

# Research Data Governance

Student: Chua Chiah Soon

Supervisor: Assoc. Prof Anwitaman Datta

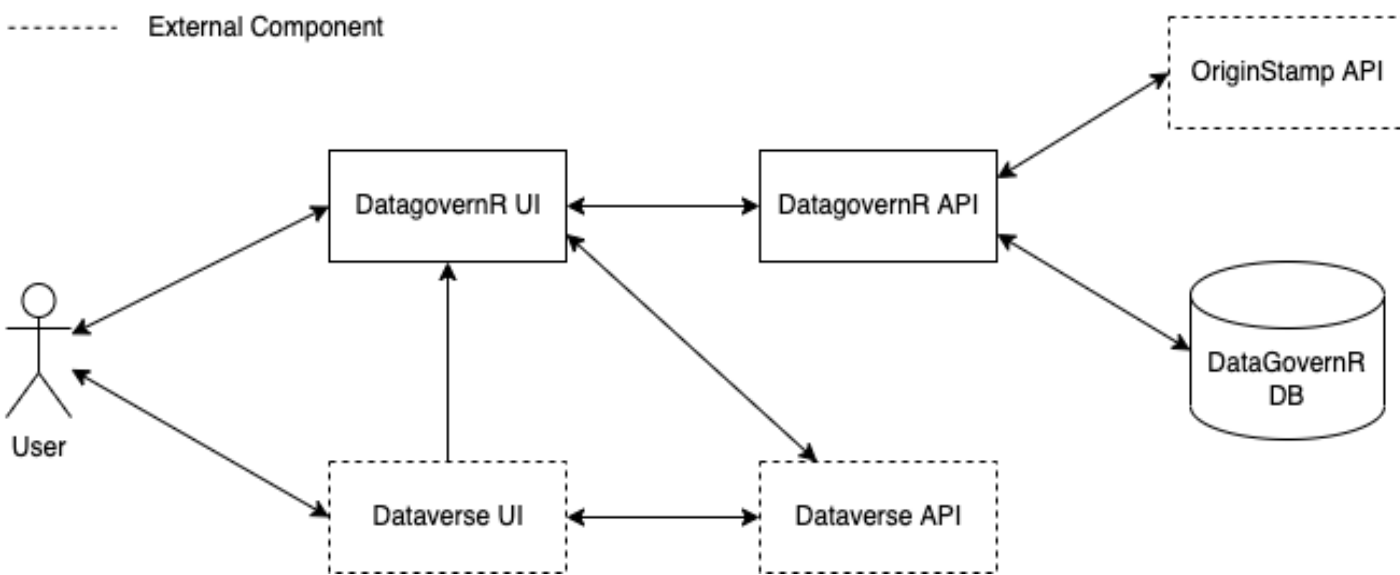
## Objectives

A web-based data archival system with:

1. Encrypted Research Data Archival
2. Encryption Key Sharing
3. Proof of Upload Time via Blockchain

Legend:

