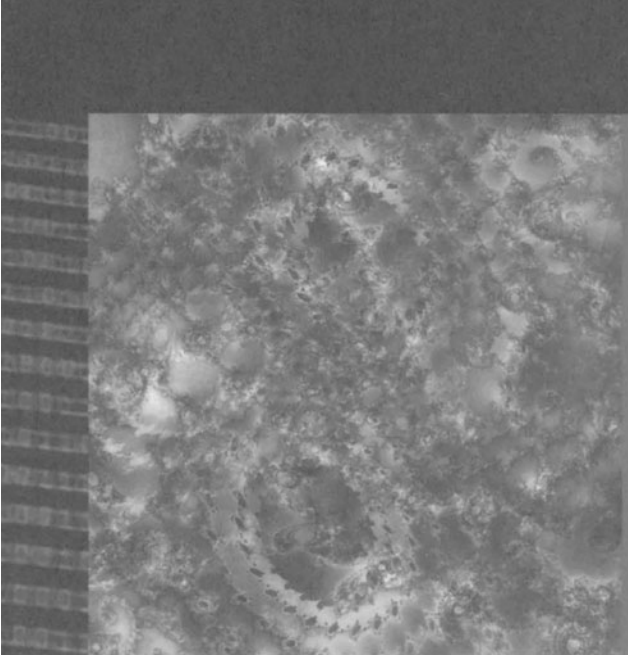

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Architecting Web Services

WILLIAM L. OELLERMANN, JR.

APress Media, LLC

Architecting Web Services
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This book is dedicated to my wife, Mary, whose love, support, and encouragement were critical in making this book a reality.

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I WOULD LIKE TO THANK the great efforts of my primary technical editors, Thomas Lewis and David McKinstry. Not only did they help to catch the mistakes, but they also contributed ideas and opinions that helped to make the book what it is.

Thanks also to Jim Allsopp, who helped me to think through and capture my first ideas and concepts on Web services.

Finally, thanks to Kari Brooks and the entire editorial team at Apress for their help and patience in getting this first-time writer through the process.

Introduction

THE INDUSTRY'S NEED FOR Web services first dawned on me in November of 1999. My realization of their potential has been growing ever since.

At the time I was a consultant struggling with the issues around B2B adoption. I was trying to figure out why, despite the obvious value of B2B automation on paper, only a very few organizations were actually using it. Having grown up with the Web professionally, I related it directly to the massive rush that occurred once companies felt the need to build Web sites. Why wasn't the same rush occurring in B2B?

I identified two main barriers to B2B adoption, one political and the other technical. The political barrier is that B2B takes two sides working together, which always bogs things down. This is made even more complicated by the technical information that has to be communicated between organizations.

The technical barrier is that building these programmatic links between organizations is neither standardized nor easy to implement. Whereas Web pages are easy to build, B2B partnerships are not. HTML is one of the easiest technologies for non-technical people to pick up. Countless people have become IT professionals by first dabbling in HTML and then expanding into other technologies. While anyone can view a Web page, a business transaction is a concept that has to be envisioned. That makes it difficult for business professionals to understand and technical professionals to consistently implement meaningful Web services.

Since becoming aware of Web services and their value, I have been very focused on this area. I have had the privilege of speaking with many organizations on this topic, giving several technical presentations and even designing and deploying a few Web services. I have collected quite a bit of information on the topic and wanted to share my experiences and opinions with the industry to help contribute to the understanding and appreciation for Web services. This book is a culmination of those efforts.

Why Architecting Web Services?

Several vendors are planning and releasing tools and services for their approach to Web services. While each has benefits and shortcomings, there is one area that applies to all of these implementations: architecture. I don't believe that people can rush out and build successful Web services without thinking about the architecture for this new development paradigm.

This book addresses these architecture-level issues, or at least the ones I have identified up to this point. This paradigm borrows a lot of its behavior from Web

sites and a lot of its behavior from application development. Web services is a blend of these two areas, and people need to have a good understanding of which concepts can and should be applied from each to build meaningful Web services.

Who This Book is Written For

This book was written for software architects, Web designers, and application developers. Whether you have started playing with the tools available for building Web services or are still looking for time to catch up with XML, this book will provide you with a good foundation to start designing and building Web services.

I have included both Java and Visual Basic examples in this book for the sake of reaching architects and developers from various backgrounds. Web services do not discriminate between platforms, tools, or environments, and neither does this book.

The Supporting Web Site

Because of the subject matter, I can take a unique approach in supporting this book with a Web site. Many technical books are accompanied by a Web site that contains downloadable source code. While this book does as well, I have taken this approach one step further.

The supporting Web site for this book also hosts live, functioning Web services that you can consume today with either the sample clients provided or through custom clients you develop yourself. Even if you don't have the time to develop the examples yourself, the site will allow you to step through the applications demonstrated in the book that utilize those same Web services. Both options will allow you to truly test the concepts presented in this book in a realistic, distributed environment. This book's Web site is located at `http://www.architectingwebservices.com`.

Following the Examples

This book provides both Java and Visual Basic/ASP examples. The Java examples utilize the IBM development platform, including the following:

- WebSphere Application Server 3.5
- IBM HTTP Server
- Visual Age for Java for Windows Professional 3.5
- Windows 2000 Advanced Server

For the Visual Basic examples, I used the Microsoft development platform, including the following:

- IIS 5.0
- Visual Studio 6.0 Enterprise Edition
- SQL Server 2000 Enterprise Edition
- Windows 2000 Advanced Server
- Windows 2000 Certificate Server

If you do not have the necessary software to follow the examples in this book, you can still see the Web services and sample consumers at work on the supporting Web site at `http://www.architectingwebservices.com`. My hope is that you can transfer the ideas and lessons presented here to another development environment with which you might be more familiar.

About the Author

WILLIAM L. OELLERMANN, JR. is a software architect with over nine years of experience in the IT industry in corporate and consulting capacities. He has worked extensively with XML- and Web-based applications in enterprise settings ranging from integration to e-Commerce at Fortune 500 companies such as American Greetings, Citigroup, Ericsson, and Zale Corporation. Having grown up professionally with the Internet and earning a B.S. in Computer Science from the University of Texas at Dallas, William has a balanced background that makes him well-suited to recognize the value of software engineering while embracing the potential of the Web. This background and his passion for problem-solving and delivering solutions to address real issues compelled him to make the Web services paradigm his primary focus.

To provide feedback or ask questions concerning the material in this book, you can write the author at `williamo@architectingwebservices.com`.