Consensus and Dissent

or: “Meta-Consensus” – “Consensus about *what* we have consensus on”

Building on Bitcoin
Lisboa, Portugal -- 4 July 2018

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16C8 1597 E76E 86E6 C01E F037 AA4B 3330 F162 C410

Agenda

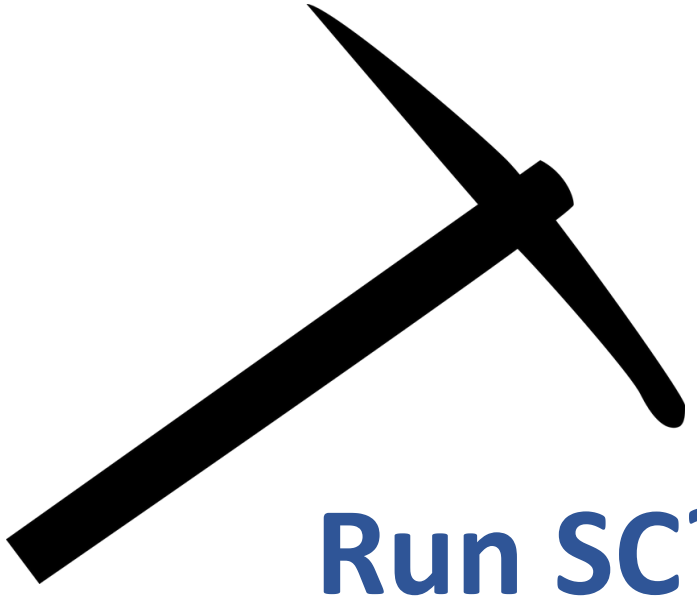
1. Two Sidechain Philosophies
2. The Soft Fork, and Bitcoin’s Ongoing Identity Crisis

Belief #1

“Sidechains affect the [mainchain] miners.”

- (Explanation – next slide)
- Implies that:
  - SCs are not a true “layer-2”.
  - SC-censorship is justified.
- Important because: last trench of the anti-SC-er.

“Sidechains affect the miners”



Run SC?

Yes

- Gain txn fees.

No

- Don’t earn fees.

1. SCs offer a **conditional payment** to miners,
2. Miners have **no choice** but to accept,
3. The **conditions are bad** for Bitcoin.

Ergo: SCs are bad for Bitcoin.

Belief #2

“Sidechains allow miners to steal BTC.”

- Implies that:
  - Users may be “tricked” into losing coins.
  - Security is different. Moves from “math based” to “incentive based”.
- Important because:
  - Justifies Tx-censorship. (Must “””protect””” user.)

Do they contradict?

Belief #1

SCs affect miners.

Belief #2

SCs enable miner-theft.

- SCs → miners.
- Miners are ***weak,*** pliable.

- Miners → SCs.
- Miners are ***strong,*** do the plying.

Do [illegible]adict?

Belief #1

Anything could…

S[illegible] affect miners.

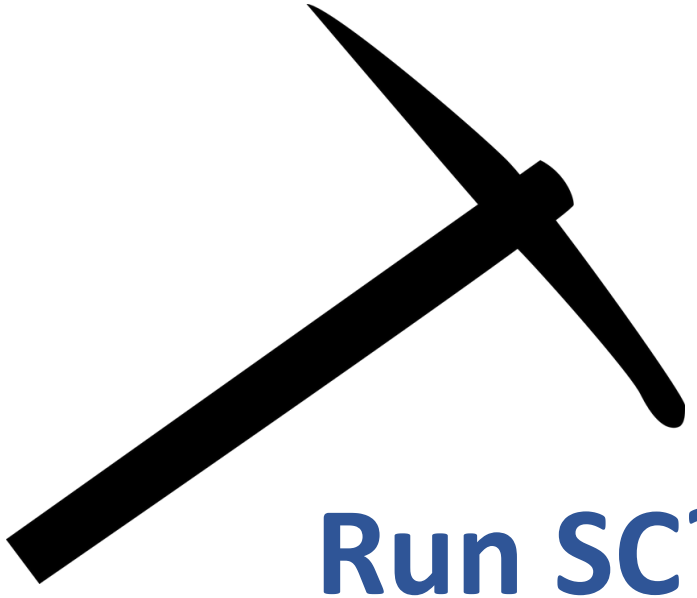
Belief #2

Everything [txn]…

S[illegible] enable miner-theft.

(Theft has always been “enabled”.)

“Sidechains affect the miners”



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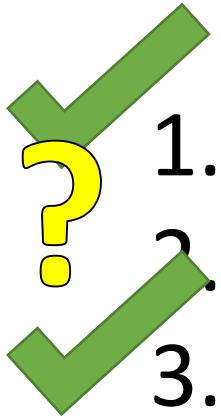

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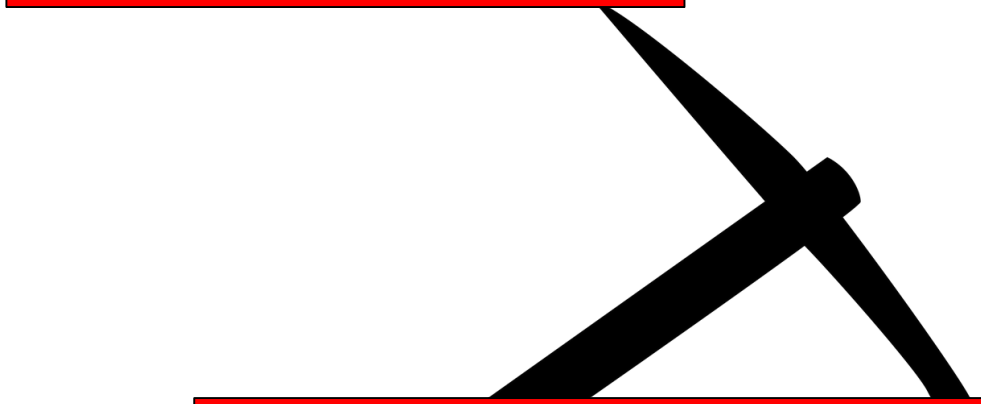
Chinese gov't affects the miners"

inducement



Yes

- Gain 1 BTC

No

- Don't earn.

Reveal mailing address?

