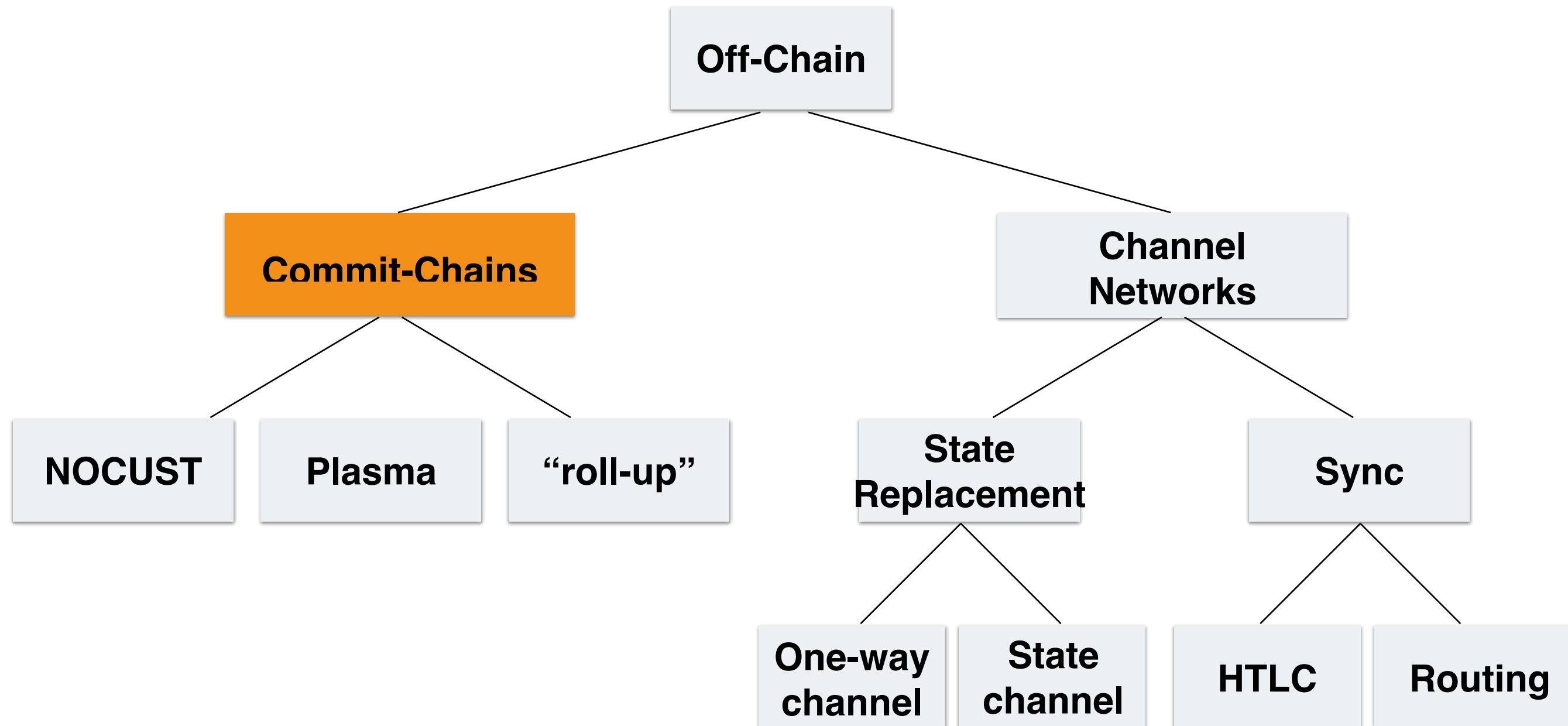




**Commit-Chains**



# Which off-chain solution?



# Commit-Chains

Blockchain



Block(i)

