

Preface

Web Service technology is undeniably the preferred delivery method for the Service-Oriented Computing (SOC) paradigm. It has evolved over the years to be a comprehensive, interdisciplinary approach to modern software development. Web services have gone beyond software componentization technology to embody and express the software manifestation of a general trend transforming our modern society from an industrial, production-centric economy into a digital, service-centric economy. Web services aim to provide the missing conceptual links that unify a variety of different disciplines, such as networking, distributed systems, cloud computing, autonomic computing, data and knowledge management, knowledge-based systems, and business process management. Web services are the technological proxies of services that power much of the developed and increasingly developing economies. In this respect, Web services play a central role in enabling and sustaining the growth of service-centric economies and help modernizing organizations, companies, and institutions also from an IT perspective.

Over the last decade, Web services have become a thriving area of research and academic endeavors. Yet, despite a substantial body of research and scientific publications, the Web services community has been hitherto missing a one stop-shop that would provide a consolidated understanding of the scientific and technical progress of this important subject. This book (the second of a two-book collection) is a serious attempt to fill this gap and serve as a primary point of reference reflecting the pervasive nature of Web services.

This book is the second installment of a two-book collection (we discuss the foundational topics in the first book, *Web Services Foundations*, Springer, 2013). Together, they comprise approximately 1,400 pages covering state-of-the-art theoretical and practical aspects as well as experience using and deploying Web services. The collection offers a comprehensive overview of the scientific and technical progress in Web services technologies, design, architectures, applications, and performance. The second book of the collection consists of three major parts:

- I *Advanced Services Engineering and Management* (11 chapters)—It explores advanced engineering problems, such as Web service transactions and recovery, security and identity management, trust and contracts, and Web service evolution and management;
- II *Web Service Applications and Case Studies* (5 chapters)—It covers concrete scenarios of the use of Web service technology and reports on empirical studies of real-world Web service ecosystems;
- III *Novel Perspectives and Future Directions* (10 chapters)—It surveys approaches of the applications on how the Web service paradigm can be applied to novel contexts, such as human-centric computing, human work, and the Internet of Things, and discusses the value of Web services in the context of mobile and cloud computing.

The first book (*Web Services Foundations*, Springer, 2013) consists of two major parts:

- I *Foundations of Web Services* (12 chapters)—It explores the most representative theoretical and practical approaches to Web services, with a special focus on the general state-of-the-art approaches to Web service composition;
- II *Service Selection and Assisted Composition* (16 chapters)—It focuses on other aspects of Web service composition problem, specifically takes a deep look at non-functional aspects (e.g., quality of service), Web service recommendations, and how Web service composition is made easy for less expert developers.

The topics covered in the collection are reflective of their intent: they aim to become the primary source for all pertinent information regarding Web service technologies, research, deployment, and future directions. The purpose of the two books is to serve as a trusted and valuable reference point to researchers and educators who are working in the area of Web services, to students who wish to learn about this important research and development area, and to practitioners who are using Web services and the service paradigm daily in their software development projects.

This collection is the result of an enormous community effort, and their production involved more than 100 authors, consisting of the world's leading experts in this field. We would like to thank the authors for their high-quality contributions and the reviewers for their time and professional expertise. All contributions have undergone a rigorous review process, involving three independent experts in two rounds of review. We are also very grateful to Springer for their continuous help and assistance.

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