



Cumulus Encrypted Storage System

CESS Course Week 1 - Episode 1

CESS Introduction



CESS Official Website

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Course Logistics

- [Course Notion page](#)
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Status Quo

Current Problem on Decentralized Storage

Data Vulnerability

Data loss occurs due to single node of failure or hacking attempts.

Slow Data Retrieval Rate

Lack of indexing and search functionality.

Limited API & App. Support

No app support and limited API and smart contract support.

Lack of Data Marketplace

No effective data marketplace where data contributors are compensated.

What CESS Offers

Data Vulnerability

High Data Security

Fault tolerant and Proof of Data Reduplication and Recovery Protocol.

Slow Data
Retrieval

Millisecond Data Retrieval

Data indexing and a Caching layer miners.

Limited API &
App. Support

Developer Friendly Platform

API supports multiple languages (Go and JS) and supports EVM (Solidity) / WASM (ink!) smart contracts.

Lack of Data
Marketplace

Effective Decentralized Data Marketplace

Building a data marketplace where data can be monetized.

CESS in Summary



CESS (Cumulus Encrypted Storage System) is a blockchain powered decentralized storage and content delivery network (CDN) infrastructure for Web3. By utilizing a decentralized physical infrastructure network (DePIN) model, CESS drives mass deployment of network nodes globally through incentives.

What CESS Is for You



Fully Decentralized

Storage and Cache layers are run by community miners. Meta-data stored in CESS blockchain.

Secure

Storage algorithm to make user data fault tolerant with redundancy.

Fast

CDN layer to cache data downloaded close to user locations.

Developer Friendly

Comprehensive APIs supporting different languages are built.