Bad thing

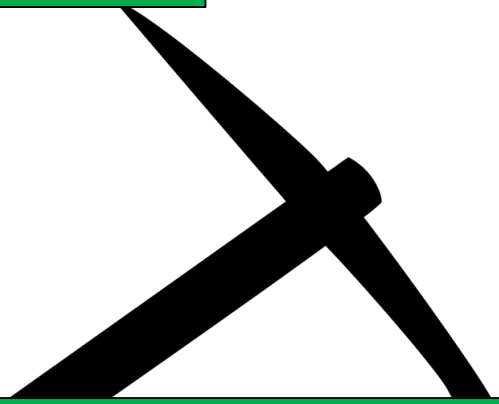
1. SCs offe**tion**
2. Miners **ho**
3. The **con**

Ergo: SCs are bad for Bitcoin.

We will pay **1 BTC per month**, to any miner who *reveals their mailing address*.

The US FED affects the miners”

inducement



Obtain mining license?

Yes

- Gain 1 satoshi

No

- Don’t earn.

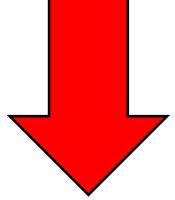
Bad thing

1. SCs off[illegible]ditio[illegible]
2. Mine[illegible]cho[illegible]
3. The **c**[illegible]

Ergo. [illegible]are bad for Bitcoin.

We will pay **1 satoshi per year**,
to any miner who
obtains a mining license.

Belief #2

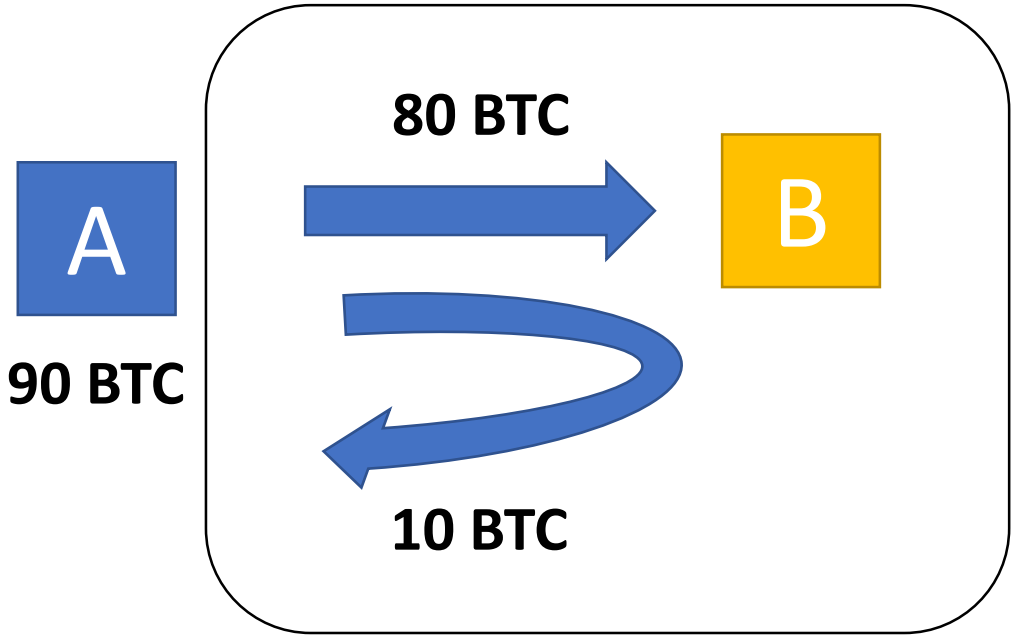


"Sidechains allow miners to steal BTC."

Hashrate majority can steal from anything.

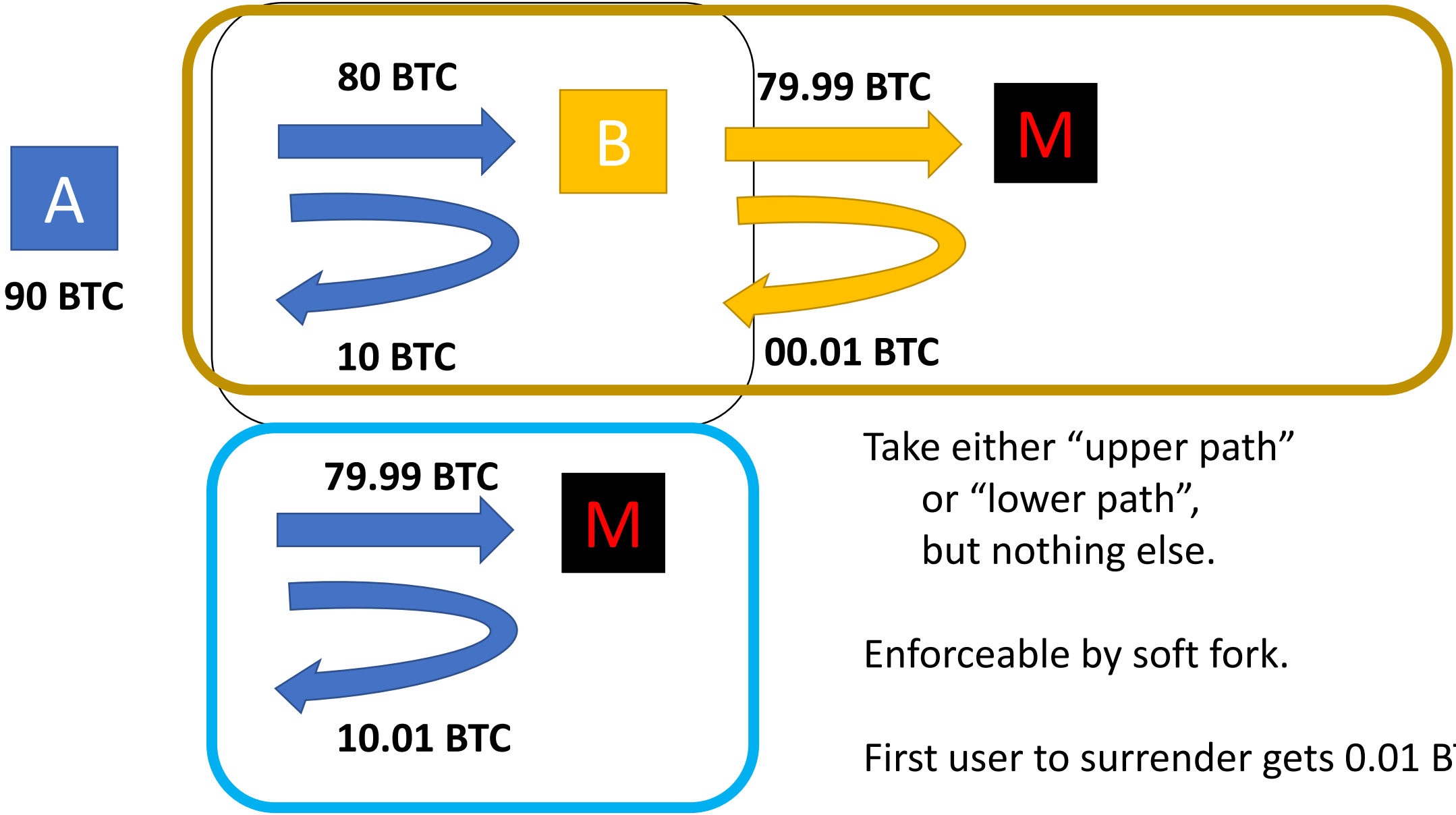
(SCs, mainnet, LN)
All have identical security assumptions.

