio
- ❑ hundreds more

C# language

- ❑ Visual C# (pronounced C sharp) is a new programming language introduced in Visual Studio .NET.
- ❑ An evolution of C and C++, C# is simple, modern, type-safe, and object-oriented.
- ❑ It was designed for building a wide range of enterprise applications that run on the .NET Platform.
- ❑ Code that you write with Visual C# is compiled as managed code, which means it benefits from the services of the Common Language Runtime. These services include language interoperability, garbage collection, enhanced security, and improved versioning support.
- ❑ Visual C# is fully supported within Visual Studio .NET by project templates, designers, property pages, code assistants, an object model, and other features of the development environment. The library for Visual C# programming is the .NET Framework.

Visual Studio.NET

□ versions:

- Professional
- Enterprise
- Enterprise Architect
- + special versions

□ releases:

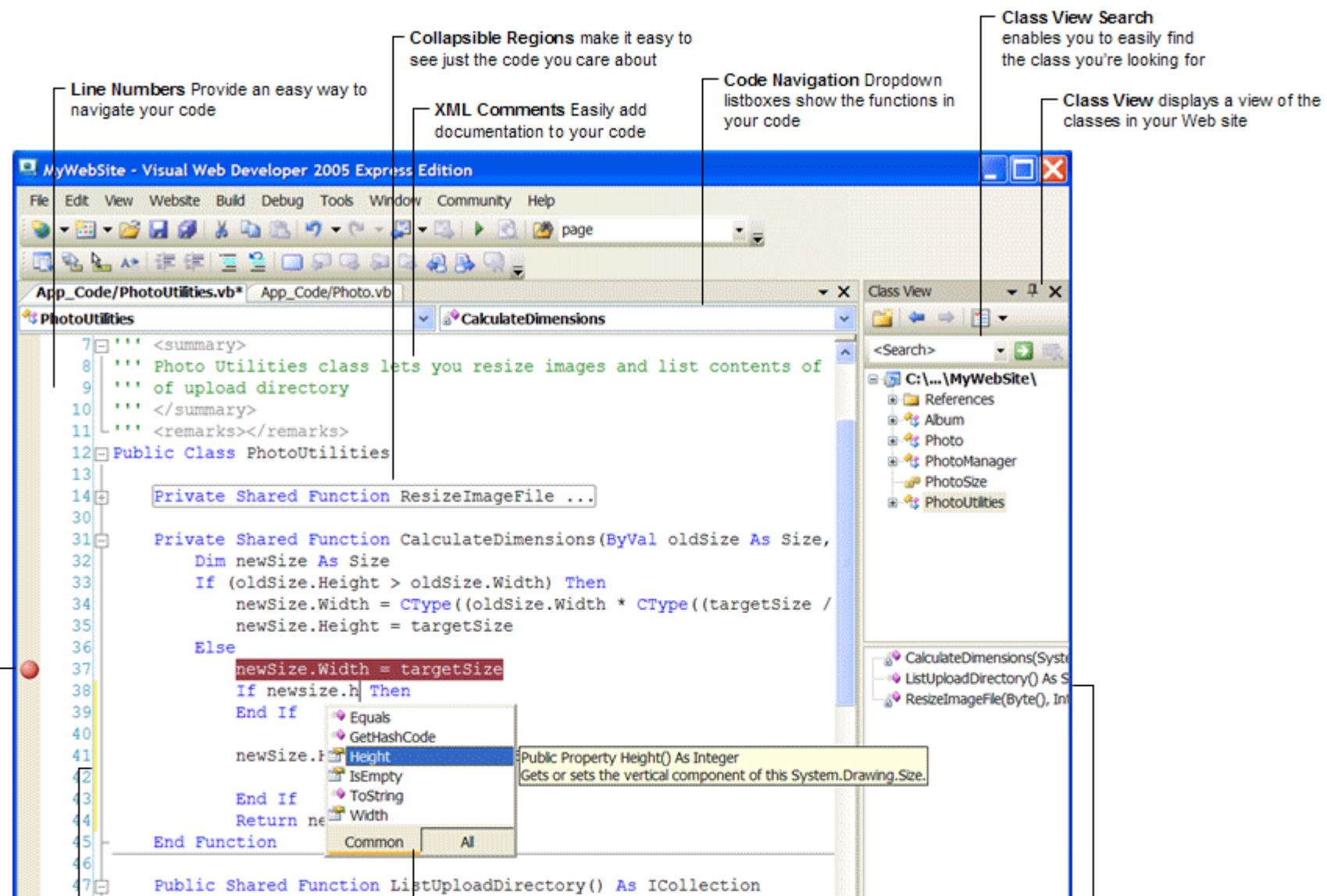
- first release in February 2002
- version 2003 in May 2003
- the newest version Visual Studio 2005 released 7th of November

□ more: <http://msdn.microsoft.com/vstudio/>



Create fast, scalable Web apps with Visual Studio .NET Professional 2003 Special Edition. Includes Windows Server 2003 Standard Edition, SQL Server 2000 Developer Edition, and training, all for US \$549.

