Preface

If you are like many of the talented developers we meet, you're interested in AJAX and how you can use it to improve your web applications. You may have even done some preliminary research online, checked out Ajaxian.com, or read a beginner's book to AJAX development. If not, then you're like an even larger group of talented people who just want to break into AJAX and want to get started. In one respect or another, we've all been there. The good news is that as a community of developers, we're finally starting to figure this thing out. In the end, it's not that hard.

We decided to write this book because we were frustrated that there was little information available for the more advanced topics in AJAX development. This was mainly because people in the industry were still "writing the book" on some of these topics, and despite a couple of years in mainstream use, AJAX was just creeping into the enterprise software stack. We wanted to create a resource of information that would be of interest to enterprise developers in this space. To that end, we have tried to bring together current development approaches with JavaScript and the other technologies that comprise AJAX and present it in a way that would be familiar and amenable to any enterprise developer.

WHY DO YOU NEED THIS BOOK?

Most of this content has been derived from our years of first-hand experience in building AJAX applications and user-interface components at Nitobi (www.nitobi.com). We feel that this represents an excellent cross-section of the knowledge we acquired during this time and should serve as a useful resource for developers hoping to include AJAX in their development projects. If you are interested in becoming more skilled in the areas of JavaScript development, troubleshooting Ajax quirks and performance problems, and in designing usable software from the ground up, this book should serve as an excellent resource.

We've given a considerable amount of time to discussing how to write JavaScript code in a way that should be familiar to Java or C# developers to get you up and running quickly. In doing so, we describe AJAX development with familiar software design patterns at the forefront of our minds and include information on some of the hottest topics in AJAX development, such as security and offline storage. We also present real solutions to building high-performance AJAX applications, not only through code optimization, but also through taking advantage of Internet infrastructure mainstays, such as caching.

This book takes a slightly different approach than other AJAX books in that we try to present a well-rounded discussion—one that includes (of course) a lot of advice about programming and a fair amount of discussion on issues such as application usability, accessibility, and internationalization. It also includes a framework for assessing risk in an AJAX development project, and it spotlights some developers who use AJAX in real enterprise applications to see what can be learned from their experiences.

WHO IS THIS BOOK FOR?

Enterprise AJAX has been written with intermediate-to-advanced server-side developers in mind (Java, object-oriented PHP, or ASP.NET). Many of the concepts in the book have been adopted from the time honored software engineering patterns introduced by the "gang of four" (that is, Erich Gamma, Richard Helm, Ralph Johnson, and John Vlissides, authors of *Design Patterns: Elements of Reusable Object-Oriented Software* [Addison-Wesley Professional]). Readers would benefit from a basic understanding of software design patterns, or at least an interest in learning more about them because they are applied throughout the book. We hope that delivering AJAX in a familiar way using patterns can help the more experienced developer understand the concepts and ideas more easily.

Perhaps more important than understanding patterns, you should ideally have at least a basic knowledge of JavaScript, HTML, and CSS. Even some understanding of XML, XSLT, or JSON can be helpful, although not essential. Furthermore, we expect that you are experienced with server-side programming in an object-oriented language such as Java, C#, or PHP.

After reading this book, developers should be familiar with the constituent parts that make up the AJAX technology stack and be familiar with

object-oriented JavaScript development. Similarly, you will have a good knowledge of the tools available to aid in developing AJAX applications and a good knowledge of various AJAX issues, such as security, usability, and accessibility.

WHAT'S IN STORE

We begin in Chapter 1, "AJAX and Rich Internet Applications," by covering the basics of what an AJAX application is and how the pieces all fit together. We also discuss the evolution of the web application and some of the reasons that AJAX is becoming the preferred solution for web-based applications.

In Chapter 2, "AJAX Building Blocks," we dive into the AJAX technology stack. This includes critical information about the right way to program JavaScript, and we pay special attention to object-oriented JavaScript development, the Document Object Model, cascading stylesheets, events, and XMLHttpRequest object, as well as other issues relating to transferring data from the client to the server.

Chapter 3, "AJAX in the Web Browser," builds on Chapter 2 and lays a foundation for understanding the major browser differences, and with that knowledge, it looks at how one can build AJAX applications using the Model-View-Controller design pattern. In particular, you see how to write a client-side Model in JavaScript, how to generate HTML views from data, and how to connect the Model and View using a JavaScript-based Controller that relies on a publish-subscribe event system.

In Chapter 4, "AJAX Components," we are ready to look at how you can build an AJAX user-interface component for use in a web application. In particular, we examine the differences between an imperative and declarative approach, and we look at some of the caveats of a declarative approach while presenting a complete example of building an AJAX-based data-grid component.

At this point in the book, we look at some of the overarching goals and problems with AJAX development. Chapter 5, "Design to Deployment," specifically looks at issues throughout the software development lifecycle that are unique to AJAX, from application design to testing to deployment. You should leave this chapter with a good idea of various AJAX performance problems as well as many of the tools that are useful from the start to end of any AJAX development project.

Chapter 6, "AJAX Architecture," introduces the reader to various architectural issues surrounding AJAX development. This includes investigating asynchronous messaging patterns and approaches to server communication such as server push, caching, scaling, and offline AJAX. Although many of these are common to any web-based application, we approach these issues with a unique AJAX perspective.

Building on Chapter 6, Chapter 7, "Web Services and Security," discusses how AJAX can fit into a service-oriented architecture using Web Services in the web browser, as well as the different security problems that can arise when building an AJAX web application.

Chapter 8, "AJAX Usability," starts the final section of the book by exploring some pertinent topics in usability, specifically where they apply to building AJAX applications for everyday users. Of interest in Chapter 8 are complete solutions to common problems such as the Back-button problem and approaches to addressing accessibility and internationalization.

Chapter 9, "User Interface Patterns," is a hands-on exploration of some powerful AJAX user-interface patterns including in-place editing, master-detail, live forms, and drag and drop. These are some of the core user-interface design patterns that developers should be aware of when building almost any AJAX application.

In Chapter 10, "Risk and Best Practices," we shift gears and explore sources of risk in developing scalable enterprise-grade AJAX applications. This is likely the least explored topic in AJAX books but is equally important to the technology itself when considering building a new application.

To wrap things up, in Chapter 11, "Case Studies," we look at some actual AJAX implementations in demanding enterprise environments. We speak to the developers and hear what they did right or wrong and what they would do differently next time.

All in all, we hope this gives you a new perspective on AJAX development, and most of all, that you come away with some new skills to bring to your development projects.

Support/Feedback

We tried, of course, to keep all the information in this book as current and correct as possible, but errors are bound to slip through. We apologize in advance for any inaccuracies. Please see the book website http://www.enterpriseajax.com for any errata.

In addition, you will find all the source code from this book on the website for convenient download. All the source code is available under a GPL license.

We're also eager to get feedback on the book, code samples, and so-on for the next edition. Please direct this feedback to enterpriseajax@nitobi.com.