“Hashrate majority can steal coins”



80 BTC txn
From A to B.

“Hashrate majority can steal coins”



Take either “upper path”
or “lower path”,
but nothing else.

Enforceable by soft fork.

First user to surrender gets 0.01 BTC.

“Hashrate majority can steal coins”

Blue says: “Let me broadcast tx1, and I will give you 18.99 of the 19.00 that I steal. “

Notice, though, if Yellow pays a 19 BTC txn fee, she is only left with 11 (instead of 28)

Yellow may be shaken down for the whole 30.

“He ought to find it more profitable…”

The incentive may help encourage nodes to stay honest. If a greedy attacker is able to assemble more CPU power than all the honest nodes, he would have to choose between using it to defraud people by stealing back his payments, or using it to generate new coins. He ought to find it more profitable to play by the rules, such rules that favour him with more new coins than everyone else combined, than to undermine the system and the validity of his own wealth.

What **does** affect mainchain miners: Altcoins

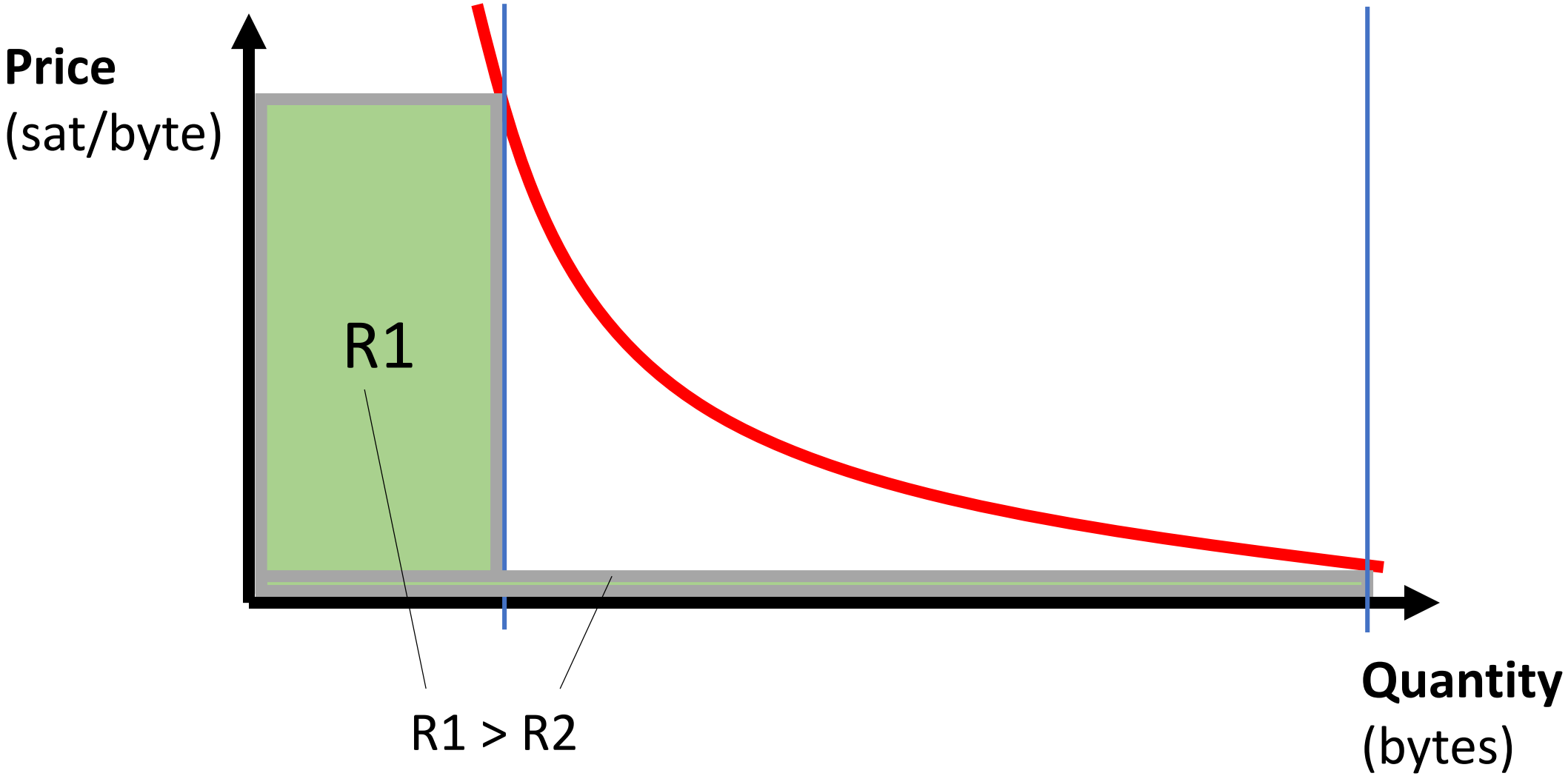
[bitcoin-dev] Total fees have almost c

Gregory Maxwell greg at xiph.org
Thu Dec 21 22:44:32 UTC 2017

- Previous message: [bitcoin-dev] Total fees have almost crossed the block
- Next message: [bitcoin-dev] Total fees have almost crossed the block rev
- **Messages sorted by:** [date] [thread] [subject] [author]

