



A Developer's Guide to .NET

In today's tough tech economy, businesses are searching for a viable development platform that will enhance their bottom-line, provide for a valuable return on investment (ROI) and revolutionize their way of doing business.

Enter Microsoft's .NET Platform with a promising, and viable solution. Over the last four years, Microsoft has spent considerable time and money creating the .NET Platform. The .NET Platform is a set of technologies geared towards connecting information, people, systems and devices.

XML FOUNDATION

Business - Integration by Design

In the past, business integration was a tedious, expensive and difficult process. Businesses would spend large sums of money and resources developing custom integration frameworks using technologies such as electronic data interchange (EDI). The entire process was often difficult and error prone. Something needed to change.

These days, there's a new technology on the horizon that is starting to revolutionize the way businesses integrate. That technology is referred to as XML Web services. Building upon an XML foundation and industry standard protocols, XML Web services provide the means for organizations to integrate disparate systems utilizing a common framework. Integration partners no longer require the need to know how your internal systems operate, rather they are provided with a set of common instructions for how data should be sent and received.

Utilizing technologies such as Microsoft Biztalk Server¹, organizations can quickly adapt their business systems to work with partners without having to re-architect the way they do business.

Industry - New Opportunities

Building upon a XML Foundation, along with a business integration framework, companies and their respective business partners can make their business value easier

¹ Microsoft Biztalk Server is a XML messaging platform designed to facilitate collaboration amongst distributed applications. Biztalk server allows for data field mapping, process orchestration and logical application flow designs. For more information on Biztalk Server visit <http://www.microsoft.com/biztalk>

to consume. Companies can also take advantage of processes their partners might have more experience in, and/or might already have in place.

Let's say your company makes, manufactures and sells widgets; your business partner handles all sorts of business payment transactions. If your partner has an integration framework in place to handle payments and credit card transactions, why would you want to spend the time and money developing your own? It just doesn't make business sense. You need to integrate.

INTEGRATION

XML Web Services

XML Web services are the fundamental building blocks of distributed computing on the Internet. Using common, open industry standards (SOAP², WSDL³, UDDI⁴, etc) and a focus on communication and collaboration among systems, people and applications, XML Web services are becoming the de-facto standard for application integration. Through the use of XML Web services, the .NET Platform enables this extraordinary level of integration

Other ways to integrate

XML Web services are not the only way for organizations to take advantage of integration. Microsoft .NET and the .NET Framework allow for many other ways of integration including: building distributed components, often referred to remoting⁵, and access to the Microsoft Message Queue (MSMQ⁶) technologies.

Whether it is internal systems and development environments, custom business to consumer (B2C) e-commerce frameworks, or complex business to business (B2B) networks, .NET provides the tools and the means to get the job done.

EMPOWERING DEVELOPERS

Visual Studio.NET

Through Visual Studio .NET, developers can use a variety of programming languages to create applications and XML Web services—the technology at the heart of the .NET

² SOAP (Simple Object Access Protocol) - Soap is the communication protocol for XML Web services. It's a specification that defines the XML format for messages.

³ WSDL (Web Services Description Language, often pronounced whiz-dull) - WSDL files are XML documents that describe a set of SOAP messages and how the messages are exchanged.

⁴ UDDI (Universal Discovery Description and Integration) - UDDI is the "yellow pages" of Web services. As with traditional yellow pages, you can search for companies offering services. In UDDI's case, XML Web services.

⁵ Remoting - .NET provides a host of different distributed support. The Remoting API in .NET allows you to use a host of channels, such as TCP and HTTP, for distributed computing. It even allows you to "plug in" your own custom channels, should you require.

⁶ MSMQ - A set of tools that facilitate applications being able to talk with other application. Similar in concept to email, Microsoft Message Queue deals with applications versus people.

platform. Microsoft Visual Studio .NET represents the single, greatest development environment for the .NET platform.

