



**MUNICH**  
**#LightningHackdayMUC**  
Building the **Lightning Network**



**Atomic Swaps on (not only) Lightning**

# What we are building

A decentralized exchange protocol

on ⚡ lightning ⚡.

# What we are building

A decentralized exchange protocol

on **(not only)** ⚡ lightning ⚡ .

# Combining two worlds

Trading via Atomic Swaps between BTC & (w)-ETH

# Differences between ⚡ & Raiden

- Invoices
  - LN: payee creates secret
  - Raiden: payer creates secret
- Routing
  - LN: Source Routing
  - Raiden: dynamic routing (like www)
- Hash Algorithms
  - LN: SHA256
  - Raiden Keccak256



@kilrau

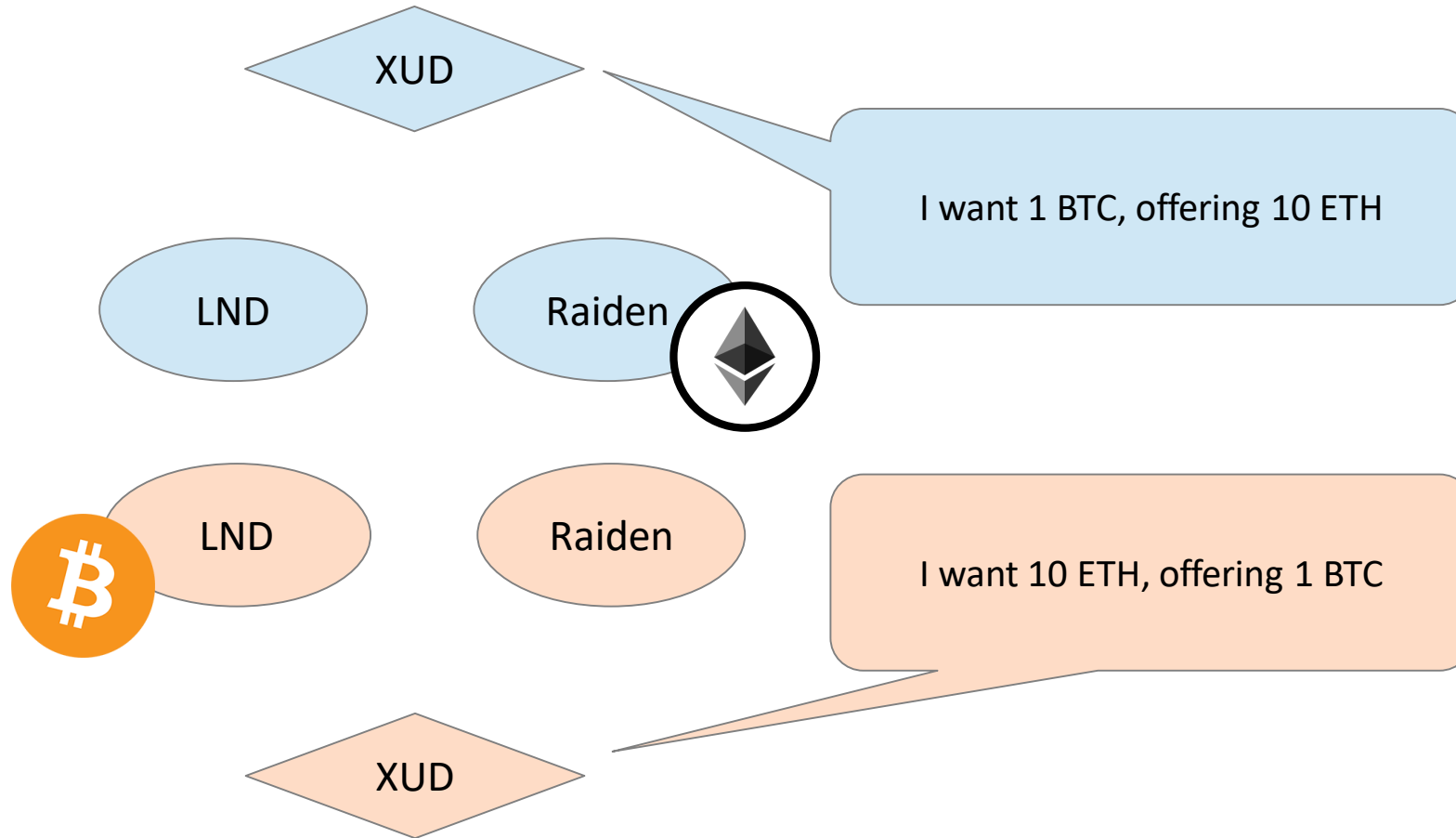
# Combining two worlds

Trading via Atomic Swaps between BTC & (w)-ETH

Combining:  
Raiden & ⚡ lightning ⚡.

