Liberdus Litepaper

1. Introduction

Vision and Mission

Liberdus envisions a future where blockchain technology serves as a foundation for both efficient value transfer and secure communication. Our mission is to create a truly scalable, fairly distributed, and user-centric platform that combines payment functionality with decentralized messaging capabilities.

Critical Challenges

Liberdus aims to address the following challenges through innovative technological and economic solutions.

1. **Messaging System Limitations** Most blockchain networks provide no way of including a small message along with the payment. This is especially needed for ecommerce where a merchant or vendor needs to know how to apply the payment. Such messages would need to be encrypted so that only the sender and receiver can read the message. More generally it would be very useful for users to have a decentralized trustable service for sending just messages similar to a texting app. Most popular messaging platforms are centralized and the source code is not open. Thus, there is no way for users to verify that the messages are encrypted without a backdoor and are truly private. An additional benefit to a decentralized messaging service is the reduced message spam and noise due to the non-zero cost of sending messages. By allowing users to add their own toll for reading and replying to messages it becomes easy for public figures and influencers to manage high volumes of incoming messages.

2. **Scalability Limitations** Traditional blockchain networks suffer from exponentially increasing transaction fees during high usage. This is because block-based systems create artificial constraints on transaction throughput due to limited block size and block creation intervals. The network capacity fails to scale proportionally with user adoption. Liberdus is built using the Shardus protocol for unlimited scalability. The network capacity grows proportionally with the number of validator nodes. By incorporating sharding and blockless processing of transactions, Shardus allows application specific chains to process many transactions in parallel for increased scalability. This allows the network to maintain consistently low transaction fees regardless of network usage.

3. **Unfair Token Distribution** Many blockchain projects launch with pre-sales or private allocations. The initial distribution often favors early investors over community contributors. There are limited

opportunities for early users to earn tokens through participation. Also many projects have perpetual inflation which dilutes the existing holders. The Liberdus coin (LIB) has a total supply capped at 210 million coins. No LIB will be sold by the project to private investors at discounted prices. The Liberdus project distributes LIB exclusively to those who contribute direct services to the project, run validator nodes, provide liquidity on AMMs for LIB and help test the network during the development phase. Those who want to buy LIB can acquire it on AMMs or OTC from those who have earned it. This provides a way for those who have earned LIB to exchange it to other currencies as needed to pay for personal expenses.

Liberdus combines these elements into a unified platform that provides both efficient value transfer and meaningful communication, creating a sustainable ecosystem that grows with its community while maintaining performance and accessibility.

2. User Experience

The Liberdus client is designed to provide a very simple and familiar interface of a texting app. The client is a progressive web app that has the same interface on mobile and desktop. Users will be able to create a launch icon on mobile devices to quickly launch the app from the home screen. Updates to the app will immediately be rolled out to the users without requiring a reinstall of the app.

The features of the app will be limited to those that are typically included with MMS texting apps that are natively provided on mobile devices. The total size of the messages will be limited, but will be enough to include emojis and small images. The app will not support audio or video calls. The app will also not support group messaging. The feature set is intentionally limited so that the app can be quickly developed and launched. Although some features will be added after launch, the intent is to limit major feature changes to the client and network once it has been launched and has value on the network. The goal is to eventually stabilize the codebase and only make changes that are required to maintain it.

Account addresses in Liberdus will use the same format as those used by Ethereum. To make it easier for users to specify the recipient of the message or payment, users will be able to enter a username instead of an address. The network maintains a mapping of usernames to addresses to allow this feature. Users will also be able to claim other identifiers and map them to their address. For example a user can claim an email address or phone number and have it mapped to their address. The claim is done by proving that a code sent by the network was received at the specified email or phone number. Other ethereum addresses can also be claimed and mapped to the user's primary address. The claim for ethereum address is done by signing a transaction with the address being claimed and including the address it will map to. Additionally social media accounts on services like x.com can be claimed by publicly tweeting a code provided by the network and submitting a transaction with the URL of the tweet. When entering the recipient of a message or payment a namespace specifies which type of identifier is being used. For example x:sam would mean the user @sam on the X social media platform; e:bob@gmail.com would mean the user that has claimed bob@gmail.com. If a namespace is not provided it means the user that has claimed the given username on Liberdus or if it begins with 0x it means the user that has claimed this address on Liberdus. The usernames on Liberdus cannot begin with 0x or have special characters in them.

