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EDITORIAL

Special issue on information dissemination and new services in P2P systems

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Information dissemination is an important P2P application that has received considerable research attention in recent years. P2P information dissemination systems range from simple file sharing applications to more complex systems that allows users to securely and efficiently publish, organize, index, search, update and retrieve data in a distributed storage medium. For complex P2P information dissemination systems, there is a need for features which include security, anonymity, fairness, scalability, resource management, and organization capabilities. For effective information dissemination, following features of P2P systems and infrastructure need to be updated: distributed object location and routing mechanisms, novel approaches to content replication, caching and migration, encryption, authentication, access control, and resource trading and management schemes.

As P2P-based technologies play a more and more important role in the Internet, a number of new applications and services have been developed in the past few years, including file sharing, music downloading, live streaming, video on demand, and P2P based game platform. For these P2P systems, the key issues to be considered are scalability, robustness, reliability, and security. Moreover, today's networks are becoming increasingly more heterogeneous in terms of both network technologies and traffic, impacted by various factors including the wide deployment of wireless networks, diversification of multimedia formats, various requirements of different users, which brought many new challenges to P2P systems.

The Call for Papers attracted nine submissions worldwide. After a rigorous review process, five papers have been selected for publication. An outline of the selected papers is presented as follows.

The first article, by Jun-Hong Cui, *et. al*., attacks the problem of scalability, routing efficiency and complex query support for a P2P file sharing system. The authors propose a semantic overlay network of logical nodes, in which queries are routed on the basis of semantics. By exploiting the concepts of hierarchy and semantics, PSON has been demonstrated to support complex queries in a scalable and efficient way. The second article, by Zhipeng Ouyang, *et. al*., addresses a critical problem of factoring users' subjective preferences in large-scale video streaming applications. The authors derive a model and formulate the problem as a resource demand vs supply problem. A framework is presented to address the challenge via efficient bandwidth allocation and group cooperation. The

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third article, by Ansar-Ul-Haque Yasar, *et. al*., proposes a framework for context-aware adaptive information sharing that allows the evaluation of and comparison with alternative information routing protocols using network metrics to measure a variety of quality attributes of the information dissemination protocols. The framework has been evaluated with different information dissemination protocols in an inter-vehicle communication scenario. The fourth article, by Nikolaos Thomas Efthymiopoulos, *et. al*., proposes a dynamically reconfigurable overlay architecture that organizes its peers according to network locality information and heterogeneous uploading capabilities of them. The benefits of the optimized overlay are fully exploited by an efficient scheduler, which guarantees the complete and fast distribution of the stream and high uploading bandwidth utilization. The last article, by Linchen Yu, *et. al*., presents a new caching strategy that integrates memory-caching strategy with disk-caching schemes. By using the proposed strategy, peers can request media data from neighbors of the overlay, buffer the fresh part into the memory slots and the watched part into the free local disk, which can enlarge the capacity to buffer media data.

In closing, we would like to thank all anonymous reviewers who spent much of their precious time reviewing the papers. Their timely reviews and comments greatly helped us select the best papers for this special issue. We also thank all authors who have submitted their papers for consideration for this issue. Special thanks go to the Editor-in-Chief of Journal of Peer-to-Peer Networking and Applications, Professor Xuemin Shen, for offering us the opportunity to edit this special issue. For more information about this special issue, please visit http://PPNA.edmgr.com.

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