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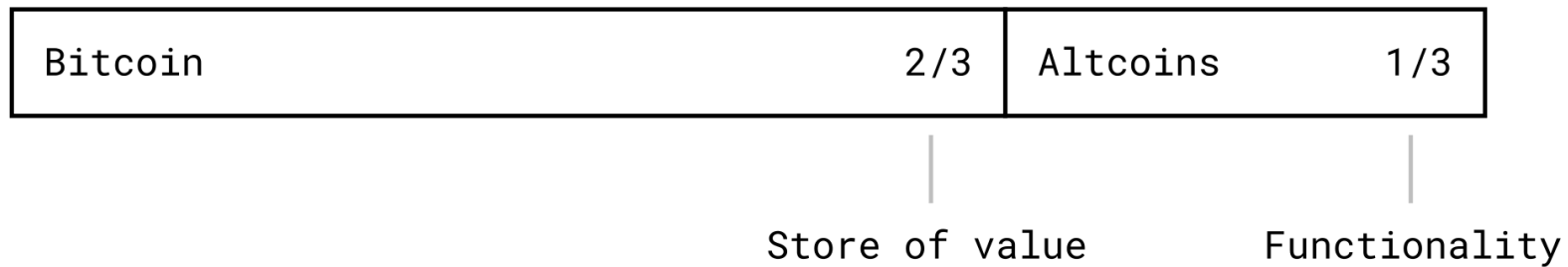
Flame

decentralized electronic cash with
confidentiality and smart contracts

Oleg Andreev, runflame.org

Berlin, October 2, 2026

Bitgold is fragmented and divided



Flame expands Bitcoin

Decentralized proof-of-burn consensus on Bitcoin.

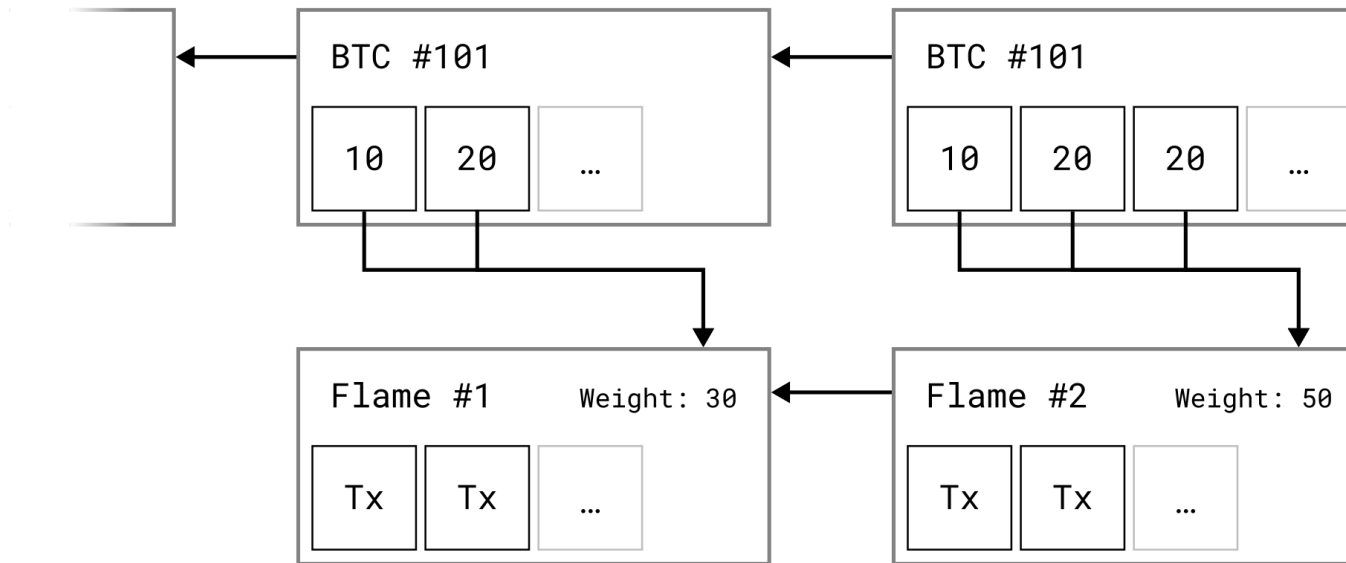
Confidential transactions.

High-level VM with linear types, objcap,
programmable ZK constraints.