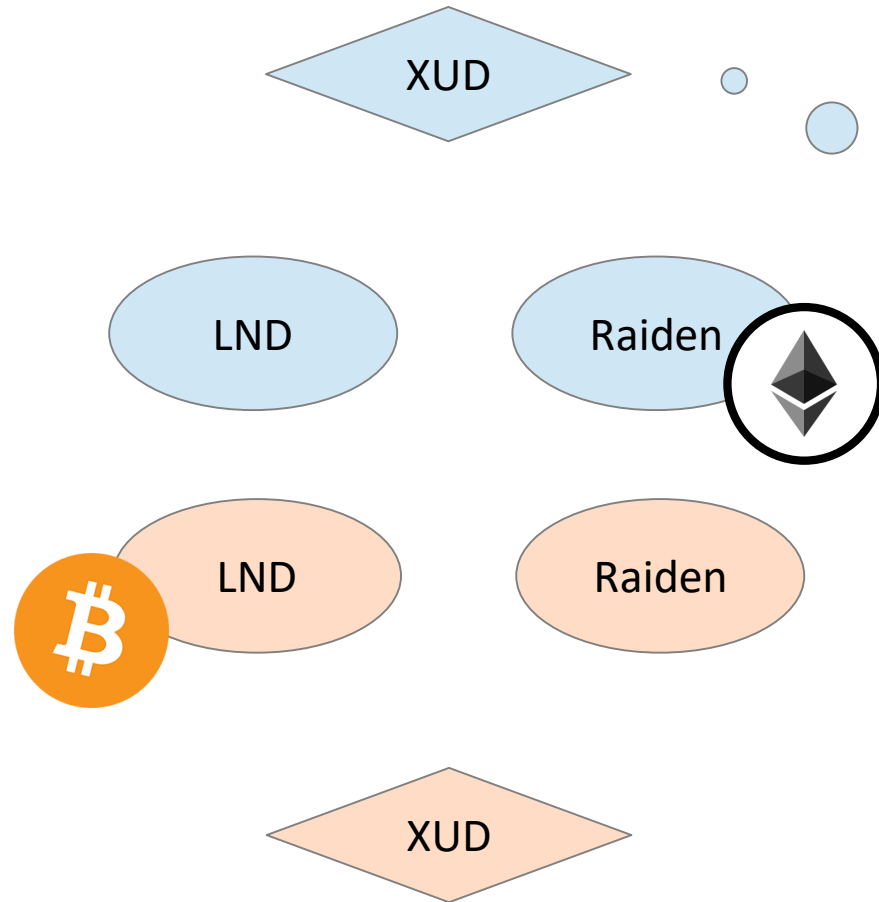
# Atomic Swaps between ⚡ & Raiden

Step 0:



# Atomic Swaps between ⚡ & Raiden

Step 0:



preimage = **MVHz94lIQvHBYRVUE/XSDNbzdrHSNI4f3pANihin6ZA=**

r\_hash =

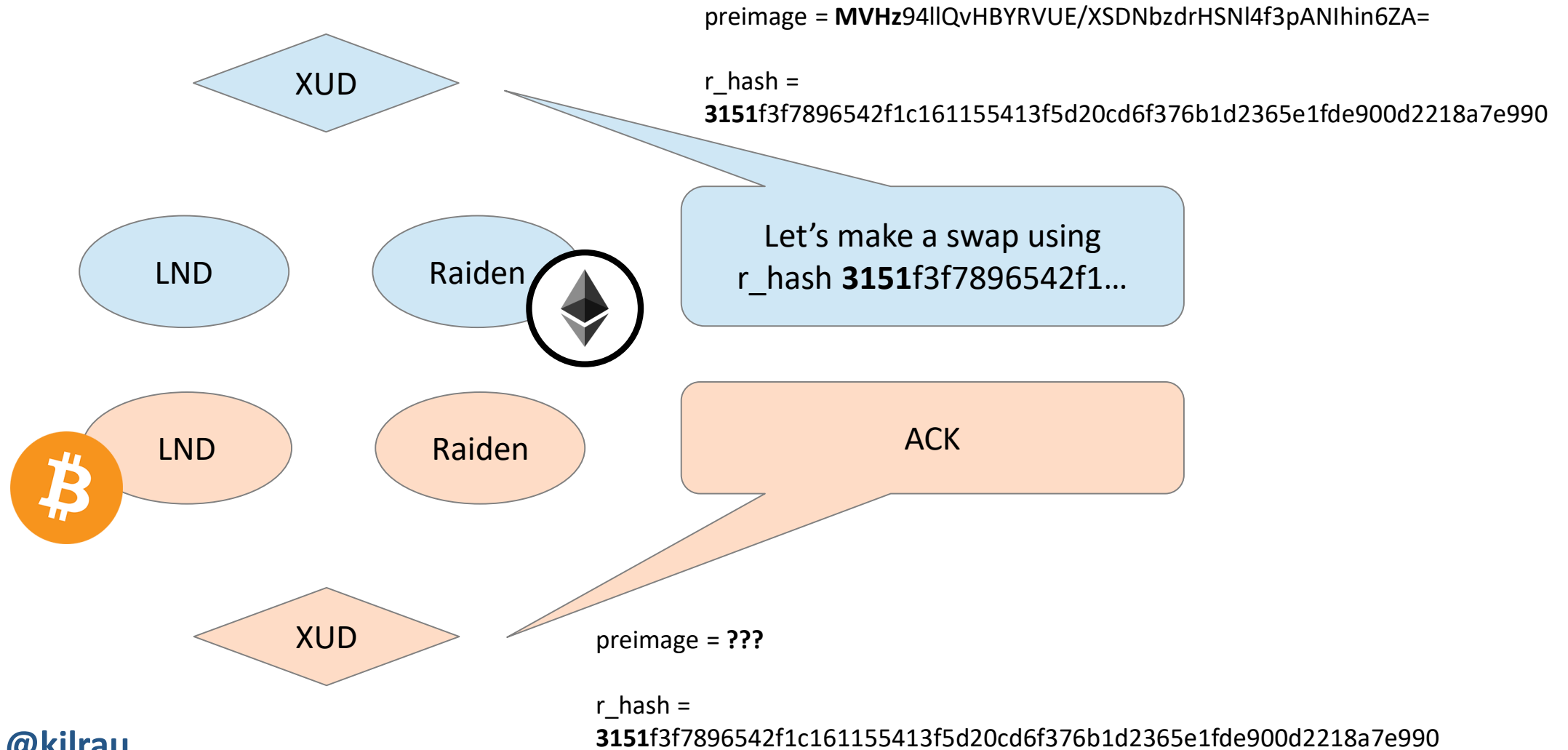
**3151f3f7896542f1c161155413f5d20cd6f376b1d2365e1fde900d2218a7e990**

