Marcin Ziemek

DESIGNING IT SYSTEMS INTEGRATION

it integration

api

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INTRODUCTION

The book you are reading describes the IT systems integration design. I will briefly guide you through the design process. We will discuss topics related to the IT systems integration. Together, we will develop an integration architecture for the discussed problem. We will use UML (Unified Modeling Language) notation to design the integration architecture. After reading all the material in the book, you will know how to design the integration architecture by yourself.

Who Is This Book For?

I recommend this book to those who want to acquire practical knowledge regarding the design of IT systems integration. The presented material does not require any preliminary knowledge. Having IT experience can make the material easier to understand, but it is not required.

What Does the Book Not Contain?

The book does not contain extensive theoretical introductions to the presented topics. Concise explanations will allow you to understand the discussed issues, and an extensive example of the project implementation will allow you to understand the process of designing the IT systems integration.

Book Structure

The material presented in this book has been divided into the following parts and chapters:

Part 1—Introduction to the IT Systems Integration—you will get to know the theoretical topics related to IT systems integration. It contains the following chapters:

- Chapter 1—IT Systems Integration Definition
- Chapter 2—Advantages and Disadvantages of IT Systems Integration
- Chapter 3—Where to start?
- Chapter 4—Data Processing Type (online, offline)
- Chapter 5—Integration Mode (automatic, semi-automatic, manual)
- Chapter 6—Integration Type (synchronous, asynchronous)
- Chapter 7—Integration Patterns
- Chapter 8—Integration Architecture Principles
- Chapter 9—Communication Data Model
- Chapter 10—Integration Design and Documentation
- Chapter 11—Integration Solutions and Technologies
- Chapter 12—Integration Protocols
- Chapter 13—Data Formats
- Chapter 14—Security
- Chapter 15—Performance
- Chapter 16—Versioning
- Chapter 17—Error Handling
- Chapter 18—Introduction Summary

Part 2—Preparation for the Integration Architecture Design—it presents the process of designing the integration architecture and the IT solution architecture. We will get to know the business problem, requirements, business processes, use cases, architectural vision, and business, data, and applications architectures. It consists of the following chapters:

- Chapter 19—IT Solution Architecture Design Process
- Chapter 20—Integration Architecture Design Process
- Chapter 21—Business Problem or Business Need Analysis
- Chapter 22—Functional and Non-Functional Requirements Analysis
- Chapter 23—Business Processes Analysis
- Chapter 24—Use Cases Analysis
- Chapter 25—Architectural Vision Analysis
- Chapter 26—Business Architecture Analysis
- Chapter 27—Data Architecture Analysis
- Chapter 28—Application Architecture Analysis
- Chapter 29—Summary of Preparation for the Integration Architecture Design

Part 3—Integration Architecture Design—we will design integration interfaces for the discussed project. It consists of the following chapters:

- Chapter 30—Integration Use Cases Identification
- Chapter 31—Designing Integration Use Cases
- Chapter 32—Designing a Canonical Communication Data Model
- Chapter 33—Common Mistakes Made in Designing an Integration Architecture
- Chapter 34—Summary of Integration Architecture Design

Part 4—Support After Integration Architecture Design—we will discuss the integration architecture impact on the next steps of the IT solution architecture design process. It consists of the following chapters:

- Chapter 35—Technical Architecture Analysis
- Chapter 36—Infrastructure Architecture Analysis
- Chapter 37—Security Architecture Analysis
- Chapter 38—Deployment Architecture Analysis
- Chapter 39—Architecture Verification Analysis
- Chapter 40—Summary of Support After Integration Architecture Design

Part 5—Summary

- Chapter 41—Acknowledgements
- Chapter 42—Glossary of Abbreviations—abbreviations used in the book.

Tools Used in the Book

The UML and BPMN diagrams were modeled using the Visual Paradigm tool[1] in the Modeler version. A free version is also available for non-commercial use. Other popular tools are Enterprise Architect[2] (provides a 30-day free version) and diagrams.net[3] (a free tool for commercial and non-commercial use).

Abbreviations in the Book

In the book, I often use abbreviations of notation, technology, or products. You can find explanations of all abbreviations in the Glossary of Abbreviations chapter.

Files to Download

Files with diagrams used in the book are available at:
https://integration.marcinziemek.com/integration-it-files.zip.

1 https://www.visual-paradigm.com/
2 https://sparxsystems.com/products/ea/
3 https://www.diagrams.net/