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# **NFT Marketplaces**

**Where to Shop?**

**November 2021**

# Research and Insights



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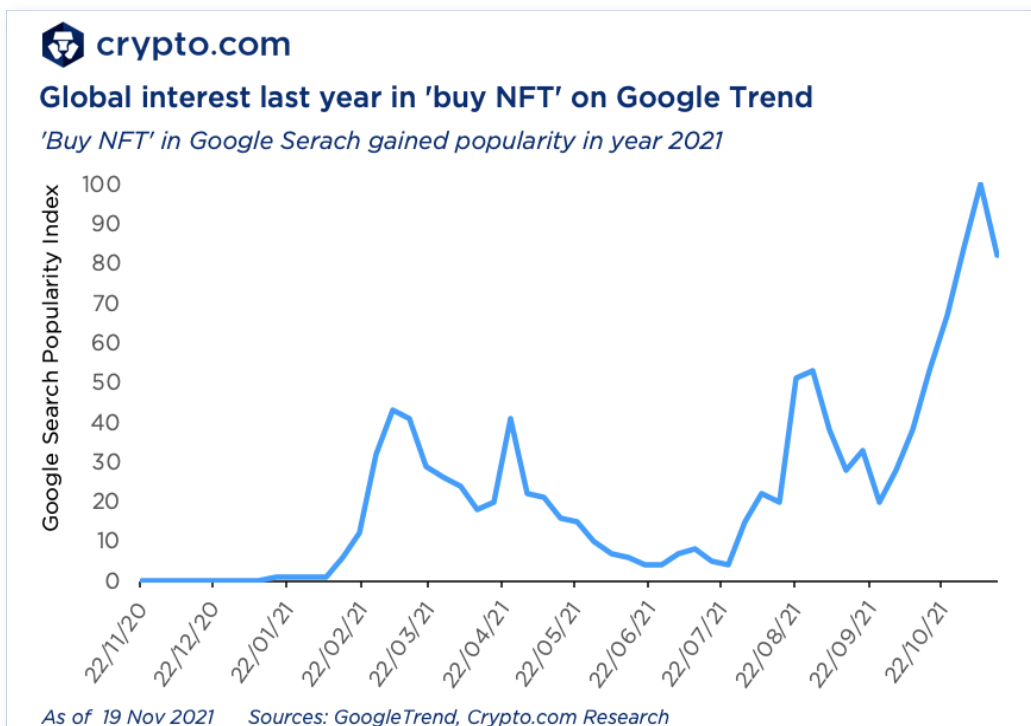
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## Executive Summary

- The objective of this article is to provide an overview of the current landscape of NFT marketplaces and insights for people interested in getting involved in the NFT markets. Non-fungible tokens (NFT) have gotten a lot of traction: **According to CryptoSlam!, the all-time sales volume has already passed [USD 10 billion](#) at the time of writing, while its sales volume was only around [\\$97 million in 2020](#).** Other data also supports the current big jumps in NFT interests and in NFT trading activities.
- **Some NFT marketplaces aim to serve a myriad of products for a wide range of audiences, while others niche themselves to provide specific products for targeted audiences.** Section 2 will go through these different types of exchange platforms.
- **Customer support and transaction costs are two key determining factors in choices of NFT marketplaces.** An NFT exchange platform with outstanding customer support will not only enhance customer experience but also protect its customer from potential security risks. Additionally, low transaction costs including gas fee in NFTs exchanges could be beneficial to both the NFT buyers and sellers.
- **The NFT market is growing, and NFT marketplaces are thriving with diversity.** People interested in NFT trading should make their choices of trading platforms rationally; they should be based on their preferences, including which NFT genres they are interested in and the overall services such as customer support provided by the marketplaces.

# 1. Introduction

**Non-fungible tokens (NFT) have gotten a lot of traction. According to CryptoSlam!, the all-time sales volume has already passed USD 10 billion at the time of writing, while its sales volume was only around \$97 million in 2020.** Additionally, interest in buying NFTs continues to rise globally, according to Google Trend data. Stakeholders across different industries including art, music, gaming, entertainment, and sports are participating in global NFT markets; numerous platforms with various NFT products are available for consumers.



Similar to typical e-commerce platforms, different NFT marketplaces differentiate themselves to attract their target audience. Some platforms that are large in scale are usually Amazon-like, meaning a huge variety of NFTs are available for trading. Others might aim to serve specific target audiences such as gamers, art collectors, or music lovers in their respective trading platforms. Additionally, transaction costs and NFT minting fees on different platforms can vary mainly due to different blockchains being used by different platforms.

This white paper gives an overview of NFT trading platforms in different categories based on their size and target audience. Furthermore, we will

discuss how customers can choose their preferred NFT exchange platforms based on services and transaction costs. Readers interested in the NFT industry other than solely on the NFT marketplaces can find related research reports and an NFT newsletter in our research portal on [Crypto.com](https://crypto.com).

## 2. NFT Trading Platforms





Some NFT marketplaces aim to serve a myriad of products for a wide range of audiences, while others niche themselves to provide specific products for targeted audiences. This section will go through different categories of NFT marketplaces based on their sales volumes and audiences.

The NFT marketplaces discussed below are categorised as:









1. Major or large scale NFT trading platforms
2. NFT trading platforms targeting specific interest groups
3. NFT trading platforms mainly for collectors or gamers
4. New entrants to the NFT market

The NFT marketplaces covered in this article are by no means the only NFT trading platforms available. The exponential growth in the NFT market has been continuously attracting new entrants.

### 2.1 Major NFT Trading Platforms

Platforms	Features
 <b>OpenSea</b> ♦ ETH ↻ Polygon	<ul style="list-style-type: none"> <li>• The largest NFT trading platform with over half of the total recorded sales in all NFT marketplaces</li> <li>• Huge variety of NFT products, including collectibles, gaming NFTs, and artwork</li> <li>• <u>Commission</u>: 2.5% per transaction</li> <li>• <u>Royalties</u>: 0% - 10%</li> </ul>
 <b>Rarible</b> ♦ ETH	<ul style="list-style-type: none"> <li>• Community-owned decentralised platform</li> <li>• Vast variety of NFT favoured by younger target group' like Aavegotchi and SuperPunks</li> <li>• <u>Commission</u>: 5% per transaction</li> <li>• <u>Royalties</u>: 0% - 10%</li> </ul>
 <b>crypto.com</b>  CRO	<ul style="list-style-type: none"> <li>• Features NFTs from global brands: Aston Martin F1, UFC, IIHF, Philadelphia 76ers, etc.</li> <li>• Flexible payment options, including fiat payment</li> <li>• <u>Commission</u>: 0%</li> <li>• <u>Royalties</u>: 10%</li> </ul>



