



# exchange union

*Connecting Digital Asset Exchanges*

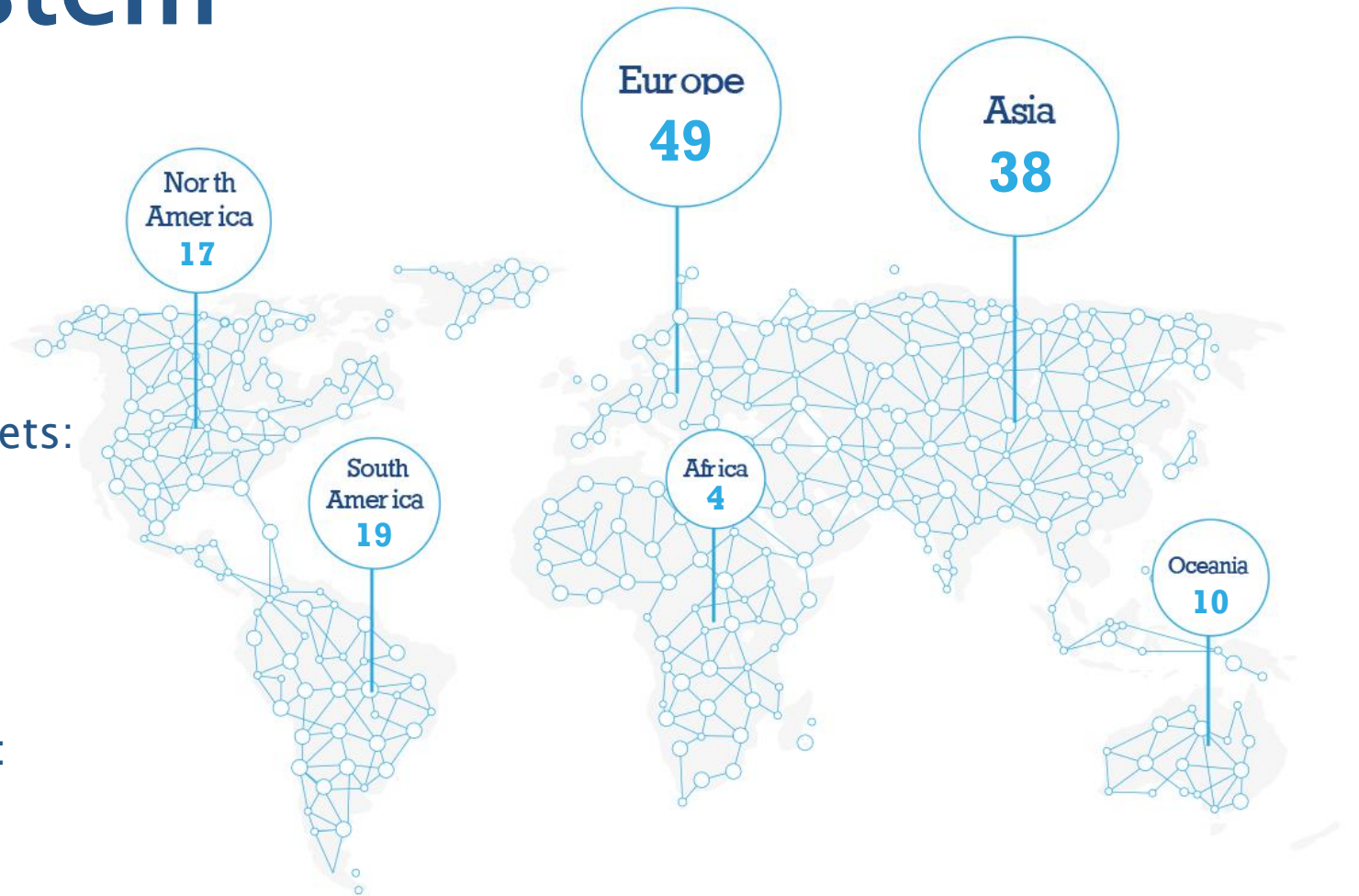
# Current Ecosystem

Types of Digital Assets:  
1,500+

Market Capitalization of Digital Assets:  
\$330bn+

Total 24h Trading Volume:  
\$17bn+

Number of Digital Asset Exchanges:  
100+



Number of digital asset exchanges per continent  
Data as of April 17, 2018

# Industry Pain Points

## Exchanges



Lack adequate **liquidity**.

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

**Limited** trading pairs.

## Users

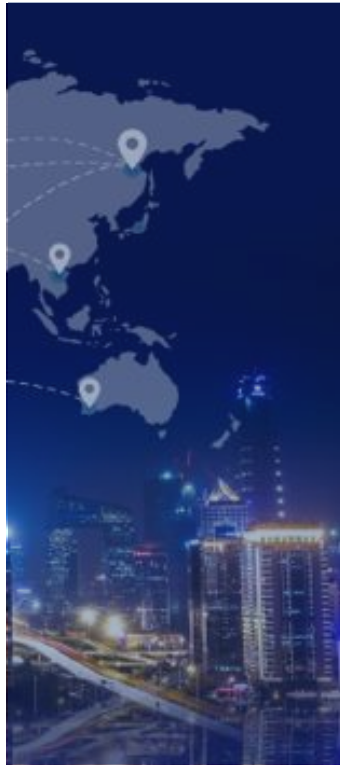
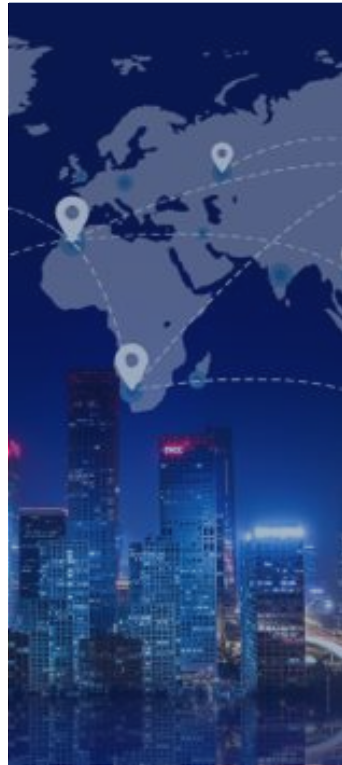


Real-time **price discrepancy**.

