Building an app using Blockchain

Elon Musk vs Bitcoin? It doesn't matter, we're here for the magic behind.

While **cryptocurrencies** are becoming more and more popular, the number of **blockchain developer** jobs is getting bigger and bigger.

But what is the technology behind Bitcoin, how can you use it in a real application, how and why is it used by the world's biggest companies?
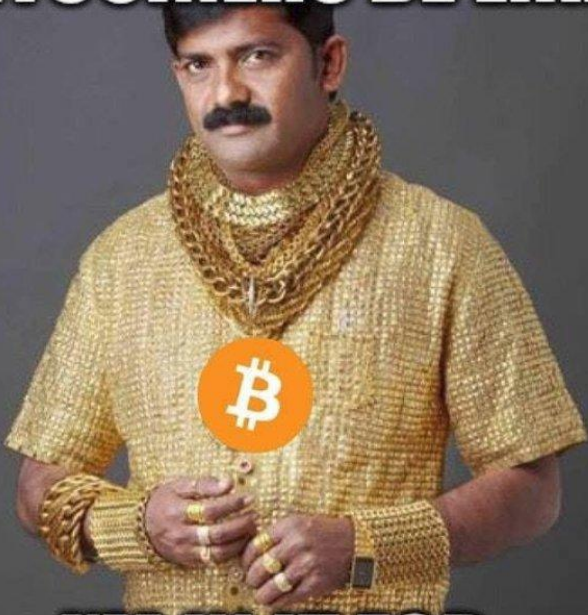
Find out all the answers in an introduction to blockchain.

Andrei Zuica
Full Stack Developer

https://cutt.ly/blockchainapp

BITCOINERS BE LIKE

I'M IN IT FOR THE TECHNOLOGY

When companies go from hating on BTC to adding to their portfolio

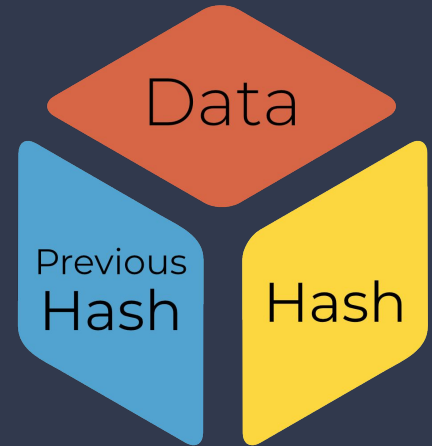# Table of contents

CAPHYON

Open4Tech 2021

2. What's Blockchain?

A network of peer-to-peer connections that stores an ***almost*** infinite collection of linked records called **blocks**.

Think about it as a database.

Main features:

- Decentralized
- Immutable
- Secure

2. What's Blockchain?

Blockchain example

Block 1

Block 2

Block 3

Hash: AAA
Previous Hash: 000

Hash: BBB
Previous Hash: AAA

Hash: CCC
Previous Hash: BBB

2. What's Blockchain?

Invalid Blockchain example

Block 1

Block 2

Block 3

Hash: AAA
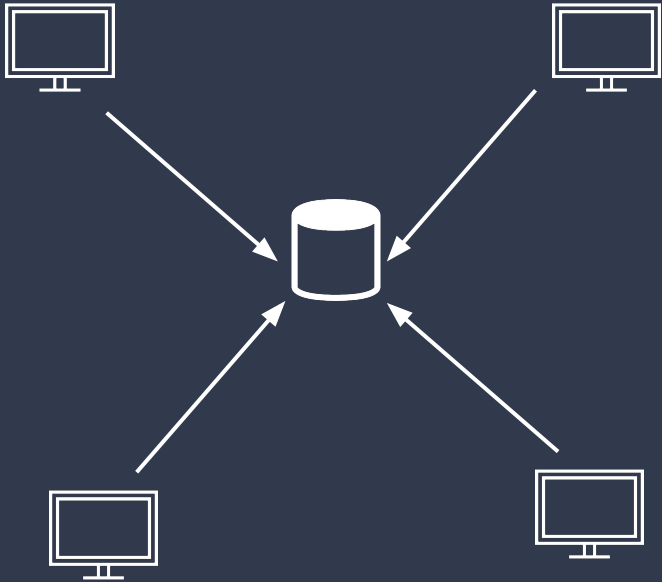Previous Hash: 000

Hash: BBB
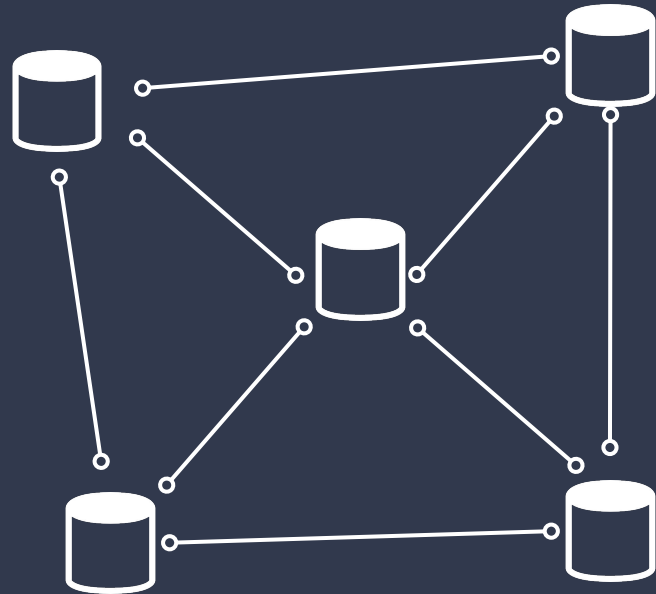Previous Hash: AAA

Hash: CCC
Previous Hash: DDD

2. What's Blockchain?

Blockchain vs centralized system

Centralized network

Blockchain network

* each item in the network is called node

2. What's Blockchain?

Blockchain content

Block 99

Hash: 202cba
Previous hash: 213ao

Transaction 1

Transaction 2

Transaction 3

Block 100

Hash: 401cxa
Previous hash: 202cba

Transaction 1

Transaction 2

Transaction 3
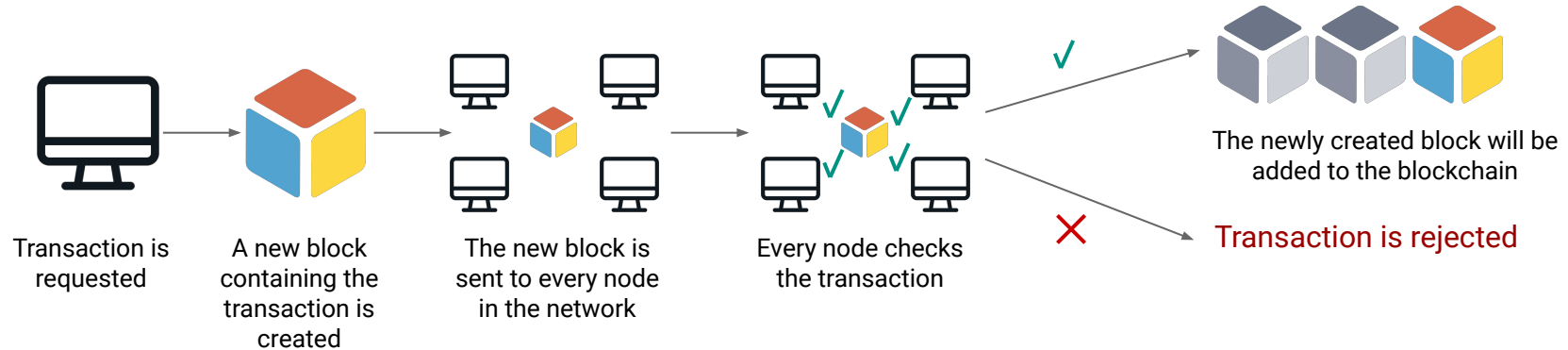
Block 101

Hash: ia38a1
Previous hash: 401cxa

Transaction 1

Transaction 2

Transaction 3
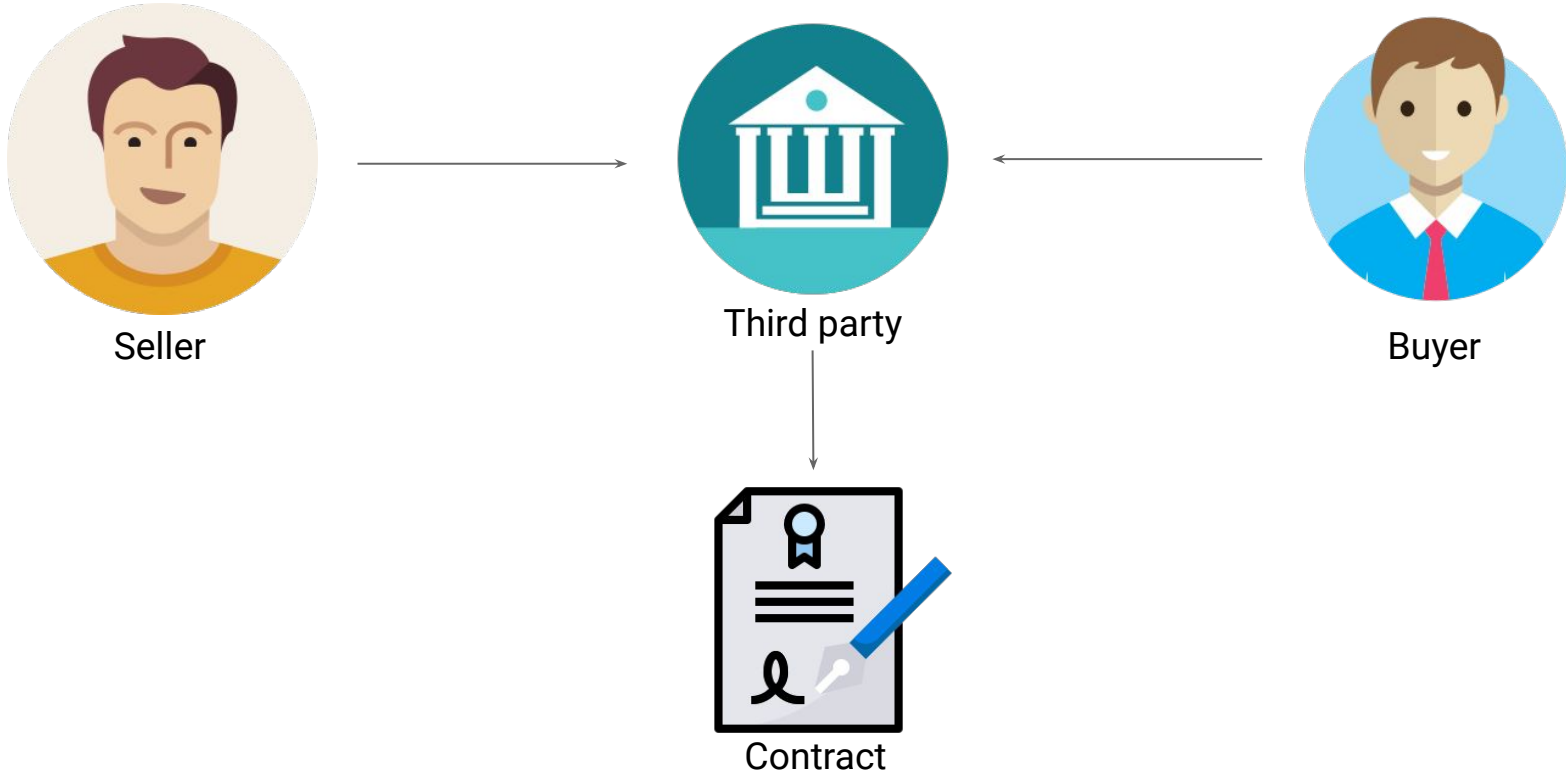
Transactions

A transaction is the process of adding new data to the blockchain.
There are a few steps before a transaction is considered completed.

Transaction is requested

A new block containing the transaction is created

The new block is sent to every node in the network

Every node checks the transaction

