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Proposal: Price Mechanism for Counterparty Asset Issuance Fee

The Counterparty asset system needs to run smoothly whether one XCP costs $0.10 or $1000 and whether there are one hundred users or one million users. I believe only a price mechanism can ensure this.

The suggestion is a follows:

- Every 1000 blocks (approx. once a week)
  - Count the number of newly registered assets within the previous 1000 blocks
  - If more than 1300 assets registered, increase the fee by 10% (factor of 1.1)
  - If less than 700 assets registered, decrease the fee by ~9.1% (factor of 1/1.1)
  - Else keep the fee unchanged

Let's begin by describing various other approaches:

- Fixed 0.5 XCP fee
  - This is the current fee.
- Supply-adjusted fee
  - When 1% of all XCP have been burned, the fee will be 0.495. When 10% have been burned, the fee will be 0.45, and so on.
- Protocol change
  - The fee is hardcoded in the protocol and is changed only by a protocol update.
- Fixed dollar-amount
  - Oracles broadcast the XCP/USD price and the fee automatically adjusts.
- Fee declines with number of assets
  - Similar to a supply-adjusted fee.
- Fee reduces with time
  - The XCP fee reduces predictably with the block height.
- Fee adjusts through voting
  - Periodic votes adjust the fee.
- Fee adjusts based on frequency of new registrations
  - This is what I proposed above.

Each system has its own advantages and disadvantages.

The fixed 0.5 XCP fee leads to squatting when the XCP price is low. At the current price, around $1.00 per XCP, we've had thousands of assets registered for the sole purpose of selling later at a higher price. Surprisingly perhaps, this has been a blessing for the asset system. J-Dog has admittedly registered more than 2000 assets, but he has also made the excellent Coindaddy second-hand market for assets. On the contrary, the asset system will likely suffer if the XCP price suddenly increases a lot. Imagine the XCP price at $1000. Very few will be willing to pay $500 for an asset, which in turn will reduce development and general use.

A supply-adjusted fee will ensure that we never run out of XCP. However, it does little to reduce the problem if XCP increases in price. If 10% have been burned but XCP costs $1000, the asset creation fee will be $450.

A protocol change can lower the fee to a reasonable level, but such changes will be more and more difficult over time.

A fixed USD amount is nice in theory, but having the protocol depend on oracles is perhaps too risky.

Reducing the fee based on the number of existing assets is practically the same as adjusting by XCP supply. If the fee is too high, few new assets will be created, and therefore the fee will remain too high.

If the fee instead reduces with the block height, new registrations will not be permanently blocked by a sudden XCP price increase. It will, however, be temporarily blocked – in the worst case for months or years.

A vote process could be implemented but it assumes that people actually bother to vote. Likely only people with selfish interests would vote, which could lead to either a very low or a very high fee. The technical challenges of implementing it may also be too cumbersome.

I suggest the fee to adjust based on the frequency of new registrations only. If more than a set amount of assets are created within the past week, the fee increases. If less, the fee decreases. The advantage is that the XCP price becomes irrelevant. If one XCP costs $1, the fee may be 5 XCP. If XCP increases to $1000, all else equal, the fee will move toward 0.005 XCP. In either case an asset costs $5 to register. Another advantage is that we will never run out of XCP. The disadvantage with this approach is that we need to decide on the target frequency of new registrations.

Say that we decide on just 10 assets per 1000 blocks (about one week). Surely there will be no squatting, but many legit users will not afford to register a token.

If we rather set the amount very high at 10,000 assets per week, the target may not be reached at all. The fee will continue to drop until registration is practically for free and automated bots fill up the quota.

The other challenge is how much the price shall change. If the target is, say, 100 assets per week and 900 assets are registered, the fee should surely increase. But with how much? And shall it increase more if 900 assets have been registered than if 200 have been registered?

I think the rules should be made as simple as possible. It would be sufficient with a binomial fee path where the fee either goes up or down, but the magnitude never changes. For each adjustment it can either increase by 10% or fall by ~9.1%.

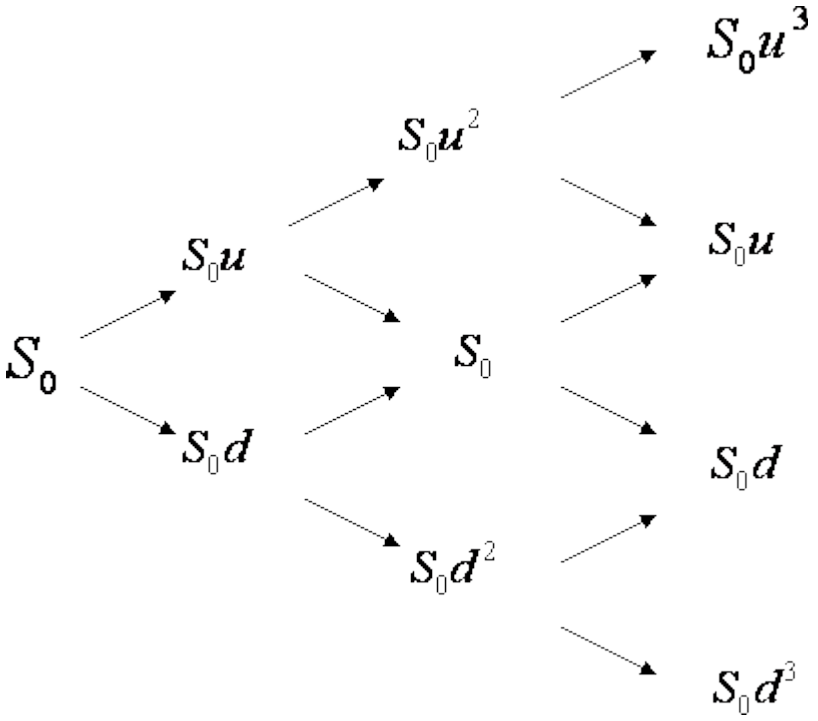

Figure: Possible price paths

What would be a reasonable target? If too high, the fee will be low and encourage squatters. If the target is too low, the high fee will discourage many legit users. Since squatting actually seems to benefit the system, and there will likely be more demand for assets in the future, I'd set a pretty high target. If 1000 assets per week is the target, about half a million assets will be registered within 10 years.

The target will rarely be met exactly, but on average it will. This is the nature of supply and demand. The fixed target is the equivalent of the supply in a market. The fee adjusting up or down mimics that of a market price clearing. The demand, which comes from the actual users, depends on the fee. Supply and demand balance out.

A disadvantage of the binomial fee path is that the fee will change every 1000 blocks. Even with stable demand, the fee will zigzag. A trinomial fee path will smooth out the fee. The algorithm can be as follows; if more than 1300 registrations, increase the fee. If less than 700, reduce the fee. Else keep it unchanged.

My suggestion is certainly not perfect, but I think it is *good enough*. I fear the current fixed 0.5 XCP fee is *not good enough*.

Obviously, the community is encouraged to discuss. If consensus is reached on implementing the suggested price mechanism, the actual parameters should be debated thoroughly. Within a year or so the Counterparty network is likely too large for such protocol changes, so 1) it is quite urgent to *do something* and 2) it is essential to *do it right*.