



DNFT Protocol

Decentralized NFT Cross-Chain & AI Application

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NFT

What is NFT?

NFT means non-fungible tokens. Non-fungible is an economic term that you could use to describe things that are not interchangeable. It is available to represent any unique entities or items, such as images, videos, audio or anything else. It's a relative concept compared with fungible tokens. As for the fungible tokens, they can be exchanged because they are defined by their value rather than their unique properties.

The Origin of NFT

The origin of NFT can be traced to the year 2012. It was a blog post by Yoni Assia who mentioned the concept of the coloured coin. At the end of the year, the potential of the new assets was discussed in a paper titled "Overview of Colored Coins" which was published by Meni Rosenfeld. From 2014 to 2016, some projects made their attempts on cards, game assets, and collectables creation and trading. 2017 was a significant year for NFT, the success of CryptoPunks and CryptoKitties let more people notice NFT. Technically, the ERC721 standard was firstly applied in CryptoKitties in 2017. which was widely applied in plenty of projects in the later years. To make the ERC 721 tokens fit with the virtual items, Enjin created a brand-new standard as ERC 1155, which allows for an infinite number of both fungible and non-fungible items in a single contract. The appearance of ERC 1155 boosted the development of blockchain games. Much more blockchain projects focus on the NFT application and its economic value in recent years. In 2021, many investors are willing to pay high rates to secure and promote NFTs because they believe they will be the biggest and most profitable collectibles in the future.



Decentralized NFT Marketplace

NFT marketplaces are platforms where NFTs can be stored, displayed, traded and minted (created). The conception of the Decentralized NFT Marketplace comes from the definition of decentralized applications. Decentralized applications (dApps) are the applications that are developed and operated on a blockchain or P2P network of computers instead of a single computer or server. In the world of crypto, dApps run on a single blockchain network or multiple blockchain networks. The blockchain networks are public, open-source, decentralized environments, and they are free from control and interference by any single authority. As for a decentralised NFT Marketplace, all the NFT metadata displayed on the user interface of the application should be acquired from the blockchain. The functionality of NFT mint and trading should be implemented by invoking the interfaces of the corresponding contract.

NFT Cross-chain

There are three issues that the NFT industry need to solve. First, the scarcity and uniqueness of NFT have been the key reasons for its massive growth. However, the pros of NFT caused an issue that was difficult to solve, which is the lack of liquidity. Second, the gas fee is high in the Ethereum network, which limits frequent actions from investors. Third, with the NFT ecosystem developed on Binance Smart Chain and Heco Chain, more users will have requirements to experience the ecosystem with their assets across blockchains. NFT cross-chain services will be the solution of all these issues.

NFT & AI Models

AI (artificial intelligence) model is a program that has been trained on a set of data to recognize certain types of patterns. NFT and AI models seem to be unrelated. However,



the property of AI models is consistent with the property of NFT assets. Both of them are unique and scarce. That makes the fusion of NFT and AI models possible.



Introduction to DNFT

Overview

DNFT Protocol is a decentralized cross-chain NFT network. It allows users to mint, trade and manages NFT assets across blockchains, e.g. arts, game & metaverse assets, and AI models.

The DNFT team is aiming to construct a multi-chain of NFT infrastructure, especially for machine learning and AI models. By presenting an AI-model as an NFT(AAAN) conception, DNFT pioneers the scenario of NFT applying to the AI industry.

Business Model

Multi-chain Asset Management

DNFT will provide multi-chain asset management services to our users. NFT holders can transfer their assets from one blockchain network to another through the decentralised cross-chain protocol developed by DNFT. It will be for the NFT holder to transfer the asset back to the original blockchain. DNFT will charge NFT management tax from each cross-chain transaction.

NFT Trading & Auction

Every user can mint, buy, and sell NFT assets on DNFT. Except for the normal trading transaction, English auctions will also be available in the marketplace. DNFT will charge NFT transaction tax from each NFT transaction.