**Inefficient** 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.”*

# Exchange Union Daemon (XUD)

## XUD

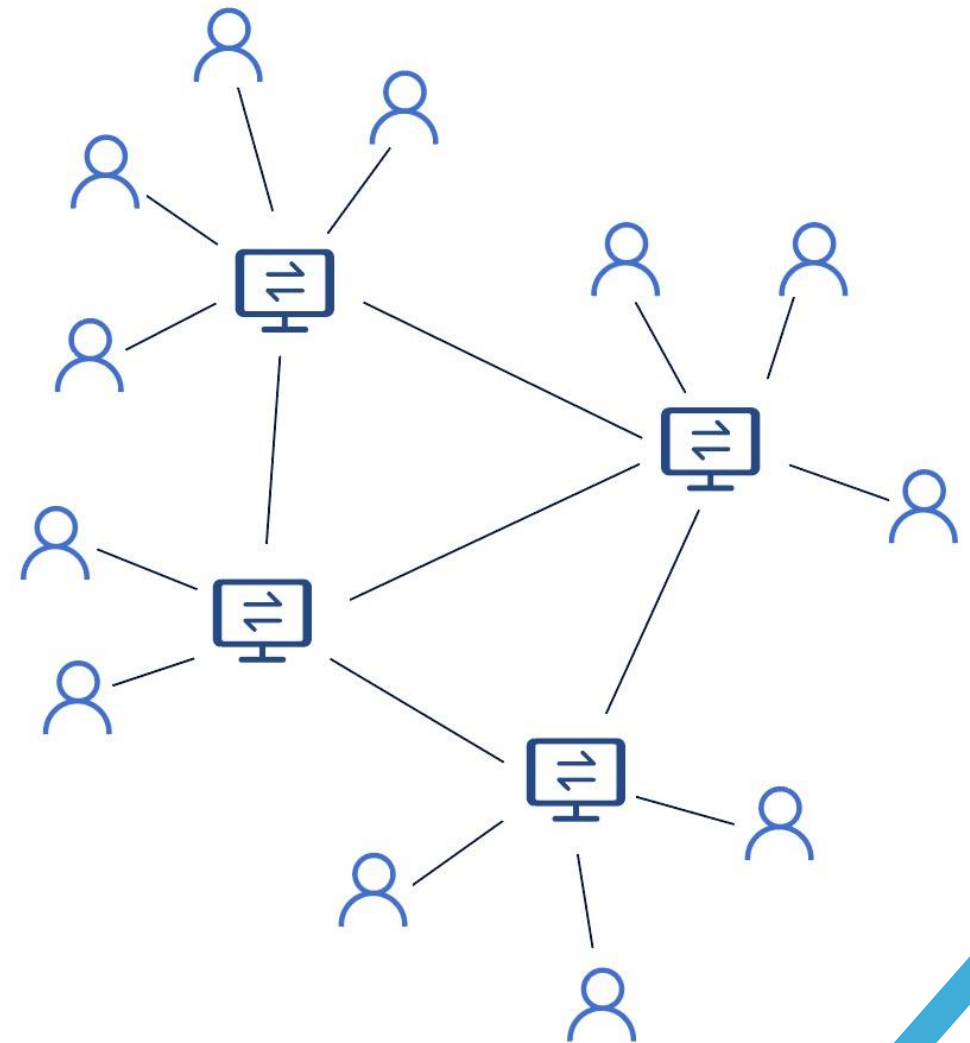
Nodes hosted by each exchange in the network.

### Benefits:

Communicating in real time.

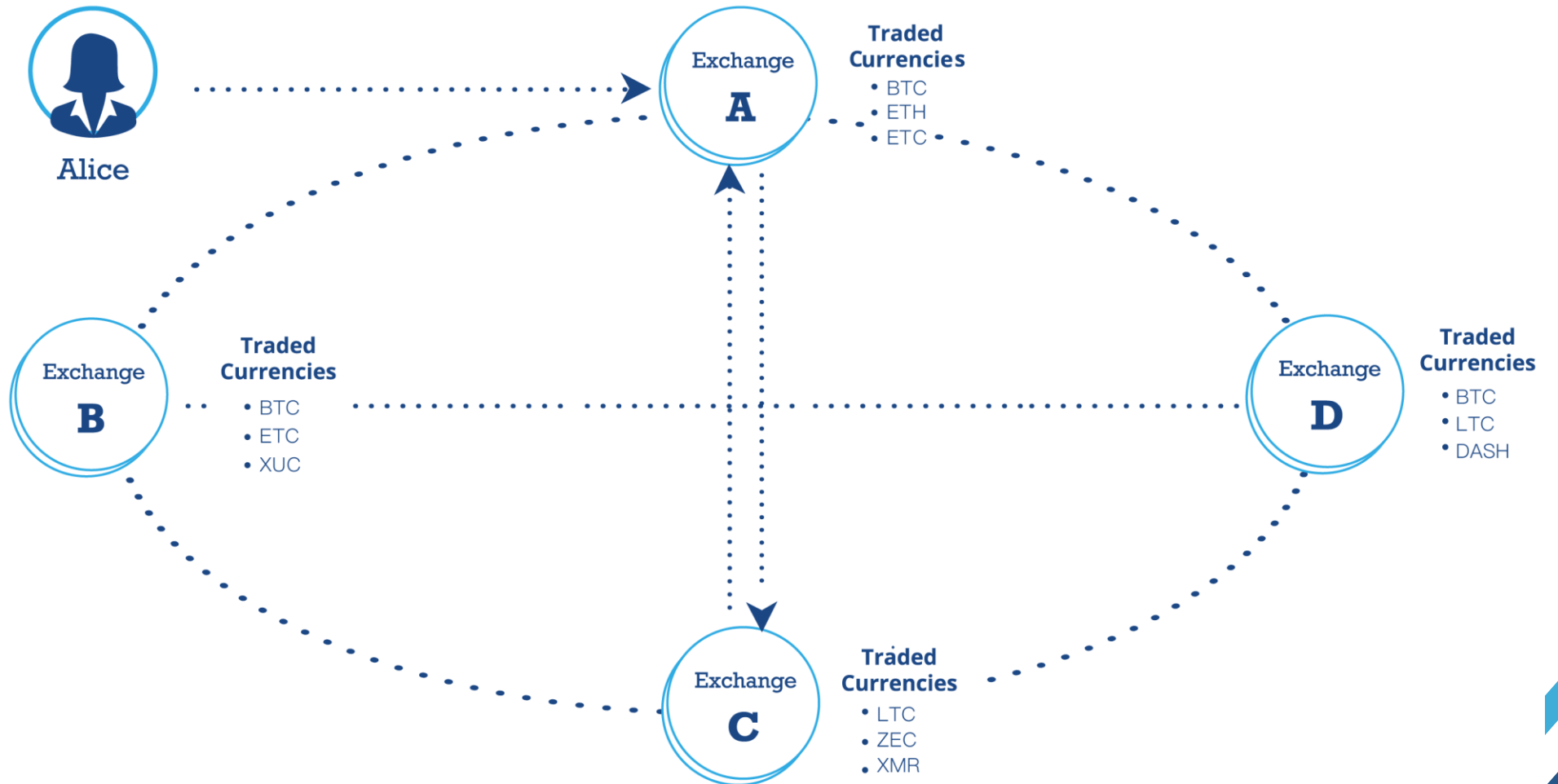
Decentralized – no trust, no SPOF.

Access to combined liquidity of all exchanges.



