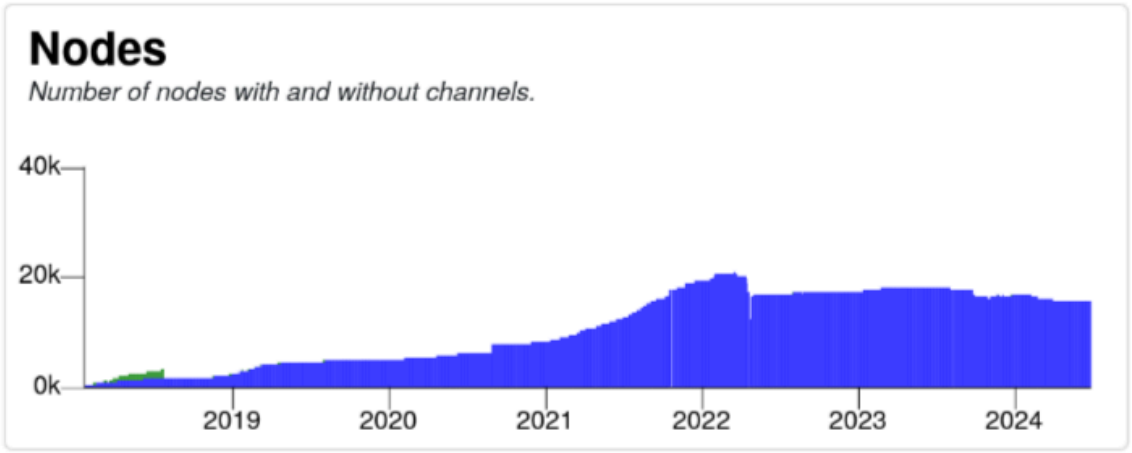
CKB Fiber Network

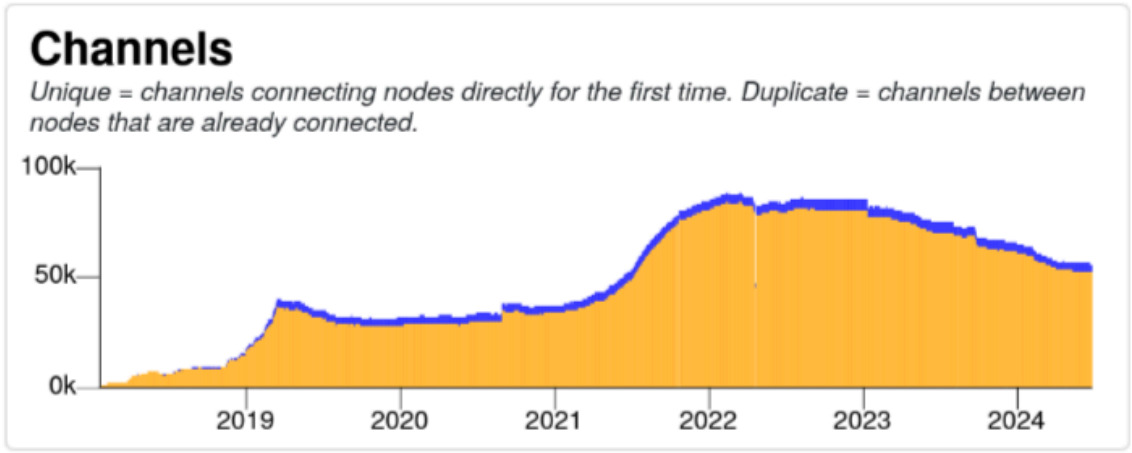
the best thing you may have never heard of about bitcoin lightning network

