

SERVICES COMPUTING



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Services computing is a newly-emerging discipline, which covers the science and technology of bridging the gap between business services and IT services. The perfect integration of technology and business endows the services computing with significant business value and service value. The global nature of services computing leads to many opportunities and challenges and creates a new networked economic structure for supporting different business models.

The goal of this Feature Topic section is to provide a collection of papers that will reflect the development of the unique scientific and technological system of services computing, and to provide a foundation for more detailed investigations. We received more than 30 manuscripts in response to the call, and 5 papers were accepted for this special section.

The first article addresses the privacy issue in existing k-anonymity based approaches for location privacy in Location-Based Services (LBSs). This article entitled “Pseudo-Location Updating System for Privacy-Preserving Location-Based Services” by NIU Ben, et al. proposes a Privacy-Preserving Pseudo-Location Updating System (3PLUS) to protect users’ location privacy. It is demonstrated that this proposed 3PLUS can provide several security and privacy properties to the mobile users.

As it is time-consuming to specify all the business processes from low-level web services, especially for an enterprise that focuses on a series of similar businesses, the second article entitled “Rapid Service-Oriented Business Process Generation Method Based on Ontology” by WU Budan and her colleagues provides a rapid service-oriented business process generation method with domain-specific assets specified in ontology systems. The new methodology sig-

nificantly simplifies service-oriented business process generation by reusing assets to construct business processes. The authors verify the proposed method using a shipment tracking case and show that the number of reusable assets increases significantly as these projects progress, and the business process generation speed also increases at the same time.

The third article “Aspect-Oriented Design Method for Embedded Systems Based on Timed Statecharts” authored by WEN Xinxu, et al. introduces an aspect-oriented design method based on timed statecharts. According to the authors, “the approach not only describes dynamic behaviours of embedded systems formally, but also guarantees the correctness and reliability. The application of aspect-oriented technology improves software development efficiency and reduces the development cost greatly”.

TIAN Wenhong, et al. contributes the fourth article “CRESS: A Platform of Infrastructure Resource Sharing for Educational Cloud Computing”, in which a platform of infrastructure resource sharing system (Platform as a Service (PaaS)) is developed in virtual cloud computing environment. The system has good expandability and can improve resource sharing and utilization and has been applied to regular computer science teaching and research process.

The last article entitled “Comprehensively Context-Aware Approach to Guaranteeing Multimedia Conferencing Services” by WU Jiyan, et al. presents a Comprehensively Context-Aware (CoCA) approach based on Bayesian networks and the fuzzy set theory in order to guarantee the service quality of the web-based multimedia conferencing system. The authors implement the proposed CoCA in the real multimedia conferencing system and compare its perform-

ance with the existing bandwidth aware and playback buffer aware schemes. Experimental results show that this approach outperforms the competing approaches in improving the average video Peak Signal-to-Noise Ratio (PSNR). It also exhibits good performance in preventing the playback buffer starvation.

These articles cover substantive new work in various aspects of services innovation lifecycle management. We hope they will be useful sources of reference for those who are currently undertaking, or will undertake, this critical issue.

Finally, we would like to send our special thanks to all authors and reviewers for conducting a collaborative revision process for this special issue.

Biographies

ZHANG Liangjie, is Senior Vice President, Chief Scientist and Director of Research at Kingdee International Software Group Company Limited, and Director of The Open Group. Prior to joining Kingdee, he was a research staff member at IBM Thomas J. Watson Research Center. Dr. ZHANG has published more than 160 technical papers in journals, book chapters, and conference proceedings. He has 50 granted patents and more than 10 pending patent applications. Dr. ZHANG received his Ph.D. degree on pattern recognition and intelligent control from Tsinghua University, China in 1996. He chaired the IEEE Computer Society's Technical Committee on Services Computing from 2003 to 2011. He also chaired the Services Computing Professional Interest Community at IBM Research from 2004 to 2006. Dr. ZHANG has served as the Editor-in-Chief of the International Journal

of Web Services Research since 2003 and was the founding Editor-in-Chief of IEEE Transactions on Services Computing. He was elected as an IEEE fellow in 2011, and in the same year won the Technical Achievement Award "for pioneering contributions to Application Design Techniques in Services Computing" from IEEE Computer Society. Dr. ZHANG also chaired the 2013 IEEE 2nd International Congress on Big Data (BigData 2013), and the 2009 IEEE International Conference on Cloud Computing (CLOUD 2009).

Raouf Boutaba, is a Professor of Computer Science at the University of Waterloo, Canada and a David Cheriton Faculty Fellow. He is the founding Editor-in-Chief of the IEEE Transactions on Network and Service Management (2007-2010), and on the editorial board of several other journals. He served as the General or Technical Program Chair for a number of international conferences. His research interests are in the areas of network and service management. He has published extensively in these areas and received several journal and conference Best Paper Awards such as the IEEE 2008 Fred W. Ellersick Prize Paper Award. He also received several other recognitions such as the Premier's Research Excellence Award, Industry Research Excellence Awards, fellowships of the Faculty of Mathematics, of the David R. Cheriton School of Computer Science and outstanding performance awards at the University of Waterloo, Canada. He has also received the IEEE Communications Society Hal Sobol Award and the IFIP Silver Core in 2007, the IEEE Communications Society Joe Locicero and the Dan Stokesbury awards in 2009, and the IEEE Communications Society Salah Aidarous award in 2012. He served as a distinguished lecturer for the IEEE Computer and Communications Societies. He is fellow of the IEEE and the Engineering Institute of Canada.