

# An Authorized Identity Authentication-based Data Access Control Scheme in Cloud

Jian Shen, Dengzhi Liu, Qi Liu, Baowei Wang, Zhangjie Fu

*School of Computer & Software, Nanjing University of Information Science & Technology, China*

[s\\_shenjian@126.com](mailto:s_shenjian@126.com), [liudzdh@foxmail.com](mailto:liudzdh@foxmail.com)

**Abstract**—Cloud computing is a newfound service which has a rapid growth in IT industry recent years. Despite it has a huge contribution to the development of the technology and society, the cloud still exists some security deficiencies to block its development such as data leakage, illegal access and privacy risks. Hence, access control and user authentication is very important in cloud environment. Some related access control schemes has been proposed to solve the security problems in cloud, however, the high computation cost is a crucial factor in practical use. In this paper we propose a novel lightweight identity authentication-based access control scheme for cloud, due to adopt an authorized agency to assist the authentication and key distribution, this scheme is more efficient and practical than the related work.

**Keyword**—Cloud computing; access control; user authentication; security; authorized agency



**Jian Shen** received the M.E. and Ph.D. degrees in Computer Science from Chosun University, Korea, in 2009 and 2012, respectively. Since late 2012, he has been a professor at Nanjing University of Information Science and Technology, Nanjing, China. His research interests include computer networking, and information security systems.



**Dengzhi Liu** received the B.S. degree in 2014 and is currently working toward the M.E. degree at Nanjing University of Information Science and Technology, Nanjing, China. He focuses on the security and privacy issues in cloud environment. His current research interests are fine-grained cloud data access control, privacy preserving search schemes in cloud and auditing protocols for cloud storage.



**Qi Liu** (M'11) received his BSc degree in Computer Science and Technology from Zhuzhou Institute of Technology, China in 2003, and his MSc and PhD in Data Telecommunications and Networks from the University of Salford, UK in 2006 and 2010. His research interests include context awareness, data communication in MANET and WSN, and smart grid. His recent research work focuses on intelligent agriculture and meteorological observation systems based on WSN.



**Baowei Wang** received his B.S. and Ph.D. degrees in Computer Science from Hunan University in 2005 and 2011, respectively. He is currently working as a lecturer in School of Computer and Software, Nanjing University of Information Science and Technology. His research interests include steganography, wireless networks and securing ad hoc network.



**Zhangjie Fu** is a visiting scholar of Computer Science and Engineering at State University of New York at Buffalo. He received his PhD in computer science from the College of Computer, Hunan University, China, in 2012. He is currently an associate professor at Department of Computer and Software, Nanjing University of Information Science and Technology, China. His research interests include Cloud and Outsourcing Security, Digital Forensics, Network and Information Security. His research has been supported by NSFC, PAPD, and GYHY. Zhangjie is a member of IEEE, and a member of ACM.