Contents

About the Author	xii
About the Development Editor	xiii
About the Technical Editor	xiii
Acknowledgments	
-	
Foreword	xvii
Introduction	xix
Chapter 1 The Starting Point	1
Vacuing Vour Product Coftware Defined	-
Knowing Your Product-Software Defined	
Overcoming the Application-Centric View	
Desperately Seeking Reusability	
The (Im)practicality of High Reuse	
Harsh Realities of Application-Centric Reuse	
Revealing the Illusion of Rapid Application Development	
Embracing the Architecture-Centric View	
Exploring Pattern-Centric Development	
Using Metamorphism versus Polymorphism	
Understanding the Language of Symbols	
Patterns in Mathematics	
Abstracting Knowledge	
Dynamic versus Static Representation	
Realizing How Semantics Activate Knowledge	
Developer in a Box	
Development Projects	
Smooth Delivery Effect	
Implications to Development Teams	
Implications on Revenue	
Keeping the Momentum	
Project 1—Groundwork	
TurboCollection	
Property Manipulation	
Factories and Object Recycle	42

Chapter 2 Building Blocks	47
Understanding the Common Application Architecture The Interface Rules	
Building Application-Independent Reusable Objects	
Understanding Interface Dynamics	
Examining Object Interaction	
Early Binding	
Late Binding	
Reuse versus Accelerated Reuse	
Interpreting Structural Patterns	66
The Singleton Pattern	
The Adapter pattern (a.k.a. Wrapper)	
The Flyweight Pattern	72
Implementing Stabilization Rules with SOAL	73
Understanding the Interface Pattern	75
SOAL, Take Two	91
Managing Resources	92
The Factory	93
Abstract Factories	93
The Prototype	
Comparing Application and Metamorphic Models	105
Project 2-Structures	108
StringAdapter	108
Text File Manipulation and Interpretation	110
Chapter 3 Best Behavior	115
Enforcing Behavioral Integrity	116
Using Metadata as Fuel	
Leashing the Development Process	
Tell the Truth about User Requirements	121
Understanding How Change Affects Product Behavior	124
Applying an Appropriate Methodology	125
Stalking Rogues on Teams	126
Implementing Externally Programmable Behavior	128
Utilizing Behavioral Control Models	130
The Flow-Based, Process-Driven Model	130
The Event-Based, Interrupt-Driven Model	131
Software Control	131
Exploring Behavioral Patterns	132
The Iterator	132
The Interpreter	122

The Observer/Visitor	137
The Template	140
Frameworks	144
Simple Syntax	146
Achieving Pattern-Based Behavioral Control	148
Reality #1: Nothing "Real" Exists Inside the	
Computer's Run-Time Space	149
Reality #2: Use Software to Transform the Statically	
Referenced Entities into Dynamic Entities	149
Reality #3: The Entities and Their Behaviors Are	
Governed by Rules. The Default Rules (Software Code) Are Static	149
Reality #4: Through Interpreter Patterns, We Can Use Software	
to Transform the Normally Static Governing Rules into Dynamic Rules	
Reality #5: Dynamically Manufacture the End-User Experience	
Reality #6: The Application Is External to the Software	
Building Valuable and Practical Components	
Obtaining Expert Advice	
Applying Behaviors	
Enterprise Application Integration (EAI)	
What Is the Real Value?	
Project 3-Behaviors	
Observers and Automatic Behavior Control	
Conditional Operators	
Looking Deeper	173
Chapter 4 Power Tools	175
Organizing, Interpreting, and	
Activating the Metamorphic Model	175
Examining Structural Concepts	
Ode to the Node	
The ParmNode Flyweight Container	
Microsoft's Simple Collection Iterator	
The TurboCollection Iterator	
TurboCollection as a Binary Tree	
TurboCollection Interoperability	
Understanding Multiple Dimensions	
Mechanics of Iteration	
StringAdapter for Interpeter Support	
mathAdapter	198
TextIO as Text Stream Manager	207
Container as Row-Column Data Cache	
Power Tool Checknoint	220

Building a Programmable Application Prototype	221
Structural Reference	
Interface Patterns	222
Structural and Behavioral Metadata	224
Structural Metadata Categories	225
Behavioral Metadata Categories	230
Application Prototype Checkpoint	243
Project 4-Interpreters	244
Interpretation Mechanics	
But Wait, There's More	268
Chapter 5 Virtual Frameworks—Error Control	273
Leashing the Computing Environment	275
Portability and Compatibility	
System Classes	
Controlling Startup and Initialization	277
Controlling the Chaos	279
Bugs versus Errors	
Slaying Bugs with El Jefe De Insectos	
Reducing Error Recovery Options	
Chaos Concepts	
Implementing Chaos Rules	287
Rule #1: Standardize, and Do Not Deviate from "Valid Result Values"	288
Rule #2: Log It—If It's Not Recorded, It Never Happened	290
Rule #3: Recover at the Source, Not the Consumer	293
Rule #4: Never Raise Error Traps	294
Rule #5: Provide for a Run-Time Log	295
Project Five-Error Control	
Chapter 6 Virtual Frameworks—Modeling Data Dynamically	305
Developing the Data Model	306
Managing Changes to the Data Model	
Realizing the Benefits of a Dynamic Model	
Performing Dynamic Aliasing	
Synonym	
Surrogate	
Pseudonym	
Automatic Behavior	

Implementing the vDDM Adapters	323
The dbEngine Adapter	324
The dbBroker Adapter	324
The dbData Adapter	325
The dbInterpreter	325
The dbTemplate Class	325
Interpreter Mechanics	326
Leashing the Power of Dynamic Integration	337
vSQL Configuration Management	338
Wrapping the Engine Itself	
Refining Data-Awareness	
Exporting Application Logic	
Stored Procedures	342
Integrity Considerations	342
Impact Review	
Project 6-Data Integration	
Iterators and Container Patterns	
Sorting	
Container and the Interpreter Mechanics	
Performance Configuration Strategies	
Database Management	
Examining Synonym Behavior	
Examining vSQL Behavior	
Examining vDDM Run-Time Structural Contents	
Generating Data	366
Chapter 7 Virtual Frameworks—Screen Prototypi	na 373
chapter, virtual riamenorks sereen ristorypi	goro
Leashing Screen and Report Layouts	374
Driving Screens and Reports	374
Banging Out the Screens	375
Creating Dynamic Forms	378
Controlling Forms	382
Screen Prototyping Summary	393
Summarizing Application Prototypes, vDDM, and vUIM	395
Project 7-Fun with XML	398
Epilogue	405
Requirements Drive It All	
See You at Virtual Mach!	408
Notes	411
Indov	
LNGOV	410