Blockchain for Supply Chain Finance

How can a blockchain platform improve trust and timeliness of payments?

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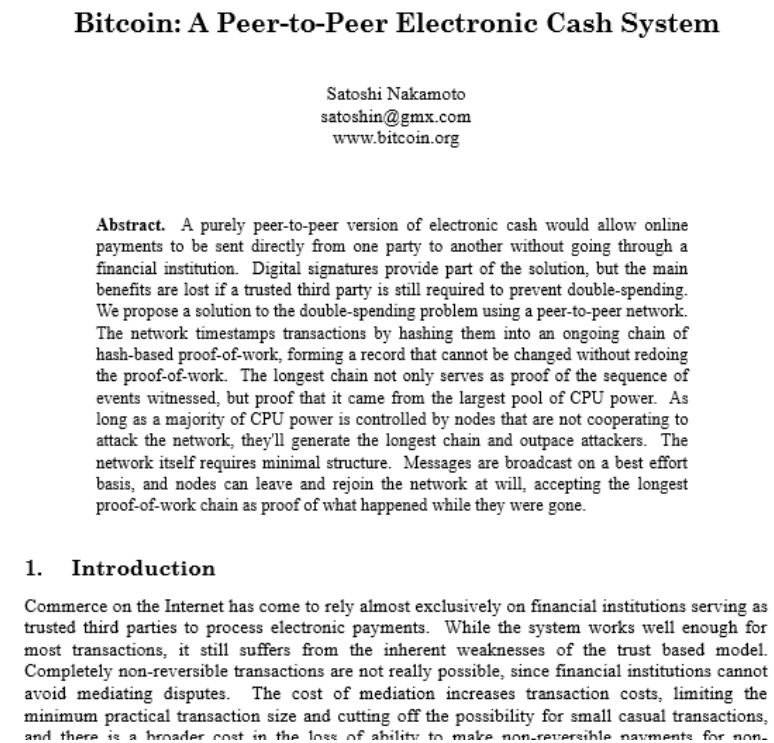
Bitcoin: Open Source Cash

"A purely peer-to-peer version of electronic cash would allow online payments to be sent directly from one party to another without going through a financial institution."