When sending a payment the user can provide a memo field of up to 1024 characters which provides the recipient with information on how to apply the payment. When sending only a message the user can provide a larger number of characters including emojis and small images. A message must also include a toll payment if the recipient has set a toll for receiving messages and the user is not in the recipients friends list. The amount paid for the toll is not received by the recipient until they read and reply to the message. When replying to the message the recipient can choose to waive the toll. When replying to a message the user does not need to pay a toll even if the original message sender has set a toll.

When a user receives a payment or message, the user must accept it before it is fully received unless the sender is in the receiver's friends list. Otherwise the payment or message is not transferred. This is to prevent users from having their account tainted by payments sent from stolen funds.

All messages and payments will have a lifetime of 4 weeks. If the message or payment is not accepted within this time any payment associated with the transaction is reverted to the sender. However, the transaction fee paid to the network is lost. Once a message is accepted, it will be deleted from the network and only the hash of the message is kept on the network.

When sending a message or payment the user can select to conceal the sender and recipient. Such messages will incur a higher transaction fee as these messages are sent by an anonymous address and routed to multiple addresses at the same time. This conceals the information about the sender and recipient of the message.

3. Token Economics

Liberdus will have a max capped supply of 210 million Liberdus coins (LIB). When users send messages or payments on the Liberdus network a small fixed transaction fee must be paid in LIB. These transaction fees are burned and reduce the supply. Validator nodes are rewarded in LIB for running the Liberdus software and providing resources to the network. The validator nodes are paid based on the number of hours they were actively providing service. New LIB is minted to pay the validators. By adjusting the transaction fees and node reward rate the Liberdus DAO can ensure that the circulating supply of LIB never exceeds the 210 million cap.

During the initial development of the Liberdus software, LIB will exist only as an ERC20 token on the Polygon network. Each 4 week period, 3 million LIB will be minted to be used to reward various contributors, liquidity providers and pay expenses. After the Liberdus mainnet is launched the periodic minting through the Liberdus token contract stops. The LIB tokens on the Polygon network can be bridged over to LIB coins on the Liberdus mainnet. The bridge also allows coins on the mainnet to be bridged over to tokens on the Polygon network. After the launch of the Liberdus mainnet only coins can be minted on the mainnet with the approval of the DAO.

It is expected that the initial development phase will not last more than 2 years or 24 periods. Thus, the max tokens minted during the development phase will not exceed 72 million or about 35% of the max supply. After the mainnet is launched 15% of the max supply will be distributed to selected projects through claim events. The early development of the Liberdus software was supported by Shardus. Liberdus will license the Shardus software by distributing a portion of the max supply to Shardus token holders. Thus, another 20% of the max supply will be distributed to Shardus token holders via multiple claim events over a period of 2 years. This ensures there is still at least 30% of the max supply available for operation of the network after mainnet launch. Also any amount that was not minted during the development phase is also available for operations. Since

transaction fees and other fees paid to the network are burned this helps to reduce the supply and increase the number of coins available to be minted by the DAO. This ensures that there will always be coins available to mint without hitting the max supply.

