Bitcoin Core – Conceptual Architecture

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Introduction

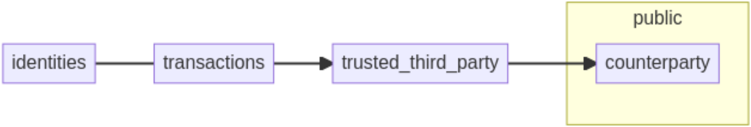
Bitcoin core is the reference implementation of the Bitcoin system and is the *authoritative* source for how each part of the technology should be implemented.

Bitcoin Core is a Peer to Peer (P2P) system, meaning all interactions between users are authenticated by each other – rather than a centralized server.

Security is achieved through computation to build confidence in transactions. The key to Bitcoin Core's integrity is a shared transaction history that is so computationally expensive it would be near impossible to reverse or fake.

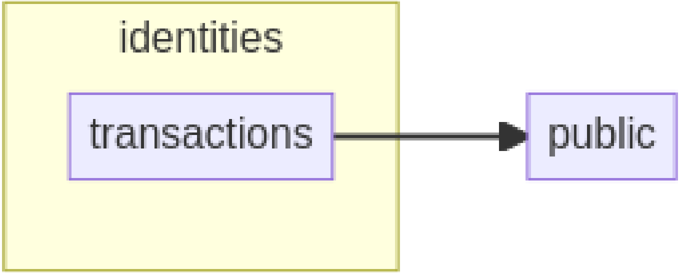
Traditional Privacy Models

In the old model of privacy, banks or other “trusted” third parities would verify and secure transactions – without the ability for the public to cross-check or self-verify.



New Privacy Model

The difference in the new privacy model is that the *public* verifies and secures transactions – facilitating a more open and democratic financial system.



What is Bitcoin?

- Bitcoin is a unit of currency used to retain, send, & receive value among participants in the Bitcoin network.
- Participants in the Bitcoin network communicate with each other through the Internet – using a protocol which can be run on a wide range of computing devices (including laptops and smart-phones).
- The Bitcoin protocol uses a peer-to-peer architecture which means that participants in the network communicate directly with each other – rather than through a centralized server.

How is Bitcoin Created & Stored?

- Bitcoin are generated through a process known as "mining" which involves competing with other participants on the Bitcoin network to find solutions to complex mathematical problems in order to validate other transactions on the network.
  - On average, a Bitcoin "miner" can validate the transactions from the last 10 minutes; every 10 minutes. This results in the miner getting 1 bitcoin every 10 minutes.
- Participants in the Bitcoin network do not "own" any coins they have – but instead they own *keys* which prove their ownership of a coin.
  - With these keys participants can "sign" transactions to "unlock" their value and spend it by transferring it to a new owner

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