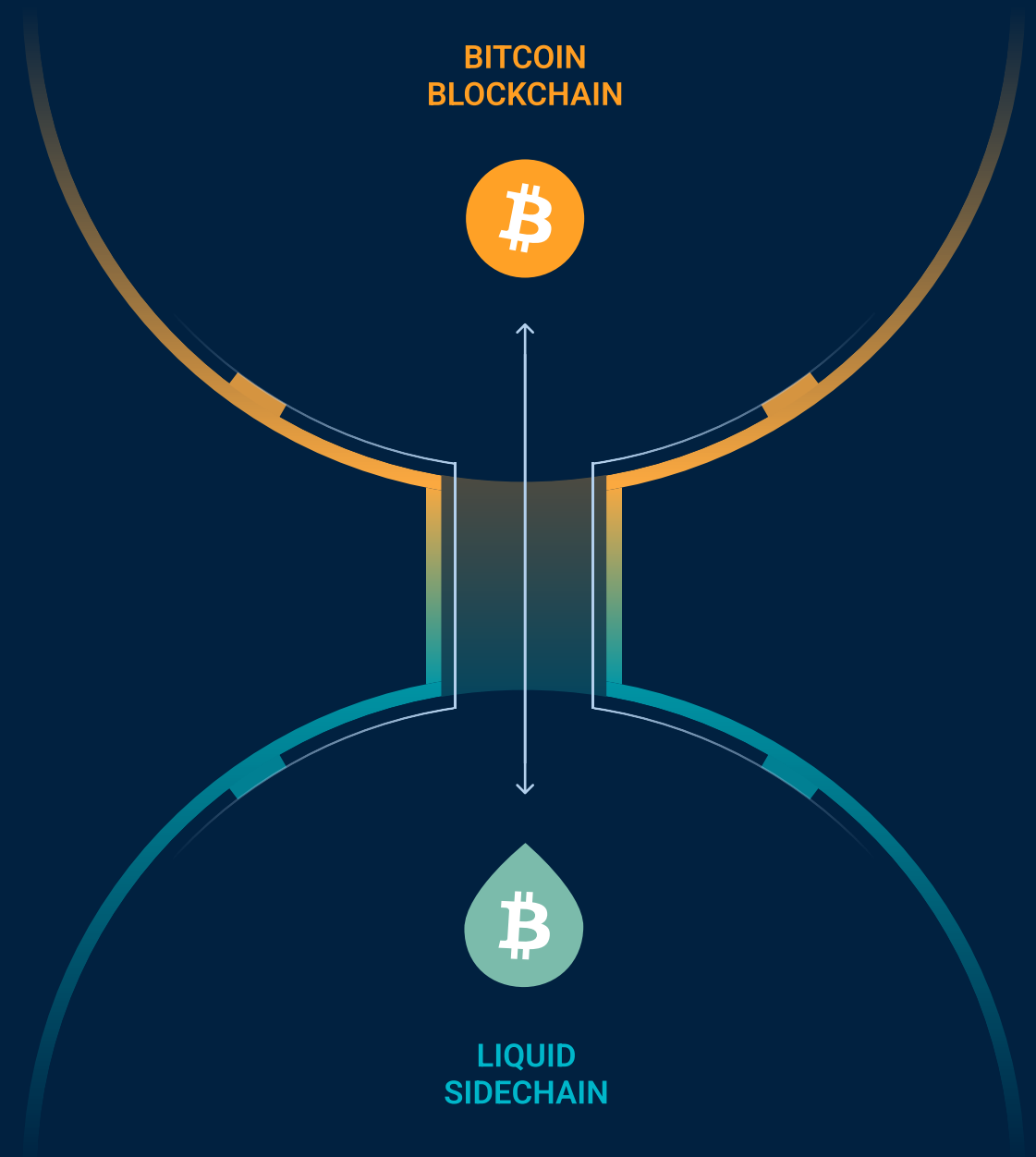


# Peg-in and peg-out service

SideSwap

# Pegs...

- Create and destroy L-BTC on the liquid sidechain
- Maintain Liquid Network BTC equal to the amount of L-BTC in circulation
- Are non-confidential to ensure 1:1 ratio is verifiable