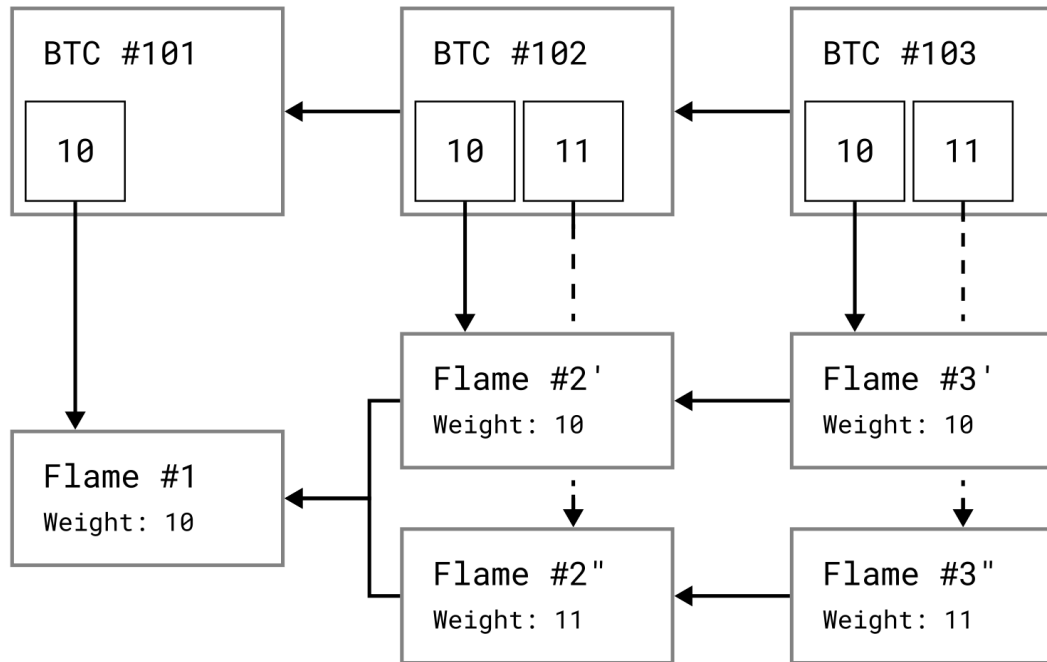
Scalable storage with Utreexo.

Work in progress, mainnet launch January 2027.

