

Contents

Time and IT March on	ix
About the Authors	xi
Foreword	xiii
Acknowledgments	xvii
Who Should Read This Book and Why?	xix
List of Figures	xxi
List of Tables	xxv
 Part One: Introducing Utility Computing	 1
1 Introduction	3
2 What is Utility Computing?	7
2.1 Overview	7
2.2 The Changing Role of IT	7
2.3 Utility Computing	11
2.4 Return on Investment	17
2.5 Why Now?	19
2.6 It is Not All or Nothing	21
2.7 Further Implications of Utility Computing	27
2.8 Summary	28
Reference	28

3 Historical Trends, or ‘Is Utility Computing Really New?’	29
3.1 Overview	29
3.2 Back to the Beginning	29
3.3 Connectivity: The Great Enabler	32
3.4 The Web and the Return to Utility Computing	34
3.5 Pay-As-You-Grow Data Processing	36
3.6 Utility Computing and the Industry	37
3.7 Summary	40
4 The Utility Model in Detail	43
4.1 Overview	43
4.2 The Essentials of a Utility	44
4.3 The Utility Model in Detail (An Analogy)	44
4.4 Should Information Services Be any Different?	61
4.5 Summary	62
5 Service Level Agreements	63
5.1 Overview	63
5.2 An Everyday Event	63
5.3 Defining Services and the Service Level Agreement	65
5.4 Creating Complex Services	77
5.5 Managing Services	79
5.6 Sharing Risk with Suppliers	83
5.7 Summary	85
Part Two: Transformational Modeling	87
6 Project Justification and Focus	89
6.1 Overview	89
6.2 Business Drivers and Project Justification	90
6.3 How to Find Where to Start	91
7 The Utility Computing Reference Model	95
7.1 Overview	95
7.2 The Service Layer	97
7.3 The Process Layer	114
7.4 The Organizational Layer	134
8 A Maturity Model for Utility Computing	147
8.1 Overview	147
8.2 The Maturity Levels in Detail	149
8.3 Creating a Utility Computing Scorecard	160
8.4 Moving Up the Maturity Model (Generic Tasks)	162

9 A Transformational Approach	167
9.1 Overview	167
9.2 The Prepare Phase	173
9.3 The Model Phase	176
9.4 The Transform Phase	179
9.5 The Operate/Innovate Phase	182
10 Technology for Utility Computing	187
10.1 Overview	187
10.2 Virtualization	187
10.3 Performance Monitoring	197
10.4 Reporting	199
10.5 Automation	200
10.6 Chargeback Accounting	203
10.7 Service Level Management	205
10.8 Hardware	208
10.9 Summary	210
Reference	210
Part Three: Implications of Utility Computing	211
11 Cultural Implications	213
11.1 Overview	213
11.2 What to Expect, Getting Ready for Transformation	214
11.3 Moving From Asset Ownership to Service Level Agreements	224
11.4 Effective Corporate Communications	226
11.5 Summary	228
12 Developing a Successful Adoption Strategy	229
12.1 Overview	229
12.2 Types of Adoption Strategy	230
12.3 Choosing a Partner	234
12.4 The Comparison to Outsourcing	238
12.5 Security	238
12.6 Good Targets for Utility Computing Adoption	241
12.7 Brown Field Versus Green Field Opportunities	244
12.8 Using IT Consolidation as a Starting Point	245
12.9 Summary	251
13 Future Trends	253
13.1 Overview	253
13.2 Standards	254
13.3 Packaged Solutions	254
13.4 Service-Oriented Architecture	255
13.5 Virtualization	256
13.6 The End of Applications as we Know Them?	257
13.7 Grid Computing	258

13.8 The Future: An Object Application Environment?	260
13.9 Summary	260
14 Afterword: Avoiding the Pitfalls	263
14.1 Overview	263
14.2 Returning to Chaos	263
14.3 Innovation	266
14.4 Summary	268
Appendix A: Case Studies	269
A.1 Case Study: Dartmouth College's Campus-Wide Backup Utility	270
A.2 Case Study: Digital TV Co's Disaster Recovery Utility	277
A.3 Case Study: Arsenal Digital Solutions' Information Storage Utility	284
A.4 Case Study: A Telecommunications Server and Application Utility	290
Appendix B: Utility Computing Planning Forms	295
B.1 Baselineing	295
B.2 Baselineing 2	296
B.3 User Department View	296
B.4 IT View	297
B.5 IT Technology Support	297
B.6 IT Planning	297
B.7 Cost Savings	297
B.8 Hard Metrics	298
Appendix C: Initial Utility Computing Reference Model Assessment	299
C.1 Utility Reference Model Assessment	301
C.2 Plotting Your Utility Assessment Results	317
Appendix D: Stakeholders and Objections	319
Glossary	327
Index	335