Core Value

Decentralized Multi-chain NFT Marketplace

It's meaningful to build an NFT marketplace with a decentralised cross-chain protocol. Considering there is no mature product for NFT cross-chain, provide a completed experience for users with NFT cross-chain needs is exciting. It will be a milestone in the NFT industry. Furthermore, if the NFT cross-chain protocol can be integrated with the NFT marketplace, the NFT asset can be transferred not only across blockchain addresses but also blockchain networks. It will highly increase the liquidity of the NFT assets by allowing NFT holders to trade NFTs with the investors that no matter they use which blockchain.

AI-model as an NFT (AAAS)

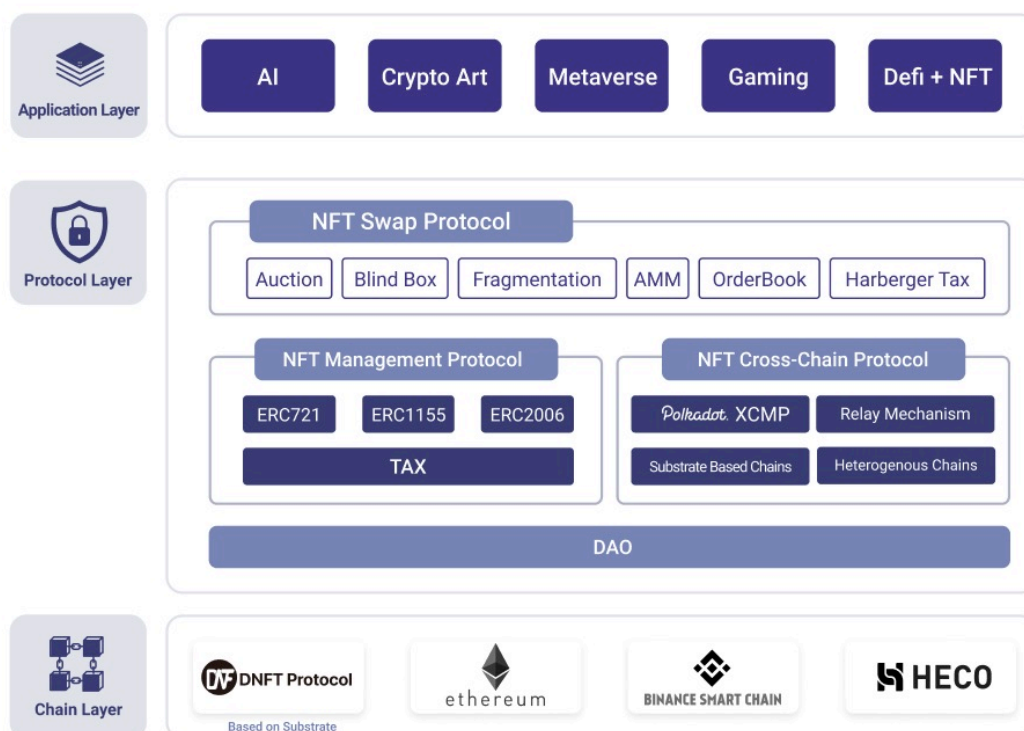
The integration of NFT and AI model will bring infinite possibilities to both blockchain and AI industries. If the NFT contract standard increases its compatibility for AI models, blockchain can be the potential settlement method and marketplace for AI model trading. It will offer more options to the AI model owners or creators and AI model buyers when they are going to buy or sell an AI model. The increase of AI model liquidity will promote the development of the AI industry. On the other hand, the appearance of AI model NFT will be the new blood of the NFT marketplace. According to that, AI model NFT will drive more attention from the conventional IT industry to the crypto world.



Technical Architecture

Overview

The DNFT Protocol network is based on the Polkadot network developed through the substrate framework. It's a smart contract service network built to connect EVM blockchains. The technical architecture of DNFT Protocol Network can be divided into three layers, which is the chain layer, protocol layer and application layer.