- *Satoshi Nakamoto 2008*



Bitcoin: A Peer-to-Peer Electronic Cash System

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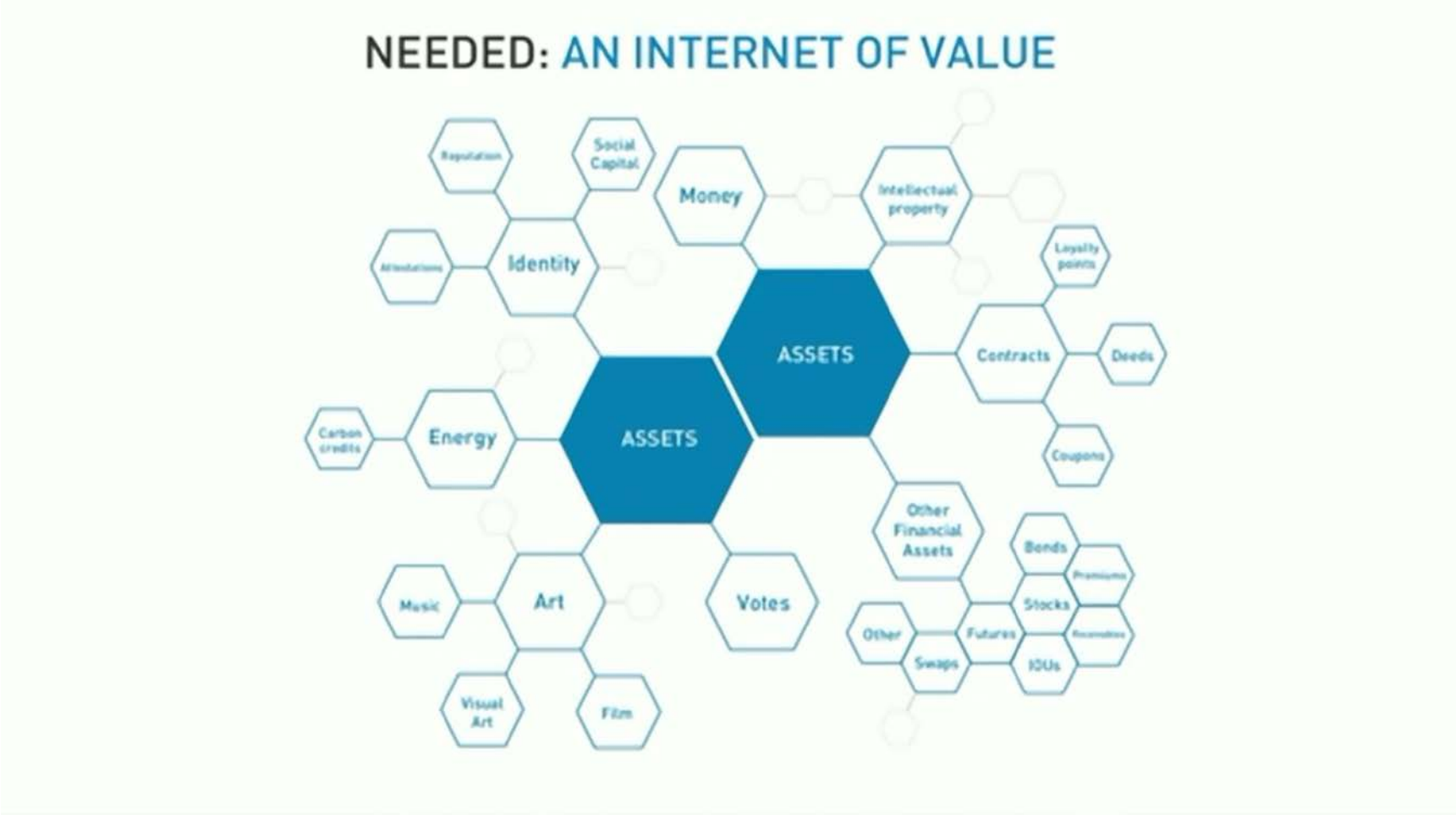
Abstract. A purely peer-to-peer version of electronic cash would allow online payments to be sent directly from one party to another without going through a financial institution. Digital signatures provide part of the solution, but the main benefits are lost if a trusted third party is still required to prevent double-spending. We propose a solution to the double-spending problem using a peer-to-peer network. The network timestamps transactions by hashing them into an ongoing chain of hash-based proof-of-work, forming a record that cannot be changed without redoing the proof-of-work. The longest chain not only serves as proof of the sequence of events witnessed, but proof that it came from the largest pool of CPU power. As long as a majority of CPU power is controlled by nodes that are not cooperating to attack the network, they'll generate the longest chain and outpace attackers. The network itself requires minimal structure. Messages are broadcast on a best effort basis, and nodes can leave and rejoin the network at will, accepting the longest proof-of-work chain as proof of what happened while they were gone.

1. Introduction

Commerce on the Internet has come to rely almost exclusively on financial institutions serving as trusted third parties to process electronic payments. While the system works well enough for most transactions, it still suffers from the inherent weaknesses of the trust based model. Completely non-reversible transactions are not really possible, since financial institutions cannot avoid mediating disputes. The cost of mediation increases transaction costs, limiting the minimum practical transaction size and cutting off the possibility for small casual transactions, and there is a broader cost in the loss of ability to make non-reversible payments for non-

Blockchain as a Next Gen SCM Platform



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Blockchains consists of three key components:

1. a transaction
2. a transaction record
3. a system that verifies and stores the transaction
    - when it took place
    - the chronological order of all transactions
    - information about the transaction
        - this results in a chain of information, stored in so-called ‘block’; hence the name ‘blockchain’.

Smart Contracts

- attached, by using hashes
- accessed via a web interface
- a "wallet" is used to hold contract info
- data storage is decentralised
- the information is tamper-proof and visible for all parties involved
- can represent…
  - a contract
  - ownership / title
  - physical goods - via a barcode or quick response (QR) cod