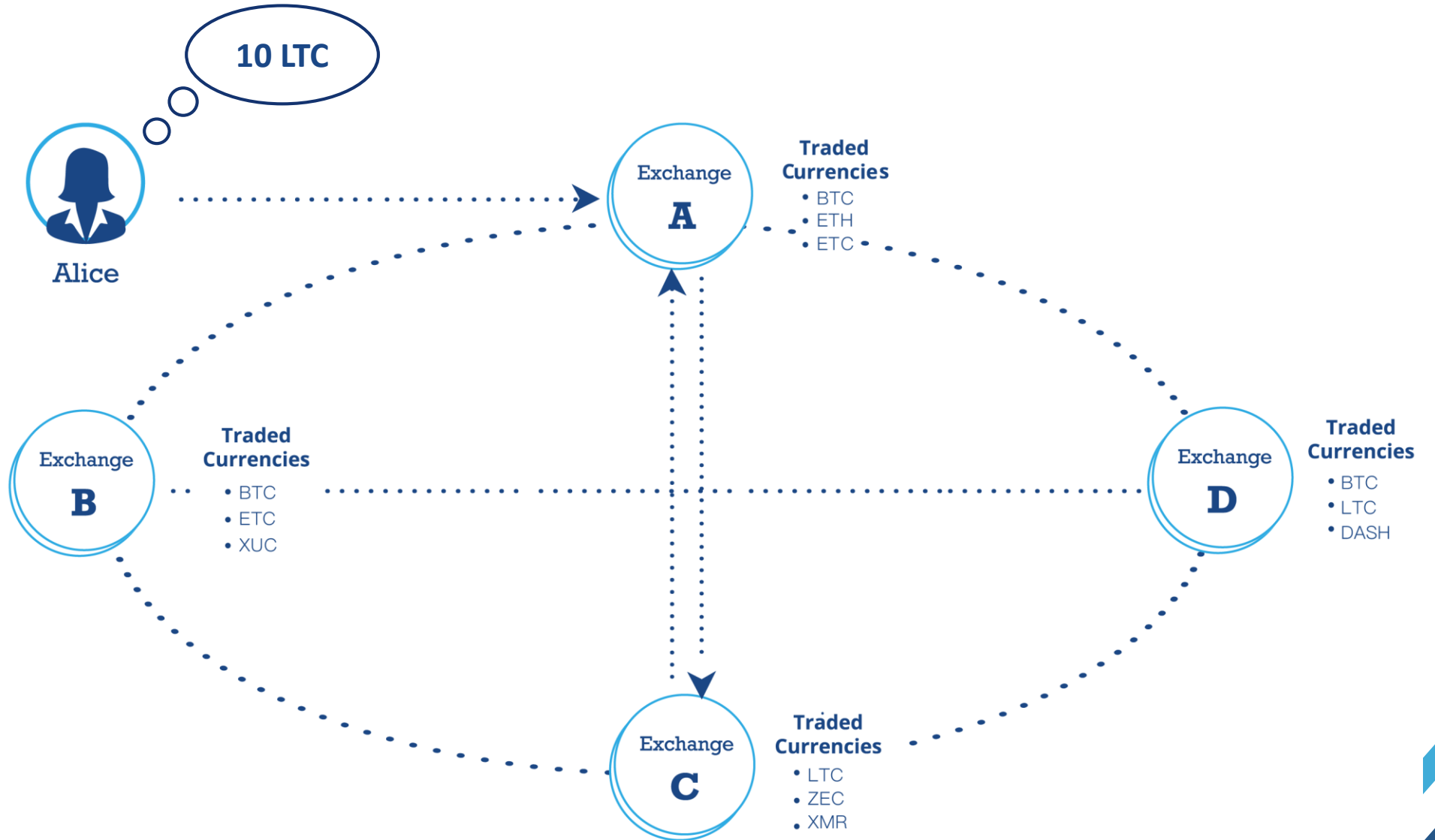
# Sample Trade

Portfolio		
	Before	After
BTC	2	
LTC	0	
ETC	100	



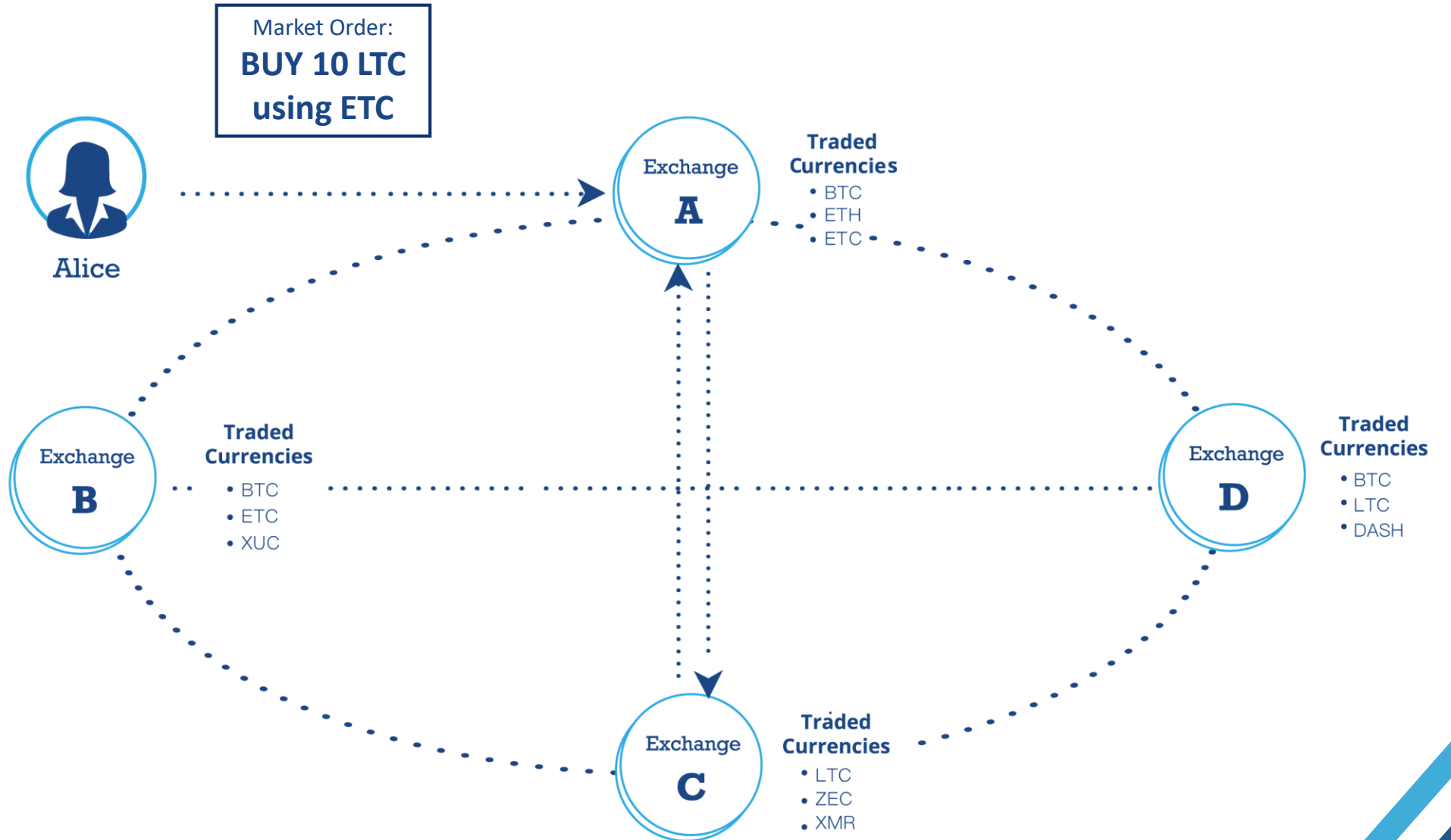
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# Sample Trade

