LimeChain

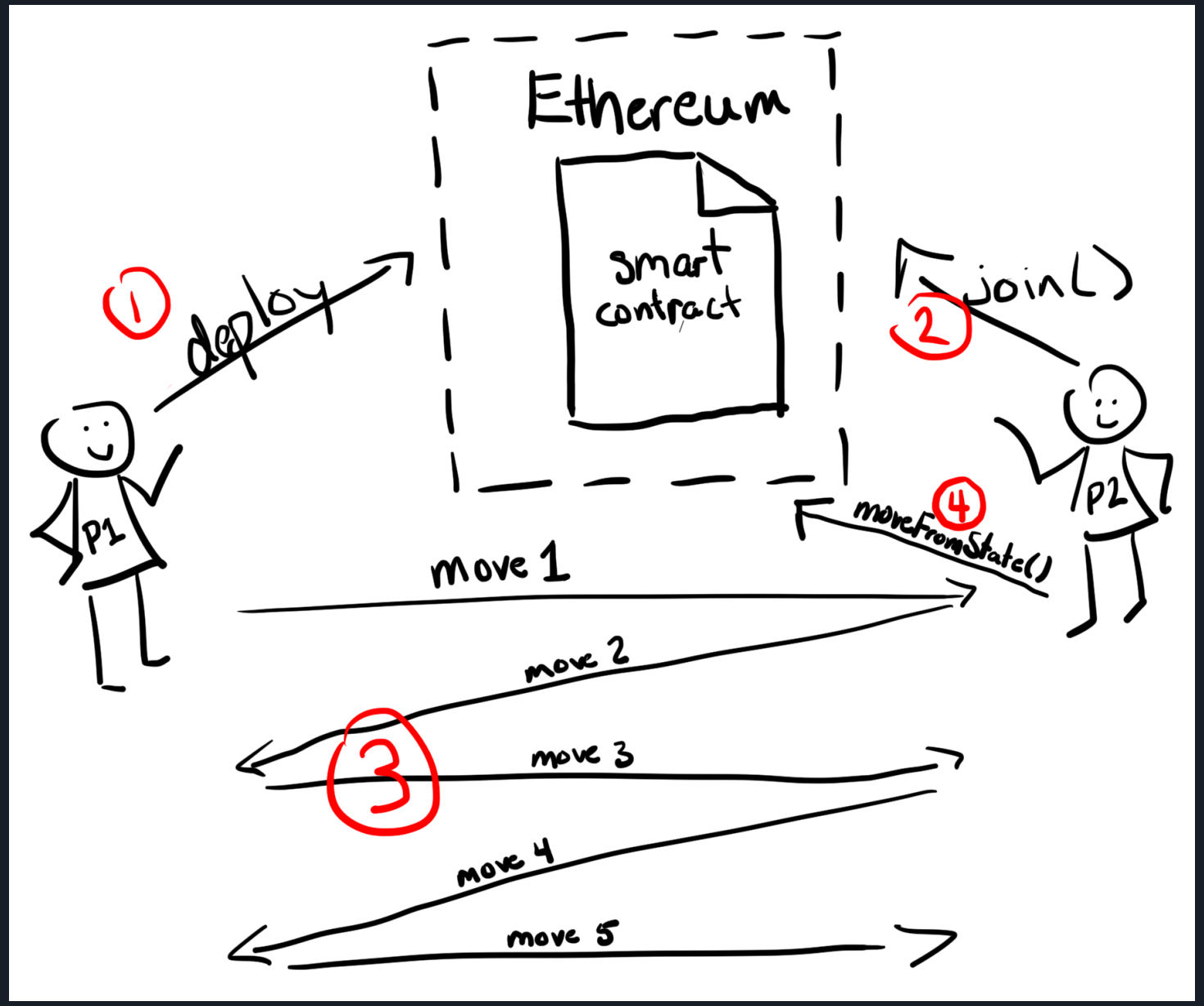
State channels

Two-way P2P communication channels with blockchain arbitrage

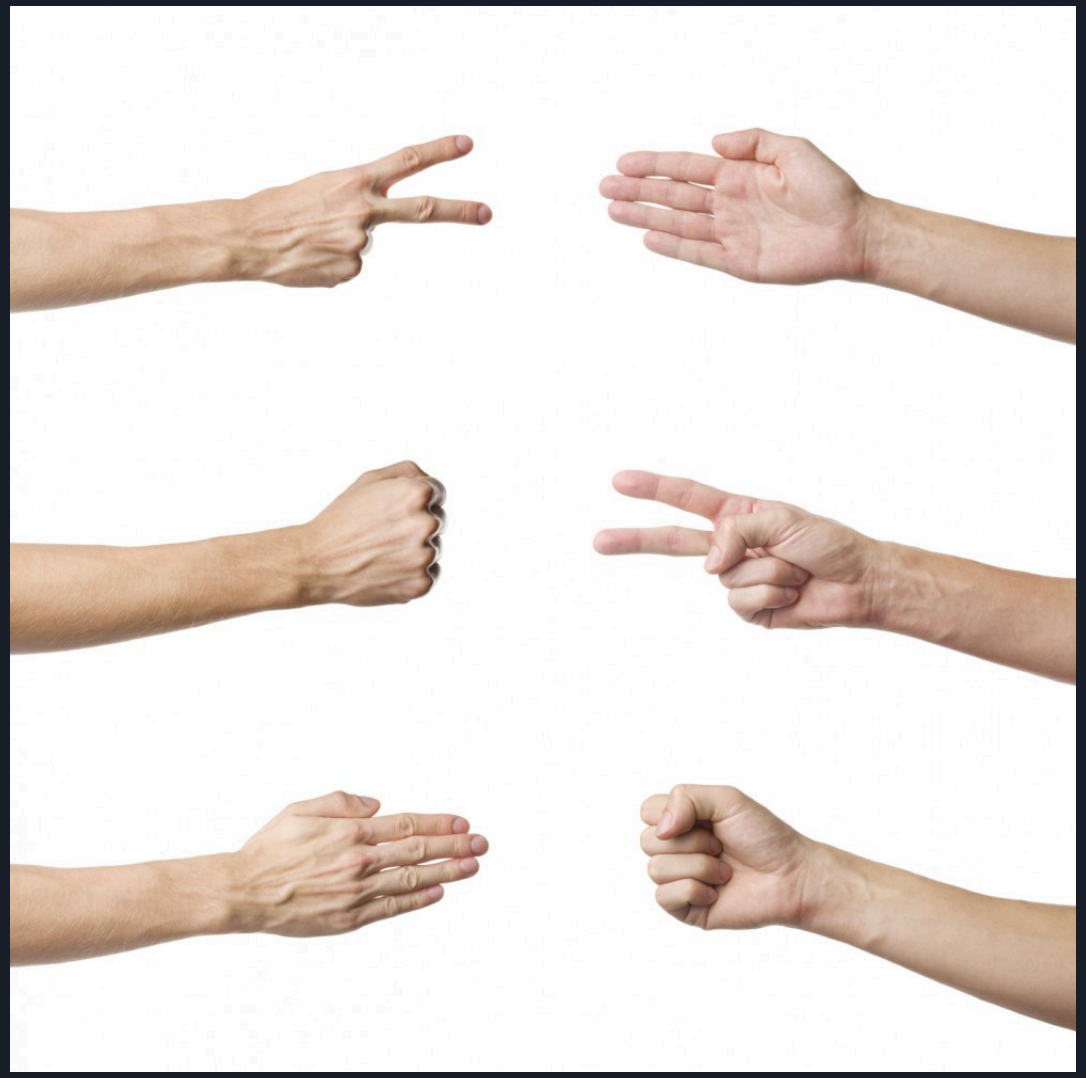
What is State Channel?

What is state channel?

- Software system - Two-way communication (P2P)
- Blockchain arbitrage
- Context specific


Ethereum
smart contract
1
deploy
2
join()
P1
P2
4
moveFromState()
move 1
move 2
3
move 3
move 4
move 5

Why?



When?

When?

- Easily quantifiable and enforceable rules
- Low number of actors
- Requirement for high throughput
- Somewhat lively actors

Some specifics

- Open & Close channel
- Handling of non-straight cases - Disputes

Rock paper scissors

- State channels through IPFS Pub-sub
- Commit reveal scheme

Phases of the an iteration

- Commit phase - H(rand + move) + Acknowledgement
- Reveal phase - Reveal rand + move + Acknowledgement
- Agree State phase - Agree on winner and current score + Acknowledgement

Straight case

Two players join play until the end and finish the game honestly

Grief cases

- A player tries to close the channel with forged state
- A player tries to close the channel with old state
- One of the players stops acting (purposefully or not) playing their moves
- One of the players does not acknowledge as losing
- Wrongful dispute

Demo