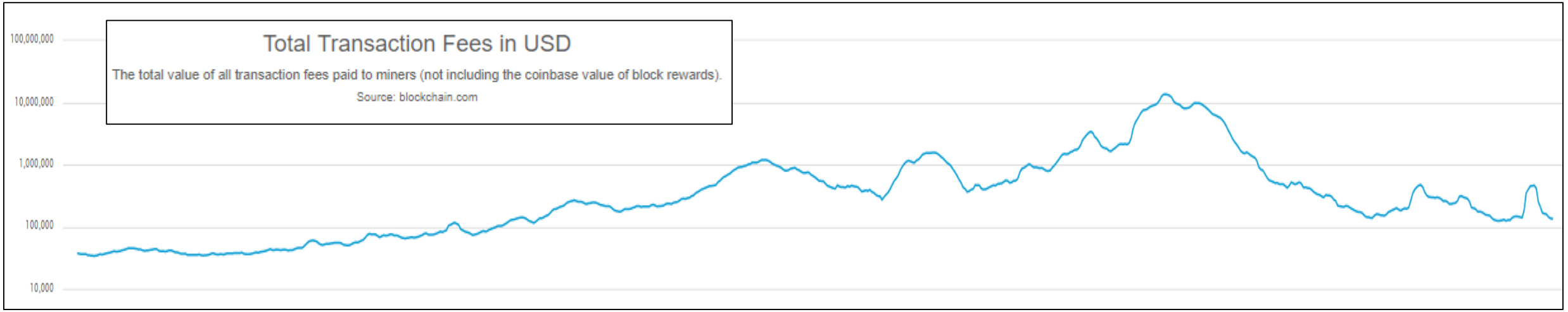
Personally, I'm pulling out the champaign that market behaviour is indeed producing activity levels that can pay for security without inflation, and also producing fee paying backlogs needed to stabilize consensus progress as the subsidy declines.

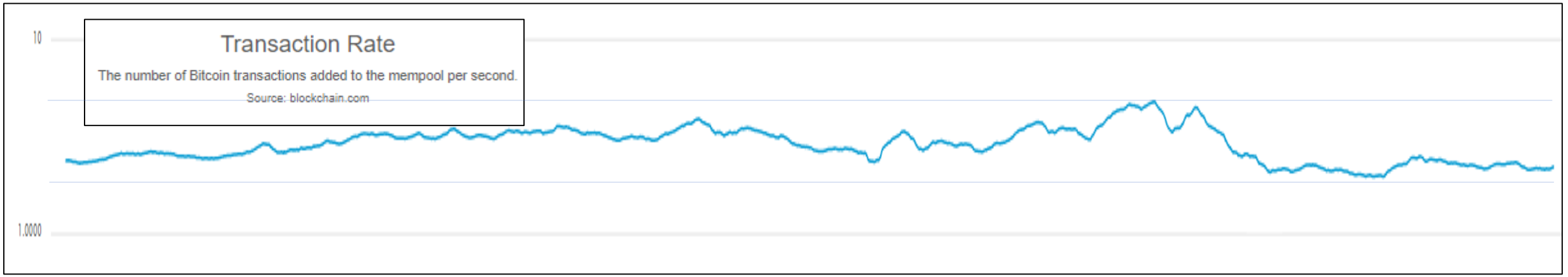
What **does** affect mainchain miners: Altcoins



High Fees → Less Usage

Last 2 Years, Log Scales, 7d average





Fee revenues are important…

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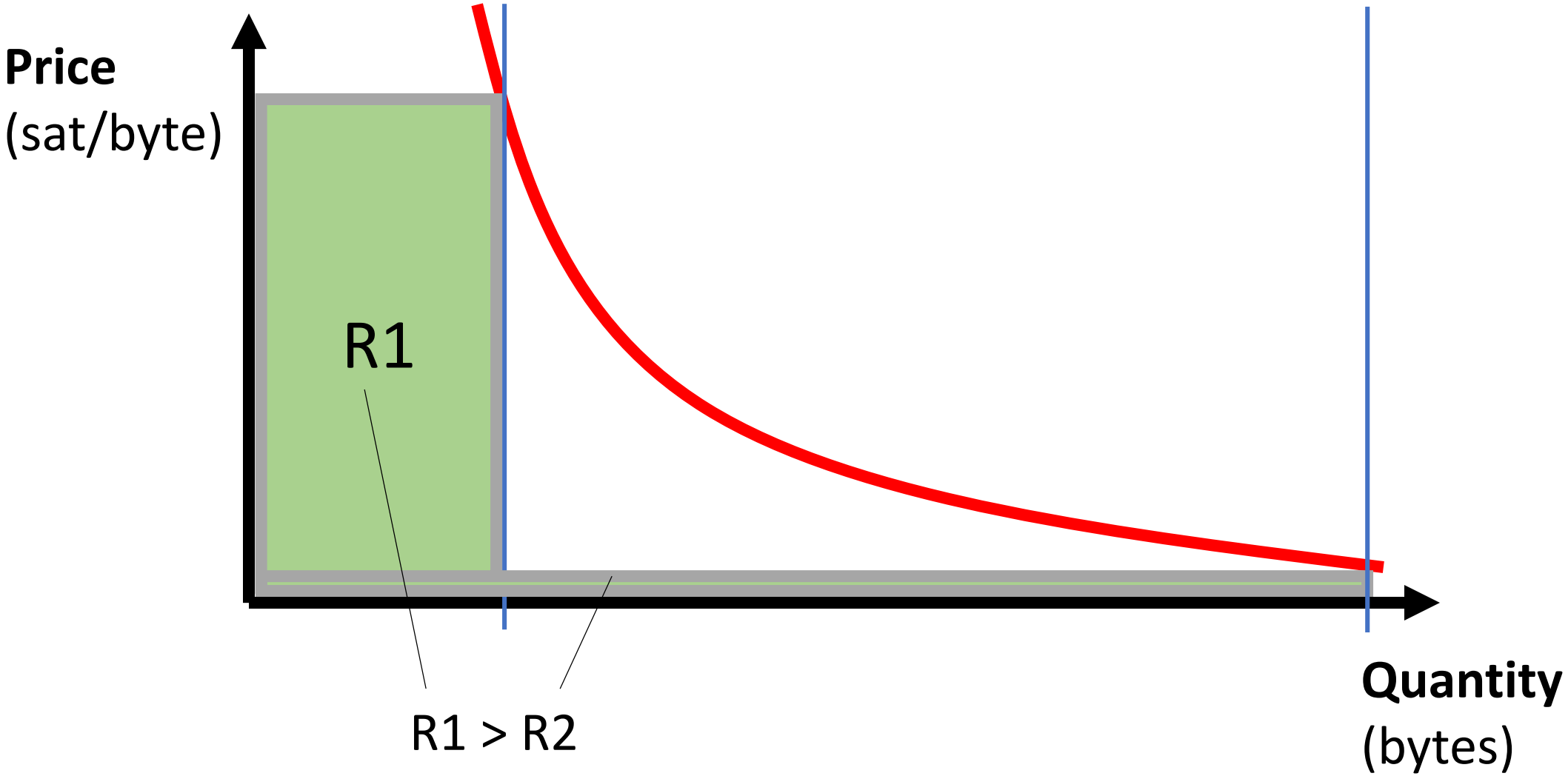
Personally, I'm pulling out the champaign that market behaviour is indeed producing activity levels that can pay for security without inflation, and also producing fee paying backlogs needed to stabilize consensus progress as the subsidy declines.

