



CTPRO.IO



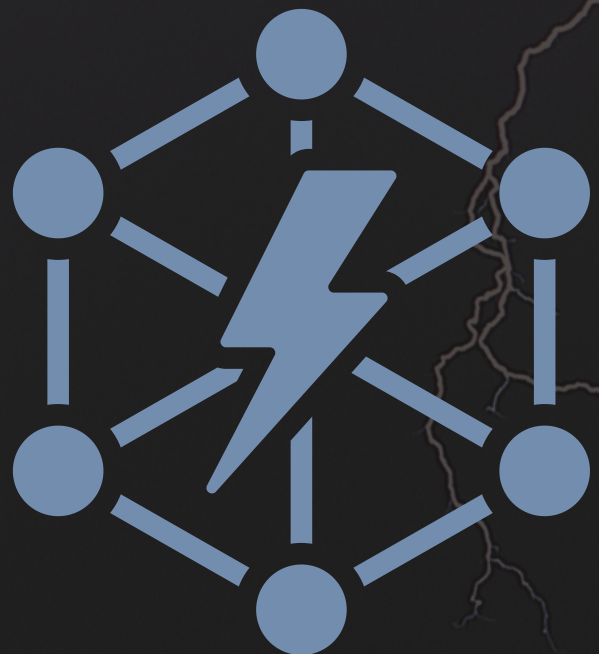
LIGHTNING NETWORK

LAYER-2 PAYMENT PROTOCOL



The Lightning Network

The Lightning Network is a Layer-2 protocol on the Bitcoin blockchain that enables near-instant payments via off-chain channels. It improves scalability by reducing network congestion and handling micropayments off-chain. Transactions between parties in these channels are almost instant and incur very low fees. Channels can stay open indefinitely, interacting with the mainnet only when opened or closed, with the final transaction state broadcast upon closure.



How It Works

1

Opening the Lightning channel

- Two parties create a 2-of-2 multi-signature contract by depositing Bitcoin into a shared address recorded on the blockchain.
- Once confirmed, the channel is established for off-chain transactions.

Transacting in the Lightning channel

- Both parties can instantly send and receive payments without blockchain confirmation, adjusting their balances within the channel.
- Funds stay in the multi-signature address until the channel is closed.

2

Closing the Lightning channel

- Mutual agreement is required to broadcast a final transaction to the blockchain.
- If one party is unresponsive, the channel can be closed unilaterally after a timeout.
- Balances are settled on the blockchain, returning funds to each party's wallet.

3

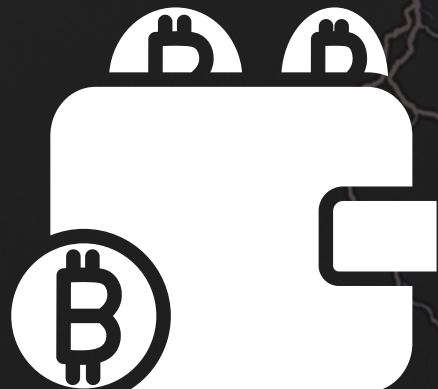
Getting Started

CUSTODIAL WALLETS

Options such as Strike, Blue Wallet, and Wallet of Satoshi are well-suited for beginners. These platforms facilitate the sending and receiving of cryptocurrency by managing private keys on behalf of the user. In the event that a password is forgotten, it can be easily reset.

NON-CUSTODIAL WALLETS

Options such as Muun, Breez, Phoenix, and Zap are user-controlled wallets that are preferred by more experienced traders. The private keys are exclusively accessible to the user. In the event of loss or damage to the wallet, or if the password is forgotten, access to funds may be irrevocably lost. Therefore, it is imperative to understand how to back up or restore the selected wallet.



