



Trustlines

PROTOCOL

Trustlines Explained

→ Introduction

→ Trustlines Protocol

Hello, I'm _

→ From _

→ Trustlines since _

→ Role _

→ Location _

Disclaimer

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Trustlines Protocol

What Is The Trustlines Protocol?

—

Trustlines Blockchain



Smart contract system

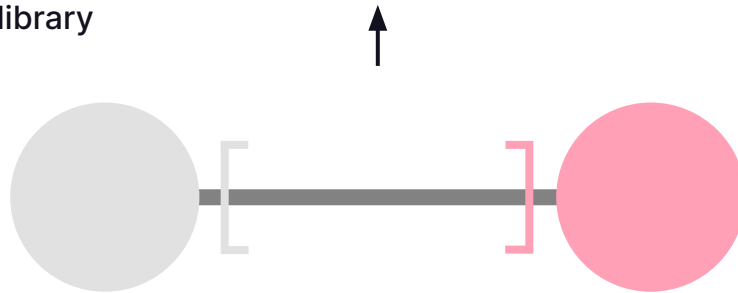


What Is The Trustlines Protocol?

Relay servers



Client library

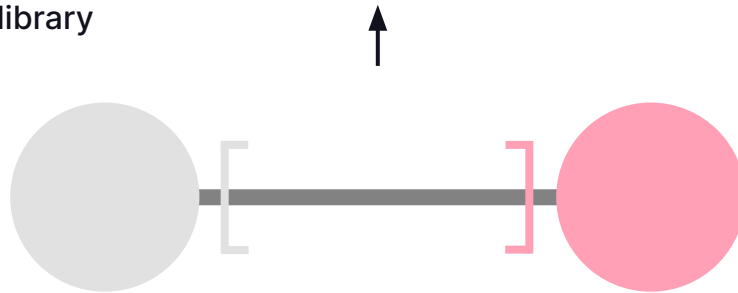


What Is The Trustlines Protocol?

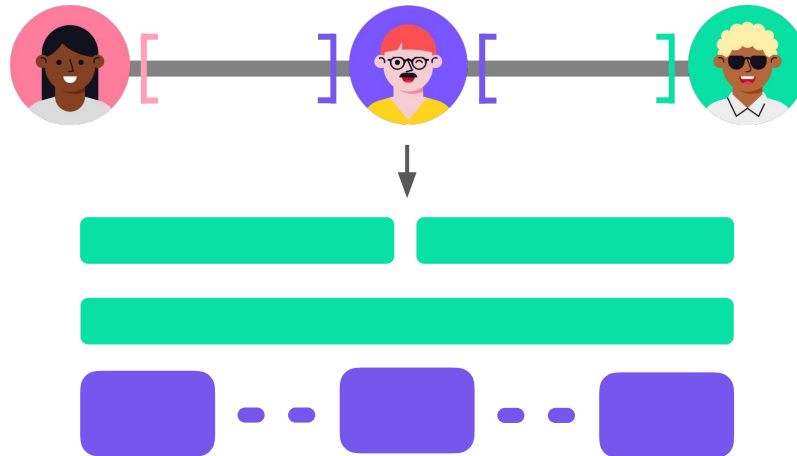
Relay servers



Client library



What Is The Trustlines Protocol?



Maps trust based relationships onto trustless infrastructure

mPoS: Aura With Additional Safety Mechanisms

Deposits

- Validators are required to deposit ETH
- Provable attacks are slashed

Slashing

- Strong punishment for easily provable attacks
- Automatic

Hard forking

- Weak punishments for all other attacks
- Requires coordination

Mission Of The Trustlines Blockchain

Store transactions made by a decentralized network of mutual trust relationships

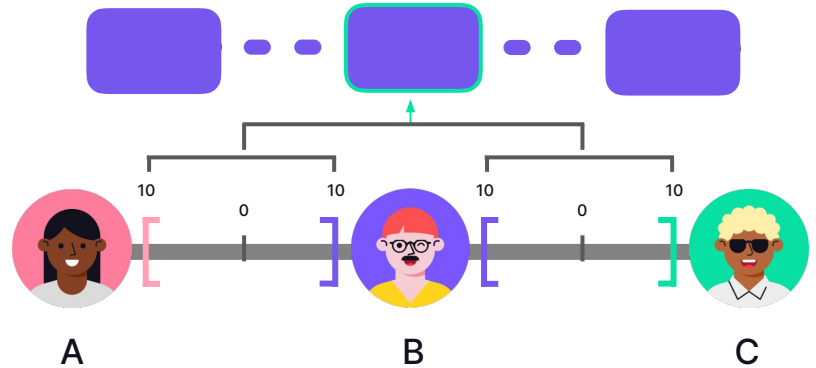
Requirements

- 10m trustlines transfers per day
- Transaction costs should be $> \text{€}0.01$
- Must be censorship resistant
- Must feature the Ethereum Virtual Machine (EVM)

Can We Run Trustlines On Ethereum?

A single trustlines transfers can require multiple on-chain transactions

- Fees are too high
- Throughput is too low
- Risk of congestion is too great



Can We Run Trustlines On...

