An Algorithm for Configuring Embedded Networks in Reconfigurable Telecommunication Networks

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Abstract

This paper considers a problem of configuring logical networks by employing a self-planning facility in a circuit switched network carrying voice-grade calls to make the least cost configuration where the involved system cost is composed of traversing cost and lost-call traffic cost. The traversing cost depends on the number of self-planning facilities included on the path connecting the associated facility pairs, while the lost-call traffic cost is incurred due to channel capacities. The configuration problem is analyzed through dimensioning and routing in a reconfigurable network in a mixed 0/1 non-linear programming approach for which lower bounds are found by Lagrangean relaxation embedded in a subgradient optimization procedure. A heuristic solution procedure is exploited and its efficiency is tested with various numerical examples.