Algorand Greenhouse Hack 3

By Liquid Glass
<liquid.glass.drops@gmail.com>

Bring Your Own Project

Team

Liquid Glass

- Documentation
- Github: 0xLiquidGlass

Hiren

- Development
- Github: SolDev-HP

Introduction

- Unnamed wallet is targeted at users who want:
  - Privacy
  - Security
- Unnamed wallet mimics UTXO
  - Like Bitcoin
  - New address every transaction
  - Unlike HD Wallets
  - Generates non-related keypairs
- Unnamed wallet does not modify how Algorand works

Motivation

- Carousell
  - Rise of phishing attacks
    - Unsuspecting users entering payment card details
  - Targets
    - Merchants
    - Buyers
  - Thought: “If cryptos are used, only addresses are shared, making successful phishing attemps slightly harder but people will want privacy during a transaction”

Motivation

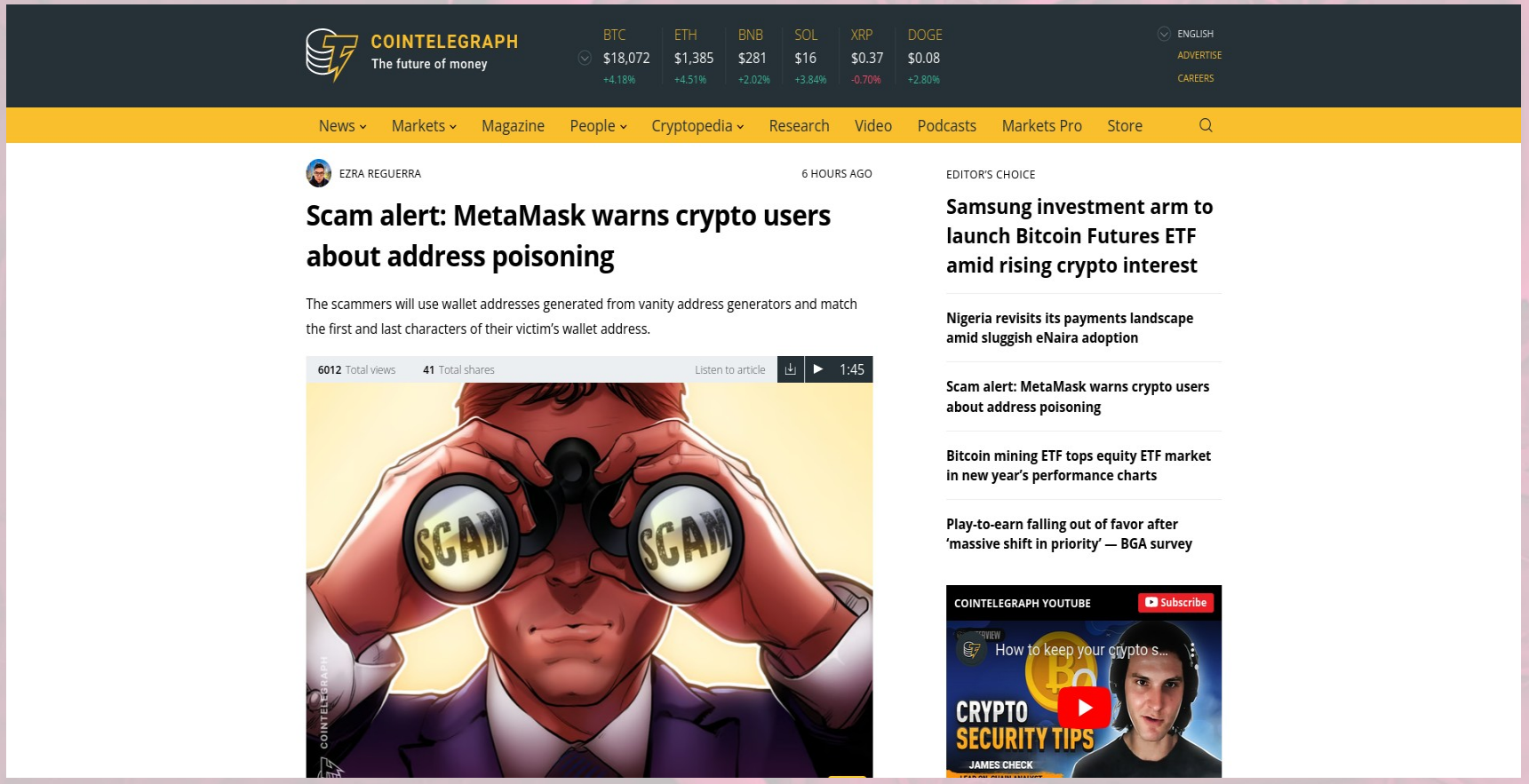
- Why Algorand?
  - Low transaction fees (0.001 Algos)
  - Fast transaction finality (confirmation <5 sec)
  - High transaction throughput (6000 TPS)
  - Entice more e-commerce platforms and normal users to use Algorand by building wallets that grants privacy when transacting