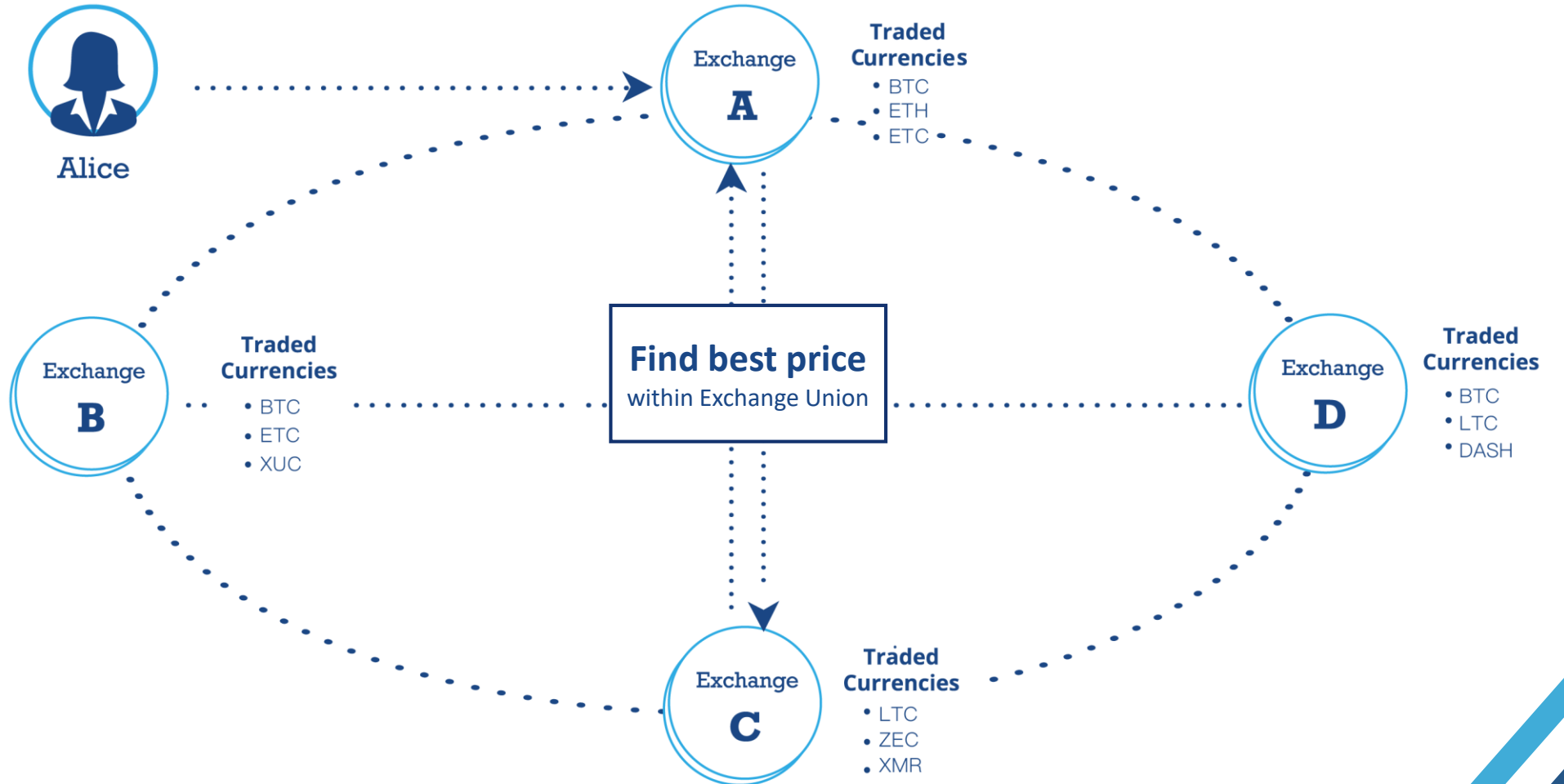
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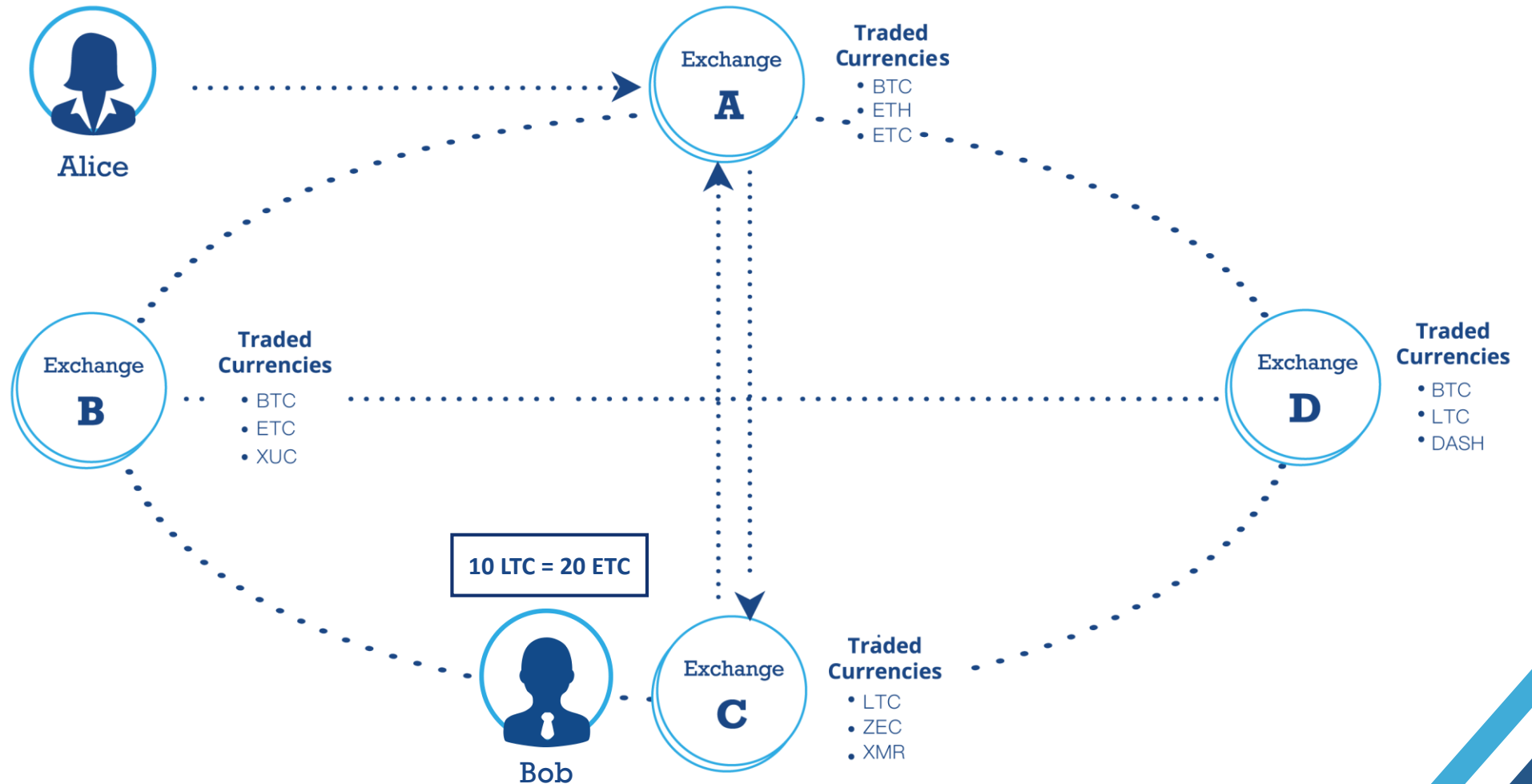
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Portfolio		
	Before	After
BTC	2	
LTC	0	
ETC	100	