Proof-of-burn consensus



Forks & reorgs

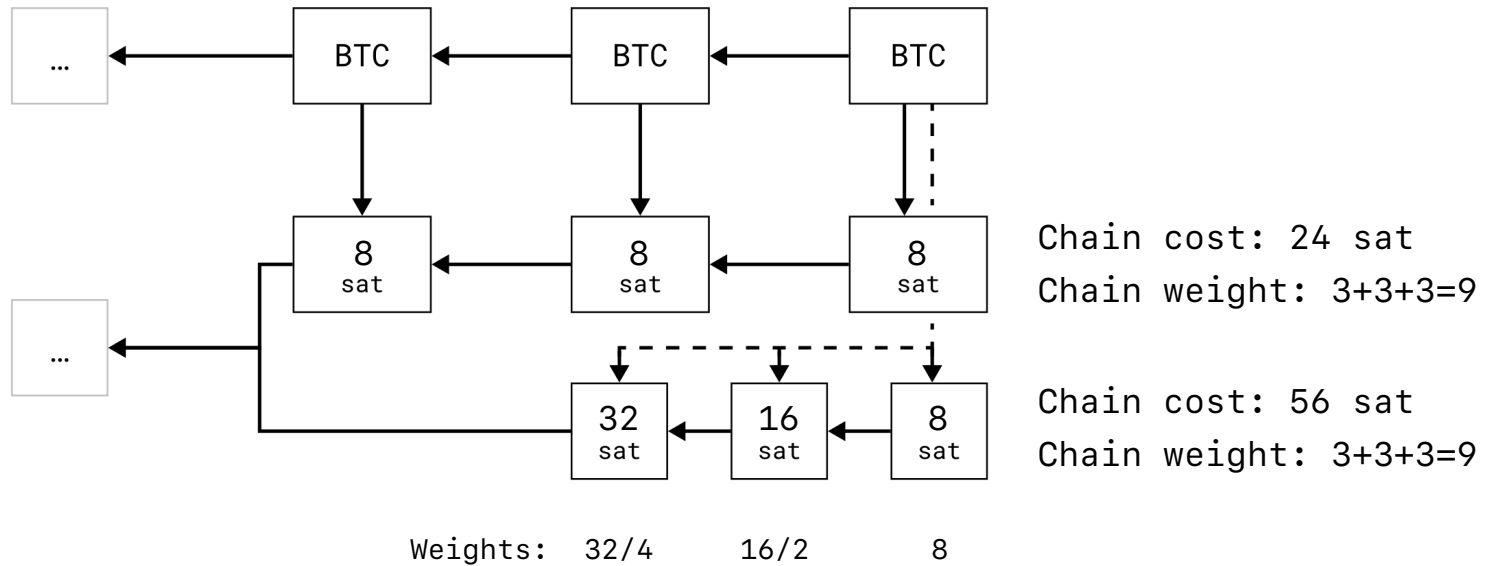


Chain weight:

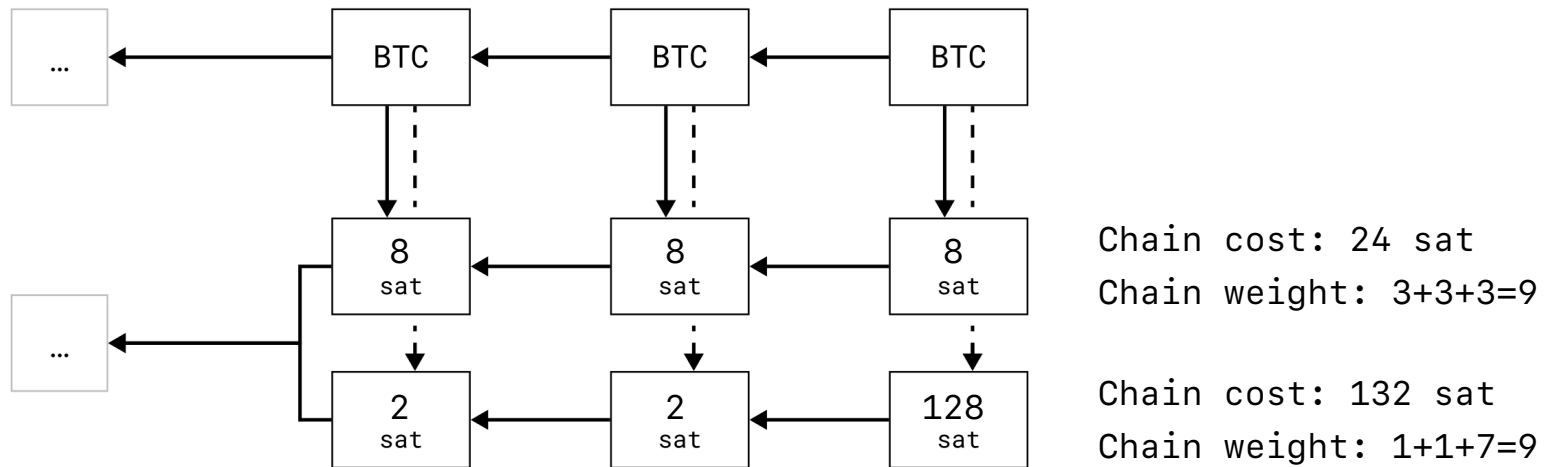
$$\log_2(10) + \log_2(10) + \log_2(10) = 9.9$$

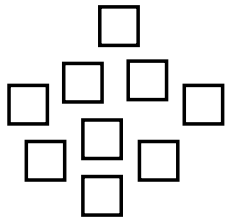
$$\log_2(10) + \log_2(11) + \log_2(11) = 10.2$$

Delayed blocks are expensive



Concentrated attacks are expensive



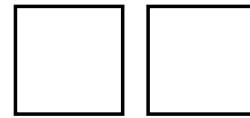


Contracts

Taproot outputs.

One-time use & compressed.

Locks, covenants, multisig, 2FA.



