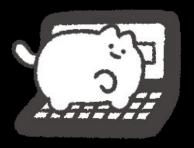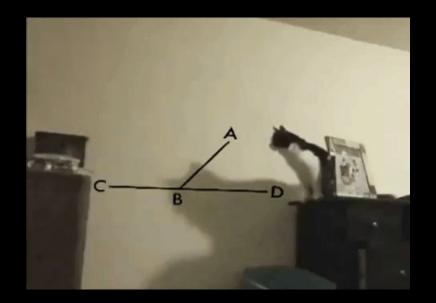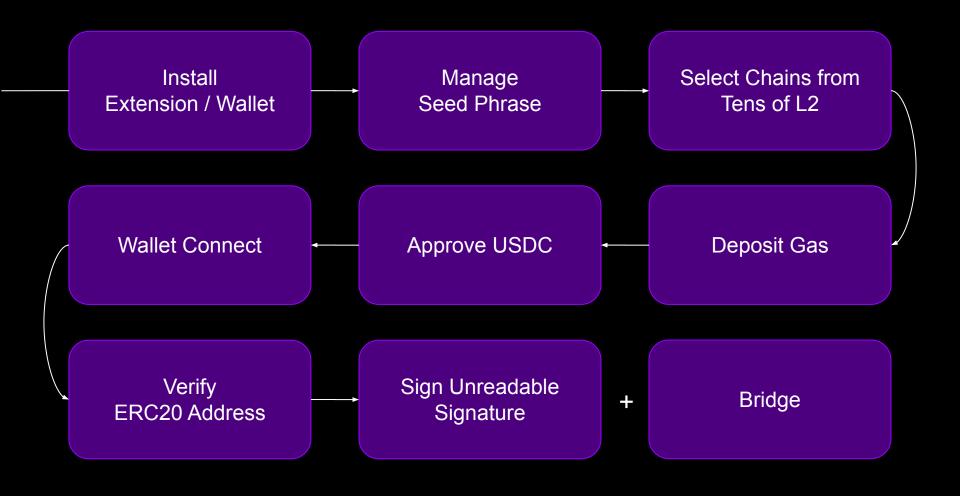# Building a Cross-Chain DEX w/ Chain Abstraction & Intents

