PART I

Introduction to Cloud Computing

Part I of the book introduces the essential cloud computing concepts and builds foundational knowledge on the subject. It establishes a context domain for the rest of the book, for both theoretical and practical concerns.

Chapter 1 dissects an original paper on cloud computing, published by the National Institute of Standards and Technology (NIST) in September of 2011. It is important for the reader to establish a solid understanding of cloud computing, including its characteristics and delivery and service models, as these elements serve as core migration waypoints and influence design and technology decisions. These concepts also influence the practical implementation of the sample application. Next, the reader is presented with cloud computing benefits and drawbacks in three major areas: *business, technology, and social*. The reader is also introduced to paradigm changes in the six major services and technologies knowledge areas: *infrastructure, security, architecture, software development, software delivery, and software operations*. This classification is applied to the rest of the book to structure the migration process.

Chapter 2 starts with organizational cloud migration success factors—*people, processes, and technology*—where successful migration implies deep synergy among all elements. We build on the cloud computing characteristics and its delivery and service models to derive suitable cloud migration architecture and design principles, methodologies, maturity models, technologies, and migration strategies. The chapter ends by presenting the reader with a pragmatic and reusable application cloud migration process that could serve as a blueprint or template for an existing system migration.