BALANCING LOADS ON SONET RINGS WITH INTEGER DEMAND SPLITTING

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ABSTRACT

SONET Self Healing ring is one of the most intriguing schemes which provide survivability for telecommunication networks. To design a cost effective SONET ring it is necessary to consider load balancing problems by which the link capacity is determined. In this paper, we consider the load balancing problem in SONET ring when demand splitting is allowed only by integer. An optimality condition is suggested and proved by employing the arc-demand matrix which represents the amount of demand routed on each arc. A very efficient algorithm is provided which always satisfies the optimality condition at termination. The algorithm iteratively improves the maximum load by considering counter-clockwise routing of a demand which passes through the arc with maximum load. Justification of the algorithm is also provided.