Shao from Nekodex
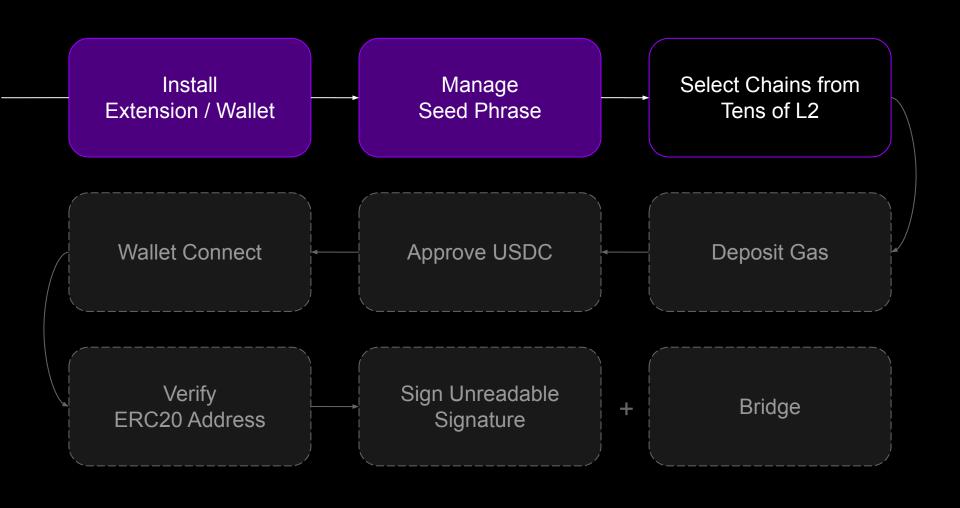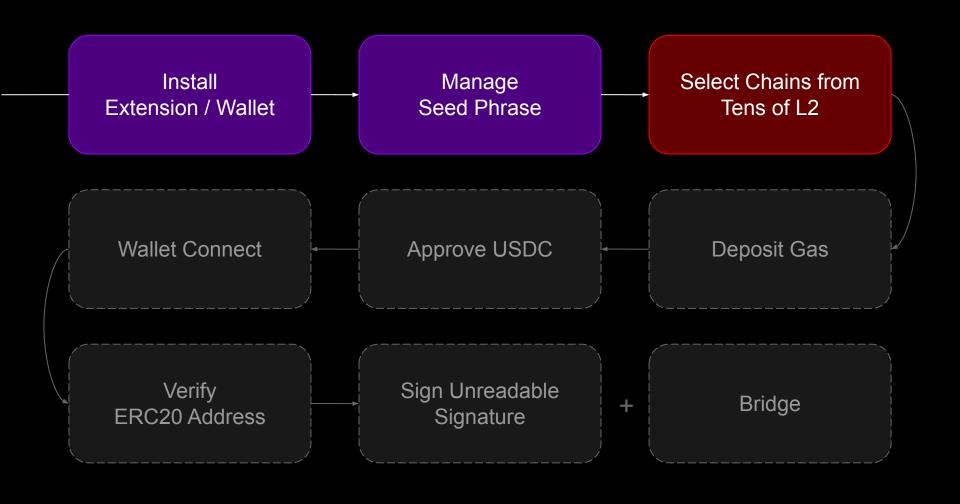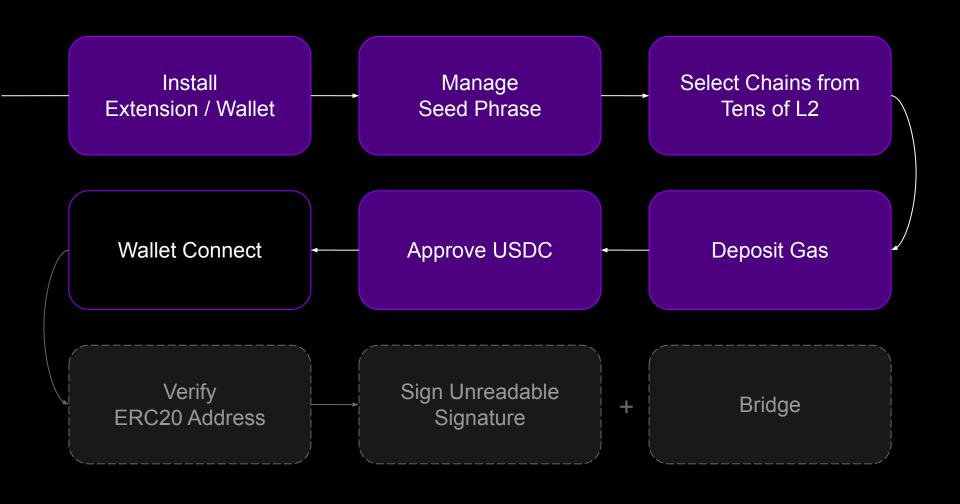
"Too many obstacles for a simple transaction!"

——— Problems ———

```
Install                    Manage                Select Chains from
Extension / Wallet   →     Seed Phrase     →    Tens of L2
                                                      │
                                                      ▼
Wallet Connect       ←     Approve USDC    ←    Deposit Gas
     │
     ▼
Verify                     Sign Unreadable
ERC20 Address        →     Signature        +   Bridge
```

```
Install                    Manage                 Select Chains from
Extension / Wallet    →    Seed Phrase      →     Tens of L2


Wallet Connect    ←    Approve USDC     ←     Deposit Gas


Verify                    Sign Unreadable
ERC20 Address     →       Signature       +     Bridge
```

```
┌──────────────────┐      ┌──────────────────┐      ┌──────────────────┐
│     Install      │      │      Manage      │      │ Select Chains from│
│ Extension / Wallet│ ──▶ │   Seed Phrase    │ ──▶ │    Tens of L2    │
└──────────────────┘      └──────────────────┘      └──────────────────┘

┌──────────────────┐      ┌──────────────────┐      ┌──────────────────┐
│  Wallet Connect  │ ◀── │   Approve USDC   │ ◀── │   Deposit Gas    │
└──────────────────┘      └──────────────────┘      └──────────────────┘

┌──────────────────┐      ┌──────────────────┐      ┌──────────────────┐
│     Verify       │      │ Sign Unreadable  │      │                  │
│  ERC20 Address   │ ──▶ │    Signature     │  +   │      Bridge      │
└──────────────────┘      └──────────────────┘      └──────────────────┘
```

```
Install                  Manage              Select Chains from
Extension / Wallet  -->  Seed Phrase    -->  Tens of L2
                                                     |
                                                     v
Wallet Connect    <--    Approve USDC    <--    Deposit Gas
      |
      v
Verify                   Sign Unreadable
ERC20 Address       -->  Signature         +     Bridge
```

```
Install                    Manage                Select Chains from
Extension / Wallet    →    Seed Phrase      →    Tens of L2
                                                        │
                                                        ↓
Wallet Connect    ←    Approve USDC    ←    Deposit Gas
      │
      ↓
Verify                     Sign Unreadable
ERC20 Address    →         Signature        +    Bridge
```