Visual Web Developer 2005 Express Edition



Intro

Free alternatives

www.thefreecountry.com

Free C# Compilers (thefreecountry.com) - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

http://www.thefreecountry.com/compilers/csharp.shtml

Customize Links Free Hotmail Windows Media Windows

- Web Hosting
- Perl Scripts
- PHP Scripts
- Script Hosting
- Other Resources
- Tutorials / Scripts
- Wizards
- Security**
- Security
- Miscellaneous**
- Free Utilities
- Logtime
- Tofrodos
- NetSyndic
- News

Free C# Compilers

Free Borland C#Builder Personal Edition NEW

The Borland C# Builder Personal Edition is free for non-commercial development. It allows you to create applications for the Microsoft .NET Framework that is also interoperable with J2EE and COBRA.

Free Microsoft .NET Framework Software Development Kit / Free Microsoft C# Compiler

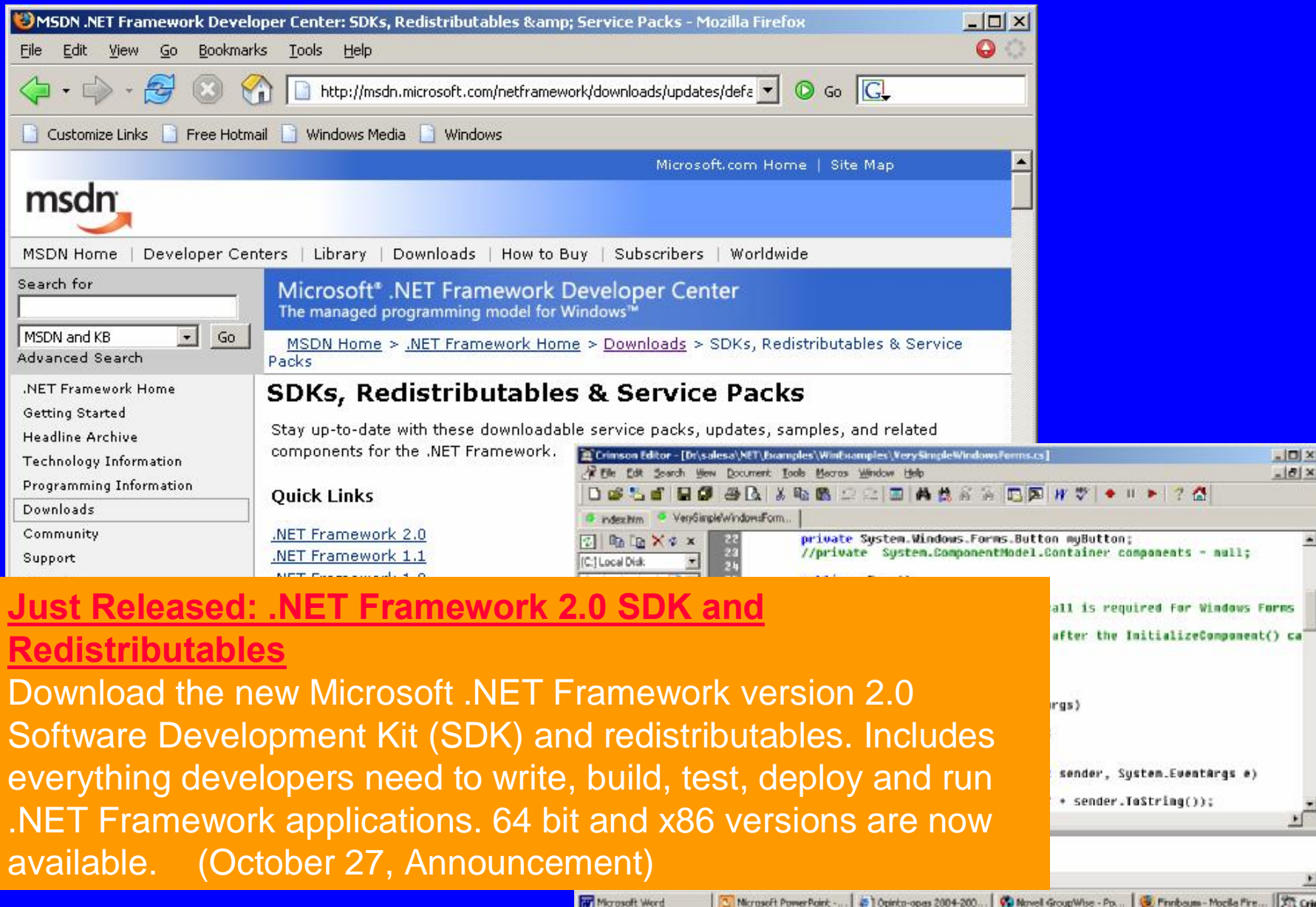
The Microsoft C# compiler (generating .NET virtual machine code, not native code), along with the Visual C/C++ compiler, VB.NET and JScript.NET, appears to be available from Microsoft for download for free. (Note that if you use the Opera web browser to go to this URL, set Opera to pretend that it is Mozilla (just hit F12 and select Mozilla 5.0), otherwise Microsoft's web server will redirect you to a dummy page. Their browser detection script, which serves different pages to different browsers, is broken.) You may need to download the [Microsoft Platform SDK](#) which contains the Windows headers and libraries for the compilers.

