



The Addison-Wesley Signature Series

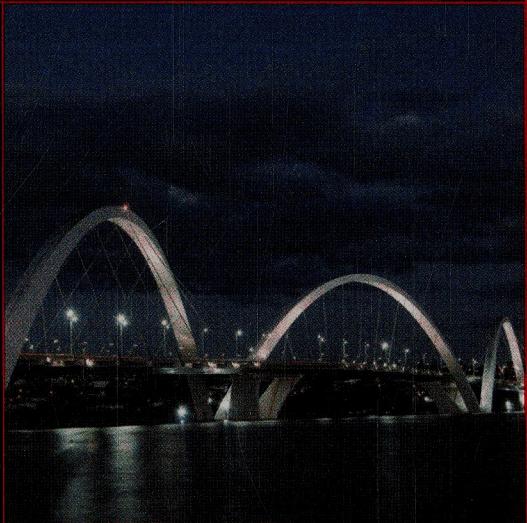
Martin Fowler
Signature Series
Book A Martin Fowler
Signature Series Book

SERVICE DESIGN PATTERNS

FUNDAMENTAL DESIGN SOLUTIONS FOR
SOAP/WSDL AND RESTFUL WEB SERVICES

ROBERT DAIGNEAU

With a Contribution by
IAN ROBINSON



Forewords by
MARTIN FOWLER and IAN ROBINSON

Contents

Foreword by Martin Fowler	xi
Foreword by Ian Robinson	xiii
Preface	xv
Acknowledgments	xxiii
About the Author	xxv
Chapter 1: From Objects to Web Services	1
What Are Web Services?	2
From Local Objects to Distributed Objects	3
Why Use Web Services?	6
Web Service Considerations and Alternatives	7
Services and the Promise of Loose Coupling	9
What about SOA?	10
Summary	11
Chapter 2: Web Service API Styles	13
Introduction	13
Design Considerations for Web Service APIs	14
RPC API	18
Considerations	20
Message API	27
Considerations	29
Resource API	38
Considerations	43
Chapter 3: Client-Service Interactions	51
Introduction	51
Request/Response	54
Considerations	56

Request/Acknowledge	59
Considerations	62
Media Type Negotiation	70
Considerations	73
Linked Service	77
Considerations	79
Chapter 4: Request and Response Management	83
Introduction	83
Service Controller	85
Considerations	89
Data Transfer Object	94
Data-Binding Considerations	98
General Considerations	99
Request Mapper	109
Considerations	111
Response Mapper	122
Considerations	124
Chapter 5: Web Service Implementation Styles	131
Introduction	131
Design Considerations for Web Service Implementation	132
Transaction Script	134
Considerations	135
Datasource Adapter	137
Considerations	139
Operation Script	144
Considerations	145
Command Invoker	149
Considerations	150
Workflow Connector	156
Considerations	162
Chapter 6: Web Service Infrastructures	165
Introduction	165
Service Connector	168
Considerations	172
Service Descriptor	175
Considerations	177

Asynchronous Response Handler	184
Considerations	188
Service Interceptor	195
Idempotent Retry	206
Considerations	211
A Quick Review of SOA Infrastructure Patterns	220
The Service Registry	220
The Enterprise Service Bus	221
The Orchestration Engine	224
Chapter 7: Web Service Evolution	227
Introduction	227
What Causes Breaking Changes?	228
Structural Changes to Media Types or Messages	229
Service Descriptor Changes	230
Common Versioning Strategies	232
Single-Message Argument	234
Dataset Amendment	237
Considerations	240
Tolerant Reader	243
Considerations	244
Consumer-Driven Contracts	250
Considerations	254
How the Patterns Promote or Hinder Service Evolution	264
Appendix: Reference to External Patterns	269
Glossary	277
Bibliography	297
Index	303