  ETH	<ul style="list-style-type: none"> <li>• Curated artwork from famous artists such as Beeple and José Delbo</li> <li>• <u>Commission</u>: 15% per transaction</li> <li>• <u>Royalties</u>: 5%</li> </ul>
  ETH	<ul style="list-style-type: none"> <li>• Feature digital artwork from well-known artists such as Beeple, Kenny Scharf, and Pak</li> <li>• Nifty Gateway provides off-chain NFT storages</li> <li>• <u>Commission</u>: 5% plus 30 cents per transaction</li> <li>• <u>Royalties</u>: 5% - 50%</li> </ul>
  BSC	<ul style="list-style-type: none"> <li>• Popular NFTs in mystery boxes with gaming, anime, or fashion NFT items</li> <li>• <u>Commission</u>: 1% per transaction</li> <li>• <u>Royalties</u>: 1%</li> </ul>
  SOLANA	<ul style="list-style-type: none"> <li>• Feature in collectibles such as Aurory, Degenerate Ape Academy, and SolPunks</li> <li>• <u>Commission</u>: 3% per transaction</li> <li>• <u>Royalties</u>: Artists' choices</li> </ul>

*\*Information regarding fees obtained from platforms' webpages.*


[OpenSea](#) is a decentralised online exchange platform for digital goods including NFTs. It was founded by Alex Atallah and Devin Finzer in 2018. Its blockchain technology is mainly based on Ethereum but it also supports Polygon. According to data from [DappRadar](#), OpenSea has recorded a total of over 600K traders and a total sales volume of over \$11 billion as of the time of writing. In comparison, the total sales volume of all platforms is only around \$20 billion. OpenSea is commonly regarded as the largest trading platform selling NFTs from popular profile picture (PFP) collectibles to all types of digital artworks.










[Rarible](#) is a community-owned decentralised platform for NFT trading. It is based on Ethereum blockchain technology and was founded by Alexander Salnikov in 2020. As a decentralised autonomous organization (DAO), holders of Rarible cryptocurrency, RARI, have voting and therefore governing rights of Rarible. As recorded on [DappRadar](#), Rarible clocks a total trading volume of over \$200 million and over 81K traders. Besides trading popular NFTs like the Bored Ape Yacht Club, most NFTs tradables on Rarible fit for young audiences' tastes more than other platforms. In fact, Rarible carries a large selection of NFTs popular with younger target audiences including Aavegotchi and collectible NFTs of Hollywood stars, K-pop idols, and Japanese acting stars.

Unlike OpenSea and Rarible, other major NFT marketplaces are focusing on trading NFT artwork and collectibles from popular artists and brands. Examples are [Crypto.comNFT](#), [MakersPlace](#), and [NiftyGateway](#). These platforms usually supply rare artwork for trade; curated NFT artwork available on one platform can often only be found here. The reason behind this is some artists' and brands' strong preference to sell their artwork on particular platforms and that platforms partner with popular artists or brands. Examples are [Aston Martin F1](#) and [UFC](#) on Crypto.comNFT, [Beeple's](#) artwork on MakersPlace, and [Kenny Scharf](#) on NiftyGateway.

[Binance NFT](#) and [Solartart](#) are two other major platforms. Binance NFT based on Binance Smart Chain technology is a subsidiary of the cryptocurrency exchange Binance, and Solartart based on the Solana blockchain is part of the Solana ecosystem. Even though both platforms have only been introduced recently, they have already attracted a lot of attention. For example, the [Mystery Box](#) collection series on Binance NFT, and the [Degenerate Ape Academy](#) project on Solartart are some of the current NFT favourites for NFT collectors. In fact, Degenerate Ape Academy has already recorded total sales of over 1000K **\$SOL**, equaling over \$200 million as of 25 October 2021.

## 2.2 NFT Platforms for Special Interests

Platforms	Features
<p>CHRISTIE'S</p> <p>Sotheby's</p>	<ul style="list-style-type: none"> <li>• Traditional auction houses joining into trading NFT fine arts</li> <li>• Feature popular and expensive NFTs ranging from artwork by Beeple to Bored Ape Yacht Club and CryptoPunks collectibles                             <ul style="list-style-type: none"> <li>◦ Beeple's 'Everydays: the First 5000 Days' was sold at \$69.3 million through Christie's</li> <li>◦ A set of 107 Bored Ape Yacht Club NFTs was sold at \$24.4 million through Sotheby's</li> </ul> </li> </ul>
 <p>Kalamint BETA</p> <p>TEZOS</p>	<ul style="list-style-type: none"> <li>• Favoured by individual artists and newcomers for its low gas fee from TEZOS blockchain</li> <li>• <u>Commission</u>: N/A</li> <li>• <u>Royalties</u>: Artists' choice</li> </ul>

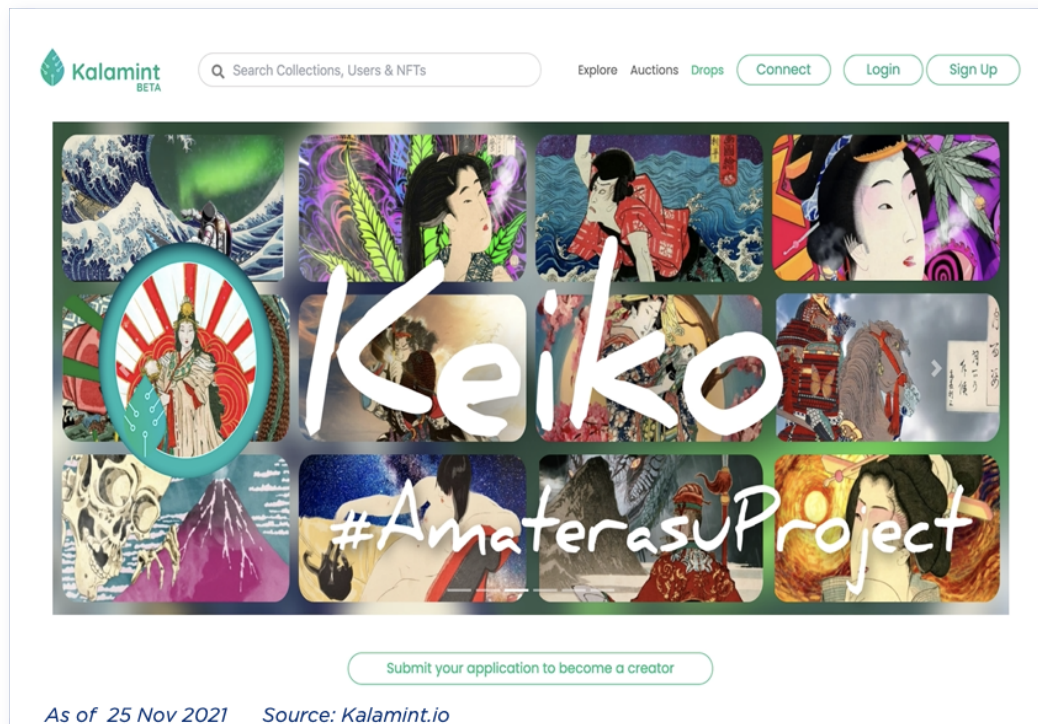
 	<ul style="list-style-type: none"> <li>• Music related NFTs</li> <li>• <u>Commission:</u> <ul style="list-style-type: none"> <li>◦ Credit Cards: 2.9% &amp; \$0.30 per transaction</li> <li>◦ Coinbase: 1% per transaction for cryptocurrency</li> <li>◦ OneOf Marketplace Credit: Free of charge</li> </ul> </li> <li>• <u>Royalties:</u> Artists' choice</li> </ul>
 	<ul style="list-style-type: none"> <li>• Generative music conceived through mathematical randomness</li> <li>• <u>Commission:</u> 2% per transaction</li> <li>• <u>Royalties:</u> 8%</li> </ul>
  	<ul style="list-style-type: none"> <li>• Music producers can issue security NFTs that are sold on investment platform Republic</li> <li>• <u>Royalties</u> shared by the investors when the songs or albums are released</li> <li>• <u>Commission:</u> 6% (2%) of the successful targeted funds raising for commission fee (crowd safe fee).</li> </ul>
 	<ul style="list-style-type: none"> <li>• Allow users to collateralise their NFTs</li> <li>• <u>Commission:</u> Borrowers pay 0.1% (0.2%) for \$HRD (other crypto) transactions</li> <li>• <u>Royalties:</u> NA</li> </ul>

