



# exchange union

*Connecting Digital Asset Exchanges*

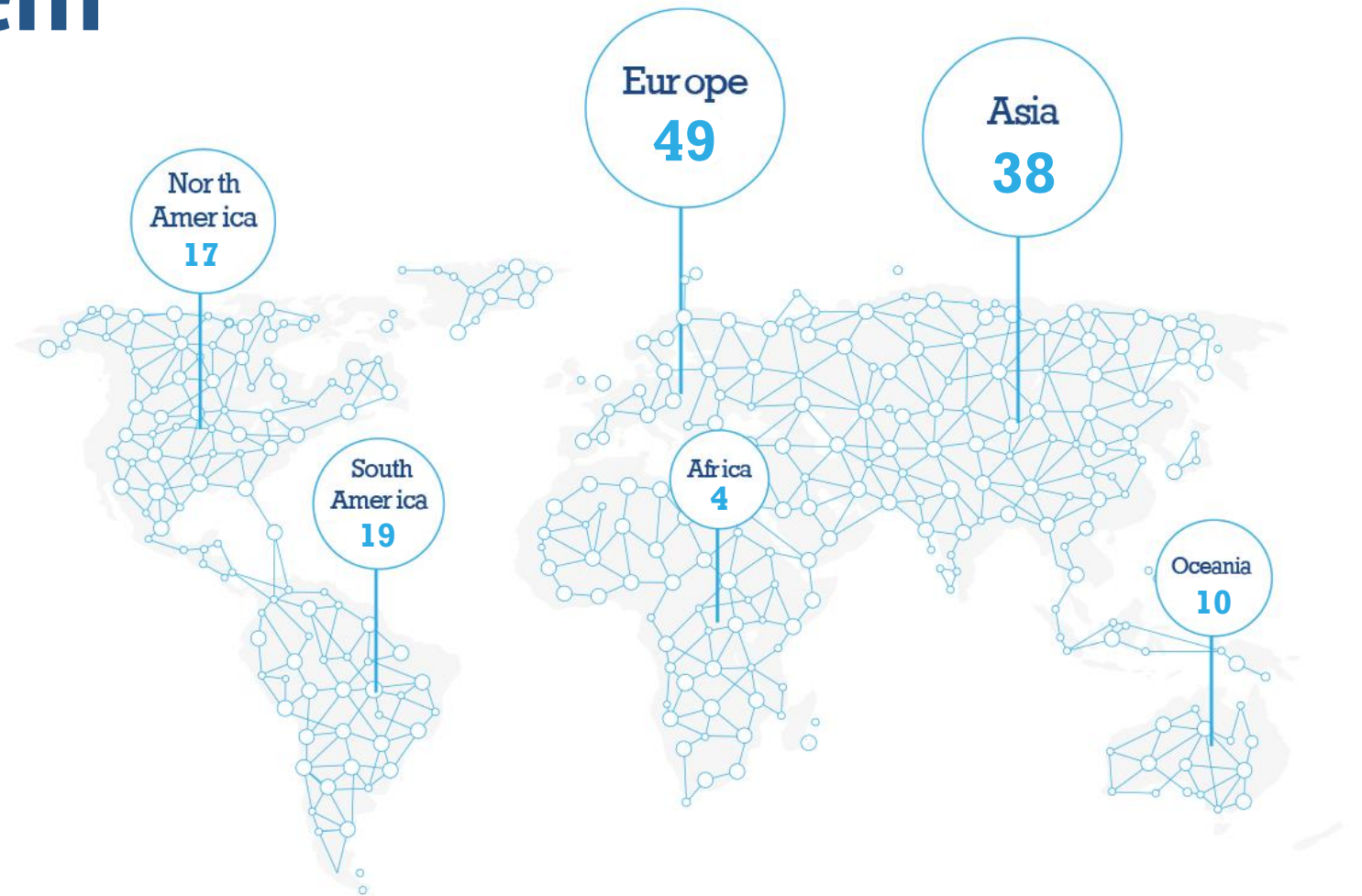
# Current Ecosystem

Types of Digital Assets:  
**1,600+**

Number of Digital Asset Exchanges:  
**150+**

Market Capitalization of Digital Assets:  
**\$330bn+**

Total 24h Trading Volume:  
**\$15bn+**



Number of digital asset exchanges per continent as of March 1, 2018

# Industry Pain Points

## Exchanges



Lack adequate **liquidity**.