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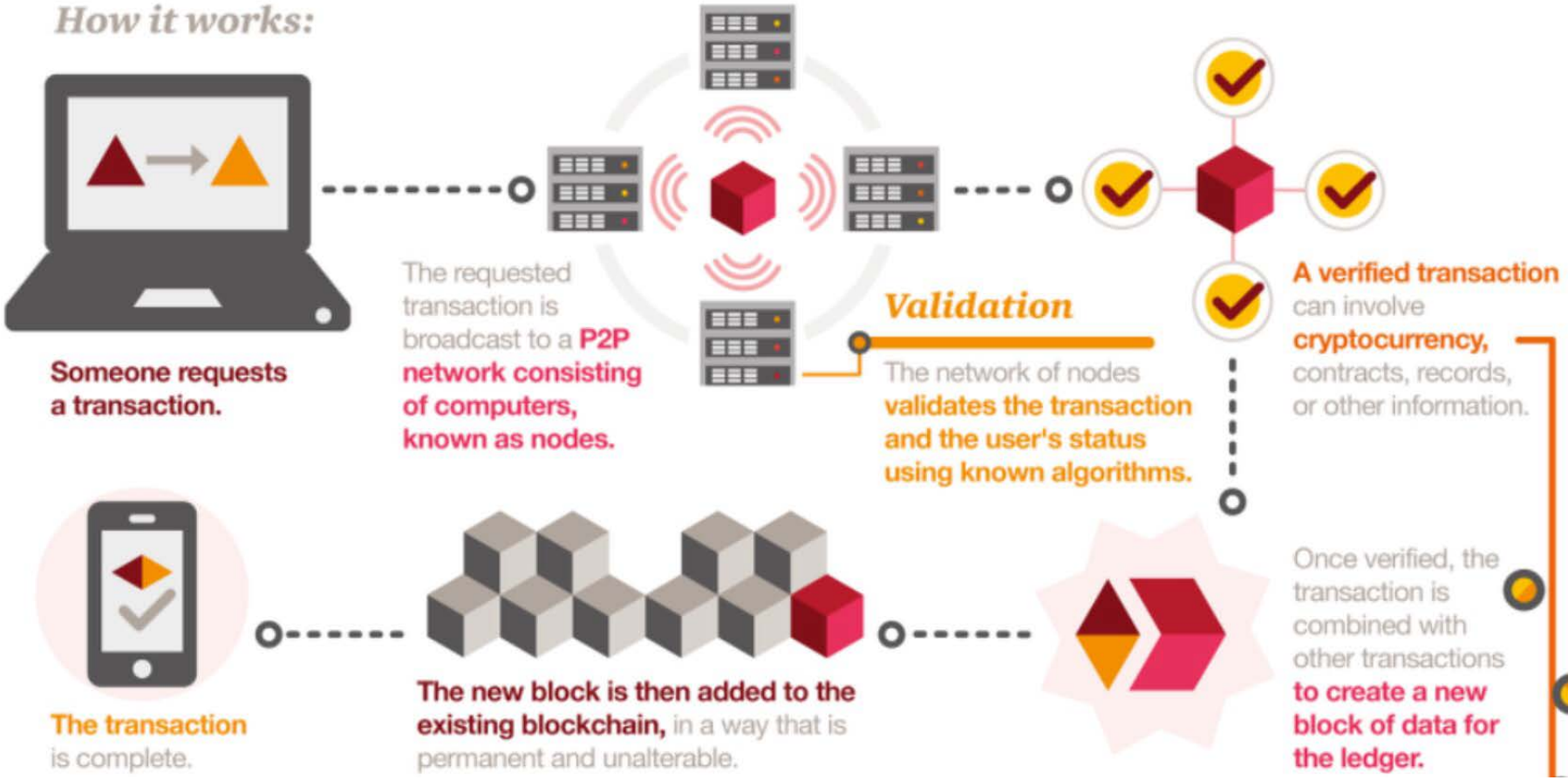
What is it?

The blockchain is a decentralized ledger of all transactions across a peer-to-peer network. Using this technology, participants can confirm transactions without the need for a central certifying authority. Potential applications include fund transfers, settling trades, voting, and many other uses.

How it works:



