CREATION OF A CRYPTO CURRENCY

OPTIOPAY — SAMUEL EL-BORAI — 2018

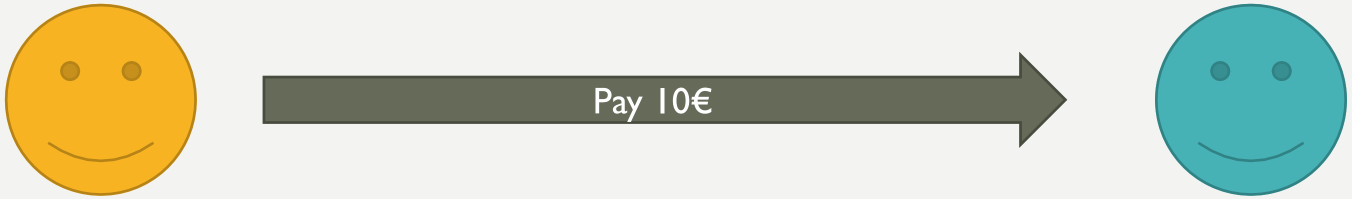
CRYPTO CRASH COURSE

PART I

WHAT IS A CRYPTO CURRENCY

- Digital
- Based on cryptography
- Decentralized
- Public
- Exists in a distributed system known as a “blockchain”