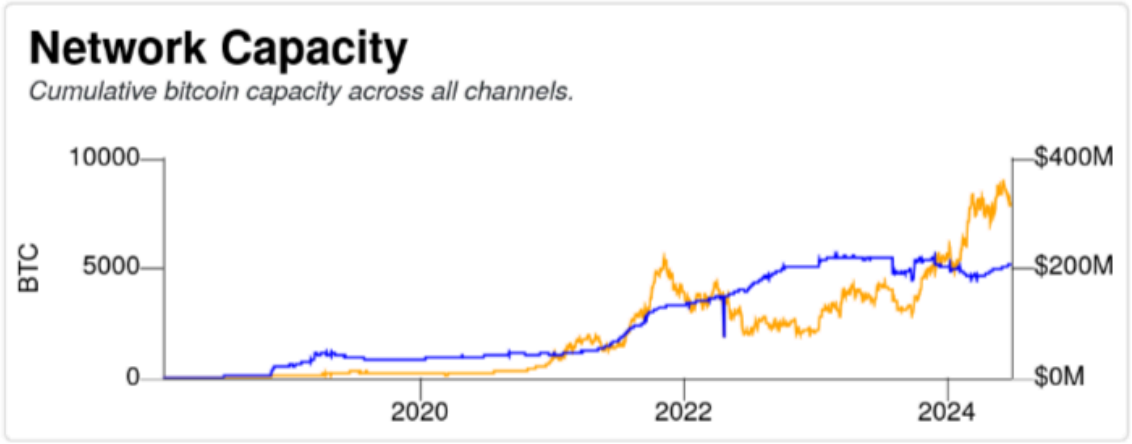
Mass adoption

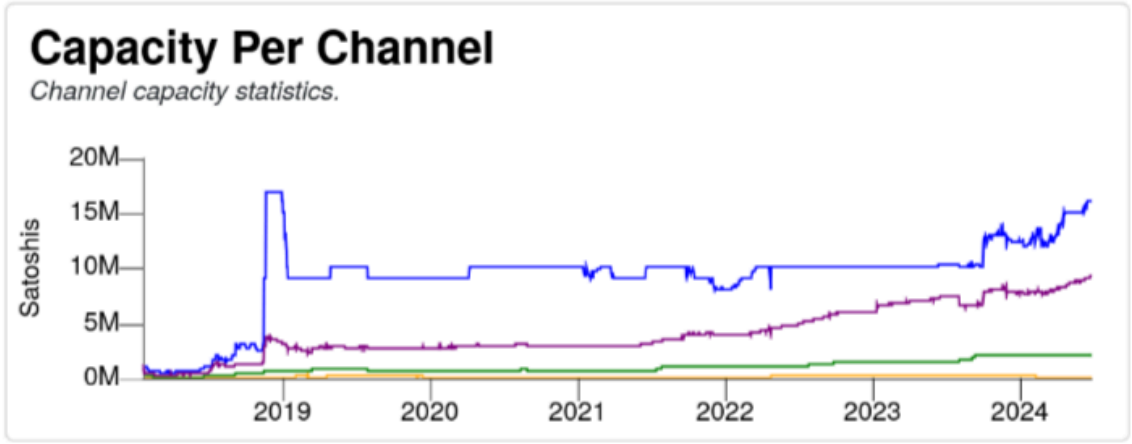
Everyone is anticipating it, but can we live long enough to witness it?

