

Preface

Cloud computing is the latest computing paradigm which brings entirely new innovations to the Information Technology (IT) industry. Gartner estimated the demand in 2009 for cloud computing at \$46 billion, rising to \$150 billion by 2013.¹ According to Microsoft, cloud computing can help their customers to save up to 80% on the cost of their IT infrastructure.²

Workflow systems have been widely used as software tools to support process automation, and also as middleware services for distributed high performance computing infrastructures such as cluster, peer-to-peer, and grid computing. In the upcoming few years, given the enormous market of cloud computing, there will be a rapid growth of software as a service (SaaS), and we can envisage that cloud workflow system can be one of the competitive software platforms to support the design, development and running of cloud based software applications.

Cloud computing has many unique characteristics such as its organisation and delivery of computing resources, but it also inherits and shares many aspects with other existing computing paradigms such as grid computing, utility computing and service computing. Therefore, to design and develop a cloud workflow system, it is essential to investigate the system fundamentals such as the system architecture, functionality and quality of service (QoS), while in the meantime, compare the differences and similarities in the system requirements to determine whether existing strategies can be adopted and/or adapted for the new scenario, or entirely new system designs are required.

This book is written to discuss and address these timely issues. Since cloud computing as well as cloud workflow system is evolving in a fast pace, this book only reflects the view of the authors based on their best knowledge about the current situation, and demonstrates the research progress and outcomes. It is neither the only view nor the unanimous view about cloud workflow systems. Nevertheless, after reading this book, readers are expected to have a basic idea about what is a cloud workflow system, and what are the key factors in its design.

¹ http://www.gartner.com/DisplayDocument?doc_cd=166525&ref=g_SiteLink

² <http://www.microsoft.com/presspass/presskits/cloud/docs/The-Economics-of-the-Cloud.pdf>

The Design of Cloud Workflow Systems

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