Install Extension / Wallet → Manage Seed Phrase → Select Chains from Tens of L2 → Deposit Gas → Approve USDC → Wallet Connect → Verify ERC20 Address → Sign Unreadable Signature + Bridge

- ~~Partial solutions~~ Integrated experience
- ~~10 different tools~~ One unified product
- ~~Crypto jargons~~ Same as fintech

A humble request

1. Biometric login
2. Deposit funds
3. One tap to trade

Our Approach
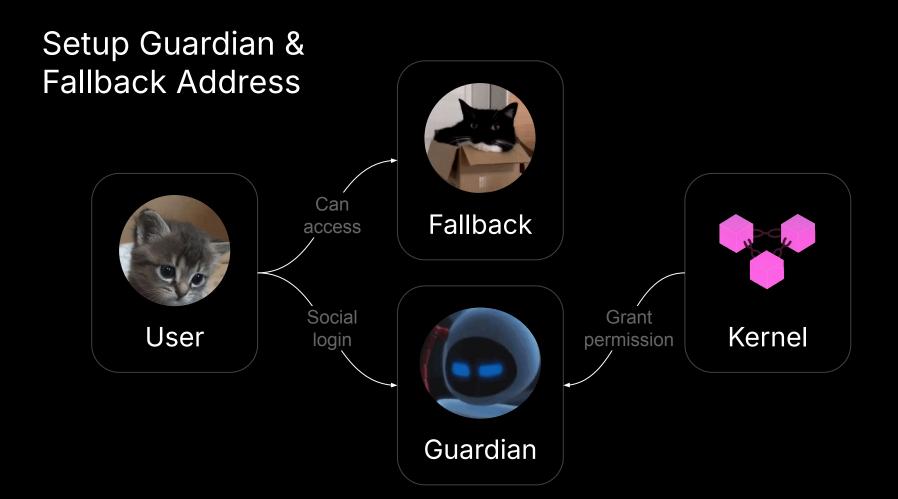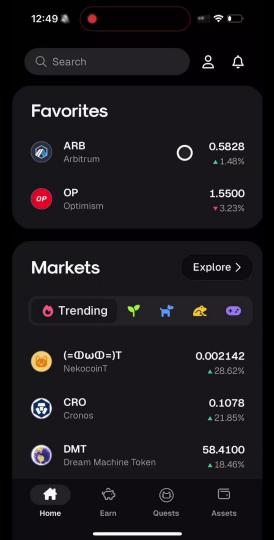

Intent-based
cross-chain swap

Embedded smart
account + passkey

Passkey Login

Passkey + Smart Contract Wallet

User — Own → Passkey — Own → Kernel
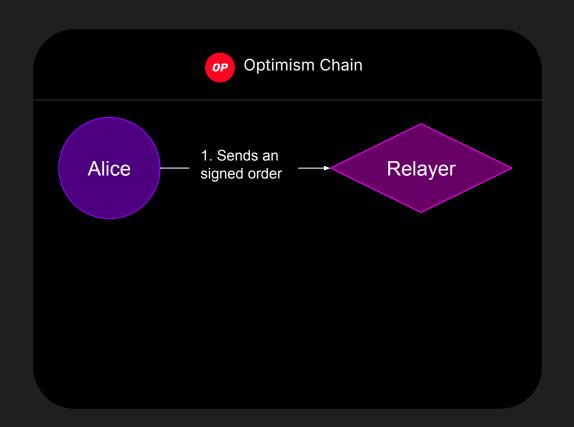
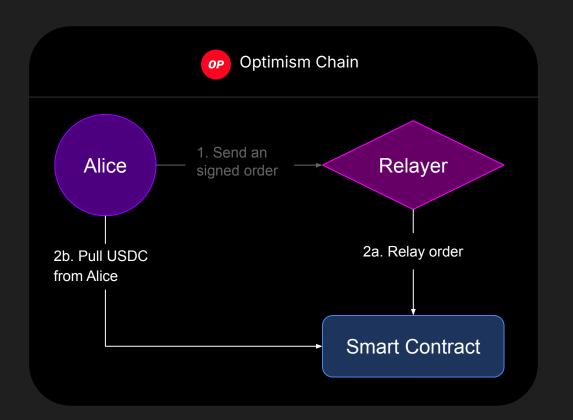# Setup Guardian & Fallback Address