2024, the year of BTC L2? All quiet on the LN front





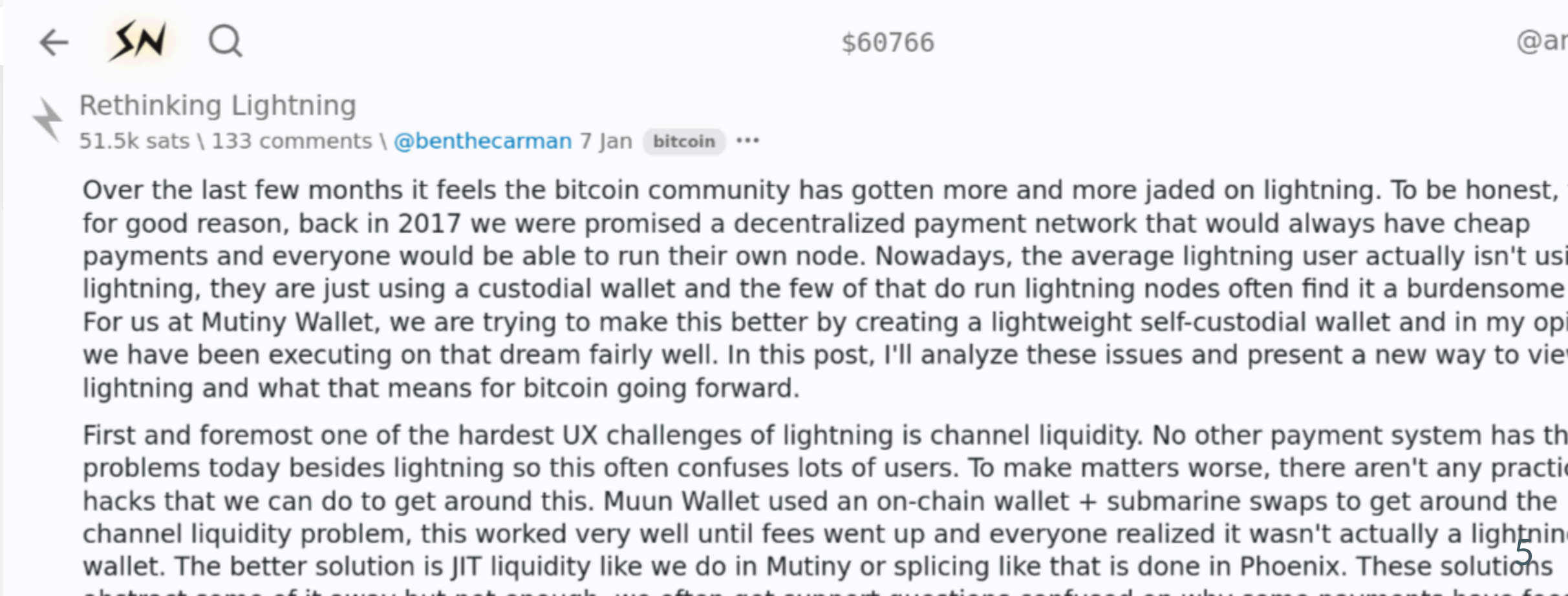




User experience of lightning network (or crypto currency in general)

Rethinking lightning

Source: Rethinking Lightning https://stacker.news/items/379225



- Nowadays, the average lightning user actually isn't using lightning, they are just using a custodial wallet and the few of that do run lightning nodes often find it a burdensome task.
- First and foremost one of the hardest UX challenges of lightning is channel liquidity.
- The other major pain point of lightning is the offline receive problem.
- Combining existing large scale lightning infrastructure with self-custodial solutions sadly, isn't totally possible.
- So how do we scale ownership? Simply put, the answer today is custody, whether that is pure custodial like a Wallet of Satoshi or in the grey area like fedimints and liquid, the only way to do it today

> Are we doomed then? Is there no way to scale bitcoin in a self-sovereign way? Luckily, the answer is no, but we need some soft-forks. Covenants are the way to scale bitcoin ownership.

What covenants can do?

CLTV is not included here. Source: https://utxos.org/alternatives/

use case	apo	ctv	txhash	tluv	intro	vault	catt	matt
Lightning Symmetry	yes	csfs*	csfs*	?	yes	no	yes	yes
Vaults	yes*	yes*	tap*	yes	tap*	yes	yes	yes
Payment Pools	yes	yes	tap*	yes	tap*	~ctv	yes	yes
Ark	no	yes	yes	no	yes	~ctv	yes	yes
Fraud Proofs	no	no	no	no	no	no	yes	yes
Statechains	yes	csfs*	csfs*	?	yes	no	yes	yes
Spacechains	yes	yes	yes	?	?	~ctv	?	?
Congestion Control	no	yes	yes	no	yes	~ctv	yes	yes

Two major problems in lightning network

- Use case 1 Lightning Symmetry: async receiving
- Use case 2 Payment Pools: inbound liquidity

Think every merchants needs to run their own node 7*24 hours and always check their inbound liquidity to receive money normally.

When can we use covenants on BTC?

Join BTC by CKB

Wait, does CKB have covenants already?

They have always been there. Just too trivial to give a dedicated term.

And can CKB do that?

Alternative Designs

use case	apo	ctv	txhash	tluv	intro	vault	catt	matt	tplk	CKB
Lightning Symmetry	yes	csfs*	csfs*	?	yes	no	yes	yes	yes	yes
Vaults	yes*	yes*	tap*	yes	tap*	yes	yes	yes	tap*	yes
Payment Pools	yes	yes	tap*	yes	tap*	~ctv	yes	yes	tap*	yes
Ark	no	yes	yes	no	yes	~ctv	yes	yes	yes	yes
Fraud Proofs	no	no	no	no	no	no	yes	yes	no	yes
Statechains	yes	csfs*	csfs*	?	yes	no	yes	yes	yes	yes
Spacechains	yes	yes	yes	?	?	~ctv	?	?	yes	yes
Congestion Control	no	yes	yes	no	yes	~ctv	yes	yes	yes	yes
ETA	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	2019

- yes*: CTV/APO enable better vaults than are currently possible, but not nearly as good as OP_VAULT ones.
- tap*: yes if combined with something that allows turning a script into a Taproot, plus often also OP_CAT
- csfs*: yes if combined with OP_CHECKSIGFROMSTACK
- ~ctv: yes but only because the OP_VAULT proposal also includes OP_CTV

Request for fact-checking

- You are welcome fact-check my hasty conclusion above (it's backed by only over-confidence).
- I will not fix any inaccuracy in my slides, as CKB is easily fixable.