Motivation

- Privacy
  - Merchants and customers may not want transactions to be seen by everyone
  - However if there are any disputes, transactions must still be seen by authority figures when needed
  - In fact, every Algorand user deserves privacy

Effects of Poor Privacy

- Address Poisoning



Effects of Poor Privacy

- How To Prevent Address Poisoning?
  - Every address is unique
  - Known addresses are more likely to be poisoned as they are predictable
  - Generate new address for every transaction
  - New addresses are unpredictable

Effects of Poor Privacy

- Savings Revealed
  - All of your assets are held in one address
  - Anyone who has transacted with you before will know who you are
  - Algorand’s blockchain is public, therefore, all transactions are visible by default
  - Your identity and savings can be used against you (e.g. extortion, phishing, etc)
  - Can be prevented by using a new address for every transaction

We Must Prioritize Privacy

Motivation

- UTXO
  - What is UTXO?
    - Originally proposed by Adam Back for Hashcash to make sure that digital payments can never be replicated
    - Bitcoin uses it
    - Every address is treated as states (spent / unspent)
    - Once spent, the all of the balance in the addresses involved is spent at once
    - Balance is sent to new address as change
    - The amount to be sent to be someone else will be sent to new address
    - Already spent addresses are checked to make sure that it is not spent again
    - No address reuse

Motivation

- UTXO
  - Quote from Bitcoin’s whitepaper:
    - “… but privacy can still be maintained by breaking the flow of information in another place: by keeping public keys anonymous.”
    - “As an additional firewall, a new key pair should be used for each transaction to keep them from being linked to a common owner.”
    - “Some linking is still unavoidable with multi-input transactions, which necessarily reveal that their inputs were owned by the same owner”

UTXO = Privately Public

Motivation

- What About Account Model?
  - Addresses are treated as accounts
  - Arithmetics
  - Addresses are not states unlike UTXO
  - A special value is used once when submitting a transaction to prevent replication of the same transaction
  - Good for Dapps
  - Simple to implement
  - But reuse address

Address Reuse + Public Ledger = Weak Privacy

Motivation

- What about security?
  - Case study 1: HD Wallets
    - All keypairs are generated from one master key
    - Easy backup
    - One (master) key compromised = all balances in every address spendable
  - Case study 2: Legacy (Non-Deterministic) Wallets
    - Every keypair is not generated from a master key
    - Harder to backup
    - One key compromised = one address spendable
    - Therefore, Unnamed wallet uses this

Solution: Unnamed

- What is Unnamed
  - Reverse engineered UTXO
  - Reimplemented some properties of UTXO
  - Mainly the privacy and security aspects
    - Preventing address reuse
  - Concurrency of outgoing transactions
    - Atomic Transfers
  - Does not prevent replication of transactions
    - Algorand’s account model does it for us
  - Does not modify how Algorand works

Solution: Unnamed Wallet

- Unnamed wallet will:
  - Generate a new wallet for you for every new transaction (Done - Before Hackathon)
  - Allow you to send all of the balance from every wallet easily (WIP)
  - Allow you to check all of the balance from every address as a whole (WIP)
  - Allow consolidation of all balances in the wallet either by choice or when sending (WIP)
  - Not use rekeying (Remember privacy with UTXO?)

What About Dapps?

- Unnamed currently does not have Dapps in its timeline due to lack of expertise and time constraints
- Unnamed focuses on simple transactions for now

Want To Help?

Unnamed welcomes devs who are willing to make Unnamed not only handle simple transactions but also the ability to use Dapps in a way that is private and secure

Want To Help?

- Contact Liquid Glass
  - Gmail (Most Preferred)
    - liquid.glass.drops@gmail.com
  - Reddit
    - u/0xLiquid_Glass
  - Gitcoin
    - 0xLiquidGlass
  - Twitter
    - 0xLiquidGlass

Thank You

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