Ambientes de Desenvolvimento Avançados
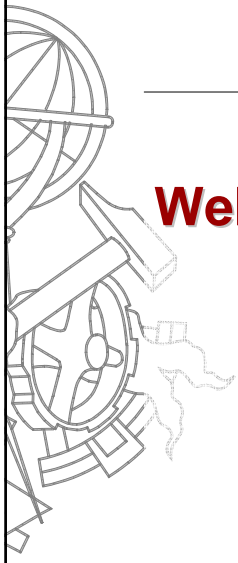
Aula 21
Engenharia Informática

2005/2006

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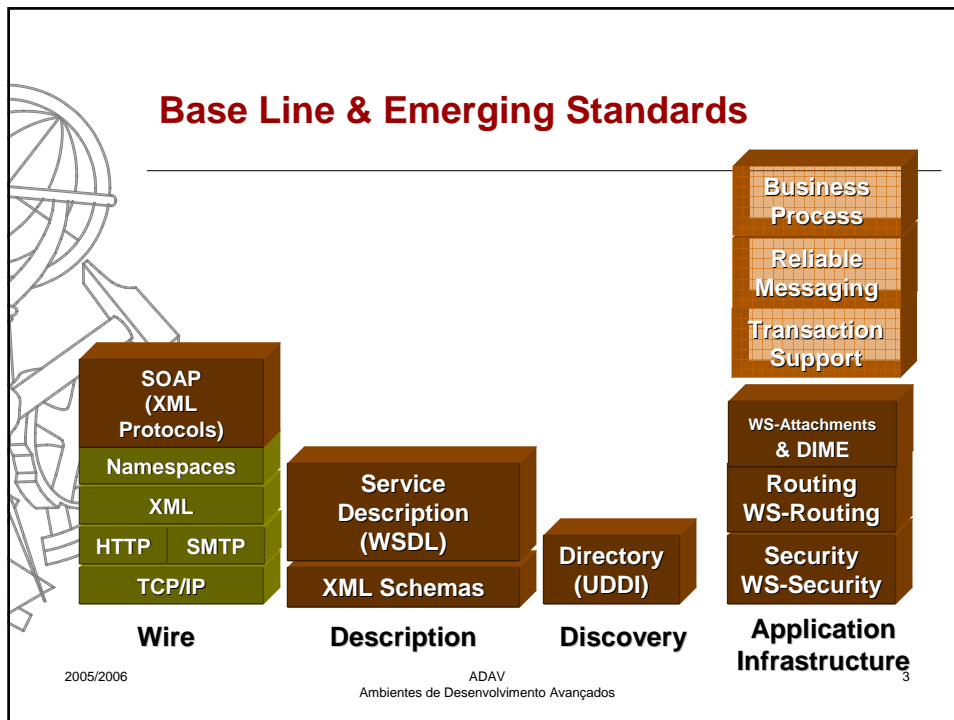---

Web services

1

Base Line & Emerging Standards

|			Business Process
			Reliable Messaging
			Transaction Support
SOAP (XML Protocols)			**WS-Attachments & DIME**
Namespaces	**Service Description (WSDL)**		**Routing WS-Routing**
XML		**Directory (UDDI)**	**Security WS-Security**
HTTP SMTP			
TCP/IP	**XML Schemas**		
Wire	**Description**	**Discovery**	**Application Infrastructure**

Web Services Interoperability Group (WS-I)

