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When Chains Change, Do NFTs Stay The Same? How Hard Forks May Affect NFT Value and Licenses

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At 2:43am EST on September 15, 2022, the first Ethereum block was validated using Proof of Stake, [signaling the success of the Ethereum Merge](#), one of the most anticipated events in blockchain and computer science history. The Merge shifted the Ethereum blockchain (native token ETH, or ether) from a proof-of-work (PoW) consensus mechanism to a proof-of-stake (PoS) consensus mechanism, which has reduced the network's energy usage by about 99.5%. Ethereum now facilitates a 7-day average of over one-million transactions per day, at a volume of over $600 million per day, making the Merge an engineering feat akin to swapping a car's engine while it's driving on the Autobahn.

The Merge, Explained:

Technically, the Merge involved merging the Ethereum Mainnet protocol (the blockchain that supports transactions and smart contracts) using PoW with the Beacon Chain PoS network, which was a testnet launched in 2020 that ensured the PoS consensus mechanism worked before enabling it on the Ethereum Mainnet. In other words, the Beacon Chain operated in parallel with the Ethereum Mainnet until the Mainnet's protocol and the Beacon Chain's PoS consensus layer were merged. Merging these two chains meant swapping the Mainnet's PoW consensus mechanism with the Beacon Chain's PoS consensus mechanism; the Beacon Chain began accepting transactions from the Mainnet, packaged the transactions in blocks, and then added those blocks to a blockchain using the PoS consensus mechanism, all while the PoW miners shut their operations and allowed the PoS mechanism to take over. As a result, transactions are conducted on a single, new proof-of-stake network. Node operators staking 32 ETH tokens can become validators, which are given the ability to create new blocks, secure the network and validate transactions. Validators on the network receive rewards based on the amount of their staked ETH as an incentive to approve transactions and secure the Ethereum network.

Even though enthusiasts and the inquisitive around the world watched with bated breath for the first PoS-validated block, the event, which involved waiting until the first PoS block was created, was seemingly anticlimactic given the technical difficulty inherent in swapping the network's consensus layer without disruption or data loss; however, as discussed in my previous post, the implications are far reaching. Not only did the Ethereum network reduce its energy usage by about 99.5%, but the Merge resulted in a 0.2% reduction in *total* global energy usage – one of the largest decarbonization events in history.

One externality of the Merge's initiative to reduce energy usage is that Ethereum PoW miners, who invested heavily in mining equipment having no use aside from mining ETH, are stuck with their – sometimes leveraged – equipment without any ability to generate cash flows on the new Ethereum PoS network. As a result, many Ethereum miners have ceased operations or switched to mining alternative PoW coins on the Ethereum Classic (ETC) network,[1] the separatist EthereumPoW (ETHW), and some other lesser-known chains that are mineable with their rigs. EthereumPoW was created from the Ethereum Network when miners decided to "hard fork" the network into EthereumPoW (ETHW) which would continue to utilize PoW, hence the name.

Blockchain	Predecessor Blockchain	Consensus Mechanism	Shared History?	Additional Information
Ethereum Classic	N/A – this was the original Ethereum	Proof-of-Work	N/A	Forked into what we now know as Ethereum 1.0 after The DAO theft
Ethereum 2.0 (named Ethereum 1.0 pre-Merge)	Ethereum Classic	Proof-of-Stake	Shared History with Ethereum Classic *up to the fork* (note that NFTs were not popularized at the time of this fork)	Beacon Chain (PoS) merged into Ethereum 1.0 (PoW), creating Ethereum 2.0 (PoS)
EthereumPoW	Ethereum 1.0	Proof-of-Work	Shared History (and duplicate NFTs) with Ethereum 2.0 *up to the fork (which occurred 24 hours after the Merge)*	Shared history with Ethereum 2.0 up to the hard fork

WT(H)F (What the (Hard) Fork) Does This Mean for My NFTs?:

A hard fork creates a permanent divergence from the prior version of a blockchain and duplicates the blockchain's history, so every transaction prior to the fork exists on each new chain: in this case, Ethereum 2.0 and EthereumPoW (for simplicity let's call the networks ETHPOS and ETHPOW, respectively). As a result, there are two records of every transaction up to the fork. Not only are there DeFi-related transactions, among other types of transactions, but the majority of NFT purchases and sales are recorded on the Ethereum blockchain, resulting in duplicate homes on ETHPOS and ETHPOW for NFTs minted prior to the Merge (note: it is expected that the vast majority of new mints will occur on ETHPOS). Thus, for NFTs minted post-Merge on the ETHPOS chain, it's business as usual (assuming the prevailing industry practice is to mint only on the ETHPOS), but pre-Merge minted NFTs now reside on two chains[2] – the new ETHPOS and a ETHPOW chain – evoking certain questions.

Thus, as a result of the dominant NFT chain's duplication, a question arises: does an NFT purchaser receive a license corresponding to each chain that the NFT may reside on? Some traders, may, for instance, sell their ETHPOW-based NFT and hold their ETHPOS-based NFT, perhaps to hold onto something of potential value or else in an attempt to game the system. In that scenario, what happens to the purchaser's rights granted to it under the license, which may or may not include a commercial right to exploit and sublicense? Does the purchaser of the ETHPOS-based NFT hold one set of rights and the holder of the token on the ETHPOW chain possess any rights that may be in conflict with the new purchaser? Do the terms of the new purchaser extinguish any rights still remaining to the NFT on the ETHPOW chain? Generally speaking, would the value of the NFT be affected if two identical copies exist on two different blockchains? Does the NFT owner or marketplace have a say in which blockchain to recognize?