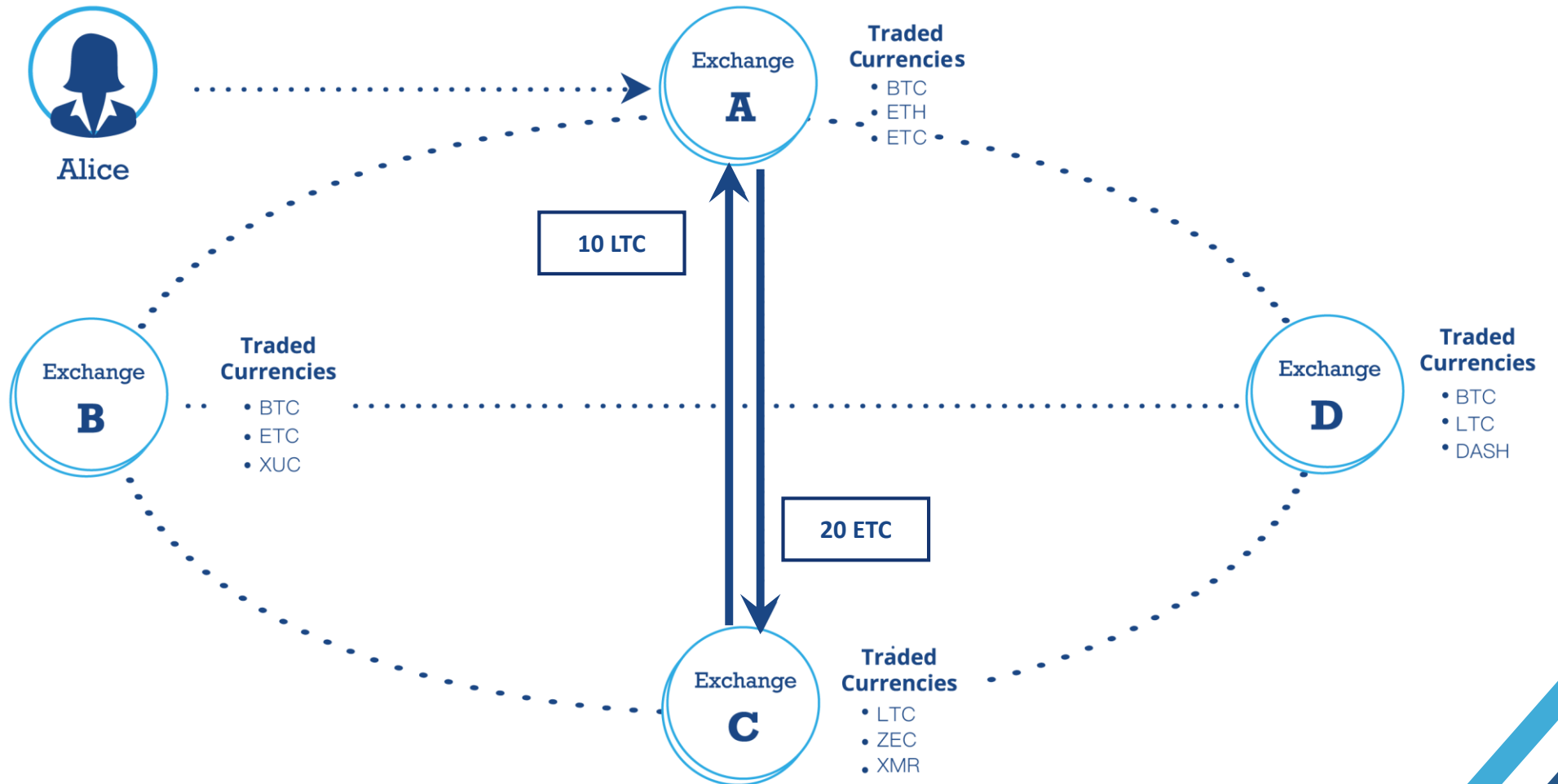
# Sample Trade

Portfolio		
	Before	After
BTC	2	
LTC	0	
ETC	100	



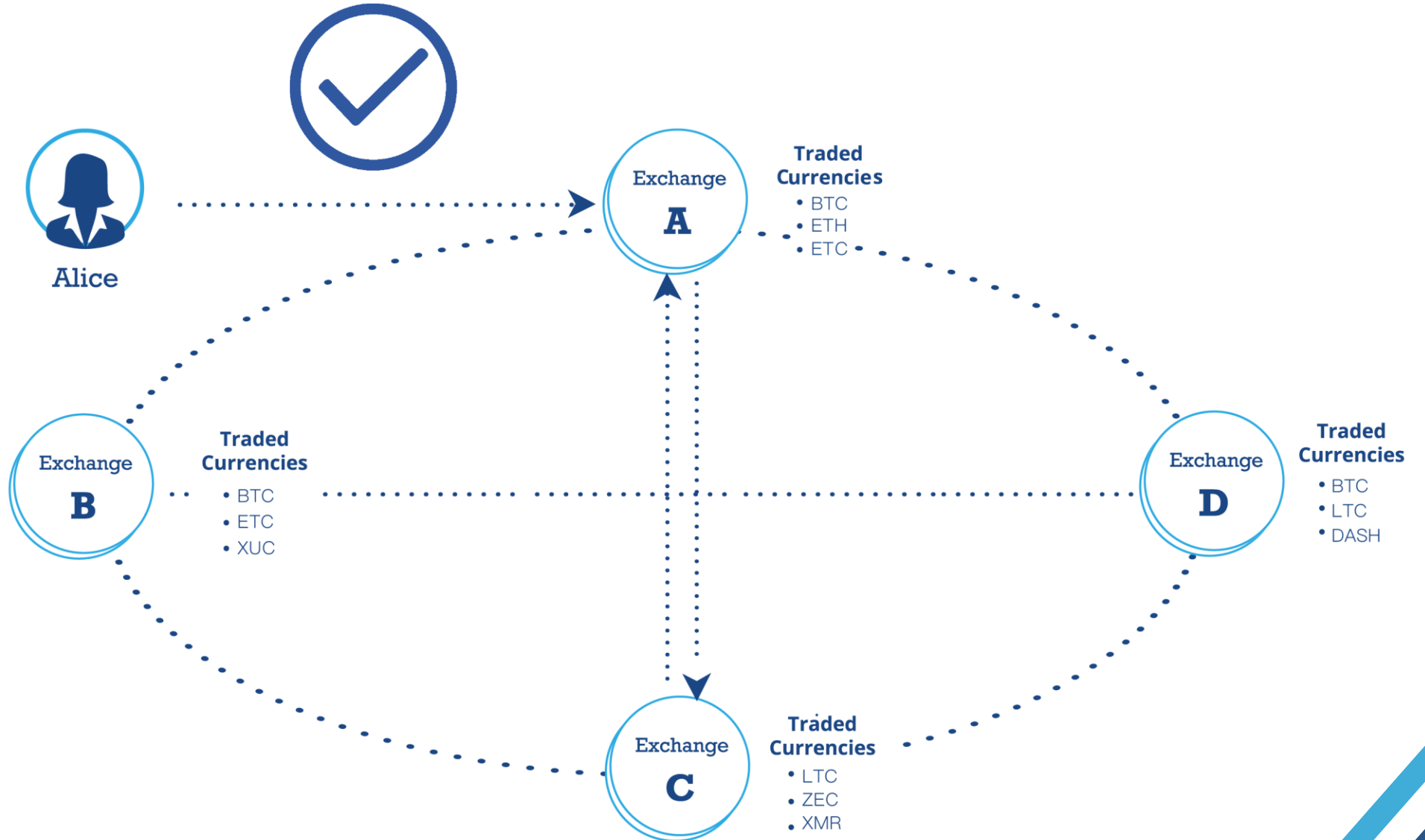
# Sample Trade

Portfolio		
	Before	After
BTC	2	
LTC	0	
ETC	100	



# Sample Trade

Portfolio		
	Before	After
BTC	2	2
LTC	0	10
ETC	100	80



# 1. Payment Channels

What's that?

# 1. Payment Channels



Yes, we are talking about Lightning  
& Raiden

# 1. Payment Channels



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

## 2. Atomic Swaps



*Trustless* trades directly between two exchanges.