- Created February 6, 2002
- Industry group formed to help accelerate the development and deployment of XML Web Services
  - Members: BEA, Fujitsu, HP, IBM, Intel, Microsoft, Oracle, and SAP
  - Deliverables:
    - Implementation guidance
    - Implementation tools (conformance testing, etc)
  - http://www.ws-i.org
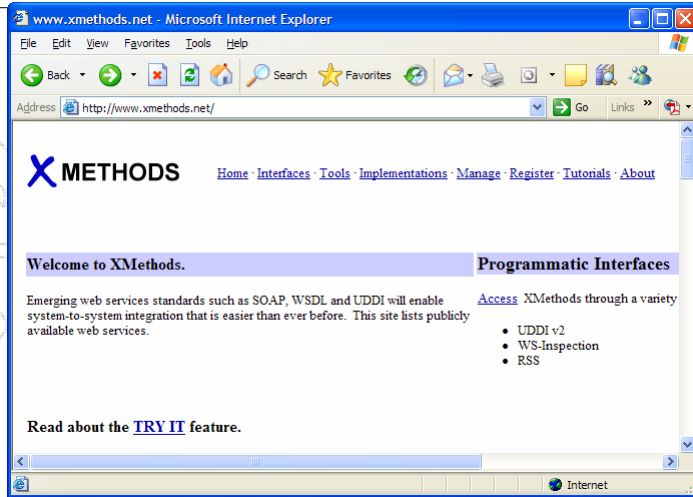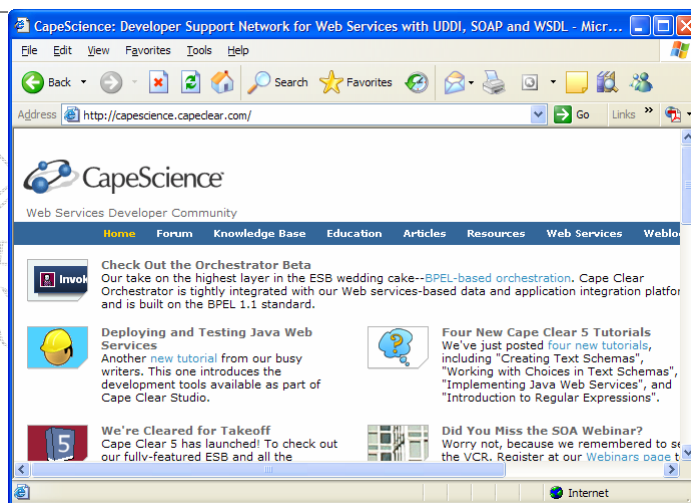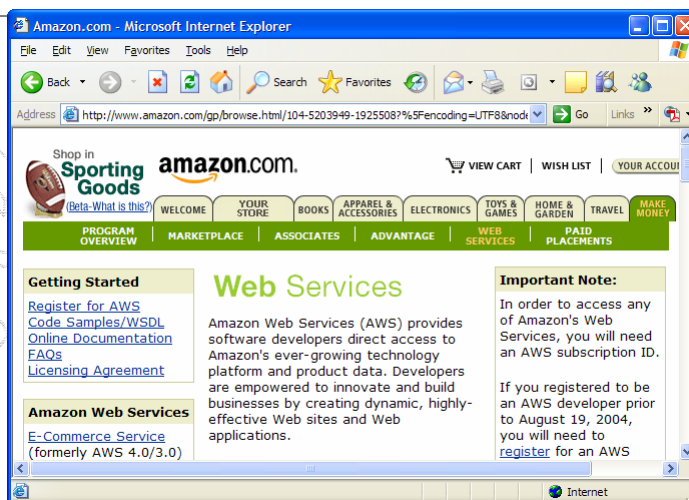
Some WEB Services
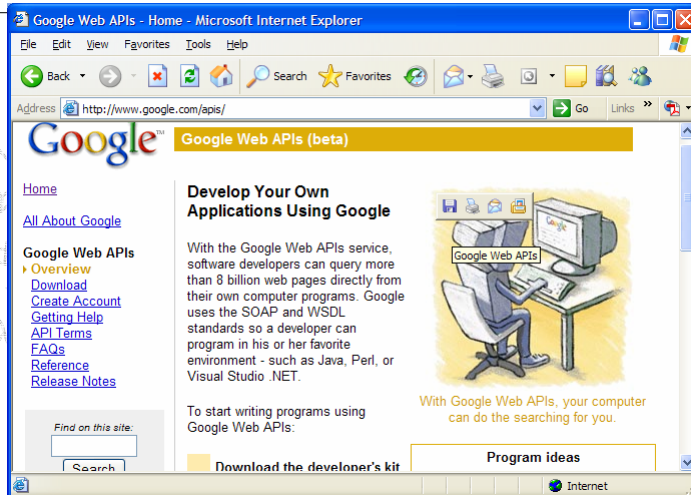
Some WEB Services

Some WEB Services

ADAV
Ambientes de Desenvolvimento Avançados

Some WEB Services

ADAV
Ambientes de Desenvolvimento Avançados

More about .NET Framework
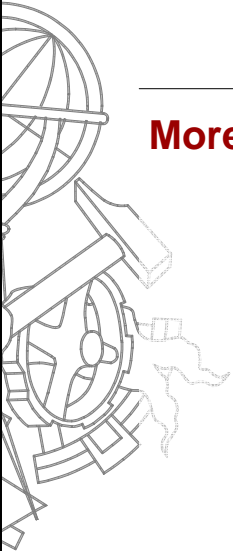
Cool new C# Language Features

