Blockchain & Smart Contracts

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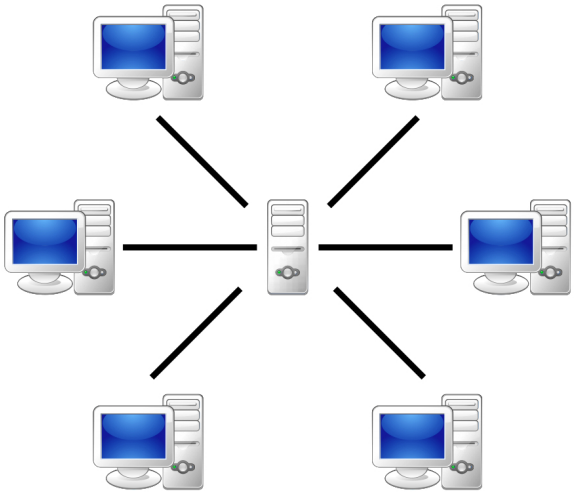
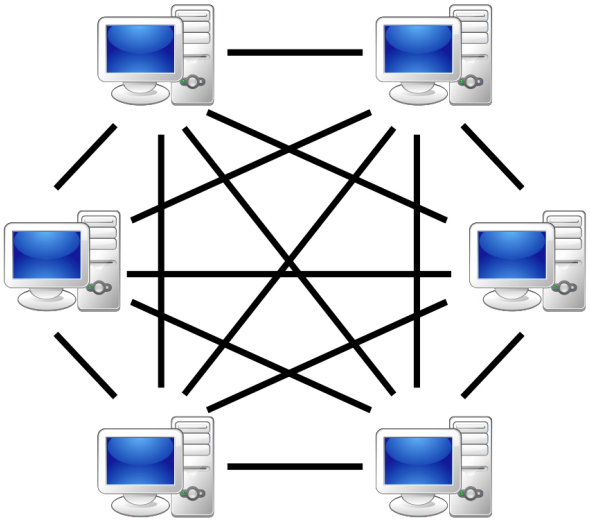
Client/Server VS Peer to Peer

