

Contents

Chapter 1: Introduction	1
About This Book	2
Who This Book Is For	2
What This Book Does Not Cover	3
How This Book Is Organized	3
Additional Information	4
Updates, Errata, and Resources (www.servicetechbooks.com)	4
Service Technology Specifications (www.servicetechspecs.com)	4
The Service Technology Magazine (www.servicetechmag.com)	5
Service-Oriented (www.serviceorientation.com)	5
What Is REST? (www.whatisrest.com)	5
What Is Cloud? (www.whatiscloud.com)	5
SOA and Cloud Computing Design Patterns (www.soapatterns.org , www.cloudpatterns.org)	5
SOA Certified Professional (SOACP) (www.soaschool.com)	5
Cloud Certified Professional (CCP) (www.cloudschool.com)	5
Big Data Science Certified Professional (BDSCP) (www.bigdatascienceschool.com)	6
Notification Service	6
Chapter 2: An Overview of SOA & Service-Oriented	7
Services and Service-Oriented	8
Service-Oriented, Yesterday and Today	9
Applying Service-Oriented	12
The Eight Principles of Service-Oriented	12
The Four Characteristics of SOA	13
The Four Common Types of SOA	15
SOA Design Patterns	17
The Seven Goals of Applying Service-Oriented	18
Planning For and Governing SOA	20
The Four Pillars of Service-Oriented	20
The Seven Levels of Organizational Maturity	22
SOA Governance Controls	23

Chapter 3: A Look at How Services are Defined and Composed25

Basic Concepts	27
Agnostic and Non-Agnostic Logic	27
Service Models and Service Layers	27
Service and Service Capability Candidates	28
Breaking Down the Business Problem.	28
Functional Decomposition	28
Service Encapsulation	30
Agnostic Context	30
Agnostic Capability	32
<i>Utility Abstraction</i>	32
<i>Entity Abstraction</i>	33
Non-Agnostic Context	34
<i>Process Abstraction and Task Services</i>	35
Building Up the Service-Oriented Solution	36
Service-Orientation and Service Composition.	36
Capability Composition and Capability Recomposition	39
<i>Capability Composition</i>	39
<i>Capability Recomposition</i>	40
<i>Domain Service Inventories</i>	44

Chapter 4: An Exploration of Service-Orientation with the SOA Manifesto47

The SOA Manifesto	48
The SOA Manifesto Explored.	49
Preamble	50
Priorities	51
Guiding Principles	55

Chapter 5: An Overview of Service Technology63

Web-Based Services	64
SOAP-Based Web Services	65
REST Services	65
Components	66

Service Virtualization66

Cloud Computing.67

API Management68

Model-Driven Software Design68

Semantic Web69

Business Process Management70

Composition and Orchestration70

Master Data Management71

Business Rule Engines72

Social Network Technologies.72

Mobile Computing72

Agent-Driven Architecture73

Event-Driven Architecture and Complex Event Processing 74

Business Intelligence75

Enterprise Information Integration and
Extract-Transform-Load76

Big Data77

**Chapter 6: A Look at Service-Driven
Industry Models79**

The Enterprise Service Model80

The Virtual Enterprise Model81

The Capacity Trader Model82

The Enhanced Wholesaler Model83

The Price Comparator Model.83

The Content Provider Model84

The Job Market Model84

The Global Trader Model86

 Industry Watchdogs 86

 Guarantors87

Chapter 7: A Case Study89

Systems Landscape	92
New Marketing Strategy	93
Corporate Culture	95
Vehicle Maintenance	97
The Billing System	97
Strategic Considerations	98
Cloud Adoption	99
New Reference Architecture	102
The Customer Profile Process	102
New Service Technology	105
The SOA Governance Program Office	107
The Enterprise Architecture Board	108
A Transformed Enterprise	110

APPENDICES**Appendix A: Additional Reading for Applying Service-Orientation 117**

The Eight Service-Orientation Principles	118
Standardized Service Contract	119
Service Loose Coupling	121
Service Abstraction	122
Service Reusability	123
Service Autonomy	125
Service Statelessness	126
Service Discoverability	128
Service Composability	130

The Four Characteristics of SOA 132

 Business-Driven 132

 Vendor-Neutral 134

 Enterprise-Centric 137

 Composition-Centric 138

SOA Design Patterns 140

**Appendix B: Additional Reading for Planning & Governing
Service-Orientation 151**

The Four Pillars of Service-Orientation. 152

 Teamwork 153

 Education 153

 Discipline 153

 Balanced Scope 154

The Seven Levels of Organizational Maturity 156

 Service Neutral Level 157

 Service Aware Level. 157

 Service Capable Level 158

 Business Aligned Level 158

 Business Driven Level 159

 Service Ineffectual Level 159

 Service Aggressive Level. 159

SOA Governance Controls. 160

 Precepts 160

 Processes. 161

 People (Roles) 162

 Metrics 162

**Appendix C: Additional Reading for
Cloud Computing 163**

Goals and Benefits 164
 Reduced Investments and Proportional Costs. 164
 Increased Scalability 166
 Increased Availability and Reliability 167
Risks and Challenges 168
 Increased Security Vulnerabilities 168
 Reduced Operational Governance Control 168
 Limited Portability Between Cloud Providers 170
 Multi-Regional Compliance and Legal Issues 171

About the Authors 173

Thomas Erl 173
Clive Gee, PhD. 173
Jürgen Kress 174
Berthold Maier 174
Hajo Normann 175
Pethuru Raj 175
Leo Shuster 176
Bernd Trops 176
Clemens Utschig-Utschig 177
Philip Wik 177
Torsten Winterberg 177

Index 179