- 35% - Initial development
- 20% - Shardus claim events over 2 years
- 15% - Claim events for selected projects
- 30% - After launch

Before the mainnet launch LIB tokens can be earned on the Polygon network for:

- Contributing to code development
- Contributing to community growth and increasing awareness
- Using the testnet
- Running validators on the testnet
- Providing liquidity on AMMs

After the mainnet launch LIB coins can be earned on the Liberdus network for:

- Reading and replying to messages
- Running validators on the mainnet
- Providing liquidity on AMMs
- Claim events
- Contributing to code development
- Contributing to community growth and increasing awareness

Before the mainnet launch LIB tokens can be used for:

- Providing liquidity on AMMs
- Trading on AMMs and OTC

After the mainnet launch LIB coins and tokens can be used for:

- Transaction fees on the Liberdus network for sending payments and messages
- Paying tolls to send message
- Staking validators
- DAO voting and proposals
- Providing liquidity on AMMs
- Trading on AMMs and OTC

After the mainnet launch LIB coins are burned from:

- 100% of transaction fees
- 10% of message tolls
- 100% of voting and proposal fees

- 100% of validator penalties

4. Governance

During the initial development phase the Liberdus project is operated by the Liberdus Association. The bylaws of the association provide for a committee of at least 5 and not more than 10 members to determine the direction of the project. The Liberdus DAO will become active after the launch of the mainnet. The Liberdus association will still exist to help execute the decisions of the DAO, but no longer determines the direction of the project. There are two types of proposals the DAO can vote on: economic proposals and funding proposals.

The DAO will set economic parameters for:

- Min and Max number of validators
- Transaction fees
- Validator reward rate
- Validator stake amount
- Validator penalty base
- Voting fee
- Proposal fee
- Voting eligibility threshold

The DAO can approve funding proposals for:

- Development and maintenance of Liberdus code
- Marketing for community growth and increasing awareness
- Expenses paid to vendors
- Rewards for liquidity providers
- Claim events for communities

For an account to be eligible to vote on proposals, the account must show that it controls some amount of LIB by locking it during the voting. The amount of LIB required is set by the voting eligibility threshold parameter set by the DAO.

Voting is done by sending LIB to vote for or against the issue. A user can vote with more LIB to give more weight to their vote. However, the LIB sent to vote is burned after the vote is over.

5. Roadmap

The Shardus protocol which provides the distributed ledger and scaling capabilities of Liberdus has been in development since 2016. Liberdus was initially started in 2019 by the Shardus team to demonstrate the linear scaling capabilities of Shardus with a simple payment application. The team later decided to add messaging capability and username mappings. In late 2021 the Liberdus project was put on hold while the team was on assignment to help the Shardeum project. With the Shardeum project getting close to launch in late 2024 the team is again focused on completing and launching Liberdus. Liberdus has been spun off as its own project now

with its own token to reward development of the project. Liberdus will now also support the development and maintenance of the Shardus code base since it is needed by Liberdus.

The team hopes to launch Liberdus by the end of Q1 2025. However, not all the features mentioned in this paper will be implemented before mainnet launch. In particular the feature to conceal the sender and receiver will need Zero Knowledge proofs and will be implemented after mainnet launch. Also the feature to require the recipient to accept the payment or message before it is delivered will most likely be implemented after mainnet launch.

6. Participation

Liberdus provides an end-to-end encrypted decentralized messaging platform along with the ability to send payments. It offers a familiar interface similar to texting apps on mobile devices. Aside from the benefits of using the app, Liberdus provides many ways for users to participate in the project and earn Liberdus tokens. Users can earn LIB by running validator nodes, add liquidity to AMMs, contribute to code development, help increase the awareness of the project and help test the Liberdus app.

During the initial development phase 2 million LIB are allocated each 4 week period to be distributed to direct contributors of the project. This amount is divided proportionally among the contributors based on the number of hours they contributed to the project during the period. This is similar to how a fixed amount of bitcoin is allocated each time period to be distributed to the miners proportional to how much hash power they contributed during the period.

Anyone interested in helping out the project should visit Liberdus.com to learn more, join the project Discord server and reach out to the team to introduce themselves and mention how they can help the project.

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