A Proxy Re-Encryption Approach to Secure Data Sharing in the Internet of Things Based on Blockchain

ABSTRACT:

The evolution of the Internet of Things has seen datasharing as one of its most useful applications in cloud computing.As eye-catching as this technology has been, data security remainsone of the obstacles it faces since the wrongful use of data leads toseveral damages. In this article, we propose a proxy re-encryptionapproach to secure data sharing in cloud environments. Dataowners can outsource their encrypted data to the cloud usingidentity-based encryption, while proxy re-encryption constructionwill grant legitimate users access to the data. With the Internet ofThings devices being resource-constrained, an edge device acts asa proxy server to handle intensive computations. Also, we makeuse of the features of information-centric networking to delivercached content in the proxy effectively, thus improving the qualityof service and making good use of the network bandwidth. Further,our system model is based on block chain, a disruptive technology that enables decentralization in data sharing. It mitigates the bottlenecks in centralized systems and achieves fine-grained accesscontrol to data. The security analysis and evaluation of our schemeshow the promise of our approach in ensuring data confidentiality,integrity, and security.

SYSTEM REQUIREMENTS:

HARDWARE REQUIREMENTS:

- System : Pentium i3 Processor.
- Hard Disk : 500 GB.
- Monitor : 15’’ LED
- Input Devices : Keyboard, Mouse
- Ram : 4 GB

SOFTWARE REQUIREMENTS:

- Operating system : Windows 10.
- Coding Language : Java
- Web Framework : Flask

REFERENCE:

K. O. -B. O. Agyekum, Q. Xia, E. B. Sifah, C. N. A. Cobblah, H. Xia and J. Gao, "A Proxy Re-Encryption Approach to Secure Data Sharing in the Internet of Things Based on Blockchain," in IEEE Systems Journal, doi: 10.1109/JSYST.2021.3076759.