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Data Security and Privacy Functions in Fog Computing for Healthcare 4.0

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Abstract

Sensors play an essential role in different applications such as medicine, manufacturing, climate, smart transportation, and smart city. Wearable or implantable body sensors are necessary for the human body to collect patient information. Such tools produce a massive amount of data, and to collect useful information, it is more difficult to secure such data from intruders, process, and interpret it. In this chapter, we are improving such a big data health monitoring system by leveraging the fog computing principle at smart gateways, offering advanced network edge techniques and services. In particular, as a case

study, we chose electrocardiogram (ECG), because it plays an important role in the diagnosis of many heart diseases. The experimental results show that fog computing helps to reduce the encrypt and decrypt time compared to other traditional algorithms, and the information will be transmitted more safely using the algorithm with less computational overhead.

Keywords

Enhanced TEA algorithm

Optimized fully encryption algorithm

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