# Commit-Chains

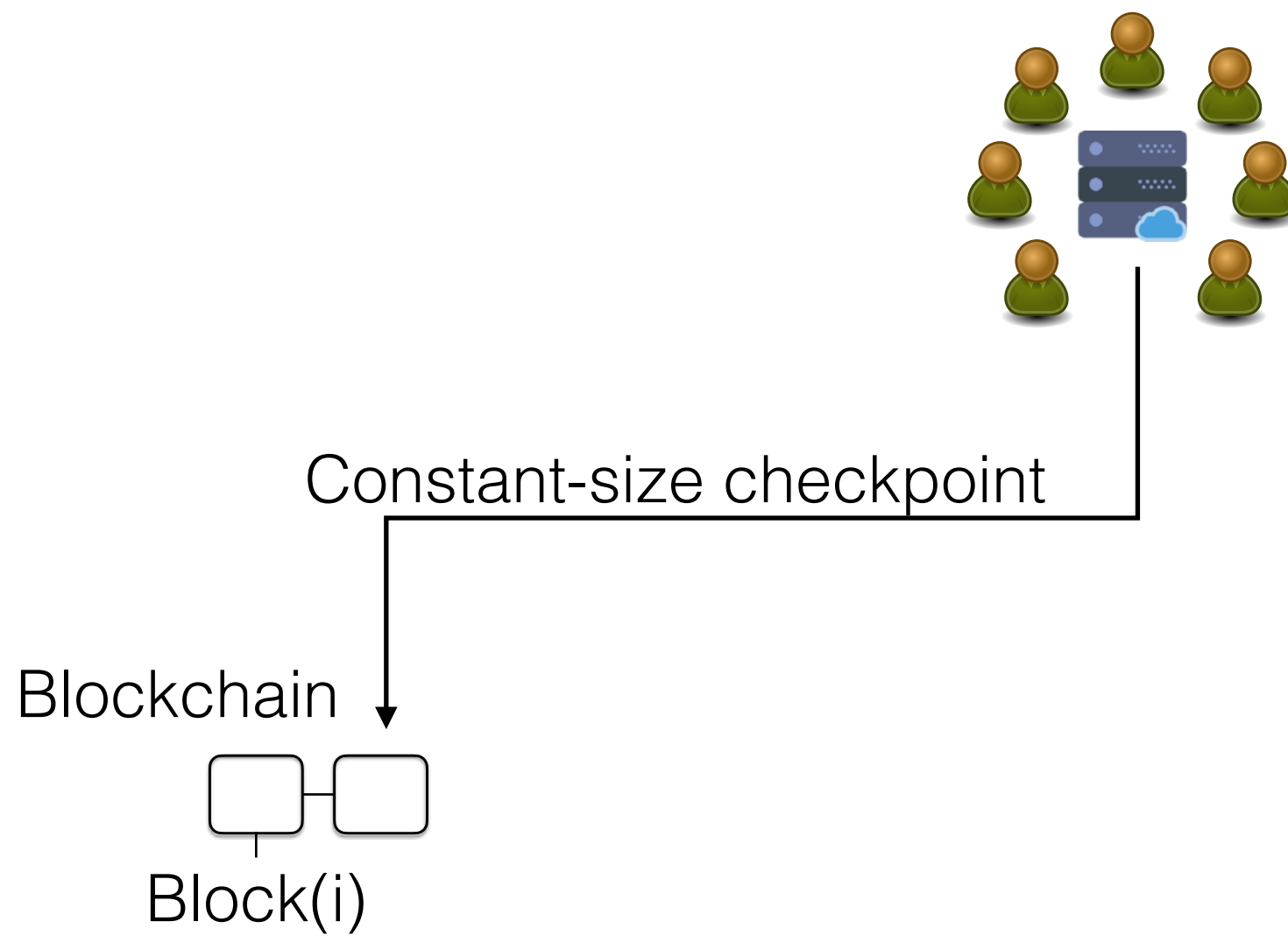


Blockchain

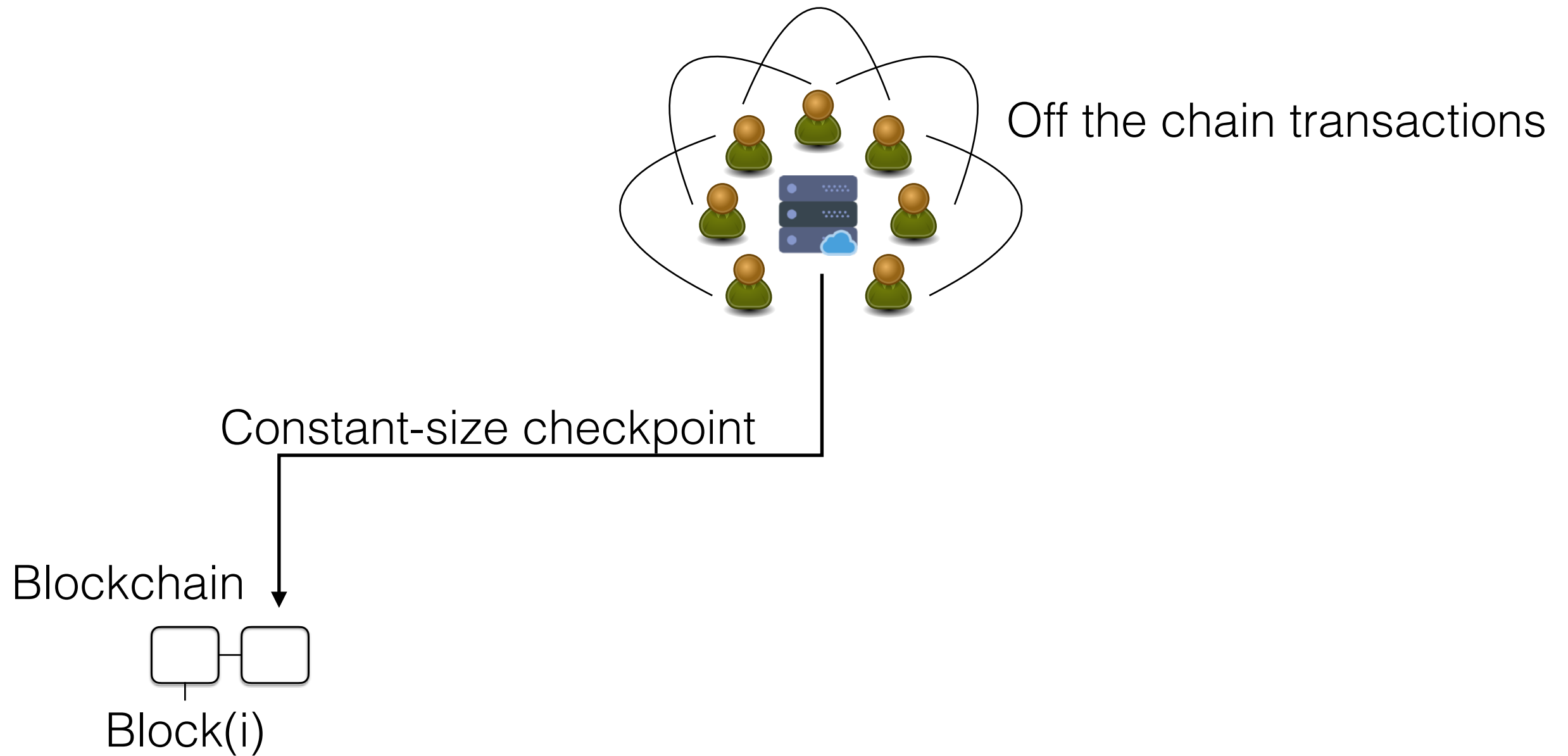


Block(i)