These rights are not insignificant, as the holder, depending on the license grant, is typically permitted to display or otherwise use the NFT in a non-commercial manner, and, in some cases, may even be able to commercially exploit, or grant a person(s) the right to commercially exploit, the NFT. Understanding what bundle of rights, and whether others share that bundle, is helpful to valuing the NFT and its underlying IP, as well as brand building.

As with everything in the constantly-evolving cryptosphere, there is variability in how licensing agreements handle forks. For instance, the terms of one NFT marketplace, Rarible's Standard Collectibles Sale and License Agreement, indicates that it recognizes NFTs on both chains:

> ""Collector" of a Collectible means at each time, the person who lawfully holds exclusive title to and ownership of the NFT included in such Collectible, for so long as such person continues to hold such title to and ownership of such NFT. All references to "Collector" include the Collector's lawful permitted successors and assigns. In the event of an Ethereum Persistent Fork creating copies of the Collectibles at the same addresses at which they were then held on Ethereum, the scope of the term "Collector," and all licenses granted to and other rights of a Collector under these Terms, shall be deemed expanded to include each person who lawfully holds exclusive title to and ownership of the copies of such NFTs that are included on the Ethereum Persistent Fork. **The parties acknowledge and agree that, as a result of the preceding sentence, in an Ethereum Persistent Fork, the aggregate number of the Collectibles may be increased, which could have an adverse effect on the value of each Collectible or the aggregate value of the total Collectibles.**"

Whereas Rarible's licensing agreement may result in doubling the amount of "Collectibles" in the event of a fork, Yuga Labs, a Web3 developer of NFTs, reserves the right to designate which fork is valid for their notable Cryptopunks.

> **"The License applies only to the CryptoPunk NFT on the blockchain that Yuga, in its sole discretion, may designate, which designation shall apply retroactively.** Thus, for example, if a fork or other event purports to result in duplicate CryptoPunk NFTs, only the non-fungible token recorded on the blockchain designated by Yuga Labs will be eligible to receive the benefit of the License. Any license purportedly granted hereunder to the owner of a non-fungible token recorded on a blockchain not designated by YugaLabs is void ab initio."

Yuga Labs' approach is similar to venture capital firm a16z's approach, which provided [five template NFT licenses](#), each providing for the industry-recognized chain.

> "Transfer and Sublicensing. The licenses granted in these Terms are non-transferrable, except that if you lawfully transfer ownership of your Project NFT, the license to the NFT Media in Section 1.1 to you shall terminate upon the effective date of such transfer, and such licenses will be assigned to the new owner of the Project NFT associated with such NFT Media. As a condition to sales, transfers or similar transactions of the Project NFTs, the transferee agrees upon the acquisition of the Project NFT that (a) the transferee is not a Restricted Party and (b) the transferee accepts these Terms. Further, if you choose to sublicense any of your licensed rights set forth in Section 1.1 above, you are only permitted to do so if any such sublicensees agree (i) that they are not Restricted Parties, (ii) to the same covenant not to assert as set forth in the second to last sentence of Section 1.2, and (iii) that if your licensed rights in Section 1.1 are transferred (such as because you sell your Project NFT), then any such sublicenses you have granted in such licensed rights will automatically terminate. **Because virtually all public blockchains are licensed under open source licenses, it is possible that the blockchain may fork, merge, or duplicate the original blockchain that initially recorded ownership of your Project NFT. In such case, any rights granted under these Terms to owners of any Project NFT will only be granted to the lawful owners of such Project NFT whose ownership is recorded on the mainnet version of the blockchain that is generally recognized and predominantly supported in the blockchain industry as the legitimate successor of the original blockchain (as determined in our sole discretion)."**

Alternatively, a creator may reserve the right to upgrade the NFT's smart contract in the case of a fork, reserve the right to declare future restrictions on the NFTs use, or stay silent altogether. In the absence of a licensing agreement or specific guidelines, *Archer v. Coinbase, Inc.*, 53 Cal. App. 5th 266 (2020), provides some clarity as to how forks may be handled. In *Archer*, a user claimed that a cryptocurrency exchange was required to provide him access to all forked versions of the Bitcoin in his exchange account. The Court disagreed, reasoning that the exchange's user agreement did not obligate the exchange to support all forks. The court also found that Coinbase's refusal to support a new form of forked cryptocurrency was not action amounting to conversion as Coinbase did not host the forked cryptocurrency in the first instance, and thus could not have deprived the plaintiff of a property right or exercised dominion over the forked cryptocurrency. Consequently, digital asset trading platforms (token, NFT, or otherwise) tend to expressly reserve the ability to determine which forks they support or otherwise reserve the broad right to place future restrictions on transactions.

It remains to be seen whether ETHPOW will become a profitable chain for miners. In any event, other chains may undergo hard forks, so NFT issuers and marketplaces should consider what effect a fork might have on their business models and provide clear guidance and update relevant terms as needed to explain how they will handle any future hard forks

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[1] Ethereum Classic is the original Ethereum Network. The Ethereum blockchain was hard forked from Ethereum Classic after The DAO was infamously hacked. The effect being that the new Ethereum network erased the history of The DAO theft, while Ethereum Classic, remaining philosophically pure to some adherents, maintained the unaltered history.

[2] As noted, mining operations may revert to mining on Ethereum Classic, but since there are no NFTs in those shared histories so the duplication issue is moot.

View original.