



To fork or not to fork?

A view from blockchain experts around EMEA

MEET THE DELOITTE BLOCKCHAIN EXPERTS

At Deloitte the EMEA FSI Grid Blockchain Lab is a collaboration of blockchain experts from our EMEA member firms. In this article they share their opinions on 'the Ethereum hard fork' - the most significant event in cryptoeconomics since the inception of bitcoin.

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To fork or not to fork?

THE OPTIONS

Immutability exists to ensure the preservation of truth across a community, it provides an auditable proof that events have occurred exactly as prescribed and expected. It is this predictability and assurance that is so valuable to the blockchain community and one can question whether it has been challenged by the hard fork.

When the code is the contract, obscure or unintended program features can become a dao's doom. And that's exactly what happened when \$50 million worth of Ether moved from the control of an autonomous program (digital autonomous organisation or 'DAO') operating on behalf of a large group of investors, something rare happened. **Tyler** explains. "The protocol, operating exactly as prescribed, deviated from what was expected, and a community watched in horror as an enormous heist was played out in slow motion, with the inherent security of the Ethereum platform itself suddenly forming the greatest obstacle to any sort of restorative action". How would the community react to this?

FIRST OPTION:

Accept the incident and not react at all.

SECOND OPTION:

Was identified as "Soft fork" which accepts all transactions to be valid but blocks the account holding the suspicious transactions, ensuring the unification of the network and backwards compatibility while ignoring the attack as such.

THIRD OPTION:

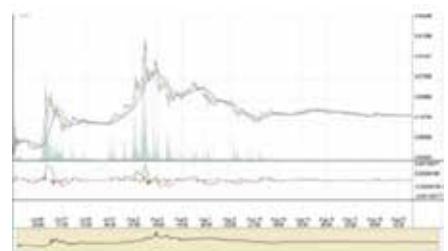
Controversial "Hard fork" which creates a copy of the Ethereum Blockchain, going back to the block before the suspicious transactions happened, while deleting all transactions after the specific point in time, splitting the Blockchain and users irreversibly into two.

The Ethereum community has voted and decided with 97% for the hard fork, but was this the right decision?

Cillian Leonowicz, Senior Manager, Deloitte Ireland

THE EFFECT

The Hard Fork has been a taboo for bitcoin in the past and **Jacob** says that "the decision to actually implement a hard fork was a brave one." People were afraid a split would cause uncertainty in the market, reduce trust in the technology and translate into a price drop. At the moment, the news and the market have calmed down and the prices have picked up for both the new Ethereum (ETH) and Ethereum Classic (ETC).



Source: Poloniex.com, ETH versus ETC evolution over 1 month, 22/8/2016

The continued existence of Ethereum Classic is probably the proof that the community does have the power.

As **Michele** observes "The DAO was merely an application built on top of the Ethereum protocol, and only a minority of Ethereum users had participated in it. Part of the userbase simply didn't care about bailing out a third party application. They stuck with the original chain, thus providing incentive for miners to keep mining the original chain, splitting the network into two."

Etienne agrees and states that "Although forking the Ethereum chain split the community in half and created a new, identical coin, it nonetheless showed justice towards the victims of the attack. Today, ETC's valuation is still profitable to the attacker, but in my opinion, safely returning stolen Ether paints a better picture than ignoring the attack altogether."

For **Tyler** the hard fork represents a community consensus decision which reflects the totality of truth. "If a community consensus holds, and on rare occasions exerts, the power to override the human-written rules governing 99.99% of the platforms successful operation, then I feel assured and empowered by that, not

threatened. That is not centralised control, it is exactly the opposite. We are the community."

All experts agree that a hard fork should always be an option for a blockchain community, because it is a fundamental property of blockchain and open source software. **Jacob** phrases the situation in the following way "The mere possibility of a hard fork can be interpreted as a powerful argument in favour of blockchain. Not allowing the community to choose, leads to centralisation, which is contradictory to what blockchain stands for and tries to establish."

THE CONCERNS

While on the one hand, empowerment of the network creates strength, it has to be used with caution.

Indeed, information is key for sound decision making around such a complex issue entailing unknown consequences.

Thibault highlights that "the miners cannot have all the business knowledge to take decision on a business matter whereas in the end *they* have the power to undo what has been done."

The event raises some questions. For example **Jacob** asks if "this attack was a good enough reason to hard fork"? Indeed one might wonder in what other cases a hard fork would be required (e.g. should we vote each time an exchange is hacked?)?

All experts agree that the hard fork should be used very sparingly in order for it to keep its effect or as **Jens** says "jurisprudence every time the technology does not profit its users." We need to clarify though what the criteria are for opening the debate and asking the community to vote.

Thibault highlights the emergence of other very important questions around "law and jurisdictions, trust in a global authority (composed of all the miners), administration of the blockchain *and* the code that runs upon it" that need to be debated.

So is hard forking a good solution for widely agreed changes?

Michele points out "Ethereum's case proves that consent for a hard fork exists only after the fork has occurred. Any prior vote is basically a poll. True forking only happens when users opt-in to the new network (and –sometimes– abandon the old one). It is very dangerous to assume that a minority fork will simply die. This can lead –and in fact has led– to multiple blockchains emerging from a contentious hard fork."

THE LESSONS LEARNED/IMPACT

One of the main lessons learned is to "thoroughly test code before you publish it on a blockchain" says **Jacob**.

Deloitte and other specialists in independent code review can assist with this kind of testing, which becomes primordial for an open source code, exposed to the world and impacting a chain of irreversible transactions.

This attack also shows that we should be careful with overly complex and fully autonomous code, as it is difficult to completely verify the soundness of such code. A higher degree of caution needs to be applied in the future to autonomous contracts, especially as they may be designed to harm the ecosystem by employing maliciously constructed code, or even artificial intelligence to execute decisions which violate laws and harm people. **Tyler** asks us to "consider a DAO set up by a hostile nation state to offer bounty payments for acts of sabotage or violence against an adversary. Unlikely? Yes. Possible? Yes. By considering extreme scenarios, we test our fundamental principles."

All our experts agree that the hard fork should be used very sparingly in order for it to keep its effect

THE OUTLOOK

An interesting evolution is the coexistence post fork of both the Ethereum and Ethereum Classic blockchains. **Arnaud** says "it will be interesting to see how the community will adjust and incentivise the +20% of the users who did not yet trigger the exchange of their DAO token, to do so." While currently we have a real competition with people either being pro-ETH or pro-ETC. **Etienne** highlights "having two similar chains competing one against the other creates an unhealthy environment". However, looking at public apps based on Ethereum it does seem that the majority of users support the fork and are following the new chain.

Ethereum is still in its infancy. It is too early to assume that the platform is perfect, and actually there is a good chance further substantial protocol modifications may be proposed in future as the development roadmap is advanced. Indeed some already foresee a switch from Proof of work (where miners exist and depend on computing power) to a Proof of Stake (no miners, relies on the stake one has in the ecosystem ie. Number of coins) consensus algorithm. **Tyler** explains that this requires a significant protocol update that will almost certainly involve a hard fork. Not only is Ethereum still young and in its early stages, other blockchain solutions are too and the hard fork could open the door for fundamental changes e.g. to fix the bitcoin scaling issue.

At the same time, the agreement is loud and clear that this attack and the subsequent discussion should not discourage companies from researching/investing in blockchain.

The important message is that the underlying technology itself still has never been hacked successfully, and remains a secure technology for recording transactions.



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