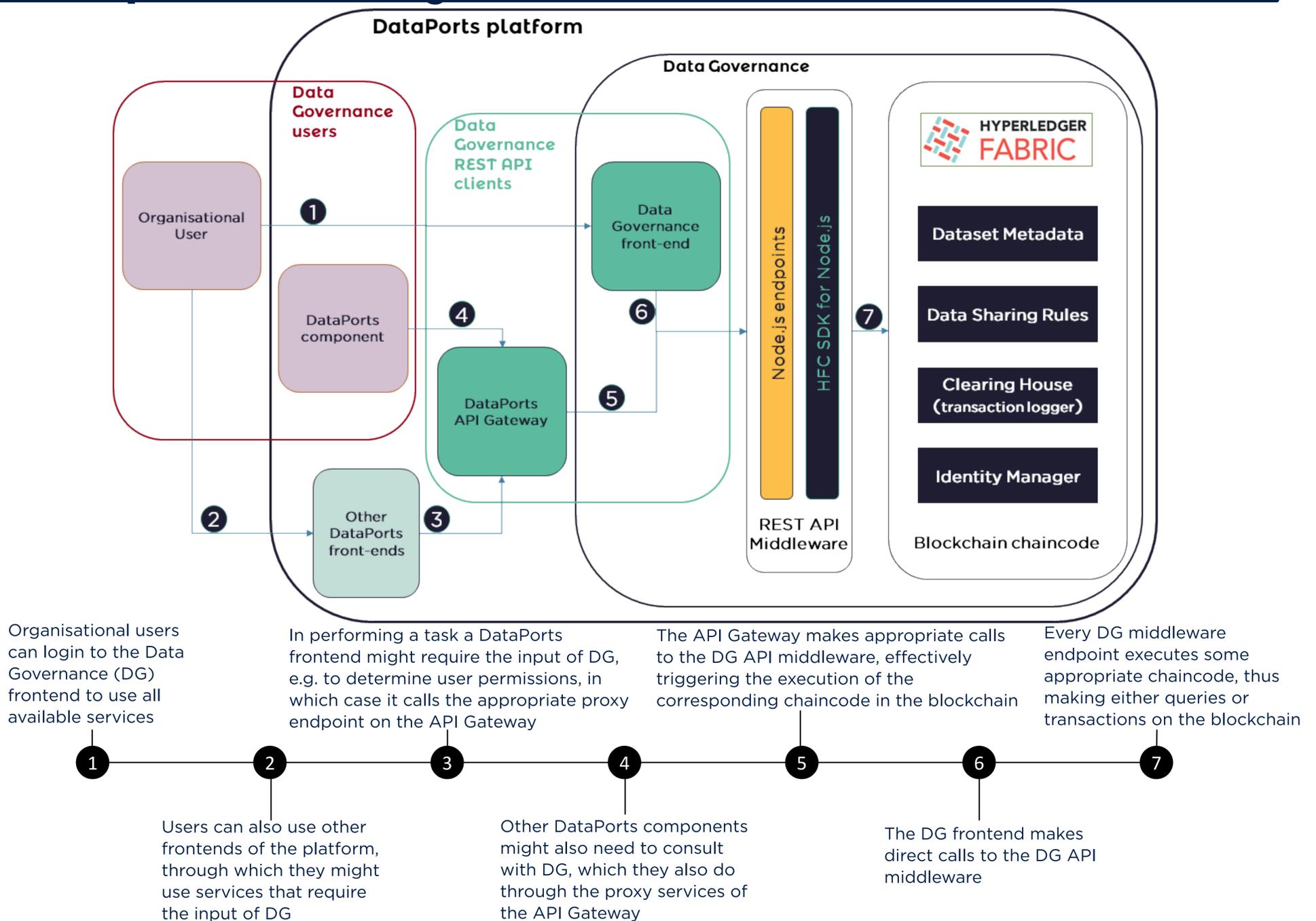


Overview



Data governance enables the sharing of datasets, monitoring its complete availability lifecycle, from dataset registration to access requests to its updating or removal from data governance. It increases consistency and confidence in the registered datasets and improves data security. The use of blockchain technology ensures that different participants, with potential conflicting interests, can trust data governance as a means of publishing datasets and managing access to them. Data governance rules are established via smart contracts, which guarantee transparency, verifiability and non-repudiation.