I'll initiate the swap by creating  
a (secret) preimage and hashing it



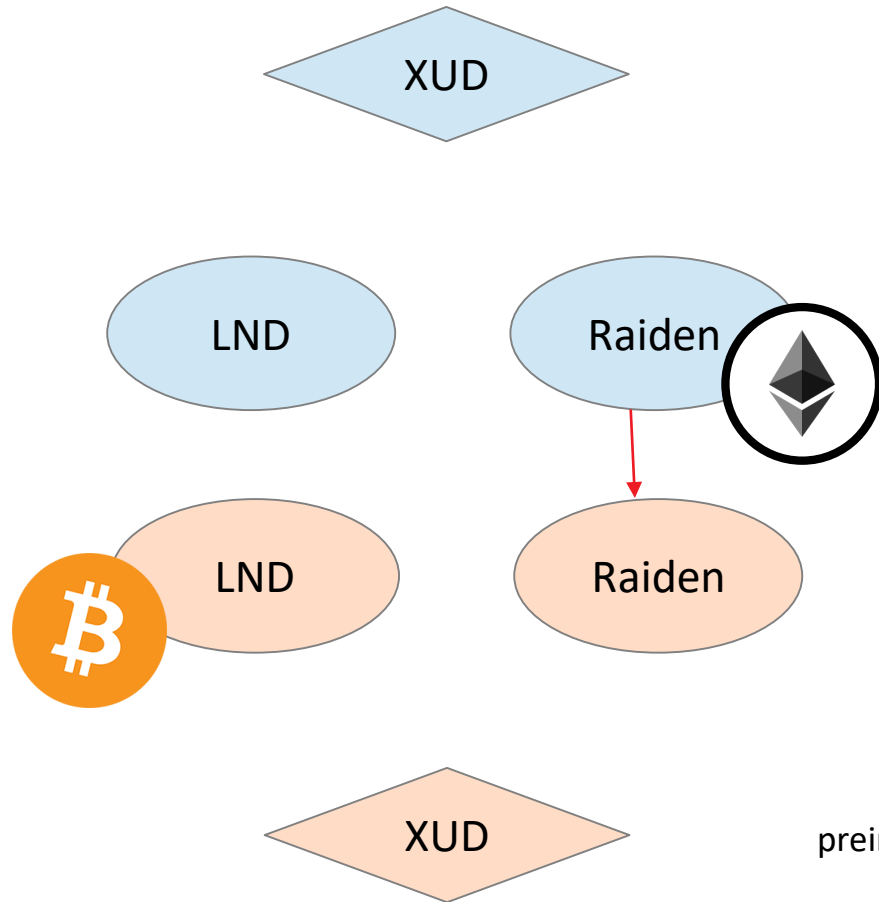
# Atomic Swaps between ⚡ & Raiden

Step 2:



# Atomic Swaps between ⚡ & Raiden

Step 2:



preimage = **MVHz94lIQvHBYSRVUE/XSDNbzdHHSNI4f3pANIhin6ZA=**

r\_hash =

**3151f3f7896542f1c161155413f5d20cd6f376b1d2365e1fde900d2218a7e990**

**Pending HTLC**

amount = **10 ETH**

r\_hash = **3151f3f7896542f1...**

Note: This payment can route through any number of intermediary nodes on the Raiden network

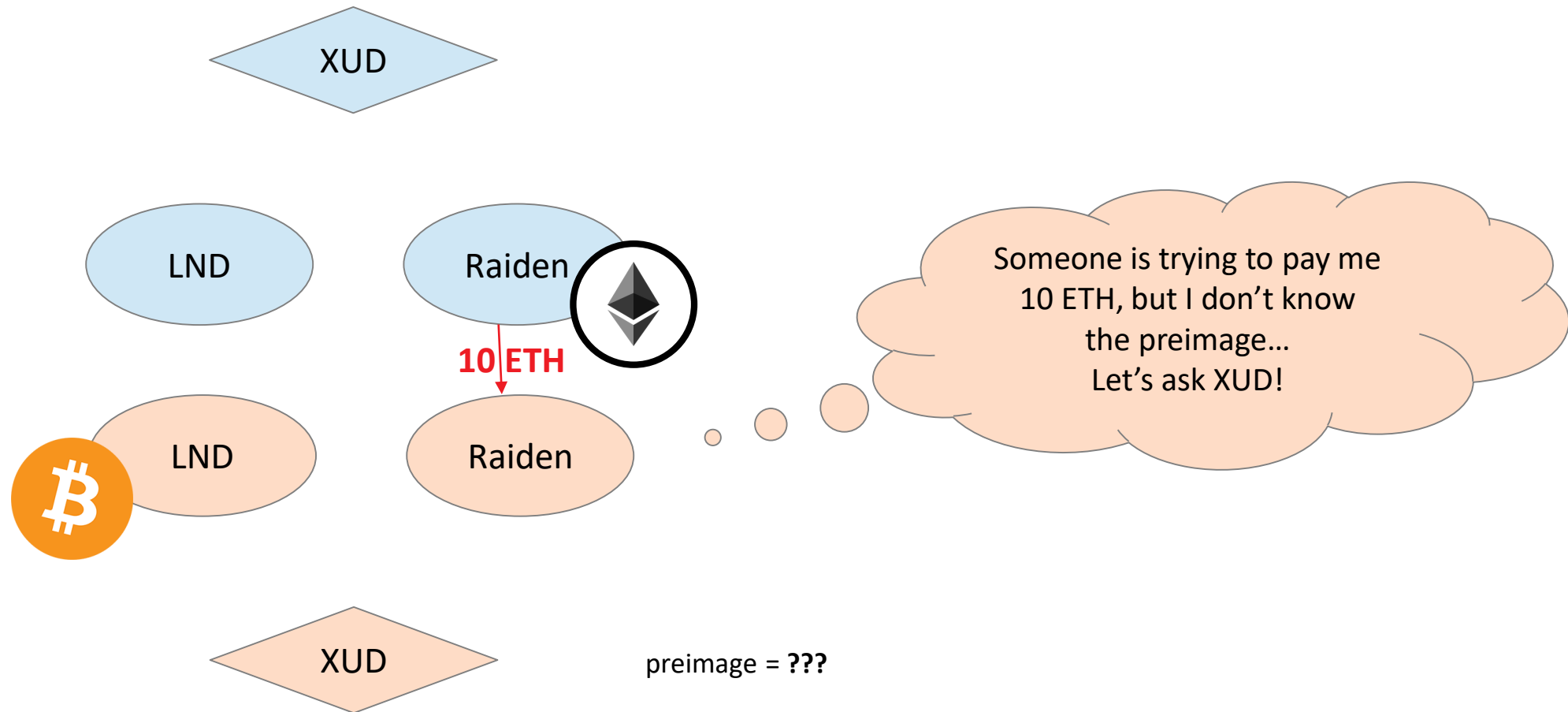
preimage = ???