*\*Information regarding fees obtained from platforms' webpages.*

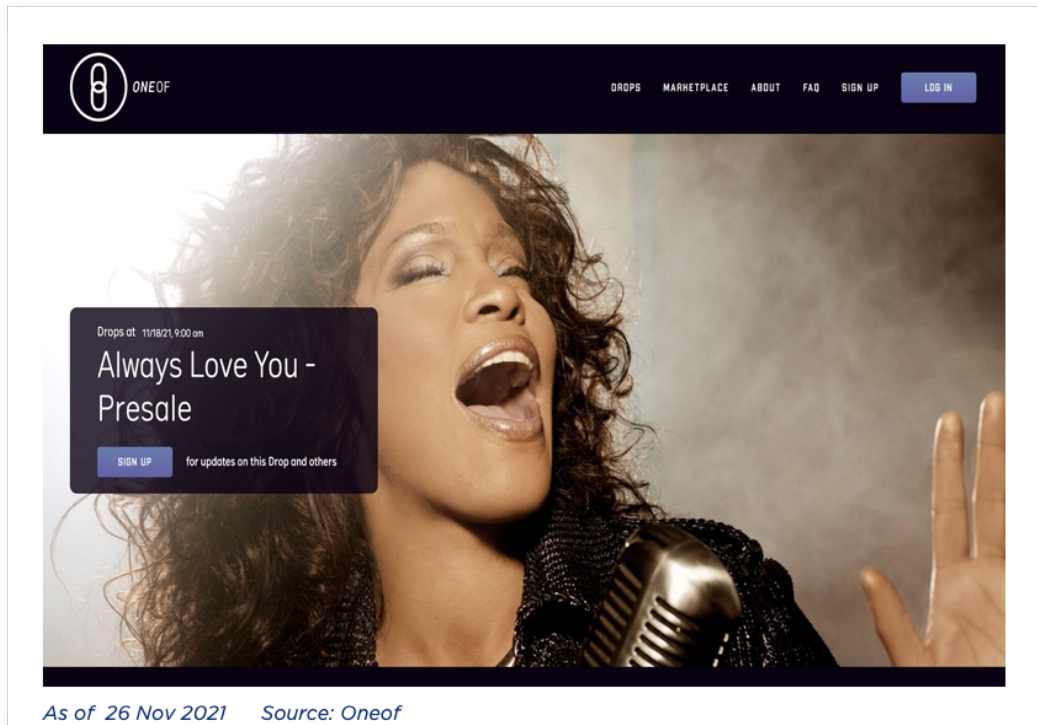
Besides major NFT platforms, there are those that serve specific interest groups. Compared to major marketplaces, these NFT platforms target audiences that are usually smaller in size. The NFTs available on these platforms usually belong to the same category.

As NFT artwork began to attract high demand, traditional art galleries and auction houses like [Sotheby's](#) and [Christie's](#) entered the high-end NFT artwork trading business with the help of blockchain companies Artory Blog and APENT, respectively. They have recorded some of the highest sales amounts in NFT trading. For example, Christie's auctioned Beeple's 'Everydays: the First 5000 Days' at \$69.3 million in March 2021, and Sotheby's held an auction for a set of 107 Bored Ape Yacht Club NFT collectibles with sales totalling \$24.4 million in September 2021. [UNXD](#), a luxury NFT platform, also recently hosted the sale of the first Dolce & Gabbana NFT collection for a total of \$5.7 million.

On the other end of the spectrum are NFT platforms focusing on hosting affordable artwork. Freelance or new entrant artists can find it difficult to initiate trades on mainstream NFT platforms. Many popular artists and brands are already available on the mainstream platforms, creating an entrance barrier for less famous artists.