Issues and Drawbacks

SECURITY VULNERABILITIES

The network can be susceptible to attacks, such as fraudulent channel closures when one party is offline

CHANNEL MANAGEMENT

Managing and rebalancing channels can be complex and time-consuming, requiring constant monitoring

REGULATORY CHALLENGES

As the network grows, it may face increasing regulatory scrutiny, impacting its development and adoption

LIQUIDITY CONSTRAINTS

Effective operation requires sufficient liquidity in payment channels, which can lead to payment failures if not managed properly

PRIVACY CONCERNS

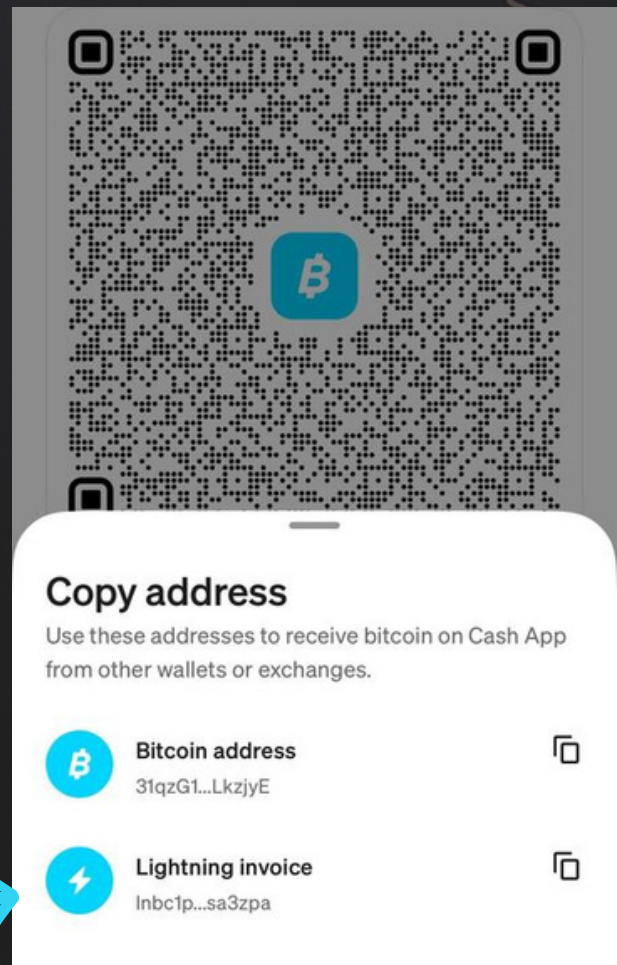
Connecting to nodes can reveal IP addresses, potentially compromising user privacy

Cashing Out

When someone is ready to take the funds out of their wallet and turn it into cash, there are options. Cash App and Kraken Exchange do allow Lightning Transfers to be cashed out, see the example below of what that looks like.

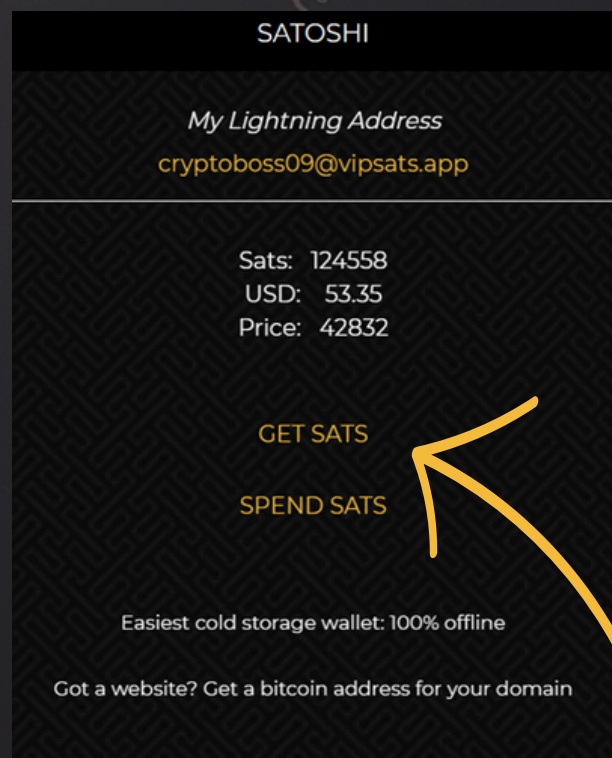
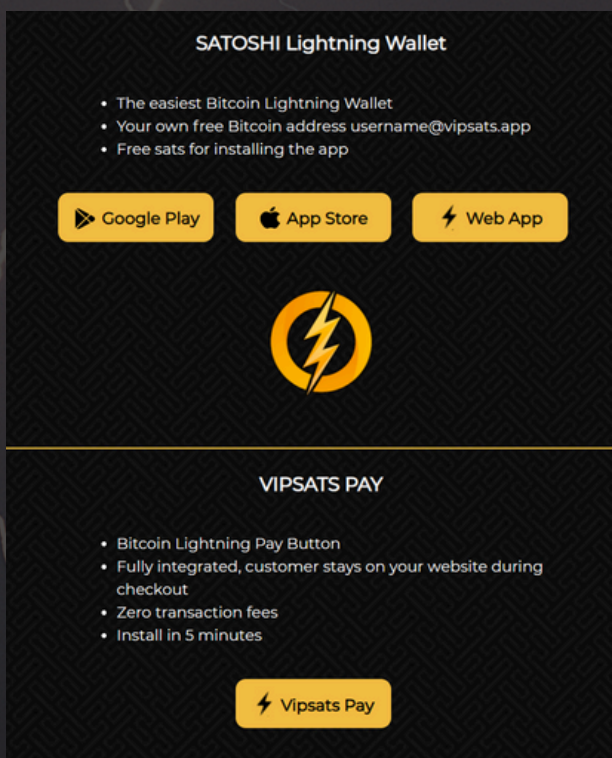
CASH APP WALLET

