

{tag}

{/tag}

International Journal of Computer Applications
© 2015 by IJCA Journal

Volume 122 - Number 17

Year of Publication: 2015

Authors:

A. I. A. Jabbar

Ahmed I. Al-ghannam

10.5120/21795-5172

{bibtex}pxc3905172.bib{/bibtex}

Abstract

This paper proposes a Random early detection algorithm based on fuzzy logic Principles. The main target of using the fuzzy logic is to reduce the number of lost packets which are sent by a sender using RED algorithm in queue-buffer router of the network topology. The function of fuzzy logic is to dynamically tune the maximum drop probability (maxp) parameter of the RED algorithm. To realize this target, a two-input-single-output fuzzy logic is implemented. The inputs of the fuzzy logic are average queue size, the difference in average queue size. To estimate the performance of the FLRED: simple network topology with FTP is suggested. In this research, the opnet modeler 14. 5 has been used. The simulation results show that the FLRED algorithm is better than traditional RED algorithm as far as the number of lost packets is concerned.

Refer

ences

- H. ASHTIANI, H. Moradi and M. NIKPOUR . " Active Queue Management in TCP Networks Based on Fuzzy-Pid Controller" , Journal of Applied Computer Science & Mathematics,2012.

- Minjuan Cheng and Xiaoming Ma, "Performance Evaluation of Queue Management Methods for Congestion Control", Journal of Information & Computational Science, 2012.
- Arash Dana and Ahmad Malekloo, "Performance comparison between Active and Passive Queue Management", IJCSI International Journal of Computer Science Issues, 2010.
- Jingjun Zhanga, Wenlong Xub and Ligu Wangb, "An Improved Adaptive Active Queue Management Algorithm Based on Nonlinear Smoothing", Sciverse science direct, 2011.
- S. Floyd and V. Jacson, Random Early Detection gateways for congestion avoidance, IEEE/ACM Trans. on Networking, 1993.
- S. N. Sivanandam, S. Sumathi and S. N. Deepa, "Introduction to Fuzzy Logic using MATLAB", Springer-Verlag Berlin Heidelberg 2007.
- OPNET Technologies, Inc. <http://www.opnet.com>
- T. Álvarez, V. Álvarez and L. Nicolás, "Understanding congestion control algorithm in TCP using OPNET", 2nd International Conference on Education and New Learning Technologies, 2010.

Computer Science

Index Terms

Fuzzy Systems

Keywords

Active queue management (AQM) Congestion Control Fuzzy logic Random early detection (FLRED)
Random early detection algorithm (RED).