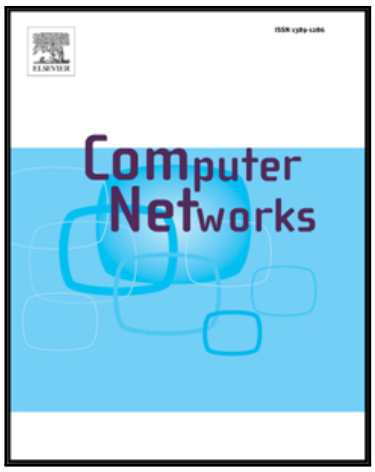

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QoS Satisfaction Aware and Network Reconfiguration Enabled Resource Allocation for Virtual Network Embedding in Fiber-Wireless Access Network☆

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Abstract

Network virtualization emerges as a revolutionary transformation for network operation pattern, which potentially benefits Fiber-Wireless (FiWi) access network by overcoming the bottleneck of joint wireless and optical resource allocation. On one hand, the heterogeneity between optical and wireless subnetworks that has posed severe challenges on the global optimization of FiWi can be tackled using network virtualization by shielding their physical differences. On the other hand, the flexible nature of resource scheduling in FiWi provides an opportunity for Infrastructure Provider (InP) to obtain high profit in the process of Virtual Network Embedding (VNE). In this paper, we highlight the VNE problem in FiWi access network. The wireless channel allocation algorithm and dynamic bandwidth allocation algorithm in FiWi are put forward, based on which the Integer Liner Programming (ILP) model of VNE problem in FiWi access network is formulated mathematically where a practical model of Virtual Network (VN) is focused by endowing each VN with a unique QoS satisfaction requirement. Moreover, aiming at maximizing InP profit, a QoS satisfaction aware VNE algorithm is designed and then improved by network

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