In-Memory Computing for Big Data Processing

Prof. Hai Jin
Professor
School of Computer Science and Technology
Huazhong University of Science and Technology
China

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The Hong Kong Polytechnic University

Abstract

With emerging of big data, the processing speed for the data is one of the key issues for big data technology. One of the efficient way to handle the velocity of data is putting all the data in the memory. But traditional memory, DRAM, consumes a large amount of energy and cost to build a large memory system. In recent years, lots of non-volatile memory devices, such as phase change memory (PCM), are studied to be part of memory. We call these storage class memory (SCM). Combining traditional memory and SCM together to build a large hybrid memory space is becoming one of the energy-efficient way to extend the traditional in-memory computing system into a new level, to handle large quality of data in real time. In this talk, we will discuss this new in-memory computing system from different aspects and some challenges in this new system. We will also report some ongoing effort in China to build this hybrid memory-based in-memory computing system, and some latest advances in this area.

About the Speaker

Hai Jin is a Cheung Kung Scholars Chair Professor of computer science and engineering at Huazhong University of Science and Technology (HUST) in China. Jin received his PhD in computer engineering from HUST in 1994. In 1996, he was awarded a German Academic Exchange Service fellowship to visit the Technical University of Chemnitz in Germany. Jin worked at The University of Hong Kong between 1998 and 2000, and as a visiting scholar at the University of Southern California between 1999 and 2000. He was awarded Excellent Youth Award from the National Science Foundation of China in 2001. Jin is the chief scientist of ChinaGrid, the largest grid computing project in China, and the chief scientists of two National 973 Basic Research Program Project of Virtualization Technology of Computing System, and Cloud Security. Jin is a Fellow of CCF, senior member of the IEEE and a member of the ACM. He has co-authored 22 books and published over 800 research papers. His research interests include computer architecture, virtualization technology, cluster computing and cloud computing, peer-to-peer computing, network storage, and network security.

All are welcome!

Enquiries:
Professor George Baciu
Email: csgeorge@comp.polyu.edu.hk
Tel : 2766 7295 / 2766 7272