Topological Design of A Survivable Two-level Centralized Network

윤 문 길

한국항공대학교 경영학과
전화) 02-300-0097 Fax) 02-300-0225
E-mail) mgyoon@hanul.hangkong.ac.kr

백 영 호

한국통신 통신경제 연구소
전화) 526-5067 Fax) 526-5655
E-mail) yhbaek@rcunix.kotel.co.kr

Abstract

This paper addresses a design issue that arises in a contemporary centralized computer communication network. Since any single link failure would result in very severe information loss, the survivability issues should assume a much greater importance in designing an optical communication network. In this paper, we have dealt with a survivable network design problem for centralized network with hierarchical structure: hub network for upper level and access network for lower level. We have considered the survivability constraints on hub level network, and formulated the problem as a version of classical network design model by introducing dummy nodes and arcs. Exploiting the special structure of our design model, we develop an efficient heuristic which provides a good lower bound and a near optimal solution by a dual based method.