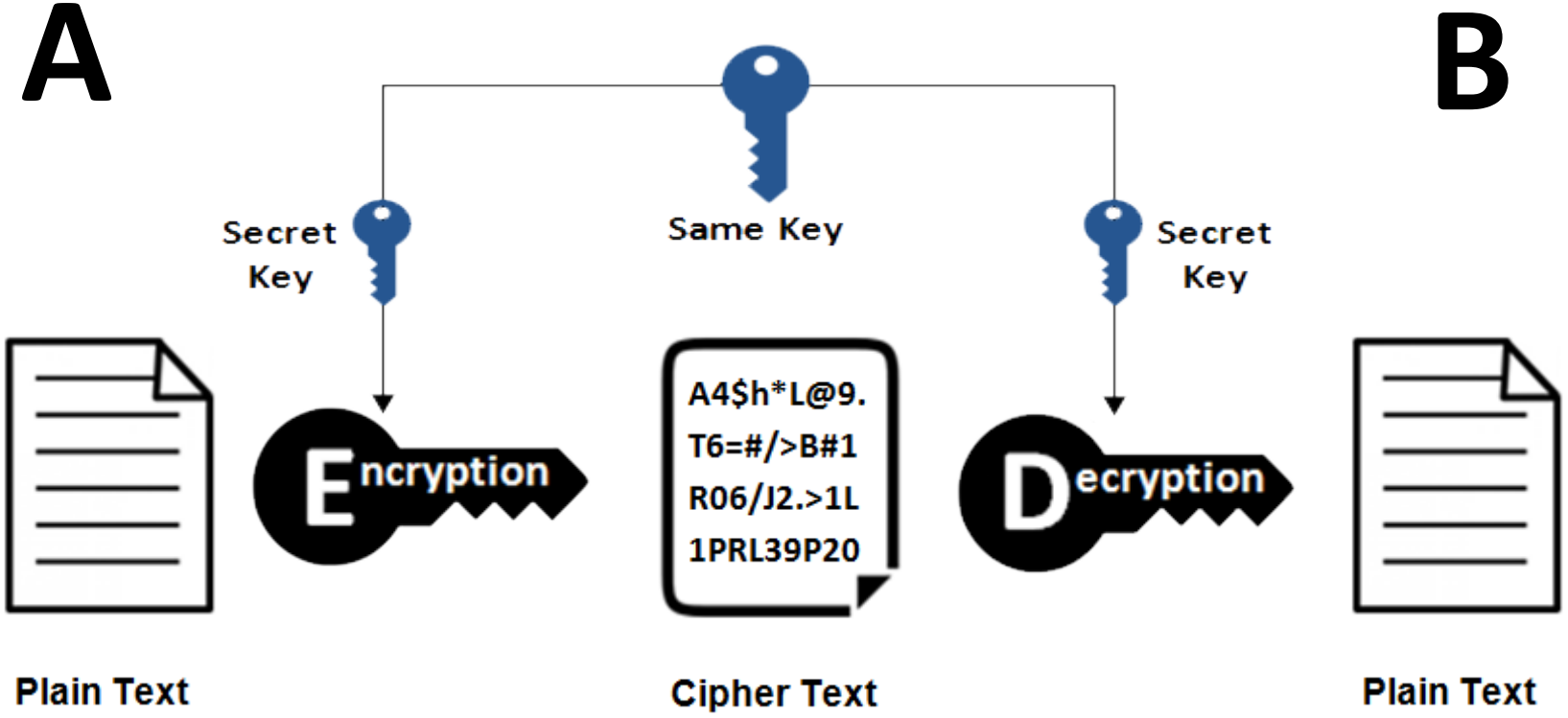


Client/Server

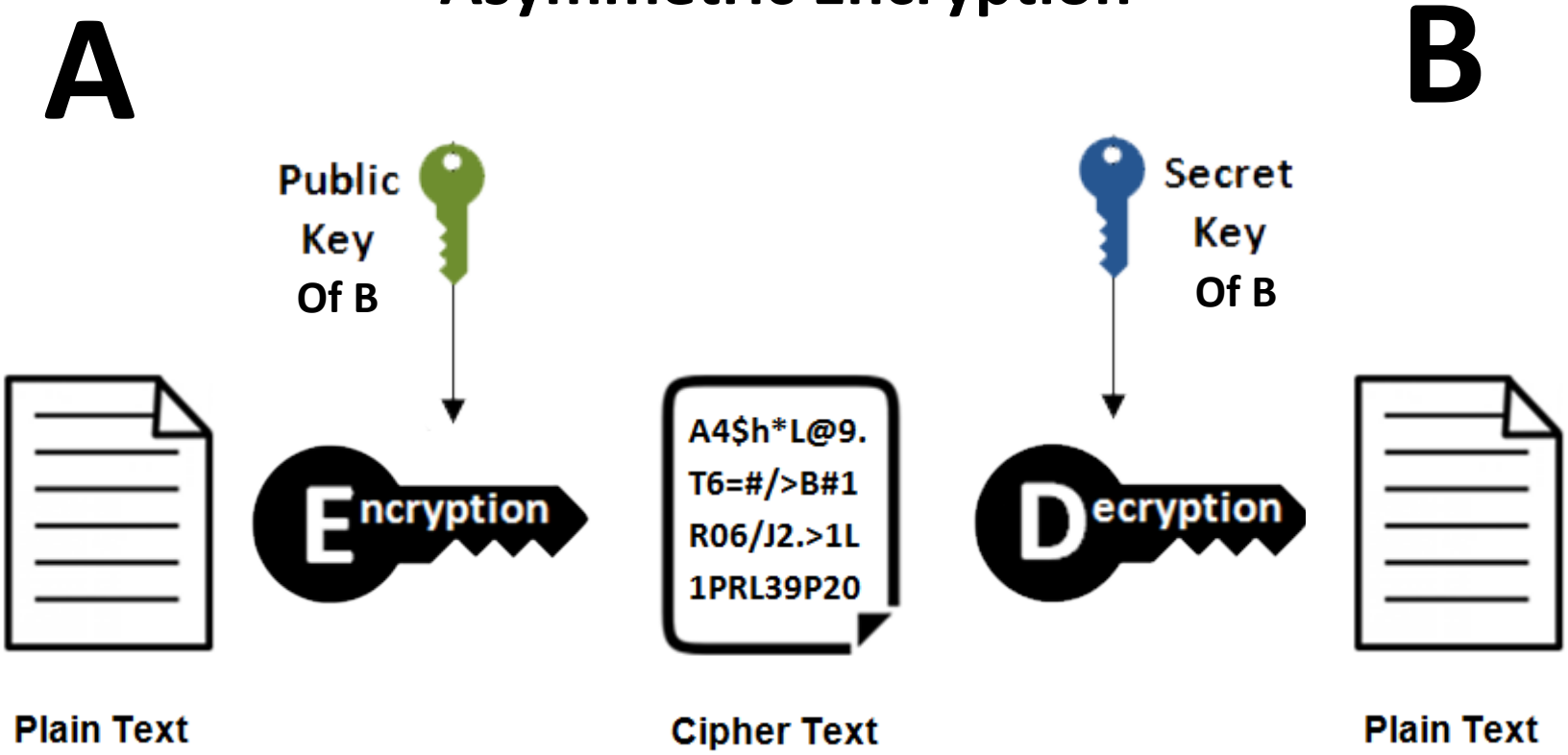


P2P Network

Symmetric Encryption



Asymmetric Encryption



Hash

File

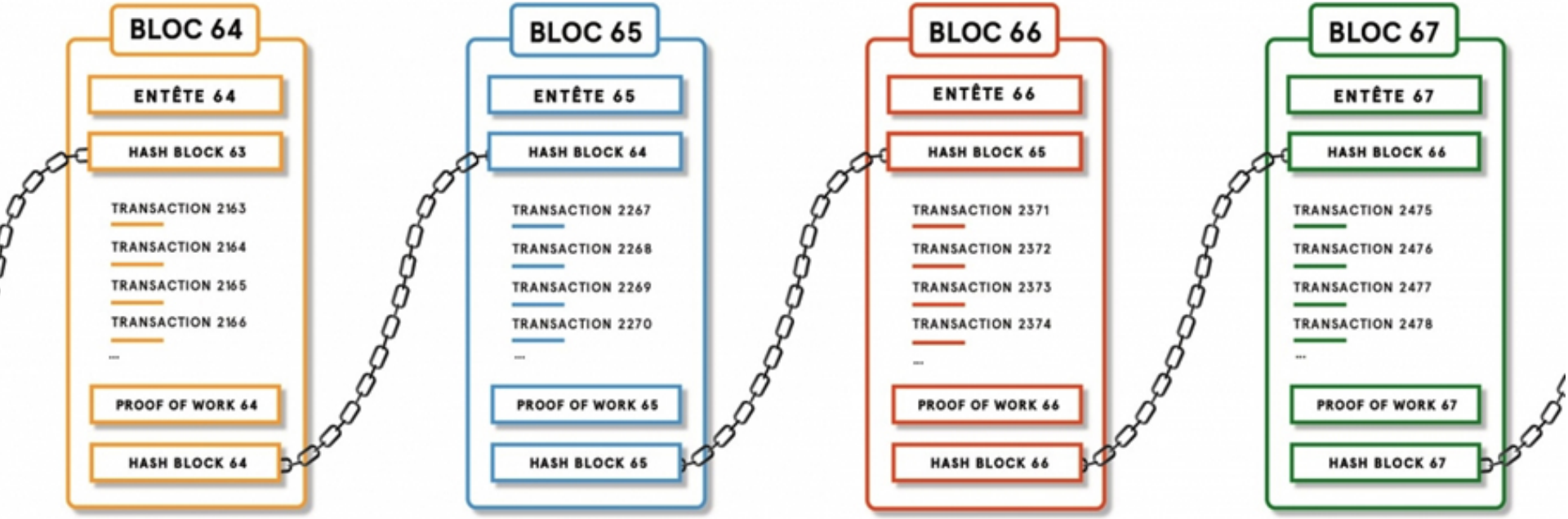
Hash Algorithm

=

Hash Value

“ea14746fvrftfx6320svf5t
pfssn5 .....ifsovnpj56p”

What is Blockchain



Composants of blockchain

- Blocks
- Users
- miners

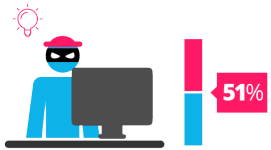
Types of blockchain