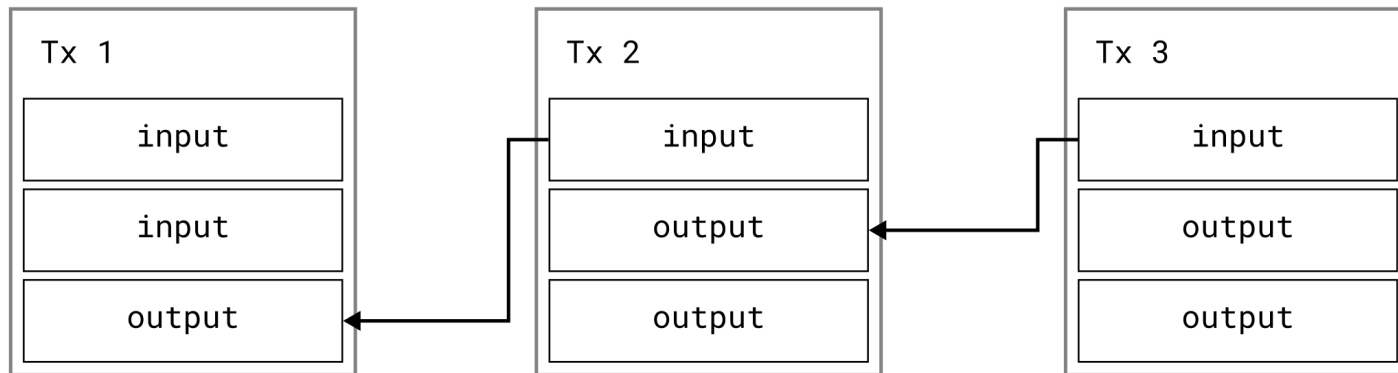
Actors

Multi-player contracts.

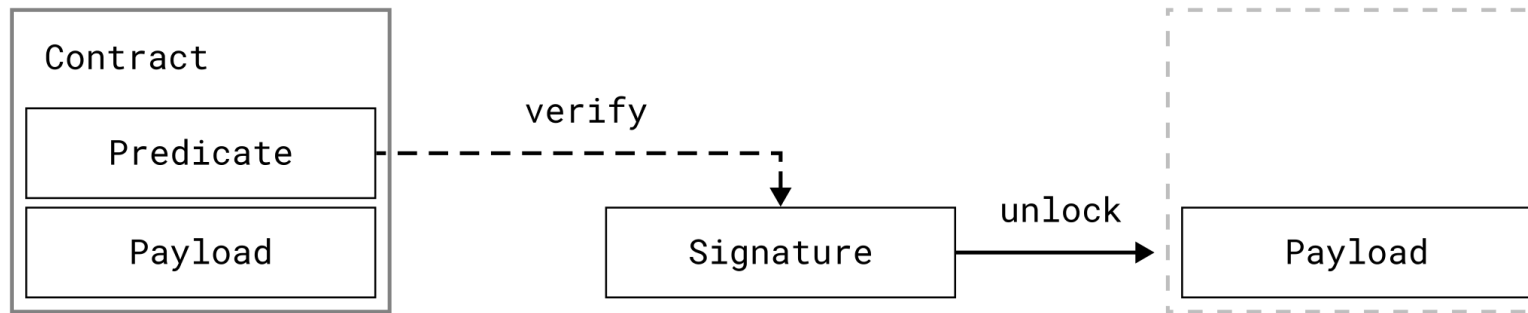
Persistent storage & identity.

DEXes, pools, loans, synthetic assets.

