

Editors' Introduction to the Special Issue on “Advances in Secure Data Streaming Systems”

With the fast development in networking and cloud computing technologies, data streaming is becoming central to many modern systems. Indeed, on the one hand, the streaming capabilities of networking systems, and especially of mobile ones, have significantly increased. On the other hand, there is a variety of data streaming types such as ones based on sensor networks. The number of challenges raised in data streaming systems is increasing beyond the traditional *QoS* requirements, including optimization and allocation for live streaming, streaming in combined Mobile, P2P and Cloud based systems as well as security and privacy in multimedia and data streaming.

This special issue follows the 8th 3PGCIC-2014, the 8th International Conference on P2P, Parallel, Grid, Cloud and Internet Computing, 8-10th November, 2014, Guangzhou, China. The special issue comprises 5 papers carefully selected after a two round review process. The papers in the special issue are arranged as follows.

Zhang *et al.* in the first paper “*A Novel Scheme for Improving Quality of Service of Live Streaming*” propose a novel streaming scheme based on a guarantee mechanism of contingency resource (GMCR), which can improve the quality of service (QoS) of live streaming by deploying a contingency server. The results of theoretical analysis and simulation experiment present the feasibility and validity of GMCR scheme.

The second paper by Chen and Lv “*Adaptive Bandwidth Allocation Strategy under Cloud Platform*” present a hybrid file sharing system that combines P2P mode and cloud serving mode aiming to provide both peer-assisted acceleration and cloud-assisted acceleration to download processes. An adaptive cloud bandwidth rental and allocation strategy is then proposed. The experimental results show that the system with this strategy not only ensures the quality of service but also slashed cloud bandwidth consumption.

Kawakami *et al.* in the third paper “*A Churn Resilience Technique on P2P Sensor Data Stream Delivery System Using Distributed Hashing*” investigate research issues arising in sensor data stream delivery. The authors propose an approach to distribute communication loads by relay nodes in the case of delivering the sensor data streams that have different data delivery cycles. A churn resilience technique is therefore proposed that enhances the robustness of delivery system. Through simulations it was confirmed in that the proposed technique improves the reliability of the delivery system.

The fourth paper “*An Experimental Approach to Examine a Multi-Channel Multi-Hop Wireless Backbone Network*” by Taenaka *et al.*, present an experimental deployment of a multi-channel multi-hop wireless backbone network (WBN) with an OpenFlow-based traffic management method. The experimental results show that the proposed WBN can increase the network

capacity in accordance with the number of channels, thereby providing significant throughput performance for various applications.

Wang *et al.* in the fifth paper “*Privacy-preserving Cloud-based Personal Health Record System Using Attribute-based Encryption and Anonymous Multi-Receiver Identity-based Encryption*” present a cloud-based personal health record (CB-PHR) system to securely store their health data on the semi-trusted cloud service providers, and to selectively share their health data with a wide range of PHR users. Extensive analytical and experimental showed that the proposed CB-PHR system is secure, privacy-protected, scalable and efficient.

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