Chain Layer

The chain layer contains the networks supported by DNFT Protocol. Initially, DNFT Protocol will support the EVM blockchains, such as Ethereum network, BSC network and Heco network. DNFT network will be developed based on the substrate framework. With



the progress of the DNFT Protocol development and the requirement of the community, other blockchains might be supported in the later process.

Protocol Layer

It contains the core protocols of DNFT Protocol, including DAO Governance Protocol, NFT Management Protocol, NFT Cross-chain Protocol, and NFT Swap Protocol.

DAO Governance Protocol

In the early stage of DNFT Protocol, the governance will be implemented by the DNFT team and core community contributors. With the product development turning in a certain direction, the governance will be gradually implemented by the DNFT community which is formed by the DNF token holders. The partial proposal of DNFT development will be determined by DAO votes.

NFT Management Protocol

NFT Management Protocol will maintain the NFT transactions (Cross-chain and non-Cross-chain) and integrate the original interfaces of the existing NFT standard. It includes NFT management tax protocol and NFT standard compatibility protocol (ERC721, ERC1155, and ERC2006). The NFT management tax protocol will ensure the tax charging through each NFT trading transaction and each NFT cross-chain transaction. As for the NFT standard compatibility protocol, it will make DNFT support the mint, trade, and auction for ERC721, ERC1155 and ERC2006.

Periodic NFT Management Tax (Experimental)

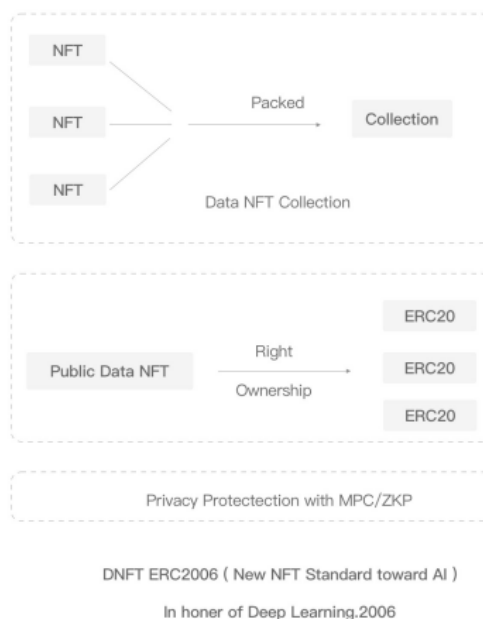
Except for the common tax charging system mentioned above, there will be an experimental tax system for the cross-chain transaction to increase the liquidity of NFT



assets and decrease the redundancy of the NFT metadata storage. It's different from the traditional one-time charge fee when storing, which the storage tax will be continuously charged when the NFT holder keeps their NFT assets. When the NFT holder didn't pay the tax in time, the NFT asset will be collected by the protocol and auctioned. Anyone who wins the auction needs to continuously pay the tax. The experimental tax system will be tentatively implemented in the DNFT testnet to demonstrate its feasibility to the community.

ERC2006 (An AI Model Friendly NFT Standard)

ERC2006 is an experimental crypto-asset standard for AI models. There are several issues in the application of mint and trade AI/ML models in the existing NFT standard. First, AI models are much more complex compared to the traditional content of NFT, such as images and videos. Based on this, the existing single NFT mechanism cannot perfectly fit with AI/ML models. Second, some publicly owned data or models are owned by many individuals. However, multi-signed solutions are too clumsy to solve a large number of multi-party authorization. Third, the existing NFT standard could not protect the metadata of the assets in the process of assets circulation, which means any unauthorized individuals can access the metadata of the assets. It will cause security risks in the circulation of data-related assets, especially personal data.

