Container diagram for Open Science Platform Researcher A researcher who enrolls and interacts with the platform to upload and manage research artifacts. Uses [HTTPS] **Core Services** [system] **Jupyter Notebooks** [Python, Jupyter] Provides the front-end interface for users to interact with the platform and manage research artifacts. Calls API functions to **Communicates with** interact with **Extract Metadata Index and Search** [HTTPS] [ISON over HTTPS] **Extended Services** [system] Iroha v1 Python **IPFS HTTPS Client Search System Metadata Extraction** Library [Python] [Whoosh, Python] [Apache Tika, Python] [Python] Handles communication Provides keyword-based with the IPFS network to Extracts metadata from Handles communication search functionality for uploaded research artifacts. with the Hyperledger Iroha store and retrieve research stored artifacts. blockchain. artifacts. Sends transactions **Upload and download** files and JSON objects and queries **Decentralizaed Services** [system] **Smart Contracts** [Solidity (EVM)] **IPFS Network** Smart contracts tightly [A decentralized file storage integrated with Hyperledger network used to store research Burrow, providing Ethereum artifacts and metadata.] EVM compatible functionalities for managing projects and artifacts. **Process the Smart** Contract **Hyperledger Burrow** [Provides EVM compatible run time] **Execute transactions**

and queries

Hyperledger Iroha
[A decentralized ledger that
ensures the integrity and
traceability of user data,
projects, and research artifacts.]

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