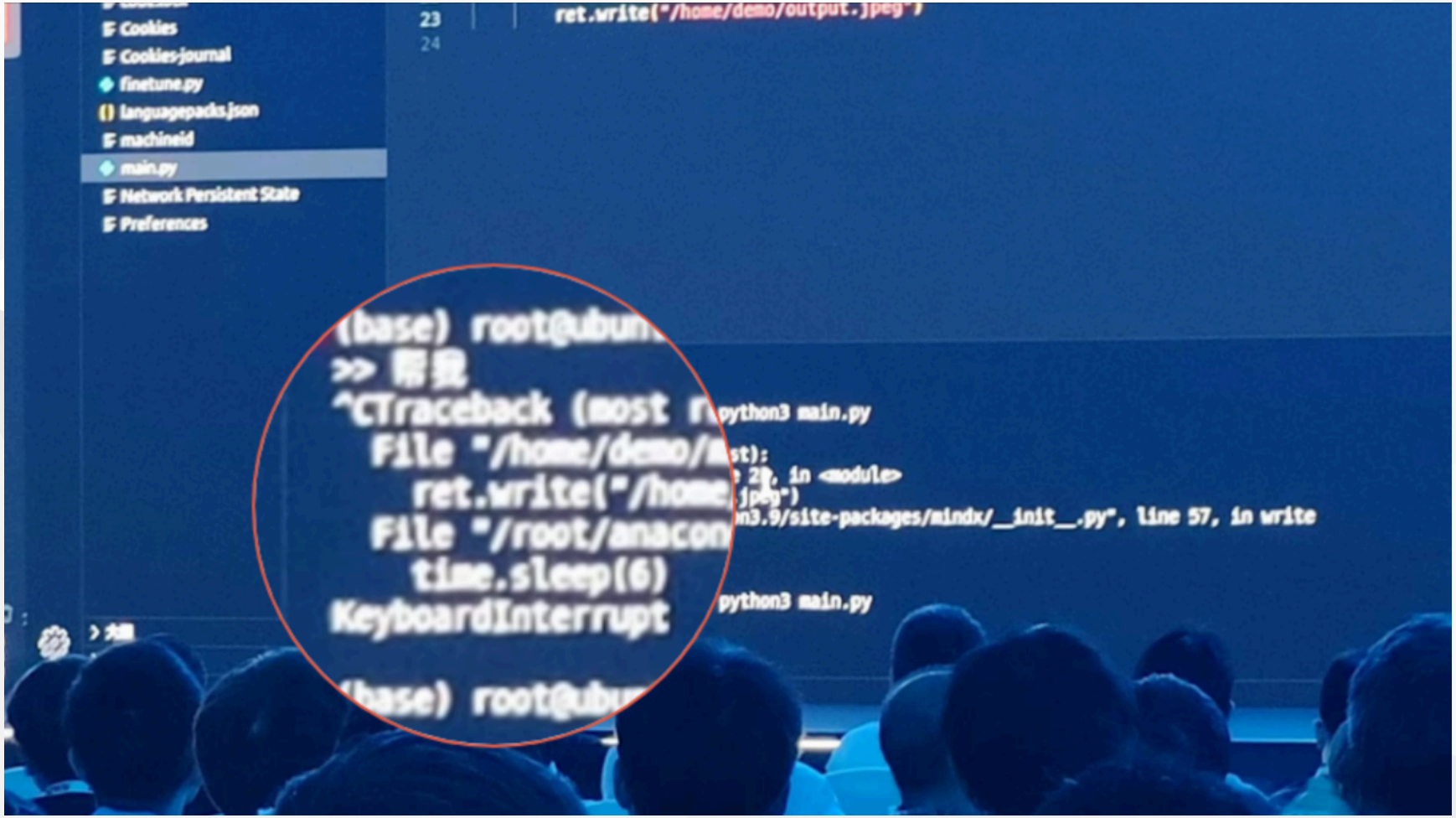
Introducing CKB Fiber Network (CFN)

$2 + 2 = \infty$

- Lightning network: Instant, Infinitely Scalable P2P Payment System
- CKB: Unmatched Flexibility and Interoperability

Call this L_∞ instead of L_3 or L_4.

At this point, you may be completely bewildered.



Talk is cheap

Show me ~~the cool demos~~ `time.sleep(6)`

High level overview of CFN

Before we going down into the details. Here is a high level overview of CFN

TODO: may be with some diagrams.

Demo time and some bad news

We only have time to show some staged animations.

TODO: show some testnet transaction screenshots on the explorer websites.

CFN as of today

- Native multi-assets payment channel network
- Native bitcoin lightning network interoperability with atomic 2-way transfers
- Same secure assumption with bitcoin

TODO: refine the list here.

CFN as of tomorrow

We will be focusing on the infrastructure side that application developers can leverage to change the world.

- Leverage existing BTC lightning network infrastructure for payment routing
- Rethink lightning network with CKB's extensibility and programmbility

TODO: add things on the roadmap here

Join the force

Come and build
For Life is too short
To wait for BIPs to land