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Fuzzy evolutionary hybrid metaheuristic for network topology design
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Abstract

Topology design of enterprise networks is a hard combinatorial optimization problem. It has numerous constraints, several objectives, and a very noisy solution space. Besides the NP-hard nature of this problem, many of the performance metrics of the network can only be estimated, given their dependence on many of the dynamic aspects of the network, e.g., routing and number and type of traffic sources. Further, many of the desirable features of a network topology can best be expressed in linguistic terms, which is the basis of fuzzy logic. In this paper, we present a fuzzy evolutionary hybrid metaheuristic for network topology design. This approach is dominance preserving and scales well with larger problem instances and a larger number of objective criteria. Experimental results are provided.