CrossPlatform
ASP.NET with Mono

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About me

- Open source: Original author of mod_mono, Comanche, several Linux Howtos and the Teach Yourself Apache 2 book
- Company: founder of BitRock, multiplatform installers and management software
About this presentation

- The .NET framework
- An overview of Mono, a multiplatform implementation of the .NET framework
- mod_mono: run ASP.NET on Linux using Apache and Mono
The Microsoft .Net initiative

- Many things to many people, we are interested in a subset: the .NET framework
- Common Language Runtime execution environment
- Comprehensive set of class libraries
- As other technologies, greatly hyped. But is a solid technical foundation that stands on its own merits
The .NET Framework
.NET Highlights (1)

- Common Language Runtime: Provides garbage collection, resource management, threads, JIT support and so on. Somewhat similar to JVM.
- Common Intermediate Language, multiple language support: C#, Java, Visual Basic, C++, JavaScript, Perl, Python, Eiffel, Fortran, Scheme, Pascal Cobol... They can interoperate and have access to full .NET capabilities. Similar to Java bytecode.
.NET Highlights (2)

- Comprehensive Class Library: XML, ASP.NET, Windows Forms, Web Services, ADO.NET
- Microsoft wants .NET to succeed in other platforms: standardization effort at ECMA, Rotor sample implementation.
- P/Invoke: Easy to incorporate and interoperate with existing code
- Attributes, delegates, XML everywhere
Mono Project

- Open Source .NET framework implementation. Covers ECMA standard plus additional technologies: Windows Forms, ASP.NET, ADO.NET
- Started by Ximian, looking for better development tools for Linux desktop
- Incredible progress in short amount of time, hundreds of contributors
What does Mono provide?

- C# compiler
- Runtime
- Class libraries
- Tools: debugger, documentation browser

Supports Linux, FreeBSD, Windows, Mac OS X, IBM mainframes and many more on the works
Related Projects

- GUI development:
  - System.Windows.Forms (Wine/GTK)
  - Gtk#
  - QT#
  - SharpWT
- JScript, Visual Basic bundled with Mono, other third party, IKVM project
- MonoDevelop IDE
Why Mono for Linux development?

- Ease desktop development
- Reuse of existing code libraries, extend applications.
- Multiple language support and seamless interoperability
ASP.NET

- Server side development with .NET languages, mainly C# and Visual Basic.
- Component based development
- xcopy deployment
- Data binding
- Two approaches:
  - Traditional: code intermixed with HTML
  - Code behind
Why ASP.NET?

- Unified approach to server side development
  - Languages
  - Tools
  - Libraries
- Simplified development and deployment
  - Event model
  - Configuration
  - Shadow copying
Http Pipeline

- Similar to Apache hook / filter system
- Create a handler or a module and register interest in events during the life of the request (BeginRequest, AuthenticateRequest, ResolveRequestCache, and so on)
- Important classes: HttpApplication, HttpWorkerRequest, HttpRequest
Caching

- Output Caching: caching full page, fragments
- Possible and easy to implement custom caching modules
- Data caching engine available to developers
State management

- Application
- Session: HttpSession
  - In memory
  - State server
  - Database
- Cookie
- View
Demo Time!

Welcome to Mono XSP!

Here are some ASP.NET examples:

- button.aspx
- calendar.aspx
- codebehind1.aspx
- code-render.aspx
- databind-arraylist.aspx
- databind-attribute.aspx
- databind-class.aspx
- databind-template.aspx
- dbpage1.aspx
mod_mono

- Allows running ASP.NET on Linux using Apache and Mono
- Apache handles the HTTP protocol, creates HttpWorkerRequest and passes it to the ASP.NET pipeline for processing
- ASP.NET processes the request and produces a result that Apache returns to the client
mod_mono features

- Supports Apache 2 and 1.3 versions
- Portable, should run on any platform that Apache and Mono support, including Windows. Current support Linux, FreeBSD, OSX
- Processing model, tradeoff reliability, session support, scalability, performance
  - Multiple processes
  - Purely threaded
  - Out of process
Multiple processes
Threaded Apache

- Apache
  - Worker thread
  - Worker thread
  - Worker thread
  - mod_mono
    - Mono runtime
Out of process
Mono Misconceptions

- Always playing catch up
- Patent enforcement
- C# / Java
- License issues
Advantages of Mono ASP.NET for Enterprise environments

- Reuse current Windows expertise, code
- Component based development
- Develop on Windows, deploy on Linux/Unix
  - Windows have better development tools
  - Linux regarded as more secure, scalable, reliable
  - Avoid license fees
- Interoperate with other open source technologies
- Reduce costs and prevent vendor lock-in, providing a migration path
Related Projects

- mod_haydn
  - Apache 1.3
  - Mono
- mod_aspdotnet
  - Windows
  - .NET
The future

- Mono
  - Mono 1.2
  - Support for newer releases .NET
- mod_mono
  - ASP.NET 2.0 support
  - Windows support
  - Additional processing models
- Get involved!
Q&A

Thanks for Attending!

More info:
http://www.go-mono.com
http://www.apacheworld.org/modmono/

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