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Editorial: Peer-to-peer networking and applications, volume 2, issue 2

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This issue of the Peer-to-Peer Networking and Applications includes six original research works which address research problems related to network traffic classification, search, modeling networks with generous peers, XML data management, service differentiation and trust.

A significant portion of today's Internet traffic is P2P traffic. As a result, communication service providers are often interested in classifying the traffic. The traditional traffic identification techniques perform poorly in their job, due to dynamics of P2P applications. In the first paper of this issue, "Exploiting Unlabeled Data to Improve Peer-to-Peer Traffic Classification Using Incremental Tri-Training Method", Raahemi et al. propose a incremental Tri-Training based semi-supervised learning method to classify P2P traffic. In contrast to controversial deep packet inspection technique, this method simply relies on IP headers to identify P2P traffic.

Search in unstructured P2P network is challenging. Hub nodes, having a large number of connections, and generous nodes, sharing many resources, significantly influence performance of information search over unstructured P2P networks. In the second paper, "Efficient and Scalable Search on Scale-free P2P Networks", Liu et al. present a new search method for unstructured network called *Scalable Peer-to-Peer Search* or SP2PS. Unlike existing searches, SP2PS uses more than one parameter to forward search queries.

Though a good portion of participants of a typical P2P network do not contribute, P2P networks are thriving in the Internet. The reason for this vivid survival is a few altruistic peers. In *An Analysis of Peer-to-Peer Networks with Altruistic Peers*, Vassilakis and Vassalos develop a new model of the interaction of rational peers in a P2P network with altruistic peers. The goal is to have a better understanding of the reasons for survival of P2P networks even without any incentive mechanism.

XML is a well accepted self descriptive language to describe information. XML is widely used to exchange data. In the fourth paper, "XCube: Processing XPath Queries in a Hypercube Overlay Network", Li et al. present the design of *XCube*, a tag-based system for managing XML data in a hypercube overlay network. A query mechanism and a dynamic partitioning mechanism for load balancing are also introduced.

One way to improve quality of service in a P2P system is service differentiation. It is important to identify both free riders and malicious peers, and to reduce the level of service provided to them, and at the same, to ensure better services for good peers. In *A Contribution-Based Service Differentiation Scheme for Peer-to-Peer Systems*, Mekouar et al. develop a new service differentiation mechanism. In this research, both availability and involvement are used to differentiate peers.

The concept of software as service has received a tremendous interest from researchers and indus-

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tries. Several solutions propose to provide dynamic cross organization service to increase productivity and usability. However, when different organizations are considered, support for common security platform lacks. In *Context-Aware Trust Negotiation in Peer-to-Peer Service Collaborations*, Li et al. proposes a new policy to establish trust among such organizations in a peer-to-peer way.

In closing, we would like to acknowledge the contributions of the authors who submitted their works and the reviewers who provided their expert opinions and constructive and helpful comments. We would also like to extend our sincere thanks to Melissa Fearon, the Senior Editor, Valerie Schofield, and Cristina Chua of Springer, for their support and help in bringing forward the second issue of this volume. We hope that you will enjoy the current issue and find the journal useful.

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