...and supply affects Fee Revenues.



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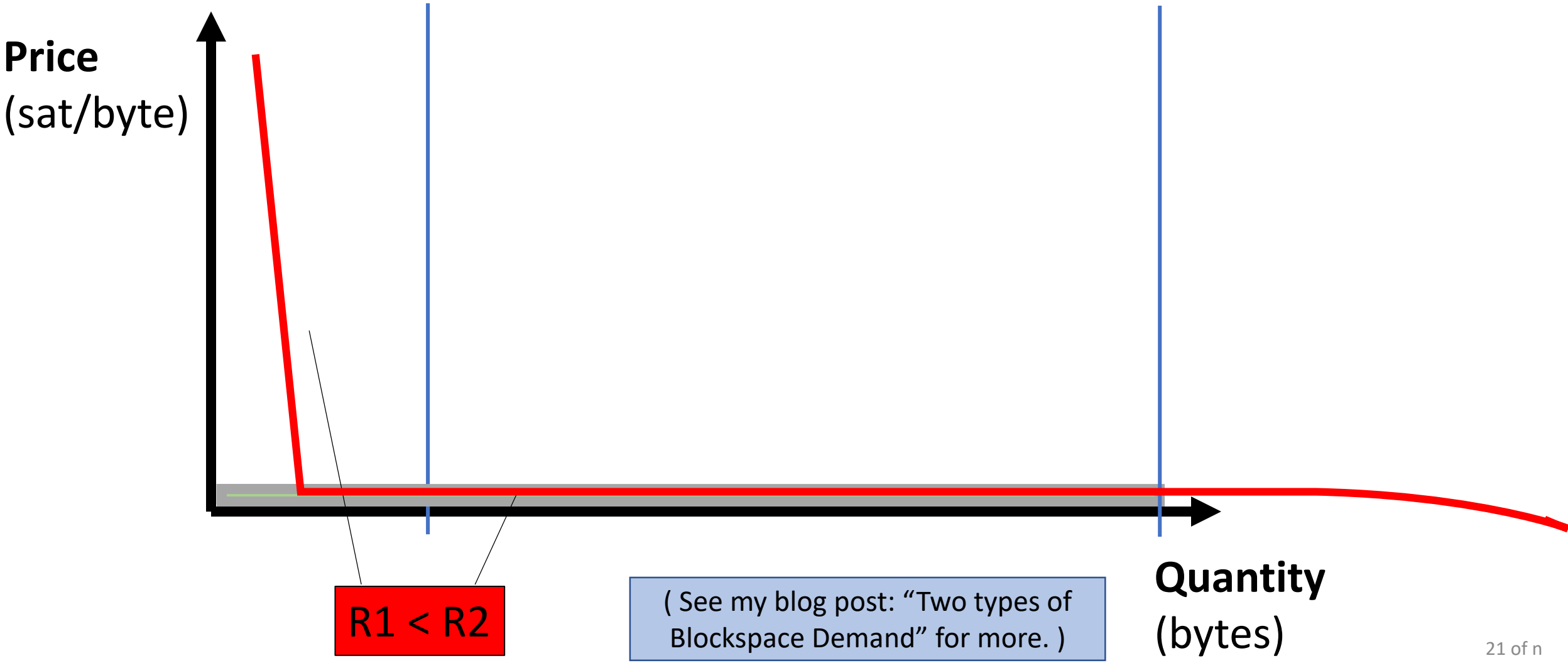


Agenda

1. Two Sidechain Philosophies
2. The Soft Fork, and Bitcoin's Ongoing Identity Crisis

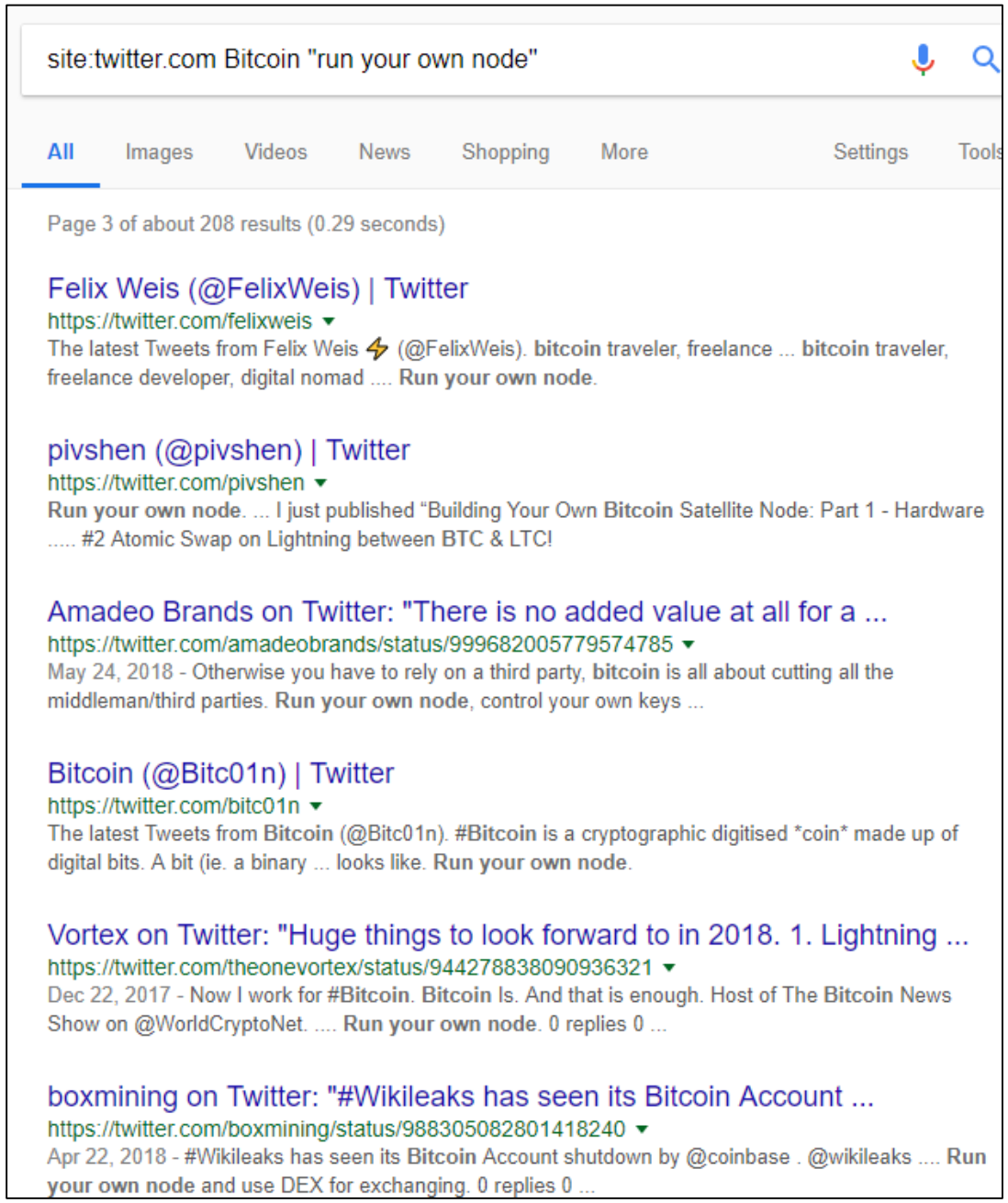
Consensus…About What?

