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APPLICATION OF HYPERLEDGER BLOCKCHAIN TECHNIQUE TO SECURE SENSITIVE
SATELLITE DATA

Abstract

From the beginning of the space era many satellites have been launched. Currently there are 2218 artificial satellites revolving the earth. All of these satellites receive and transmit enormous amount of data whose accuracy and security is an immense challenge. The strategic application of satellites also demands highly reliable and secure data handling. We aim to secure the data using Blockchain. Blockchain is an immutable time stamped series of recorded data that is managed by a cluster of computers on the network. Blockchain has two variants namely Ethereum and Hyperledger, where Ethereum is public ledger and Hyperledger is private ledger. Majorly blockchains are classified as public Blockchains and permissioned Blockchains. This can be explained by considering the example of a user who wants to sell a book to person A with some rebate and does not intend to tell about this to general public, the seller then can use permissioned Blockchain to hide the information about the offer from the public. This model uses a double encryption mechanism on a permission-based Blockchain. The security that is provided by this model which uses Blockchain is beyond and far more advanced than any other centralized security system being used. The objective of this research is to secure the data using a Hyperledger Blockchain technique. This network has secured list of blocks which contains the useful information. A peer to peer

network is established between the satellite and the computers on the ground. Our satellite acts as a central NODE where the data changes will take place and the other nodes will be on the ground. Each of these nodes will be interconnected to each other in a peer to peer network. Any blocks added or any changes made to the existing blocks will be reflected in each node in the network.