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EFog-IoT: Harnessing Power Consumption in Fog-Assisted of Things

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Abstract

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Abstract:

The ever-increasing use of Internet of Things (IoT) devices like smartphones, PDAs, smartwatches, etc. by the users has also drastically increased the volume of data that needs to be processed by the cloud servers. The cloud servers are very powerful and are capable of processing data at once. However, being a centralized paradigm and the existence of the physical gap from the IoT layer, it is incapable of bulk processing of data thereby resulting in latency overhead, increased power consumption, and increased service rate. This work proposes an energy-efficient method with the introduction of Fog computing as an intermediate layer between the IoT and the Cloud for computing the tremendous data generated by the IoT devices in a distributed manner in order to reduce the power consumption. Here, a Multi-level Feedback Queue is used for target node classification for minimizing the service rate, and the Fuzzy C-means++ approach is applied for clustering of available fog

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I. Introduction

Cloud computing offers many resources such as storage, computing power, internet applications and infrastructure of the network that can be shared among many users [1]. Recently, the devices that are used in our day-to-day life are also connected to the Internet. These are known as IoT devices, which are connected to the cloud for processing the user's requests [2]. For this reason, the use of IoT devices is increasing, which leads to an increase in the volume of processing requests generated by the users. As a result, the power consumption and communication latency with the cloud is also increasing which has turned down the expected advantage of cloud computing.

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