To cash out with a Lightning invoice in Cash App, open the app, go to the Bitcoin tab, tap "Receive Bitcoin," generate an invoice, and share the QR code. The Bitcoin will appear in your wallet once paid.

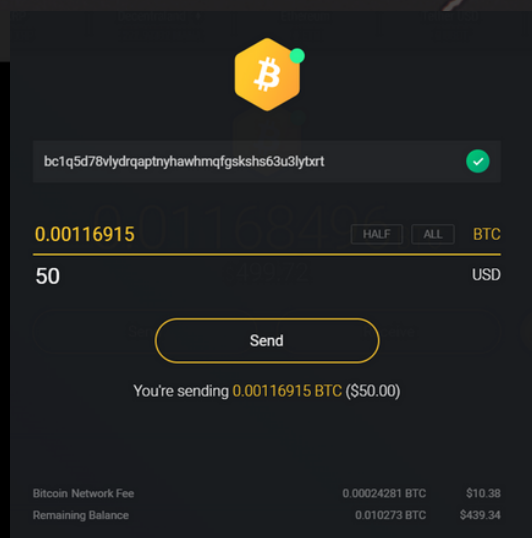
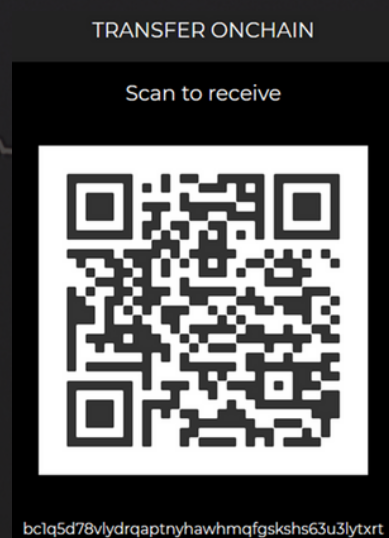


The Satoshi Lightning Wallet

The Satoshi Lightning Wallet is frequently utilized by lower-tier narcotic traffickers. This wallet is typically funded through an on-chain transaction, which ensures both accessibility and a degree of privacy for illicit activities.



Investigators should focus on tracing the funding of the on-chain wallet or the cashing out of the wallet.



Crypto Track

Crypto Track PRO is a robust blockchain analytical engine designed to enhance investigative capabilities. As a private forensic firm, we collaborate with U.S. law enforcement as well as international investigators.

We also collaborate with international organizations such as the Cryptocurrency Defenders Alliance which provides us the ability to attempt to quickly blacklist cryptocurrency addresses linked to known criminal activity. This can provide law enforcement with the critical time needed to secure legal documentation and facilitate asset recovery for victims.



Sign up for your free 14-day trial at
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