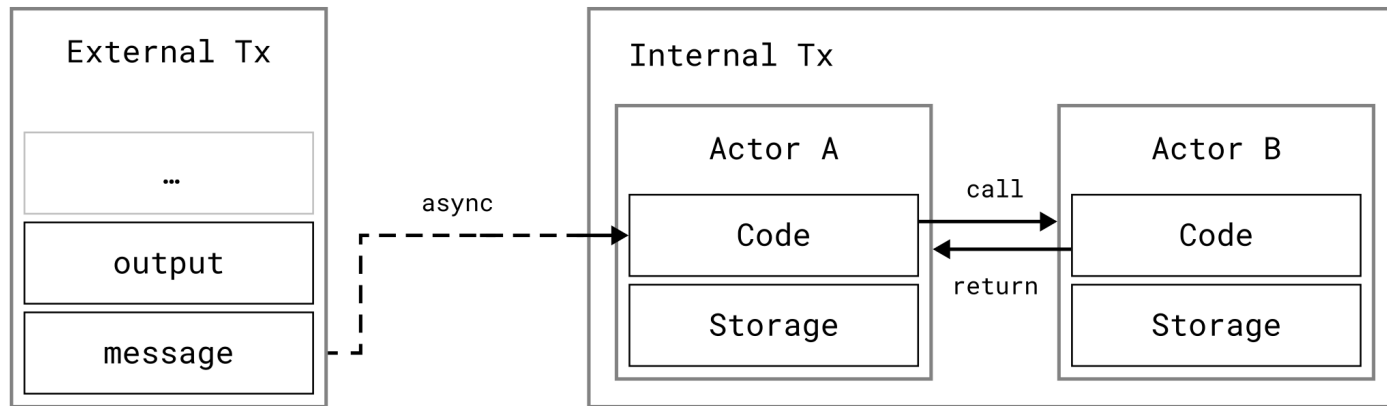
External transactions



Object capabilities pattern



Async messages to actors



FlameVM: batteries included

Data primitives: Scalars, Points, Cells

Dict: one container type for lists, maps, enums.

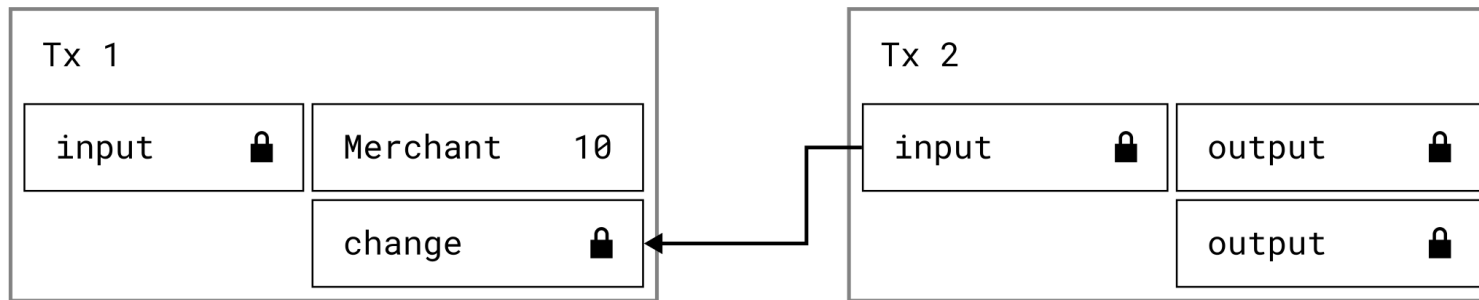
Native linear types: move-only Tokens and Contracts

Programmable cryptography: Constraints & expressions, Sigma (Schnorr) protocols, batch multiplication

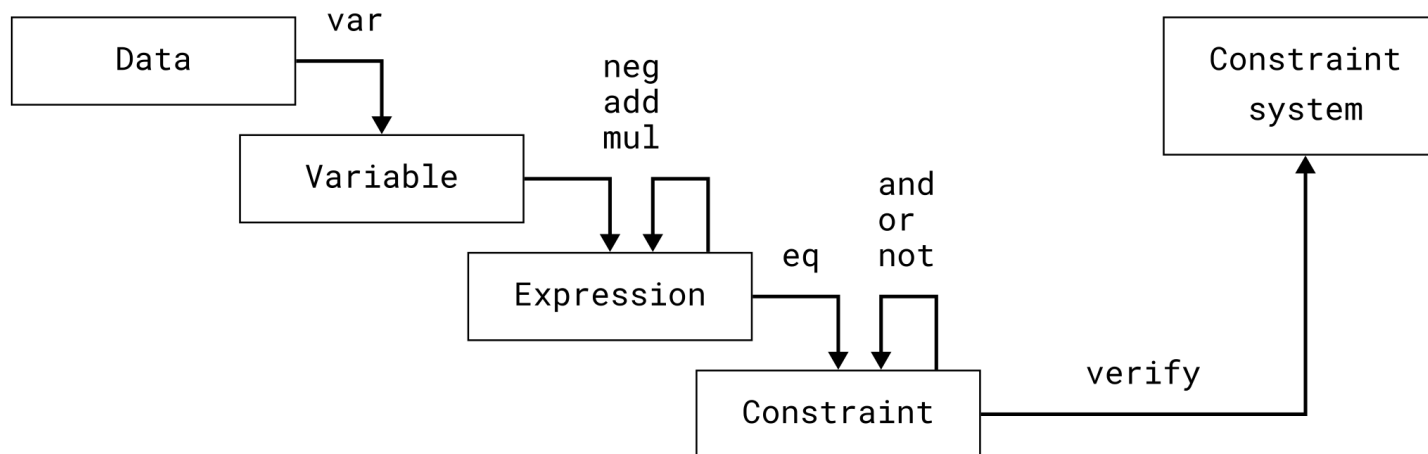
Small instruction set, high-level operations