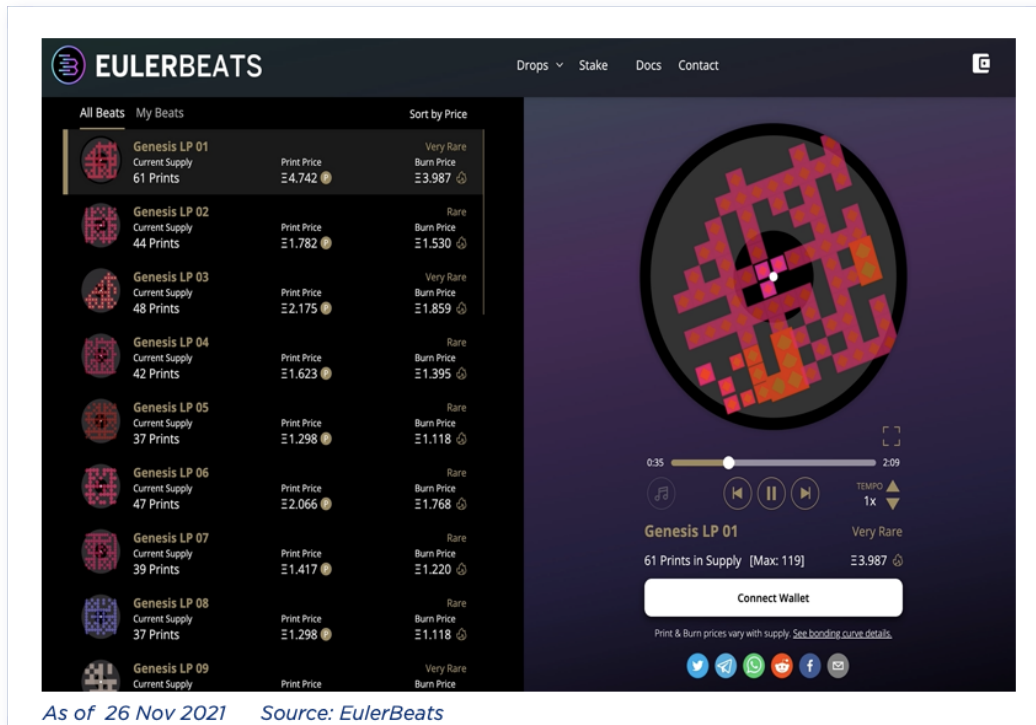


[Kalamint](#) is an NFT marketplace based in India. It promotes itself as a zero tolerance of plagiarism and an energy-efficient platform for NFT trading. The platform has a validation vetting process and an NFT registry mechanism for all sellers; aiming to eliminate copy-minting. Furthermore, low gas fees of the proof of stake TEZOS blockchain afford low transaction costs for NFTs trading on the platform; [Kalamint Info](#) states that the average minting cost for each NFT edition ranges from 10 to 30 cents.



The music industry also benefits from dedicated NFT marketplaces. [Oneof](#) is an NFT exchange platform that trades only music related NFTs. The low minting costs of the proof of stake TEZOS blockchain has attracted both newcomers and individual musical artists. The platform allows music creators to pre-set the resale royalties of their NFT products; returning a certain percentage of the resale proceedings to the music creator promotes new music.

Similar to the approach of generative art collections, the music industry is also exploring the generative music approach. Unique music can be generated programmatically by mixing different algorithms to get different outcomes. These NFT music pieces are algorithmically generated by a mathematical function. Each time an NFT is minted, different tunes are generated. For this, the token seed is used to create a song; buyers do not know the sound of the piece in advance.



One such NFT platform for trading generative musical pieces is [EulerBeats](#), named after famous mathematician Leonhard Euler as its mathematical functions and algorithms are all based on his calculations. On top of being an NFT marketplace, EulerBeats also created an [EulerClub](#) allowing fans and creators to meet in the Cryptovoxels Metaverse.


Some NFT platforms target the appetite of asset investors and promote NFT trading, incorporating decentralised finance (DeFi) services to facilitate their NFT trading services on their platforms.

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Invest in Lil Pump's new single and share in the royalties

MUSIC



**SOLD OUT**

**\$500,000**

Maximum funding goal reached

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**854**

Investors

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**5 days**

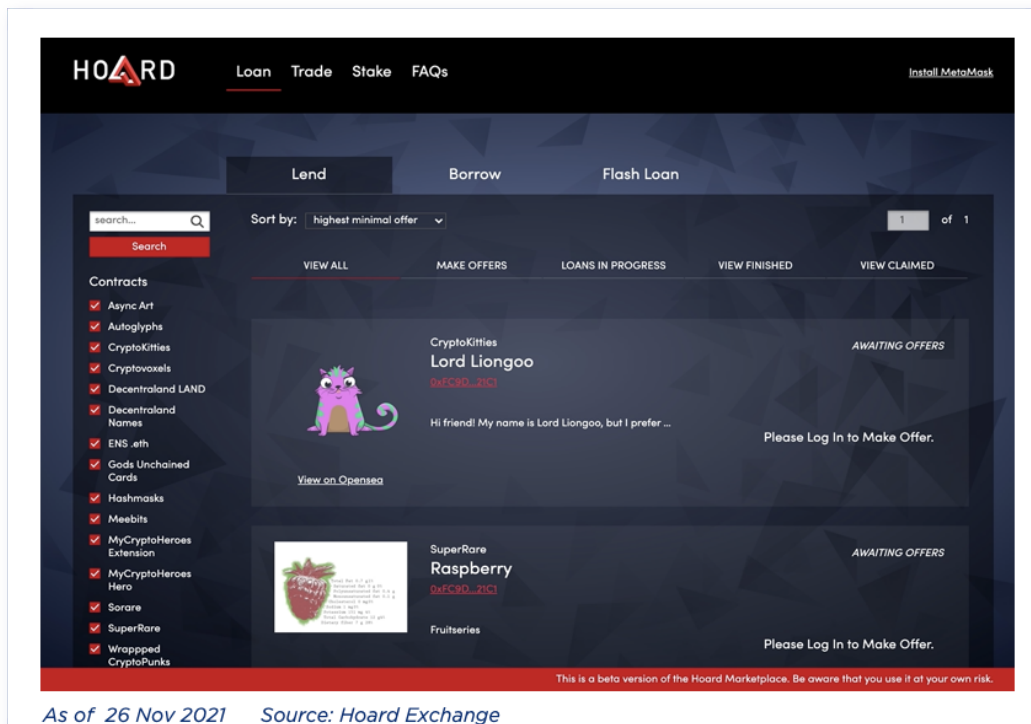
Left to invest

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*As of 26 Nov 2021 Source: Republic Music Investing*

[Republic](#) music is a music investment platform. It is partnering with DeFi company [Opulous](#), giving investors access to security NFTs for new musical pieces. Music producers can obtain funding for musical creations, while investors of the security NFTs earn part of the sales revenue of the songs or albums once they are released.



[Hoard Exchange](#) is an NFT DeFi trading platform. As such, users can trade, loan, and rent NFTs on the platform. Additionally, NFT owners can collateralise their NFTs including collectibles, game items, and digital artwork for digital loans through a peer-to-peer system on the platform. The platform also provides a flash loan DeFi service; flash loan financing doesn't require any collateral, with the whole transaction nullified if the borrower can not repay the loan.

