

Lightning node operators guide

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Bitcoin Ljubljana 2021
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Lightning network in 1min

- Payment channels on Bitcoin
- Micropayments
- Bitcoin scaling solution

So you want to run a lightning node

- Why
- What
- How

Why

- Learning more about bitcoin
- Spending your bitcoin
- Developing applications on lightning network
- Becoming a profitable routing node
- Earning APY while doing self-custody

(major) Lightning implementations

- LND (Go - lightninglabs)
- C-lightning (C - blockstream)
- Eclair (Scala - ACINQ)
- Electrum
- Rust-lightning

Where can my lightning node exist

- Self-hosting
- Rented infrastructure
- Managed nodes

Self-hosting

Benefits:

- Your keys are in your living room
- Privacy (if running on tor)

Cons:

- Potentially unstable node
- Scaling
- Privacy leak (clearnet)

Options:

- Umbrel
- Mynode
- Raspiblitz
- lnd/c-lightning/eclair/electrum

Someone else's computer

Benefits:

- Stable infrastructure
- Scaling (important for big routing nodes)
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Cons:

- Potential key exposure

Options:

- dedicated servers
- aws/gcp/do/random vps providers
- voltage.cloud (managed ln nodes)
- nodl.it

Node performance - no lightning speed

Configuration	Transactions per second
LND (bbolt)	33
LND (bbolt, keysend payments)	35
LND (single-instance etcd)	4
LND (etcd cluster)	4
c-lightning (sqlite, single channel)	61
eclair (sqlite)	12

✓ Google Cloud n2d-standard-8 instance (8 vCPUs, 32 GB memory)

✓ 100 GB zonal pd-ssd with ext4 filesystem

✓ Ubuntu 20.04 LTS

Management tools - everybody likes to click

- Thunderhub
- Ride The Lightning
- Lightning Terminal

So you've got a node now...

- Backups
- Liquidity
- Balancing
- Start earning sats

Backups, backups, backups

- Onchain backups -> protect your seed
- Offchain/SCB backups
 - Filesystem based (ionotify)
 - Balance of Satoshi (bos) telegram integration
 - RTL/Thunderhub

Opening channels - where to?

- Depends on your goals
- More art than science
- Chan suggestion tools
 - gridflare.xyz
 - moneni.com/nodematch
 - terminal.lightning.engineering
-

Finding (inbound) liquidity

- Plebnet / Rings Of Fire (active communities)
- Lightning2me (open balanced chans)
- LNBIG (pay for inbound)
- Lightningnetwork.plus (triangle or bigger swaps)

Balancing channels - to rebalance or not to rebalance

- rebalance-lnd
- charge-lnd
- bos
- loop

How to become a (profitable) routing node



Alex Bosworth
@alexbosworth

In the past year I've routed ~\$500k earning ~\$1.25k in routing fees

Common profit-seeking routing node misconceptions:

1. You must keep a specific ratio of liquidity vs peers
2. Routing activity spreads out evenly across peers
3. More capital means more routing

6:30 PM · Jul 1, 2020 · Twitter Web App



Alex Bosworth
@alexbosworth

... So far this year my Lightning nodes have generated me \$30k+ in fees. It's always been the dogma that operators won't earn, and it's true that \$30k isn't an enormous sum to me. But think about the global economy we're creating. To a whole lot of people, \$30k would be a huge take.

7:13 PM · Jul 30, 2021 · Twitter Web App

2 yalls.org nodes with combined capacity over 60BTC/ 242 channels

Lightning Pool

- Non-custodial p2p marketplace for buying or selling lightning liquidity
- Great for onboarding new users to lightning without them having to open channels
- Sealed auction type incentivises users to post true borrowing/lending rates rather than trying to game the market

Resources

Collection of links (and more) from this talk:

<https://github.com/aljazceru/lightning-network-node-operator/>

Plebnet community wiki

https://plebnet.wiki/wiki/Main_Page