Tohoku Univ. Technology

P2P-type distributed online storage

Highly confidential online storage using blockchain and secret sharing method

Overview

This invention realizes a P2P-type cloud storage mechanism based on the secret sharing method.

Impossible to identify the saving destination

Data is splited and stored in participating nodes. In addition, node-to-node communication is anonymous, making it secure and difficult to identify the storage location.

The client doesn't need to retain metadata

Reduce the risk of metadata leak by decentralizing its storage in addition to the secret data itself by using the blockchain.

Possible to retrieve data securely

Secret data can be retrieved using user name and password. It can detect and eliminate brute force attack on username and password by mutual monitoring and majority voting among P2P nodes.

Figure 1

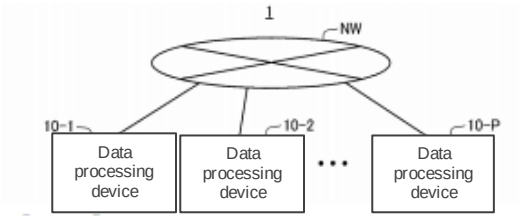
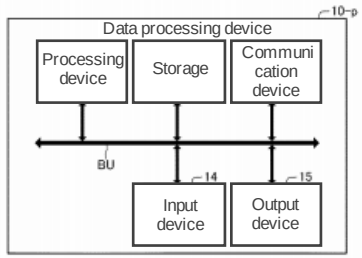
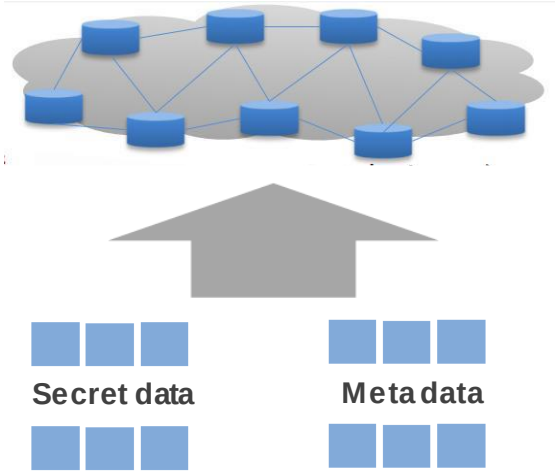


Figure 2



Features･Outstandings



Distributed storage in P2P network

Interception by the network is also difficult

Metadata is also stored on the network

No information is left on the client terminal, making it secure

Related Works

[1] Fukumitsu, M., Hasegawa, S., Isobe, S., Iwazaki, J. Y., Koizumi, E. & Sakai, M., A Method for Constructing an Autonomous Decentralized P2P Storage with High Confidentiality and Reliability, 2018 4 23, Proceedings - 2017 5th International Symposium on Computing and Networking, CANDAR 2017. Institute of Electrical and Electronics Engineers Inc., p. 439-444 6 p. (Proceedings - 2017 5th International Symposium on Computing and Networking, CANDAR 2017; vol.2018-January).

IP Data

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