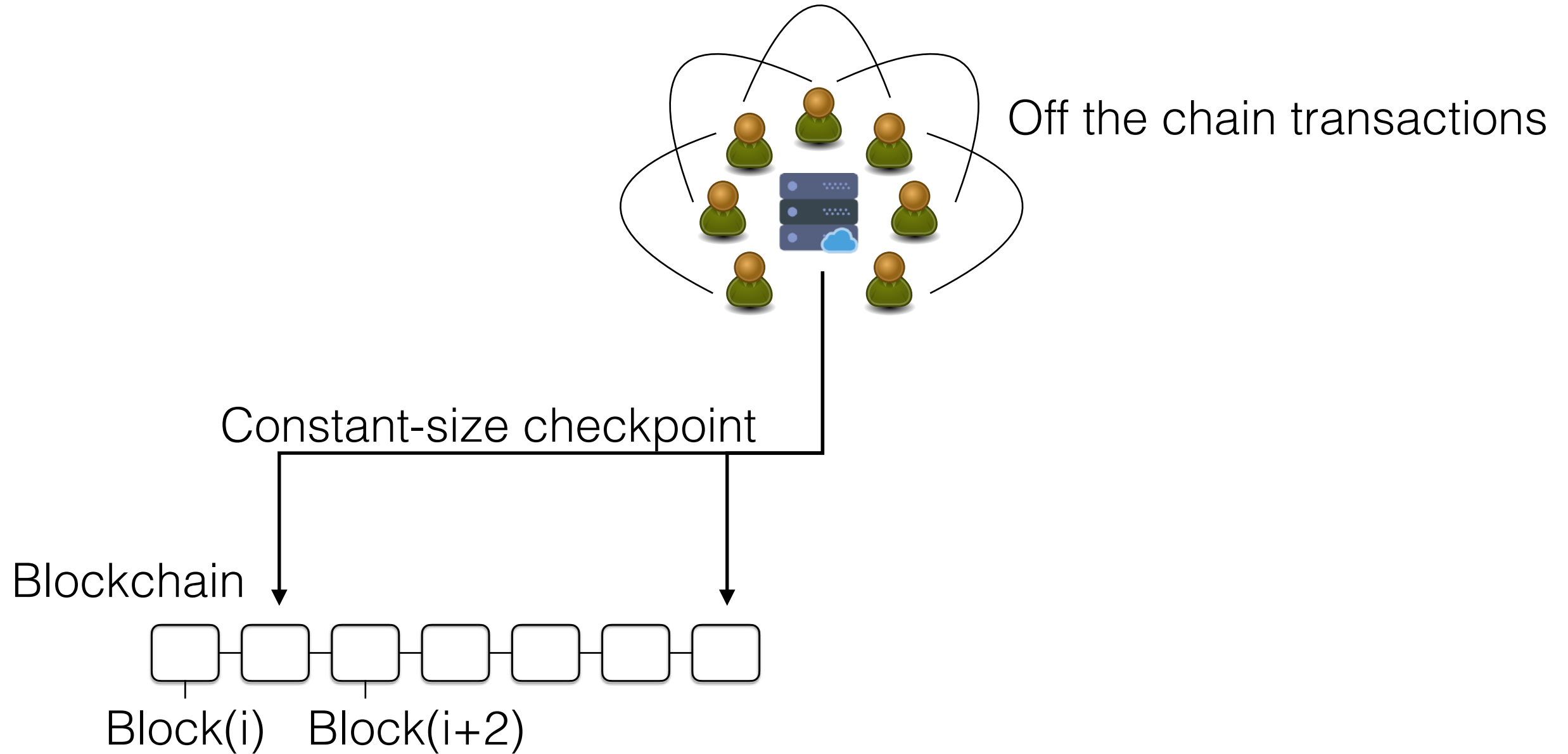
# Commit-Chains



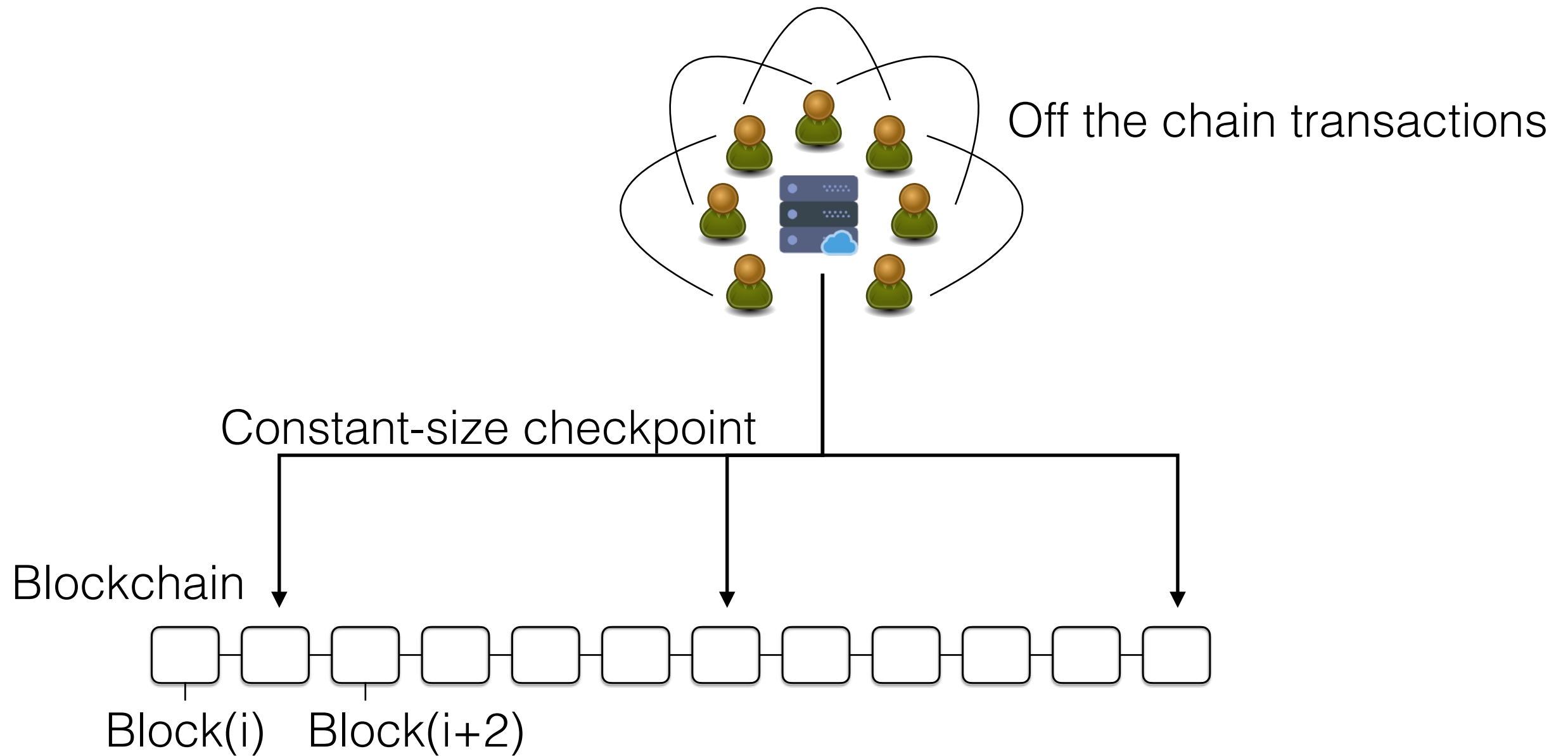
# Commit-Chains



# Commit-Chains

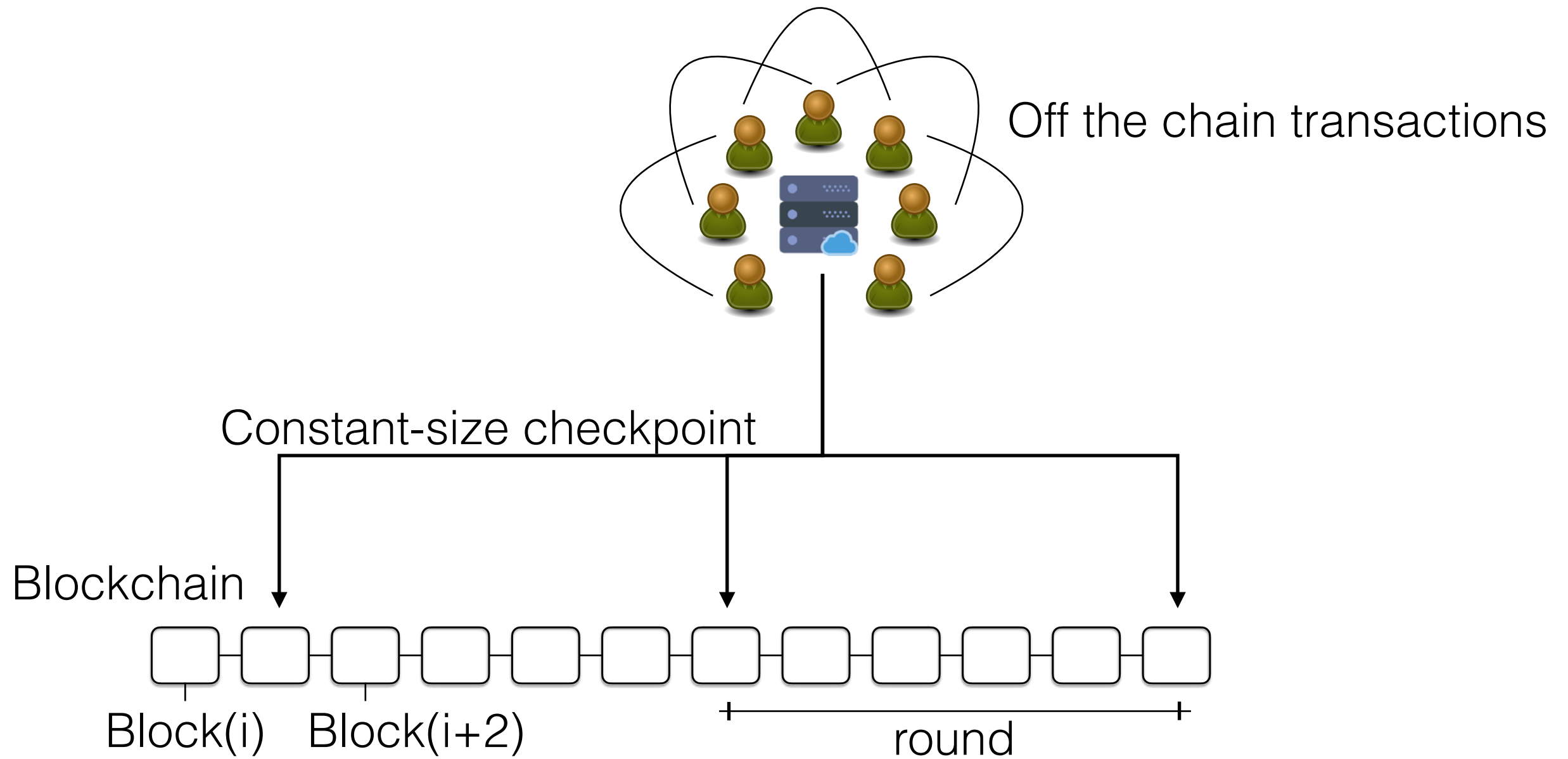


# Commit-Chains

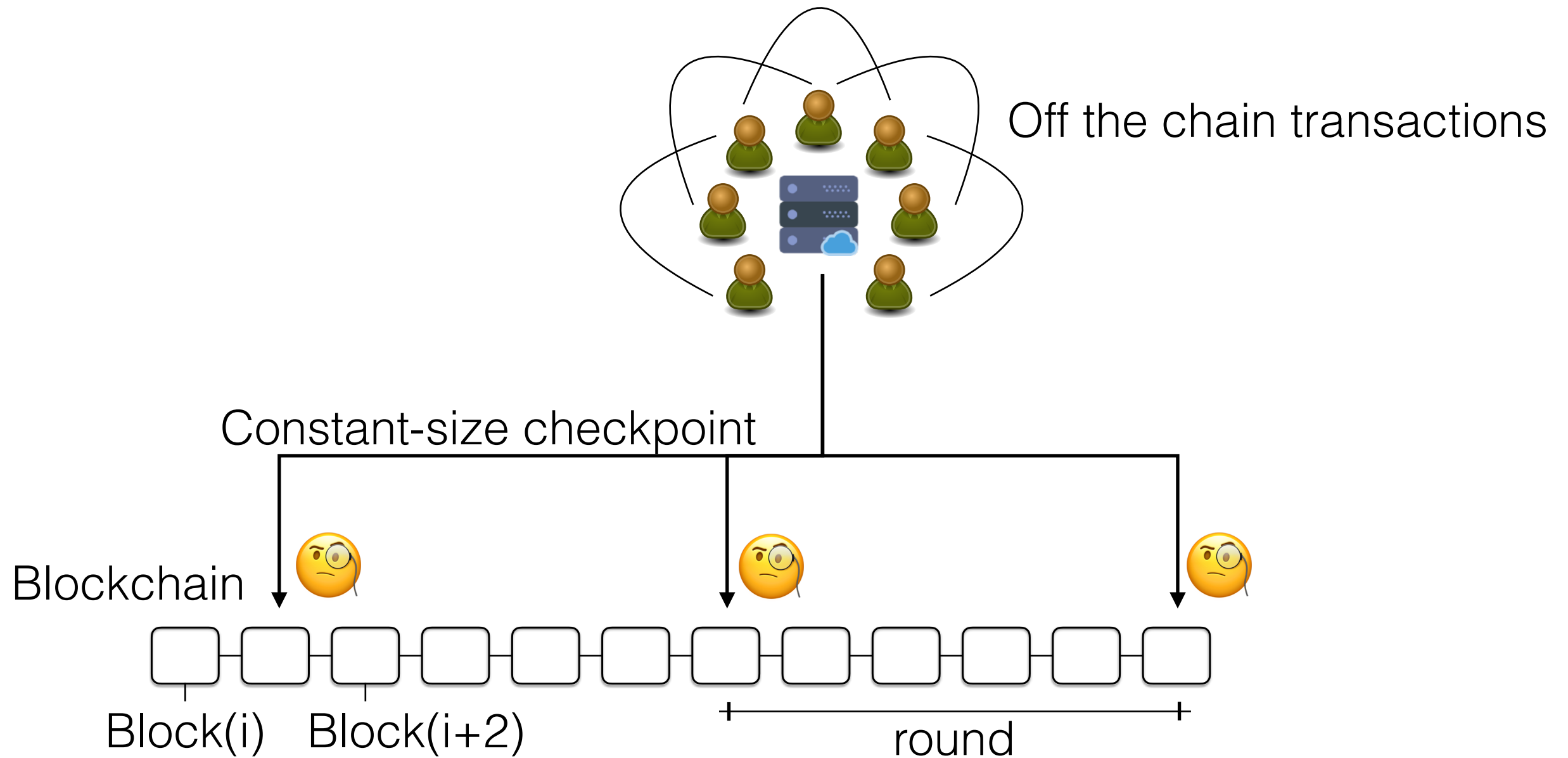




