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A Detailed Study on a Software-Based Fog Network-Based Delay-Tolerant Data Transmission Model

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Abstract

Based on Internet of Vehicles (IoV), a high transmission delay issue is raised for the transfer of data. Fog computing low-latency advantage can be used to address elevated transmission latency issues in a variety of network configurations. A new architecture that blends cloud computing, fog computing, software-defined networks, and added technologies is suggested in order to facilitate the flow of data. This essay examines how fog computing is used in the IoV. To acquire the equipment performance of the fog network and to

centrally regulate the fog network, the suggested approach leverages software-defined networks. Furthermore, communication costs and other data are used to design the best load balancing approach. This research also models the software-defined IoV's partly observable Markov decision process optimization approach for choosing the data transmission network and data computation implementation server of delay-tolerant data. This paper investigates the time delay modeling of the cloud-fog network and the energy utilization modeling of the fog network depending on the time delay modeling of the fog network. The simulation results of the suggested architecture demonstrate how to successfully reduce transmission delay and increase calculation efficiency.

Keywords

Internet of vehicles (IoV)

Markov decision process

Delay-Tolerant data transmission model

Fog computing Load balancing strategies

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