- Private Blockchain(hyperledger)
- Public Blockchain(BITCOIN)

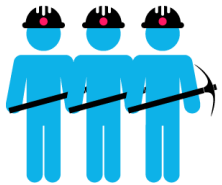
Market Cap
$300B
$200B
$100B
$0
Price (USD)
$18,000.00
$12,000.00
$6,000.00
$0
24h Vol
0
2014
2015
2016
2017
2018
2019

Proof of Work vs Proof of Stake

Transaction Fee



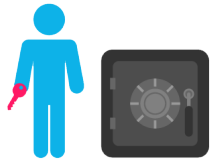
Block reward(12.5 BTC)



Difficulty

Staking

Transaction Fee



No Block reward(no difficulty)

wallet & security

RIPEMD160(SHA256(PK))

ECDSA

Privat Key

Public key

Address

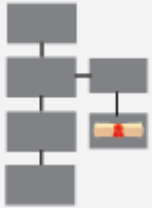
5Jtr4hBXP2hPedtcFfcMFQK79YGhkJejjgduHy3oLSTuTiYbhrq

04869B9A9D4FF58006B5BAB2253EF3C2CD1C8607007172D0493AAA9BDD4E17E9…

1GyWgXtkVG5gsm9Ym1rkHoJHAftmPnTHQj

Smart contracts

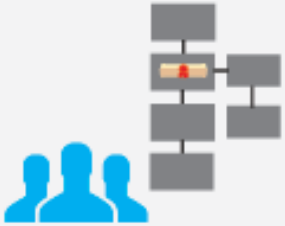
Option contract written as code into a blockchain.



Contract is part of the public blockchain.