Component at a glance



Goals of the component

Dataset Metadata: stores and manages metadata describing the available datasets. This chaincode offers a great variety of queries on the metadata to find appropriate datasets

Data Sharing Rules: allow definition of access rules, to specify access rights on datasets (who can do what on which dataset), and evaluation of these access rules. This chaincode also allows the revocation of access rights

Clearing House: provides decentralized and auditable traceability of transactions. It receives logging information on metadata updates, dataset access requests, dataset access revocations

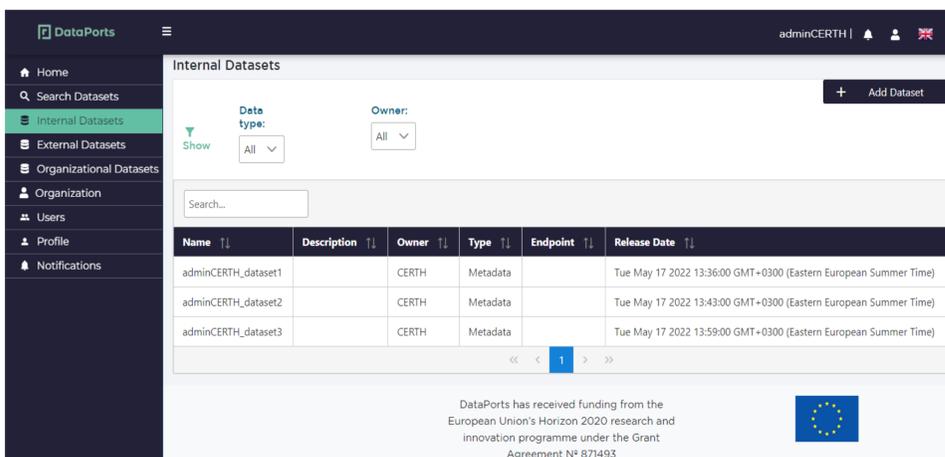
Identity Manager: user information is kept in the blockchain; additionally, each blockchain organization defines its own Certificate Authority (CA), which is responsible for issuing crypto material (certificates and public and private keys) for all organisational entities



About the component

Data Governance (DG) Frontend: friendly UI that enables organisational users to interactively carry out dataset-related tasks, such as making new datasets available by adding their metadata, specifying access rights and accepting access requests

Data Governance API middleware: middleware that exposes a large API for carrying out dataset-related tasks, boasting a rich set of queries on metadata. This API is used by both the DG frontend and the DataPort platform's API Gateway



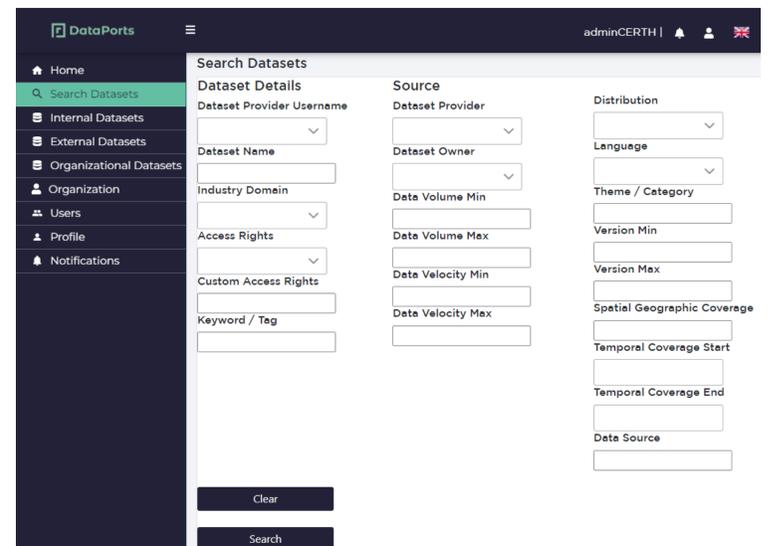
Target users

- Ports business experts
- Internal Platform Components
- Ports Data Users



Use case scenarios

- Fostering secure intra-organisational cooperation through dataset sharing
- Enabling dataset sharing through publication of its metadata
- Enabling secure sharing through the enforcement of access rights
- Enabling productive data exchange by providing extensive querying functionality



Benefits

Decentralisation: Information in a blockchain is replicated multiple times in a network of distributed nodes. This ensures there is no single point of failure in the system

Security: Inadvertent or malicious changes in the blockchain are automatically detected and discarded by the consensus process

Immutability: Blockchain transactions are permanently written in the ledger, which is append-only. Every block in the chain is linked to the previous, ensuring that the transaction flow is non-reversible. Thus proof of ownership is easy to demonstrate

Transparency and auditability: Every copy of the ledger is public and identical. Additionally, every block is time-stamped at creation. This combination means that the origin of any asset can be tracked along the chain

Efficiency: Blockchain transactions eliminate the need for paperwork, which traditionally exists in the shipping industry, because all records are kept in the ledger, and the business events that trigger transactions can often be incorporated into chaincode (smart contracts) running on the blockchain