



101 Blockchains



Non-Fungible Token

101 Blockchains Flashcards

Get familiar with the basic and advanced Non-Fungible Token (NFT) terms with the NFT flashcards, and level up your blockchain skills.

1. Fungibility

Fungibility basically points out to the right for exchanging a product or asset with other products or assets of the same kind. Fungibility ensures the implications towards the equal value of assets. The concept is helpful for simplifying trade and exchange processes. Fungibility is evident in cases where two objects or assets are similar to each other in design, and each unit of them could be exchanged for one another.

2. Asset

Asset refers to any resource which has an economic value associated with it. It is also under the ownership and regulation of an individual, enterprise, or country with the intention of offering a profit in the future. Assets can be perceived as anything that could generate cash flow in the long term, alongside reducing costs or boosting profits. Assets are classified into different categories according to their economic nature and work.

3. Non-fungible Token

Non-fungible token (NFT) refers to a particular variant of cryptographic token which serves as a representative of a unique asset. NFTs are generally the tokenized representations of digital, as well as real-world, assets. They can also work perfectly as verifiable proofs for the authenticity of assets such as digital art and collectibles. NFTs also provide a clear trail of ownership of assets throughout their lifetime with a lack of interchangeability.

4. Blockchain

Blockchain is a constantly expanding database, including various transaction blocks. In the case of NFTs, blockchain is the foundation for building the NFT platform. Some of the reliable platforms that support NFTs are decentralized applications or dApps. So, the platforms tailored initially as centralized platforms could counter the basic objective of blockchain in various ways alongside imposing the influence of centralized party controls. Blockchain introduces decentralization and data integrity benefits.

5. Decentralized Apps

Decentralized apps or dApps are applications running on open-source distributed computing systems. The source code of dApps is available to the public for creating their own versions of the code. The decentralization aspect in blockchain networks ensures that there is no single authority or entity that controls the network. On the contrary, they are subject to maintenance through multiple users. Decentralized applications also have the benefit of cryptographic security.

6. ERC-20 Token

ERC-20 is basically a technical standard that helps in issuing and implementing tokens on the Ethereum blockchain. Ethereum developer Fabian Vogelsteller proposed the ERC-20 token for the first time in November 2015. The ERC-20 token standard points towards a specific set of rules that should be fulfilled for the proper functioning of a token in the Ethereum ecosystem. It is more of a set of technical specifications than a piece of software.

7. ERC-721

Another category of tokens, ERC-721 tokens, are distinct from ERC-20 tokens owing to their non-fungibility. Each ERC-721 token is unique and does not have an interchangeable value. One of the most significant decentralized applications on Ethereum, Cryptokitties, depends on ERC-721 tokens for enabling the creation of digital collectibles in the form of different kitten breeds. Blockchain-based NFTs could thus apply for virtual collectibles, physical property, and negative value assets like loans.

8. ERC-1155

The ERC-721 standard is a clear choice for tokenization and the creation of unique assets which are easily transferable from one wallet to the other. On the other hand, a collection of ERC-721 tokens could reduce speed and efficiency. ERC-1155 resolves the problem by offering unique NFTs that can enable batch transfers of multiple tokens simultaneously. ERC-1155 is generally referred to as the next-generation multi-token standard with better speed than ERC-721.

9. Exchange

An exchange basically refers to the organized marketplace which serves as the base for trading financial instruments, including cryptocurrencies, securities, and commodities. Exchanges can operate in real-world establishments or even on digital platforms. In the case of digital assets, exchanges serve platforms for users to trade different assets alongside purchasing or selling their cryptocurrency for fiat money. The majority of cryptocurrency exchanges feature centralized control with potentially risky cyber threats.

10. Decentralized Exchange

The Decentralized Exchange concept emerged as a potential alternative for centralized exchanges. DEX platforms don't require any middleman, and it is easy to conduct trade alongside processing transactions in a trustless automated environment. Decentralized exchanges have limited susceptibility to cyber-attacks and downtime. However, they cannot offer the services of fiat or crypto trading. The trading volume of decentralized exchanges generally tends to be lower in such exchanges than in centralized exchanges.

11. Standardization

Conventional digital assets, including event tickets and domain names, did not have any unified representation in the digital world. Representation of non-fungible tokens on public blockchains helps developers in creating common, inheritable, and reusable standards applicable for all non-fungible tokens. The standards focus primarily on ownership, simple access control, and transfer. Blockchains help in adding a layer on top of standards for building a completely new collection of stateful primitives.

12. Interoperability

Interoperability is one of the significant traits of non-fungible tokens. NFT standards enable NFTs easier movement throughout various ecosystems. When developers introduce a new NFT project, the NFTs are instantly viewable across various wallet providers. They could also be traded on different marketplaces and displayed in virtual worlds. Interoperability is possible due to the open standards for facilitating clear, reliable, permissioned, and consistent API for reading and writing data.

13. Tradeability

Tradeability is another interesting feature that directly relates to interoperability. With the option for free trade across open marketplaces, users could easily move assets outside their original environments. Users could move their items into a marketplace with the facility for advanced trading capabilities such as bundling, auctioning, and bidding. NFTs also ensure the ability to sell in any currency such as application-specific currencies or stablecoins, thereby providing exceptional ease of trading.

14. Liquidity

The simple and flexible tradability of non-fungible tokens ensures higher liquidity. NFT marketplaces could address the needs of a wider assortment of audiences, from experienced traders to amateur investors. Therefore, NFT assets could enjoy promising levels of exposure to a large and varied pool of buyers. Just like the ICO boom of 2017 initiated a completely new class of assets through instantly liquid tokens, NFTs can expand digital assets.

