



TECHNOLOGY OF TRUST

BLOCKCHAIN



สุรศักย์ อัครอมรพงศ์ (บอนด์)
TECHNICAL COACH

AGENDA

▶ ທຸກ່ະລົງ

- ▶ Evolution of Money
- ▶ Blockchain Technology
- ▶ Cryptography
- ▶ Bitcoins & Ethereum Blockchain

▶ ປັບປຸດ

- ▶ Smart Contract - Solidity
- ▶ Frontend - Flutter
- ▶ Private Blockchain Network - Hyperledger Besu (Ethereum)



EVOLUTION OF MONEY

VECTOR ILLUSTRATION



BARTER



GOLD



METALL
COINS



PAPER
MONEY



PLASTIC
CARDS



ELECTRONIC
MONEY



CRYPTO
CURRENCY

EXCHANGE GOODS AND SERVICES WITH GOODS AND SERVICES

BARTER SYSTEM



MEDIUM OF EXCHANGE

- ▶ ต้องหายาก
- ▶ ทำปลอมลำบาก
- ▶ Store of Value - คงคุณค่า
- ▶ Measure of Value - แบ่งเป็นชิ้นส่วนย่อยๆ ได้
- ▶ เป็นที่ยอมรับของทุกคน





EVOLUTION OF MONEY

VECTOR ILLUSTRATION



BARTER



GOLD



METALL
COINS



PAPER
MONEY



PLASTIC
CARDS



ELECTRONIC
MONEY



CRYPTO
CURRENCY

MADE BY A BANK OR OTHER LICENSED AUTHORITY

BANKNOTE

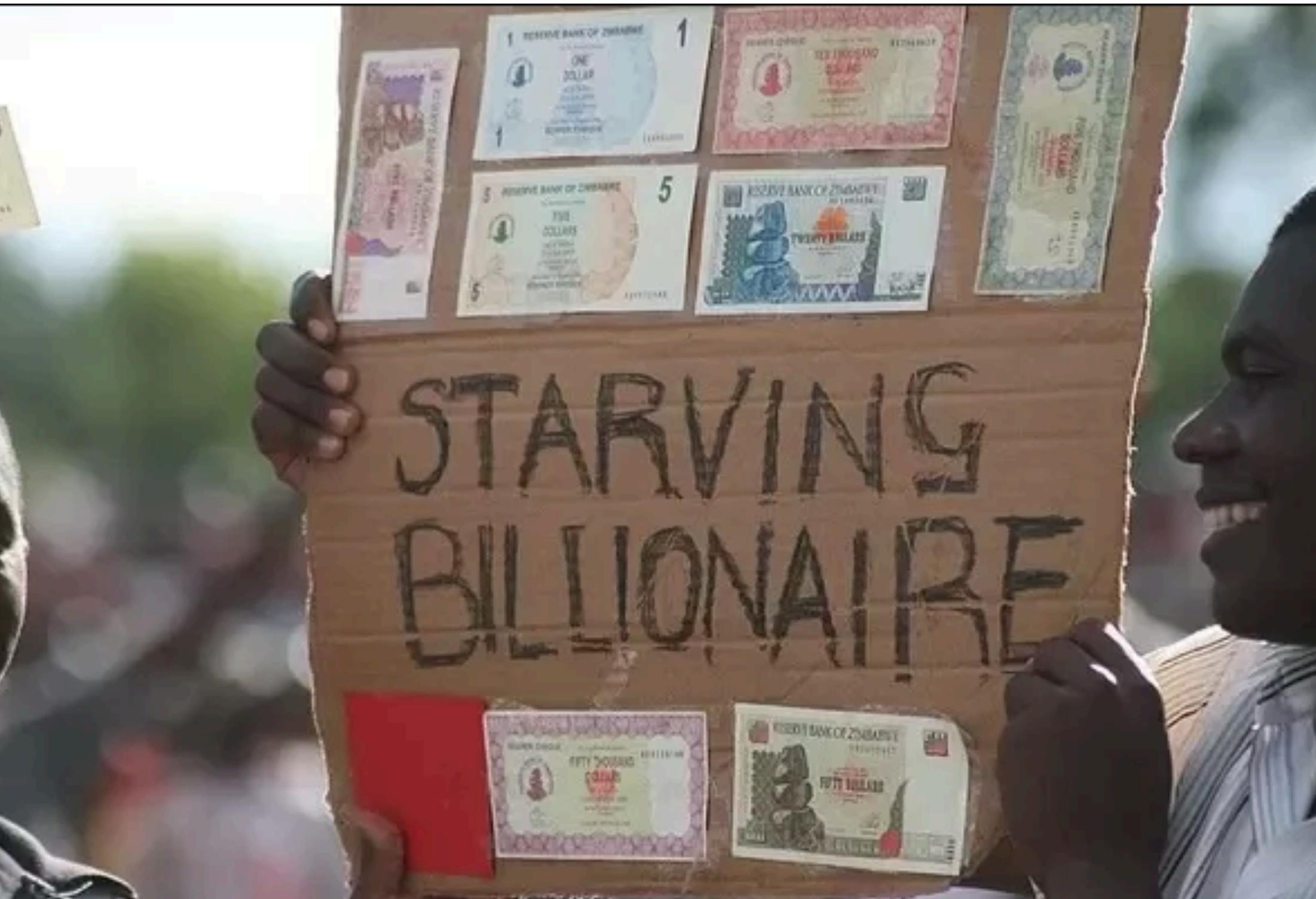


CANCELLATION OF THE DIRECT INTERNATIONAL CONVERTIBILITY OF THE UNITED STATES DOLLAR TO GOLD

THE NIXON SHOCK! IN 1971



HYPERINFLATION IN ZIMBABWE



EVOLUTION OF MONEY

VECTOR ILLUSTRATION



BARTER



GOLD



METALL
COINS



PAPER
MONEY



PLASTIC
CARDS



ELECTRONIC
MONEY



CRYPTO
CURRENCY



เปลี่ยนแนวใหม่

จ่ายสบายได้ทุกวัน

- ✓ จ่ายสะดวกแทนเงินสด
ได้กว่า 1 แสน จุดรับชำระ: true Point & Pay และร้านค้าที่มีสัญลักษณ์
- ✓ เติมเงินเข้าแอปง่ายๆ
ผ่านเซิร์ฟเวอร์ อีเลฟเว่น, บัญชีธนาคาร และอัลตราโลหะช่องทาง
- ✓ ซื้อเกมได้ไม่อั้นบัตร
- ✓ โอนเงินให้กันสบาย

true
money
wallet

rabbit LINE Pay

จุดเด่นบริการใหม่ Rabbit LINE Pay

- ✓ เติมเงินค่าโดยสาร
Top up money
- ✓ เติมเที่ยวบีทีเอส
Top up trip
- ✓ เช็คยอดบีทีเอส
Check your BTS balance
- ✓ ผูกบัตรเครดิต
จ่ายสะดวก
- ✓ ปลดออกบัตร!
ระงับบัตรเมื่อหาย

EVOLUTION OF MONEY

VECTOR ILLUSTRATION



BARTER



GOLD



METALL
COINS



PAPER
MONEY



PLASTIC
CARDS



ELECTRONIC
MONEY



CRYPTO
CURRENCY





TECHNOLOGY OF TRUST

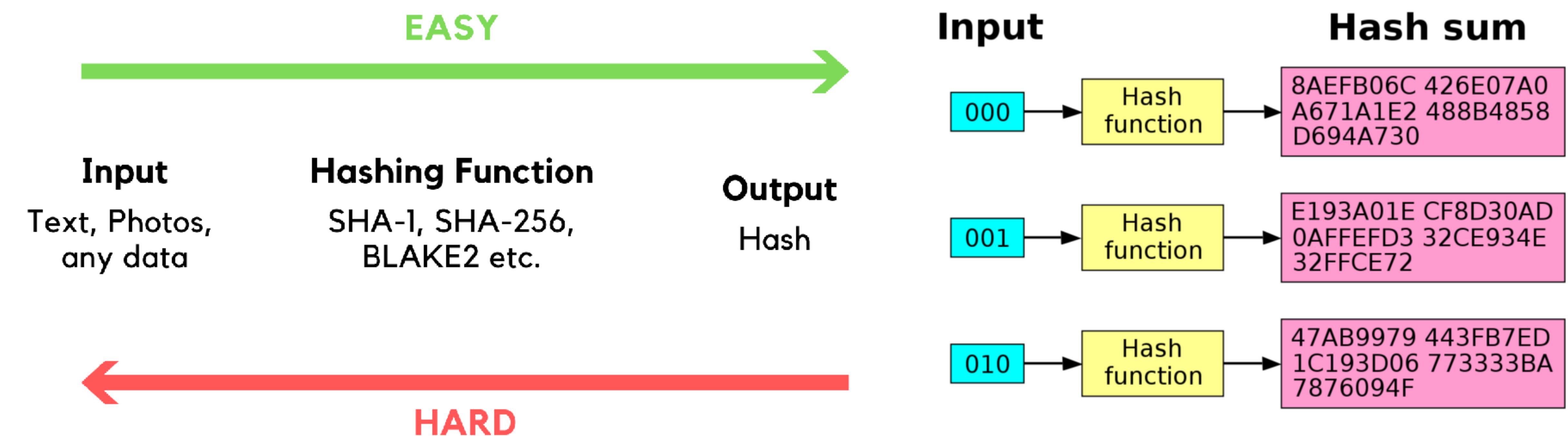
BLOCKCHAIN

DATA ENCRYPTION

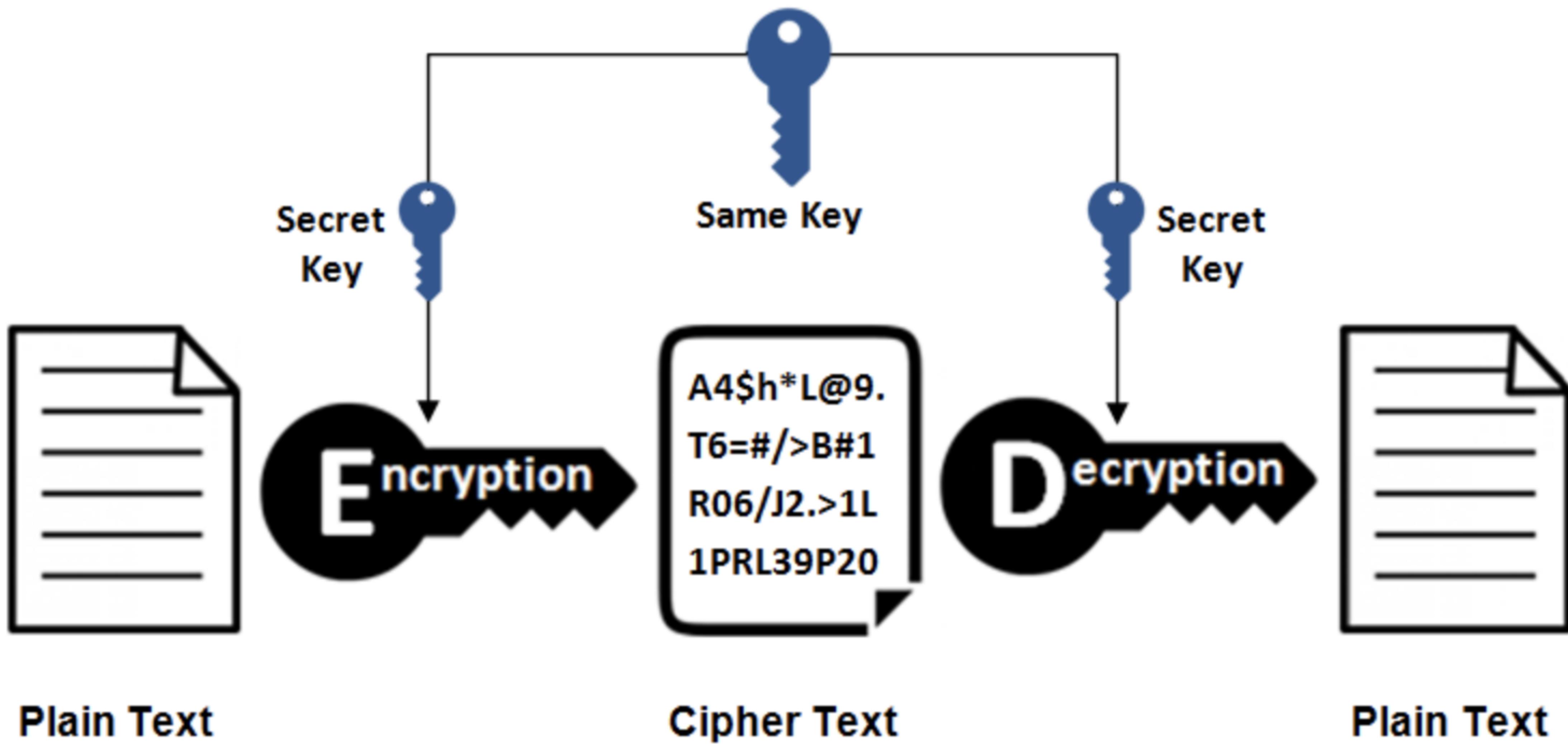
A word cloud surrounding the main title, containing terms related to data security, encryption, and digital protection.