Are **localized** and **isolated**.

**Limited** trading pairs.

## Users

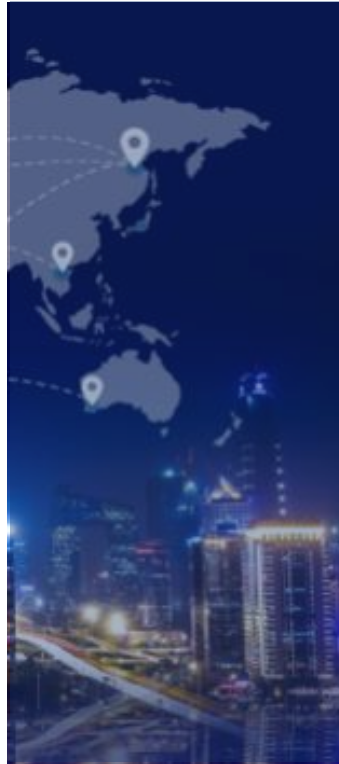
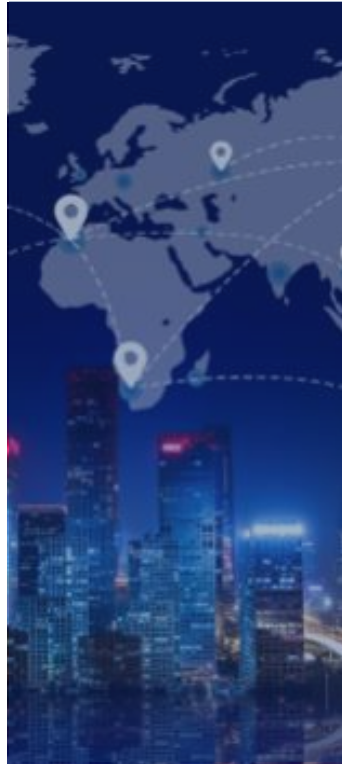


Real-time **price discrepancy**.

**Inefficient & costly** cross-exchange transactions.

Need to verify **multiple accounts** on different exchanges.

# Vision



*“The first **decentralized network**, which enables **instant** and **trustless** trades between digital asset exchanges.”*

# 1) Decentralized Order Books



## Decentralized Order Books

Orders are shared in real time across the network—*connecting buyers & sellers.*

## 2) Payment Channels



### Payment Channels

Each trade transfers real digital assets *instantly* between exchanges.

### 3) Atomic Swaps



#### **Atomic Swaps**

*Trustless* trades directly between two exchanges.