# Liquid Network premise

## Peg-ins



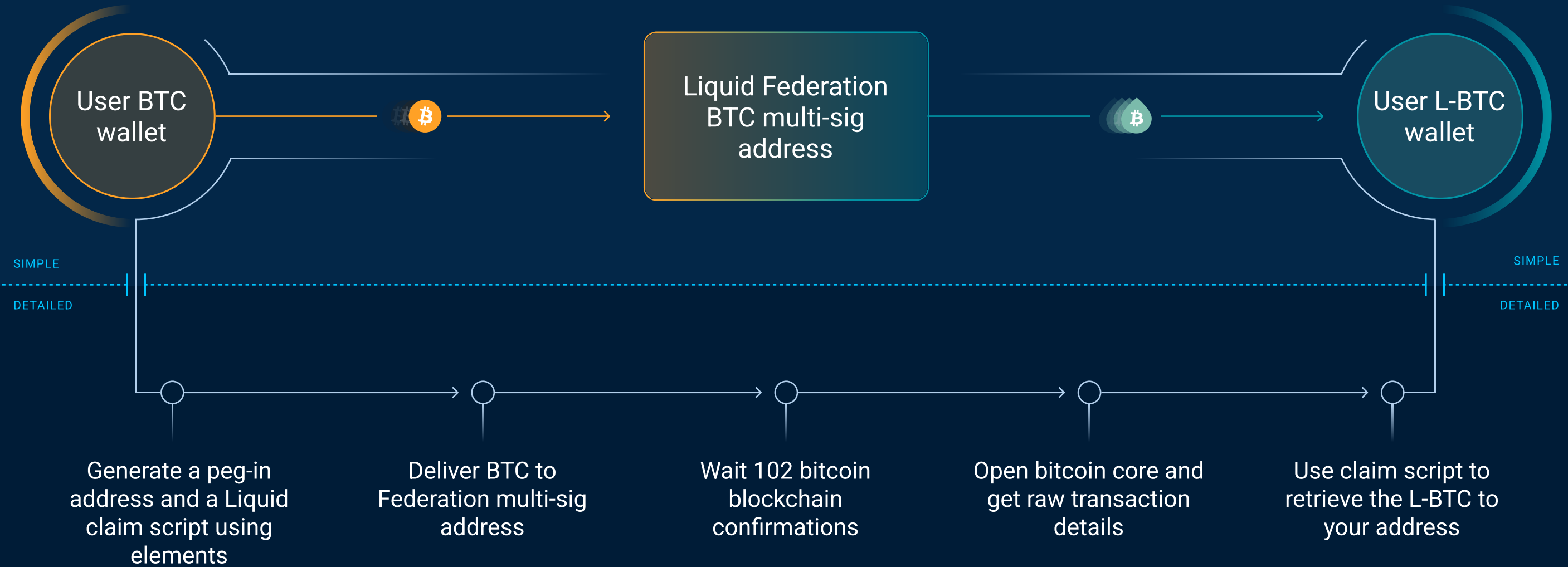
- ✓ May be self-executed
- ✓ Require Bitcoin Core and Elements nodes to be fully synced
- ✓ Can be claimed after 102 bitcoin confirmations