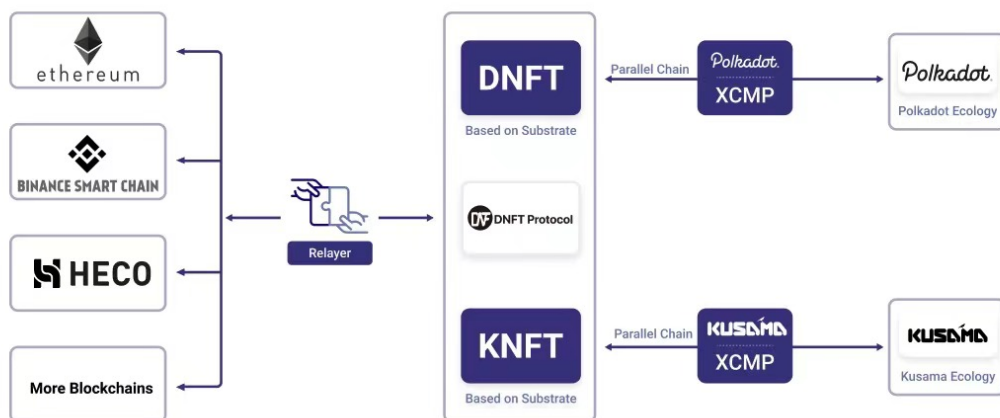


To deal with these issues and realise the integration of AI model and NFT, DNFT team present the AI data-friendly ERC2006 standard. It offers three more core functionalities compared with the ERC721 standard.

First, it allows individuals to gather multiple NFTs and pack them into one NFT. It is friendly for packing multiple personal data into a large set of data. It is convenient for the creation and transfer of a large set of data. Second, it allows the NFT asset owner to fragmentize their asset to an ERC20 token. It will be a potential solution to deal with the ownership of huge data sets, especially public data. Third, it contains a copyright protection mechanism by using ZKP, MPC and other cryptographic techniques to control authorized viewing.

NFT Cross-chain Protocol

The NFT cross-chain protocols mainly includes homogeneous cross-chain module based on Polkadot XCMP and heterogeneous cross-chain module based on the relay chain.



Homogeneous (isomorphic) cross-chain based on Polkadot XCMP

DNFT's Polkadot main-chain network is developed based on substrate. Due to the characteristics of substrate framework, DNFT's Polkadot network will synchronously achieve the Polkadot XCMP cross-chain mechanism since the network goes alive. In this way, the NFT cross-chain feature of DNFT will seamlessly support the blockchains developed by substrate framework. By accessing the Polkadot network in the form of slot auction, DNFT's Polkadot network will become a parachain of the Polkadot network and establish a connection with the parallel chain networks of the Polkadot.

Heterogeneous cross-chain based on relay chain

The heterogeneous cross-chain protocol will be the core of DNFT cross-chain protocol. Based on the approach of relay, DNFT's Polkadot network will become the centre of the relay and handle the requirements of heterogeneous cross-chain. It will also establish connections with other blockchain networks.



NFT Swap Protocol

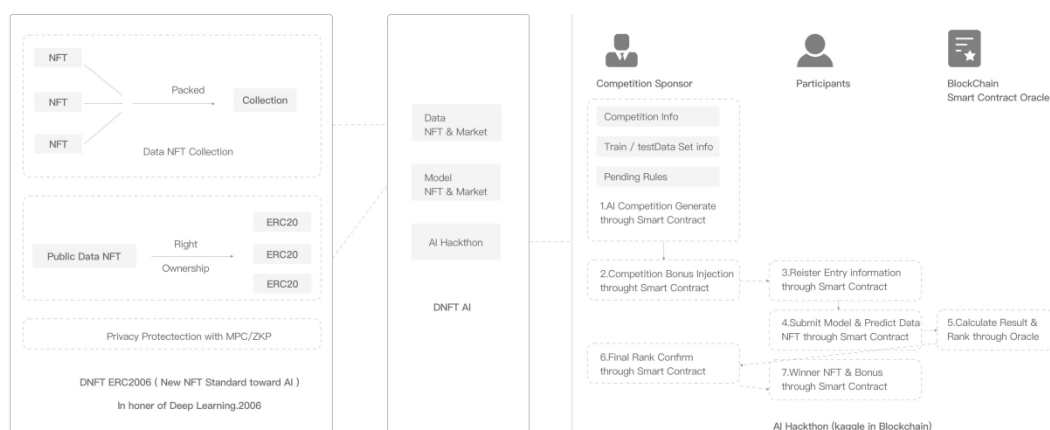
DNFT Protocol will support multiple NFT swap methods through NFT swap protocol. It will support NFT auction system, mystery box system, NFT fragmentation, NFT AMM, NFT orderbook, and NFT Harberger tax. According to the various features of NFT swap protocol, it will enrich NFT transaction approaches and highly increase the liquidity of NFT assets.