# Exchange Union Daemon (XUD)

## XUD

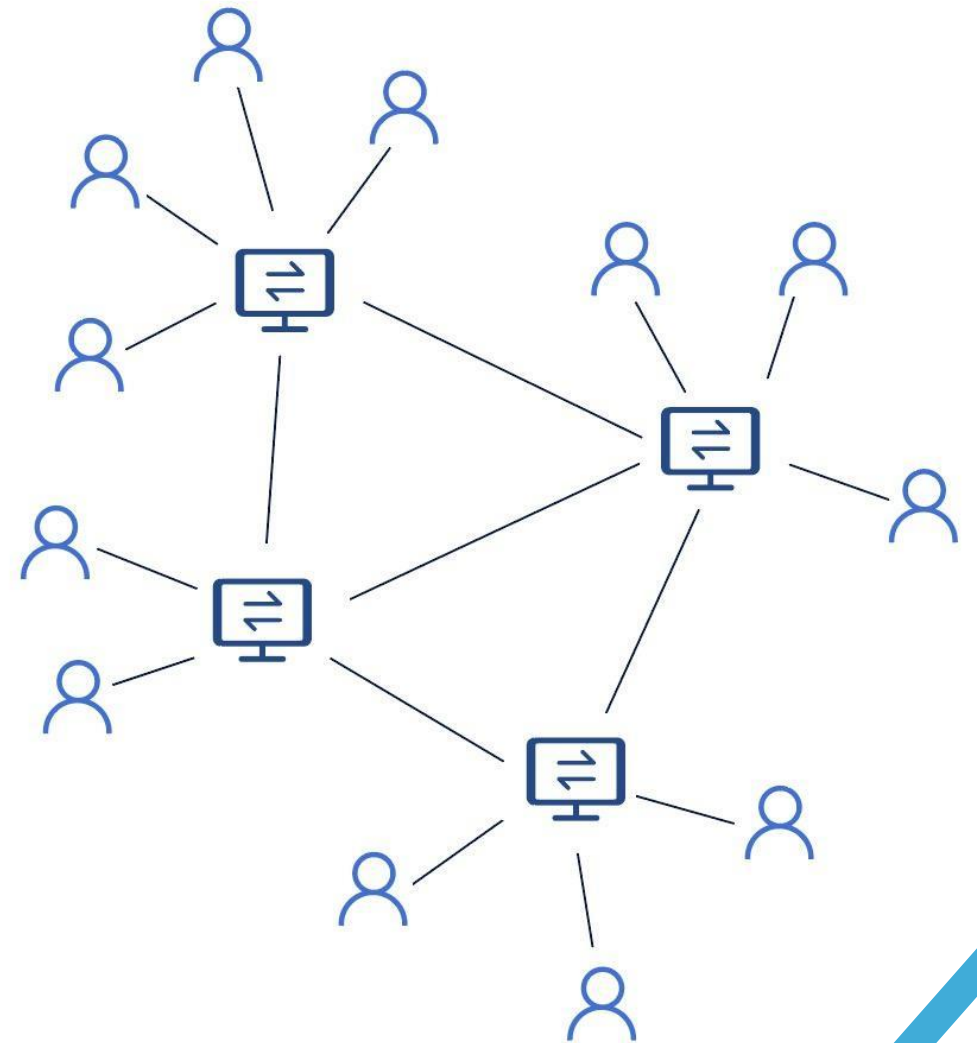
Nodes hosted by each exchange in the network.

### Benefits:

Communicating in real time.

