
Editorial

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Biographical notes: Yifeng Zhu is an Associate Professor in the Department of Electrical and Computer Engineering at the University of Maine. He received his BSc in Electrical Engineering from Huazhong University of Science and Technology, Wuhan, China, in 1998 and MS and PhD in Computer Science from the University of Nebraska, Lincoln, in 2002 and 2005, respectively. His current research interests include parallel I/O storage systems, supercomputing, energy-aware memory systems, and wireless sensor networks. He served as the Program Chair of IEEE NAS'09, SNAPI'07, and member of program committees of various international conferences, including ICDCS, ICPP, and NAS. He received the Best Paper Award at IEEE CLUSTER'07 and served as the PI or co-PI of several research grants awarded by the US National Science Foundation, including CSR, HECURA, ITEST, REU, and MRI.

Hong Jiang received his PhD in Computer Science in 1991 from the Texas A&M University. Since August 1991, he has been at the University of Nebraska-Lincoln, Lincoln, Nebraska, USA, where he is a Professor of Computer Science and Engineering. His present research interests include computer architecture, computer storage systems and parallel I/O, parallel/distributed computing, cloud computing and performance evaluation. He serves as an Associate Editor of the *IEEE Transactions on Parallel and Distributed Systems*. He has over 170 publications in major journals and international conferences in these areas. He is a Senior Member of IEEE and a member of ACM.

The last decade or so has seen rapid research and developments in computer technology, particularly the advent and proliferation of internet and wireless networks, that has given way to a clear convergence of previously divert fields such as computer networking, architecture, and storage. As a result, architectural designs are increasingly made more network-aware, if not network-centric; more classic architecture ideas are being adopted to network devices and protocols and vice versa; data grids and high-speed networks are making data ever more omnipresent and indeed the 'life-blood' of computing and the main asset of any organisation.

This special issue includes ten papers selected from the 1st International Workshop on Networking, Architecture, and Storage. In the storage area, these selected papers investigate some key and fundamental questions, including the object behaviours in a widely used object-based storage system, how to schedule concurrent I/O operations in a shared data storage networks, and how to model the data availability in peer-to-peer data storage systems. In the network area, the papers address

the most critical issues of modern networks, such as scalability, security, and reliability. One paper presents a new scheme to provide temporary respite to time-critical clients while the backbone network is under repair. One paper proposes a novel method of constructing attack scenarios in order to recognize multi-stage attack behaviours and predict next potential attack steps of the attacker. The other paper develops a simple but powerful routing protocol based on erasure coding and path redundancy to maximise network resilience. In the architecture area, one paper proposes a dynamic web cache algorithm to improve the stability and performance of web servers. Two papers study wireless sensors and propose a new approach to measure the distance and a new query-based replaying protocol for data-intensive applications, respectively. The other paper presents a new real-time scheduling algorithm for real-time systems with hard deadlines.

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