## Peg-outs

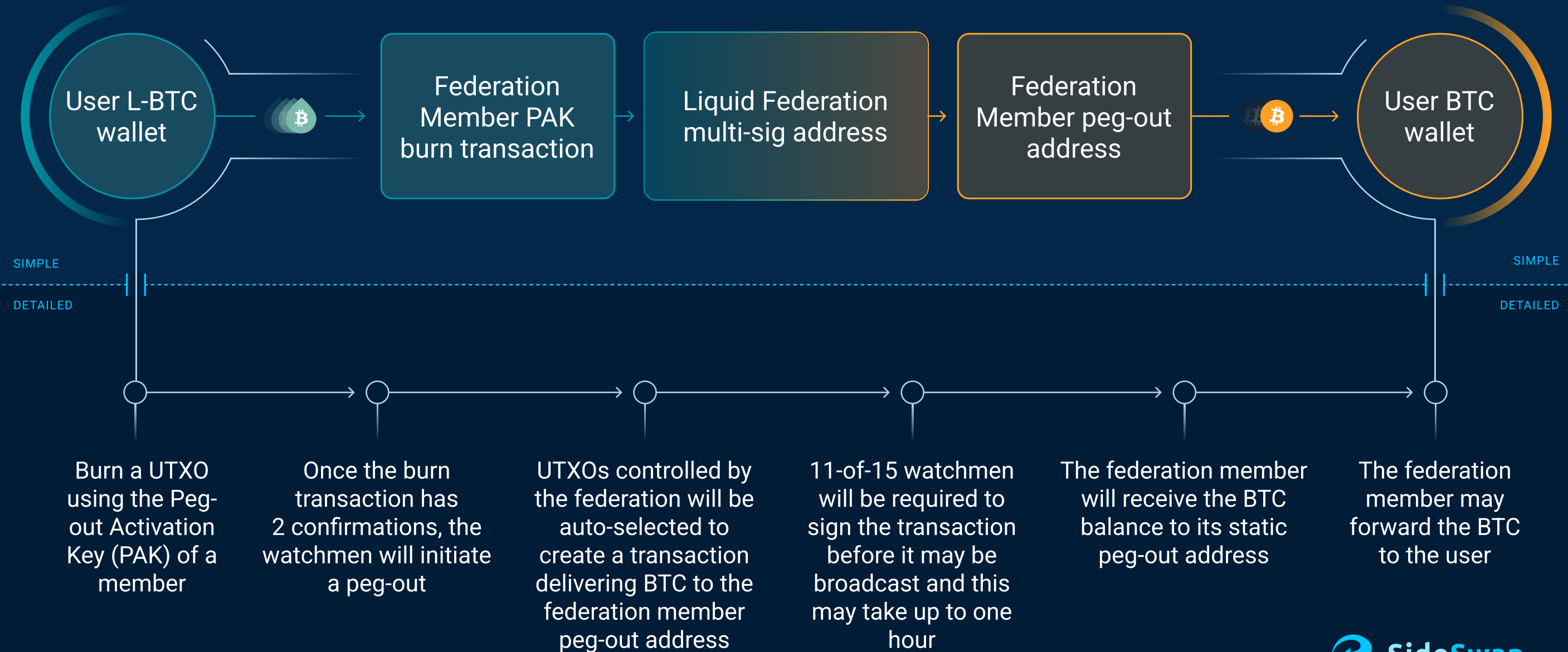


- ✓ Conducted via Federation members
- ✓ Federation members hold Peg-out Activation Keys (PAK)
- ✓ PAK burn L-BTC and release BTC to an address controlled by the member