- Bitcoiners sometimes disagree.

- Meta-Consensus – Consensus about consensus
  (^^ it must be *<u>prior to</u>* Consensus itself)

Full Node Mandate

- Advice contains a little circular reasoning.
- How do we tell “a full node” from “NOT a full node”?



Wladimir Dictatorship / Vague Oligopoly (??)

weusecoins

Start Buy News FAQ Mining Alt-coins

Diff. 5.36t

Wladimir van der Laan - Lead Maintainer, Bitcoin Core

Wladimir van der Laan is a Bitcoin Core Developer and the Lead Maintainer of the Bitcoin repository on GitHub.

Position: Lead Maintainer, Bitcoin Core

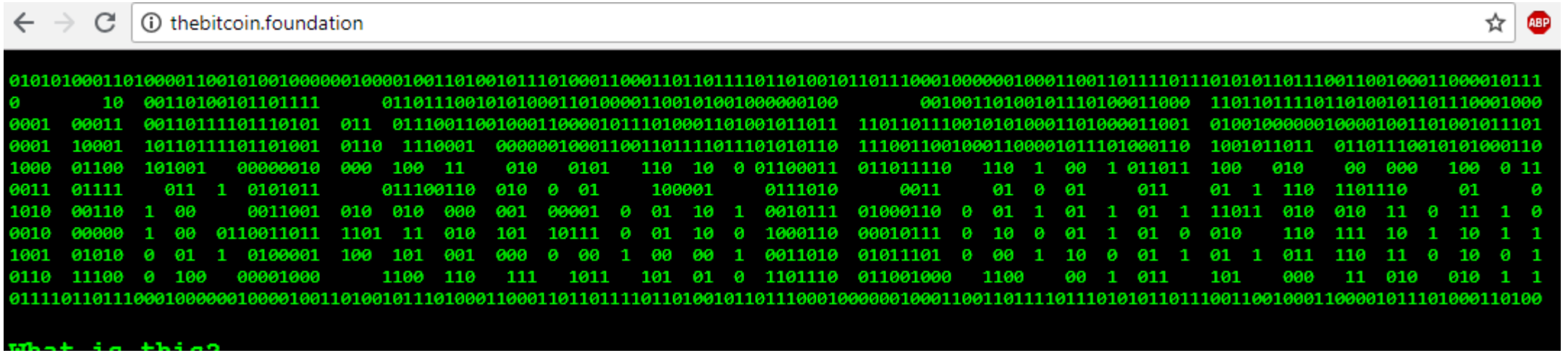
Twitter: @orionwl

GitHub: @laanwj

Bitcoin Core

From mid-2010 until April-2014, Gavin Andresen maintained control of the Bitcoin Core GitHub repository and was considered Bitcoin's lead developer. On April 8, 2014, Andresen stepped down and van der Laan agreed to take over as Lead Maintainer of the Bitcoin repo. His salary is paid by MIT's Digital Currency Initiative, where he works on Bitcoin development with Andresen and Cory Fields.

The “Static Protocol” Position



Archives:

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- 0.5.4-RELEASE [x86-64] [Latest]: Build this with V, by following these steps
- 0.5.4-TEST2 [x86-64] [Obsolete] [PGP Sig] SHA256: 6d37ec8b58cd5ec0ff5df71467a7d7cac684cfa517844e4d67a6611c9ae584ce
- 0.5.3.1-RELEASE [Obsolete] SHA256: 5c41fe6cf286770a25bf61ab0c35747d0c760f8656754296d2e1d3c4274b5686
- 0.5.3 [Origin Codebase - Obsolete] SHA256: aab1f8ea8c7f131ff69dfa3b9437ba35531018be760132dd6373f41a591f6382

- Bitcoin Foundation

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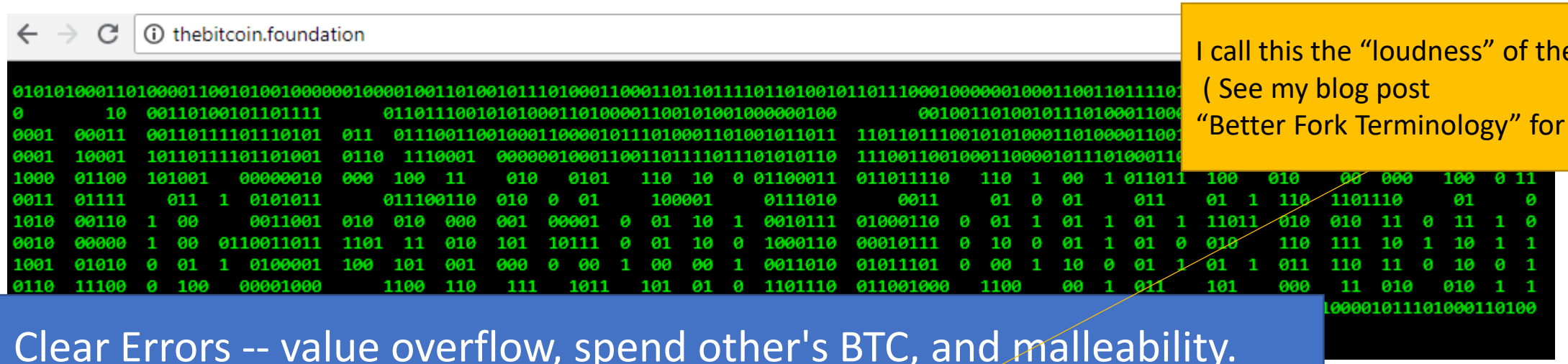
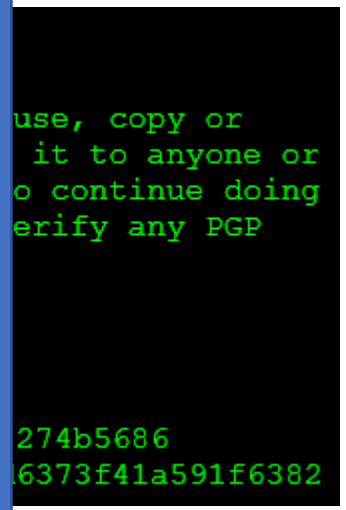


