SuiFusion+

A cross-chain atomic swap implementation between Ethereum and Sui, integrated with 1inch Fusion+

Hash-Time Lock Contract (HTLC) pattern for secure atomic swaps with competitive price discovery

💡 Our Solution

HTLC Atomic Swaps with Dutch Auction & Partial Fill Support

✅ **Intent-based Orders & Dutch Auction** - Makers create orders; resolvers compete to fill them. Dutch auction lowers rates over time for optimal execution.

✅ **Limit Order Protocol** - LimitOrderProtocol.sol manages orders, auctions, escrows, and resolver network.

✅ **Resolver Network** - ResolverNetwork.sol handles resolver registration, authorization, staking, and reputation.

✅ **Cross-chain Coordination** - Order hashes and secrets link escrows on both chains; Sui mirrors HTLC logic.

✅ **Partial Fill** - Orders can be filled in parts by multiple resolvers.

True decentralization: Assets are locked with hashlock and timelock; funds move only if the secret is revealed, otherwise refunded after expiry.

🏗️ Architecture Overview

🔐 Ethereum Contracts

- **LimitOrderProtocol.sol** - Order logic & auction integration
- **EthereumEscrow.sol** - HTLC with partial fills
- **DutchAuction.sol** - Competitive price discovery
- **ResolverNetwork.sol** - Resolver management

⚡ Sui Move Modules

- **cross_chain_escrow.move** - HTLC implementation
- **hash_lock.move** - Hashlock utilities
- **time_lock.move** - Timelock mechanisms

🔄 6-Phase Flow

1. **Order Creation & Auction Setup**
2. **Secret Generation & Escrow Creation**
3. **Dutch Auction & Resolver Competition**
4. **Order Fulfillment with Partial Fills**
5. **Cross-Chain Escrow Operations**
6. **Completion & Reputation Updates**

Key Innovation: Multiple resolvers can partially fill orders using the same secret, enabling competitive execution while maintaining atomic guarantees across chains.