

Abstract: A Mathematical Programming Approach for Multilayer Routing

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Abstract

In this paper, we consider multilayer integrated routing in packet and optical networks. For multilayer integrated routing, we consider both interlayer traffic and network information together. Researchers have generally been investigating only single-layer routing problems such as packet layer routing, and optical layer routing. Considering only one-layer routing leads to a sub-optimal solution in terms of the entire network. However, as we consider both packet and optical layers routing together, we try to optimize network usage in both layers. To achieve this goal we formulate mathematical models with two objective functions and several constraints. To solve the mathematical models, linear programming (LP) and integer programming (LP) solution techniques can be applied. Finally, the performances of the mathematical models are explained.

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