World Academy of Science, Engineering and Technology
International Journal of Computer and Information Engineering
Vol:16, No:08, 2022

Deep Routing Strategy: Deep Learning based Intelligent Routing in Software Defined Internet of Things.

Authors : Zabeehullah, Fahim Arif, Yawar Abbas

Abstract : Software Defined Network (SDN) is a next genera-tion networking model which simplifies the traditional network complexities and improve the utilization of constrained resources. Currently, most of the SDN based Internet of Things(IoT) environments use traditional network routing strategies which work on the basis of max or min metric value. However, IoT network heterogeneity, dynamic traffic flow and complexity demands intelligent and self-adaptive routing algorithms because traditional routing algorithms lack the self-adaptions, intelligence and efficient utilization of resources. To some extent, SDN, due its flexibility, and centralized control has managed the IoT complexity and heterogeneity but still Software Defined IoT (SDIoT) lacks intelligence. To address this challenge, we proposed a model called Deep Routing Strategy (DRS) which uses Deep Learning algorithm to perform routing in SDIoT intelligently and efficiently. Our model uses real-time traffic for training and learning. Results demonstrate that proposed model has achieved high accuracy and low packet loss rate during path selection. Proposed model has also outperformed benchmark routing algorithm (OSPF). Moreover, proposed model provided encouraging results during high dynamic traffic flow.

Keywords : SDN, IoT, DL, ML, DRS
Conference Title : ICCSE 2022 : International Conference on Computer Science and Engineering
Conference Location : Istanbul, Türkiye
Conference Dates : August 16-17, 2022