- These are currently only in the spec for 2.0 so they might not become a reality
- See: http://msdn.microsoft.com/vcsharp/team/language/default.aspx for download of full spec
- Three main new features:
  - Generics
  - Anonymous Methods
  - Partial Types
  - Iterators
  - Other Misc. Improvements

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New C# Features

- **Generics**
  a form of C++ templates that makes reusing existing code easier a form of C++ templates that makes reusing existing code easier
- **Anonymous Methods**
  an easier way to perform simple tasks using delegates
- **Iterators**
  a construct that makes traversing collections of data significantly faster and easier
- **Partial Types**
  a means for programmers to split code across multiple files
- For more information see:
  http://www.gotdotnet.com/team/csharp/learn/Future/default.aspx
- This is also a great URL for a more in-debt covereage
- http://www.gotdotnet.com/team/csharp/learn/Future/VCS%20Language%20Changes.aspx

Alternatives to Visual Studio

- Free Development Environment called Web Matrix. Can be downloaded from here:
  - http://www.asp.net/webmatrix/default.aspx?tabIndex=4&tabId=46
  - www.asp.net is a great resource for web developers using .NET
  - The message board is free to use (as a lot of other projects). We use the message board extensively at my company.
- Borland C# Builder for the .NET Platform
- http://www.borland.com/csharpbuilder/
- Others I am forgetting?
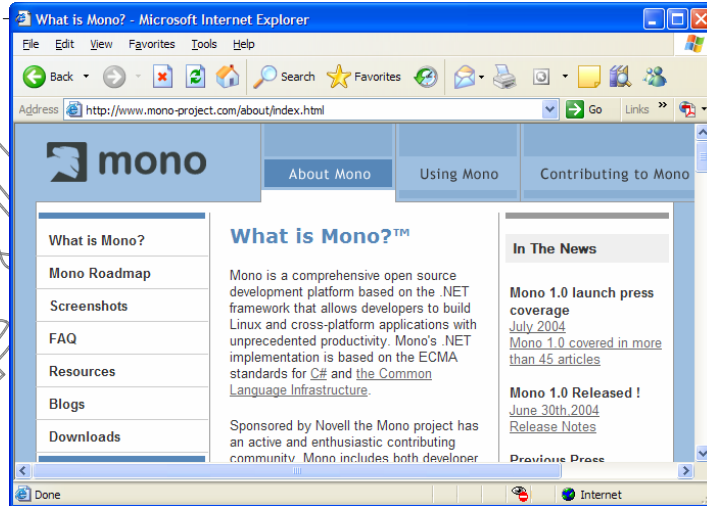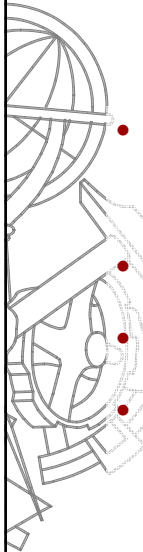
Mono (www.go-mono.com)

Mono (www.go-mono.com)

- The Mono project, is an effort to create an Open Source implementation of the .NET Development Framework.
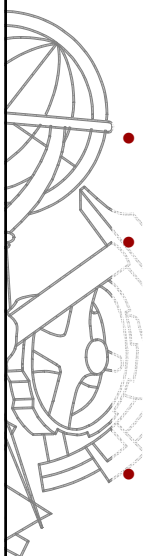 - www.go-mono.com
  - Compiler and Libraries

Mono (www.go-mono.com)

- Mono is a comprehensive open source development platform based on the .NET framework that allows developers to build Linux and cross-platform applications with unprecedented productivity.

- Mono's .NET implementation is based on the ECMA standards for C# and the Common Language Infrastructure.

- Sponsored by Novell the Mono project has an active and enthusiastic contributing community.

- Mono includes both developer tools and the infrastructure needed to run .NET client and server applications.

Mono (www.go-mono.com)

- Mono includes a compiler for the C# language, an ECMA-compatible runtime engine (the Common Language Runtime, or CLR),and class libraries.