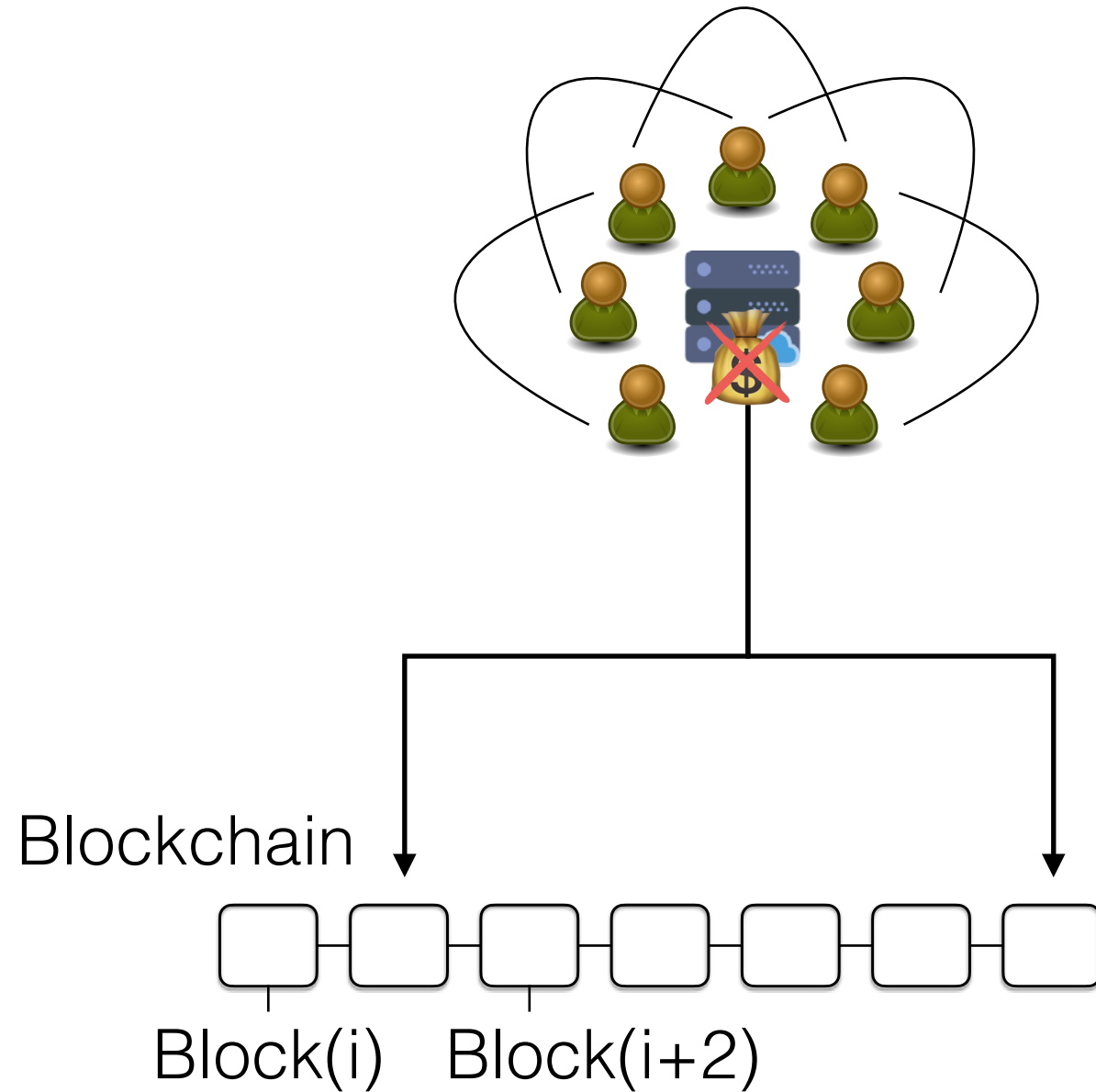
# Commit-Chains



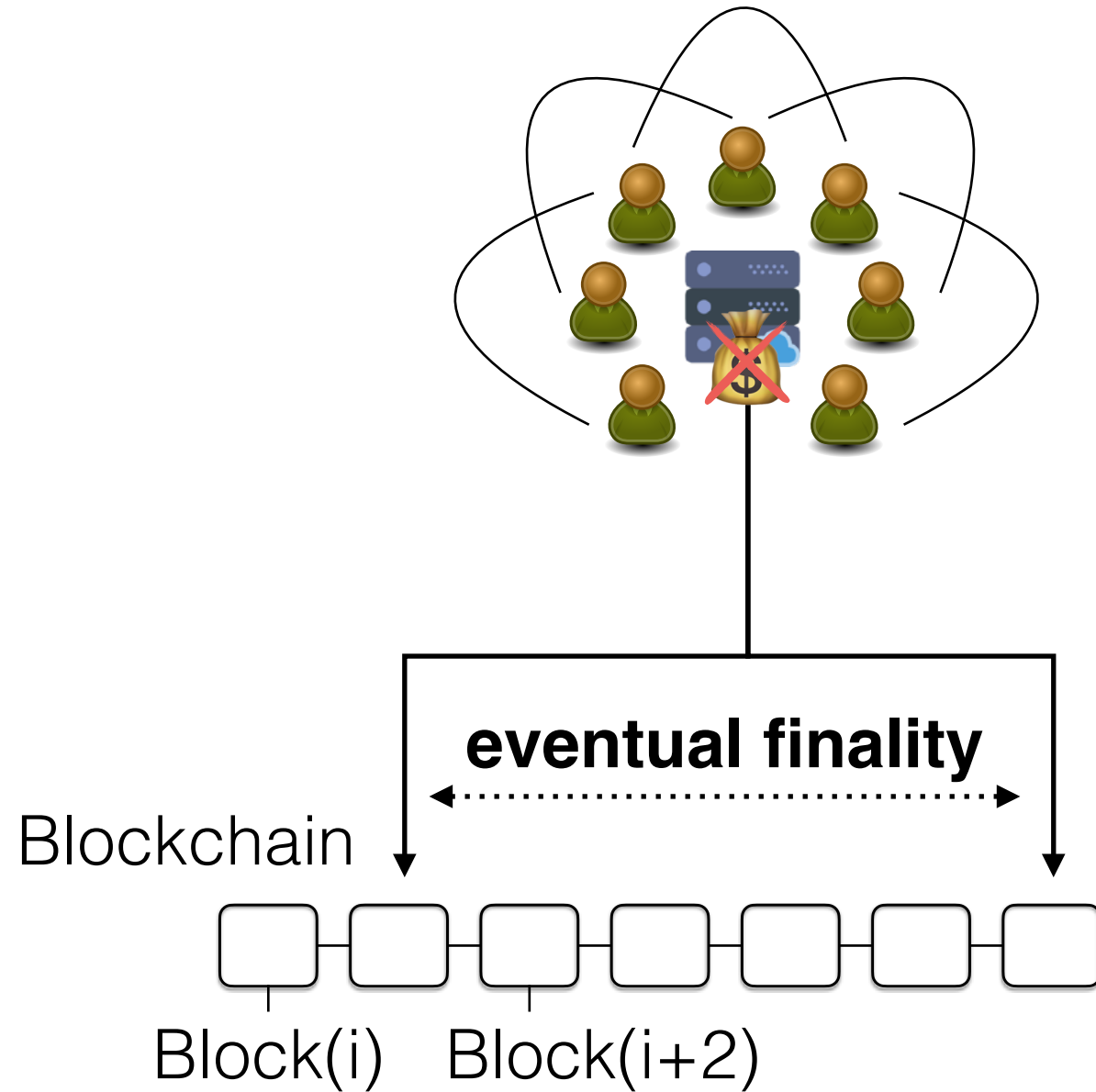
# Commit-Chains



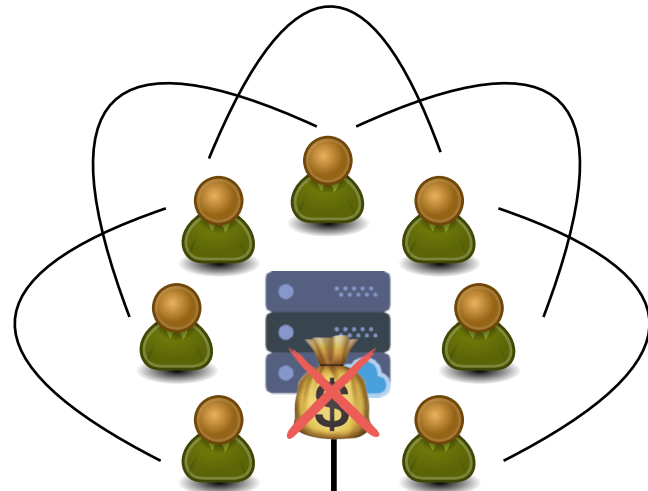
# Without Collateral —> Eventual Finality



# Without Collateral —> Eventual