r\_hash =

**3151f3f7896542f1c161155413f5d20cd6f376b1d2365e1fde900d2218a7e990**

# Atomic Swaps between ⚡ & Raiden

Step 3:



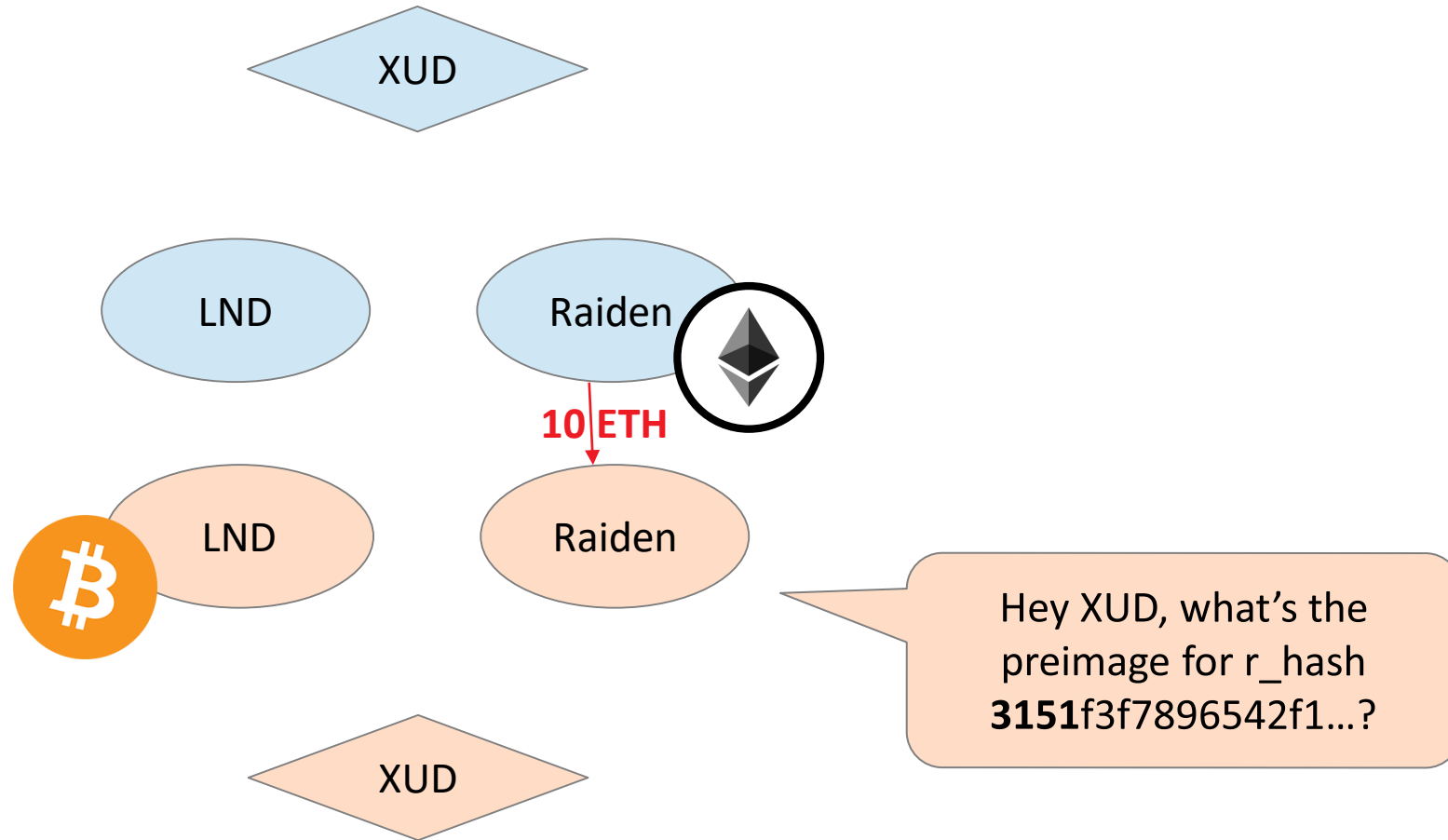
preimage = ???