Eth 2.0
Polkadot Parachain

Probably
but doesn't
exist yet

State channels
Plasma

Maybe
but no solution
available yet

PoA chain
DPoS chain

No
not censorship
resistant

(Interim) Solution

A PoS sidechain, **dedicated** to Trustlines

- Straightforward to implement
- Secure for our use case
- Anonymous validators

Minimal Proof-of-Stake or mPoS

Consensus Algorithm: Aura

Battle-tested on live networks (Kovan, xDai, ...)

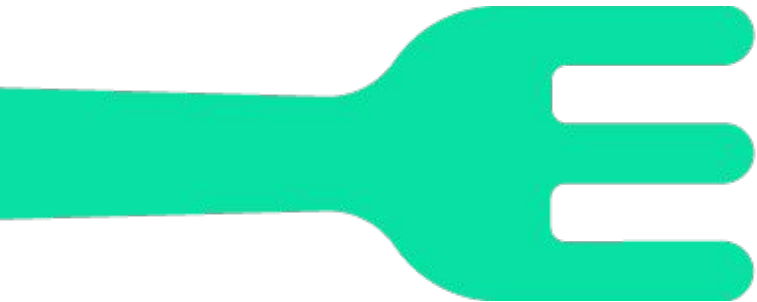
First class client implementation (Parity)

Designed for proof-of-authority

- Allow for anonymous validators
- Add security mechanisms
- Prevent a single party from taking over

Embracing Hard Forks

Great mechanism to remove misbehaving validators



Powerful

Validators can be removed for any kind of attack

Flexible

No need to specify the exact conditions in advance

Straightforward

Requires no code to be written

Aligned community makes coordination quick

Distributing Validator Slots

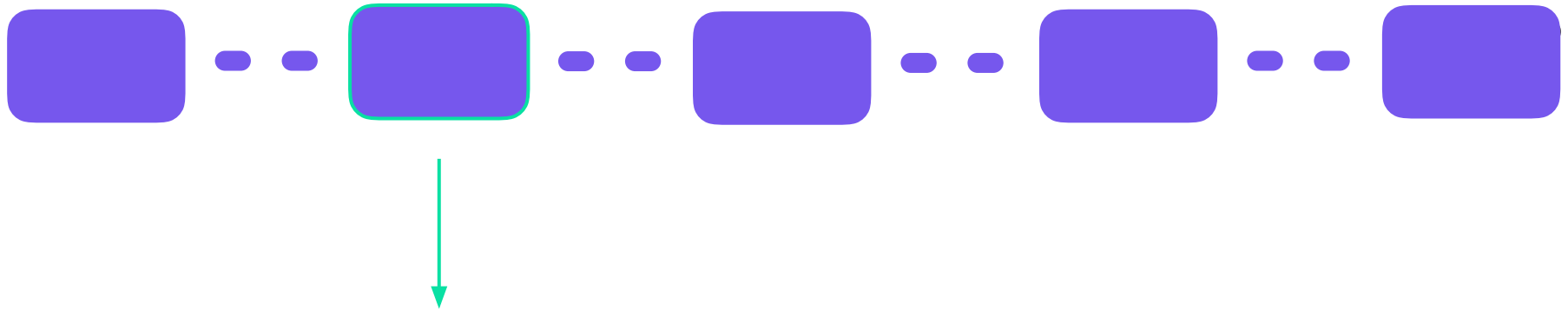
Fixed number of slots → **Auction** to decide

- Who will become a validator &
- How much they will stake

Whitelist to prevent Sybil attacks

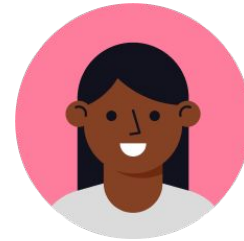
Talk to me to register!

Why Become A Validator?

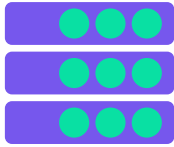


Validators earn **rewards** for

- Each block they create
- Each transaction they include



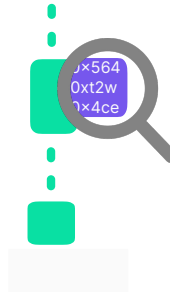
Validators Responsibilities



Run a node with high uptime



Don't attack the network



Monitor the chain for misbehavior



Participate in governance

Life Of A Validator

Birth

1. Register for the auction
2. Wait for further instructions via email
3. Send your ETH address and get anonymized
4. Participate in the auction
5. Hopefully win!