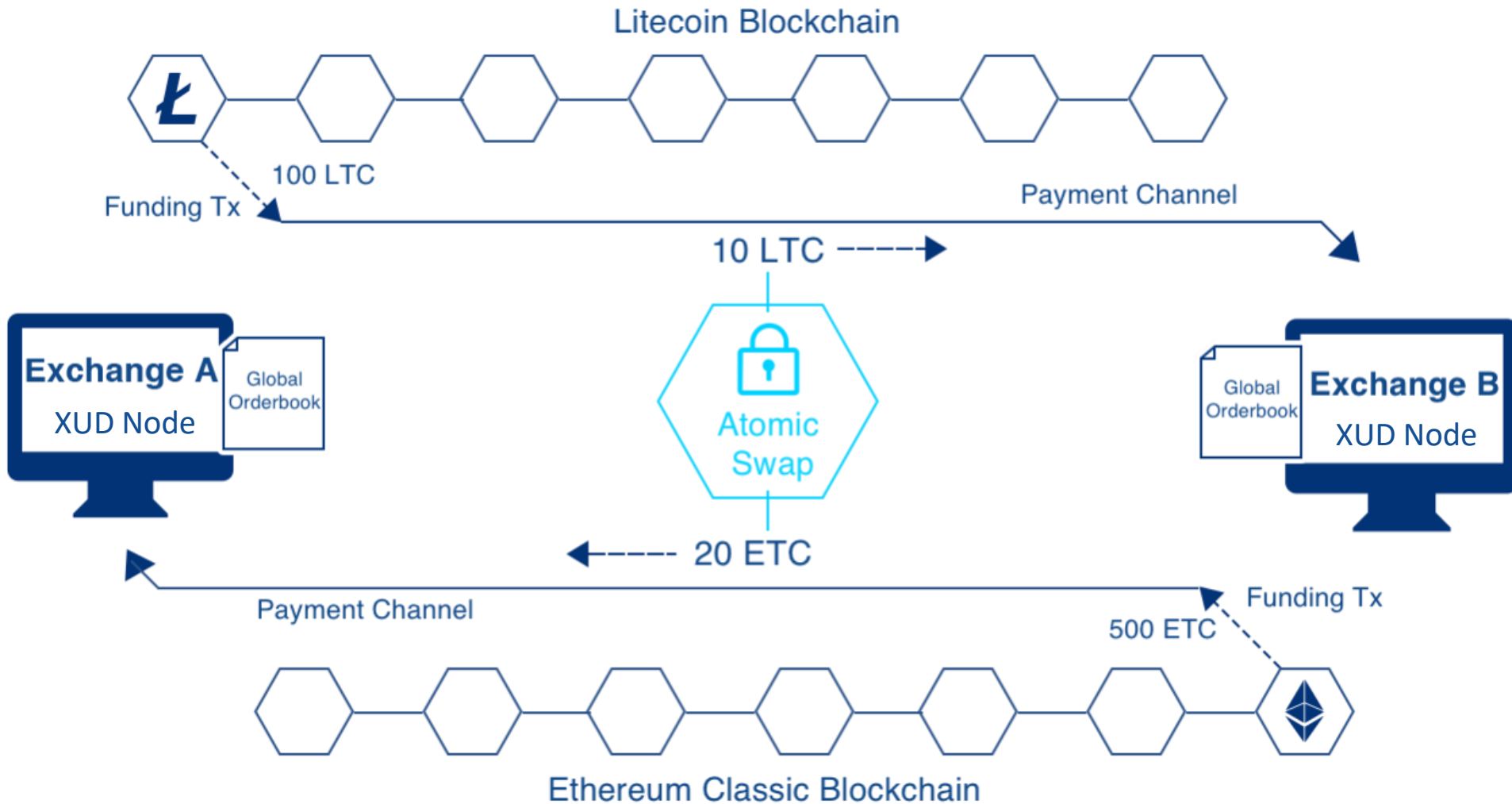
Decentralized – no single point of failure.

Matching buyers and sellers around the world.