Platform Architecture

Application Layer

Web Application

NFT Platform

Network Disk

Distributed Application

Distributed Content Delivery Layer



Distributed Storage Resource Layer



Blockchain Layer

Smart Contract

Consensus Algorithm

Proof of Storage

Transaction System

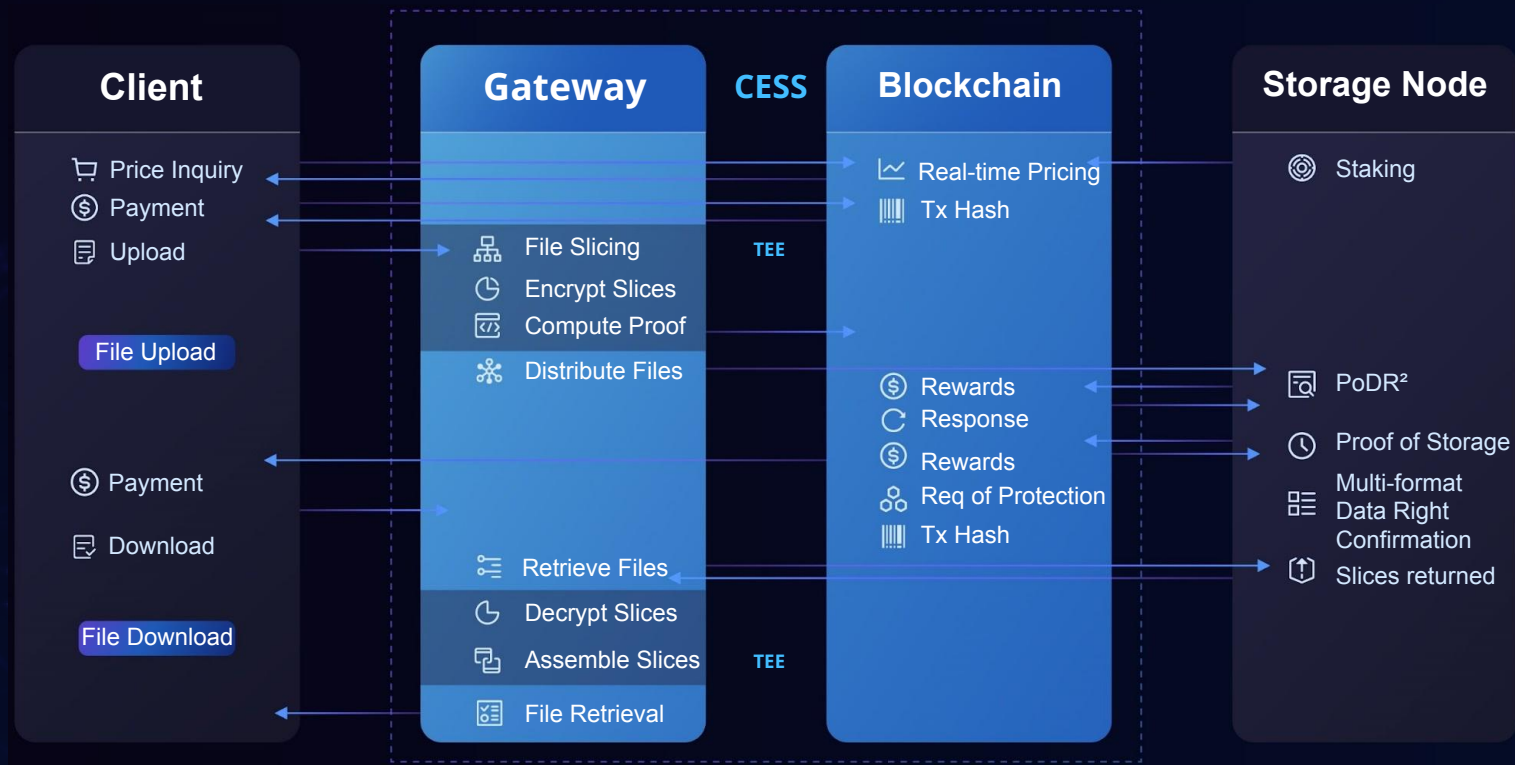
Incentive Mechanism

Encryption System

Blockchain Explorer

P2P Protocols

CESS Client Interaction Model



Technical Highlight

Data Recovery
Guarantee

Proof of Data Reduplication and Recovery (PoDR²)

Protocol ensures data validity and availability by challenging storage node regularly.

Smart Space
Management

Continuous Availability Proof of Storage (CAPoS)

Protocol ensures storage miner spaces are available and dedicated for CESS

Reputation-based
Consensus

Open, Decentralized Consensus Node Selection

The longer good service a node has served, the higher its reputation and higher likelihood to be chosen as consensus node in the next round.

Unified Storage
Price

Simplified, Single Storage Price

CESS simplifies storage bidding with a single price bid from users.

Data Ownership
Traceability (future)

Multi-format Data Rights Confirmation technology (MDRC)

Protocol that extracts fingerprint from data and stores them on-chain.

Use Cases

NFT Issuance & Storage

Securely stores NFT assets with data indexing and ownership verification.

Personal Network Drive

Ensures data privacy without worrying about data loss on central server outages.

Streaming & Social Media

With metadata on blockchain, content is censorship-resistant, safeguarding data integrity and freedom of speech

Enterprise Storage

Fast, secure storage solution at a lower cost compared to centralized storage providers.

History & Roadmap



Started at 2021 June, CESS is building a decentralized storage solution for Polkadot and Ethereum ecosystems.

- 2021 Dec CESS got the **first place** in 2021 Polkadot Hackathon.
- 2022 Jan - Mar CESS was **sponsored** by Web 3 Foundation twice.
- 2022 Jan CESS was selected to **Substrate Builders Program**.
- 2022 May CESS was selected to **2022 Web3.0 Bootcamp**.



History & Roadmap



- 2022 Jun Launched CESS Testnet, open storage and consensus layer for public to run. Cross-chain NFTs trading was launched.
- 2022 Q4 New version of storage and consensus are launched. Launched block explorer.
- 2023 Q2 DeOSS is in alpha launch. Launched VideOwn decentralized streaming platform.
- 2023 Q4 Launch CESS Mainnet.
- 2024 Launch CESS DAO for network governance, and internally test the data marketplace.

Try Out CESS Now



- Get tokens for CESS testnet: [Testnet Faucet](#)
- Decentralized Video-sharing Platform: [VideOwn](#)
- Quickly share file via CESS: [DeShare](#)
- CESS Blockchain Explorer (testnet): [Substats \(testnet\)](#)

For learning

- [Documentation](#)
- [Whitepaper](#)
- CESS blockchain code repository: [Github](#)

Get in Touch

- Our Ambassador Program: <https://cess.cloud/ambassador.html>
- Github: <https://github.com/CESSProject>
- X: https://twitter.com/CESS_Storage
- Discord: <https://discord.gg/cess>
- Telegram: https://t.me/CESS_Storage_official
- Youtube: https://www.youtube.com/@cess_storage2312
- Medium: https://medium.com/@CESS_LAB
- LinkedIn: t.ly/Fn1hU

End