CODE SAFETY CRIME ONLINE
PROTECT BUSINESS
PROTECTION
VIRUS ENCRYPT
WORKING HACKER THREAT RISK
SYSTEM FILE
BROWSING
WEB ACCESS INTERNET CYBER PASSWORD INFORMATION
NETWORK LOCK ENCRYPTED
SECURITY PRIVATE SECURE TECHNOLOGY
DATA ENCRYPTION
LAPTOP ATTACK
ATTACK
PRIVACY COMPUTER DIGITAL SOFTWARE PADLOCK SAFE

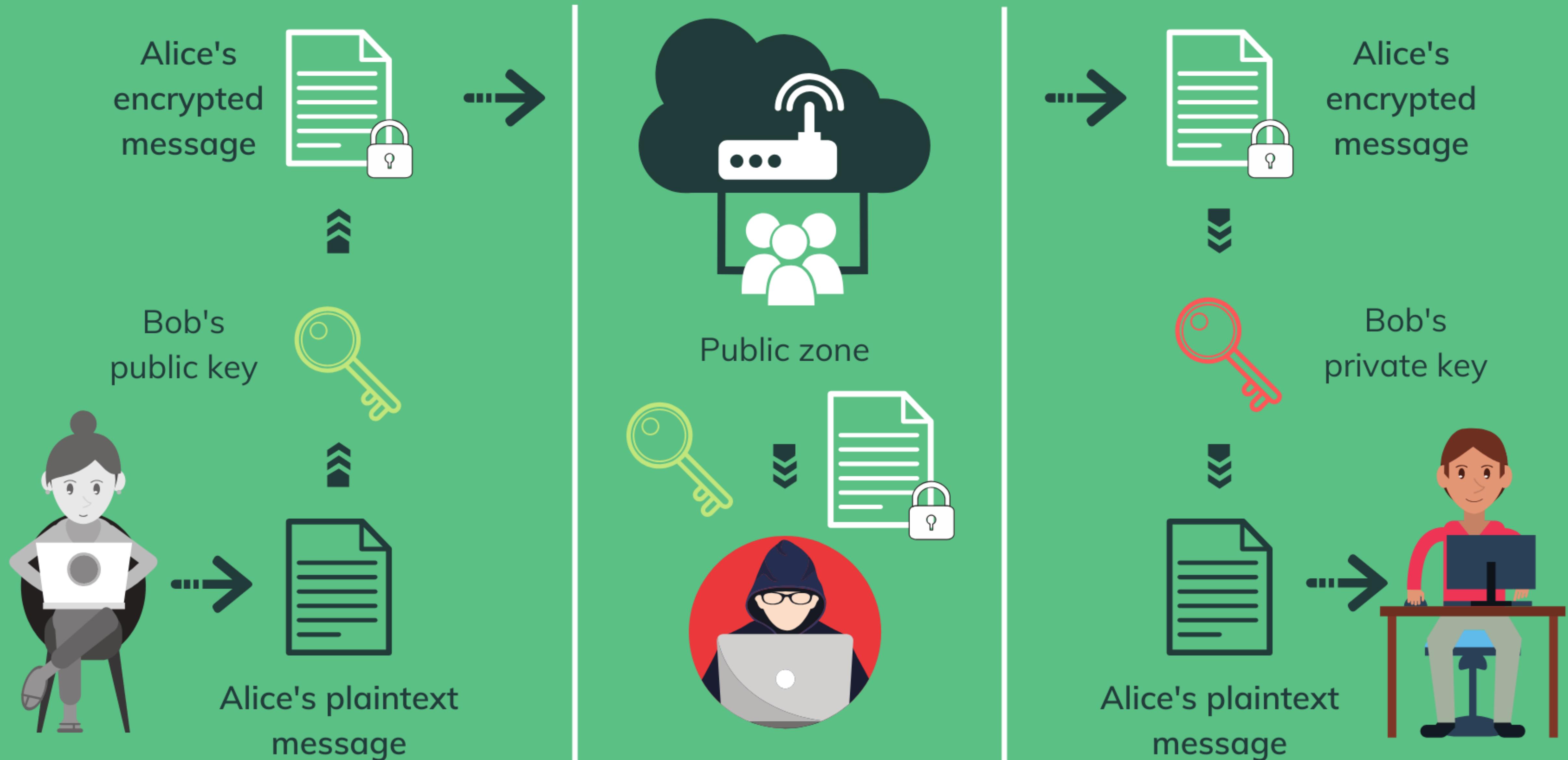
HASH FUNCTIONS



Symmetric Encryption



ASYMMETRIC ENCRYPTION





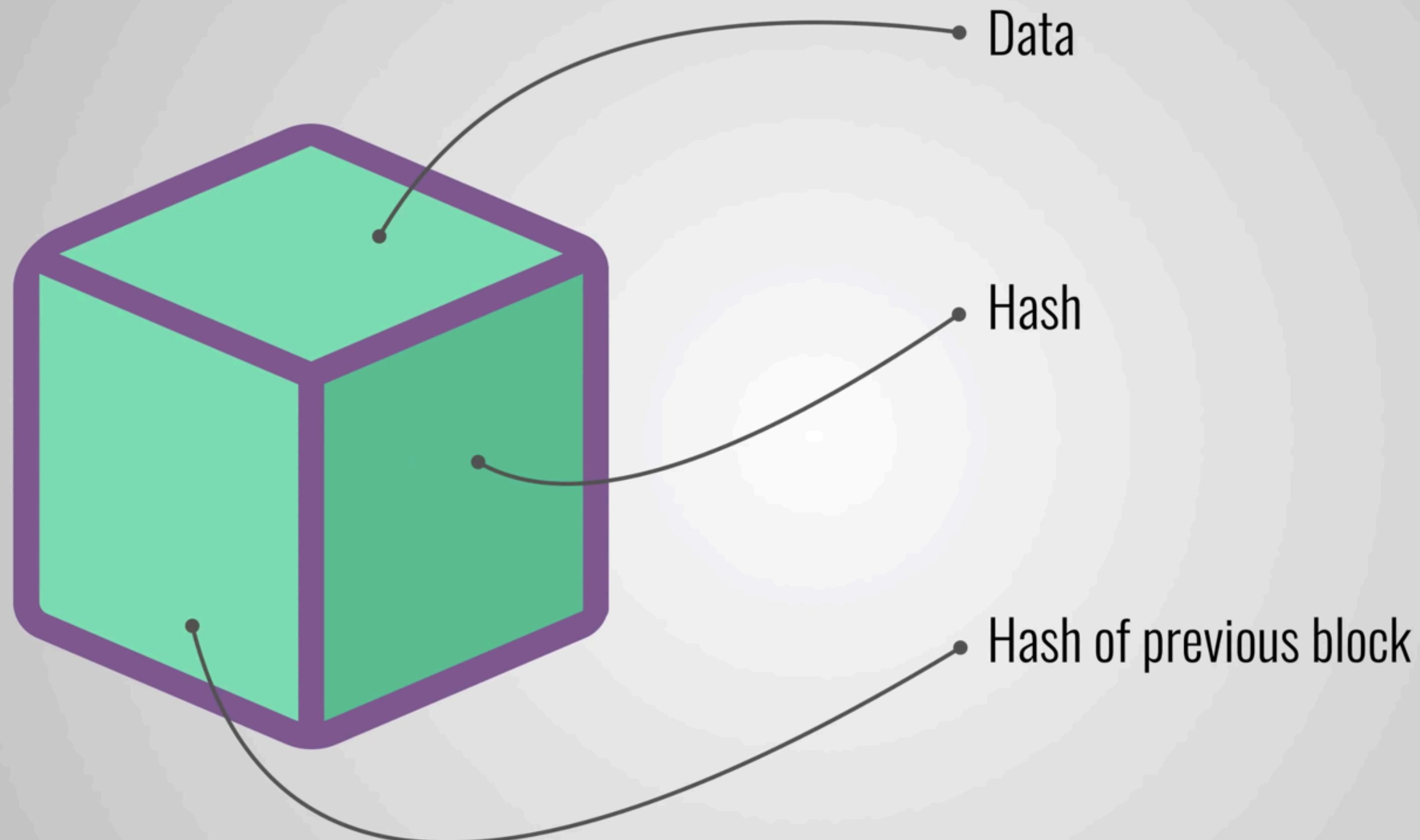
TECHNOLOGY OF TRUST

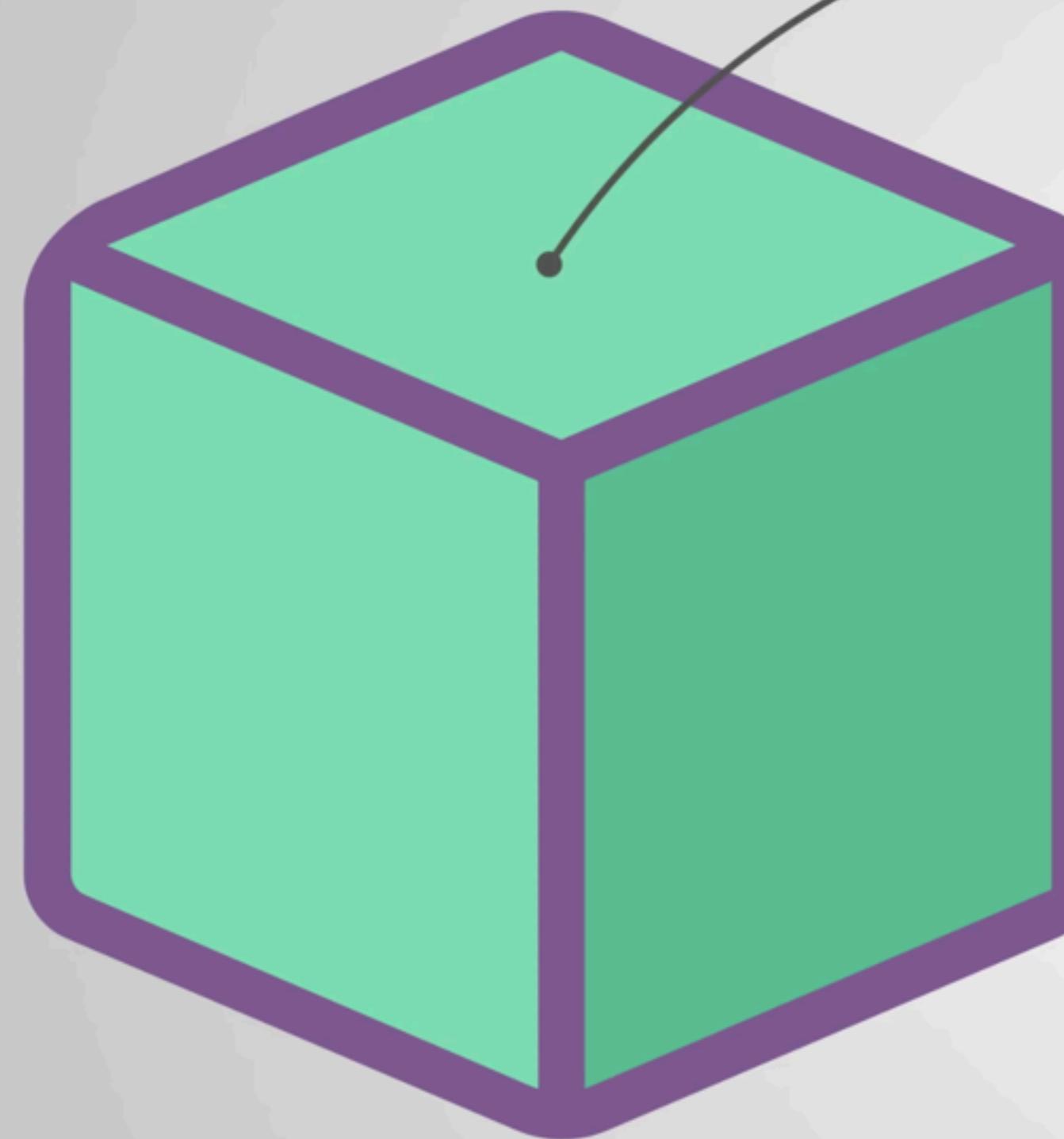
BLOCKCHAIN

Bitcoin

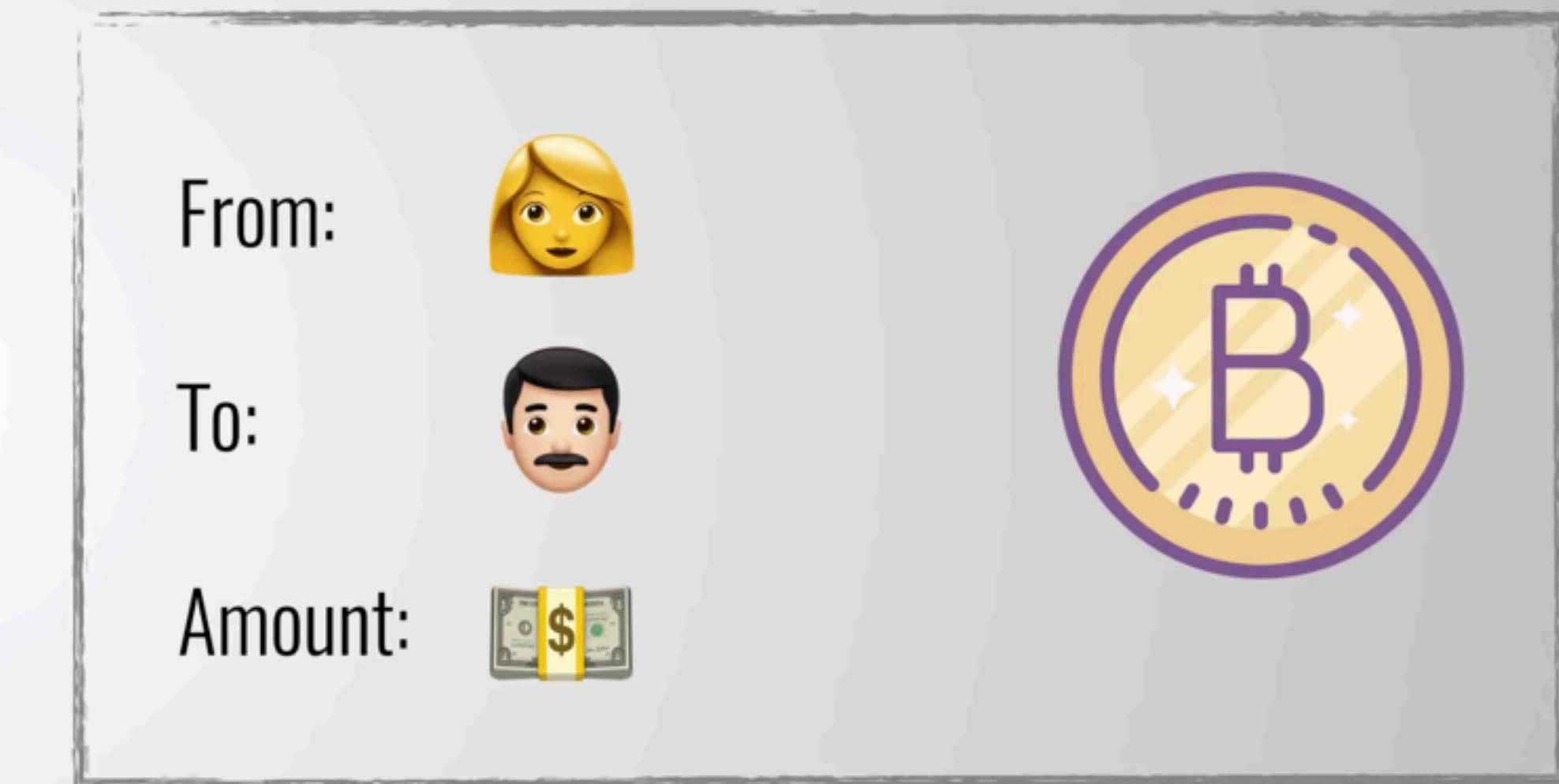
By “Satoshi Nakamoto”





