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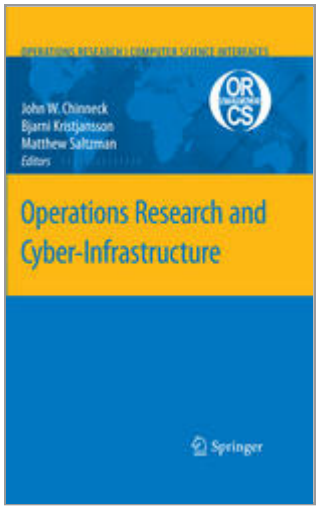
Mathematical Formulations and Metaheuristics Comparison for the Push-Tree Problem

Abstract

The Push-Tree Problem is a recently addressed optimization problem, with the aim to minimize the total amount of traffic generated on information broadcasting networks by a compromise between the use of “push” and “pull” mechanisms. That is, the push-tree problem can be seen as a mixture of building multicast trees with respect to nodes receiving pieces of information while further nodes may obtain information from the closest node within the tree by means of shortest paths. In this sense we are accounting for tradeoffs of push and pull mechanisms in information distribution. The objective of this paper is to extend the literature on the problem by presenting four mathematical formulations and by defining and applying some metaheuristics for its resolution.



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