## 2.3 Collectibles & Gaming NFT Platforms

Platforms	Features
	<ul style="list-style-type: none"> <li>• Video clips and highlights of NBA</li> </ul>



<p><b>BA  YC</b></p> <p><b>CryptoPunks</b></p> <p> <b>CryptoCats</b></p> <p>◆ ETH</p>	<ul style="list-style-type: none"> <li>• Popular PFP collectibles</li> <li>• Community based</li> <li>• Potential commercial rights of NFT avatars</li> </ul>
<p> <b>CrypToadz</b></p> <p> <b>KaijuKingz</b></p> <p> <b>MekaVerse</b></p> <p>◆ ETH</p>	<ul style="list-style-type: none"> <li>• PFP newcomers</li> <li>• Community based but usually at an early stage of development</li> </ul>
<p> <b>AXIE INFINITY</b></p> <p>RONIN ◆ ETH</p> <p><b>ZED RUN</b> </p> <p> <b>sorare</b></p> <p> <b>GODS UNCHAINED</b></p> <p>◆ ETH</p>	<ul style="list-style-type: none"> <li>• Gaming NFTs in pets, horses, cards, etc.</li> <li>• NFTs used to enhance gaming utility and provide competitive edges for gamers</li> <li>• NFTs fit into play-to-earn style</li> </ul>
<p> <b>Decentraland</b></p> <p> <b>THE SANDBOX</b></p> <p>◆ ETH</p>	<ul style="list-style-type: none"> <li>• Metaverse environment with NFTs in virtual lands, avatar clothes, event tickets, etc.</li> </ul>

Digital collectibles have firmly established themselves as the most popular NFT categories. Even though major NFT platforms like OpenSea and Rarible carry popular collectibles, most collectible producers have their own marketplaces for primary sales and resales.

Launched last year, [NBATopShot](#) has drawn significant attention globally. It mainly carries valuable NBA game clips, NBA stars' interviews, and NFT collectibles. Founded by Dapper Labs, using their own Flow blockchain, the platform has recorded a total sales volume of over \$700 million with logged traders of over 500K based on data by [DappRadar](#). Currently, the most expensive single piece of NFT sold on the platform is the LeBron James 'Cosmic' Dunk at a price of \$208,000. As NBATopShot has become so popular,

Dapper Labs is also partnering with the NFL, another sports household name, to launch a similar project.

[Bored Ape Yacht Club](#), [Cryptopunks](#), and [Cryptocats](#) are main stake PFP collectible projects by now; Yet from time to time, interesting newcomers such as [CrypToadz](#), [Kaiju Kingz](#), and [Mekaverse](#) join their ranks. Festive PFP collectibles like [Pumpkinmons](#) and [HalloweenBears](#) also emerge around holiday seasons. To attract audiences and publicity, collectibles enter crossovers with esports teams, like the collaboration between [Aurory](#) and [TXM](#). Furthermore, some popular PFP collectibles established themselves as prestigious communities. Owning the PFP collectible provides community membership exclusive rights including virtual club events or voting rights for governing. Besides that, owners of PFP collectibles also have commercial rights to the NFT products in some cases. This enabled the metaverse bands featuring Bored Ape Yacht Club NFTs that recently made the news.

Some NFT collectibles have more than an aesthetic purpose; they also serve as a gaming utility. Axies are used in the [Axie Infinity](#) game environment for game battles. NFT stallions in [Zed](#) are used in horse racing in the game. Player and creature cards as NFTs are the main part of gaming in [Sorare](#) fantasy football and [Gods Unchained](#) respectively. In general, the introduction of in-game NFTs has provided a huge opportunity for the crypto gaming industry to transform from a play-to-win to a play-to-earn environment.

Besides gaming, NFT trading on metaverse platforms enhances user experience or even their investment portfolio in virtual reality. One such platform in a metaverse environment is [Decentraland](#). Reuters reported that a virtual plot of land NFT in Decentraland was sold for close to \$1 million. Another example of NFTs in the metaverse is [The Sandbox](#). NFTs on these platforms can take many forms from collectibles and virtual assets to tickets to a virtual event. Besides asset trading, NFT artwork collectors nowadays also host digital artwork exhibitions in the metaverse; entry tickets or memberships are sold as NFTs. Effectively, the metaverse provides a censorship-free environment for people where NFTs are produced and traded to cater to the users' needs with few restrictions.

## 2.4 Newcomers

Platforms	Features
 	<ul style="list-style-type: none"> <li>• Cryptocurrency exchange platforms expand to the NFT market</li> <li>• At early developing stages; details including fee and platform structures yet to be announced</li> </ul>
	<ul style="list-style-type: none"> <li>• Blockchain software technology company expands to the NFT market</li> </ul>
 	<ul style="list-style-type: none"> <li>• An exchange platform similar to OpenSea in structure</li> <li>• <u>Commission</u>: 0%</li> <li>• <u>Royalties</u>: Artists' choice</li> </ul>
 multi-chain	<ul style="list-style-type: none"> <li>• Developing as a DAO NFT platform</li> <li>• Targeting a user-friendly interface for NFT sellers; no prior knowledge in coding is required</li> </ul>
 	<ul style="list-style-type: none"> <li>• Subsidiary of SushiSwap</li> <li>• Developing a metaverse shopping environment</li> <li>• <u>Commission</u>: 2.5%</li> <li>• <u>Royalties</u>: Artists' choice</li> </ul>
  OEC  ETH	<ul style="list-style-type: none"> <li>• A subsidiary of OKEx cryptocurrency exchange</li> <li>• <u>Commission</u>: 0%</li> <li>• <u>Royalties</u>: Artists' choice</li> </ul>

*\*Information regarding fees obtained from platforms' webpages.*

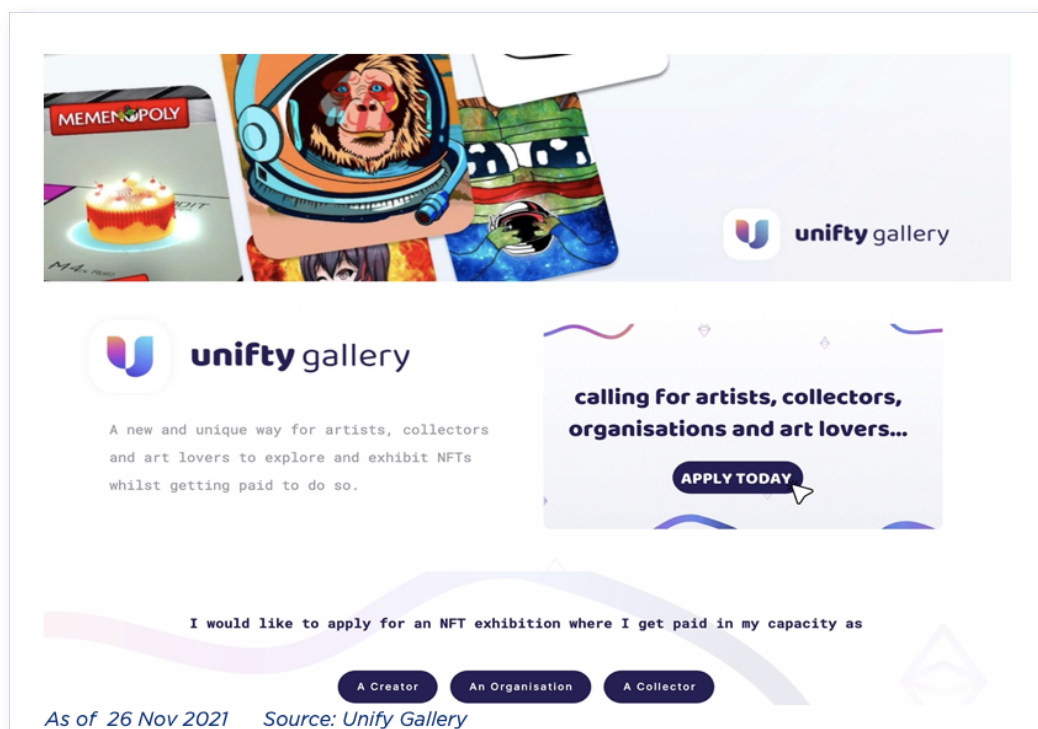
As the demand for NFTs increases, more companies are opening NFT marketplaces. One group are large crypto-related corporations. They are usually blockchain developers or cryptocurrency exchange companies and thus can easily expand into the NFT market as experienced blockchain players.

