



## **THE LIVE DATA DELIVERY FOR NAT AND ASYMMETRICAL NETWORK IN P2PTV SYSTEM**

Jun-Li Kuo, Chen-Hua Shih and Yaw-Chung Chen

Received September 08, 2011; Revised March 09, 2015

### **Abstract**

Currently large live multimedia service using peer-to-peer (P2P) networking solutions is becoming increasingly popular. P2P computing is scalable, fault-tolerant and self-organized to be suitable for live TV (P2PTV). However, the peer behind NAT and asymmetrical network degrades the performance due to its weak upload contribution. In this paper, we propose the grouping overlay, the source selection and the push-pull delivery to enhance the quality and reduce the overhead. The grouping overlay can improve the upload contribution of NAT peer. The source selection can balance the upload contribution, improve the bandwidth utilization and reduce the delivery time. The push-pull delivery can stabilize and fasten the streaming delivery. The simulation results show that our proposed scheme can improve the upload contribution, enhance the quality and reduce the overhead when P2P network has the high peer churn rate and the large scale.

**Keywords and phrases:** peer-to-peer computing, P2P live streaming, P2PTV, IPTV, NAT, real-time service.