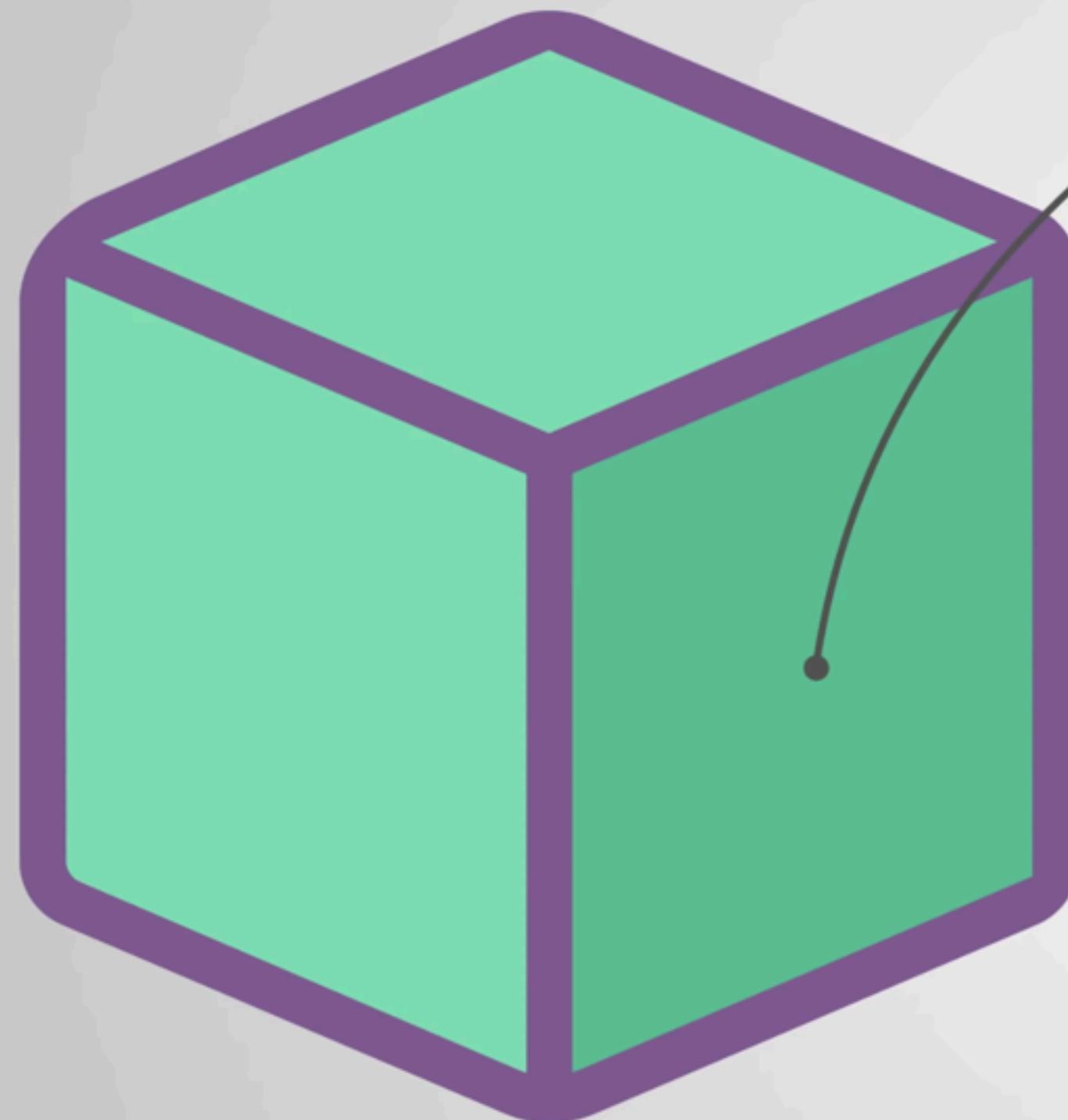


• Data



Bitcoin block example

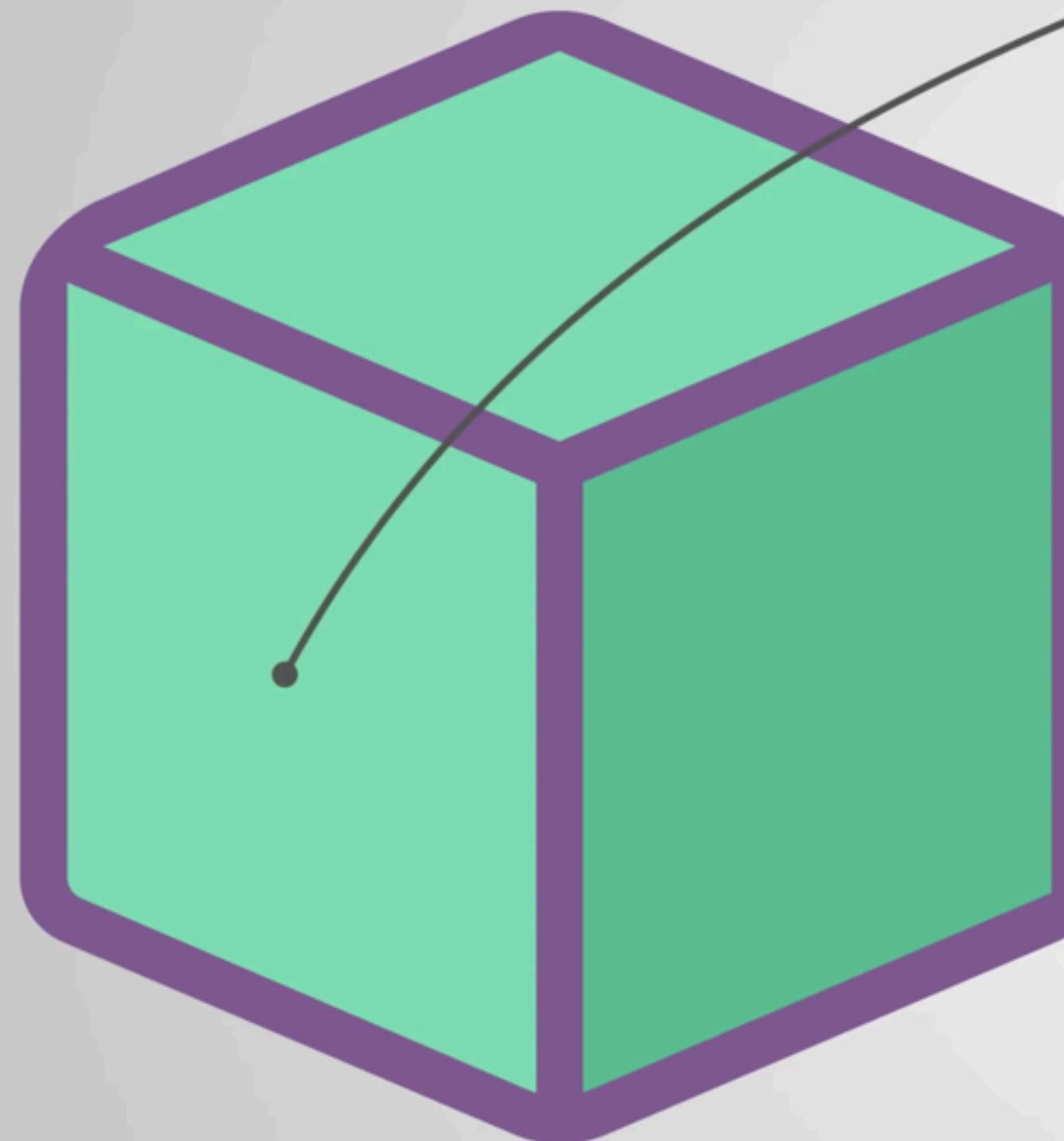




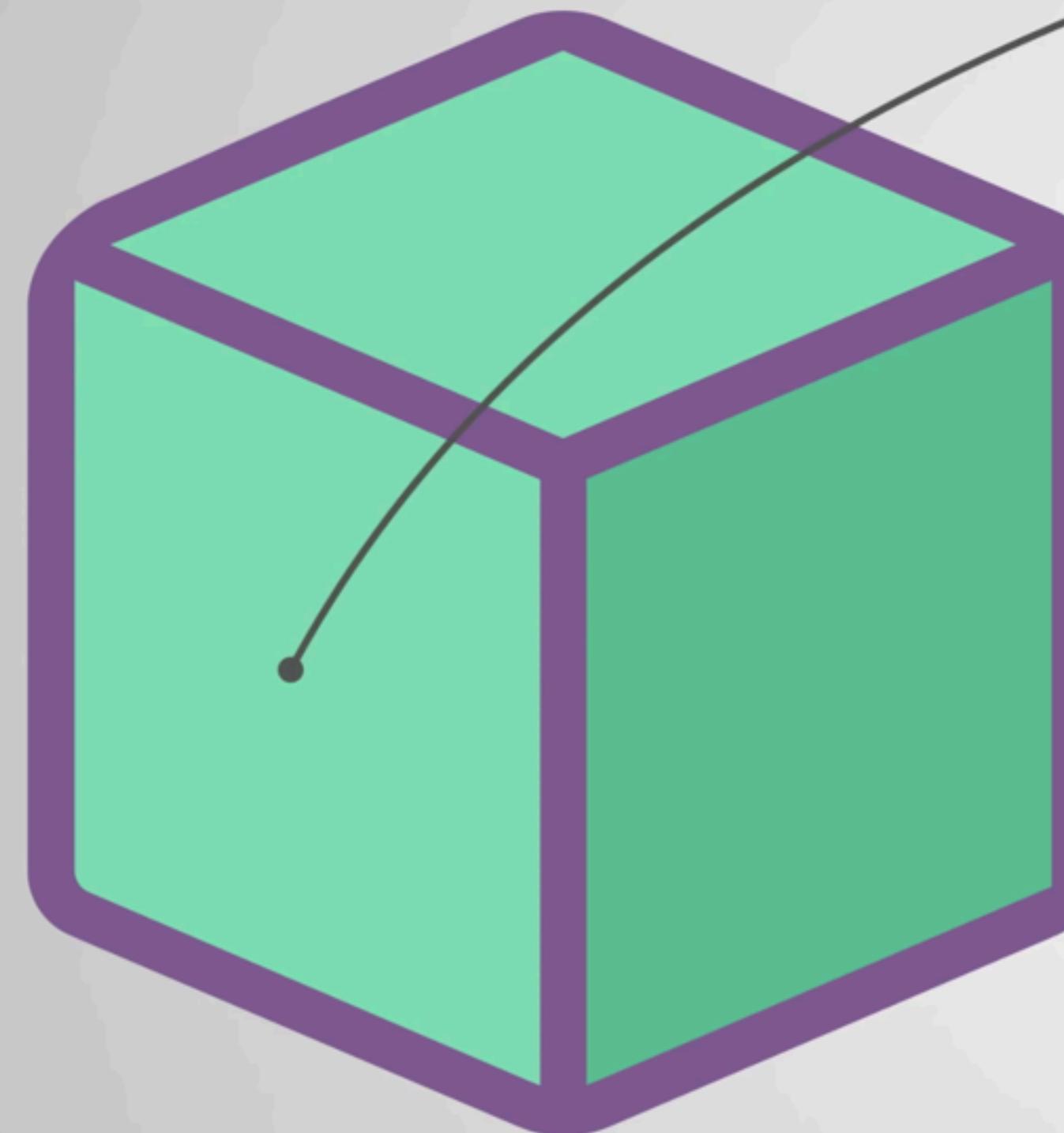
Hash

e2c521bc53bb5db4fc0aa497da2ba5d4c8444db3

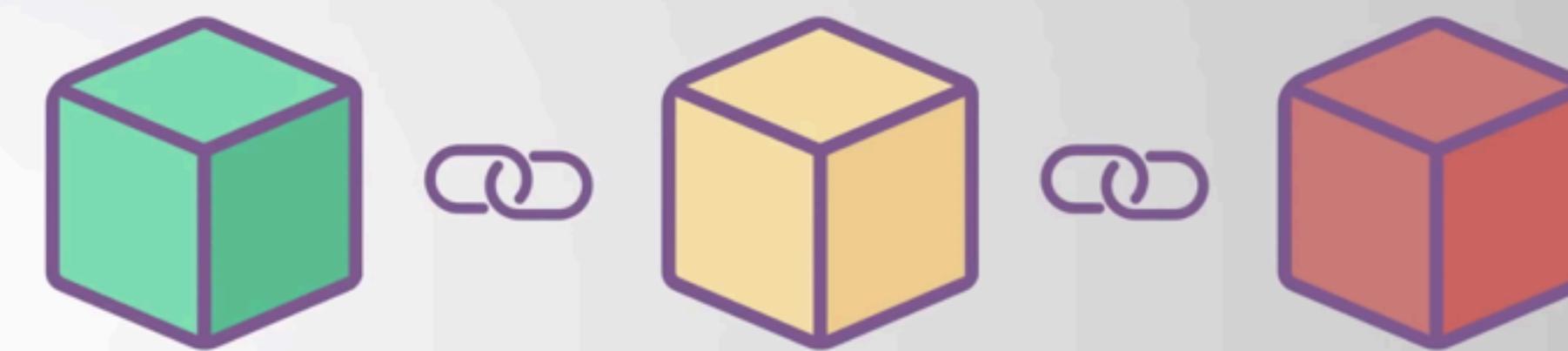




Hash of previous block

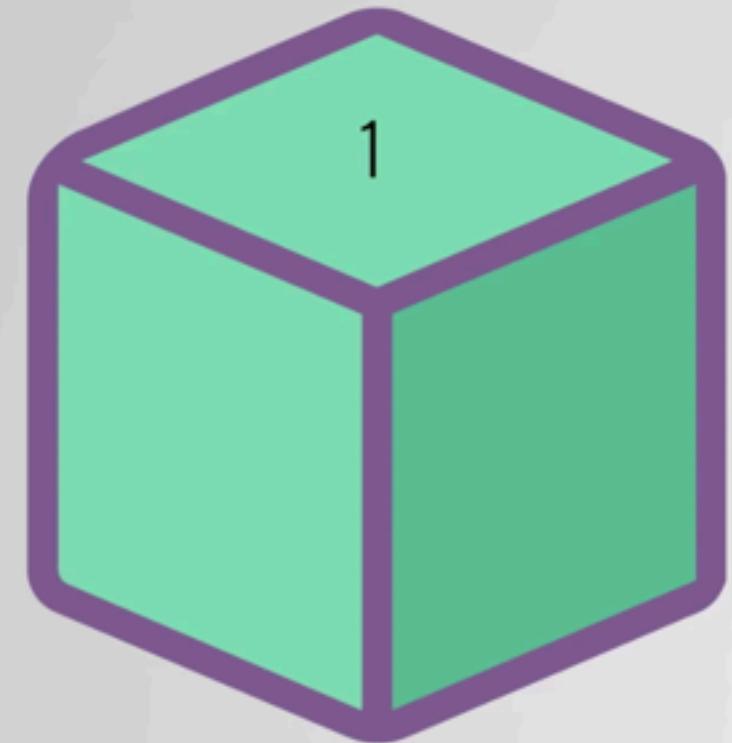


Hash of previous block

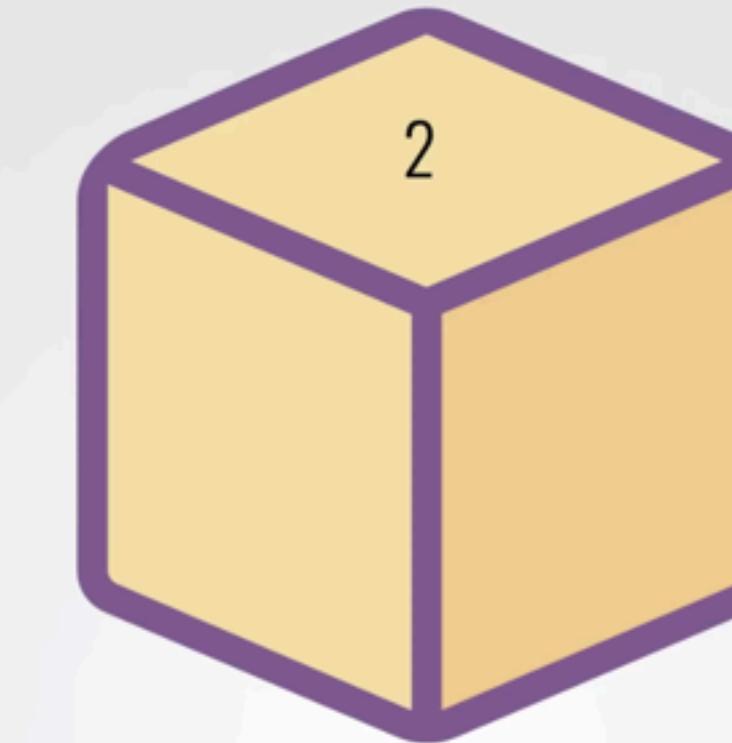


Creates the chain!