# Self-executed Peg-in flows



# Peg-out flows



# SideSwap

- Offers a convenient service

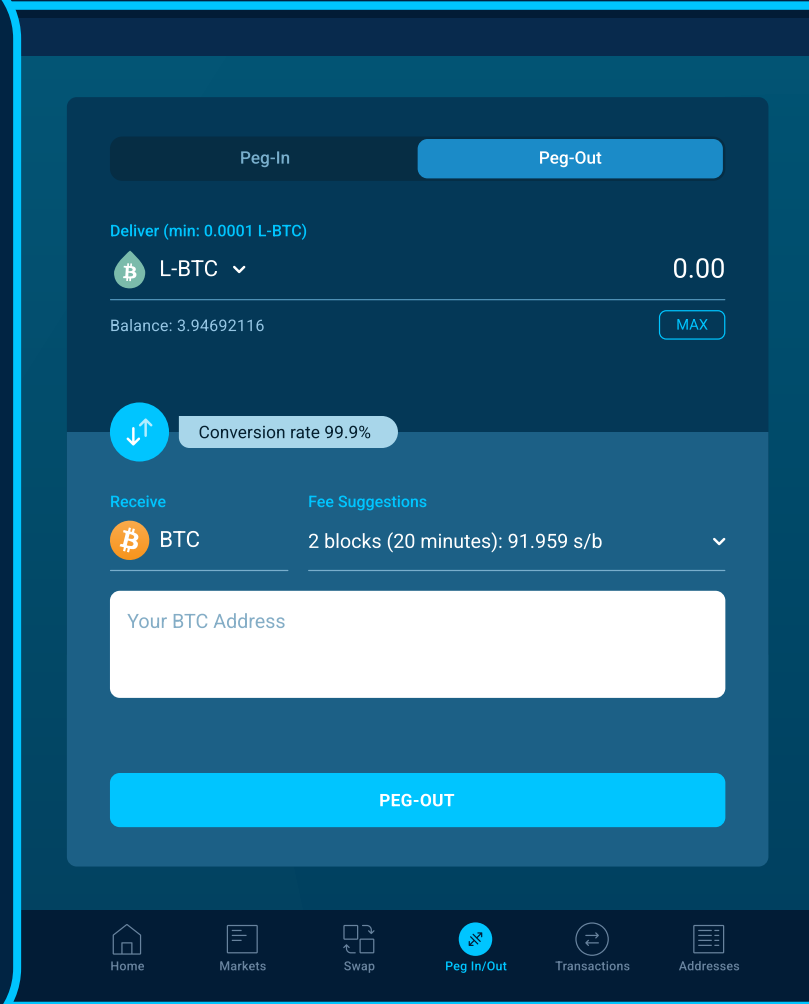
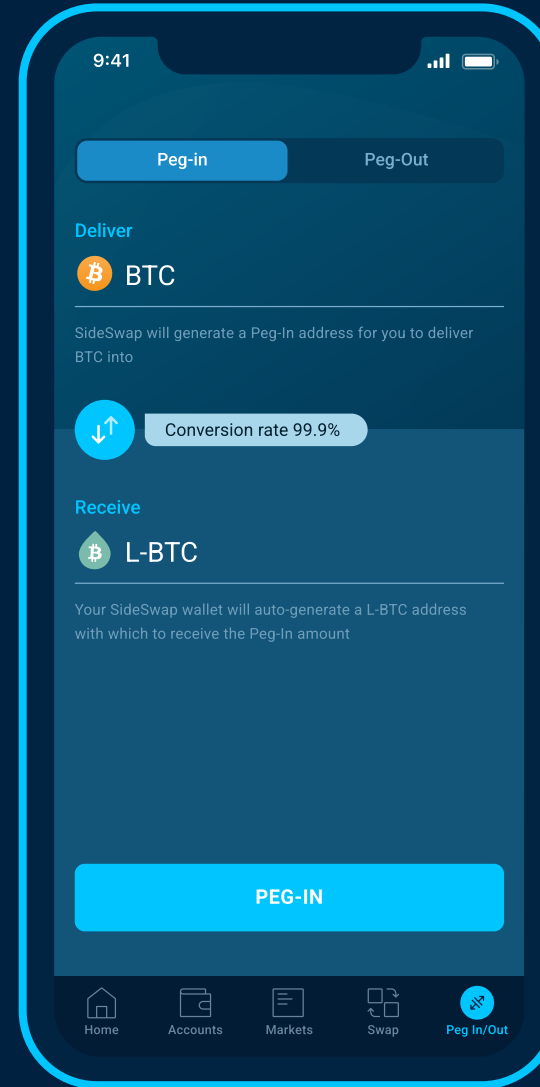
- Smooth UX

