Editorial

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Biographical notes: Hua Wang is an Associate Professor in the University of Southern Queensland. He awarded a PhD Degree in Computer Science from the University of Southern Queensland in 2004. He has been active in the areas of information systems management, distributed database management systems, access control, software engineering and electronic commerce. He has participated in research projects on mobile electronic system, Web service, and role-based access control for Electronic service system, and has already published over 80 research papers. He is the Associate Editor-in-Chief of *ICST Transaction on Scalable Information Systems*, and an Editorial Board Member of *The Open Cybernetics and Systemics Journal*. He is also a member of the Arc Research Network in Enterprise Information Infrastructure.

Xiaohua Jia received his BSc (1984) and MEng (1987) from the University of Science and Technology of China, and DSc (1991) in Information Science from University of Tokyo, Japan. He is currently a Chair Professor in Department of Computer Science at City University of Hong Kong. His research interests include distributed systems, computer networks, wireless sensor and mobile ad hoc networks. He is an Editor of *IEEE Trans. on Parallel and Distributed Systems*, *Wireless Networks*, *Journal of World Wide Web*, *Journal of Combinatorial Optimisation*, etc. He is the General Chair of ACM MobiHoc 2008, TPC Co-Chair of IEEE MASS 2009, Area TPC Chair of INFOCOM 2010.

1 Introduction

Radio Frequency Identification (RFID) is a technology for automated identification of objects and people with neither physical nor visual contact. RFID systems have already widely applied in industry supporting supply chain management and inventory control. The identification method relies on storing and remotely retrieving data using devices called RFID tags or transponders. A tag is a small microchip which is used for wireless data transmission between the tag and a reader. The challenge is the tags only offering weak computation and storage capacities and so render difficult the task to secure their use. While the continuation increased applications of RFID systems in our daily life, it also creates new security and privacy problems to both individuals and organisations with the challenge. Examples of security issues are: cloning an RFID tag, impersonation of a tag to obtain access permission and forging an e-passport for international travel.

This special issue brings together those leading researchers and developers in security and privacy fields to study the particular problems and challenges of RFID systems. The purpose of the special session is therefore to foster communication between various communities including security and privacy communities, distributed systems and information systems communities. The objective of the issue is to evaluate the expectations of security and privacy concerning in RFID and to establish a common infrastructure of the discipline. The special issue identifies fundamental theory, techniques, applications and practical experiences on a variety of topics in privacy and security and also provides a common ground and for advanced research and development in security and privacy, concentrating on special challenges of RFID systems. The goal of the special issue is to publish the most recent results in security and privacy aspects of RFID systems.

The rapid evolving of RFID research motivates the guest editors to compile this special issue, which intends to report recent research results in broader areas of RFID and further promotes the research in the community. The RFID research and application are rather broad, but we have put primary focus on four major fields in the special issue:

1 RFID system security including intrusion detection, secure RFID operating systems, database security, security infrastructures and security evaluation

2 Network security which contains RFID network security, security agents, protocols and anti-virus and anti-hacker measures

3 RFID applications comprising electronic commerce, government, health, biology and telecommunications

4 Foundations: privacy, access control, authentication, identification and cryptography.

2 Special issue papers

There are in total 28 submissions from worldwide to the special issue. 10 papers were included in this special issue. In order to accelerate the publishing circle, the guest editors practiced a three-stage review process. In the first stage, the guest editors ranked all 28 submissions based on a number of criteria, such as the topics, the content, and the significance of the paper. The first 16 papers ranked at the top of the list were forwarded to the second round review. In the third round review, 11 papers sent out for minor revision or major revision. The guest editors also carefully read all 11 revised papers and their review reports before the final decisions were made to accept 10 papers as below.

1 Xuefei Leng, Yuanhung Lien, Keith Mayes and Konstantinos Markantonakis 'An RFID grouping proof protocol exploiting anti-collision algorithm for subgroup dividing'

2 George C. Dalton II, Kenneth S. Edge, Robert F. Mills and Richard A. Raines 'Analysing security risks in computer and Radio Frequency Identification (RFID) networks using attack and protection trees'

3 Manmeet Mahinderjit- Singh and Xue Li 'Trust in RFID-enabled Supply-Chain Management'

4 Michael Hutter, Thomas Plos and Martin Feldhofer 'On the security of RFID devices against implementation attacks'

5 Yasuhiro Imasaki, Yongbing Zhang and Yusheng Ji 'Secure and efficient data transmission in RFID sensor networks'

6 Lili Sun 'Security and privacy on low-cost Radio Frequency Identification systems'

7 Xiaowen Zhang, Qinghai Gao and Mohamed K. Saad 'Looking at a class of RFID APs through GNY logic'

8 Susana Garrido Azevedo and João J. Ferreira 'Radio frequency identification: a case study of healthcare organisations'

9 Muhammad Wassim Raad 'A ubiquitous mobile telemedicine system for elderly using RFID'

10 Mark J. Rodrigues and Kieran James 'Perceived barriers to the widespread commercial use of Radio Frequency Identification technology'

3 Conclusions and acknowledgement

Putting together the special issue is a team effort. First of all, we would like to thank the authors for submitting to the issue and reviewers who have participated in the review process. We express our gratitude to the Editor-in-Chief Professor Yang Xiao for his engaging in active online discussion during the selection process and providing valuable feedbacks. Finally, we hope the reader will enjoy this special issue and it is useful.

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