

Table of Contents

- About the Author xi
- About the Technical Reviewer xiii
- Acknowledgmentsxv
- Introductionxvii
- Forewordxxi
- Chapter 1: The Ticket Sales Problem..... 1
 - Background..... 2
 - Requirements..... 3
 - Options 4
 - Manual Process 4
 - Existing System 6
 - Existing System Considerations 7
 - Minimum Viable Product..... 8
 - Target Architecture..... 8
 - How to Deal with High Throughput..... 9
 - Widening the Funnel..... 10
 - Multiple Funnels 11
 - Message Queues 13
 - Message Brokers..... 14
 - Separation of Concerns 16
 - Target Architecture Diagram..... 17
 - Proxy..... 18
 - A Note on Cloud Vendors 19
 - Why Cloud?..... 20

TABLE OF CONTENTS

Examples.....	21
External APIs.....	21
Getting Ticket Availability.....	21
Ordering a Ticket	25
Summary.....	29
Chapter 2: The Cash Desk Problem	31
Background.....	32
Requirements.....	32
Options	32
Manual Process	33
Target Architecture.....	36
Audit	36
Event Sourcing	40
CQRS.....	46
Target Architecture Diagram.....	47
Examples.....	49
Persisting Events to Memory.....	49
Persisting Events to Disk.....	52
Summary.....	61
Chapter 3: The Travel Agent Problem	63
Background.....	64
Requirements.....	65
Options	66
Manual Process	66
Transactions	67
Distributed Transactions	71
Distributed Transaction with Timeout.....	74
Book and Cancel.....	75
Hold a Booking	76

Advanced Purchase	76
Business Decision	76
Target Architecture.....	77
Stateful Service	79
Distributed Service	79
Target Architecture Diagram.....	79
Examples.....	80
Project Structure	80
Service Bus Configuration	82
Coordinator	85
Summary.....	90
Chapter 4: The Social Media Problem.....	93
Background.....	94
Requirements.....	94
Options	95
Manual Process	96
CQRS.....	97
Target Architecture.....	102
Examples.....	104
Schema Creation	104
Updating the Database	105
Checking the Data	107
Web Service.....	107
Accessing MongoDB.....	110
The Client	114
Process Data Service	118
Summary.....	122

Chapter 5: The Admin Application Problem.....	125
Background.....	126
Requirements.....	126
Options.....	127
Manual Process	127
SOLID	129
Single Responsibility	130
Open-Closed	133
Liskov Substitution	136
Interface Segregation Principle	138
Dependency Inversion Principle	139
Methods of Extending Software.....	141
Hooks.....	141
Messages	142
Injection.....	145
Target Architecture.....	148
Examples.....	149
Basic Functionality	149
Extensibility	154
Custom Functionality	156
Summary.....	157
Chapter 6: The Travel Rep Problem	159
Background.....	160
Requirements.....	160
Options.....	161
Manual Process	161
Caching.....	162
Sidecar Pattern.....	163
Ambassador Pattern	164

Target Architecture.....	166
Containers	167
Examples.....	168
Project Structure	169
TravelRep.CentralApi	170
TravelRep.App.....	173
TravelRep.Ambassador	174
Containers	182
Summary.....	196
Appendix A: Technical Appendix.....	199
Chapter 1	199
Index.....	205