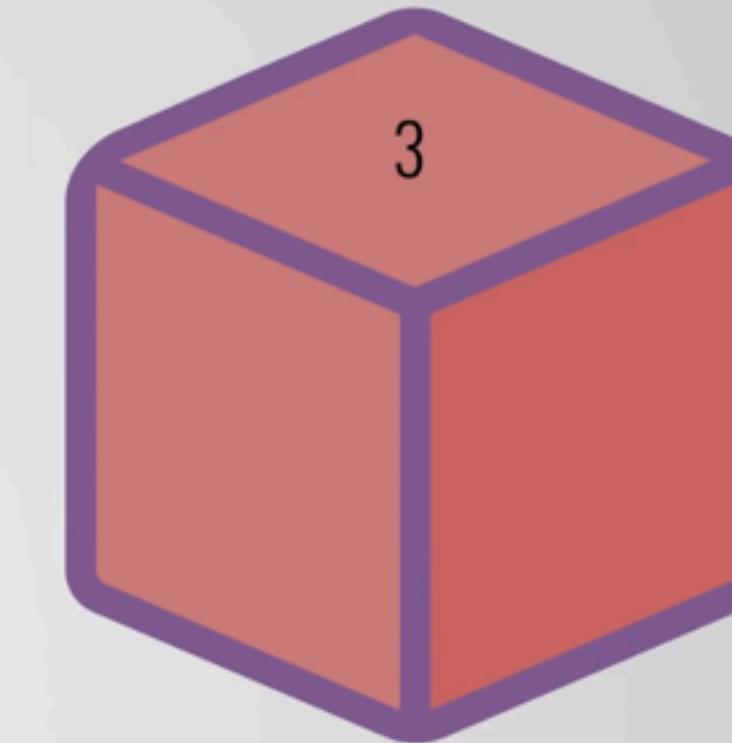




Hash: **1Z8F**
Previous hash: **0000**

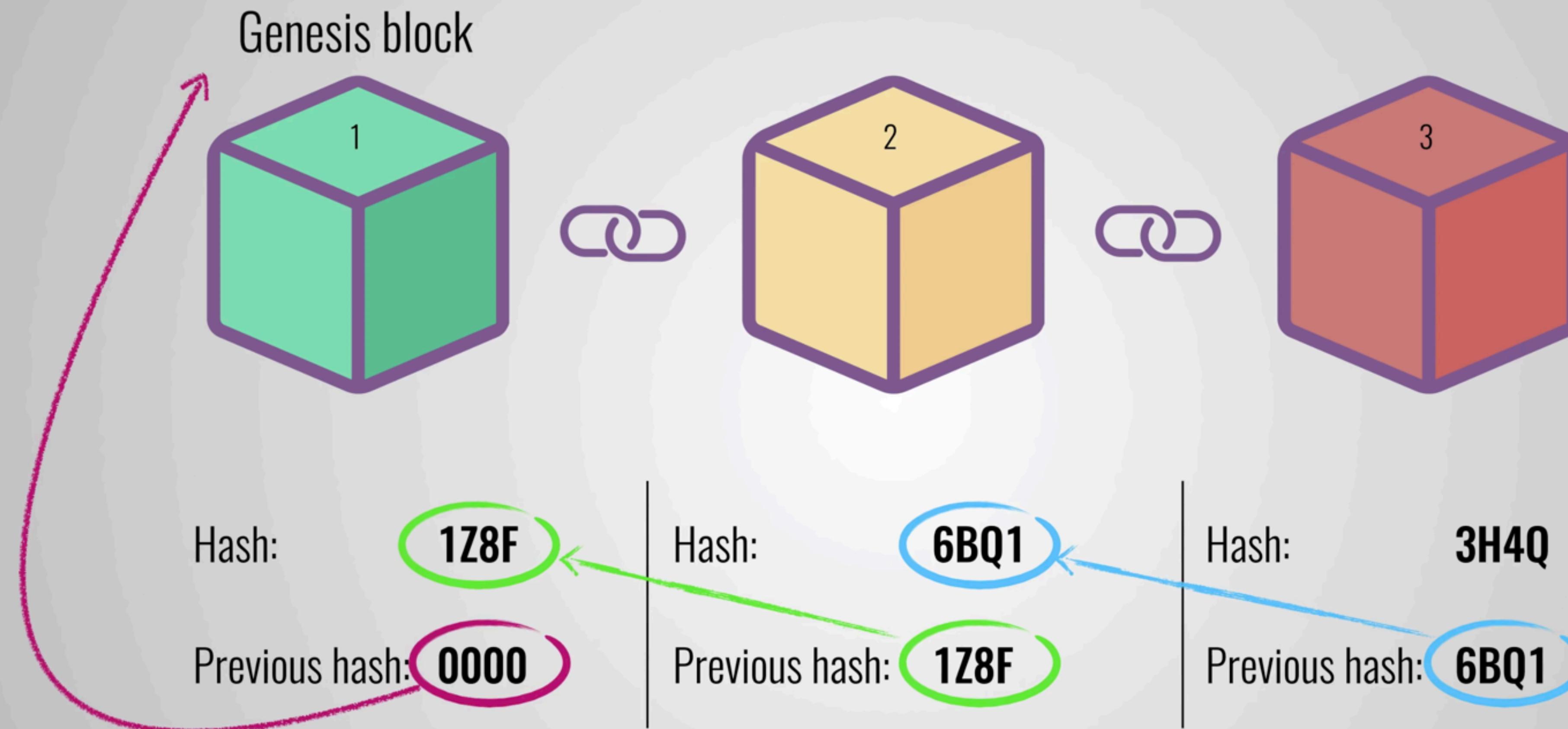


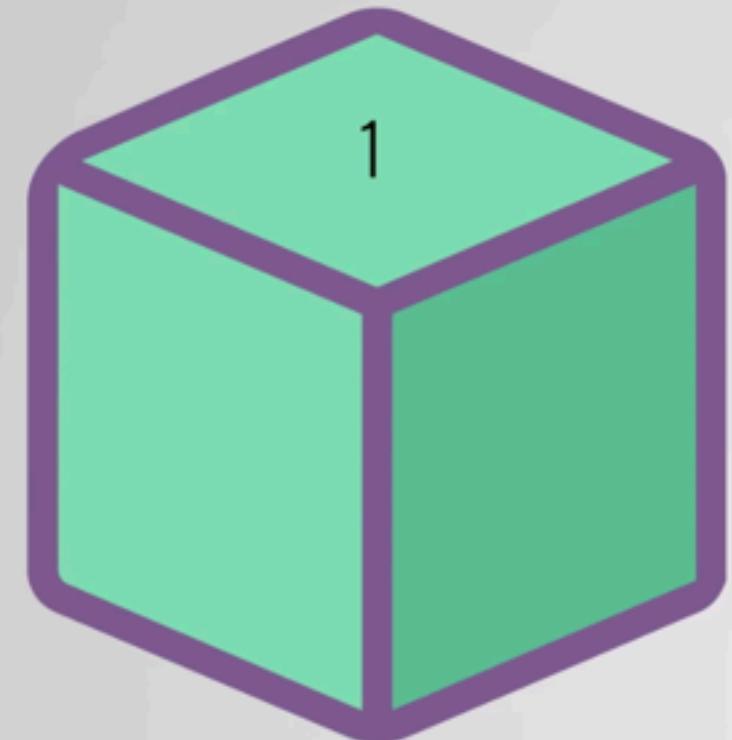
Hash: **6BQ1**
Previous hash: **1Z8F**



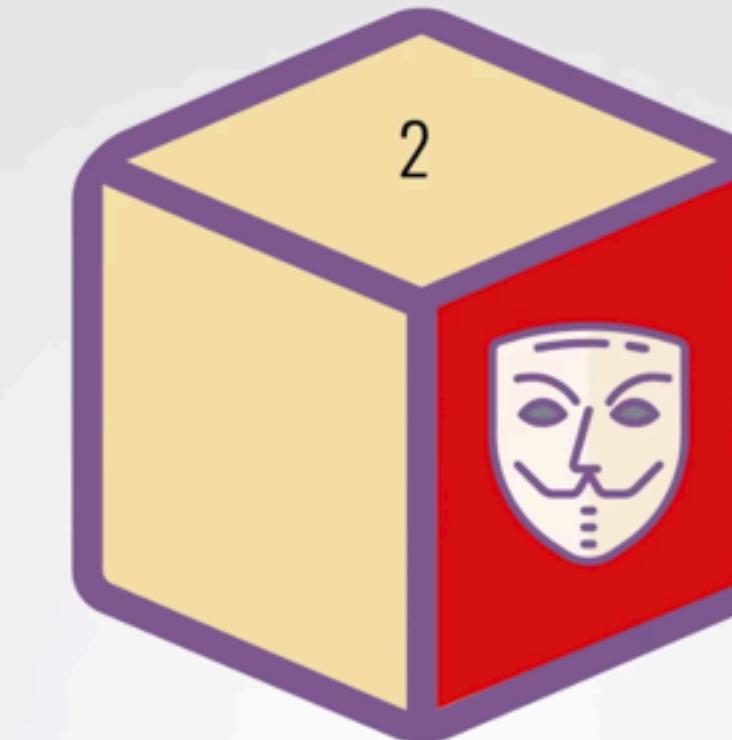
Hash: **3H4Q**
Previous hash: **6BQ1**



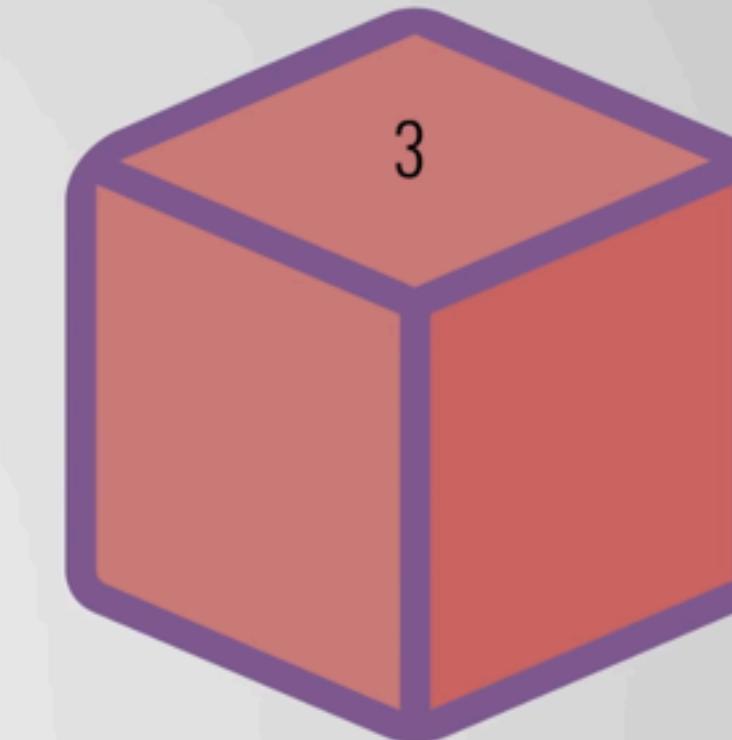




Hash: **1Z8F**
Previous hash: **0000**

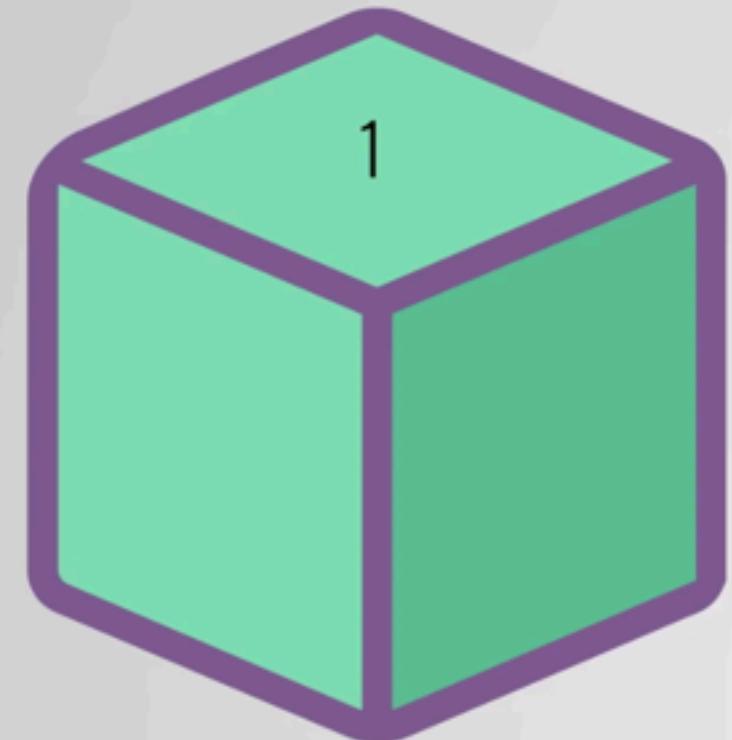


Hash: ~~**6BQ1**~~ **H62Y**
