Blockchain-based system prototype for electronic medical records

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Electronic medical records play an important role in patient-centric treatments by enabling the distribution of data among separate healthcare providers, thereby, helping to reduce the number of incorrect diagnoses (Makary and Daniel 2016). Currently, electronic medical records are held on disconnected centralized databases that cause up-to-thirty-days delays in obtaining medical records (DeLaurentis and DeLaurentis 2010). The delays are not acceptable in an industry where a few minutes can result in the immense difference for patient conditions. Blockchain could improve the way medical records are managed, shared, and tracked while ensuring trust, integrity, confidentiality, and security (Azaria et al. 2016). The objective of the thesis is to develop a blockchain-based prototype for electronic medical records. We answer the research question "How can blockchain technology be used to build a platform that securely stores and shares complete unified versions of electronic medical records?" We contribute to the computer science literature by introducing the prototype of blockchain-based electronic medical record using Hyperledger platform that can support decentralized, permissioned, energy-efficient, trusted, and secure health information exchange.

References

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