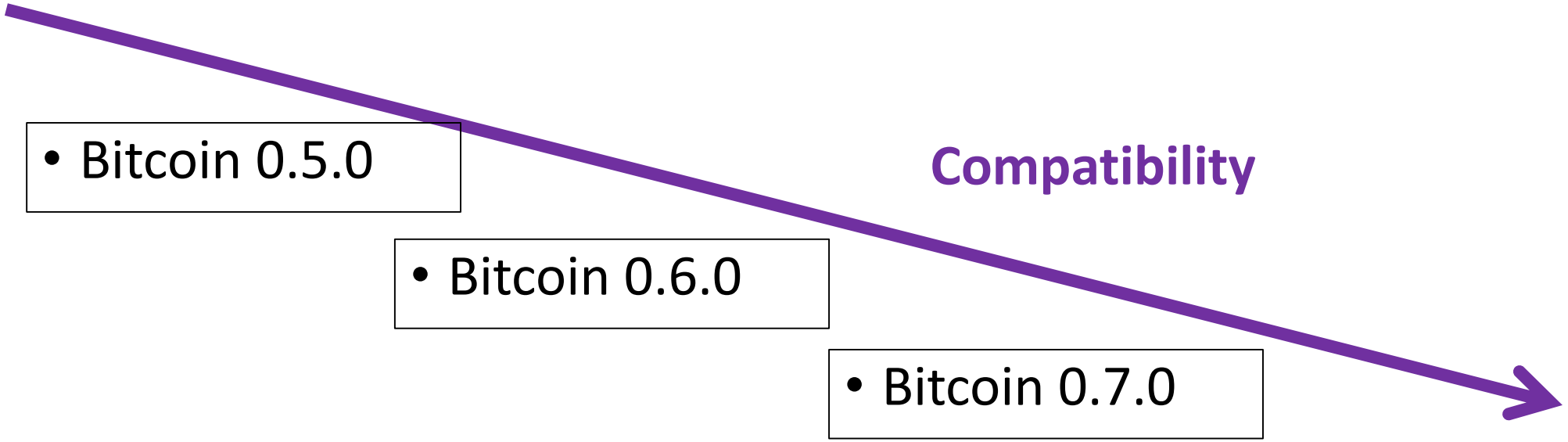
I call this the “loudness” of the fork.
(See my blog post
“Better Fork Terminology” for more.)

1. Clear Errors -- value overflow, spend other's BTC, and malleability.
2. Protocol can be unilaterally changed (MASF, UASF) -- then, payments made to you, might go "through" these "new txns".
3. Extremely Pessimistic -- Bitcoin can never improve, ever.
4. Stimulates creation of Altcoins / Hard Forks