HOW PAYMENTS WORK

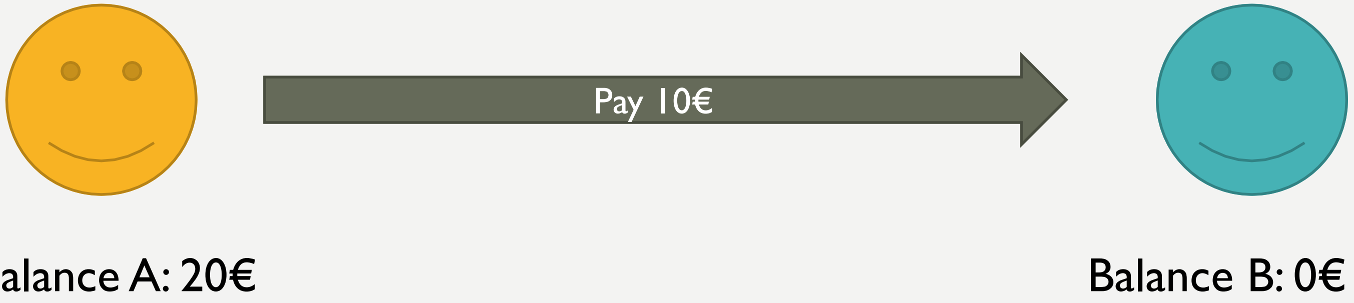


Pay 10€

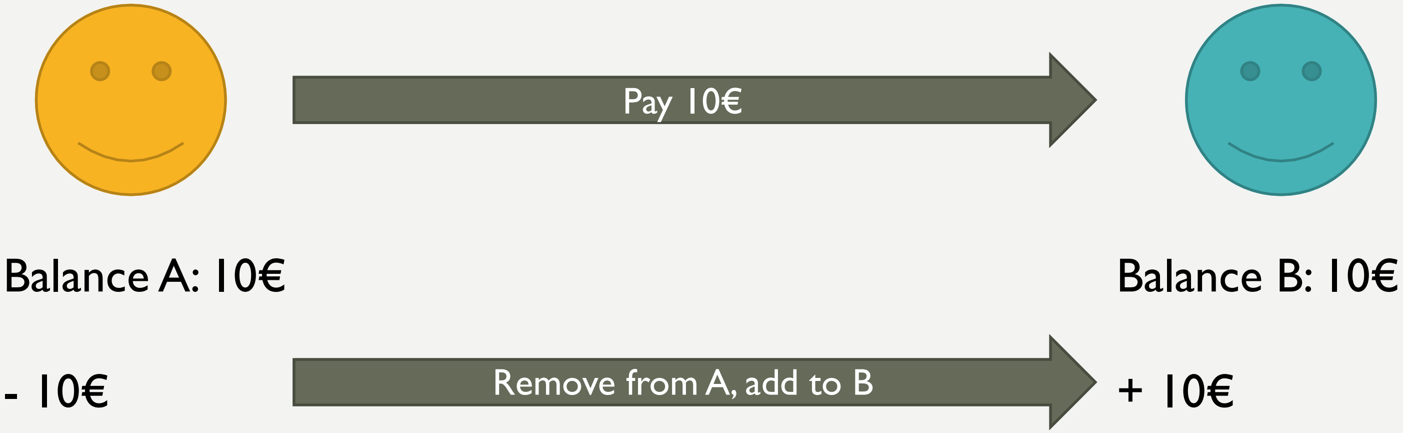
Hi, I’m A, I
want to buy
10€ of …

And I’m B, I sell …

HOW PAYMENTS WORK



HOW PAYMENTS WORK



Pay 10€

Balance A: 10€

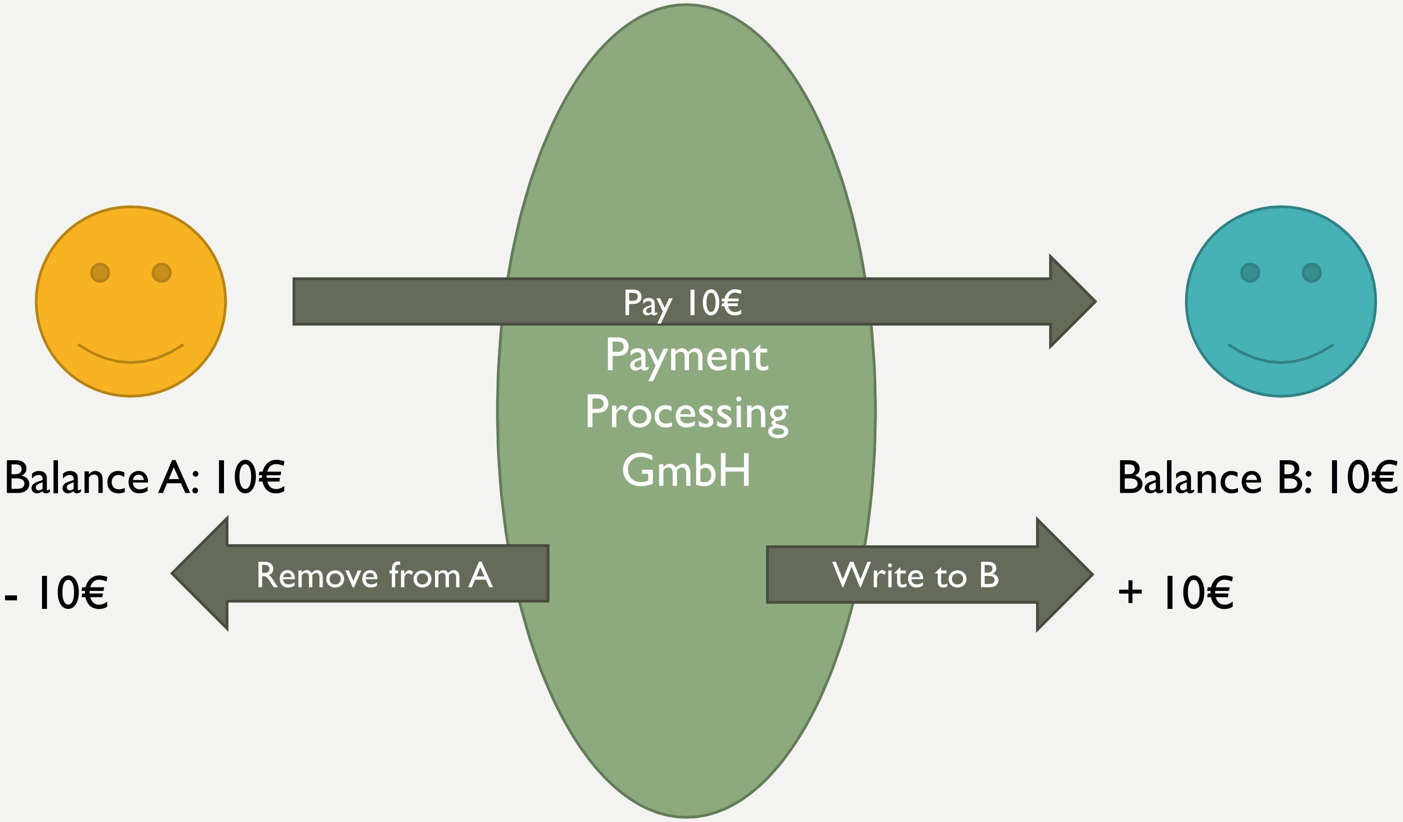
Balance B: 10€

- 10€

Remove from A, add to B

+ 10€

HOW PAYMENTS WORK



Pay 10€

Payment Processing GmbH