Previous hash: **1Z8F**

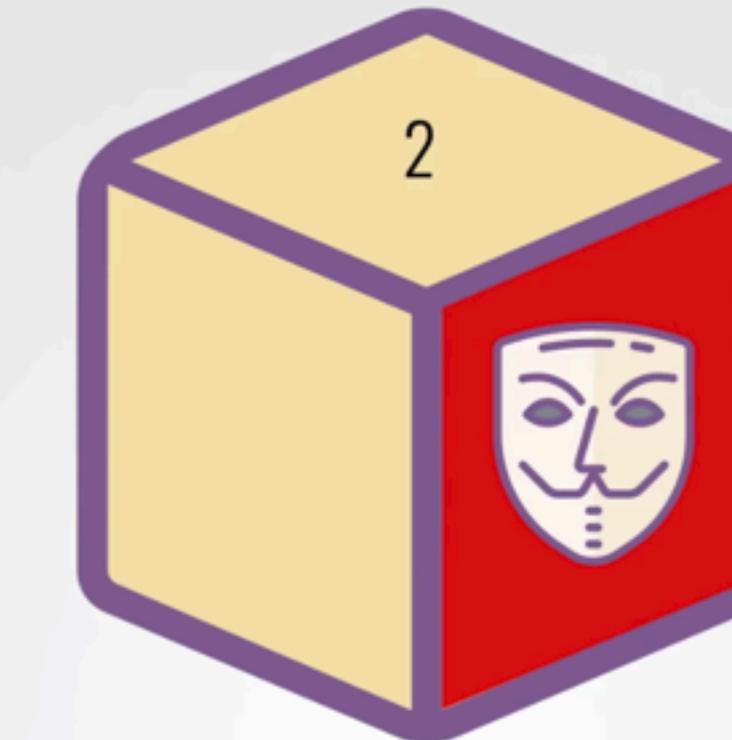


Hash: **3H4Q**
Previous hash: **6BQ1**

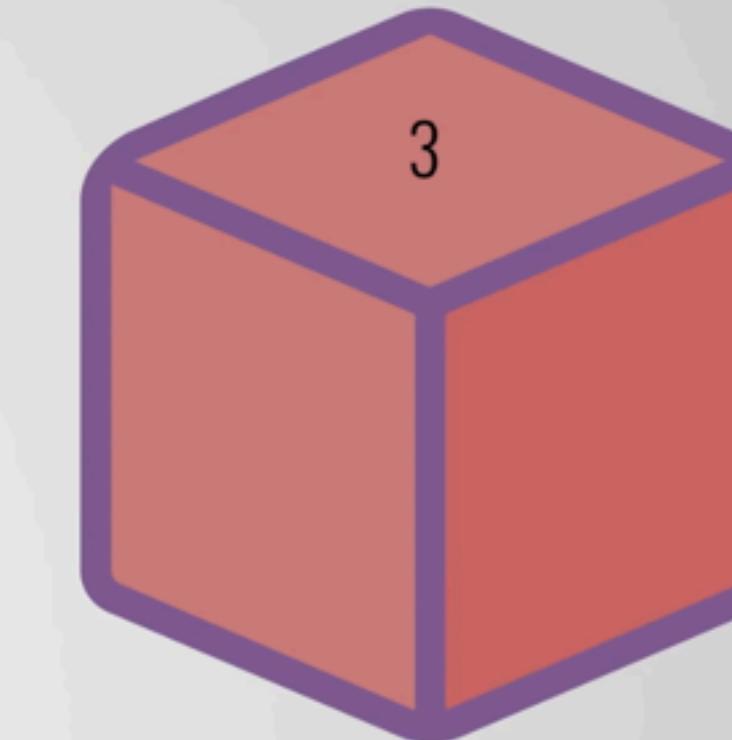




Hash: **1Z8F**
Previous hash: **0000**



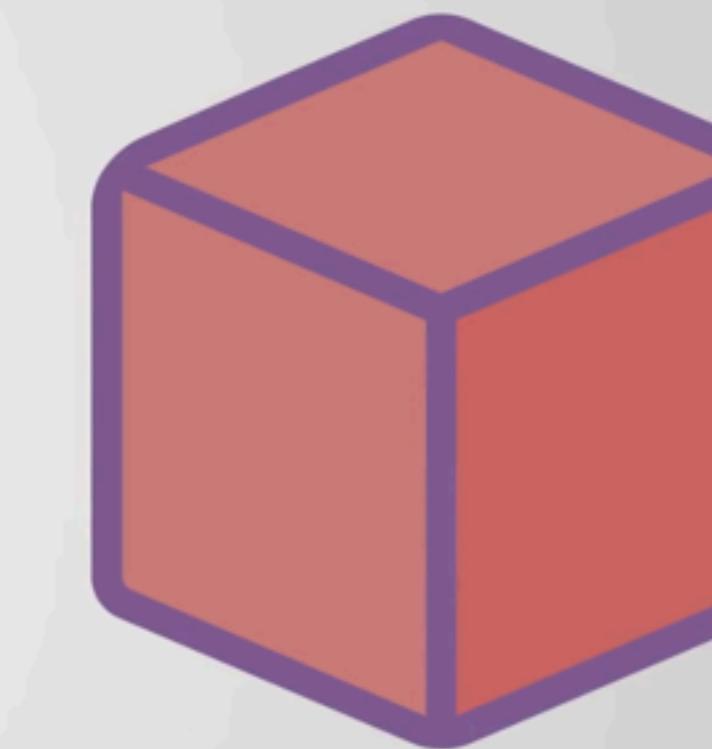
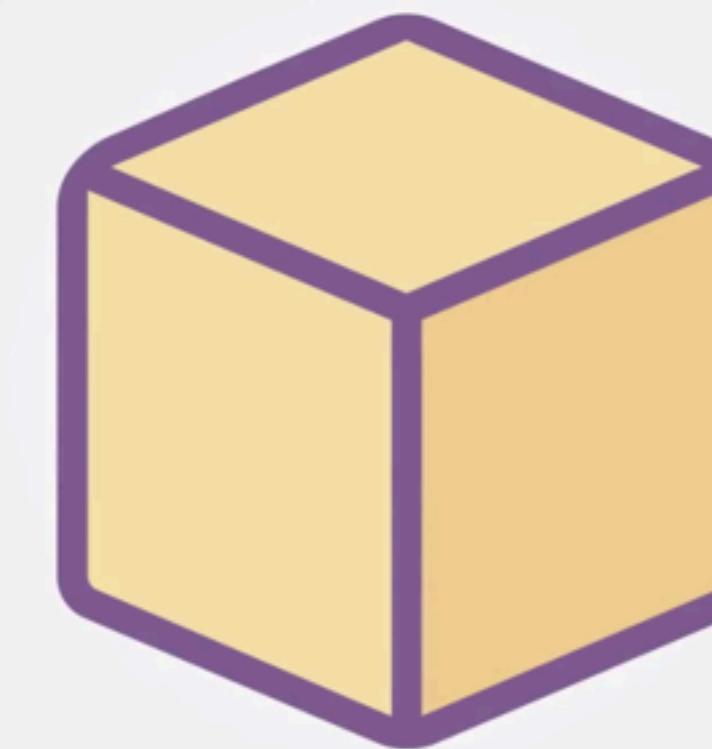
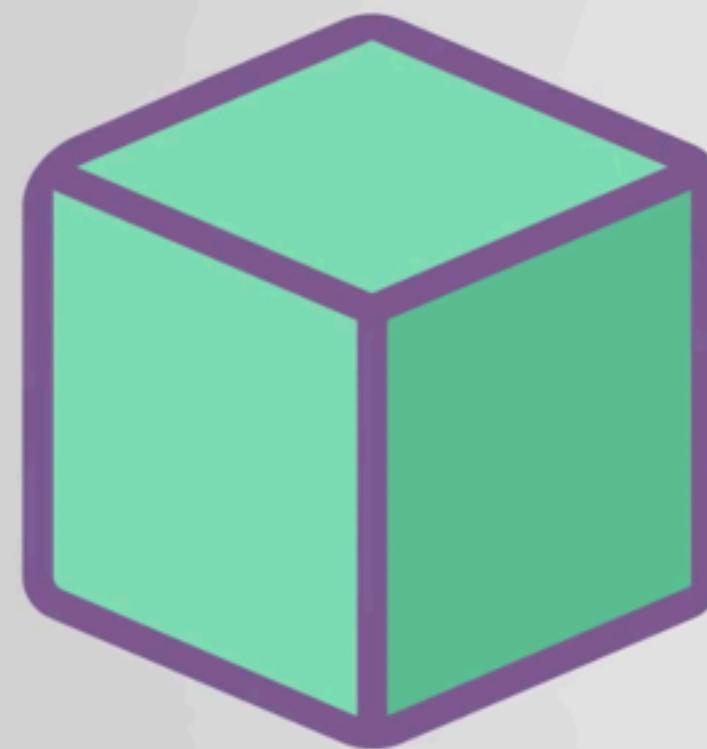
Hash: ~~6BQ1~~ **H62Y**
Previous hash: **1Z8F**



Hash: **3H4Q**
Previous hash: **6BQ1**

Uh thats
not right??