Besides [BinanceNFT](#) and [Solart](#) already discussed above, other blockchain developers and cryptocurrency exchange platforms like [Coinbase](#), [Fantom](#),

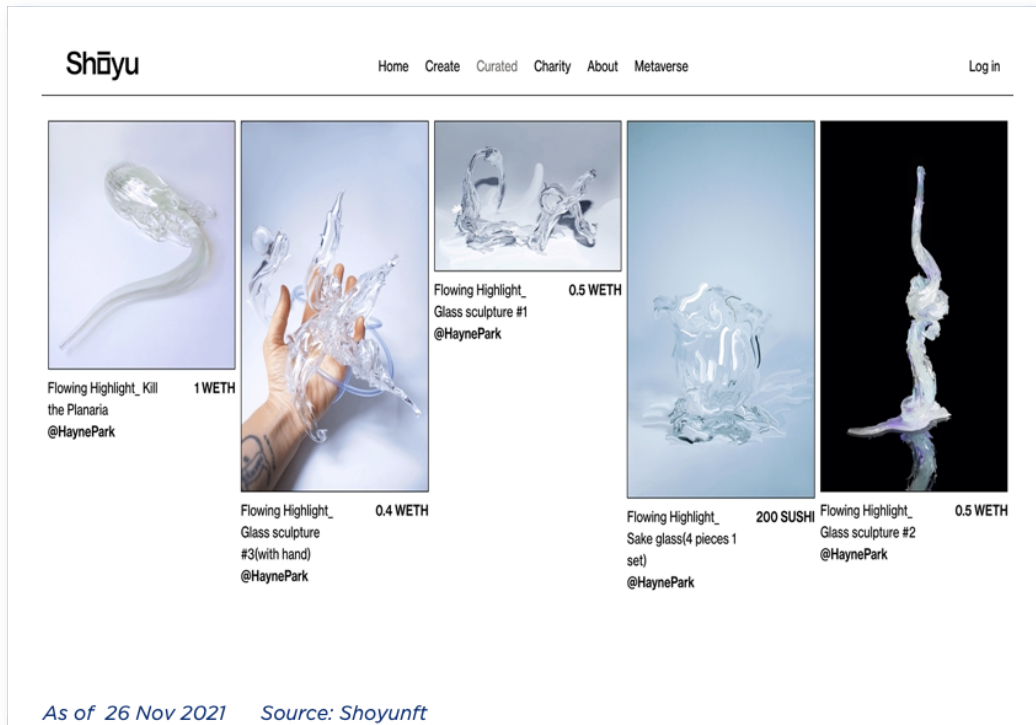
[FTX](#), and [ConsenSys](#) are showing interest in NFT platforms; some are already running.

Coinbase, a listed company on the Nasdaq exchange, is the largest cryptocurrency exchange in the United States. The company announced its intention to launch the [CoinbaseNFT](#) marketplace by the end of this year. Although details and structure of the Coinbase NFT marketplace have yet to be disclosed, over 2 million people have already signed up to its NFT marketplace waitlist, based on a report by Cointelegraph.

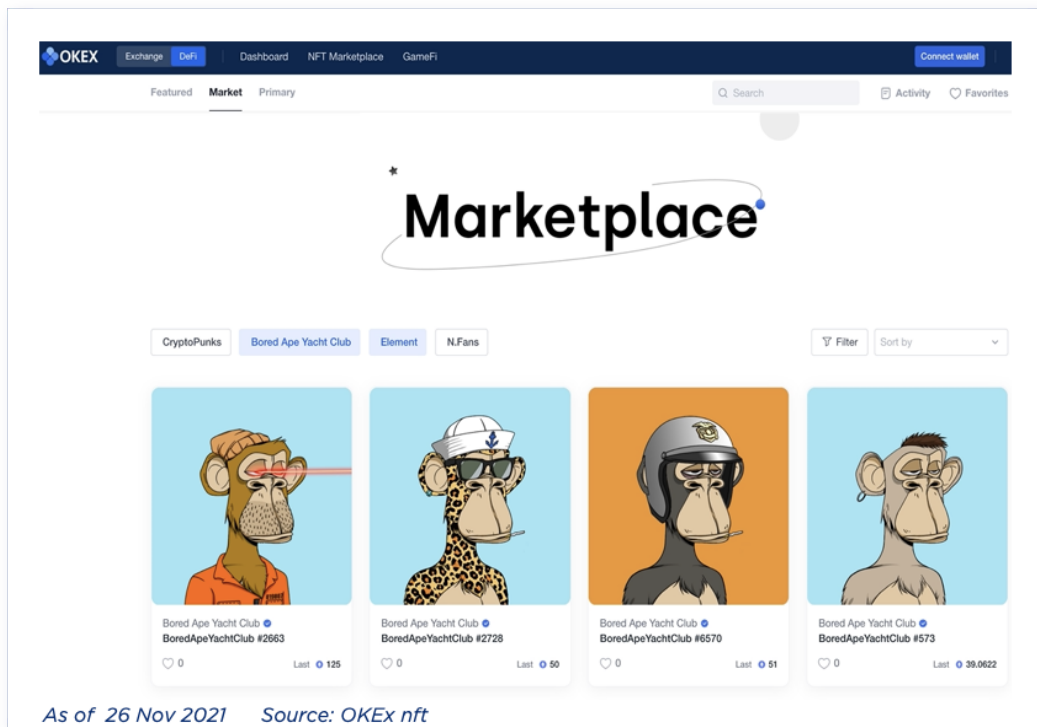
[Artion](#) is an NFT marketplace backed by the Fantom blockchain. Its setting is similar to major NFT marketplaces like OpenSea. The platform charges zero commission and offers a fixed token price of 10 **\$FTM** for minting each NFT. It revealed plans to add [Anyswap's](#) Ethereum-Fantom NFT bridge for interoperability with Ethereum. The platform also features NFT items from [Loot & Rarity](#), a game created by the chair of Fantom Foundation Andre Cronje.



