Preface

The world of computing has witnessed the emergence of a new paradigm called *services*. This phenomenon is part of an *evolution* journey that has taken us from *data* (bits and bytes) to *information* (wrapping meaning around data) to *knowledge* (reasoning about information) to the current era, i.e., **services** (the result of acting on knowledge). Services aim at taking computing to a *new level of abstraction* that is *closer* to the way *humans naturally think and interact* with their surrounding. The advent of this new paradigm has incidently happened concurrently with the rising need to support the new *service-driven economies*. The emerging *interdisciplinary service science* aims at using the latest research in service-related areas to inject efficiencies in dealing with the complex problems of *service creation and provisioning*. Service computing can be, in many ways, thought of as the *engineering* of solutions for the service economy.

A key plank of the service computing agenda is *service composition*: it aims at providing techniques, models, and architectures for the automation of multiple, autonomous, and dissimilar services to produce new and novel services. Service composition benefits include better techniques for service outsourcing and innovative and serendipitous services. Applications abound and span almost numerous areas, including e-government, life sciences, hospitality, disaster management, education, health, IT outsourcing, cloud computing, and many more. A key technology enabler for services is *Web services* which is tightly *congruent* with the service paradigm. There have been tremendous activities around Web service standardization which must be said, has probably gone beyond what was needed. Without any doubt, this over-standardization is now having a stifling effect on research.

This book is to the best of our knowledge, the first of its kind to address service composition, especially using the latest research in semantics to lay a much needed rigorous foundation which future research can build upon. We use scenarios from e-government (social services) and life sciences (analysis of protein sequence information) to illustrate the concepts and techniques

discussed in this book. We analyze the main issues, solutions, and technologies for enabling interactions on the Web and Semantic Web periods.

Brahim Medjahed
Athman Bouguettaya



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