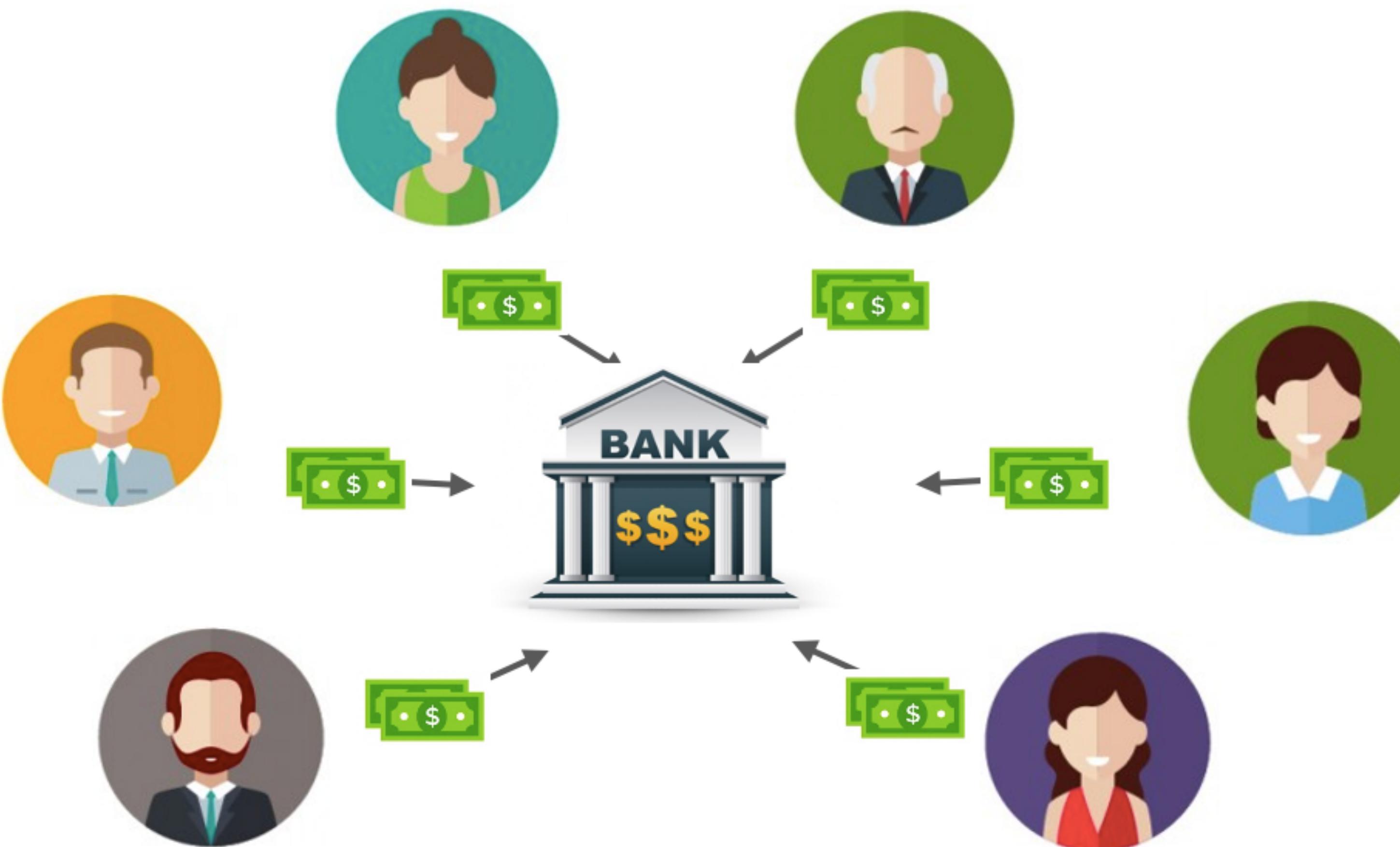




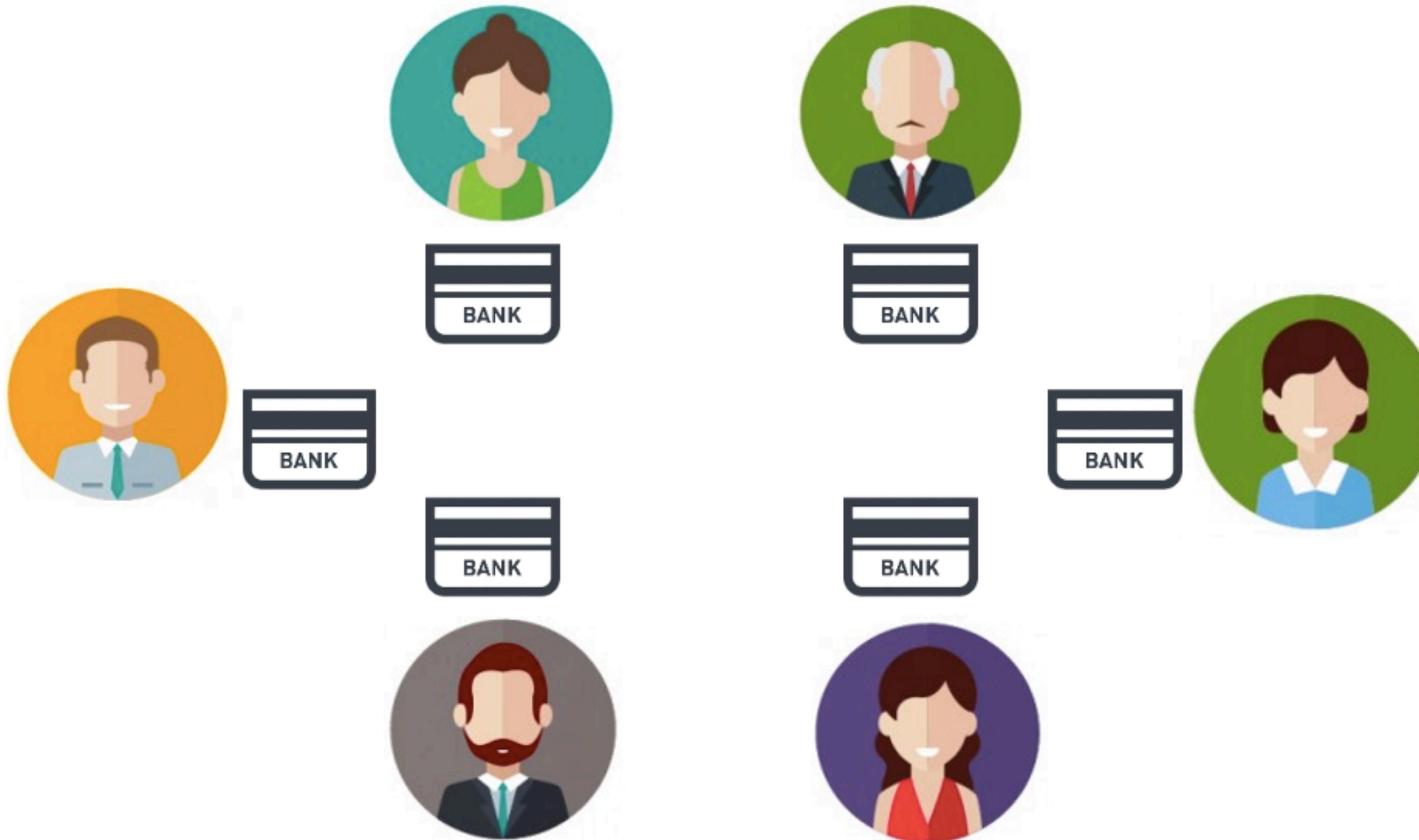
Distributed ledger



CENTRALIZED SYSTEM



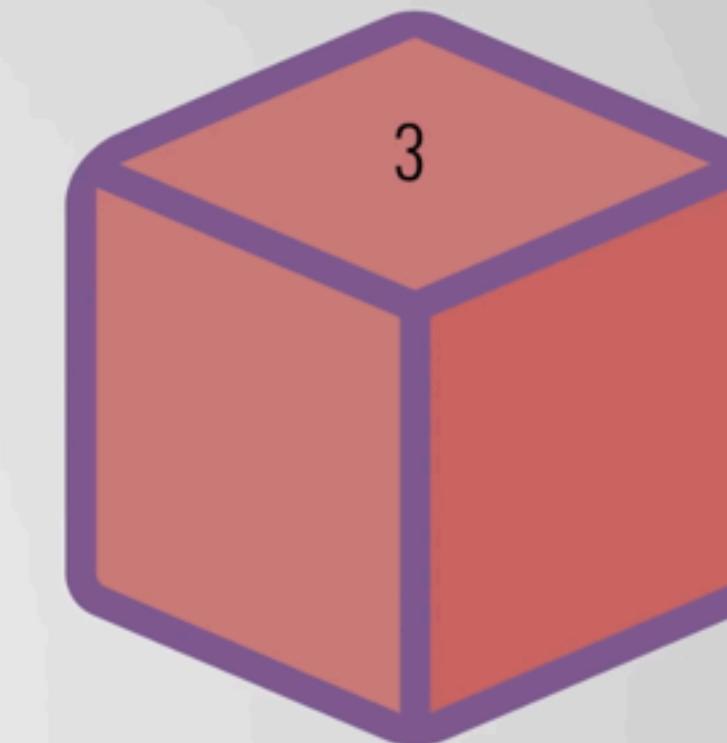
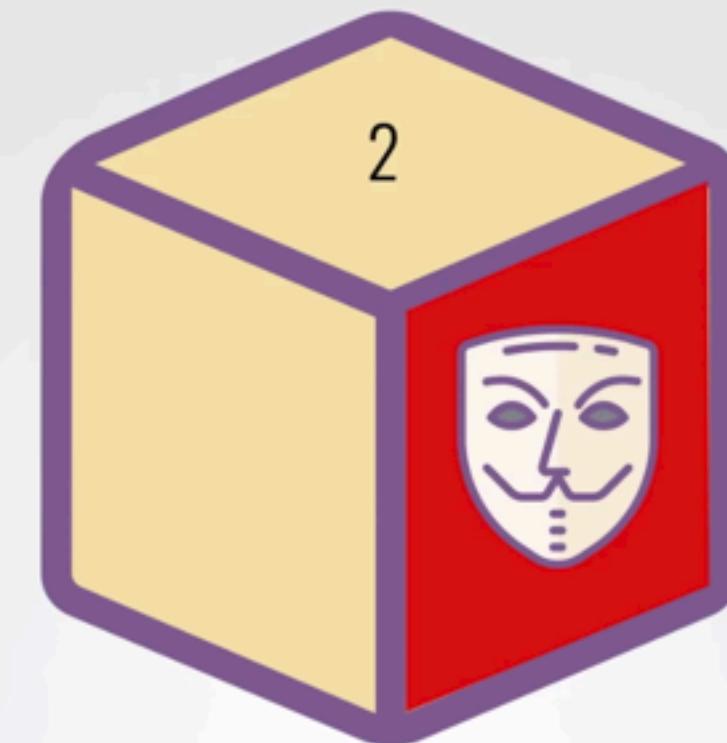
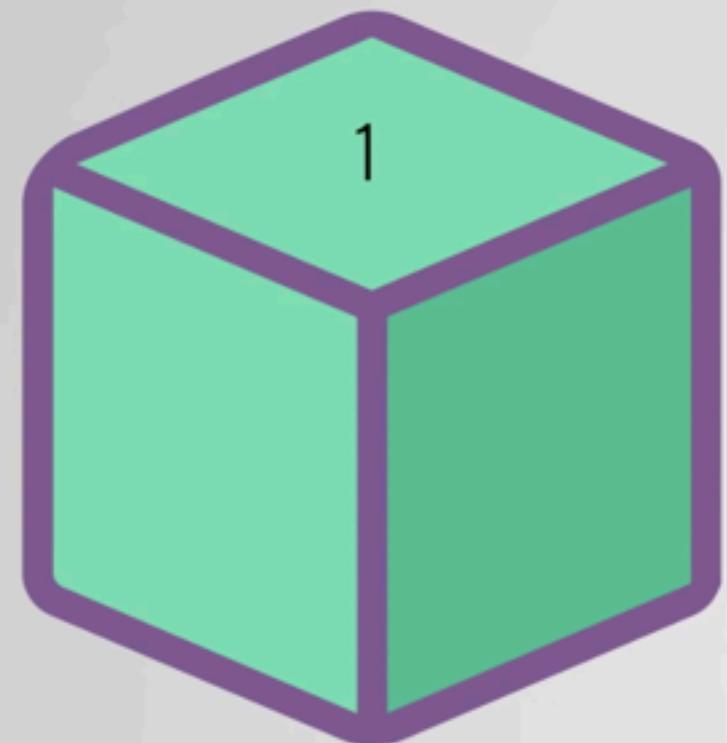
DECENTRALIZED SYSTEM



