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Adoption of Blockchain in Cyber Security

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Abstract: *In recent decades, blockchain has (slowly) become one of the most frequently discussed methods for securing data storage and transfer through decentralized, trustless, peer-topeer systems. We present a comprehensive method of how blockchain technology is applied to provide security over the network and to counter ongoing threats as well as increasing cybercrimes and cyber-attacks. We focused on blockchain technology for cyber defence. With digital innovation on military and social infrastructure, cyber threats are not avoidable. Blockchain technology is one of the emerging technologies for security in defence. It has a decentralized nature, so a blockchain ensures data processing integrity. It significantly helps secure system reliability against cyber threats. We provided a scope of cyber defence and reviewed blockchain research and development trends under the defined cyber defence. And then, we explored the potential concerns in the use of blockchain based on recent research and blockchain methodologies. The blockchain-based decentralized storage system splits users' files into varied tiny chunks of information, mentioned as "blocks". It then encrypts every block with a unique hash or with public-private keys and distributes the blocks across multiple computers or "nodes". This method of distributing information across the network of node is called sharding. Similarly, all information is distributed and stored across decentralized locations. If hackers attempt to breach these locations, they encounter encrypted blocks of data. Furthermore, they can only access a fragment of the information, not the complete file. This is how blockchain-based decentralized storage systems ensure data security.*

Keywords: Blockchain Technology, Data Security, Decentralized Storage, Cyber Defense, Encryption