

Pro Java EE 5 Performance Management and Optimization



Steven Haines

Pro Java EE 5 Performance Management and Optimization

Copyright © 2006 by Steven Haines

All rights reserved. No part of this work may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or by any information storage or retrieval system, without the prior written permission of the copyright owner and the publisher.

ISBN-13: 1-59059-610-2

ISBN-10: 978-1-59059-610-4

Printed and bound in the United States of America 9 8 7 6 5 4 3 2 1

Trademarked names may appear in this book. Rather than use a trademark symbol with every occurrence of a trademarked name, we use the names only in an editorial fashion and to the benefit of the trademark owner, with no intention of infringement of the trademark.

Lead Editor: Steve Anglin

Technical Reviewers: Mark Gowdy, Dilip Thomas

Editorial Board: Steve Anglin, Ewan Buckingham, Gary Cornell, Jason Gilmore, Jonathan Gennick, Jonathan Hassell, James Huddleston, Chris Mills, Matthew Moodie, Dominic Shakeshaft, Jim Sumser, Keir Thomas, Matt Wade

Project Manager: Beth Christmas

Copy Edit Manager: Nicole LeClerc

Copy Editors: Heather Lang, Nicole LeClerc

Assistant Production Director: Kari Brooks-Copony

Production Editor: Laura Cheu

Compositor: Susan Glinert

Proofreader: Liz Welch

Indexer: Broccoli Information Management

Artist: Kinetic Publishing Services, LLC

Cover Designer: Kurt Krames

Manufacturing Director: Tom Debolski

Distributed to the book trade worldwide by Springer-Verlag New York, Inc., 233 Spring Street, 6th Floor, New York, NY 10013. Phone 1-800-SPRINGER, fax 201-348-4505, e-mail orders-ny@springer-sbm.com, or visit <http://www.springeronline.com>.

For information on translations, please contact Apress directly at 2560 Ninth Street, Suite 219, Berkeley, CA 94710. Phone 510-549-5930, fax 510-549-5939, e-mail info@apress.com, or visit <http://www.apress.com>.

The information in this book is distributed on an “as is” basis, without warranty. Although every precaution has been taken in the preparation of this work, neither the author(s) nor Apress shall have any liability to any person or entity with respect to any loss or damage caused or alleged to be caused directly or indirectly by the information contained in this work.

The source code for this book is available to readers at <http://www.apress.com> in the Source Code section.

Contents at a Glance

About the Author	xv
About the Technical Reviewer	xvii
Acknowledgments	xix
Introduction	xxi

PART 1 ■■■ Fundamentals

■ CHAPTER 1	An Introduction to Application Performance Management	3
■ CHAPTER 2	Quantifying Performance	25
■ CHAPTER 3	Performance Measurements	47
■ CHAPTER 4	Implementing Performance Measurements	73

PART 2 ■■■ Application Life Cycle Performance Management

■ CHAPTER 5	Performance Through the Application Development Life Cycle	125
■ CHAPTER 6	Performance Tuning Methodology	155
■ CHAPTER 7	Tuning an Application Server	177
■ CHAPTER 8	High-Performance Deployments	207
■ CHAPTER 9	Performance and Scalability Testing	223

**PART 3 ■■■ Performance Management
in Production**

■ **CHAPTER 10** Java EE Performance Assessment 255

■ **CHAPTER 11** Production Troubleshooting Methodology s 299

■ **CHAPTER 12** Trending, Forecasting, and Capacity Planning 317

■ **CHAPTER 13** Assembling a Performance Management Plan 337

PART 4 ■■■ Tips and Tricks

■ **CHAPTER 14** Solving Common Java EE Performance Problems 351

■ **CHAPTER 15** Next Steps 373

■ **INDEX** 381