Finality



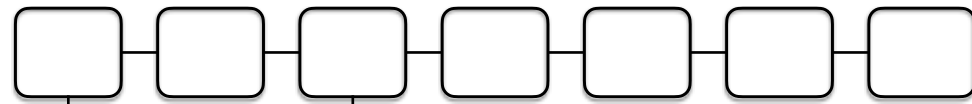
# Without Collateral —> Eventual Finality



No collateral by operator

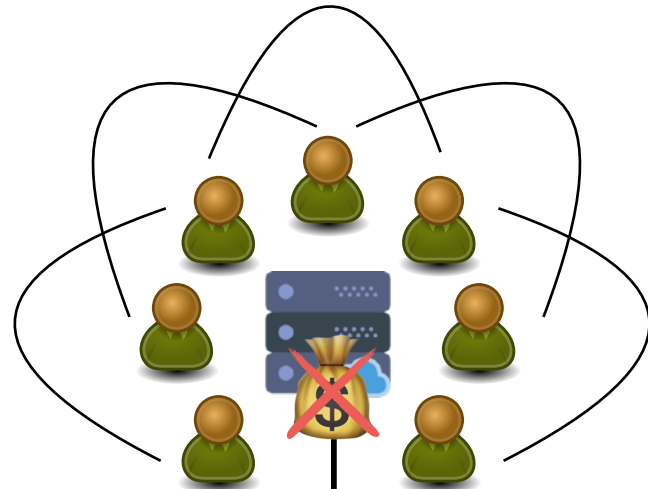
**eventual finality**

Blockchain



Block(i)    Block(i+2)