[illegible]

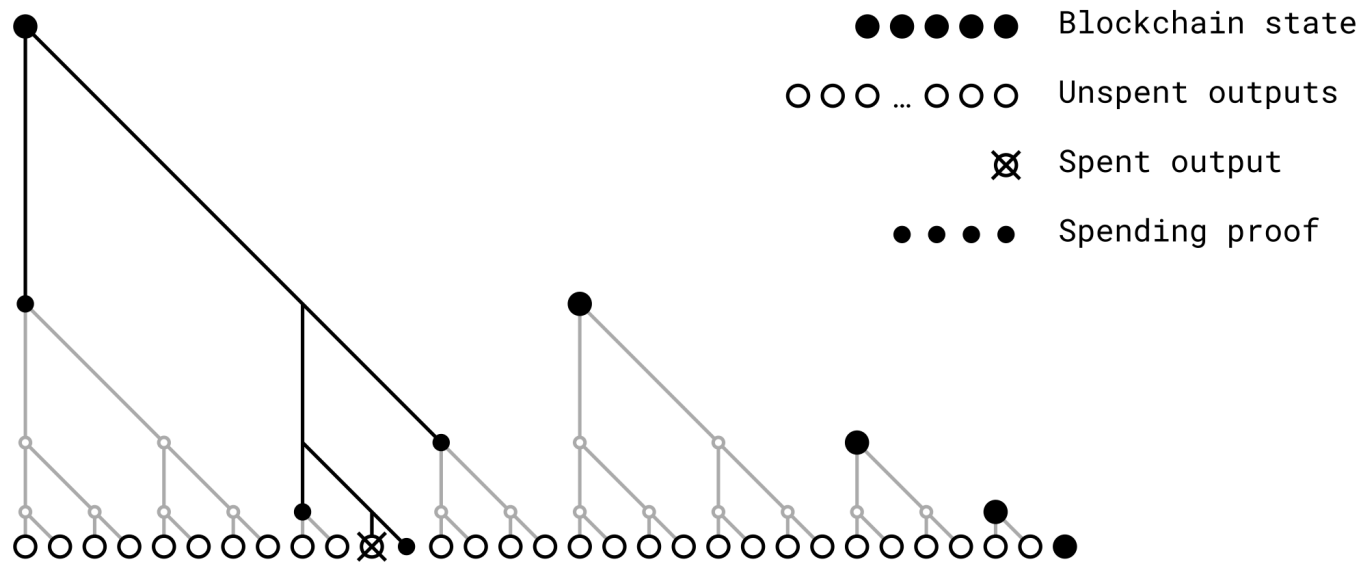
Confidentiality



Programmable ZK-constraints



Utreexo compression



Utreexo compression



Blockchain state



Unspent outputs

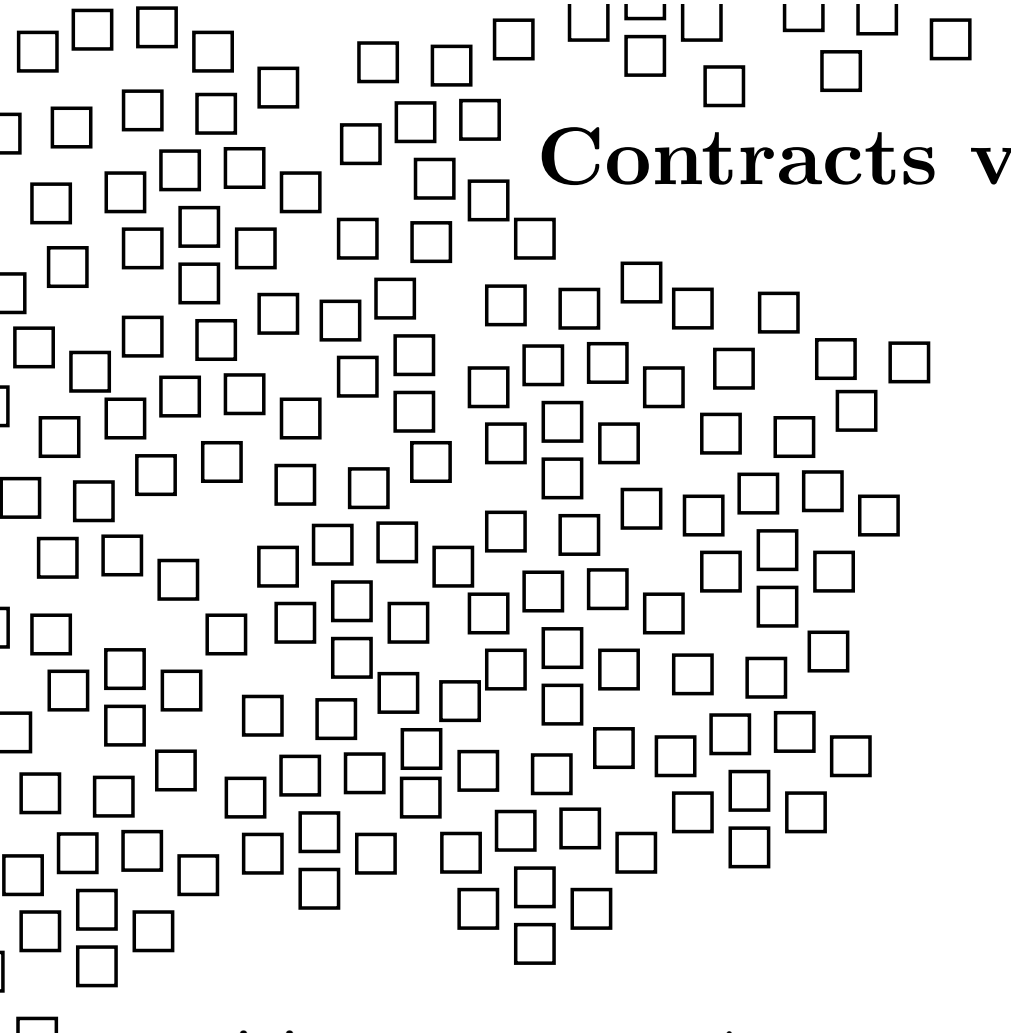


Spent output



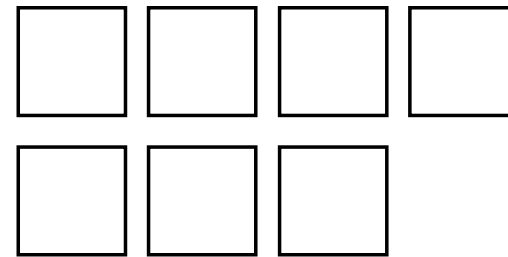
Spending proof





