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Fog Computing in IoT

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ABSTRACT

Fog computing is an emerging paradigm that extends cloud computing capabilities to the edge of the network, enabling real-time and low-latency processing of data generated by Internet of Things (IoT) devices. The aim of fog computing is to overcome the limitations of cloud computing, such as high latency, limited bandwidth, and privacy and security concerns.

Keywords: IoT,IIoT,vulnerabilities,trust,end-device,confidentiality,integrity.

Introduction

Fog computing or fog networking, also known as fogging, is pushing frontiers of computing applications, data, and services away from centralized cloud to the logical stream of the network edge. Fog networking system works on to build the control, configuration, and management over the Internet backbone rather than the primarily control by network gateways and switches those which are embedded in the LTE network. We can illuminate the fog computing framework as highly virtualized computing infrastructure which provides hierarchical computing facilities with the help of edge server nodes. These fog nodes organize the wide applications and services to store and process the contents in close proximity of end users.

Characteristics and Challenges

The main objectives of motivation from cloud to fog computing are extension of CC features to the edge level, which make CC services for increasing new variety of applications in IoT structure available. It also improves the QoS for them, for achieving low latency and high band width through better navigation services. A common uniqueness associated with fog computing is its hierarchical parallel processing operations at the edge of the core network. This implies that fog computing framework can become a nontrivial extended deployment of cloud computing.

Fog computing and 5G

Fog computing is a computing architecture in which a series of nodes receives data from IoT devices in real time. These nodes perform real-time processing of the data that they receive, with millisecond response time. The nodes periodically send analytical summary information to the cloud. A cloud-based application then analyzes the data that has been received from the various nodes with the goal of providing actionable insight.

Conclusion

We have to close up fog computing overview, as distributed and hierarchical framework having scheduled storage, virtual machine images (embedded virtual cache and transient storage), and network resources deployment with the complement of CC functionality at the edge of IoT. This work represented some key characteristics with enduring general ideas about possible challenges as like how fog computing can expand CC services at the edge. Hence, it is clarifying some use cases that provoked the necessity of fog computing especially about the real-time data analysis importance for IIoT, typically in health care, STLS, and smart grid.

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