
# An Attempt to Speed UP + Scale Up Permissionless Blockchain

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# Studies and Thoughts

- Studied well-known Proof-of-Work based blockchains
- None of the PoW chain can avoid bothering on: "What if some powerful miner(s) PoW a ***secret long chain*** to revert a done deal?"

- So, "Might is NOT Right", ***The only and best*** status-quo consensus today: ***Slow Confirmation***
- Our view: PoW is up to anti-DDoS, and this is not too bad
- Is there anything out there to handcuff PoW power abuse?
- If some time events (aka time beacon) can be commonly heard, an ***easier consensus*** is reachable: No one can go ahead of time
- Decentralized Time Beacon (DTB): We now fortunately do have internet available DTB service! Ironically, such DTB is from PoW! Use an underlay blockchain mining output as time event!

# DTB “Handcuff” PoW Power


Input: a DTB service (we are implementing an **overlay blockchain** using Ethereum block events as DTB service)

Let a PoW difficulty be exponentially hard to fork (as in BitCoin); Overlay nodes PoW extend chain as usual, however hash some new elements: 1. Current DTB time beacon, 2. Empty TX, 3. Self ID; This PoW is like to mine a “KeyBlock” in BitCoin-NG; Mining empty TX minimizes network propagation time (Decker and Wattenhofer 2013)

Upon winning (& broadcast) KeyBlock, the winner starts to sign & broadcast real TXs, as “MicroBlocks” in BitCoin-NG, however each MicroBlock must also include a DTB new time beacon; Now size of a MicroBlock becomes non-issue, so **scale** is already up!

Losers go to work on a new KeyBlock, of course on a new time beacon

In an unlike event of KeyBlock forking, mining difficulty (smaller hashing output) breaks tie deterministically

Can a secret long chain be mined? If not, confirmation **speed** is up!

Datetime: 2019-12-20 14:36:03

SHA256: 0x83e22419c9c0d17a66b533be002e90f14a36657f2e178c336773aff0be66141a

SHA512: 0x889f23024e0c32f34ce403caea94e48a55eac957d727f9c0acd153d407bcf3e8

697aff4be3977f016a1666cd61ea68045fed2875f9e9c9381483ab4a8a5d607a

Link: https://github.com/daoliname/daoliname/DTB_Handcuff_PoW.pdf