# Without Collateral —> Eventual Finality



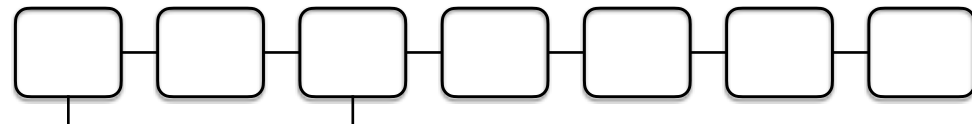
No collateral by operator



Recipient should wait..

**eventual finality**

Blockchain

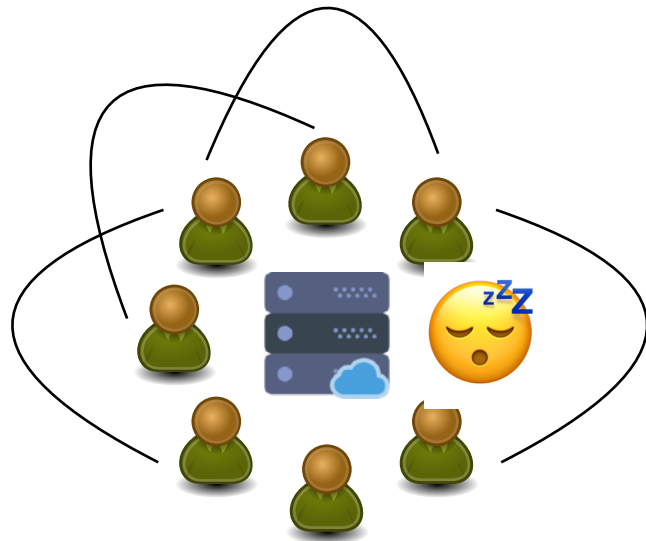


Block(i)    Block(i+2)