Balance A: 10€

Balance B: 10€

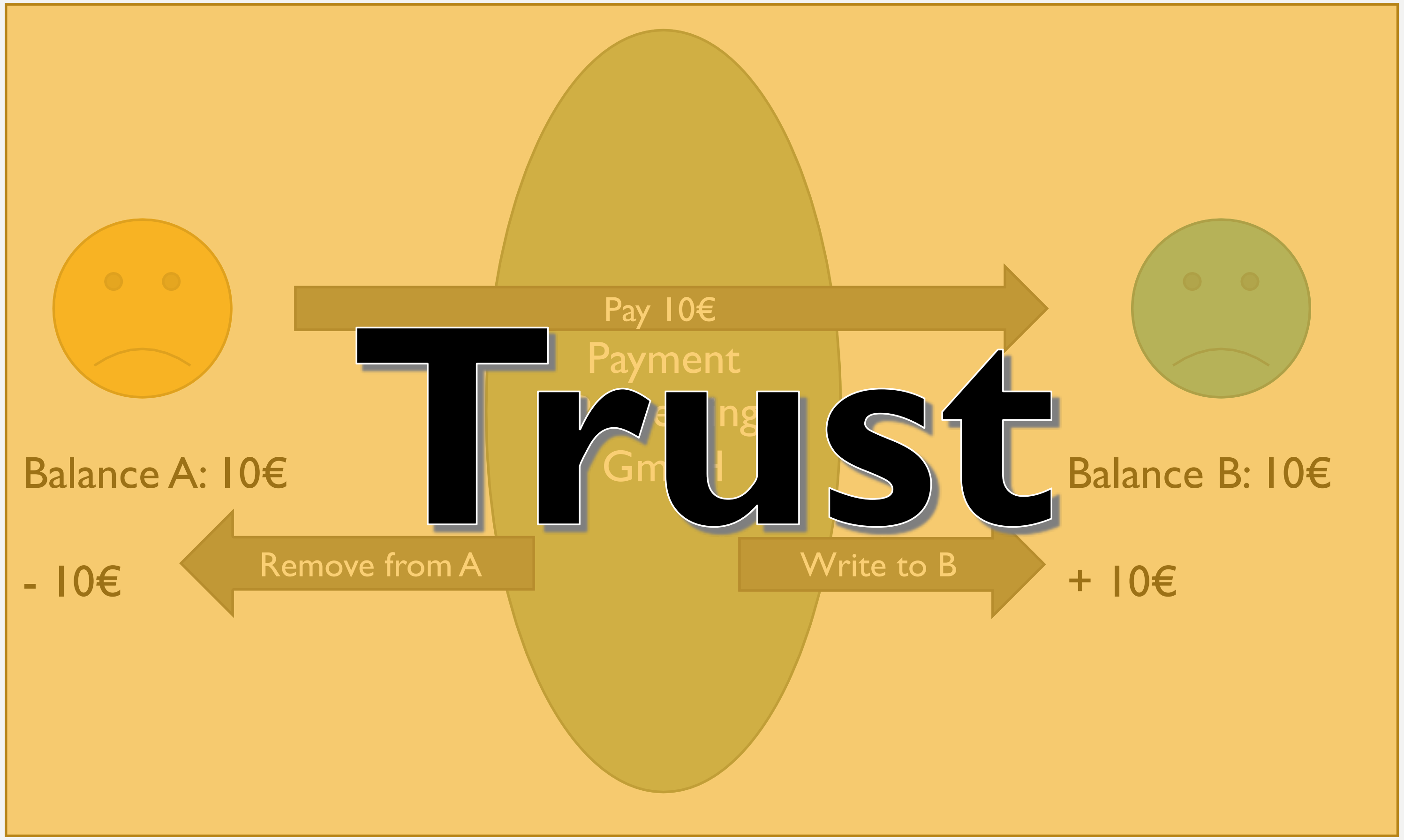
Remove from A

Write to B

- 10€

+ 10€

HOW PAYMENTS WORK



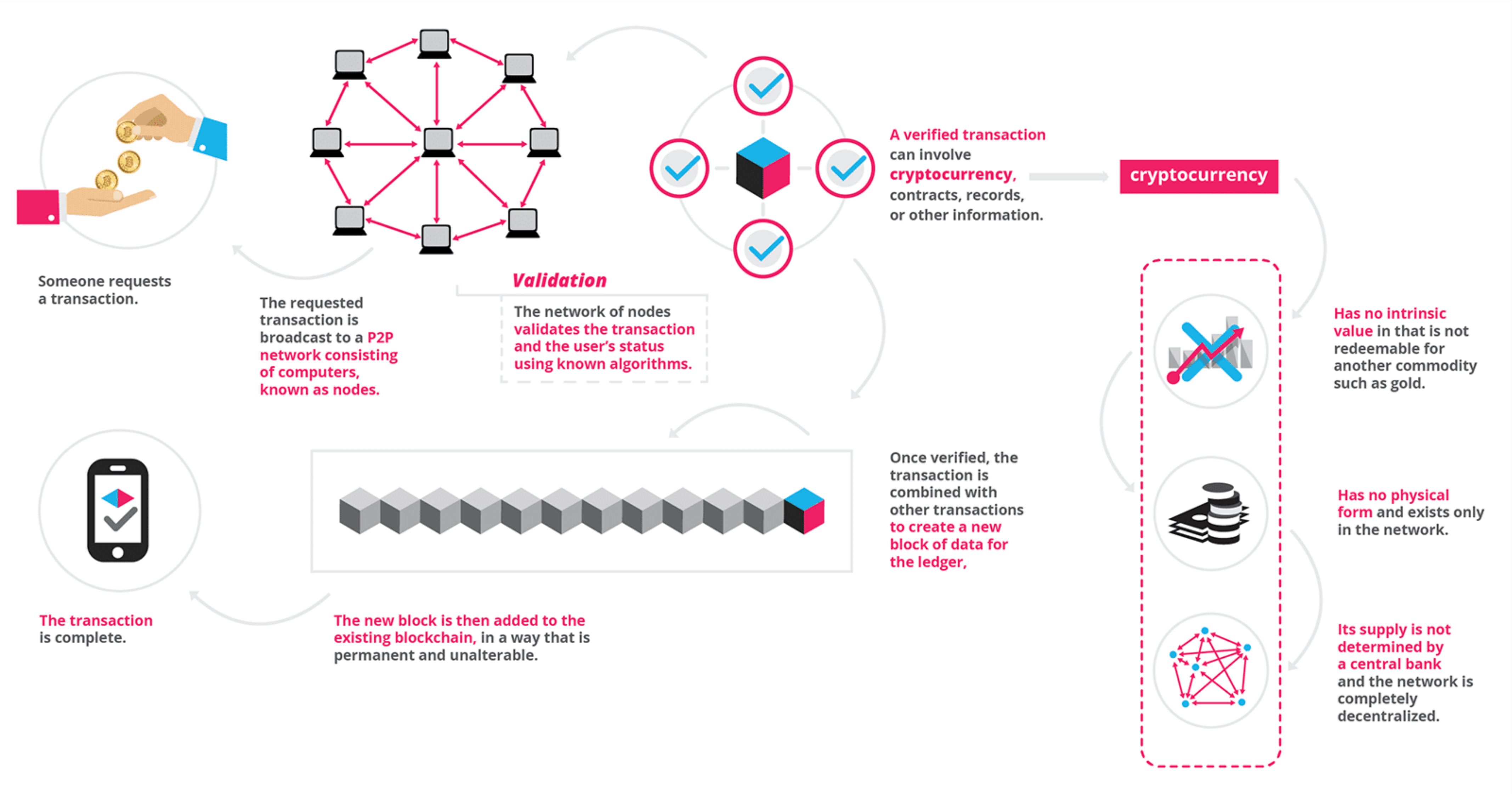
Trust

SOLUTION: THE BLOCKCHAIN

A blockchain can be defined as a persistent, **transparent**, public, **append-only** ledger.

- You can add but not change previous data
- Distributed network of actors
- Peer to peer
- Mechanism to reach a consensus between them
- No trust required between actors. Actors only have to trust the mechanism

SOLUTION: THE BLOCKCHAIN



Someone requests a transaction.

The requested transaction is broadcast to a P2P network consisting of computers, known as nodes.

Validation

The network of nodes validates the transaction and the user's status using known algorithms.