- The libraries include Microsoft .NET compatibility libraries (including ADO.NET and ASP.NET), Mono's own and third party class libraries.Gtk#, a set of .NET bindings for the gtk+ toolkit and assorted GNOME libraries can be found in the later. This library allows you to build fully native Gnome application using Mono and includes support for user interfaces built with the Glade interface builder.

- Furthermore, Mono's runtime can be embedded into applications for simplified packaging and shipping. In addition, the Mono project offers an IDE, debugger, and documentation browser.
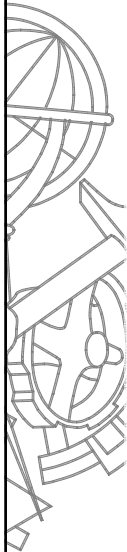
.NET Framework on Linux

- Mono Project
  - Open Source C# compiler, CLR and Framework Class Library
  - Runs on various platforms and hardware:
    - Linux, Unix, FreeBSD, Windows – JIT-compiler for x86
    - s390, SPARC, PowerPC – interpreter for these hardware architectures
  - Supports also:
  - ADO.NET and XML
 - Windows Forms (not fully)
  - ASP.NET
  - Web Services

.NET Framework on Linux (2)

- Mono Project
  - Runs .NET portable executables on Linux, e.g.
    ```
    mono myapp.exe
    ```
  - Compiles .NET applications to portable executables, e.g.
    ```
    mcs myapp.cs
    ```
  - The obtained .exe file can taken and run on Windows
- DotGNU Portable.NET
  - Build and execute .NET applications on GNU/Linux, Windows, Solaris, NetBSD, FreeBSD, and MacOS X

Microsoft Opening Up

- Mono would not be possible if Microsoft had not submitted .NET and C# to Standards Authorities (ECMA)
- See: http://www.dotnetexperts.com/ecma
- This is what I consider (Damon) a 'new' Microsoft that is embracing the global development community's concerns about proprietary technology from Microsoft
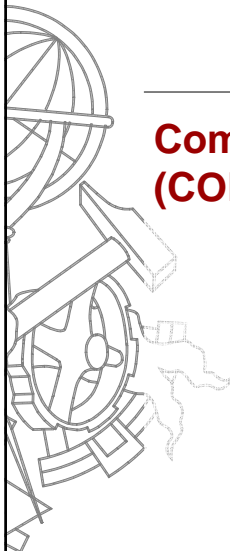
Component-oriented programming (COP)

Component-oriented programming (COP)

- recall OOP is 'programming with objects, classes and inheritance' (Wegner)
- COP is 'programming with polymorphism, modular encapsulation, late binding and safety'
- practically all existing programming methodologies work only *within* a component
- still looking for a methodology covering component interactions
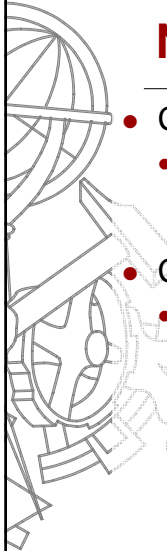
Markets vs technology

- components are reusable assets; generally more expensive than use-once
- component approach viable only if extra investment is returned
- requires a component market, either in-house or external
- this in turn requires accepted standards
- the problems are not technological ones alone

*imperfect technology in a working market is sustainable;
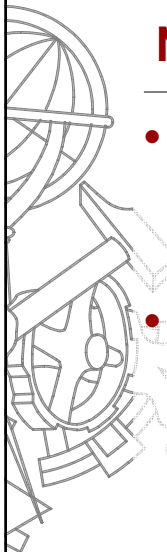perfect technology without a market will vanish*

New Professions

- Component system architect
  - Provides architecture for the architects – the architects of component frameworks. It is what city master planning is to the architects of individual buildings
- Component framework architect
  - A component framework is not just a design, but may itself contain implementation parts. The framework implementation is the basis for the interoperation with other frameworks, rules of component interaction, and provision of component default behavior where applicable

New Professions

- Component developer
  - Takes component framework specification and specific component requirements and develops, by means of analyses and design, these ideas into implementable components
- Component assembler
  - A component assembler (or composer) takes application requirements, selects appropriate components – and perhaps component frameworks – and assembles these.

Questionário

Quais os quatro principais "standards" usados no desenvolvimento e implementação dos WEB Services?

Qual é a função de cada um?

- Resposta por email até 20/12/2005 para jtavares@dei.isep.ipp.pt no corpo da mensagem.
- Não são admitidos ficheiros em anexo.

Questões

?