Recover Assets

Intent-based cross-chain swap
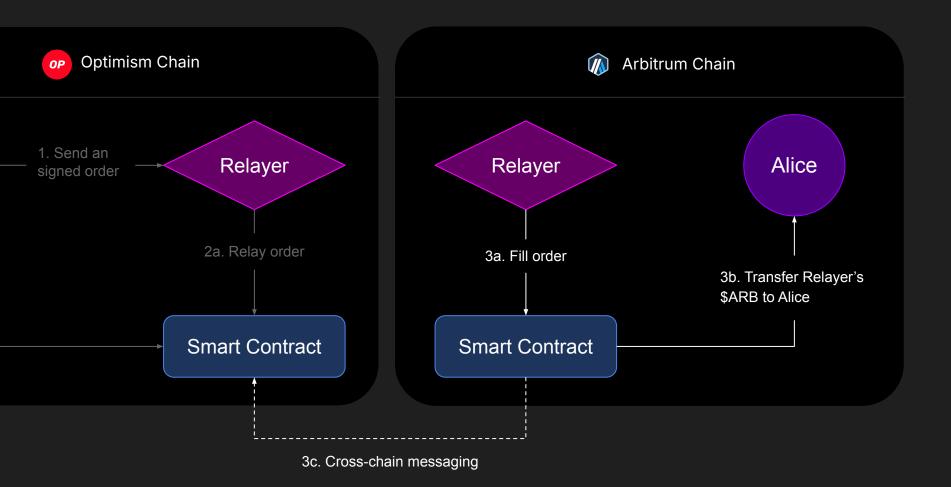
Embedded smart account + passkey
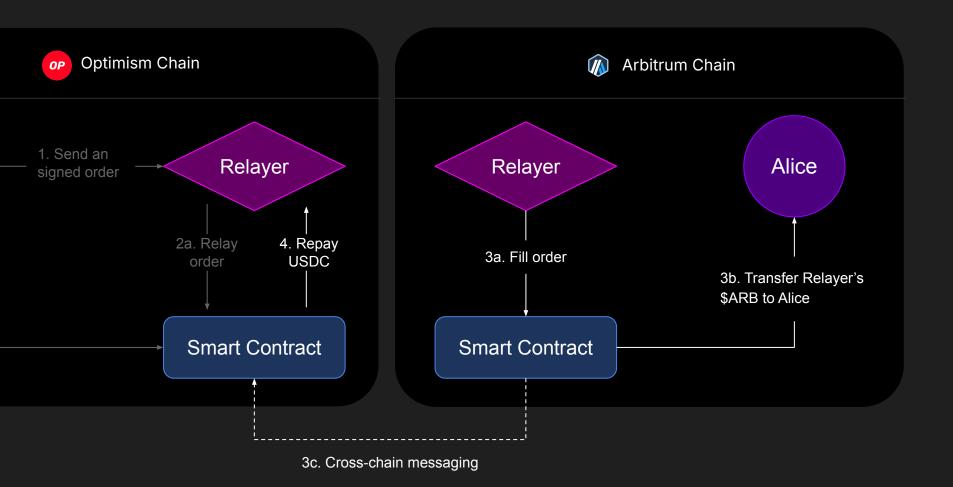
Alice wants to buy $ARB with USDC...

