

An adaptive routing algorithm: enhanced confidence-based Q routing algorithm in network traffic

ABSTRACT

Confidence-based Q (CQ) Routing Algorithm is an adaptive network routing algorithm. CQ Routing Algorithm evaluates how confidence value (C value) can be used to improve the quality of exploration in Q Routing Algorithm for adaptive packet routing in communication networks. However, the C value incompletely evaluates how closely the Q value represents the current condition of the network in a given length of time, which is measured in term of estimated delivery time for a packet to arrive at its destination. In this paper, an Enhanced Confidence-based Q (ECQ) Routing Algorithm is proposed. The Variable of Decay Constant and Update All Q value approaches are introduced for updating the C values of non-selected Q values. Using these C values would make those non-selected Q values more competitive in order to achieve updated and more reliable values. The quality of exploration in CQ Routing Algorithm would be improved. The performance of ECQ and CQ Routing Algorithms are compared to prove this improvement. ECQ and CQ Routing Algorithms are tested on an irregular 6 x 6 nodes network grid.

Keyword: Adaptive routing algorithm; Confidence value; Confidence-based Q routing