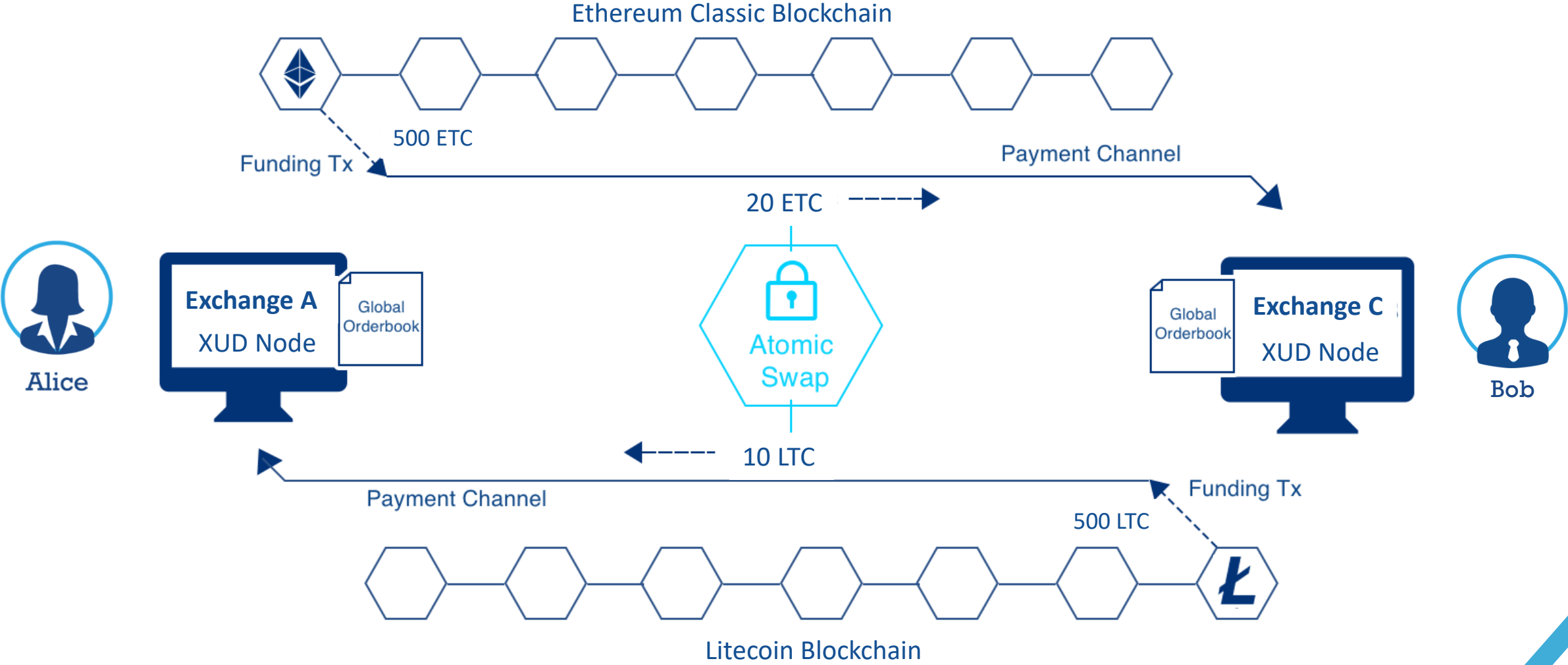


# 3. Decentralized Order Books

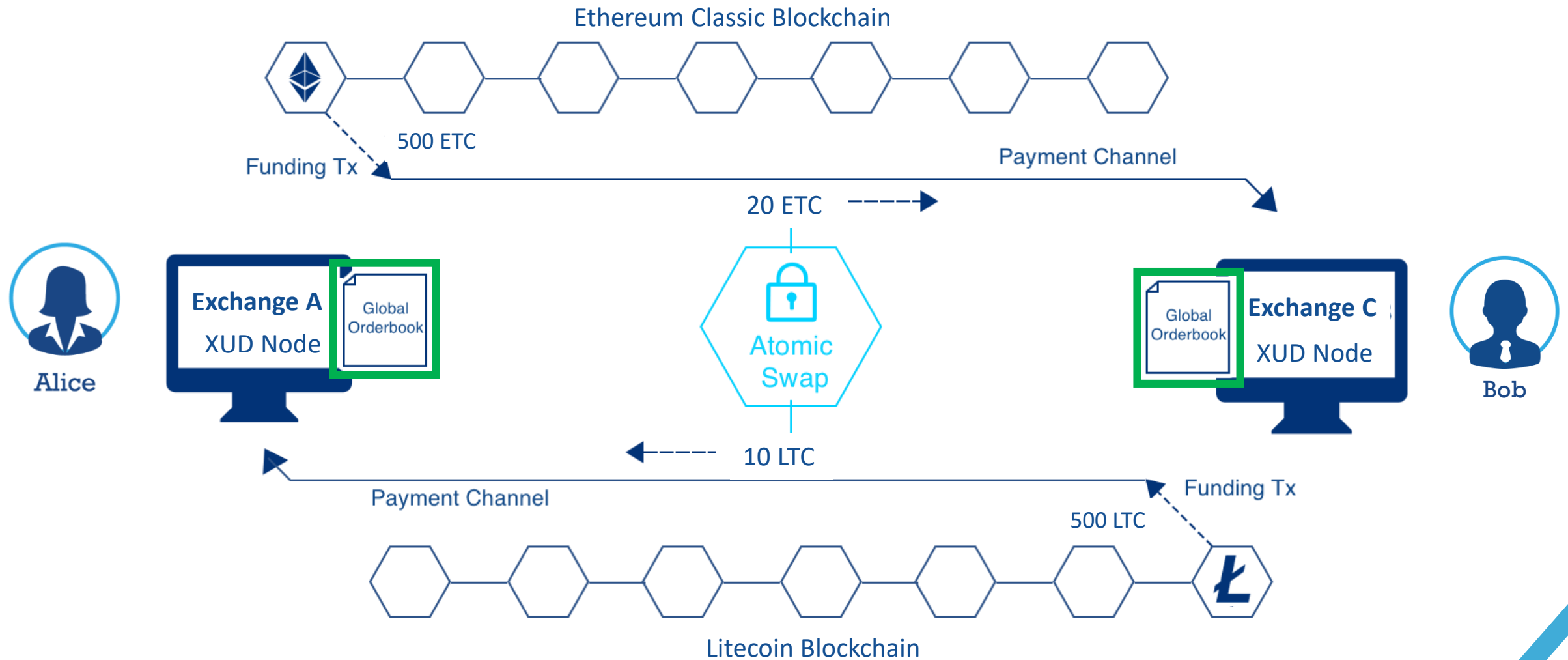


Orders are shared in real time across the network – *connecting buyers & sellers.*

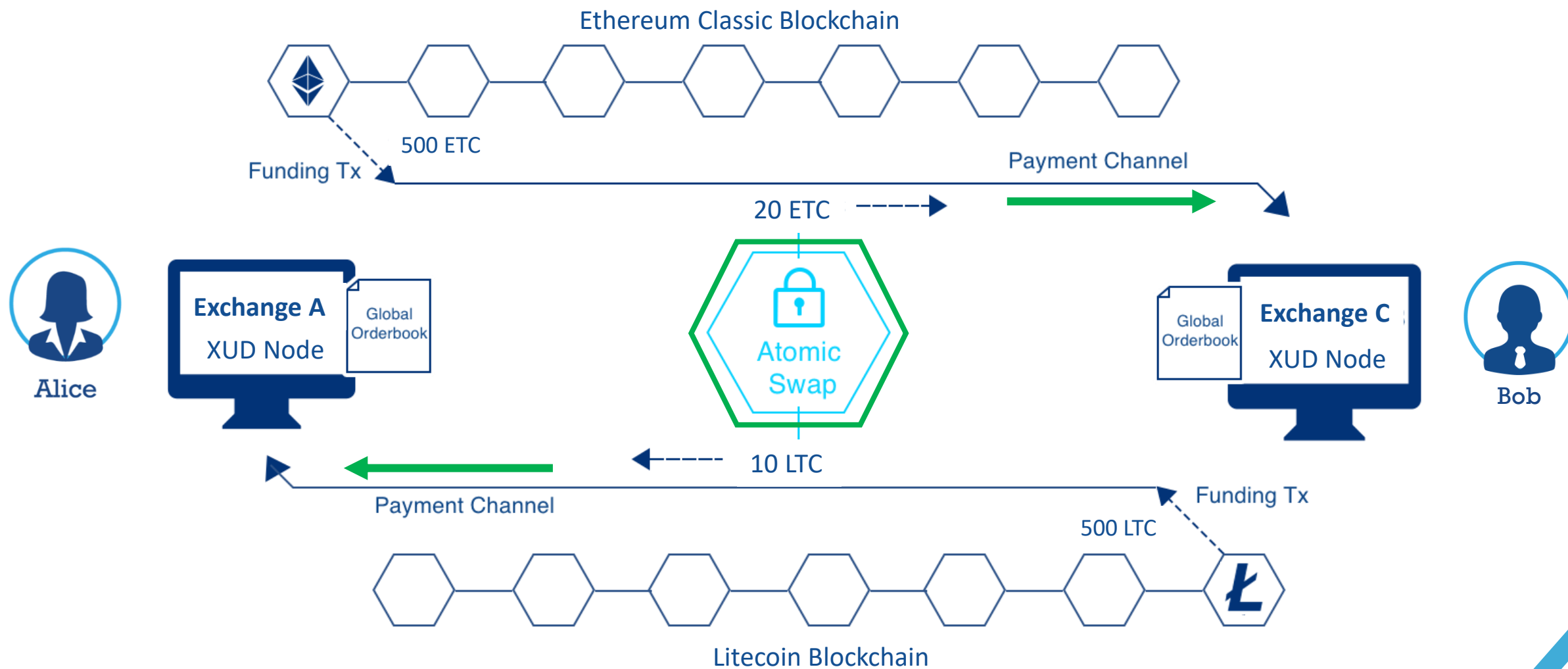
# Architecture



# Architecture



# Architecture



# Atomic Swap Deep-Dive

Trustless exchange of two different assets

- ◆ No middleman/escrow service needed



