Security Beyond Encryption;
Email, Messaging & Data Transfer Blockchain/DLT Communication Infrastructure

BlockLabs

Goal

01

To enable;

secure, end-to-end encrypted, peer-to-peer, self-custodial digital communication while retaining data ownership and prevent data mining.

"Electronic communication is too valuable to be entrusted to an intermediary. The future lies in permissionless, immutable, on-chain communication protocols."

Dr. Tali Režun, Block Labs S.a.r.l.
Luxembourg

Opportunity

02

Digital communication transformation from;

- custodial to self-custodial;
- centralized to distributed;
- insecure to secure;
- mutable to immutable, and;
- “free” but mined to “payable” but yours.

On-chain model introduces;

- an unprecedented level of trust and security, and;
- ensures message/data communication immutability and traceability.

Solution
03

Email, Messaging & Data Transfer Blockchain/DLT Communication Protocols

Resistant to;

SPOF (i.e. single point of failure), data ownership loss, data mining, data manipulation, identity & data theft, de-platforming, censorship, spam, spoofing & phishing.

Architecture;

04

"Code is law, principles apply"

- Lightweight and Modular;
- Designed in line with core decentralization primitives;
- Protocols and front-end clients developed in parallel;
- Encryption; (1) custom encryption; (2) AES-randomly generated secret key, and; (3) AES-secret key produced by ECDH;
- Coded with the latest technologies; Nuxt 3, Next.js, TypeScript, Wagmi, Solidity, Rust, and;
- Open-source & open-source with commercial licencing.

Block Labs Tip | Learn more about architecture (GitHub).

Products;

05

Block Labs product ecosystem integrates all needed builders tools and end-user application into an easy-to-use stack.

- ❑ **OCC Protocol & SDK**
- ❑ **Email Service**
- ❑ **Messaging Service**
- ❑ **Data File Transfer Service**
- ❑ **Encryptor Extension**
- ❑ **Broadcasting Web3 to SMTP Client**

Unique Features;

- EVM interoperability
- E2E AES communication encryption
- Client application branded white-labels
- Wallet-based custodial dID
- Web2 or Web3 login
- Custom storage options
- Sender/Receiver address whitelisting

Block Labs Library | Beyond Encryption: Block Labs' OCC Tech Pioneers Next-Level Email, Messaging & Data File Transfer Communication Security (Medium Article).

Adoption
06

100k+

Executed TestNet transactions

10

Supporting ecosystems

3

Integrations

Comparison Table 07

Attribute	email, messaging & data file transfer	Gmail	Proton-Mail	WhatsApp	Facebook Messenger	WeTransfer
Model	Distributed on-chain communication	Centralized	Centralized	Centralized	Centralized	Centralized
Self-custodial End-to-End Encryption	✅	🚫	🚫✅	🚫✅	🚫	🚫
Permissionless Access	✅	🚫	🚫	🚫	🚫	🚫
Immutable Communication & Data	✅	🚫	🚫	🚫	🚫	🚫
Communication & Data Portability	✅	🚫	🚫	🚫	🚫	🚫
dID Self-Custody	✅	🚫	🚫	🚫	🚫	🚫
No Data Mining	✅	🚫	🚫	🚫	🚫	🚫
No Loss of Data Ownership	✅	🚫	🚫	🚫	🚫	🚫

Use Cases & Integrations 08

- ➔ **Immu3 dMail & dChat** (Level-1 integrator), User Guide
- ➔ **Immu3 dMail & dChat App** (Level-1 integrator), Connect
- ➔ **W3XShare** Data file transfers (Level-2 integrator), Connect
- ➔ **4thTech** X.509 Decentralized Identity **[dID]**, Read More
- ➔ **4thTech** Broadcasting dMail to SMTP desktop client, TBA

W2W (i.e. wallet-to-wallet)
E2EE (i.e. end-to-end-encryption)

Team 09

Joined by excellence and unparalleled deployment track, the team strives to bring innovation on a multi layer level.

Contact & Links

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Specifications:

- https://wiki.4thtech.io
- https://github.com/4thtech