

THE TECHNOLOGY OF NFT

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Анотація

У статті розглянуто поняття технології NFT, особливості створення NFT, а також проаналізовано перспективи даної технології.

Ключові слова: NFT, криптовалюта, блокчейн, цифрові активи.

Abstract

The article reveals the concept of NFT technology, studies the peculiarities of NFT creation and analyses the perspectives of the technology for the future.

Keywords: NFT, cryptocurrency, blockchain, digital assets.

The technology of NFT is quite new. It has been existing only since 2014 but it has been gaining notoriety now because it is becoming an increasingly popular way to buy and sell digital artwork. Many have heard of NFT but not everyone has an idea what it is.

The word NFT stands for “non-fungible tokens”. In fact, an NFT is a digital asset that represents real-world objects like art, music, in-game items and videos. They are bought and sold online, frequently with cryptocurrency, and they are generally encoded with the same underlying software as many cryptos.

Cryptocurrencies are like physical money, they are “fungible,” meaning they can be traded or exchanged for one another. Crypto’s fungibility makes it a trusted means of conducting transactions on the blockchain. But NFTs are different, they are non-fungible. Each has its own digital signature that makes it impossible for NFTs to be exchanged for or equal to one another. They are unique and cannot be replaced with anything else. And this is the main reason for their popularity.[1]

NFTs exist on a blockchain, most often on the Ethereum blockchain, although other blockchains support them as well. NFTs are largely based on a single protocol: ERC-721. It’s an Ethereum standard that was released in early 2018, based on code written by Dieter Shirley, the founder of a digital collectables product called CryptoKitties. From about December 2017 on, CryptoKitties set the template for the NFT craze of today, with the non-fungible felines selling for up to hundreds of thousands of dollars. What ERC-721 does is implement an API for tokens within smart contracts, which specifies ownership for each unique NFT and allows it to be bought and sold. ERC-721 is a fairly basic protocol and has limited functionality. It provides a mapping of unique identifiers (each of which represents a single asset) to addresses, which represent the owner of that identifier,” as well as “a permissioned way to transfer these assets, using the transferFrom method. ERC-721 is not the only Ethereum standard that developers can use, but it is the one most suitable to build NFTs with. Other standards include ERC-20 (to keep track of fungible tokens), ERC-777 (another standard for fungible tokens, but this one enables more complex interactions), and ERC-1155 (a multi-token standard that is “fungibility-agnostic”).[2]

After ERC-721, ERC-1155 is the next most suitable for NFTs – but it tends to be used more for gaming applications. For example, in a game you might spend money to buy a mix of fungible and non-fungible digital assets (a magic sword, a piece of clothing, etc).

Essentially, NFTs are like physical collector’s items, only digital. So, instead of getting a real-life picture, image or badge, a buyer gets a digital file instead. There are also NFTs that are based on existing images that have been digitized. NFTs can exist in the form of graphic art, GIFs, avatars, music, videos, sports highlights, video game skins, etc. They always have exclusive ownership rights. NFTs can have only one owner at a time, and their use of blockchain technology makes it easy to verify ownership and transfer tokens between owners. The creator can also store specific information in an NFT’s metadata. For instance, artists can sign their artwork by including their signature in the file.

NFTs are tied to the blockchain, which is essentially a big encrypted ledger. When people buy NFTs, they’re purchasing the “keys” to them, that is they become legal owners of an NFT item and can exchange it

with somebody, sell it, or do whatever they want. The fact that NFTs are generally a kind of art and they that have a very limited run and unique identifying codes, makes them especially valuable. It should be noted that individual NFTs as well as even the entire collage of images can be viewed easily online by everyone for free. But an NFT allows the buyer to own the original item. Besides, it contains built-in authentication, which serves as proof of ownership. That's what makes them extremely expensive. The reason why people buy them lies in the fact that they might want to possess a unique thing; they may think it's a collectable or they believe it'll increase in value later on. Some people buy NFTs to support the artist or they might simply think it's cool.[3]

Despite its novelty, the market for NFTs is growing very fast and now is estimated to reach \$41 billion in 2021 alone, an amount that is approaching the total value of the entire global fine art market. [1]

From the consumer's point of view, NFTs are trendy because they're fun. To buy NFTs you will need to get a digital wallet that allows you to store NFTs and cryptocurrencies. Besides, you are likely to need to purchase some cryptocurrency, like Ether, depending on what currencies your NFT provider accepts. You can buy crypto using a credit card on different platforms like Coinbase, Kraken, eToro and even PayPal and Robinhood now. You'll then be able to move it from the exchange to your wallet of choice. Once you've got your wallet set up and funded, there's no shortage of NFT sites to shop. Currently, the largest NFT marketplaces are OpenSea, Rarible and Foundation.

Although these platforms include thousands of NFT creators and collectors, careful research should be done before buying. The level of fraud is growing and some pieces of modern digital art are sold without their owner's permission.

СПИСОК ВИКОРИСТАНОЇ ЛІТЕРАТУРИ

1. Robyn Conti, John Schmidt 'What Is An NFT? Non-Fungible Tokens Explained' [Електронний ресурс] - Режим доступу до ресурсу: <https://www.forbes.com/advisor/investing/cryptocurrency/nft-non-fungible-token/>
2. Richard MacManus Can NFT Technology Expand Beyond Digital Apes and Punks? [Електронний ресурс] - Режим доступу до ресурсу: <https://thenewstack.io/can-nft-technology-expand-beyond-digital-apes-and-punks/>
3. Julia Glum 'Non-Fungible Frenzy: Why NFTs Are Suddenly Everywhere' [Електронний ресурс] - Режим доступу до ресурсу: <https://money.com/what-are-nfts/?ref=/people-know-what-nft-is/>
4. Non-fungible tokens (NFT) [Електронний ресурс] - Режим доступу до ресурсу: <https://ethereum.org/en/nft/>
5. What is NFT and How Does NFT Work? [Електронний ресурс] - Режим доступу до ресурсу: <https://www.simplilearn.com/tutorials/blockchain-tutorial/what-is-nft>

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