MCS: The Ximian C# Compiler (Mono)

Done

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An Alternative: Editor + .NET Framework SDK



Just Released: .NET Framework 2.0 SDK and Redistributables

Download the new Microsoft .NET Framework version 2.0 Software Development Kit (SDK) and redistributables. Includes everything developers need to write, build, test, deploy and run .NET Framework applications. 64 bit and x86 versions are now available. (October 27, Announcement)

```
private System.Windows.Forms.Button myButton;  
//private System.ComponentModel.IContainer components = null;  
  
//all is required for Windows Forms  
//after the InitializeComponent() ca  
  
args)  
  
sender, System.EventArgs e)  
+ sender.ToString();
```

Intro of .NET

An alternative: Borland C#Builder

Borland : C#Builder - Microsoft Internet Explorer


Address <http://www.borland.com/us/products/csharpbuilder/index.html>

Google Haku PageRank Tarkista Asetukset

Home | Products | IDE | C#Builder

Contact Me Tell a Colleague Print

Borland® C#Builder® 2006



- Bring Enterprise Development Capabilities to .NET
- O/R Mapping, transparent object persistence, and transactions
- UML modeling, two-way code-model synch, audits and metrics
- Reverse engineering and rapid prototyping
- Integrated requirements management, version control, bug tracking, and team collaboration
- **Special Promotion:**
Pre-order C#Builder 2006 before December 1st, 2005 and save 15% off the list price

Professional

C#Builder 2006 Professional is a complete Windows environment for rapid development of desktop applications, with a full range of C# refactorings that let you rapidly make extensive automated source code changes that work. The Professional edition includes basic database connectivity and select ECO framework features.

Basic object-relational mapping and transparent local xml object persistence features

Full complement of coding productivity features, including SyncEdit, History Manager, Palette searching, Help insights, Live Templates System, and Smart Block Completion.