Application Layer

There are 5 modules in the application of DNFT Protocol. They are crypto art, AI, gaming, metaverse, and NFT + Defi.

AI Module

DNFT Protocol will present an AI data-friendly standard ERC2006, and a decentralized AI model marketplace. It's combined with ERC2006, AI model Oracle, decentralized API, and decentralized task distribution AI hackathon (the Kaggle of the crypto world).





Crypto Art Module

DNFT Protocol's innovation and practice in copyright and privacy protection, NFT transaction approaches enriching, and NFT assets liquidity increase will be the strength of crypto art module in the application of DNFT Protocol. This makes the crypto art module of DNFT a revolutionary application in the crypto art industry.

Game Module

According to the characteristics of DNFT Protocol's NFT management tax system and mystery box feature, various NFT game applications can be easily constructed based on DNFT Protocol.

Metaverse Module

Based on the unique copyright and privacy protection features and NFT management tax system of DNFT Protocol, it is helpful for the exploration to data privacy, asset security and data redundancy avoiding in the construction of Metaverse.

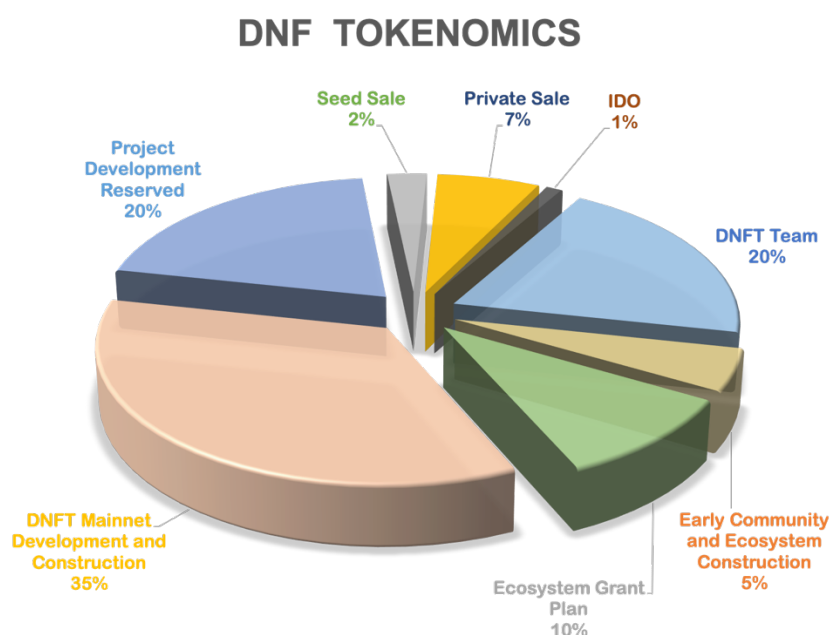
NFT + Defi Module

Based on the innovation of ERC2006 standard, NFT could be fragmented into ERC20 tokens which can be mapped into any stocklization assets. It can realize a seamless connection from NFT to the Defi world.



Tokenomics

As the original token of DNFT Protocol network, mainnet DNF token will be issued when the mainnet network is launched. The total supply of the DNF token is 100 million. Before the mainnet DNF has been issued, the DNFT team will issue an ERC20 token which is convenient for the IDO and listing event. DNF bridge will allow ERC20 DNF holders to convert the ERC20 tokens to the mainnet DNF, which will be 1:1 freely convertible since mainnet DNF token has been issued. The DNF bridge will also allow users to transfer their ERC20 DNF to BEP20 DNF or HRC20 DNF if needs.



