GUEST EDITORIAL PREFACE

Special Issue on Cloud Systems and Services

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"Cloud" is a common metaphor for an Internet accessible platform of shared hardware and software hidden from users for scalable service provision. The technical foundations of Cloud Computing include Service-Oriented Architecture (SOA) and Virtualizations of hardware and software. Under Cloud Computing, IT-related capabilities are provided as services, accessible anywhere anytime without requiring detailed knowledge of the underlying technology. Thus, many mature technologies are used as components in Cloud Computing, but still there are many unresolved and open problems. In particular, how traditional information systems can be (re-)engineered and migrate to new cloud platforms is a key issue of its adoption.

The creation, operation, and evolution of such research and practice raise concerns that range from high-level requirements and policy modeling through to the deployment of specific implementation technologies and paradigms, and involve a wide (and ever growing) range of methods, tools, and technologies. They also cover a broad spectrum of vertical domains, industry segments, and even government sectors.

This special issue also aims at helping in communicating and disseminating relevant recent research across disciplines, cultures, and communities in in Cloud Systems and Services. We intentionally seek scientists, engineers, educators, solution developers, policy makers, management, analysts, and others who have insight, vision, and understanding of the big challenges in this emerging field. Priory to this special issue, we hold the International Workshop on Cloud Information System Engineering, co-located with the 11th International Conference on Web Information System Engineering (WISE 2010) in Hong Kong. We thank again the WISE organization committees in supporting our activities. Here, we introduce the four articles in this special issue as follows.

First, Mehta and Ahuja propose a trust management architecture that keeps track of past performance of resource provider and resource consumer considering a wide range of

information such as activeness, ratio of positive and negative feedback. Trust is an important factor in the exchange of services among multiple parties in the Cloud environment, so that every time the participating entity in a transaction has idea of behavior of other entities. Their approach also includes a declining weight to deal with the evaluation history to give chance of regret to previous poorly-evaluated providers upon their improvement.

Boumahdi and Chalal further propose a novel architecture to enrich the Service Oriented Architecture (SOA) with decisional aspects beyond traditional business and information levels. This is essential for utilizing the Cloud for enterprise computing. They demonstrate the feasibility of their approach with an inventory management application.

Next, Torres and Liu propose a performance-counter approach to adaptive virtual machine (VM) management in the Cloud. They suggest elevating the capability of the hypervisor to monitor and manage co-running VMs by capturing their dynamic behavior at runtime and adaptively schedule and migrate VMs across cores to minimize contention on system resources hence maximize the system throughput. This approach does not require any changes or adjustments to the VMs themselves, the applications running inside them, or existing hardware structures. Their experimental results show this approach has a great potential to improve the overall system throughput in the Cloud environment.

Last but not the least, Chana and Kaur present a survey on resources scheduling techniques in utility computing, focusing on extended Quality-of-Service (QoS) issues, including also load balancing and energy efficiency support. Proficient on-demand resource allocations and efficient scheduling helps in achieving optimal resource utilization and hence enhances the performance of systems and services in the current cloud computing arena.

The articles in this issue illustrate some of the current research areas pertinent to Cloud Systems and Services; while, in many ways, also amplifying the many challenges, which remain to be addressed. It is expected that new topics will emerge while existing research will shift concentration into these areas in the coming years, which are also inline with the journal's objective towards the goal of achieving service excellence under the current globalized service-oriented economy.

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Dickson K.W. Chiu received the B.Sc. (Hons.) degree in Computer Studies from the University of Hong Kong in 1987. He received the M.Sc. (1994) and the Ph.D. (2000) degrees in Computer Science from the Hong Kong University of Science and Technology. He started his own IT consultant company while study-ing part-time. He has also taught at several universities in Hong Kong and served as a research fellow in the City University of Hong Kong. His research interests are in service science and design science with a cross-disciplinary approach. The results have been widely published in over 150 papers in international journals and conference proceedings, including many practical master and undergraduate project results. He received a best paper award in the 37th Hawaii International Conference on System Sciences in 2004. He is the founding Editor-in-chief of the International Journal on Systems and Service-Oriented Engineering and serves in the editorial boards of several international journals. He co-founded several international workshops and co-edited several journal special issues. He also served as a program committee member for over 100 international conferences and workshops. He is a Senior Member of both the ACM and the IEEE, and a life member of the Hong Kong Computer Society.

Zaiwen Feng received the master's degree in software engineering from Peking University in 2006 and the doctoral degree in computer science in 2009 from Wuhan University, China. From 2009, he is a lecturer of State Key Lab of Software Engineering in Wuhan University. His research interest includes service composition, business process configuration and service-oriented requirements engineering.

Yi Zhuang is a recipient of the CCF Doctoral Dissertation Award conferred by Chinese Computer Federa-tion in 2008 and IBM Ph.D. Fellowship 2007–2008. He is currently an associate professor at the College of Computer & Information Engineering in Zhejiang Gongshang University where he joined as faculty member since May 2008. He obtained his Ph.D. degree in computer science from Zhejiang University in March 2008. From January 2008 to March 2008, supported by IBM Ph.D. Fellowship, Dr. Zhuang has spent three months to participate in the study of an optimal hybrid storage model based on DB2 as a research intern in IBM China Research Lab. His research interests mainly focus on multimedia database and cloud computing. His recent research interests include multimedia database, distributed computing and data mining. Dr. Zhuang has authored more than 30 referred papers in international journals and conferences including KAIS, INS, ICDCS, EDBT, etc.