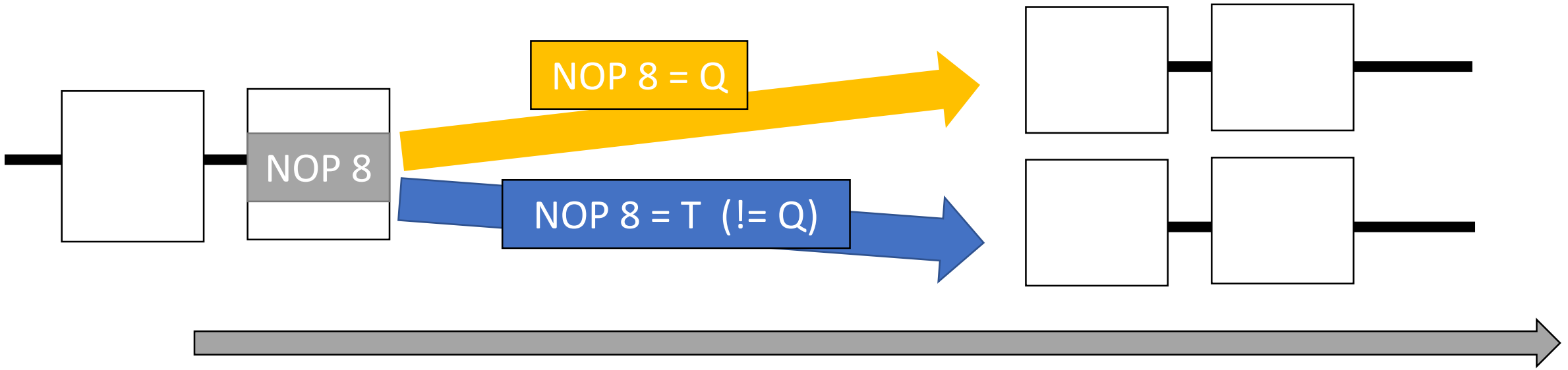


Upgrading via Soft Fork

- “line” of protocols that are all compatible with each other



Two Incompatible SFs at once = HF



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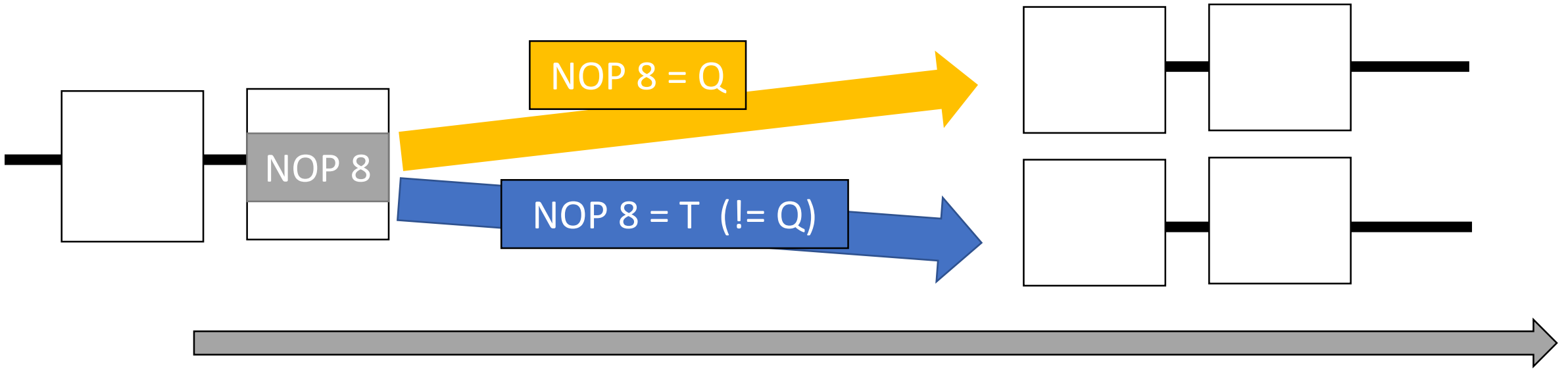
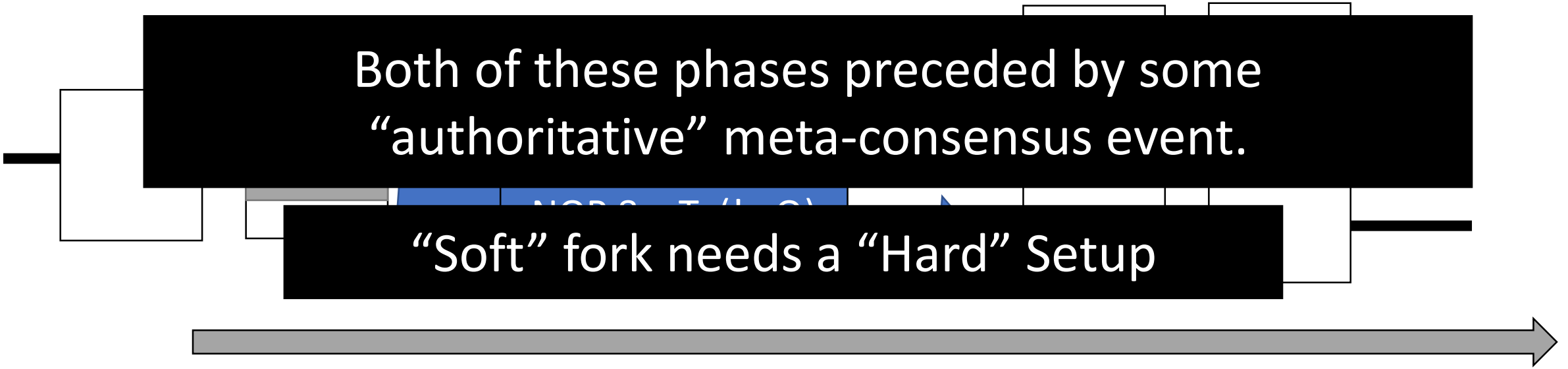


Begins:
“explicitly ignorable” state.

Ends: “common new” state.
(Social consensus?)

Two Incompatible SFs at once = HF



Begins:
“ignorable state”.

Ends: “new state”.
(Social consensus?)

Examples of “Hard Setups”

- Unused OP Codes
- Transaction Version Numbers that are Higher-than-Current
- Block Version Numbers that are “.

Added by Satoshi

Redefined by:
Satoshi / Core Developers

The Problem: Soft Fork Infinite Regress (?)

1. "What's up for grabs?"
   ie, what is in the "ignorable set".
   - OP Codes
   - Txn/Block Versions
   - Witnesses (SegWit)
   - Legacy Bitcoin Script (P2SH)
   - Everything? (The Evil Fork)
   - Nothing? (Mircea Popescu crowd)
2. Is the replacement acceptable?
   - Due to loudness, the replacement is semi-mandatory.
   - Extension Blocks – famous example.

```
BIP: 66
Layer: Consensus (soft fork)
Title: Strict DER signatures
```

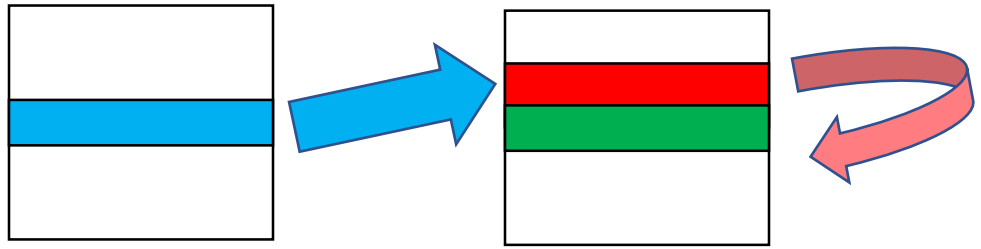
Thursday, 10 December, Year 7 d.Tr. | Author: Mircea Popescu

```
-----BEGIN PGP SIGNED MESSAGE-----
Hash: SHA1

Belgium will receive payment of 1 (one) Bitcoin to any valid* Bitcoin
address of his specification.

Terms:
===

* Valid Bitcoin addresses start with a "1".
-----BEGIN PGP SIGNATURE-----
```



"Loudness"

Original Question: Consensus About What?

More arbitrary than we care to admit:

1. Can't stay at slot 1. (“the loud payments")

2. Accurate movement
   from slot to slot
   is based on "authoritative" criteria.

3. Rules of movement
   (meta-consensus)
   are themselves disputed.

- Bitcoin 0.5.0
- Bitcoin 0.6.0
- Bitcoin 0.7.0

Compatibility – Regresses to the consensus problem we originally wanted to solve.

Original Question: Consensus About What?

What did these two halves of the presentation have to do with each other?

Sidechains!

No  events, and no loudness.

Ironically, there is no loudness *because* "theft" is possible.

Explicit, fixed definitions for:

- What is "ignore-able" (ie what is "up for grabs")
- What it can be changed to (defined in a given sidechain BIP).

Conclusions

1. Sidechains *are* a layer-2.
2. Sidechains use the same security assumptions (although, different security model).
3. In fact, the *lack* of sidechains is a much bigger threat to mainchain miners.
4. Soft fork has “zones” (of “ignorable” and “defined”), the boundary and range of these zones is not clearly defined, which leads to conflict. “Bitcoin” does not have a fixed definition.

Advice

1. Remember user-sovereignty, resist sidechain FUD.
2. Check out the project at **drivechain.info** , specifically the diffs.

Thank You!

Questions?