SUPSI

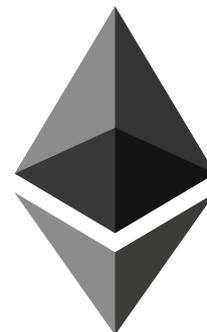# Account Abstraction - User Experience in Blockchain Systems

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747

Millions of users

5

Millions of users

Problem

Why?

Are we early?

Not enough Apps?

Poor UX?

UX Problems

- Key management
  - Private key
  - Secret phrase

- Transaction fee payments
  - Each time you write

Techniques

- Custodial Wallets
- Meta Transaction
- Smart Contract Wallets
- Account Abstraction

Custodial Wallets 1/2

- Trusted third-party provider
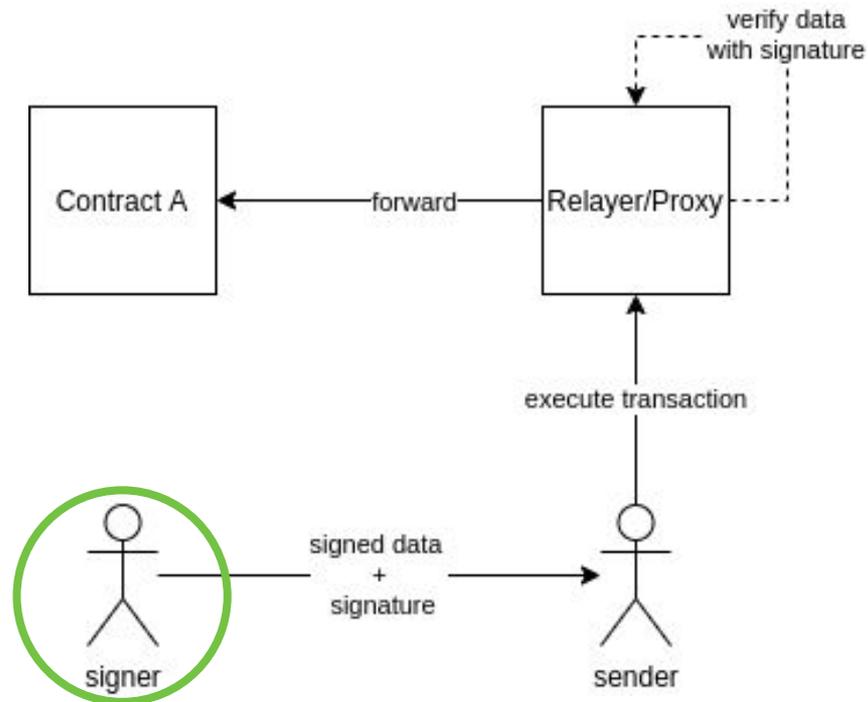- Used by exchanges

Custodial Wallets 2/2

Final user not
manage keys

Centralised risks
- No control

Meta Transaction 1/2

Meta Transaction 2/2

Fee abstraction

Requires trusted relayer

- Single point of failure
- Relayer forward original sender
- No keys management

Smart Contract Wallet 1/2

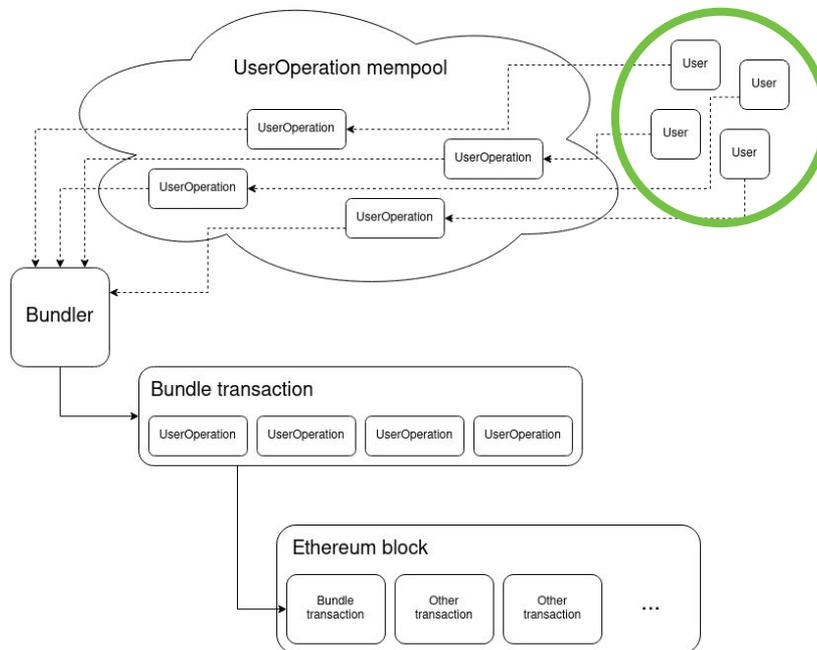- Wallet managed by Smart Contract
- Logic easy to understand

Smart Contract Wallet 2/2

- Feature flexibility
- Censorship resistant
- Keys management

- Cost to deploy
- Implementation time
- Fee abstraction

Account Abstraction 1/2

UserOperation mempool

User

User

User

User

UserOperation

UserOperation

UserOperation

UserOperation

Bundler

Bundle transaction

UserOperation | UserOperation | UserOperation | UserOperation

Ethereum block

Bundle transaction | Other transaction | Other transaction | …

Account Abstraction 2/2

- EIP-4337
- Extends Smart Contract Wallets and Meta Transaction
  - Keys management
  - Fee abstraction
  - Not require trusted entities
  - Standard

Require ecosystem support

Summary

	Custodial Wallets	Meta Transaction	Smart Contract Wallets	Account Abstraction
Trustless	✗	✗	✓	✓
Censorship resistant	✗	✗	✓	✓
DApps already compatible	✓	✗	✓	✓
Abstracts fees from user	✓	✓	✗	✓
Ecosystem readliness	(gauge)	(gauge)	(gauge)	(gauge)

Conclusion

- UX is important for blockchain wider adoption

- Account Abstraction
- Monitor technique and implementations
- March 2023 ERC-4337 launched to main net
- [Visa implementation](#)

Thank you!

Questions ?

Team Presentation

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Credits & References

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https://www.statista.com/statistics/264810/number-of-mo
nthly-active-facebook-users-worldwide/

Ethereum MAU: https://etherscan.io/chart/active-address