Leap Motion Somatosensory Controlled Switches

Bing-Yuh Lu*, Chin-Yuan Lin*, Shu-Kuang Chang*, Yi-Yen Lin*, Chun-Hsiang Huang*, Hai-Wu Lee**, Ying-Pyng Lin*

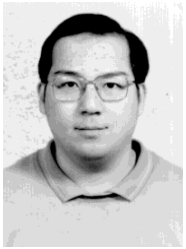
*Department of Electronic Engineering, Tungnan University, 152, Sec. 3, BeiSheng Road, ShengKeng Dist. New Taipei City, 22202, Taiwan, ROC
** *Department of Electronic Engineering, National Taipei University of Technology, 1, Sec. 3, Zhongxiao E.* Rd., Taipei 10608 Taiwan, R.O.C

franklinlu888@outlook.com, **cylin@mail.tnu.edu.tw**, **skchang@mail.tnu.edu.tw**, **siopl2006@gmail.com, chunhuang59@gmail.com, johnson.lee5893@msa.hinet.net, yplin@mail.tnu.edu.tw**

Abstract— Replica creation strategy is one of the important research directions of the distributed file system in the hybrid cloud environment. However, traditional replica creation strategy just simply calculated the file heat based on the number of accesses to the file within a period of time. Besides, creating too many copies will seriously affect the performance of the node without considering the node load. In order to solve this problem, the improved dynamic replica creation strategy based on file heat and node load is presented in this paper combined with the characteristics of the hybrid cloud environment. File heat of history and current access frequency of three cycles and change rate of file are considered comprehensively in the calculation of the heat based on LRFU(Least Recently Frequently Used). Combined with the node load, the average heat and the average load are used to adjust the number of copies in this paper, which can adapt to the changes of the environment dynamically. Experiments show that with changes of file access and traffic intensity, the improved strategy is sensitive to access frequency, which can adaptively adjust the number of copies, reduce the average response time, and achieve better load balance of cluster.

Keyword— Hybrid cloud, Replicas, File heat, Node load, Load balance

Bing-Yuh Lu received his BS in electrical engineering from National Central University in 1988, MS in electrical engineering from National Taiwan University in 1993, and PhD in electrical engineering from National Taiwan University in 2000. He is an associate professor with Department of Electronic Engineering, Tungnan University, New Taipei City, Taiwan, ROC and an adjunct associate professor with the Department of Business Administration, National Taipei University of Business, Taipei, Taiwan, ROC and was the director of Department of Information Management, Catholic St. Mary's Medicine, Nursing, and Management College, YiLan County, Taiwan, ROC during the intervening years of 2011 to 2013. He is a member of IEEE. His academic interests focus on acoustics, educational applications of engineering, medical engineering and pulmonary signal processing. He received awards for academic research from Tungnan University in 2014 and for outstanding papers at the 15th and 17th IEEE international conferences on advanced communication technology in South Korea (in 2013 and 2015). He has been one of the editors of Transactions on Advanced Communication Technology of the Global IT Research Institute (2015), as well as one of the editors of Innovative Research Publication (IRP), and a reviewer of journals such as IEEE transactions on Instrumentation and Measurement, Computer and Electrical Engineering, and so on.



Chin-Yuan Lin is an instructor with the Department of Electronic Engineering, Tungnan University, New Taipei City, Taiwan, Republic of China. He received his MS degree in electrical engineering from National Taiwan University Taipei, Taiwan, Republic of China. He is interested in biomedical engineering, and electronic engineering.

Shu-Kuang Chang with the Department of Electronic Engineering, Tungnan University, New Taipei City, Taiwan, Republic of China. He received his Ph. D. degree from the Department of Mathematical Sciences, National Chengchi University, Taipei, Taiwan, Republic of China. He is interested in fuzzy logic, statistics, and control system theory.

Yi-Ying Lin is an undergraduate student with the Department of Electronic Engineering, Tungnan University, New Taipei City, Taiwan, Republic of China. He got `the official B class License of Industrial Electronics, Department of Labor, Taiwan, Republic of China. He is interested in digital circuit design, and implementation, and digital system design

Chun-Hsiang Huang is an undergraduate student with the Department of Electronic Engineering, Tungnan University, New Taipei City, Taiwan, Republic of China. He has spent 6 years to complete his high school education in the United States. He is the class representative and gets the top 5 score of his classmates now. He got the technician certificates which include Computer Maintenance (class C), and TOEIC (score: 710).

Hai-Wu Lee graduated from the Department of Electronic Engineering, Kun Shan University in 2000 and received his master degree from the Institute of Computer, Communication, and Control, National Taipei University of Technology in 2003. He got his PhD degree from the Department of Electrical Engineering, National Taiwan University of Science and Technology in 2014, Taipei Taiwan. He is currently a Postdoctoral in the Department of Electronic Engineering, National Taipei University of Technology and He is a reviewer of journals such as IEEE transactions on Education and so on. His research interests are the design and application of optimal control system of biped walking robots of image processing and RFID.

Ying-Pyng Lin was born in New Taipei City , Taiwan, R.O.C., in 1958. He received the M.S. degree in computer science and engineering from Tatung University (TTU), Taipei, Taiwan, in 1989, and Ph.D. degree in Electro-Optical Engineering at National Taipei University of Technology, Taipei, Taiwan, in 2014. Currently, he is the department head and an associate professor in the Department of Electronic Engineering, Tungnan University, New Taipei City, Taiwan, Republic of China. His research interests include optical communications, computer engineering, and embedded systems