P2P network



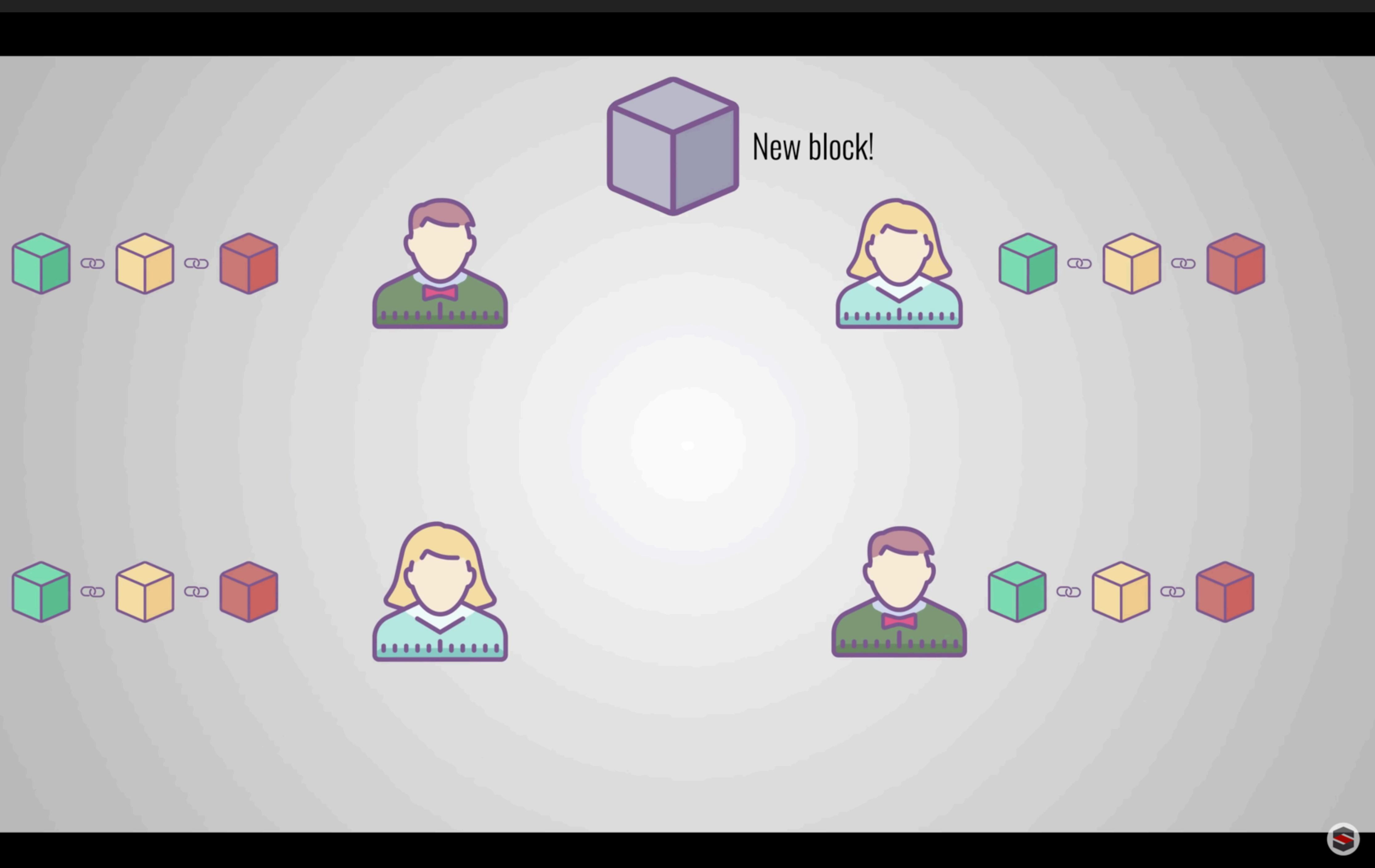


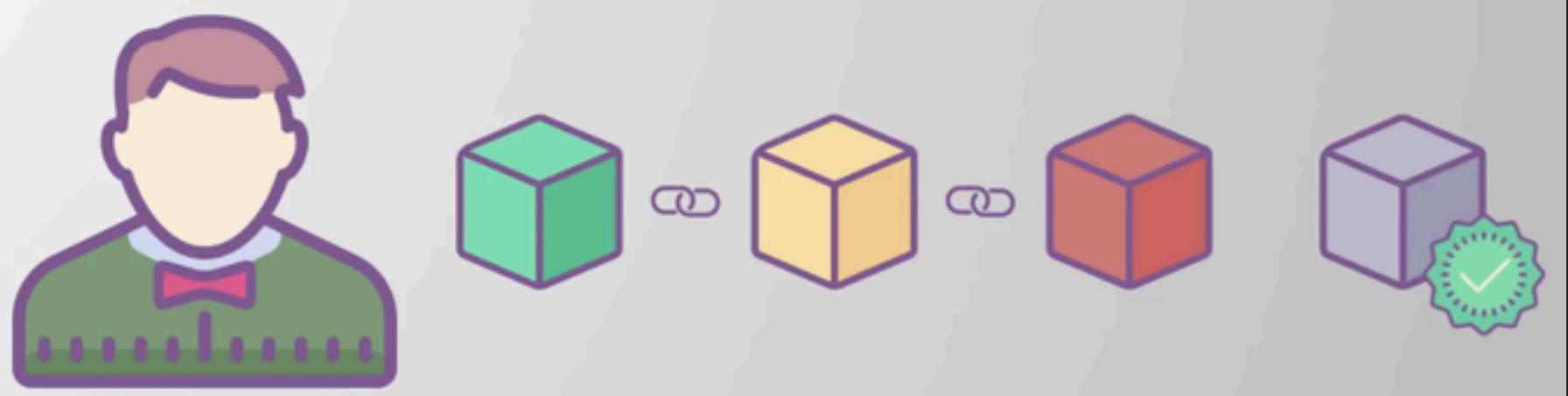


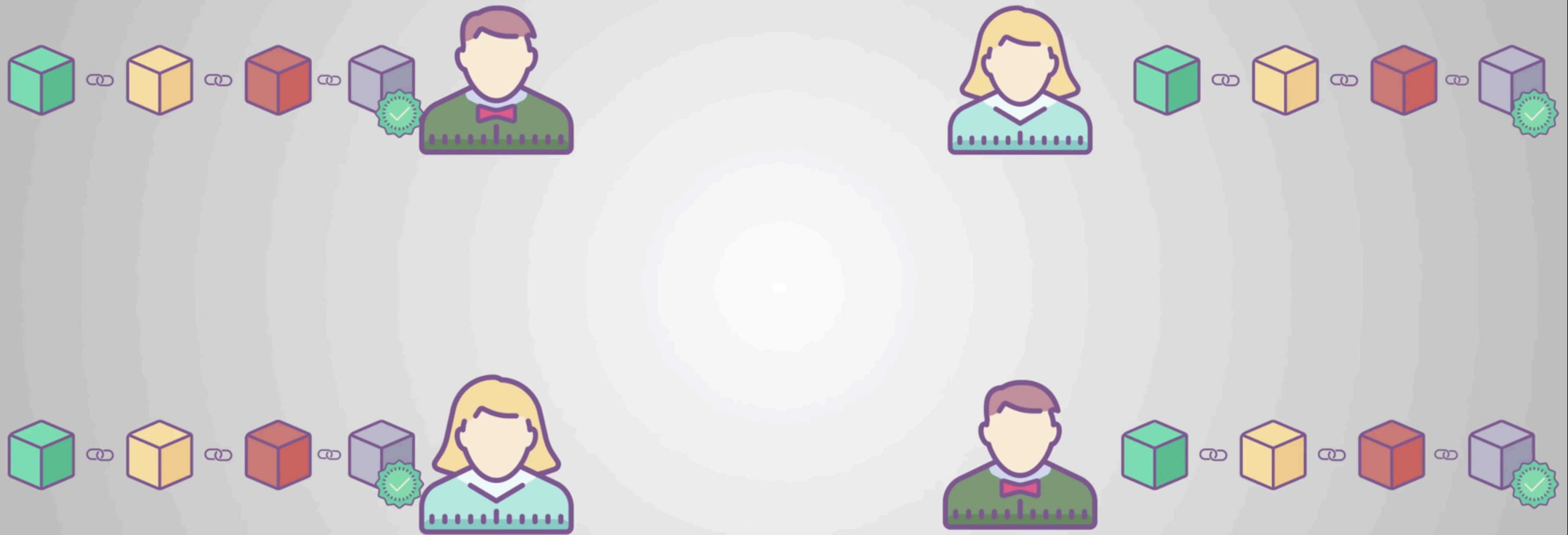
10 minutes

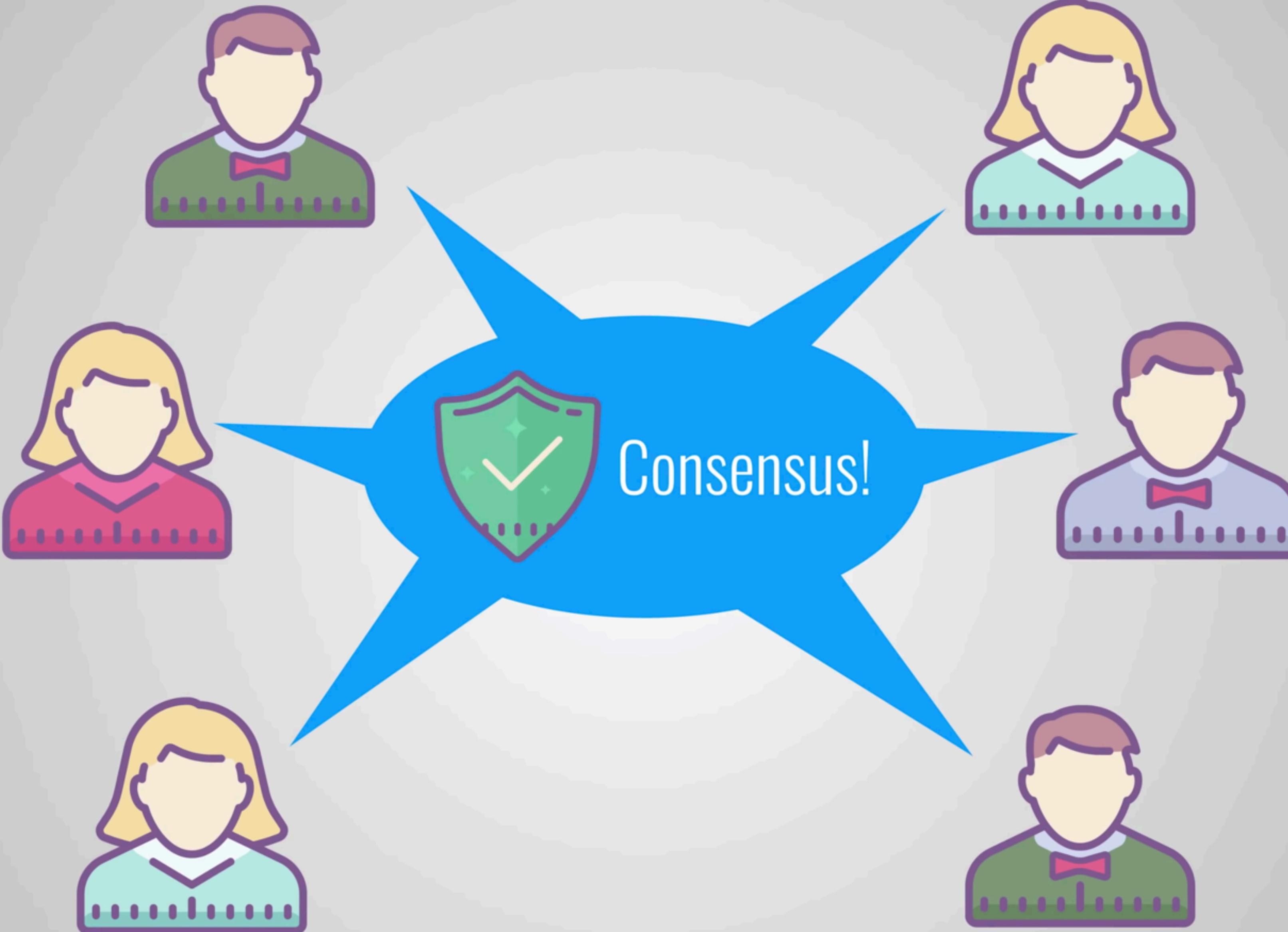


10 minutes





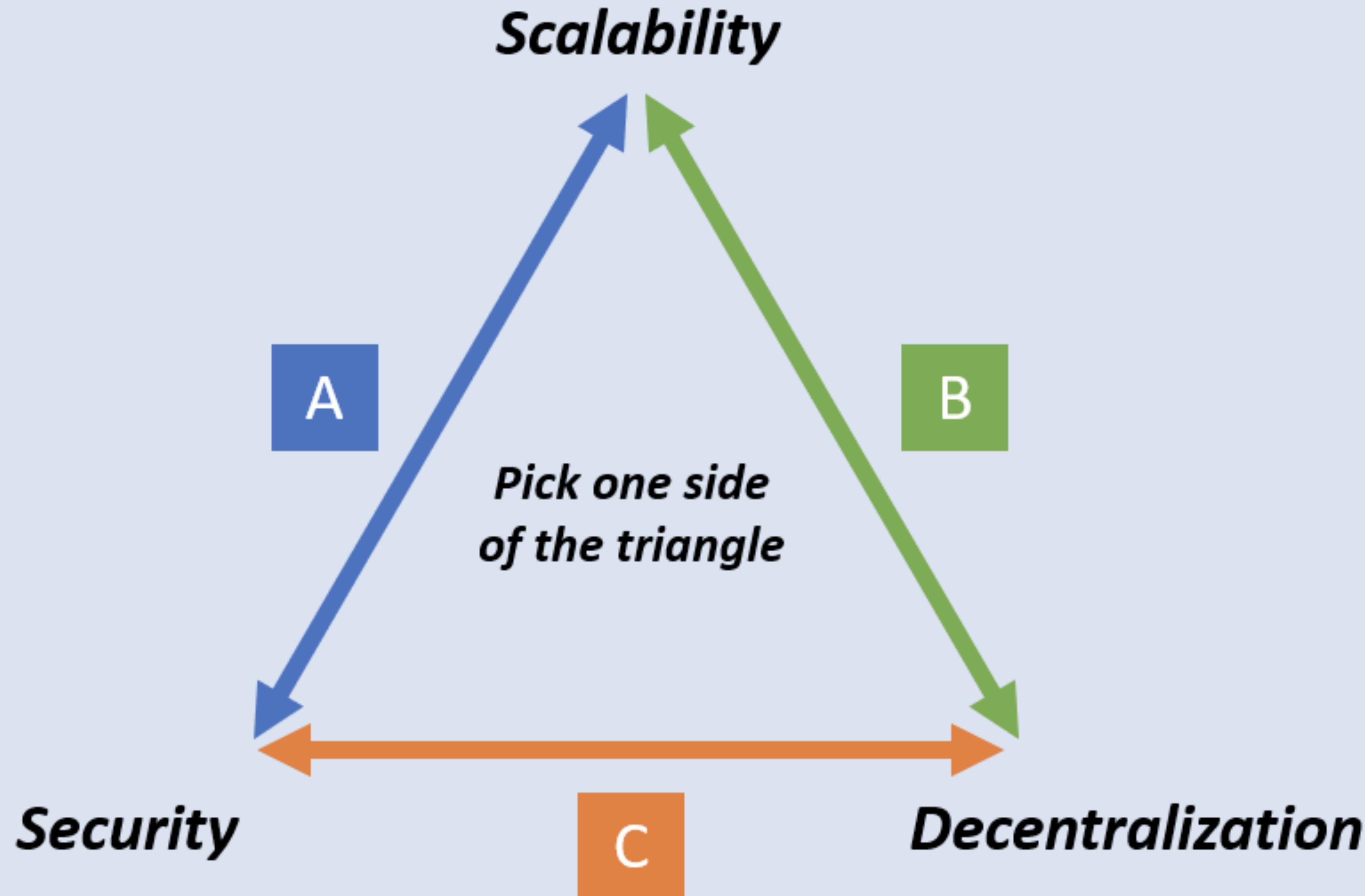


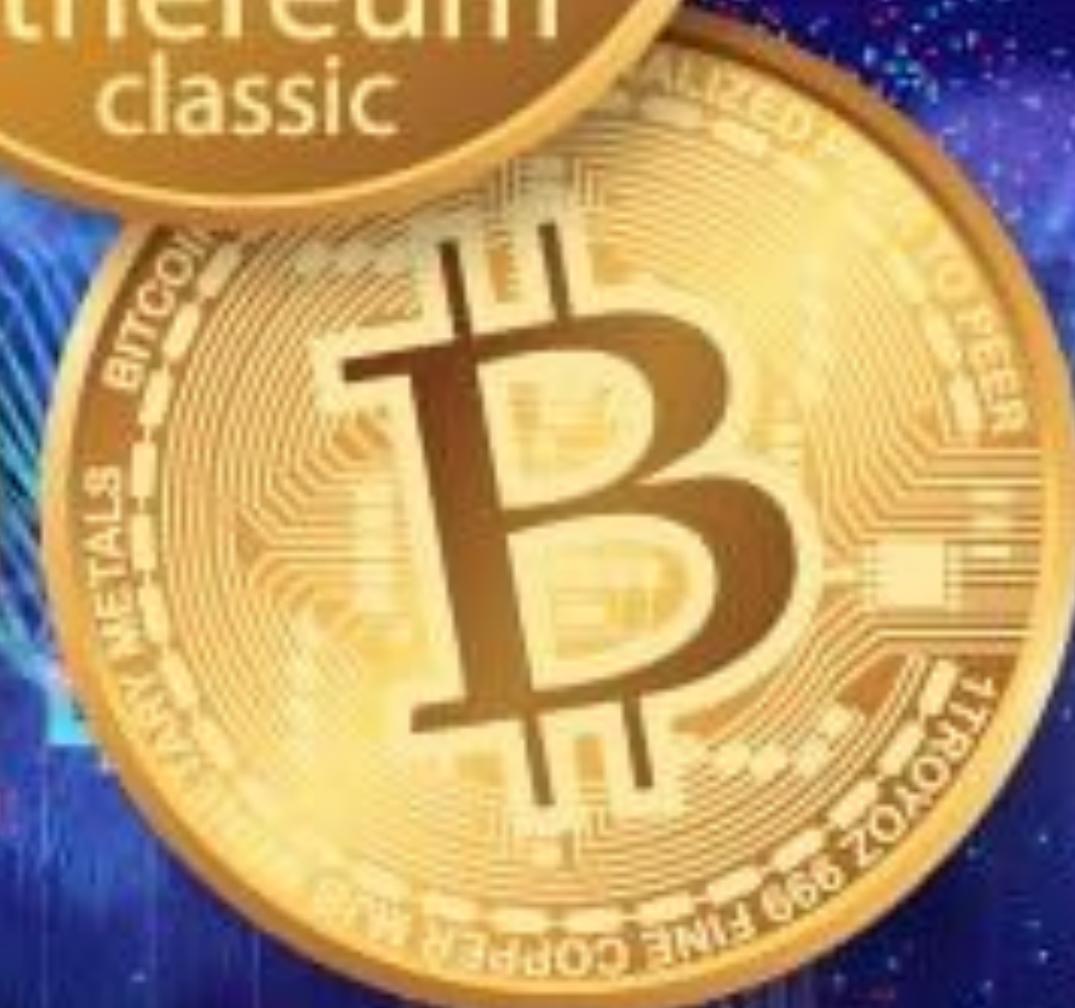


Consensus!



The Scalability Trilemma





SEARCH TRA81#83
SEARCH TRA81#83

RS/811
RS/811

RS/821ITR / ON
RS/821ITR / ON

facebook.[®]
libra



จับตากะรัส CBDC รปภ. เดินหน้า ทดสอบดิจิทัลบาท



CBDC (Central Bank Digital Currency) คือ สกุลเงินดิจิทัลที่ออกโดยธนาคารกลางแต่ละประเทศ โดยมีลักษณะการใช้งานที่ไม่ต่างจากเงินสด และเป็นเงินของรัฐซึ่งหมายความว่าเราใช้ทุกวัน เพียงแค่อยู่ในรูปแบบดิจิทัลที่ไม่ต้องมีการพิมพ์เงินออกมา ซึ่งตามรายงานที่ออกมามาส่วนใหญ่จะมีเทคโนโลยี Blockchain เป็นส่วนประกอบอยู่เสมอ



4 ชาติผนึกกำลังร่วมใช้สกุลเงินดิจิตอล





Blockchain Simplified

Examples of Fungible & Non-Fungible Tokens

Fungible

Dollar



Bitcoin



Ethereum



Non-Fungible

Cryptokitties



Art



House/Property





ethereum

HOMESTEAD RELEASE

BLOCKCHAIN APP PLATFORM

ethereum
ETHERBROWSER
PEER-TO-PEER MESSAGING
GENERALIZED BLOCKCHAIN