A verified transaction can involve cryptocurrency, contracts, records, or other information.

cryptocurrency

Has no intrinsic value in that is not redeemable for another commodity such as gold.

Has no physical form and exists only in the network.

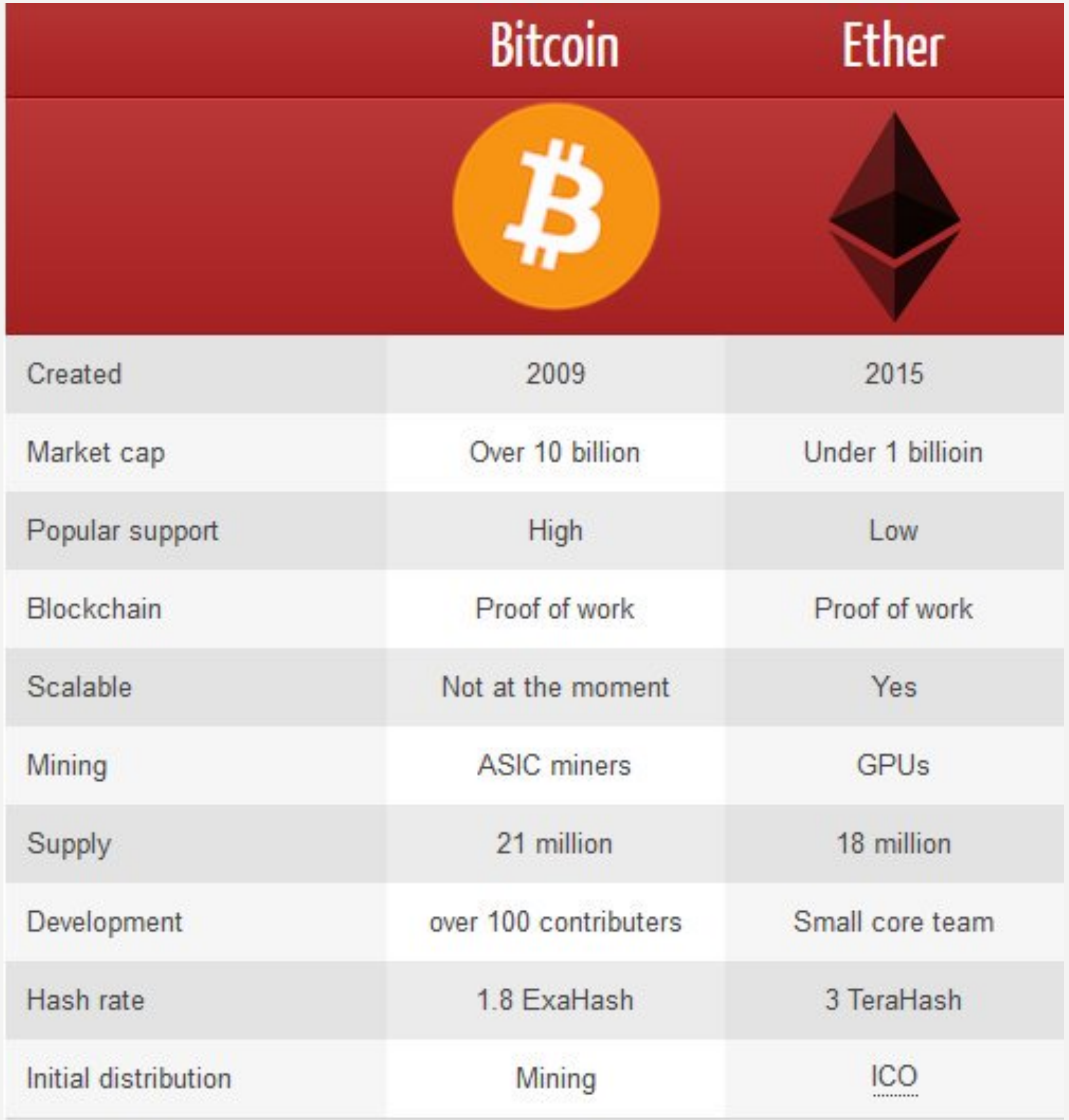
Its supply is not determined by a central bank and the network is completely decentralized.

Once verified, the transaction is combined with other transactions to create a new block of data for the ledger,

The new block is then added to the existing blockchain, in a way that is permanent and unalterable.

The transaction is complete.