Search

Favorites

ARB
Arbitrum
0.5828
▲1.48%

OP
Optimism
1.5500
▼3.23%

Markets   Explore ›

🔥 Trending   🌱   🐕   🐍   🎮

(=ΦωΦ=)T
NekocoinT
0.002142
▲28.62%

CRO
Cronos
0.1078
▲21.85%

DMT
Dream Machine Token
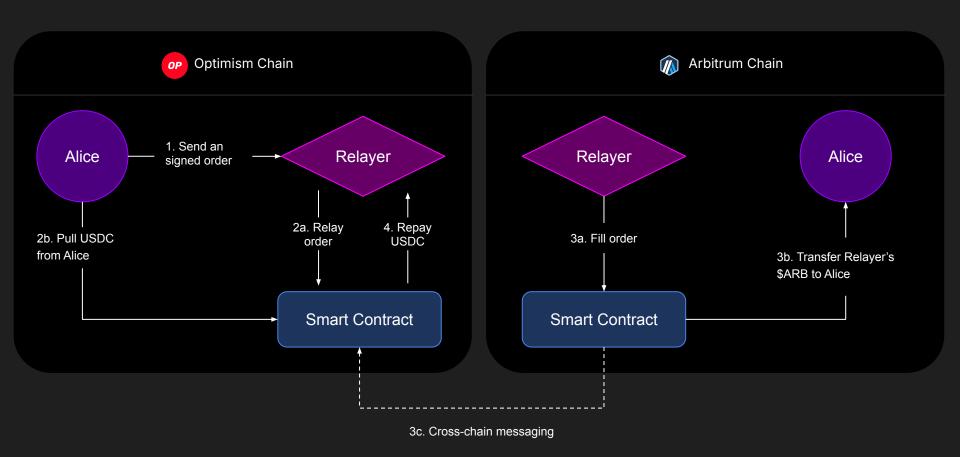58.4100
▲18.46%

Home   Earn   Quests   Assets

Optimism Chain

Arbitrum Chain

Relayer

1. Send an signed order

2a. Relay order

4. Repay USDC

Smart Contract

Relayer

3a. Fill order

Smart Contract

Alice

3b. Transfer Relayer's $ARB to Alice

3c. Cross-chain messaging

Original Chain

User

1. Send an signed order

Relayer

2a. Relay order

2b. Pull input token from user

Nekodex SpotOrderGateway

Across SpokePool

5b. Repay USDC

5b. Repay

Destination Chain

Relayer

User

3a. Fill order

3b. Transfer Filler's output token to user

Across SpokePool

Across HubPool

Propose bundle

2c. Emit deposit event
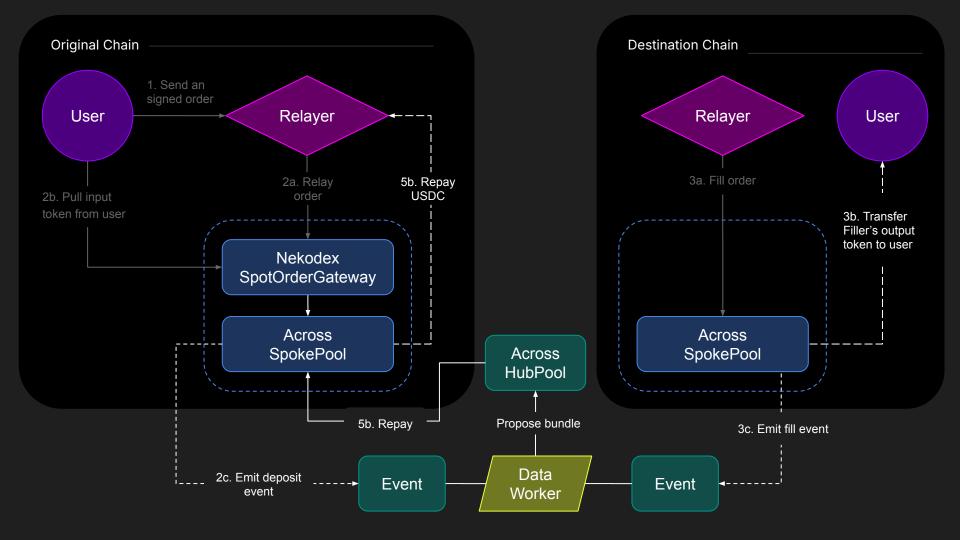
Event

Data Worker

Event

3c. Emit fill event

Make DeFi usable, today

- Passkey + embedded smart account
- Intent-based cross chain swap
- One integrated product

- shao@perp.com
- https://nekodex.org