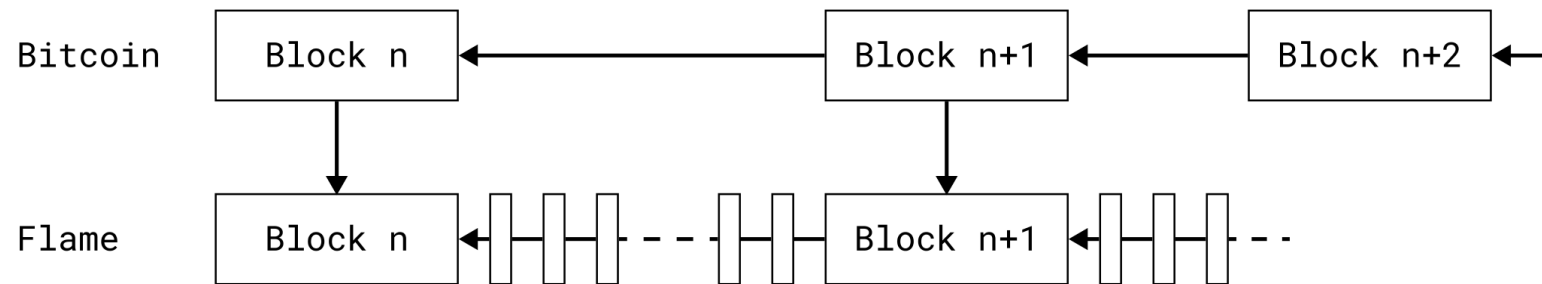
Contracts vs. Actors storage

Unlimited free storage via Utreexo for private individual balances and data



Limited paid storage for multiplayer apps (DeXes, staking, bridges etc.)

0.5-confirmations via iblocks



Flame: fun and feasible way forward

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