

Routing on the Hypercube with Blocking/Faulty Nodes

Eddie Cheng, Oakland University, K. Noroozi, K. Qiu*, Brock University, Z.Z. Shen, Plymouth State University

We study a special routing problem on the hypercube where given a source node s , a target node t , and a set of blocking (or faulty) nodes, we want to find a shortest path (Hamming distance) between s and t . A routing algorithm exists that finds such a path if it exists without using any shortest path finding algorithms from scratch. Our work examines the problem from a different angle by giving some simple conditions for these paths to exist. These conditions imply a new routing algorithm which complements the previous routing and is more efficient in certain situations.

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