The newly created block will be added to the blockchain

Transaction is rejected

2. What's Blockchain?

Seller

Third party

Buyer

Contract

2. What's Blockchain?

- Executes automatically
- No intermediators
- Secure
- Errorless
- Fast and accurate

Smart contracts are driven by the *"if/then"* statement, meaning that they are executed when certain conditions are met.

Seller

Smart Contract

Buyer

Blockchain

3. App showcase

https://cutt.ly/blockchainapp

4. Pros & cons

For building an app using blockchain

Pros

- Distributed
- Stability
- Secure
- Transparent

Cons

- Immutable
- High cost
- Slow
- Only read & write operations are allowed
- No support for complex queries

5. Adoption

- **Xbox** - handles rights, royalties and payments
- **FedEx** - Tracking high value cargo
- **Intesa Sanpaolo** - Validating trading data
- **International Air Transport Association** - verification of COVID-19 credentials
- **Centers for Disease Control and Prevention** - Storing health records

Further readings

- https://vas3k.com/blog/blockchain/ - Blockchain simply explained

- https://medium.com/@essentia1/50-examples-of-how-blockchains-are-taking-over-the-world-4276bf488a4b - Examples of blockchain usage

- https://bitcoin.org/bitcoin.pdf - Satoshi Nakamoto's concept of blockchain

- https://www.blockchain.com/explorer