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A Novel Based Privacy Protection and Intrusion Avoidance for Cloudlet-Based Medical Data Sharing

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Abstract

Now a days cloud has become one of the fascinating domain in order to store and retrieve all the data from the remote machines rather from the local machines. With the popularity of wearable devices, along with the development of clouds and cloud hand held technology, there is a tremendous increase for the medical care in order to store and access the information remotely. The data collected from patient through wearable devices (like heartbeat, blood pressure etc.) has to be passed to application running in cloud to implement various services like expert advice, emergency assistance etc. Then build up a novel healthcare system by utilizing the flexibility of cloudlet. The functions of cloudlet include privacy protection, data sharing and intrusion detection. In the stage of data collection, first utilize Number Theory Research Unit (NTRU) method to encrypt user's body data collected by wearable devices. Those data will be transmitted to nearby cloudlet in an energy efficient fashion. Secondly, present a new trust model to help users to select trustable partners who want to share stored data in the cloudlet. The trust model also helps similar patients to communicate with each other about their diseases. Thirdly, divide users' medical data stored in remote cloud of hospital into three parts, and give them proper protection. Finally, in order to protect the healthcare system from malicious attacks, then develop a novel collaborative intrusion detection system (IDS) method based on cloudlet mesh, which can effectively prevent the remote healthcare big data cloud from attacks. The cloudlet act as a cache for cloud and it provide privacy for the data by encryption using AES algorithm and avoid the intrusion by using the Collaborative IDS. The processing chain of medical data mainly includes data collection, data storage and data sharing, etc. The experiments demonstrate the effectiveness of the proposed scheme.