

Impact Zone Analysis of P-cycles

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P-cycle method has been extensively studied for optical network protection. A large p-cycle has high capacity efficiency and can protect large number of nodes against single link failure. For such a p-cycle, all the links protected by it, lose protection when the p-cycle is consumed to protect a failure. As the probability of multiple link failure is high for large network, it also means that with higher probability, on second failure, protection may not be there for the failed link. If the number of links protected by a p-cycle is large it makes the network unprotected on the occurrence of second failure. In this paper, we study the impact zone due to first link failure in various configurations of p-cycles. The study gives insight into how to choose from the p-cycle configurations to reduce the impact zone while using minimum spare capacity.