- 1) 20% will be reserved for the DNFT Protocol team. 10% of the team reserved will be released every quarter since the mainnet of DNFT Protocol has been launched.
- 2) 5% will be reserved for early community and ecosystem construction (including community airdrops and other early marketing events). 5% will be released when TGE, then released 10% each quarter.



- 3) 10% will be reserved for the ecosystem grant plan. The NFT and game ecological construction incentive grant plan will be launched to encourage the projects who join the DNFT Protocol ecology. It will be locked for 3 months, then released 10% each quarter.
- 4) 35% will be reserved for DNFT main network development and construction (including slot auction, network maintenance etc.) It will be locked for 3 months, then released 5% each quarter.
- 5) 20% will be allocated to Project Development Reserved (including Exchange Listing, Liquidity Pool, etc). 5% will be released when TGE, then released 5% each quarter.
- 6) 2.5% will be allocated to Seed Sale. It will be locked for 1 months, then released 12% each quarter.
- 7) 6.5% will be allocated to Private Sale. 20% will be released when TGE, then released 8% each month.
- 8) 1% will be allocated to IDO. 50% will be released when TGE, then release 50% 1 month later than TGE.

Holding DNF will benefit from the following:

- 1) As an origin token of parachain, DNF is the token for gas fee consumption.
- 2) As DNFT DAO Governance token, participating in the construction of DNFT ecosystem.
- 3) Get airdrops of DNF tokens and NFT.



- 4) Get discounts when paying in DNFT ecosystem, eg, purchasing NFT, NFT management tax payment, cross-chain transfer tax fee.
- 5) Due to gas fee consumption and further burning mechanism, DNF is deflation token.



Governance

In the early stages of the DNFT protocol, governance will be implemented by the DNFT team and core community contributors. As DNFT Protocol has developed to a mature product, the governance will be implemented gradually by the DNFT Protocol DAO. After that, the development of the DNFT protocol is subject to the DNFT Protocol DAO.

Some of the powers that the DAO can control are as follows:

- 1) DNFT Protocol development plan improvement
- 2) DNFT Protocol architecture improvement
- 3) NFT Management protocol (including NFT management tax system) improvement



RoadMap

First Stage

Build the foundation model of DNFT Protocol, including:

- 1) Launch the mainnet 1.0 version of decentralized NFT marketplace on EVM blockchains,
- 2) Launch the 1.0 version of DNFT network which was developed based on Substrate,
- 3) Launch the 1.0 version of KNFT network (more flexible DNFT network) which was developed based on Substrate,
- 4) Launch the 1.0 version of NFT Cross-chain Protocol,
- 5) Launch the DNFT Protocol DAO governance
- 6) Launch the DNFT Ecology GRANT plan

Second Stage

Build the ecological application model of DNFT Protocol, including:

- 1) Launch the mainnet 2.0 version of decentralized NFT marketplace and application aggregator on EVM blockchains,
- 2) Launch the 2.0 version of DNFT network which was developed based on Substrate, participate in the slot auction, access to Polkadot parallel chain;



- 3) Launch the 2.0 version of KNFT network which was developed based on Substrate, participate in the slot auction, access to Kusama parallel chain;
- 4) Launch the 2.0 version of NFT Cross-chain Protocol, with API support for external system, more open NFT Cross-chain protocol,
- 5) Mature DNFT Protocol DAO Governance

Third Stage

Improve the ecological application model of DNFT Protocol, including:

- 1) Launch the mainnet 3.0 version of decentralized NFT marketplace and application aggregator on EVM blockchains, be a completed Web3.0 NFT platform
- 2) Launch the 3.0 version of DNFT network which was developed based on Substrate,
- 3) Launch the 3.0 version of KNFT network which was developed based on Substrate,
- 4) Launch the 3.0 version of NFT Cross-chain Protocol, support MPC / ZKP, privacy agreement, etc., safer NFT Cross-chain protocol,
- 5) Complete DNFT Protocol DAO governance