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How: guarantee atomicity

- ◆ Both sides of the trade happen or not at all



# Atomic Swap Deep-Dive

Trustless exchange of two different assets

- ◆ No middleman/escrow service needed

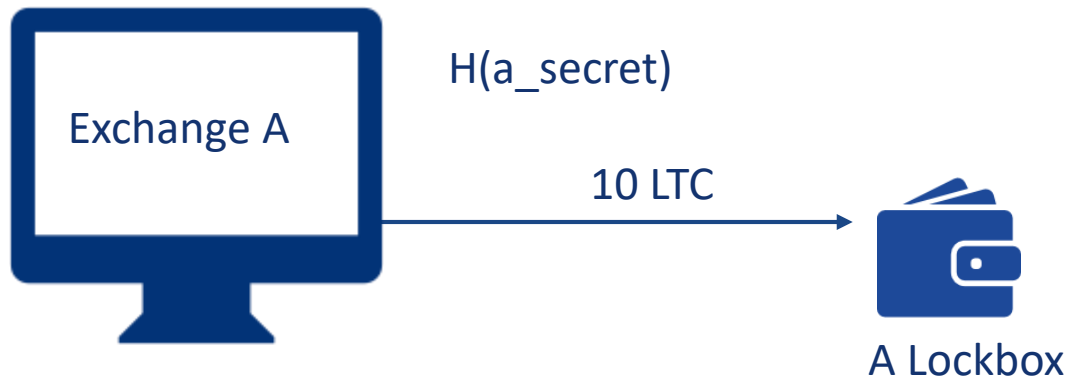
How: guarantee atomicity

- ◆ Both sides of the trade happen or not at all

Technology: Hashed TimeLock Contracts (HTLCs)