EXAMPLES OF CRYPTO CURRENCIES



	Bitcoin	Ether
Created	2009	2015
Market cap	Over 10 billion	Under 1 billioin
Popular support	High	Low
Blockchain	Proof of work	Proof of work
Scalable	Not at the moment	Yes
Mining	ASIC miners	GPUs
Supply	21 million	18 million
Development	over 100 contributers	Small core team
Hash rate	1.8 ExaHash	3 TeraHash
Initial distribution	Mining	ICO

NEW COIN, THE THEORY

PART 2

WHITEPAPERS

- Bitcoin: https://bitcoin.org/bitcoin.pdf
- Ethereum: https://github.com/ethereum/wiki/wiki/White-Paper
- Ripple consensus algorithm: https://ripple.com/files/ripple_consensus_whitepaper.pdf
- Ripple Solution Guide: https://ripple.com/files/ripple_solutions_guide.pdf

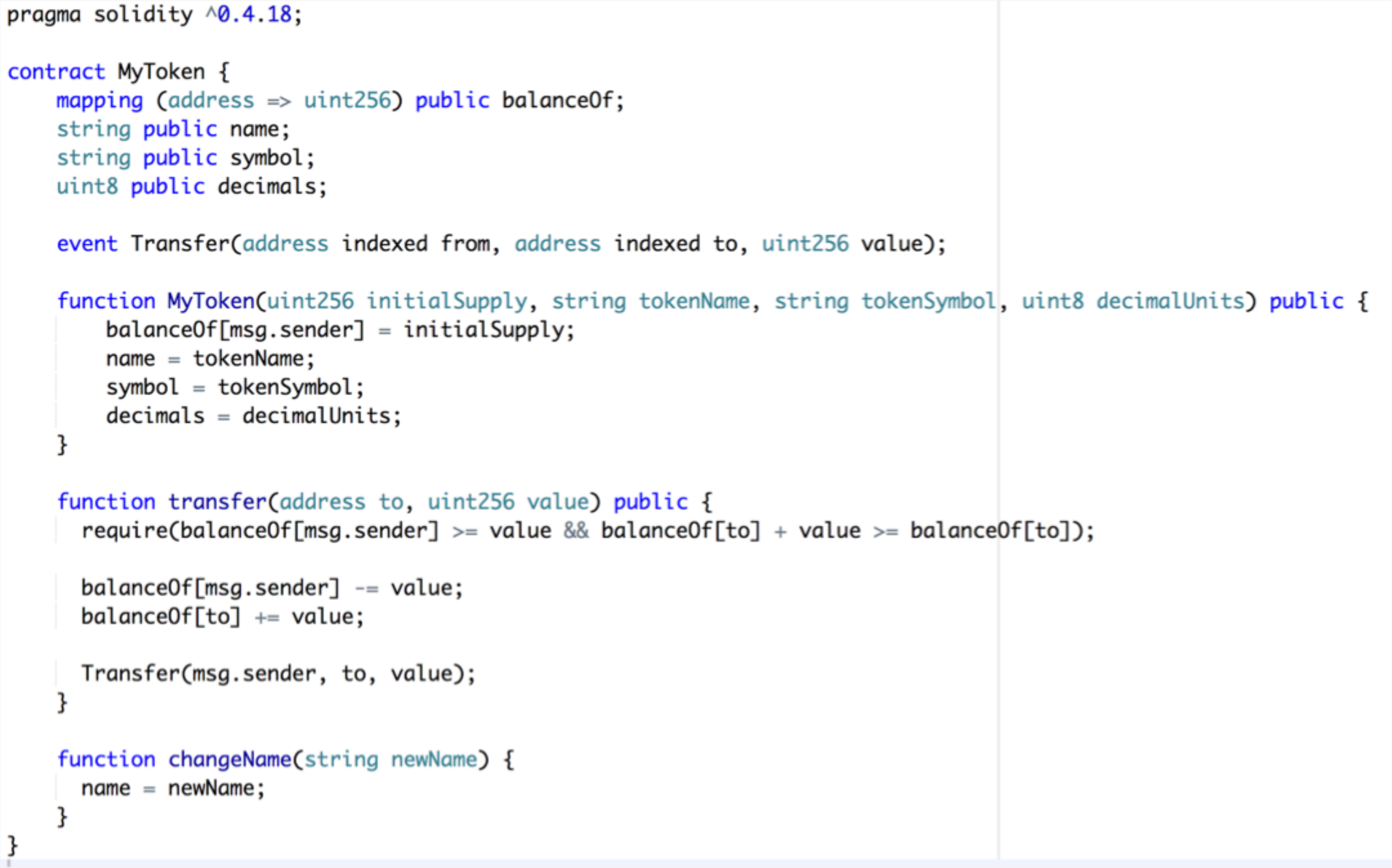
WE NEED A BLOCKCHAIN

- Fork existing project
- Create smart contracts on top of existing blockchains
- Start from scratch

