



---

# A NOVEL ATTRIBUTE-BASED ACCESS CONTROL MODEL FOR MULTIMEDIA SOCIAL NETWORKS

*Z. Zhang, L. Han, C. Li, J. Wang*

---

**Abstract:** Multimedia social networks (MSNs) provide great convenience to users, while privacy leaks issues are becoming prominent. The studies on relationship-based access control have been widely used in social networks. However, with the dynamic development of social networks and rapid growth of user information, the access control does not completely meet the current system's need. In this paper, an attribute-based access control model called ABAC-MSN is proposed for MSNs. This model comprehensively considers user attributes, environment attributes and resource attributes, not only including relationships among users. In this model, users can set multimedia usage control policies based on three categories of user-defined attributes. A formal theoretical model is established, which includes constraint rules, data flow rules, policy conflict resolution mechanism, and applied to CyVOD.net, a multimedia social-network-platform prototype systems. The deployment and application denote that this method effectively and flexibly addresses use-case scenarios of multi-attribute-based media access control, and improves the access security of social media platforms and resources.

Key words: *multimedia social networks, attribute-based access control, security, prototype*

*Received: April 15, 2016*

DOI: 10.14311/NNW.2016.26.031

*Revised and accepted: October 3, 2016*

## 1. Introduction

With the rapid development of social networks platforms where users can access and share multimedia resources online, multimedia social networks have played a crucial role in daily life. In MSNs platforms, users can quickly and easily share multimedia content with their friends, families and colleagues. These social networks, which have become the most popular networks services in recent years, have attracted a large number of users on a global scale. According to YouTube official statistics report, YouTube has over a billion users, almost a third of all people on the Internet, and every day people watch hundreds of millions of hours of YouTube videos and

---

Zhiyong Zhang – Corresponding author, Linqian Han, Cheng Li, Jian Wang, Information Engineering College, Henan University of Science and Technology, Kaiyuan Avenue No. 263, Luoyang, China, E-mail: [xidianzzy@126.com](mailto:xidianzzy@126.com), [hlinqian@126.com](mailto:hlinqian@126.com), [15991727802@sina.cn](mailto:15991727802@sina.cn), [wangjian\protect\\_migi@sina.com](mailto:wangjian\protect_migi@sina.com)