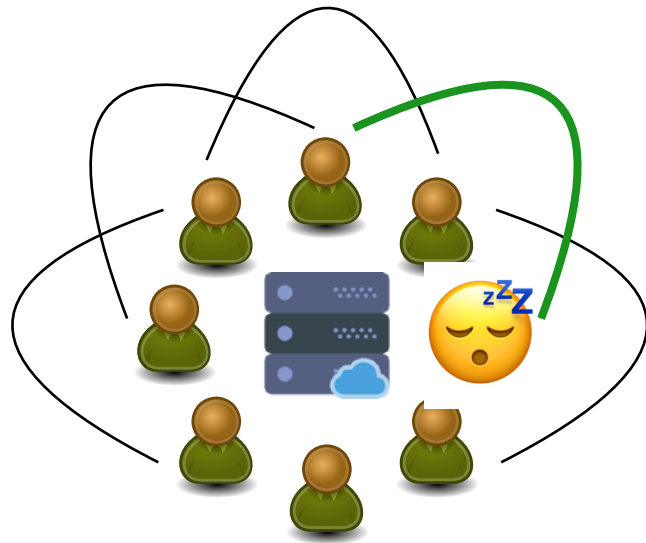
# Receive TX while offline

Off the chain transactions



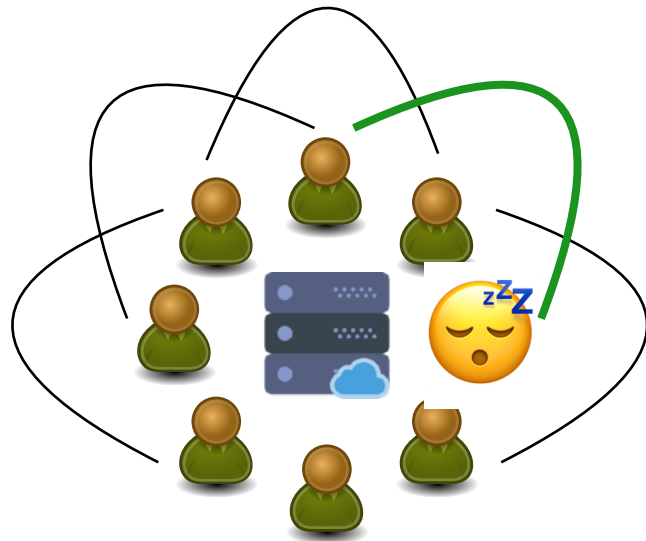
# Receive TX while offline

Off the chain transactions



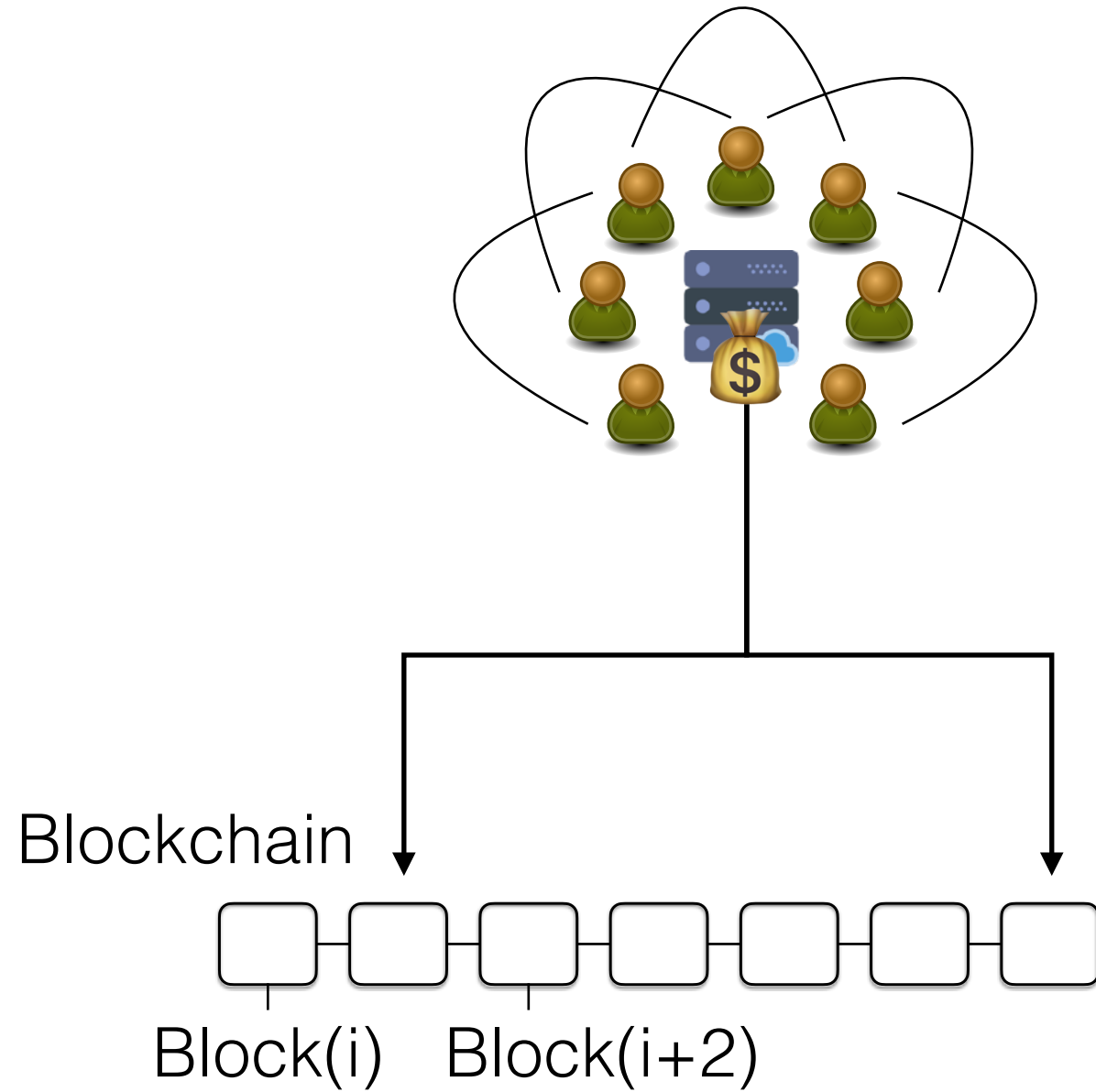
# Receive TX while offline

Off the chain transactions

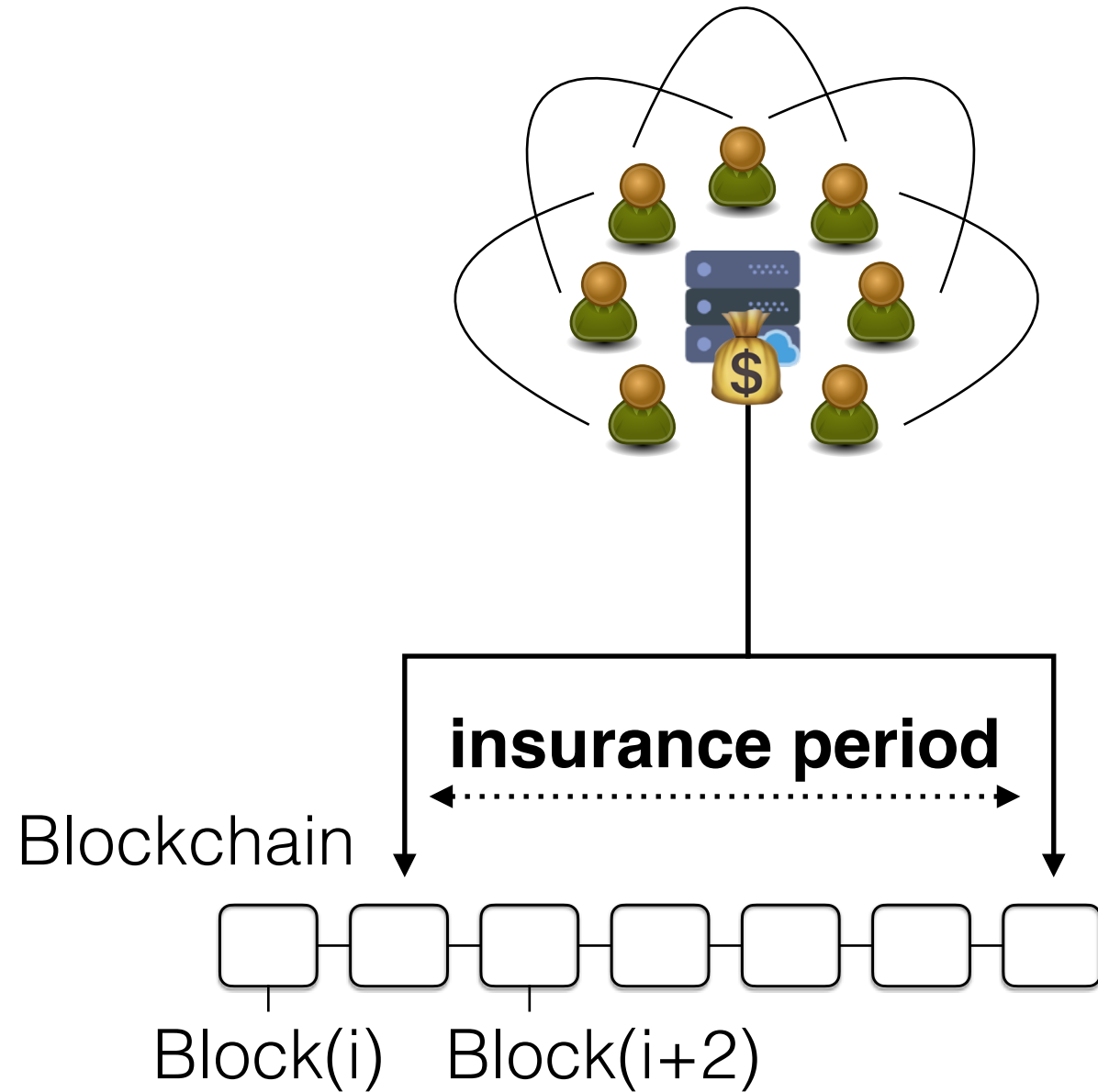


Like on-chain transactions..

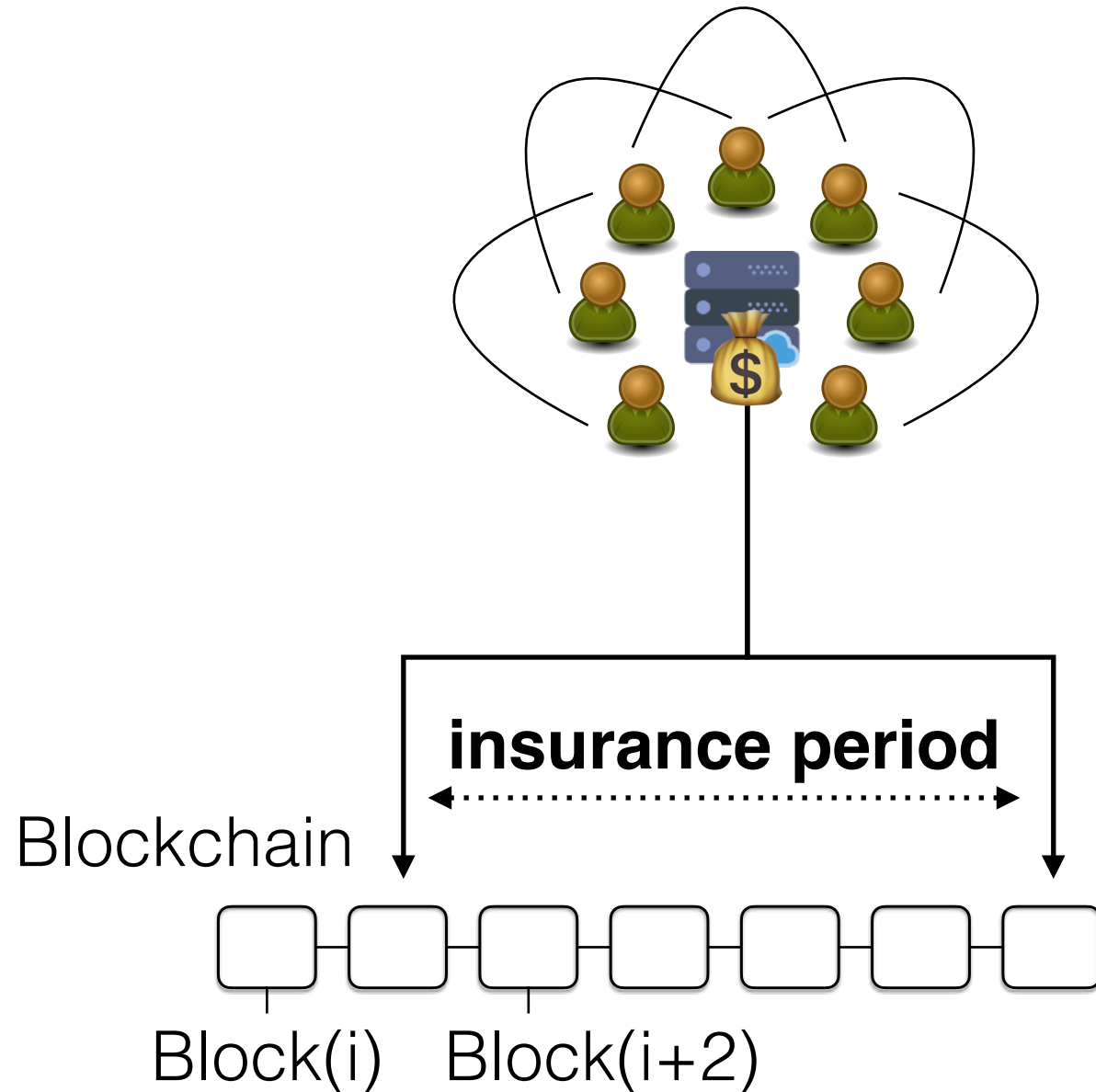
## With collateral —> Instant finality



## With collateral —> Instant finality



## With collateral —> Instant finality



Insurance pool



Collateral re-usable each round



TX can be accepted instantly



Collateral allocation  $O(1)$  for all users



# Join without on-chain Transaction



- ♦ Instant 
- ♦ CO<sub>2</sub> friendly (Zero gas costs) 

## Wait.. a centralized Operator



..but untrusted and non-custodial!

### **Cannot**

- ♦ steal coins
  - ♦ double spend coins
  - ♦ mint new coins
- (if users follow the protocol..)

## Wait.. a centralized Operator



..but untrusted and non-custodial!

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