- Low fee of 0.1%

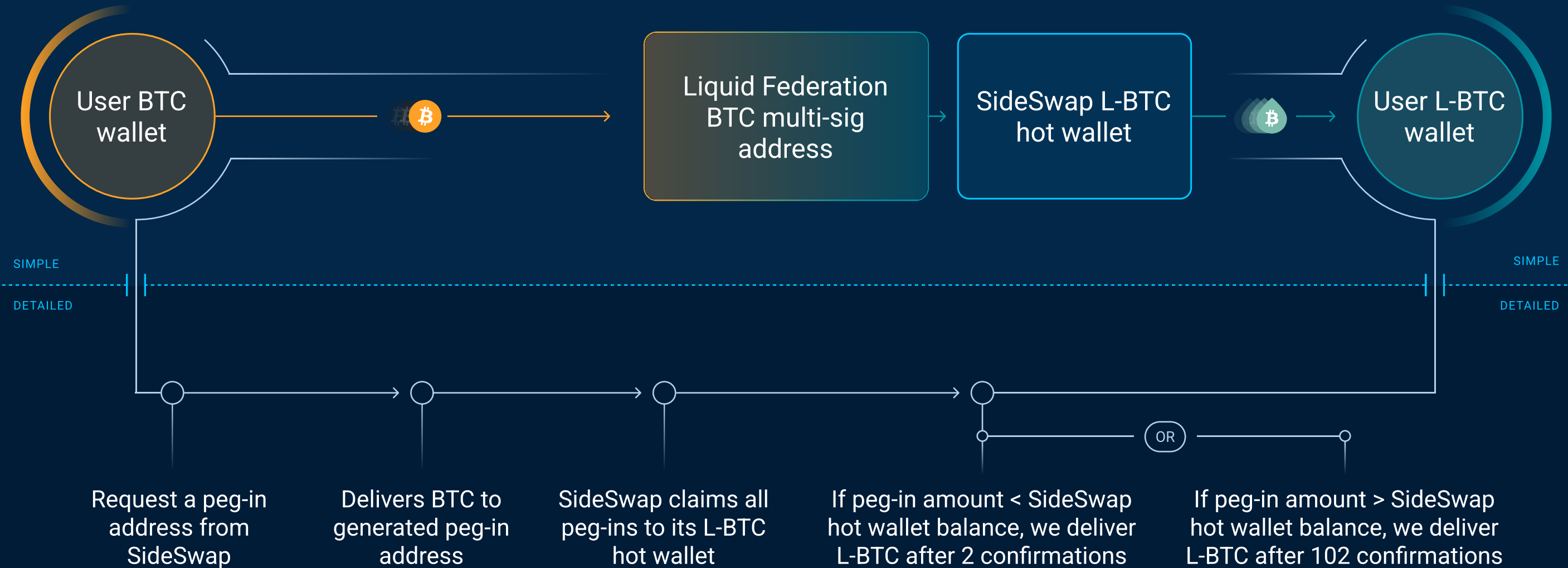
- Requires trust

We control the peg-in claim script

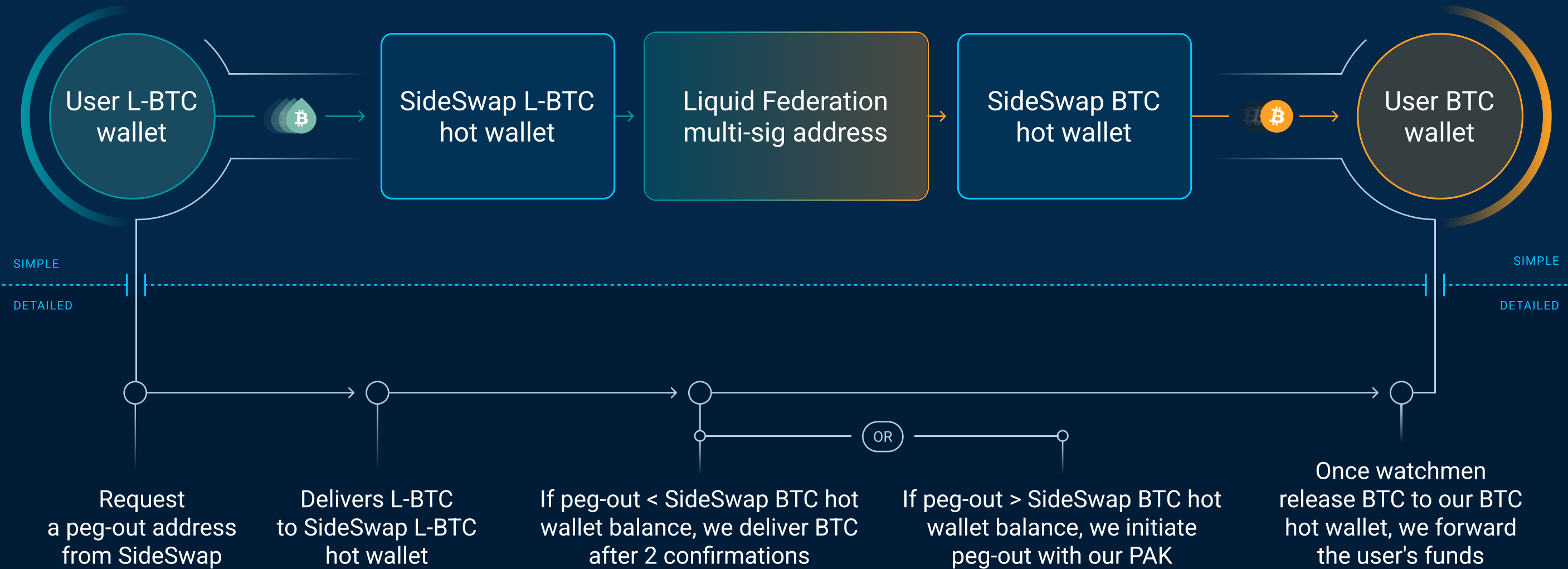
We control the PAK and peg-out address



# SideSwap Peg-in service



# SideSwap Peg-out service





# Questions

- Can addresses be reused?

Yes, but note that addresses do not have unlimited validity.

- How long is an address valid?

Provided that there are no updates to the federation watchmen, the address will remain valid. Any update will be announced well in advance by the federation.

There is work going on to ensure that addresses will be valid as long as there is a quorum of the watchmen which existed at the time of creating the peg-in address (11-of-15).

- Are there any size limitations?

As all pegs are conducted via the issuance and burn process, there are no size limitations.

# Questions

- Why may only federation members hold PAK?

The Liquid Network multisig holding the BTC would become a hot wallet if users could withdraw to any random address.

- How is the supply of L-BTC verified?

All pegs are executed as non-confidential so that users may verify that the issued amount is equal to the BTC held across all Liquid Network Peg-in addresses.

- How are peg-out UTXOs selected?

Peg-out UTXOs are auto-selected and have no relation to which L-BTC are used for peg-outs. UTXOs are fungible.

# Questions

- **How expensive are peg-outs?**

The federation pays transaction fees for releasing BTC from the 11-of-15 multisig address to the Federation members legacy peg-out address. This transaction is large and expensive. SideSwap subsequently deducts the prevailing network fee, for the confirmation time selected, from the amount we forward.

- **Why does SideSwap have a minimum peg-out size?**

Small peg-outs cost more in network fees than the pegged out amount represents. We have a 0.0001 L-BTC limit.

- **What fees does SideSwap charge?**

We subtract 0.1% from the balance we forward. The user receives 99.9%. The fee is collected in the L-BTC hot wallet for both peg-ins and peg-outs. The fee does not include the network fee to forward the balance to the user.

# Questions

- Could the two-way peg be made trustless?

There is currently no known way of creating it completely trustless.

- Who controls the watchmen keys?

Keys are controlled by Federation Members and located on secure servers in multiple jurisdictions and geographic locations.

- Does SideSwap control any of the watchmen keys?

No

- Where can I apply for Federation Membership?

Via the <https://liquid.net/> website

# Thank You!