

# Preface

Despite having been teaching enterprise systems integration for a number of years, I was unable to find a book that would cover the breadth of topics that I wanted to present to my students. Some books are too high level to convey a practical knowledge of the subject, while others do not raise above the low-level details of certain technological platforms. I wanted to have a book that would go across the landscape of integration concepts and technologies and yet provide an idea of how things work from the low-level systems to the high-level business processes in an organization.

Often, students and IT professionals alike are not fully aware of how technological solutions at the systems level have far-reaching consequences up to the higher levels of business processes in an organization, shaping the way activities and resources must be organized in order to reach a certain business goal or in order to deliver a certain service to the customer. Technology shapes business processes and sets the prospects as well as the limits of what organizations can do. This is not so apparent in computer science curricula where students are routinely asked to develop solutions from scratch, but it will come as a revelation when the student and IT professional realize that while everyone is developing solutions from scratch, someone will have to integrate everything together in order to create an application infrastructure that can support the desired business processes.

Integration has never been an easy topic to address, for several reasons. On one hand, integration has been mostly regarded as “patchwork,” being highly dependent on the specific applications to be integrated. On the other hand, integration technologies keep constantly evolving, making any solution obsolete, or at least “old-fashioned,” in a couple of years. However, when one looks at the technologies that have come one after the other, one starts noticing certain patterns, certain concepts that have been passed along from one technology generation to the next, and even though some concepts were abandoned along the way, others survived and were even improved as each new technology was introduced.

Today, the concepts and technologies associated with enterprise systems integration have matured to the point that now it is possible to see the connection between low-level systems and high-level business processes through a series of

layers that include messaging, adapters, services, and orchestrations. It is always with a view towards supporting business processes that we address integration in this book. From messaging systems to data and application adapters, and then to services, orchestrations, processes, choreographies, and electronic data interchange, I will try to show how everything falls into place in the world of integration.

This book is intended for graduate students and IT professionals with some background in programming, database systems, and XML. These prerequisites are not absolutely essential, but they will help the reader in understanding certain topics and in appreciating the examples that are given throughout the book. Throughout the text, I have tried to abstain from my own views, and instead I decided that my mission would be to describe each topic as impartially and accurately as possible, so that the reader can assess the merits and advantages of the concepts and technologies being presented. Of course, the more knowledgeable the reader is in related fields, the better she or he will be equipped to make such assessment.

Due to its technological nature, it is impossible to teach integration in empty space, without referring to concrete tools and platforms. Unfortunately, every integration platform has its own idiosyncrasies, and choosing a particular platform to illustrate a given concept becomes a delicate decision. But rather than being my own decision, a set of circumstances determined that I would come in close contact with Microsoft BizTalk Server. Even though this platform is relatively complicated to set up (the interested reader is advised to follow the installation guides provided by the vendor), over the years I have found it to be a viable option to illustrate some of the main concepts associated with enterprise systems integration.

With some adaptations, the same concepts can be applied in other platforms, such as webMethods by Software AG, Oracle SOA Suite, or IBM WebSphere. The reader may find open-source alternatives in OpenESB, JBoss ESB, and, more recently, Apache ODE. There are other products which, despite not being mentioned here, may be worth considering as well. These integration platforms will certainly keep evolving, and as they expand in features and sophistication, I hope this book will continue to serve as a useful source of guidance in this exciting field.

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