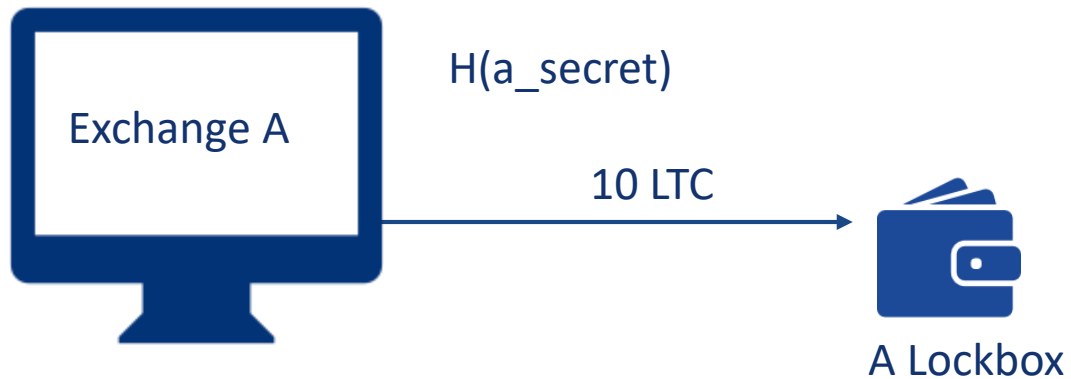
# Atomic Swap Deep-Dive



Lockbox only opens with 'a\_secret' + C's signature



# Atomic Swap Deep-Dive



Lockbox only opens with 'a\_secret' + C's signature

HashLock

# Atomic Swap Deep-Dive



Lockbox only opens with 'a\_secret' + C's signature

Lockbox only opens with 'a\_secret' + A's signature

# Atomic Swap Deep-Dive



Lockbox only opens with 'a\_secret' + C's signature

Lockbox only opens with 'a\_secret' + A's signature

Both lockboxes need the same "a\_secret" to be opened!

# Atomic Swap Deep-Dive



If A wants to open C's lockbox it has to reveal it's `a_secret` on the payment channel

# Atomic Swap Deep-Dive



**a\_secret**



# Atomic Swap Deep-Dive



# Atomic Swap Deep-Dive



20 ETC



10 LTC



# Atomic Swap Deep-Dive



20 ETC



10 LTC



## TimeLock:

If something goes wrong, 10 LTC go back to A and 20 ETC back to C after certain time interval



# Atomic Swap Deep-Dive



20 ETC



10 LTC



## TimeLock:

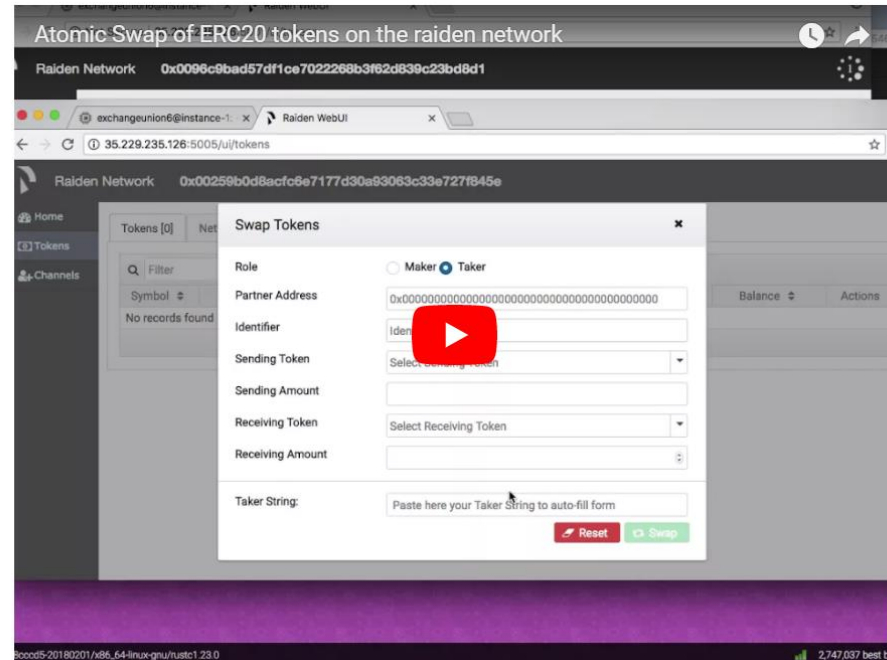
If something goes wrong, 10 LTC go back to A and 20 ETC back to C after certain time interval

## Hashed TimeLock Contracts

Via BIP199 on Bitcoin and SmartContracts on Ethereum

# Atomic Swap – Try it yourself!

## Atomic Swap of ERC20 Tokens on the Raiden Network



[blog.exchangeunion.com](https://blog.exchangeunion.com)

# Incentive and Reward System

## XUC Token

- Market Makers (Liquidity Providers)
- Exchanges and users who join the network
- Traders Achieving trading volumes
- Developers contributing and testing code
- Everyone running a XUD
- Everyone providing payment channel  
watchtower services
- Order book forwarding and validating  
(future)



# Industry Benefits

## Exchanges



Increased liquidity

Larger user base

Increased revenue & earnings

Robust decentralized infrastructure

## Users



Tighter spreads

Best market price

More trading pairs

One single account

# Who we are

Crypto. Startup. Decentralized.

# Who we are

Crypto. Startup. Decentralized.

Not searching for funding.

# Where we are



# Our Philosophy: Open Source



XUD is infrastructure.

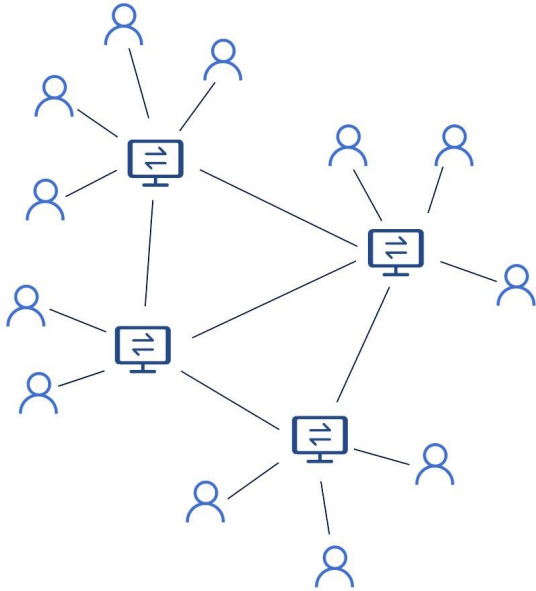
Open & free for everyone to use.

We open-source everything. Like this PPT.



# Our Philosophy: Open Source

Help building XUD



Get paid in XUC



Grow developer community



# Summary

**We are not**  
an exchange, nor a blockchain

**...we are**  
a technology connecting exchanges.

**Decentralized, trustless and  
instant.**



Payment Channels



Atomic Swaps



Decentralized  
Order Books

# exchangeunion.com



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