PROGRAM ANYTHING



ethereum.org

Technology

Blockchain

Protocol (COIN)

Bitcoin

Ethereum

Libra

Zcoin

Token

USDT

HT

MKR

OMG

ETHEREUM NETWORK

- ▶ Ethereum networks are used to transfer money and store data.
- ▶ Networks are formed by one or more nodes.
- ▶ Each node is machine running an ethereum client.
- ▶ Anyone can run a node.
- ▶ Each node can contain a full copy of the blockchain.
- ▶ The 'blockchain' is a database that stores a record of every transaction that has ever taken place.

PROGRAM OR A SERVICE WHICH STORES THE PUBLIC AND/OR PRIVATE KEYSTEXT

CRYPTO WALLET

w.MyEtherWallet.com

YOUR ADDRESS

AMOUNT / NOTES

YOUR PRIVATE KEY

Your Address:
0xB7449C1b33BC4c8D42B05ad2C8de475375Ad36B9

Your Private Key:
e5736e4c8cc98bc53d415f12479027b0329107ea81706f340ffdc0538a7fe99d

Always look for this icon
when sending to this wallet.



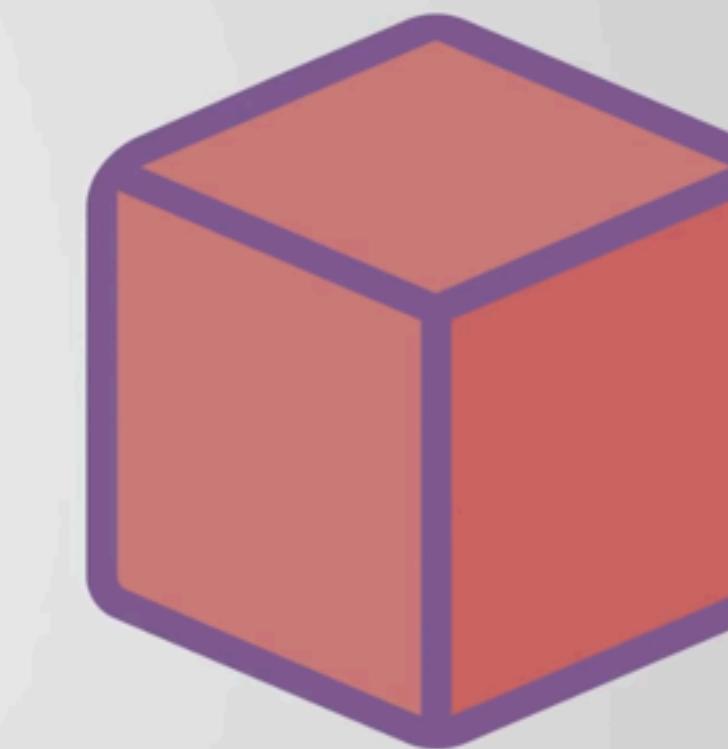
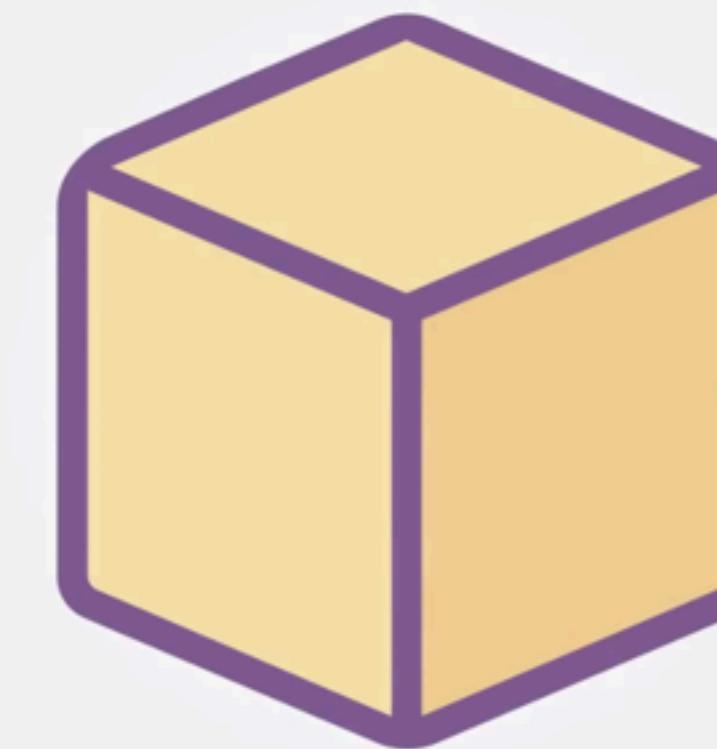
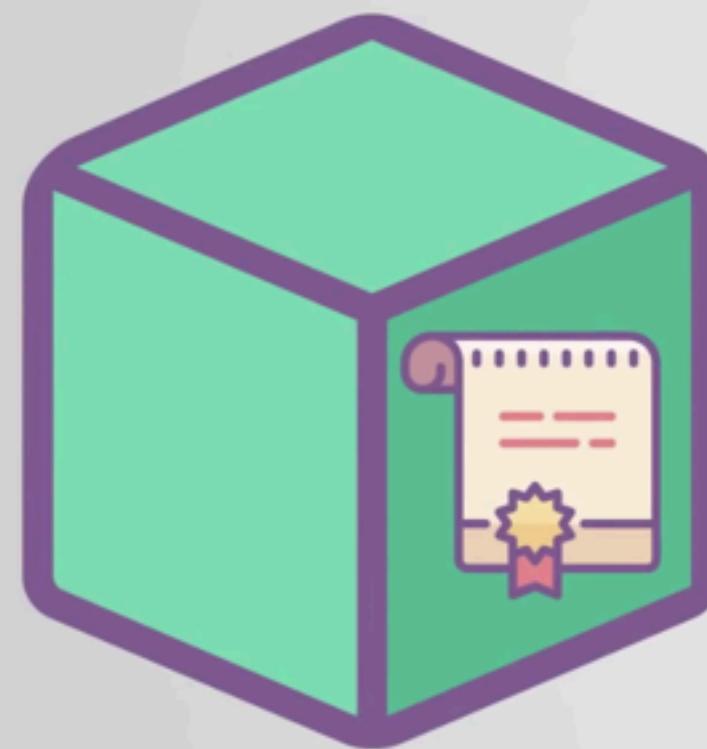
Smart contracts

— *Simply explained* —



Ethereum **Solidity**





Stored inside a blockchain





HYPERLEDGER BESU

Blockchain Workshop