# Contents

About the Author ..... xi
About the Technical Reviewer ..... xiii
Acknowledgments ..... xv
Introduction ..... xvii

**Chapter 1 Introducing .NET and Enterprise Architecture ..... 1**

Defining Enterprise Applications ..... 1
Leveraging the .NET Servers ..... 7
Understanding the Enterprise Development Process ..... 9
Understanding Enterprise Application Design ..... 11
Establishing an Application Development Framework ..... 15
Getting Started with Visual Studio .NET ..... 16
Summary ..... 21

**Chapter 2 Accessing Data in ADO.NET ..... 23**

Building a Data Access Framework ..... 23
Understanding the ADO.NET Architecture ..... 24
Creating the Data Access Component ..... 28
Building Application Framework Objects ..... 40
Creating the Business Object Manager ..... 46
Managing Reference Data ..... 57
Connecting to Databases Other Than SQL Server ..... 65
Summary ..... 69

**Chapter 3 Using Networking Directory Services ..... 71**

Exploring Directory Services ..... 71
Leveraging .NET Framework Objects ..... 77
Applying Directory Services ..... 78
Improving Directory Service Performance ..... 89
Summary ..... 93

**Chapter 4 Applying Reliable Messaging ..... 95**

Introducing Messaging Systems ..... 95
Using Microsoft Message Queue ..... 99
Working with .NET Messaging Services ..... 101
Implementing a Distributed Service ..... 125
Summary ..... 128

**Chapter 5 Integrating Mail Services ..... 129**

Understanding E-Mail Concepts ..... 129
Building an E-Mail Business Service ..... 136
Summary ..... 149

**Chapter 6 Automating Business Processes ..... 151**

Enabling Business Process Automation ..... 151
Exploring BizTalk Server ..... 152
Extending .NET Applications with BizTalk Server ..... 155
Defining the Business Process ..... 157
Implementing the Business Process ..... 161
Executing the Business Process ..... 175
Summary ..... 175

**Chapter 7 Building Web Applications ..... 177**

Standardizing Web Forms with Templates ..... 177
Adding Dynamic Data to Web Forms ..... 188
Managing User Session Data ..... 199
Validating User Data Entry ..... 201
Applying Web User Controls ..... 204
Summary ..... 209

**Chapter 8 Developing Desktop Applications ..... 211**

Building a Desktop Application Framework ..... 211
Creating a Plug-in Framework ..... 218
Adding Dynamic Data to Windows Forms ..... 235
Extending Application Usability ..... 243
Packaging Application Resources ..... 255
Summary ..... 257

**Chapter 9 Using XML and Web Services ..... 259**

Understanding the Extensible Markup Language .....259
Understanding the Web Service Framework .....268
Building Enterprise Web Services .....273
Summary .....299

**Chapter 10 Integrating Reporting Services ..... 301**

Delivering Enterprise Reporting .....301
Creating a New Enterprise Report .....306
Performing the Report Layout .....310
Adding Report Viewers to Applications .....322
Distributing Enterprise-Wide Reports .....330
Summary .....332

**Chapter 11 Deploying .NET Applications on Wireless Devices ..... 333**

Exploring the .NET Compact Framework .....333
Exploring the Microsoft Mobile Internet Toolkit .....358
Summary .....376

**Chapter 12 Integrating .NET Applications ..... 377**

Defining an Application Integration Strategy .....377
Architecting an Integration Platform .....380
Creating Integration Adapters .....381
Creating the Integration Server .....392
Performing Data Mapping and Transformation with XSLT .....399
Exchanging Data Between Adapters and the Integration Server 406
Summary .....412

**Chapter 13 Understanding .NET Security and Cryptography ..... 415**

Defining Layers of Application Security .....415
Understanding the .NET Security Framework .....416
Implementing Security Concepts .....418
Summary .....441

**Chapter 14 Installing .NET Applications** ..... **443**

Defining the Elements of Application Deployment ..... 443
Examining the Windows Installer Engine ..... 444
Implementing a Deployment Solution ..... 445
Addressing Common Deployment Issues ..... 458
Summary ..... 465

**Appendix A Building the IssueTracker Database** ..... **467**

**Appendix B Understanding the IssueTracker Object Map** ..... **471**

**Appendix C Using String Format Specifiers** ..... **473**

Formatting Numbers ..... 473
Formatting Dates ..... 474
Formatting Enumerations ..... 476

**Appendix D Using XSLT Functions** ..... **477**

**Index** ..... **479**