Local database connectivity for Borland InterBase,® dBase,® Paradox,® ADO,

FIND A RESELLER

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Matrix

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per Network

Internet

SharpDevelop @ic#code - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

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

An alternative: SharpDevelop

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

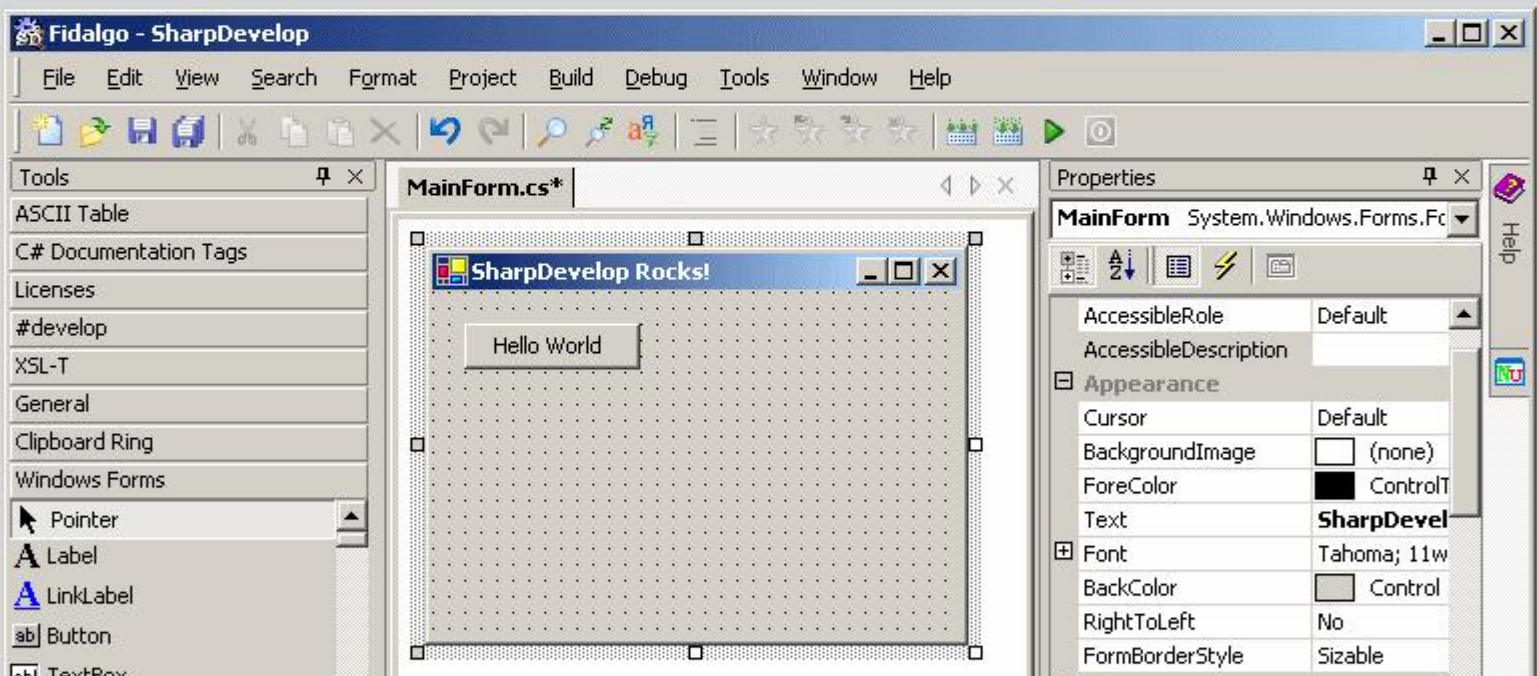
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The Open Source Development Environment for .NET

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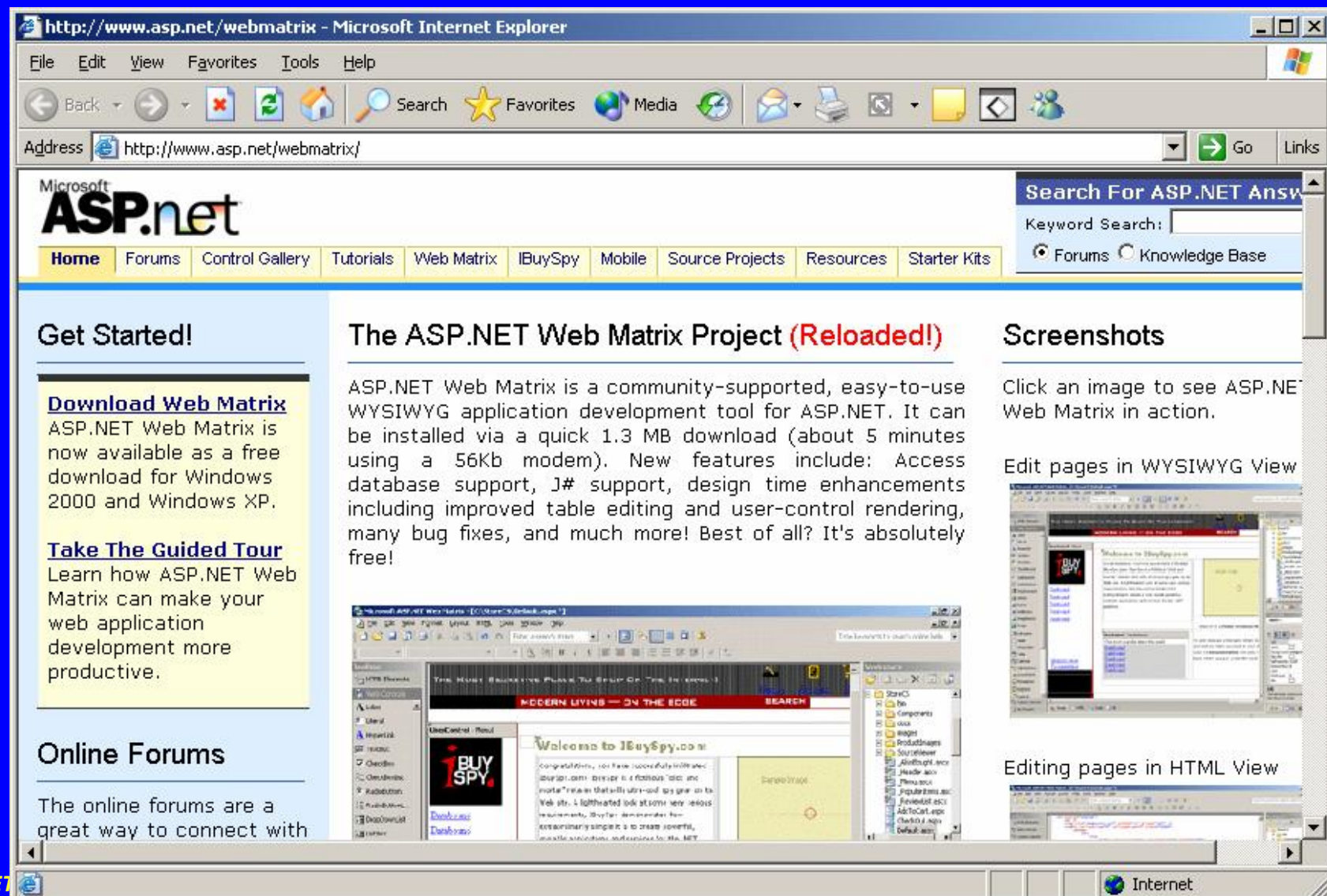
#develop (short for SharpDevelop) is a free IDE for C# and VB.NET projects on Microsoft's .NET platform. It is open-source (GPL), and you can download both sourcecode and executables from this site. In addition, you can find the latest information and changes on #develop, as well as get in touch with the team in the [forum](#).