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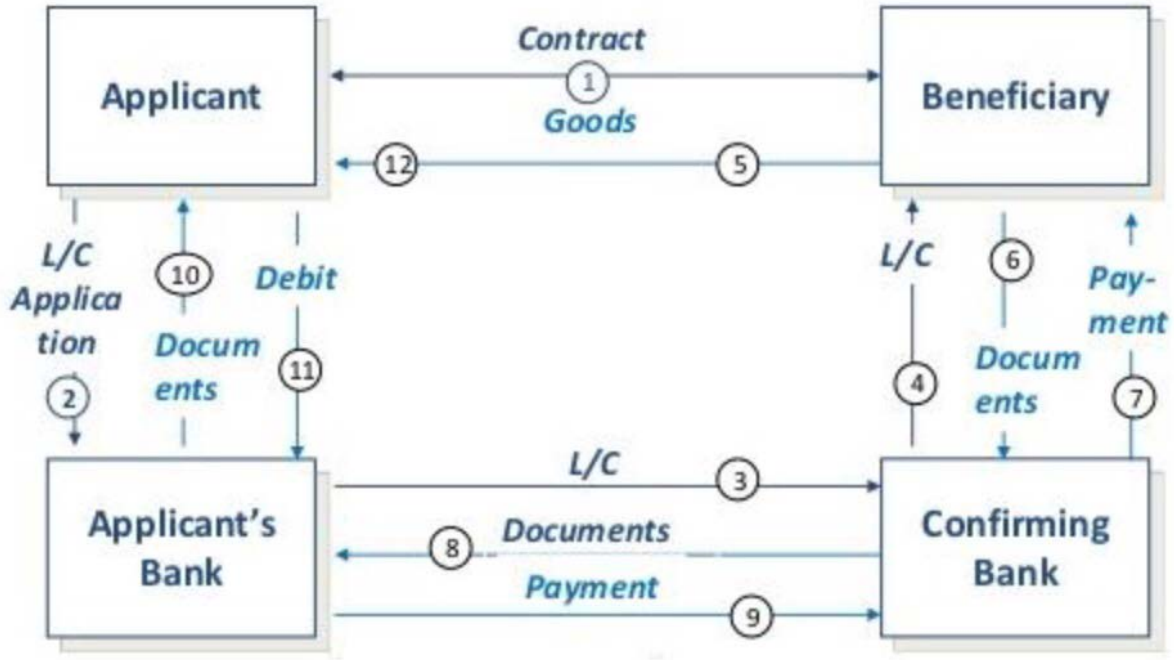

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1. Blockchain allows for 2 parties to transact without the need of a central authority. No banks needed.

2. Letters of credit used largely today to guarantee payments. Not needed in blockchain scenario.

3. It also allows for payments to be recognized sooner and in a more trusted fashion so goods can be shipped without the worry of payment arriving.

4. Smart contracts can automate payment at the appropriate time.

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Figure 3: Capital markets in 2025

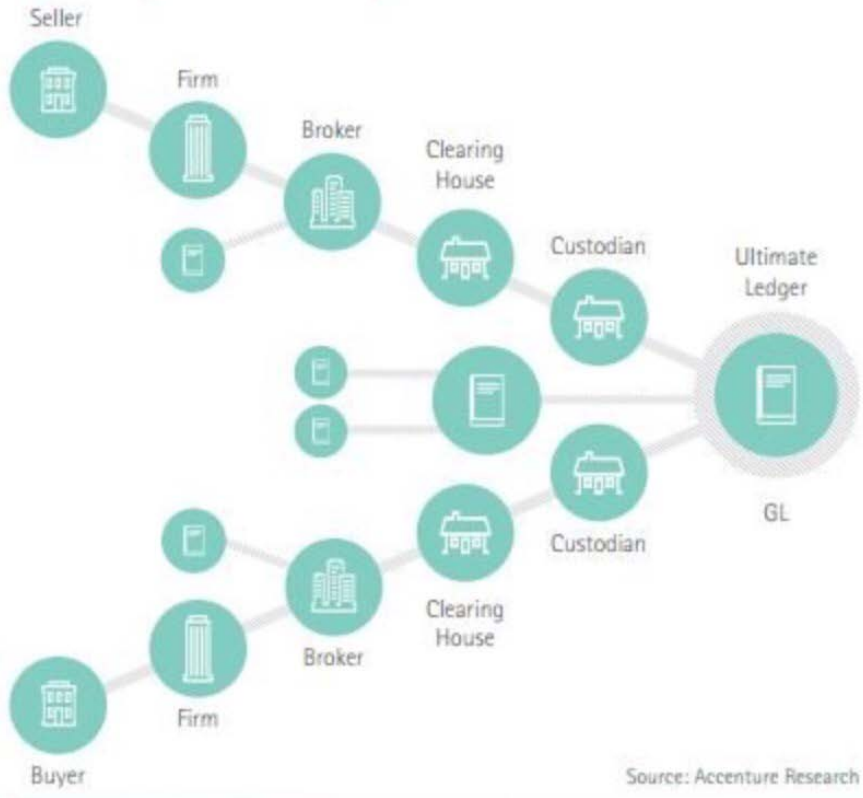

Figure 2: Capital markets today

Source: Accenture Research