- Internal Component
- - - External Component



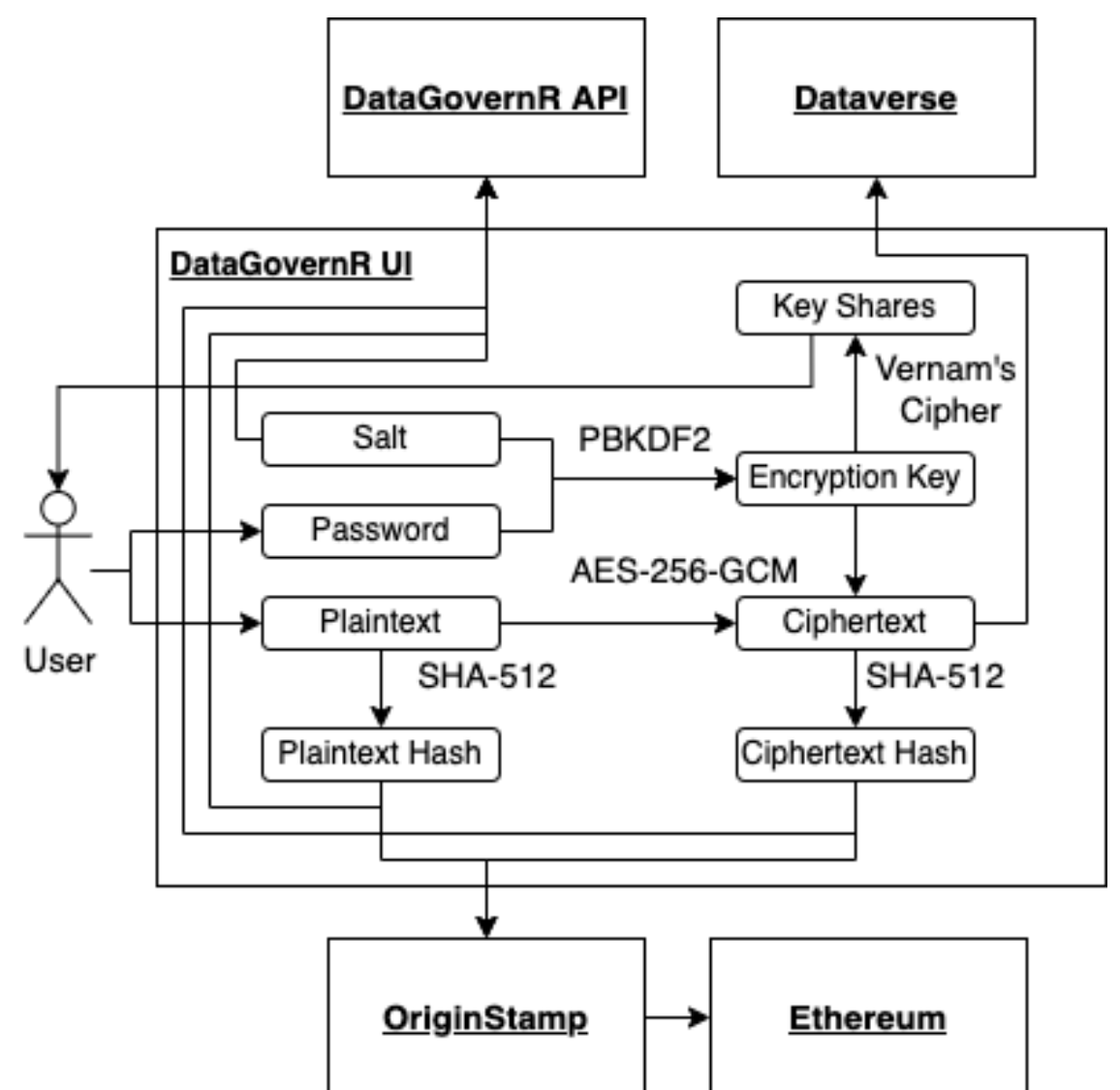
## Design Principles

1. Client-side cryptography operations
2. Modular cryptographic primitives

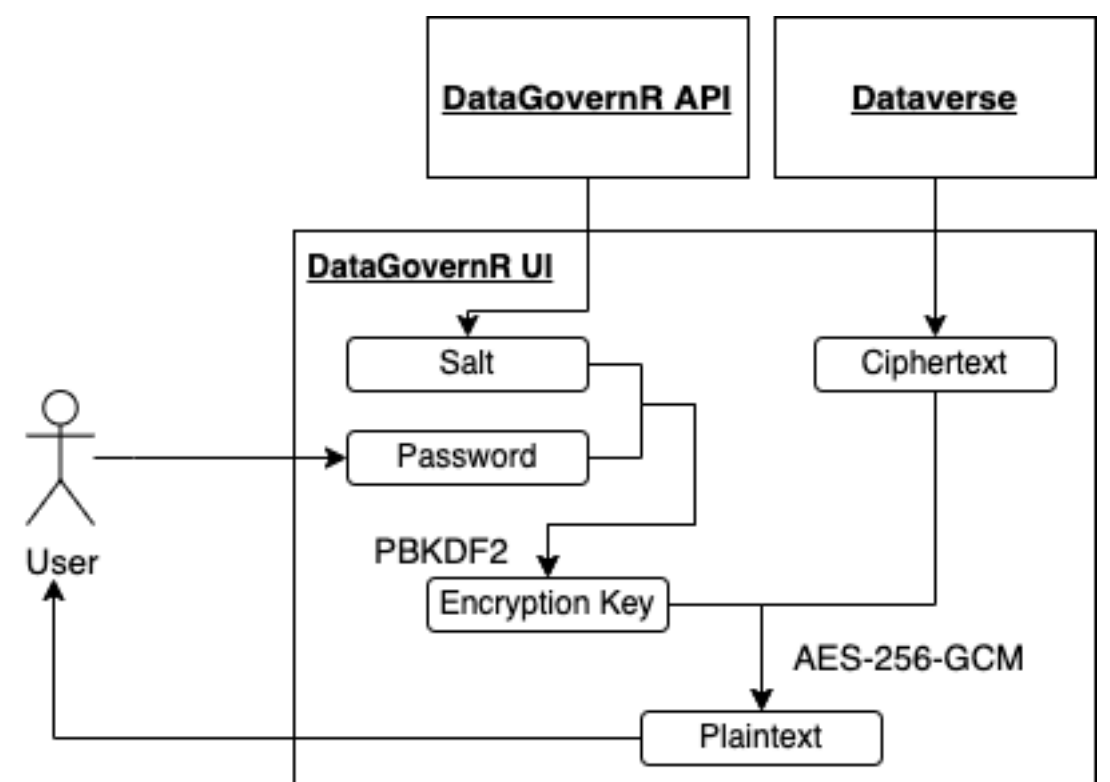
## Methodology

1. Built on top of Dataverse (archival service)
2. Password-based key generation (PBKDF2) for encryption (AES-256-GCM), with different salt (and thus key) for every file
3. Key sharing using Vernam's Cipher
4. Timestamped via OriginStamp API (Ethereum) using hashes (SHA-512) of plaintext and ciphertext

## Upload Process



## Download Process - Password



## Download Process – Key Shares

