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Improvements in the Design of Delta Routing: A New Perspective for Routing

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Abstract

The present work is carried out with the objective of designing an efficient routing technique for large networks. The concentration is on one-to-one routing i.e. finding an optimal path between a single source and single destination within an intranet supporting an interior gateway protocol. Functionality of Delta routing proposed by Harry Rudin is taken as the key consideration and improvements in the design of Delta routing are suggested. The concept and functionality of Delta routing is described and a brief analysis of the technique is carried out to observe its limitations. Finally, improvements that can be made to Delta routing in order to have a new strategy that can utilize the network state information efficiently for making optimal routing decisions are suggested. The metric considered is the prediction of loads on links for computing delays on alternative paths. The mathematical formulation for predicting the load on a link for time $t+1$ is given when the load in the network at time t is known. A proof of correctness of the mathematical model is obtained.