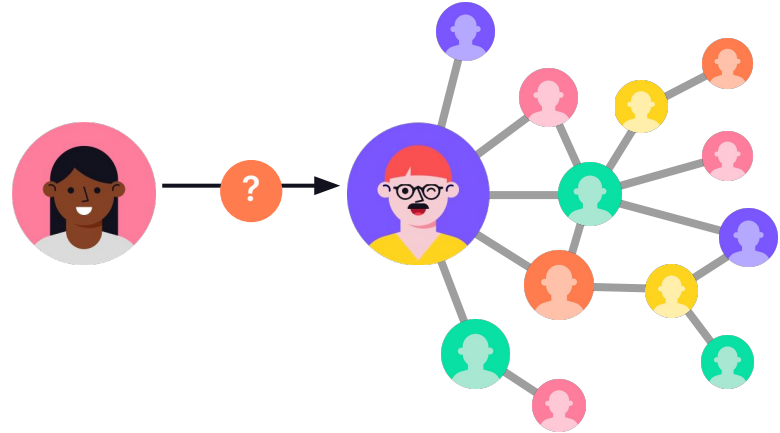
Death

- Get slashed (not recommended)
- Exit automatically after a fixed period and get your stake back

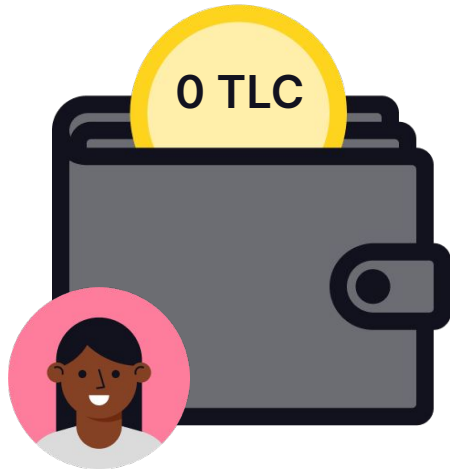
Delegate Services

How can new users join the Trustlines Network without buying Trustlines Coins?

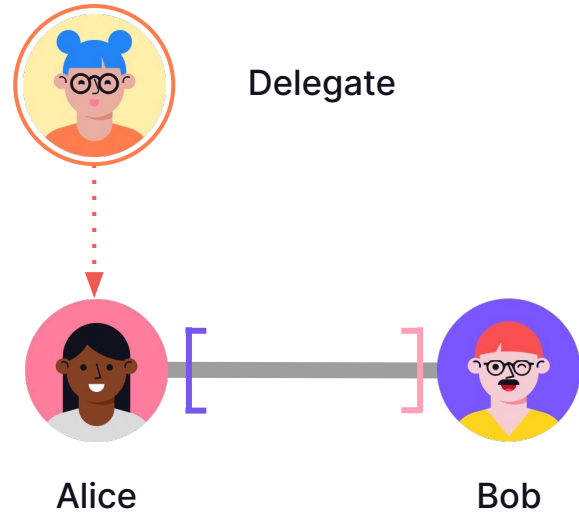
- Delegate service contract
- Delegates pay transaction fees in exchange for fees set in the smart contract system



Trustlines Delegate Service

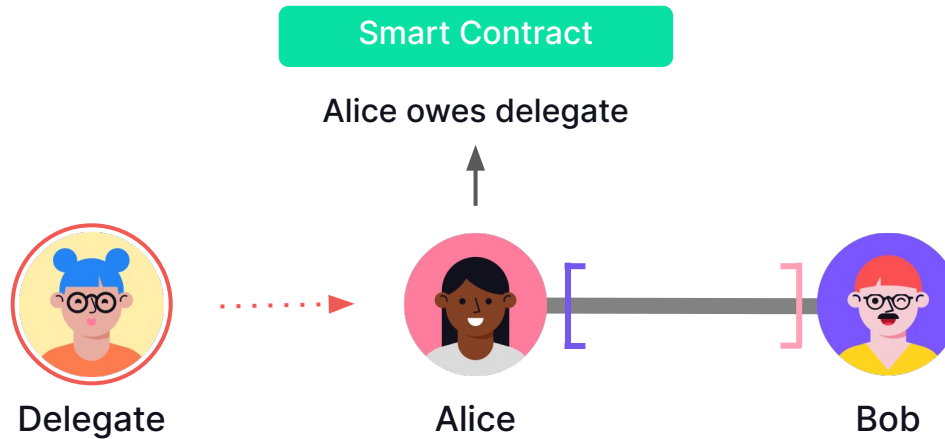


Alice wants to join the Trustlines Network, but she has no TLC or any other crypto



She finds a **delegate** to pay her fee, who sets a **currency network fee** in exchange

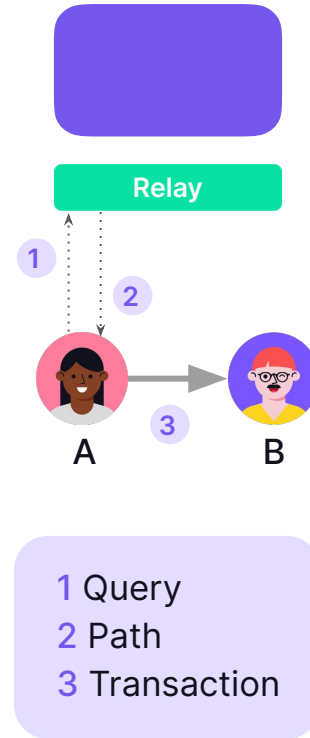
Trustlines Delegate Service



Alice and Delegate both sign the transaction. The currency network registers that Alice owes a delegate a currency network fee.

Relay Services

- Helper services for path calculations that are not feasible to do on-chain
- Can be paid in currency network fees and/or Trustlines Coins





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PROTOCOL