Still, at an early developing stage, [Unify Gallery](#) is a multi-chain NFT trading platform. It promotes itself as an easily accessible platform with low transaction costs for artists. The platform offers simple settings for artists to create smart contracts without any prior knowledge in coding. As a DAO, Unify will also release governance token **\$UNT**.



[Shoyu NFT](#) platform is backed by SushiSwap. It will be fully launched in early 2022. The platform will be fully integrated into a metaverse environment; shoppers can browse through different NFT products offering a similar experience to taking tours at museums in virtual reality. To attract investors, SushiSwap also offers **\$SUSHI** holders who have invested tokens on Shoyu NFT receive commissions for every NFT transaction on the platform.



The [OKEx](#) NFT trading platform allows NFT creators to [set their own royalty rates](#); this is in contrast with major NFT platforms such as OpenSea which has the royalties set to be no more than 10%. Currently, the platform also doesn't collect any commission. These tactics aim to attract NFT listings, and seem to have an effect as the OKEx NFT trading platform is carrying popular collectibles from Bored Ape Yacht Club and CryptoPunks.

Besides companies already focused on blockchain development, other corporations including social media giants are also interested in the NFT markets. One example is the [Reddit NFT](#). Still at a test launching phase, the platform is featuring special avatar CryptoSnoo collectibles that are available on OpenSea. Other companies include [TikTok](#) partnering with Immutable X, and [Facebook](#), under its new brand Meta, which aims to support NFT trading. The jury is still out, however, on how decentralised these platforms really are.

## 3. Choosing NFT Marketplaces

**Customer support and transaction costs are two key determining factors in the choices of NFT marketplaces.** We have gone through some of the current NFT marketplaces, but which platform would serve you the best? In this section, we discuss the services provided by the NFT marketplaces and the blockchains used by different NFT trading platforms affecting transaction costs. They are the two fundamentals that govern how an NFT exchange platform grows and evolves.

### 3.1 NFT Marketplaces Services

As discussed before, some NFT marketplaces like OpenSea, Rarible, Artion, and OKEx target a wide range of audiences with huge varieties of products, while other NFT marketplaces are curating differentiated products for the target audiences. One can shop for big brand NFT products such as F1 or UFC at major marketplaces such as Crypto.com. Or one could go to major marketplaces or producers' webpages to shop for hot collectibles. Music producers and lovers likely go for NFT platforms targeting music audiences. Therefore, knowing the NFT products provided by different platforms helps customers to narrow down their searching areas; this is what section 2 of this chapter aims to do.

Even after filtering, the choices of platforms for NFT producers and consumers alike could remain many given the ever-expanding NFT market. Besides the inherited transaction costs from blockchain implementation which will be discussed below, services provided by the NFT marketplaces also directly incur transaction costs.

To become a respected exchange, the customer support of an NFT marketplace should be fulfilling for its buyers and sellers. Since all NFT exchanges happen online, a user-friendly interface is crucial to the success of an NFT exchange platform. Most buyers and sellers prefer smooth transactions without knowing much about the complexity of the underlying technology. It is up to the NFT platform to provide an easy to use interface to cater the general public. Besides cryptocurrency transactions, an excellent NFT marketplace should also include flexible payment options such as fiat payments.

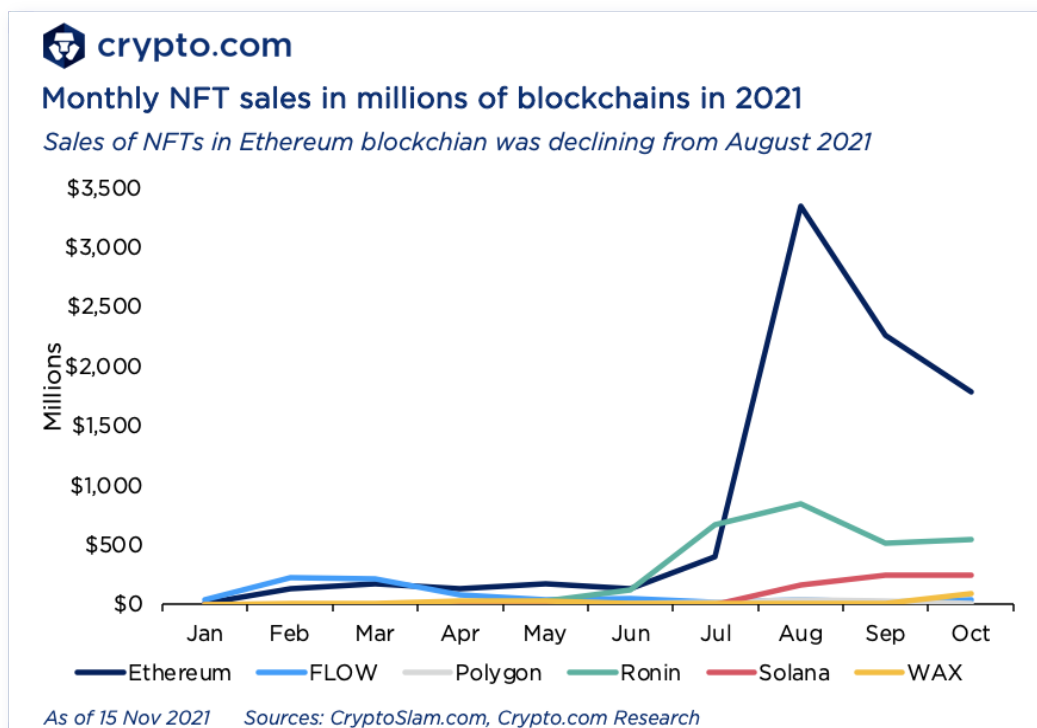
On top of that, good NFT exchange platforms should also offer a strong background in dealing with cybersecurity issues. Even though the transaction processes are done on the blockchain, NFTs are usually stored off-chain.

Therefore, NFT marketplace need to provide strong safety nets for their customers to avoid theft or loss like a recent incident on NiftyGateway. Acquiring insurance like Crypto.com did for customers’ digital assets under platforms’ custodians reimburses customers for any potential loss.

### 3.2 NFTs on the Blockchain

The ERC-721 was the first protocol representing NFTs on the Ethereum blockchain. Ever since, the Ethereum blockchain has been the dominant protocol in the NFT industry. However, as the gas fee, representing mining cost, continues to rise, transaction costs for minting NFTs have also increased. The high transaction costs disincentivise artists and consumers alike from participating in the NFT exchange market; the increase of mining costs is reflected in the transaction prices, and either buyer or seller or both have to bear the increased transaction costs.

For a complete description of blockchains used for NFT production, we take a look at data obtained from [CryptoSlam](#) for major blockchains in NFT sales throughout 2021 up until last month.