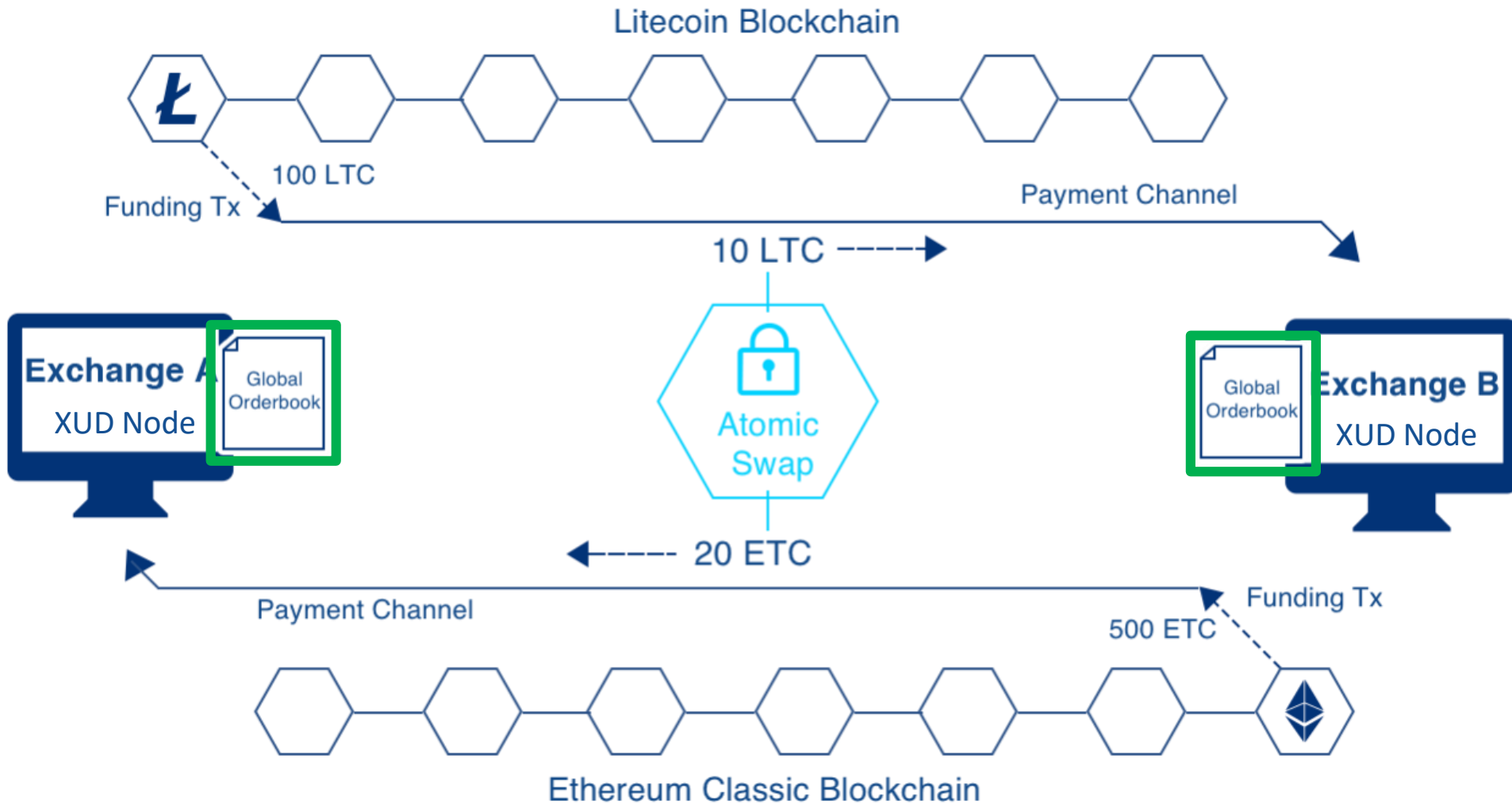




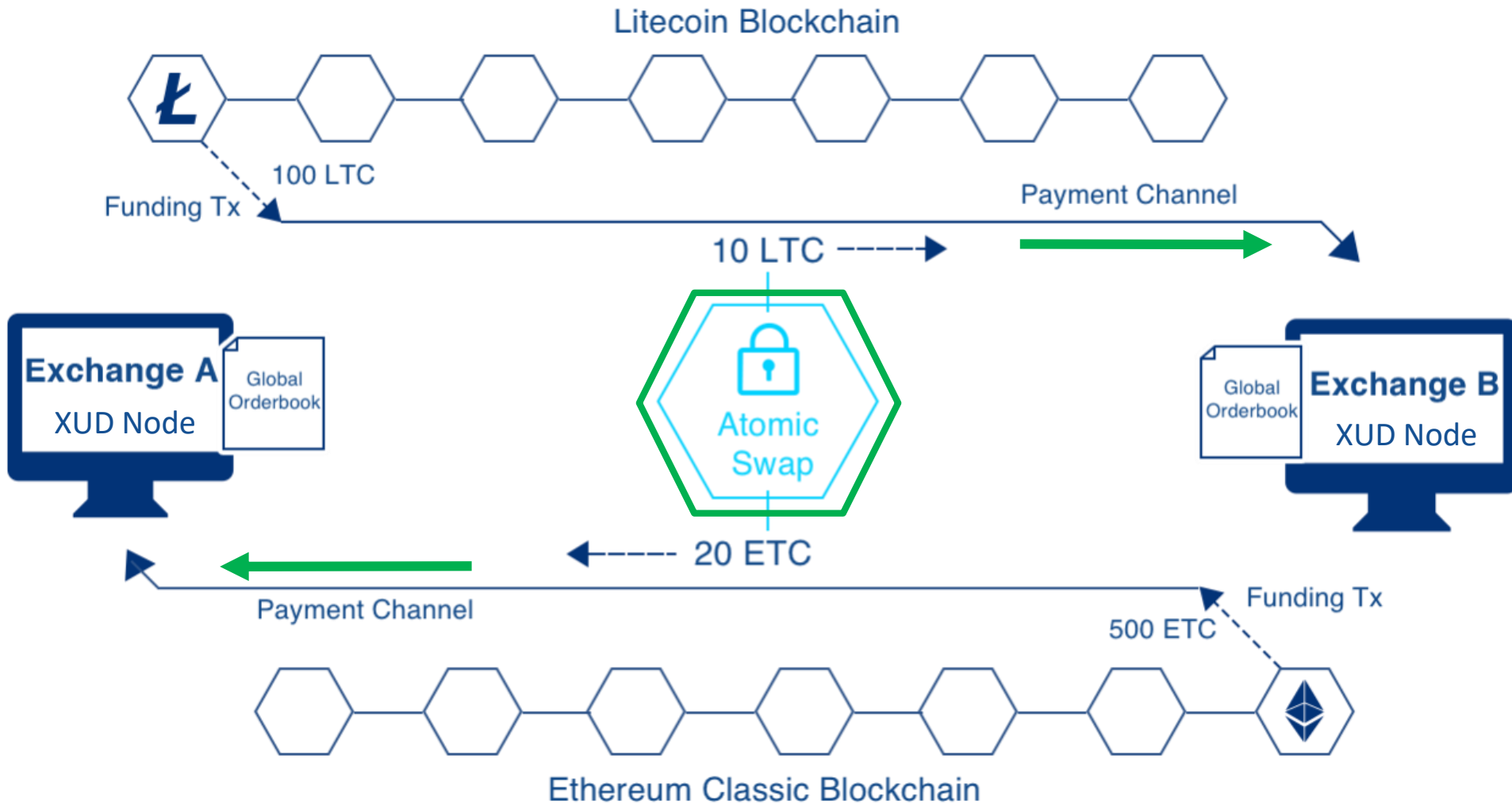
# Sample Trade



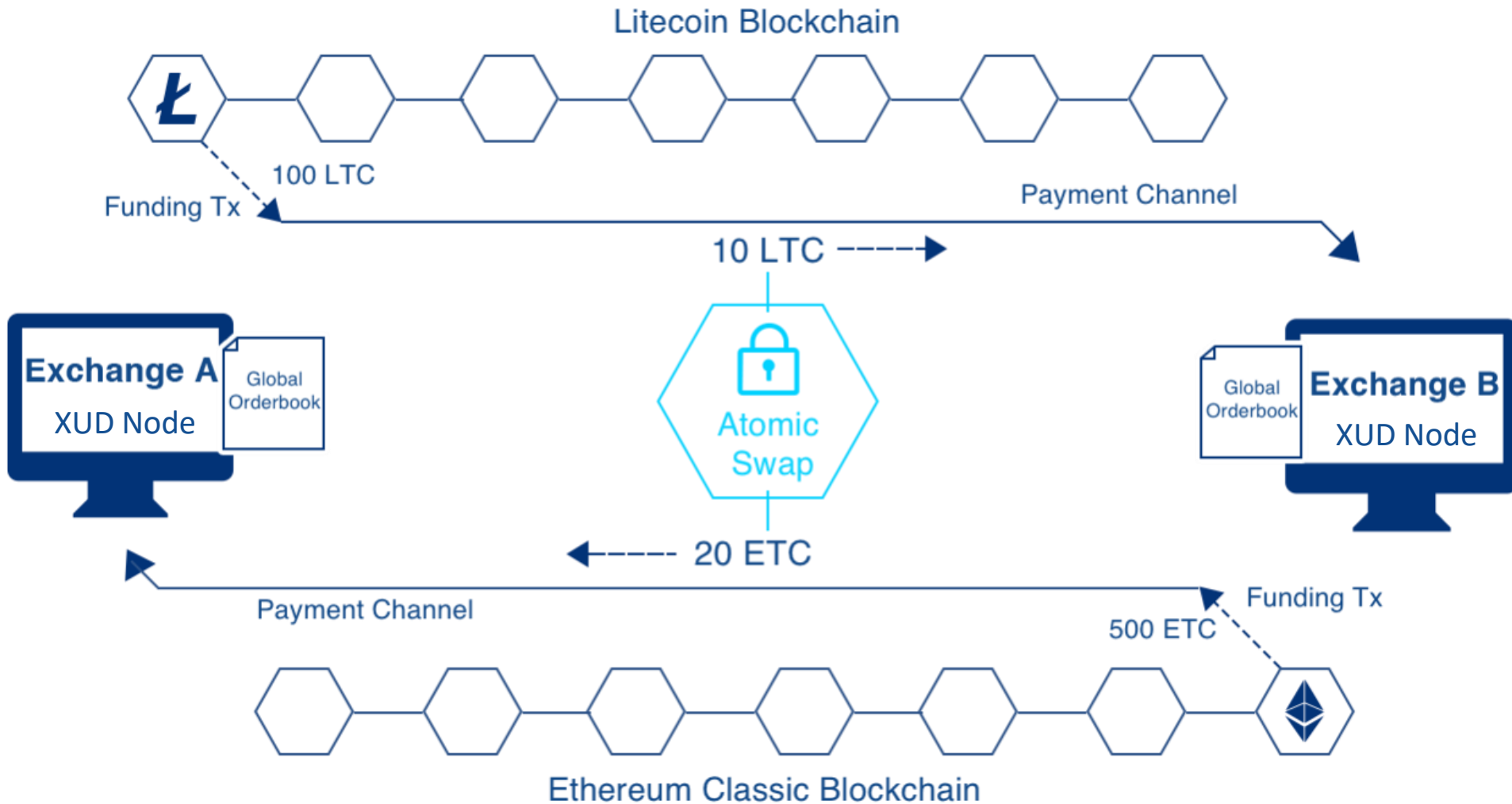
# Sample Trade



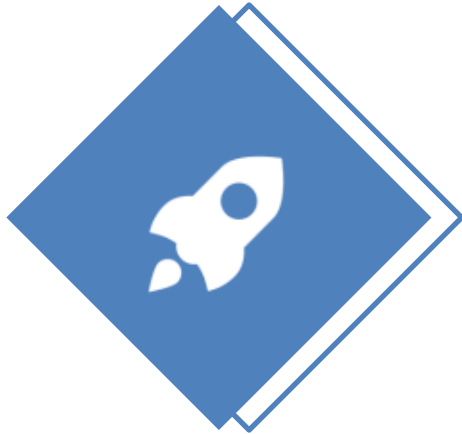
# Sample Trade



# Sample Trade



# Payment Channels



- ◆ **Enable instant off-chain transactions**
- ◆ **Inherit finality, censorship resistance, and trustlessness of underlying blockchain**
- ◆ **Between 2 parties, but can route payments across multiple channels, aka the Lightning Network**

