

A Simulated Annealing Algorithm for Finding Minimal Wavelength on WDM Ring

Din, Der-Rong

Abstract

The routing and wavelength assignment (RWA) problem on wavelength division multiplexing (WDM) ring networks without wavelength conversion is considered in this paper. When the physical network and required connections are given, RWA is the problem to select a suitable path and wavelength among the many possible choices for each connection such that not any paths using the same wavelength pass through the same link. This problem has been proven to be the NP-hard problem. In the paper, a simulated annealing (SA) algorithm is proposed to solve it. Experimental results indicate that SA is robust for this problem.

Key words : Integer programming; Routing and wavelength assignment; Simulated annealing; WDM ring