r\_hash =

**3151f3f7896542f1c161155413f5d20cd6f376b1d2365e1fde900d2218a7e990**

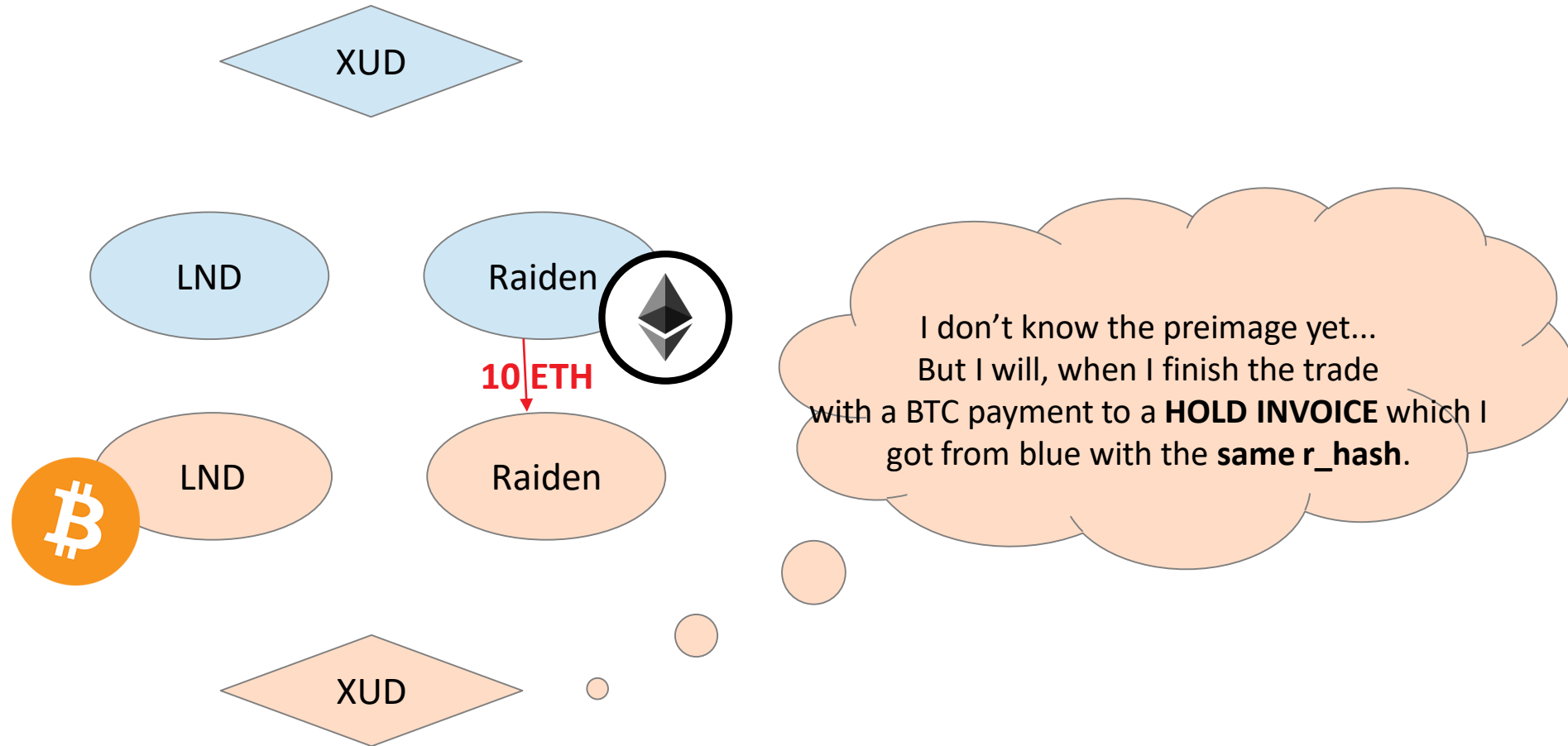
# Atomic Swaps between ⚡ & Raiden

Step 3:



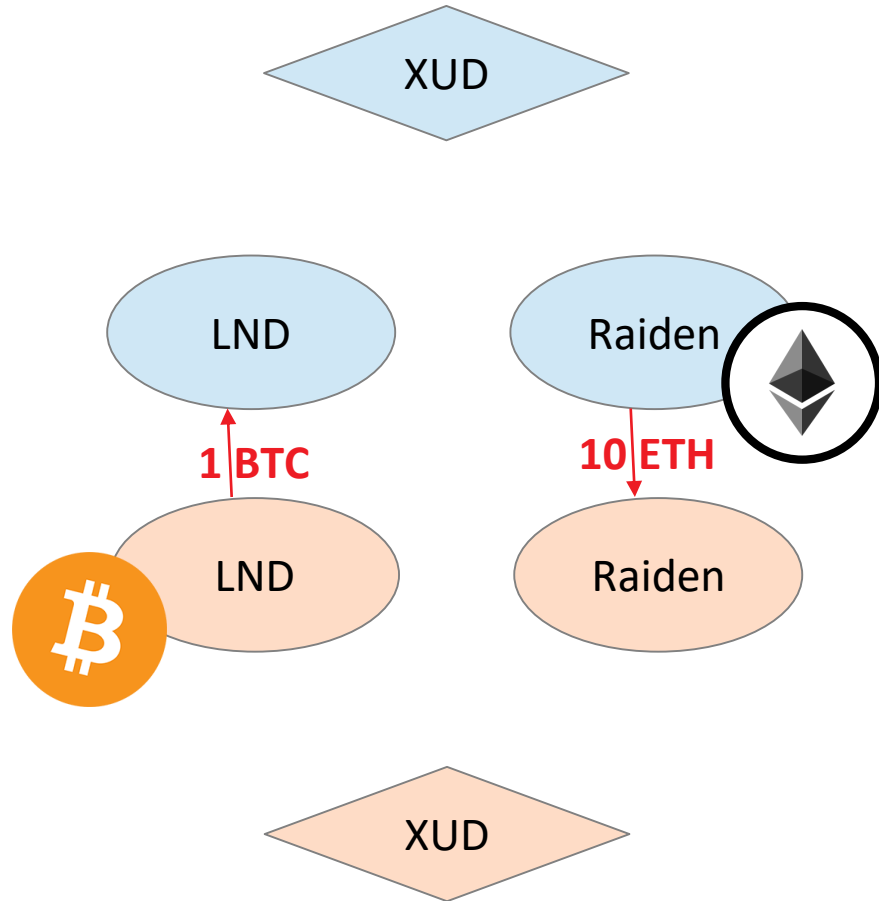
# Atomic Swaps between ⚡ & Raiden

Step 4:



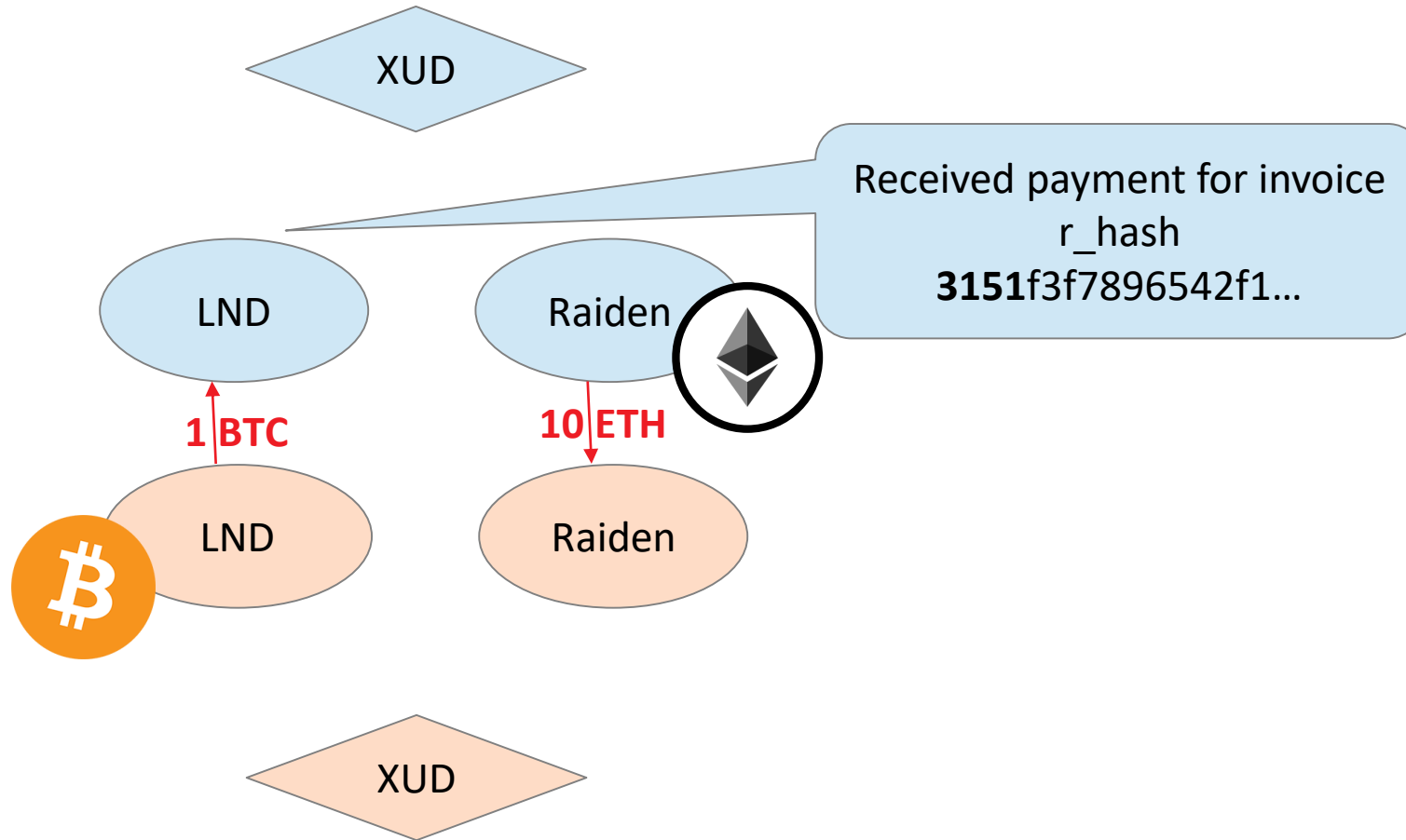
# Atomic Swaps between ⚡ & Raiden

Step 4:



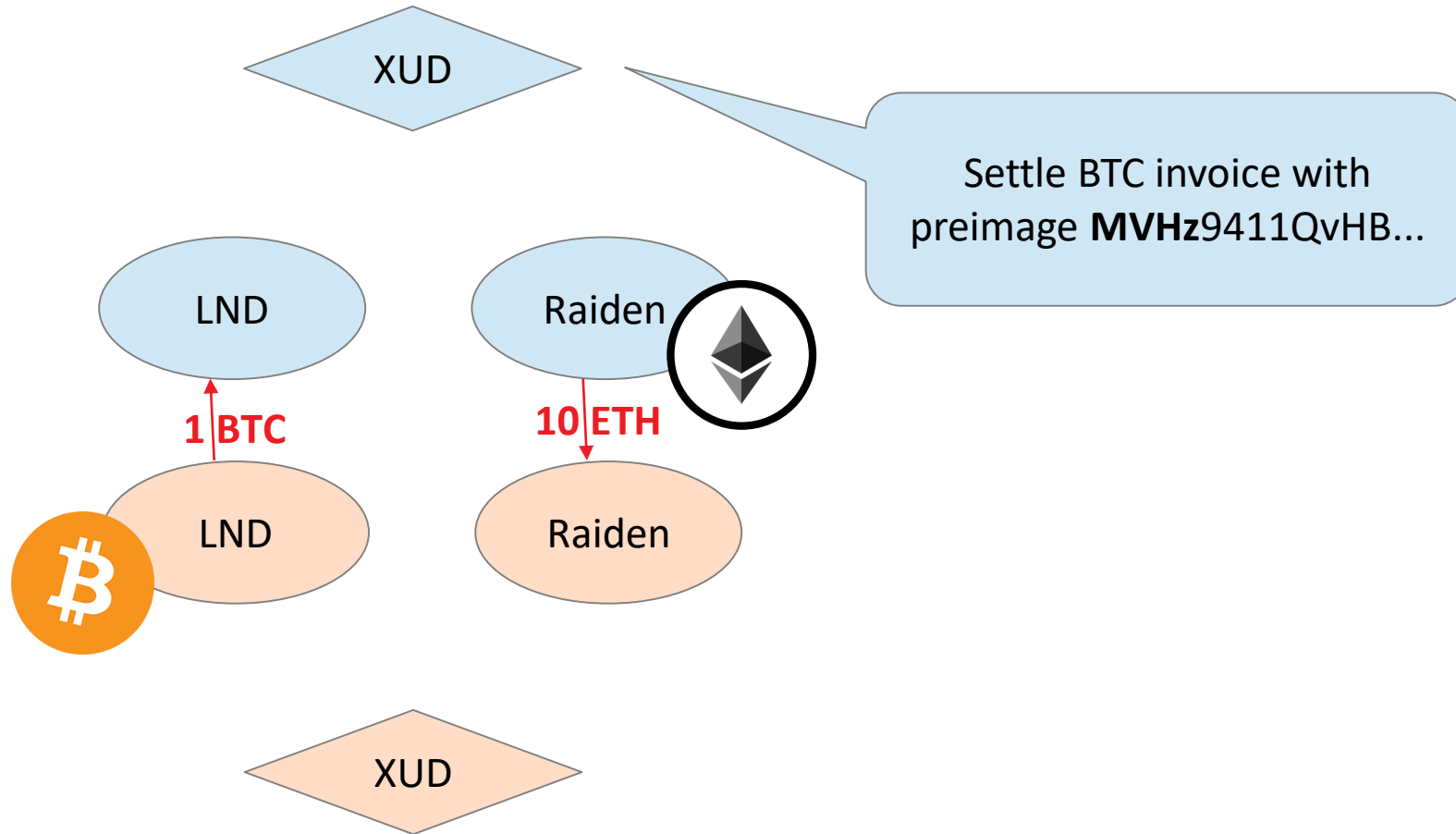
# Atomic Swaps between ⚡ & Raiden

Step 5:



