Contents

Foreword xi

Acknowledgments xv

About the Author xvii

Introduction xix

Chapter 1 The Analytical Data Life Cycle 1
Stage 1: Data Exploration 2
Stage 2: Data Preparation 3
Stage 3: Model Development 4
Stage 4: Model Deployment 6
End-to-End Process 8

Chapter 2 In-Database Processing 11
Background 12
Traditional Approach 13
In-Database Approach 15
The Need for In-Database Analytics 16
Success Stories and Use Cases 18
In-Database Data Quality 35
Investment for In-Database Processing 44
Endnotes 47

Chapter 3 In-Memory Analytics 49
Background 50
Traditional Approach 51
In-Memory Analytics Approach 53
The Need for In-Memory Analytics 56
Success Stories and Use Cases 65
Investment for In-Memory Analytics 80

Chapter 4 Hadoop 83
Background 84
Hadoop in the Big Data Environment 86
Use Cases for Hadoop 87
Hadoop Architecture 89
CONTENTS

Best Practices 92
Benefits of Hadoop 95
Use Cases and Success Stories 97
A Collection of Use Cases 103
Endnote 105

Chapter 5 Bringing It All Together 107
Background 108
Collaborative Data Architecture 109
Scenarios for the Collaborative Data Architecture 113
How In-Database, In-Memory, and Hadoop Are Complementary in a Collaborative Data Architecture 119
Use Cases and Customer Success Stories 122
Investment and Costs 150
Endnotes 151

Chapter 6 Final Thoughts and Conclusion 153
Five Focus Areas 154
Cloud Computing 157
Security: Cyber, Data Breach 168
Automating Prescriptive Analytics: IoT, Events, and Data Streams 179
Cognitive Analytics 188
Anything as a Service (XaaS) 197
Conclusion 204

Afterword 208

Index 210