Print Group
Hackathon 2018
Blockchain

File Integrity Checker

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Problem Statement

Problem: How to determine if a given document's integrity is intact?

Solution:
A decentralized system to verify document integrity. This solution implements part of the functionality of Adobe Sign which is a centralized system that can assure a user that a given document has not been modified since the last valid signature. Using a blockchain decentralizes the process. The documents will not be stored on a central server, thus mitigating any trust issues that users may have with a central authority or server.

Solution Details

A user can specify a document and the blockchain client generates a DocID and a DocHash for that document.
The user who generates the DocID from a document is responsible for storing the DocID safely.
The blockchain client stores the DocID and its corresponding DocHash in the blockchain.
Any other user can later query the blockchain with a DocID and retrieve its associated DocHash.

Technology Comparison

Other Tech:
No other major technology has been used in this solution

Advantages of blockchain over other technologies:

1) No need of uploading files to a central server.
2) Dependence on server eliminated, so server downtime is not an issue.
3) No risk of server getting hacked.

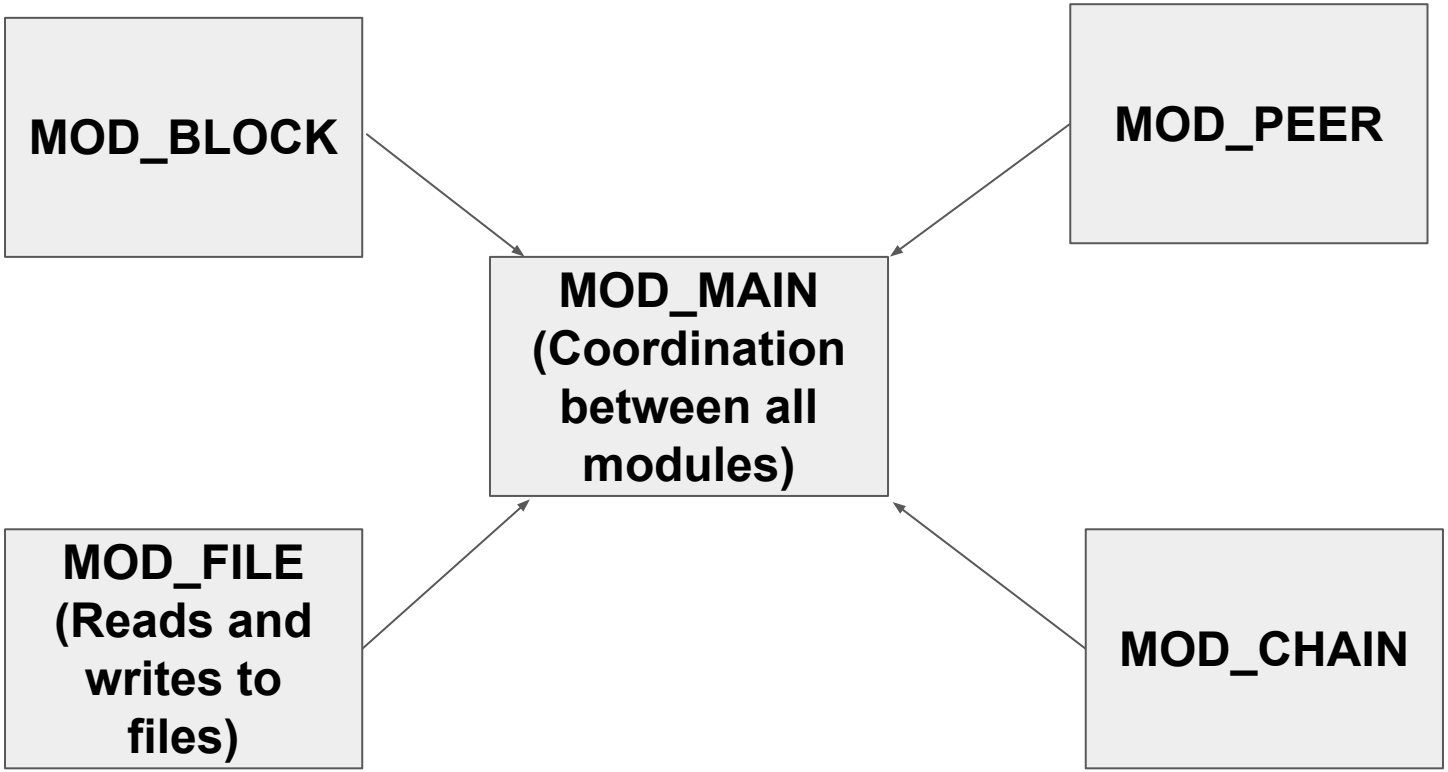
Current Limitations

1) Other than the document hash, there is no other information related to the document stored in the blockchain.

Future Enhancements

1) Tracking of information about who sent the files to whom.
2) Using DNS for peer discovery
3) Storing the Doc Hash instead of Doc ID along the document description which frees user from remembering the Doc ID.

Architecture



MOD_CHAIN

- Addition of new block to the chain
- Retrieval of block from the chain

MOD_BLOCK

- Generates Document ID
- Generates Document Hash
- Sets previous Block Hash

MOD_PEER
MOD_VOTING

- Peer Discovery
- Peer communication for voting
- Takes action against dishonest peers