

Dual decomposition scheme for resource allocation problem in networks with moving nodes

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Abstract

We consider a two-level, two criteria, optimization problem of resource allocation in communication networks, which consists of maximizing the total network utility, i.e., the fee paid by the consumers, and minimizing the costs of implementing these resources. In this paper we present a new dual iterative method for solving this problem, which enables us to utilize its decomposable structure via sequential solution of families of one-dimensional problems. We compare our new dual method to known methods for solving this problem. In general, we give a new promising approach in the paper to solve resource allocation problems in communication networks. Moreover, we suggest a new way to adjust the basic model to networks with moving nodes. We present numerical results about the computational efficiency of the methods considered. © 2012 IEEE.

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