# Atomic Swaps between ⚡ & Raiden

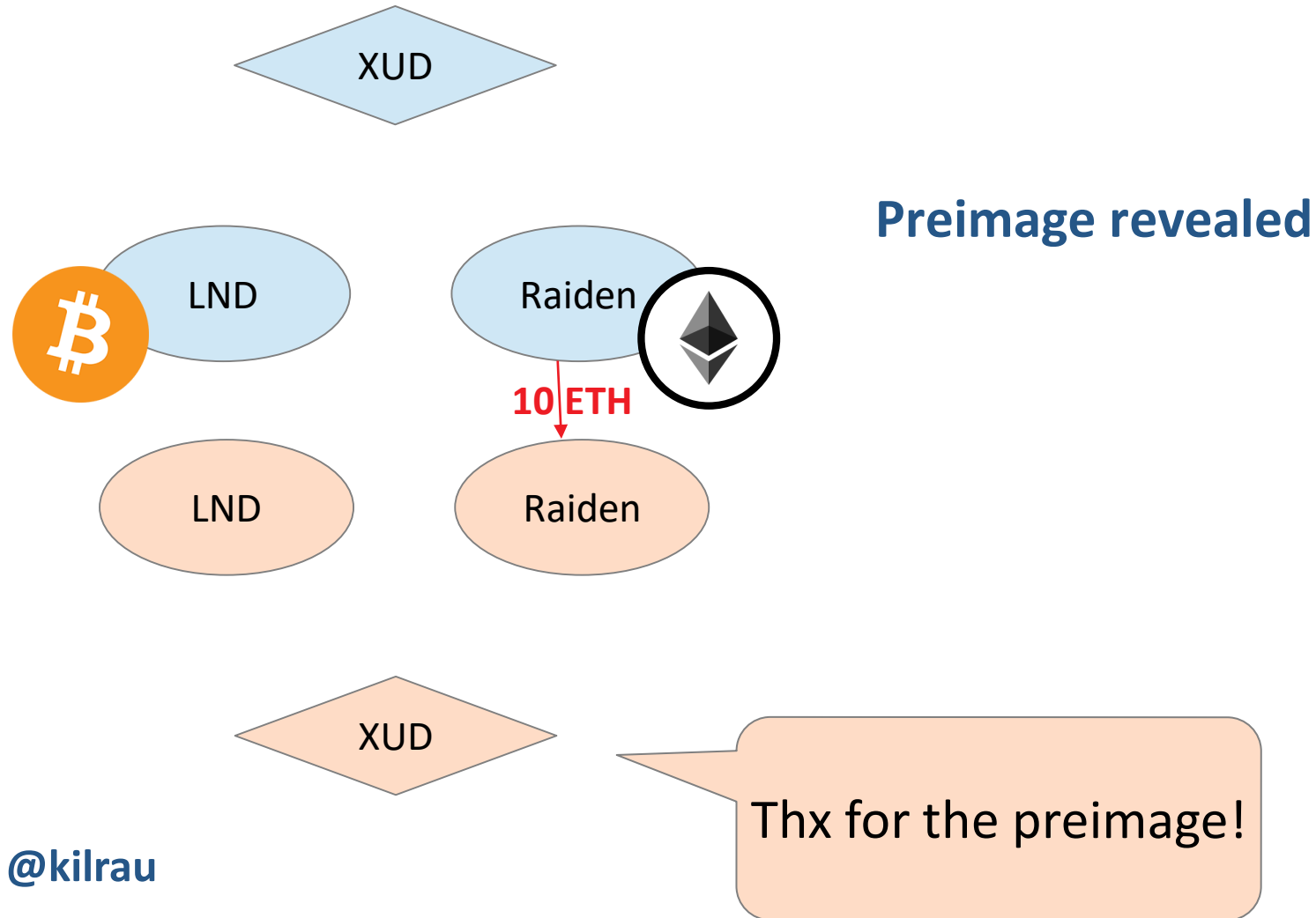
Step 6:





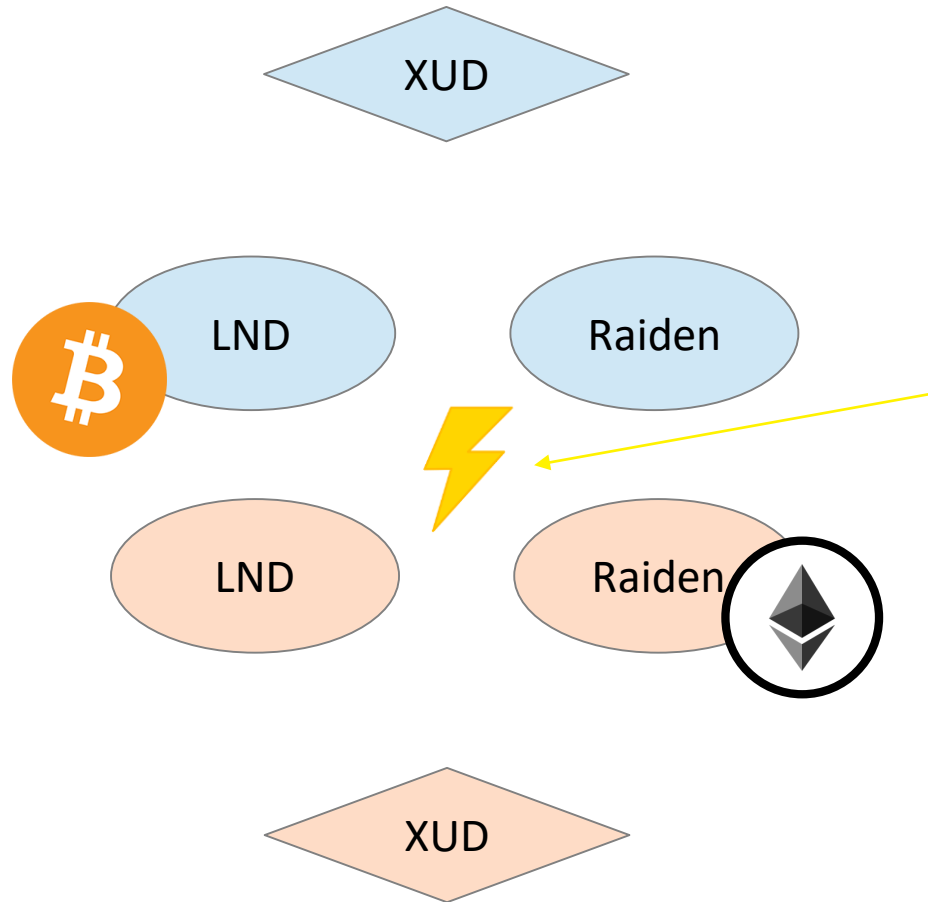
# Atomic Swaps between ⚡ & Raiden

Step 6:



# Atomic Swaps between ⚡ & Raiden

Step 6:



Preimage revealed

**BTC Lightning & ETH Raiden payment settled!**

Note: This payment can route through any number of intermediary nodes on the BTC & LTC lightning network

**DIY:** [github.com/ExchangeUnion/xud/wiki/SimNet-Guide](https://github.com/ExchangeUnion/xud/wiki/SimNet-Guide)



# DEMO



# Sign Up For Testnet Bug Bounty

Link (Google Forms & QR Code)