SMART CONTRACT

- Program living in a blockchain
- Allow performance of transaction without third parties

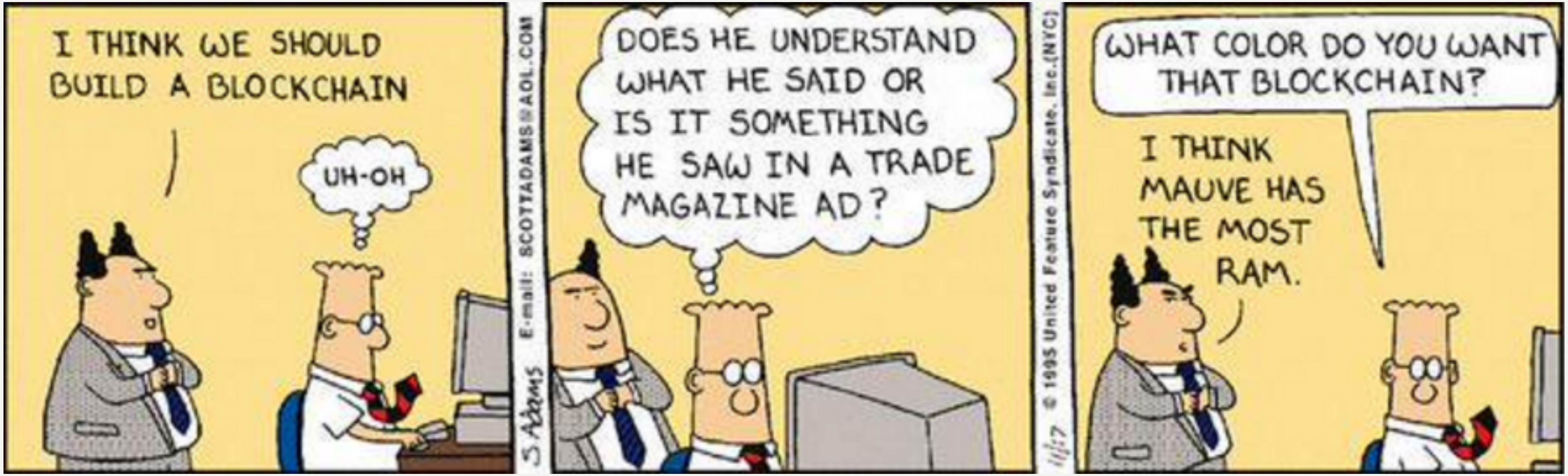
SMART CONTRACT



```
pragma solidity ^0.4.18;

contract MyToken {
    mapping (address => uint256) public balanceOf;
    string public name;
    string public symbol;
    uint8 public decimals;

    event Transfer(address indexed from, address indexed to, uint256 value);

    function MyToken(uint256 initialSupply, string tokenName, string tokenSymbol, uint8 decimalUnits) public {
        balanceOf[msg.sender] = initialSupply;
        name = tokenName;
        symbol = tokenSymbol;
        decimals = decimalUnits;
    }

    function transfer(address to, uint256 value) public {
      require(balanceOf[msg.sender] >= value && balanceOf[to] + value >= balanceOf[to]);

      balanceOf[msg.sender] -= value;
      balanceOf[to] += value;

      Transfer(msg.sender, to, value);
    }

    function changeName(string newName) {
      name = newName;
    }
}
```

OPTIOCOIN, GENESIS

PART 3


I THINK WE SHOULD BUILD A BLOCKCHAIN
UH-OH
DOES HE UNDERSTAND WHAT HE SAID OR IS IT SOMETHING HE SAW IN A TRADE MAGAZINE AD?
WHAT COLOR DO YOU WANT THAT BLOCKCHAIN?
I THINK MAUVE HAS THE MOST RAM.

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DESIGN – LET’S KEEP IT SIMPLE

- Basic info: name, symbol, …
- Balances
- Can transfer money