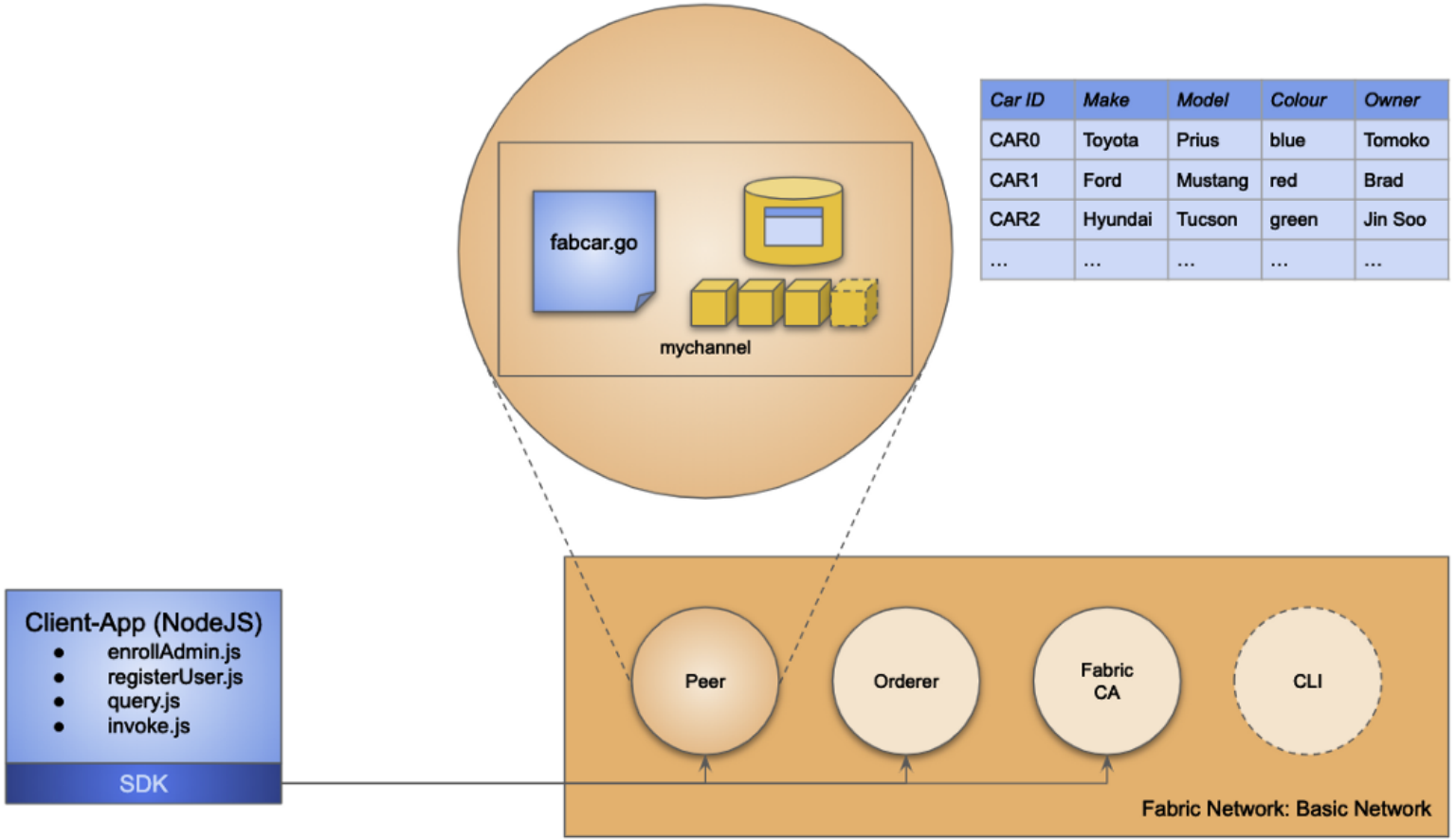
Parties involved in the contract are anonymous.

Contract executes itself when the conditions are met.