# Payment Channels



- ♦ **2 of 2 multisig address – no doublespends**
- ♦ **Signed commitment transactions track the balance of a channel**
- ♦ **New payment = new commitment, no broadcasting required**

# Payment Channels



- ◆ **Commitments are signed contracts, enforceable by the almighty blockchain**
- ◆ **Writing a contract is cheap, fast, and private. Getting a court to enforce is expensive, slow, and a public ordeal**
- ◆ **“Going to court” for every transaction is unnecessary and unscalable.**

# Atomic Swaps



- ♦ “Atomic” means a transaction is “all or nothing”
- ♦ Lightning network chains transactions together across a single blockchain
- ♦ Transactions can be chained across blockchains as well!



# Atomic Swaps



- ◆ Transactions can be contingent on both a digital signature AND knowledge of a hash preimage
- ◆ All transactions in an atomic swap depend on same preimage
- ◆ Broadcasting preimage activates all “hash locked” transactions

# Atomic Swaps



- 1) Alice creates preimage, signs transaction paying BTC to Bob**
- 2) Bob signs transaction paying LTC to Alice, same hash lock**
- 3) Alice broadcasts LTC transaction, revealing preimage.**

# Atomic Swaps



**4) Bob can now claim BTC by broadcasting as well.**

**5) But wait... payment channels!**

**6) Instead of broadcasting, Alice reveals preimage privately and signs new commitment w/ Bob**

# Atomic Swaps



**See it in action!**

**<https://blog.exchangeunion.com>**

**Live demo of instant, atomic swap of  
BTC for LTC, try it yourself!**

# Industry Benefits

## Exchanges



Larger **user base**

Increased **revenue & earnings**

Increased **liquidity**

Robust **decentralized** trading infrastructure

## Users



Tighter **spreads**

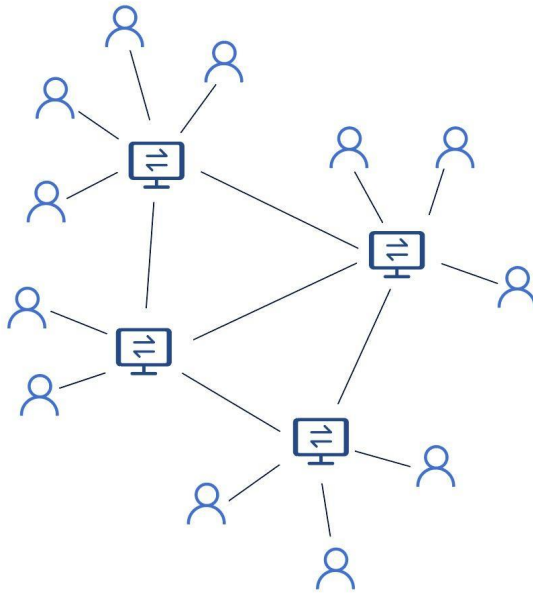
Best market **price**

**More** trading pairs

**Single** access point

# Project Philosophy – Open Source

Code & design open for  
review & feedback



Rewards for  
contributors & issue  
bounties



Foster developer community



# Unique Approach

## What we aren't

Blockchain

Exchange

## Future of trade

Coexistence of technology

Different user needs

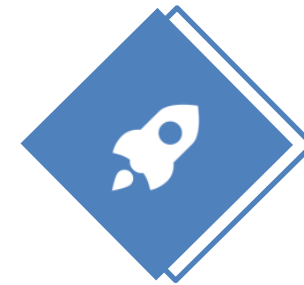
## Cutting-edge technologies

Build infrastructure

Mature ecosystem



1) Order Books



2) Payment Channels



3) Atomic Swaps

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