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Biography of an Influential Software Engineer
Bram Cohen

Bram Cohen was born on October 12th 1975 and is an American programmer. He is most well-known as having written the peer-to-peer BitTorrent protocol and the first piece of file-sharing software to implement this protocol, known as BitTorrent. He is currently involved in the development of a cryptocurrency called Chia, which uses hard disk space in the mining process, rather than computing power. He has been one of the most influential people involved in the development of a decentralised internet.

My reason for choosing Cohen as the subject of my essay is due to my admiration for him from generating a platform on which end users can share content with one another, thus decreasing reliance on large hosting platforms and corporations for the purpose of file-sharing, and also due to his continued pursuance of a further decentralised internet.

Early Life:

Cohen grew up in Manhattan as the son of a teacher and computer scientist. This environment provided him with ample exposure to computers and allowed him to gain a grounding in key principles at an early age; Cohen claims to have learned how to code in BASIC by age 5 from using a Timex Sinclair computer. He went on to attend the State University of New York at Buffalo and dropped out to work on teams in different startups. The last startup Cohen was a part of was MojoNation, which gave users the ability to divide confidential files into several encrypted pieces. These pieces could then be distributed between different computers also running the MojoNation software. Working in MojoNation gave Cohen the idea of incorporating this into a file-sharing program.

BitTorrent:

Encrypted file-sharing software was already in use at the time, such as KaZaA; this however, took a long time to download as the file was usually only being sent to the end user from a single source, also known as a peer. As part of the BitTorrent protocol, Cohen mandated that a file could be downloaded from many different sources at the same time. This vastly increased download speeds for its end users compared to other services, such as KaZaA. This meant that the more demand there was to download a file, the quicker it could be downloaded, as it will be downloaded by more people at the same time, and as they were downloading the file, they were also acting as sources from which other users could download the file.

Cohen began work on BitTorrent in April 2001 after quitting his job at MojoNation. He revealed his ideas at the first CodeCon conference, a conference he had set up with his roommate to provide a space to showcase novel technology projects.

The first BitTorrent client was written in Python, and to date it has been used as a protocol by several other programs. BitTorrent quickly gained notoriety for giving people a platform on which large files such as films or albums could be shared. Cohen has been consistently firm with regards to his personal usage of the software, stating that he himself has never breached copyright law with the BitTorrent client. Despite this, he is highly vocal and adamant that the large media production firms were doomed to fall victim to something along the lines of his creation at some stage. In 2003, Cohen joined Valve for a year and helped to set up Steam while there. In 2017, Cohen stepped back from the everyday organisation of BitTorrent so that he could begin to develop Chia.Network.

Chia:

Cohen's most recent venture has been a continuation of his desire to contribute towards a realistic decentralisation of the internet. Chia.Network is a cryptocurrency which is based on a "proof-of-space" concept, rather than the more familiar "proof-of-work" concept which is in use with other, larger cryptocurrencies, such as Bitcoin and Ethereum. Cohen believes that such a concept can lead to Chia being a truer decentralised platform when compared to Bitcoin. In 2018, Bitmain, a Chinese-owned crypto mining solutions provider, controlled over 42% of the world's Bitcoin hash power. Due to the fact that Chia is dependent on a more plentiful computing resource than Bitcoin, and with how cheap hard disk storage space is in comparison to the specialised mining GPUs now on the market as a result of the cryptocurrency boom in recent years, Cohen feels that in the future, Chia will be a far more viable currency for people to mine than proof-of-work currencies. It was set to launch in the end of 2018, but was pushed back to allow more time to fully develop all facets of the currency.

Chia is almost definitely less susceptible to a large stakeholder gaining too large a level of dominance in the market. In order to do so, a user would need to gather more resources to mine with than the rest of the network put together, which would prove to be very expensive to do once the network becomes established.

Cohen's proof-of-space concept could also be more secure than proof-of-work, at least in theory. This hasn't been proven yet however, due to Chia not being as widespread as larger proof-of-work currencies. Once Chia is launched, there will be a number of key features provided for its end users which Cohen believes are necessities for users; velocity control is possibly one of the most useful ones of these, as it would grant users a means through which to establish the maximum rate at which funds can be withdrawn as a safety precaution. Such a concept has

been seen already in the Bitcoin Lightning Network, which is a payment protocol that operates on top of Bitcoin, or other blockchain-based currencies.

The main concern that Cohen and the other members of the Chia team have in terms of security for their currency is the concept of “re-mining from genesis”. In essence, this idea is that an attacker with a large share of the Chia network resources would create an entirely new blockchain from scratch, and replace the historical blockchain with it once it becomes longer. If an attacker was able to execute this properly, they could then go on to have most nodes accept the new blockchain while transferring a large number of coins into their own wallet. They might also be able to undo prior transactions, which would render the concept of the blockchain null.

Conclusion:

To conclude, I feel that Bram Cohen’s contribution to internet technologies and his development of pioneering concepts in terms of file-sharing, peer-to-peer sharing, decentralisation, and cryptocurrencies, have had an immeasurable impact on how many people approach using the internet and have spurred on others to try to enact as much to the world around us as he has. Cohen has managed to stay afloat of current developments that have a strong chance of providing yet more changes to key areas of our lives, and may be able to grant people a stronger degree of control over how they choose to live and interact with the world around them.

Cohen seems to have the foresight to know what is coming down the line and how to get onboard with it to steer it in the direction he sees to be most beneficial to the majority of people. This is a rare attribute and is one which he has wielded auspiciously. His developments have and will continue to have profound impacts on society and our ability to remove dependencies on essential aspects of our lives from controlling groups whose primary concern is ensuring that as many users as possible provide their shareholders with as large a profit as possible.

Sources:

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