Proof–of–Concept Blockchain Application for Access Controlled File Transfer

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Motivation

The Bill of Lading (BOL) is usually physically transferred along supply chains. A blockchain is perfect for digitizing this process and tokenizing the BOL. However, proper access controls must be set in place with the right Token structure to ensure only appropriate parties have access to the BOL.
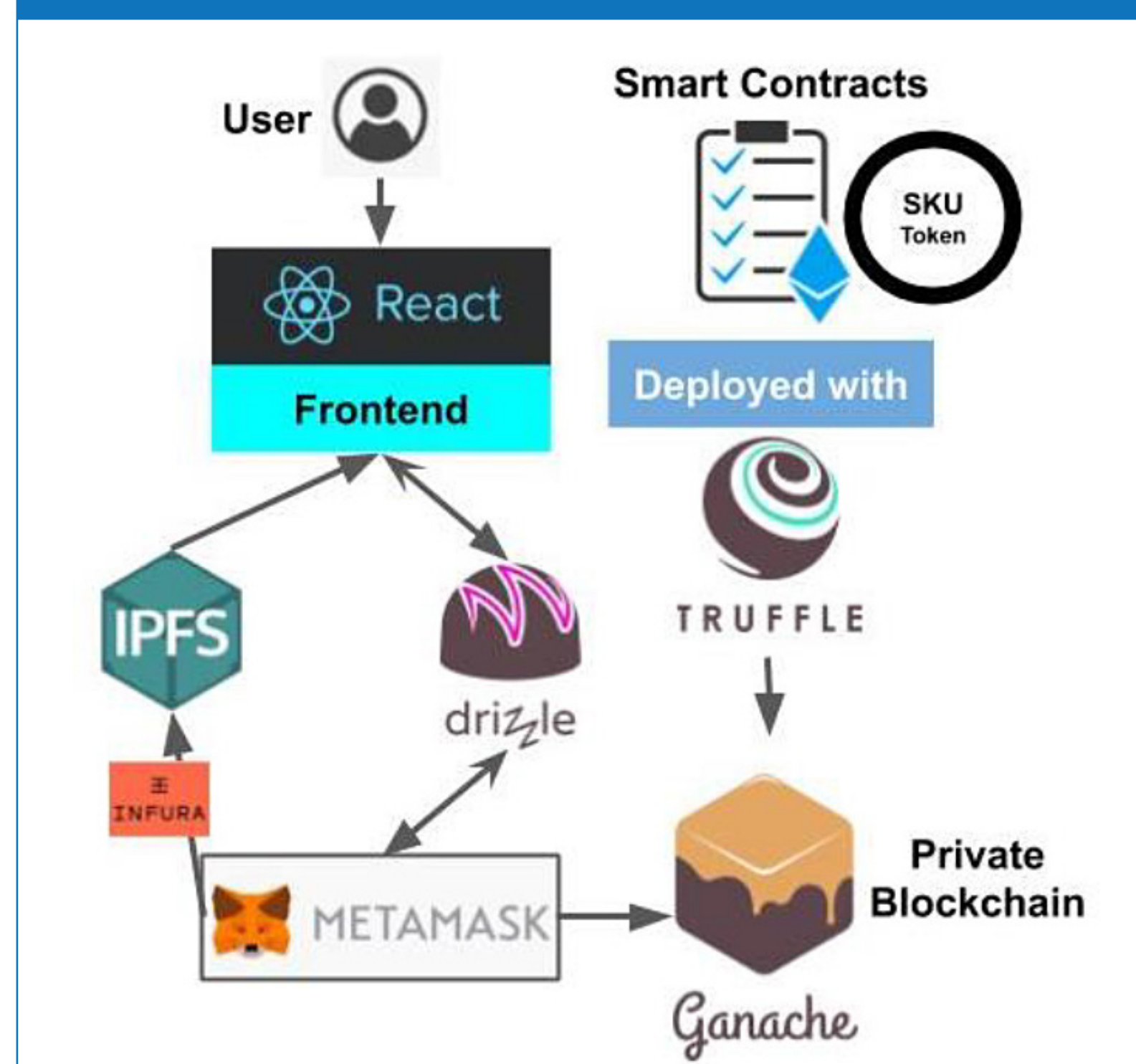
Process Flow – Access Control Management
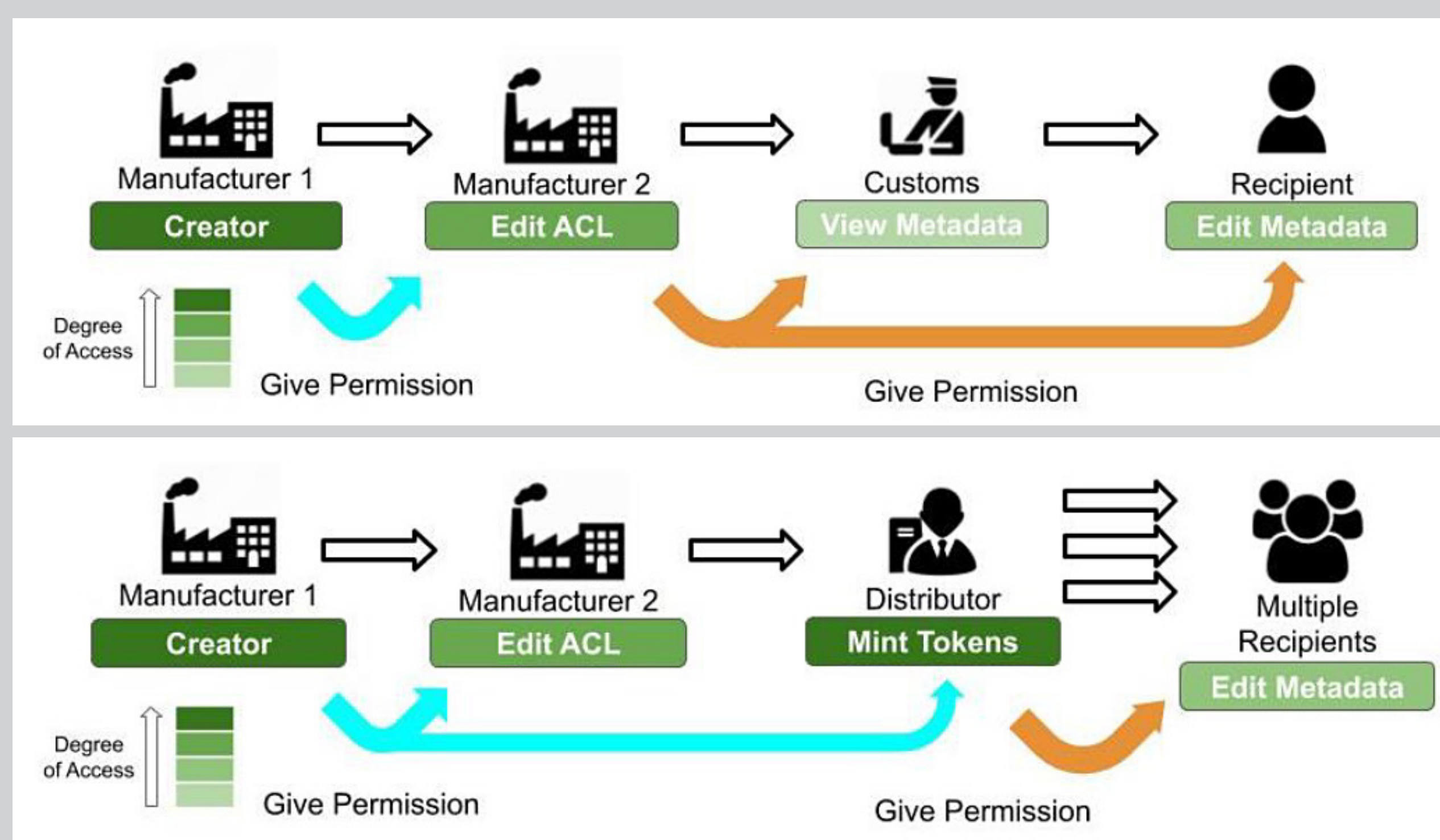
Contribution

A POC dApp is built using the ERC-1155 Standard to implement a multi-Token instantiation under one smart contract.
It implements a double-layered Access Control system to manage the metadata of the digital file being transferred.

Application Diagram

Access Control Layer

- **Creator** – Token creator
- **Mint** – Can create more copies of the Token grouped under the original Token
- **Edit ACL** – Can edit the access control and give other users permissions
- **Edit Metadata** – Has access to the metadata URI and can edit by updating the URI address
- **View Metadata** – Has access to the metadata URI but cannot update it