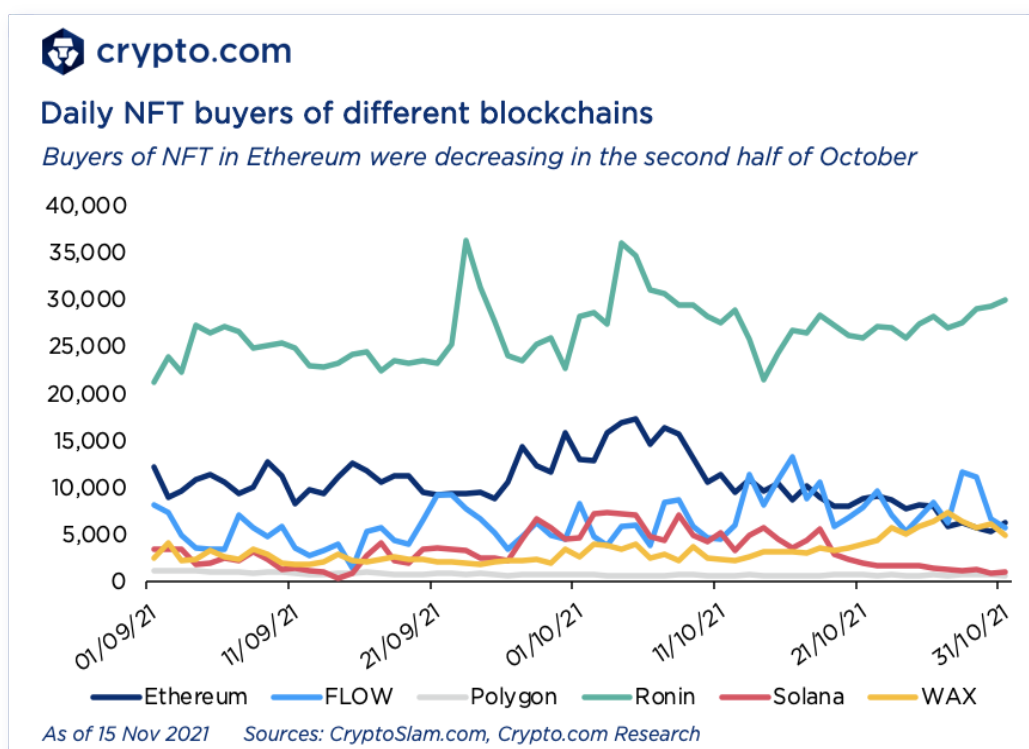


**NFTs on the Ethereum blockchain are slowing down in sales and users adoption.** Until October 2021, Ethereum was the leading blockchain used by the NFT industry but other blockchains are picking up its share as shown in



the graph. It shows that the Flow blockchain used by Dapper Labs to support the NBA TopShot recorded more sales than Ethereum in the first quarter of 2021. However, the hype of NBA TopShot did not seem to provide enough steam for a single platform using the Flow blockchain to challenge the leadership role of Ethereum after the first quarter.

Other blockchains such as Ronin, Solana, and WAX picked up the pace in sales starting in the second half of 2021. Moreover, the NFT sales based on Ethereum have shown a declining trend after they reached a peak of more than \$3.3 billion in total sales in August 2021. Its monthly decreases in total sales were more than 30% and 20% in September and October respectively.



Data for the last two months also shows that the number of NFT buyers in Ethereum declined after its peak in early October and the recorded number of users decreased from more than 17,000 to around 6,000 toward the end of October. On the other hand, FLOW and WAX had more users than Ethereum on some of the days in October.

The market has signaled that Ethereum is no longer the only choice for the NFT industry. With other blockchains claiming lower gas fees than Ethereum, we can see a market with more upcoming NFTs to be built on blockchains other than Ethereum. Lower transaction costs on other protocols is the main reason for declining sales and buyers of NFTs in Ethereum. In fact, the tide

has already changed in terms of the blockchain choices in the NFT industry with more newcomers.

**Besides security concerns, NFT exchange platforms have two other major technological considerations in choosing which blockchains are being implemented: Scalability and interoperability of different blockchains.** These two issues will directly affect the efficiency and transaction costs incurred on NFT trading platforms.

**Scalability** – The well-known comparison of transaction speed per second between Visa and Bitcoin best describes the scalability issue facing the blockchain industry. Although trading collectibles in NFTs does not always demand speedy transactions, collectors are dissatisfied when the purchasing time for the NFTs are time-sensitive (e.g. in the case of a limited listing period) but the transaction time to acquire the NFTs is too long.

The blockchain industry has already explored different solutions such as implementing new consensus mechanisms and introducing layer 2 solutions to tackle scalability issues. In time, these breakthroughs in solving scalability issues would certainly aid the overall NFT trading environment in further development.

**Interoperability** – The other major issue facing the blockchain industry is interoperability. Different blockchains are based on different technologies. To trade or transfer tokens and NFTs between different blockchains requires chain bridges technology for seamless exchange without going through fiat.

This could possibly be the reason why some newcomers such as Artion and Shoyu emphasise the upcoming implementation of chain bridges allowing NFTs to transfer from Ethereum mainnet to other blockchains. Another example of the adoption of chain bridge technology is in the NFT gaming industry. According to the blockchain game report of DappRadar, more NFT gaming platforms are based on BSC than WAX and Ethereum. This could be due to BSC having its own cross-chain bridge, even though it is a non-decentralised bridging platform.

With a thriving NFT market, interoperability between blockchains will likely affect the popularity of different NFT marketplaces; as with higher levels of interoperability, customers' incentives of participation in the exchange platform increase. Therefore, the development of chain bridging could shape the future landscape of the NFT industry, with inherited low transaction costs and high-efficiency blockchains as determining factors.

## 4. Conclusion

**The NFT market is growing, and NFT marketplaces are thriving with diversity.** In the current NFT market, major platforms function as exchanges in a wide variety of NFT products and large collections of rare NFT artwork. On this side of the playing field, newcomers with a background in blockchain are joining. On the other side, platforms small in size that aim to attract targeted audiences such as luxury lovers, fine art collectors, or music enthusiasts are ramping up their game. Sports fans and gamers participate in their favourite sports and gaming NFT marketplaces. Besides existing players in the blockchain industry, social media platforms without previous experience in crypto are also starting to show interest in the NFT market.

Fundamentally, NFT marketplaces are goods exchange platforms that serve buyers and sellers. Good customer service including a handy user interface and strong safety net is essential for an NFT marketplace to thrive. Additionally, NFTs are based on blockchain technology, with the fundamental development of blockchains essential for NFT development. The technological advancement of the blockchain industry in scalability and interoperability are therefore tightly interwoven with the future of the NFT industry.

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