15. Provable Scarcity

Smart contracts in NFTs help developers place some hard limitations on the supply of non-fungible tokens. The smart contracts could help in enforcing specific properties which are not subject to modifications after issuing NFTs. For example, developers could create rules that only a particular number of an asset will be created. Developers could also ensure that specific properties of NFTs embedded on-chain do not change over the course of time.

16. Programmability

NFTs are similar to traditional digital assets in the fact that they are completely programmable. Cryptokitties is one of the examples which show the use of NFTs for breeding digital kittens through a mechanism that is incorporated directly in the contract representing them. The majority of NFTs in the present times are associated with highly complex mechanics. The different types of NFT programming options include random generation, forging, redeeming, crafting, and others.

17. Composables

Composables is also one of the notable concepts in the NFT space, especially related to NFT standards. Composables follow the ERC-998 standard and offer a template for NFTs to exercise ownership over fungible and non-fungible assets. As of now, there are only a certain number of composable NFTs available presently on mainnet. On the other hand, composables are also perceived as notable elements that have promising scope for practical applications.

18. Non-Ethereum Standards

Ethereum is undoubtedly the biggest playground for all the action in the NFT space, and largely dictates the standards which define the structure of NFTs and their operations. However, many other NFT standards have also found their roots across other chains. For example, DGoods, a solution powered by the Mythical Games team, could offer a cross-chain standard equipped with prolific features related to EOS. Cosmos project is also an example.

19. Non-Fungible Token Metadata

Non-fungible token metadata provides the name and unique attributes of the concerned NFT. NFT metadata offers descriptive information regarding a particular token ID. In the example of Cryptokitties, the metadata basically points out the name of the cat, description, picture of the cat, and other additional traits. The metadata for an event ticket NFT would include information about the type of the ticket, date, description, and time of the event.

20. On-Chain Metadata

The on-chain representation of metadata helps in achieving prolific benefits. First of all, it helps with a permanent residence of a token that goes beyond the lifecycle for a specific application. On-chain metadata for an NFT could change according to the on-chain logic. It is important to have the metadata of an NFT throughout the lifecycle of a token identifier. In addition, on-chain logic can also feel the necessity for interaction with metadata.

21. Off-Chain Metadata

Irrespective of the numerous benefits from on-chain metadata, the majority of projects ensure off-chain storage of metadata. The primary reason for choosing off-chain metadata refers to the existing storage limitations on the Ethereum blockchain. For example, the ERC721 standard features the tokenURI method for informing applications about the source of metadata for specific items. Users can get a public URL from the tokenURI method, and get a JSON dictionary of data.

22. Centralized Servers

Centralized servers are one of the easiest and simplest approaches for metadata storage along with cloud storage solutions such as AWS. Centralized servers are a trustworthy off-chain metadata storage solution. However, centralized servers present certain notable setbacks also. First of all, developers could change the metadata willingly. Secondly, the cases where the project goes offline could involve the metadata disappearing from its original source, albeit with security advantages for metadata.

23. IPFS

Interplanetary File System, or IPFS, is also an off-chain metadata storage solution that supports the increasing number of developers, especially in the domain of digital art. IPFS offers a peer-to-peer file storage system with support for hosting content across a network of computers. This can enable the replication of files in various locations. IPFS can ensure the immutability of metadata due to the unique addressing through the hash of the concerned file.

24. NFT Minting Platforms

NFT minting platforms offer considerable levels of flexibility and ease for minting an NFT, whether or not they have the necessary development skills for deploying smart contracts. Digital Art Chain is an example of one of the first NFT minting platforms. It was introduced in mid-2018 and helped users in minting NFTs from any digital image. Subsequently, other minting tools emerged in the market with subsequently evolving functionalities over time.

25. Decentralized Naming Services

Decentralized naming services are also one of the major classes of NFT assets with relative similarity to '.com' domain names, although they have a decentralized technology foundation. Ethereum Name Service is one of the prominent examples which came forward in May 2017 under the funding of the Ethereum Foundation. It has around 170,000 ETH in its reserve locked from 2017 to 2018 in names. Upgrades to ENS smart contracts came in 2019.

26. Sale Mechanisms

The trading in NFTs depends considerably on the selection of sale mechanisms. Generally, the restricted trading in stablecoins such as DAI or USDC is largely possible on the grounds of friction in collecting stablecoins. Dutch auctions alongside fixed-price sales are commonly used for sales of lower-ticket items. Bundles are also popular sales mechanisms for NFTs with a substantially increasing percentage of bundle sales. eBay-style auctions are also common NFT sales mechanisms.

27. Royalties

Some of the NFTs could give out an automatic payout of royalties to their creators upon successful sales. Royalties are presently an emerging concept, although with profound influence on the NFT space. The process of royalties reward is completely automatic. Therefore, NFT creators could just relax and earn royalties when their work is sold from one individual to another. However, the process of estimating royalties is manual, alongside a lack of accuracy.

28. Fractional Ownership

NFT developers could also generate shares of their NFT, which gives fans and investors the perfect opportunity to achieve ownership of a specific part of an NFT. Investors don't have to buy a complete physical asset for ownership of a part of NFT. Fractional ownership offers promising opportunities for NFT minters and collectors. Fractional ownership NFTs are easily tradable on decentralized exchanges with more prospects for profit alongside ownership proof.

29. OpenSea

OpenSea is the most popular choice among NFT marketplaces, with many choices for non-fungible tokens such as censorship-resistant domain names, collectibles, digital art, virtual worlds, sports, and many other assets. OpenSea also helps creators in developing their items on the blockchain through an item minting tool. The item minting tool can help in developing a collection of NFTs without any costs or a single line of code while enjoying flexibility.



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