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International Journal of Computer Applications
© 2014 by IJCA Journal

Volume 96 - Number 11

Year of Publication: 2014

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10.5120/16835-6680

{bibtex}pxc3896680.bib{/bibtex}

Abstract

Mesh clients, mesh routers and gateways are components of Wireless Mesh Network (WMN). In WMN, gateways connect to Internet using wireline links and supply Internet access services for users. Multiple gateways are needed, which take time and cost budget to set up, due to the limited wireless channel bit rate. WMN is a highly developed technology that offers to end users a wireless broadband access. It offers a high degree of flexibility contrasted to conventional networks; however, this attribute comes at the expense of a more complex construction. Therefore, a challenge is the planning and optimization of WMNs. This paper concentrates on the challenge using a genetic algorithm and simulated annealing. The genetic algorithm and simulated annealing enable searching for a low-cost WMN configuration with constraints and determine the number of used gateways. Experimental results proved that the performance of

the genetic algorithm and simulated annealing in minimizing WMN network costs while satisfying quality of service. The proposed models are presented to significantly outperform the existing solutions.

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Computer Science

Index Terms

Wireless

Keywords

Wireless mesh networks genetic algorithms simulated annealing topology design.