We are going to add more content (and new releases) over the coming months, so sign up for our [announcement list](#)! Also, we want to invite you to participate in the [forums](#), discussing SharpDevelop - its features, feature requests and of course [bugs](#).



An alternative: WebMatrix (it is Free!)

www.asp.net/webmatrix



An alternative: Borland C#Builder

source: <http://community.borland.com/csharp>

- ❑ "Accelerate the development and deployment of your .NET solutions with Borland C#Builder, the first independent development environment for the .NET Framework.
- ❑ An integral component of the Borland solution for application lifecycle management, C#Builder accelerates the delivery of .NET Framework solutions with a design-driven approach to development that increases team productivity.
- ❑ C#Builder provides support for direct interoperability between the .NET Framework, the J2EE™ platform, and CORBA® infrastructure, helping to simplify and reduce the cost of integrating .NET solutions with your existing software systems.
- ❑ And for faster, easier, and more flexible database development, C#Builder delivers high-performance native support for major enterprise-class databases."

Intro of .NET

Some interesting sources: Building an N-Tier Application in .NET

- ❑ <http://msdn.microsoft.com/visualc/using/understanding/arch/default.aspx?pull=/library/en-us/dndotnet/html/buildntierapp.asp>

The screenshot shows a Microsoft Internet Explorer browser window displaying the MSDN website. The address bar shows the URL: <http://msdn.microsoft.com/visualc/using/understanding/arch/default.aspx?pull=/library/en-us/dndotnet/html/buildntierapp.asp>. The page features the MSDN logo and navigation links such as Products, Downloads, Support, Search, Worldwide, and Microsoft. A search bar is visible on the left. The main content area displays the article title "Building an N-Tier Application in .NET" by Paul D. Sheriff, dated February 2002. The article summary states: "After reviewing the types of n-tier applications, you'll learn how to create a typed dataset that can return data from a Web service and consume a Web service from a Windows". A "Page Options" sidebar on the right includes links for "Rate this page", "Print this page", "E-mail this page", "Discuss this page", and "Add to Favorites".



One more thing...

Where are you going Microsoft?

- ❑ .NET Framework is one of the biggest new things/products what M\$ has published
- ❑ WHY?
 - the world of computers has changed, main reasons:
 - Internet, Internet, Internet
 - security
 - mobile, different platforms
 - SOA

Intro of .NET



Longhorn/Vista what ever...

- ❑ <http://msdn.microsoft.com/longhorn>
- ❑ <http://msdn.microsoft.com/windowsvista>