Visual Studio .NET advances the already highly productive programming languages: Microsoft Visual Basic®, which includes new object oriented programming features; Microsoft Visual C++®, which advances Windows development and enables developers to build .NET applications; and C#⁷, which brings rapid application development (RAD) to the C and C++ developers.

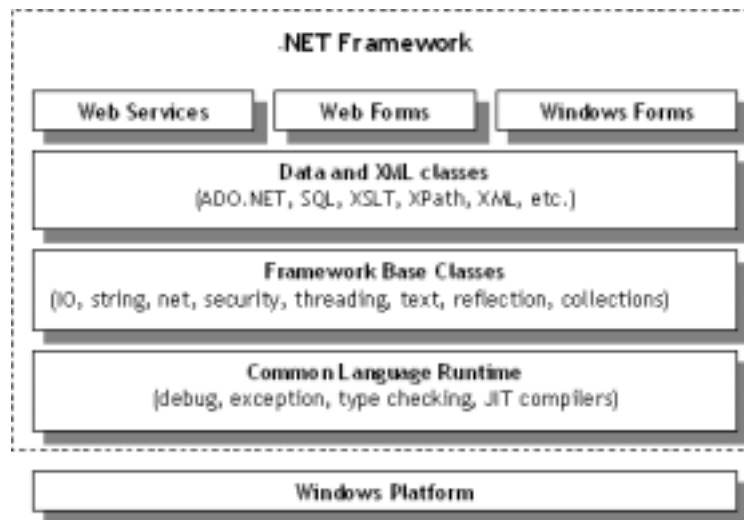
Common Language Runtime (CLR)

The CLR is the engine that provides the .NET Framework with a secure execution environment and is engineered to allow the use of many different languages to create applications. It has a unified “type” system and enables cross-language debugging and inheritance. Using the .NET Framework, developers have the quickest and most productive way of building next generation applications.

Microsoft .NET Framework and Microsoft .NET Compact Framework

The .NET Framework, and the smart device⁸ focused .NET Compact Framework, are standards-based, multi-language application execution environments that handle the essential wiring chores and ease deployment. The application execution environment handles: memory management, addresses versioning issues, and improves application reliability and security. Components of the .NET Framework include the CLR, a rich set of class libraries and ASP.NET.

Figure 1-1. The .NET Framework



⁷ C# (pronounced C sharp) - The goal of C# is to provide a simple, safe, modern, object oriented high-performance programming language for .NET development. C# is a new language, but it draws on the lessons learned over the past thirty years. You can easily see the influence of Java, C++, Visual Basic, and many other languages.

⁸ Smart devices include, but are not limited to cell phones and hand-held devices (PocketPC.)

Rapid Development

Building upon the CLR, the feature rich .NET Framework and utilizing Visual Studio .NET, developers have an unprecedented amount of tools to assist in development. Often dreamed, but never fully realized, component reusability is so entrenched in .NET that developers will no longer have to “reinvent the wheel” again. Not only does the .NET Framework provide an abundant amount of features, developers will quickly realize it’s simple and easy to reutilize their own components. Case studies have shown using .NET (including the .NET Framework and Visual Studio .NET), organizations can easily see a performance boost by a factor of three all the while using sixty to seventy percent less code. That’s real dollars that affects the company’s bottom line.

SUMMARY

Now that you are excited about .NET and what it could possibly do for your organization, you might be asking, “Sounds great, how do I get started?” Well the first thing you have to do is download⁹ the .NET Framework from Microsoft. If you truly want to experience the power of .NET and the .NET Framework, download a trial version of Visual Studio .NET and you’ll be on the path to success.

Kevin Hillbolt, Senior Consultant, MCP

⁹ Although slated to be incorporated in future Microsoft products (Windows .NET Servers and future releases of Windows XP), the .NET Framework was not shipped with many of the operating systems running today. In order use .NET fully, you must download either the runtime environment, or the software development kit (SDK) from Microsoft. You can find download information at <http://www.microsoft.com/net>