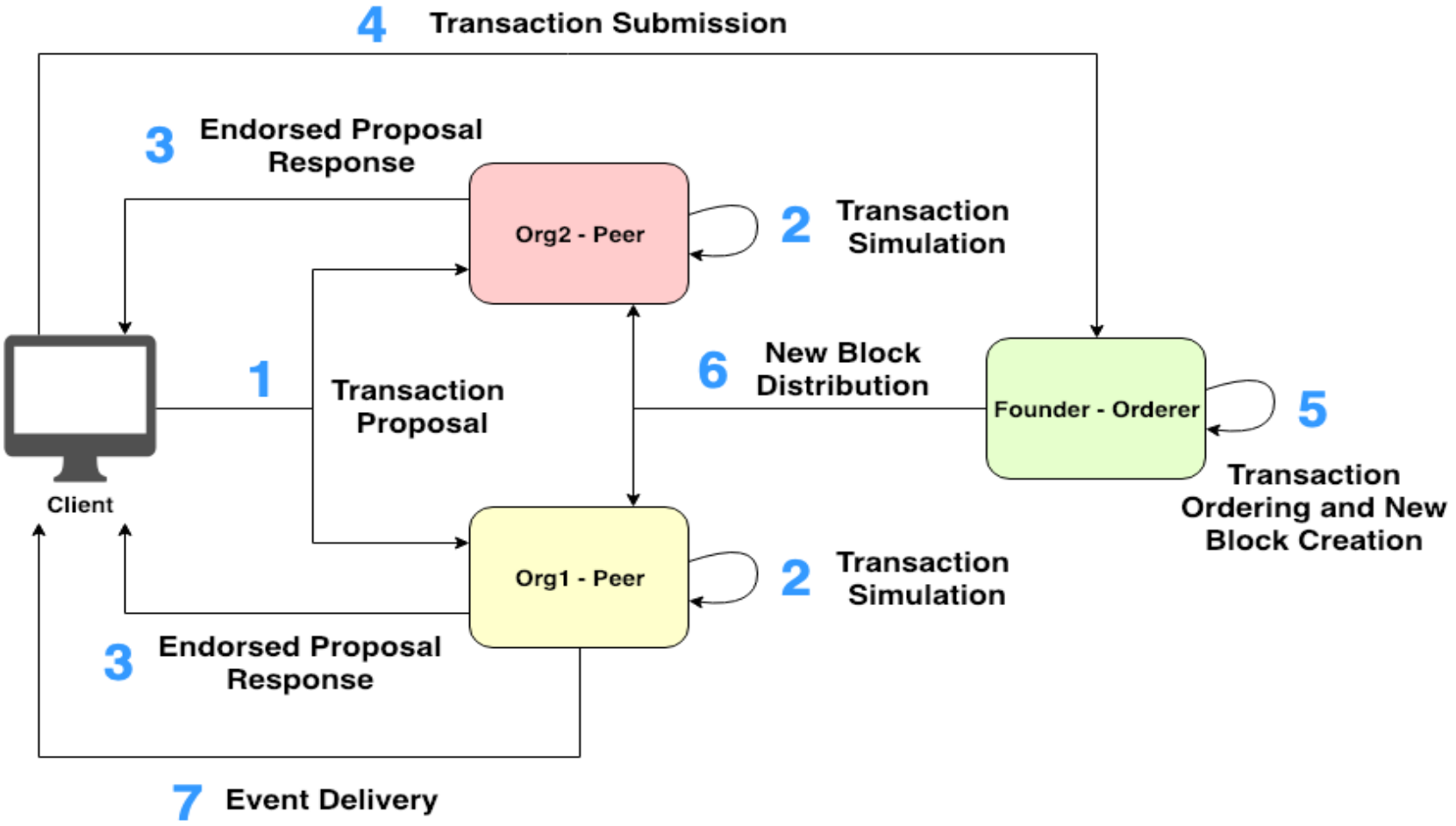
Regulators use blockchain to keep an eye on contracts.

Hyperledger fabric

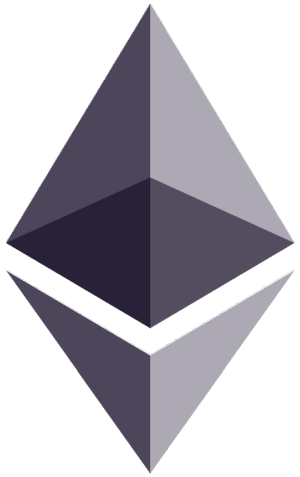


Car ID	*Make*	*Model*	*Colour*	*Owner*
CAR0	Toyota	Prius	blue	Tomoko
CAR1	Ford	Mustang	red	Brad
CAR2	Hyundai	Tucson	green	Jin Soo
...	...	...	...	...

Hyperledger fabric



Demo



ethereum

Thank you

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