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A distributed learning automata based gateway load balancing algorithm in Wireless Mesh Networks

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ABSTRACT

Wireless Mesh Networks (WMNs) are a rapidly maturing technology for providing high bandwidth broadband service to a large community of users. In WMNs, gateway nodes act as a central point of connectivity to the wired infrastructure (typically the Internet). Therefore traffic aggregation occurs in the paths leading to a gateway and due to the limited wireless link capacity, these nodes are likely to be potential bottlenecks. In this paper, we propose a distributed load balancing algorithm to achieve load balancing on gateway nodes which leads to efficient traffic allocation as well as maximum use of network capacity. This algorithm uses Learning Automata in order to select the appropriate gateway node to send traffic. Evaluation results demonstrate that the proposed scheme largely avoids congestion and can effectively balance the traffic.

INDEX TERMS

Index Terms are available to subscribers and IEEE members.

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